Adolescent Immunization

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Ten Great Public Health Achievements of the 20th Century

- Vaccination
- Motor-vehicle safety
- Safer workplaces
- Control of infectious diseases
- Decrease in deaths from coronary heart disease and stroke
- Safer and healthier foods
- Healthier mothers and babies
- Family planning
- Fluoridation of drinking water
- Recognition of tobacco use as a health hazard

Source: CDC. MMWR. 1999;48(12):241-243.[2]

Adolescence

- Transition from healthy childhood to healthy adulthood
- Combines pediatrics with behavioral health and internal medicine to manage a wide range of conditions
- Represent a new age group for immunizations

Adolescents

- Adolescence is a complex time
- Period of extreme growth and change in which the adolescent strives for independence
- Risky health behaviors common
- Adolescents bristle at the idea of visiting their pediatrician or “ baby doctor”
- Period of parental conflict can became barriers to adolescent immunizations.
- Until recently immunization programs and recommendations not much emphasis on adolescent immunization.

Adolescent Immunization

Low immunization rates in adolescents:

- Outbreak of vaccine preventable diseases
- Negative effect in quality of life
- Increase in disease associated costs
- Reservoirs of disease that can affect others

Barriers to Adolescent Immunization

- Governmental
- Health care provider
- Parental/ Adolescent
- Economic

Adolescent Vaccination: 2005
National Foundation for
Infectious Diseases

Governmental Barriers

- Consent required
- Lack of uniformity in (state) school immunization mandate
- Failure to enforce current requirements especially after school entry

Adolescent Vaccination: 2005
National Foundation for
Infectious Diseases

Health Care Provider Barriers

- Marked decline in health care provider and patient contact
- Lack of knowledge of current vaccines for adolescent use
- Most visits for acute care and not for preventive care

Adolescent Vaccination: 2005
National Foundation for
Infectious Diseases

Parent/ Adolescent Barriers

- Belief that immunization completed by time child enters school
- Limited adolescent visits and failure of health providers to educate them
- Lack of knowledge about disease risks and importance of immunization

Adolescent Vaccination: 2005
National Foundation for
Infectious Diseases

Barriers to Adolescent Vaccination

- Fewer adolescent health maintenance visits
- Adolescent unaware of need for immunization
- Adolescents/parents underestimate risk for vaccine preventable diseases
- Problems obtaining verification of prior immunizations
- Non-compliance with multiple vaccinations
- Misperceptions about vaccine safety

New Era of Adolescent Vaccination

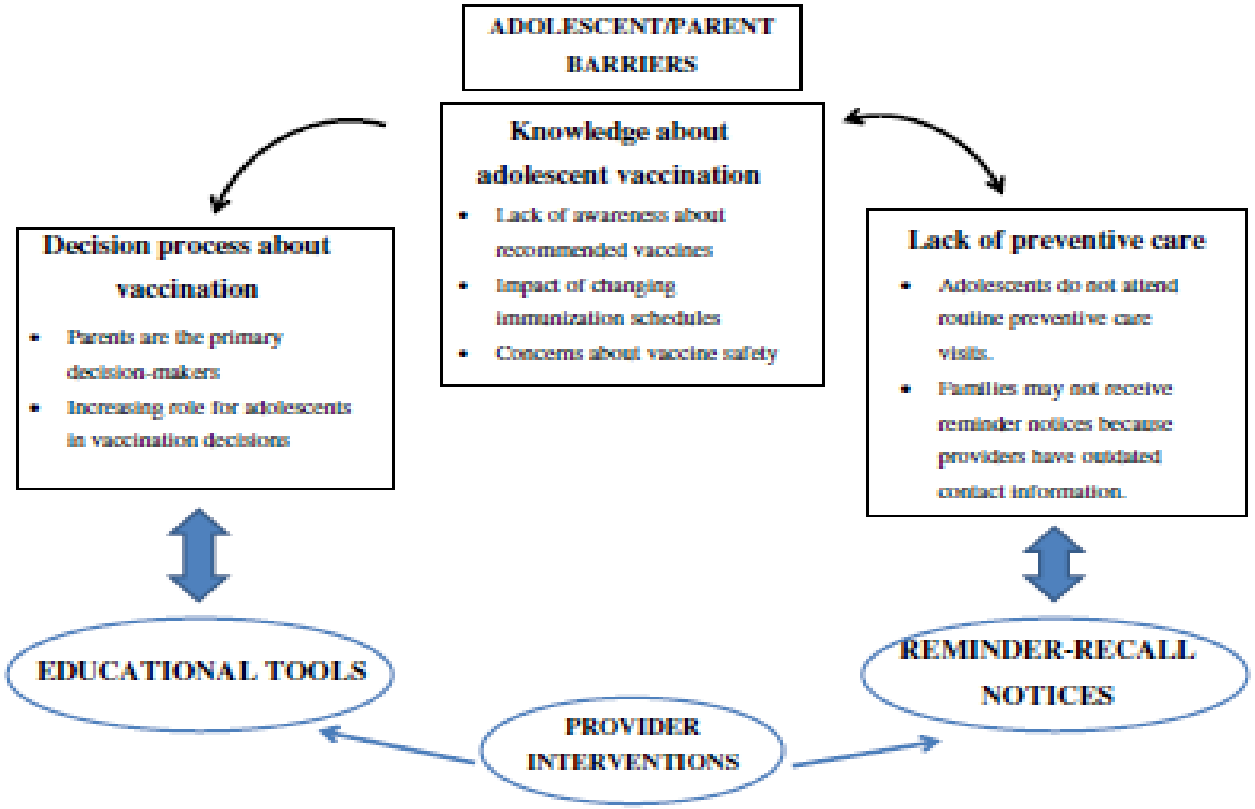
Editorial: National Foundation for Infectious Diseases 2010

CURRENT BARRIERS TO ADOLESCENT VACCINATION

- Knowledge about adolescent vaccination
  - -Lack of knowledge about adolescent vaccination recommendations
  - -Impact of changing immunization schedule
  - -Concerns about vaccine safety
- Lack of routine preventive care among adolescents

Understanding Attitudes Towards Adolescent Vaccination: Gowad et.al BMC Public Health 2012. 12:509

Gowda et al. BMC Public Health 2012, 12:509
http://www.biomedcentral.com/1471-2458/12/509



Strategies to Increase Adolescent Immunization Rates

- Use of reminder/recall systems
- Interventions eg. education
- Vaccination requirements for child care, school and college attendance
- Establishing a specific age for delivery of adolescent vaccines to help institutionalize the process
- Policy statements from groups that influence consumer decisions clearly endorsing the recommendations
- Recommendations of individual physicians, nurses and other health care providers are crucial to increasing vaccination rates

Changes in 2013 Recommended Childhood Immunizations

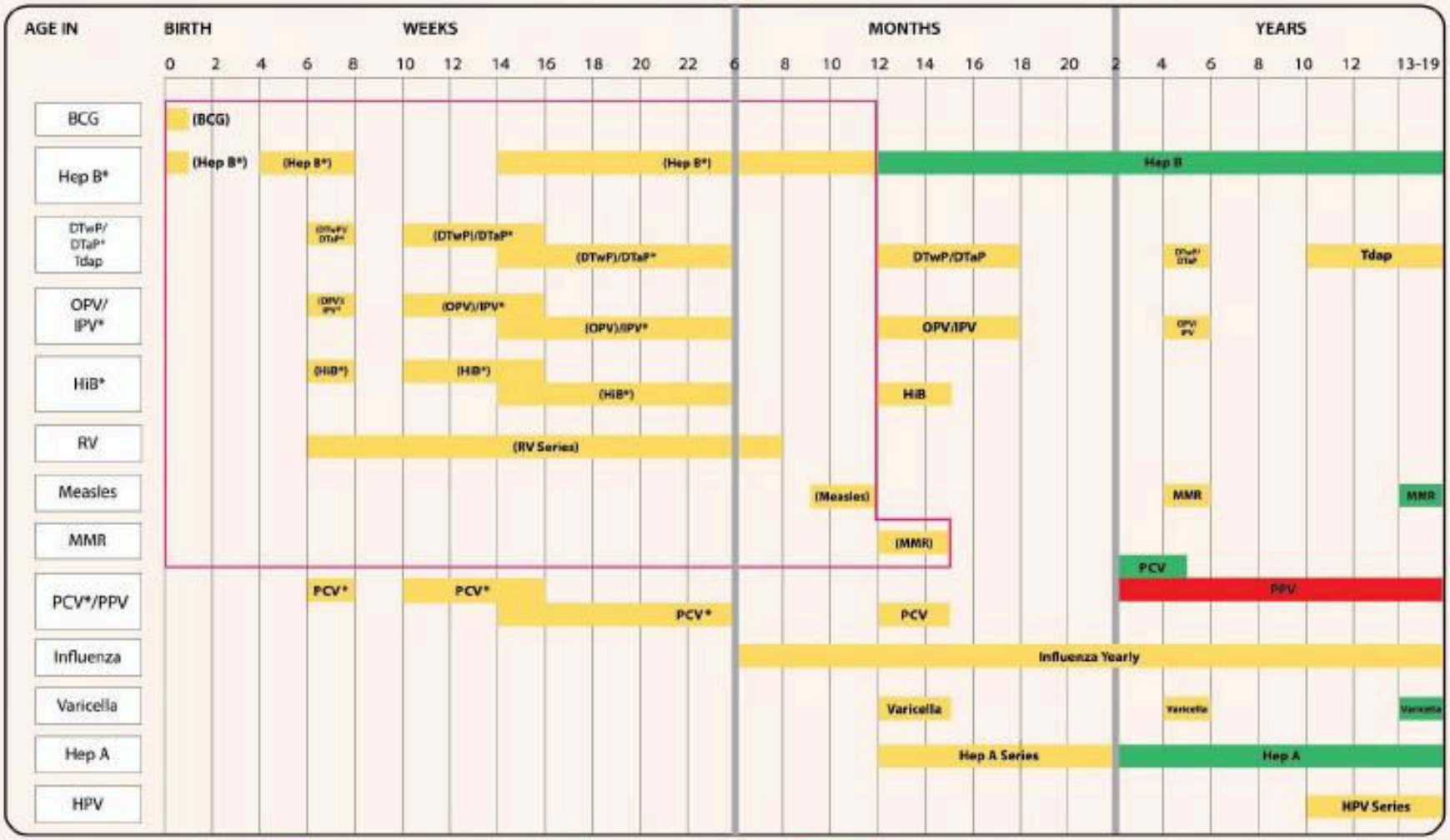
2012: 0-18 years old	2013: 0-6 years old	2013: 7-18 years old
• BCG* • DTwP*/DTaP • OPV*/IPV • Hib* • Hepatitis B* • Rotavirus Vaccines* • Measles* • MMR* • Varicella • MMRV • Hepatitis A • TdaP • Influenza Vaccine • HPV • PCV	• BCG* • DTwP */DTaP • OPV* /IPV • Hib* • Hepatitis B* • Rotavirus vaccines* • Measles* • MMR* • Varicella • MMRV • Hepatitis A • Influenza vaccine • PCV*	• Hepatitis B • TdaP/Td • MMR • Varicella • MMRV • Hepatitis A • Influenza Vaccine • HPV

*EPI vaccines

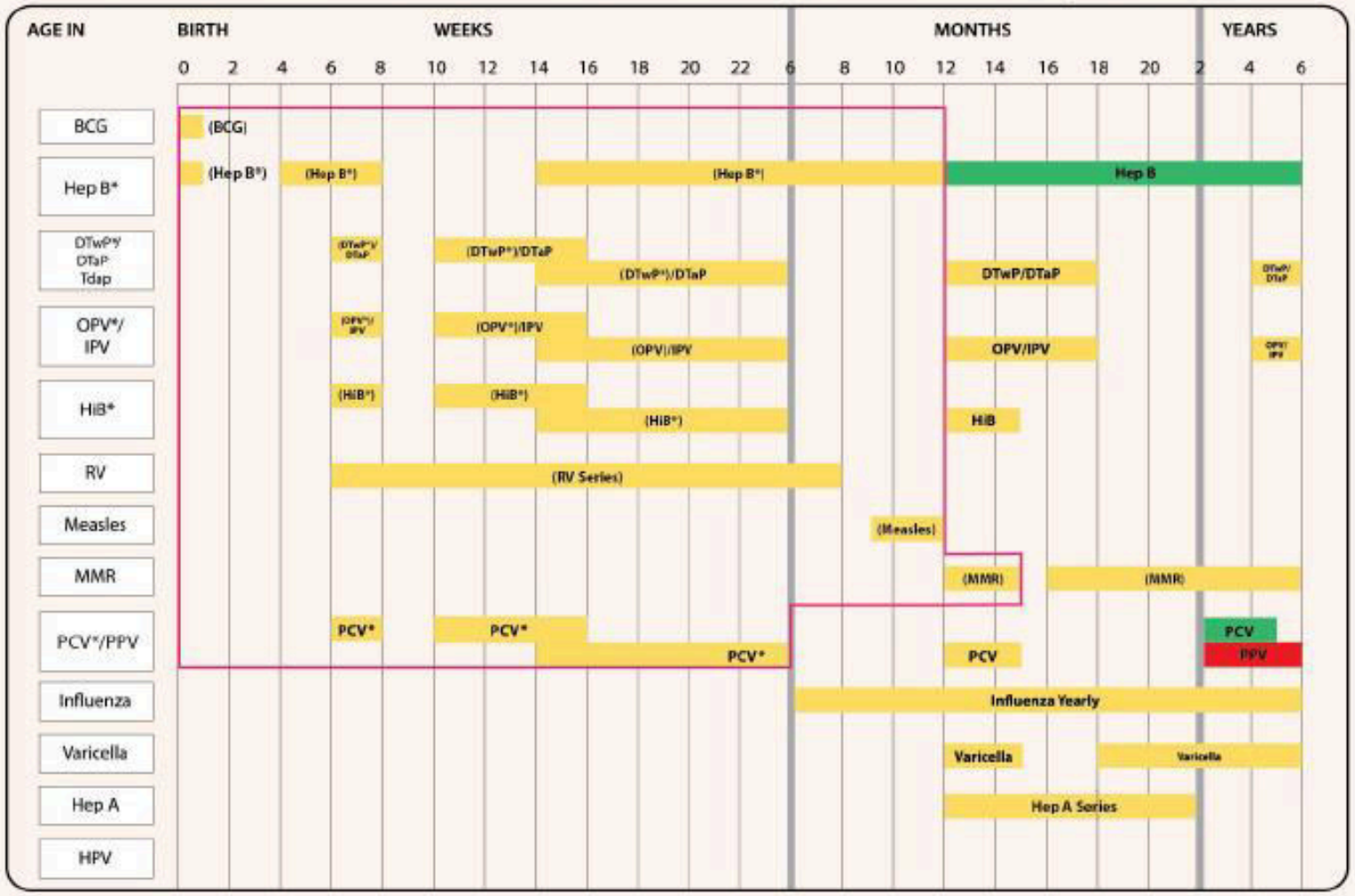
Changes in 2013 Recommended Childhood Immunizations: Vaccines for Special Groups

2012: 0-18 years old	2013: 0-6 years old	2013: 7-18 years old
• Typhoid vaccine • Rabies vaccine • Meningococcal vaccine	• Typhoid vaccine • Rabies vaccine • Meningococcal vaccine	• Typhoid vaccine • Rabies vaccine • Meningococcal vaccine • PCV/PPV

Childhood Immunization Schedule 2012



Childhood Immunization Schedule 2013 (Children 0 to 6 years. old)



EPI Vaccines Inside box

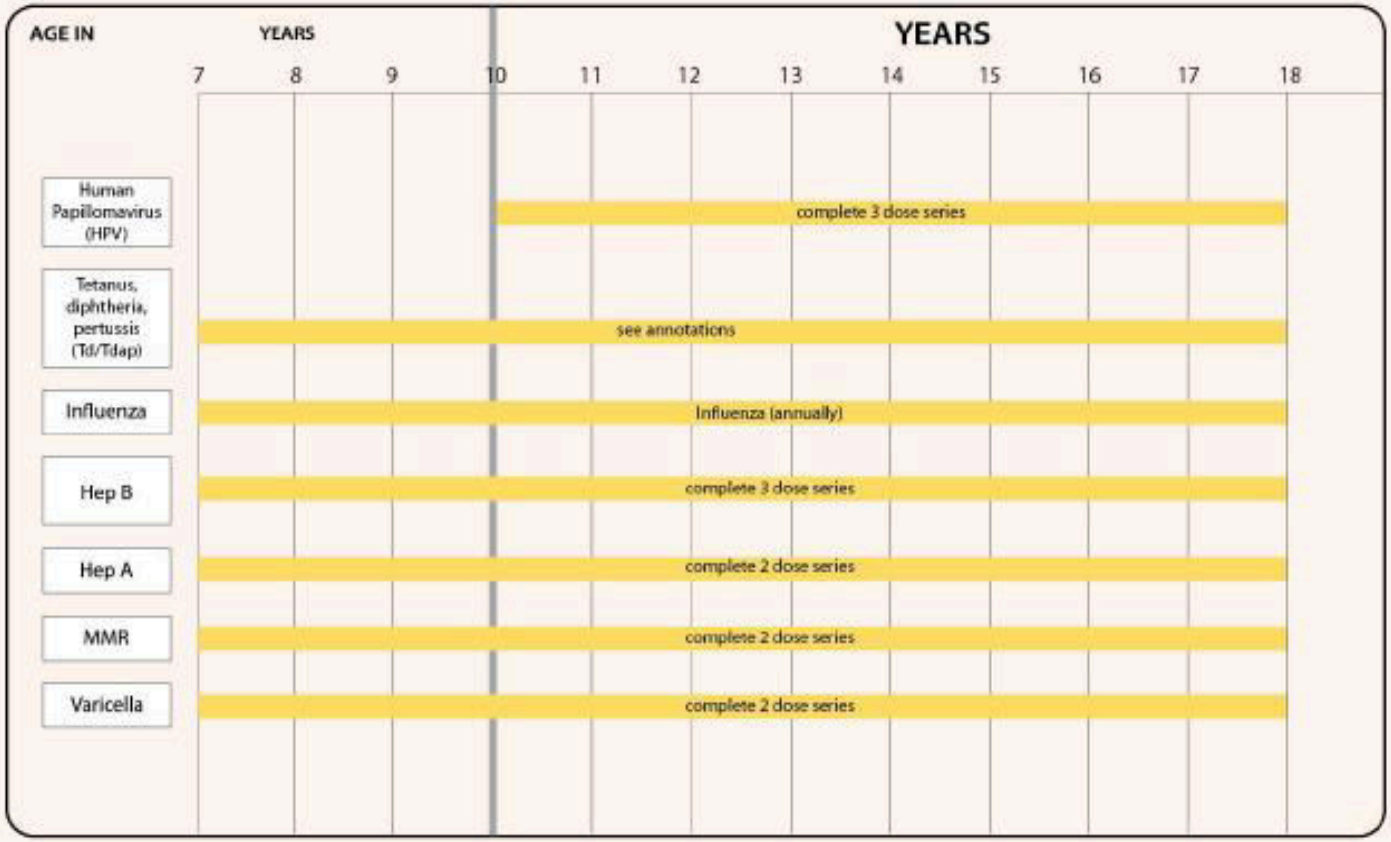
Range of Recommended Age

Catch Up Immunization

For High Risk Group

* Primary doses are given at least 4 weeks apart

Childhood Immunization Schedules 2013
(Children 7 to 18 years old)



2013 AAP Recommended Vaccines for Adolescents

- Tdap
- Influenza
- HPV
- MCV4

PPS/PIDSP 2013 Proposed Immunization Schedule for Persons 7- 18 years old

Recommended Vaccines	Vaccines for Special Groups
• HPV • Td/Tdap • Influenza • Hepatitis A • Hepatitis B • MMR • Varicella • MMRV	• Rabies • Typhoid • Meningococcal vaccine • PCV/PPV

Hepatitis B Vaccine

- Given intramuscularly (IM)
- Administer 3 doses following a 0, 1, 6 schedule to previously unvaccinated children

Hepatitis A Vaccine

- Given intramuscularly (IM)
- For previously unvaccinated children administer 2 doses at least 6 months apart

Human Papillomavirus Vaccine (HPV)

- Given intramusculary (IM)
- Primary vaccination consist of a 3-dose series administered to females 10-18 years of age.

- The recommended schedule is as follows:
  - Bivalent HPV at 0, 1 and 6 months;
  - Quadrivalent HPV* at 0, 2 and 6 months.

- The minimum interval between the 1st and 2nd dose is at least 1 month and the minimum interval between the 2nd and 3rd dose is at least 3 months
- The quadrivalent HPV* can be given to males 10- 18 years of age for the prevention of anogenital warts.

The 3rd dose should be given at least 6 months after the 1st dose.

Td/Tdap

- Given intramuscularly (IM)
- In children who are fully immunized*, Td booster doses should be given every 10 years

- A single dose of TdaP can be given in place of the due Td dose, and can be administered regardless of the interval since the last tetanus and diphtheria toxoid containing vaccine

.

- Children and adolescents 7 to 18 years of age who are not fully immunized with DPT vaccine should be given a single dose of TdaP. The remaining doses are given as Td

- Children and adolescents 7 to 18 years of age who have never been immunized with DPT vaccine should receive the 3-dose series of tetanus containing vaccine using the 0-1-6 months schedule. A single dose of TdaP is given, preferably as the first dose. The remaining doses are given as Td.

*Fully immunized is defined as 5 doses of DTaP or 4 doses of DTaP if the 4th dose was administered on or after the 4th birthday.

MMR

- Given subcutaneously (SC)
- Give two doses of MMR with a minimum interval of 4 weeks between doses.
- Children 7 years or older who received one dose of any measles containing vaccine (measles, MR, MMR) after 12 months of age should receive a second dose of MMR

Varicella Vaccine

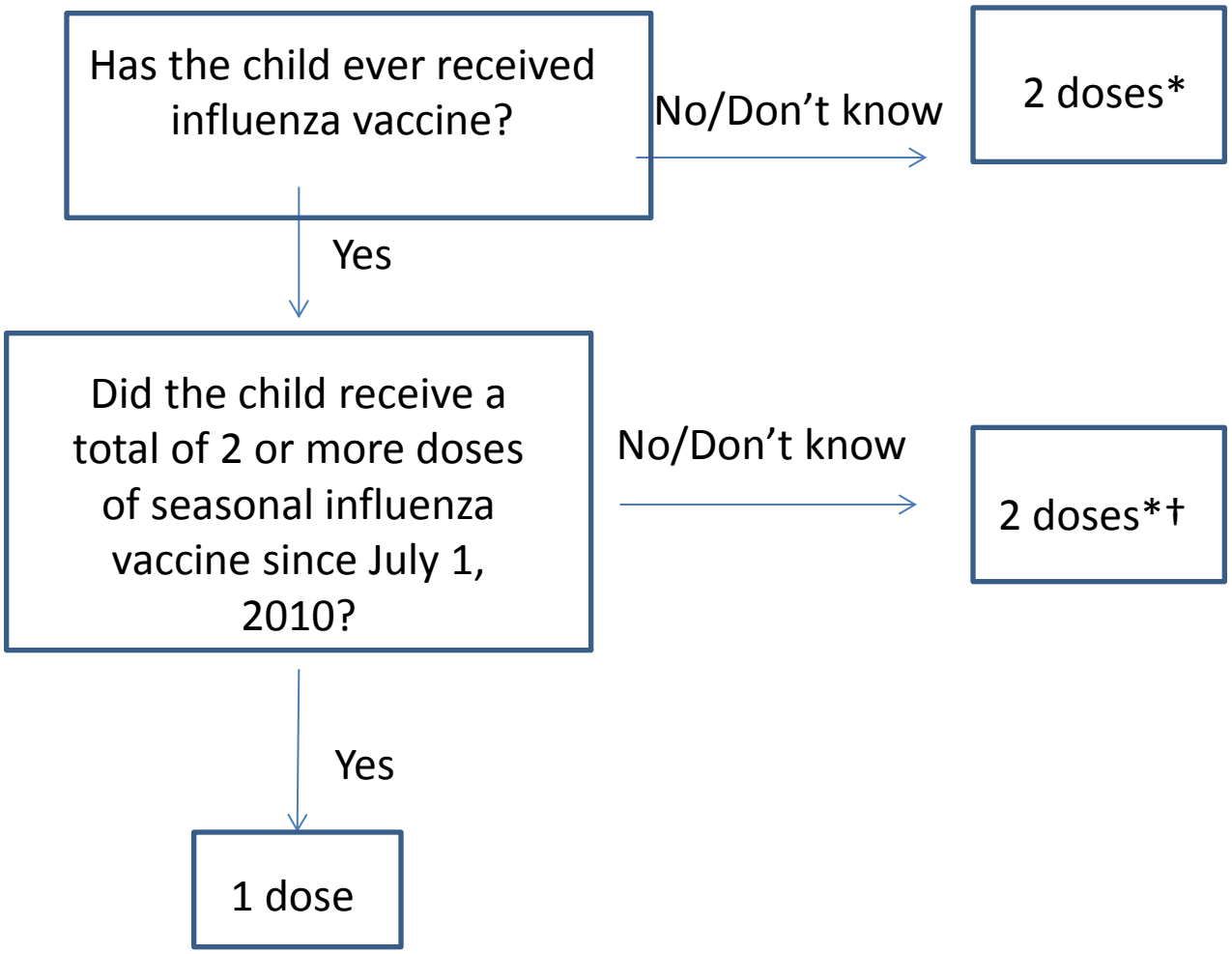
- Given subcutaneously (SC)
- Two doses of the vaccine are recommended.
- Children who previously received one dose of varicella vaccine at age 7 years should receive a second dose.

- For children below 13 years, the recommended minimum interval between doses is 3 months. However, if the second dose was administered at least 4 weeks after the first dose, it can be considered as valid.

- For children $\geq$ 13 years, the minimum interval between doses is 4 weeks.

Influenza Vaccine

- Given intramuscularly (IM) or subcutaneously (SC)
- Children 6 months to 8 years who received a total of 2 or more doses of seasonal influenza vaccine since 2010 should receive single annual doses.
- If only one dose was administered since 2010, administer 2 doses of the vaccine for the current year then one dose yearly thereafter.
- Children aged 9 to 18 years should receive one dose of vaccine.
- Annual vaccination should be given preferably between February to June, but may be given throughout the year.



MMWR/Aug 17,2012/Vol 61/No.32

Vaccines for Special Groups

Not part of EPI or recommended vaccines but data support its use in certain conditions or populations

- Typhoid Vaccine
- Rabies
- Meningococcal
- PCV/PPV

Typhoid Vaccine

- Given intramuscularly (IM)

- Recommended for travellers to areas where there is risk of exposure to *S. typhi* and for outbreak situations as declared by public health officials.

- A single dose may be given as early as 2 years of age with revaccination every 2 to 3 years if there is continued exposure to S. typhi

Rabies Vaccine

- The Anti-rabies Act of 2007 recommends routine rabies pre-exposure prophylaxis (PrEP) for children ages 5-14 years in areas where there is high incidence of rabies and animal bites (defined as more than twice the national average).
- There are 2 recommended regimens for Pre-exposure Prophylaxis:

  -Intramuscular regimen: PVRV 0.5 ml or PCECV 1 ml given on days 0,7,21 or 28

  -Intradermal regimen: PVRV or PCECV 0.1 ml given on days 0, 7, 21 or 28 .

  A repeat dose should be given if the vaccine is inadvertently given subcutaneously.
- Rabies vaccine should never be given in the gluteal area since absorption is unpredictable.
- Periodic booster doses in the absence of exposure are not recommended for the general population.

In the event of subsequent exposures, those who have completed 3 doses of pre-exposure prophylaxis, regardless of interval between re-exposure and last dose of the vaccine, will require only booster doses on day 0 and 3. Booster doses may be given IM (0.5 ml PVRV or 1 ml PCECV) or ID (0.1 ml PVRV or PCECV).

There is no need to give rabies immune globulin

PCV/PPV

- Given intramuscularly (IM)
- Only for children with the following underlying medical conditions: anatomic/functional asplenia, HIV infection or other immunocompromising condition, cochlear implant, or cerebral spinal fluid leak.
- A single dose of PCV 13 may be administered to previously unvaccinated children aged 6 through 18 years with underlying medical conditions.
- Administer PPV at least 8 weeks after the last dose of PCV13 to children aged 2 – 18 years with underlying medical condition.
- A second dose of PPV is recommended 5 years after the first dose of PPV. No more than 2 PPV doses are recommended

Meningococcal Vaccine

- Older children up to the age of 18 years at high risk for invasive meningococcal disease (persistent complement component deficiencies, travelers to or residents of areas where meningococcal disease is hyperendemic or epidemic, or belonging to a defined risk group during a community or institutional meningococcal outbreak) should receive two doses of MCV4 given 2 months apart.

- If the person remains at increased risk, an initial booster dose of MCV4 should be given 3 years after completing the primary series, with continued boosters at 5-year intervals after the initial booster dose.
- If MPSV4 or bivalent meningococcal polysaccharide A and C vaccine are used for high-risk individuals as the first dose, a second dose using MCV4 should be given 2 months later.
- Additional booster doses of MPSV4 or bivalent meningococcal polysaccharide A and C vaccine are not recommended

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Thank You