

Nurses man the Swedish rapid response cars, but can they replace the physician in the air ambulance service?

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HÖGSKOLAN I BORÅS
VETENSKAP FÖR PROFESSION

BOS



Pre-hospital emergency care

Involved resources

Road ambulances
Technicians
Paramedics
Ambulance nurses

the public
Bystanders

Medical team
Physicians
Nurses

The fire brigade

Unified alarm centre

Police

Military force

Helicopter ambulances
Paramedics
Ambulance nurses
Emergency physicians

Prehospital Emergency Care

- *“Prehospital care consists of the recognition, resuscitation, and stabilisation of the seriously ill and injured, and the deployment of appropriate resources. It extends beyond the preservation of life to the prevention of complications and the relief of suffering “(Brittain, 1996)*

What is professional competence in pre-hospital emergency care?

- Competent practitioners are described as those who demonstrate *good clinical care, maintain good medical practise, are professional in their relationship with patients and colleagues, apply themselves properly to teaching and training, are honest, are aware of their own health needs...* (Clements & Mackenzie, 2005)

Pre-hospital emergency care

What kind of knowledge and skills are needed?



(Suserud & Haljamæ, 1998, 1999)

Early thoughts about an advanced service

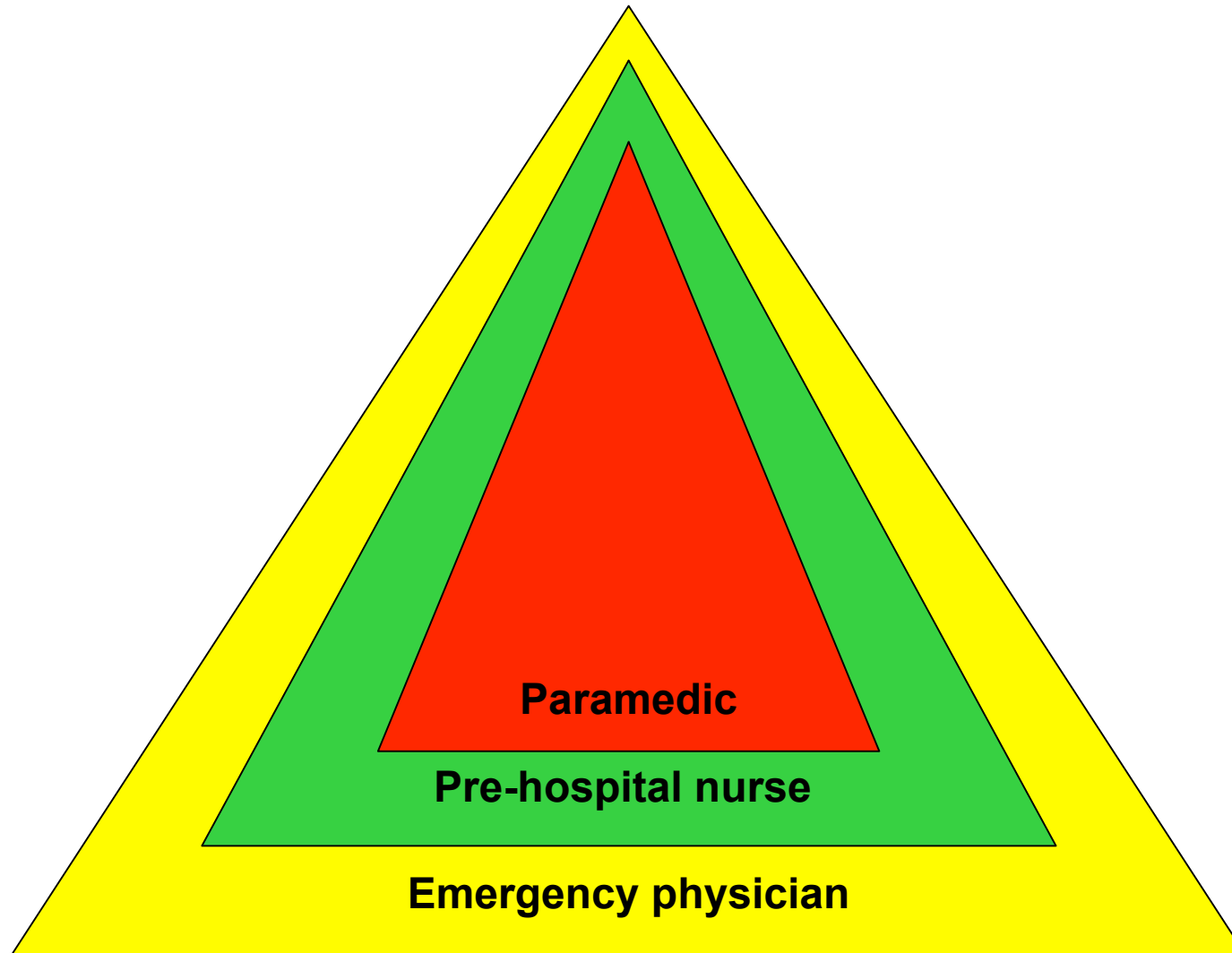
Anyone who is to manage such complicated treatments as intubation needs constant training in this task. It's not enough to perform actions only occasionally i.e. once per month. Consequently, personnel who are to be alerted for advanced alarms ought to be based at a hospital. In our hospital, all anaesthetic nurses, all physicians, and some other nurses are skilled at intubation of patients. There are, in all cases, theoretical possibilities of organising such a rescue service (Lindgren 1957, page 712).

Competence level in pre-hospital emergency care

- »»» In the 1960s - 3-weeks course in pre-hospital emergency care
- »»» In the 1970s - 7-weeks course in pre-hospital emergency care
- »»» In the 1980s - assistant nurse and a 20 weeks course
- »»» In the 1990s - involvement of nurses in the ambulance service
- »»» 2005 - one registered nurse in each emergency ambulance
- »»» 2007 – emergency physicians in some ambulances

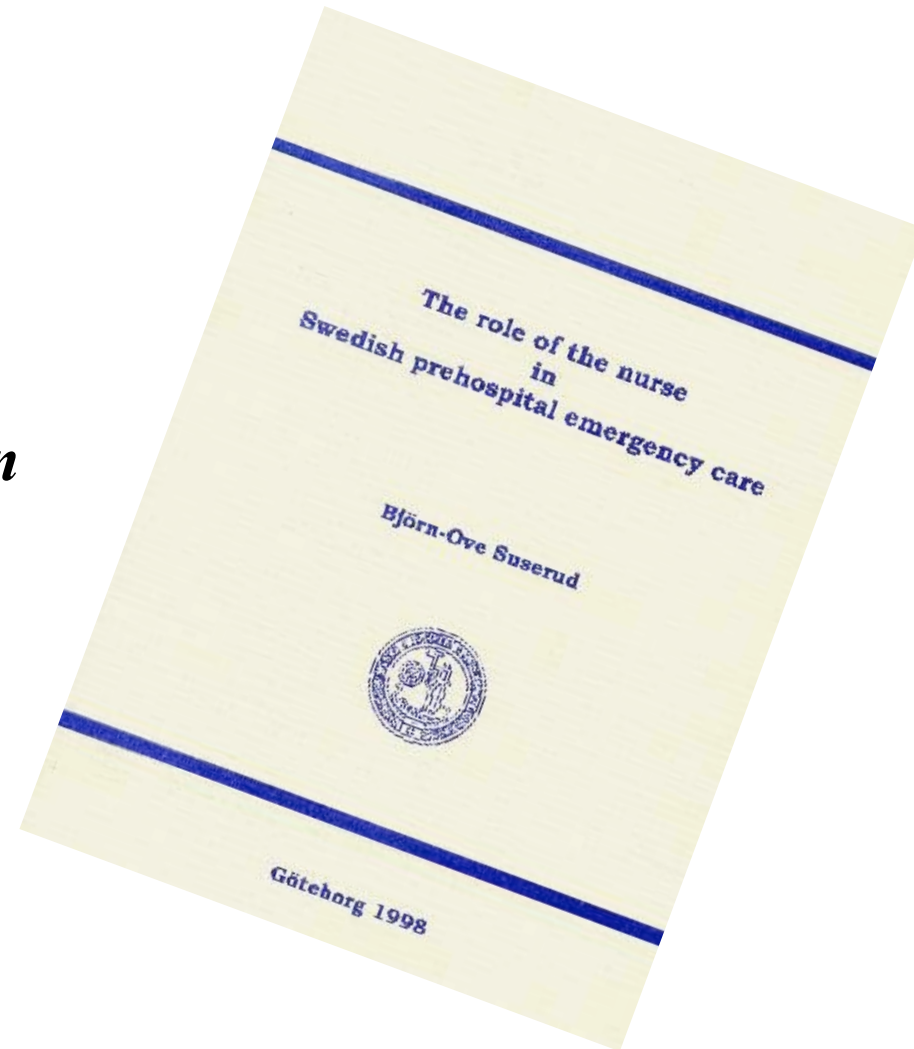


One view on competence?





A new direction in Sweden



The role of the nurse in Swedish prehospital emergency care

- The first Swedish thesis in this area (1998)
- The development in Sweden, UK, U.S.A and the Continental Europe
- Experiences from disaster situations
- The role of nurses and paramedics
- Competence needed
- Quality improvement
- Organisation of prehospital care

Paramedics and nurses

Table 4.

Comments in percent (in order of frequency) of medical directors (n=53) concerning importance of paramedics and nurses in prehospital emergency care.

Paramedics	%	Nurses	%
Driving ambulance	76	Medical care	76
Co-operation with fire brigade	76	Assessment	68
Rescue work	66	Nursing care	64
Communication with hospital	62	Comprehensive view	59
Taking care of relatives	49	Medical technical procedures	59
Nursing care	47	Taking care of relatives	49

(Suserud, 1998)

Some reasons to involve nurses in pre-hospital emergency care

- The patients right to meet same kind of competence and standards of care in prehospital as well as hospital care
- Broad competence – quality in assessment
- Combine caring and medical science
 - Medical and caring assessment
- Hospital and pre-hospital experience important
- Specialist nurse in prehospital emergency care
- Master level – for active participation in research
- Ability to tackle research problems
- (Suserud&Haljamäe, 1998; Suserud, 2005)



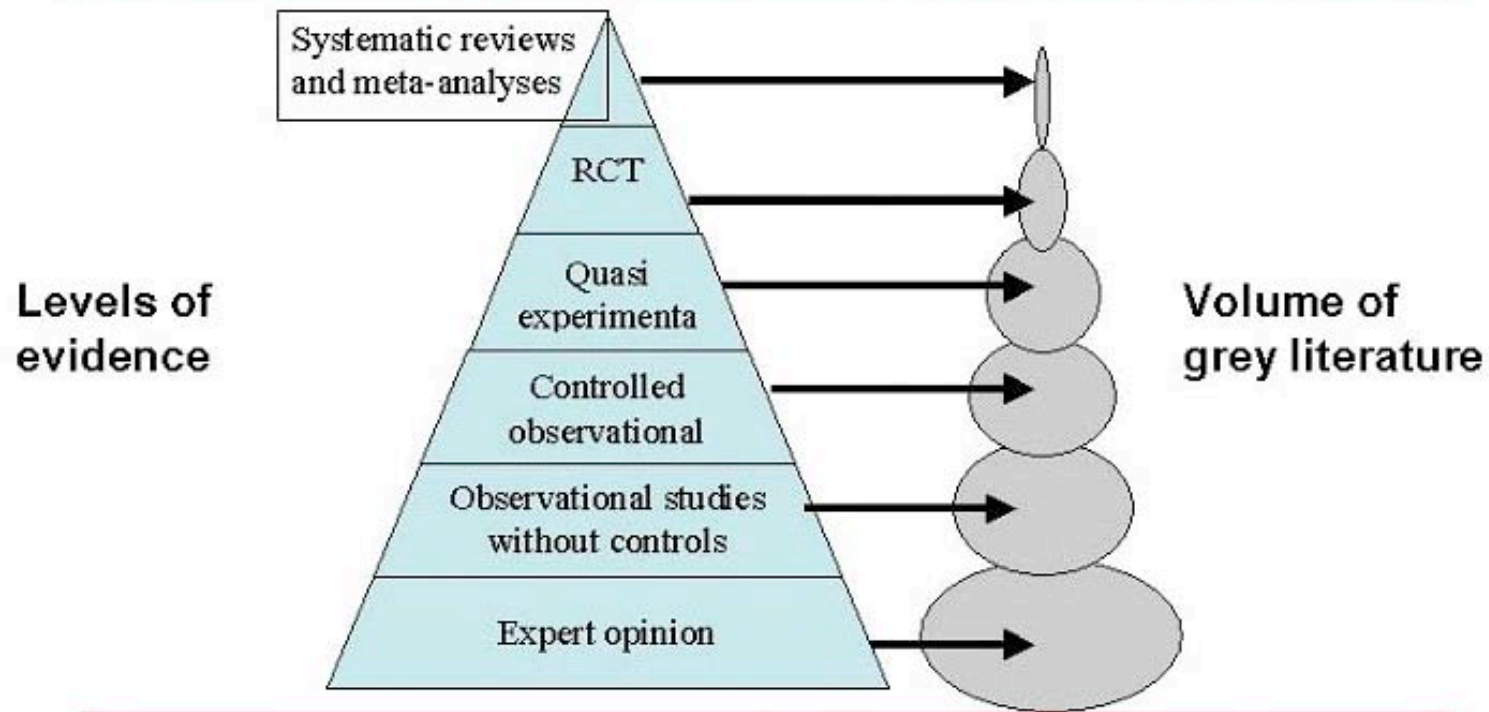
Views on the nurse role and profession

Can the nurse replace the
physician in
the air ambulance service?

Presentation of some studies



Levels of evidence & volume of grey literature



(Simkhada & Knight, 2006)

Opinions on competence in HEMS

■ Stone (1991)

- Air Medical Journal, discuss "Is a flight physician necessary?"
- Little scientific basis to support or reject the use of physicians as crew members
- The role in different flight program must be defined

■ Deakin (2004)

- The advantage of delivering a medical team, particularly a doctor by air, is that one doctor is able to cover much larger area at considerably less cost than placing several doctors to cover the same area by road."

Studies on HEMS

■ Burney et al. (1995)

- 1,169 patients – no significant differences between P/N versus N/N in clinical outcome for their patients

■ Garner (1999)

- Shows that physician-staffed helicopters may produce better outcomes for severely injured trauma patients.

■ Ek&Zetterström (2000)

- 249 patients, draw conclusion that a physician was needed in 4% of the missions and they must be trained for pre-hospital work

Studies on HEMS

- **Wirtz et al. (2002). Paramedic versus Nurse Crews**
 - 1193 patients
 - No significant difference in predicted mortality (nurses – paramedics)
 - They also present a literature review (1984 – 1998) – are physicians needed on helicopters
 - 7 studies – advantage (2989 patient)
 - 12 studies – no advantage (more than 2904 patients)

Wirtz et al. (2002)

- 7 studies – physicians are needed(2989 patient)
- MDs necessary for:
 - skills and judgment
 - Reduction of mortality
 - Patients without MDs received inappropriate care more often
 - Required fewer ED interventions

Wirtz et al. (2002)

- 12 studies (2904 + patients)– physicians are not needed:
 - All configurations reduce mortality
 - Experience is more important than configuration
 - No difference in outcomes or scene time
 - All procedures could be performed by RNs or paramedics
 - No difference in outcome
 - MDs have no effect on patient care

Studies on HEMS

- **Nielsen et al. (2002) 2078 patients**
 - Physician needed for 5% of the patient
 - Advanced CPR, intubation, defibrillation, infusion of large volumes, anesthetics, and vasopressors. Ketamine i.v. as analgesics, nitroglycerin infusions
 - Most patient not critically ill and seldom need emergency treatment
 - Suggest a more selective participation according to missions

Studies on HEMS

- **Lossius et al. (2002) – 1106 patients**
 - Physician (Anaesthesiologist) had a potential health benefit for 7% (74) of the patient
 - LYG (Life Years Gained) estimated for those patient in total 504
 - Note that 13 patient represented 70% of the LYG
 - They indicate that a ground and air-borne need this competence

Studies on HEMS

- **Garner (2004) systematic review of 12 studies (1987 – 2002)**
- **Compared:**
 - Physicians and non physicians
 - Helicopter with road ambulance

 - RCT and Cohort studies
 - The majority of studies (10) support inclusion of physicians (i.e. lower mortality, procedure performance, functional outcome)
 - Physicians can independently make decision - could be an important factor - the lower mortality in one of the studies?
 - Training and experience of physicians varied – could effect outcome of the studies

Discussion

- All studies had limitations
- Over 50 percent of the studies supported (in some way), inclusion of physicians in HEMS
- More studies are needed
- Silfvast (2004)
 - “The picture is complicated by the fact that the structure of the emergency service systems vary with regard to, e.g., response time, level of basic care provided and types of patient treated”
- From a patient perspective - the highest competence would be preferable
- Important factors:
 - Training and experience important
 - Experience based knowledge (clinical eye)

Conclusion

- There should be no doubt of that a group of patient will benefit of the specialist competence of an emergency physician
- The size of this group is depending on kind of system and panorama of patients
- In most cases a specialist nurse will be sufficient for the patients need



Thank You

