Vaccinations before pregnancy: which vaccines are needed and timing before conception

Why vaccination matters before conception

Preconception vaccination is preventive medicine with two aims: protecting the person who will carry the pregnancy and reducing infection-related risks to the embryo, fetus, and newborn. Pregnancy changes immune, respiratory, and cardiovascular physiology, which can increase vulnerability to complications from some infections. At the same time, the fetus depends on maternal health and, later in pregnancy, maternal antibodies transferred across the placenta.

The preconception window is especially important because certain vaccines are best completed before pregnancy begins. Live attenuated vaccines, notably measles-mumps-rubella and varicella, are generally contraindicated during pregnancy because of theoretical fetal risk. In contrast, inactivated or non-live vaccines may be recommended before or during pregnancy depending on timing and indication.

A practical approach is to bring vaccination records to a pre-pregnancy medical checkup. If records are missing, clinicians may recommend serologic testing for immunity, revaccination according to adult schedules, or both. This can be coordinated with broader preconception planning, such as reviewing chronic

conditions, medications, infectious disease risks, and prior pregnancy history.

MMR: measles, mumps, and rubella

Rubella is one of the classic reasons vaccination is addressed before pregnancy. Rubella infection in early pregnancy can cause congenital rubella syndrome, which may include miscarriage, fetal growth restriction, congenital heart disease, cataracts, hearing loss, and neurodevelopmental impairment. Because the MMR vaccine is live attenuated, it is recommended before pregnancy for people who lack evidence of immunity, not during pregnancy.

Evidence of immunity may include documented MMR vaccination, laboratory evidence of rubella immunity, or other criteria depending on local guidance. Many clinicians specifically check rubella IgG during preconception care if immunity is uncertain. If MMR is needed, the usual recommendation is to avoid pregnancy for about 1 month after vaccination. This interval is precautionary and should be discussed with your clinician, especially if fertility treatment timing is being planned.

Measles also deserves attention. Outbreaks continue to occur in under-immunized communities, and measles infection can be severe. For someone planning pregnancy, being up to date on MMR before conception is a way to reduce personal and household risk before the option of vaccination becomes limited by pregnancy.

Varicella: chickenpox immunity before pregnancy

Varicella-zoster virus causes chickenpox. Primary varicella infection during pregnancy can be serious for the pregnant person, including risk of pneumonia, and can also cause fetal or neonatal complications depending on gestational timing. The varicella vaccine is live attenuated, so it should be completed before pregnancy for people without immunity.

Many adults know whether they had chickenpox, but history can be unreliable. Clinicians may use vaccine documentation or varicella IgG testing to confirm immunity when records are unclear. If vaccination is needed, the typical adult series involves 2 doses, spaced at least several weeks apart according to schedule. Pregnancy should generally be avoided for about 1 month after each

varicella vaccine dose, and the full timeline should be planned before trying to conceive or before an assisted reproduction cycle.

If you are already pregnant and found to be non-immune, varicella vaccination is usually deferred until postpartum. In that situation, clinicians focus on exposure avoidance, prompt evaluation after exposure, and postpartum immunization planning.

Influenza, Tdap, COVID-19, and other routine vaccines

Not every pregnancy-relevant vaccine has to be completed before conception. Influenza vaccination is recommended for people who are pregnant during flu season and can be given during pregnancy. If flu vaccine is available before conception, being vaccinated may still be appropriate, particularly if flu season is underway or imminent. The injectable influenza vaccines used in pregnancy are non-live; the live attenuated nasal spray formulation is generally not used during pregnancy.

Tdap, which protects against tetanus, diphtheria, and pertussis, is a special case. Even if someone had Tdap before pregnancy, many guidelines recommend Tdap during each pregnancy, typically in the late second to early third trimester, to maximize antibody transfer and help protect the newborn from pertussis. Preconception review is still useful because adults should be up to date on tetanus-containing vaccines, and close contacts may also need pertussis protection.

COVID-19 vaccination recommendations evolve as variants and formulations change. Non-live COVID-19 vaccines have been recommended for pregnant and preconception populations by major public health organizations, but timing should be individualized based on current guidance, prior doses, recent infection, risk factors, and local availability.

Other routine adult vaccines may matter before pregnancy depending on age and risk. Hepatitis B vaccination is important for people without immunity who have risk factors or who have not completed the series. Hepatitis A vaccination may be relevant for certain medical, occupational, lifestyle, or travel risks. Human papillomavirus vaccination is recommended for eligible non-pregnant people, but it is not typically initiated or continued during pregnancy; if

pregnancy occurs mid-series, remaining doses are usually postponed until after pregnancy. Pneumococcal, meningococcal, RSV, or other vaccines may be considered for specific indications, but these decisions require clinician review.

Timing before conception: a practical vaccine timeline

The best timing is early. Ideally, review vaccine records at least 1 to 3 months before trying to conceive. This allows time for antibody testing, multi-dose vaccine series, and the waiting period after live vaccines. If you are planning infertility treatment, embryo transfer, donor insemination, or ovulation induction, discuss vaccine timing before a cycle calendar is finalized.

Three or more months before trying: gather childhood and adult vaccine records; review prior infection history; check rubella and varicella immunity if uncertain; discuss hepatitis, COVID-19, influenza, occupational, and travel-related needs.
One to two months before trying: complete MMR or varicella vaccination if indicated, allowing for the usual recommendation to avoid pregnancy for about 1 month after a live vaccine dose. If varicella requires 2 doses, start early enough to complete the series.
During the month before trying: confirm which vaccines are complete, document dates, and ask your clinician whether any remaining non-live vaccines should be given before conception or can wait until pregnancy.
Once pregnant: do not receive live vaccines such as MMR or varicella. Discuss recommended pregnancy vaccines, commonly including influenza when in season and Tdap at the recommended gestational window.

If conception happens sooner than expected after a live vaccine, contact your clinician. This situation is not uncommon, and professional counseling can clarify next steps based on vaccine type, dates, and pregnancy timing.

What if vaccine records are missing or immunity is uncertain?

Missing records are common, especially for people vaccinated in childhood, in another country, through school programs, or in military or occupational settings. Do not assume you must start over without guidance. A clinician may

be able to reconstruct your vaccination status from state or national registries, prior medical records, school records, employment health files, or laboratory testing.

For pregnancy planning, rubella and varicella immunity are often the highest-yield checks because of the importance of preconception timing. If blood tests show lack of immunity, vaccination can be planned before conception. If results are equivocal, the interpretation depends on the assay, vaccine history, and local standards.

In some cases, receiving extra doses of certain vaccines is acceptable when documentation is absent, but this should be determined by a healthcare professional. The decision may differ for live vaccines, multi-dose series, immunocompromised patients, and people with a history of severe allergic reaction to a vaccine component.

Special situations: immunocompromise, travel, work exposure, and fertility treatment

Some people need a more detailed vaccine plan before pregnancy. Immunocompromising conditions or medications can change both infection risk and vaccine eligibility. Live vaccines may be contraindicated even outside pregnancy for some patients, while non-live vaccines may be less immunogenic depending on therapy. If you take biologics, chemotherapy, high-dose corticosteroids, transplant medications, or other immune-modifying treatments, coordinate early with the prescribing specialist and obstetric team.

Travel can also change recommendations. Yellow fever, typhoid, Japanese encephalitis, hepatitis A, meningococcal, polio booster, and other vaccines may be considered depending on destination and itinerary. Some travel vaccines are live or have limited pregnancy data, so preconception travel planning should happen well in advance. In some circumstances, postponing travel, modifying itinerary, or using non-vaccine prevention strategies may be discussed.

Occupational exposure matters for healthcare workers, laboratory personnel, childcare workers, teachers, military personnel, and people in congregate settings. Hepatitis B, MMR, varicella, influenza, COVID-19, and other vaccines may be particularly relevant. If you are undergoing fertility treatment, a

vaccine review before cycle start can help avoid emotionally difficult delays after stimulation, insemination, or embryo transfer plans are already in motion.

How to prepare for a preconception vaccine conversation

A good vaccine conversation is individualized, not a one-size-fits-all checklist. Before your visit, gather whatever information you have: childhood vaccine records, prior pregnancy labs, immigration or school vaccine forms, occupational health records, pharmacy vaccination receipts, and dates of COVID-19 and influenza vaccines. Also note prior infections such as chickenpox or shingles, although laboratory confirmation may still be needed.

Tell your clinician if you have had a severe allergic reaction to any vaccine, gelatin, neomycin, yeast, latex, or another component; if you are immunocompromised; if you live with someone who is severely immunocompromised; if you are planning international travel; or if you are trying to conceive urgently because of age, diminished ovarian reserve, or scheduled fertility treatment. These details can change timing and prioritization.

It is also reasonable to ask for a written plan: which vaccines are due now, which require a waiting period before conception, which will be recommended during pregnancy, and which can be postponed until postpartum. Clear documentation can reduce uncertainty and help all members of your care team stay aligned.