The Immunisation Advisory Centre

COVID-19 EDUCATION

VERSION 5

Comirnaty 30mcg grey cap and Comirnaty Original/Omicron 15/15mcg grey cap booster

Guidance for Healthcare Professionals

KEY INFORMATION

- On 1 March 2023, Aotearoa New Zealand discontinued the use of Comirnaty 30mcg purple cap vaccine.
- The Comirnaty 30mcg purple cap vaccine has been replaced by two different Comirnaty grey cap vaccines.
  - For primary course, Comirnaty 30mcg grey cap is to be used from 12 years of age.
  - Comirnaty 15/15mcg grey cap vaccine is the preferred option for booster/additional doses.
- First booster doses continue to be recommended for anyone aged 16 years and over who have completed the two-dose primary series.
- From 1st April 2023, additional booster doses of vaccine were available for:
  - Those **aged 30 years and over** if they haven't had a booster dose or COVID-19 infection in the past 6 months.
  - Those **16 years and over** who have a medical condition that increases the risk of severe COVID-19 disease and those with disability with significant or complex health needs or multiple comorbidities.
- From 1st May, eligibility for an additional COVID-19 booster has been extended to pregnant people aged 16 to 29 years to align with the funded Influenza vaccination criteria set by PHARMAC.
- Extra care must be taken when preparing grey cap Comirnaty vaccines as they are similar in appearance.
- **Grey cap Comirnaty vaccines DO NOT REQUIRE DILUTION**

Background

During 2022 we had 3 significant waves of infection as new variants emerged. These were associated with increased hospitalisations and deaths. This pattern is likely to continue for the foreseeable future. Although Aotearoa has achieved high immunisation rates, resulting in uniquely high levels of hybrid immunity (wild disease and immunisation antibodies) against severe disease, the emerging immune-evasive Omicron variants and waning immunity have increased the need for additional doses.

The Comirnaty 15/15mcg grey cap vaccine is the recommended vaccine for first boosters and additional doses. It contains COVID-19 mRNA (nucleoside modified) tozinameran/famtozinameran and is recommended for booster and additional doses for those aged 16 years and over.

The Comirnaty 30mcg grey cap vaccine contains 30mcg of mRNA expressing the original SARS-CoV-2 variant (tozinameran). This replaces the Comirnaty purple cap vaccine for primary course doses for those aged 12 years or over. This vaccine does not require dilution and has improved stability and storage.

The change to the bivalent booster is similar to the way we change strains in the influenza vaccine each year. Because Omicron variants are more immune evasive as they mutate, vaccine doses now provide brief and partial protection against infection. The main benefit of vaccination is to reduce the risk of severe COVID-19 infection including hospitalisation and death. Booster doses have the greatest additional benefit in those who have a higher risk of severe disease - older people, those with other health conditions, Māori and Pacific peoples and those living with deprivation. We also know protection against severe disease declines with time. Data from the UK show that after 6 months from dose 2 or from first booster, protection against hospitalisation has dropped to 50% or less.

Comirnaty 30mcg grey cap (multi-dose vial)

Each 0.3 ml dose of Comirnaty 30mcg grey cap contains:

- 30mcg tozinameran (nucleoside-modified mRNA encoding original SARS-CoV-2 spike protein)
- Lipid nanoparticle as used in other Comirnaty formulations
- Tris/sucrose buffer to improve the stability at +2˚C to +8˚C

This formulation DOES NOT require dilution. This vaccine is latex-free and the stopper is a synthetic bromobutyl rubber with grey plastic flip-off cap with aluminium seal.

Comirnaty 15/15mcg (multi-dose vial)

Each 0.3 ml dose of Comirnaty 15/15mcg grey cap contains:

- 15mcg tozinameran (nucleoside-modified mRNA expressing original SARS-CoV-2 spike protein)
- 15mcg famtozinameran (mRNA expressing Omicron BA.4-5 SARS-CoV-2 spike protein)
- Lipid nanoparticle as used in other Comirnaty formulations
- Tris/sucrose buffer to improve the stability at +2˚C to +8˚C

This formulation DOES NOT require dilution. This vaccine is latex-free and the stopper is a synthetic bromobutyl rubber with grey plastic flip-off cap with aluminium seal.

Recommended schedule

Comirnaty 30mcg grey cap is used as a primary course from 12 years of age. Two doses are given 8 weeks apart (minimum 21 days apart).

Comirnaty 15/15mcg vaccine is used for first boosters and additional booster vaccination for those 16+ years who have completed their primary course and are eligible for a booster/additional dose, and for those aged 12-15 years when prescribed.

Booster eligibility and spacing

Comirnaty 15/15mcg grey cap is only licensed for booster doses. It is the vaccine of choice for booster doses in NZ. See the Immunisation Handbook for further details around recommended groups and spacing.

- **A first booster dose** is recommended for individuals aged from 16 years, after completing the primary course. This is given at least 6 months after previous COVID-19 vaccination or COVID-19 infection.

Additional doses

An additional booster dose (regardless of number prior booster doses received) is **recommended** for

- people aged 65 years and over
- Māori and Pacific peoples aged 50 years and over
- Those severely immunocompromised people who were eligible to receive a third primary dose.
- Those 16 years and over who have a medical condition that increases the risk of severe COVID-19 illness including those: eligible for influenza vaccination including pregnant people; with disability with significant or complex health needs; at extremes of weight; with chronic liver disease; and residents of an aged or disability care facility.
  - The benefit of vaccination in the reduction of severe COVID-19 should be weighed against the small risk of vaccine associated myocarditis.

An additional booster dose is also **available** for all people aged 30 years and older.

Children aged 12-15 years at higher risk of severe COVID-19 (see the Starship website) may be prescribed an additional dose of Comirnaty 15/15mcg. This is an off-programme use, so prescription and written consent are required.

For more details on eligibility see Immunisation Handbook https://www.health.govt.nz/publication/immunisation-handbook-2020 and Eligibility for COVID vaccine V2 Dropbox - National Immunisation Programme – Vaccine resources - Simplify your life.

The interval recommended from prior infection or vaccination has increased to 6 months from 3 months because we know that protection against severe disease persists for up to at least 6 months. Having a dose earlier has limited additional benefit.

Clinical discretion can be applied to spacing rules, following a documented informed consent discussion, either for clinical, or to allow equitable access to vaccinations. Minimum 5 months between primary and booster, 4 months between booster doses, and from 3 months after illness. Vaccine given outside this spacing will require a prescription.

Precautions and contraindications

See screening guidelines *Grey and Orange cap Comirnaty Vaccination Screening Tool*.

Contraindications:

- History of anaphylaxis to previous dose of Comirnaty vaccine or to any component of the vaccine.
- Those with a past episode of myocarditis or pericarditis following a previous dose of vaccine should have a careful risk benefit discussion before having any further doses. Seek advice from IMAC.

Concomitant administration

All national immunisation schedule vaccines can be given at the same time as the Comirnaty 30mcg or 15/15mcg grey cap vaccines, preferably in a different limb. Influenza vaccination is also highly recommended for eligible groups and can be given at the same time as all COVID-19 vaccines.

Spacing of 28 days may be considered between JYNNEOS (mpox vaccine) and subsequent Comirnaty vaccine for individuals at increased risk of myocarditis and/or pericarditis following an mRNA vaccine (males aged 16 to 40 years) in an abundance of caution.

Comirnaty 15/15mcg grey cap effectiveness

Studies in the US have demonstrated an increase in effectiveness of booster doses against hospitalisation with COVID-19 infection and improved neutralising antibody activity when Comirnaty 15/15mcg grey cap vaccines are given, especially for those who have previously received two to four Comirnaty doses.

Laboratory studies show the bivalent booster elicits moderately stronger antibody responses against omicron variants than the original booster. Real world experience shows that the bivalent booster doses reduce hospitalisations and deaths with the greatest benefit in those at higher risk such as those over 65 years of age.

For further information on efficacy data for 15/15mcg and 30mcg formulations, refer to the Immunisation Handbook – section 5.4.3.

Vaccine safety

Clinical studies and real-life data on bivalent boosters so far show that people experience the same side effects as the monovalent vaccines.

Adverse reactions following bivalent vaccine as a second booster dose include pain at the injection site (69%), fatigue (56%), headache (41%), muscle pain (26%), chills (17%), joint pain (13%), fever (7%), injection site swelling (5%), injection site redness (5%), and lymphadenopathy (<0.5%).

Data from AusVaxSafety monitoring to date shows the bivalent Comirnaty booster is better tolerated than the original booster vaccines.

Having a longer interval between doses reduces the incidence of adverse events, including the rate of myocarditis and pericarditis following mRNA vaccines. The rate of myocarditis and pericarditis seen in America is considerably lower after bivalent boosters than after both a first monovalent booster and dose 2 of the primary series.

Early vaccine safety data from the US showed a small cluster of ischaemic stroke cases following coadministration of bivalent Comirnaty vaccine with high dose or adjuvanted influenza vaccine in people aged 65 years and over. Further analysis suggested that rate of stroke was actually reduced in vaccinated individuals and that COVID-19 and influenza infection increased the risk of stroke. Reassuringly, ongoing US and global monitoring do not indicate a safety signal.

Use in pregnancy and breastfeeding

Observational data for the original 30mcg Comirnaty vaccine shows no increased risk of adverse pregnancy outcomes or increased risk of miscarriage in the first trimester. Although there is no current data available for the Comirnaty 15/15mcg grey cap formulation, no clinically meaningful difference in reactogenicity has been reported. There is no theoretically plausible reason for there to be any increased risk in pregnancy. This is because the differences between these vaccine formulations and the original purple cap are confined to mRNA spike protein sequences and the Tris buffer, which is used in the grey cap Comirnaty vaccines and is commonly used in other vaccines including the paediatric Comirnaty vaccines. Comirnaty 15/15mcg grey cap vaccine can be used in pregnancy and while breastfeeding.

Boosters and additional doses in pregnancy

Pregnant people are at higher risk of complications from COVID-19 infection compared to those who are not pregnant. Comirnaty vaccines can be given at all stages of pregnancy. An additional dose is particularly recommended for those who are pregnant with medical conditions or who meet other eligibility criteria given above and aged from 16 years. For further information see tinyurl.com/mr3ke5ya.

Post-vaccine advice

Post vaccine advice remains the same. Every consumer must be given clear post-vaccination advice verbally and in writing during the consent process. This advice is needed for each dose of vaccine, for all ages, and must include the following information:

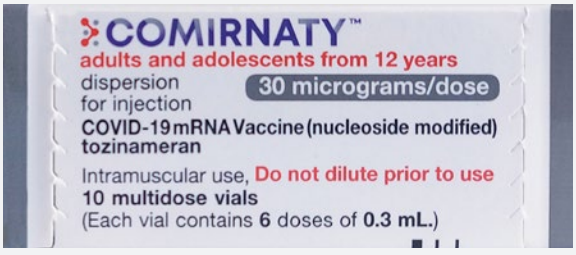
- Discussion of potential minor side effects as well as the rare but serious ones such as myocarditis and pericarditis. The advice should include expected side effects such as fever, swelling and pain at injection site, tiredness. Give advice on how to manage side effects, including the use of paracetamol or other analgesia for fever, pain, or discomfort, and if unwell they should rest, drink fluids, and avoid vigorous activities.
- An observation period following vaccination of at least 15 minutes is recommended or 30 minutes if there is a history of anaphylaxis. This is to ensure that any anaphylactic-type reactions can receive prompt treatment. **The consumer should be made aware** that anaphylaxis, although very unlikely, could occur within a few hours of vaccination. If any breathing difficulties arise, call 111.
- For those with insulin-dependent diabetes, discuss the need to closely monitor blood glucose for next few days, as high or low glucose can occasionally be a side effect of the vaccine.
- Seek medical advice if concerned about any side effects.
- Supply information on how and when to make follow up appointments and encourage them to do this before leaving the clinic.

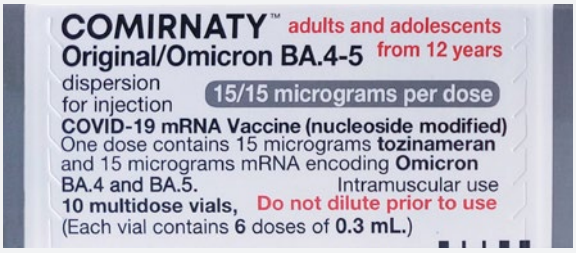
Written information such as the "After the COVID-19 vaccination" advice sheet are available at https://www.Health.Govt.NZ/COVID-19-novel-coronavirus/COVID-19-vaccines/COVID-19-vaccine-resources).

Error prevention

The packaging and vials for both the Comirnaty 30mcg grey cap and Comirnaty 15/15mcg grey cap vaccines are very similar.

- The 30mcg box has Comirnaty written in dark blue/purple and will have a thawed expiry label attached.
- The 15/15mcg box uses grey font and will have a thawed expiry label attached.
- The vials have either 30mcg or 15/15mcg written on them.
- Sites administering multiple COVID-19 vaccines must follow all steps for correct vaccine preparation and administration. Ensure all relevant staff are trained to prepare and administer the Comirnaty 30mcg grey cap and Comirnaty 15/15mcg grey cap Comirnaty vaccines.
- An independent check of vaccine selected and expiry date is essential prior to drawing up each vial.





Strategies to minimise risk of error

Vaccine preparation

- Place STOP WHAT TOP poster on fridge.
- Vaccine Preparation Guide and Vaccine Record must always be visible and followed.
- Where possible create a "Do not disturb" time/place when vaccines are being prepared.
- Store different Comirnaty Grey Cap vaccines in separate areas in the fridge. Consider coloured signage, labelling, open coloured baskets to differentiate between the grey cap vaccines used for Booster and Primary vaccinations.
- Create a physical barrier between the two grey cap preparation areas.
- Check you have the correct vaccine and that it is within expiry. A second checker must initial the vaccine record document to confirm they have independently checked this information.
- We recommend all doses are drawn up at the same time after first vial puncture. If not, ensure vial is labelled with 12-hour expiry and returned to fridge in a defined kidney dish away from unopened vials.
- Once prepared, label every syringe with a vaccine-specific grey cap syringe sticker. A second checker must initial the vaccine record to show they have independently checked the 0.3ml volume.

Vaccine administration

- Where possible use a unique space for administering the different grey cap vaccines.
- Avoid having multiple syringes for different vaccine types, ages, and doses in the same space.
- Use CIR/AIR to reconfirm details of the vaccination event.
- Prior to administration verify consumer's name and date of birth and whether they are here for a primary or booster dose and check against the vaccine.

What to do if an error occurs

- Advise your clinical lead/senior vaccinator.
- Call IMAC for clinical advice as there may be some consumer specific risk (as per Te Whatu Ora documents).

Resources

- **IMAC grey cap resources** (*recorded webinar, vaccine preparation [V3] screening [V20] vaccine record sheet, comparison chart, posters*)**:** https://covid.immune.org.nz/covid-19-vaccines-nz/covid-19-vaccines/comirnaty/comirnaty-grey-cap-x2 .
- **IMAC Pregnancy information:** https://covid.immune.org.nz/covid-19-vaccine-safety-pregnancy-and-other-special-circumstances
- **Vaccine resources:** Dropbox - National Immunisation Programme – Vaccine resources - Simplify your life
- **Boosters:** COVID-19 vaccine: Boosters | Ministry of Health NZ

Datasheets

- **Comirnaty 30 mcg monovalent:** https://www.medsafe.govt.nz/profs/datasheet/c/comirnaty0.3mlGreyCapinj.pdf
- **Comirnaty 15/15mcg BA.4-5 bivalent:** https://www.medsafe.govt.nz/profs/Datasheet/c/ComirnatyOriginalOmicronBA4-5inj.pdf

Summary of Comirnaty formulations

Also see vaccine comparison chart for more detailed information on vaccine in current use add link

Description	Maroon cap 3mcg	Orange cap 10mcg	Grey cap Monovalent 30mcg	Grey cap Original/Omicron 15/15mcg
Vial cap colour	**Maroon**	**Orange**	**Grey**	**Grey**
Age range	6 months – 4 years	5 to 11 years	12 years and over	16 years and over*
Used for	Primary	Primary	Primary	Booster
Dose	3 mcg	10 mcg	30 mcg	Original/Omicron 15mcg + 15mcg
Buffer	Tris/sucrose	Tris/sucrose	Tris/sucrose	Tris/sucrose
Dilution required	Yes	Yes	No	No
Volume per dose	0.2 mL	0.2 mL	0.3 mL	0.3 mL
Doses per vial	10	10	6	6
Refrigerator (2°C to 8°C)	10 weeks	10 weeks	10 weeks	10 weeks
Travel time (2°C to 8°C)	Nil	Nil	Nil	Nil

* Vaccine licensed from 12 years. It is available for those aged 12-15 years at higher risk of severe COVID, prescription and consent is required.

DON'T DELAY - IF IN DOUBT CALL 0800 IMMUNE (466 863)