



Recommendations for Vaccination of the Immunocompromised Child

(Chemo-specific)



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When your child needs a hospital, everything matters.

Vaccination of the immunocompromised child is important given their increased risk of disease and higher rates of morbidity and mortality from vaccine-preventable infections (VPI). These patients may also have increased risk of exposure to pathogens because they must frequently enter medical environments.

Optimally, primary care physicians, primary oncology team, and other specialists should partner together to ensure that appropriate vaccines are administered to the patient and that appropriate vaccines are recommended for the patient's household contacts.

Let's take a look at the recommendations from the Infectious Diseases Society of America (IDSA) and tips from the Infectious Disease/Host Defense and Hematology/Oncology/BMT specialists at Nationwide Children's for vaccination of the immunocompromised child from underlying malignancy and chemotherapy and their household members.

BEFORE CHEMOTHERAPY

The IDSA recommends that whenever possible, vaccines should be administered to the patient before planned immunosuppression. Every medical encounter is an opportunity to think about and help protect our patients from VPI. However, it is rarely possible to provide vaccines during this time in patients with newly diagnosed malignancy.

- Live vaccines should be administered ≥ 4 weeks prior to planned immunosuppression.
- Inactivated vaccines should be administered ≥ 2 weeks prior to planned immunosuppression, if possible.

DURING CHEMOTHERAPY

Children with underlying malignancy who are receiving chemotherapy are considered to have high-level immunosuppression.

Inactivated vaccines

- Annual, injectable inactivated influenza vaccine (IIV) is recommended for all immunocompromised patients ≥ 6 months of age beginning as soon as possible each season, before influenza is circulating in the community.
 - In addition, children < 9 years of age, will require a second dose of IIV to be dispensed 4 weeks after the first dose, if: they have never been vaccinated against influenza or have an unknown or incomplete vaccination history, or have not previously received two doses of influenza vaccine in the same season.
- Inactivated vaccines should likely not be administered during highly intensive chemotherapy periods (e.g., induction or consolidation chemotherapy for acute leukemia, receipt of rituximab or alemtuzumab), given reduced vaccine response. Some centers may begin providing inactivated vaccines to patients during maintenance chemotherapy; however, these doses are only considered valid if there is documentation of a protective antibody concentration. It is preferred that administration of indicated inactivated vaccines occur 2 or more weeks prior to chemotherapy, if possible.
- At Nationwide Children's, except for IIV, inactivated vaccines are generally given after chemotherapy is completed in an effort to optimize vaccine immunogenicity.

Live-virus vaccines

- Live virus vaccines (e.g., oral rotavirus, MMR, varicella, live attenuated intranasal influenza, oral polio, oral typhoid, yellow fever) should NOT be administered to the patient during chemotherapy.

Vaccination of household contacts during chemotherapy

All household contacts and caregivers should receive all age-appropriate immunizations.

- It is recommended that household contacts of children receiving chemotherapy receive all their recommended immunizations (both inactivated and live) according to the CDC schedule. This is particularly important to decrease the likelihood of introducing vaccine-preventable infections into the household.
 - Exception: Two live vaccines should NOT be provided to household contacts of immunocompromised children: the oral polio vaccine (no longer recommended or given in the United States) and the smallpox vaccine.
 - It is preferred that household contacts receive IIV and not live attenuated intranasal influenza vaccine.

Additional scenarios regarding vaccination of household contacts of immunocompromised children

- If the sibling is a baby receiving rotavirus vaccine, then the oncology patient should avoid performing diaper changes/having contact with stool for up to 30 days after the vaccine is given.
- In rare cases where a sibling has received varicella vaccination or grandparent has received live zoster vaccine and develops a vesicular rash (occurring in 1-5% of immunized children, generally 5-16 days after vaccination), the exposure should be reported to their oncology team and the immunocompromised child should avoid direct contact with the vaccinated sibling or grandparent until all the skin lesions resolve.

AFTER CHEMOTHERAPY

Generally speaking, it is safe and immunogenic to provide vaccines after the LAST chemotherapy regimen is completed; however, it is important to note that the specific timing may vary for different vaccinations and for each individual. For example, children who have received anti-CD20 monoclonal therapies (e.g., rituximab) may have a suboptimal antibody response if the vaccine is given within 6 months of the last dose; thus, vaccines should likely be given starting at least 6 - 9 months after the last dose of the biologic.

In general, inactivated vaccines are recommended starting 3 - 6 months after completion of chemotherapy and evidence of humoral and cellular immune reconstitution, thereafter followed by live viral vaccines.

Host Defense Program

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References

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Referrals and Consultations

Online: [NationwideChildrens.org/Host-Defense-Program](https://www.NationwideChildrens.org/Host-Defense-Program)

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Physician Direct Connect Line for 24-hour urgent physician consultations:

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