Massachusetts Department of Public Health

Massachusetts Ambulance Trip Record System (MATRIS) National Standards Compliance NEMSIS V3.5 Upgrade

FFY 2022 NHTSA 405c Grant Application
March 10, 2021

Bureau of Health Care Safety and Quality
Department of Public Health

Overview of MATRIS

- The Massachusetts Ambulance Trip Record Information System (MATRIS) aligns with the National EMS Information System (NEMSIS) standards and collects ambulance run information from all ambulance services in the Commonwealth.
  - 310 Ambulance services
  - 15 Importing electronic Patient Care Report(ePCR) software vendors
  - 208 Required Data Elements
  - 217 Validation Rules

Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sept 20	Oct 20	Nov 20	Dec 20
148,315	136,265	125,545	108,544	118,097	123,399	133,239	132,387	129,167	131,629	123,187	132,259

Overview of MATRIS/NEMSIS

- NEMSIS provides the framework for collecting, storing, and sharing standardized EMS data from states nationwide.   The NEMSIS uniform dataset and database help local, state and national EMS stakeholders more accurately assess EMS needs and performance, as well as identify public health trends and support better strategic planning for the EMS systems of tomorrow. Ambulance run data from NEMSIS is also used to help benchmark performance, determine the effectiveness of clinical interventions, and facilitate cost-benefit analyses.

- MATRIS is currently on the NEMSIS V3.4 standard
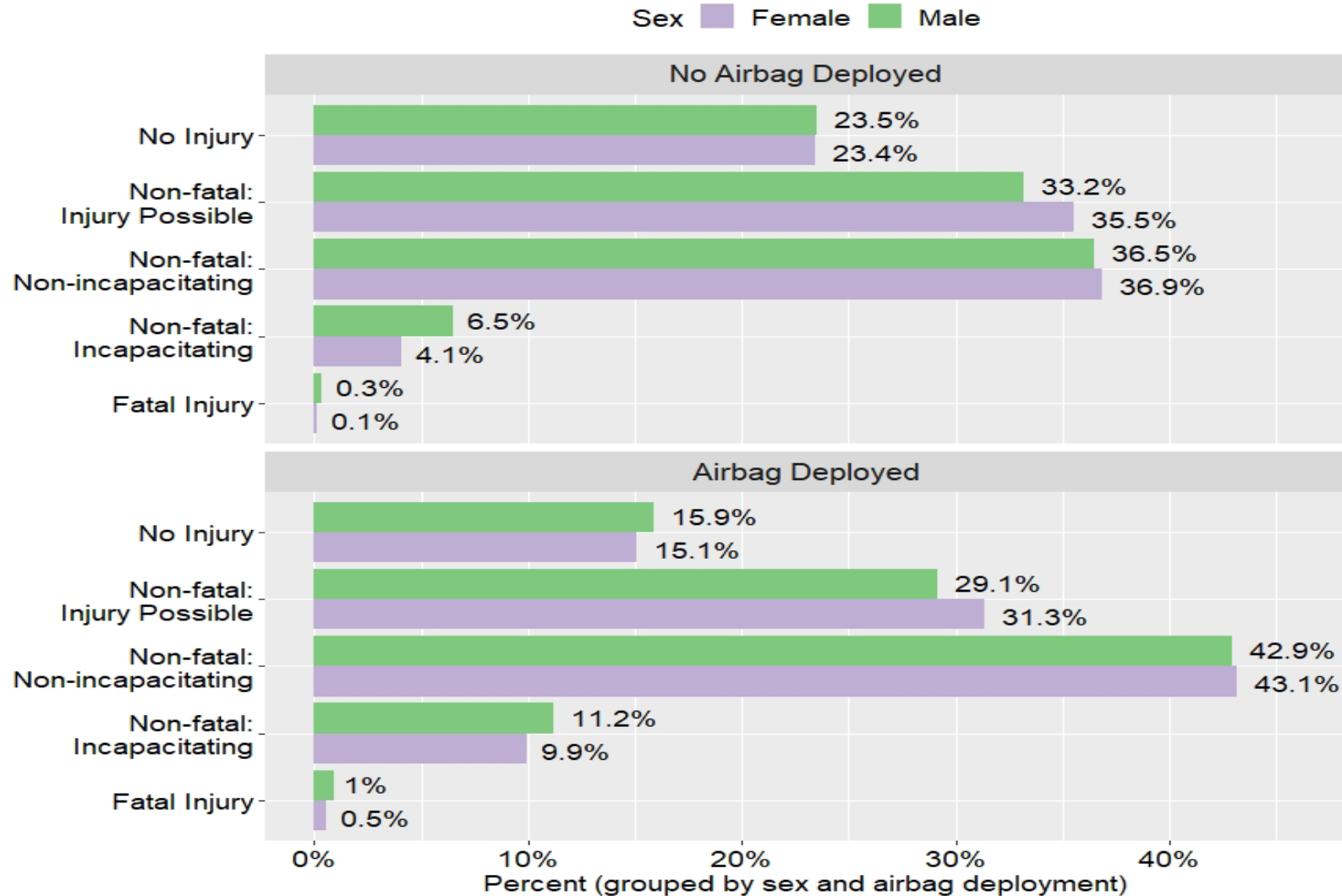
Data Sharing with TRCC partners and public

Planned

- Crash Related Injury Surveillance System (CRISS) linkage
- MATRIS data will be available in PHIT to the public

  https://www.mass.gov/guides/population-health-information-tool-phit-data-directory

Completed

- UMassSafe completed linkage analysis of MATRIS with crash data 2019
- MassDOT:
  - Provided analysis for Massachusetts Motorcycle Safety Conference 2019
  - Conducted analysis of pedestrian and bicycle crashes
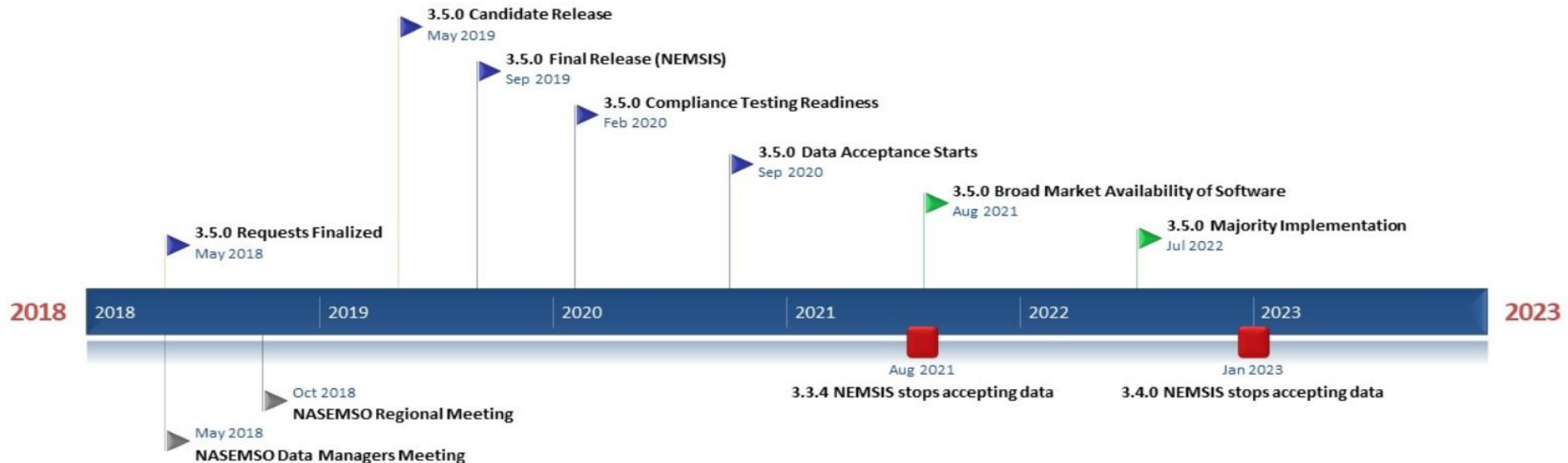- Energy and Environmental Affairs (EEA): provided analysis of ATV Crashes

MATRIS Data Product: Crash Outcomes by Sex

NEMSIS Upgrade Requirements

- Mandatory compliance with National Standards
  - *Addresses Traffic Records Program Assessment Advisory Question 243 under Injury Surveillance Questions, EMS Guidelines: Does the State have a NEMSIS-compliant statewide database?*

- NEMSIS requires full conversion by December 31, 2022

NEMSIS Versioning Schedule

Project Benefits

- Standard Uniformity
  - Ensure technology aligns with 15 importing electronic Patient Care Report (ePCR) vendors' platforms
- Alignment of standards
  - Implementation of Unique UID required by ACS Trauma Data Bank to enable deterministic linkage
    - *Addresses recommendation: Improve the interfaces with the Injury Surveillance systems that reflect best practices identified in the Traffic Records Program Assessment Advisory:*
  - Alignment of cardiac arrest fields with Cardiac Arrest to Enhance Survival (CARES) standard

Project Benefits (cont.)

- Improved Data Quality
  - Incident/Patient Disposition will be split into 4 elements: Enables more flexibility for various types of EMS responses and increases the accuracy of call data and validation rules:
    - Unit Disposition - e.g., Patient Contact Made
    - Patient Evaluation/Care - e.g., Patient Evaluated and Refused Care
    - Crew Disposition – e.g., Assumed Primary Care from Another EMS Crew
    - Transport Disposition – e.g., Transport by Another EMS Unit, with a Member of This Crew
  - Enhanced/additional values options
  - Pertinent negative value expansion
    - e.g., Indicate why a specific medication was not given

Project Objectives

- Configure MATRIS compliant with NEMSIS V3.5 standards
- Integrate with 15 importing ePCR software products
- Support phased migration for 310 ambulance services
- Create upgraded V3.5 compliant data entry form with new/modified data elements
- Create V3.5 compliant reports
  - Data quality monitoring for EMS providers
  - Data extracts for linkage partners
- Revise/expand over 200 data quality validation (Schematron) rules
  - *Addresses recommendation: Improve the data quality control program for the Injury Surveillance systems that reflect best practices identified in the Traffic Records Program Assessment Advisory*

Deliverables

Vendor : ImageTrend

- Transactional Enhancements to support V3.5
  - Version flag to support phased migration supporting V3.4 and V3.5 simultaneously to allow services to migrate as ready
  - Version specific validation rules
  - Independent Schematron file generation
  - Data entry forms transformed across versions
- Reporting Enhancements
- Training and Support

Performance Measures

- MATRIS has provided OGR performance measure data for past years to meet NHTSA annual requirement to secure 405-C funding for the state.

- New application performance measure target: Increase the number of incident records sent successfully to the NEMSIS Technical Assistance Center for inclusion in the NEMSIS Repository to 800,000 by March 31, 2022

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