Arizona Hospital Discharge Data Submission to CDC NEPHT Network

Environmental Public Health Tracking ASTHO Fellowship - Phase I Report

Submitted by
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I. Introduction/Background

Project Description

In December 2014, the Arizona Department of Health Services (ADHS) submitted a proposal to the Association of State and Territorial Health Officials to build ADHS' capacity to collect, format, and submit Arizona hospital emergency department visit and inpatient admission data to the National Tracking Network. The proposal described a work plan on how Arizona would build capacity for sharing data to the National Tracking Network and sustain submission of data The proposal described how staff at ADHS would learn to properly format inpatient admissions and emergency department visits for several Nationally Consistent Data and Measures (NCDM). ADHS was accepted to the Fellowship in January 2015. The proposed project was written to submit inpatient admission data for carbon monoxide poisoning, asthma, heat stress, and myocardial infarction for the years 2013-2014. ADHS also planned for submitting emergency department data for carbon monoxide poisoning, asthma, and heat stress visits for the years 2013-2014.

The Office of Environmental Health (OEH) within the Arizona Department of Health Services (ADHS) participated in this Fellowship in order to build capacity to respond to and adapt to environmental hazards. Communities from across the state have reached out to ADHS for help in understanding how the environment impacts their health.

ADHS is not a funded grantee for CDC's National Environmental Public Health Tracking (NEPHT) Program, but in 2014 ADHS was successful in securing a Memorandum of Understanding with ASTHO to submit NCDM to the Tracking Network. ADHS was successful in sharing similar data with the CDC (Centers for Disease Control and Prevention) under a past project with ASTHO. The previous project created the opportunity for Arizona data from 2005-2012 to be shared with CDC. The new data for 2013-2014 will build upon previous efforts and provide more recent data for the public and public health practitioners.

Benefits/Significance to Arizona and Tracking Network

Submission of Arizona's hospital discharge data to the Tracking Network will help public health officials, university researchers, and Arizona communities explore environmental impacts on health and answer community concerns about the impact of the environment on human health. The project creates an opportunity for the state to provide a more complete picture of environmental health outcomes within Arizona and between other states. The project advances current knowledge and capacity to conduct environmental public health tracking related activities.

II. Methods/Lessons Learned

Phase 1

When the Fellowship opportunity was announced, the ADHS' Climate & Health Program within the Office of Environmental Health took the lead on implementing the project for Arizona. Program staff had experience regarding collecting, formatting, and submitting NCDM through the previous Fellowship done in 2014.

Securing buy-in from agency leadership
Before pursuing the project, the Fellowship lead secured buy-in from agency leadership and owners of the hospital discharge data to ensure this work aligned with the strategic plan of the agency. The project team evaluated feasibility based on length of project period, staffing, and quality of data. The data steward/hospital discharge data owner suggested using 2013-14 for this Fellowship proposal. After a discussion between the Arizona Fellowship lead and data steward/hospital discharge data owner on feasibility of the project, the years 2013-2014 were suggested for use in this Fellowship. All the required parties within the agency signed off on pursuing the plan after agreement on feasibility of the project.

Protecting protected health information (PHI)
This fellowship project involved sharing emergency department and inpatient admission data. Identifying necessary security measures for protecting protected health information (PHI) was required. The Fellowship lead partnered with the hospital discharge data (HDD) data manager to identify the proper rules and regulations regarding the release of Arizona's hospital discharge data to the National Tracking Portal. The Fellowship lead shared information on sample data use agreements developed by other EPHT grantees and indicator data dictionaries with the data steward of the HDD. After several email correspondences and teleconferences, an agreement was set regarding data protection methods. The methods described in the National Environmental Public Health Tracking Network Data Re-release Plan, Version 2.5, June 20, 2008 were accepted as a means to protect the data. After this was resolved, CDC's Environmental Public Health Tracking Branch signed off on a data use agreement for use of Arizona's hospital discharge data. The agreement pertained to both the inpatient and emergency department data for the time period of 2013-2014. Data intentions for the Tracking Fellowship were shared with CDC in March 2015. In addition, a data sharing agreement was signed for the project between ADHS and CDC in March 2015.

Collaborating with ASTHO and other Fellows
One of the first tasks for the Fellowship involved the development of a Memorandum of Understanding (MOU) between the Arizona Department of Health Services and the Association of State & Territorial Health Officials. An MOU was signed in May 2015 between the parties to perform the duties listed in the Fellowship. The agreement between the parties was facilitated by email correspondence and signatures by agency designated business officials reviewing and signing off on the Fellowship.

Through collaboration with ASTHO and CDC, project staff at ADHS was given access to several CDC secure access websites, reference documents, and tools; including the NEPHT SharePoint site and the NEPHT- Secure Access Management System Portal. ASTHO and CDC uploaded useful documents for Fellows including sample DUA's (Date Use Agreements), data submission training webinars, indicators, measures, methods, SAS code, and MOU samples.

Starting (January 2015) and throughout the fellowship, Arizona's Fellowship lead and data steward participated regularly on bi-weekly check-in calls with CDC, ASTHO, and other Fellows. These meetings helped to provide Fellows with needed guidance to move their project forward. Arizona learned about the guidance and tools available on the SharePoint site.

The Fellowship lead already had access to the hospital discharge database for public health surveillance purposes.

Formatting and analyzing the data
The hospital discharge database in Arizona contains information on emergency department visits and inpatient admissions for hospitals licensed by ADHS. In order to format the data, the Fellowship lead had to review the guidance documents, tools, and SAS code provided on the EPHT SharePoint site. Specifically useful were the How-to-Guides and Indicator Templates provided for each indicator. These documents provided the necessary information on what cases to include and exclude in the datasets. Also helpful were:
- Emergency Department NCDM Tool (ED-NCDM) version 1.0 User Guide
- Inpatient NCDM Tool (IP-NCDM) Version 3.0 User Guide
- New York State Department of Health SAS Programs which helped to create files that met the specifications for EPHT hospitalization de-identified data schema.

These New York State Department of Health SAS files were instrumental in the development and formatting of Arizona's heat stress, carbon monoxide poisoning, asthma, and myocardial infarction data. SAS 9.3 was used to analyze the data for the Fellowship

After formatting the data using the New York State Department of Health SAS code, the SAS dataset for hospitalizations consisted of 8,046 observations for 2013-2014 data. The emergency department dataset consisted of 10,313 observations.

Creating metadata
In order to create metadata, the Fellowship lead reviewed a series of metadata training videos on the CDC SharePoint site. The CDC's Metadata Creation Tool was also useful for identifying topics that needed to be discussed in the metadata.

The metadata included information on the purpose of the data, security handling restrictions, access and use constraints, completeness, entity and attribute information, and distribution liability. A total of 14 metadata files were needed to describe the data being submitted for the Fellowship. One file would need to be created for each year and type of data (e.g. 2013 heat stress emergency department visits). The metadata files for Arizona will follow guidance from the EPHTN Tracking Network Profile Version 1.2. During Phase I, each of the 14 datasets had metadata written for each respective dataset in Microsoft Word.

The information in the Word documents is easily transferrable to CDC's Secure Access Management System. In Phase II, ADHS staff will transfer the files into the CDC's Metadata Creation Tool and validate each file before being submitted.

III. Conclusion

Summary

Phase 1

In summary, Phase 1 of the project had many successes. An MOU for the project was signed by both parties, data intentions were sent, a data use agreement was created, inpatient admission/emergency department visit data were acquired and formatted, and metadata was created. Success of this Fellowship was dependent on efficient communication and collaboration between the ADHS hospital data steward, agency business officials, ASTHO, and the CDC. Documentation, training videos, webinars, and teleconferences helped the Fellowship lead learn the required steps to share Arizona's data with the Tracking Network.

Some of the challenges for the project included finding time to complete the work when competing projects took priority over the fellowship. In addition, after reviewing the SAS code developed by the New York State Department of Health, project staff identified that the code only allowed the use of one external cause of injury code (E Code) field while Arizona uses six. Revision of the SAS code to account for the multiple E Codes was needed to capture the additional fields. The revision helped to ensure completeness of the data.

Recommendations

For states interested in pursuing this process, Arizona project staff would recommend the following:

Phase 1
- Identify if this project is feasible with your hospital discharge data steward before pursuing.
- Review EPHT NCDM early in the process.
- Review EPHT metadata files published on the NEPHT website by grantees early in the process.
- Review Metadata Training Videos developed by CDC and use the CDC's Metadata Creation Tool for submission of Metadata to the Tracking Network.
- Identify if you need a data use agreement at the beginning for your submission of data.
- Explore the Tracking SharePoint site

IV. References/Supporting materials
- N/A