

Intervals between Live Vaccines and Other Rules

All vaccines can be administered simultaneously (on the same day).

2 Live Vaccines

Live vaccines can be given on the same day. If they are not given on the same day, they should be separated by a minimum 4-week interval, because the immune response to one of the vaccines might be impaired. **If two live vaccines are not given on the same day and are given less than four weeks apart, the second vaccine should be repeated.** Alternatively, the effectiveness of the second vaccine can be checked by serologic testing.



This applies to MMR, varicella, zoster, yellow fever vaccines & LAIV; but, it does not apply to oral typhoid and rotavirus vaccines.

Inactivated vaccines do not interfere with live vaccines and live vaccines do not interfere with inactivated vaccines. **An inactivated vaccine can be administered either simultaneously or at any time before or after a different inactivated or live vaccine. A live vaccine can be given either simultaneously or at any time before or after an inactivated vaccine.**

Spacing of Vaccines and Antibody-Containing Products

Blood and other antibody containing blood products can inhibit the immune response to measles and rubella vaccines for 3 or more months because these products contain antibodies to measles and rubella viruses. In theory, the same is true for rotavirus vaccines, but no data is available and children will receive 2 or 3 doses of rotavirus vaccine. The effect of IG on the response to mumps and varicella vaccines is unknown, but IG products contain antibodies to these viruses and the same intervals as for measles vaccine should be followed for varicella vaccine.

After an antibody-containing product is received, live vaccines (except rotavirus, zoster, live attenuated influenza vaccine (LAIV- FluMist®), yellow fever, and oral typhoid vaccines) should be delayed until the passive antibody has degraded. For specific intervals, refer to the *Antibody-Live Vaccine Interval Table* in Appendix A of the Pink Book at CDC's vaccines website: http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/A/mmr_ig.pdf.

MMR & TB Skin Testing

Natural measles infection exacerbates tuberculosis. Measles vaccine (and possibly mumps, rubella, and varicella vaccines) may temporarily suppress the response to tuberculin skin testing (TST) in a person infected with *Mycobacterium tuberculosis*. Options:

- Apply TST at the same visit as MMR
- Delay TST at least 4 weeks if MMR has already been given
- Apply TST first and administer MMR when skin test is read

The third option is the least favored option because it delays receipt of MMR.

Protect from Light

Live vaccines must still be alive when they are injected or they won't replicate. Light inactivates or kills some live vaccines, including MMR, varicella, zoster, and rotavirus vaccines, so these vaccines must be protected from light. Also, Menveo, meningococcal conjugate vaccine, and HPV vaccines (Gardasil and Cervarix) must be protected from light, even though they are not live vaccines.

Live vaccines contain a live vaccine virus that must replicate in the body in order to stimulate immunity.

Anything that interferes with that replication might impact the immune response.

Remember: Live vaccines can be given on the same day.

The 4-day grace period does not apply to the 4-week minimum interval between 2 different live vaccines.

It does apply to the 4-week minimum interval between doses of the same live vaccine, such as the 4 weeks between MMR 1 and MMR 2.

It is always best to follow the recommended schedule as closely as possible.

Vaccine administration at the recommended ages and intervals provides optimal protection.