



EMS DENMARK

Erika Frischknecht Christensen
Professor
Center for Prehospital and Emergency Research,
Aalborg University
efc@rn.dk



CV AND DECLARATION

Anaesthesiologist

Prehospital doctor 1981-2005.

Medical director Århus Trauma Center; Aarhus University Hospital

Medical director 'The Prehospital', Central Denmark Region

2015: Professor, prehospital and emergency medicine, Aalborg

- *Danish Prehospital Quality Database*
- *Danish Cardiac Arrest Registry*
- *HEMS Research Committee*
- *Nordic EMS quality indicators and benchmarking*

Declaration of interests: Many years of interest within this field 😊

Professorship supported by grant to Aalborg University from TrygFonden (philanthropic foundation)

DENMARK HEALTH CARE

580,272 inhabitants
43,000 km²

A public taxed financed health care system
with regional responsibility
Free access for all citizens

Five health care regions

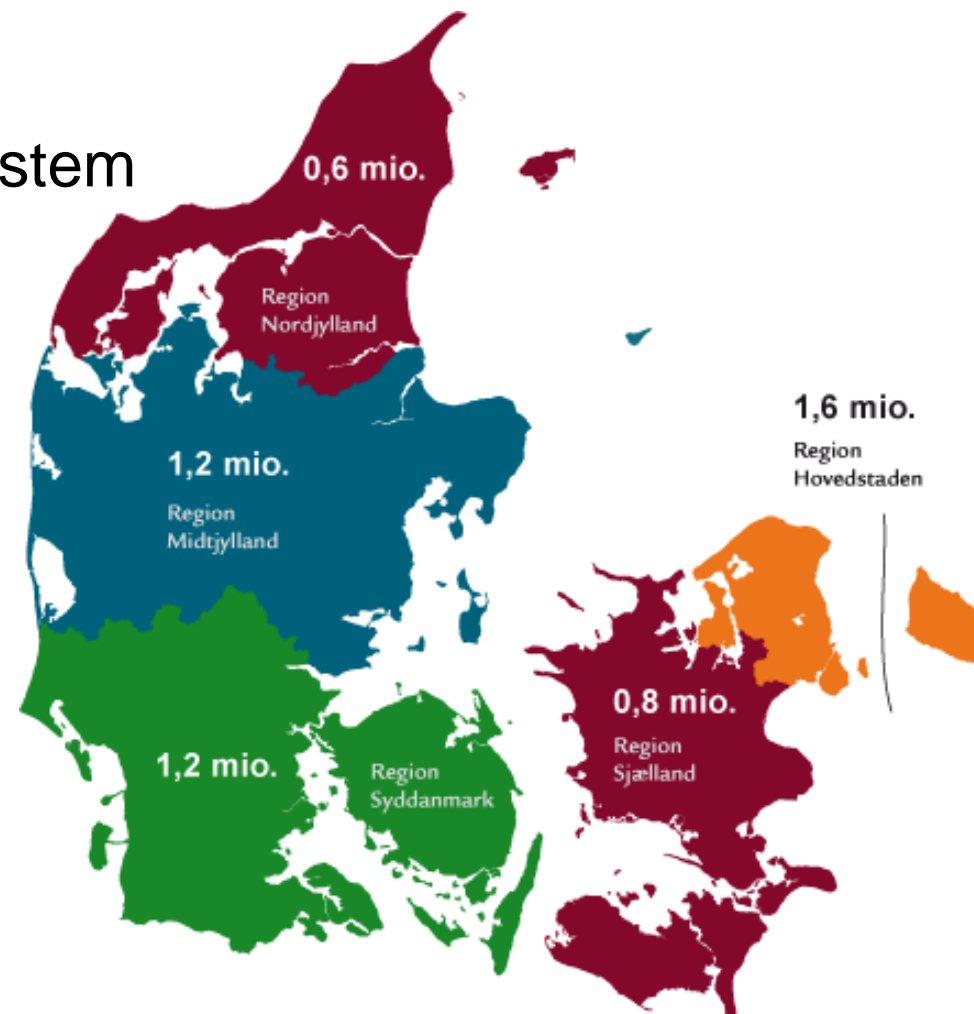
Total in DK approx:

320 ambulances

20 rapid respons units

23 'Doc' cars

3 HEMS



PREHOSPITAL CARE DEFINED BY LAW:

BEK nr 971 af 28/06/2016 (Gældende)	Udskriftsdato: 21. oktober 2016
Ministerium: Sundheds- og Ældreministeriet	Senere ændringer til forskriften
Journalnummer: Sundheds- og Ældremin., j.nr. 1600730	Ingen

Bekendtgørelse om planlægning af sundhedsberedskabet

*“Prehospital care = ‘ambulance care’
The purpose of prehospital care is to:*

- Save lives*
- Improve health prognosis*
- Reduce pain and other symptoms*
- Reduce the course of disease*
- Provide care*
- Provide safety”*

But:

Service level targets are regional

The five health care regions 'PRE-HOSPITALS' in Denmark
One prehospital medical director in each the five health care regions

Responsible for the patient from the 1-1-2
call to the handover at the hospital
Regional service level targets

Emergency and trauma care

Mid 1990's – 2000:

Trauma care system initiated

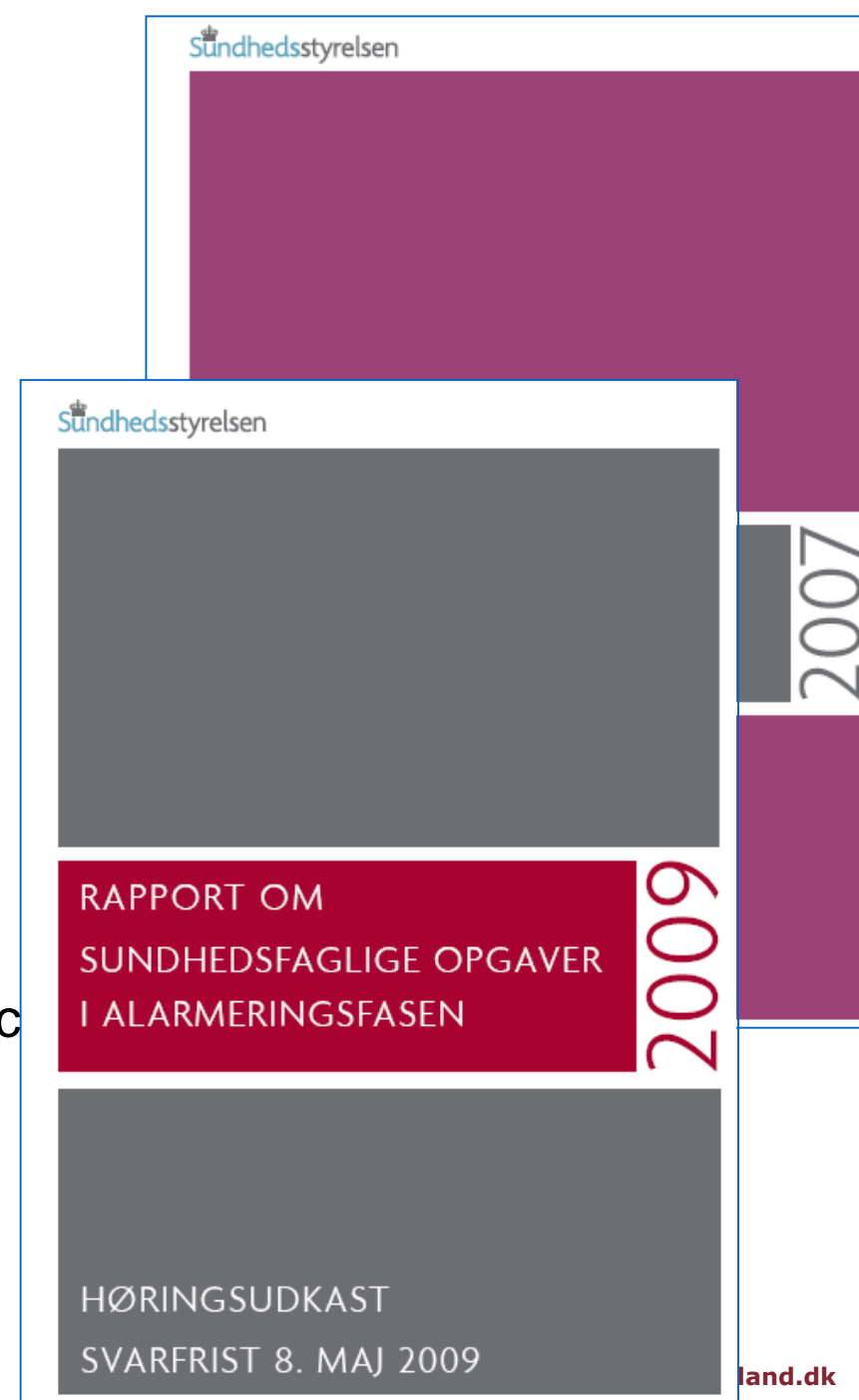
Four level 1 trauma centres

2007 Report on Improving emergency care:

- "One entrance"- EDs
- From 40 to 20 hospitals

2009 Report on Medical issues in alarm and dispatch

- Emergency medical dispatch
- HEMS



CALLING 112 - WHO ANSWERS THE PHONE?

ALARMCENTRALEN
POLICE - OR
COPENHAGEN FIRE
DEPARTMENT

REGIONAL
EMERGENCY MEDICAL DISPATCH CENTER



WEAKNESSES?

WHO DECIDES TO SEND (OR NOT TO SEND AN AMBULANCE, A 'DOC-CAR', HEMS ?

REGIONAL
EMERGENCY MEDICAL DISPATCH

CALL-TAKERS:
HEALTH CARE PROFESSIONALS

TECHNICAL DISPATCHERS

CRITERIA BASED DISPATCH



- Level of acuity
- Response
- Supplemental Questions
- Medical Advice to non-professionals
- Medical Advice to health care professionals

LEVEL OF URGENCIES



A) life-threatening – "immediate"

B) emergency but not

life-threatening – "emergency"

C) non-urgent

D) need only transfer, not an ambulance

E) Other help

Ambulances staffed with trained
personnel

- National training requirements
- National prehospital system of quality of care

AMBULANCES REQUIRMENTS: TECHNICAL AND TRAINING LEVELS: THREE LEVELS: EMT ASSISTANT/EMT/PARAMEDIC



PARAMEDICS



‘DOC’ CARS- RENDEVOUS ANAESTHESIOLOGISTS



TRAUMA CENTERS AND HEMS BASES I DENMARK

4 level-1 trauma centers:

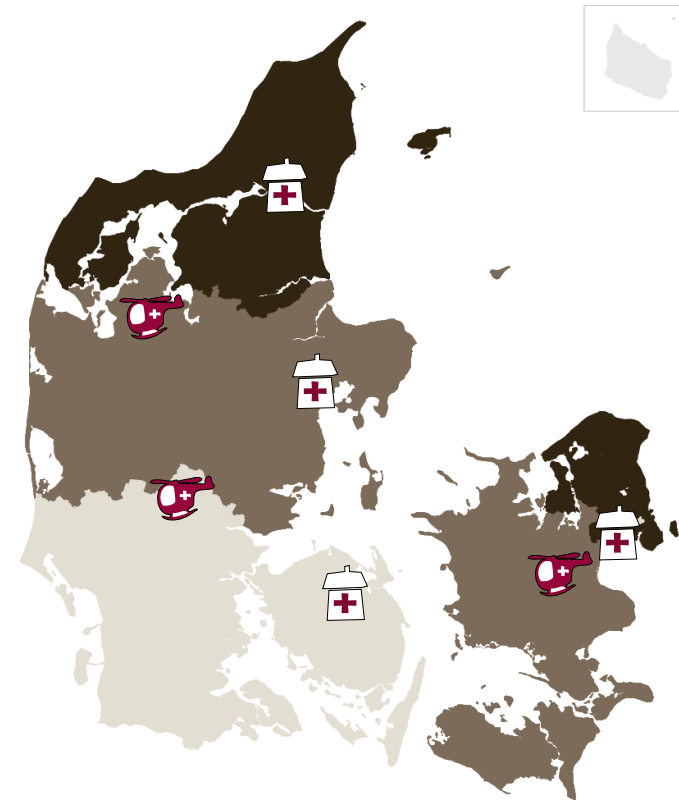
Aalborg, Aarhus, Odense,
Copenhagen

Mid 1990's – 2000:

3 HEMS-bases – AND soon no 4

Skive, Billund, Ringsted

1.10. 2014



SEVERE TRAUMA

Injury, Int. J. Care Injured (2007) 38, 993–1000



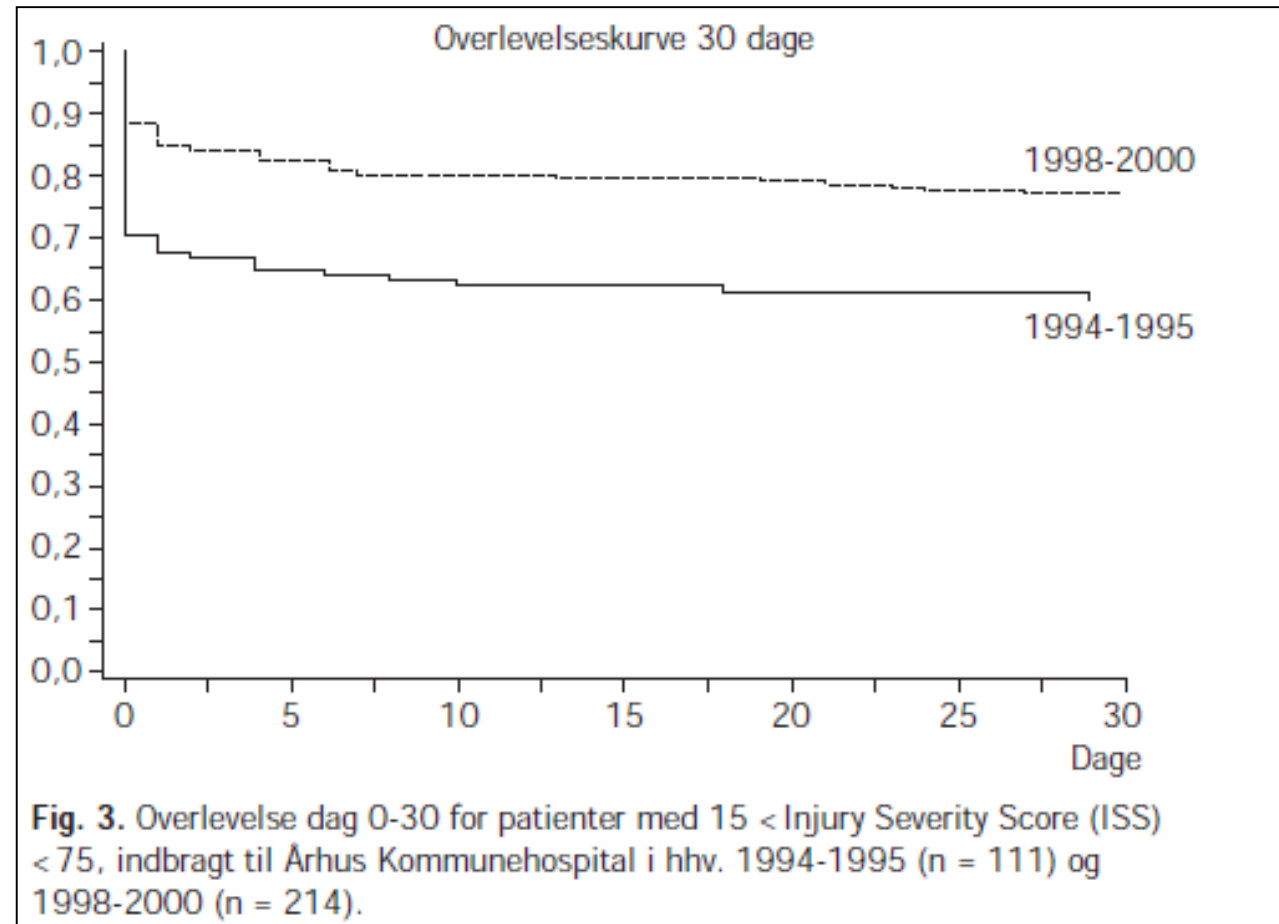
INJURY
INTERNATIONAL JOURNAL OF THE CARE OF THE INURED

www.elsevier.com/locate/injury

International comparison of prehospital trauma care systems

Bahman S. Roudsari^{a,*}, Avery B. Nathens^b, Peter Cameron^c,
Ian Civil^d, Russel L. Gruen^e, Thomas D. Koepsell^{f,g}, Fiona E. Lecky^h,
Rolf L. Leferingⁱ, Moishe Liberman^j, Charles N. Mock^{k,f},
Hans-Jörg Oestern^l, Thomas A. Schildhauer^m,
Christian Waydhasⁿ, Frederick P. Rivara^{o,f}

Survival among severely injured patients (ISS>15, but not 75) before and after prehospital and hospital traumesystem in Aarhus



TO THE TRAUMA CENTER

Higher survival among severely injured patients
after compared to before HEMS
Phd by Rasmus Hesselfeldt

EMS IN NORTH DENMARK REGION



**POLICE FIRE-BRIGADE AND EMS:
COMMON TRAINING: MAJOR INCIDENT MANAGEMENT ON SCENE**

REGIONAL MAJOR MEDICAL INCIDENT COORDINATION AT THE EMD

The Doctor in the EMS-dispatch
center coordinates resources in
the entire health care in cases of
major incidents

Communicates with:

Major incident managers

- On scene
- In hospital

PREHOSPITAL CARE ONLY RECENTLY A MEMBER OF 'THE HEALTH CARE FAMILY'

EMS HAS BEEN TRANSPORT BUSINESS

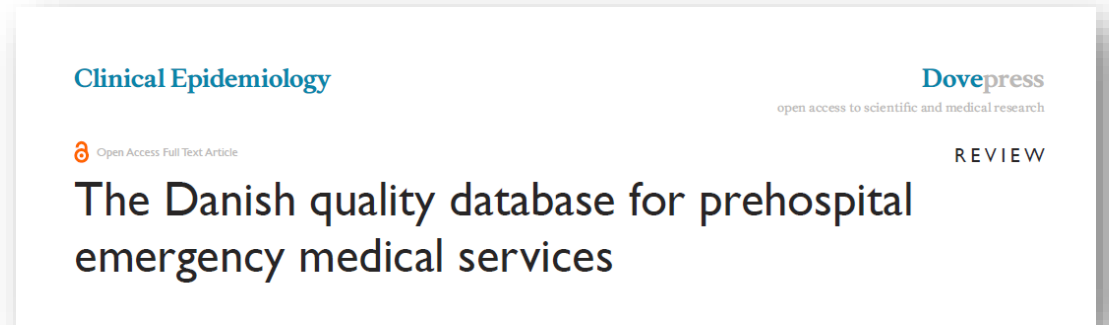
DATA SOURCE: AMBULANCE LOGISTICS:

INCIDENTS = CALLS

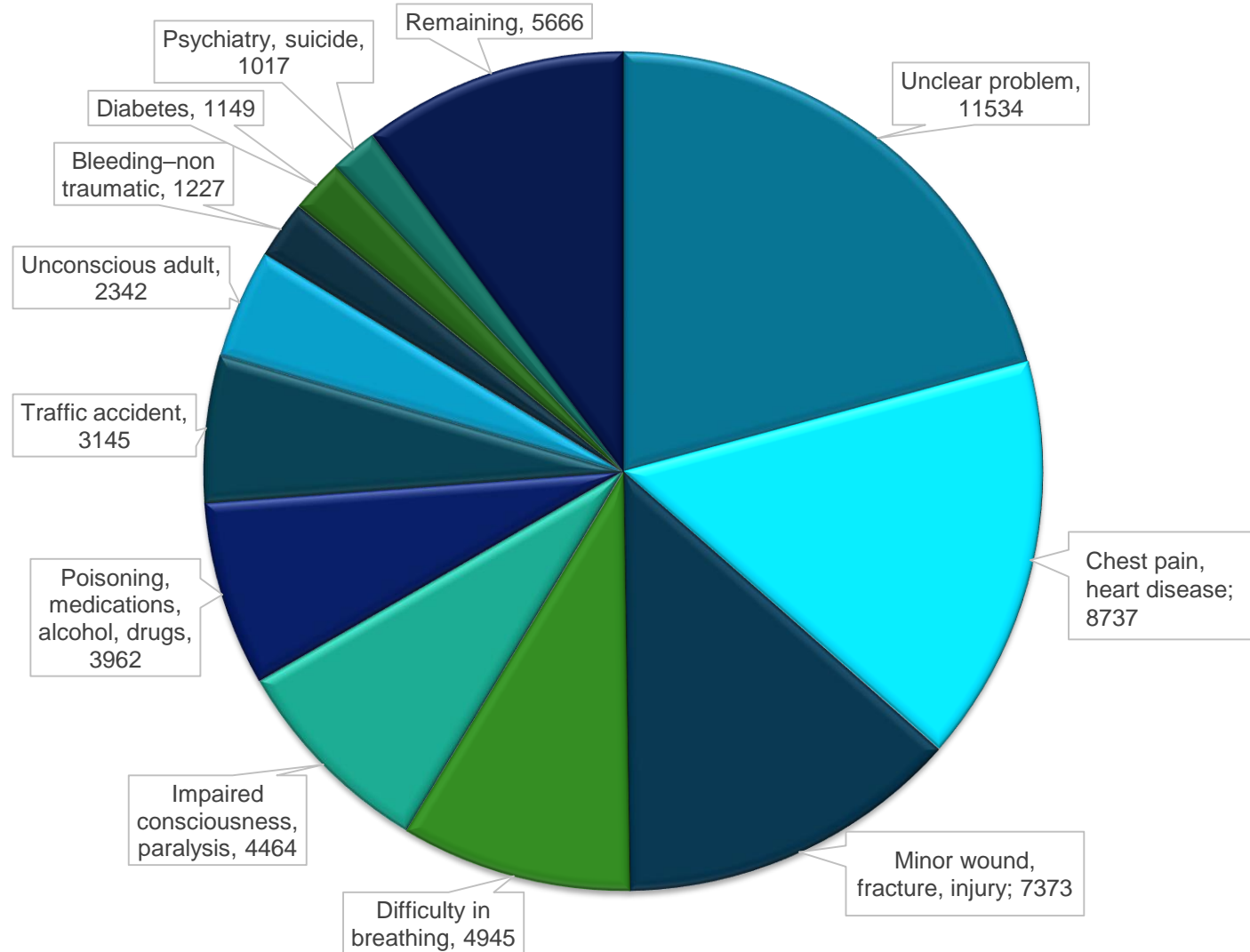
TASKS = AMBULANCE RUNS

PREHOSPITAL BENCHMARKING =

AMBULANCE RESPONSE TIME INTERVALS



PREHOSPITAL PATIENTS: WHO ARE THEY? MAIN SYMPTOM AT 1-1-2 CALL?



Capital, Central and Southern Region of Denmark; N = 67.135

INCREASING NUMBER OF EMERGENCY 1-1-2 PATIENTS 2007 AND 2014

Region Nordjylland 2007 - 2014, n = 148.757

Christensen EF et al. BMJ Open 2017

**TRAUMACARE:
FROM THE CALL TO TRAUMA HOSPITAL
AND: PREVENTION**



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THANK YOU!



Erika Frischknecht Christensen
Professor
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