

# **EMERGENCY MEDICAL SERVICES DATA IN ILLINOIS**

**58<sup>TH</sup> ANNUAL ILLINOIS TRAFFIC ENGINEERING AND SAFETY CONFERENCE**

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**Illinois Department of Public Health**  
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# QUESTIONS ADDRESSED IN THE PRESENTATION

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- ✘ What are prehospital emergency medical services?
- ✘ What is prehospital data, and why, how and under what legal authorities is it collected in Illinois?
- ✘ What is data quality and why is it important?
- ✘ What are the major obstacles to attaining high quality prehospital data in Illinois and what actions are being take to overcome them?

# PREHOSPITAL EMERGENCY MEDICAL SVCS

Those emergency medical services rendered to emergency patients for analytic, resuscitative, stabilizing, or preventive purposes, precedent to and during transportation of such patients to hospitals. (*EMS Act § 3.10*)

# PREHOSPITAL EMERGENCY MEDICAL SVCS

A system that ensures that patients with acute traumatic and medical conditions are provided medical care outside the hospital and, when necessary, are transported to an appropriate medical facility. (*Mears G, Ornato JP, Dawson, DE. Emergency medical services information systems and a future EMS national database. PREHOSP EMER CARE. 2002; 6:123–130.*)

# WHAT IS PREHOSPITAL DATA?

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- ✘ Information about the incident (location, etc)
- ✘ EMS unit utilization information (mode, times)
- ✘ EMS agency, unit & crewmember information
- ✘ Patient demographic information (age, etc)
- ✘ Patient injury/illness information
- ✘ Patient assessment information (vitals, etc)
- ✘ Treatment information  
(meds, procedures, prior aid)
- ✘ Incident/patient outcome information

# WHY COLLECT PREHOSPITAL DATA?

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- ✘ Required by law
- ✘ Provides an opportunity for evidence-based analysis, assessment, and improvement of the EMS profession in IL
- ✘ Can improve understanding of the relationship between input variables and patient outcomes (esp when linked to downstream databases)
- ✘ Allows comparisons with other states
- ✘ Supports research and policy development

# STATUTORY AUTHORITY

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## EMS Act (210 ILCS 50 § 3.195)

- + The Department shall develop and administer an emergency medical services data collection system.
- + The Department shall develop parameters by which the availability and quality of emergency medical care can be evaluated to assure a reasonable standard of performance by individuals and organizations providing such services.

# ADMINISTRATIVE AUTHORITY

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## Emergency Medical Services and Trauma Center Code (77 IAC § 515.350)

- + A run report shall be completed by each vehicle service provider for every emergency prehospital or interhospital transport and for refusal of care.
- + The ambulance provider shall submit the run report data to the Resource Hospital. Each Resource Hospital shall submit a data report to the Department...covering run report data from the preceding quarter.

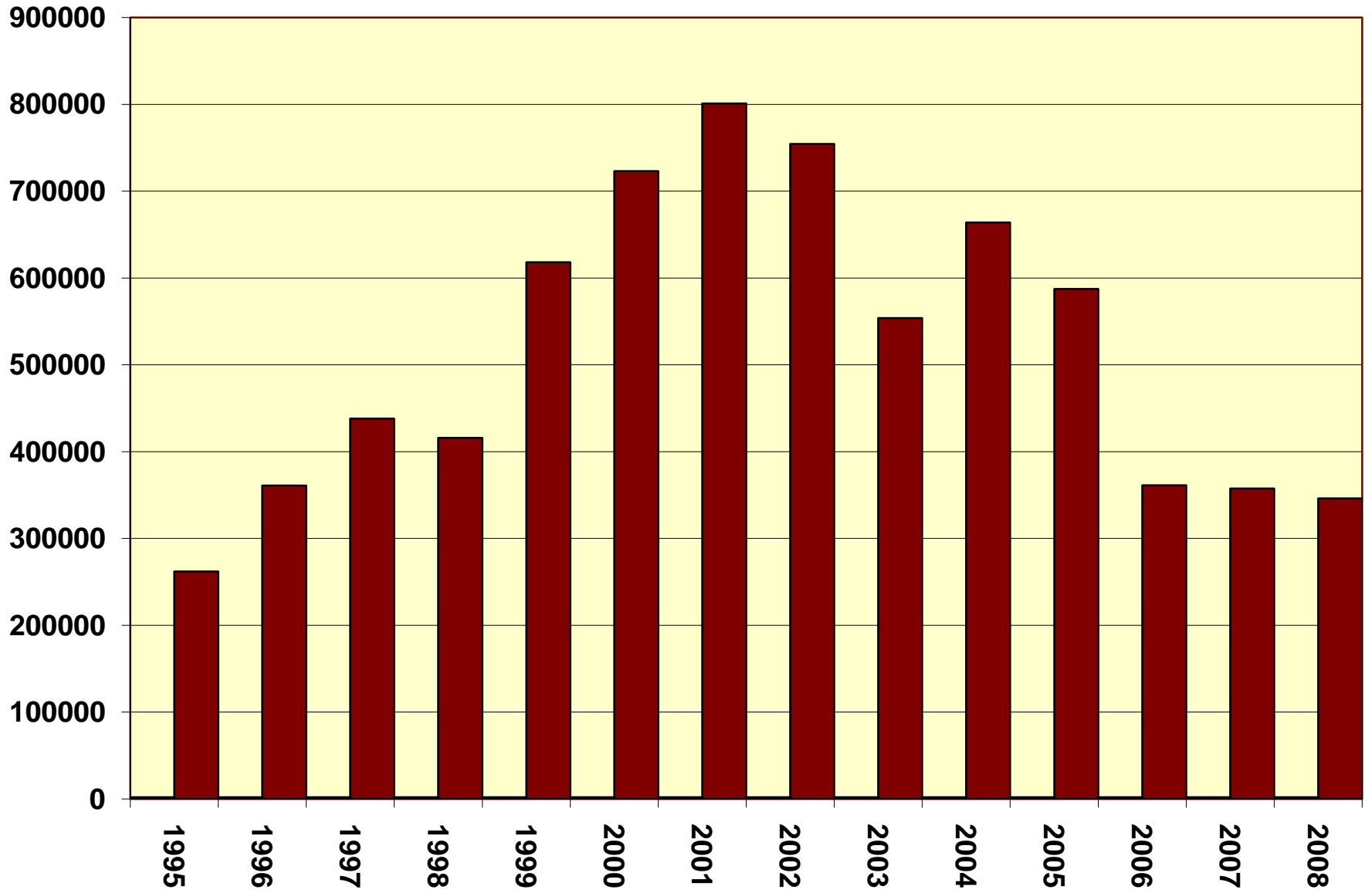


# WHAT DOES EMS LOOK LIKE IN IL?

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- ✘ Types of situations tracked (77 IAC § 515.350)
  - + *Emergency pre-hospital or inter-hospital transports*
  - + *Refusals of care*
  - + *Data for responses by non-transport providers not collected by the State*
- ✘ Number of EMS transport provider agencies
  - + **636**
- ✘ Number of hospital destinations
  - + **263 total hospital destinations in system (37 out-of-state)**
- ✘ Annual prehospital run volume (as measured by run reports rec'd)
  - + **See chart, next slide**

# Reported Prehospital Run Volume

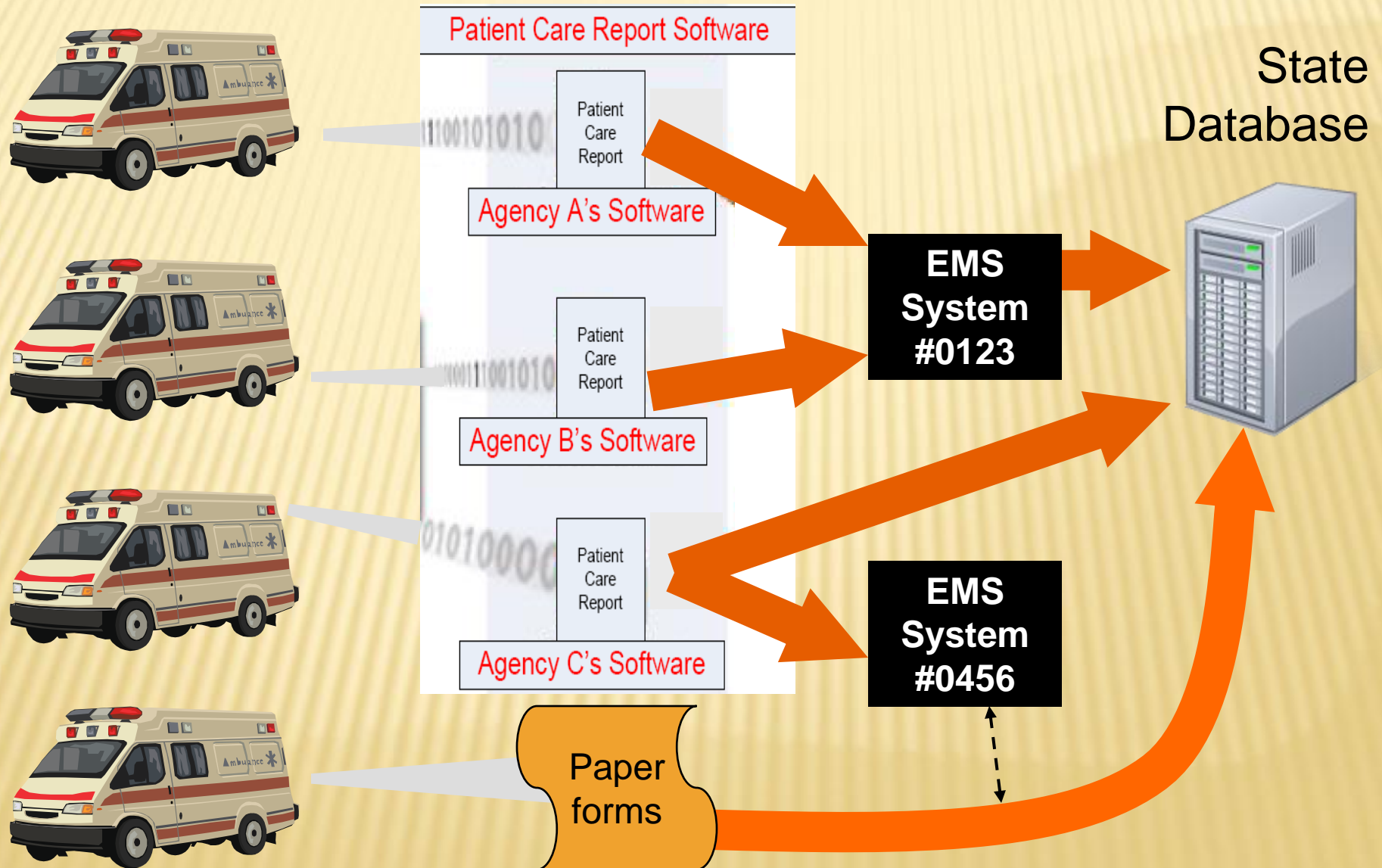


# HOW LONG HAS ILLINOIS BEEN COLLECTING PREHOSPITAL DATA?

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- ✘ Data on file from 1995 to the present
- ✘ Original (1995) dataset revised in 2002 at the request of stakeholders
- ✘ A new dataset that conforms to a national standard (National EMS Information System, or NEMSIS) to be launched later this year or early 2010

# HOW ARE THE DATA COLLECTED IN IL?



# TOP THREE ISSUES

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1. Data quality

2. Data quality

3. Data quality

# DATA QUALITY: WHAT IS IT EXACTLY?

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## ✘ Accuracy

- + Intended values are selected, no typos entered

## ✘ Consistency

- + Data element is correctly and uniformly interpreted systemwide

## ✘ Completeness

- + All available information requested about a run is provided
- + Reports are created for all runs; all reports sent to the state

## ✘ Timeliness

- + Reports are submitted within the required timeframes

# FACTORS AFFECTING DATA QUALITY

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- ✘ There are many data submitters; organization size and type varies widely
- ✘ Much data (approx, 1/2 to 1/3) continues to be submitted on scannable paper forms
  - + Subject to damage, shipping delays, and loss
  - + More likely to contain inaccuracies and missing data due to lack of error checking at the point of completion
  - + Loading data in this form is time and labor intensive (currently back-logged several months)
  - + Error correction process is cumbersome

# MORE FACTORS AFFECTING DATA QUALITY

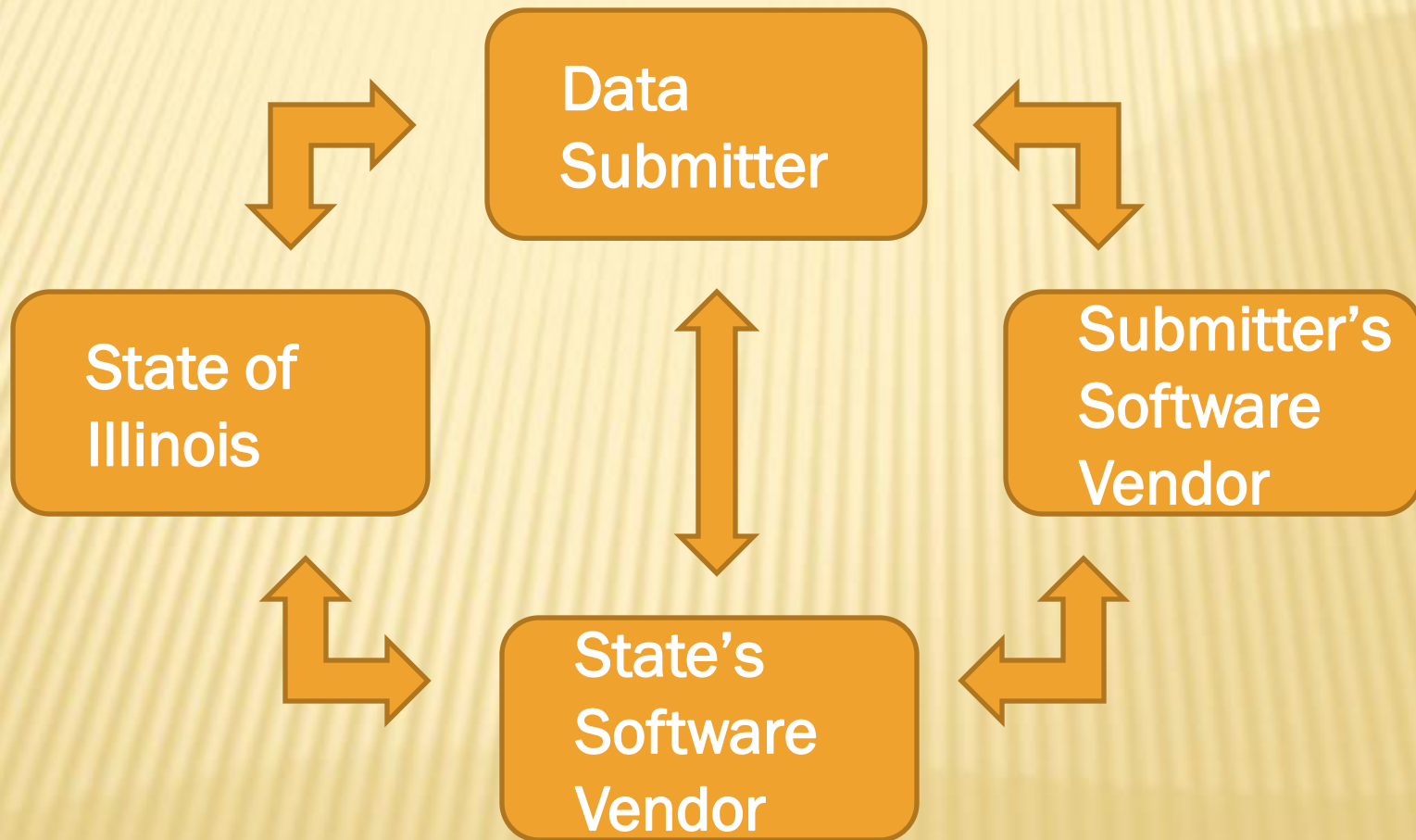
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- ✘ Conversion from paper forms requires each submitter to successfully complete a data validation process
- ✘ Prospective electronic data submitters hire their own software vendors—many to choose from
- ✘ Beginning in 2006, multiple large submitters unilaterally converted to software that is not capable of exporting data compatible w/the State system
- ✘ In general, the likelihood of delays and difficulties is directly proportional to the number of entities involved → → →



# COMMUNICATION FLOW

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# WHO REQUESTS PREHOSPITAL DATA?

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- ✘ Universities (student and faculty researchers)
- ✘ The State's EMS Division (part of IDPH)
- ✘ Other Offices/Divisions within IDPH
- ✘ Other state agencies
- ✘ The EMS community
- ✘ Receiving hospitals
- ✘ Federal agencies
- ✘ The media

# CURRENT DATA USES

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- ✘ Supply information to the EMS community at the local, regional, and statewide level
- ✘ Supply information to hospitals that receive patients by EMS transport
- ✘ Academic research
- ✘ Respond to FOIA requests from the press and others
- ✘ Inform Departmental policy decisions
- ✘ Support initiatives by other state agencies

# POTENTIAL DATA USES

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- ✘ Contribute to a national prehospital data repository (NEMESIS)
- ✘ Guide department policy decisions
- ✘ Support strategic planning
- ✘ Identify training needs
- ✘ Identify resource needs
- ✘ Identify patient care strengths and weaknesses
- ✘ Link with data from other databases to provide a more complete picture of the patient experience

# NEMESIS



- ✘ When completed, NEMESIS will link EMS databases from across the nation and share information. This will create opportunities for:
  - + Improved analysis of EMS procedures and patient care
  - + Comparison of data across jurisdictional and state boundaries
  - + Better evaluation of the EMS role in health care
- ✘ <http://www.nemesis.org/>

# PREHOSPITAL DATA IMPROVEMENT PROJECT

## PHASE 1: ATTAIN NEMESIS COMPLIANCE (LATE 2009?)

- × Goal 1: Include all of the National Elements from the EMS Uniform Prehospital Dataset in the Illinois dataset; two categories:
  - + *Demographic Dataset*: Describes EMS agencies, EMS personnel, and state system information
  - + *EMS Dataset*: Describes the EMS event including documentation of system performance and clinical care
- × Goal 2: Develop the capability to import and export data that conform to the NEMESIS XML schema definition (XSD)

# PREHOSPITAL DATA IMPROVEMENT PROJECT

## PHASE 2: IMPROVE DATA QUALITY (LATTER PART OF 2010)

- ✘ Goal 1: Increase the proportion of Illinois EMS provider systems that enter and submit data electronically
  - + *Strategy*: Implement a Web-based data submission capability
- ✘ Goal 2: Develop and implement policies, procedures, and tools for assessing and improving the accuracy, validity, and completeness of prehospital data being collected by within the state of Illinois

# IN SUMMARY

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## ✘ Prehospital data

- + Documents important information about patients' experiences during a critical phase of the healthcare delivery continuum

- + Has been collected in Illinois since 1995

## ✘ Illinois expects to

- + Implement a NEMESIS-compliant prehospital data system late 2009/early 2010

- + Launch a Web-based data submission option by in 2010



# *THANK YOU FOR YOUR ATTENTION*

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# QUESTIONS

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