

**AN EPIDEMIOLOGY PUBLICATION OF THE PUBLIC HEALTH DIVISION
OREGON DEPARTMENT OF HUMAN SERVICES**

MEDICAL EVALUATION OF INTERNATIONALLY ADOPTED CHILDREN

Before admission to the U.S., all internationally adopted and refugee children are required to be examined in their country of origin by a physician designated by the U.S. State Department. The exam is limited to screening for serious physical or mental defects that would prevent the issue of a permanent residency visa, and for tuberculosis, syphilis and HIV. Applicants <15 years of age are tested only if there is reason to suspect any of these diseases.

Despite the overseas exam, infectious diseases are the maladies most commonly identified in international adoptees. This *CD Summary* outlines recommendations for screening these children upon their arrival in the U.S.

Regardless of the country of origin, international adoptees should be screened for a standard list of infections (see Table). The initial evaluation should also include a developmental and nutritional assessment, measurement of lead levels, complete blood count with red blood cell indices, and examination for congenital anomalies.

VIRAL HEPATITIS

HBV is most common in children from Asia, Africa, some countries in Central and Eastern Europe, and the newly independent states of the former Soviet Union. HBV tests performed abroad are often unreliable, so all children should undergo serologic testing. HBsAg-positive children should be re-tested in 6 months to confirm chronic infection, and testing for HBeAg and HBV DNA may be useful in the selection of candidates for antiviral therapy. Children with chronic HBV infection should be screened for hepatic

complications periodically using liver transaminases, alpha-feto-protein concentration, and abdominal ultrasonography. All exposed household contacts of HBsAg-positive children should have documentation of HBV vaccination or have the series initiated. Adopted children who test negative for surface antibody to HBsAg (anti-HBs) should be vaccinated immediately; children who test positive for HBsAg or anti-HBc do not require vaccination.

The prevalence of hepatitis C virus (HCV) infection is low in most countries. Children from China, Russia, Eastern Europe and Southeast Asia should be screened for HCV, as should children from other countries who have risk factors like receipt of blood products or maternal drug use.

HIV

Even in countries where prevalence is low, adoptees may come from high-risk populations, and tests from the child's country of origin may be unreliable; therefore, screen all internationally adopted children for HIV. HIV antibody in a child <18 months

old may represent transplacentally acquired maternal antibody, so diagnosis in this age group rests upon detection of virus or viral nucleic acid— preferably via HIV DNA PCR performed on peripheral blood mononuclear cells; by 2 weeks of age, it is highly sensitive and specific for HIV-1 subtype B infection; an HIV RNA PCR may be necessary to identify non-B subtype HIV-1 infections. The RNA PCR is not recommended as the initial screening test for this age group because it is less sensitive than the DNA PCR.

SYPHILIS

Congenital syphilis may have gone unnoticed or untreated, so all adoptees should be screened. Initial screening should be done using the cheap and easy quantitative nontreponemal tests, which can also be used to assess adequacy of therapy and to detect re-infection and relapse. If a screening test is positive, a treponemal test should be used to make a presumptive diagnosis. Definitive diagnosis is made when spirochetes are identified by microscopic darkfield examination or direct fluorescent antibody tests of lesion exudates or tissue.

Recommended screening for infectious diseases in international adoptees.

- Hepatitis B virus serology testing
 - Hepatitis B surface antigen (HbsAg)
 - Antibody to hepatitis B surface antigen (anti-HBs)
 - Antibody to hepatitis B core antigen (anti-HBc)
- Hepatitis C virus serology (not required for all children—see text)
- HIV 1 and 2 serology
- Syphilis serology: nontreponemal test (RPR, VDRL, or ART); if positive, confirm with treponemal test (MHA-TP or FTA-ABS)
- Tuberculin skin test
- Stool for O&P (single specimen for asymptomatic children, 3 specimens if symptomatic)
- Stool for *Giardia* and *Cryptosporidium* antigen (see text)

RPR: rapid plasma reagin. VDRL: Venereal Disease Research Laboratories. ART: automated reagin test; MHA-TP, microhemagglutination test for *Treponema pallidum*. FTA-ABS, fluorescent treponemal antibody absorption.



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TUBERCULOSIS

Reported rates of latent *Mycobacterium tuberculosis* infection in international adoptees range from 0.6% to 30%. Because tuberculosis may be more severe in young children and may reactivate in later years, screening with the tuberculin skin test (TST) is important in this high-risk population. Routine chest radiography is not indicated in children with neither symptoms nor a reactive TST. However, malnutrition can lead to anergy; if this is suspected, repeat the TST when the child is better nourished.

In general, don't let a history of BCG vaccination influence your interpretation of TST results: suspect tuberculosis in any symptomatic adoptee with a positive TST (defined as induration ≥ 15 mm in any child over 4 years, or induration > 10 mm in a child born in a high-prevalence region of the world). Children with a positive TST require a chest x-ray. When tuberculosis is suspected, it's imperative to try to isolate and test the organism for drug susceptibilities, given the high prevalence of drug resistance in many countries. Children with positive TSTs but normal chest x-rays should be treated for latent tuberculosis infection.

INTESTINAL PATHOGENS

Fecal examinations for ova and

parasites (O&P) will identify a pathogen in 15%–35% of internationally adopted children. The most common pathogens are *Giardia lamblia*, *Hymenolepis* species, *Ascaris lumbricoides*, and *Trichuris trichiura*. A single specimen is generally sufficient for asymptomatic children, but symptomatic children (gastrointestinal signs or symptoms, signs of malnutrition) should have 3 specimens for O&P and a single stool specimen screened for antigens of *G. lamblia* and *Cryptosporidium parvum*. Children with diarrhea should also have stool cultured for bacterial pathogens.

IMMUNIZATIONS

A new subsection of the U.S. Immigration and Nationality Act requires that any person seeking an immigrant visa for permanent residency must show proof of having received the vaccines recommended by the Advisory Committee on Immunization Practices. Children < 11 years of age don't need to be vaccinated before immigrating, but adoptive parents are required to sign a waiver indicating their intention to comply with these requirements within 30 days after the child's arrival in the U.S.

DTP, polio, measles, and hepatitis B vaccines are often given in developing countries, but *Haemophilus influenzae* type b, mumps, and

rubella immunizations are less common, and *Streptococcus pneumoniae* and varicella vaccination are rare. Only written records should be accepted as proof of vaccination, and they are most likely to be accurate if the dates of administration, number of doses, intervals between doses, and age of the child at the time of immunization are consistent internally and comparable to current U.S. or World Health Organization schedules.*

If immunization records from abroad are dubious or lacking, testing for antibodies might tell you whether vaccines were given and were immunogenic. In general, when in doubt, reimmunize the child; however, given the rate of more serious local reactions after multiple doses of DTaP, consider serologic testing for antibody to tetanus and diphtheria toxins before reimmunizing children whose records indicate receipt of three or more doses.

ADDITIONAL READING

1. American Academy of Pediatrics. Medical evaluation of internationally adopted children for infectious diseases. In: Pickering LK, editor. *Red book: 2006 report of the Committee on Infectious Diseases*. 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2003: 182–8.
2. CDC. Health Information for International Travel 2005–2006. Atlanta: US Department of Health and Human Services, Public Health Service, 2005.
3. CDC. General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2006;55(RR-15):33–5.

*Current US recommendations can be found at: <http://www.cdc.gov/vaccines/recs/schedules/default.htm>; select vaccine schedules by the individual country at: <http://www.who.int/vaccines/globalsummary/immunization/scheduleselect.cfm>.