QUESTIONS ADDRESSED IN THE PRESENTATION

- 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?
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)*
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?

- 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?

- 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
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.
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?

- 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


Volume: 0, 100000, 200000, 300000, 400000, 500000, 600000, 700000, 800000, 900000
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?

- Patient Care Report Software
  - Agency A’s Software
  - Patient Care Report
  - Agency B’s Software
  - Patient Care Report
  - Agency C’s Software
  - EMS System #0123
  - EMS System #0456
- State Database
- Paper forms
TOP THREE ISSUES

1. Data quality
2. Data quality
3. Data quality
DATA QUALITY: WHAT IS IT EXACTLY?

- **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

- 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

- 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 with the State system.
- In general, the likelihood of delays and difficulties is directly proportional to the number of entities involved.
WHO REQUESTS PREHOSPITAL DATA?

- 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

- 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

- Contribute to a national prehospital data repository (NEMSIS)
- 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
When completed, NEMSIS 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.nemsis.org/
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 NEMSIS XML schema definition (XSD)
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

- **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 NEMSIS-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