

# How can we optimize bystander basic life support in cardiac arrest?

*Akademisk avhandling*

Som för avläggning av medicine doktorsexamen vid Sahlgrenska akademien vid Göteborgs universitet kommer att offentligen försvaras i lokal Arvid Karlsson, Medicinaregatan 3, Sahlgrenska universitetssjukhuset fredagen den 14 december 2007 kl. 09.00

av

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Dr Lars Wik, Ullevål, Norge

Avhandlingen baseras på följande arbeten:

I

Thorén Ann-Britt, Axelsson Åsa, Holmberg Stig, Herlitz Johan.  
*Measurement of skills in cardiopulmonary resuscitation - do professionals follow given guidelines?*  
Eur J Emerg Med, 2001. **8**(3): 169-76.

II

Thorén Ann-Britt, Axelsson Åsa, Herlitz Johan.  
*The attitude of cardiac care patients towards CPR and CPR education.*  
Resuscitation, 2004. **61**(2): 163-71.

III

Thorén Ann-Britt, Axelsson Åsa B, Herlitz Johan.  
*Possibilities for, and obstacles to, CPR training among cardiac care patients and their co-habitants.*  
Resuscitation, 2005. **65**(3): 337-43.

IV

Thorén Ann-Britt, Axelsson Åsa B, Herlitz Johan.  
*Inferior skill retention among lay persons three months after training in cardiopulmonary resuscitation.* In manuscript

V

Thorén Ann-Britt, Danielson Ella, Herlitz Johan, Axelsson Åsa B.  
*Spouses' experiences of a cardiac arrest at home: an interview study.*  
Submitted

# How can we optimize bystander basic life support in cardiac arrest? Ann-Britt Thorén

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## Abstract

The aim of this thesis was to describe various aspects of CPR and CPR training in order to find approaches for enhancing bystander interventions. Cardiac care patients (n=401) were interviewed, regarding their attitude toward CPR and CPR training (II). Among those who were co-habiting (n=268), possibilities and obstacles towards training were investigated (III). An instrument for measuring quality of CPR performance was tested in a pilot study using a suitable selection of cardiac care nurses (I, n=10). Quality of performance was studied among laypersons after CPR training and three months later (IV, n=32). A qualitative method was used to describe spouses' experiences during the cardiac arrest at home. Fifteen spouses were interviewed (V). Most of the cardiac care patients had a positive attitude towards CPR and many had trained or wished to be trained in CPR (II). Two-thirds of the patients who were co-habiting were unsure or doubted that their co-habitant had CPR training. More than half of these wanted their co-habitant to attend a course. Younger patients were more willing to participate in CPR training than those who were older. Major obstacles for CPR training were their own medical condition, and doubts concerning co-habitants physical ability or interest in participation (III). Measurements of quality of CPR performance revealed several points of concern regarding CPR training and skill-retention; the difficulties in making the pauses for ventilations short enough, enabling enough time for chest compressions, leading to low number of chest compressions per minute; poor performance regarding ventilations (I, IV). Immediately after training the laypersons performed relatively high proportions of chest compressions correctly, which after three months decreased significantly. 'Too shallow' chest compressions were common whilst the cardiac care nurses often made chest compressions 'too deep'. Spouses' experience of cardiac arrest included; prior to OHCA: lack of or denial of early warning signs. Difficulties in interpreting existing signs or misinterpretation of signs due to previous disease; after OHCA: perceiving the seriousness, to be without the possibility to intervene and do what is in ones power. The ECS played an important supportive role and guided spouses in performing CPR (V).

**Conclusion:** CPR training for cardiac care patients and co-habitants is important and feasible. The outcome of training has to be enhanced. Simplification of the message and reduction in number of skills taught seems urgent. Symptoms and signs regarding myocardial infarction have to be communicated more clearly.

**Key words:** Out-of-hospital cardiac arrest; CPR; Education, Training; Spouses; Experience; Qualitative content analysis

