



TB Toolkit

Center for Child and
Adolescent Health

St. Christopher's Hospital
for Children

2013

Question? Email agosti.y@gmail.com

10 Tools to help you

- Risk assessment and BCG Atlas
- Testing recommendations
- TST interpretation chart
- Measuring TST results
- TB classifications
- TB history and physical
- Lab orders
- TB formulary
- PDPH consult form
- Treatment completion letter

Tool 1 Risk Assessment

If they DON'T
have risk
factors
DON'T test
them

Tuberculosis

Table 3.77.

Validated Questions for Determining Risk of LTBI in Children in the United States

- Has a family member or contact had tuberculosis disease?
- Has a family member had a positive tuberculin skin test result?
- Was your child born in a high-risk country (countries other than the United States, Canada, Australia, New Zealand, or Western and North European countries)?
- Has your child traveled (had contact with resident populations) to a high-risk country for more than 1 week?

LTBI indicates latent tuberculosis infection.

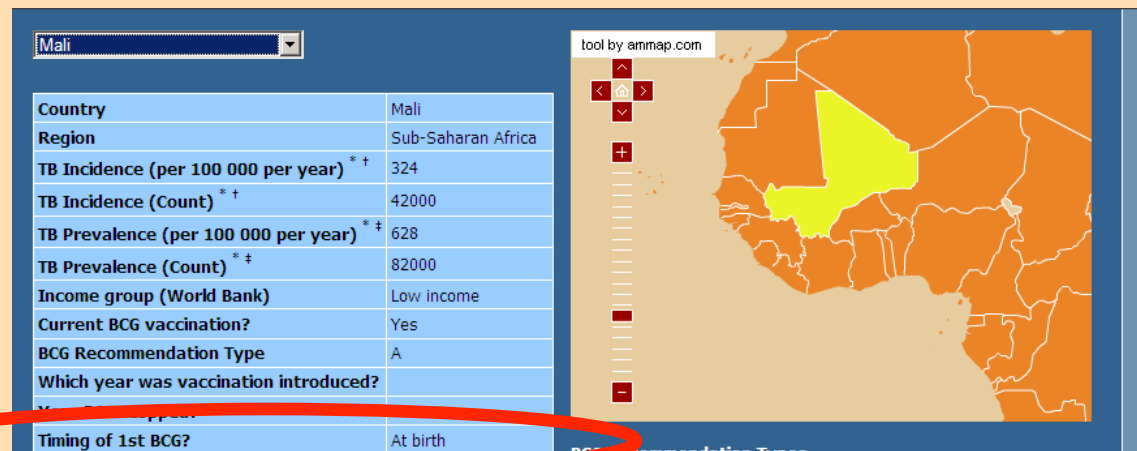
THE BCG WORLD ATLAS

A DATABASE OF GLOBAL BCG VACCINATION POLICIES AND PRACTICES.

Unsure if
TB is
endemic
where they
come from?
Check here!

www.bcgatlas.org

If they give
BCG vaccine
then TB is
endemic



Tool 2 Testing Recommendations

If they DON'T
have risk
factors
DON'T test
them

Table 3.78.

Recommendations for Use of the Tuberculin Skin Test (TST) and an Interferon-Gamma Release Assay (IGRA) in Children

TST preferred, IGRA acceptable

- Children <5 y of age^a

IGRA preferred, TST acceptable

- Children ≥5 y of age who have received BCG vaccine
- Children ≥5 y of age who are unlikely to return for TST reading

TST and IGRA should be considered when:

- The initial and repeat IGRA are indeterminate
- The initial test (TST or IGRA) is *negative* and:
 - Clinical suspicion for TB disease is moderate to high^b
 - Risk of progression and poor outcome is high^b
- The initial TST is *positive* and:
 - >5 y of age and history of BCG vaccination
 - Additional evidence needed to increase compliance
 - Nontuberculous mycobacterial disease is suspected

Tool 3 Measuring TST results

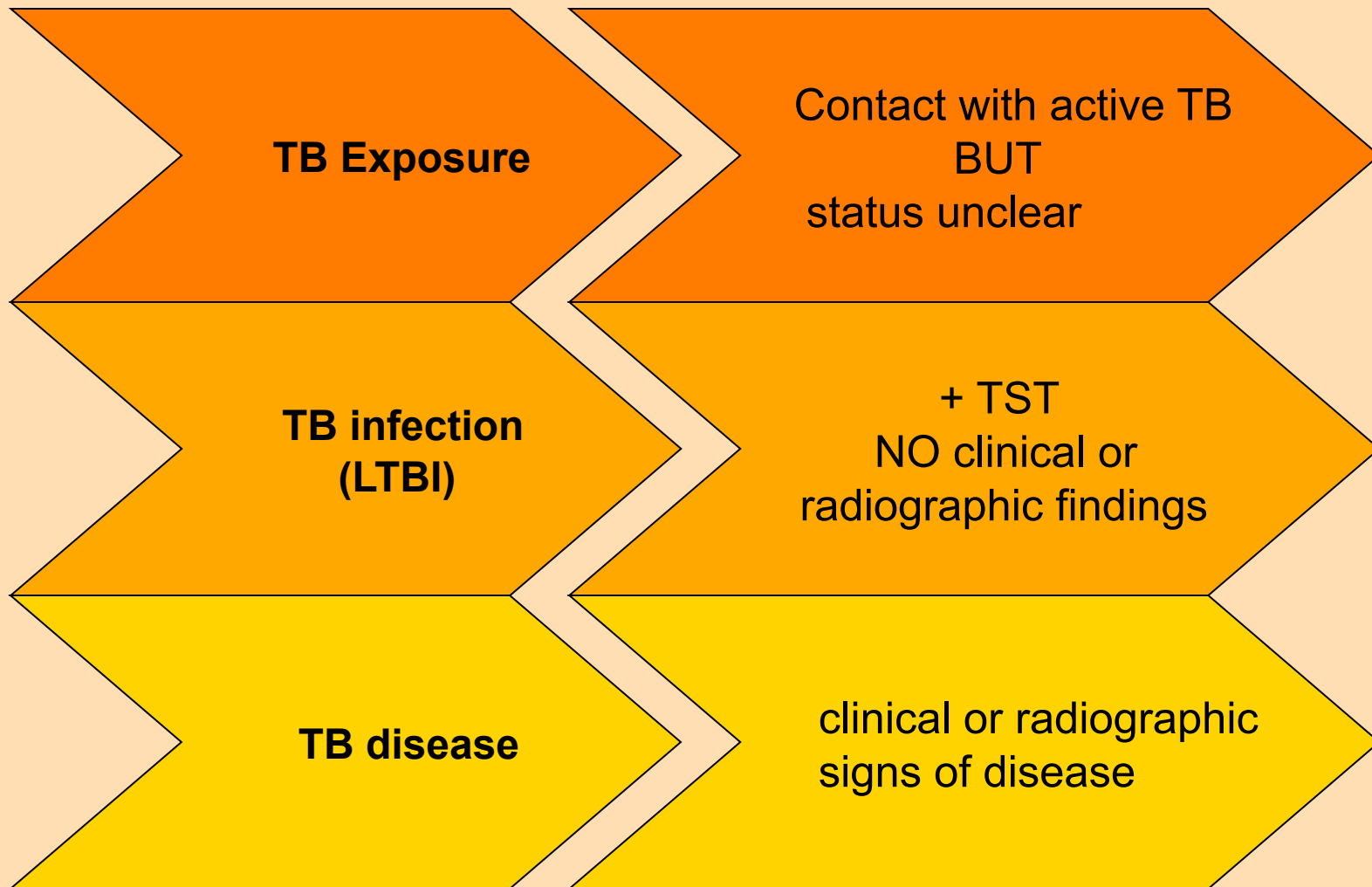
Table 4. Reaction Size of Tuberculin Skin Test Considered Positive

Reaction Size	Risk Factors
≥ 5 mm	Human immunodeficiency virus infection or other immunocompromising conditions Abnormal chest radiograph consistent with tuberculosis Contact with an infectious case
≥ 10 mm	Age <4 years Birth or residence in high-prevalence country Residence in a correctional or long-term care facility Certain medical conditions (eg, diabetes, renal failure, silicosis) Health-care workers exposed to patients who have tuberculosis Any child who is a close contact of an adult who has any of the previously noted high-risk factors
≥ 15 mm	No risk factors

IGNORE the history of a BCG vaccine when interpreting

Don't use 15 mm in your interpretation. If no risk factors – no TST!

Tool 4 TB Classifications



Tool 5 TB Medical History

TABLE 5. Medical History to be Obtained for a Child With a Positive TST

Evaluations	Comments
Signs and symptoms of TB disease	Cough; wheezing; fever; weight loss; failure to thrive; anorexia; decreased activity, playfulness, or energy; hemoptysis; musculoskeletal pain; lymph node swelling; personality changes
Past medical history TB disease or LTBI Other	<p>Previous history of LTBI or TB treatment</p> <p>Previous TST history</p> <p>Concomitant medications</p> <p>With INH: alterations in phenytoin drug levels and carbamazepine increases risk of hepatotoxicity</p> <p>With rifampin: many drugs may interact, and potential interactions should be reviewed</p> <p>Past hospitalizations</p> <p>Underlying diseases (eg, hepatitis, HIV)</p> <p>Drug allergies</p> <p>Maternal HIV status (if known)</p> <p>Recent immigration from an area with a high incidence of TB-drug resistance</p>
Potential source-case identification	<p>Known contact with TB patient</p> <p>TB treatment history (erratic or previous treatment predicts drug resistance) of source case</p> <p>Susceptibilities of isolate of source case (if known)</p>
Assessment of factors that can impact adherence	<p>Living in temporary housing or shelter</p> <p>Family remaining in treatment area</p> <p>Travel plans while on treatment</p> <p>Availability of DOT program</p> <p>Understanding of TB disease and LTBI</p>

Tool 6 Focused physical exam

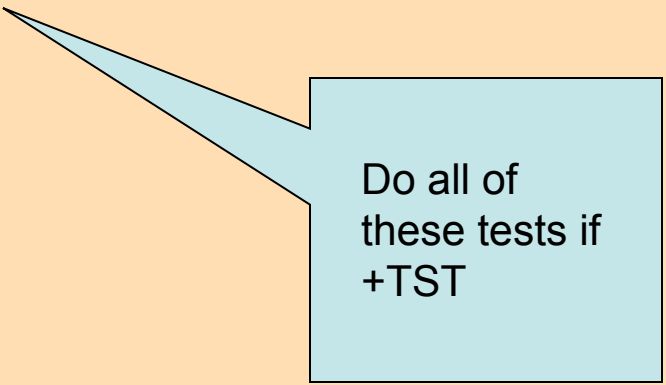
TABLE 6. Elements of the Targeted Physical Exam for Children With a Positive TST

Elements of Targeted Physical Examination	Physical Findings of TB Disease
General appearance and growth	Poor weight gain, falling off growth curve
Conjunctiva	Scleral icterus
Neck flexion	Neck stiffness
Lymph node palpation	Lymphadenopathy (neck, axilla)
Ascultation of lung	Rales, wheezes, decreased breath sounds over affected lung field
Auscultation of heart	Tachycardia, friction rub
Abdomen and flanks	Hepatosplenomegaly, flank tenderness
Spine/bones	Bone tenderness/limping
Skin	Jaundice or preexisting rashes (nodules, ulcers, papules, erythema nodosum)

Neuro: Cranial nerve abnormalities

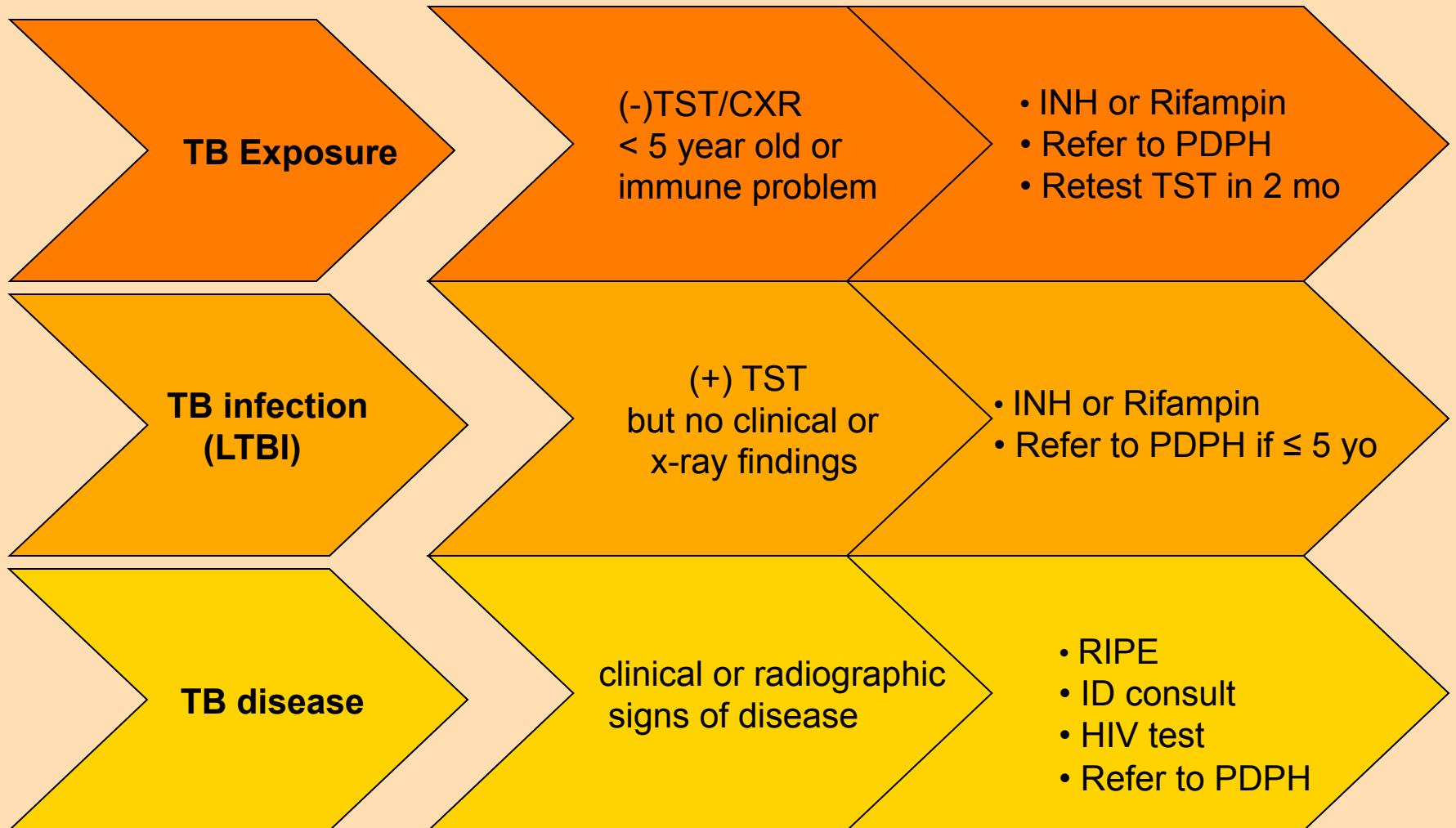
Tool 7 Baseline Labs/Rads

- CXR – PA and lateral
- CBC with differentiation
- LFT's : AST, ALT, AP and GGT
- Hep B panel : HBsAg, anti-HBs, anti-HBc
- Hep C Antibodies
- HIV

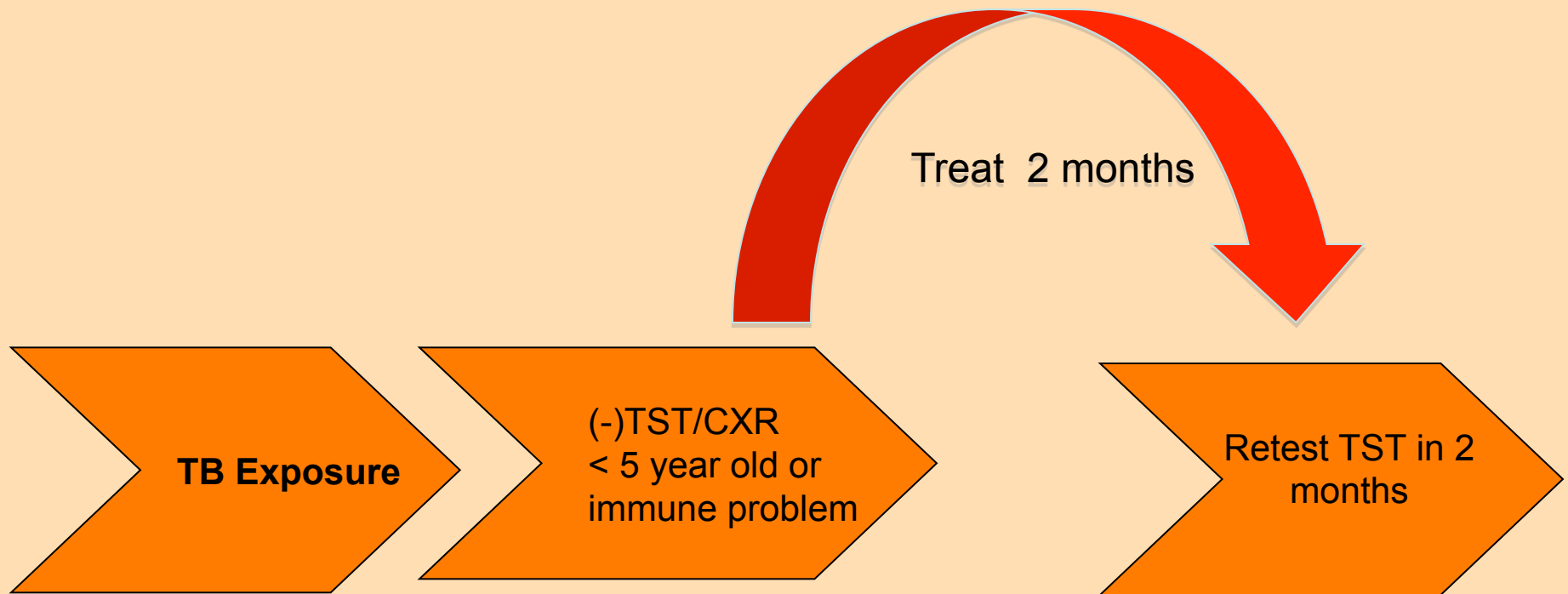


Do all of
these tests if
+TST

When to start treatment



What is “Bridge Therapy” ?



Tool 8 TB Formulary

Agent	Daily Dose	
	Children (mg/kg per day)	Maximum Dose

General rule:
 If American born use INH
 If patient or parents foreign born use Rifampin

Bridge Therapy and LTBI:

<u>First-line Agents</u>		
Isoniazid ³	10 to 15	300 mg . . . daily x 9 months
Rifampin	10 to 20	600 mg . . . daily x 6 months if < 12 OR daily x 4 months if ≥ 12

If TB Disease add on these drugs and call ID:

Pyrazinamide	30 to 40	2 g
Ethambutol	20	2.5 g

Tool 9 Philadelphia Department of Public Health TB consultation form

REPORT/CONSULTATION FORM FOR PEDIATRIC TUBERCULOSIS CASE
If this is a suspicious case for active TB, please call TB Control immediately at 215-886-8873

Report Date: ___/___/___

PCP Name (print): _____
 Health Center #: ___ or PCP Office Phone: _____

Place Patient's Sticker Here

Patient Information	
Patient's Last Name: _____	Date of Birth: ___/___/___ Age: ___ years
First & Middle Name: _____	Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
Patient's Weight: _____ lb _____ oz	Allergies: _____ <input type="checkbox"/> NKDA
Ethnicity: <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Not Hispanic or Latino	Medications: _____
Race: <input type="checkbox"/> White <input type="checkbox"/> Black <input type="checkbox"/> Asian <input type="checkbox"/> American Indian/Alaska Native <input type="checkbox"/> Native Hawaiian/Other Pacific Islander <input type="checkbox"/> Other	Did Patient Ever Receive BCG Vaccination? <input type="checkbox"/> Unknown <input type="checkbox"/> No <input type="checkbox"/> Yes (Date: ___/___/___)
Current Address: _____ Apt # _____ Philadelphia, PA ZIP: _____	Country of Patient's Birth: _____ Year Patient Arrived in U.S.: _____ <input type="checkbox"/> NIA
Phone Number (Home/Other): _____ (Work): _____ (Cell): _____ <input type="checkbox"/> Patient's <input type="checkbox"/> Parents	Name of Primary Guardian(s): _____
School Name: _____	Country of Primary Guardian's Birth: _____ Year Primary Guardian Arrived in U.S.: _____ <input type="checkbox"/> NIA
Test Information	
Tuberculin Skin Test (TST): Date TST Placed: ___/___/___ Date TST Read: ___/___/___ TST Results: Specify size: _____ mm	LFT's (AST, ALT, GGT, AP) Done? <input type="checkbox"/> No <input type="checkbox"/> Yes (Date: ___/___/___) OBG Done? <input type="checkbox"/> No <input type="checkbox"/> Yes (Date: ___/___/___)
Date of CXR: ___/___/___ Results: <input type="checkbox"/> Normal <input type="checkbox"/> Abnormal (Non-cavitary) <input type="checkbox"/> Abnormal (Cavitary)	Was Hep B Panel Ordered (HBsAg, Anti-HBs, Anti-HBc)? <input type="checkbox"/> No <input type="checkbox"/> Yes Were Hepatitis C Antibodies Ordered (Anti-HCV)? <input type="checkbox"/> No <input type="checkbox"/> Yes
If Patient with Chronic Cough and >8 Years, was Baseline Sputum Collected? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	HIV Test Ordered? <input type="checkbox"/> No <input type="checkbox"/> Yes (Date: ___/___/___) Mother's HIV Status: <input type="checkbox"/> Unknown <input type="checkbox"/> Negative <input type="checkbox"/> Positive
Risk Factors	
Primary Reason Tuberculin Skin Test (TST) Placed: <input type="checkbox"/> TB Symptoms <input type="checkbox"/> Contact of Active TB Case <input type="checkbox"/> Household Member with LTBI <input type="checkbox"/> Household Member with Increased Risk of TB Infection/Exposure <input type="checkbox"/> Recent Hist of Detention, Incarceration, Shelter Stay <input type="checkbox"/> Travel to TB Endemic Area <input type="checkbox"/> Routine Screening <input type="checkbox"/> Other (explain below)	Has the Patient Lived or Traveled Outside the U.S. for 2 or More Months? <input type="checkbox"/> No <input type="checkbox"/> Yes
Physician's Reason for Consultation	
<input type="checkbox"/> Report/Forward High Risk Case (management by TBC) <input type="checkbox"/> Request for CXR review (explain below) <input type="checkbox"/> Choice of medication <input type="checkbox"/> Other (explain below)	Special Request for Contact Investigation and/or TST Placement of Household Members: <input type="checkbox"/> No <input type="checkbox"/> Yes (explain below)
PCP Comments/Questions/Explanations: _____ _____	
THIS SECTION FOR TB CONTROL RESPONSE	
<input type="checkbox"/> Management by TBC: <input type="checkbox"/> Active TB Regimen <input type="checkbox"/> Latent TB Infection Regimen <input type="checkbox"/> Rifampin <input type="checkbox"/> Isoniazid *Dosage: _____ mg <input type="checkbox"/> Daily <input type="checkbox"/> Twice a Week Pick Center Appointment Made? <input type="checkbox"/> Not yet <input type="checkbox"/> Yes (for the following date: ___/___/___)	
<input type="checkbox"/> Management by PCP. Medication recommendation: <input type="checkbox"/> Isoniazid 10-15mg/kg/day once daily <input type="checkbox"/> Rifampin 10-20mg/kg/day once daily	
Comments/Notes to PCP: _____ _____	
THIS SECTION FOR PCP'S DISPOSITION	
Please provide disposition when available (see text below) <input type="checkbox"/> Completed by <input type="checkbox"/> Refused <input type="checkbox"/> Lost to follow up <input type="checkbox"/> Other	

Report if:

- Child under 5
- Anyone with TB disease
- Your patient was exposed to someone with TB disease

Complete as much as possible, especially:

- age
- country of birth
- country of parents birth
- TST
- CXR
- baseline labs
- comments or questions

Tool 10 Completion of Treatment Form

 **St. Christopher's
Hospital for Children**

3601 A Street
Philadelphia, PA 19134
Tel: 215-427-5000
www.stchristophershospital.com

Latent Tuberculosis Completion of Treatment Letter

Date: _____

To Whom It May Concern:

_____ received a Mantoux tuberculin test/IGRA (circle) on _____. A positive test result of _____ mm/, or a _____ IGRA was observed on _____.

A chest x-ray performed on _____ was negative with no evidence of active tuberculosis disease.

Since it was determined that the skin test was positive with no evidence of active disease, a course of _____ as preventative antituberculosis treatment was initiated on _____ and completed on _____.

No future tuberculin skin tests should be necessary as it would be expected to be a positive reaction. Any concerns in regard to the above information may be addressed by our office or their physician.

Sincerely,

Physician name and license number



Make a copy
for the
patient's file

Bibliography

The Red Book. American Academy of Pediatrics. 2012

Cruz, A and J Starke "Pediatric Tuberculosis" Peds in Review Vol 31 No Jan 2010

Targeted Tuberculin Skin Testing and Treatment of Latent Tuberculosis Infection in Children and Adolescents. Pediatrics 2004; 114:1175

Perez-Velez, C. Pediatric tuberculosis : new guidelines and recommendations. Current Opinion in Pediatrics. 24:319-328. 2012.