

Immunosuppressive Therapy

Recommended vaccines for those on immunosuppressive therapy ^A	
All routine <u>inactivated</u> vaccines	Immunize according to routine schedule for inactivated vaccines.
Pneumococcal vaccine	Conjugate and/or polysaccharide vaccine depending on age. Requires once only revaccination with polysaccharide vaccine.
Hib vaccine	Unimmunized individuals 5 years of age and older require 1 dose.
Influenza vaccine	Immunize yearly (all those 6 months of age and older). Inactivated influenza vaccine should be used.
MMR vaccine	Contraindicated (unless significant risk of wild-type infection exists and client is receiving only low doses of immunosuppressive medications). Refer to Immunization with Inactivated and Live Vaccines . Use Referral Form for MMR Vaccination .
Varicella vaccine	Contraindicated (unless significant risk of wild-type infection exists and client is receiving only low doses of immunosuppressive medications). Refer to Immunization with Inactivated and Live Vaccines . Use Referral Form for Varicella Vaccination .
Rotavirus vaccine	Refer to Immunization with Inactivated and Live Vaccines . Use Referral Form for Rotavirus Vaccination .

Long-term immunosuppressive therapy includes, but is not limited to:

- Long-term corticosteroids
- Cancer chemotherapy
- Radiation therapy
- Therapeutic monoclonal antibodies

Immunosuppressive therapy may be used for treatment of cancer, organ transplantation and an increasing range of chronic illnesses and inflammatory conditions (e.g., inflammatory bowel disease, psoriasis, systemic lupus erythematosus, rheumatoid arthritis, and collagen vascular disease).

Long-term immunosuppressive therapies alone or in combination have their greatest impact on cell-mediated immunity, although T cell-dependent antibody production can also be reduced.

Administer all appropriate vaccines/boosters to individuals undergoing such therapy at least 14 days before the initiation of therapy. If this cannot be done safely, delay vaccination until at least 3 months after immunosuppressive therapy has been stopped. For individuals whose treatment regimen includes anti-B-cell antibodies (e.g., rituximab), delay vaccination for at least 6 months. The exception to this is influenza immunization, which is recommended for all immunosuppressed individuals.

If immunosuppressive therapy cannot be stopped, inactivated vaccines should be given when therapy is at the lowest possible level.

Individuals immunized before chemotherapy or radiation therapy are thought to retain immune memory after treatment and re-immunization is not necessary. The exception is a recipient of hematopoietic stem cell transplant.

^A For specific vaccine schedule information, refer to [Part 4 - Biological Products](#).

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Live vaccines are contraindicated during immunosuppressive therapy. An analysis of risk versus benefit may be necessary if only low doses of therapy are needed and there is significant risk of wild-type infection. In this case, consult with the individual's specialist before immunization.

Corticosteroid Therapy

Only high dose systemic steroids interfere with vaccine induced immune responses (i.e., consider persons receiving ≥ 2 mg/kg per day or ≥ 20 mg daily of prednisone for more than 14 days duration to be immune-suppressed).

Topical, inhaled and locally injected steroids do not have an impact on vaccines unless there is clinical or laboratory evidence of immunosuppression from such therapy.

A period of at least 1 month should elapse between high dose corticosteroid therapy administered for more than 2 weeks and administration of both inactivated vaccine (to ensure immunogenicity) and live vaccine (to reduce the risk of dissemination).

Children with adrenogenital syndrome and those receiving physiologic replacement doses (< 2 mg/kg of prednisone per day) of glucocorticoids should receive all routine immunizations on schedule. It is not necessary to obtain a letter of referral for immunization of these clients.

Infants Born to Mothers on Immunosuppressive Medication

Certain immunosuppressive medications, which may be used in pregnancy to treat conditions such as autoimmune disorders (rheumatoid arthritis, Crohn's disease) and some malignancies, may cross the placenta and be detectable in the infant for 6 to 8 months, especially if given late in pregnancy. These include biological disease modifiers such as monoclonal antibodies (e.g., rituximab).

There is one case report of a fatal outcome in a BCG vaccinated infant of a mother who received infliximab during pregnancy ^A, and it is recommended that BCG vaccine not be given to such infants.

Rotavirus vaccine can be administered to infants born to mothers on immunosuppressive medication. There are no systematic assessments of safety of the use of rotavirus or other live vaccines in such infants. Some experts recommend B cell enumeration in such infants prior to administration of rotavirus vaccine, or withholding the vaccine altogether. However, the risk of receipt appears to be based on theoretical consideration without evidence of harm, and such infants are not known to experience severe disease following wild-type rotavirus infection. The infant's physician may be consulted if there are particular concerns about the infant's health status.

Infants of breastfeeding mothers receiving monoclonal antibody treatment can be immunized with both live and inactivated vaccines according to routine schedules. The transfer of these medications through breast milk is limited, and the minimal quantities that are ingested are likely to be broken down in the infant's gastrointestinal tract.

^A Heller MM, Wu JJ, Murase JE. Fatal case of disseminated BCG infection after vaccination of an infant with in utero exposure to infliximab. *J Am Acad Dermatol.* 2011 Oct;65(4):870. doi: 10.1016/j.jaad.2011.04.030. PubMed PMID:21920245.