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An update from the Swedish Cardiac Arrest Register

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Background

- It is a joint venture between FLISA (The Federation of Leaders In Swedish Ambulance and Emergency Services) and The Swedish Council for CPR
- Voluntary register started 1990
- Since 1993 funded by Swedish National Board for Health and Welfare

Background

- Covers about 70% of patients with OHCA in whom CPR is attempted
- Editor of annual report: Professor Johan Herlitz, Sahlgrenska University, Göteborg

Patients included in the register

- All patients with out-of-hospital cardiac arrest (OHCA) for whom an ambulance was called are included in the register, with exception of those who had obviously been dead for a long time.

Information included in the register

For each case of OHCA the ambulance crew completes a form with relevant information such as:

- Age
- Place of arrest
- Bystander CPR
- Witnesses
- Resuscitation procedure
- Probable cause of arrest
- Intervention times
- Defibrillation
- Intubation
- Drug treatment
- Initial rhythm
- Clinical findings at first contact

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The Swedish Cardiac Arrest Register makes it possible to:

- Evaluate the prehospital chain of care in OHCA
- Describe the effect of system- and treatment changes
- Identify new interesting and important issues
- Compare different prehospital organisations
-

Research from the register

- **Aim:**

- 1. Describe changes in 1-month survival after OHCA in Sweden

- 2. Define factors associated with survival suffering OHCA found in non-shockable rhythm

Research from the register

- **Aim:**

→3. To compare the 1- month survival amongst OHCA-patients who receive compression-only BCPR versus standard BCPR

→4. Describe changes in the proportion of bystander CPR and it's effect on VF and survival

- **Aim:**

- 1. Describe changes in 1-month survival after OHCA in Sweden

- 2. Define factors associated with survival suffering OHCA found in non-shockable rhythm

1. Changes in 1-month survival after OHCA 1992-2005

- Hollenberg et al Circulation 2008;118:389-396
- 38 646 patients included
- Results:
 - Witnessed OHCA; 9-15%
 - Bystander CPR; 31-50%
 - VF as first recorded rhythm; 33-26%

 - Time interval increased for call-arrival of the ambulance; 6-8 minutes (median)
 - Total survival increased significantly; 4.8-7.3%

- **Aim:**

→1. Describe changes in 1-month survival after OHCA in Sweden

→2. Define factors associated with survival suffering OHCA found in non-shockable rhythm

2. Factors associated with survival among OHCA found in a non-shockable rhythm

- Herlitz et al. Resuscitation 2007;76:31-36
- 22 465 patients
- Results:
 - 1-month survival; 1.3%
 - Six factors independently associated with an increased chance of survival;
 - Witnessed arrest
 - Bystander CPR
 - Cardiac arrest outside home
 - Decreasing age
 - Shorter ambulance response time
 - Need for defibrillatory shock

- **Aim:**

→3. To compare the 1- month survival amongst OHCA-patients who receive compression-only BCPR versus standard BCPR

→4. Describe changes in the proportion of bystander CPR and it's effect on VF and survival

3. One-month survival rates among patients given bystander CPR, either standard CPR or compressions only

- Bohm et al Circulation 2007;116:2908-2912
- 11 275 patients. Crew-witnessed patients excluded.
- Results:
 - 73% standard CPR, 10% compression only, 17% mouth-to-mouth only

Outcome

| | Standard CPR n=8209 | Chest Compression Only n=1145 | OR |
|----------------------------|-------------------------------|---|---------------------|
| Hospitalized alive% | 19.6 | 20 | |
| Adjusted | | | 1.03 (0.86-1.23) |
| Alive at one month% | 7.2 | 6.7 | |
| Adjusted | | | 1.18 (0.89-1.56) |

(95% confidence limit. Adjusted for: age, sex, ambulance response time, type of bystander.)

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4. Describe changes in the proportion of bystander CPR and it's effect on VF and survival 1992-2005

- Nordberg et al Resuscitation 2009;80:329-33
- 34 125 patients included, crew-witnessed cases excluded
- Results:
 - Dramatic increase in bystander CPR;
 - witnessed; 40-55%, unwitnessed; 22-44%
 - The increase most prominent in OHCA at home
 - Marked increase of bystander CPR by lay persons; 21-40%
 - BCPR was associated with VF

Summary

- The Swedish Cardiac Arrest Register makes it possible to:
 - Identify
 - Describe
 - Evaluate
 - Compere