
**EVALUATING AND UPDATING IMMUNIZATIONS DURING
THE DOMESTIC MEDICAL EXAMINATION FOR NEWLY
ARRIVED REFUGEES**

**U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Diseases**

Division of Global Migration and Quarantine

April 16, 2012

Summary

- Immunizations administered outside the United States can be accepted as valid if the schedule (minimum ages and intervals) was similar to that recommended in the United States.
- Written records are more likely to predict protection if the vaccines, dates of administration, intervals between doses, and the person's age at the time of vaccination are comparable to U.S. recommendations.
- All refugees originating from countries where hepatitis is intermediately or highly endemic (hepatitis B virus surface antigen prevalence >2%), as well as those who are at risk for hepatitis B infection (www.cdc.gov/hepatitis/HBV/HBVFAQ.htm) should be tested for hepatitis B virus infection and existing immunity.¹⁻³ Refugees who are chronically infected with hepatitis B should receive further evaluation and monitoring. Refugees who are not immune and not chronically infected should be offered vaccination.
- Checking for laboratory evidence of immunity (i.e, antibody levels) is an acceptable alternative for certain antigens when previous vaccination or exposure is likely.
- Most refugees will understand the need for follow-up care for immunizations; this follow-up visit offers an opportunity to establish and ensure primary care.

Introduction

Refugees, unlike most immigrant populations, are not required to have any vaccinations before arrival in the United States. In addition, many vaccines have limited or no availability in some developing countries or in specific refugee settings. Therefore, most refugees, including adults, will not have had complete Advisory Committee on Immunization Practices (ACIP)-recommended vaccinations when they arrive in the United States. However, depending on health-care access, organized vaccination programs and initiatives, and availability of vaccines, refugees may have some documented vaccinations. During the medical screening visit for new arrivals, the provider must review any written vaccination records presented by the refugee, assess reported vaccinations for adherence to acceptable U.S. recommendations, and subsequently, initiate necessary immunizations. Each of these tasks presents challenges to the clinical practitioner.

Evaluating Vaccine Records

The ability of a clinician to determine that a person is protected on the basis of their country of origin and their records alone is limited. Vaccines administered outside the United States can generally be accepted as valid if the schedule was similar to that recommended in the United States. All written vaccine records presented to the provider should be reviewed carefully. The completeness of this documentation will vary. Only written documentation should be accepted as evidence of previous vaccination. Written records are more likely to predict protection if the vaccines, dates of administration, intervals between doses, and the person's age at the time of vaccination are comparable to U.S. recommendations.¹ Under mass vaccination campaigns intended for outbreak control (such as polio, varicella, or measles), documentation often is not provided and therefore may not be recorded on the Department of State forms. Documentation on the Department of State forms or on other vaccine records (such as camp vaccination cards) is acceptable verification of receipt of a vaccine.

Frequently, the name of the vaccine is in another language or the name or components of vaccines are unfamiliar to the U.S. provider. In this case, online resources may be valuable to the clinician in deciphering the names encountered.

- Language translations for vaccine names are available at:
 - www.immunize.org/izpractices/p5121.pdf [PDF - 54 KB] and,
 - www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/foreign-products-tables.pdf [PDF - 6.6 MB]
- The following documents may be useful when the generic or trade name is not familiar to the provider:
 - www.immunize.org/izpractices/p5120.pdf [PDF - 70 KB]
- After determining which vaccines have been received, immunization records should be reviewed for dates of administration, intervals between doses, and the person's age at the time of vaccination to verify they are comparable to U.S. recommendations. An example of a common unacceptable variation from the U.S. schedule is a measles-containing vaccine given before 1 year of age.

Vaccinations often need to be repeated for multiple reasons, including vaccine records that indicate a vaccine dose was given before birth (after taking into account the possible transposition of month and day), vaccine records for which the clinician has concerns about falsification, and severe malnutrition in a child at the time of immunization, which could impair adequate immune response. The decision to reimmunize a child is best made after discussion of the options available for the various vaccines. Tables for approach to re-vaccination in international children are provided by CDC (www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm#tab12) and by the American Academy of Pediatrics Red Book (<http://aapredbook.aappublications.org/>). Clinicians should be aware that adverse events attributed to excess immunization are rare. Mild, local side effects are more common with certain vaccines when revaccination is performed after a short interval, most notably tetanus and diphtheria toxoid and, more rarely, pneumococcal polysaccharide vaccine.²

Immunization Administration

Immunizations can be given to the patient after arrival in the United States according to recommended schedules. Both adults and children should be evaluated and vaccine needs addressed during the new arrival medical visit. The childhood schedule, including catch-up schedules, is available at www.cdc.gov/vaccines/recs/schedules/child-schedule.htm#printable. The adult schedule may be found at www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm. Although there is no specific limit to the number of vaccines that may be given together, the decision about how many vaccines to give at one time should be agreed upon by the patient (or patient's caregiver) and the health-care professional. When of concern to the patient or caregiver, combination vaccines can decrease the total number of injections. If the number of vaccines needed exceeds the number a patient is willing to receive at one time, the decision as to which vaccines to give should be prioritized on the basis of the patient's risk of contracting the disease. The decision should also be based on such factors as the compatibility of vaccines (live-virus vaccines should be given concurrently or separated by 28 days) and the number of doses required to complete a series. The resources listed above also include catch-up schedules that suggest minimum intervals between doses.

Contraindications, such as allergies or use of live vaccines during pregnancy or in immunocompromised hosts, must be carefully observed. Please refer to full ACIP guidelines for detailed explanations for absolute and relative contraindications to routine immunizations (www.cdc.gov/vaccines/recs/schedules/default.htm). Human immunodeficiency virus (HIV) with moderate or severe immunosuppression is considered a contraindication to administration of certain live-virus vaccines (i.e., MMR, varicella). HIV testing is no longer performed prior to immigration, and the HIV status of the refugee will likely be unknown during the new arrival refugee medical examination. HIV screening is highly encouraged during the medical screening examination for new arrivals (see HIV section: www.cdc.gov/immigrantrefugeehealth/guidelines/domestic/screening-hiv-infection-domestic.html). Live-virus vaccines should not be administered when there is clinical suspicion of immunosuppression due to HIV. Information on use of specific vaccines in persons with HIV may be found at: www.cdc.gov/vaccines/pubs/pinkbook/default.htm. All adverse events should be reported to the Vaccine Adverse Event Reporting System (<http://vaers.hhs.gov/index>).

Serologic Evaluation Before Immunization

If records are unavailable, an age-appropriate vaccination schedule should be initiated. However, serologic testing for immunity is an alternative for certain antigens when the provider believes the refugee was likely to have had a previous infection that conveyed immunity or received a full series of vaccine but did not have appropriate vaccination records.

Multiple factors influence the clinician's decision to check for serologic evidence of immunity before vaccination rather than simply beginning the vaccine series. Examples of factors that need to be taken into account include cost of the vaccine course compared with that of serologic testing, likelihood of previous infection on the basis of the population prevalence or individual history, availability of antigen testing and acceptance that antibody presence confers immunity, estimated cost-effectiveness of checking serologic results compared with administering the vaccine, the number of doses needed to complete a series, the level of antibody known to confer immunity, and the likelihood that the patient will return for results and further management. Health-care professionals may choose to test for immunity in refugees who are likely to be immune (such as African adults, who are likely to be immune to measles, mumps, and rubella), either as a routine or based on patient preference. Cost-effectiveness will vary depending on the prevalence of disease or immunity in the population. CDC provides a table that may be useful to clinicians when deciding between revaccinating versus serologic testing (www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm#tab12).

Testing for hepatitis B virus infection and for immunity should be done before hepatitis B vaccine is administered to persons coming from all countries with high ($\geq 8\%$) or intermediate ($\geq 2\%$) prevalence of chronic hepatitis B virus infection or persons who have risk factors for hepatitis B virus infection.^{1,3,4} Any person with positive hepatitis B surface antigen (HBsAg) test result should be referred for evaluation and possible treatment; vaccination is not indicated. Any patient with a positive antibody to hepatitis B surface antigen (anti-HBs) or positive for antibody to hepatitis B core antigen (anti-HBc) and negative for HBsAg, may be considered immune to infection and also does not need vaccination. One exception is a person who received an incomplete series of hepatitis B vaccine prior to departure for the U.S. Some refugees receive a single dose of hepatitis B vaccine prior to departure. In this case, if anti-HBs antibody is positive it may be due to incomplete vaccination. In this situation the antibody is not considered

to confer adequate long-term protection. Therefore, if an incomplete hepatitis B series is recorded, the vaccine series should be completed according to an acceptable US schedule. All persons negative for all three (HBsAg, anti-HBs, and anti-HBc) should be assumed to be susceptible to infection and should receive vaccination.

The median age of varicella infection varies throughout the world but generally occurs later in life in the tropics than in temperate climates. Serologic screening of newly arrived refugees for varicella immunity before providing immunization is cost-effective, especially in older adults.^{5,6} Factors that would commonly lead one to immunize rather than screen for the presence of varicella antibody include exposure to a person with varicella or herpes zoster, younger age (6 years of age may be cost-effective in most populations tested [personal communication, Elizabeth Barnett]), difficulty in arranging follow-up visits, inability or lack of mechanism to pay for the screening test and/or school entry or work requirements.

In addition to varicella, for many persons from developing countries where the prevalence of HAV infection is >33%, testing for hepatitis A infection is likely to be cost-effective compared with administering a two-dose series of vaccine. More data are needed on population-specific vaccine-preventable disease prevalence rates to determine cost-effectiveness of serologic screening versus initiation of a vaccine schedule.^{7,8}

Follow-up Care

The refugee should be assisted with follow-up care for completion of vaccinations and the establishment of primary care. Adjustment of status to Permanent Resident Alien ("green card") occurs one year after arrival in the United States. For information on vaccination recommendations for adjustment-of-status applicants, see www.cdc.gov/immigrantrefugeehealth/exams/ti/civil/vaccination-civil-technical-instructions.html#assessment.

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