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Prehospital Organisation –
in an urban area of Denmark

Objectives



- Description of organisation
- One Strength
- One Weakness
- Illustrating Examples
- Why two tiered – Doctor and ENT/paramedic ?
 - Daily life
 - Major incident
 - Research



Rigshospitalet

EMS – Two tiered



Dispatch



112



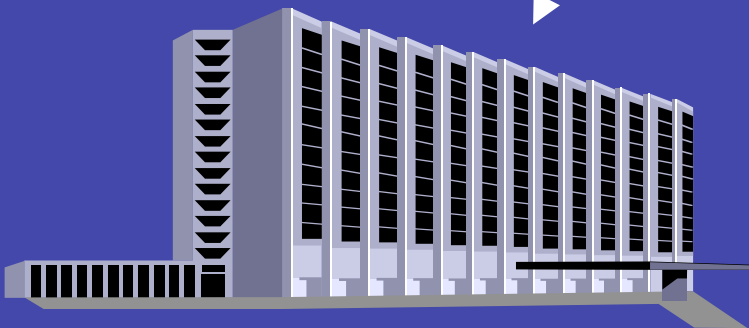
Primæry ambulance



MECU

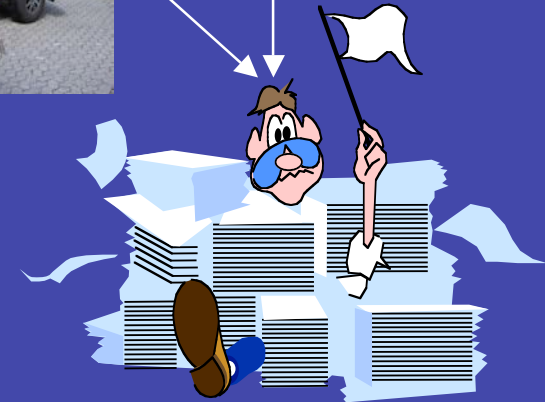


MICC

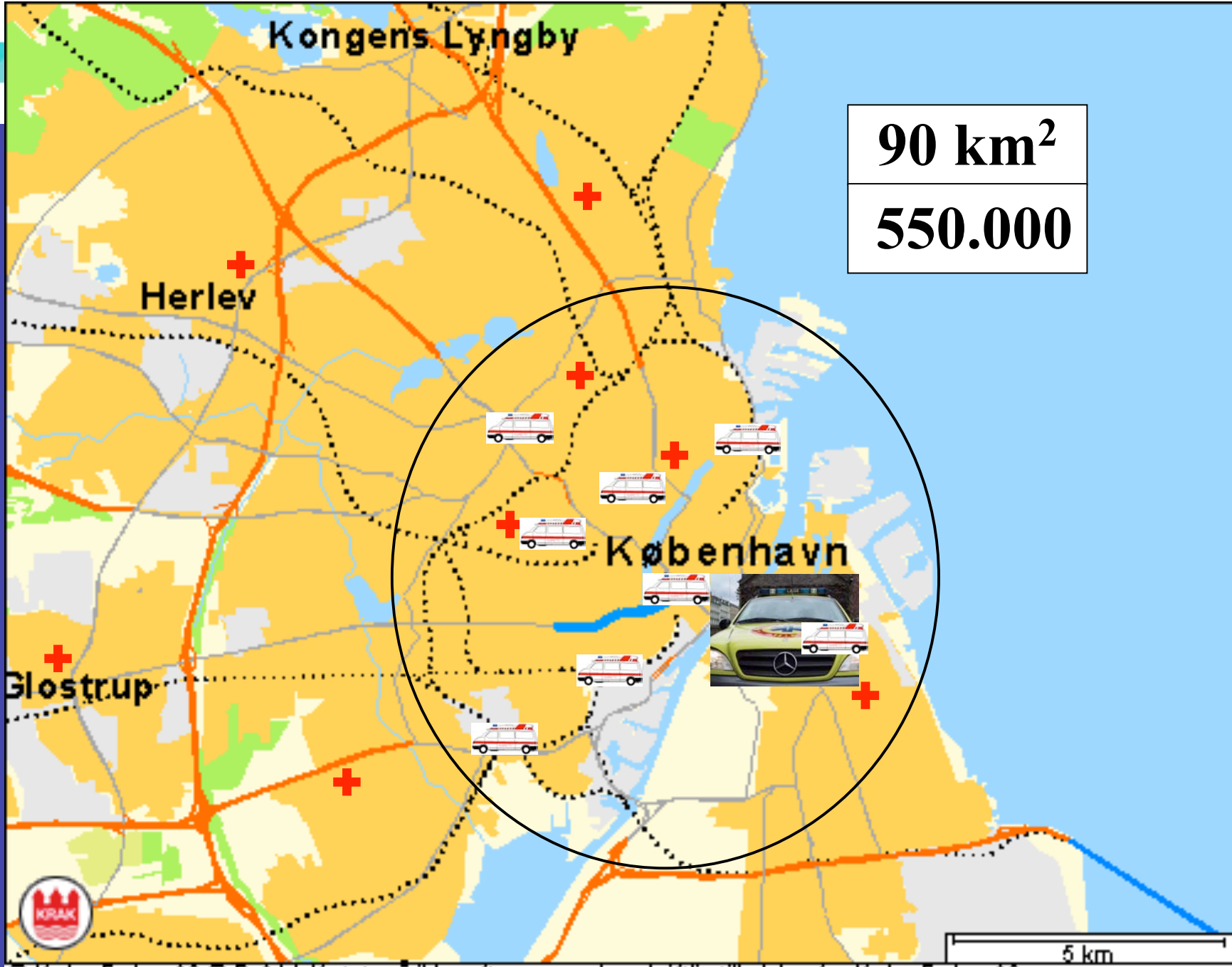


Hospital

Physical transport



Patient



90 km²
550.000

Prehospital medical treatment - who is going - today

- Ambulance
 - EMT !!!
 - (Paramedics)
- MECU
- Emergency team (2 pers)
- "Doctor team" (4 pers)



"Hit by train"

Prehospital medical treatment - who is going to go

- Ambulance
 - EMT/Paramedics
- MECU



“Hit by train”

Hospitals with Emergency Room today



Hospitals with advanced Emergency Care Facilities – in the future



CPH - Prehospital system

Strength / Weakness



- Educational level (MECU)
 - Specialist anaesthesiologist
 - ATLS
 - ALS
 - "Chief Emergency Physician"-course
 - **And above all**
 - **Maintaining routine from daily in-hospital anaesthesiologic practice**

Where does a doctor make a difference on-scene ?

Dispatch message: "Traffic accident –Cyclist hit by truck"

Fact: 51-yr female **run over** by truck

Signs: Crush lesion of left humerus and right tibia

Treatment:

Fluid-infusion

Anesthetised on-scene

Lev I -TraumaCenter - Rigshospitalet

Amputated

In Opr – 6 h and 65 units of "blood/FFP/TC

Uncontrolled bleeding - NOVOSEVEN !



CPH - Prehospital system Strength / Weakness

- 112 - dispatch - difficult.....
 - The key to rational resource management of EMS
 - "Overtriage" – in some degree necessary – prehospital routine
 - "Undertriage" – may be devastating
 - Electronic index-guided dispatch
 - Documentation
 - Development
 - Differentiated respons

Dispatch message	N (% total number of alarms)	CA's number	Probability of CA for a given Dispatch message
Cardiac Arrest	1580 (3)	931 (32)	59
Possibly Dead	4207 (8)	357 (12)	8
Coma	6947 (13)	603 (21)	9
Heart condition	7806 (15)	232 (8)	3
Other (40 different)	31548 (61)	779 (27)	2
Total	52088 (100)	2902 (100)	

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Cardiac Arrest MECU



	2002	2003	2004	2005	2006
Cardiac Arrest	515	484	479	422	420
ROSC at hosp () % of pt. with Cardiac Arrest	81 (16%)	89 (18%)	87 (18%)	66 (16%)	114 (27%)
Discharged () % of pt with ROSC at hosp	35 (44%)	34 (38%)	36 (41%)	22 (33%)	46 (40%)
Discharged In % of all CA's	6,8 %	7,0 %	7,5 %	5,2 %	11,0 %



- **Objectives**

- Saving lives
- Reducing transport stress
 - Treat pain effectively
 - Stabilisation prior to transport
 - Appropriate transport
- Evaluate indication for treatment
- Appropriate Visitation
- “Treat and release” on scene
- Documentation and Research

Prehospital treatment of an emergency

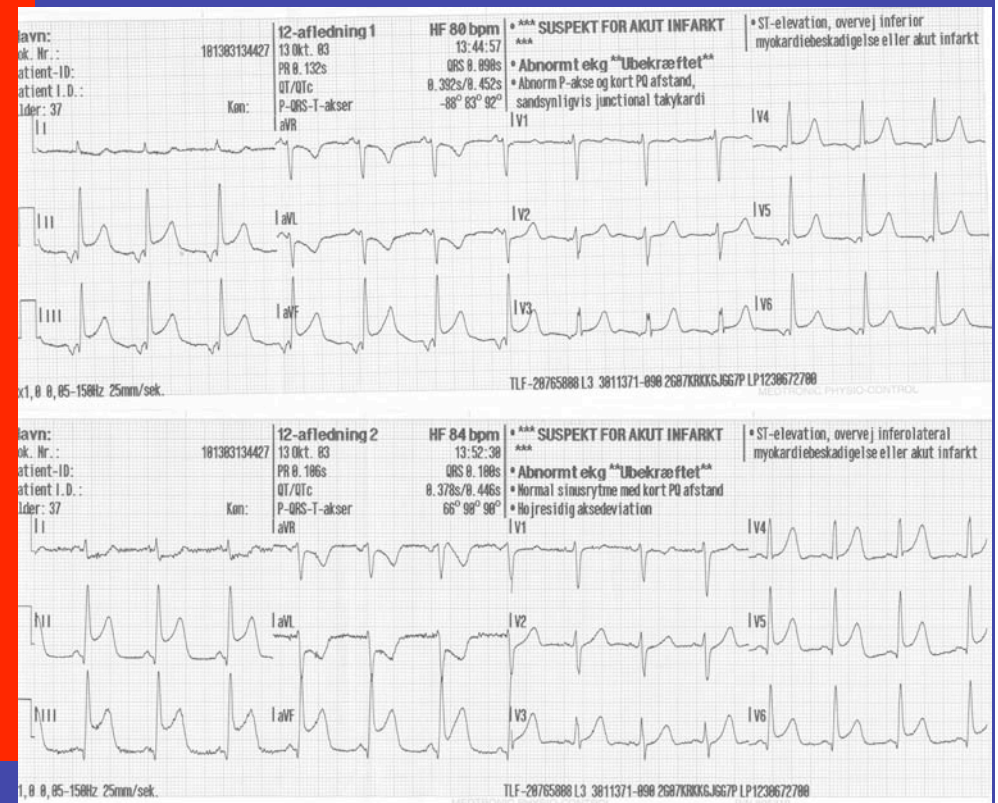
Doctor- competence

- 42- yr female - silently crying
 - Complaining of abdominal discomfort
 - "Heart"burn – Acid-neutralising medication
 - Slightly clammy
 - ?

Treatment of an emergency Doctor competence

■ Diabetes Mellitus

- Large inferior infarction
 - Aspirin, Clopidogrel, Opioid, Nitro –
 - Betablocker, diuretic, atropine
 - Heparin/bivalirudine
 - Vasoactive amines
- PCI performed in 40 min

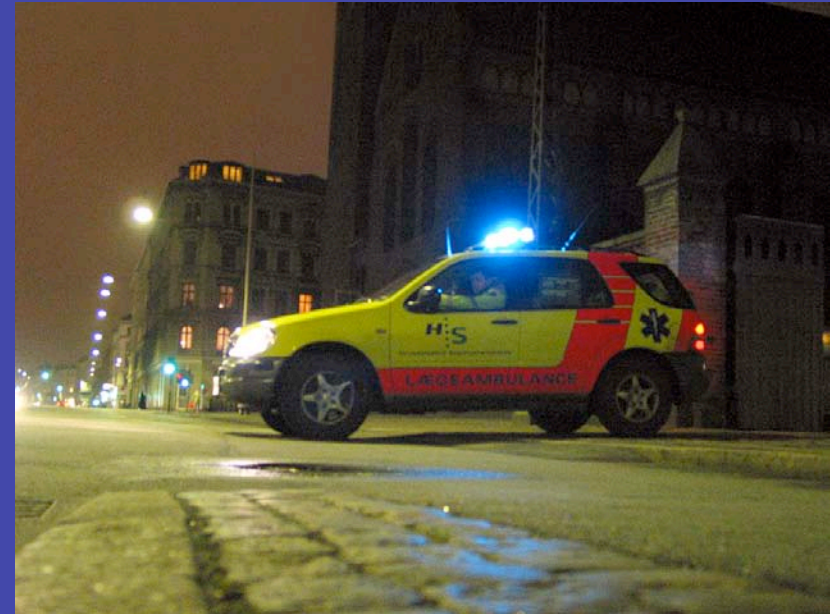


"Treat and release" in 2006 1237 patients - 20%



- Hypoglycaemia 74% (303/410)
- Drug Overdoses 60% (116/193)
- Asthma/KOL 25 % (59/241)

**Awake patient !
Difficult decision**



- Anderson S et al. Acta Anaesthesiol Scand 2002; 46: 464-8
- Steinmetz J et al. Chest 2006; 130: 676-80.

- Major Incident/Catastrophy
 - Visitation/treatment
 - KOOordinating Doctor (Doctor=Læge) = KOOL
 - Area of emergency treatment
 - Communication
 - Major Incident Command Center (MICC)
 - Incident medical command



“Traffic”

Major Incidents



Outer area

Incident area



Emergency treatment



Incident command:
POLICE
FIRE DEPT

KOOL

MICC

Hospital

Hospital

Hospital

Collecting area



- **Documentation**
 - Chart
 - Medical information for the GP
 - National database ?
- **Research/Development**
 - Register
 - 2006: 7 Publications
 - RCT's ??????
 - Telemedicine - ECG



Conclusion

- Difficult diagnostic process
 - Highly skilled and trained participants – DOC's and EMT's
 - Apply the treatment, that makes a difference
- Limited possibilities
 - Symptomatic treatment should prevail ABCD(E)
 - 112-dispatch – improving the process
- Formal education
- Research
 - Treat and release
- Major Incidents
 - Training in small accidents during daylilife