

# Maintain the Cold Chain – Part 2



**A learning module for those who transport and handle vaccines**

Reviewed and updated August 2019



## PART 2

### **Part 2 includes:**

- Section 2 - The Cold Chain
- Section 3 - RTT: Refrigeration, Thermometer, Temperature Log



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## Section 2

# The Cold Chain



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# The Cold Chain - What is it?

The **cold chain** refers to ALL materials, equipment and procedures used to ensure vaccines remain within the required temperature range (2°C to 8°C) from the time the vaccine is produced by the manufacturer until the vaccine is administered to the client.

Source: Vaccine Storage and Handling Guidelines – Ontario Ministry of Health and Long Term Care



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# Maintaining the Cold Chain

By maintaining the cold chain, health care providers play an important role in making sure vaccines are safe, effective and help protect the health of the public.

Every person transporting, handling and storing the vaccines before they reached you did their part to maintain the COLD CHAIN.

During this module, you will learn how to do your part to deliver effective vaccines to your clients.



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## Why is it so important?

- Vaccines are sensitive biological substances and they can lose their potency and effectiveness if they are exposed.
- Vaccines are considered exposed if they are not stored between 2°C to 8°C.
- If an exposed vaccine is administered to a client, their immune system may not fully respond.
- This means the client **may not be protected** against the disease(s) they are being vaccinated against.
- Exposed vaccines can also cause increased injection site reactions.

**More information about exposed vaccines (e.g. cold chain incidents) will be covered in Part 3 (Section 5).**



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## Section 3

**RTT = Refrigeration, Thermometer,  
Temperature Log**



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# RTT

Remember RTT to maintain the cold chain.



**R = Refrigeration**

**T = Thermometer**



**T = Temperature Log**



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# R = Refrigeration



If vaccines are offered at your office or facility, a refrigerator must be designated specifically for vaccine storage.



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# Dedicated Fridge

Make sure the refrigerator is large enough to accommodate your vaccine supply.

Do not store more than a one month supply of vaccine at any given time.



**Beverages, food and medical/laboratory samples MUST NOT BE STORED in your vaccine refrigerator.**



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## TIPS – Storing Vaccines in Your Refrigerator

Store vaccines in the middle of the refrigerator and organize by vaccine product.

Store vaccines with the earliest expiry dates at the front.

Leave space between packages to allow air to circulate.

Store vaccines in their original packaging as this will protect them from the light.

Check expiry dates regularly and use vaccines with earlier expiry dates first.

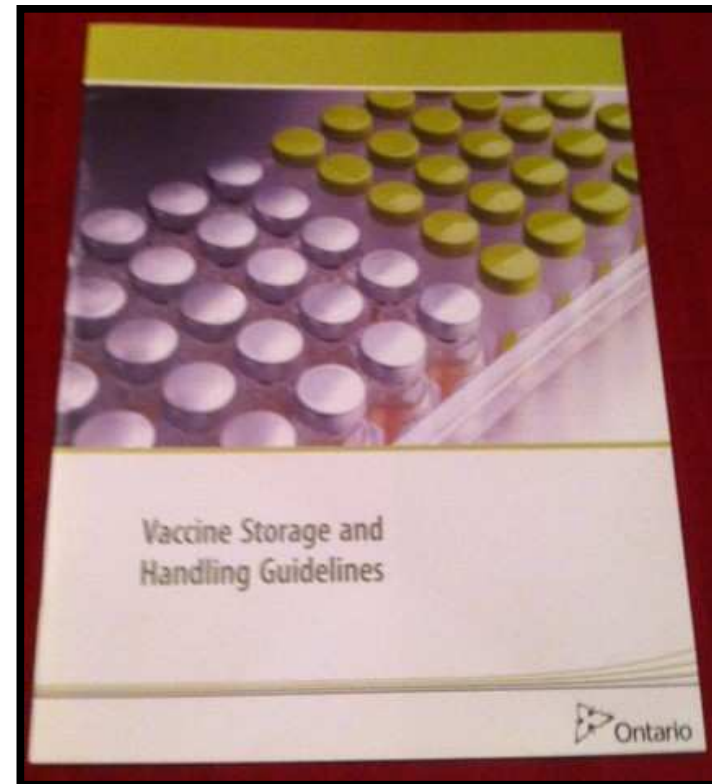


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# *Vaccine Storage and Handling Guidelines (2012)*

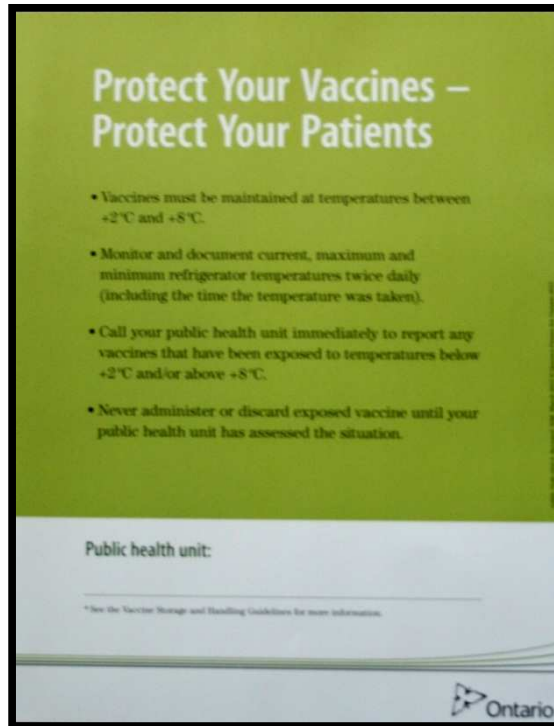
Make the *Vaccine Storage and Handling Guidelines (2012)* document available to all staff handling vaccines.

A copy can be downloaded from [here](#).



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# *Protect Your Vaccines – Protect Your Patients*

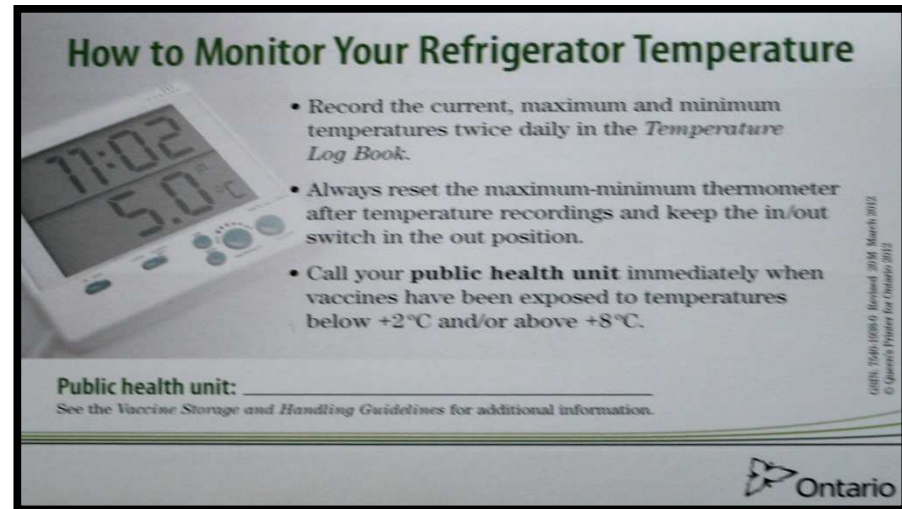


Display the “Protect Your Vaccines – Protect Your Patients” poster on all vaccine refrigerators.

This poster will remind staff about the important steps to maintaining the cold chain (2°C to 8°C). It also reminds staff to call the Health Unit if the temperature is out of the range of 2°C to 8°C.

# How to Monitor Your Refrigerator Temperature

Post the “How to Monitor Your Refrigerator Temperature ” sticker on all vaccine refrigerators.

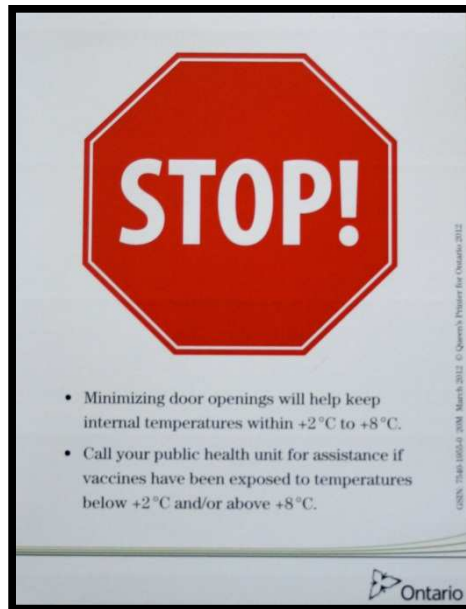


This sticker will remind staff about the steps to follow in monitoring fridge temperatures. It also reminds staff to call the Health Unit if the temperature is out of the range of 2°C to 8°C.



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# STOP



Post the “STOP ” sticker on all vaccine refrigerators.

This sticker will remind staff about the importance of maintaining the cold chain by limiting the number of times the door is opened. It also reminds staff to call the Health Unit if the temperature is out of the range of 2°C to 8°C.



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# Water Bottles



Keep water bottles on the inside of the door and on the shelves of your refrigerator to help stabilize the refrigerator temperature.



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# ***DO NOT UNPLUG***



Place the “DO NOT UNPLUG” sticker beside the electrical outlet (e.g. plug-in) where it can be seen clearly so that the refrigerator is never unplugged or turned off.



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## TIP – Defrosting a Freezer

Defrost the freezer when there is more than 1 cm or 3/8 inch of ice buildup present.

Why?

- Ice buildup in the freezer can cause fluctuations or variations in the refrigerator temperatures.



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## TIP - Frozen Ice Packs

Use ice packs to transport vaccines.

Keep them in the freezer so they are ready to use.

Use ice packs if you have a refrigerator malfunction or if the power goes out. Place a few inside the refrigerator as this may help keep the temperature from rising.



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# T = Thermometer

Use a digital maximum-minimum thermometer to monitor fridge temperature.

- The thermometer pictured in the photo to the right is the one the must be used.

Always clear your thermometer after each reading.



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# Thermometer Placement



Secure your thermometer to your refrigerator OR place in a safe location.



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# Thermometer Placement

Place your thermometer sensor inside an empty vaccine box to provide protection from short-term temperature fluctuations (i.e. after the door is opened and closed).



Label the vaccine box “DO NOT USE” so that the sensor will not accidentally be moved.



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# Thermometer Batteries



Change the batteries in your digital thermometer EVERY SIX MONTHS (i.e. daylight savings) and record the date of this battery change in your temperature log book.

Make sure you always have spare batteries on hand.

Try changing the battery if your thermometer is not working properly.

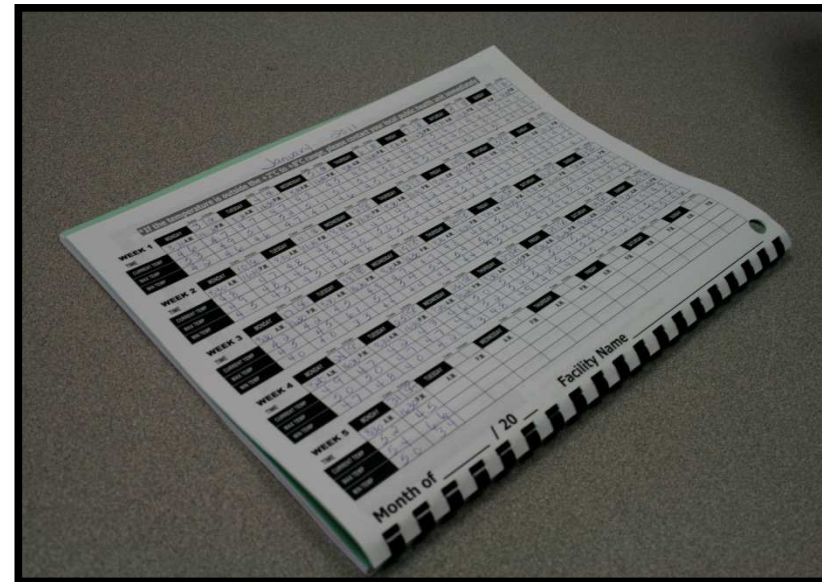


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# T = Temperature Log

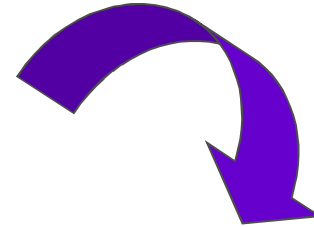
Make sure your temperature log is kept up-to-date.

Use the information to help you make the right adjustments to the refrigerator in order to keep the vaccines safe and effective.

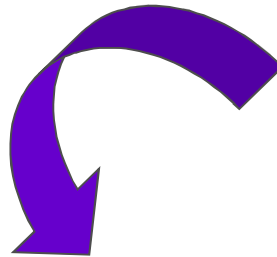


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The information in the temperature log is essential if there is a break in the cold chain (e.g. the temperature is not kept between 2°C and 8°C).



This information will help Health Unit staff determine if any exposed vaccines can still be used.



You will need to submit a copy of your temperature log each time you order vaccines from the Health Unit.



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# Keep an Accurate Temperature Log

- Assign one individual to be responsible for monitoring and recording temperatures.
- Make sure that all staff are trained in reading and recording temperatures in the log so that backup is available in case of vacations or other absences.
- Use a digital thermometer that records current, maximum and minimum temperatures.
- Check and record the temperature twice a day. This is done at the start and at the end of the day.
- Record the current, maximum and minimum temperatures in the temperature log as well as the time that you are taking them.



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## Next Steps...

- Return to the Health Unit's website to review Part 3 by clicking the back button found on the left side of the web browser at the top of the page.
- Continue through Parts 3, 4 and 5. Then, complete a final quiz (Section 8).
- Submit the quiz to receive a certificate of completion.



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