

Fraser Health Refrigerator Temperature Form Instructions

(Print and keep with your temperature logs)

Importance of Cold Chain Temperatures

All vaccines requiring refrigerated storage must be maintained at temperatures of +2.0°C to +8.0°C. Biological products can be inactivated by exposure to excess heat or to freezing, depending on the nature of the product, the temperature reached and the duration of exposure. Damage from successive exposures to adverse conditions is cumulative and irreversible. This log will help you monitor your vaccine refrigerator's temperatures to ensure the conditions are adequate to maintain the potency of your vaccines. Refrigerator temperatures between 0.0°C to +2.0°C (taking into account the accuracy range as well) do not compromise vaccine integrity but the **temperature should be restored to the +2.0°C to +8.0°C range immediately**. If the refrigerator temperature is outside of the 0.0°C to +8.0°C range, the vaccines may not be effective in preventing disease and you must report the Cold Chain Incident.

Note: Unlike vaccines, if Tubersol® (the product used for TB Skin testing) has been exposed to temperatures in the 0.0°C to +2.0°C range is considered to have undergone a cold chain incident

Thermometer Details:

Ensure you have a digital thermometer with the following features:

1. Records temperatures to 1 decimal place (Example → 4.5°C)
2. Has an accuracy range of 1.0°C (+/-) **or better** - **FHA recommends a device with an accuracy of at least 0.5°C (+/-)**
3. Has a long enough probe to place in the middle of the refrigerator while the digital display sits on the outside of the refrigerator
 - a. A probe with a glycol vial tip/end is very useful and more stable however is not mandatory
4. Records current, minimum and maximum refrigerator temperatures
5. Records the room/ambient temperature
 - a. If one device does not record the min/max, current and room temperature, a second thermometer must be used

Refrigerator Temperature Form Instructions:

1. All temperatures must be recorded in degrees Celsius (°C) to 1 decimal place as seen on the thermometer display (Example → 4.5)
2. For each new form fill in the accuracy range of the thermometer, the name of the fridge and the month at the top of the form
 - a. Twice each day record the current, minimum and maximum refrigerator temperatures as shown on the display (ideally at the start and end of each business day). The min/max recordings show the highest and lowest temperature reached ***in the total time since the thermometer was last reset – This is the most rich and important temperature data***
3. **Reset the min/max refrigerator thermometer after recording the temperatures**
4. Record the time the readings were taken, the room temperature, the dial setting of the refrigerator, and your initials
5. It is recommended that you also plot on the grid the current, minimum and maximum temperatures the vaccines were exposed to since they were last checked
 - a. This allows for a quick visual assessment of how well the refrigerator temperature is being maintained and will help identify cold chain incidents
6. Keep vaccines and other biological products refrigerated between +2°C to +8°C at all times
7. If the temperature recorded is in the shaded zones, immediate action is needed to bring the temperature back into range
8. Retain these records for a minimum of three years

Cold Chain Incident Considerations

1. When reviewing any temperatures, always take into consideration the accuracy of the temperature monitoring device to ensure vaccine remains within cold chain range

For example: If a temperature recording device has an accuracy range of (+/-) 0.5°C, a temperature display of 7.8°C means that the actual temperature could be anywhere from 7.3°C to 8.3°C = Possible (CCI)
2. If you experience a cold chain incident, complete the cold chain incident form and contact your local Biological Products Consultant to find out if your vaccines can still be used.

Additional Supporting Resources

1. Fraser Health Immunization Resources for Community Vaccine Providers website
<https://www.fraserhealth.ca/employees/immunization-resources-for-community-vaccine-providers>
2. BCCDC Vaccine Management website <http://www.bccdc.ca/health-professionals/clinical-resources/vaccine-management>
3. BCCDC Immunization Manual, Appendix E – Management of Biologicals at <http://www.bccdc.ca/health-professionals/clinicalresources/communicable-disease-control-manual/immunization>

Example of Correctly Filled Out Refrigerator Temperature Form - Including Cold Chain Incident Examples

(Print and keep with your logs as an example)

fraserhealth		Refrigerator Temperature Form (°C)																		Month <u>SEP</u> Year <u>2024</u>										
Accuracy Range of Thermometer (+/-) <u>0.5</u> °C		* Record temperatures at least twice per day *																		Fridge: <u>#1 Back Room</u>										
* Must write in numbers to one decimal place – DO NOT Use (X) or (-)																														
Day of the Month	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15	
Exact Time	8:00	4:00	8:00	4:15	8:20	4:30	8:15	4:19																						
	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm
Refrigerator Temperature °C	≥ 10	Take immediate ACTION if ANY temperature reading is in a shaded section (Current, Min or Max) * Consider the <i>accuracy range of thermometer</i> when plotting temperatures for possible Cold Chain Incidents (CCIs) * Ex → 7.8°C + 0.5°C (+/-) range = Possible temp 8.3°C (CCI)																												
	9																													
	8																													
	7	7.0				7.2																								
	6			6.0			6.8																							
	5			5.5	5.9			5.5	5.0	5.5	5.8																			
	4	4.8	4.5	4.4	4.0	4.9	4.5		4.9	4.2	4.5																			
	3	3.5				3.9		3.2		3.9	3.8																			
	2		2.5																											
	1																													
0		0.2																												
≤ -1				-0.1																										
Current °C	4.8	2.5	5.5	4.0	4.9	6.0	5.5	5.0	4.2	4.5																				
Min Temp °C	3.5	0.2	4.4	-0.1	3.9	4.5	3.2	4.9	3.9	3.8																				
Max Temp °C	7.0	4.5	6.0	5.9	7.2	6.8	7.8	8.3	5.5	5.8																				
Room °C	21.0	22.0	21.5	20.6	22.1	23.0	22.5	21.4	22.5	22.3																				
Dial / Temp Setting	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0																				
Initials	LT	JS	JJ	JJ	JS	LT	JS	JJ	SS	SS																				

If vaccine has been exposed ANY TIME to temperatures outside of +2°C to +8°C (after factoring in the thermometer accuracy range) follow the Cold Chain Incident guidelines and recommendations

Current Temp → The current “now” temperature of the refrigerator – This shows a small window of time

Min / Max Temp Range → The highest and lowest temperature reached *in the total time since the thermometer was last reset* - *The most rich and important temperature data*

Dial/Temp Setting → The programed temperature or dial setting on the fridge - *The recommended programed setting should allow the fridge’s resting temperature to sit between +4.0°C to +5.0°C*