

This fact sheet provides an introduction to the requirements for the storage and monitoring of vaccines at off-site clinics to ensure maintenance of the cold chain. For more information, please refer to the resources listed below and/or discuss with your Immunisation/Cold Chain Coordinator.

What is the cold chain?

The cold chain is the process that ensures vaccines are continuously stored between +2°C to +8°C from the time of manufacture to the point of administration. Maintenance of the cold chain is required while vaccines are stored in chilly bins for transport and during off-site vaccination clinics.

A cold chain breach occurs when the vaccines have been stored outside the required +2°C to +8°C temperature range. Cold chain breaches can occur even in well designed and well managed systems. However, if there are effective monitoring processes in place, problems will be detected and managed before a cold chain failure occurs, i.e. administration of damaged vaccine.

Why is maintaining the cold chain important?

Vaccines are delicate biological substances. If exposed to temperatures above or below those recommended, vaccines may be irreversibly damaged and cannot be relied upon to provide the expected level of protection against the disease/s that they were designed to prevent.

The greatest risk to vaccine viability during storage in chilly bins is the risk of exposure to temperatures that are too cold, as this may have an immediate effect on the potency of a vaccine.

Why are data loggers essential to cold chain monitoring?

Data loggers record temperatures at set intervals; 5 minute intervals are required for off-site clinics and transportation. Regular downloads of the recorded temperature information provides an enduring record of the temperatures that vaccines have been exposed to. Data logger information is invaluable when assessing vaccine viability after a cold chain breach as it shows the duration of exposure to temperatures outside the recommended range of +2°C to +8°C.

Off-site vaccine storage and transport

Providers who offer an off-site immunisation service must use a data logger with a visible display, remote probe, i.e. attached to the data logger by a cable and visible/audible alarm to monitor vaccine temperatures. The data logger must be set to record the temperature every 5 minutes.

The data logger probe must be placed inside a vaccine box or immediately adjacent to the vaccine boxes in the centre of the chilly bin, with the data logger display unit attached firmly to the exterior.

The display must be visible without opening the chilly bin, and the minimum, maximum and current temperatures must be checked and documented every 20–30 minutes, including during transportation whenever possible and safe to do so. A temperature recording template form can be downloaded from the Health professionals/Cold chain page on our website.

Data from the data logger must be downloaded, reviewed and saved after returning to base. This data needs to be accessible and identifiable for each off-site clinic and will be reviewed during your cold chain accreditation audit.

Information about ice packs and packing chilly bins is provided in Appendix 3 of the National Standards for Vaccine Storage and Transportation for Immunisation Providers 2017 and the COOL Project Stakeholder Summary Report.

Essential equipment

All providers who offer off-site immunisation clinics must have and use the equipment below:

- » Chilly bin – solid walled with a clip on lid
- » Data logger with remote probe, external display and alarm (ideally audible).
- » Insulation.
- » Ice packs for pre-cooling and temperature maintenance.

Recommended additional cold chain equipment:

- » Back up digital minimum/maximum thermometer.
- » Computer to download the data logger while away from base.

Providers are expected to trial their current equipment to demonstrate the ability to maintain the cold chain at all times and document this. This information will be reviewed as part of your cold chain accreditation process.

The COOL Project

The COOL Project investigated, reviewed, selected and tested cold chain equipment used for off-site immunisation clinics to provide recommendations on the purchase of temperature monitoring equipment and portable storage devices, and on the best practice packing portable storage devices.

The COOL Project Stakeholder Summary Report provides information on the products and packing methods that worked well maintaining the cold chain. The findings may assist providers considering the purchase of additional or replacement equipment for off-site immunisation clinics and for determining chilly bin volumes. The National Standards for Vaccine Storage and Transportation for Immunisation Providers 2017 will be updated to reflect the COOL Project findings.

The information in Table 1 on the next page is from the COOL Project Stakeholder Summary Report. There are other suppliers in New Zealand who provide similar equipment that immunisation providers may also consider when purchasing equipment for off-site vaccine storage and monitoring. New equipment also needs to be trialled to demonstrate the ability to maintain the cold chain at all times and documented.

Resources

- » The Ministry of Health National Immunisation Programme cold chain management webpage at www.health.govt.nz/coldchain.
- » The [National Standards for Vaccine Storage and Transportation for Immunisation Providers](#)
- » The Health Professionals/Cold chain webpage at www.immune.org.nz/health-professionals/cold-chain.
- » [The essential cold chain](#) fact sheet for more information on the essentials of cold chain management.
- » [The essential data logger](#) fact sheet for more information on data loggers and their set up.
- » The [COOL Project Stakeholder Summary Report](#)
- » A [Vaccine register](#) template.
- » An [Off-site immunisation programme – Chilly bin log](#) template.

Table 1. COOL Project equipment and supplies recommendations

CHILLY BIN	SMALL <20L	MEDIUM 20-40L	LARGE 40-50L
Brand	Waeco/Dometic Cool-Ice	Waeco/Dometic Cool-Ice	Waeco/Dometic Cool-Ice
Size	13L	22L	41L
Number of vaccine boxes			
Tdap	12	24	43
HPV	5	9	18
RRP (incl GST)	\$115	\$129	\$239
Weight	2.8kg	4.2kg	7.5kg
Dimensions (d x w x h)	386 x 241 x 306mm	386 x 363 x 314mm	386 x 632 x 342mm
Available from	Burnsco Marine, Hunting and Fishing, Smiths City dometic.com/en-nz/nz/find-a-dealer		
DATA LOGGER			
Brand and Model	LogTag TRED30-16R		
RRP (incl GST)	LogTag data logger \$172.50; data logger probe \$115; USB interface \$103.50; software is free		
Position of logger	Outside of chilly bin; using velcro dots allows for best position for reading logger		
Probe medium	In polyethylene foam block or a box of vaccines		
Available from	Bell Technology, Rollex Medical belltechnology.co.nz , rollexmedical.co.nz		
INSULATION			
Brand	Sympa Nova matting/Anti-slip flooring		
RRP (incl GST)	\$24.10 per metre, 650mm wide		
Position	Above and below vaccine		
Top mat	Cut bigger to go 1-2cm up sides		
Bottom mat	Cut to size of bottom		
Available from	Bunnings, Para Rubber bunnings.co.nz , pararubber.co.nz		
COOLING PRODUCT			
Brand	Thermasorb Chill Wrap		
RRP (incl GST)	\$2.30 per sheet (makes 2 smaller sheets of 3 x 4 cells)		
Chilly bin size	SMALL <20L	MEDIUM 20-40L	LARGE 40-50L
Number of sheets for temperature maintenance	1 sheet of 3 x 4 cells	2 sheets of 3 x 4 cells	3 sheets of 3 x 4 cells
Approximate weight	453g	906g	1359g
Position of cooling product	Top only, above insulating matting		
Available from	Fishing Industry Services Limited fishindserv.co.nz/ice-replacement.htm		
Durability	Replace at least annually or earlier if deteriorating		

Notes: Prices are approximate from December 2017. Waeco has been bought by Dometic but the chilly bins remain the same.