

Description of Emergency Medical Services, treatment of cardiac arrest patients and cardiac arrest registries in Europe

EPIDEMIOLOGY SURVEY OF EMS SYSTEMS IN EUROPE

Updated 10th of September 2019

Baseline Characteristics

1. Country
 - ☐ Dropdown all European countries
2. Total number of started EMS missions per year in your country (including missions where EMS was alarmed but later “stood down”)
 - ☐ Number
 - ☐ Unknown
3. How is the EMS funded in your country?
 - ☐ Privat
 - ☐ Public
 - ☐ Both
 - ☐ Other – open answer
4. Number of hospitals with a 24/7 emergency department in your country?
(Definition: an emergency department/acute hospital can receive seriously ill or injured patients on a 24 hour basis)
 - ☐ Numbers only
 - ☐ Unknown
5. Are specialized Cardiac Arrest Centres for post Resuscitation care available in your country?
(Definition of cardiac arrest centres: institutions that have access to a 24-h cardiac catheterisation laboratory, targeted temperature management in a critical care facility and prognostication using multimodal approach including delayed clinical examination, neuroelectrophysiological measurements and biomarkers, (ERC Guidelines 2015))
 - ☐ Yes, all areas
 - ☐ Yes, some areas
 - ☐ None
 - ☐ Unknown
6. Are there bypass protocols in place which allow the EMS to bring patients directly to a primary PCI-capable hospital?
 - ☐ Yes
 - ☐ No
 - ☐ Unknown
7. Rural areas, median ambulance response time <10 minutes?
 - ☐ Yes, all areas
 - ☐ Yes, some areas
 - ☐ No
 - ☐ Unknown
8. Urban areas, median ambulance response time <10 minutes?
 - ☐ Yes, all areas

- Yes, some areas
- No
- Unknown

Ambulance Service Characteristics

9. What is the occupation of the majority of health care providers in the EMS?

- Emergency physician
- Emergency nurse
- Paramedic
- Other
- Unknown

10. Does your EMS have a standardised report form for all EMS interventions?

- Yes, all areas
- Yes, some areas
- No
- Unknown

11. Does your country have a helicopter EMS?

- Yes
- No
- Unknown

If yes in question 11, answer 12 and 13, if no go to 14

12. Is helicopter EMS available 24/7?

- Yes, all areas
- Yes, some areas
- No
- Unknown

13. What proportion of your country is covered by the helicopter 24/7?

- 0-10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71-80
- 81-90
- 91-100

14. Does your country have an established first-responder system (alerted to OHCA by dispatch)?

(Definition of first responder: a person who is alerted and directed to the scene by an ambulance dispatch centre to help, but is NOT on-duty EMS personnel)

- Yes, all areas/regions
- Yes, some areas/regions

- No
15. In your ordinary EMS service, do you have volunteers staffing the ambulances?
- Yes
 - No
 - Unknown
16. Level of training of ambulance personnel in your country
(ALS trained personnel have an ERC ALS course or similar)
- All are ALS trained
 - Some are ALS trained
 - None are ALS trained
17. Is equipment and expertise available for life-threatening trauma (life, limb) in all emergency ambulances?
- Yes, all
 - Yes, some
 - None
 - Unknown
18. ALS trained ambulance personnel in our country can do the following at arrival on scene without a doctor present (multiple choice):
(ALS trained personnel have an ERC ALS Course or similar training)
- Secure airways with supraglottic or endotracheal tubes
 - Intravenous/IO drug therapy
 - Manual defibrillation
 - Semi-automatic defibrillation
 - None of the above
19. Do physicians provide patient care on scene for OHCA patients as part of EMS?
- Yes, routinely
 - Yes, sometimes
 - No
 - Unknown
20. Are personnel on the first responding ambulance ALS trained?
- Yes, always
 - Sometimes
 - No
 - Unknown
21. Are personnel on the second responding ambulance ALS trained
- Yes, always
 - Sometimes
 - No
 - Unknown

Dispatch Characteristics

22. How many ambulance dispatch centres are in your country?
- Number
 - Unknown
23. Are the dispatch centres part of your ambulance service?

- All
 - Some
 - None
 - Unknown
24. What is the approximate number of medical emergency calls received for your country in one year?
- Number only
 - Unknown
25. Is a standardised dispatch protocol used in your country?
- Yes, in all dispatch centres
 - Yes, in some
 - No
 - Unknown
26. Is 'dynamic deployment' used?
- Dynamic deployment means sending the nearest available ambulance/EMS resource
- Yes
 - In some areas
 - No
27. Is dispatch assisted bystander CPR offered?
- Yes
 - In some areas
 - No
28. Dispatch assisted CPR is:
- Compressions only
 - Full CPR
 - Situation dependent
 - Not implemented
29. Is a standard protocol for dispatch assisted bystander CPR used?
- Yes
 - In some areas
 - No

OHCA Resuscitation

30. Is real-time CPR performance data collected for feedback during CPR and/or debrief post-cardiac arrest?
- Yes
 - In some areas
 - No
 - Unknown
31. Is mechanical CPR used by ambulance personnel?
- Yes, in all of the country
 - Yes, in some areas
 - No
 - Unknown

32. Is advanced equipment used for resuscitation outside hospital in any part of your country (multiple choice)?
- ECMO
 - REBOA
 - Other
 - No
 - Unknown
33. Is transport with ongoing CPR performed?
- Yes
 - Sometimes
 - No
 - Unknown
34. If yes in question 33: Under what circumstances is transport with ongoing CPR performed?
- Open answer
35. Is thrombolysis used in out-of-hospital cardiac arrest?
- Yes
 - In some areas
 - No
 - Unknown
36. Is a system for intraosseous (IO) access implemented and routinely used by ambulance personnel?
- Yes
 - In some areas
 - No
 - Unknown
37. Is a system for intraosseous (IO) access implemented and routinely used by emergency physicians?
- Yes
 - In some areas
 - No
 - Unknown
38. Is a team training in CPR for all EMS members implemented (ALS- BLS-paramedics, emergency physicians)?
- Yes
 - In some areas
 - No
 - Unknown
39. Are defibrillators (manual and/or automated external) available in vehicles dispatched for cardiac arrest?
- Yes, all
 - Yes, some
 - No
 - Unknown
40. Are there registries of publicly available AEDs in your country?

- Yes, all of the country
- Yes, parts of the country
- No
- Unknown

41. If yes, available in the dispatch centre

- Yes, all
- Yes, some
- No
- Unknown

Cardiac arrest registry

42. Is out-of-hospital cardiac arrest reported to a registry? (If yes or in some areas answer questions 42-50)

- Yes, national registry covering all of the country
- Yes, national registry covering parts of the country
- Yes, several local registries
- Yes, one local registry
- No
- Unknown

43. Is in-hospital cardiac arrest reported to a registry?

- Yes, national registry covering all hospitals
- Yes, national registry covering some hospitals
- Yes, several local registries
- Yes, one local registry
- No
- Unknown

44. What year was your out-of-hospital cardiac registry established?

- Four digit number

45. What year was your in-hospital cardiac registry established?

- Four digit number

46. How are out-of-hospital cardiac arrest registry cases identified by the registry (multiple choice)?

- Directly reported electronically from EMS
- Directly reported on paper from EMS
- Searching through patient records
- Identified from dispatch data
- Unknown

47. What are the case criteria for inclusion on your out-of-hospital cardiac arrest registry?

- Cardiac arrest confirmed by EMS
- Resuscitation started
- Unknown

48. Does your out-of-hospital cardiac arrest registry use Utstein definitions?

- Yes, 2004
- Yes, 2014

- Both 2004 and 2014
 - No
 - Unknown
49. Does your out-of-hospital cardiac arrest registry have a quality assurance process to ensure comprehensive data capture and accurate data recording?
- Yes
 - No
 - If yes, please explain briefly (open text)
50. First time recorded in your dispatch centre for out-of-hospital cardiac arrest
- Time call received
 - Time call answered
 - Time call received in medical/ambulance dispatch centre
 - Time call answered in medical/ambulance dispatch centre
 - Time first ambulance resource dispatched to OHCA
 - No dispatch time point recorded
 - Other
 - Unknown
51. When calculating response times, what timestamps from the ambulance are used?
- Time of first ambulance resource arrival on scene (i.e. car stopped)
 - Time of arrival at patient side
 - Other (please explain)
 - Not calculated
52. Outcome variables available in the registry (multiple choice)?
- Any ROSC
 - All areas
 - Some areas
 - Sustained ROSC
 - All areas
 - Some areas
 - Status on arrival at hospital
 - All areas
 - Some areas
 - Alive at discharge from hospital
 - All areas
 - Some areas
 - Alive at 30 days
 - All areas
 - Some areas
 - Alive at 1 year
 - All areas
 - Some areas
 - CPC mRS or other at discharge
 - All areas
 - Some areas
 - CPC or mRS 3-6 months after discharge

- All areas
- Some areas
- CPC or mRS more than 1 year after discharge
 - All areas
 - Some areas
- Quality of life (HUI-3, EQ-5D-3L, EQ-5D-5L, SF-36, SF-36v2, RAND or other standardised quality of life questioners)
 - All areas
 - Some areas
- Self-defined quality of life questions
 - All areas
 - Some areas

53. Have you published any articles relating to epidemiology from your country the last 10 years?

54. Please list first author and publication year of the last 5 articles from your country.