



## **QUICK REFERENCE GUIDE**

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Prepared by the Windsor-Essex County  
Health Unit for Community Vaccine Providers



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## Windsor-Essex County Health Unit Contact Information

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**Email:** [vaccine@wechu.org](mailto:vaccine@wechu.org)  
**Phone:** 519-258-2146 ext. 1121  
**Fax:** 519-977-1711

## Introduction

The Windsor-Essex County Health Unit's (WECHU) Maintain the Cold Chain Quick Reference Guide is intended to supplement the detailed information outlined in the Ontario Ministry of Health's [Vaccine Storage and Handling Guidelines](#).

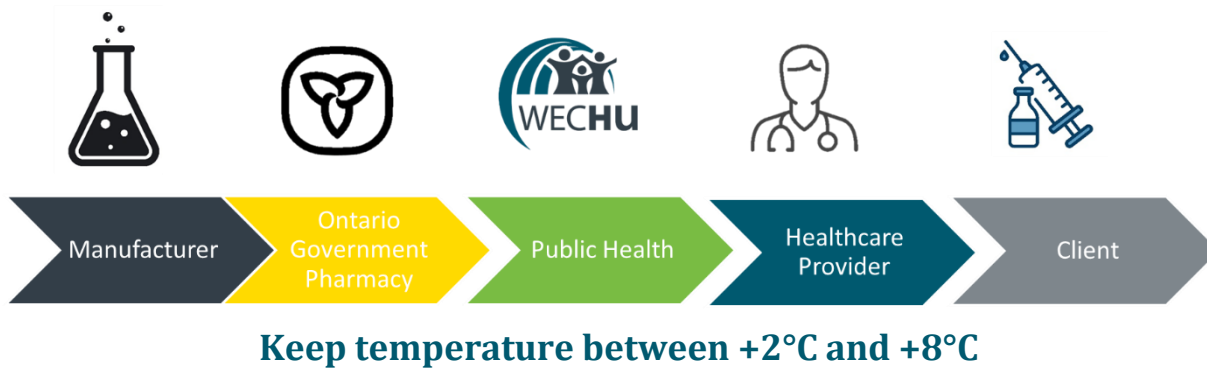
It is important that all staff involved with managing vaccine supply review the Vaccine Storage and Handling Guidelines and the WECHU Maintain the Cold Chain eLearning at least once per year. It is recommended to incorporate this education into new staff orientation and annual staff training.

For more information and resources visit the WECHU's website:

<https://www.wechu.org/professionals/health-care-providers/vaccine-providers>

## 1. What is the cold chain?

Cold chain refers to the process used to maintain vaccine temperature between +2.0°C and +8.0°C at all times during transport, storage, and handling.



The cold chain begins at the manufacturer and ends when the vaccine has been administered to the client.

## 2. Why is it important to maintain the cold chain?

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You play an important role in making sure your clients get the safest and most effective vaccines.

Vaccines can be damaged if exposed to temperatures below +2.0°C or above +8.0°C.

Maintaining the chain is important because exposed vaccine can affect the following:



### 1. Lack of Protection

The vaccine may not be effective resulting in lack of protection against vaccine-preventable diseases.



### 2. Vaccine Wastage

Vaccines exposed to temperatures below +2.0°C or above +8.0°C may need to be disposed of. Vaccines deemed unsuitable for use may need to be returned to the local Public Health Unit.



### 3. Increased Healthcare Costs

Vaccines are expensive to replace and vaccine wastage can lead to increased healthcare costs.



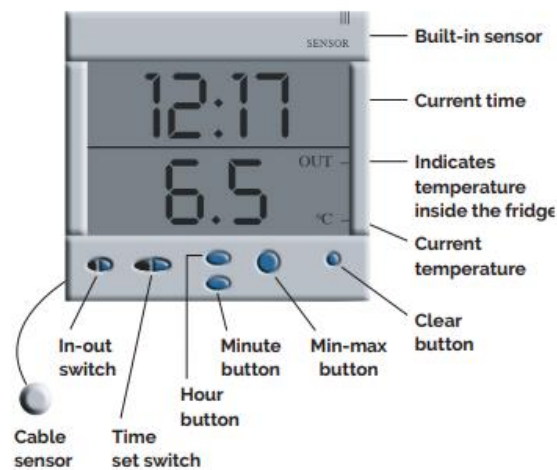
### 4. Vaccine Shortages

Due to local supply and intermittent vaccine shortages, it is not always possible to replace vaccine quickly.

### 3. How do you monitor the refrigerator temperature?

Use a digital minimum-maximum thermometer like the one shown below. These thermometers provide three readings:

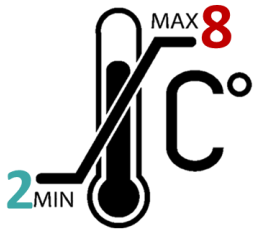
1. Current Temperature
2. Minimum Temperature = the lowest fridge temperature recorded since last reset
3. Maximum Temperature = the highest fridge temperature recorded since last reset



- Keep your thermometer in “out” mode. This ensures the thermometer is displaying the temperature being read by the probe.
- Not all thermometers are the same. If you are unsure how to properly use your thermometer, review the instructions. If you need support, contact the Health Unit. A team member can walk you through how to properly use and read your thermometer.

## Daily Temperature Checks

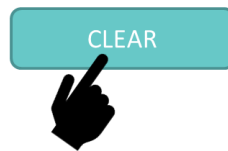
Temperature checks must be performed a minimum of **twice daily** including at the beginning and end of the day. Temperature checks must be documented in the temperature logbook. On every logbook page, make sure to write your **organization/office's name** and the **date & time for each temperature reading**. This will help expedite the review process when you submit your fridge log temperature. To perform a temperature check:



**READ**  
thermometer



**RECORD**  
Current,  
minimum, and  
maximum  
temperatures  
and time of  
reading



**RESET**  
by clearing min  
and max  
temperatures

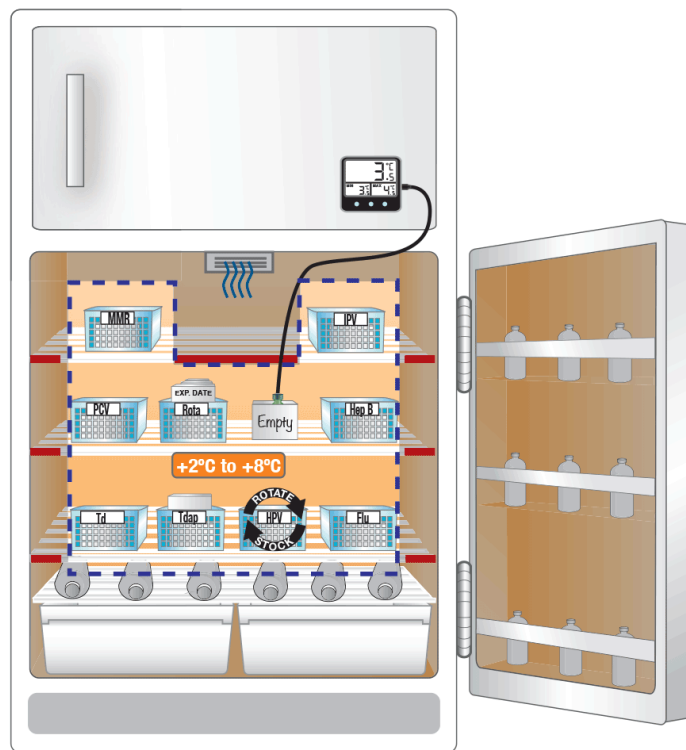


**REPORT**  
any temperature  
below +2°C or  
above +8°C  
immediately to  
public health

### IMPORTANT REMINDERS

- Always reset or clear the minimum and maximum temperatures after recording the temperature readings.
- To help stabilize fridge temperature readings, tape the thermometer sensor to a vial of expired diluent and place in an empty vaccine box. Place on the middle shelf of the fridge. This will lessen impacts from exposure to sudden drafts of air by protecting the sensor.
- If you do not have a vial of expired diluent and/or an empty vaccine box, they will be provided by the Health Unit upon initial vaccine fridge inspection.
- Write "closed" on days you are not in the office in the temperature logbook.
- Change thermometer(s) batteries every six months and record the date in the temperature logbook.
- Keep temperature logbook on site for one year or until your next fridge inspection.

## 4. How do you organize the vaccine refrigerator?



1. Store vaccines on the middle shelves, not in the door, drawers or under the vent.
2. Use perforated plastic baskets to organize vaccines by type.
3. Leave space between vaccine packages to allow for air circulation.
4. Rotate stock so vaccines with the shortest expiry date are at the front of the baskets and used first.
5. Check expiry dates regularly and remove any expired vaccine to be returned.
6. Protect vaccines from light by keeping them in the original box.
7. Put filled water bottles in the door, bottom drawers and empty shelves to keep the temperature stable.
8. Place the thermometer sensor on the middle shelf in an empty vaccine box.

If you are setting up a new vaccine refrigerator, we encourage you to review the WECHU's [New Vaccine Fridge Setup Guide](#).

## IMPORTANT REMINDERS

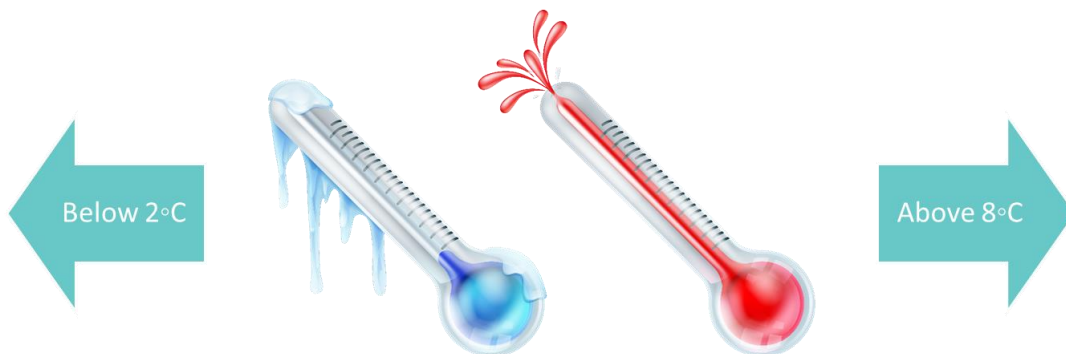
- Put a “DO NOT UNPLUG” sign by the electrical outlet so the refrigerator is not unplugged accidentally.
- Minimize the number of times the refrigerator door is opened and make sure it is closed tightly.
- Defrost domestic or bar refrigerators when there is more than 1 cm of ice in the freezer compartment.

## 5. How do you respond to a cold chain incident?

When vaccines have been exposed to a current, minimum, or maximum temperature below +2.0°C or above +8.0°C, a cold chain incident/excursion has occurred.

**Below +2°C or above +8°C**

Know what to do - Take Action - Don't Wait





## **Follow these steps:**

### **1. DO NOT USE THE VACCINE**

Place a **“DO NOT USE VACCINE” sign** on your vaccine refrigerator door. Do not remove or discard any vaccine until directed by the WECHU.

### **2. CHECK IF THE VACCINE FRIDGE AND THERMOMETER ARE WORKING**

Is the refrigerator plugged in? Is the door tightly closed?

Does the thermometer display the current, minimum, and maximum temperatures? Do the batteries need to be replaced? Is the sensor placed correctly in the refrigerator (centre of middle shelf)?

### **3. REPORT THE COLD CHAIN INCIDENT TO THE WECHU IMMEDIATELY**

During regular business hours (Monday to Friday 8:30am – 4:30pm) call 519-258-2146 ext. 1121. If a cold chain incident is discovered after hours/on a weekend call the WECHU and leave a message, then follow your **contingency plan**.

### **4. REVIEW YOUR CONTINGENCY PLAN**

Your contingency plan should include the step that, when possible, move vaccine to an operating vaccine refrigerator or a properly packed vaccine cooler with a thermometer. Record minimum, maximum, and current temperatures hourly.

### **5. FAX OR EMAIL THE FOLLOWING INFORMATION TO THE WECHU**

- Cold Chain Incident Checklist
- Cold Chain Incident Reporting Form
- Cold Chain Vaccine Inventory Form
- Previous 4 weeks of fridge log temperatures

You can find these forms on the WECHU’s website [here](#).

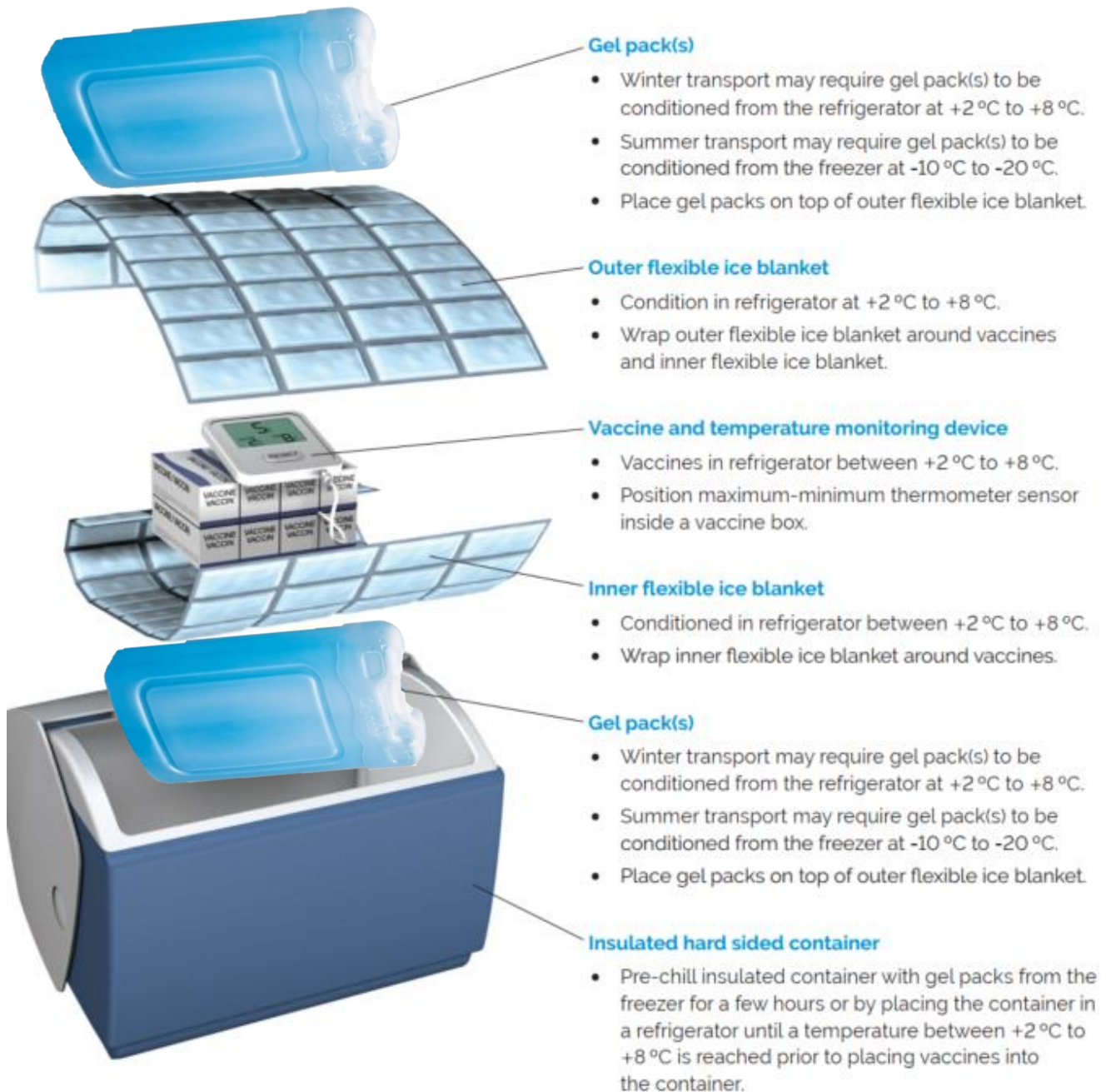
## 6. FOLLOW GUIDANCE FROM THE WECHU

Upon receipt of your cold chain incident information, WECHU staff will contact the vaccine manufacturers to determine if your vaccine is viable. Leave your vaccine in the refrigerator (or as outlined in your contingency plan) and do not use until you are advised by the WECHU to do otherwise.

***If your vaccine is deemed usable*** – put a red dot on the vaccine package with a permanent marker. Use this vaccine first.

***If your vaccine is deemed unusable*** – remove it from cold storage and put it in a paper bag or box, complete a Vaccine Return Form (found on the WECHU's website [here](#)) and attach it to the bag/box. Return to the WECHU.

## 6. How do you pack an insulated vaccine cooler?



**Note:** Additional icepacks may be required depending on cold-life needed for the length of transport. Additional insulating material (e.g., bubble wrap, Styrofoam chips, crumpled or shredded newspaper) should be placed inside (bottom, top and sides) the insulated container to allow for cool air circulation.

## IMPORTANT REMINDERS

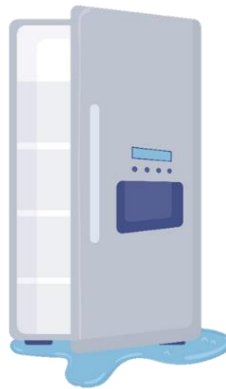
- There is a risk of the vaccines freezing if you do not correctly pack the insulated cooler. You may need to experiment to find the right number of ice blankets and ice packs required to maintain the temperature in the +2.0°C to +8.0°C range.
- To pick up vaccines from the WECHU, your insulated cooler temperature must be between +2.0°C to +8.0°C.

## 7. What is your contingency plan?

It is important to plan to protect your vaccines in case of:



Power Outage



Refrigerator  
Malfunction



Extended Vacation

**Have a written plan and keep it near your vaccine refrigerator(s) for easy reference. Your plan should include:**

### **1. ARRANGEMENTS FOR ALTERNATE STORAGE**

In the case of a power outage, fridge malfunction, or extended vacation, prearrange to transport your vaccines to a facility with a back-up emergency power supply (e.g., another health care facility nearby, the WECHU).

### **2. REFRIGERATOR OPERATION BACKUP**

If you have a generator, make sure your refrigerator will be operational in case of a power outage.

### **3. TEMPORARY VACCINE STORAGE**

You may temporarily and safely store vaccine in an insulated cooler with packing materials and a minimum/maximum thermometer for up to 4 hours. Monitor and record the current, minimum and maximum temperatures while the vaccines are in the cooler, prior to transport, during transport, and before unpacking vaccines into an alternate functioning refrigerator.

#### **IMPORTANT REMINDERS**

- Make sure ALL STAFF know what to do in the event of a power outage or refrigerator malfunction.
- The WECHU can provide you with support in creating your contingency plan.
- Do not let vaccines remain in a malfunctioning refrigerator for an extended period of time. Act as soon as possible – by contacting the WECHU and/or following your contingency plan.
- Review and update your contingency plan at least once a year or when there is a change to any vaccine storage equipment, processes, or other information outlined in the plan.

## 8. How do you order vaccine from the WECHU?

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**Visit the WECHU's website for instructions:**

<https://www.wechu.org/professionals/health-care-providers/vaccine-providers>

**Prior to ordering vaccine:**

- Ensure your vaccine refrigerator can accommodate the vaccine you intend to order and still allows for adequate air circulation.
- If you are unsure of the storage requirements or shelf life of a vaccine, review the product monograph and/or call the WECHU.

**You may order vaccine if the following conditions have been met:**

- Your vaccine refrigerator(s) have passed the Ontario Ministry of Health's fridge inspection within the last 365 calendar days. Inspections are completed by the WECHU.
- You complete the required order form.
- You submit vaccine refrigerator temperature logs for the last 4 week.

### IMPORTANT REMINDERS

- To reduce wastage, do not order excess vaccine.
- Rotate vaccine stock in your refrigerator so those expiring soonest are used first.
- When using vaccines, take them out of the refrigerator only when ready to administer, unless outlined otherwise by the manufacturer. Check product monograph.
- Return open vials of multi-dose vaccines immediately to the refrigerator after use. Mark the date on the vial when the first dose was withdrawn. Use the vaccine within the time outlined in the product monograph.

# Appendix A – Contingency Plan Template

## VACCINE COLD CHAIN CONTINGENCY PLAN

In advance of a power outage/refrigerator malfunction, download and print hard copies of the most up-to-date cold chain incident forms from the WECHU’s website: <https://www.wechu.org/professionals/health-care-providers/vaccine-providers>

ORGANIZATION/OFFICE NAME: \_\_\_\_\_

PRIMARY EMERGENCY CONTACT NAME: \_\_\_\_\_ PHONE #: \_\_\_\_\_

SECONDARY EMERGENCY CONTACT NAME: \_\_\_\_\_ PHONE #: \_\_\_\_\_

### **In case of power outage/refrigerator malfunction, follow these steps:**

1. Record the time of discovery, minimum, maximum and current refrigerator temperatures.
2. **DO NOT OPEN THE FRIDGE DOOR. DO NOT REMOVE VACCINES.** Place a sign on the fridge door that says, “DO NOT OPEN/DO NOT USE VACCINE”.
3. If the refrigerator is currently outside of +2.0°C and +8.0°C and the power outage/refrigerator malfunction is expected to last more than a few hours, vaccines should be placed in a properly packed cooler chilled to between +2.0°C and +8.0°C for transport to a monitored refrigerator. Our cooler supplies are located:  
\_\_\_\_\_

*[See image of packing a vaccine cooler on page 11 of Maintain the Cold Chain Quick Reference Guide. Ensure to monitor the minimum, maximum and current temperatures hourly. Document all of the vaccines that are placed in the cooler.]*

4. In the event of a long-term power outage or refrigerator malfunction (more than 4 hours), vaccines can be relocated to the following pre-designated location:

LOCATION NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

5. When the power is restored, record the time, minimum, maximum and current refrigerator temperatures. Record the time again when the temperature returns to between +2.0°C and +8.0°C. It is now safe to return the vaccine to your refrigerator. Keep a sign on the refrigerator that says “DO NOT USE VACCINE” until you have received confirmation from the WECHU that they are safe to use.

**ALWAYS REPORT ANY TEMPERATURE INCIDENTS/EXCURSIONS OUTSIDE OF +2.0°C and +8.0°C TO THE WECHU at 519-258-2146 ext. 1121.**



**WINDSOR-ESSEX COUNTY  
HEALTH UNIT**

1005 Ouellette Avenue  
Windsor, Ontario N9A 4J8

[www.wechu.org](http://www.wechu.org)

519-258-2146

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