

1 Temperature Monitoring of Medication and Vaccine Fridges

Policy

Fridges used to store medications and vaccines are monitored to ensure the viability of the medications and vaccines.

Food and medications must be stored in separate fridges to guard against contamination.

Vaccines are stored on the Hilmorton Hospital site at the Clinical Services Unit.

The policy outlines temperature monitoring of fridges using a digital thermometer (monitor and alarm system) displayed on the outside of the fridge

Warning: Blood and blood products are not to be stored in either medication or food fridges.

Purpose

To ensure that medications and vaccines are stored in fridges that are maintained at a temperature between 2°C and 8°C or the limits set by Clinical Engineering.

Audience/Scope

All areas within Canterbury DHB that store medications and / or vaccines with a refrigeration requirement.

Associated Documents

Pharmaceutical Society, 1996, Quality in Pharmacy

Record of Digital Thermometer and Alarm Checks Form /
Minimum/Maximum Thermometer Temperature Monitoring Chart
(available on the Intranet as “Fridge Monitoring Form” Ref: 1056)

Laminated Fridge Cards (Ref:0443)

Incident Reporting CDHB Volume 2 & Divisional Policies, Volume A

1.1.1 Medicines that must be refrigerated

Medicines that must be refrigerated include, but are not limited to:

- Amphotericin injection
- Antibiotic mixtures reconstituted (except Ciprofloxacin and Clarithromycin)
- Atracurium injection
- Desmopressin injection, nasal drops and spray
- Filgrastim (G-CSF) injection
- Frusemide oral solution
- Insulin
- Isoprenaline injection
- Minims eye drops
- Octreotide injection
- Oxytocin injection
- Pancuronium injection
- Proxymetacaine Eye drops.
- Rocuronium injection
- Suxamethonium injection
- Tetracosactrin injection (Synacthen)
- Vaccines

There may be other medications specific to areas which also require refrigeration. These medications will be identified by Pharmacy staff.

Vaccines that must not be stored below 2°C

- Vaccine diluents
- Influenza
- Vaccines containing diphtheria, tetanus and or acellular pertussis
- Hepatitis B vaccines
- Haemophilus influenza type B vaccines
- Injectable poliomyelitis IPV Salk (check pnuemo & meningo)
- All combinations

Vaccines that must not be stored above 8°C or exposed to light

- Bacille Calmette-Guerin (BCG)
- Reconstituted measles-mumps-rubella (MMR)
- Measles-mumps-rubella (MMR) lyophilised powder

Purchased vaccines such as Hepatitis B, Hepatitis A and travel vaccines are also required to be stored between +2 to +8°C. Note, while Tuberculin (PDP) for Mantoux testing is not a vaccine, it should not be stored below 0°C.

1.1.2 Vaccine Storage

Vaccines must be left in their packaging as this provides insulation and helps protect against thermal insult

If using a pharmaceutical specific refrigerator the amount of vaccine stored can be increased, providing the vaccines are not:

- Stacked against the walls of the refrigerator
- Stacked to the top of each shelf

If using a domestic type refrigerator the amount of vaccine stored should only take up to 50% of the refrigerators storage capacity and only sections of the refrigerator being monitored should be used. This is because there are variable temperature zones within a domestic refrigerator cabinet and the temperature gradient increases in proportion to the degree of packaging

The vaccines should not be:

- Stacked against the walls of the refrigerator
- Stacked to the top of each shelf
- Placed by the rear freeze plate or icebox of the refrigerator
- Placed in the refrigerator door

Vaccines should be stored according to temperature sensitivity e.g.

- MMR (heat sensitive) upper shelf of the monitored section
- DTaP-IPV, DTaP/Hib, Infanrix-Metg, Hib, HepB, DT, Influenza, Hib, IPV, Pneumococcal vaccine (i.e. all freeze sensitive vaccines) on middle shelves, emergency drugs on lower shelf.

To avoid over stocking there should be sufficient vaccine stock for six weeks or less

When restocking, the newer vaccines should be placed behind the current stock to ensure a rotation of stock

All vaccines should be stored in an orderly manner with batch number and expiry date within easy view

1.1.3 Forms

Completed Record of Digital Thermometer and Alarm Check Forms and Minimum/Maximum Thermometer Temperature Monitoring Charts (Form Ref 1056) are to be kept by the service for a minimum period of ten years.

Forms are available to be downloaded from the intranet and are titled “Fridge Monitoring Form”.

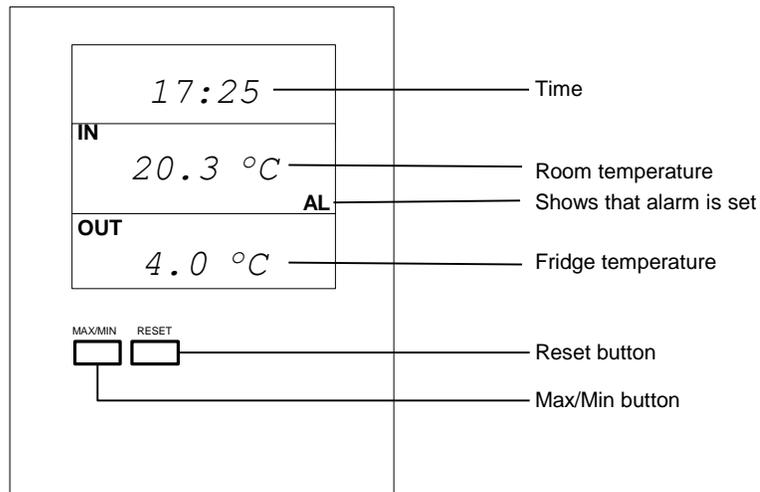
1.1.4 Digital Thermometer

The digital thermometer monitoring system for fridges was developed by Clinical Engineering. This is the preferred monitoring system for medication fridges to be used throughout CDHB.

The thermometer display for all fridges containing vaccines must be checked daily with fridges containing only medications to be checked weekly. The check is recorded on the Fridge Monitoring Form & kept in a plastic pocket on the front of the fridge.

Reading the Thermometer Display

Normal display



If the thermometer is working normally:

- The red light on the side of the block (not pictured) should be on (this also indicates that the power is on).
- The time displayed should be correct.
- “AL” should display in the middle field – this shows that the alarm is on.

Procedure for when the alarm goes off (loud noise, red blinking light)

If the digital thermometer measures temperatures outside the range it has been set for, follow the procedure below:

If the medication fridge temperature is being monitored remotely then areas are to follow steps 4 -8 of the alarm is activated.

Step	Action
1	Silence the alarm by pressing the button on the side of the black box (alarm). This will silence the alarm for 2 minutes. Observe the current fridge temperature reading (bottom display)
2	<p>To establish whether the fridge alarm limits have been exceeded:</p> <ul style="list-style-type: none"> • Press the maximum/minimum button once for the maximum/minimum room temperature (ignore this reading). • Press the maximum/minimum button a second time for the maximum/minimum fridge temperature. Note the maximum and minimum temperatures which are shown on the middle and bottom display. • Press the reset button (lines will initially appear and then the reading will return to the normal display). This step is important, as this ensures accurate recordings are taken from the time of resetting). • Contact Clinical Engineering if there is repeated alarming and the temperature readings are within the limits set by Clinical Engineering.
3	<p>If readings are outside the recommended limits, check that:</p> <ul style="list-style-type: none"> • The fridge is switched on • The fridge door is closed • The fridge is not iced up • The red light on the side of the block is on (this also indicates that the power is on). • The time displayed is correct. • “AL” displays in the middle field – this shows that the alarm is on. • The temperature probe is still inside the fridge <p>Remedy any problems and repeat temperature check within 5 minutes.</p>

Step	Action
4	If the fridge temperature cannot be restored to between the limits set (usually 2-8°C), transfer medications / vaccines to another fridge.
5	<p>Contact Pharmacy immediately to discuss the need for disposal if it is suspected that:</p> <ul style="list-style-type: none"> • Medications have been exposed to temperatures between 8°C and room temperature for more than 24 hours. • Vaccines have been exposed to temperatures over 8°C degrees or below 2°C for more than an hour. • Medications/vaccines have been frozen. <p>A Quality Improvement Event Reporting form is to be completed when pharmacy have confirmed the need to dispose of medicines and / or vaccines.</p>
6	Place an urgent request to Maintenance for the fridge to be checked.
7	The person in charge of the clinical area is responsible for ensuring Pharmacy and Maintenance are contacted where appropriate.
8	Medicines / vaccines are to be disposed at clinical level into the yellow biohazard sharps containers

Maintenance of the Digital Thermometer

Tests are carried out two yearly or six monthly. Records of calibrations and spatial checks are kept by Clinical Engineering.

Two yearly	Calibration	The thermometer calibration will be checked by Clinical Engineering.
Six Monthly	Alarm System	The automatic alarm system will be checked by designated ward staff.

1.1.6 Defrosting & cleaning the fridge

The fridge should be cleaned weekly & defrosted monthly by an appropriate staff member as delegated by the Charge Nurse Manager

Follow normal procedures to defrost & clean the fridge, making sure that all medications / vaccines are moved to another fridge during this process.

Leave the alarm power pack plugged in. Remove the sensor to force the alarm to sound.

After the fridge has been defrosted & cleaned switch the fridge power on, replace the alarm sensor but wait 30 minutes before switching the alarm power on (black power adapter at wall power socket), or until the displayed fridge temperature is within the correct range.

Make sure that:

- The red light on the side of the block is on.
- The time displayed is correct.
- “AL” displays in the middle field to show that the alarm is on.
- Make a record of the checks on the Fridge Monitoring Form on the front of the fridge (Available on the Intranet, Ref: 1056).

Reference

Immunisation Advisory Centre (2002), Vaccine Storage and Distribution National Standards (2nd Edition)

Medicines Act 1981, Clause 47

Thomas J., Draft Policy for Storage of Vaccines, Canterbury Immunisation

Policy Owner	Corporate Quality and Risk Manager
Policy Authoriser	Clinical Board
Date of Authorisation	19 June 2002
	21 April 2004
	12 July 2006
	1 July 2010