ASSOCIATION OF IMMUNIZATION MANAGERS

PROGRAM PRACTICES SUBMISSION FORM

IMMUNIZATION PROGRAM PRACTICES INFORMATION

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Program: *(as you want it to appear publicly)*	
Massachusetts Department of Public Health Immunization Program	
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 during 2016** (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 2017 AIM Bull's- Eye Award?	_X_Yes __No

PROGRAM PRACTICE INFORMATION

Title

Implementation of Data Loggers for Vaccine Temperature Monitoring in Massachusetts

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

Digital data loggers, vaccine storage and handling, temperature monitoring, pharmaceutical grade refrigerators

Is this practice Evidence / Guideline Based? *(if yes, please include reference below)*	X Yes __No

Reference: VFC Operations Guide – Recommendation for use of digital data loggers becoming a requirement in 2018.

Background (scope of the immunization need or problem)

Enhance vaccine storage and handling by providing better tools to monitor the storage of vaccines.

Program Practice Description

Describe the practice goals and objectives.

Identify a data logger that would not require software installation and be easy for the providers to set up. It would be NIST certified, measure the temperature of a 5ml glycol solution, and meet CDC guidelines.

What were the main implementation activities?

In November 2012, Vaccine Management staff researched temperature data loggers of 6 manufacturers (Tutela Medical, Fourtec, Senso Scientific, Dickson, Control Solutions, and Berlinger). Software, calibration, recertification, training, and set up were our concerns.

In early 2013, we conducted in-house testing of data loggers from Dickson, Control Solutions, and Berlinger. After surveying our providers, software installation would be an issue for them and resources to assist with training would be an issue for us. These along with other factors (price, experience, and customer service) were the reasons Berlinger was selected as our vendor. The calibration and battery life for the Fridge-tag®2 data logger was guaranteed for two years.

In late 2013, we began pilot testing the Fridge-tag®2 data logger at selected sites. The YouTube videos developed by the manufacturer to assist with set up were extremely helpful. Any issue a provider had could be handled over the phone by MDPH staff. Some minor technical issues such as external sensor connection errors were discovered. Some units (5%) needed to be replaced, and this issue has been resolved.

In 2014, MDPH rolled out data loggers (refrigerator and freezer) to 494 pediatric sites. These sites account for 80% of all vaccines ordered. As we began to monitor the Fridge-tag®2 data logger reports, we were discovering many more temperature excursions than we had in the past when temperatures were recorded twice daily using a 30ml bottle thermometer. This was primarily due to: 1) temperatures are continuously monitored around the clock versus twice daily, and 2) the 5ml vial of glycol being monitored by the Fridge-tag®2 is much more sensitive to temperature change than a product thermometer in a 30ml glycol solution.

The advantages of continuous temperature monitoring were outstanding. Monitoring the temperature of a 5ml vial of glycol solution made much more sense than monitoring a 30 ml bottle of glycol solution when we really want to know what the temperature is in the 0.5ml vial of vaccine.

Additional data loggers were purchased so that every pediatric provider had one for their primary vaccine storage unit. The state contract price negotiated with the vendor was extended to providers to allow them to privately purchase additional data loggers for their secondary vaccine storage units.

In January 2015, MDPH required all pediatric providers to have data loggers for their primary vaccine storage units. These data logger reports were required with every vaccine order.

As the Vaccine Manager and VFC Coordinator continued to follow up on temperature excursions with providers, it became evident that the household combination refrigerator/freezer was not acceptable for vaccine storage. We also discovered that many stand-alone refrigerators could not maintain the appropriate temperatures. The Fridge-tag®2 data logger reports gave us an opportunity to see the efficiency or inefficiency of the vaccine storage units. In January 2015, providers were told that a pharmaceutical grade refrigerator would be a requirement for their primary vaccine storage refrigerator beginning in 2016. Stand-alone freezers would be acceptable.

As MDPH staff visit provider offices in 2016, they will notify Vaccine Unit staff of providers who are not in compliance with the new storage requirements. If vaccine is damaged as a result of using these units, restitution may be required.

Where and when did the practice take place?
The project began in November 2012 and progressed through January 2015. We continue to make enhancements to this program. We have replaced the original Fridge-tag®2 data loggers with Fridge-tag®2L data loggers with 3-year battery life and calibration. Uploading of data logger reports into our registry eliminates the need to fax reports. We continue to work closely with the manufacturer (Berlinger) to discuss any problems and future enhancements.

How much staff time was involved?
For most of 2014, nearly 70% of the Vaccine Manager's and VFC Coordinator's time was devoted to educating providers on the advantages of data loggers and the need to transition to pharmaceutical grade refrigerators.

What were the costs associated with the activity? What was the funding source?
The initial funding came through a PPHF grant from the CDC. Since that time, data logger purchases and registry enhancements to accept uploading have been entirely with state funds.

Identify the target population that the practice affected.
Any provider that administers vaccine to children less than 19 years of age is eligible to receive a state-supplied data logger. All providers that administer vaccine to children less than 19 years of age are required to submit a data logger report. All providers that administer vaccine to children less than 19 years of age are required to have a pharmaceutical grade refrigerator for their primary vaccine storage refrigerator.

If partners were involved, include who was involved, and how.
Berlinger staff (both in the United States and Switzerland) provided outstanding customer service.

Timeframe of Implementation (Start and Stop Dates)
November 2012 and continuing

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:

Year	***Revaccination Letters***	***Wastage***
2013 (pre-data logger)	*6*	*$232, 600*
2014	*150*	*$930, 500*
2015	*46*	*$619, 056*
2016 (through 4/20)	*5*	*n/a*

Conclusions / Lessons Learned / Key Factors for Success
Data loggers with a 5ml glycol vial should be used to measure vaccine temperatures.
Pharmaceutical grade refrigerators (not stand-alone) should be used for vaccine storage.

Check if any of the following are being submitted to complement your submission:
(All materials will be posted on the AIM website)

__Testimonials
__Quote from partner/participant
__Sample of materials produced
__Press release
__Promotional materials
__Project photo(s)
__Publication (e.g., news story, journal article)
__Video/audio clip
__Website URL
__Tables or graphs
__Other — Explain: _____

****Email the completed form to Mary Waterman (mwaterman@immunizationmanagers.org) with the subject line "Program Practices Submission."**