



## PROGRAM PRACTICES 2019 SUBMISSION FORM

### IMMUNIZATION PROGRAM PRACTICES INFORMATION

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**Does AIM have permission to share this information on the publicly accessible AIM website?** *All materials submitted will be posted on the AIM website.* ☒\_x\_Yes ☐\_No

### BULL'S-EYE AWARD

The **Bulls-Eye Award for Innovation and Excellence in Immunization** recognizes immunization strategies that “hit their mark” and achieve immunization goals with special consideration for practices that are innovative and easily replicated. Each year, AIM awards three programs the Bull’s-Eye Award. Only those practices with activities that are **currently ongoing** or **concluded** in January 2018 through the present (including implementation, follow-up, and/or evaluation activities) will be considered for the award.

**Would you like for this submission to be considered for the 2019 AIM Bull’s- Eye Award? (due by Oct. 7, 2019)** ☒\_x\_Yes ☐\_No

### PROGRAM PRACTICE INFORMATION

**Title**

Using an Immunization Information System (IIS) to Achieve Compliance with Vaccines For Children Storage and Handling Requirements

**Keywords** (up to 5 main terms/phrases that describe the practice)

VFC Vaccine Storage, DDL Thermometers, Immunization Information System

**Is this practice Evidence / Guideline Based?** *(if yes, please include reference below)* ☒\_x\_Yes ☐\_No

**Reference:**

1. Center for Disease Control and Prevention. Vaccine Storage and Handling Resources. Retrieved on October 1, 2019 from <https://www.cdc.gov/vaccines/hcp/admin/storage/index.html>
2. Center for Disease Control and Prevention (2019). Vaccine Storage and Handling Toolkit

**Background** (scope of the immunization need or problem)

The Centers for Disease Control and Prevention (CDC) required providers participating in the Vaccines for Children (VFC) program to use standalone or biological pharmaceutical grade refrigerators and freezers for vaccine storage and continuous digital data logger (DDL) thermometers to monitor temperatures in the storage

units by 2018. Consequently, the New York City (NYC) Bureau of Immunization (BOI) was challenged to bring >1,380 VFC providers into compliance with these requirements and to maintain compliance going forward.

## **Program Practice Description**

### ***Describe the practice goals and objectives.***

The BOI's goal was to implement a strategy for collecting timely information on vaccine storage units and thermometers in VFC provider offices by expanding the online vaccine ordering system in the Citywide Immunization Registry (CIR), NYC's immunization information system (IIS). Our objective was to use the information collected to quickly identify out-of-compliance providers for outreach and technical assistance to facilitate compliance. The BOI also sought to reduce vaccine wastage by identifying temperature excursions at the time of the provider's vaccine order, allowing BOI staff to intervene to resolve storage problems before vaccine orders were approved and shipped to the provider. Further, BOI wanted to ameliorate provider concerns regarding the new requirements to help support and retain providers in the VFC program.

### ***What were the main implementation activities?***

In June 2017, the BOI released a new Vaccine Inventory Management (VIM) system in the CIR's Online Registry. VFC providers were required to enter information into VIM about all vaccine storage units and thermometers when ordering vaccines. Using VIM to collect storage unit and thermometer information at the time of ordering was especially important since VFC compliance site visits are conducted every 2 years. By having access to timely storage and thermometer details entered by providers in VIM, the BOI no longer had to rely on information collected during VFC compliance visits at 2-year intervals.

Additionally, the BOI required VFC providers to upload DDL summary reports as part of the vaccine ordering process. BOI staff reviewed the DDL reports for temperature excursions. When excursions were detected, providers were required to complete and submit a Temperature Excursion Incident Report detailing the number of doses and types of vaccines affected, length of the excursion, the excursion reason, and vaccine viability as indicated by the manufacturer. Further, BOI guided the provider to take action to resolve storage problems before approving the vaccine order. Prior to implementing the DDL summary upload into VIM, providers reported temperature excursions at their discretion; therefore, some excursions may not have been identified.

To prepare providers for VIM in advance of its implementation, we conducted a series of webinars to introduce the system and demonstrate how to use it. The webinars included training on entering storage unit and thermometer details (i.e., unit capacity, type, brand, and model number; DDL calibration expiration date and probe type). We also demonstrated the process for uploading DDL thermometer summary reports for each storage unit. We informed providers that the uploaded reports needed to align with their vaccine ordering tier (monthly, bi-monthly or quarterly) or cover the period since their last order. For example, if a provider was on bi-monthly ordering tier and their last order was placed on August 1<sup>st</sup>, their next order date would be October 1<sup>st</sup> and they must upload DDL reports containing readings from August 1<sup>st</sup> to October 1<sup>st</sup>. Multiple file formats, including .pdf, .jpeg, .png, .txt, .xls, .xlsx, .ltd, .csv, .html, .htm, .mht, .xps, .tiff, were accepted for upload.

We distributed educational materials including detailed job aids to help providers purchase compliant storage units and DDLs. In addition, prior to 2017, as part of an effort to prepare for the new thermometer requirements, we purchased and installed >400 DDL thermometers to participating VFC providers. We continued our compliance efforts in 2017 by purchasing 80 additional DDL devices and conducting >60 DDL troubleshooting visits to help providers resolve DDL thermometer glitches or malfunctions.

The BOI took on a phase implementation approach to achieve compliance for storage units and DDLs among VFC providers. Although CDC required both appropriate storage units and DDL thermometers, the BOI prioritized storage units since vaccine viability is heavily dependent on units that can hold steady temperatures. First in September 2017, we identified providers who did not have compliant storage units based on data

entered by providers into VIM, for targeted outreach to bring them into compliance. Then in February 2018, those providers who were still using non-compliant storage units were placed on vaccine ordering hold. Throughout this period, we were educating providers about the need for DDLs, and assisted them with purchasing DDLs but did not enforce this requirement. In February 2019, we placed providers with non-DDL thermometers on hold. Additionally, we began sending DDL calibration expiration email alerts to all VFC providers based on VIM data. Providers receive three (3) automated email alerts: at 60 days prior to calibration expiration, at 30 days prior to expiration, and at one (1) day post-expiration. If DDLs are not recalibrated, providers are placed on vaccine ordering hold.

***Where and when did the practice take place?***

The storage and thermometer module in VIM was launched in NYC in June 2017 for use by all NYC VFC providers. Monitoring of compliance among providers with vaccine storage requirements began in September 2017 and continues present day.

***How much staff time was involved?***

One staff member monitors compliance based on VIM data on a weekly basis and reports findings to the Provider Quality Assurance and Vaccine Management Unit teams for follow-up.

***What were the costs associated with the activity? What was the funding source?***

Development of the vaccine storage unit and DDLs capture screens in VIM in the CIR were part of a larger project that was funded by the Prevention and Public Health Fund (PPHF) grant awarded by CDC to the BOI in 2012. The purchase of DDL thermometers cost approximately \$319,000. The addition of features to capture vaccine storage and thermometer data was added at an approximate cost of \$175,000.

***Identify the target population that the practice affected.***

The target population affected were >1,380 provider sites enrolled in the NYC VFC Program.

***If partners were involved, include who was involved, and how.***

The NYC VFC program partnered with our software development vendor, HLN, to create and maintain VIM

**Timeframe of Implementation (Start and Stop Dates)**

The storage unit and thermometer data collection features of VIM were launched in June 2017 and modifications/updates are continue based on provider feedback and program needs.

**Evaluation Data: Was the implementation and/or effectiveness of this practice assessed? (if “yes” or “limited,” provide any data that is available)**    ☒\_x\_Yes    ☐\_No    ☐\_Limited

**Data:** When the NYC BOI began tracking compliance using VIM data in September 2017, 67% (n=1088) of provider sites reported having compliant storage units and 60% (n=1088) reported having compliant DDL thermometers (see table below). As of June 2019, 98% (n=1420) had compliant units and 97% (n=1420) had compliant DDLs. Requiring DDL summary report upload at the time of order has allowed us to identify temperature excursions quickly and take action to resolve storage problems. As of June 2019, 624 excursions were detected with the highest number occurring in the summer months. We also identified that the most common reasons for excursions are operational problems with the storage unit(s) and prolonged opening of refrigerator/freezer door at 34% (n=624) and 28% (n=624), respectively. Furthermore, sending email notification alerts of DDL thermometer calibration expiration to VFC providers, helped providers take prompt action prior to expiration; 94% (386/410) of providers recalibrated/updated their DDL after receiving a notification. We have also been able to maintain high levels of VFC provider participation; in NYC, approximately 80% of all pediatric provider sites participate in VFC.

Date	Percentage of providers w/compliant units	Percentage of providers w/compliant DDLs
September 2017	67% (n=1088)	60%(n=1088)
February 2018	77% (n=1317)	70% (n=1317)
February 2019	98% (n=1404)	96%(n=1404)
June 2019	98%(n=1420)	97% (n=1420)

### Conclusions / Lessons Learned / Key Factors for Success

Using an IIS to capture storage unit and thermometer data enabled NYC BOI to bring nearly 100% of VFC providers into compliance with CDC and NYC vaccine storage and handling requirements. These implementation strategies were proven to be very effective and allowed us to capture timely storage and thermometer data. Additionally, requiring submission of DDL summary reports with orders allowed the BOI to identify excursions that may not have been identified before. Staff review of DDL reports allowed the BOI to require that corrective action be taken to address storage unit problems before VFC vaccines are shipped to the provider. The NYC BOI learned that one of the key factors for maintaining compliance is to continue to educate providers on best practices for vaccine storage and handling and that placing providers on vaccine hold for non-compliance is sometimes necessary to ensure compliance. It is very important that we, the BOI increase staff and provider knowledge about DDL thermometers, especially at provider sites with high staff turnover rates. We also learned that we must continue to be informed of the barriers providers encounter when implementing new VFC policies so that we can effectively help to overcome them.

### Check if any of the following are being submitted to complement your submission:

*(All materials will be posted on the AIM website)*

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|--|--|
| <input type="checkbox"/> Testimonials                            | <input type="checkbox"/> Project photo(s)                                |
| <input type="checkbox"/> Quote from partner/participant          | <input type="checkbox"/> Publication (e.g., news story, journal article) |
| <input checked="" type="checkbox"/> Sample of materials produced | <input type="checkbox"/> Video/audio clip                                |
| <input type="checkbox"/> Press release                           | <input type="checkbox"/> Website URL                                     |
| <input type="checkbox"/> Promotional materials                   | <input type="checkbox"/> Tables or graphs                                |
|  | <input type="checkbox"/> Other — Explain: _____                          |

Samples of Materials produced can be found on our webpage <https://www1.nyc.gov/site/doh/providers/nyc-med-cir/vaccines-for-children-forms.page> in sections VFC Job Aids and Vaccine Temperature Monitoring Charts.

Additional materials sent to providers via email are also attached.