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# Scandinavian update on trauma, resuscitation and emergency medicine 2005-2007

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# MESH-words

- Resuscitation, Electric countershock, Defibrillators
- Pediatric emergency care
- Disasters
- Emergency, Emergencies, Emergency treatment
- Trauma, Accident
- Emergency Medical Technicians
- EMS
- Emergency Medicine, Emergency Nursing

# Evidence based medicine

- Randomized controlled trials
- Double-blind method
- Controlled clinical trials
- Random allocation
- Evaluation studies
- Meta-analysis
- Practice guidelines
- Consensus development conferences
- Multicenter studies

# What was found?

- 986 articles
  - 204 eligible
    - Interview studies 17
    - Surveys 11
    - Register 19
    - Review 15
    - International multicenter 11
  - Trauma 40
  - Cardiac arrest 60

# EBM

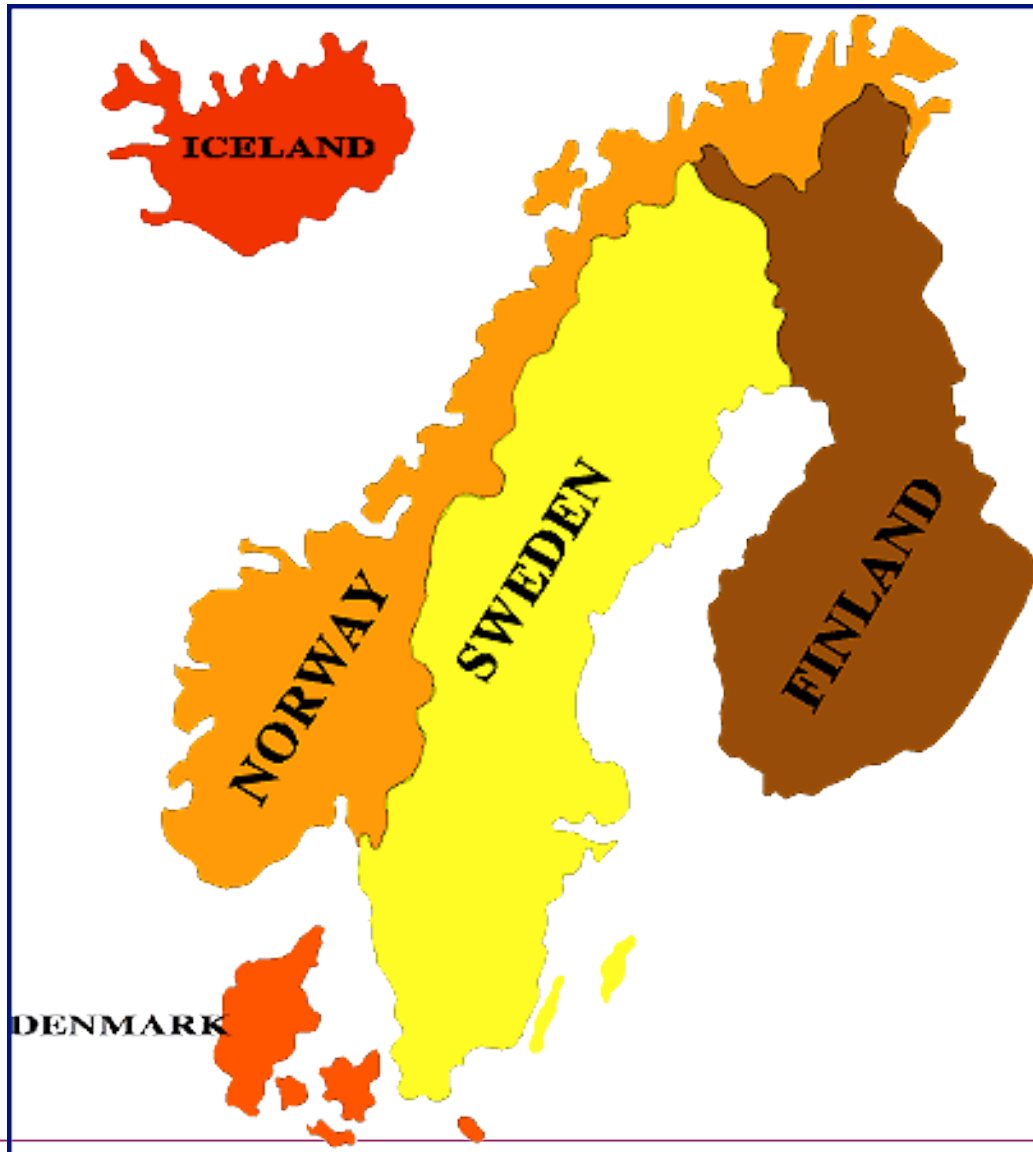
- 176 articles
  - 68 eligible
  
- Randomized controlled studies (9), six on CA
  - **HUMAN**
    - Comparison of 30% and 100% oxygen in CA, Helsinki
    - Comparison of LT, LMA and Cobra, Helsinki
    - Rapid sequence induction for intubation, Copenhagen
  - **MANIKIN**
    - Distance learning as a method to teach CPR, Helsinki
    - Comparison of EasyTube and Combitube, Oslo
    - Quality of layperson CPR, Oslo
    - Positioning of defibrillator electrodes, Helsinki
  - **ANIMALS**
    - Effects on adrenaline during resuscitation, Oslo
  
- Induction of mild hypothermia, Uppsala

## Scandinavian countries

|                | <b>ALL</b> | <b>EBM</b> |
|----------------|------------|------------|
| <b>Denmark</b> | <b>27</b>  | <b>5</b>   |
| <b>Finland</b> | <b>34</b>  | <b>16</b>  |
| <b>Iceland</b> | <b>4</b>   | <b>1</b>   |
| <b>Norway</b>  | <b>51</b>  | <b>20</b>  |
| <b>Sweden</b>  | <b>92</b>  | <b>29</b>  |

# Who is researching?

- Only research published in english
  - No case reports
  - No national magazines
  - No editoreals, letters, statements



## *Finland*

### Helsinki

M Castrén 14

T Silfvast 10

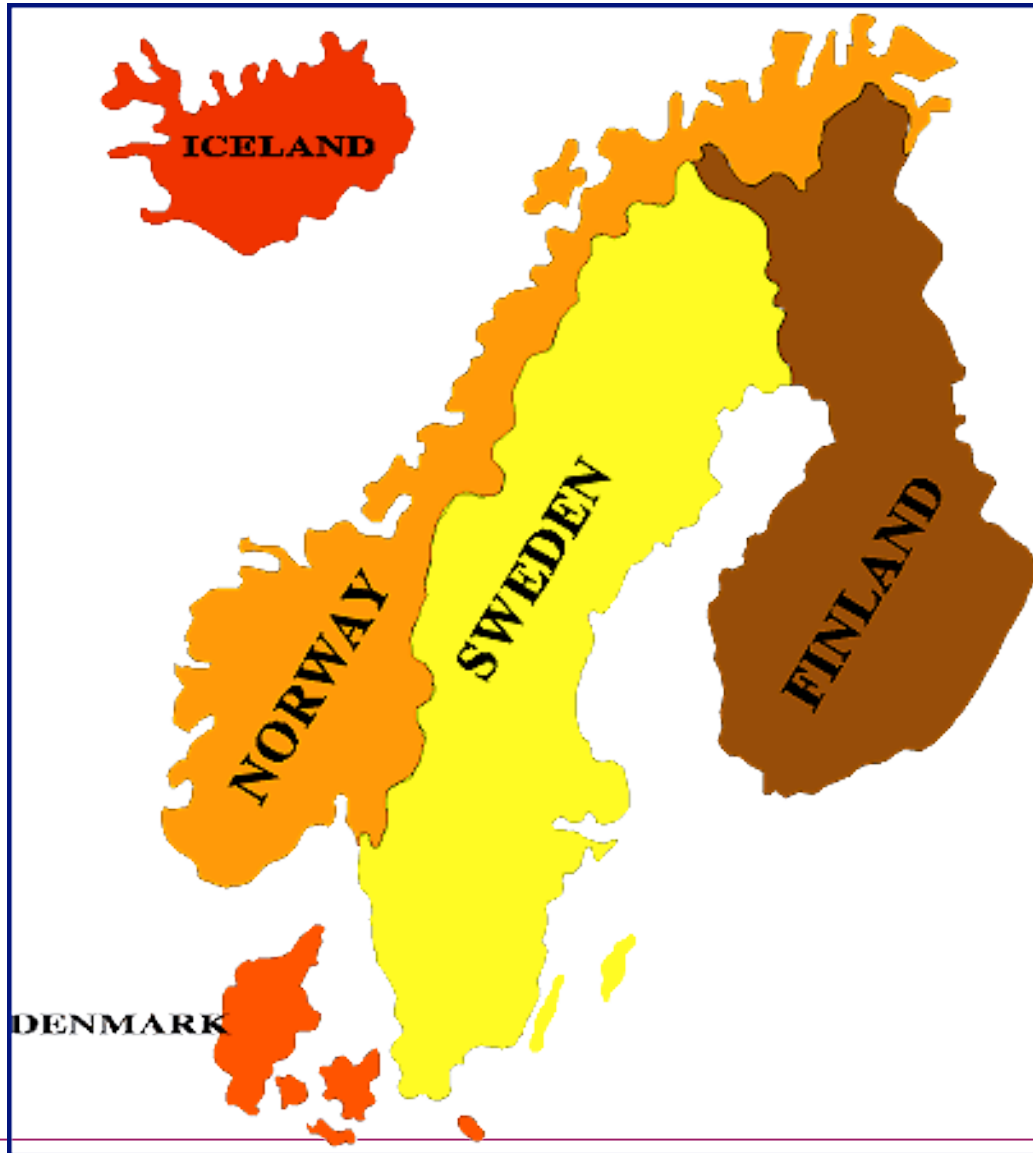
J Nurmi 9

M Kuisma 9

M Skrifvars 6

### Kuopio

J Kurola 7



**Göteborg**

|            |    |
|------------|----|
| J Herlitz  | 51 |
| AB Thorén  | 10 |
| J Engdahl  | 9  |
| S Holmberg | 8  |
| Å Axelsson | 7  |
| C Axelsson | 5  |
| S Aune     | 5  |

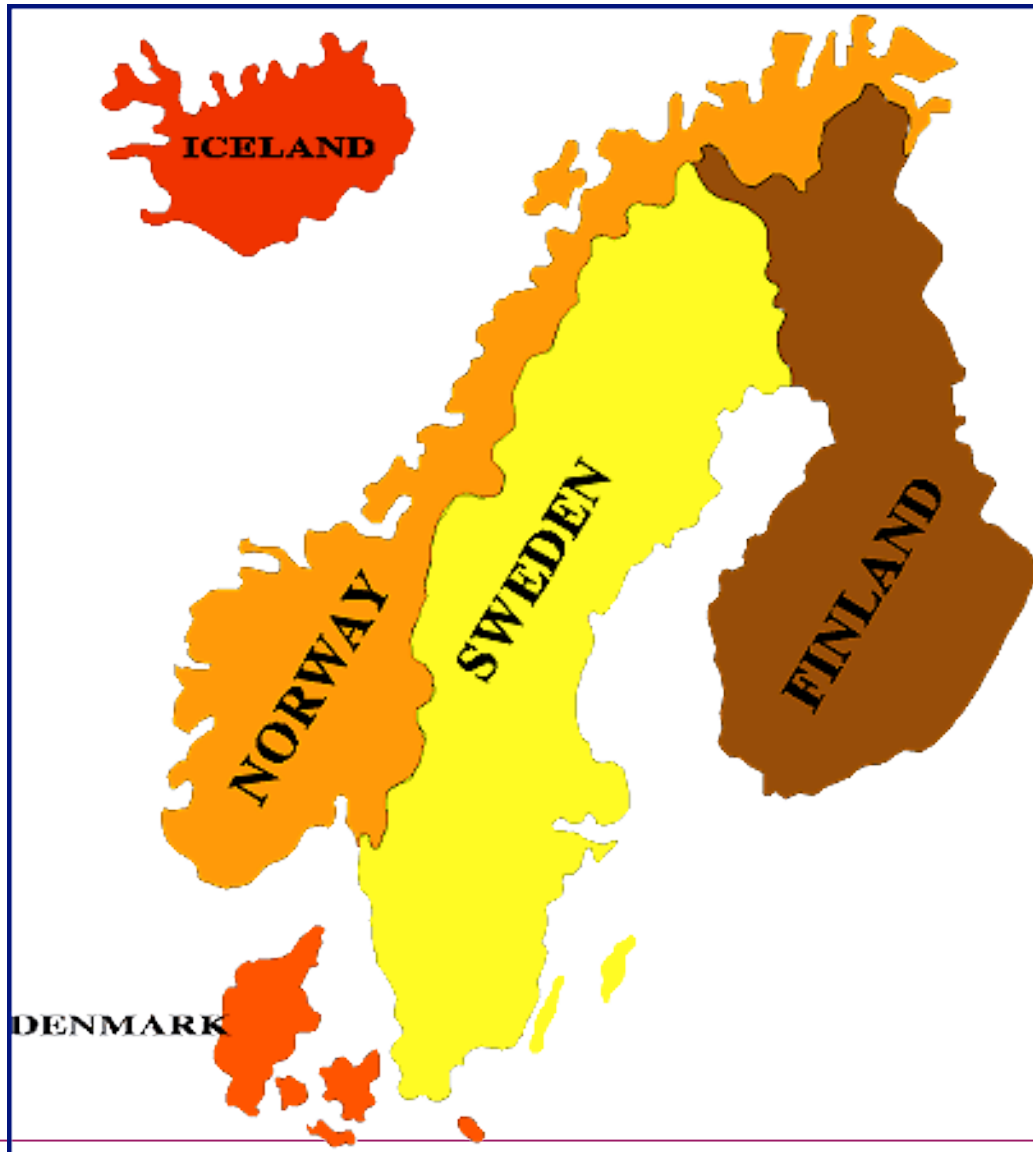
**Borås**

|            |   |
|------------|---|
| BO Suserud | 5 |
|------------|---|

**Stockholm**

|            |    |
|------------|----|
| L Svensson | 22 |
|------------|----|

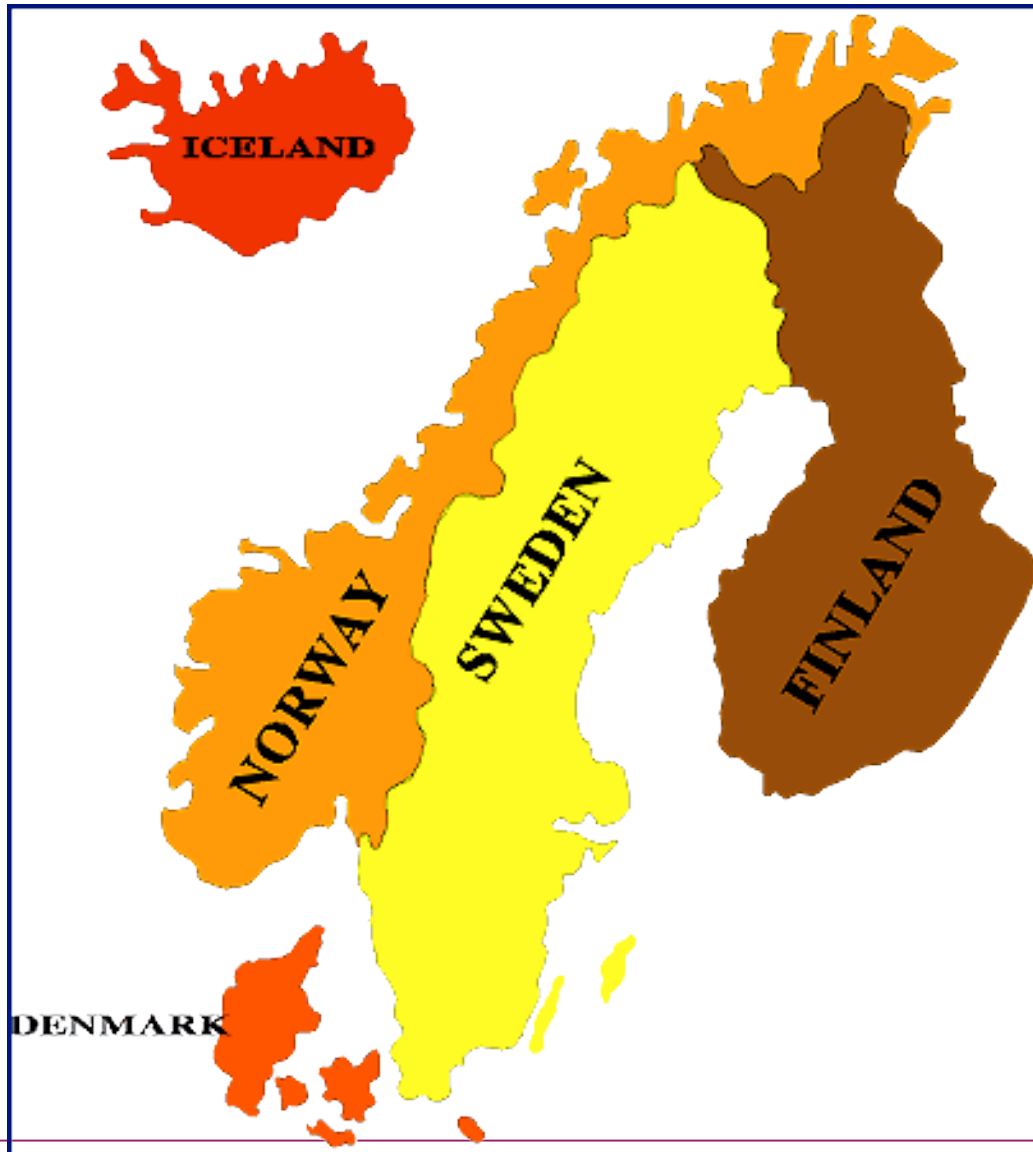
L Riddez



## *Norway*

### Oslo

|            |    |
|------------|----|
| PA Steen   | 24 |
| J Kramer-J | 15 |
| L Wik      | 11 |
| K Sunde    | 7  |
| T Eftestol | 7  |
| M Pytte    | 5  |



## *Denmark*

### Copenhagen

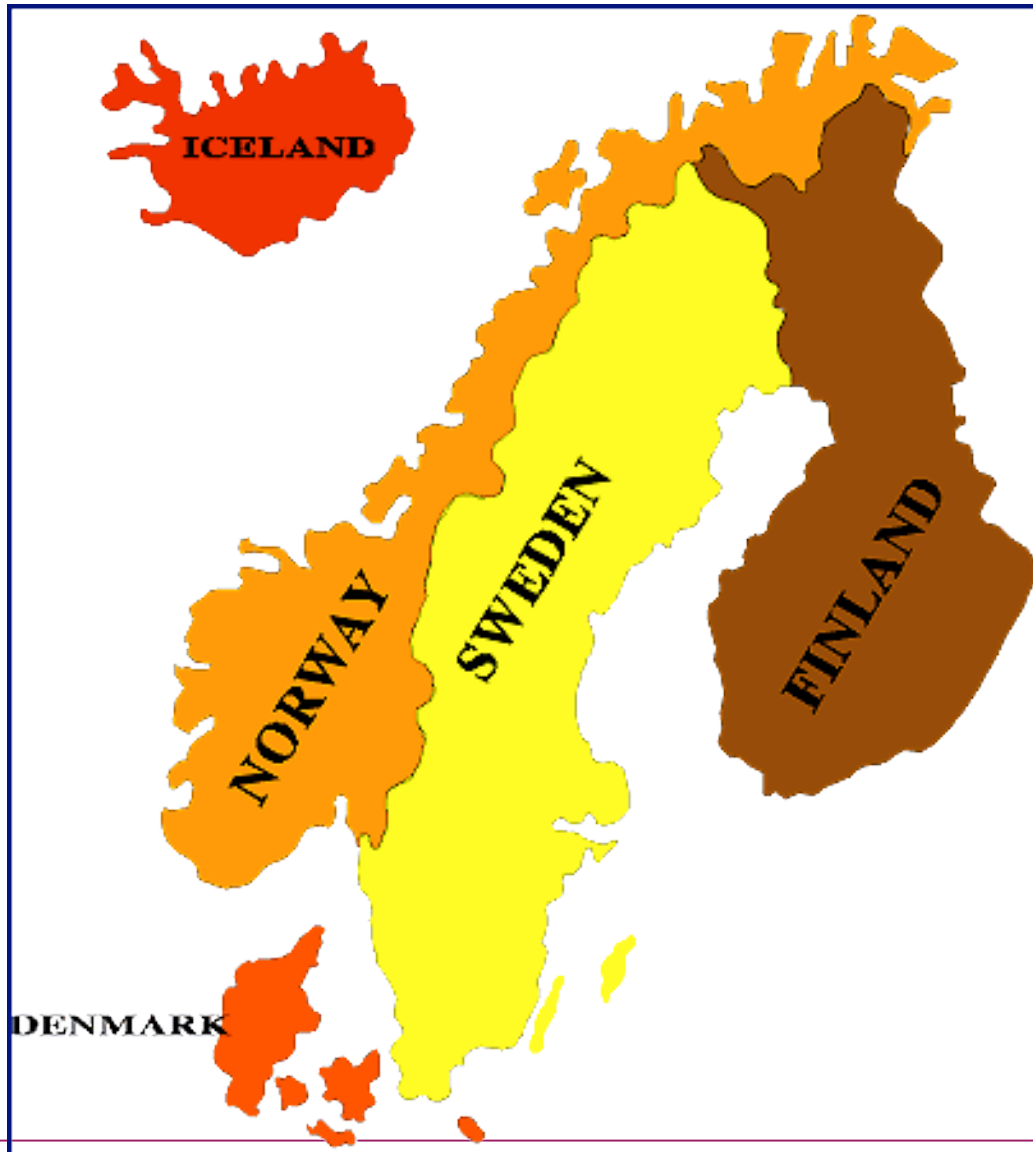
LS Rasmussen 8

SL Nielsen 6

FK Lippert 3

### Århus

EF Christensen 4



## *Iceland*

### Reykjavik

|                 |   |
|-----------------|---|
| G Thorgeirsson  | 1 |
| H Sigvaldason   | 1 |
| O Gunnarsdottir | 1 |
| V Rafnsson      | 1 |
| O Viktrosdottir | 1 |
| A Henriksdottir | 1 |
| DO Arnard       | 1 |

# JAMA

- Wik L, Kramer-Johansen J, Myklebust H, Sorebo H, Svensson L, Fellows B, Steen PA.
  - Quality of cardiopulmonary resuscitation during out-of-hospital cardiac arrest.  
JAMA. 2005 Jan 19;293(3):299-304
- Stenestrand U, Lindback J, Wallentin L; RIKS-HIA Registry.
  - Long-term outcome of primary percutaneous coronary intervention vs prehospital and in-hospital thrombolysis for patients with ST-elevation myocardial infarction.  
JAMA. 2006 Oct 11;296(14):1749-56

## BMJ

- Norlund A, Marke LA, af Geijerstam JL, Oredsson S, Britton M; OCTOPUS Study.
  - Immediate computed tomography or admission for observation after mild head injury: cost comparison in randomised controlled trial.  
BMJ. 2006 Sep 2;333(7566):469. Epub 2006 Aug 8
- af Geijerstam JL, Oredsson S, Britton M; OCTOPUS Study Investigators.
  - Medical outcome after immediate computed tomography or admission for observation in patients with mild head injury: randomised controlled trial.  
BMJ. 2006 Sep 2;333(7566):465. Epub 2006 Aug 8



# Studies

- Prevention 6
- Geriatrics 7
- Guidelines, implementation 3

# International Federation for Emergency Medicine 1991

- Emergency medicine is a field of practice based on the knowledge and skills required for the **prevention**, diagnosis and management of acute and urgent aspects of illness and injury..."

## Sulheim S. JAMA 2006; 22:919

### → Helmet use and risk of head injury

- 8 major Norwegian alpine resorts
- Head injuries in 17.6%
- Using a helmet was associated with a 60% reduction in risk of head injury

→ Helmet users = 656

→ Non-helmet users = 2330

# Alcohol screening in the ED

→ Karlsson A et al. Accident and Emergency Nursing 2005; 13:44

- **Feasibility of computerized alcohol screening...**

- "There is no time for this"

- "ED should only attend acute problems"

- 46 of 72 considered prevention their duty

→ Nordqvist C. Addictive Behaviors 2006; 31: 191

- **Attitude changes after conducting alcohol screening**

- A positive change towards alcohol preventive measures in general

- More staff were uncertain if ED the right place

# Nordqvist C et al. Public Health 2005; 119:789

## → Alcohol prevention at an ED: physicians' perspectives

- Methods for increasing physicians' interest in health promotion should be considered

# Nilsen P et al. Accident Analysis and Prevention 2007; 39:757

## → Frequency of heavy drinking among nonfatal injury in an ER

- Risky alcohol consumption prevalent among patients treated in ERs
- ER a logical setting in which to screen and intervene for alcohol problems



## Leif Svensson

- ” They are the main focus group and we really try to take extra good care of them”
  - patients over 80
- Visits to ED increases dramatically as people age
- 65-74 year group increases with 53%

# Geriatrics

- **Konttinen N. Acta Anaesthesiol Scand 2006;50:283**
  - Emergency surgery on patients over 100 years old
    - 12 patients – three died and 9 returned to daily living equivalent to that before the surgery
- **Väisänen O. Resuscitation 2005;66:183**
  - Quality of life after prehospital thrombolysis
    - 112 older than 65 and 106 younger
    - PCI 14 % vs 32 %, mortality 22 % vs 7 %
    - Mental and physical recovery similar in survivors

# Laurell H. Gerontology 2006; 52:339

## → Acute abdominal pain among elderly

- Diagnosis less reliably in elderly
- Elderly arrive at ED after a longer history of pain
- More often specific organic disease

## Kihlgrén A. J Clinical Nursing 2005; 14:601

### → Emergency nurses' caring for older patients at an ED

- The older patients are uncomfortable and the ED is not the right place for these patients
- The ED is not organized to meet their needs

# ”When will the guidelines get the message?”

- **Sanders AB et Ewy GA. JAMA 2005; 293:363**

# Talving P. Prehospital Disaster Medicine 2005; 20:228

→ Have prehospital trauma life support (PHTLS) guidelines been implemented in hypotensive patients (syst < 90 mmHg)

- Fluid therapy initiated in the majority of patients (73%) regardless of the type of injury (blunt 75%/ penetrating 25%)
- The on-scene time interval was 19 minutes
- Conclusion:
  - The time interval at the scene of injury exceeded PHTLS guidelines
  - A predefined fluid resuscitation regimen is not employed

# Merchant M. ..Skrifvars MB, Silfvast T... Critical care Medicine 2006; 34:2017

## → Therapeutic hypothermia after CA

- Web-based survey in USA, UK and Finland
- 2248 completed
- 74 % in USA and 64% in UK had never used hypothermia
  - Not enough data
  - Not a part of ALS
  - Too technically difficult

# Kirves H. Eur J Emerg Med 2007, vol 14 no 2

## → Postresuscitation guidelines

- Only 40% treated according to guidelines
- 83 % of sub-optimally treated patients had a physician on scene, compared with 95 % of optimally treated patients
- In Helsinki and Uusimaa region 52 % and in Oulu only 16 %
- Sub-optimal care was associated with mortality

# Benchmarking

- Hollenberg J. Journal of Internal Medicine 2005; 257: 247
  - Difference in survival between Stockholm and Göteborg
    - Percentage of patients with VF at arrival of ambulance crew was 18% vs 31%
    - Patients alive after CA 2.5% vs 6.8%
  - SALSA
  - SMS

# From research to practice

## ■ Af Geijerstam JL

- Review: 93 studies and reports with 66 000 patients
  - Only three cases with early adverse outcome despite normal CT after a mild head injury
- Randomised trial: 39 hospitals, 2602 patients with mild head injury
  - Immediate CT leads to similar outcome than observation in hospital
- Cost comparison in randomised controlled trial
  - 461 euros vs 677 euros, 32% less in CT group
- Medical outcome after immediate computed tomography or admission for observation in patients with mild head injury: randomised controlled trial
- SBU (Statens beredning för medicinsk utvärdering)
  - After a normal CT the patient can safely be sent home
  - At least 30% lower costs

## Take a home message

- "Being depended on requires you to take care"
- "To care for somebody who is dependent is to demonstrate responsibility"