Pink Book Webinar 2019

General Best Practice Guidelines for Immunization, Part 1

Unanswered Chat Box Q and A

June 12, 2019

1. If an asplenic child got Menactra (MCV4-D) and PCV13 together, by mistake, what would be your suggestion?

Asplenic children are at risk for both pneumococcal and meningococcal disease, but the risk is higher (because the disease is more common) for pneumococcal disease. Studies that looked at co-administration of the PCV7 vaccine and MCV4-D demonstrated a reduced antibody response to three of the seven strains of pneumococcal bacteria (4, 6B, and 18C), if MCV4-D was co-administered with PCV7. So, the recommendation is to give PCV13 first, followed by MCV4-D at least 4 weeks after the last dose of PCV13. If the interval between the two vaccines is less than four weeks, the PCV13 dose is invalid (whether it was given first or second). A repeat dose of PCV13 needs to be administered 8 weeks after whichever vaccine was administered second.

1. What is the best way to deal with unvaccinated children during a measles outbreak? Should we immediately vaccinate children in the affected area? (how to handle a measles outbreak? should we immediately vaccinate children in the neighborhood?)

First, check with your local/state health department for guidance. People who are at risk for severe illness and complications from measles, such as infants younger than 12 months of age, pregnant women without evidence of measles immunity, and people with severely compromised immune systems, should receive IG. Intramuscular IG (IGIM) should be given to all infants younger than 12 months of age who have been exposed to measles. For infants aged 6 through 11 months, MMR vaccine can be given in place of IG, if administered within 72 hours of exposure. However, infants who get one dose of MMR vaccine before their first birthday should get two more doses according to the routinely recommended schedule (one dose at 12 through 15 months of age and another dose at 4 through 6 years of age or at least 28 days later). See <https://www.cdc.gov/measles/hcp/index.html>.

1. Can a pregnant women receive the new Hepatitis B vaccine Heplisav?

There are no clinical studies of Heplisav (HepB-CpG) in pregnant women. Available human data on HepB-CpG administered to pregnant women are insufficient to inform assessment of vaccine-associated risks in pregnancy. Until safety data are available for HepB-CpG, providers should continue to vaccinate pregnant women needing HepB vaccination with a vaccine from a different manufacturer. See <https://www.cdc.gov/mmwr/volumes/67/wr/mm6715a5.htm>.

1. Are epidurals considered immunosuppressive?

No. Corticosteroids can be used in epidural injections, but anesthetics are more common. This use of corticosteroids would be considered local and not have systemic effects or long duration.

1. Are drugs used after chemotherapy for breast cancer, like Tamoxifen or the new HER2 chemotherapy (trastuzumab) a reason to delay live vaccine administration?

Yes. The best person to determine the level of immunosuppression in a patient on one of these medications is the clinician who originally prescribed the medication, so it is acceptable to defer vaccination in the context of uncertainty about whether a patient is immunosuppressed or not. These medications have washout periods ranging from 1-6 months.

1. On the 4 day grace period, if a child is given a 4th DTaP up to 4 days before the 4th birthday, is a 5th does required after the child turns 4? Same on the 3rd IPV?

A 5th dose of DTaP is not necessary if the 4th dose was administered at age 4 years or older. Since the 4 day grace period is allowed for meeting minimum age requirements, a dose given up to 4 days before the 4th birthday would be considered a dose given at 4 years or older, so a 5th dose would not be needed. See catch up job aid at <https://www.cdc.gov/vaccines/schedules/downloads/child/job-aids/dtap.pdf>.

For IPV, a dose is recommended after the 4th birthday, even if 4 doses have already been given before the 4th birthday, e.g. if a combination vaccine containing IPV is used. This dose should be given at least 6 months after the previous dose. The 4 day grace period can be used in calculating this minimum 6 month time frame.

1. If you give a dose of Havrix can you complete the Hep A series with Twinrix?

Yes. 2 doses of Twinrix will be needed at 1 month and 6 months after the Havrix.

1. Should immunocompromised/potentially immunocompromised individuals receive follow-up testing to assess immune response (e.g. an HIV-infected person receiving Hepatitis A vaccine)?

Because hepatitis A vaccine is inactivated, no special precautions need to be taken when vaccinating immunocompromised persons. Hepatitis A vaccine using a standard dose and schedule is immunogenic for children and adults with HIV infection. Those with higher CD4 counts (>300 cells/mm3) respond nearly as well as persons who are not immunocompromised, but adults with lower CD4 counts are less likely to acquire protective levels of antibody. Protective levels of antibody developed after vaccination in 61%--87% of HIV-infected adults and in 100% of 32 HIV-infected children. Lower CD4 cell count at the time of vaccination, but not the CD4 cell count nadir, was associated with lack of response, suggesting that immunologic reconstitution with highly active antiretroviral therapy might restore the ability to respond to vaccination. Postvaccination testing is not indicated because of the high rate of vaccine response among adults and children. In addition, not all testing methods approved for routine diagnostic use in the United States have the sensitivity to detect low anti-HAV concentrations after vaccination. See <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5507a1.htm>.

If a patient is immunocompromised due to a lymphocyte depleting agent (e.g. rituximab, alemtuzumab, ibrotumumab, or ofatumumab), and receives a dose of vaccine, it is reasonable to revaccinate without the need for checking for an immune response.

1. Can you clarify why a patient would receive a vaccine and Ab and vice-versa (first 2 slides we went over)?

It depends. Patients may need an antibody-containing blood product because of replacement (a blood transfusion after blood loss). They may receive antibody products for post-exposure prophylaxis. For a live vaccine, if IG is given at the same time, it can inactivate the vaccine virus and the body won’t mount an immune response. For a killed vaccine (e.g. Hep B and IG), they can be given together since the vaccine virus does not have to reproduce to stimulate the immune response.

1. What are the preferred sites of vaccination?

It depends on the patients’ age and the type of injection (IM vs. subcut). For infants and young children (up to about 3 years of age), the vastus lateralis, or thigh muscle, is preferred for IM injections. For persons 4 years and older, the deltoid muscle is preferred for IM injections. Subcut injections are usually administered into the thigh for infants aged <12 months and in the upper-outer triceps area of persons aged ≥12 months. In addition, when administering a vaccine by injection, choose the correct needle size based on the route, age, patient size, and injection technique. See <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/administration.html>.

1. Is 6 months too long between the 1st dose and 2nd dose of hepatitis B vaccine? Should you restart the series?

No. One useful General Rule is that increasing the interval between doses of a multi-dose vaccine DOES NOT diminish the effectiveness of the vaccine. Increasing the interval between doses of the same vaccine does not require restarting the series.

1. Is vaccine-induced immunity acquired at a younger age destroyed during chemotherapy so that a patient should be revaccinated after chemotherapy is no longer being given?

In general, chemotherapy only suppressed immunity, but does not destroy it. You should check with the clinician who originally prescribed the medication to determine the level of immunosuppression from the medication. Radiation to ablate the bone marrow does destroy immunity, so persons who have had this type of therapy will need to be re-vaccinated after the replacement bone marrow treatment.

1. Can Typhoid and Yellow Fever be administered/taken together?

Both the injectable (killed) typhoid vaccine and the oral (live) typhoid vaccine have not been shown to interfere with the immune response to the vaccines. See <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5907a1.htm>.

1. Can a child get the menactra at age 10 and count for the Ohio mandated vaccine requirement? If the kids are in the office we tend to get them while they are here instead of waiting until age 11.

The ACIP recommendation for MenACWY is 2 doses, 11-12 years and then 16 years. You should check with the Ohio Immunization Program to see if a dose given at 10 years would fulfill this requirement.

1. Is the shingles vaccine an acceptable substitute for "varicella immunity" if there is no record of a previous varicella vaccination?

No. Indeed when patients are recommended for both varicella vaccine and zoster vaccine, we recommend that they receive both varicella vaccine and Shingrix.

Evidence of immunity to varicella includes any of the following:

* Documentation of age-appropriate vaccination with a varicella vaccine
	+ Pre-school aged children (i.e. aged ≥ 12 months) – 1 dose
	+ School-aged children, adolescents, and adults – 2 doses
* Laboratory evidence of immunity or laboratory confirmation of disease
* Birth in the U.S. before 1980
* Diagnosis or verification of a history of varicella disease by a healthcare provider
* Diagnosis or verification of a history of herpes zoster by a healthcare provider

See box at <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5604a1.htm>

1. If you have a patient who has small muscle mass in the deltoid area for ex an adult who weighs 90lbs and needs 9-10 vaccines and may not have 1 inch to space vaccines apart can you give in another muscle?

Yes. You can give half in one deltoid and the other half in the other deltoid. If the deltoid mass is very small, the vastus lateralis can also be used.

1. Can BCG vaccine be administered to an HIV-infected patient?

In the United States, BCG should be considered for only very select people who meet specific criteria and in consultation with a TB expert. Health care providers who are considering BCG vaccination for their patients are encouraged to discuss this intervention with the [TB control program](https://www.cdc.gov/tb/links/tboffices.htm) in their area.

1. Is there data on the administration of Hepatitis B second dose for infants born to mothers with positive HBsAg? Our state recommends 2nd one at 2 months which is usually in the combination vaccine.

All infants born to HBsAg-positive women should receive HepB vaccine and HBIG within 12 hours of birth, administered at different injection sites (e.g., separate limbs). Only single-antigen HepB vaccine should be used for the birth dose. For single antigen boosters, the 2nd dose is given at 1-2 months and the 3rd dose is given at 6 months. For combination boosters, the 2nd dose is given at 2 months, the 3rd dose is given at 4 months, and the 4th dose is given at 6 months. Postvaccination serologic testing for anti-HBs and HBsAg should be performed after completion of the vaccine series at age 9–12 months (generally at the next well-child visit following completion of the HepB vaccine series). Anti-HBs testing should be performed using a method that allows detection of the protective concentration of anti-HBs (≥10 mIU/mL). Testing should not be performed before age nine months to avoid detection of passive anti-HBs from HBIG administered at birth and to maximize the likelihood of detecting late HBV infection. See <https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm>.

1. Are there recommendations for administration of vaccines in regards to administration of Prolia (denosumab)? I have heard 4 weeks spacing by some Endocrinologists, curious if this is routinely recommended.

CDC does not have a spacing requirement for this monoclonal antibody. Discretion can be given to the treating provider.

1. How does one catch-up MMR vaccination in adults?

Determine the number of doses an adult needs. Doses from childhood (with the exception of inactivated or unknown doses between 1963 to 1979 [1963 to 1968 for the measles component, to 1979 for the mumps component]) count toward adult doses. If an adult is in need of additional doses, administer the next MMR dose at a minimum of four weeks from the last MMR dose.

1. May ProQuad be used at 1 year of age?

Yes. ProQuad is licensed from one year through 12 years of age. A second dose of ProQuad should be administered at 4-6 years of age, with a minimum interval from the previous dose of ProQuad of 3 months.

1. If a person experiences systemic illness and questions if the illness is related to a vaccine, what needs to be reported and by who?

If a health care provider feels that an outcome is related to a dose of vaccine they should report the outcome to the Vaccine Adverse Events Reporting System, or VAERS, at [www.vaers.hhs.gov](http://www.vaers.hhs.gov). The patient him/herself, or a parent/legal guardian of a patient, can file a VAERS report as well.

1. If a patient is on an immunosuppressive medication, (secukinumab, a monoclonal antibody) and is traveling internationally to South America, should they receive IG instead of MMR vaccine?

Ideally they would come off their medication for 3 months, receive MMR vaccine, then go back on the medication two weeks later. In many circumstances this will not be clinically feasible. In those cases, IG is not specifically recommended for travelers for prevention of measles, but immunosuppressed patients are recommended for both IG and HepA vaccine for hepatitis A prevention for travel to many countries, including those of South America. So IG will be administered in this circumstance where MMR is not given.

1. Is a positive hepatitis A serology considered evidence of immunity?

Yes, a positive serology indicates immunity either from disease or vaccination. No additional doses of hepatitis A vaccine are recommended in this case.

1. Does one need to wait 28 days after administration of oral typhoid or oral cholera vaccines before administering a PPD test for latent tuberculosis?

Yes it would be prudent. While the data on suppression exist only for measles vaccine, potential suppression could occur with other live vaccines, whether injectable, intranasal, or oral.

1. Should a screening questionnaire be used for contraindications?

Yes. Screening questionnaires, particularly the ones available on the Immunization Action Coalition web page, [www.immunize.org](http://www.immunize.org), are excellent tools for identifying contraindications, precautions, and indications for vaccination.

1. Are inhaled corticosteroids considered immunosuppressive?

Certain types of inhaled corticosteroids used in the treatment of persistent asthma are systemic and should be considered immunosuppressive, although they also need to meet the criteria of dosage and periodicity to decide whether live vaccines should be withheld. Nasal corticosteroids used for allergic rhinitis are generally not considered immunosuppressive. As with all decisions about immunocompetence and the potential vaccine recipient, the decision should ultimately be made by the treating provider.

1. Is malnourishment considered a contraindication or a precaution to any vaccine?

Malnourishment is not a contraindication to any vaccine. If the level of illness rising to acute moderate or severe illness, it would be prudent to treat the condition like a precaution, and wait until the patient is stable before vaccinating.

1. Can the grace period be applied to the minimum age for MMR and/or varicella vaccine?

The minimum age for MMR and varicella vaccine is 12 months (1 year). The grace period of four days may be applied to this minimum age; however, some states have specific laws related to school entry that specifically disallow doses before the first birthday. It is always a good idea to check with the state health department to make sure the grace period can be used with this minimum age.

1. It was mentioned that cholera vaccine and typhoid vaccine need to be separated from each other by 8 hours. What about each of these vaccines and other live vaccines. Is there a need for an interval between them.

No. There is no interval between oral cholera vaccine and other live vaccines (with the exception of oral typhoid vaccine). There is no interval between oral typhoid vaccine and other live vaccines (with the exception of oral cholera vaccine).