Monitor temperatures closely!

1. Write your initials below in “Staff Initials,” and note the time in “Exact Time.”
2. If using temperature monitoring device (TMD; digital data logger recommended) that records min/max temps, document min/max once each workday, preferably in the morning. If using TMD that does not record min/max temps, document current temps twice, at beginning and end of each workday.
3. Put an “X” in the row that corresponds to the refrigerator’s temperature.
4. If any out-of-range temp, see instructions to the right.
5. After each month has ended, save each month’s log for 3 years, unless state/local jurisdictions require a longer period.

### Danger! Temperatures above 8°C are too warm! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!

<table>
<thead>
<tr>
<th>Temperatures</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>8°C</td>
<td></td>
</tr>
<tr>
<td>7°C</td>
<td></td>
</tr>
<tr>
<td>6°C</td>
<td></td>
</tr>
</tbody>
</table>

### Aim for 5°C Acceptable Temperatures

<table>
<thead>
<tr>
<th>Temperatures</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5°C</td>
<td></td>
</tr>
<tr>
<td>4°C</td>
<td></td>
</tr>
<tr>
<td>3°C</td>
<td></td>
</tr>
<tr>
<td>2°C</td>
<td></td>
</tr>
</tbody>
</table>

### Danger! Temperatures below 2°C are too cold! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!

<table>
<thead>
<tr>
<th>Temperatures</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write any out-of-range temps (above 8°C or below 2°C) here:</td>
<td></td>
</tr>
<tr>
<td>Room Temperature</td>
<td></td>
</tr>
</tbody>
</table>

If you have a vaccine storage issue, also complete “Vaccine Storage Troubleshooting Record” found on page 3.
Temperature Log for Refrigerator – Celsius

DAYS 16 – 31

Monitor temperatures closely!

1. Write your initials below in “Staff Initials,” and note the time in “Exact Time.”
2. If using temperature monitoring device (TMD; digital data logger recommended) that records min/max temps, document min/max once each workday, preferably in the morning. If using TMD that does not record min/max temps, document current temps twice, at beginning and end of each workday.
3. Put an “X” in the row that corresponds to the refrigerator’s temperature.
4. If any out-of-range temp, see instructions to the right.
5. After each month has ended, save each month’s log for 3 years, unless state/local jurisdictions require a longer period.

<table>
<thead>
<tr>
<th>Day of Month</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
<th>28</th>
<th>29</th>
<th>30</th>
<th>31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Initials</td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
</tr>
<tr>
<td>Exact Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min/Max Temp in Unit (since previous reading)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Danger! Temperatures above 8°C are too warm! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!

<table>
<thead>
<tr>
<th>TEMPERATURES</th>
<th>8°C</th>
<th>7°C</th>
<th>6°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aim for 5°C</td>
<td>5°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCEPTABLE</td>
<td>4°C</td>
<td>3°C</td>
<td>2°C</td>
</tr>
</tbody>
</table>

Danger! Temperatures below 2°C are too cold! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!

Write any out-of-range temps (above 8°C or below 2°C) here:

Room Temperature

If you have a vaccine storage issue, also complete “Vaccine Storage Troubleshooting Record” found on page 3.

Adapted with appreciation from California Department of Public Health

DISTRIBUTED BY THE

Immunization Action Coalition

Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org
## Date & Time of Event
If multiple, related events occurred, see Description of Event below.

<table>
<thead>
<tr>
<th>Date:</th>
<th>Temp when discovered:</th>
<th>Temp when discovered:</th>
<th>Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td>Minimum temp:</td>
<td>Maximum temp:</td>
<td>Comment (optional):</td>
</tr>
</tbody>
</table>

## Description of Event
(If multiple, related events occurred, list each date, time, and length of time out of storage.)

- General description (i.e., what happened?)
- Estimated length of time between event and last documented reading of storage temperature in acceptable range (2°C to 8°C [36°F to 46°F] for refrigerator; -50°C to -15°C [-58°F to 5°F] for freezer)
- Inventory of affected vaccines, including (1) lot #s and (2) whether purchased with public (for example, VFC) or private funds (Use separate sheet if needed, but maintain the inventory with this troubleshooting record.)
- At the time of the event, what else was in the storage unit? For example, were there water bottles in the refrigerator and/or frozen coolant packs in the freezer?
- Prior to this event, have there been any storage problems with this unit and/or with the affected vaccine?
- Include any other information you feel might be relevant to understanding the event.

## Action Taken
(Document thoroughly. This information is critical to determining whether the vaccine might still be viable!)

- When were the affected vaccines placed in proper storage conditions? (Note: Do not discard the vaccine. Store exposed vaccine in proper conditions and label it “do not use” until after you can discuss with your state/local health department and/or the manufacturer[s].)
- Who was contacted regarding the incident? (For example, supervisor, state/local health department, manufacturer—list all.)
- IMPORTANT: What did you do to prevent a similar problem from occurring in the future?

## Results
- What happened to the vaccine? Was it able to be used? If not, was it returned to the distributor? (Note: For public-purchase vaccine, follow your state/local health department instructions for vaccine disposition.)
**Vaccine Storage Troubleshooting Record**  
(check one)  
☐ Refrigerator  
☐ Freezer

Use this form to document any unacceptable vaccine storage event, such as exposure of refrigerated vaccines to temperatures that are outside the manufacturers’ recommended storage ranges.

A fillable troubleshooting record (i.e., editable pdf) can also be found at www.immunize.org/clinic/storage-handling.asp

### Description of Event (If multiple, related events occurred, list each date, time, and length of time out of storage.)

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- Prior to this event, have there been any storage problems with this unit and/or with the affected vaccine?
- Include any other information you feel might be relevant to understanding the event.

### Action Taken (Document thoroughly. This information is critical to determining whether the vaccine might still be viable!)

- When were the affected vaccines placed in proper storage conditions? (Note: Do not discard the vaccine. Store exposed vaccine in proper conditions and label it “do not use” until after you can discuss with your state/local health department and/or the manufacturer[s].)
- Who was contacted regarding the incident? (For example, supervisor, state/local health department, manufacturer—list all.)
- IMPORTANT: What did you do to prevent a similar problem from occurring in the future?

<table>
<thead>
<tr>
<th>Date &amp; Time of Event</th>
<th>Storage Unit Temperature</th>
<th>Room Temperature</th>
<th>Person Completing Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: (see below)</td>
<td>Temp when discovered: 7°C</td>
<td>Temp when discovered: 2.5°C</td>
<td>Name: Nancy Nurse</td>
</tr>
<tr>
<td>Time: (see below)</td>
<td>Minimum temp: 3°C</td>
<td>Maximum temp: 12°C</td>
<td>Title: VFC Coordinator</td>
</tr>
</tbody>
</table>

At 8 am on Monday (6/25/18) morning when clinic opened, identified 3 temperature excursions over the weekend in refrigerator with readings as high as 12°C, 10° & 9°C in primary vaccine storage unit #1. Recordings taken every 15 min on calibrated digital data logger overnight. Data logger probe in glycol located in middle of refrigerator with vaccines.

Total time out of range: approximately 3 hrs — maximum temp 12°C (see attached document of continuous temp readings)

**Inventory of vaccines:** see attached

Water bottles in refrigerator door. No vaccine stored in freezer. No problems with storage unit prior to Saturday night. Thunderstorms in area over weekend may have affected power.

**Results**

- What happened to the vaccine? Was it able to be used? If not, was it returned to the distributor? (Note: For public-purchase vaccine, follow your state/local health department instructions for vaccine disposition.)

Late on Monday, I talked with Victor regarding continued use of vaccine. Victor had checked with manufacturers which confirmed that vaccine is acceptable for use. He told me that vaccine could therefore be removed from quarantine. I discussed the entire situation with Susie Supervisor and Dr. Director (clinical medical director) who agreed that we could put vaccine back in use.
**Vaccine Storage Troubleshooting Record**

**Refrigerator**

Use this form to document any unacceptable vaccine storage event, such as exposure of refrigerated vaccines to temperatures that are outside the manufacturers' recommended storage ranges.

A fillable troubleshooting record (i.e., editable pdf) can also be found at www.immunize.org/clinic/storage-handling.asp

<table>
<thead>
<tr>
<th>Date &amp; Time of Event</th>
<th>Storage Unit Temperature</th>
<th>Room Temperature</th>
<th>Person Completing Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 7/16/2018</td>
<td>Temp when discovered: -2°C</td>
<td>Temp when discovered: 25°C</td>
<td>Name: Nancy Nurse</td>
</tr>
<tr>
<td>Time: 8:00 am</td>
<td>Minimum temp: -2°C</td>
<td>Maximum temp: 6°C</td>
<td>Title: VFC Coordinator</td>
</tr>
<tr>
<td></td>
<td>Comment (optional): temp is approx</td>
<td></td>
<td>Date: 7/17/18</td>
</tr>
</tbody>
</table>

**Description of Event** (If multiple, related events occurred, list each date, time, and length of time out of storage.)

- General description (i.e., what happened?)
- Estimated length of time between event & last documented reading of storage temperature in acceptable range (2°C to 8°C [36°F to 46°F] for refrigerator; -15°C to -5°C [-58°F to 5°F] for freezer)
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- At the time of the event, what else was in the storage unit? For example, were there water bottles in the refrigerator and/or frozen coolant packs in the freezer?
- Prior to this event, have there been any storage problems with this unit and/or with the affected vaccine?
- Include any other information you feel might be relevant to understanding the event.

When checked main clinic fridge (in lab) at 8:00 am on Tuesday, 7/17/2018, digital readout on data logger read -2°C. Data logger located in center of fridge with probe in glycol. Review of computer readings (taken every 15 minutes) showed steady drop in temps from 6°C at 8:15 pm (7/16/2018) to -2°C reading discovered when arrived at clinic on Tuesday morning (7/17/2018). Readings hit 1°C at 11 pm (7/16) and 0°C at 2 am (7/17). Total time out of recommended storage temps = 9 hours, with 6 hours at freezing or below (see attached document of continuous temp readings). Inventory of vaccines attached.

Water bottles in refrigerator door and crisper area. No vaccines stored in freezer. No recent adjustments to temp controls and no previous temp excursions noted with this refrigerator before 7/17.

**Action Taken** (Document thoroughly. This information is critical to determining whether the vaccine might still be viable!)

- When were the affected vaccines placed in proper storage conditions? (Note: Do not discard the vaccine. Store exposed vaccine in proper conditions and label it “do not use” until after you can discuss with your state/local health department and/or the manufacturer[s].)
- Who was contacted regarding the incident? (For example, supervisor, state/local health department, manufacturer—list all.)
- IMPORTANT: What did you do to prevent a similar problem from occurring in the future?

Upon discovery, vaccines marked "Do Not Use" and stored in 2nd clinic fridge (in exam room #3 at 5°C). Also placed “Do Not Use” note on main fridge in lab. Notified Susie Supervisor about the issue. Contacted Victor Vaccine at My State Immunization Program at 8:30 am. Provided Victor with details of event and list of vaccines in fridge. Victor said to maintain vaccines in 2nd fridge and that he would check with manufacturers to determine next steps.

Called Jim's Appliance. Repair to examine fridge. Repairman found and replaced faulty thermostat in unit.

Reset data logger on center shelf in fridge with probe in glycol.

**Results**

- What happened to the vaccine? Was it able to be used? If not, was it returned to the distributor? (Note: For public-purchase vaccine, follow your state/local health department instructions for vaccine disposition.)

After fridge thermostat repaired, monitored temps in empty fridge for 1 week, per state requirements. Fridge maintained 4°C to 5°C temps for entire week. Submitted repair documentation and data logger readings to Victor Vaccine for approval and ordered replacement vaccines. Victor had checked with manufacturers who confirmed that all vaccines in fridge EXCEPT MMR were no longer viable and should be returned per state policy guidelines. MMR may be used because pkg insert allows storage down to -50°C. Discussed entire situation with Susie Supervisor and clinic director, Dr. Director, who agreed on continued use of MMR. Will continue to monitor fridge closely to watch for pattern of temp fluctuations indicating potential problem with thermostat. If problems, contact Victor Vaccine for advice on purchasing new fridge meeting criteria for appropriate vaccine storage.