



**INDIANA  
EMERGENCY  
MEDICAL  
SERVICES  
WORKFORCE**

Data Management  
Documentation

# Introduction

In 2023, the Bowen Center for Health Workforce Research and Policy (Bowen Center) provided technical assistance to the Indiana Department of Homeland Security (IDHS) Emergency Medical Services (EMS) Commission in the development of tools and research for a statewide EMS workforce needs assessment. This assessment incorporated data collected from EMS students, credentialed EMS professionals, and evaluating training programs. Additionally, the results from this assessment resulted in ongoing data collection from EMS professionals during renewal of their credentials and from students after completion of their training program.

## Data Governance

This document presents the protocol for managing data collected from EMS students and professionals to support ongoing reporting and data visualizations. All data will be collected from EMS students and professionals using REDCap™ and securely stored on the K Drive.

### EMS Professions Data

K:\FAMM\HealthWorkforceStudies\Evaluation (Current Projects)\AHEC - ISDH\EMS Professions

### Decision-Making Responsibilities

For the purposes of data security, management, and reporting, there are three levels of decision-making designations. The following provides a definition of the decision-making capacity for each entity in each level.

#### *Owner – IDHS EMS Commission*

This entity oversees primary data collection and authorizes the policies surrounding data collection, storage, analysis, and reporting. The Owner will also have ultimate decision-making capacity for all data management and data sharing.

#### *Gatekeeper(s) – IDHS EMS Commission, Bowen Center*

The Gatekeeper are primarily responsible for monitoring data quality and security, determining data structures, and to coordinating data sharing activities.

#### *Data Steward(s) – Bowen Center*

The data stewards will be responsible for documenting all data management procedures and metadata. This entity is also responsible for ensuring data quality and security and coordinating data management and reporting activities.

# Data Management and Reporting

## Survey Development and Data Collection

### *Student Pulse Check Survey*

The Student Pulse Check Survey was developed as part of the EMS training pipeline assessment. This survey collection is used for assessing student readiness to enter the EMS workforce and to monitor training institutions in Indiana. The questions included in this survey were reviewed and approved by the IDHS EMS Commission. This survey was then converted to an electronic REDCap™ survey that is embedded in the Indiana Public Safety Personnel Portal (also known as the ACADIS system).

### *EMS Health Professions*

The EMS Health Professions survey was developed to support ongoing EMS Workforce Tracking and reporting. The questions included in this survey were reviewed and approved by the IDHS EMS Commission. The survey was converted to an electronic REDCap™ survey tools and embedded in the ACADIS system.

## Data Management and Reporting

### *Student Pulse Check Survey*

Data are downloaded from REDCap™ at the end of a training period. All data are exported with raw data values to Excel and saved to the pathway below on the secure K drive.

*K:\FAMM\HealthWorkforceStudies\Data\Service Projects\EMS Student Data\Project Documents*

All data are imported to SAS for data management. Student data included in previous reporting periods are removed to ensure that only students that completed training in the reporting period.

Because questions regarding race and ethnicity is a multi-select question, this results in a separate data field for each race and ethnicity. These data fields are recoded to one categorical field to facilitate more efficient reporting. The coding scheme for this field is provided below.

Class	Code
White	1
American Indian or Alaska Native	2
Asian	3
Black or African American	4
Native Hawaiian/Pacific Islander	5
Some Other Race	6
Hispanic/Latino	7
Not Hispanic/Latino	8
Multiracial	9

All report tables are developed using SAS and finalized in Excel using table and report templates saved on SharePoint. GIS maps which demonstrate the location of training programs and students' residency by ZIP code are created using ArcGIS Pro. For the sake of consistency, all maps will conform to the same structure. The county map will have the dark blue color; pinpoints of the residency ZIP code will be represented by 🏠, and pinpoints for training institutions will be represented by 🏫; both pinpoints will be color-coded by student ID.

### *EMS Health Professions*

Data are downloaded annually on September 25<sup>th</sup> at 5PM. All data are exported with raw data values to Excel and saved to the pathway below on the secure K drive.

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Race – which is asked as a multi-select question – is recoded using the coding scheme outlined in the table below. Other data fields were re-labeled for the purposes of reporting.

<b>Class</b>	<b>Code</b>
White	1
American Indian or Alaska Native	2
Asian	3
Black or African American	4
Native Hawaiian/Pacific Islander	5
Some Other Race	6
Multiracial	7

Credential data is provided by the IDHS EMS Commission during the same period in which survey data are downloaded from REDCap™. Separate data files are provided for each EMS profession (Paramedics, EMTs, EMRs, etc.). The information included in these files include the issue date, expiration date, renewal status, data of birth, and unique person ID for each EMS Professional. All original credential files are saved in the pathway below. This folder has restricted access to members of the Bowen Center data team.

K:\FAMM\HWS Data\IDHS EMS Project

Data are combined to create one credential dataset. This dataset is then merged to the coded survey data by unique person ID. The final EMS renewal data is then exported to an Excel file saved to the HealthWorkforceStudies pathway on the secure K drive.

All report tables are developed using SAS and finalized in reporting table templates saved on SharePoint. GIS maps demonstrating the total number of EMS professionals providing coverage for each Indiana county will be created using ArcGIS Pro. Biennial data reports are structured using the template for developing Bowen Center health professions data reports.

### *Data Visualizations*

To support development of interactive workforce dashboards, coded survey and credential data for Indiana EMS professionals will be compiled into one Excel file with one tab for each renewal year. This Excel file will then be used to develop interactive Tableau dashboards. The structure of these dashboards will follow the design, procedures, and color palette that is used for all Indiana Health Professions Interactive Tableau Dashboards. These dashboards will be uploaded to the IU Tableau server for embedding on the Bowen Health Workforce Information Portal.