Moving NEMSIS into HIE Environments

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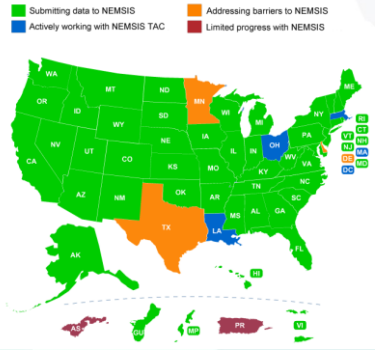
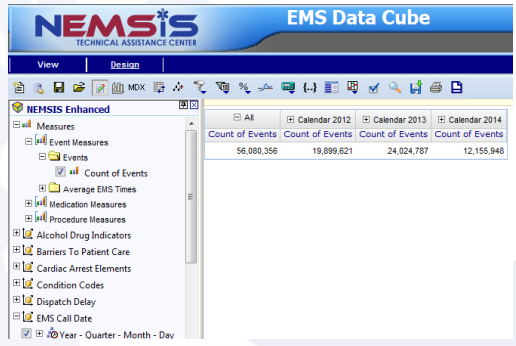
What we will cover

- Current Status of NEMSIS
- Transition to V3
- NEMSIS and HIE
- Question Period

State & Territory Version 2 Information



Current Public Data



EMS Agencies Reporting

Description of the 2012 NEMSIS Public-Release Research Dataset

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Abstract

Background. The National Emergency Medical Services Information System (NEMSIS) is a federally funded project designed to standardize emergency medical services (EMS) patient care reporting and facilitate state and national data repositories for the assessment of EMS systems of care. The purpose of this assessment is to characterize the annual NEMSIS 2012 Public-Release Research Dataset, detailing the strengths and limitations associated with use of these Dataset is a valuable resource for evaluating the U.S. EMS activation population and can be used to conduct in-depth descriptions of the care of specific populations. However, the utility of the data are limited until the number of null values can be diminished and reporting becomes universal.

Key words: Emergency medical services; health information systems; allied health personnel; health services; health care utilization

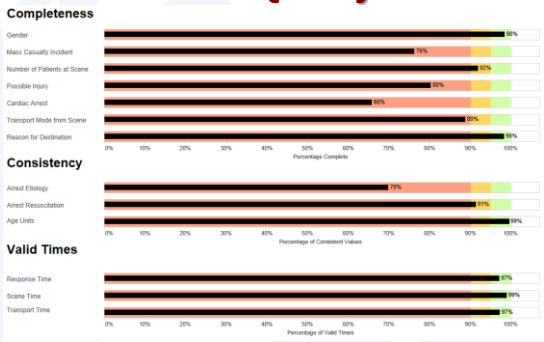
PREHOSPITAL EMERGENCY CARE 2014;Early Online:1–9

Table 1. Submissions to the National EMS Registry

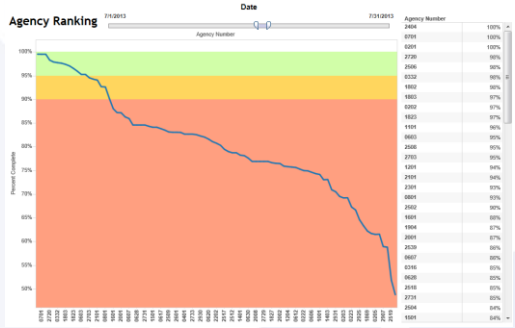
Statistical year	Reporting states[a]	Reporting agencies	Number of events	Treated and transported 9-1-1 response
2009	26	2,112	5,767,090	3,367,668
2010	31	4,874	9,874,748	4,874,061
2011	35	7,180	14,371,941	7,701,605
2012	42	8,439	19,831,189	10,733,925
2013	**45**	**9,019**	**23,897,211**	**12,650,051**

State-Level NEMSIS Data Reporting

Data Quality

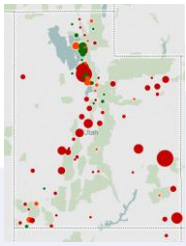


Data Quality

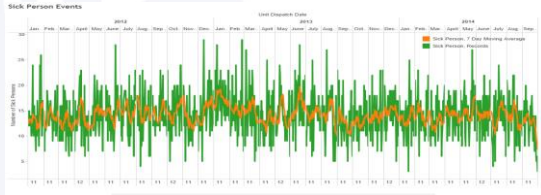


Mass Casualty

- Location
  - Incident Zip Code
- Size
  - Number of events: bigger = more events
- Color
  - Ratio of MC events to all activations
    - > 0.5%
    - 0.2% to 0.4%
    - < 0.2%



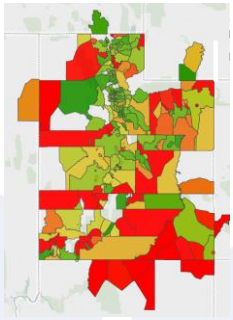
Surveillance



- Search by:
  - Incident Zip Code
  - EMS Agency

System Performance

Response	Scene	Transport
< 9 min	< 20 min	< 20 min
>16 min	>35 min	> 35 min



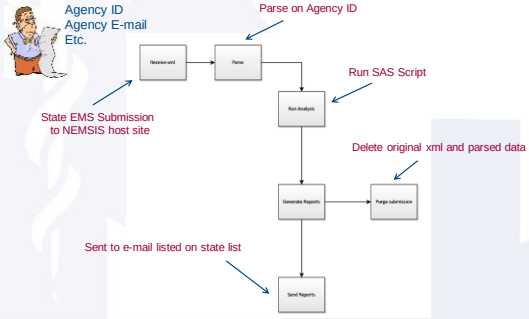
Agency-Level NEMSIS Data Reporting

tableau SOFTWARE

sas

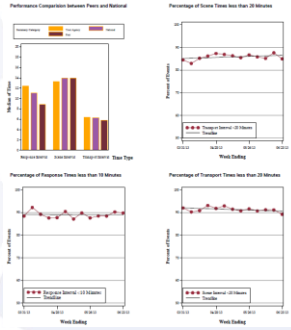
Microsoft SQL Server Reporting Services

Local EMS Benchmark Toolkit



EMS Benchmark Toolkit

- Elapsed Times
  - Response
  - Scene
  - Transport
    - Benchmark: Peers
    - Benchmark: National
    - 3-month trend ↓ ↑



EMS Benchmark Toolkit

- Data Quality
  - Accurate reporting possible
    - Completeness
    - Consistency
    - Valid times
  - Color (percent correct)
    - Red – 70%↓
    - Yellow – 71% to 89%
    - Green – 90%↑

EMS Performance Measures: Data Quality

National Element	Percent Complete	Rating Grade
Completeness of PAMP Date/Time	0.00%	Unusable
Completeness of Chief Complaint Organ	32.69%	Unusable
Completeness of Incident Location Type	99.90%	Excellent
Completeness of EMD Performed	0.00%	Unusable
Completeness of Possible Injury	99.97%	Excellent
Completeness of Gender	80.88%	Acceptable
Completeness of Unit Service Level	61.84%	Unusable
Completeness of Number of Patients at Scene	100.0%	Excellent
Completeness of Mass Casualty Incident	100.0%	Excellent
Completeness of Transport Mode to Scene	67.36%	Unusable
Completeness of Reason for Destination	64.34%	Unusable
Completeness of Etiology for Cardiac Arrest	91.36%	Excellent
Completeness of Age Unit for Age numbers	100.0%	Excellent
Rate of Valid time for Response Times	99.21%	Excellent
Rate of Valid time for Scene Times	64.33%	Unusable
Rate of Valid time for Transport Times	63.90%	Unusable
Rate of Valid time for Back in Service Times	100.0%	Excellent
Rate of Aspirin for Chest pain Patient	38.24%	Unusable
Rate of Oxygen for Respiratory	80.90%	Acceptable
Completeness of Responsibility	100.0%	Excellent
Completeness of SceneDelay	100.0%	Excellent
Completeness of Alcohol Indicator	0.00%	Unusable
Completeness of Resuscitation for Cardiac Arrest	100.0%	Excellent
Average Completeness Score for Key Element	**78.90%**	**Unusable**

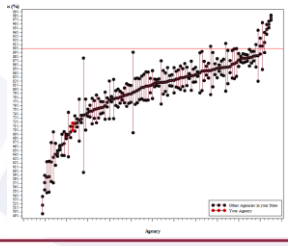
EMS Benchmark Toolkit

- Accuracy Ranking
  - Benchmarks agency to other state agencies
  - Demonstrates the variability in PCR accuracy.
  - Visual way to track improvement

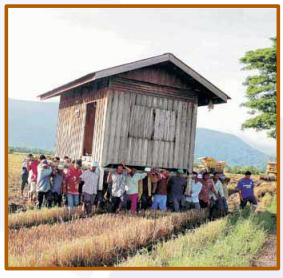
Percent Complete Compared to Peer Agencies

Your Agency Percent Complete	Your Agency Rating Grade
78.90%	Unusable

State Agency: PCR Percent Complete)



Moving to Version 3



Purpose of NEMSIS Version 3

- **Improve Data Quality**
  - **Improved data structure, XML**
  - **Business intelligence, Schematron**
- **Enhance performance assessment**
  - **Provider performance, protocol adherence**
- **Data Transfer will be automated**
  - **"Real Time" - Via Web Services**
- **Prepare for next step (HL7)**
  - **Synchronization of clinical content**

In V2…In PCRs

eVitals.01	Date/Time Vital Signs Taken
eVitals.02	Obtained Prior to this Units EMS Care
eVitals.03	Cardiac Rhythm / Electrocardiography (ECG)
eVitals.06	SBP (Systolic Blood Pressure)
eVitals.08	Method of Blood Pressure Measurement
eVitals.10	Heart Rate
eVitals.12	Pulse Oximetry
eVitals.14	Respiratory Rate
eVitals.16	Carbon Dioxide (CO2)
eVitals.18	Blood Glucose Level
eVitals.19	Glasgow Coma Score-Eye
eVitals.20	Glasgow Coma Score-Verbal
eVitals.21	Glasgow Coma Score-Motor
eVitals.22	Glasgow Coma Score-Qualifier
eVitals.26	Level of Responsiveness (AVPU)
eVitals.27	Pain Score
eVitals.29	Stroke Scale Score
eVitals.31	Reperfusion Checklist

V2…Performance Measures

eArrest.04	Arrest Witnessed By
eArrest.11	First Monitored Arrest Rhythm of the Patient
eArrest.12	Any Return of Spontaneous Circulation
eArrest.14	Date/Time of Cardiac Arrest
eArrest.16	Reason CPR/Resuscitation Discontinued
eArrest.17	Cardiac Rhythm on Arrival at Destination
eHistory.01	Barriers to Patient Care
eArrest.05	CPR Care Provided Prior to EMS Arrival
eArrest.07	AED Use Prior to EMS Arrival
eArrest.08	Who Used AED Prior to EMS Arrival
eArrest.09	Type of CPR Provided
eArrest.10	Therapeutic Hypothermia Initiated
eArrest.18	End of EMS Cardiac Arrest Event

V3…New Elements

eMedications.10	Role/Type of Person Administering Medication
eProcedures.10	Role/Type of Person Performing the Procedure
eProtocols.02	Protocol Age Category
eResponse.15	Level of Care of This Unit
eResponse.24	Additional Response Mode Descriptors
eScene.01	First EMS Unit on Scene
eScene.08	Triage Classification for MCI Patient
eSituation.13	Initial Patient Acuity
eTimes.12	Destination Patient Transfer of Care Date/Time
eVitals.04	ECG Type
eVitals.05	Method of ECG Interpretation
eVitals.30	Stroke Scale Type

Addition of Pertinent Negatives

eMedications.03

State | National

eMedications 03 - Medication Given

Definition

The medication given to the patient

National Element	Yes	Pertinent Negatives (PN)	Yes
State Element	Yes	NOT Values	Yes
Version 2 Element	E18_03	Is Nillable	Yes
Usage	Required	Recurrence	1 : 1

Associated Performance Measure Initiatives

Airway Cardiac Arrest Pediatric STEMI Stroke Trauma

Attributes

NOT Values (NV)

7701001 - Not Applicable 7701003 - Not Recorded

Pertinent Negatives (PN)

8801001 - Contraindication Noted 8801003 - Denied By Order 8801007 - Medication Allergy
8801009 - Medication Already Taken 8801019 - Refused 8801023 - Unable to Complete

Constraints

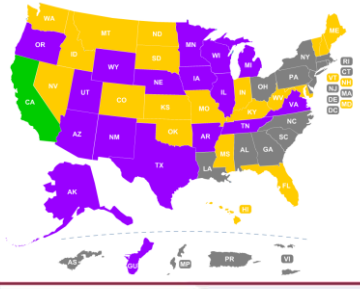
Data Type	minLength	maxLength
string	2	7

Data Element Comment

List of medications based on RxNorm (RXCUI) code.

Moving to NEMSIS 3

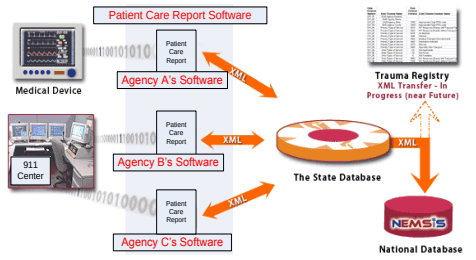
Submitting v3 Data
v3 Implementation Plan
v3 Documents Available
Limited Progress



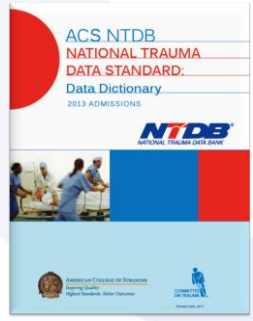
Preparing for next steps!

HIE and NEMSIS

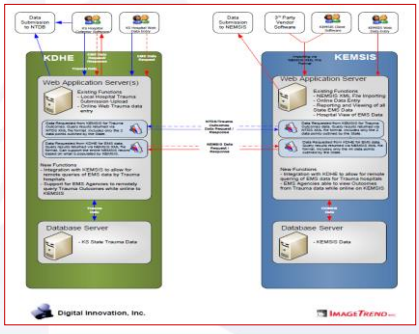
THE PORTABILITY OF DATA - the NEMSIS STANDARD.



National Trauma Data Standard



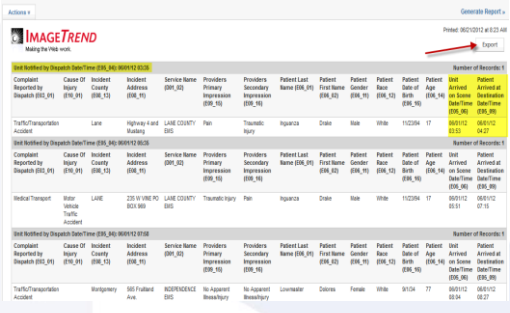
State Implementation



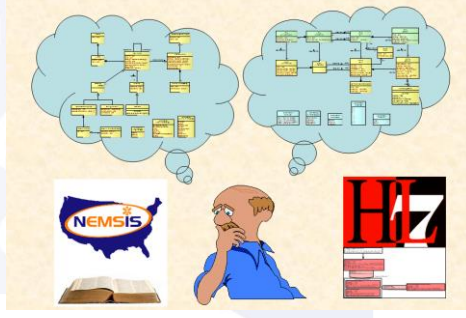
State Data Exchanges

- 11 states currently linking EMS and Trauma Registry data
- 4 more beginning of 2015
- 2 more by June

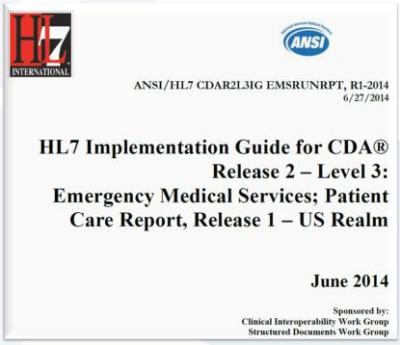
Abstractor Linkage



Movement through HL7



First NEMSIS CDA!

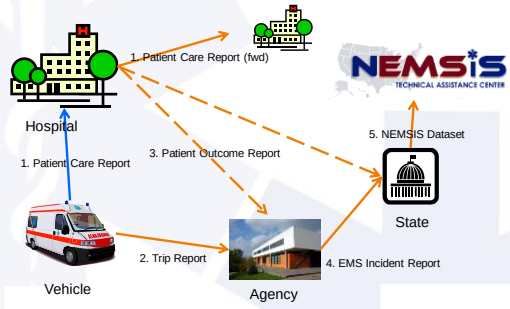

ANSI/HL7 CDAR2L3IG EMSRUNRPT, R1-2014
6/27/2014

HL7 Implementation Guide for CDA®
Release 2 – Level 3:
Emergency Medical Services; Patient
Care Report, Release 1 – US Realm

June 2014

Sponsored by:
Clinical Interoperability Work Group
Structured Documents Work Group

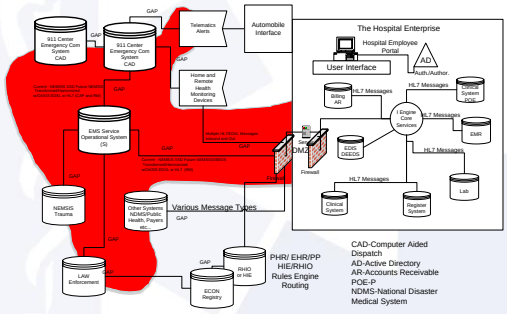
Possible CDA Implementations



Barriers to Exchange Implementation

- ePCR: Field to Hospital
  - Slow uptake by varied hospital EHRs
    - Interest only in consumer requests
  - Interpretations of HIPAA Privacy Rule
    - What is a "covered entity"
  - State privacy rules/interpretation

Context Diagram-Conceptual Information Flow



Beyond Health Level 7

- Harmonization with other Standards
  - Justice Domain
  - EDXL-TEP
  - NIEM
- Facilitate Standards
  - CAD
  - Medical Devices
  - AACN (VEDS)
- Introduce Modules
  - Air Medical
  - Critical Care
  - Community Paramedicine & Mobile Integrated Healthcare

Barriers to Exchange Implementation

- NEMSIS with Out-of-Hospital Datasets
  - Differences among SDOs (Oasis vs. HL7)
    - Harmonization through versioning
  - Absence of national standards
    - Commercial interests
  - Lack of Momentum among Professional Orgs
  - State focus on linkage
    - "Safety in Silos"
  - State privacy rules/interpretation

NHTSA
www.nhtsa.gov

NEMSIS
TECHNICAL ASSISTANCE CENTER

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