

Guidelines for the Immunisation of children following treatment with Standard-Dose Chemotherapy

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Guidelines for the immunisation of children following treatment with Standard-Dose Chemotherapy

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Adapted from Vaccinations for Paediatric Patients Treated With Standard-Dose Chemotherapy And Hematopoietic Stem Cell Transplantation (HSCT) Recipients. Dr Soonie R. Patel, Professor Paul T. Heath and Prof R. Skinner (CCLG April 2023)

1.1 General Principles

- Avoid administration of all live vaccines to patients on chemotherapy and within 3 months following completion of chemotherapy
- MMR (Measles/Mumps/Rubella), VZV (Varicella Zoster Virus) and Rotavirus vaccines are the only live vaccines that can be administered to siblings of patients on chemotherapy (or within 3- 6 months following completion of chemotherapy)
- The seasonal inactivated influenza vaccine (SIIV) is recommended annually for all patients on chemotherapy or within 6 months of completion of treatment, provided
 - the patient is well,
 - not within two weeks of more intensive chemotherapy or steroid pulses, and
 - has a neutrophil count above $0.5 \times 10^9/L$. The latter is to avoid children with vaccine-associated fever being unnecessarily treated with antibiotics.
 - The live attenuated intranasal vaccine should not be given to this group of patients.
- Update primary health care records if vaccination takes place in hospital
- COVID-19 vaccination is a separate guidance as it is continually being updated. Please refer to CCLG website for the most updated version of the guidance.
- For younger children who have not received any primary immunisations, non-live vaccines should be given according to the national childhood vaccination schedule, provided the child's general health is stable and avoiding periods of more intensive chemotherapy and steroid pulses. This is particularly important to ensure at least some immunity in an otherwise nonimmune child.

1.2 Vaccination schedule for patients 3 months after completion of standard-dose chemotherapy

- Three months after completion of standard dose chemotherapy, a booster dose of vaccinations should be given.
- If the child did not complete the course of childhood vaccinations prior to starting treatment, then this should be completed.
- Subsequent routine booster doses will not be necessary if scheduled to be given within one year of the above booster doses

1.3 Vaccination of close contacts of patients receiving standard-dose chemotherapy (or within 3-6 months of completion)

The following live vaccines can be administered to siblings/ close family contacts of patients on chemotherapy or within 3-6 months following completion of chemotherapy.

- **MMR Vaccine** should be given to contacts as per the national vaccination schedule.
- **VZV vaccine** should be offered to healthy susceptible siblings (and adult family members who are VZV seronegative) of VZV seronegative patients. There is theoretical risk of transmitting the attenuated vaccine virus to a susceptible individual; as a precautionary measure, any person who develops a vesicular rash after receiving VZV vaccine should avoid direct contact with the patient until the rash is dry and crusted.
- **Shingles vaccine** Is offered to adults aged 70-79 years old, so the patient's grandparents may be offered this vaccine. Rarely the transmission of vaccine virus may occur between those vaccinated who develop a varicella-like rash and susceptible contacts. As a precautionary measure, any person who develops a vesicular rash after receiving Zostavax should avoid direct contact with the patient until the rash is dry and crusted.
- **Rotavirus vaccine** Is given to infants aged 6-24 weeks. Rotarix should not be given to the patient but can be given to siblings. There is potential for transmission from the infant to immunocompromised contacts through the faecal-oral route for at least 14 days post-vaccination. However, vaccination of the infant will offer protection to household contacts from wild-type rotavirus disease and outweigh any risk from transmission of vaccine virus to any immunocompromised close contacts. Good personal hygiene should be observed following administration of Rotarix.
- **Live attenuated influenza vaccine (LAIV):** Consideration should also be given to giving LAIV to household contacts that are eligible for LAIV; other household contacts should be given the inactivated Influenza vaccine. Siblings that are due should be given this; there is a theoretical potential for transmission of live attenuated influenza virus from LAIV to immunocompromised contacts for one to two weeks following vaccination so assess each individual case.

Vaccination schedule for patients beginning 3 months after completion of standard-dose chemotherapy

Patient name and DOB:

Time after end of chemotherapy	Age under 10 years Vaccine	Age 10 years and over Vaccine
3 Months	SIIV in first 6 months DTaP/IPV/Hib/HepB Men ACWY-conjugate PCV13 Men B MMR ¹ COVID 19 vaccine (as per national Guidance)	SIIV in first 6 months dTaP / IPV Hib/Men C Men ACWY-conjugate PCV13 Men B MMR ¹ HPV ² COVID 19 vaccine (as per national Guidance)

[Vaccines: SIIV= Seasonal Inactivated Influenza Vaccine, DTaP = Diphtheria/ Tetanus/ acellular Pertussis, dTaP = Low dose Diphtheria/ Tetanus/ acellular Pertussis, Hib = H.influenzae b conjugate, HepB =Hepatitis B, HPV = Human papillomavirus, IPV = Inactivated polio virus vaccine, Men B = Meningococcal B conjugate, Men C = Meningococcal C conjugate, Men ACWY = Menincoccal ACWY conjugate, MMR = Measles/Mumps/Rubella, PCV13 = 13 valent Pneumococcal conjugate]

¹If patient did not receive MMR prior to starting chemotherapy give 2 doses MMR. If patient only received 1 dose of MMR prior to starting chemotherapy, then should receive 2 doses of MMR after completion of chemotherapy. The 2nd dose should be given 6 months after the 1st dose. The 2nd dose can be given 3 months after the 1st dose or can be considered even earlier (1 month after 1st dose) in measles outbreak. If patient received 2 doses prior to starting chemotherapy, give only one dose.

² HPV vaccine should be offered to all boys and girls ≥12 years old: 2 doses of HPV vaccine should be given at 0 and 6 months from starting re-vaccination. If they completed the course prior to starting chemotherapy, only a booster dose should be given.

³Where two or more injections need to be administered at the same time, they should be given at separate sites, preferably in a different limb. If more than one injection is to be given in the same limb, they should be administered at least 2.5cm apart (Green book guidance)

⁴The site for vaccination is either the deltoid muscle in upper arm or the anterolateral aspect of the thigh. Please refer to the routine immunisation schedule on the gov.uk website