

Adults and children with solid tumour and blood cancers and people with significant immunosuppression

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Purpose of the document:

This document aims to give broad advice covering categories of people with impairment of their immune system due to various diseases or treatments. There are other medically vulnerable groups due to other serious underlying diseases or co-morbidities, that make them more susceptible to increased morbidity from SARS-COV2 that are out of scope of this document.

Specific advice to policy makers is required due to the mounting evidence that COVID-19 vaccines may be less effective in patients with significantly impaired immune systems.

Therefore, this advice is focussed on people with cancer (including blood cancers) and other severe immunosuppression such as having received an organ transplant or being on highly immune suppressing medication.

Background

- Impairment of the immune system covers many scenarios, with many causes from both diseases and treatments. The immune system has many different components. The state of having impaired immunity ("being 'immunosuppressed'") can affect different components of the immune system and often fluctuates in severity and changes over time. With respect to COVID, ATAGI and other bodies have used the terms "[severely immunocompromised](#)" whilst the US Center for Disease Control (CDC) issues guidelines referring to patients with [moderate and severe immunocompromise](#). There are no standard definitions with respect to the use of the terms in the context of COVID19.
- In 2020, [estimates show](#) almost 150,000 Australians were diagnosed with cancer and there were just under 50,000 deaths from cancer. Autoimmune diseases affect [around 5%](#) of Australians, of whom (extrapolating from [US data](#)) it is expected that around half of adult patients use immune suppressive therapies.

- Patients have a range of prognoses from conditions that affect their immune system. For patients with cancer, multiple factors influence outcome including type and stage, age, type of cancer therapy and response to treatment. Most children and many adults with cancer are cured of their cancer or have a good chance of living for many years with cancer, so the additional risks associated with COVID-19 are important to mitigate. This is true also for patients after transplantation and with other forms of severe immunosuppression.
- There is no “one size fits all” in terms of predicting the effect of conditions and medication on a person’s immune system. However, it is clear that certain disease such as cancer (particularly blood cancers) and some rheumatological conditions, as well as certain treatments (usually aimed at dampening the immune system, such as after transplant), or often a combination of both, significantly impact the function of the immune system.
- Patients with cancer and people with diseases or on treatments that cause significant suppression of the immune system have [poor outcomes](#) with COVID-19. There are much higher risks in certain groups, such as those with blood cancers, both from studies prior to vaccination and emerging from [studies of vaccinated patients](#).
- People with rheumatological disease are at increased risk of poor outcomes from COVID-19, although [studies](#) have demonstrated that this also relates to the increased burden of co-morbidities. Specific medications are also associated with poor outcomes.
- Patients with suppressed immunity may experience [more persistent COVID-19 infection and viral shedding](#). Data suggests this [predisposes to accelerated viral evolution](#) or increased risk of developing new SARS-CoV-2 variants.
- Patients with cancer, particularly patients on chemotherapy and those with blood cancers or following transplant or specialised T-cell therapies (such as CAR-T), are [documented](#) to have a poorer antibody and/or T cell response to COVID-19 vaccines and protection appears to wane earlier. Patients on immune checkpoint therapy also appear to have altered response to vaccination.
- After two dose COVID-19 vaccination, patients on chemotherapy and with other causes for immune suppression remain [at higher risk](#) of hospitalisation and death from COVID-19.
- People with severe immune compromise, who represent less than 3% of the US adult population, constituted 44% of [breakthrough infections](#) admitted to ICU even after double dose vaccination
- ATAGI on 7.10.21 [recommended](#) a third vaccine dose for many groups of what they defined as severely immunocompromised patients.
- Despite being allocated Group 1B (some in 1A) in the Australian vaccine rollout, some patients with cancer and likely immunosuppression [remain unvaccinated](#), due to concerns from patients and some clinicians about how the vaccine may interact with their illness or its treatment.
- Detailed guidelines for clinicians and information for patients with various immunosuppressive states have been developed by specialised societies for [solid tumour](#), [transplant and cellular therapies](#) and [haematology](#) patients, and are constantly being updated, including for the addition of the third vaccine dose.

Impact of COVID burden on health care provision for other diseases

- During the pandemic, there have been delays in diagnosis and [decreased rates of cancer screening](#) in Australia.
- Diversion of resources due to high workloads from COVID-19 has impacted on the [delivery of clinical services](#) to non-COVID patients, including immunocompromised patients with serious illnesses.
- The impact is delayed diagnosis or management for some patients with immunosuppressive and other severe conditions, causing an increasing treatment burden. Cancers will be diagnosed at a more advanced stage and/or presenting more urgently, with [data from Victoria](#) and [international modelling](#) studies predict this will translate into excess cancer deaths and increased demand on health service resources over the next few years.
- Treatment for many illnesses, particularly cancer and patients needing transplants, is time sensitive, such that delays in surgical treatment, anti-cancer treatments or other disease modifying treatments can impact outcomes and reduce survival rates.
- End-of-life care is by definition time-sensitive and requires special consideration with regards to delivery of care at home and in hospice or hospital, to ensure the most compassionate and effective care of the patient and their family/carers.

Key current problems

- Impacts from disruption of life-saving services, including surgery, radiotherapy, chemotherapy, transplantation and other treatments have significant consequences for individual patients and health systems, both during and following the pandemic, with delay in diagnosis and treatment causing increased morbidity, mortality and service demand.
- The prevalence of vaccination amongst Australian patients with cancer and immune suppression is not known and may be lower than the general population due to many factors, including access and hesitancy. There is concern for children aged 5-12 years with cancer and other conditions causing significant immunosuppression.
- The efficacy of vaccination in patients with [immune suppression](#) may be compromised depending on many factors, including [type of cancer](#) and current and previous treatment. This is also true for [non-cancer patients](#) with immunosuppression. Data from the [large Australian study](#) in cancer patients is awaited and data are being collected for patients with other types of immune suppression.
- In current outbreaks, there is no apparent central coordination between hospitals and no publicly available rapidly implementable plan to cover services/staff/systems furloughed at short notice.
- The pre-pandemic multidisciplinary clinical workforce is stretched across specialties caring for patients with immunosuppression (as well as other areas). Staff are at risk of burnout and attrition. Due to their highly skilled, specialised work, replacement is a long process.
- Pre-pandemic cancer services had varying degrees of access to state-of-the-art infrastructure, with many services lacking fundamental infrastructure e.g., electronic prescribing systems for anticancer therapies. This exaggerates the impact of COVID-19 on these essential services.

- Patients with cancer and immune suppression often attend treatment centres frequently and are in some centres being subjected to multiple PCR swabs.

Recommendations

Note: These are general recommendations and do not necessarily apply to individual patients.

A. Vaccination and vaccine-PLUS

- All patients with active malignancy and/or patients on anti-cancer treatment (including those with a reasonable prospect of commencing during the period of being vaccinated) should be eligible for a 3rd dose (referred to as a 3rd “priming’ dose).
- Patients on immunotherapy should also be eligible for a third dose as there is data showing some [impairment of their vaccine response](#)
- To rapidly undertake specific campaigns to vaccinate cancer and immunosuppressed patients, including provision of vaccination at all cancer and transplant centres and via mobile services, including utilising private and public ‘chemo in the home’ and similar hospital in the home services.
- To expedite vaccination for children aged 5-11 with cancer and other severely immunocompromised states when approved.
- A 4th “booster” vaccination, given 6 months after the 3rd “priming dose” that is now available for patients with severe immunosuppression in Australia, has recently been recommended by the US CDC for “moderately and severely immunocompromised patients”. This 4th “booster’ should now be considered in Australia as a priority.
- Patients who have compromised immune systems should be rapidly considered for the use of anti-COVID 19 monoclonal antibodies should they test +ve for COVID and other antiviral agents as they become approved.
- All staff in contact with immunosuppressed patients should be fully vaccinated, including timely boosters.
- All day centres and wards where patients with cancer and significant immune suppression are seen or treated should have uniform policies for vaccine-PLUS implementation, including:
 - In community transmission or in outbreak, provision of Personal Protective Equipment for staff (N95 with FIT testing at a minimum)
 - mask or N95 respirator wearing by patients and visitors (as appropriate)
 - clean air with presence of HEPA filters and ventilation, with certification of ventilation as per OzSAGE [guidelines](#).
- Where practical and feasible, rapid antigen testing to be available when frequent COVID-19 screening tests are beneficial to decrease risk of disease spread in community transmission e.g. staff and patients frequently attending cancer treatment centres.
- Schools and workplaces attended by people with immunosuppression should be prioritised for safety upgrades as per OzSAGE [guidelines](#), including safe air in the workplace.
- It is recommended that people with immunosuppression are offered flexible study and work conditions, including working from home, and options of alternative work environments/tasks to avoid situations of high-risk exposure for contracting COVID-19, even after vaccination.

- People with immune suppression are recommended, even after vaccination, to wear [masks](#) in high risk indoor and outdoor settings and to maintain social distancing practices.
- Specific funding and fast tracking of studies of vaccine response in Australian immunocompromised patients, due to the differences with patients studied overseas with much higher COVID infection rates.

B. Maintaining essential service delivery

- Arrangements should be made with private cancer care providers who may have spare capacity. There are many large entities who have access to all cancer diagnostics and treatments including screening, radiotherapy and chemotherapy, who could be utilised to help manage patients with cancer as public cancer centres become increasingly challenged by diversion of resources to the care of patients with COVID-19. This includes in-hospital and stand-alone facilities, including private chemotherapy in the home services. These services should be integrated early with current facilities so that transitions of care can be made prior to 'crises' occurring. Particularly, alternatives for childhood cancer diagnosis and treatment are needed urgently as these are concentrated specialised services that cannot be quickly substituted e.g. facilities and trained specialists for children to be anaesthetised during scans and various treatments.

C. Maintaining clinical services

- Services for patients with cancer and severe immunosuppression, including access to appropriate medical, nursing and allied health staff and facilities such as ICU, surgery and treatment centres, need to be quarantined and guaranteed during COVID-19 surges. This could be achieved by appropriate balancing within the specific healthcare setting, or by coordination across health networks, including private providers of cancer and infusion services.
- State-wide coordination to maintain essential services for patients with cancer and/or severe immune suppression. Ready-to-implement crises plans for service disruption at one or more sites, including a ready-to-implement plan for regional services who currently have limited capacity and backup.
- Patients with cancer and severe immunocompromise should be separated from those with COVID and SCOVID within health systems, including location away from areas with immunosuppressed patients where there is shared air.
- The health system needs extra human resources as well as infrastructure to absorb the increase listed above from the delay and later presentation of patients with cancer and severe disease. A comprehensive planning process is urgently needed outlining training and recruitment strategies.
- Using evidence-based or patient-focussed changes in therapy to reduce exposure to the hospital system:
 - PBS temporary approval for flexible use (agent, route, dose) of current cancer drugs with prescribing restrictions, where availability would reduce the burden on hospitals (e.g. oral alternatives to intravenous treatments or alternative schedules; bridging therapies prior to stem cell transplants and CAR-T, holding schedules for patients requiring transplant, allowing flexibility for treatment

schedules where COVID-19 is impacting sequencing of treatment). Lists were compiled in 2020 in Victoria and can be updated by the relevant disease societies.

- MBS approval for molecular tests that allow omission of chemotherapy or allow targeted therapies as these are less immunosuppressive than chemotherapy, where data has shown effectiveness.
- Radiotherapy schedules mandated to be shortest possible based on evidence.
- Additional dedicated counselling services available free of charge for patients with cancer or severe immunosuppression and their carers and families. This will assist patients given the impact of visitor restrictions and the experience of being diagnosed and treated during the pandemic, without usual family supports. Special arrangements for transport across state borders of stem cells and other lifesaving oncology products and personnel.
- Special funding to enhance end of life services for home care, so as to avoid patients needing hospitalisation with visitor restrictions etc. Improved access and coordination across palliative care services are needed to achieve this.
- Recognition of demands, fatigue and burnout on the cancer workforce generally and specifically for other health care workers managing complex patients with high physical and psychosocial needs. Consideration should be given to incentives, rewards, wellness leave etc. Post pandemic, the cancer workforce will face an upsurge of activity with increased volume and upstaging of cancer diagnoses and delayed treatments. There is an urgent need to sustain and grow workforce and reduce demoralisation and resignation of essential workers.

D. Education and data

- Rapidly develop education campaigns to advise and encourage [Vaccine and vaccinePLUS](#) strategies to protect patients with immunocompromise following the lifting of restrictions. These should target patients, GPs and treatment teams, particularly regarding the 3rd priming dose, as well as how to approach patients with vaccine hesitancy.
- Systematically collect data on the proportion vaccinated in patients with cancer and other immunocompromised states. This should be publicly available and used in decision making regarding easing of restrictions.
- Provision for a series of phone hotlines for patients, GPs, other health professionals to provide:
 - expert advice regarding management of a COVID patient with cancer or immunosuppression
 - expert advice about vaccination and how to assist a patient or family with hesitancy

Resources required for implementation

- Funding and programs to increase access of patients with immune suppression to vaccination, including vaccination at home and in treatment centres, as above.

- Enhanced and ongoing telehealth funding for patients with cancer and immunosuppression from all jurisdictions, with provision of adequate care coordinators to ensure technology is optimally used.
- Extra clinical positions in oncology, palliative and supportive care and other relevant disciplines to manage the increasing demands during pandemic and prepare for the post-pandemic surge
- Increased staff for community palliative care services merge with above
- Hotline setup and service