Hello and welcome to this recorded webinar discussing clinical considerations when administering more than 1 vaccine. I am JoEllen Wolicki with the Immunization Services Division at the Centers for Disease Control and Prevention.

Children and adults often need more than one vaccine at the same time. Administering more than one vaccine on the same day is referred to as simultaneous administration or co-administration. This is an important clinical strategy because it helps ensure patients receive all the vaccines they need and up-to-date

As a healthcare provider you should be knowledgeable on how to safely administer more than one vaccine during a clinic visit.

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After viewing this webinar, you should be able to:

Identify both clinical considerations and best practices when administering more than one vaccine on the same day.

You should also be able to identify comprehensive clinical resources for clinical staff.

Here is the outline for this webinar. First, we will discuss clinical considerations, followed by best practices and clinical resources.

Lets start with the clinical considerations associated with administering more than 1 vaccine on the same day.

And let's begin with some basics. There are currently four routes used to administer vaccines available in the U.S. – oral, intranasal, subcutaneous and intramuscular routes. The recommended route for each vaccine are based on clinical trials, practical experience, and theoretical considerations.

Coadministration of most vaccines is safe, effective, and recommended. However, there are some clinical considerations for specific vaccines which we will discuss now.

There are some vaccines that should not be given at the same time or clinical encounter. Pneumococcal conjugate, abbreviated here as PCV and pneumococcal polysaccharide, shown as PPSV23, should not be administered at the same time. These vaccines should be be spaced at least 8 weeks apart. When both vaccines are indicated, PCV13 should be administered first, if possible.

Prevnar and meningococcal conjugate – Menactra should not be coadministered for certain persons. For those with HIV infection, functional or anatomic asplenia, MCV4-D (Menactra) should not be given until at least 4 weeks after all doses of PCV13 have been administered. This is because of interference with the immune response to the PCV13 series since both vaccines are conjugated to diphtheria toxin carrier protein. This guidance applies only to the Menactra vaccine and not other mengingococcal vaccine products.

In addition, there is guidance related to scheduling doses. Two or more live, attenuated vaccines may be given on the same clinic day with other live attenuated vaccines and inactivated vaccines.  Administering vaccines during the same clinical visit is recommended.

The caveat is for live, attenuated vaccines that are administered by injection such as MMR or the intranasal route such as LAIV. If injectable or nasally administered live, attenuated vaccines are not given on the same day, they should be separated by at least 28 days to minimize the risk of interference. If you are planning to administer a live injectable or intranasal vaccine, check your patient's immunization history to ensure that no live, attenuated injectable or intranasal vaccine was given in the previous 28 days.

And one last consideration – occasionally BOTH immune globulin and the associated vaccine needs to be given. When this occurs the immune globulin should be administered in a separate limb from the associated vaccine.

I’m now going to discus the best practices associated with administering more than one vaccine on the same clinic day.

Proper preparation is critical for maintaining the integrity of the vaccine during transfer from the vial to the syringe. Healthcare personnel should prepare vaccines in a clean, designated medication area following aseptic technique. Aseptic technique refers to the manner of handling, preparing, and storing medications and injection equipment/supplies (e.g., syringes, needles) to prevent microbial contamination and infection. Hand hygiene should be done before preparing vaccines. Prepare vaccines using a separate needle and syringe for each injection.. Always check the expiration dates on the vaccine and diluent, if needed. Some syringes and needles have expiration dates, so check those, too. NEVER use expired vaccine, diluent, or equipment. Some vaccines have a beyond-use date or time based on storage conditions or when a multidose vial is first punctured. In addition, check or note the beyond-use date if applicable. The BUD replaces the manufacturer’s expiration date and should always be checked during the preparation process

Vaccines can look very similar once prepared and in a syringe. When preparing multiple vaccines, label each syringe with the name and the dosage (amount) of the vaccine, lot number, the initials of the preparer, and the exact beyond-use time, if applicable.

We outline the administration route for each vaccine on this chart. As you can see most routinely recommended vaccines are administered by intramuscular or IM injection, including COVID-19 vaccines. Routinely recommended vaccines administered by subcutaneous injection include MMR (MMR-II), VAR (Varivax), and MMRV (ProQuad). Polio and Pneumovax 23 can be administered by intramuscular (IM) or subcutaneous injection.

When more than one injectable vaccine is needed, administer each vaccine using a separate needle and syringe and in a different injection site. There are multiple recommended injection sites for both IM and subcutaneous vaccinations. Separate injection sites by 1 inch or more, if possible, so that any local reactions can be differentiated.

Let’s talk about best practices for vaccines given by subcutaneous and IM injection.

Subcutaneous injections, shown in the illustration on the left side of your screen, are administered into the fatty tissue found below the dermis and above muscle tissue, inserting the needle at a 45-degree angle.

IM injections, are administered into the muscle through the skin and subcutaneous tissue. The needle is inserted at a 90-degree angle to reach into the muscle tissue.

For infants younger than age 12 months, a subcutaneous injection is usually administered into the fatty tissue of the thigh, although the upper outer triceps area of the arm may be used if necessary. For persons 1 year of age or older, subcutaneous injections are given in the tissue above the upper outer triceps of the arm. The vaccine can be administered in the anterolateral thigh also if needed.

There are only two recommended sites for administering vaccines by IM injection: the vastus lateralis muscle in the anterolateral thigh and the deltoid muscle in the upper arm.

For infants and young children, the vastus lateralis muscle in the anterolateral thigh area is preferred because of the greater muscle mass available. An IM injection ideally should be administered into the middle of the muscle where the muscle tissue is thickest.

For older children and adults, the deltoid muscle can be used. Remember to separate each injection site by an inch or more. If needed, the vastus lateralis muscle in the anterolateral thigh can be used for older children and adults.  An additional consideration, sometimes recipients do not wish to have an injection given in their arm, for these persons the vastus lateralis muscle in the anterolateral thigh is an alternative site if the deltoid sites cannot be used.

There are job aids and infographics in CDC vaccine administration library that you may wish to review and share.

Some vaccines that are more likely than others to cause an enhanced injection site reaction such as a sore injection site, redness and swelling., for example any diphtheria- and tetanus-containing vaccines such DTaP or Tdap, meningococcal B or pneumococcal vaccines. If possible, administer these vaccines in different limbs to prevent an extremely sore limb.

Some vaccines are also known to be painful when injected, such as MMR or HPV vaccines. Pain from vaccine injections is a common concern for the recipient, parent, and the person administering the vaccine. When administering more than 1 vaccine, the order of vaccine injections matters to overall pain because some vaccines are inherently more painful than others when injected and pain can escalate with each subsequent injection – building off the previous injection. When vaccines that are known to be painful when injected such as MMR and HPV vaccines are needed these should be administered last, after other vaccines. Injecting the most painful vaccine last when multiple injections are being administered can decrease the pain associated with the injections and the overall vaccination experience.

Using a combination vaccine is one way to decrease the number of injections. A combination vaccine generally is preferred over separate injections of the equivalent component vaccines and may be used when any of the components are indicated, and none are contraindicated. However, efforts should be made to avoid giving extra vaccine doses when another option is available. Note- each combination vaccine product has been approved and recommended for specific ages and doses in the series. It is important that healthcare professionals administering vaccine are knowledgeable and current regarding the products they are administering.

While we are on the topic of combination vaccines ONLY USE FDA licensed combinations, do not mix vaccines in the same syringe in an effort to “create” a combination vaccine.

Lets take a few minutes to go over vaccines administered by oral and intranasal routes.

Live, attenuated influenza vaccine is the only vaccine administered by the intranasal route.  It can be administered on the same day as inactivated vaccines. We discussed timing of live, attenuated vaccines on an earlier slide but it is worth going over again as we receive a number of questions about this.  Two or more injectable or live, attenuated vaccines can be given on the same day. However, If these live attenuated vaccines are NOT administered on the same day, they  should be separated by at least 28 days to minimize the potential risk for interference to the immune response

Rotavirus vaccine is the only routinely recommended vaccine that is administered orally. It can be administered on the same day with or at any interval before or after other live, attenuated vaccines both injectable or intranasal. Oral vaccines do not need to be separated by 28 days from other live, attenuated vaccines if not given on the same day.  That rule applies only to injectable or nasally administered vaccines.

CDC often receives questions on when oral vaccines should be administered in relation to injectable vaccines. The Advisory Committee on Immunization Practices does not address this. Some HCP prefer to administer these vaccines before giving any injections and others prefer to do it afterwards. As with any medical procedure professional judgement should be used.

Now I would like to take a minute to discuss coadministration of COVID-19 vaccine and other vaccine.

Extensive experience with non COVID-19 vaccines has demonstrated that immunogenicity and adverse event profiles are generally similar when vaccines are coadministered as when they are administered alone. You may administer COVID-19 vaccine and other vaccines. This means COVID-19 vaccine can be given on the same day, during the same clinical visit with other vaccines, any time before or after other vaccines. This includes both non-live vaccines and live, attenuated vaccines. .

https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html

There have particularly been many questions about influenza and COVID-19 vaccines. With influenza season approaching, CDC recognizes there may be compelling logistical advantages to offering patients COVID-19 and influenza vaccines on the same day. Like any other vaccine, providers can administer and encourage patients to receive these on the same day. There are limited data on the safety of co-administration of COVID-19 vaccines with other vaccines, including flu vaccine. Based on experience with coadministration of inactivated vaccines in general, safety problems are not anticipated.

This includes both the live, attenuated influenza vaccine and non-live formulations.

If a practice does not carry both COVID-19 and influenza vaccine, HCP should refer patients to where they can receive the unavailable vaccine. Vaccine Finder can help.

Let’s move on to what providers should think about when deciding whether to coadminister COVID-19 vaccine and other vaccines. Although data are not available for COVID-19 vaccines coadministered with other vaccines, as noted earlier, extensive experience with non-COVID-19 vaccines has demonstrated that immunogenicity and adverse event profiles are generally similar when vaccines are coadministered as when they are administered alone. It is unknown whether reactogenicity of COVID-19 vaccine is increased with coadministration, including with other vaccines known to be more reactogenic, such as adjuvanted vaccines or live vaccines.

When deciding whether to co-administer another vaccine(s) with COVID-19 vaccine, consider:

* + Whether the patient is behind or at risk of becoming behind on recommended vaccines
	+ The patient’s risk of vaccine-preventable disease (e.g., during an outbreak or occupational exposures)
	+ The reactogenicity profile of the vaccines

Local reactions were reported at higher rates by COVID-19 vaccine recipients than placebo recipients. With mRNA vaccines, recipients reported higher rates of local reactions after dose 2 than dose 1. As mentioned earlier, if possible, administer vaccines that are more likely to cause a local reaction is separate limbs. The vastus lateralis muscle in the anteriolateral thigh can be used if needed for adults and adolescents.

We have a variety of COVID-19 vaccination resources for healthcare providers that include information on coadministration, including:

* + The interim clinical considerations
	+ Healthcare provider FAQs
	+ A variety of clinical products for each COVID-19 vaccines

I’m finally going to discus the additional clinical resources CDC has to assist HCPs.

Multiple clinical education programs and materials with continuing education are available free through the CDC website.

On this slide I have highlighted some of the vaccine administration resources for healthcare professionals including infographics, videos and a web-based education module. I encourage you to review these resources and share them with colleagues.

As I highlighted earlier there are resources available related to COVID-19 vaccines that address coadministration. This website will take you to all clinical resources related to COVID-19 vaccines.

For additional vaccination resources, please see the links available on this slide.

This concludes our webinar on COVID-19 Considerations for Hosting Off-site Vaccination Clinics in the COVID-19 Vaccine Webinar Series. Thank you so much for your time.