Haiglavälisest südame äkksurmast taaselustatud ja hospitaliseeritud patsient: kellel on suurem tõenäosus jääda ellu?

Aleksander Sipria

Konverents-näitus KIIRABI 2015

RESUSCITATION 2015. The Guidelines Congress 29-30-31 October.
PRAGUE-CZECH REPUBLIC

Haiglaeelsete taaselustamiskatsete analüüs Eestis alates 1999 kuni 2013

A.Sipria

- Sipria A, Talvik R, Kõrgvee A, Sarapuu S, Ööpik A. Out-of-Hospital Resuscitation in Tartu: Effect of Reorganization of Estonian EMS System. Am J Emerg Med 2000; 18(4): 469-73

- Sipria A, Novak V, Veber A, Popov A, Reinhard V, Slavin G. Out-of-hospital resuscitation in Estonia: a bystander-witnessed sudden cardiac arrest. Eur J Emerg Med 2006; 13(1): 14-20

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EuReCa ONE – 27 NATIONS, ONE EUROPE, ONE MONTH

A prospective data analysis over one month in 27 resuscitation registries in Europe

Jan-Thorsten Gräsner*, Bernd W. Böttiger, Johan Herlitz,
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Jan Wnent, Holger Maurer, Siobhán Masterson, Leo Bossaert

Background

- Incidence, likelihood of resuscitation, and outcomes from out-of-hospital cardiac arrest (OHCA) vary across Europe
- A European, multi-centre study may provide explanations for these differences
- This study will involve **27 EUROPEAN COUNTRIES**

Aim

- The aim of EuReCa ONE is to:
  - Understand differences in incidence and outcomes from OHCA in Europe by comparing the epidemiology, treatment, and survival from OHCA across Europe
  - Use the data gathered to facilitate improved outcome from OHCA.

Governance and Management

- EuReCa ONE is governed by a Steering Group from the European Resuscitation Council (ERC) and is administered and conducted by a European Study Management Team
- EuReCa ONE is registered with ClinicalTrials.gov (Registration Number: NCT02236819)

Patients and Methods

- Every patient who suffers OHCA is attended and/or treated by an emergency medical service and documented in a participating registry during October 2014 will be included
- The study dataset was developed in accordance with the Utstein template
- All data will be submitted by National Coordinators in each participating country to the EuReCa ONE database in anonymised format

PARTICIPATING REGISTRIES

EuReCa ONE National Coordinators: Michael Baubin (Austria), Pierre Mols (Belgium), Irzal Hadžibegović (Croatia), Marios Georgiu (Cyprus), Roman Škulec (Czech Republic), Mads Wissenberg (Denmark), Ari Salo (Finland), Hubert Hervé (France), Jan Wnent (Germany), Nikolaos Nikolaou (Greece), Gerda Lóczi (Hungary), Hildigunnur Svavarsdóttir (Iceland), Peter Wright (Ireland), Federico Semeraro (Italy), Carlo Clarens (Luxembourg), Ruud Pijls (Netherlands), Ingvild Tjelmeland (Norway), Grzegorz Cebula (Poland), Vitor Hugo (Portugal), Diana Cimpoiesu (Romania), Violetta Raffay (Serbia), Stefan Trenkler (Slovakia), Andrej Markota (Slovenja), Fernando Rosell Ortiz (Spain), Anneli Strømsøe (Sweden), Roman Burkart (Switzerland), Gavin Perkins (United Kingdom)

Progress and Plans

- This large and unique study has already succeeded in gaining the collaboration of 27 European countries
- It is the starting point for a pan-European registry of OHCA that can potentially serve as a support to quality benchmarking across the continent

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Clinical paper

Out-of-hospital cardiac arrest survival improving over time: Results from the Resuscitation Outcomes Consortium (ROC)☆

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ABSTRACT

Background: Out-of-hospital cardiac arrest (OHCA) remains a leading cause of death and a 2010 meta-analysis concluded that outcomes have not improved over several decades. However, guidelines have changed to emphasize CPR quality, minimization of interruptions, and standardized post-resuscitation care. We sought to evaluate whether OHCA outcomes have improved over time among agencies participating in the Resuscitation Outcomes Consortium (ROC) cardiac arrest registry (Epistry) and randomized clinical trials (RCTs).

Methods: Observational cohort study of 47,148 EMS-treated OHCA cases in Epistry from 139 EMS agencies at 10 ROC sites that participated in at least one RCT between 1/1/2006 and 12/31/2010. We reviewed patient, scene, event characteristics, and outcomes of EMS-treated OHCA over time, including subgroups with initial rhythm of pulseless ventricular tachycardia or ventricular fibrillation (VT/VF).

Results: Mean response interval, median age and male proportion remained similar over time. Unadjusted survival to discharge increased between 2006 and 2010 for treated OHCA (from 8.2% to 10.4%), as well as for subgroups of VT/VF (21.4% to 29.3%) and bystander witnessed VT/VF (23.5% to 30.3%). Compared with 2006, adjusted survival to discharge was significantly higher in 2010 for treated cases (OR = 1.72; 95% CI 1.53, 1.94), VT/VF cases (OR = 1.69; 95% CI 1.45, 1.98) and bystander witnessed VT/VF cases (OR = 1.65; 95% CI 1.36, 2.00). Tests for trend in each subgroup were significant ($p < 0.001$).

Conclusions: ROC-wide survival increased significantly between 2006 and 2010. Additional research efforts are warranted to identify specific factors associated with this improvement.

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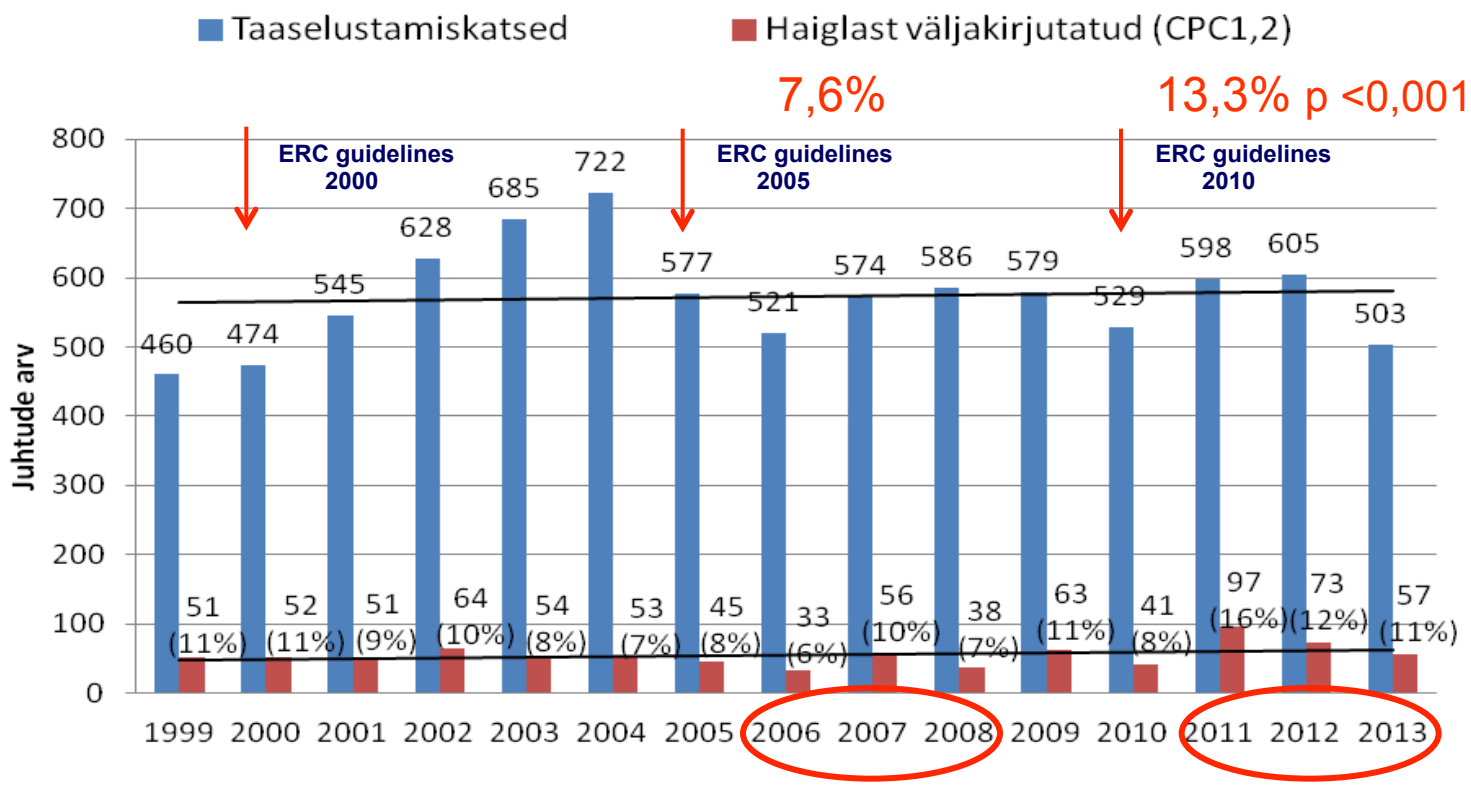
The outcomes of out-of-hospital resuscitation attempts in Estonia before and after implementation of 2005 Guidelines for Resuscitation

	2001-2004	2006-2009	p-value
All resuscitation attempts	2581	2260	-
Males	1828 (70.8%)	1602(70.9%)	ns
Females	660 (25.6%)	581(25.7%)	ns
Children (≤14y)	66 (2.6%)	77(3.4%)	ns
Hypothermia if admitted ICU	-	54	-
Survival to hospital discharge	**2581/222 (8.6%)**	**2260/189 (8.4%)**	**ns**
Presumed cardiac etiology / bystander witnessed	1764/1047(59.4%)	1542/848(55%)	ns
VF as initial rhythm	1047/394(37.6%)	848/275(31.8%)	ns
Bystander CPR	1047/279(26.6%)	848/275 (32.4%)	<0.01
Any ROSC	1047/346(33%)	848/261(30.8%)	ns
Admitted to hospital	1047/301(28.7%)	848/220(26%)	ns
Median response time (min)	6	8	<0.001
Survival to hospital discharge	**1047/88(8.4%)**	**848/75(8.8%)**	**ns**

Haiglavälised taaselustamiskatsed Eestis aastatel 1999-2013

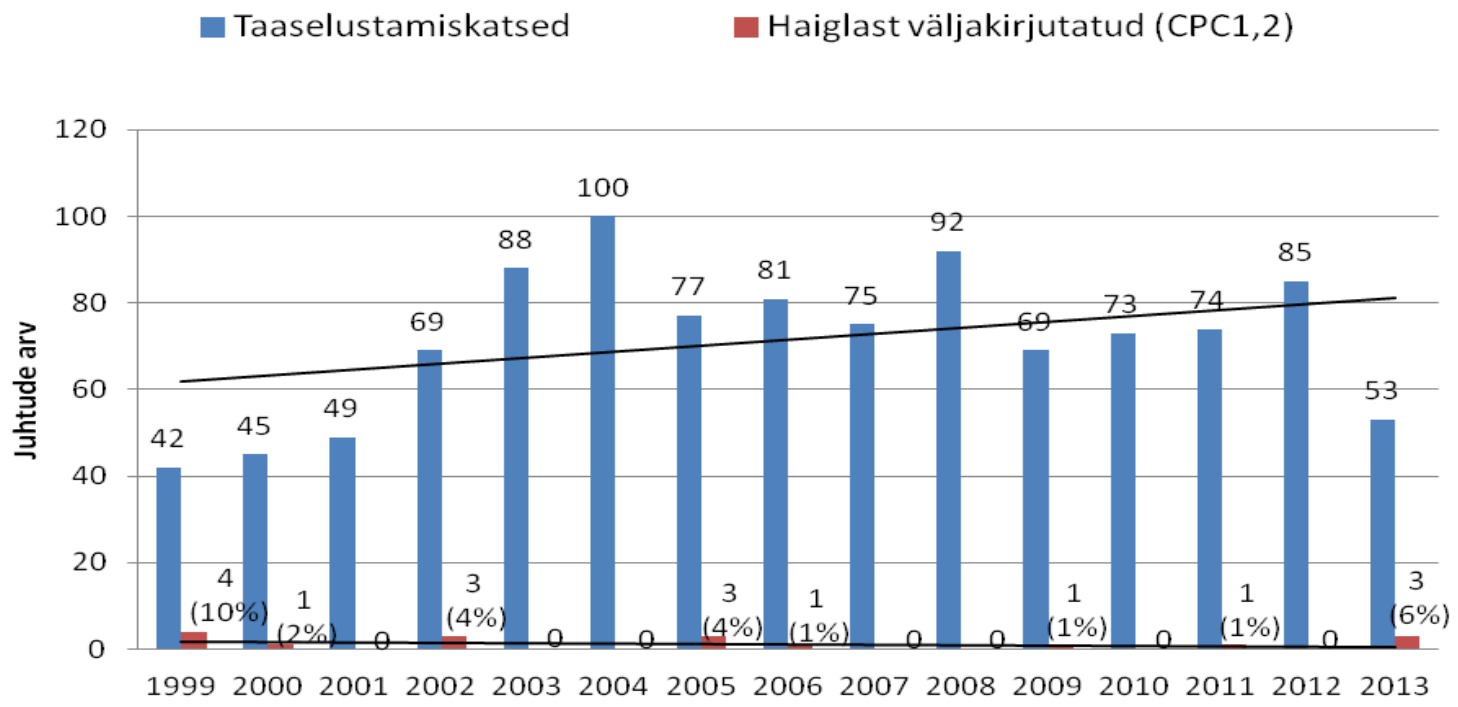
Kokku 8586 patsienti, elus haiglast väljakirjutamisel 828(9,6%)



Haiglavälised taaselustamiskatsed Eestis aastatel 1999-2013

(tunnistajateta eeldatav südame äkksurm)

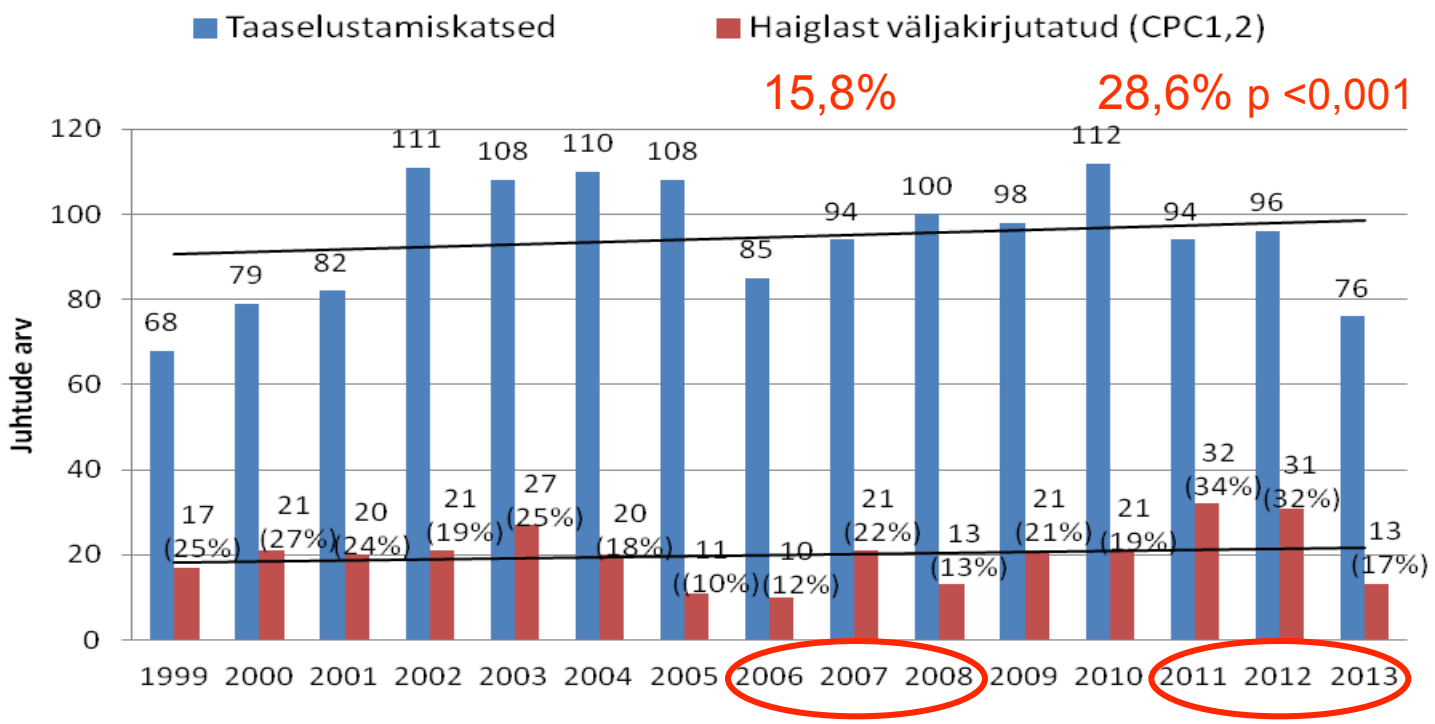
Kokku 1072 patsienti, elus haiglast väljakirjutamisel 17 (1,6%)



Haiglavälised taaselustamiskatsed Eestis aastatel 1999-2013

(südame äkksurm kiirabibrigaadi juuresolekul)

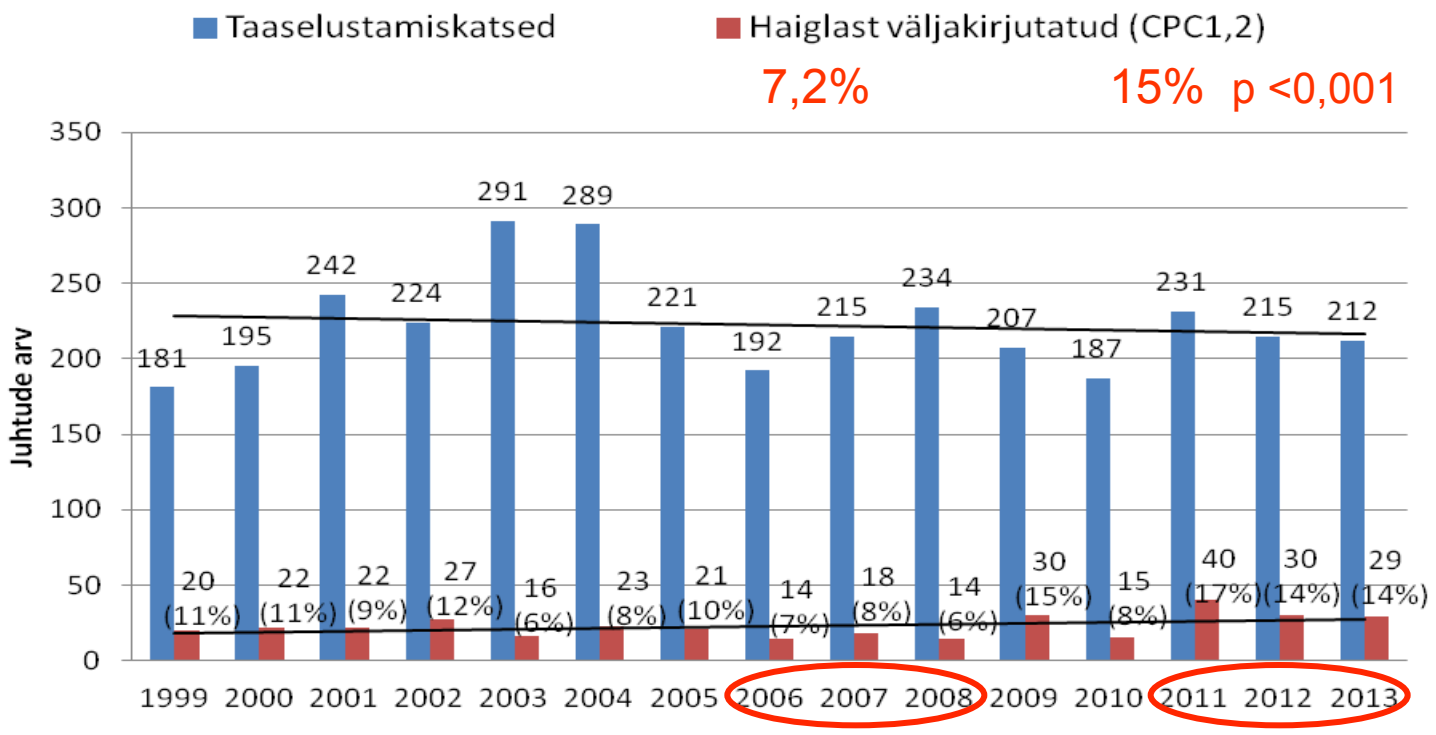
Kokku 1421 patsienti, elus haiglast väljakirjutamisel 299 (21%)



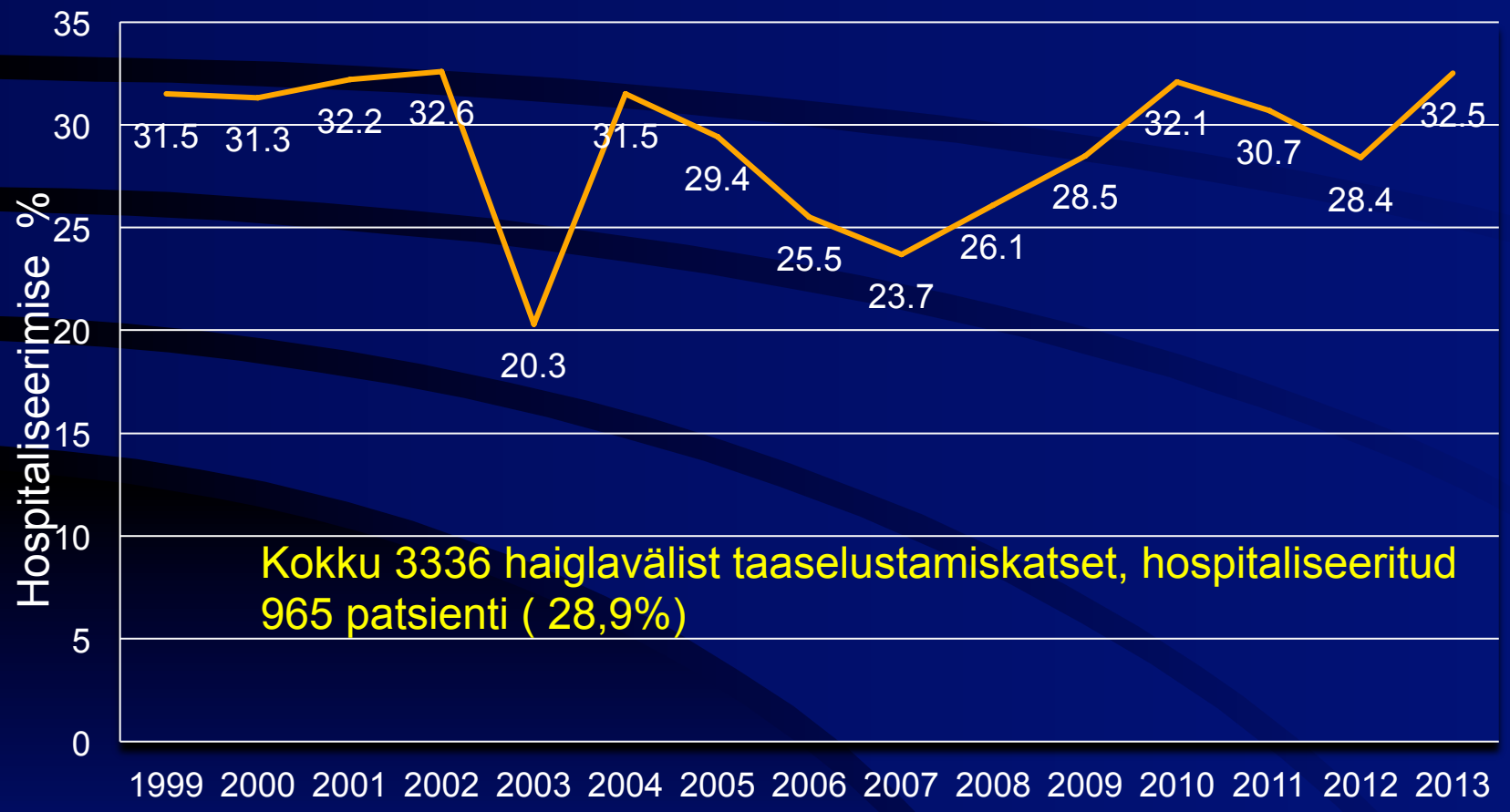
Haiglavälised taaselustamiskatsed Eestis aastatel 1999-2013

(südame äkksurm tunnistajate juuresolekul)

Kokku 3336 patsienti, elus haiglast väljakirjutamisel 341 (10,2%)

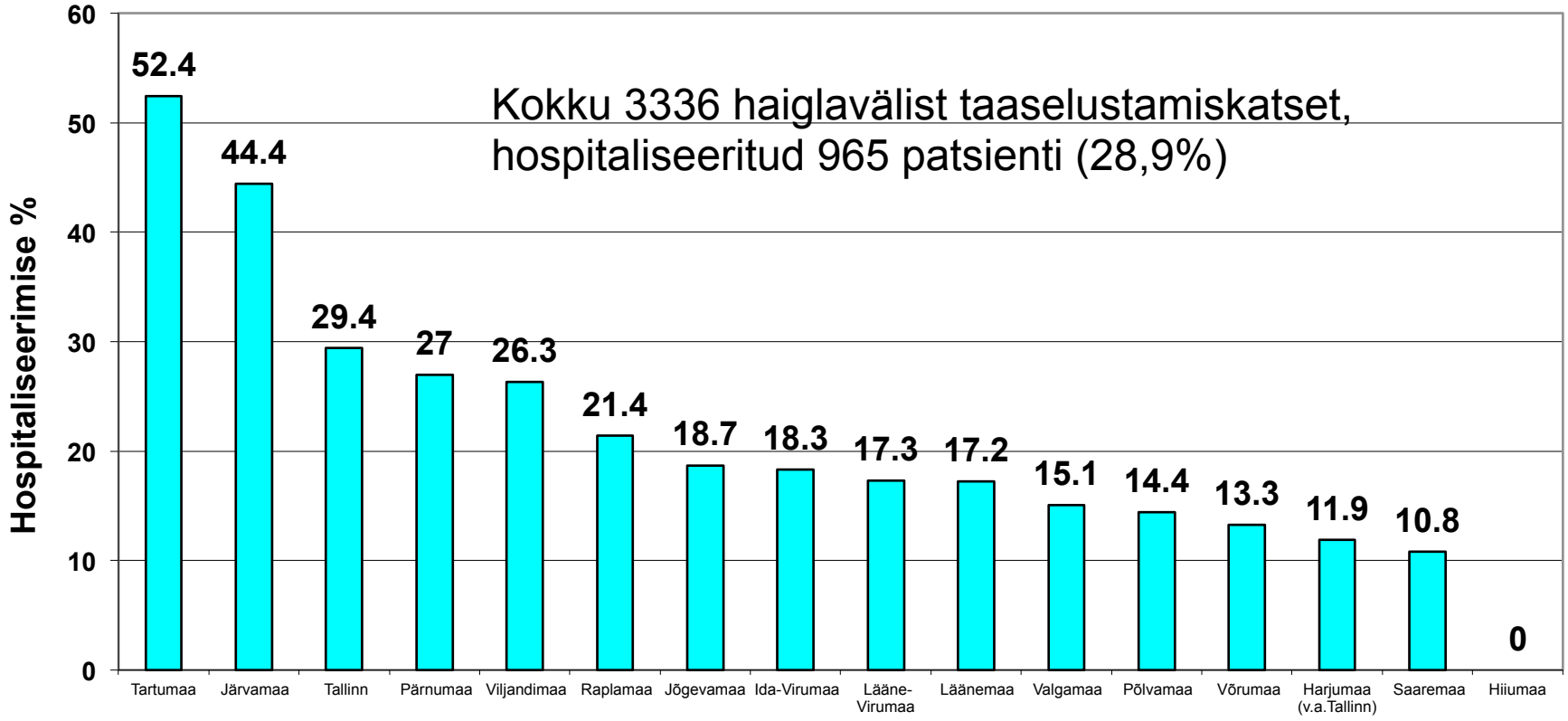


Taaselustamisjärgne hospitaliseerimine Eestis aastatel 1999-2013 (südame äkksurm tunnistajate juuresolekul)



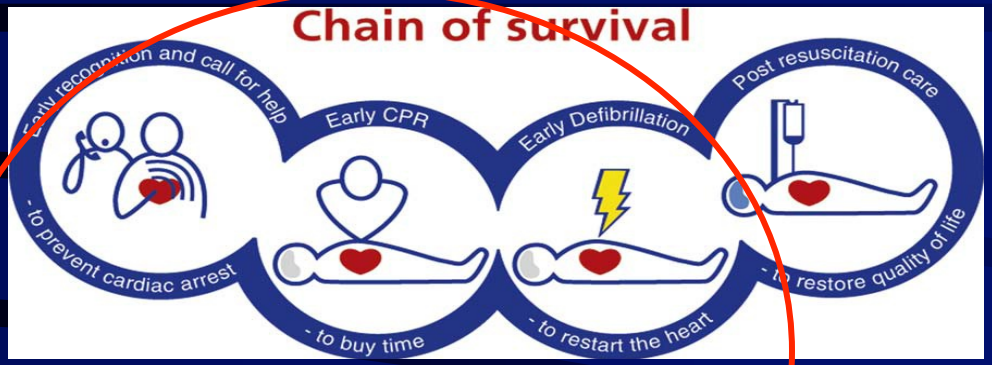
A.Sipria

Taaselustamisjärgne hospitaliseerimine Eestis aastatel 1999-2013 (südame äkksurm tunnistajate juuresolekul)



Haiglaeelne südame äkksurm ja tähtsamad ellujäämise tegurid

ERC 2010



AHA 2010

ALS Post-cardiac arrest care

OPALS study showed no improvement in survival to discharge rates when ALS was added to CPR and rapid defibrillation for SCA

Steill IG et al. N Eng J Med 2004; 351:647-656,

ACLS Drugs Don`t Improve Cardiac Arrest Survival

Outcomes of resuscitation in out-of-hospital cardiac arrest with and without IV drug access
Olasveengen TM et al. JAMA. 2009; 302:2222-2229

Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

	Elus haiglast väljakirjutamisel (CPC 1,2)	Surnud haiglas	
Kokku	341 (55,9%)	610	
Mehed	264(38,9%)	414	
Naised	77(28,2%)	196	p <0,01

Meeste osakaal taaselustamisel ja hospitaliseerimisel >70% !!

Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

	Elus haiglast väljakirjutamisel (CPC 1,2)	Surnud haiglas	
Meeste vanus (mean, SD)	59,6±0,8	63,1±0,6	p <0,001
Naiste vanus (mean, SD)	65,6±1,8	68,1±0,8	NS

Naiste vanus elulemust ei mõjutanud

Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

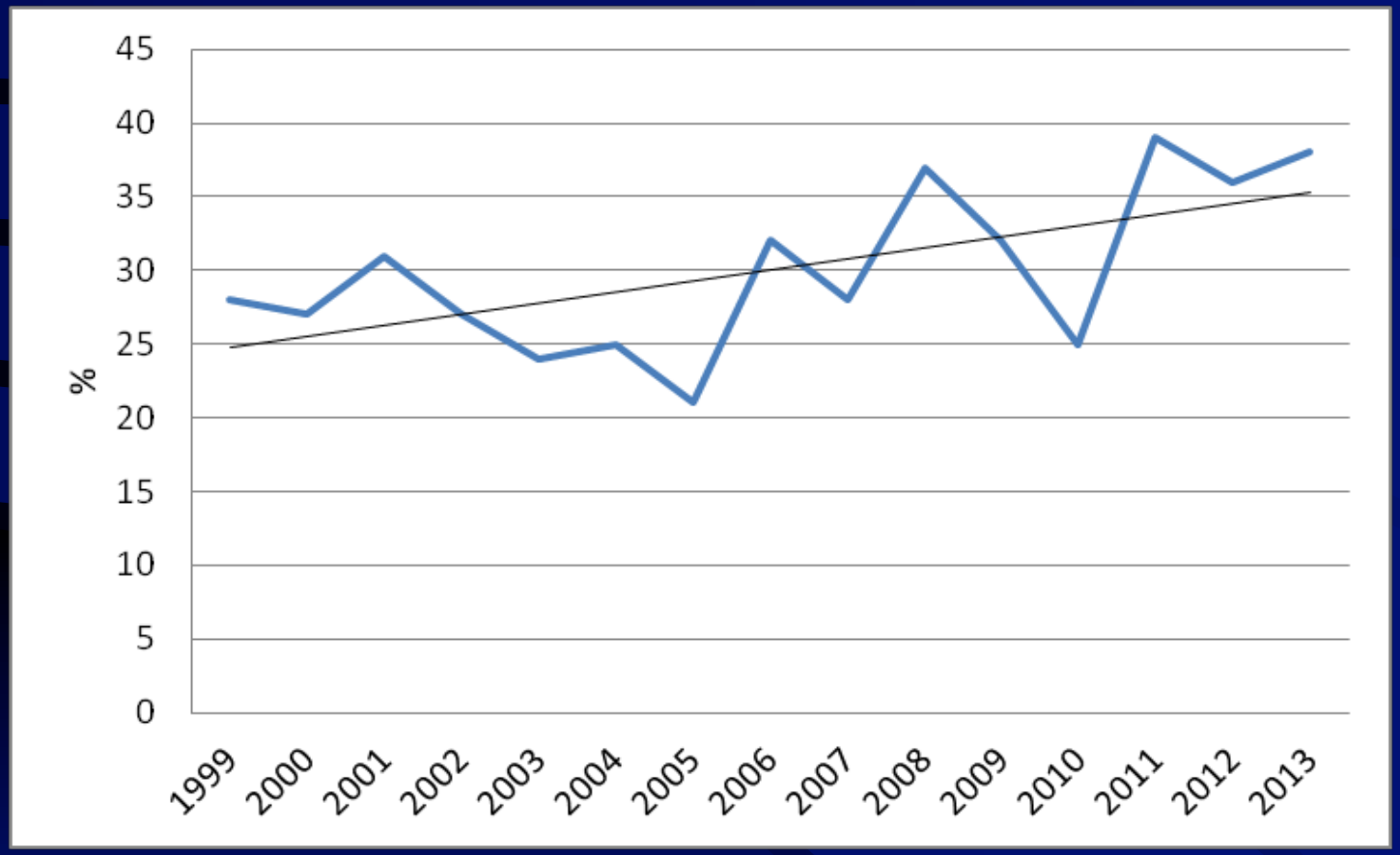
	Elus haiglast väljakirjutamisel (CPC 1,2)	Surnud haiglas	
Elustatud kodus	153 (29,8%)	360	
Elustatud avalikus kohas	107 (41,6%)	150	p <0,01

Avalikus kohas elulootus suurem

Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

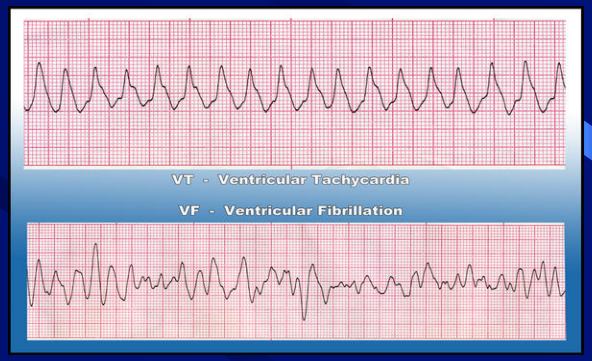
	Elus hauglast väljakirjutamisel (CPC 1,2)	Surnud haiglas	
Esmased elustamisvõtted			
Jah	137 (45,7%)	163	p <0,001
Ei	204 (31,3%)	447	
VF / SM	66,4%	p <0,01	
VF / SM+KH	44,9%		

Esmased taaselustamisvõtted Eestis 1999-2013 (tunnistajatega südame äkksurm)



Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

	Elus	Surnud haiglas	
	haiglast väljakirjutamisel (CPC 1,2)		
VF/VT			
Jah	283 (49,8%)	285	p <0,001
Ei	58 (15%)	325	



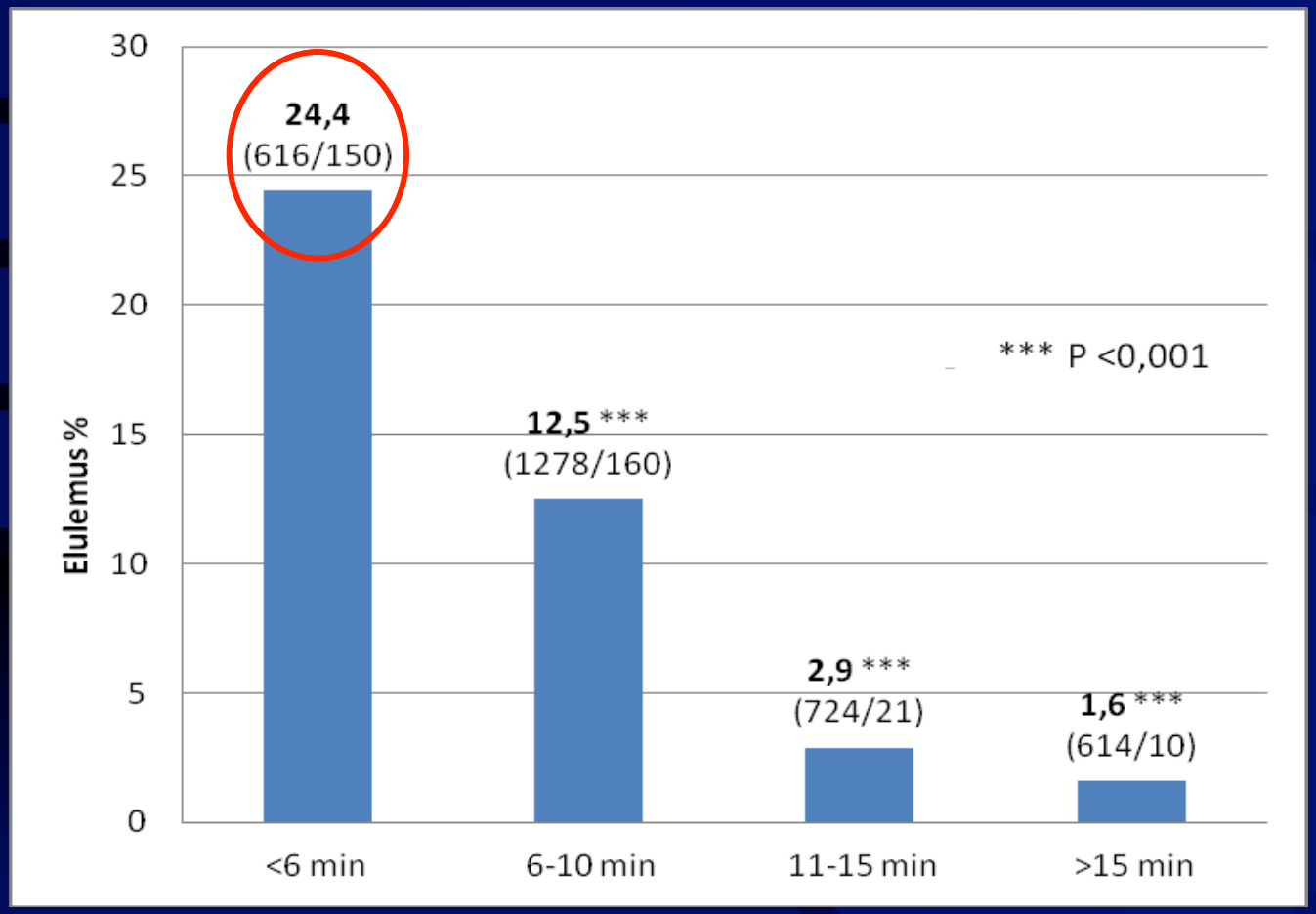
Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

	Elus	Surnud haiglas	
haiglast väljakirjutamisel (CPC 1,2)			
Häirekeskuse/kiirabi reageerimisaeg *(response time)* (min)			
Mediaan	6	7	
Mean, SD	6,4±3,99	7,7±5,5	p < 0,001

Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

	Elus	Surnud haiglas	
	haiglast väljakirjutamisel (CPC 1,2)		
Aeg kollapsist ALS võtete rakendamiseni (min)			
Mediaan	6	8	
Mean, SD	6,8±3,7	8,6±4,8	p <0,001

Elulemus ja ajaline intervall: kollaps- ALS ravivõtted (tunnistajatega südame äkksurm) 1999-2013



Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

	Elus haiglast väljakirjutamisel (CPC 1,2)	Surnud haiglas	
Taaselustamise kestvus (min)			
Mediaan	11	21	
Mean, SD	15,6±12,3	26,4±17,4	p <0,001

Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 1999-2013

haiglast väljakirjutamisel (CPC 1,2)

	Elus	Surnud haiglas	
Arstibrigaadid (R 209, A 405, A+R 25) Kokku 637 (67,2%)	231 (36,2%)	408	
Õebrigaadid (Õ 204, Õ+R 82, Õ+A 26) Kokku 312	110 (35,3%)	202	p = NS

Haiglavälised taaselustamiskatsed Eestis 2012

(eeldatav südame äkksurm tunnistajate juuresolekul, aeg kollaps-ALS võtted ≤15 min)

	Elustamiskatsed	Elus haiglast väljakirjutamisel (CPC1,2)
Reanimobiilibrigaad (R)	17	8 (47%)
Arstibrigaad (A)	44	5 (11%)
A+R	2	2
Õebrigaad (Õ)+R	19	8 (42%)
Õ+A	9	0
Õ	79	3 (4%)
Kokku	170	26 (15%)
Arstid (R, R+A)	63	15 (24%) p <0,05
Õed (Õ, Õ+R, Õ+A)	107	11(10%)

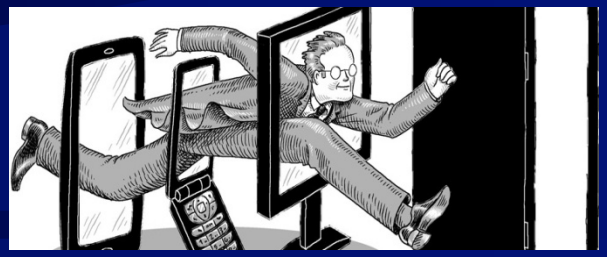
Taaselustatud ja hospitaliseeritud patsiendid
(tunnistajatega südame äkksurm) 2008-2013

	Elus	Surnud haiglas	
	haiglast väljakirjutamisel (CPC 1,2)		
Terapeutiline hüpotermia (alates 2008.a)			
Jah	85 (51,8%)	79	p <0,01
Ei	73 (35,4%)	133	

Südame äkksurmast taaselustatud ja hospitaliseeritud patsient. Kes võib jääda ellu suurema tõenäosusega?

- Alla 60 a. mees või erinevas vanuses naine, kellel südame äkksurm tekkib avalikus kohas tunnistajate juuresolekul, kes rakendavad pidevat SM, kiirabibrigaad jõuab sündmuskohale kuni 6 min jooksul, esineb VF, taaselustamine kestab kuni 11 min ning taaselustamisjärgses perioodis rakendatakse terapeutilist hüpotermiat

Kuhu edasi?



- Tuleb jätkuvalt analüüsida ja parandada taaselustamisvõtete kvaliteeti ning taaselustamise tulemused haiglaeelsel etapil ja haiglas.

- Moodustada Eesti taaselustamise register ja ühendada see Euroopa Südameseiskuse Registriga (European Registry of Cardiac Arrest)

Andmekogud

Rahvatervise seadus (14.06.95)

- Vähiregister
- Meditsiiniline sünnitusregister
- Tuberkuloosiregister
- Müokardiinfarktiregister (2012)

Traumaregister (millal?)

Taaselustamise register (millal?)

eHospital

- Tänan kolleege meeldiva pikaajalise koostöö eest (A.Popov, A.Veber, M.Lepp, J.Petenko jt.)