



Position on Tuberculosis (TB) Management in International Adoptees

The Centers for Disease Control and Prevention (CDC) has TB screening guidelines for all immigrants. However, since 2007 the CDC now requires more stringent testing if the immigrant is from a country where TB is more prevalent. This revised policy has been rolling out a few countries at a time since its inception two years ago.^{1,2} In 2009, this guideline encompassed China, Ethiopia, and Haiti, three countries open to international adoption. China and Ethiopia made up 32 percent of the 17,438 international adoptions in 2008.³ On September 18, 2009, the CDC issued an addendum to the technical instructions for applicants aged 10 years of age or younger.²⁴

On July 7, 2009, the Joint Council on International Children's Issues (JCICS) issued a call to action urging prospective adoptive parents, adoptive parents, and members of the public to sign a petition to waive the more stringent TB screening guidelines for the Ethiopia, China and Haiti adoptees and future adoptees in high TB-burdened countries, as identified by the CDC.

PEAR supports the 2007 CDC TB screening guidelines and technical instructions addendum and opposes the JCICS call to action for the following reasons:

- The earlier the detection of **any** form of TB, the better it is for the child, adoptive family, country of origin and US local community.
- The only practical way to enforce a TB screening policy for high-risk countries is for the screening to be a prerequisite to receiving an immigration visa. Such a policy virtually assures 100 percent compliance as opposed to a voluntary testing regime after entry to the US.
- The impact of waiving TB screening has not been fully taken into account by JCICS.
- Dangerous and erroneous assumptions have been made about the level of preparation that adoptive parents are receiving pre-adoption, as well as the level of support and education that adoptive parents are receiving post-adoption with respect to latent TB, active TB, and multi-drug resistant TB (MDR-TB).
- The JCICS is downplaying the seriousness of TB as a potentially lethal and communicable disease.
- All the available data shows that more screening is needed in high-risk countries--not less—in order to protect the health of these vulnerable children, the population in which they live, and their country of origin.
- The possibility of latent TB therapy for adoptive families and local US communities seems to be disregarded. TB in children is difficult to detect and is even more difficult to treat. That the JCICS seems willing to discount the reality of present-day TB exposure and treatment is extremely worrying.

We urge agencies and those that provide pre-adoption training to discuss TB screening, the risk of their adoptive child having TB and how to follow-up at home post-adoption.

We also urge adoptive parents of internationally adopted children who are not part of this stringent protocol due to their young age or country of origin to seek out TB screening for their child(ren) and adhere to the follow-up suggested by medical personnel.

PEAR's concerns about the JCICS call to action

(<http://www.jcics.org/Build%20Families%20Not%20Barriers.htm>)

JCICS Point 1: *Adopted children of American citizens, much like children born to American citizens abroad, pose a negligible threat to the public health of the United States.*

PEAR Response:

- Children born to American citizens abroad are not and never have been in the same patient population as international adoptees. Differences in international adoptees include use of BCG vaccine, malnutrition, poor hygienic living conditions, institutional settings, being exposed to adult caregivers with TB, and being exposed in their communities to adults with TB and HIV. As a whole, children being adopted from these circumstances have a huge disparity of immune status compared to children born to American citizens abroad. Worse, this point deliberately misleads prospective parents away from the very real problem: the potential of foreign-born children residing in orphanages in high-prevalence TB countries having latent TB, active TB or MDR-TB, and the impact this will have ***not only on the child, but the adoptive family, and the community once the child has immigrated.***
- As international adoptees have always been considered immigrants and subject to any immigration policy, why is it only ***now***, 2 years after these stringent guidelines have been known, that adoption agencies are bringing this subject up to adoptive parents ***after*** referrals have been given?

Possible Solution: Keep the CDC guidelines and require adoption agencies to inform prospective adoptive parents of complete health risks, accurate travel schedules, and accurate costs and burdens post-adoption for the treatment of TB.

JCICS Point 2: *The CDC instructions deny U.S.-based medical treatment for children adopted by U.S. citizens.*

PEAR Response:

- How can the CDC **deny** US-based medical treatment? It's suspected that the point trying to be made is related to a provision called an I-601 waiver (aka Class A waiver). The CDC guidelines include a Class A waiver for immigrants with active TB. This waiver allows the parent to opt to bring a child with active TB to the US as long as specific conditions are met. Conditions include a US doctor *and* state health officer signing the waiver to take responsibility for treatment of the child, the child reporting to the doctor or health facility upon arrival to the US for appropriate treatment, parental agreement to comply with the entire therapy, and parental acknowledgement of financial burden of treatment. The CDC technical instructions addendum that is dated September 18, 2009 includes further details of the Class A waiver system and electronic tracking to ensure complete TB treatment.²⁴ ***Removing country of origin screening removes the safeguard to US citizens. In addition, such a policy shift would put the burden on the adoptive family to infer the necessity of the testing and subsequent cost of possible treatment, which was likely not a planned adoption expense.***
- Waiving screening in the country of origin ***dangerously assumes*** that the parent will understand and follow-through with comprehensive screening and treatment upon return to the US. ***Compliance is grossly omitted in this point.*** Two recent studies have recorded adoptive parent compliance. One shows that 51 percent of adoptive parents did **not** follow-up with requirements for the TB screening process even after multiple attempts from the international adoption clinic.⁴ The recently-completed survey by PEAR shows that only 37 percent of the 486 international adoptive parent respondents used an International Adoption clinic or provider with international adoption expertise post-adoption. Only 57 percent of the adoptive parent respondents had their child tested with the Mantoux TB screening test post-adoption.⁵

Possible Solution: If implementation of the I-601 waiver after a child has been screened or if better training of the examining physicians in the country of origin is the issue, then we recommend an investigation into I-601 waiver implementation or physician training instead of throwing out the entire country-of-origin TB screening process.

JCICS Point 3: *The most vulnerable of all children are orphans who are older and have special needs. The new protocols will result in further developmental and physical delays for the children of American citizens.*

PEAR Response:

Older and special needs children are at a **higher** risk for active TB and multi-drug resistant TB (MDR-TB), which requires a more complicated treatment. By screening the child in the country or origin, the adoptive family will be more prepared. If the child does have active TB, that data will be sent to appropriate local health departments via these guidelines to assist the parents with the treatment protocol.

Possible Solution: Keep the CDC guidelines and require adoption agencies to inform prospective adoptive parents of complete health risks, accurate travel schedules, and accurate costs and burdens post-adoption for the treatment of TB.

JCICS Point 4: *The instructions do not apply to American citizens living abroad or their children and should not apply to children adopted by U.S. citizens.*

PEAR Response:

- American citizens living abroad are not and never have been in the same patient population of malnourished children living in poor hygienic conditions among a local community of adults that have high likelihood of TB or HIV exposure.
- For those Americans that do live in high-risk conditions, why isn't there pressure to have instructions changed so they also will be screened? Isn't it important to know which adoptees have active TB for the sake of the children that remain in the orphanage and their caregivers? How would screening **only** in the US help **those** orphans? Why ask for **less** screening instead of **more**?

Possible Solution: Keep the CDC guidelines. Country-of-origin screening is the best way to protect American citizens living abroad, potential adoptees, and all children who may have been exposed to TB.

JCICS Point 5: *The risk of TB transmission, even in active cases, is minimal for infected children under the age of 12 years.*

- This point misses the real issue, which is the risk of living with an **untreated** child with any of the forms of TB--latent, active, or MDR--if screening is waived in the country of origin.
- This point does not take into account the need for adoptive parents to effectively screen and treat their adoptive child. In the absence of country-of-origin TB screening, this task falls completely on the adoptive parents in the US. Data shows there is a low rate of TB screening and compliance with protocols post-adoption.^{4, 5, 8} Since TB in children tends to be hard to outwardly see, removing country-of-origin screening makes it possible that a family may not be aware that their child is infected upon arrival to the US. A study suggests up to 32 percent of household contacts with children with active TB may need latent TB treatment.¹²
- The “adult form” of TB can transmit. Two factors that are correlated with active TB or for spreading TB, albeit rarely from children, are cavitory lesions in the lung (shown by screening with a chest x-ray) and smears with significant amounts of TB bacteria (gathered by spit smears or sampling of stomach juices).^{6,9} Children **can** have this “adult form” and this even occurs in US children.⁹ The CDC screening process factors these two important checks of chest x-ray and smears into the decision tree if a child’s skin test indicates TB exposure.
- In the absence of country-of-origin TB screening, what controls are in place to prevent an unknowingly infected child with cavitory lesions (aka the adult form of TB) or MDR-TB from exposing children in daycare, schools, houses of worship, and any other public locations? Who will be liable for screening and possible medical care costs of contacts, particularly if they need to undergo latent TB therapy? Since clinical data to date has shown it is rare for children to transmit active TB, should the local communities be relieved that they might **only** have to be treated with latent TB therapy instead of an active TB regimen?

Possible Solution: Keep the CDC guidelines and require adoption agencies to inform prospective adoptive parents of complete health risks, accurate travel schedules and accurate costs and burdens post-adoption for the treatment of TB.

JCICS Point 6: *After two weeks of treatment, and three negative AFB smears an infected person is no longer contagious. The CDC instructions therefore, are unnecessary when applied to adopted children of American citizens as the children will undoubtedly be treated immediately upon their entrance into the United States.*

- This point seems to contradict the JCICS call to waive stringent screening, as this appears to be for some screening and treatment in the country of origin.
- In the absence of screening the child in the country of origin, once again the onus is on the adoptive parent in the US. Data contradicts that children will be screened and “undoubtedly” fully treated.^{4,5,8}
- The statistic of two to three weeks of treatment before becoming non-contagious applies **only** to drug-sensitive (aka regular) TB and discounts MDR-TB, the more serious form. Data shows that MDR-TB takes 46 days longer than regular TB to not be contagious.¹⁰ In Latvia, a recent study has shown that MDR-TB takes 60 days to no longer be contagious.¹¹ Household members may need to be treated for latent TB if they don’t find out that their child has active TB until months **after** immigrating.¹²
- Not mentioned is that increasing evidence suggests that foreign-born children may benefit from a second TB screen three months after the first. Approximately 20 percent of children who tested negative to latent TB (LTBI) ended up testing positive three months later or at a second-observed visit.^{4,6} LTBI has a reactivation risk of 10 to 20 percent for children < 5 years of age. The Pediatric Tuberculosis Collaborative Group recommends treatment of LTBI due to this risk.⁷ Other data shows that a child with LTBI has a lifetime risk for activation to active TB of 17 to 43 percent.⁸
- In the case of a child having LTBI, the CDC guidelines for the first time will place a child on immediate LTBI therapy and notify local health departments for follow-up allowing earlier treatment and tracking that benefit the child.
- In the case of a TB outbreak in the country of origin, the CDC guidelines for the first time have an emergency treatment plan for immigrants.

Possible Solution: Keep the CDC guidelines and require adoption agencies to inform prospective adoptive parents of complete health risks, accurate travel schedules and accurate costs and burdens post-adoption for the treatment of TB.

JCICS Point 7: *The new TB protocols will result in an increase in travel expenses for U.S.-citizen adoptive parents and unknown delays during adoption processes.*

- It's the job of the adoption agency to quantify the expenses and explain the "unknowns" to the prospective adoptive parents to facilitate informed decisions. The CDC should not be made the scapegoat for a lack of transparency, due diligence, and education of adoptive parents by some adoption agencies.
- It should be noted that most parents choose to adopt healthy infants, who are not part of this protocol, as it applies to children age 2 and up.

Possible Solution: Keep the CDC guidelines and require adoption agencies to inform prospective adoptive parents of complete health risks, accurate travel schedules and accurate costs and burdens post-adoption for the treatment of TB.

The public should be informed about the management of TB in the US and the increase in TB and MDR-TB in countries involved in inter-country adoption.

Extrapulmonary TB. This term refers to TB that infects areas other than the lungs. Extrapulmonary TB, which is very difficult to diagnose, is present in more than 50 percent of patients with concurrent AIDS and tuberculosis.²³ Children with HIV can be internationally adopted and can only immigrate after using the I-601 waiver, as would a child immigrating with active TB. Ten to sixteen months of two to four antibiotics is recommended for treatment. The more common places of infection include the lymph nodes, bones, joints, central nervous system, abdomen, kidney, lower urinary tract, and testes.

Case of TB Transmission of Foreign-Born Child to US Community.⁹ TB screening is not mandated in the US for international adoptees, but is encompassed in the CDC guidelines for those coming from high-risk countries. Although cases of child transmission are rarely reported, it is important to understand history so we're not condemned to repeat it.

In 1996, twins from the Marshall Islands immigrated, without a Mantoux TB skin screen, to a town of fewer than 1,000 people in North Dakota. The twins' guardian was diagnosed with tuberculosis arthritis of the hip in 1998 after six months of difficulty in its diagnosis. In May 1998, one of the 9-year old twins was found to have active TB lesions in both lungs. The twin's only outward signs were short height, a dry cough that started in 1998 and fatigue. An extensive skin test screening occurred of children and adults from his household, classroom, school bus, cafeteria, and day care settings: 432 people in all. After the initial skin screening, it was determined that 120 people, an unprecedented number, needed to begin latent therapy (formerly known as preventative therapy). Candidates for latent therapy were chosen for either having a positive skin test result *or* young age (6 years and under) *and/or* grade level (1st) at the twins' school. All first graders, including those with *negative* skin reactions, were given chest x-rays. Normally, chest x-rays are only given when a person has a *positive* skin reaction.

Of the 120 people that began latent therapy, 56 people discontinued therapy after a negative repeat skin screen, ***but not until 12 weeks of daily antibiotics had been administered.*** The remaining 64 people (53%) in the initial latent therapy population had a positive skin test of 5 mm or more at the second screen, indicating that they should continue latent therapy beyond 12 weeks.

The authors conclusion is germane, "This investigation shows that a young child can transmit *Mycobacterium tuberculosis* to a large number of contacts. Children with tuberculosis, especially cavitary or laryngeal tuberculosis, should be considered potentially infectious, and screening of their contacts for infection with *M. tuberculosis* or active tuberculosis may be required."

Change of treatment. 1992 marked the onset of directly observed treatment (DOT) that has led to an overall decline of TB cases in the US.¹³

At the onset of DOT, foreign adoptions started to increase rapidly in countries that have a high prevalence of TB, especially from China and Ethiopia. Of the total of 7,093 international adoptions in 1992, 206 were from China and 37 from Ethiopia.¹⁴ In 2008, there were 17,438 adoptions: 3,909 from China and 1,725 from Ethiopia.³

TB spread. From 1992 to the present, cases of Multi-Drug Resistant tuberculosis (MDR-TB) and extremely drug resistant tuberculosis (XDR-TB) have increased tremendously.^{15, 16} **Completing treatment and follow-up** are crucial for not only the well-being of the child but the well-being of community, so resistance to this disease does not spread. In a 2005 study, American adults were shown to only complete TB protocols at a rate of 56.8%.¹⁰ Data from children and adults in studies across the globe are at best 66% compliant.⁸ The odds of infection increases with each year of age.¹⁷

Malnutrition. Malnutrition may also factor into an initial negative reaction to the TB skin screening and this is still a matter of concern in international adoption medicine. Adoptive parents must be aware of and compliant with the need to follow-up with possibly a second TB screen three to six months after they arrive home.¹⁷ Inaccurate reporting of a child's age, especially in children that have been abandoned, may underestimate the degree of the child's malnutrition.¹⁷

Significant contact. The CDC guidelines require a chest x-ray in children whose skin reaction is a reading of 5mm—a lowering of the threshold to that of someone who has had significant contact with a TB case. It must be pointed out that defining “significant contact” has been in constant flux over the last several years as MDR-TB has spread across the globe and studies have proven it difficult to find the source of TB in many patients.^{18, 19} Earlier identification and follow-up/support for the adoptive parent in the US is an important benefit for the adoptive family.

Health department notification. The CDC screening protocol has enhanced the notification of health department process (known as the A/B notification). This notification process has been abysmal prior to the revised CDC guidelines.¹⁰ By screening the children in the country of origin, the adoptive parents will be more prepared to deal with the consequences. If the child has active TB, this notification will trigger the local health departments to follow-up thereby giving the adoptive family a support with treatment once they return to the US—something they would not have with the previous 1991 guidelines.

Medicine for TB and its long term impact. Adoptive parents also need to be aware that whether it is medicine for latent TB or active TB, long-term use of antibiotics can put the child at risk for liver function issues as well as issues associated with altering gastrointestinal flora.^{20, 21, 22} This can add to misdiagnoses in the adoptee as those symptoms mimic neurodevelopmental issues such as ADHD, SPD, autism spectrum, and other behavioral issues. No pre-adoptive training or post-adoption education that we can find refers to this issue.

Active TB in the Adoptee and the Practical Burdens on the Adoptive Family:

- The National TB Center recommends the Directly Observed Therapy (DOT) procedure for all children with active TB. Adoptive parents need to be aware of the limits of their insurance policy. We recommend researching medicine co-pays and caps on payout prior to adopting.
- Adoptive parents will need to consider the effects on their work schedule and other household members to comply with DOT.
- The DOT protocol is **not** a simple one. We recommend that adoptive parents consult instructions with regard to procedure, difficulties and side effects at http://www.nationaltbcenter.edu/catalogue/epub/downloads/GAP/GA_Family_Instr_Act.pdf
- The length of active TB therapy can be 6 to up to 24 months depending on the specific protocol used and whether the TB is drug-resistant. Adoptive parents need to be aware of the difficulty in getting a child to take these medications for this prolonged amount of time and how that may increase the difficulty of the child's adjustment to their new home.
- In the absence of country-of-origin TB screening, parents will need to seek out a doctor for screening in the US. Our data⁵ shows that only 37 percent use IA clinics post-adoption, which indicates that the majority of adoptive parents will likely go to their pediatricians or family practice physicians. In the event of testing positive for active TB, it is important to note that private physicians, most of whom have no experience with the treatment of TB, use DOT much less than health departments.¹⁰

TB Screening and Schools:

Waiving screening in the country of origin puts the burden on the adoptive parent to do so after the child immigrates to the US. Barriers to screening and risks to the community are as follows:

- Adoptive parents are not required by law to tell a school that their child has been adopted. School districts and states locally determine what they consider the appropriate level of risk to ask a child to submit to a TB screen.
- Enrolling a child with positive TB skin results in some school districts can be difficult, thus contributing to a **lack** of TB screening in some cases.
- While some school districts require a TB screen for entry, some allow personal belief exemptions, thus making TB screening an uneven process across the US.
- Some school districts allow children to be in school after positive TB skin tests for a short period of time until the chest x-ray and sputum sample results come back, thus possibly exposing other children to active TB.
- Some adoptive parents homeschool their children. As a result, TB screening that might be mandatory for a school setting will **not** be a requirement for homeschoolers.
- It is important to note that some adoptive parents choose not to vaccinate when they return to the US and that may also factor into why some do not get their child screened for TB. A general TB screening waiver form is available on the internet. It is unknown how many adoptive parents use this for screening exemptions or how many school districts accept this.

Additional Resources

National Institute of Allergy and Infectious Diseases website:

For definitions:

<http://www3.niaid.nih.gov/topics/tuberculosis/Understanding/WhatIsTB/TBdefinitions.htm>

For picture explanations:

<http://www3.niaid.nih.gov/topics/tuberculosis/Understanding/WhatIsTB/ScientificIllustrations/firstLineIllustration.htm>

The global burden of TB:

World Health Organization website: http://www.who.int/tb/publications/tb_global_facts_sep05_en.pdf

US AID website: http://www.usaid.gov/our_work/global_health/id/tuberculosis/burden.html

US Citizenship and Immigration Services website:

Form I-601, Application for Waiver of Grounds of Inadmissibility: www.uscis.gov/files/form/I-601.pdf

Bibliography

1. CDC comparison chart of 1991 and 2007 CDC guidelines. http://www.cdc.gov/ncidod/dq/pdf/comparison_1991_2007_tb_ti.pdf
2. CDC technical guidelines. http://www.cdc.gov/ncidod/dq/pdf/ti_tb_8_9_2007.pdf
3. US Department of State statistics. http://www.adoption.state.gov/news/total_chart.html
4. Trehan, I, Meinzen-Derr, JK, Jamison L, Staat MA. Tuberculosis Screening in Internationally Adopted Children: The Need for Initial and Repeat Testing. *Pediatrics* 2008; 122 (1):e7-e14. [<http://pediatrics.aappublications.org/cgi/content/full/122/1/e7>]
5. Unpublished data. PEAR Observational Survey of Adoptive Parents on Success, Satisfaction and Types of Post-Adoption Services (POSitive Study).
6. Madhi F, Furhman C, Monnet I, Atassi K, Poirer C, Housset B, Delacourt C. Transmission of Tuberculosis from Adults to Children in a Paris Suburb. *Pediatr Pulmonol* 2002; 34:159-163. [<http://www3.interscience.wiley.com/journal/97519468/abstract?CRETRY=1&SRETRY=0>]
7. Pediatric Tuberculosis Collaborative Group. Targeted Tuberculin Skin Testing and Treatment of Latent Tuberculosis Infection in Children and Adolescents. *Pediatrics* 2004;114(4):1175-1201. [<http://pediatrics.aappublications.org/cgi/reprint/114/4/S2/1175>]
8. Maroushek, S. "Impact of Foreign-Born Children with LTBI" *Lung Association of British Columbia* website 2009. [<http://www.bc.lung.ca/lungdiseases/uiatId-pdfs/2009/impact%20of%20foreign%20born.pdf>]
9. Curtis AB, Ridzon R, Vogel R, McDonough S, Hargreaves J, Ferry J, Valway S, Onorato I. Extensive Transmission of *Mycobacterium tuberculosis* from a Child. *NEJM* 1999; 341(20): 1491-1495. [<http://content.nejm.org/cgi/content/full/341/20/1491>]

10. Granich R, Oh P, Lewis B, Porco TC, Flood J. Multidrug Resistance Among Persons with Tuberculosis in California 1994-2003; *JAMA* 2005; 293(22): 2732-2739.
11. Holtz TH, Sternberg M, Kammerer S, Laserson KF, Riekstina V, Zarovska E, Skripconoka V, Wells CD, Leimane V. Time to Sputum Culture Conversion in Multidrug-Resistant Tuberculosis: Predictors and Relationship to Treatment Outcome; *Ann Intern Med* 2006; 144(9): 650-659.
12. Soren K, Saiman L, Irigoyen M, Gomez-Duarte C, Levison MJ, McMahon DJ. Evaluation of Household Contacts of Children with Positive Tuberculin Skin Tests. *Pediatr Infect Dis J* 1999; 18(11):949-55.
13. Murray, JF. A Century of Tuberculosis. *Am J Respir Crit Care Med* 2004; 169: 1181-1186. [<http://ajrccm.atsjournals.org/cgi/content/full/169/11/1181>]
14. The Evan B. Donaldson Adoption Institute statistics. <http://www.adoptioninstitute.org/FactOverview/international.html>
15. World Health Organization. New Survey Finds Highest Rates of Drug-Resistant TB to Date. February 26, 2008. <http://www.who.int/mediacentre/news/releases/2008/pr05/en/index.html>
16. Chan M. Preventing and Managing M/XDR-TB: a Global Health Imperative. April 1, 2009. WHO. http://www.who.int/dg/speeches/2009/mxdr_tb_prevention_20090401/en/index.html
17. Mandalakas AM, Kirchner HL, Iverson S, Chesney M, Spencer MJ, Sidler A, Johnson D. Predictors of Mycobacterium Tuberculosis Infection In International Adoptees. *Pediatrics* 2007; 120(3): e610-616. [<http://pediatrics.aappublications.org/cgi/reprint/120/3/e610>]
18. National Institute of Allergy and Infectious Diseases. Tuberculosis Transmission. <http://www3.niaid.nih.gov/topics/tuberculosis/Understanding/transmission.htm>
19. The National Collaborating Centre for Chronic Conditions. Tuberculosis: Clinical Diagnosis and Management of Tuberculosis, and Measures for Its Prevention and Control. <http://www.nice.org.uk/nicemedia/pdf/CG033FullGuideline.pdf>, p. 147.
20. Morris CR, Agin MC. Syndrome of Allergy, Apraxia, and Malabsorption: Characterization of a Neurodevelopmental Phenotype that Responds to Omega 3 and Vitamin E Supplementation. *Alternative Therapies* 2009; 15(4): 34-43. [http://www.alternative-therapies.com/resources/web_pdfs/recent/0709_morris.pdf]
21. Kemper KJ. ADHD: Diagnosis and Treatment. 2006. www.aap.org/sections/chim/ADHD2006.pdf
22. Hawrelak JA, Myers SP. The Causes of Intestinal Dysbiosis: A Review. *Alternative Medicine Review* 2004. [http://findarticles.com/p/articles/mi_m0FDN/is_2_9/ai_n6112781/print?tag=artBody;col1]
23. Golden MP, Vikram HR. Extrapulmonary Tuberculosis: An Overview. *Am Fam Physician* 2005; 72:1761-8. [<http://www.aafp.org/afp/20051101/1761.html>]
24. CDC September 18, 2009 Addendum: Instructions for Applicants 10 Years of Age or Younger. [<http://www.cdc.gov/ncidod/dg/panel-2007-addendum-ti-tb.htm>]