May 7, 2013

Edna Green
Grants Management Specialist
Centers for Disease Control and Prevention
2920 Brandywine Road, MS E-15
Atlanta, GA 30341-4146

Dear Ms. Green

Enclosed please find an original and two copies of the Florida Department of Health, Division of Disease Control and Health Protection, TB Control Section Annual Progress Report for 2012. This report documents our progress towards national and state objectives. The report reflects the status of our progress for the period January 1, 2012 through May 7, 2013.

If you have any questions or need any additional information please contact Carol Tanner, RN or Dennis Nye at (850) 245-4350.

Respectfully,

Carol Tanner, RN, MSN
Acting TB Control Section Administrator
Division of Disease Control and Health Protection
TB Control Section

Enclosure

cc: Gail Burns-Grant, Program Consultant
Centers for Disease Control and Prevention

2012

Annual Progress Report

Tuberculosis Control Section

Tuberculosis Controller, Interim: Carol Tanner, RN, MSN, LHRM, CPHQ

Email address: Carol_Wright-Tanner@doh.state.fl.us

As of May 7, 2013

TABLE OF CONTENTS

ATTACHMENTS

ABBREVIATIONS

AFB	Acid-fast Bacilli
AGH	A.G. Holley State Hospital
AHCA	Agency for Health Care Administration
AIDS	Acquired Immune Deficiency Syndrome
ARPE	Aggregate Reports for Tuberculosis Program Evaluation
ATS	American Thoracic Society
BPHL	Florida Department of Health, Bureau of Public Health Laboratories
CDC	Centers for Disease Control and Prevention
CHD	County Health Department
CI	Correctional Institution
CLIA	Clinical Laboratory Improvement Amendments
COT	Completion of Treatment
CPR	Cardiopulmonary Resuscitation
CT	Computed Tomography
CXR	Chest X-ray
DCHP	Florida Department of Health, Division of Disease Control and Health Protection
DGMQ	CDC, Division of Global Migration and Quarantine
DIS	Disease Intervention Specialist
DOH	Florida Department of Health
DOT	Directly Observed Therapy
DST	Drug Susceptibility Testing
EAG	Executive Advisory Group
EDN	Electronic Disease Notification
ELO	Electronic Laboratory Ordering
ELR	Electronic Laboratory Reporting
EMB	Ethambutol
FESS	Department of Health, Tuberculosis Control Section, Field and Epidemiological Services Section
FSTBC	Florida System of Tuberculosis Care
FTE	Full Time Equivalent
Hain	Hain Genotype® MTBDR*Plus*
HIPAA	Health Information Portability and Accountability Act
HIV	Human Immunodeficiency Virus
HMS	Health Management System
HPLC	High Performance Liquid Chromatography
ICE	Immigration and Customs Enforcement
IDSA	Infectious Diseases Society of America
IGRA	Interferon Gamma Release Assay
inhA	Point mutation on a *Mycobacterium tuberculosis* gene indicating resistance to Isoniazid.
INH	Isoniazid
IOM	International Organization for Migration
katG	Point mutation on a *Mycobacterium tuberculosis* gene indicating resistance to Isoniazid.
LJ	Lowenstein-Jensen
LIMS	Laboratory Information Management System
LTBCP	Local TB Control Program
LTBI	Latent Tuberculosis Infection
MCD	Medical Consultation Database

MDR	Multi-drug Resistance
MDR TB	Multi-drug Resistant Tuberculosis
MIC	Minimum Inhibitory Concentration
mm	Millimeter
MMWR	Morbidity and Mortality Weekly Report
MRI	Magnetic Resonance Imaging
MTBC	M. tuberculosis Complex
MTD	Mycobacterium Tuberculosis Direct Test
NAAT	Nucleic Acid Amplification Test
NCM	Nurse Case Manager
NTCA	National Tuberculosis Controller Association
NTIP	National Tuberculosis Indicators Project
PCR	Polymerase Chain Reaction
PHIN	Public Health Information Network
PHLIP	Public Health Laboratory Interoperability Project
PRA	Polymerase Chain Reaction Restriction Analysis
PZA	Pyrazinamide
QA/QC	Quality Assurance/Quality Control
RBT	Rifabutin
RIF	Rifampin
rpoB	Point mutation on a *Mycobacterium tuberculosis* gene indicating resistance to Rifampin.
RTMCC	Regional Training and Medical Consultation Center
RT-PCR	Real-Time Polymerase Chain Reaction
RVCT	Report of Verified Case of Tuberculosis
SIG	Special Interest Group
SM	Streptomycin
SNTC	Southeastern National Tuberculosis Center
STD	Sexually Transmitted Disease
TAT	Turnaround Time
TB	Tuberculosis
TBCS	Florida Department of Health, Tuberculosis Control Section
TBETN	Tuberculosis Education and Training Network
TBGIMS	Tuberculosis Genotyping Information Management System
TBPEN	Tuberculosis Program Evaluation Network
TBPN	Tuberculosis Physician's Network
TIMS	Tuberculosis Information Management System
TNN	Tuberculosis Nurse Network
TST	Tuberculin Skin Test
US	United States
VA	Veterans Administration
XDR TB	Extensively Drug-resistant Tuberculosis

FLORIDA DEPARTMENT OF HEALTH
Division of Disease Control and Health Protection
Bureau of Communicable Diseases
Tuberculosis Control Section
Annual Progress Report
(January 1, 2012— December 31, 2012)

EXECUTIVE SUMMARY

This report addresses CDC cooperative agreement recipient projects to support activities for tuberculosis (TB) prevention and control in Florida. This report also provides a brief overview of the impact of risk factors in the epidemiology of TB in Florida, and addresses Florida TB Control Section (TBCS) performance for program objectives.

In 2012, the Florida State Legislature passed a bill that directed the Florida DOH to close the last TB sanitarium in the United States. The facility was closed on July 1, 2012; Florida's System of Tuberculosis Care (FSTBC) will provide the framework to continue reducing the number of tuberculosis cases in the state and reach our goal of no more than two TB cases per 100,000 population by 2020. The system outlines a model of care for TB that is patient-centered and community-based (see below). Full implementation of the FSTBC is expected to reduce the need for hospitalization of TB patients by expanding community-based care options.

Chapter 392.53, Florida Statutes requires reporting of suspected or confirmed active TB cases to the Florida DOH. The Florida DOH TBCS is responsible for reducing tuberculosis in the state by administering of a statewide TB program that supports the FSTBC. The key strategies of this effective TB program are:

- ***Treat to cure*** patients with active TB disease in a safe environment that protects the public.
- ***Protect*** close contacts of patients with active TB disease.
- ***Prevent*** future TB disease by identifying and treating latent TB infection.
- ***Ensure*** infection prevention practices are in place in facilities with individuals at high risk for TB transmission.
- ***Monitor and evaluate*** performance to ensure that data-driven interventions improve program activities.

The FSTBC is founded upon proven public health practices, standards and evidence-based TB control strategies. This patient-centered, community-focused and population-based system of care provides the accountability and adaptability necessary to reduce the rate of TB in our state. The cornerstone of the system is a holistic assessment of each person's needs combined with intensive case management and effective outreach to ensure every patient with active disease remains under medical supervision until completion of curative therapy.

The FSTBC organizes TB control activities into three Levels of Care that are mutually supportive, coordinated and patient-centered. Upon initial entry into the System, the Level of Care is determined for each patient and then reassessed throughout the course of treatment. Patients with active TB will move seamlessly across the Levels of Care based on their needs. The goal for all patients is the provision of treatment in, or as close as possible to, their communities in a manner that protects those communities. All persons with LTBI infection are managed at Level 1. A summary of each Level of Care is provided below:

TB Level of Care Accountability Functions

Level 1 Local Public Health System (coordinated through 67 – Local CHDs)

- Manages 90% of active TB cases
- Provides patient and contact identification, diagnosis, treatment and follow-up in home county
- Manages medical and social issues for moderate to moderately complex patients

Level 2 Area TB Network (8 Multi-county Catchment Areas)

- Supports the management of 5% of active TB cases
- Provides specialized medical, social or mental health beyond the scope of Level 1
- Provides access to recognized TB specialists for consultation
- Coordinates individual case and cohort reviews

Level 3 Contracted Hospital Services

- Provides hospital services to 5% of active cases
- Manages non-compliant and/or moderately severe to severely complicated patients through in-patient hospitalization services
- Provides access to highly specialized TB experts

Notably, the Florida Department of Health (DOH) was recognized by the Association of State and Territorial Health Officials (ASTHO) with the 2012 Vision Award for the Florida Multidrug-Resistant (MDR) Tuberculosis (TB) Screening Program. Florida implemented a universal screening process of highly infectious TB patients for MDR TB in July 2009 to foster the most rapid detection of multidrug-resistant tuberculosis patients. This process promptly indicates the need to change the treatment regimen to assure the cure. As a result of implementing this protocol, 31 Florida TB patients (single or MDR) were more accurately diagnosed during 2010-11, ensuring appropriate treatment, minimizing transmission, and providing patients the best chance of being cured. With an earlier diagnosis of drug-resistant TB, the patient receives adequate treatment faster, thus shortening the time period of transmission.

I. REPORTED TB CASES AND CASE RATES

TB continues to be a public health threat in Florida. However, there was almost a 10 % decrease in TB cases between 2011 and 2012 from 749 to 679 (as of January 31, 2013). Table 1 provides a presentation of cases by demographic characteristics; Table 2 shows the same data by rates. The Florida overall case rate for 2012 was 3.5 per 100,000. The Black/African-American case rate decreased to 8.1 per 100,000, and is three times higher than the case rate for Whites. From 2008-2012, there was a 43% change in the rate for Black/African Americans or a decrease of 6.0 per 100,000. The Hispanic case rate declined from 7.0 to 3.9 per 100,000 over the same time period. The 2012 case rate for the Non-Hispanic population was 3.4 per 100,000. Among the foreign-born population this rate was 9.2 per 100,000 Florida residents, foreign-born comprised 50% of the 2012 TB morbidity. There was a 17% increase in cases reported from correctional facilities.

REPORTED TB CASES 2008-2012[+]

Table 1	REPORTED TB CASES FOR FLORIDA 2008-2012*									
Year	2008		2009		2010		2011		2012	
Cases	957		822		835		749		679	
VARIABLES	#	%	#	%	#	%	#	%	#	%
SEX										
Male	617	64	522	64	531	64	488	65	421	62
Female	340	36	300	36	304	36	261	35	258	38
RACE										
White	464	48	390	47	444	53	349	47	355	52
Black/African-American	394	41	344	42	290	35	297	40	249	37
Asian	97	10	79	10	95	11	93	12	72	11
American Indian/Alaska Native	1	<1	3	<1	2	<1	3	<1	0	0
Hawaiian/Other Pacific Islander	1	<1	2	<1	3	<1	7	1	1	<1
Multi-Racial	0	0	0	0	1	<1	0	0	2	<1
Unknown	0	0	2	<1	0	0	0	0	0	0
Other	0	0	2	<1	0	0	0	0	0	0
ETHNICITY										
Hispanic	256	27	210	26	251	30	196	26	173	25
Non-Hispanic	701	73	612	74	584	70	553	74	506	75
Unknown	0	0	0	0	0	0	0	0	0	0
AGE										
0-14	47	5	28	3	54	6	38	5	30	4
15-24	93	10	69	8	71	9	57	8	60	9
25-44	280	29	287	35	272	33	215	29	201	30
45-64	374	39	285	35	292	35	295	39	255	37
≥65	163	17	153	19	146	17	144	19	133	20
Unknown	0	0	0	0	0	0	0	0	0	0
SITE OF TB										
Pulmonary	777	81	667	81	652	78	562	75	543	80
Extrapulmonary	152	16	127	15	160	19	174	23	111	16
Both	28	3	28	3	23	3	2	<1	25	4
Site Not Stated	0	0	0	0	0	0	11	1	0	0
COUNTRY OF ORIGIN										
United States	492	51	410	50	416	50	354	47	337	50
Foreign born	465	49	410	50	419	50	395	53	342	50
Unknown	0	0	2	0	0	0	0	0	0	0

*Data source: TIMS 2008; 2009-2012 data source for all TB data retrieved from HMS. Some percentages do not equal 100% because of rounding. Data were retrieved on January 31, 2013. [+]Data reflect case counts as of the CDC mandated annual final case count.

TB CASE RATES 2008-2012

Table 2	FLORIDA TB CASE RATES FOR 2008-2012*†									
Year	2008		2009		2010		2011		2012	
VARIABLES	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
Cases	957	5.0	822	4.4	835	4.4	749	4.0	679	3.5
SEX										
Male	617	6.6	522	5.7	531	5.8	488	5.3	421	4.5
Female	340	3.5	300	3.1	304	3.2	261	2.7	258	2.6
RACE										
White	464	3.3	390	2.6	444	2.9	349	2.5	355	2.5
Black/African-American	394	14.1	344	11.0	290	9.3	297	9.9	249	8.1
Asian	97	24.4	79	19.7	95	22.7	93	20.4	72	15.5
American Indian/Alaska Native	1	1.7	3	5.5	2	3.6	3	4.2	0	0
Hawaiian/Other Pacific Islander	1	9.1	2	11	3	30.1	7	57.0	1	8
Multi-Racial	2	0.6	0	0	1	0.3	0	0	2	.47
Other	0	NA	2	NA	0	NA	0	0	0	0
Unknown	0	NA	2	NA	0	NA	0	0	0	0
ETHNICITY										
Hispanic	255	7.0	210	5.2	251	6.1	196	4.5	173	3.9
Non-Hispanic	701	4.8	612	4.1	584	4.0	553	3.8	506	3.4
Unknown	0	NA	0	NA	0	NA	0	0	0	0
AGE										
0-14	47	1.4	28	1.0	54	4.8	38	1.2	30	1.0
15-24	93	3.8	69	2.9	71	3.0	57	2.5	60	2.4
25-44	280	5.8	287	6.0	272	5.8	215	4.7	201	4.2
45-64	373	7.6	285	6.1	292	5.8	295	5.8	255	4.9
≥65	163	5.0	153	4.9	146	4.4	144	0.6	133	3.9
Unknown	0	NA	0	NA	0	NA	0	N/A	0	0
COUNTRY OF ORIGIN										
United States	492	3.3	410	2.8	416	2.9	354	2.3	337	2.2
Foreign-born	465	13.7	410	12.1	419	12.3	395	10.8	342	9.2
Unknown	0	NA	0	NA	0	NA	0	N/A	0	0

*Data source: TIMS 2008; 2009-2012 data source for all TB data retrieved from HMS. Rates are per 100,000.
†State case rate, rate by gender and rate by age were obtained using population estimates from Florida's *Community Health Assessment Resource Tool Set* available at http://www.floridacharts.com/charts/population.aspx.
Case rates for 2008 were calculated using the 2005-2007 American Community Survey 3-Year Estimates retrieved 3/20/09.
For 2009, overall case rates, male, female, White, and Black/African American retrieved from http://www.floridacharts.com/charts/population.asp; case rates for Asians, American Indian/Alaska native and Hawaiian/Other Pacific Islander retrieved from http://www.factfinder.census.gov/servlet/IdentifyResultsServlet?_mapX=452&_mapY=362 retrieved on 2/12/2010.
For 2010, overall case rates, male, female, white, and Black/African American retrieved from http://www.floridacharts.com/charts/population.asp; case rates for Asians, American Indian/Alaska Native and Hawaiian/Other Pacific Islander retrieved from http://www.factfinder.census.gov/servlet/IdentifyResultsServlet?_mapX=452&_mapY=362 retrieved on 3/15/2012.
For 2011, overall case rates, male, female, white, and Black/African American retrieved from http://www.floridacharts.com/charts/population.asp; case rates for Asians, American Indian/Alaska Native and Hawaiian/Other Pacific Islander retrieved from http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml on 3/12/2012.
For 2012, overall case rates, male, female, white, and Black/African American retrieved from http://www.floridacharts.com/charts/population.asp; case rates for Asians, American Indian/Alaska Native and Hawaiian/Other Pacific Islander retrieved from http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml on 2/27/2013.
Rates for the foreign-born population was calculated using 2011 census population data for foreign born. 2012 data were not available at the time of this report.

II. PROGRAM PERFORMANCE

The Florida DOH is committed to Tuberculosis elimination and has established a state target of 2.0 cases per 100,000 by 2020. In order to achieve this goal, the state has adopted the Centers for Disease Control and Prevention's National Objectives and 2015 Performance Targets as interim benchmarks for the Florida Tuberculosis control program.

Attachment 2 provides five years of Florida data for the 15 national objectives. Of the 15 indicators, four (4a, 5, 7c, 11) do not have established performance targets for all components of the objective.

Objective 2, provides the 2015 targets for case rates by subsets of the population. In 2012, the Florida rate for foreign-born persons (9.2) was below the 2015 national performance target of 14.0 per 100,000. Florida has experienced a downward trend in the case rates for each of these sub-groups from 2008 through 2012. With full implementation of FSTBC, Florida is on track to meeting its 2020 objective and achieving the 2015 interim national benchmarks.

The Florida TB case rate among US born individuals is declining but remains higher than the national rate for 2011 (1.5/100,000). Quality improvement processes have been put in place to closely monitor TB case management activities and treatment of LTBI cases. While accounting for a large proportion of Florida cases, foreign-born case rates are declining and remain below the national target of < 14.0 cases per 100,000.

Risk Factors

Foreign Born

Although the foreign-born population has steadily increased as a proportion of Florida's TB morbidity, by year the number of cases reported has decreased. For the period 2008-2012, inclusive, there was a 26% decrease. The data in Tables 1 and 2 show the trend for foreign-born TB cases in Florida.

Homeless

There was a 2% increase in the proportion of homeless cases reported between 2008 and 2012.

Table 3	TB Cases Who Have Been Homeless Within Past Year*				
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Cases	64	62	52	63	64
Percent	7	8	6	8	9

*Data source TIMS 2008; HMS 2009-2012.

Substance Use

More cases reported excess alcohol use (31% decreases between 2008 and 2012) than either non-injection or injection drug use. Tables 4, 5, and 6 show the trends.

Table 4	TB Cases with Excess Alcohol Use Within Past Year*				
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Cases	167	156	122	116	116
Percent	17	19	15	15	17

*Data source TIMS 2008; HMS 2009-2012.

Table 5	TB Cases with Non-Injected Drug Use Within Past Year*				
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Cases	103	89	69	73	66
Percent	11	11	8	10	10

*Data source TIMS 2008; HMS 2009-2012.

Table 6	TB Cases with Injected Drug Use Within Past Year*				
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Cases	16	5	16	13	10
Percent	2	1	2	2	1

*Data source TIMS 2008; HMS 2009-2012.

A. Completion of Therapy

The Florida Tuberculosis Control Program priorities begin with treatment to cure of all patients with active TB disease. Florida's 2009 completion rate of 89.2% is above the national average of 87.7%. The FSTBC monitoring process will track completion of therapy for individual cases and provide the program with real-time data on progress. Case management is a program priority and to help reach the 2015 goal of 93% TBCS staff will review treatment data quarterly and report back to the CHDs.

Directly Observed Therapy

Florida is committed to providing directly observed therapy (DOT). DOT is the standard of care in Florida. When patients are prescribed TB medications by private health care practitioners, CHDs often partner with these providers by offering DOT services for their patients. Ensuring that DOT is universally available has greatly contributed to the success of Florida's treatment completion rates and the reduction of TB morbidity. The following data show program performance for period 2005-2009 (Table 7): 2010 data will be provided when available.

Table 7	Completion of TB Therapy by DOT*								
Year	**Completed Treatment**	**Total DOT**		**Both DOT & Self**		**Self Administered**		**Unknown**	
		#	**%**	**#**	**%**	**#**	**%**	**#**	**%**
2009	705	277	39.0	403	57.0	25	4.0	0	0.0
2008	822	319	39.0	455	55.3	46	5.6	2	0.2
2007	899	382	42.4	465	52.0	50	5.6	2	0.2
2006	1003	470	47.0	477	48.0	55	5.5	1	0.1
2005	1066	538	50.1	468	44.0	58	5.4	2	0.2

*Data source: 2005-2008 TIMS Case Follow-Up Report 2. 2009 HMS Case Follow-up Report 2.

Barriers to Treatment

Homelessness or transient lifestyle, recalcitrance, limited access to care and patient perceptions and attitudes about health care are the primary barriers to treatment for TB cases in Florida. The TBCS works with local TB programs to meet basic needs generated by patients' socioeconomic status. This support includes financial and other assistance in-kind that may be necessary to ensure patient adherence and completion of treatment. Services may include incentives and enablers, such as fast food coupons, gift cards, nutritional supplements, bus tokens, and temporary housing. Table 8 shows a relatively constant trend in the percentage of cases lost to follow-up.

Table 8	TB Cases Closed as Lost and Uncooperative or Refused 2005-2009*		
Year	**Lost**	**Uncooperative or Refused Treatment**	**Percent**
2009	10	4	1.8%
2008	16	1	1.8%
2007	14	1	1.6%
2006	18	2	1.9%
2005	25	5	2.7%

*Data source: TIMS Surveillance Case Follow-Up Report 2 2005-2008. HMS Case Follow-up Report 2 2009.

Appropriate Treatment Regimens

Assessment of adequacy of therapy indicates that in most cases appropriate regimens are being prescribed. See Table 9 for the regimens that were prescribed for the period 2008-2012.

Table 9	Initial Drug Regimens prescribed for TB cases*				
Year	**2008**	**2009**	**2010**	**2011**	**2012**
4 Drugs (INH, RIF, PZA, EMB)	807	638	633	675	537
3 Drugs (INH, RIF, PZA)	42	24	34	24	23
2 Drugs (INH, RIF)	3	3	4	5	1
1 Drug	1	0	0	1	1
Other Multiple Drug Regimen	59	125	134	26	91
Unknown	0	0	0	0/	0
None	45	32	28	18	26
Total Number Started on Medication	912	790	805	731	653

*Data source TIMS Surveillance Clinical Data Report 2008 and HMS RVCT Demographic Report for 2009-2012.

More than one-fourth (27.9%) of smear positive TB cases in Florida do not start treatment within seven days of sputum-smear results, this is higher than the 2011 national average (11.4%). An effort will be made in 2013 to educate health care providers about the availability of Polymerase Chain Reaction (PCR) testing for rapid confirmatory diagnosis in lieu of culture testing to achieve the 2015 goal of 91%. See Attachment 2

B. Contact Investigation

The TBCS staff perform an annual evaluation of LTBCP to assess the effectiveness of the contact investigations performed by each jurisdiction following CDC recommendations. See Attachment 2. TBCS provides support to the counties for complex contact investigations. During 2012, TBCS assisted LTBCPs with investigations in the homeless populations, school settings, jails, health care facilities, and migrant communities.

Florida has fully implemented the new 12-dose regimen for treatment of LTBI. This regimen is prescribed on a case-by-case basis with approval of the TB Medical Director and the TBPN based on published CDC guidelines.

The percentage of TB cases with contacts elicited increased slightly from 91.4% to 92.5%, but is lower than the national 2011 average (96%) and the 2015 target (100%). The proportion of contacts who are evaluated for TB disease (80%) continues to be lower than the national

average (96%). See Attachment 2. Program monitoring and quality improvement activities will be a priority through the FSTBC.

C. Identifying and Treating Latent TB Infection

The proportion of LTBI contacts of sputum AFB spear-positive TB patients who started treatment (56%) remains significantly below the 2010 national average (72%) and the 2015 target (88%). Of the 351 patients who started LTBI treatment in 2010, 59% completed therapy. This is below the 2010 national average of 68% and also below the 2015 target of 79%. See Attachment 2. Program monitoring and quality improvement activities will be a priority through the FSTBC.

D. Prevention Practices in Facilities

Occupation

Occupational exposure to TB is a topic of historical significance. There was a 42% decrease from 2008-2012, in cases among health care workers. The data are presented in Table 10.

Table 10	**Workers in Healthcare Settings with TB***				
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Cases	26	10	19	18	15
Percent	3	1	2	2	2

*Data source: TIMS 2008; HMS 2009-2012.

Resident of a Correctional Facility

There was a 17% increase in cases with this risk factor between 2011 and 2012. Program staff continues to collaborate with the Florida DOC to promote TB elimination.

Table 11	**Resident of Correctional Facility at Time of TB Diagnosis***				
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Cases	29	42	26	20	24
Percent	3	5	3	3	4

*Data source TIMS 2008; HMS 2009-2012.

Resident of Long-term Care Facilities

Only a small number of TB cases are residents of long-term care facilities. There was an 80% decrease in the number of cases from 2009 and 2012. This is a testament to the efficient work of the local TB programs to ensure that long-term care facilities have implemented effective infection control programs.

Table 12	**Resident of Long-term Care Facility at Time of TB Diagnosis***				
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Cases	10	15	8	5	3
Percent	1	2	1	1	<1

*Data source TIMS 2008; HMS 2009-2012.

E. Monitor and Evaluate Program Performance

Evaluation of the Utility of IGRA vs. TST for Public Health Purposes

Introduction: Use of the TST as a screening tool has been the standard for over 100 years which requires two encounters with the patient. Recent advances in TB testing allow for a single encounter to screen using IGRA. From a resource management aspect, TST is more labor and time intensive, while the lab costs for IGRA are higher. Since CDC guidelines state that an IGRA may be used in place of, but not in addition to, a TST in all situations where use of TST is recommended, a short comparison evaluation of the utility of the IGRA vs. TST was designed. The objective of this evaluation is to determine if one type of test poses an advantage over the other when cost (including staff time and equipment), expertise, test efficacy, and ability to follow-up are considered.

Data Collection and Analyses: This evaluation was conducted in Orange and Pinellas County Health Departments over the period of July 1 – December 31, 2011. Each client was assigned to a testing modality based on staff expertise and CDC guidelines [Updated guidelines for using interferon gamma release assays to detect *Mycobacterium tuberculosis* infection—United States, 2010. *MMWR*. 2010 June 25;59 (No. RR-5)].

To minimize the need for training, the IGRA test was used on all patients >5 years old presenting for evaluation of TB in the CHD clinic or in the field where a qualified phlebotomist or other person trained in venipuncture was available to obtain the blood sample. TST was performed on: all children less than 5 years-old being evaluated for TB whether in the clinic or in the field; any person refusing to provide a specimen for an IGRA; and any person tested in the field by an individual who was not trained in venipuncture. The guidelines described three scenarios where testing with both the IGRA and TST would be desirable. For that situation, the testing site provided the rationale for the choice of testing (Note: Choice 1 allows for testing of children <5 years old using both tests.).

Conclusion and Discussion: The comparison will be made based on the number of completed patient evaluations that occur for patients where evaluation was initiated within the evaluation period. The data are being analyzed and the results will be reported later in 2013.

III. PROGRAM ORGANIZATION

Overview of Program Organization

The Florida Department of Health (DOH), Division of Disease Control and Health Protection, Bureau of Communicable Diseases, Tuberculosis Control Section (TBCS) is organized into five sections: Field and Epidemiological Services, Professional Services, Administrative Services, Information Technology, and the Medical Director's Office. The TBCS works through 15 TB coordinators and managers to provide medical/nursing consultation and technical assistance to 67 county health departments (CHDs), which perform TB prevention and control activities.

The TBCS is responsible for the following:

- Developing policies used for the management of TB cases, contact investigations and management of targeted testing and treatment for latent TB infection (LTBI). The DOH posts policies consistent with the latest American Thoracic Society (ATS)/Centers for Disease Control and Prevention (CDC) /Infectious Diseases Society of America (IDSA)

recommendations, compiled into various technical assistance guidelines, on the DOH website for access by all stakeholders. TBCS staff review and update these guidelines, if necessary, every two years and publish as technical assistance guidelines. The program is currently reviewing, updating, and aligning policies to support Florida's System of TB Care (Attachment 1). These guidelines will be available in the form of a manual by the second quarter of 2013.

- Monitoring epidemiologic trends and promoting the use of epidemiologic techniques to evaluate program achievements and guide prevention and control activities.

- Providing consultation to all health care providers at the local level regarding diagnosis, treatment, and medical management of TB infection and disease.

- Providing inter-jurisdictional TB notification to ensure continuity and completeness of care of clients moving from one jurisdiction to another utilizing a standardized communication network.

- Providing follow-up for Class A/B TB referrals to ensure continuity of care through medical evaluations and diagnosis, and providing treatment to completion when indicated.

- Providing educational materials, organizing educational programs for TB prevention and control activities and supporting related educational programs of the CHDs.

- Supporting county TB programs through financial assistance with federal cooperative agreement and state general revenue funds.

- Ensuring collaboration with external and internal stakeholders.

Human Resource Development

Workforce Development Objective	Outcome
Deliver contact investigation training to TB nurses and TB Disease Intervention Specialists (DIS) throughout Florida	The TBCS collaborated with the SNTC and CDC to conduct the final pilot for the CDC's *TB Contact Investigation Interviewing Skills Course*, which was held in South Florida October 30—November 2, 2012. This was an intensive interview skills training for TB program staff (primarily RN, LPN, and DIS staff) to gain practice and experience in delving into the confidential nature of the lives of patients with TB.
Deliver Nurse Case Manager (NCM) training to TB nurses throughout Florida	Due to the 2012 introduction of the FSTBC, and the subsequent need to revise the course to reflect the new System of Care, no courses were conducted. For 2013, the TBCS is planning to provide one NCM course.
Deliver Mantoux TST training for nurses and other health professionals; and a TST Train-the-Trainer for TB nurses throughout Florida.	In 2012, the TBCS conducted one TST training and one TST Train-the-Trainer at the TBCS office in Tallahassee.
Conduct a statewide meeting for all TB healthcare workers in Florida	Travel restrictions have impeded this activity. There are no plans to implement a statewide meeting for 2013
Conduct TB awareness activities for the community and stakeholders by collaborating with HIV/AIDS, Hepatitis, STD, and other disease control bureaus for World TB Day, World Hepatitis Day, and National Public Health Week, thereby raising the awareness of the community with regard to TB and its relationship to other diseases	State and local TB program staff conducted health promotion activities during the month of March 2012 to raise awareness about the public health threat of TB. Additionally, the TBCS participated in Hepatitis Day at the Capitol to provide education about TB.
Provide technical support to local health departments by reaching out to private providers such as primary care physicians, hospitals, and clinics.	TBCS works through 15 TB area coordinators and managers to provide consultation and technical advice and assistance to 67 CHDs which perform TB prevention and control activities. For clinicians in need of more immediate assistance, a 24-hour, 7-days hotline, 1-800-4TB-INFO, is available for statewide use and is managed by the TBCS.
Disseminate educational DVDs and CDs to the local health departments for the purpose of patient education and education of the general public.	TBCS maintains a limited supply of educational materials for local health departments and the general public for distribution.

VI. RECIPIENT ACTIVITIES

A. Surveillance and Data Management

Local TB control programs (LTBCP) conduct surveillance and report suspected and confirmed cases. The area TB program coordinators and managers monitor cases within their respective regions and provide additional follow-up as appropriate with the LTBCP. To aid the area TB coordinators and managers in achieving national TB program objectives, the TBCS worked with them to develop a template for reporting significant program data related to all of the National Tuberculosis Indicators Project (NTIP) indicators.

Florida previously converted its data collection system from the Tuberculosis Information Management Systems (TIMS) to another Public Health Information Network (PHIN) compatible system that was validated in 2009, now referred to as the Health Management System (HMS). As cases are verified locally, Report of Verified Case of Tuberculosis (RVCT) forms are submitted by the CHDs for reporting using the HMS system. Cases are reported to CDC by TBCS on a weekly basis. The DOH is transitioning to electronic health records using the HMS system. Full conversion statewide is expected to be completed by June 30, 2013. The TB Technical Team plays a significant role in this process. Additionally, the TB Technical Team enhanced the HMS system for CHD staff by implementing a record panel for LTBI related to client risk factors, enabling electronic order of laboratory tests and capture of IGRA results.

The TBCS monitors laboratory activities to ensure case detection and timely reporting of cases. Laboratory reports are monitored daily to ensure all suspected TB cases are reported to CHDs. TB laboratory reports from the BPHL and private laboratories are reviewed upon receipt. Identification and treatment of TB cases is, by law, the responsibility of the LTBCP. The reporting of TB cases is accomplished at the local level.

<u>Protection of Confidential Information</u>
Florida Statutes mandate the protection of confidential information. The TBCS also complies with appropriate federal and state criteria to provide security for protected health information as prescribed by Health Information Portability and Accountability Act (HIPAA).

<u>Interjurisdictional Notification Program</u>
The Interjurisdictional Tuberculosis Notification System is a significant component of the Florida TB program. The system was developed by the National Tuberculosis Controller Association (NTCA) and CDC to ensure continuity and completeness of care for clients moving from one jurisdiction to another utilizing a standard interstate communication network. The TBCS communicates the patient's information to other states. Notification is required for all Class 3 (active disease) and Class 5 (suspects) moving in and out of Florida for 30 days or more. CDC's guidelines regarding the international notification process are followed appropriately.

Florida's TB program also works closely with CDC's Division of Global Migration and Quarantine (DGMQ) to prevent the transmission or spread of TB from foreign countries to the United States (U.S.). Florida's proportion of foreign-born TB cases has increased from 28% in 1994 to 50.4% in 2012.

<u>Class A/B TB Notifications</u>
The program maintains compliance with CDC Guidelines.

B. Collaboration and Health Education Activities

Collaboration with Stakeholders

The TBCS maintains collaborative relationships with other state agencies as well as other private agencies, organizations and coalitions; including, but not limited to other State Health Offices, BPHL, Department of Corrections (DOC), DGMQ, Immigration and Customs Enforcement (ICE), Federal Bureau of Prisons (FBOP), Southeastern National Tuberculosis Center (SNTC), NTCA/NTNC, Cure TB and TB Net, DOH Refugee Health Program, the TB Physicians Network (TBPN) and TB Centers for Excellence (contracted hospitals providing TB care).

The TBCS maintains its collaborative relationship with correctional partners at the local, state and federal levels to address issues involving correctional facilities. This includes facilitation of contact tracing activities within correctional facilities and transport systems, as well as collaboration for case management of incarcerated TB cases until cured. Florida TB personnel also work with Cure TB and TB Net to ensure continuity of care for patients who move from Florida to Central and South American countries.

The TBCS conducts four major conference calls for communicating with key stakeholders. The calls foster ongoing communication between the TBCS, CHDs, and TB area coordinators and managers, providing TB status updates of surveillance activities in assigned counties and allowing the TBCS an opportunity to provide guidance, consultation, and feedback regarding trends, morbidity and issues impacting TB case activity. The calls ensure cross-communication regarding technical programmatic issues such as HMS, RVCT, and ARPE reports and other TB administrative issues. The Registered Nursing Consultants conduct TNN conference calls regularly to ensure that CHD TB nurses receive up-to-date information on programmatic and clinical practice.

Refugee Health Program

The TB Program also maintains a collaborative relationship with the Refugee Health Program for the referral and treatment of refugee populations with positive TST or Interferon Gamma Release Assay (IGRA) test results. The Refugee Health Program screens over 93% of the state's approximately 28,000 refugee arrivals each year. A core component of the refugee health screening includes TB testing. Due to an increase in the use of IGRA testing methods in the Refugee Health Program, the percentage of refugee clients requiring TB follow-up has decreased dramatically. In 2012, TSTs resulted in a positivity rate of 24.8% while the IGRA tests (TB Spot) resulted in positivity rates of 5.2% and 3.9% (QFT). In 2012, the Refugee Health Program screened 24,302 refugees for TB (2,961 TST and 21,341 IGRA) and received 1,594 positive results (733 TST and 861 IGRA) that were referred to the TB Program for follow-up screening and treatment.

TBCS and HIV Prevention Program Collaboration

The Florida TBCS collaborates with the HIV Prevention Program to ensure that patients infected with HIV are referred for evaluation to prevent TB disease. Both programs collaborate to inform health care professionals in correctional settings about current recommendations and morbidity trends.

TB Health Education

The TBCS carried out the following educational activities in 2012: Health Management System – Tuberculosis Module Training. The TB Technical Team conducts training for TB personnel through a variety of means: module courses, WebEx online courses, and in-service courses.

Below is a list of all training conducted by the TB Technical Team in 2012. In total, the TB Technical Team was responsible for the delivery of 38 HMS courses to 1,224 participants.

Contact Investigation Course

The TBCS collaborated with the SNTC and CDC to pilot the second of two comprehensive Contact Investigation Interview Skills courses, October 30 - November 2, 2012. A total of 23 CHD participants received the training

World TB Day - March 24, 2012

Around the state, CHDs and others take advantage of increased interest in World TB Day to describe their own TB-related problems and solutions, and to support worldwide TB control efforts. Various events include special lecture series, in-service trainings, public health seminars, displays, and news spots (including an interview on National Public Radio). In 2012, 15 Florida CHDs and the TBCS engaged in various types of health education activities for World TB Day. Those 15 CHDs represented 74% of the state TB morbidity in 2012. Below is a summation of the types of activities that took place for World TB Day.

C. Southeastern National Tuberculosis Center

In 2012, The SNTC was funded by the TBCS through flow-through monies attached to their cooperative agreement with the CDC, Division of Tuberculosis Elimination (DTBE), No. U52/CCU/40051. The SNTC is one of five "regional training and medical consultation centers" (RTMCCs) created to support TB prevention and treatment efforts nationwide through training, educational products, technical assistance, and medical consultation. The SNTC has a central office at the University of Florida (UF) College of Medicine [Gainesville and provides services to 11 southeastern state (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia), Puerto Rico, and the US Virgin Islands].

Communication/Marketing Efforts and Activities for Engaging TB Programs in the Region

The SNTC engages in active communication with stakeholders at all levels of TB prevention and care. These efforts and activities include: regularly scheduled conference calls; periodic e-mail blasts and individual e-mail correspondence; an e-newsletter, *Close Contact*; frequent website updates and enhancements; inclusion of regional expertise in work or planning groups and affiliate faculty for SNTC training events; and staff participation in statewide meetings. In September, SNTC unveiled a new marketing initiative using Facebook. The frequency and number of times the SNTC team interacted with the region's TB Controllers (and other key program staff) increased in 2012 as the SNTC was tasked by the region with facilitating the strategic planning process for the region. An abstract describing this process and the work completed to date was submitted for consideration by the planning committee for the 2012 NTC meeting.

Composition and Activities of SNTC's Advisory Groups and Partners

The SNTC activities are guided and enhanced through a combination of advisory groups and partners from throughout the region. This design reflects on-going input from other RTMCCs, CDC guidance, the expertise available throughout the southeast region, and the project leadership experience of key SNTC staff. The primary groups with which the SNTC collaborates include the Executive Advisory Group (EAG), affiliate faculty from throughout the southeast region, the state TB programs, the other RTMCCs, the CDC's DTBE and DGMQ, local or community-based organizations and associations, private partners (Tuberculosis Foundation of Virginia), and other federal training programs. SNTC is completing all open projects this year and will utilize the guidance from the EAG in finalizing the educational

materials and dissemination plans for the SNTC products. The agenda and minutes for these meetings are available upon request.

SNTC Website Activity

The SNTC website, http://sntc.medicine.ufl.edu, continues to be a popular source of information about the SNTC training events, general TB information, and support of the "All RTMCC Products" webpage. During 2012, the SNTC's website was visited by a total of 11,080 **unique visitors** representing 133 different states, territories and countries. These unique visitors accounted for approximately **19,820 total visits**.

Training, Educational Products, and Technical Assistance

The training and educational services provided by the SNTC are facilitated by activities and staff support at the SNTC Central Office at the UF and the SNTC's Clinical Training Campus at AGH. In addition, external partners are essential for the development of educational products and delivery of course content based on their expertise on a given topic. In addition to the SNTC-sponsored training events at locations throughout the region, SNTC staff and faculty also provided lectures and facilitated break-out sessions at various local, state, national and international meetings. Specific information about these training and educational events, including the location, number of hours and individuals trained and the technical assistance provided, is included in a subsequent section of this report.

Progress toward Achieving Training and Education Goals

The training and educational activities conducted during 2012 included:

- **247.5 stand-up training hours for 1394 participants**
- **15.5 web-based training hours for 1125 participants**
- **14.25 training hours at conferences, meetings, World TB Day events throughout the region for 573 participants**
- **4.5 training hours at collaborative trainings with other Federal Training Centers for 241 participants**

Additionally, the SNTC participated in conference planning calls and in events as part of various Federal Training Center consortiums.

Provision of Educational Opportunities to Panel Physicians

At the request of the CDC, clinical education and training opportunities are provided by the RTMCCs for the panel physicians affiliated with the International Office of Migration (IOM). The SNTC continues to reserve two places for panel physician participants at the 2012 quarterly Comprehensive Clinical TB Course. No panel physicians participated in the March or June course. Work continues on the ongoing customizing of the medical consultation database (MCD) for panel physicians and the system is expected to be continuously refined and enhanced to best meet the needs of the panel physicians and the RTMCC consultants providing the medical expertise. Although the panel physicians who have utilized the service appear to be pleased with the consultation received, there has not been widespread adoption or utilization of the service as anticipated.

Mini-Fellowship Educational Program

During 2012 the SNTC provided 7 mini-fellowship opportunities for physicians and pharmacists. Most mini-fellows also participated in the Comprehensive Clinical TB course and extended their stay to work with AGH or University of Florida staff for additional days.

Progress toward Planned Product Development

As educational products are completed and finalized for dissemination, the SNTC uses existing resources for distribution, including the Regional Focal Points, the other RTMCCs, the CDC project team, the state TB Programs throughout the southeast region, statewide meetings, national conferences, and SNTC courses. All existing products are available on the SNTC and All RTMCC products web pages. Evaluation of how the products are being utilized by TB program staff in the southeast region is conducted annually and a poster represented this data was presented at TB ETN. In addition, dissemination strategies for educational products and materials include a variety of electronic resources specific to TB (e.g., http://www.findtbresources.org) and the TB-Educate listserv.

Technical Assistance Provided to Regional Partners – January through December 2012

SNTC central office staff members respond to technical assistance requests from the region and in 2012 the SNTC provided approximately 175 hours of technical assistance to the region. The SNTC provided technical assistance on a number of programmatic topics although correction issues appear to dominate the topics for which technical assistance is requested.

Medical Consultation Service

SNTC's Medical Consultation Service activities focus on providing comprehensive, evidence-based expertise to all seeking these services. The Hotline is available 24-hours, 7-days a week and information about the caller, the caller's question and the consultant's response are systematically captured in a medical consultation database.Marketing and regionalizing the services available through the TB Hotline, 1-800-4TB-INFO, remains a high priority for the SNTC medical consulting team. In addition, although the current composition of the team is adequate and represents a broad spectrum of expertise especially knowing that the multidisciplinary staff can be utilized, the SNTC team is committed to expanding the number of physicians who provide consultation services. This increase in consultants is also a priority of the SNTC as a mechanism to train physicians/consultants and to mentor them as they expand their comfort with communicating their knowledge to others.

Modifications in Mechanism of Delivery

Consultation requests continue to be submitted primarily via the 1-800 TB Hotline, however, requests are also received from the SNTC website and via the SNTC shared e-mail address. The SNTC's medical consultants continue to receive requests on personal cell phones or by e-mail and efforts are being made to integrate these requests into the MCD for systematic recording of the information.

Medical Consultation – January through December 2012

The total number of requests identified in the medical consultation database for SNTC medical consultation in 2012 was 224 **requests** from throughout the southeast region. Over two-thirds of the 2012 consultation requests are from outside of Florida. Although there has been a significant increase in the total number of requests from the region, the same three states ("frequent flyers"), Kentucky, Virginia and Florida, are utilizing the service more than others.

Another interesting change in the demographics of service is observed in the type of setting from which requests are made. Providers in private practice had the highest percent of the requests with 25.4% of the requests. Local health departments (21.6), corrections (13.7%), state health departments (11.8%), and hospitals (5.9%) complete the top five settings requesting the SNTC medical consultation services. Physicians continue to access the medical consultation services with the highest frequency (47%) during 2012, followed by Physician Assistants and Nurse Practitioners (21.6%) and then nursing staff with 17.6% of the total requests.

D. PUBLIC HEALTH LABORATORY

The FDOH, Bureau of Public Health Laboratories (BPHL) consists of four laboratories located in Jacksonville, Miami, Pensacola, and Tampa. The Jacksonville Mycobacteriology laboratory provides testing services for all 67 CHDs as well as reference services for private and hospital laboratories in Florida. Activities performed by the laboratory include the processing of various specimen types using CDC protocols. Once processed, all specimens are cultured using both broth media (MGIT 960 broth media) and solid media [Gruft's modification Lowenstein-Jensen (LJ)]. The laboratory processes specimens and performs acid-fast bacilli (AFB) smear microscopy Monday through Saturday.

The number of clinical specimens submitted for AFB smear and culture ranged between 21,000 and 23,200 per year for the last three years, and the number of TB susceptibilities performed averaged 700 per year. While the overall number of TB cases is going down, the BPHL receives isolates with requests to perform either identification or drug susceptibility testing or both from private and hospital laboratories. The BPHL and the TBCS have collaborated to implement policies and guidelines to limit over-use of testing and duplicate testing on patients.

Workload

Year	2010	2011	2012
1 a. Total number of clinical specimens (no isolates)	23,250	21,943	21,082
1 b. Number of individual patients for whom a clinical specimen was processed	5,244	5,832	10,695
1 b. i. Report number of individual patients *M. tuberculosis* positive	599	586	560
1 c. Number of individual patients for whom a reference isolate was received for identification	2,619	2,496	2,242
1 c. i. Report the number of individual patients that had at least one *M. tuberculosis* positive culture	172	185	177
1 d. Number of individual patients for whom *M. tuberculosis* drug susceptibility tests were performed	758	705	639
1 e. Number of individual patients from your jurisdiction for whom a clinical specimen was tested directly with a NAAT (includes processed sputa from private and hospital labs submitted for NAAT testing)	6,253	6,450	10,238
1 e. i. Report number of individual patients for whom NAAT was positive	408	361	706
1 f. number of individual patients for whom the laboratory referred an isolate of *M. tuberculosis* complex for genotyping	789	743	537
2. e. Number of individual patients for whom laboratory confirmation of tuberculosis was provided within 48 hours of clinical specimen receipt.	408	361	706

Susceptibility Testing for TB Isolates

Drug susceptibility testing of isolates of *M. tuberculosis* complex is performed at the BPHL-Jacksonville on all initial isolates or on isolates for patients that have been on treatment for 60 days or more and continue to have positive cultures. During 2011-2012 a new method was

evaluated call the TREK Sensitire MYCOTB. This is a microtiter plate method which allows testing of 12 drugs on a panel and reports minimal inhibitory concentrations (MIC) for the drugs. Isolates shown to have multiple drug resistance are sent to CDC for further study and characterization.

Nucleic Acid Amplification and Hain-Life Science Genotype® MTBDR*plus* policy
Since 2012, The BPHL-Jacksonville Laboratory performs the Hain Lifescience Genotype® MTBDR*plus* assay (Hain test) on all NAAT-positive specimens, whether they are AFB smear-negative or smear-positive. In addition, the Hain test is also performed as a reflex test on all isolates (from first-time suspect TB patients) that are received at the lab and identified as MTBC. The Hain test is also currently available to providers in other states as well as their public health laboratories for suspected drug resistant or problematic cases. In 2012, Florida reported six MDR TB cases from 458 total cases with drug resistant test results.

Universal TB Genotyping Program
The Florida TB program participates in the Universal TB Genotyping program. For 2012, 99% of all isolates sent to BPHL were genotyped (see Table 32).

Laboratory Information Management System (LIMS)
LabWare® Laboratory Information Management System (LIMS) is the software used by the BPHL in all four laboratories to manage clinical laboratory tests (excluding newborn screening and HIV) and environmental water tests. LabWare LIMS is integrated with laboratory instruments, eliminating manual data transcription for improved data quality through elimination of transcription errors. On average, almost 5,000 samples per day (1.3 million/year) system-wide are processed through LabWare and tested by the BPHL. Electronic laboratory reports are available on-line to the CHD clinics and for notifiable diseases and conditions and these are also sent directly to the TBCS. LabWare also interfaces with the DOH HMS for electronic reporting of results for specimens submitted by the CHDs.

National TB Program Objectives

For at least 80% of initial diagnostic specimens received by the TB Laboratory for diagnosis the recommended turnaround time will be met.
Status: **Met**

For at least 80% of initial diagnostic specimens received by the Public Health Laboratory for TB diagnosis, the following laboratory turnaround times are met: The reporting of *Mycobacterium tuberculosis* complex within 21 days of receipt, and reporting of first-line drug susceptibility testing within 35 days of receipt.
Status: **Met**

For at least 80% of isolates of *Mycobacterium* species referred to the laboratory for additional TB diagnostic testing the following turnaround times should be met: The identification of *Mycobacterium tuberculosis* complex within 7 days of isolate receipt and reporting of first-line drug susceptibility tests within 10-14 days from isolate receipt.
Status: **Met**

Benchmarks			
CY2010	**CY2011**	**CY2012**	**Description of turnaround times (TAT) for initial diagnostic specimens**
			1. Promote rapid delivery of specimens. (TAT goal: Specimens should be received in the laboratory within 24 hours of specimen collection) Report the percent of specimens received within 1, 2, and 3 calendar days.
21%	22.9%	20%	% of specimens received within 1 calendar day
43%	50.83%	47%	% of specimens received within 2 calendar days
57%	66.53%	60%	% of specimens received within 3 calendar days
			2. Use fluorescent acid-fast staining and promptly transmit results by phone, FAX, or electronically. (TAT goal: Report acid-fast microscopy results within 24 hours of specimen receipt.) Report the percent of acid-fast smear results reported within 1, 2, and 3 calendar days.
99.97%	99.94%	99.78%	% of specimens reported within 1 calendar day
99.97%	99.96%	100.00%	% of specimens reported within 2 calendar days
100%	99.96%	100.00%	% of specimens reported within 3 calendar days
99.89%	100.00%	100.00%	% of *M. tuberculosis* isolates identified within 21 calendar days
			4. Determine the susceptibilities (DST) of initial *M. tuberculosis* complex isolates to first-line drugs in a rapid culture system and report results promptly. (TAT goal: 21-28 calendar days from receipt of specimen) Report the percent of rifampin susceptibility results reported for *M. tuberculosis* isolates from initial diagnostic specimens within 28 days.
97.5%	96.55%	98.69%	% of 1st line DST results reported within 28 calendar days
408	361	706	5. Report the number of individual patients for whom laboratory confirmation of tuberculosis was provided within 48 hours of clinical specimen (e.g. sputum, CSF, etc.) receipt. (i.e., use of NAAT or direct HPLC)

Meeting CDC Recommended Turnaround Times (TAT) and the Healthy People 2020 goal
The BPHL strives to be cost-efficient while providing prompt testing results for TB healthcare providers and patients. The previous testing algorithm included the GenProbe Mycobacterium Tuberculosis Direct (MTD) test and was compared to a real-time PCR method. In addition to evaluating the sensitivity and specificity of the MTD compared to the real-time PCR procedure, the BPHL also performed a cost analysis. The real-time PCR was as sensitive and specific as the MTD method and was determined to have a lower cost after evaluation of the results. Therefore, the switch from MTD to real-time PCR for NAAT testing was made in October 2012.

Milestones and Performance Measures

Milestone	Performance Measure(s)	Update 12/31/2012
Complete evaluation of the real-time PCR procedure	-Total number of samples included in evaluation -Percentage of MTD positive samples included in the evaluation -Percentage of MTD negative samples included in the evaluation	Completed
Complete data analysis	-Calculate sensitivity and specificity of the real-time PCR compared to culture -Calculate sensitivity and specificity of the MTD compared to culture	Completed
Complete cost analysis comparing real-time PCR to MTD	-Cost per result for MTD and real-time PCR including reagent costs, labor and overhead	Completed
Complete technical and operational feasibility studies	-Comparison of hands-on time for both real-time PCR and MTD procedures -Comparison of total test time for both procedures	Completed
Share data with stakeholders and determine new testing algorithm	-Obtain feedback from at least 75% of stakeholders contacted	Completed
Communicate new testing algorithm to all stakeholders and providers	-Letter sent by Deputy Secretary for Health	Completed
At 6 months and 1 year, evaluate impact of new testing algorithm as appropriate	-Percent decrease in costs -Percent decrease in hands-on time	Ongoing
Evaluate instrumentation for the automation of the real-time PCR procedure	-Implementation of new instrumentation for the automation of the real-time PCR procedure	Pending - 2013

Minimum Inhibitory Concentration (MIC) Testing:

To improve the information available to the physicians in charge of TB patient management which impact their treatment, the BPHL-Jacksonville has evaluated a new test method for drug susceptibility testing (DST) for MTBC, the TREK Diagnostic Systems MIC method, and will implement this new method in 2013. Evaluation data was collected 2011-2012 to determine test performance characteristics in a side by side comparison with the BACTEC 460TB procedure including turnaround time, cost analysis, labor and instrumentation requirements.

Milestones and Performance Measures

Milestone	Performance Measure(s)	Update 12/31/2012
Agreement with TREK	- develop agreed upon protocol - determine necessary equipment and supplies	Completed
Acquire needed equipment and materials	- issue purchase orders	Completed
Train testing personnel	- make necessary arrangements for	Completed

	technical staff training	
Complete evaluation of TREK Sensititre MYCOTB panel	- total number of archived specimens - total number of fresh clinical specimens	Completed
Performance characteristics determined	- 230 specimens (both archived and fresh) tested - data analysis completed	Completed
Share data with stakeholders and determine whether or not to implement new testing algorithm	- obtain feedback from at least 75% of stakeholders contacted	Completed
Communicate new testing algorithm to all stakeholders and providers	- letter sent to notify providers of changes if implemented	Completed
Implement TREK Method	-Implement TREK method	Pending-2013

Developing an integrated system to ensure timely testing and flow of information
The BPHL faxes TB testing results to CHD and to non-CHD facilities; importantly, NAAT results are faxed to hospitals in the state of Florida six days per week (Monday – Saturday). Currently, both electronic laboratory ordering (ELO) and reporting (ELR) are available to providers in the CHDs only. This ELO system ensures positive patient identification and eliminates data entry errors in the laboratory. Additionally, ELO eliminates turnaround time delays related to manual demographic data entry. Pilot testing with SNTC has been completed. BPHL continues to work with the Integration Team to make electronic data exchange available to non-DOH providers.

Milestones and Performance Measures

Milestone	**Performance Measure(s)**	**Update 12/31/2012**
Meet with the Cloverleaf Integration Broker team to develop project plan	Use case document	Complete
Identify providers outside the CHD system willing to participate in the pilot project	Total number of providers willing to participate	Complete
Configuration of LabWare LIMS System	Documentation of functionality	Complete
Complete testing in LabWare Test environment	-Number of incoming test messages (ELO) processed from each participating provider -Number of outgoing result messages (ELR) successfully sent to and received by participating providers	Complete
Implement functionality into LabWare Production environment	Number of incoming ELO received monthly from non-CHD providers/ ELR successfully sent and received	Pending
Offer ELO and ELR to other non-CHD providers	Number of new providers added each year	Pending

Additional LabWare enhancements to improve data flow for the TB laboratory
Additionally, there are other enhancements that can be made to the LabWare LIMS system to improve data flow for the TB laboratory. These enhancements include a mechanism to readily

view a patient's cumulative test history. This will help avoid superfluous testing and ensure that the limited resources are maximized.

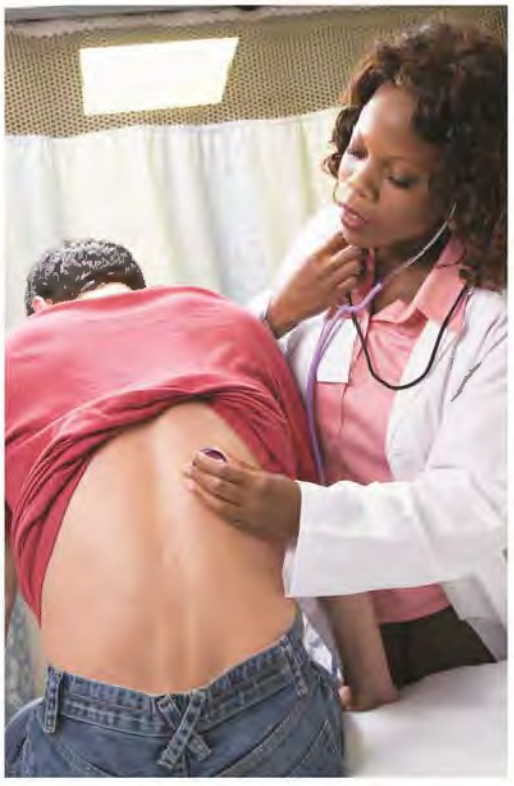
Milestones and Performance Measures

Milestone	**Performance Measure(s)**	**Update 12/31/2012**
Gather Requirements from user	Create Use Case	Complete
Configuration of LabWare LIMS System	Documentation of functionality	Pending
Complete testing in LabWare Test Environment	Number of patient histories reviewed	Pending
Implement functionality into LabWare Production environment	Number of patient histories reviewed	Pending

SUMMARY

In conclusion, the 2012 Florida DOH TBCS Annual Report summarizes the various program activities. As a result of the implementation of the FSTBC the program expects to meet 2015 national goals. The TBCS continues to utilize data to maximize and align priorities that support patient treatment to cure and elimination of TB in Florida.

Florida System of Tuberculosis Care



Treating and Curing Tuberculosis in Florida
Essential Services by Levels of Care

Florida HEALTH

Table of Contents

CONTRIBUTORS

Alina M. Alonso, MD

David Ashkin, MD

Kim Barnhill, MS, MPH

Mary Kay Burns, RN, BSN, MBA

Karen A. Chapman, MD, MPH

Robert Eadie, JD

Kathy Franklin

Cassandra L. Garber

Laura Green

Douglas A. Holt, MD

Holly Holt, RN, BSN, MSM

Jimmy Keller, DHSc

Gary J Landry

Jylmarie Lewis, MPH, CHP

Ann Rowe-McMullen

Georgia Murphy, MFA

Lillian Rivera, RN, MSN, PhD.

Melissa Roberts, LPN

Max Salfinger, MD

Bonita Sorenson, MD, MBA

Denishia K Sword

Paula Thaqi, MD, MPH

Rhonda White, MBA

John Armstrong, MD
Surgeon General and Secretary of Health

I. Introduction

The **Florida System of Tuberculosis Care** is a partnership between the Florida Department of Health (DOH) and the statewide public health system. Working together, physicians, community based clinics, laboratories, hospitals, social services agencies, academia and public health professionals form a network that assures the five key components of an effective tuberculosis program (surveillance, diagnosis, treatment, case management and education) are available statewide.

Tuberculosis (TB) is an illness caused by *Mycobacterium tuberculosis* germs put into the air when a person with active TB disease of the lungs or throat (pulmonary TB) coughs or sneezes. TB is difficult to catch since it requires close contact to an active case of TB over an extended period of time. TB usually attacks the lungs, yet may infect any part of the body such as the kidney, spine and brain. Active TB disease can be treated with medications, but can cause severe illness or be fatal if not treated properly. Cure of active TB disease requires long-term medication. TB germs resistant to medications can emerge when patients with active TB do not complete the entire treatment and when infected contacts to active TB cases or persons at high risk for TB fail to complete treatment. Thus, completion of treatment is a vital principle for effective TB control.

The mission of the **Florida DOH Tuberculosis Control Section** is to eliminate tuberculosis in the state through administration of a statewide TB program that supports the Florida System of Tuberculosis Care. The Florida DOH Tuberculosis Program assures coordinated care to persons with active TB disease, their close contacts and other persons at high risk for latent TB infection (i.e. the homeless, HIV patients, etc.); assures a system of care is in place to manage complicated TB patients; provides community and provider training and technical assistance; assures accurate case reporting; and performs program monitoring and evaluation.

In 2011, DOH provided more than 300,000 educational, screening and treatment services in communities across the state. During that time, 753 active TB cases were diagnosed, equating to a rate of four per 100,000 of Florida's population. Six of these cases (0.8%) were multidrug-resistant TB (i.e. the TB is able to grow and multiply even in the presence of certain drugs, which would normally kill them). Through the diligent efforts of healthcare professionals, more than 4,500 persons exposed to these cases were evaluated as contacts. These numbers are consistent with benchmarks for contact investigations. As a result of these evaluations, 54 persons were diagnosed with active TB disease and almost 1,000 were found to have latent TB infection (LTBI).

To achieve the goal of elimination of TB, the Florida System of Tuberculosis Care requires the consistent use of proven public health practices, standards and evidence-based tuberculosis control strategies as well as ongoing program performance evaluation.

II. Florida's Charge

The **Florida System of Tuberculosis Care** is designed to focus necessary resources to reduce the tuberculosis rate in Florida by 50 percent within eight years.

Table 1
Tuberculosis Health Outcome
2007 – 2011 Rate and 2012 – 2020 Targets, Florida

Tuberculosis Program Actual Performance	2007 Rate	2008 Rate	2009 Rate	2010 Rate	2011 Rate
TB case rate per 100,000	5.2	5.0	4.4	4.4	4.0

Tuberculosis Program Performance Targets	2012 Target	2013 Target	2014 Target	2015 Target	2020 Target
TB case rate per 100,000	3.8	3.7	3.6	3.5	2.0

The Florida State Health Improvement Plan (SHIP) calls for reducing the Florida TB case rate to 3.5 per 100,000 by 2015.

III. Florida System of Tuberculosis Care

The **Florida System of Tuberculosis Care** is founded upon proven public health practices, standards and evidence-based tuberculosis control strategies. This patient-centered, community-focused and population-based system of care provides the accountability and adaptability necessary to reduce the rate of TB in our state. In addition, the system of care ensures high quality community and hospital care are provided through public and private partnerships.

To fully understand the Florida System of Tuberculosis Care it is necessary to understand the difference between active TB disease and latent TB infection (LTBI).

> Initial TB infection is usually mild and often goes unnoticed by the person or their health care provider.
>
> In 90% of cases, the TB germs are "walled off" by a person's immune system, about six weeks after exposure. The TB germs are not causing illness and the person feels fine. This is called latent TB infection (LTBI). This person does not have symptoms of TB disease and is not contagious to others, yet a TB skin or blood test may indicate exposure. Medications are used to prevent a person with LTBI from developing active TB disease. Anyone who has spent time with someone who has LTBI does not need to be tested for TB.
>
> Active TB disease is a slowly progressive disease that occurs when the TB bacteria become active, meaning the germs are multiplying and affecting tissue in the body. The person is sick, usually with general symptoms such as fatigue, weakness, weight loss, fever and night sweats. Symptoms that are more specific to active pulmonary TB disease (of the lungs or throat) include cough with phlegm, cough with blood and chest pain. People with active, untreated pulmonary TB disease are capable of spreading germs to people in close contact. Individuals who have had close contact with someone with active TB disease are at risk for developing active TB disease or LTBI.

Florida System of Tuberculosis Care

The Florida System of Tuberculosis Care leverages the statewide public health system, the key components of an effective tuberculosis control program and effective, evidence–informed strategies for TB control to achieve Florida's charge of cutting the TB rate in half by 2020. The key components and strategies of TB control are based on the recommendations of the American Thoracic Society, Centers for Disease Control and Prevention and the Infectious Diseases Society of America.

The key components of an effective program are:

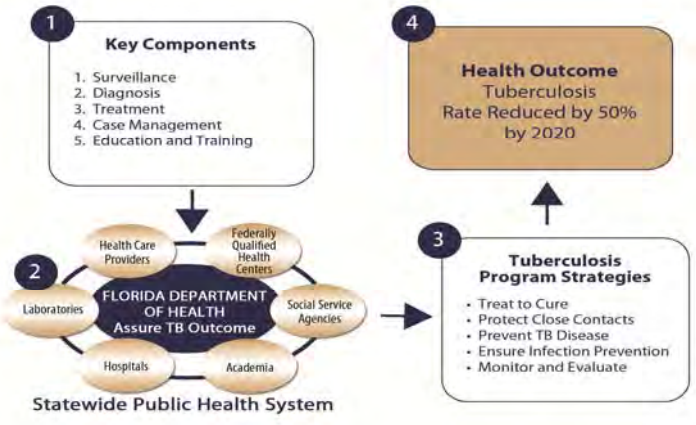
- ***Surveillance*** to promote the early detection of active TB cases, identification of contacts to active TB cases and identification of high-risk populations for TB evaluation.
- ***Diagnosis*** of TB begins with the initial evaluation of a suspected TB patient. Diagnosis of latent TB infection (LTBI) begins with the evaluation of close contacts to active TB cases and screening and testing of populations at high-risk for TB exposure.
- ***Treatment*** cures the individual with active TB disease and protects the community by interrupting transmission. The exact combination of prescribed medications and length of treatment is patient-specific based on age, overall health, the possibility of TB drug resistance, the form of TB (latent or active) and location of TB in the body. Treatment of LTBI prevents the development of future disease.
- ***Case Management*** is provided by a team of public health professionals who are members of the Florida Department of Health (DOH). Case management ensures the provision of treatment to cure for an active TB patient and the assessment of anti-microbial drug resistance when treatment failures occur. Case management for persons with LTBI supports the goal of preventing future TB disease.
- ***Education*** and training support all aspects of an effective TB control and prevention program.

The key strategies of an effective program are:

- ***Treat to cure*** patients with active TB disease in a safe environment that protects the public.
- ***Protect*** close contacts of patients with active TB disease.
- ***Prevent*** future TB disease by identifying and treating latent TB infection.
- ***Ensure*** infection prevention practices are in place in facilities with individuals at high risk for TB transmission.
- ***Monitor and evaluate*** performance to ensure that data-driven interventions improve program activities.

Figure 1

FLORIDA SYSTEM OF TUBERCULOSIS CARE



IV. Florida Department of Health Tuberculosis Control Section

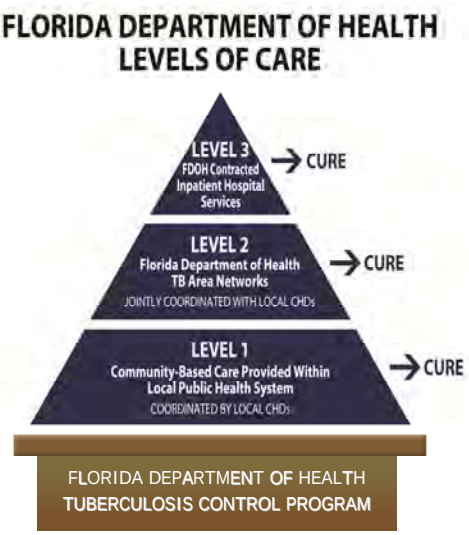
The **Florida Department of Health (DOH) Tuberculosis Control Section** serves as the foundation of the agency's role in the **Florida System of Tuberculosis Care**. The Section is responsible for ensuring a statewide program that meets national standards for TB elimination through policy development, allocation of resources to support program implementation, monitoring of TB trends and program evaluation. An effective statewide program includes:

- Expertise in policy and standard development/adoption, implementation, monitoring and evaluation.
- Expertise in medical management of tuberculosis.
- Expertise to contract for statewide services that support treatment to cure of active TB disease at all Levels of Care, including inpatient hospitalization.
- Expertise to ensure educational programs and resources for TB prevention and control are available statewide.
- Expertise to conduct quality of care reviews across the program services delivered through the DOH.
- Expertise to acquire, manage and allocate funding.
- Procedures and processes in place to conduct interjurisdictional TB notification which ensures continuity and completion of care across state lines.
- TB expertise within the DOH public health laboratory system.
- Adequate resources to support Level 1 and Level 2 TB Care, including contracting for specialty medical and social services as well as providing access to services needed to respond to outbreaks.
- Expertise to develop and implement statewide data systems for surveillance and case management
- Expertise to conduct enhanced surveillance and analysis capacity.
- Expert consultant to the Florida Department of Corrections for TB control in a prison setting.
- Liaison to the Centers for Disease Control and Prevention, Division Disease Control and Health Protection, including case reporting from Florida.

V. Florida Department of Health Levels of Care

Chapter 392.53, Florida Statutes requires reporting of suspected or confirmed active TB cases to the Florida Department of Health. The **Florida Department of Health Tuberculosis Control Section** organizes TB control activities into three Levels of Care that are mutually supportive, coordinated and patient-centered. The Levels of Care serve as the backbone of the **Florida System of Tuberculosis Care.**

Figure 2



Upon initial entry into the system, the Level of Care is determined and then reassessed throughout the course of treatment. Patients with active TB move seamlessly across the Levels of Care based on their needs. The goal for all patients is the provision of treatment in, or as close as possible, to their communities in a manner that protects those communities. All persons with latent TB infection are managed at Level 1.

A summary of each Level of Care is provided below:

Table 2

TB Level of Care	Accountability	Functions
1	Local Public Health System (coordinated through 67 – Local County Health Departments)	• Manages 90% of active TB cases • Provides patient and contact identification, diagnosis, treatment and follow-up in home county • Manages medical and social issues for moderate to moderately complex patients
2	Area TB Network (8 Multi-county Catchment Areas)	• Supports the management of 5% of active TB cases • Provides specialized medical, social or mental health beyond the scope of Level 1 • Provides access to recognized TB specialist for consultation • Coordinates individual case and cohort reviews
3	Contracted Inpatient Hospital Services	• Provides hospital services to 5% of active cases • Manages non-compliant and/or moderately severe to severely complicated patients through in-patient hospitalization service • Provides access to highly specialized TB experts

Level 1 – Local Public Health System (LPHS)

The Local Public Health System (LPHS) is responsible for early identification, reporting and treatment of active TB patients. Approximately 90 percent of patients with active disease are managed at Level 1. A person with suspected or confirmed TB is most often identified by a community medical provider who reports this to their local County Health Department (CHD). Public health professionals, trained in TB, then perform an initial assessment of the patient. The immediate goal is to ensure the patient with a suspected or confirmed case is started on effective TB therapy within 48 hours of positive sputum. The CHD ensures that sputum samples are sent to the Florida Department of Health (DOH) public health state laboratory to be stained for TB organisms (acid fast bacilli smear positive) and probed to detect the DNA of *Mycobacterium tuberculosis*. To aid in selection of antibiotics but most importantly to ensure the public's safety, any sample positive for TB undergoes a rapid test for Isoniazid (INH) and Rifampin (RIF) resistance.

In order to protect the public's health from the risk of exposure to tuberculosis, infectious TB patients are isolated from others. Isolation may occur in the patient's home, appropriate transitional housing or in a hospital. CHD staff assesses the patient's current accommodations to ensure adequate infection prevention is in place to avoid further transmission.

The patient and family members are taught about tuberculosis and helped to understand the actions that need to be taken to treat the disease and prevent spread to other people. Infectious TB patients are instructed to avoid public transportation and public areas, have no visitors and visit with no one beyond already assessed contacts. They must not be around children or those with medical conditions that increase risk for acquiring TB disease. They are instructed to cover mouth and nose when coughing or sneezing and wear a mask if they must leave their homes.

Daily monitoring of TB patients at Level 1 during the infectious period includes:

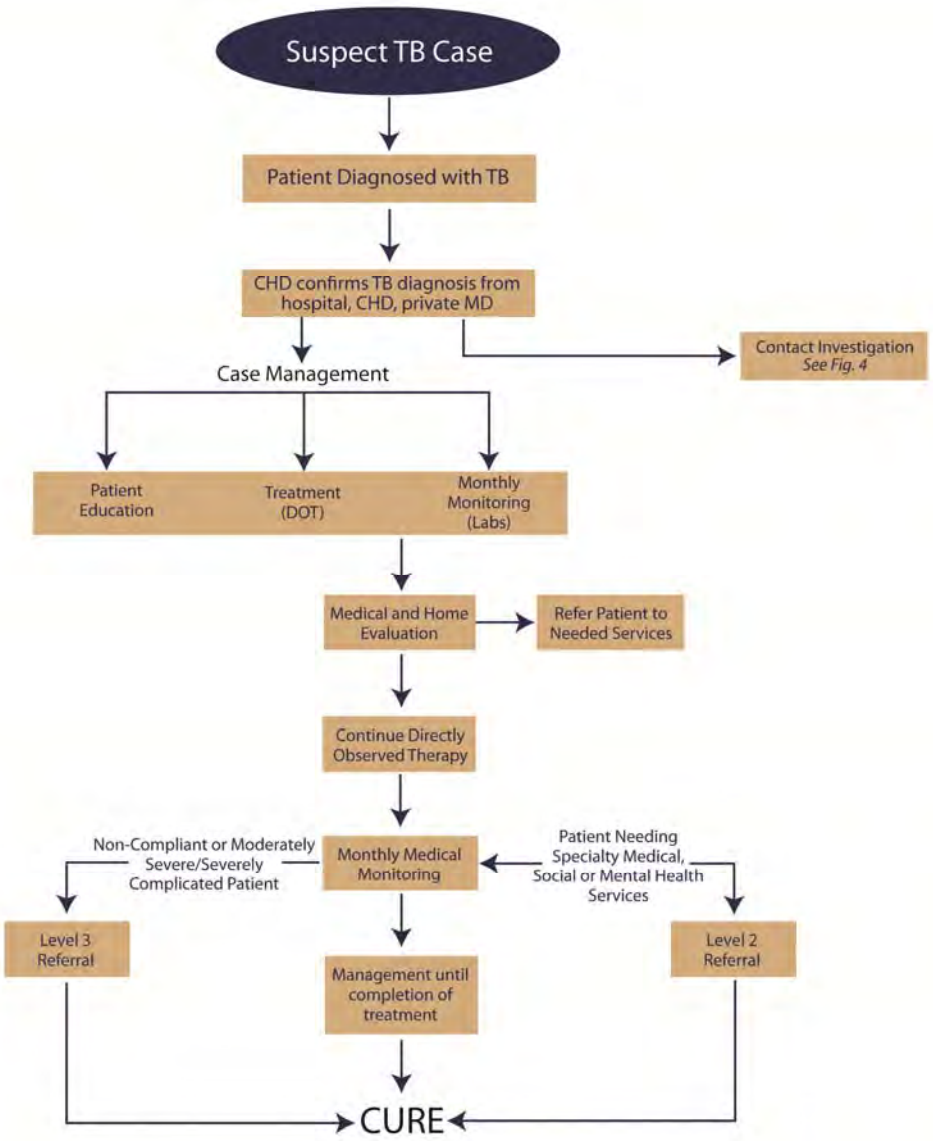
- Clinical assessment of patient's health status and well-being.
- Acceptance and tolerance of medication.
- Other medical conditions of concern.
- Assessment of compliance with isolation.
- Administration of medication.
- Collection of sputum samples for delivery to state public health laboratory.

These daily sputum samples are stained for TB organisms in the public health laboratory to guide in the determination of when the patient is no longer infectious and can resume normal daily activities. The Centers for Disease Control and Prevention (CDC) guidelines for non-infectivity is three consecutive sputum samples collected according to protocol that are TB smear negative. Using these guidelines, the licensed DOH medical provider makes the decision to discontinue the isolation precautions and allow them to return to normal daily activities.

When managing an infectious TB patient who is disadvantaged and without acceptable means for home isolation, DOH staff ensure the patient remains hospitalized or alternative transitional housing that meets the standard of no shared air. All standard protocols for infectious TB patients are followed with the addition of the provision of food and other resources needed to meet daily living needs.

After discharge from isolation, each active TB patient remains enrolled in case management services. This includes coordination of necessary medical and social services as well as ensuring that the patient stays on appropriate tuberculosis drugs and completes the course of treatment to cure. Social risk factors such as substance abuse, homelessness, lack of transportation, child care needs, incarceration and mental health problems add complexity to the treatment of some TB patients at Level 1.

Figure 3

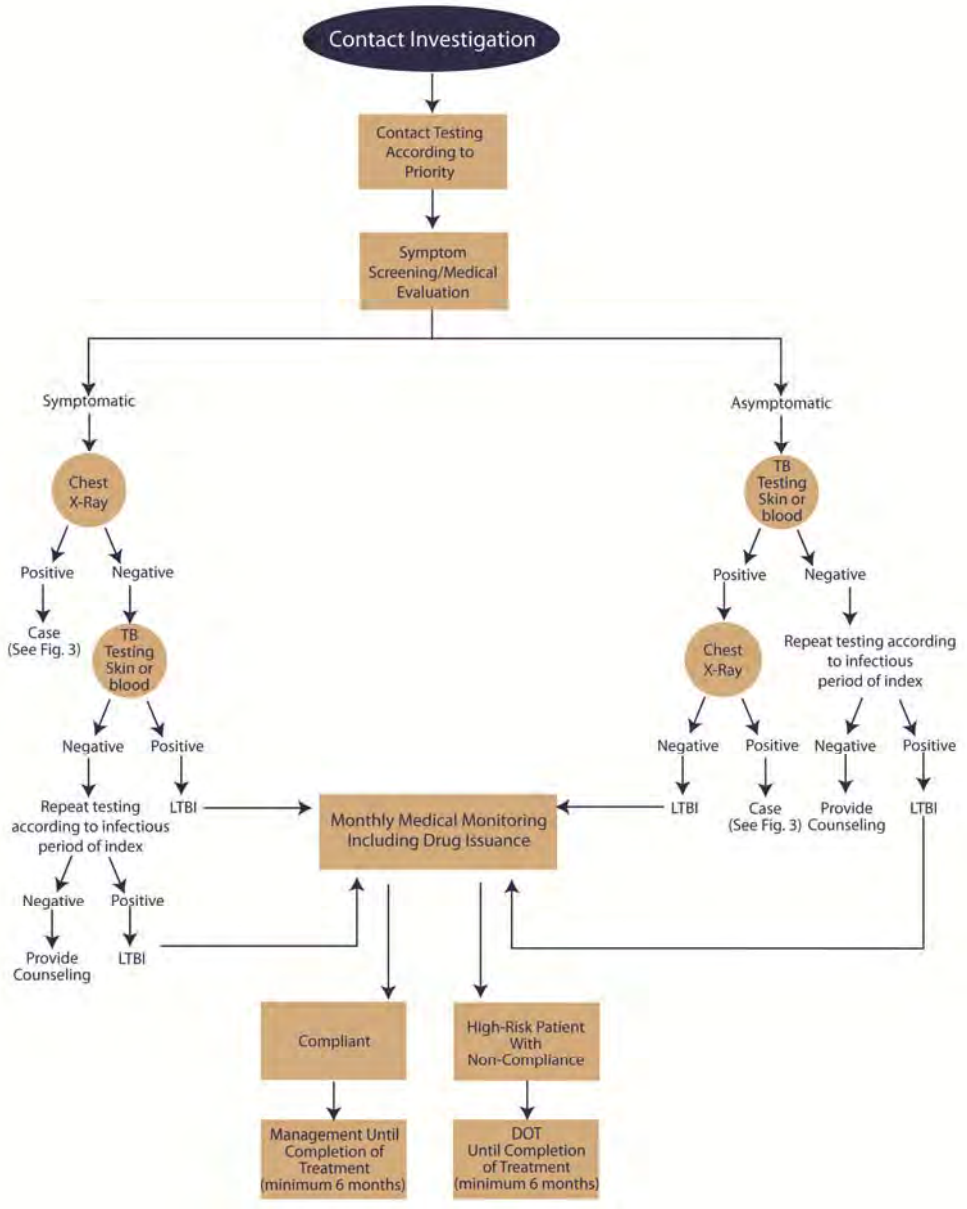


Expectations for Level 1 – Active TB case management includes:

- Perform initial assessment of patient.
- Assure appropriate isolation during the infectious period.
- Render the patient noninfectious through the use of directly observed therapy (DOT).
- Educate the patient and family on TB and the importance of completion of treatment.
- Prevent the development of drug resistant TB through the continued use of DOT until completion of therapy.
- Identify and remove barriers to adherence to drug treatment.
- Provide monthly medical evaluations (more often as indicated by patient health status), including physical examination, laboratory, and radiology services.
- Identify and address other urgent health needs of the patient.
- Address needed social services especially for patients with risk factors such as substance abuse, homelessness and mental illness.

The Local Public Health System (LPHS) is responsible for protecting contacts of active TB patients from developing disease. The County Health Department (CHD) coordinates contact investigation including identification and evaluation of contacts and appropriate treatment of contacts latent TB infection.

Figure 4

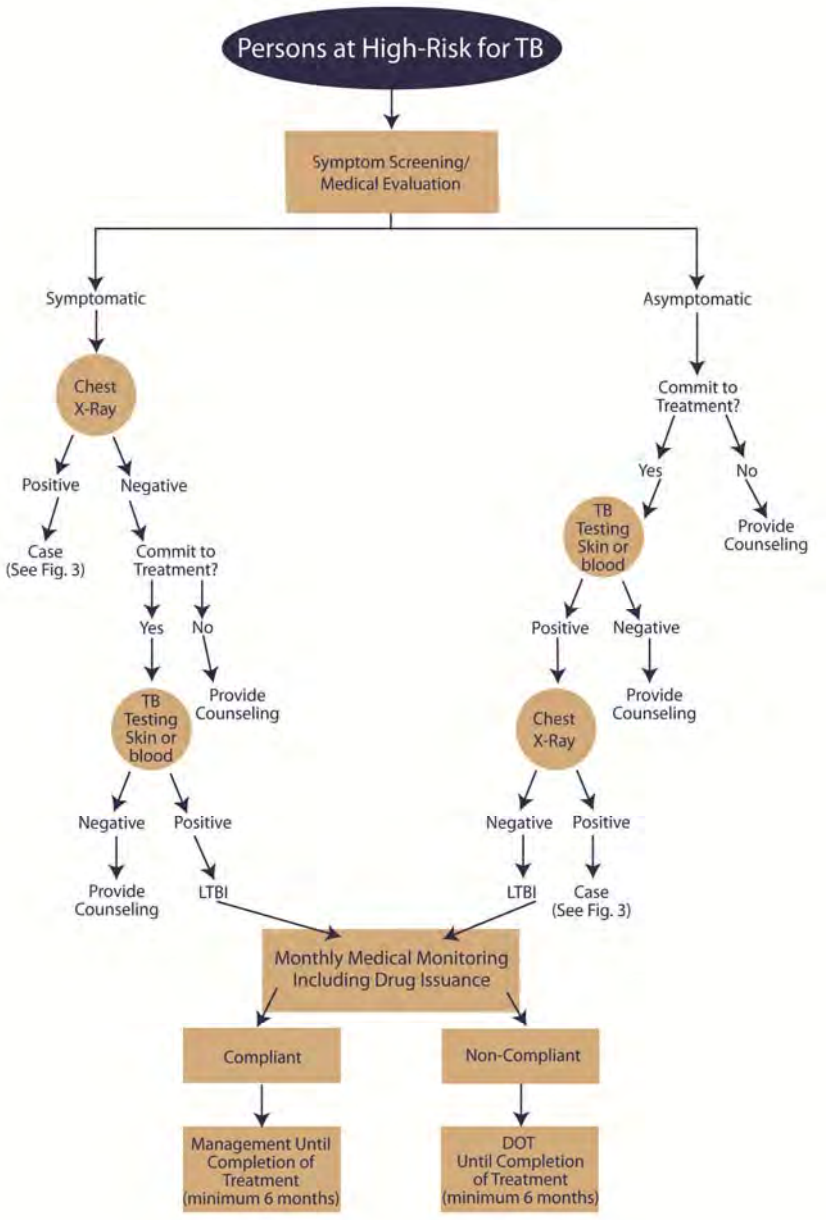


Expectations for Level 1 – Protecting Close Contacts includes:

- Conduct risk assessment for contact investigations based on the clinical features of the index case, the public health risk, and the types of contacts.
- Identify, prioritize and locate contacts for each case of active TB disease.
- Provide medications for the treatment of latent TB infection (LTBI).
- Conduct monthly health and laboratory monitoring and radiology services as indicated.
- Evaluate adherence to treatment.
- Provide directly observed therapy (DOT) to non-compliant patients.

The Local Public Health System (LPHS) is expected to detect and treat LTBI for high risk populations. It is estimated that five to ten percent of people infected with LTBI will develop active TB disease later in their lifetimes and then become a risk to infecting others. People who have HIV and LTBI have a risk of developing active TB at a rate of ten percent per year. In order to reduce the risk to others, populations at risk for LTBI or those at risk for progressing to active TB disease are identified for targeted testing and preventive treatment. The Florida Department of Health Tuberculosis Control Section prioritizes high-risk populations and targets testing to immigrants from countries with higher TB rates, persons living with HIV, persons who are homeless, persons using intravenous or non-injecting drugs and persons consuming excessive amounts of alcohol.

Figure 5



Expectations for Level 1 – Preventing TB Disease includes:

- Conduct targeted screening with populations at high-risk for developing active TB disease.
- Perform TB screening using the TB skin test or TB blood test.
- Provide medications for the treatment of latent TB infection (LTBI).
- Conduct monthly health and laboratory monitoring and radiology services as indicated.
- Evaluate adherence to treatment.
- Provide directly observed therapy (DOT) to non-compliant patients.

The Local Public Health System (LPHS) is responsible for ensuring that infection prevention practices are in place in facilities with individuals at high risk for TB transmission. People who work in health care settings or are residents or employees of congregate living facilities are at higher risk for becoming infected with TB; therefore, it is necessary for these facilities to have a TB infection prevention plan to ensure prompt detection of infectious patients, proper use of airborne precautions, appropriate referral of persons with suspected or confirmed TB disease and appropriate treatment of persons with LTBI.

Expectations for Level 1 – Ensuring Infection Prevention Practices includes:

- LPHS has access to expertise in TB infection prevention practices.
- County Health Department (CHD) has TB Infection Prevention Plan, which includes administrative measures, environmental controls and appropriate use of respiratory protection for all CHD clinics where individuals at high risk for TB transmission may present; and procedures for conducting risk screening and testing for latent TB infection for staff at risk for TB exposure.

Level 2 – Florida Department of Health Area TB Networks

Eight Area TB Networks (Appendix I), which are geographically aligned, collaborate to manage the active TB cases within their boundaries to achieve the TB program strategies.

Each Area TB Network provides medical and social services consultation which allows the majority of active TB patients to successfully complete treatment in their community. It is estimated that five percent of active TB patients may require specialized medical and social services to support completion of treatment that is not readily available within the community. Each Area TB Network works closely with the local CHD to make additional specialized services available to help patients stay as close to home as possible during their treatment.

Expectations for Level 2 – Active TB Case Management includes:

- Establish partnerships to assure access to specialty medical and social services that are not readily available.
- Provide access to licensed healthcare providers with specialties in TB and general medical care for consultation.
- Provide access to enhanced outpatient services including parenteral drug therapy, advanced imaging services with interpretation and home health services.
- Provide access to appropriate transitional housing for persons with TB disease who are infectious.
- Provide access to pharmacy consultation.
- Provide incentives as well as enablers, as needed, for the extended course of therapy needed to achieve completion of treatment to cure, such as fast food coupons, supermarket coupons, and nutritional supplements.
- Coordinate access to expert TB consultation.
- Coordinate collaborative review of cases and identify gaps in services.

Each Area TB Network supports the LPHS to meet the TB program strategies of contact investigation, high-risk population screening and infection prevention measures.
Expectations for Level 2 – Contact Investigation, High-Risk Population Screening, and Infection Prevention Measures includes:

- Support active TB contact investigations.
- Support screening programs for the prevention of TB disease in high-risk populations.
- Support LPHS in infection prevention planning.
- Coordinate mobilization of resources within the network to respond to incidents and outbreaks of TB in a LPHS.

Each Area TB Network supports the monitoring, evaluation, enhanced surveillance and data analysis for the local network. This includes providing technical assistance with the implementation of program policies, procedures and standards of care; providing case and cohort reviews to assure quality of care and accountability toward meeting state and national TB performance targets; and compiling area reporting such as analysis of genotype strain of active TB cases.

Level 3 – Florida DOH Contracted Inpatient Hospital Services

The Florida Department of Health (DOH) contracts for inpatient hospital services for TB patients. The contracted facilities and medical staff are highly specialized and experienced with treating medically and socially complicated TB cases. These facilities provide expert care to court-ordered patients, voluntarily-admitted patients requiring confinement due to complicated social or mental health issues, medically complex patients who have failed management at Levels 1 and 2 or patients with multi-drug resistant or extremely drug resistant TB.

A key Level 3 asset is the DOH Medical Director of the TB Control Section. This individual is an expert tuberculosis clinician with overall responsibility for the medical direction of the Florida DOH Tuberculosis Control Section.

Expectations for Level 3 – Medical Director includes:

- Provide overall medical direction through approval and implementation of statewide clinical guidelines and policies and procedures for outpatient and inpatient management of TB patients to assure uniformity and consistency of TB care in Florida.
- Provide clinical consultation to Level 1 LPHS, including community physicians and County Health Departments (CHDs).
- Provide clinical consultation to Level 2 Area TB Networks to include assistance with management of medically complex patients with the goal of keeping patients in their home communities for as long as possible.
- Coordinate transfer of patients who fail Level 1 or 2 TB care to contracted hospital facilities for admission for Level 3 TB care.
- Collaborate with contracted facilities in the course of treatment for TB by reviewing inpatient case management and participating in discharge planning for the patient's return to the community.
- Conduct regional case and cohort reviews with Level 2 Area TB Network to assure quality of care.
- Conduct utilization review with contracted hospitals for quality assurance of TB care.
- Conduct training to expand the knowledge of practitioners in the identification and treatment of tuberculosis.
- Conduct research to advance knowledge in the identification and treatment of tuberculosis patients.

VI. Summary

This document outlines the framework by which the Florida Department of Health (DOH) supports the Florida System of Tuberculosis Care, a partnership between the DOH and the statewide public health system. Working together, physicians, community based clinics, laboratories, hospitals, social services agencies, academia, and public health professionals form a network that assures the five key components of an effective program are available statewide.

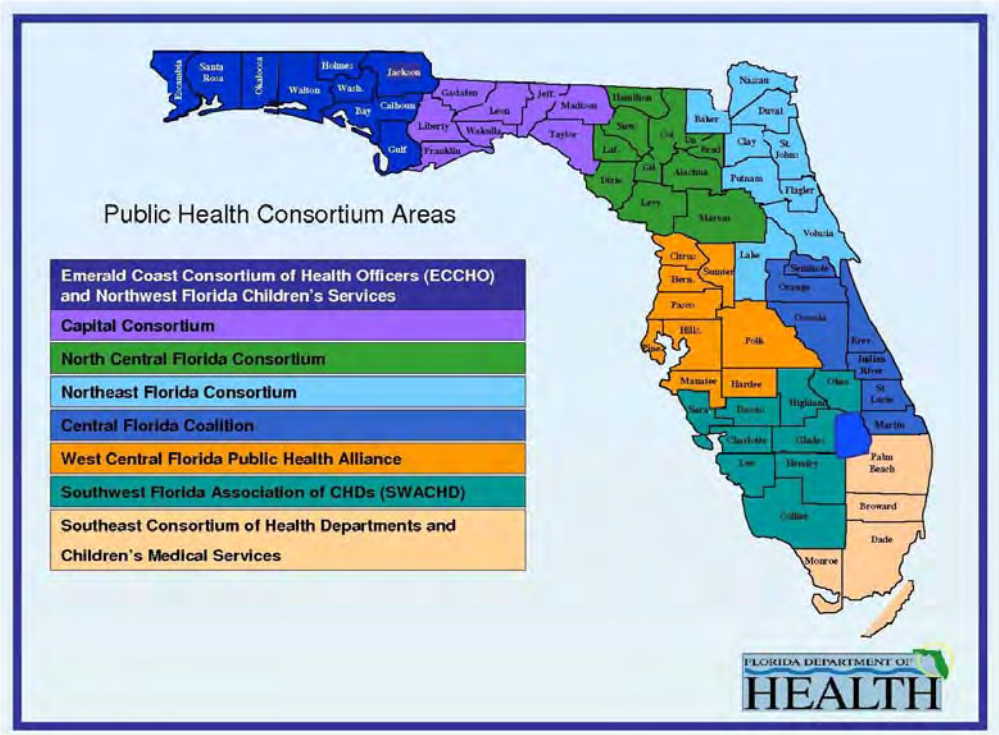
The Florida System of Tuberculosis Care is founded upon proven public health practices, standards and evidence-based tuberculosis control strategies. This patient-centered, community-focused and population-based system of care provides the accountability and adaptability necessary to reduce the rate of TB in our state.

The Florida Department of Health Tuberculosis Control Section organizes TB control activities into three Levels of Care that are mutually supportive, coordinated and patient-centered. The Levels of Care serve as the backbone of the Florida System of Tuberculosis Care. The DOH Tuberculosis Control Section serves as the foundation of the agency's role in the Florida System of Tuberculosis Care. The Section is responsible for ensuring a statewide alignment with national standards for TB elimination through policy development, allocation of resources to support program implementation, monitoring of TB trends and program evaluation

The cornerstone of the system is a holistic assessment of each person's needs combined with the use of intensive case management and effective outreach to ensure every patient with active disease remains under medical supervision until completion of curative therapy. The system ensures access to hospitalization when needed; best utilizes new medical technologies and most effectively uses resources. The system ensures contacts to active TB cases are identified, screened and treated as needed. The system ensures resources are targeted to high-risk persons for TB infection and disease. The commitment of the DOH is to treat to cure all forms of tuberculosis.

In closing, the Florida System of Tuberculosis Care is designed to focus necessary resources to reduce the tuberculosis rate in Florida by 50 percent by 2020.

APPENDIX I


Public Health Consortium Areas
Emerald Coast Consortium of Health Officers (ECCHO) and Northwest Florida Children's Services
Capital Consortium
North Central Florida Consortium
Northeast Florida Consortium
Central Florida Coalition
West Central Florida Public Health Alliance
Southwest Florida Association of CHDs (SWACHD)
Southeast Consortium of Health Departments and Children's Medical Services
FLORIDA DEPARTMENT OF HEALTH

ATTACHMENT 2
Florida Tuberculosis Control
Progress Toward National Objectives
By Year

Objective Categories	National Objectives and 2015 Performance Targets *	Florida Performance By Year						
		2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
1. Completion of Treatment	For patients with newly diagnosed TB for whom 12 months or less of treatment is indicated, increase the proportion of patients who complete treatment within 12 months to 93.0%.	88.3% (819/989) **2005** 88.6% (912/963)	81.9% (731/947)	89.7% (719/801)	89.2% (595/667)	Not available	Not available	Not available
2. TB Case Rates U.S.-born Persons	Decrease the TB case rate in U.S.-born persons to less than 0.7 cases per 100,000. (Increase the average yearly decline in TB case rate in U.S.-born persons to at least 11.0%.)			3.3	2.6 (21.2%)	2.9 11.5%	2.3 (20.7%)	2.2 (4.3%)
Foreign-born Persons	Decrease the TB case rate for foreign-born persons to less than 14.0 cases per 100,000. (Increase the average yearly decline in TB case rate in foreign-born persons to at least 4.0%.)			13.7	13.1 (4.4%)	12.3 (6.1%)	10.8 (12.2%)	9.2 (14.8%)
U.S.-born non-Hispanic Blacks	Decrease the TB case rate in U.S.-born non-Hispanic blacks to less than 1.3 cases per 100,000.			11.7	11.1	9.4	9.9	8.1
Children Younger than 5 Years of Age	Decrease the TB case rate for children younger than 5 years of age to less than 0.4 cases per 100,000.			3.4	2.3	2.7	1.8	1.2
3. Contact Investigation Contact Elicitation	Increase the proportion of TB patients with positive acid-fast bacillus (AFB) sputum-smear results who have contacts elicited to 100.0%.	84.9% (333/392)	88.2% (323/366)	91.3% (303/332)	91.4% (222/243)	92.5% (233/252)	Not available	Not available

ATTACHMENT 2
Florida Tuberculosis Control
Progress Toward National Objectives
By Year

Objective Categories	National Objectives and 2015 Performance Targets *	Florida Performance By Year						
		2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Evaluation	Increase the proportion of contacts to sputum AFB smear-positive TB patients who are evaluated for infection and disease to 93.0%.	81.1% (3196/3941)	79.9% (2925/3657)	83.0% (2718/3288)	91.4% (3049/3337)	80.0 (2005/2505)	Not available	Not available
Treatment Initiation	Increase the proportion of contacts to sputum AFB smear-positive TB patients with newly diagnosed latent TB infection (LTBI) who start treatment to 88.0%.	55.1% (441/801)	65.7% (542/825)	64.3% (510/793)	60.6% (356/587)	55.5% (351/632)	Not available	Not available
Treatment Completion	For contacts to sputum AFB smear-positive TB patients who start treatment for newly diagnosed LTBI, increase the proportion who complete treatment to 79.0%.	57.6% (254/441)	61.4% (333/542)	59.0% (300/510)	64.9% (231/356)	59.0% (207/351)	Not available	Not available
4. Laboratory Reporting Turnaround Time	Increase the proportion of culture-positive or nucleic acid amplification (NAA) test-positive TB cases with a pleural or respiratory site of disease that have the identification of M. tuberculosis complex reported by laboratory within N days from the date the initial diagnostic pleural or respiratory specimen was collected to n%.							
Drug-susceptibility Result	Increase the proportion of culture-positive TB cases with initial drug-susceptibility results reported to 100.0%.							
5. Treatment Initiation	Increase the proportion of TB patients with positive AFB sputum-smear results who initiate treatment within 7 days of specimen collection to n%.			64.3%	72.3%	67.1%	73.6%	72.1%
6. Sputum Culture Conversion	Increase the proportion of TB patients with positive sputum culture results who have documented conversion to sputum culture-			57.9%	53.5%	53.3%	60.4%	

ATTACHMENT 2
Florida Tuberculosis Control
Progress Toward National Objectives
By Year

Objective Categories	National Objectives and 2015 Performance Targets *	Florida Performance By Year						
		2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
	negative within 60 days of treatment initiation to 61.5%.\							
7. Data Reporting RVCT	Increase the completeness of each core Report of Verified Case of Tuberculosis (RVCT) data item reported to CDC, as described in the TB Cooperative Agreement announcement, to 99.2%.	99.4%	96.9%	99.7%	99.5%	98.7%	Not available	Not available
ARPEs	Increase the completeness of each core Aggregated Reports of Program Evaluation (ARPEs) data items reported to CDC, as described in the TB Cooperative Agreement announcement, to 100.0%.			100%	100%	100%	100%	100%
EDN	Increase the completeness of each core Electronic Disease Notification (EDN) system data item reported to CDC, as described in the TB Cooperative Agreements announcement, to n%.							
8. Recommended Initial Therapy	Increase the proportion of patients who are started on the recommended initial 4-drug regimen when suspected of having TB disease to 93.4%.			84.3%	85.1%	82.8%	92.3%	82.2%
9. Universal Genotyping	Increase the proportion of culture-confirmed TB cases with a genotyping result reported to 94.0%.			34.0%	64.0%	86.0%	98.5%	99.0%
10. Known HIV Status	Increase the proportion of TB cases with positive or negative HIV test result reported to 88.7%.			83.6%	79.5%	83.4%	82.2%	77.2%
11. Evaluation of Immigrants	For immigrants and refugees with abnormal chest x-rays read overseas as			33.0%	34.0%	49.0%	35.0%	Not

ATTACHMENT 2
Florida Tuberculosis Control
Progress Toward National Objectives
By Year

Objective Categories	National Objectives and 2015 Performance Targets *	Florida Performance By Year						
		2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
and Refugees Evaluation Initiation	consistent with TB, increase the proportion who initiate medical evaluation within 30 days of arrival to n%.							available
Evaluation Completion	For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, increase the proportion who complete medical evaluation within 90 days of arrival to n%.			40.0%	38.2%	62.0%	44.0%	Not available
Treatment Initiation	For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB and who are diagnosed with latent TB infection (LTBI) during evaluation in the U.S., increase the proportion who start treatment to n%.			65.0%	64.0%	63.0%	74.0%	Not available
Treatment Completion	For immigrants and refugees with abnormal chest x-rays read overseas as consistent with TB, and who are diagnosed with latent TB infection (LTBI) during evaluation in the U.S. and started on treatment, increase the proportion who complete LTBI treatment to n%.	84.0%		67.0%	61.0%	61.0%	43.0%	Not available
12. Sputum-culture Reported	Increase the proportion of TB cases with a pleural or respiratory site of disease in patients ages 12 years or older that have a sputum-culture result reported to 95.7%.	76.0%		88.0%	90.2%	86.6%	81.6%	80.5%

*National Objectives and 2015 Performance Targets downloaded from CDC Tuberculosis Control website, May 5, 2013. Objectives number 4, 5, 7, and 11 do not have performance targets established and are designated with an “n”.