

# Vaccine Storage and Handling- The Basics

(Excerpts from the Vaccine Storage and Handling Guidelines, Ministry of Ontario)



Region of Waterloo  
PUBLIC HEALTH AND  
EMERGENCY SERVICES



## Vaccine storage and handling

Vaccines help save lives, prevent serious illnesses and are one of the most effective public health interventions available.

Through proper vaccine storage and handling, healthcare providers play an important role in making sure that vaccines remain effective and waste is minimized.

## What is “cold chain?”

“Cold chain” includes all the materials, equipment and procedures used to maintain vaccines in the required temperature range.

To remain effective, vaccines must be kept within a temperature range of **2 C to 8 C** from the time of manufacture to the time when they are administered to patients.

A “cold chain incident” occurs when the temperature of the vaccine fluctuates outside of the **2 C to 8 C** range – Exposing vaccines to temperatures outside this range could influence the potency of the product.

## Importance of cold chain

- Improper storage can lead to ineffective vaccines.
- Wasted vaccines are a financial burden on our public system and could have impacts on our provincial or national supplies of vaccine.
- Administering vaccines with decreased potency may result in a lack of protection, reduced public trust in vaccines and/or increased local reactions after immunization

## Cold chain responsibilities

- One person should be designated as the lead and one person assigned as back up to take responsibility for vaccine and ensure all staff have appropriate training.
- All staff handling provincially-funded vaccine require knowledge of:
  - vaccine storage and handling practices
  - the four R’s of vaccine temperature monitoring
  - contingency plans - ensure that they are in place in the event of premises closure, during staff vacation, equipment failure and/or electricity disruptions

## The four R’s of vaccine temperature monitoring

**Read:** Twice daily, read the thermometer’s maximum, minimum and current temperature at the same time every day during the working week.

- Read max, min and current temp. every time you open the fridge.

**Record:** Record temperatures twice daily, including date and time and initial for each entry on the recording sheet.

- Logs must be faxed to Region of Waterloo Public Health and Emergency Services (ROWPHE) each month.

**Reset:** Reset the thermometer after readings are recorded.

- Thermometers should also be reset when temperatures have stabilized after short periods of high activity.

**React:** Take action if the min, max, or current falls outside the 2 C to 8 C.

- Initiate your contingency plan and contact ROWPHE.

## Cold chain equipment

### 1. Digital maximum-minimum thermometer



- Measures the current temperature and the min. and max. temperatures that have been reached since it was last reset.
- Probe is stored on the middle shelf inside an empty vaccine box labelled as “empty.”
- Min, max and current temperatures must be taken and recorded twice a day, at the beginning and end of the day, then reset.
- Visually inspect that the current temperature is between 2 C and 8 C every time you open the fridge.

## Vaccine refrigerator



- Store vaccine on the middle shelf away from the floor, walls and cold air vents.
- Keep products in original packaging (to ensure vaccine is protected from light and kept with the product monograph).
- Maintain space between each product.
- No food, beverage and/or medical laboratory specimens can be stored with publicly funded vaccine.
- Use the shortest dated vaccine first.
- Never leave a vaccine outside the refrigerator.
- Add full water bottles to empty shelves and door.
- Stock only a one-month supply.
- Organize vaccine by product.

Month: January, 2011 Office/Facility: ABC Family Practice

Week 1	Mon 3	Tue 4	Wed 5	Thur 6	Fri 7	Sat 8	Sun 9							
Time	AM	PM	AM	PM	AM	PM	AM	PM						
Current Temp	5.8	7.0	5.4	5.6	5.7	6.8	3.2	5.3	5.3	5.2	7.0	6.5	6.0	6.7
Max Temp	6.8	6.5	6.0	6.8	6.7	7.1	10.4	6.9	6.5	6.4	5.6	5.2	4.5	5.5
Min Temp	5.4	5.5	2.9	5.5	5.4	4.0	2.5	5.0	-0.2	5.6	7.0	7.5	6.5	7.8
Initials	AB	AB	AA	AA	AA	AA	AA	AA	AA	AA	AB	AB	AB	AB
Week 2	Mon	Tue	Wed	Thur	Fri	Sat	Sun							

**Out-of-Range Temperatures**  
Any temperature readings below +2°C and/or above +8°C must be reported to your public health unit immediately.

### What to do if temperature is below 2 C or above 8 C?

1. Bag vaccine and mark "Do not use."
2. **If current temperature is outside of 2 C and 8 C**
  - a. Move vaccine to a properly functioning, monitored refrigerator or place vaccine in a monitored insulated container with icepacks and a temperature monitoring device inside the vaccine package.
  - b. Monitor every 30 minutes.
3. **If current temperature is in-range,** segregate vaccine in the refrigerator.
  - a. Call ROWPHE immediately to report exposure. Do not use or discard any of the exposed vaccines until Public Health has assessed whether any of the vaccines can still be used.

- b. Ensure thermometer is working correctly (check probe placement, check the battery). If in doubt replace battery. Record the date, time and temperature in the log book.
- c. Initiate Cold Chain Incident and Exposure Form which, includes incident details and a list of all vaccines exposed. Fax form and last four weeks of temperatures to ROWPHE.
- d. Await direction from ROWPHE regarding the stability of the vaccine.
- e. Investigate the incident to determine what caused the problem and how to prevent it in the future.

## Contingency Planning

Each health care provider requires a plan for vaccine storage in the event of refrigerator malfunction and electricity disruption. The plan should include:

- Primary and back-up contact personnel responsible for responding to incident.
- *Short term power outage (up to four hours):* Vaccine can be kept in fridge while temperature is between 2-8 degrees C. Add ice packs or chilled water bottles as necessary.
- Move vaccine to insulated container with packaging material or alternate fridge and temperature monitoring device when fridge temperature moves outside 2-8 degrees C.
- *Long term power outage (more than 12 hours):* Move vaccine to alternate storage facility unaffected by power outage with a back up power supply and appropriate storage capacity.

## Moving your office or fridge

- A fridge is more likely to have unstable temperatures after being moved.
- Call ROWPHE before a planned move or as soon as possible if an emergency move is necessary. We will help you plan to protect the vaccine.
- If you're moving your office, you must make a plan for moving your vaccine and maintaining the cold chain along the way.
- Fridges that have been moved need to be closely monitored for seven days after a move.
- After a fridge is moved, an inspection is required in order to continue to receive publicly funded vaccine Call ROWPHE to arrange this visit.

This document is available in accessible formats upon request.

## Region of Waterloo Public Health and Emergency Services

Infectious Diseases, Dental and Sexual Health