

Evidence check

20 May 2021

Rapid evidence checks are based on a simplified review method and may not be entirely exhaustive, but aim to provide a balanced assessment of what is already known about a specific problem or issue. This brief has not been peer-reviewed and should not be a substitute for individual clinical judgement, nor is it an endorsed position of NSW Health.

COVID-19 vaccine and elective surgery

Evidence check question

What is the evidence on COVID-19 vaccination before elective surgery, including any recommendations regarding timing of vaccination?

In brief

- Expert consensus from international professional societies generally recommend vaccinating patients against SARS-CoV-2 before elective surgery, as this may reduce the risk of COVID-19 complications and transmission of the virus during procedures.(1, 2)
- Recommendations on the timing for preoperative COVID-19 vaccination is variable, ranging from a few days to weeks due to the unknown vaccine immunogenicity. Recommendations on time of vaccination before surgery by specialty groups include:
 - general surgery: a few days to one week (3), one week (4, 5), several weeks (2, 6)
 - kidney transplant: 3-4 weeks (7)
 - plastic or cosmetic surgery: at least one week(8)
 - immunology: one week(9).
- COVIDSurg, a modelling study based on data from almost 60,000 patients internationally, found that fewer people need to be vaccinated to prevent one death in surgical patients compared with the general population.(1)
- COVIDSurg estimated that globally, prioritising all surgical patients for preoperative vaccination ahead of the general population is projected to prevent an additional 58,687 COVID-19-related deaths in one year.(1)
- The timing for surgery, and potential for vaccine prioritisation, would need to take into account the context of the surgery and disease prevalence. For example, in some settings it may not be appropriate to prioritise surgical patients over vulnerable groups such as the elderly, and advice may vary for different surgeries.
- The Royal College of Surgeons of England recommends that emergency surgery take place irrespective of COVID-19 immunisation status.(3)

Limitations

Current evidence on this topic is low quality and only a small number of peer reviewed publications are available. As a result, this review also includes international publications from grey literature, blogs and

news articles. The evidence behind these sources is not generally described in the articles. The search term focused on “elective surgery” and not specialty surgeries. Guidance on vaccination against SARS-CoV-2 should be interpreted in the context of an individual’s morbidity and complexity of the surgery.(6) Much of the evidence included in this review is based on international data and findings should be interpreted relevant to the local context. Much of the literature included is dominated by countries where surgical settings are different to those in NSW.

Background

Generally, recent or imminent surgery is not a contraindication to vaccination, and vaccination is not a contraindication to surgery. However, the systemic effects of recent vaccination such as fever may be confused with symptoms that arise in the postoperative period. For specific populations such as in children, there are some guidelines that recommend waiting one week after receiving an inactive vaccine and three weeks after receiving a live attenuated viral vaccine.(10)

Methods (Appendix)

Google and PubMed were searched on 29 and 30 March 2021 respectively.

Results

Table 1

Source	Summary
Peer reviewed sources	
<p>SARS-CoV-2 infection, COVID-19 and timing of elective surgery</p> <p>El-Boghdadly, et al. 2021 (6)</p>	<ul style="list-style-type: none"> • A consensus statement from multiple medical associations and colleges in United Kingdom: anaesthetists, surgical and peri-operative care • Patients with persistent COVID-19 symptoms are at risk of postoperative morbidity and mortality even after seven weeks • Recommendations for timing of surgery in people with COVID-19 symptoms: <ul style="list-style-type: none"> ○ patients with SARS-CoV-2 infection should not be scheduled to receive surgery within seven weeks, unless deferring surgery outweigh the risk of postoperative morbidity or mortality. ○ patients who may be infectious should have their deferred for 10 days after mild or moderate disease, and 15-20 days after severe disease. ○ severely immunosuppressed patients should seek specialist advice before elective surgery • Shared decision-making regarding timing for surgery after COVID-19 infection should consider each individual’s clinical context and complexity of surgery • Vaccinating patients several weeks before surgery will reduce risk to both patients and health care professionals.
<p>SARS-CoV-2 vaccination modelling for safe surgery to save lives: data from an international prospective cohort study</p> <p>COVIDSurg Collaborate & GlobalSurg Collaborate, 2021 (1)</p>	<ul style="list-style-type: none"> • This study informed prioritisation of allocation of COVID-19 vaccine by modelling the impact of vaccination on mortality in patients undergoing elective surgery • Data from 56,589 patients were analysed based on their postoperative COVID-19 infection and related mortality • Results: <ul style="list-style-type: none"> ○ Global prioritisation of preoperative vaccination for elective surgical patients could prevent an additional 58,687 COVID-19-related deaths in one year

Source	Summary
Peer reviewed sources	
	<ul style="list-style-type: none"> ○ Patients who develop COVID-19 infection are at 4-8 times higher risk of death in the 30 days after surgery ○ Fewer people need to be vaccinated to prevent one death in surgical patients than in the general population ○ Findings support the prioritisation of vaccinating patients aged ≥70 years and other high-risk groups before elective surgery.
<p>Practicing With Uncertainty: Kidney Transplantation During the COVID-19 Pandemic</p> <p>Lentine, et al. 2021 (7)</p>	<ul style="list-style-type: none"> ● Commentary ● Kidney donors and transplant recipients are recommended for COVID-19 vaccination 3-4 weeks before surgery ● “The risk of vaccine-induced allosensitization is unknown, and impact on the final crossmatch should be monitored.”

Table 2

Source	Summary
Grey literature	
<p>Australian patients should receive COVID-19 vaccine before surgery to reduce risk of postoperative death – study</p> <p>Royal Australasian College of Surgeons. News release 25 Mar 2021(2)</p>	<ul style="list-style-type: none"> ● Media release ● Research news based on the recommendations from the COVIDSurg Collaborative research team ● Recommends preoperative vaccination as it may prevent thousands of postoperative deaths linked to SARS-CoV-2, but exact timing of vaccination is not stated ● Vaccination is likely to reduce postoperative pulmonary complications and intensive care interventions.
<p>COVID-19 Vaccine Webinar FAQs</p> <p>Hospital for Special Surgery (5)</p>	<ul style="list-style-type: none"> ● Website ● Patients are advised to get first vaccination at least seven days before surgery and wait until at least seven days postoperatively before getting the second vaccine dose

Source	Summary
Grey literature	
	<ul style="list-style-type: none"> • Patients need to discuss with surgeons any queries about the timing of pre-surgery vaccination.
<p>Allergy, Immunodeficiency, Autoimmunity and COVID-19 Vaccination Position Statement</p> <p>Australasian Society of Clinical Immunology and Allergy (ASCIA), 26 March 2021 (9)</p>	<ul style="list-style-type: none"> • Website • Position statement • Patients should be vaccinated one week before major surgery because surgery and vaccination can both cause a fever • Limited information about whether COVID-19 vaccination can reduce transmission rate of infection • Vaccinated patients are advised to continue practising precautionary measures.
<p>COVID vaccination and elective cosmetic surgery – timing is everything</p> <p>Australasian Society of Aesthetic Plastic Surgeons (ASAPS), 25 February 2021 (8)</p>	<ul style="list-style-type: none"> • Website • Guidelines from the Australasian Society of Aesthetic Plastic Surgeons recommend: <ul style="list-style-type: none"> ○ vaccination should occur at least one week before cosmetic surgery so that vaccine-related symptoms can be identified ○ vaccination should be delayed post-operatively until an individual is fully recovered.
<p>Vaccinated patients guidance</p> <p>Royal college of surgeons of England, 22 January 2021 (3)</p>	<ul style="list-style-type: none"> • Endorsed statement • Strongly recommends pre-operative vaccination though there is no policy for prioritising preoperative vaccination • Emergency surgery should occur irrespective of COVID-19 immunisation status • Elective surgery can take place soon after vaccination, by a few days or at most one week, so that any vaccine-related adverse symptoms may be identified.
<p>Common questions about COVID-19 vaccinations answered</p> <p>Balzer, Mayo Clinic, 5 February 2021 (4)</p>	<ul style="list-style-type: none"> • Website • Recommends patients to get vaccination one week before surgery. This is particularly important after the second vaccine administration because approximately 15% of people will experience a fever after the second dose of vaccines

Source	Summary
Grey literature	
	<ul style="list-style-type: none"> Vaccinated patients are advised to continue practising safety precautions due to the unknown efficacy of vaccine.

Appendix

((("covid 19"[Title/Abstract] OR "sars cov 2"[Title/Abstract] OR "coronavirus"[Title/Abstract] OR ("covid 19"[MeSH Terms] OR "sars virus"[MeSH Terms] OR "coronavirus"[MeSH Terms])) AND ("vaccin*"[Title/Abstract] OR "vaccin*"[Text Word] OR "immunisation"[Title/Abstract] OR "immunization"[Title/Abstract] OR "vaccination"[MeSH Terms] OR "immunity"[MeSH Terms] OR "immunization"[MeSH Terms])) OR ("COVID-19 Vaccines"[MeSH Terms] OR "covid 19 vaccine"[Text Word])) AND ("Elective Surgical Procedures"[MeSH Terms] OR "elective surg*"[Title/Abstract] OR "plan surg*"[Title/Abstract] OR "surg*"[Text Word] OR "elective procedur*"[Title/Abstract] OR "schedule procedur*"[Title/Abstract] OR "plan procedur*"[Title/Abstract]) AND ("loattrfull text"[Filter] AND "english"[Language] AND 2019/01/01:2021/12/31[Date - Publication]) AND ((ft[Filter]) AND (english[Filter]))

= 165 results on 30 March 2021

Google search terms

"covid 19 vaccine" and "surgery" limited to 2020-2021

= 826 hits on 29 Mar 2021

Inclusion and exclusion criteria

Inclusion	Exclusion
<ul style="list-style-type: none"> Any studies, including systematic review articles and grey literature Published from 2010 - 30 March 2021 Patients of all ages Timeframe for vaccination against SARS-CoV-2 before or after any elective surgery. 	<ul style="list-style-type: none"> Publications not in English Emergency surgery Recommended timing of non-COVID-19 vaccination.

References

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10. Department of Health. Vaccination before or after anaesthesia or surgery. [Internet]. Australian Government; 2018 June 8. [cited 2021 April 12]. Available from: <https://immunisationhandbook.health.gov.au/vaccination-for-special-risk-groups/vaccination-before-or-after-anaesthesia-or-surgery#:~:text=Recent%20or%20imminent%20surgery%20is,surgery%20in%20recently%20vaccinate d%20children.>

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