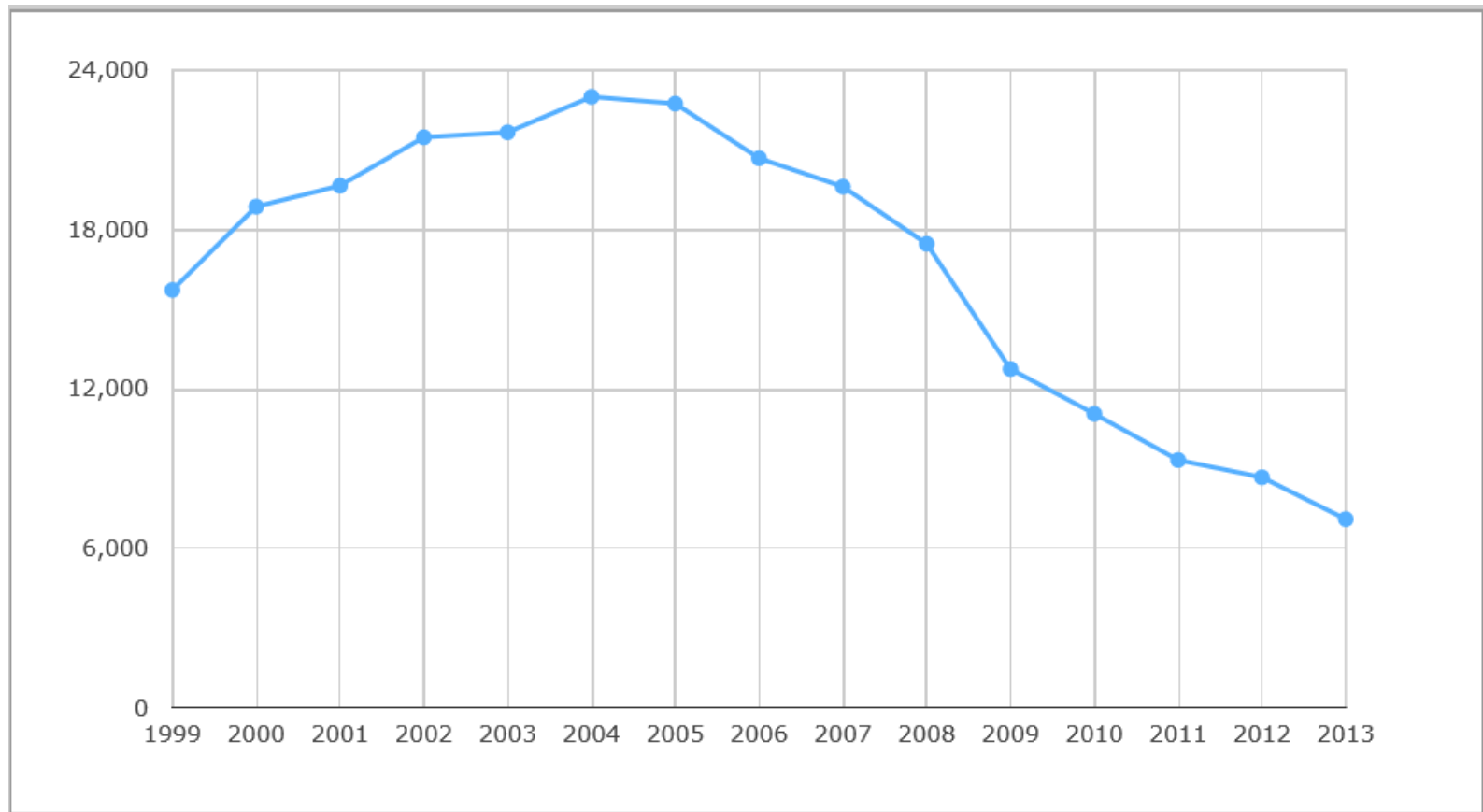


Immunization Considerations for Internationally Adopted Children

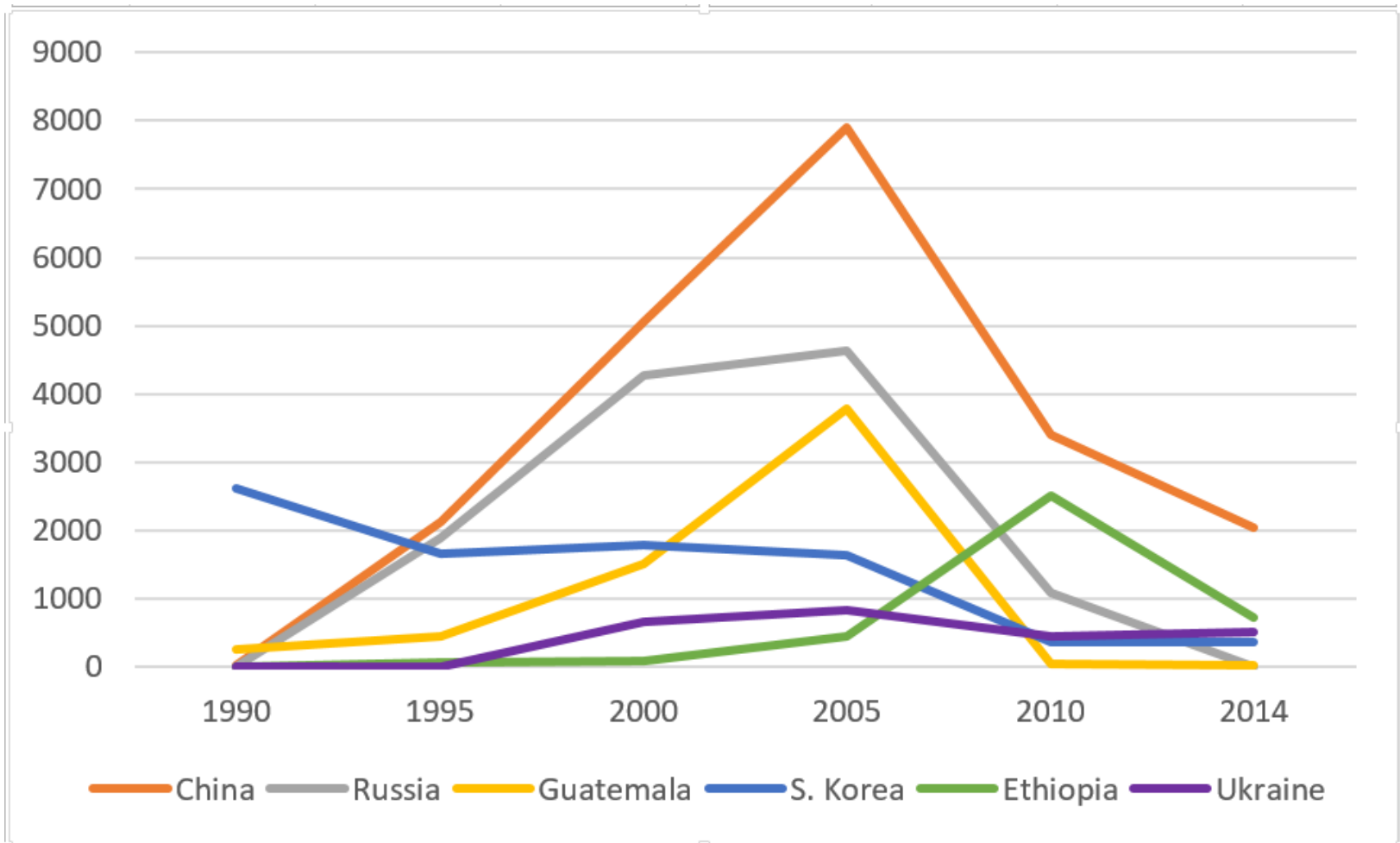


Douglas Swanson, MD

Number of Internationally Adopted Children into the USA, 1999-2013



Adoptions from Selected Countries



Vaccines and International Adoption

- Common vaccines in the country of origin
 - Bacillus Calmette-Guérin (BCG)
 - Diphtheria, tetanus, pertussis (DTwP)
 - Oral poliovirus
 - Hepatitis B
 - Measles (usually without mumps or rubella)
- China also usually provides:
 - “Epidemic cerebrospinal meningitis” (meningococcal polysaccharide vaccine)
 - Japanese encephalitis vaccine (JEV)

Vaccines and International Adoption

- Commonly missed vaccines in the country of origin
 - Rotavirus
 - *Haemophilus influenzae* type b (Hib)
 - Pneumococcal conjugate vaccine
 - Hepatitis A
 - Mumps and rubella
 - Varicella (Chickenpox)
 - Influenza
 - Human papilloma virus
 - Meningococcal conjugate



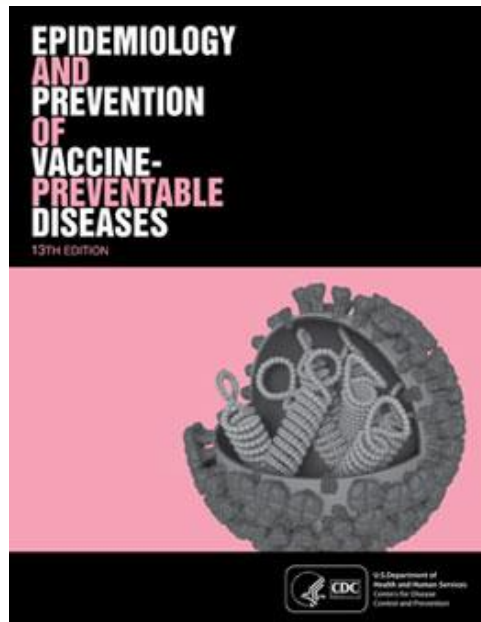
Vaccines and International Adoption

- Immigration and Nationality Act
 - Anyone seeking US residence must show proof of age-appropriate vaccination
 - Waiver for children < 10 years of age
 - Parents must sign that they will get the child their first dose of vaccines within 30 days of arrival in the US
 - If adopted from countries not part of the Hague Convention, can also receive a vaccine waiver

Valid Immunization Record

- Only written documentation should be accepted as evidence of previous vaccination
- Comparable with US or WHO schedules
 - Dates of administration
 - Number of doses
 - Time interval between doses
 - Age of patient at the time of immunization

Aid to Translate Foreign Vaccine Records



Chinese	
疫苗	Vaccine
麻疹	Measles
腮腺炎	Mumps
白	Diphtheria
流感 or 流行性感冒	Influenza
乙	B

Ukrainian	
Дифтерії	Diphtheria
Гемофільної інфекції Типу В Захворювань	Haemophilus influenzae type b
Гепатиту S	Hepatitis A
Гепатиту В	Hepatitis B
Вірус Папіломи Людини	Human Papillomavirus
Грипу	Influenza
Менінгококова Сполучених	Meningococcal Conjugate
Кір	Mumps
Кашлюку	Pertussis
Пневмококкової Кон'югированної	Pneumococcal Conjugate
Полю, Поліомієліту	Polio
Ротавірусної	Rotavirus
Оперізуєчий Герпес (Оиерізуєчий ллишай)	Shingles (Herpes Zoster)
Стовпняк, Правця	Tetanus
Вітряної Віспи (Вітрянка)	Varicella

Concerns About Vaccine Reliability

Serologic Studies to Assess Protective Antibody Levels in Internationally Adopted Children			
	<u>Hostetter</u>	Miller	<u>Schulpen</u>
Publication Year	1998	2001	2001
Sample size	26	70	133
Countries of origin	Russia, China, E. Europe	All	China (98), Other (35)
Age (months)	36 (Median)	42.6 (Mean)	21.3 (Mean)
Percent protected			
Diphtheria	35%	88%	61% (China), 71% (Other)
Tetanus	35%	61%	58% (China), 94% (Other)
Polio	--	58-65%	71-94% (China)

Why Suboptimal Vaccine Response?

- Most worldwide vaccines are made with adequate quality control and are reliable
- Despite proper documentation, possible problems may arise from:
 - Poor vaccine storage
 - Expiration of product
 - Improper administration (location, depth of injection, etc.)
 - Inaccurate or fraudulent records

Two Common Options Implemented for Vaccination of the International Adoptees

- Reimmunize regardless of vaccine record
 - Repeating immunizations that have already been given is generally considered safe

OR, if documented record of vaccine primary series

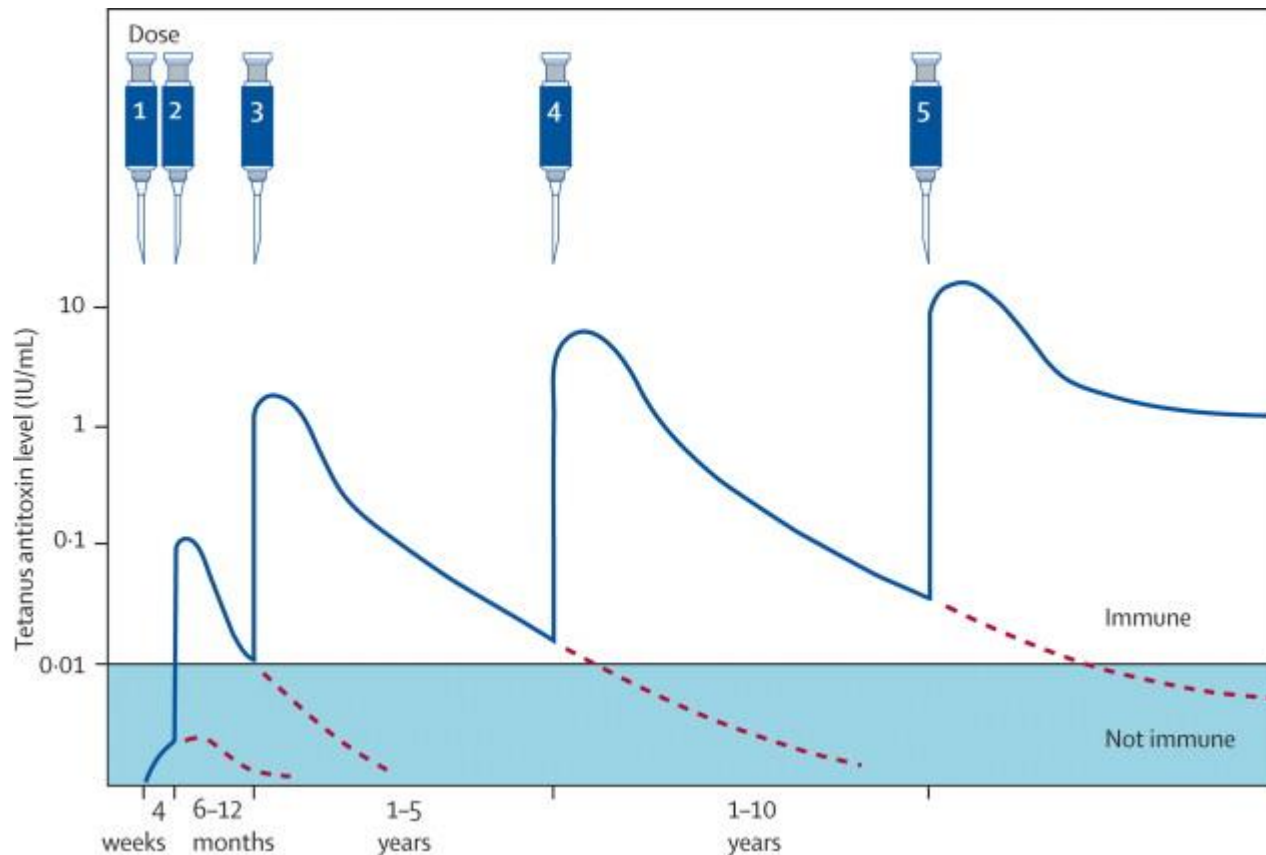
- Obtain antibody titers to the recorded vaccines and reimmunize only for those diseases to which the child has no protective titers

Serologic Testing

TABLE 2. Evaluation of Vaccinations in Internationally Adopted Children and Refugees

Vaccine	Serologic Antibody (Ab) Test	Suggested Approach
Diphtheria/tetanus	Diphtheria antitoxoid Ab, Tetanus antitoxoid Ab	Check titers if >6 mo, to minimize serious local reaction at vaccine site from overadministration, else age-appropriate vaccination
Pertussis	(<i>B. pertussis</i> PT (pertussis toxin) IgG, IgA, IgM; <i>B. pertussis</i> FHA (filamentous hemagglutinin) IgG, IgA, IgM)	Testing not recommended. Titers, if available, do not reliably or clearly determine pertussis immunity. If protective diphtheria and tetanus Ab levels found, protective pertussis Ab titers can be inferred
Polio	Poliovirus neutralizing Ab, preferably for polio type 1, 2, 3	Can check titers if >6 mo, else age-appropriate vaccination
Hib	(<i>H. influenzae</i> type B IgG)	Testing not recommended—vaccine usually not given prior to U.S. arrival. Age-appropriate vaccination
Pneumococcal	(<i>S. pneumoniae</i> IgG for 7–14 serotypes)	Testing not recommended—vaccine usually not given prior to U.S. arrival. Age-appropriate vaccination
Measles/mumps/rubella	Measles IgG Ab, mumps IgG Ab, rubella IgG Ab	Can check titers if >12 mo, give MMR if not immune to all 3
Varicella	Varicella-zoster IgG Ab	Can check titers if >12–15 mo, can give MMRV if not immune, and needs MMR
Hepatitis A	Hepatitis A total Ab	Can check titers if >6 mo, else age-appropriate vaccination
Hepatitis B	Hepatitis BsAg, HB Core Ab, HBsAb	Always check to assess for hepatitis B chronic infection/carrier/immunity
Meningococcal	None commercially available	Age-appropriate vaccination
Influenza	(Influenza type A Ab, type B Ab)	Testing not recommended—Ab diagnoses infection, doesn't determine immunity. Age-appropriate vaccination

Why Only Obtain Serology if the Primary Series Documented?



More Recent Serologic Studies

Serologic Studies to Assess Protective Antibody Levels in Internationally Adopted Children

	<u>Viviano</u>	<u>Verla-Tebit</u>	<u>Staat</u>
Publication Year	2006	2009	2010
Sample size	70	465	748
Countries of origin	Russia, E. Europe	All	All
Age (months)	76 (Mean)	19.4 (Mean)	15 (Median)
Percent protected			
Diphtheria	96%	95%	85%
Tetanus	91%	87%	95%
Polio	63-99%*	52-82%#	94-96%+

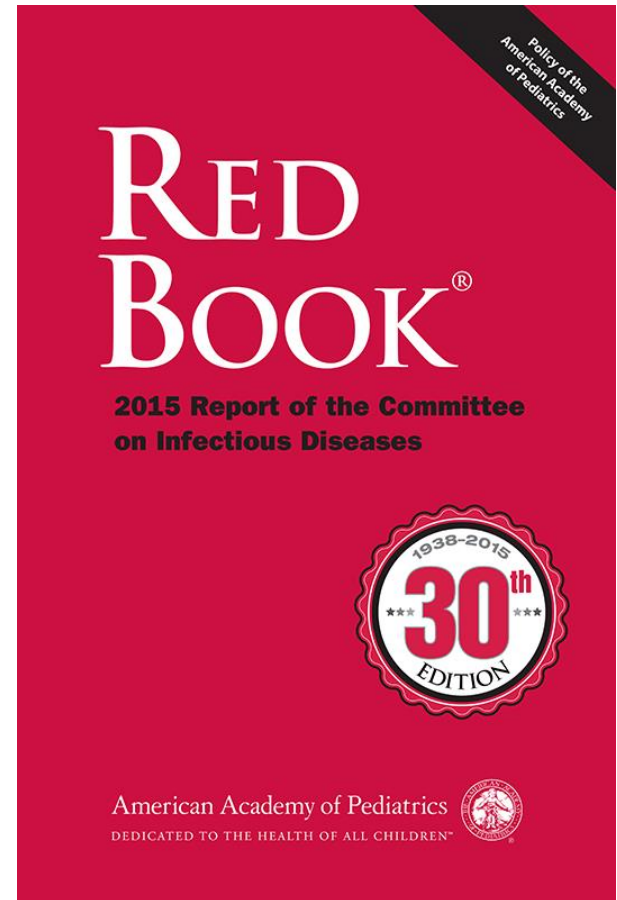
*Use $\geq 1:5$ neutralizing antibody as protective level

#Use $\geq 1:40$ neutralizing antibody as protective level

+Use $\geq 1:8$ neutralizing antibody as protective level

Acceptable Approach to Vaccination Evaluation

“In general, written documentation of immunizations can be accepted as evidence of adequacy of previous immunization if the vaccines, dates of administration, number of doses, intervals between doses, and age of the child at the time of immunization are consistent internally and are comparable to current US or World Health Organization schedules.”



Complete Age-appropriate Vaccines

Schedules

For Health Care Professionals

► **Child, Adolescent & "Catch-up"**

Adult Immunization

For Everyone: Easy-to-read Schedules

Display Immunization Schedules and Quiz on Your Website

Web Buttons

Past Immunization Schedules

Related Links

[Vaccines Home](#) > [Schedules](#) > [For Health Care Professionals](#)



Birth-18 Years & "Catch-up" Immunization Schedules

United States, 2015

Details for Healthcare Professionals

Each year, the Advisory Committee on Immunization Practices (ACIP) publishes immunization schedules for persons age birth through 18 years. These schedules summarize recommendations for routine vaccines for children age 18 years and younger.

The recommended immunization schedules for persons age birth through 18 years and the catch-up immunization schedule have been approved by the Advisory Committee on Immunization Practices ([ACIP](#)), the American Academy of Pediatrics ([AAP](#)), the American Academy of Family Physicians ([AAFP](#)), and the American College of Obstetricians and Gynecologists ([ACOG](#)).



Catch-Up immunization scheduler

for children six years and younger



To use this tool:

1. Enter the child's name and birthdate or load a previously saved vaccination history
2. Add, Modify or Delete dosages in the vaccination history table
3. Submit 'Get Vaccination Schedule' to generate the schedule based on the provided information
4. Save your entries for later use and print a copy of the schedule for your records

Need help? Go to [FAQ](#) or see the [QuickStart Guide](#)

Enter child's vaccination history:

Load Vaccination History



Start Over

Child's Name:

Birthdate:

Vaccine	Description	# Doses	Approximate dosage dates
HepB	Hepatitis B	0/3	+ Add HepB Dose 1
RV	Rotavirus	0/3	+ Add RV Dose 1
DTaP	Diphtheria, Tetanus, Pertussis	0/5	+ Add DTaP Dose 1
Hib	Haemophilus influenzae type b	0/4	+ Add Hib Dose 1
PCV	Pneumococcal	0/4	+ Add PCV Dose 1
IPV	Polio	0/5	+ Add IPV Dose 1
MMR	Measles, Mumps, Rubella	0/2	+ Add MMR Dose 1
Var	Varicella (Chickenpox)	0/2	+ Add Var Dose 1
HepA	Hepatitis A	0/2	+ Add HepA Dose 1

Schedule Type: Routine Accelerated

Select "routine" for a typical immunization schedule or "accelerated" if you need to schedule doses as soon as possible (e.g., traveling soon or due to disease outbreaks).

Get Vaccination Schedule



[Get Email Updates](#) *



Send Us Your
Feedback
(Anonymous)



Still have
questions?
Let us know how
we can help you.

This tool was designed in close collaboration with the Centers for Disease Control and Prevention, the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Tech, and the Georgia Tech Research Institute Information and Communications Lab



Summary

- Internationally adopted children are generally underimmunized
- Written documentation of immunizations can be accepted as evidence of adequacy of previous immunization if the vaccines
- A careful review the vaccine record can help guide immunization catch-up

Resources

- <http://www.cdc.gov/vaccines/pubs/pinkbook/index.html>
- <http://www.adoption.state.gov/>
 - Department of State's intercountry adoption website
- <http://www.immunize.org/>
- <http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html>
- <https://www.vacscheduler.org/scheduler.html?v=patient>
- Red Book 2015 Report of the Committee on Infectious Diseases

Questions?

