

# Data for Non-Data Managers

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# Agenda

1. What is data? How is it organized?
2. What is NEMESIS? Why NEMESIS 3?
3. Challenges in EMS Data Collection
4. Challenges in EMS Data Use
5. Current Trends in EMS Data
6. Talk to Your Data Manager
7. Questions

The background features a light gray gradient with numerous thin, vertical, light blue lines of varying lengths and positions, creating a textured, rain-like effect. A solid blue horizontal bar spans the bottom of the image, containing the text.

# What is Data?

# What is Data?

## From Merriam-Webster:

- *"Facts or information used usually to calculate, analyze, or plan something."*
- *"Factual information (as measurements or statistics) used as a basis for reasoning, discussion, or calculation."*

## Speaking the language...

- **Element:** The major data headings, or pieces of information  
*Example: eye color*
- **Value:** The detail of the element  
*Example: blue*

Or...

The element is the container.  
The value is the contents.



# Data Types

TYPE	SAMPLE
Text	First name: Chuck
Numbers	SBP: 120 Temp: 37.2
Dates/Times	Birthdate: 1993-04-28
Lists	Gender: Male, Female

# Options for Non-Values

What exactly ARE “non-values” anyway???

[blank] • [null] • [nil]

## “Not Values”

- Not Applicable
- Not Recorded

## “Pertinent Negatives”

- Finding not present
- Contraindication
- Refused

# What is a Data System?



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# NEMESIS: The Data Standard for EMS

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# Language

## eXtensible Markup Language (XML)

<ePatient.03>Joshua</ePatient.03>

# Structure

## XML Schema Definition (XSD)

```
<xs:element id="ePatient.FirstName"
  minOccurs="0"
  name="ePatient.03"
  nillable="true">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:minLength value="1"/>
      <xs:maxLength value="50"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

- ePatient.03 comes between ePatient.02 and ePatient.04
- It can occur 0 or 1 time
- It can be empty
- It can contain text
- It can be 1-50 characters long

# Data Set

ePatient.13

State

National

## ePatient.13 - Gender

### Definition

The Patient's Gender

National Element	Yes	Pertinent Negatives (PN)	No
State Element	Yes	NOT Values	Yes
Version 2 Element	E06_11	Is Nillable	Yes
Usage	Required	Recurrence	1 : 1

### Associated Performance Measure Initiatives

Airway    Cardiac Arrest    Pediatric    Response    STEMI    Stroke    Trauma

### Attributes

#### NOT Values (NV)

7701001 - Not Applicable

7701003 - Not Recorded

### Code List

Code	Description
9906001	Female
9906003	Male
9906005	Unknown (Unable to Determine)



# The Move to NEMESIS 3

# Why NEMSIS 3?



Covers more of EMS



Better Data Quality



Harmonization with Other Data Standards



Standardized Data Transfer

# NEMESIS Timeline

NEMESIS 2



NEMESIS 3

**Stand-up Break**



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# Challenges in EMS Data Collection

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# Education & Training

Where do you think EMS Documentation falls?

High risk High frequency	High risk Low frequency
Low risk High frequency	Low risk Low frequency

Why do we spend only 1 - 1 ½ % of EMT curriculum on documentation?



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# Challenges in EMS Data Use and Analysis

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# What *Didn't* Happen

- Find all cardiac calls where aspirin was *not given* because the patient had already taken it.
- Find all injury calls where EMS specifically assessed for and ruled out a head injury.

# Missing Data

## Primary Impression

Not Recorded	30
Respiratory Distress	30
Traumatic Injury	40
TOTAL	100

What percentage of PCR's had a primary impression of Traumatic Injury?

A. 40% (40 / 100)

B. 57% (40 / (100 - 30))

# Incorrect Data

Arrived Scene	Left Scene	Scene Time
8:05	8:15	0:10
12:58	1:08	-11:50
15:23	15:20	-0:03
18:08	18:28	0:20
01:00	10:10	09:10

What was the Average Scene Time?

# But Data Quality Challenges can be Addressed



# But Data Quality Challenges can be Addressed





# Current Trends in EMS Data



# NHTSA Data System Attributes



Timeliness



Accuracy



Completeness



Uniformity



Integration



Accessibility

# National Trends



Regulatory Structure and Leadership



Implementation, Standardization, and Adoption of Data Systems



Data Integration



Performance Measurement and Improvement



Communication

# ▶ Stroke Severity Assessment

Status:  
Under Review

Domain:  
Clinical Process/Effectiveness

Clinical Area:  
Stroke

Type:  
Outcome

## Description

To measure the percentage of stroke patients who had a stroke severity assessment performed by EMS

## Numerator

patients who had a stroke severity assessment performed (LAMS, RACE, etc)

## Denominator

Patients with signs and symptoms consistent with stroke-or, if possible, the number of patients with stroke dx upon ED admission

## Rationale

Stroke severity assessments can screen for Large Vessel Occlusion and affect patient destinations

## Pseudocode Numerator

eVitals.29 Stroke Scale Score is documented

## Pseudocode Denominator

eTimes.03 Unit Notified Date/Time is within reporting period  
AND  
eResponse.05 Type of Service Requested =  
2205001 911 Response (Scene)  
2205003 Intercept  
2205009 Mutual Aid

# Data Use at the State Level



ARIZONA DEPARTMENT OF HEALTH SERVICES  
Health and Wellness for All Arizonans

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## Emergency Medical Services & Trauma System

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### Graph Gallery - Naloxone Administration by EMS

Age Demographics

Doses by County

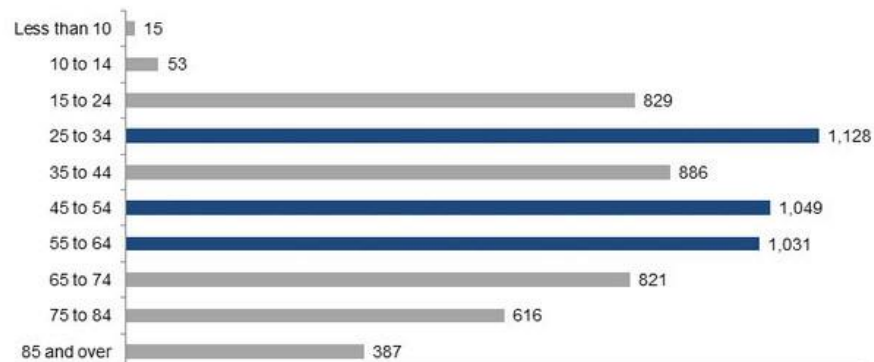
EMS Impression

Method of Administration

Timeline by Month

Gender Demographics

#### Patient's age when receiving Naloxone (in years)



Source: Arizona Prehospital Information & Emergency Medical Services Registry System (January 2015-June 2016) Data pulled: June 23, 2016

# Data Use at the State Level

- Wisconsin – NEMSIS – PECARN Project
  - PECARN has 9 EMS Agencies from various states as members whose data will be used to improve out of hospital pediatric care. Both Wisconsin and NEMSIS will be helping to assist in this project.
- Oregon – Strategic Plan
  - Leadership
  - Data System Operations
  - Data Use

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**Talk to Your Data Manager**

# Talk to Your Data Manager

- A vital leadership partner
- Your only employee who works with every component of the EMS system:
  - Regulations/Statutes
  - Rate-setting
  - Ed. standards
  - Clinical standards
  - Vehicles
  - Licensing
- Your only employee who works with so many external state and federal partners:
  - Trauma/Hospitals
  - CMS
  - OSHA
  - CDC
  - DOT
  - Public Safety
  - DMV
  - DHS...

# Talk to Your Data Manager





# Questions?



# Thank you!

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