Storage and Handling—Vaccine Monitoring: Cycle 1

MODEL FOR IMPROVEMENT  
Team Name: ABC Pediatrics

Plan a Test of Change  
Cycle #: __________  Start Date: __________  End Date: __________

Plan  
Describe the proposed test. What performance gap will it address? What idea will you test? What barriers will you need to overcome? What do you predict will happen?

Do  
Try your change with a few patients over a short period of time. Collect data that can be measured. Describe what happened when you ran the test.

Study  
Describe how the results from the data collected compare to the predicted outcome.

Act  
How will you modify the plan in the next test cycle based on “learnings” from this cycle? Or, describe a new idea to test to help you achieve your aim.

AIM of this project  
Describe the aim of this project. What are you trying to accomplish? Every aim will require multiple small tests of change.

Over the next 3 months, our practice will log the current, minimum and maximum temperatures, as recorded by our digital dataloggers (DDLs), every morning on days the clinic is open, (this is required by the Vaccines for Children [VFC] program and recommended by the Centers for Disease Control and Prevention [CDC]).

While this is a requirement of the VFC program, it is also important for delivering the best patient care. When vaccines are exposed to temperatures outside of the recommended range, they can lose potency. If impotent vaccines are given to children, they may not confer protection, but since the children have received the vaccine, parents and doctors don’t know that children are left vulnerable. Proper vaccine storage can prevent vaccines from losing potency, and proper vaccine monitoring helps identify vaccines that may have been destroyed.

Plan

Describe the proposed test. What performance gap will it address? What idea will you test? What barriers will you need to overcome? What do you predict will happen?

Performance Gap  
Our practice was recently audited, and the VFC coordinator pointed out that we had not been recording the current, minimum and maximum temperatures each day, since we installed our new DDLs.

Idea for Test  
Our trial for test will be to have Abby, a Medical Assistant (MA), check the DDLs for the vaccine refrigerator and freezer every morning when the clinic opens, record the current, minimum and maximum temperatures, and reset the DDLs. Every morning, Abby will do the following:

1. Look at the DDLs for the vaccine refrigerator and freezer.
2. Note the current temperature and take immediate action if the temperature is out of range.
3. In both the vaccine storage notebook and an electronic log, record the current, minimum and maximum temperature, for each unit, recorded since the last reset.
4. Reset the DDLs.
Predicted Outcomes:
Within 4 weeks, 90% of open clinic days will have current, minimum and maximum temperature recorded in both the paper and electronic log.

Barriers:
- This is a new task for both Abby and the practice, with any new task we expect there will be kinks to work out.
- Abby works 5 days per week, but twice a month the clinic is open on Saturday, and Abby will not be there to log the temperatures. She also takes time off occasionally.
- Staff are usually busy at this practice and this is adding another task to their plates.

Measures

What is the desired goal that will close the performance gap?
Describe the specific measures that will determine a successful outcome for the test.

How we will measure our rates:
1. At the end of a 2-week cycle, we will count the number of days the clinic was open (usually 11).
2. Dr B will review the temperature log and count how many entries there are in both the paper and electronic records.

The table shows our current situation and our goal.

<table>
<thead>
<tr>
<th>Measures</th>
<th>Baseline Number</th>
<th>Goal Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic dates with a current, minimum and maximum temperature recorded in both the paper and electronic log.</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Percentage of clinic days with a current, minimum and maximum temperature recorded in both the paper and electronic log.</td>
<td>0%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Tasks

<table>
<thead>
<tr>
<th>People</th>
<th>Tasks</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr B.</td>
<td>Designate when we start.</td>
<td>Temperature log sheets for refrigerator and freezer from the Immunization Action Coalition. A binder (temperature log book) to store them in An Excel file on the practice network.</td>
</tr>
<tr>
<td>Abby</td>
<td>Create paper and electronic storage temperature logs.</td>
<td></td>
</tr>
<tr>
<td>Abby</td>
<td>Read the DDLs each morning.</td>
<td>DDLs for both the refrigerator and freezer that display the current, minimum and maximum temperature since the last reset.</td>
</tr>
<tr>
<td>Abby</td>
<td>Record current, minimum and maximum temperatures from DDLs into both logs. Review storage unit temperature readings and review continuous DDL software or website information for changes in temperature trends that might require action (adjusting unit temperature or repairing/replacing storage or temperature monitoring equipment).</td>
<td>DDLs. Temperature log book and tablet or laptop.</td>
</tr>
<tr>
<td>Abby</td>
<td>Reset the DDLs.</td>
<td>DDL with reset button.</td>
</tr>
<tr>
<td>Dr B</td>
<td>Review both temperature logs weekly and at the end of each cycle.</td>
<td>Temperature log book and laptop or tablet to access the electronic log.</td>
</tr>
</tbody>
</table>
Predicted outcome:
This is a simple task that doesn’t take too much time, so we are hopeful to reach our goal within a few cycles. It may take a little while to develop the habit.

Do

Make a change! Try your change with a few patients over a short period of time. Collect data that can be measured. Describe what happened when you ran the test.

The first week went well. Abby started her logs in both the temperature log book and on the practice network and started recording temperatures

Study

Did the change lead to the desire improvement?
Describe how the measured results compare to the predicted outcome.
Overall our first cycle went well. Abby’s temperature log book got misplaced a few times, so she needed to find a spot for it, where it would be out of the way of other staff, would be handy for her to access each morning and where Dr B could find it at the end of each week. She also had to teach herself how to cycle through the DDLs to find the minimum and maximum temperatures. Once, she didn’t remember if she had reset the DDLs after recording the reading.

<table>
<thead>
<tr>
<th>Clinic dates with a current, minimum and maximum temperature recorded in both the paper and electronic log.</th>
<th>Baseline Number</th>
<th>Cycle 1</th>
<th>Goal Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7</td>
<td>10</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Percentage of clinic days with a current, minimum and maximum temperature recorded in both the paper and electronic log.</th>
<th>Baseline Number</th>
<th>Cycle 1</th>
<th>Goal Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>64%</td>
<td>90%</td>
<td></td>
</tr>
</tbody>
</table>

Act

Describe how you will modify the plan. In the next test cycle based on “learnings” from this cycle. Or, describe a new idea to test to help you achieve your aim.

- Measure: We will keep the same measures for the next cycle.
- Train: An email will go out to all staff informing them of our project and asking them to not disrupt the temperature log book, nor reset the DDLs.
- Motivate: Eventually more staff will help with this job, since Abby isn’t in everyday. We will post a sign near the refrigerators that shows our progress! The email will explain why we’re doing this—to provide the best care for children through potent vaccines.
- Follow-up: We’re bringing Carla into the project for cycle 2. She works on Saturdays and can help when Abby takes time off.

End of Cycle 1