European Emergency Data (EED) Project

An EMS Data-based Health Surveillance System
- Status Quo March 2004 -

Report to the Second Health Systems Working Party
Luxembourg, 25 March 2004

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European Emergency Data (EED) Project

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European Emergency Data (EED) Project
An EMS Data-based Health Surveillance System

- **Co-ordinator:** Ludwig-Maximilians-Universität München, Germany*
- **Participants:** Experts in the field of pre-hospital emergency care from 12 EU countries, Norway, Slovenia and one associated partner from the United States of America
- **Duration:** October 2002 – Mai 2004 (20 months)
- **Overall aim:** to develop a comprehensive list of indicators based on routine collection of EMS data

### European Emergency Data (EED) Project Participants

- **Austria**: Austrian Red Cross, Dispatch Centre Tirol
- **Belgium**: Ministry of Social Affairs, Public Health and Environment and University Hospital Gasthuisberg
- **Denmark**: Copenhagen Fire Brigade and Copenhagen University Hospital
- **Finland**: Helsinki Area HEMS and Helsinki University Hospital
- **France**: Samu de Hauts de Seine
- **Germany**: City of Bonn (Fire Brigade) and University of Bonn
- **Ireland**: Western Health Board, Ambulance Service H. Q.
- **Italy**: 118 Genova Soccorso
- **Norway**: Ullevaal University Hospital
- **Portugal**: Instituto Nacional de Emergência Médica (INEM)
- **Slovenia**: Ministry of Health
- **Spain**: University of Cantabria and Instituto Nacional de la Salud
- **Sweden**: Swedish Standard Institute (SIS) and EMS system Gothenburg
- **UK**: West Midlands Ambulance Service - NHS Trust
- **Virginia, USA (associated partner)**: Richmond Ambulance Authority
Emergency Medical Services:

- a component of the health care system still under development
- a great variety on system designs
- faced with increasing expectation of the public
- with few exceptions there is still no common language and we are lacking common standards for data collection and analysis
- potential role as gatekeeper for the health care system
- still underdeveloped links with other components of the health care system
Why EMS Data for Health Monitoring?

- EMS systems generate a continuous data flow
- Data sources:
  a. Dispatch centre
  b. Patient documentation forms (completed by EMS staff)
  c. Feedback from the emergency department (outcome data)
- For analysis of demand and health status of emergency patients: using standardised problem coding (ICD coding and standardised severity codes, e. g. GCS)
- For spatial analysis: providing geographical reference ("Geocoding")
  - To reveal different patterns of EMS demand
  - To identify hot spots
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The Project’s Methodology

- Establishing an interdisciplinary and international expert panel
- Identifying common EMS information/data on:
  - Demography / population
  - Health status
  - Health system / resources
  - Health system / utilisation
  - Health system / performance
- Selecting relevant indicators using a Delphi type procedure
- Pilot study to test the possibility of generating indicators out of EMS routine data
- Validation of data through comparison between countries
- Identifying final list of indicators using the following criteria:
  - Availability as routine data
  - Comparability
  - Relevance for health monitoring
  - Uniqueness
a second aim of the project is to conduct a benchmarking study. Differences in outcomes may not only be due to medical performance, but also to system design. System design has to be taken into account! The core group of the project (Birmingham, Bonn, Santander) has already conducted a benchmarking study and published the results in 2000. Currently, the project group is conducting a large-scale benchmarking study based on questionnaires that are available on our website (http://www.eed-project.de).
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The Project’s Results

- The project has conducted 6 international workshops that have encouraged communication and networking among the partners,
- developed a common language and terminology for the analysis of EMS systems,
- provided a common framework for comparison and benchmarking of EMS systems,
- reached consensus on a basic data frame for the development of EMS indicators,
- developed a set of indicators for health monitoring in the field of pre-hospital emergency care including a detailed description of each indicator,
- conducted a pilot data collection to check data availability,
- established an electronic information forum at http://www.eed-project.de.
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Results: The Project’s Website

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Copenhagen Fire Brigade
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Results

The Kick-off meeting in Benn, Germany (November 1st – 2nd, 2003) provided an overview of different EMS system designs and partners made a detailed presentation of their respective EMS systems. As a main result, the EED project group was able to develop a common template for analysis and comparison of systems, termed “Patient Journey”. This template begins with the patient’s first contact with the EMS system (“Access”) and concludes with the recording of the patient’s outcome at the time of “Handover / Disposal”. The template identifies components that all participating EMS systems have in common and establishes the basis for all further project work.

The main task of the second workshop in Santillana del Mar, Spain (January 23rd – 24th, 2003) was to identify and compare the data that are continuously available from each EMS system. Two approaches were applied. First, typical patient pathways were presented based on the template “Patient Journey”. Second, specific pathways for cardiac arrest and chest pain were analysed in more detail as both represent acute medical emergencies for which time is an essential factor to minimise morbidity.

During the third workshop in Paris, France (April 3rd - 4th, 2003) a preliminary list of indicators and data definitions were developed. This list of indicators is based on comparable data which can be

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Results: Well-founded Selection of Indicators

- For each indicator, the project has developed an accompanying document that covers the following issues:
  - Name
  - Nominal definition
  - Operational definition
  - Format
  - Source of data
  - Upscaling (possibility & usefulness)
  - Rationale
  - Narrative (strengths & limitations)
  - References

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Pilot Data Collection (1)

On-line data collection via the project’s homepage

http://www.eed-project.de

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| 1.1 | Unit hours ELS |   |
| 1.2 | Unit hours BLS |   |
| 1.3 | Unit hours ALS |   |
| 1.4 | Unit hours BLS+ALS (service area) |   |
| 1.5 | Unit hours ALS (service area) |   |

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<th>Service area</th>
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| 2.1 | Unit hour utilisation BLS+ALS (transports) |   |
| 2.2 | Unit hour utilisation BLS+ALS (responses) |   |
| 2.3 | Unit hour utilisation BLS+ALS (time) |   |
| 2.4 | Unit hour utilisation ELS (responses) |   |

Name of the EMS system |   |

per 100,000 inhabitants |   |

per 100,000 inhabitants |   |

per km² |   |

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### Pilot Data Collection (2)

**Background information for each indicator is provided on-line:**

12.1 **Percentage of O2 application**

12.2 **Percentage of assisted ventilation**

12.3 **Percentage of intubations**

12.4 **Percentage of IV lines**

12.5 **Percentage of drug administration**

12.6 **Percentage of IV drug administration**

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Results: A list of common EMS indicators

- Out of more than 100 indicators originally suggested for this project we identified a list of 45 that were to be tested in the pilot study.

- Based on the results of the pilot study and an iterative selection process a group of recommended indicators was identified of which five (= Key Indicators) were agreed on to be essential.
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Results: Five Key Indicators

1. Unit hours (ELS + BLS + ALS) p. a. / 100 000 inhabitants
   Indicator for availability of organised EMS resources

2. Response time (% within 480 sec) for highest priority p. a.
   Indicator for reliable access to organised EMS care

3. Rate of highest priority responses p. a. / 100 000 inhabitants
   Indicator for demand/workload of organised EMS

4. Rate of First Hour Quintet incidences p. a. / 100 000 inhabitants
   Indicator for those critical conditions on which EMS can have a significant impact on the outcome

5. Rate of ALS interventions p. a. / 100 000 inhabitants
   Indicator for level of care of the EMS
This paper was produced for a meeting organized by Health & Consumer Protection DG and represents the views of its author on the subject. These views have not been adopted or in any way approved by the Commission and should not be relied upon as a statement of the Commission's or Health & Consumer Protection DG's views. The European Commission does not guarantee the accuracy of the data included in this paper, nor does it accept responsibility for any use made thereof.