



Vaccines should be maintained within +2°C to +8°C inside properly packaged insulated containers during storage and transport.

Insulated containers can maintain the required temperature for 3-4 hours; however, this is subject to environmental and physical conditions.

Do not place insulated containers with vaccines in the trunk of a car.



Use insulated containers for:

- Transporting vaccine;
- Temporary storage of vaccine (e.g., during clinics or cleaning the refrigerator); and
- Emergency storage (e.g., power outage).

## Insulated Containers

- An insulated container is a solid-walled container with a tight lid. The required temperatures inside the insulated container are maintained by icepack(s) and/or gel pack(s).
- Vaccines should be stored and transported in insulated containers with the appropriate packaging material and packing configuration to ensure that vaccines are maintained within the +2°C to +8°C temperature range for the maximum length of time that might be required for transport and/or storage.
- Insulated containers are not adequate for the transport and/or storage of vaccines for prolonged periods as their cold life (the container's ability to maintain the required temperature range) is limited.
- Most insulated containers can maintain the required temperatures for a maximum of 3-4 hours. However, the external temperature, the number of times the insulated container is opened and closed, the amount of vaccine that is being stored and the type of packaging material used may reduce the amount of time vaccines can be stored in the insulated container.
- If vaccines will be stored and/or transported for more than 3-4 hours in the insulated container, the icepack(s) and/or gel pack(s) should be removed and replaced with a new set of conditioned frozen and/or refrigerated icepack(s) and/or gel/pack(s).
- When transporting vaccines in an insulated container, the temperatures must be continued to be monitored during vaccine transport. The frequency of the checking and the recording of temperatures are dependent on the amount of time the vaccine is stored and transported in the insulated container.
- The number of insulated containers and packing material that the premises should maintain must accommodate the entire vaccine inventory.
- Insulated containers storing vaccines should not be transported in the trunk of a vehicle due to the extreme temperatures that can occur.
- Speak with your public health unit if you require an insulated container.

### When to use an Insulated Container

- An insulated container, temperature monitoring device and appropriate packaging material is used for:
  - Transporting vaccine;
  - Storing vaccine during immunization sessions/clinics;
  - Temporary storage of vaccine during equipment maintenance periods (e.g., when cleaning or defrosting refrigerator); and
  - Emergency storage of vaccine (e.g., refrigerator malfunction or an electricity disruption).

## 1. Transporting vaccine from the public health unit to the office

- Monitor and record temperature readings in the insulated container:
  - a. Before leaving the public health unit with the insulated container;
  - b. After 1 hour of travel; and
  - c. Upon arrival at the office/facility but before the vaccines are placed back into the refrigerator:
    - i. Place vaccine into inventory for use if the temperature monitoring device(s) indicates that the cold chain was maintained between +2°C to +8°C.
    - ii. If the temperature monitoring device(s) indicates an out-of-range reading, place the vaccine under quarantine in the refrigerator and immediately report the incident to your public health unit. The vaccines must be kept refrigerated and should not be used until your public health unit provides further direction.



Record temperature in the insulated container:

- Before leaving the public health unit;
- After 1 hour of travel; and
- Upon arrival at office.

## 2. Storing vaccines during immunization sessions/clinics

- Monitor and record temperature readings in the insulated container:
  - a. Before leaving the office/facility with the insulated container;
  - b. Upon arrival at the session/clinic, but prior to the immunization session/clinic;
  - c. At 1 hour intervals during the immunization session/clinic;
  - d. Upon completion of the session/clinic, but before transport back to the office/facility; and
  - e. Upon arrival to the office/facility:
    - i. Place vaccine into inventory for use if the temperature monitoring device(s) indicates that the cold chain was maintained between +2°C to +8°C.
    - ii. If the temperature monitoring device(s) indicates an out-of-range reading, your public health unit should be contacted and vaccines should place the vaccine under quarantine in the refrigerator until your public health unit has assessed the cold chain incident.
- In addition, to the above required temperature monitoring and recordings in the insulated container, the temperature monitoring device should be visually inspected each time the insulated container is opened.
- Only pack the amount of vaccine you expect to use during the immunization session/clinic.
- Minimize the number of times that the cooler is opened during the immunization session/clinic.
- Remove vaccines from the insulated container only as they are required.



Record temperature in the insulated container:

- Before leaving the office;
- Upon arrival at clinic;
- Every hour during the session;
- Upon completion of the session at the clinic; and
- Upon arrival back to office.

Visually inspect the temperature every time the insulated container is opened.

## 1. Transporting vaccine from the public health unit to the office

- Monitor and record temperature readings in the insulated container:
  - a. Before leaving the public health unit with the insulated container;
  - b. After 1 hour of travel; and
  - c. Upon arrival at the office/facility but before the vaccines are placed back into the refrigerator:
    - i. Place vaccine into inventory for use if the temperature monitoring device(s) indicates that the cold chain was maintained between +2°C to +8°C.
    - ii. If the temperature monitoring device(s) indicates an out-of-range reading, place the vaccine under quarantine in the refrigerator and immediately report the incident to your public health unit. The vaccines must be kept refrigerated and should not be used until your public health unit provides further direction.



Record temperature in the insulated container:

- Before leaving the public health unit;
- After 1 hour of travel; and
- Upon arrival at office.

## 2. Storing vaccines during immunization sessions/clinics

- Monitor and record temperature readings in the insulated container:
  - a. Before leaving the office/facility with the insulated container;
  - b. Upon arrival at the session/clinic, but prior to the immunization session/clinic;
  - c. At 1 hour intervals during the immunization session/clinic;
  - d. Upon completion of the session/clinic, but before transport back to the office/facility; and
  - e. Upon arrival to the office/facility:
    - i. Place vaccine into inventory for use if the temperature monitoring device(s) indicates that the cold chain was maintained between +2°C to +8°C.
    - ii. If the temperature monitoring device(s) indicates an out-of-range reading, your public health unit should be contacted and vaccines should place the vaccine under quarantine in the refrigerator until your public health unit has assessed the cold chain incident.
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Record temperature in the insulated container:

- Before leaving the office;
- Upon arrival at clinic;
- Every hour during the session;
- Upon completion of the session at the clinic; and
- Upon arrival back to office.

Visually inspect the temperature every time the insulated container is opened.

## Steps to prepare an insulated container (and related material) prior to transportation or storage

1. Pre-chill the insulated container by placing icepacks inside the insulated container for at least 1 hour. After the hour, remove all icepacks.
2. Precondition icepacks. Vaccines are vulnerable to freezing when transported in an insulated container if icepacks have not been correctly conditioned. Icepacks come out of the freezer at a temperature of approximately  $-20^{\circ}\text{C}$ . Keeping the icepacks at room temperature for a period of time allows the ice at the core of the icepack to rise to  $0^{\circ}\text{C}$ . This process is called “**conditioning**.” An icepack is adequately conditioned as soon as beads of water cover its surface. The conditioning process usually takes approximately 20 to 30 minutes.
3. Prepare your temperature monitoring device. (See details on page 8.)
4. Ensure that all other items necessary to pack the insulated container are ready and easily accessible.



Ice and/or gel packs must be correctly conditioned before use. The risk of freezing vaccines increases if the icepacks/gel packs are not correctly conditioned.

Incorrect use of gel packs is even riskier than icepacks because the gel packs remain colder than  $0^{\circ}\text{C}$  for longer than icepacks.

Freezing episodes happen very easily in all coolers, usually in the first 2 hours after packing.

Pre-chill the cooler before use.

## Steps to packing an insulated container (and related material) prior to transportation or storage

Freezing episodes happen very easily in all insulated containers, usually in the first 2 hours after packing.

To ensure vaccines arrive at the destination safely:

1. Place 1 or 2 icepacks at the bottom of the insulated container.
2. Place a pre-conditioned ( $+2^{\circ}\text{C}$  to  $+8^{\circ}\text{C}$ ) ice blanket(s) on top of the icepacks.
3. Place the vaccine package on top of the ice blanket(s).
4. Position the temperature monitoring device or the sensor in the centre of the vaccine package.
5. Insulation material (e.g., bubble wrap, newspaper) may be loosely wrapped around the vaccine packages. This allows for cool air circulation around the vaccines and minimizes the risk of “hot” or “cold” spots.
6. Place another pre-conditioned ice blanket(s) over the vaccine.
7. Place 1 or 2 pre-conditioned icepacks on top of the ice blanket(s).
8. Add newspaper or bubble wrap as necessary to fill vertical void.
9. Clearly mark all insulated containers storing vaccine with the following label: “VACCINES – STORE BETWEEN  $+2^{\circ}\text{C}$  to  $+8^{\circ}\text{C}$ .”



Correctly packing a cooler reduces the risk of freezing.

Experiment to find the correct combination of icepack(s) and/or gel pack(s) to ensure the insulated container is able to maintain the required temperatures for:

1. The maximum length of time the vaccine might have to be in the insulated container;
2. The amount of vaccines to be transported; and
3. The external temperatures (e.g., winter climate vs. summer climate).



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## Steps to prepare an insulated container (and related material) prior to transportation or storage

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## Detailed instructions on how to pack an insulated container:



### — Gel pack(s)

- Winter transport may require gel pack(s) to be conditioned from the refrigerator at +2°C to +8°C.
- Summer transport may require gel pack(s) to be conditioned from the freezer at -10°C to -20°C.
- Place gel packs on top of outer flexible ice blanket.

### — Outer flexible ice blanket

- Condition in refrigerator at +2°C to +8°C.
- Wrap outer flexible ice blanket around vaccines and inner flexible ice blanket.

### — Vaccine and temperature monitoring device

- Vaccines in refrigerator between +2°C to +8°C.
- Position maximum-minimum thermometer sensor inside a vaccine box.

### — Inner flexible ice blanket

- Conditioned in refrigerator between +2°C to +8°C.
- Wrap inner flexible ice blanket around vaccines.

### — Gel pack(s)

- Winter transport may require gel pack(s) to be conditioned from the refrigerator at +2°C to +8°C.
- Summer transport may require gel pack(s) to be conditioned from the freezer at -10°C to -20°C.
- Place gel packs on top of outer flexible ice blanket.

### — Insulated hard sided container

- Pre-chill insulated container with gel packs from the freezer for a few hours or by placing the container in a refrigerator until a temperature between +2°C to +8°C is reached prior to placing vaccines into the container.

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.