TE AHO O TE KAHU CANCER CONTROL AGENCY

COVID-19 vaccination and cancer patients

Information for clinicians: last updated 13 DECEMBER 2021
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Reasons for update:

- The AstraZeneca COVID-19 vaccine is available for those aged 18 and older who cannot receive the Pfizer vaccine, and for people who would like a different option
- Second update on advice on the third primary dose of Pfizer/BioNTech vaccine for severely immunocompromised people
- Information on repeat course of COVID-19 vaccine following stem cell transplantation.

Context

- This guidance provides information about the use of the COVID-19 vaccines for clinicians involved with the care of cancer patients.
- People with cancer are at increased risk of contracting COVID-19, at greater risk of serious infection and at increased risk of death than the general population [1-8]. The risk of infection and poor outcomes is particularly high for people with haematological malignancies and lung cancer [6 9-11].
- There is currently limited evidence on the use of COVID-19 vaccines in people with cancer. This guidance uses the best available evidence currently available, extrapolation from other vaccinations and expert consensus, and will be updated as new information and data become available.
- This guidance should be used alongside the Ministry of Health general COVID-19 vaccine information and COVID-19 vaccine updates for the health sector.

1. What vaccine is being rolled out?

The primary vaccine provider is now Pfizer/BioNTech, which is an mRNA-based vaccine and has been approved for use in New Zealand.

As of November 2021 the AstraZeneca COVID-19 vaccine is available for those aged 18 and older who cannot receive the Pfizer vaccine, and for people who would like a different option.

Pfizer remains the preferred COVID-19 vaccine for use in New Zealand, reflecting its excellent safety and effectiveness profile. Both the Pfizer and AstraZeneca vaccines will protect you against the symptoms of COVID-19. Both vaccines are free.

The Government has Advance Purchase Agreements in place for two other types of vaccines:

1. Novavax (Protein sub-unit vaccine)
2. Janssen Pharmaceutica (vector vaccine, adenovirus)

All agreements are subject to the vaccines successfully completing clinical trials and being approved by Medsafe.

None of the vaccines are live virus vaccines. More information on the types of vaccines is available here.

2. Should people with cancer receive the COVID-19 vaccine?

Yes. Current research from Israel suggests that 90% of patients with solid tumours undergoing active intravenous anticancer treatment exhibited adequate antibody response following two doses of vaccine[12]. Research from the UK indicates poor immunogenicity for cancer patients after a single dose of vaccine; however, this improved considerably following the 2nd dose[13]. **It is imperative that cancer patients receive the 2nd dose of vaccine in line with manufacturers guidance**.

Given the high risk of severe infection from COVID-19 for people with cancer, the benefits of vaccination are believed to outweigh any uncertainty around vaccine efficacy. The vaccine is currently being rolled out rapidly internationally, including to people with cancer and there have been no reported safety concerns.

International consensus is that people with cancer should be prioritised for COVID-19 vaccination:

- **European Society of Medical Oncology (ESMO)** https://www.esmo.org/covid-19-and-cancer/covid-19-vaccination
- **National Comprehensive Cancer Network (NCCN)** https://www.nccn.org/covid-19
- **UK Chemotherapy Board** https://b-s-h.org.uk/media/19241/clinician-faqs-and-guidance-on-covid19-vaccine-for-patients-receiving-sa_.pdf

In line with other vaccinations, it is possible that people who are severely immunocompromised may not mount as robust an immune response as others. For this reason, consideration should be given to the timing of vaccination in relation to therapy in order to maximise response (as outlined below).

In addition, it is recommended that:

- patients are encouraged to continue good infection prevention and control measures even after receiving the vaccine, including good hand hygiene and staying away from others who are unwell.
- household and family members should be vaccinated to reduce the risk of infection.

3. Should severely immunocompromised cancer patients receive a third primary dose of the vaccine?

There is increasing evidence that people with who are severely immunocompromised may not produce a sufficiently strong immune response after two doses of Pfizer/BioNTech or AstraZeneca COVID-19 vaccine and may gain benefit from a third primary dose, with more significant evidence for those who are severely immunocompromised such as stem cell transplant and solid organ transplant patients[13-21].

The Ministry of Health COVID-19 Technical Advisory Group has recommended that individuals aged 12 years and older who are severely immunocompromised receive a third primary dose of Pfizer/BioNTech or AstraZeneca COVID-19 vaccine.

Key information is as follows:

- Criteria can be found here.
- Eligibility is limited to only those who are severely immunocompromised, and clinical judgement is required to apply the eligibility criteria.
- The third primary dose requires a consent and prescription. Some clinicians or DHBs may contact people who are eligible directly, and either arrange prescription or consent for the third primary dose, or suggest they attend their primary care provider.
- This is a third primary dose and is **not** considered a booster dose. This means that those who receive a third primary dose are also eligible for a booster dose after 6 months. More information on booster doses can be found here.
- Primary care visits for the third primary dose are free to those who are severely immunocompromised.

The roll out of the third primary dose is being managed by the Ministry of Health. Further details will be updated on the Ministry of Health website.

4. Is there an optimal time to administer the vaccine relative to cancer treatment?

The patient's ability to mount an immune response should be considered regarding timing of vaccination. However, in the context of the globally more common and more transmissible Delta variant, the decision around timing may fall in favour of vaccination even in the setting of significant immunosuppression. This is particularly relevant in the context of community transmission.

Critical cancer treatment should not be held or paused for vaccinations.

Considerations for those on cytotoxic chemotherapy for solid tumours

There is limited data on the optimal timing of vaccination in relation to chemotherapy [22-24]. If there is the option of choosing the timing of the vaccination, it is recommended to

deliver the vaccine at the furthest point from the immunosuppressing effect of cytotoxic treatment during a given cycle.

- If feasible, for patients planned for but not yet on immunosuppressive cancer therapy, time first dose of vaccine to be at least 2 weeks prior to initiation of therapy, if that does not delay commencing therapy, to maximise time for seroconversion.
- If feasible, for patients already on cytotoxic chemotherapy, time first dose of vaccine in between chemotherapy cycles, away from nadir.
- If feasible, for patients completing cytotoxic therapy, time first dose of vaccine to be given after therapy complete and nadir resolved [22].

If the above is not feasible then the recommendation is to avoid giving the COVID-19 vaccine on the same day as chemotherapy, noting that this is based on extrapolated information (from influenza vaccine) on efficacy of the vaccine rather than safety [25].

Considerations for those on immune checkpoint inhibitors

There is limited data on the immunogenicity of mRNA vaccines in people with cancer on immune checkpoint inhibitors (ICIs). An Israeli study of cancer patients being treated with ICIs found that there were no immune-related side effects amongst 134 patients who received two doses of the COVID-19 vaccine, and the side-effect profile was similar for cancer patients and for healthy controls[26].

There is a theoretical risk of exacerbated immune-related adverse events in patients receiving immune checkpoint inhibitors; however, subsequent studies of the influenza vaccine have not reproduced the adverse events initially raised [27-29].

The only currently listed contraindication to administering the Pfizer vaccine is hypersensitivity to the active substance or to any of the excipients listed on the Medsafe datasheet https://www.medsafe.govt.nz/profs/Datasheet/c/comirnatyinj.pdf

It is recommended that patients on immune checkpoint inhibitors receive the COVID-19 vaccine.

Considerations for cancer-related surgery

There are no specific timing recommendations for vaccine efficacy for people undergoing cancer surgery.

However, given that potential side-effects of the vaccine may be difficult to distinguish from potential post-operative complication symptoms (eg fever), it is recommended that major surgery should occur separately to vaccine administration, by a few days to a week.

Considerations for those with haematological malignancy

If feasible, patients requiring treatment for a haematological malignancy should be vaccinated at least two weeks before immunosuppressive treatments, **but this should not delay urgent treatment**.

Given the high mortality associated with COVID-19 infection patients with haematological malignancies, the benefit of vaccination is considered to outweigh the risk of impaired immune response in this patient group.

For all immunosuppressed/immunocompromised patients receiving the vaccine, it is essential to advise that they may not be protected by COVID-19 vaccination, and that they must adhere closely to hand hygiene, physical distancing and mask-wearing guidance.

The Haematology Society of Australia and New Zealand have released a consensus position statement regarding COVID-19 vaccination in haematology patients.

Considerations for people receiving B-cell depleting therapy or who have recently undergone stem cell transplantation

Previous advice was that vaccination should be delayed for at least three months after B cell depleting therapy or stem cell transplantation.

While patients with haematological malignancy and immunosuppression may not mount an adequate immune response to vaccination, some will[20 30 31] and there are minimal known additional safety concerns in this group. Overall, the risk/benefit of vaccination is thought to weigh in favour of vaccination considering the risk of community transmission with the highly transmissible Delta COVID-19 variant.

The following advice takes into account the context of the delta variant and community transmission.

For people currently or recently receiving B-cell depleting therapy[1]:

- If therapy can safely be deferred by at least 5 weeks without compromising outcomes, defer treatment (to allow for two vaccine doses 3 weeks apart, plus two weeks after the second dose)
- If treatment is urgent, proceed with treatment and vaccinate as soon as possible during treatment
- If currently receiving treatment, or if patient received anti-B-cell monocolonal antibodies, bispecific T cell engager (BiTE) therapy or CAR T-cell therapy within the last year, proceed with vaccination.

For autologous stem cell transplantation:

- Vaccinate after neutrophil and platelet engraftment

For allogeneic stem cell transplantation:

- Vaccinate from day 90 (even if still on immunosuppression, although vaccine responses likely to be reduced)

[1] For example, rituximab, obinutuzumab, venetoclax, BTK inhibitor, anti-B-cell BiTE therapy or anti-B-cell CAR T-cell therapy

Australia and New Zealand Transplant and Cellular Therapies (ANZTCT) have also produced COVID-19 vaccine information that can be found here.

Repeating primary immunisation after haematopoietic stem cell transplantation (HSCT)

The Immunisation Advisory Centre (IMAC) have released guidelines for adults who have received either an autologous or allogeneic graft. These guidelines outline that the recommended COVID-19 vaccine schedule should be followed from 3 months post-HSCT.

Patients undergoing autologous or allogeneic stem cell transplantation can lose immunity entirely. Therefore, those undergoing autologous or allogeneic stem cell transplantation after receiving at least one primary COVID-19 vaccine dose, can be offered a repeat of the entire primary COVID-19 vaccine course (being a total of 3 primary doses), if eligible as severely immunocompromised. Guidance has been released by the Immunisation Advisory Centre (IMAC) who state that the repeat schedule can be given from 3 months most HSCT.

Te Aho o Te Kahu has confirmed with the Ministry of Health that documentation of consent and prescription is required for this use of the COVID-19 vaccine, as for other off-label uses.

Guidelines available here and found on the IMAC website.

More information available in the Ministry of Health immunisation handbook.

5. Should I test antibody levels to see if my patient has responded to vaccination?

The routine testing for antibodies is not currently recommended.

6. What about patients with bleeding disorders or on anticoagulation?

The Haematology Society of Australia and New Zealand have released guidance on vaccine administration in patients with bleeding risk. Key considerations include:

- patients on standard anticoagulation with warfarin can receive intra-muscular injections if the most recent INR is ≤3.0
- patients with thrombocytopenia may bleed or bruise at the site of the injection site. To reduce this risk, it is recommended that the platelet count is kept ≥30x109 /L and that prolonged pressure at the injection site is applied for five minutes.

The Immunisation Handbook also has general guidance on vaccine administration for patients with thrombocytopenia, bleeding disorders or who are on anticoagulant therapy.

7. Can people on clinical trials receive the vaccine?

There are no general limitations on COVID-19 vaccination for patients enrolled in clinical trials. If a limitation is specifically stated in the study protocol inclusion/exclusion criteria this should be discussed with the study Primary Investigator and the patient[33].

8. Should children with cancer receive the COVID-19 vaccine?

The Pfizer/BioNTech vaccine is now approved for 12–15-year-olds, as of 21 June 2021.

It is recommended that household contacts and caregivers of children with cancer receive the vaccine when available.

9. Are there any considerations for people with a history of cancer?

People who have been discharged from oncology and haematology services can receive the vaccine when offered.

10. Are there any considerations for people with lymphoedema?

People with lymphoedema of the arm are advised to get the vaccine in the other arm[34].

As a precaution, people at risk of lymphoedema (e.g. people who have had axillary node clearance) should also receive the vaccine in the unaffected limb if possible.

11. Are there considerations for people undergoing radiological imaging following vaccination?

Following vaccination with the COVID-19 vaccine some people may develop an immune response that results in axillary lymphadenopathy[35]. This may show up on radiological imaging, including routine breast imaging, and could cause diagnostic confusion. On balance of risk, the Royal Australian and New Zealand College of Radiologists and Breastscreen Aotearoa **do not** recommend delaying breast screening[35 36]. Patients with unilateral axillary lymphadenopathy should be managed on a case-by-case basis.

Transient FDG uptake in normal lymph nodes is known to occur following multiple different intramuscular vaccinations[37-39]. This phenomenon is now being seen with the COVID-19 vaccination [40 41] and given the large-scale rollout of the COVID-19 vaccination, may be observed more frequently. Clinicians should take this into consideration when planning PET/CT scans and when interpreting results. When receiving a PET/CT scan, patients should be asked if they have received a vaccination and in which arm. Additional information: https://covid.immune.org.nz/faq/can-i-have-covid-19-vaccination-ct-scan

12. FAQs for people with cancer

Public facing information will be published here.

This will include the following FAQs, along with links to the general Ministry of Health page.

Frequently Asked Questions (FAQs)

People with cancer and the COVID-19 vaccines

Are people with cancer more vulnerable to COVID-19 than the general population?

People with cancer are at an increased risk of getting COVID-19 and have a greater risk of serious infection if they do get COVID-19.

What are the side effects of the vaccine for people with cancer?

The general information on side-effects from the COVID-19 vaccine can be found here.

There is currently no evidence that people with cancer experience different or worse side effects than the general population.

Should I get the COVID-19 vaccine if I am currently receiving cancer treatment?

Yes.

Talk to your cancer doctor, as depending on what treatment you are on, they may want to time the vaccine to be delivered at a certain point in your treatment cycle.

Will the COVID-19 vaccine affect or interact with cancer treatments?

There is no evidence currently to suggest that the COVID-19 vaccine interacts with cancer treatments.

Decisions around timing of the vaccine are about making sure the vaccine is as effective as possible, rather than concerns around how it will interact with cancer treatments.

I had cancer 5 years ago, is it OK for me to get the vaccine?

If you have finished your cancer treatment and have been discharged from your hospital specialist, you should get the vaccine when it is offered to you.

If you have any concerns you can discuss these with your GP.

Who should people with cancer talk to about receiving the COVID-19 vaccine?

We recommend that you talk to your cancer doctor if you have questions or concerns.

If you have been discharged from hospital services, we recommend you talk to your GP if you have questions or concerns.

Do I need a third primary dose of the COVID-19 vaccine?

The Ministry of Health has recommended that individuals aged 12 years and older who are severely immunocompromised receive a third primary dose of Pfizer/BioNTech or AstraZeneca COVID-19 vaccine.

Not all cancer patients are recommended to have a third dose, as only some will be severely immunocompromised.

Your cancer doctor or your primary care practitioner will use the Ministry of Health criteria to help you find out if you are eligible.

Criteria can be found here.

If I have a third primary dose of the COVID-19 vaccine should I still get a booster after 6 months?

Yes.

The third dose is **not** considered a booster dose. This means that if you have a third primary dose, you are also eligible for a booster dose after 6 months.

More information on booster doses can be found here.

What is the difference between a third primary dose and a booster?

A third primary dose is only recommended for people with cancer who are severely immunocompromised. This is to give your immune system a better chance of building protection to COVID-19. Your cancer doctor or primary care practitioner can help you work out if you need a third primary dose.

A booster dose is available to the general population six months after your primary vaccine doses. This is because it is likely that the immunity from the vaccine will slowly reduce over time.

Those who have a third primary dose are also eligible for a booster.

Authors and reviewers

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