Immunisation Advisory Centre

VERSION 2

Immunisation for adults with cancer who are not taking immunosuppressive disease modifying drugs

The purpose of this factsheet is to provide guidance for individuals with cancer, prior to and following chemotherapy for cancer. It provides guidance to assess the immunisation status and vaccine recommendations for those who are immunocompromised or will become immunocompromised by chemotherapy. It does not include those who are being actively immunosuppressed with disease-modifying medications.

For IMAC's factsheet on immunisation for adults requiring immunosuppressive disease modifying therapy, please see immune.org.nz/factsheets/immunisation-for-adults-with-immune-mediated-inflammatory-disease-imid-who-require-immunosuppressive-treatment

For IMAC's factsheet on immunisation for adults post-haematopoietic stem cell transplantation (HSCT), please see immune.org.nz/factsheets/immunisation-for-adults-post-haematopoietic-stem-cell-transplantation-hsct

Key notes

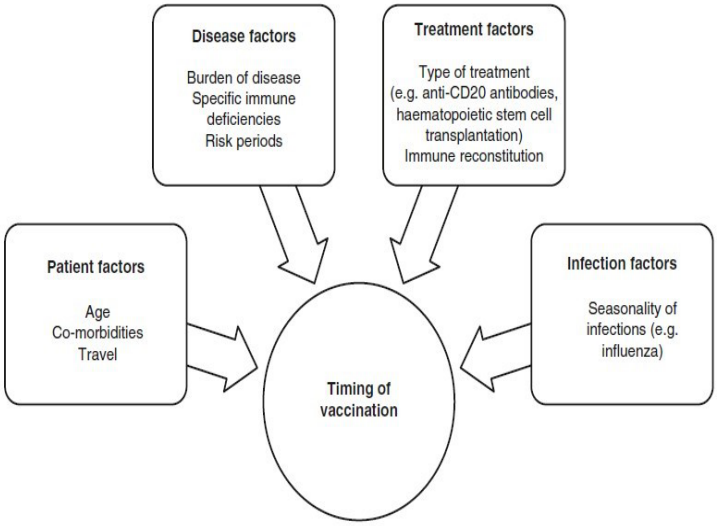
- Assess vaccination status and update prior to introduction of treatment if possible
- Review immunisation status regularly for all on active treatment and maintain routine seasonal immunisations such as COVID-19 and influenza throughout therapy
- Check immunisation status for up to 3 years following completion of chemotherapy. In particular, pneumococcal vaccines and an additional dose of Tdap should be given

Cancer and chemotherapy

Patients with cancer may have compromised immune systems for a variety of reasons. The malignancy itself can alter the immune system; treatments can modulate the immune response to target malignant cell markers; or immunosuppression is a side effect of treatment. In recent years, more treatments have been used that have a modulatory effect on the immune response in patients with cancer. These can stimulate as well as suppress immune responses.

Those with haematological malignancy (HM), such as leukaemia or myeloma, have more severe immunocompromise than those with solid tumours. In patients with HM, the malignant process can affect their immune system and the treatments often cause prolonged neutropenia. Their infection risk varies widely with the stage and status of the underlying condition as well as the type, intensity and stage of treatment.

For those with solid tumours, targeted therapies such as hormonal therapy, immune-checkpoint inhibitors and small molecule therapies (ALK or CDK inhibitors) are less immunosuppressive than conventional chemotherapy and extensive radiotherapy, but can have immunomodulatory effects during treatment that alter the response to vaccines and increase the risk of infection.



Factors that influence timing of vaccination in patients with haematological malignancy. Reproduced with permission from B Teh and Springer Nature.

Assessment of immunisation status as early as feasible

A review of vaccine history should be performed when practical during initial management evaluations to ensure patients are up-to-date with aged-based immunisations and seasonal vaccines, such as COVID-19 and influenza. Specific vaccination questions should be discussed with a specialist infectious diseases physician or oncologist.

Where feasible, vaccination is ideally given 2-4 weeks prior to planned treatment. Non-live vaccines can be administered during or after chemotherapy or immunotherapy, hormonal treatment, radiation or surgery, but responses are likely to be better when the malignancy is in remission and chemotherapy completed at least 3 months previously. Funding of additional vaccines generally applies once chemotherapy is completed. However, seasonal influenza and COVID-19 vaccines should be administered during treatment when indicated – where possible vaccines should be given immediately before a chemotherapy cycle. Live vaccines are contraindicated in patients with severely compromised immune systems or for those receiving immune checkpoint inhibitors.

Individuals who receive only localised radiotherapy can be vaccinated with non-live or live vaccines at any time prior to, during, or after radiotherapy.

Post-chemotherapy immunisation

Funding for vaccines post-chemotherapy has no time limit, allowing catch-up of vaccines that have been missed during treatment. Antibody levels of anti-pneumococcal and anti-tetanus antibodies are reduced for at least 9 months after chemotherapy and revaccination may be beneficial for up to 3 years following chemotherapy.

For children under 18 years old, please refer to the National Child Cancer Network guide Immunisation of children during and after cancer therapy, available from starship.org.nz/guidelines/immunisation-of-children-during-and-after-cancer-therapy/

Priority vaccinations to consider

Vaccine	Recommended for	Schedule	Funding
COVID-19 (Comirnaty)	All ages, especially those 65 years old and over	6-12 monthly, depending on age	Funded (Additional primary doses may be indicated and are funded)
Influenza	All ages	Annually	Funded during the funded Influenza Immunisation Programme if the individual has a current cancer diagnosis, excluding basal and squamous skin cancers if not invasive
Pneumococcal PCV13 (Prevenar 13)	If Pneumovax 23 has been administered before Prevenar 13, wait one year to give Prevenar 13	Administer 1 dose if chemotherapy was completed at least 3 months previously	Funded post-chemotherapy
Pneumococcal 23PPV (Pneumovax 23)	Administer at least 8 weeks after PCV13	• Administer one dose • Schedule a precall for the second dose in 5 years • Schedule a precall for the third/final dose 5 years after second dose or at age 65 years, whichever is later If aged 60 years or older: • Administer one dose • Schedule a precall for the second/final dose in 5 years	Funded post-chemotherapy
Respiratory syncytial virus (Arexvy)	Over 75 years old; or over 50 years old with risk conditions	Once	Recommended, not funded
Tetanus/diphtheria/ pertussis Tdap (Boostrix)	All ages 18 years old and over	One dose of Tdap when malignancy is in remission and chemotherapy was completed at least 3 months previously	Funded post-chemotherapy

Routine immunisations to check and update based on risk

Vaccine	Recommendation	Schedule	Funding
Hepatitis B (Engerix-B)	All ages if not immune, **depending on risk**	If received previous vaccines, administer one dose and check serology 4-8 weeks later. If previously unvaccinated, administer full series at 0, 1 and 6 months.	Funded following immunosuppressive therapy longer than 28 days
Herpes zoster Recombinant vaccine (Shingrix)	All aged 65 years and over, and aged 18 years and over if immunocompromised Incidence of shingles is increased in the first 2 years following some cancer diagnoses (particularly haematological, myeloma, lymphoma and CNS)	Administer 2 doses at least 2-6 months apart	Funded at 65 years Funded from 18 years pre- and post-haematopoietic stem cell transplant or cellular therapy and for those with haematologic malignancies Recommended but not funded all over 65 years
Human papillomavirus HPV (Gardasil 9)	If under 27 years old and incomplete primary course	Complete course - administer up to three doses at 0, 2 and 6-month intervals. (Second dose at least 1 month after first dose and third at least 3 months after the second dose)	Funded for those aged 9 to 26 years inclusive, post-chemotherapy
	If under 27 years old and completed an age-appropriate primary course of HPV vaccine doses before chemotherapy	Administer one booster dose	Funded
	Aged 27-45 **depending on risk – assess need for and if any potential benefits**	Administer up to three doses at 0, 2 and 6-month intervals	Not funded
Measles/mumps/ rubella MMR (Priorix)	Individuals born in 1969 or later who do not have two documented doses of MMR vaccine MMR vaccination is not required for adults born prior to 1 January 1969	Administer two doses at least 4 weeks apart [a,b,c,d]	FUNDED following immunosuppression CONTRAINDICATED until 6 months post-chemotherapy and lymphocyte count is >1.0 x 10^9/L
Polio IPV (IPOL)	Check immunisation history for a primary course of three polio containing vaccines **prior to international travel**	If unsure of polio immunisation history: • Administer three doses with a minimum of 4 weeks between each dose If fully vaccinated, give one additional dose	Funded for revaccination following immunosuppression
Varicella (chickenpox) (Varilrix)	Individuals with no clinical history of varicella infection or vaccination	Administer two doses at least 4 weeks apart [a,b,c,d]	FUNDED for individuals at least 6 months after completion of chemotherapy CONTRAINDICATED until 6 months post-chemotherapy and lymphocyte count is >1.0 x 10^9/L

a. Individuals who have received immunoglobulin or other blood products may require time for passive antibodies to decrease prior to administration of live MMR and varicella vaccines. Refer to Table A6.1 in the current Immunisation Handbook.
b. Two or more live vaccines can be given at the same visit. However, when live vaccines are administered at different visits, minimum interval of 4 weeks is required.
c. Live vaccines should not be given until 6 months post-chemotherapy and lymphocyte count is >1.0 x 10^9/L.
d. For solid tumours, vaccines may be considered at least 4 weeks before cancer treatment initiation.