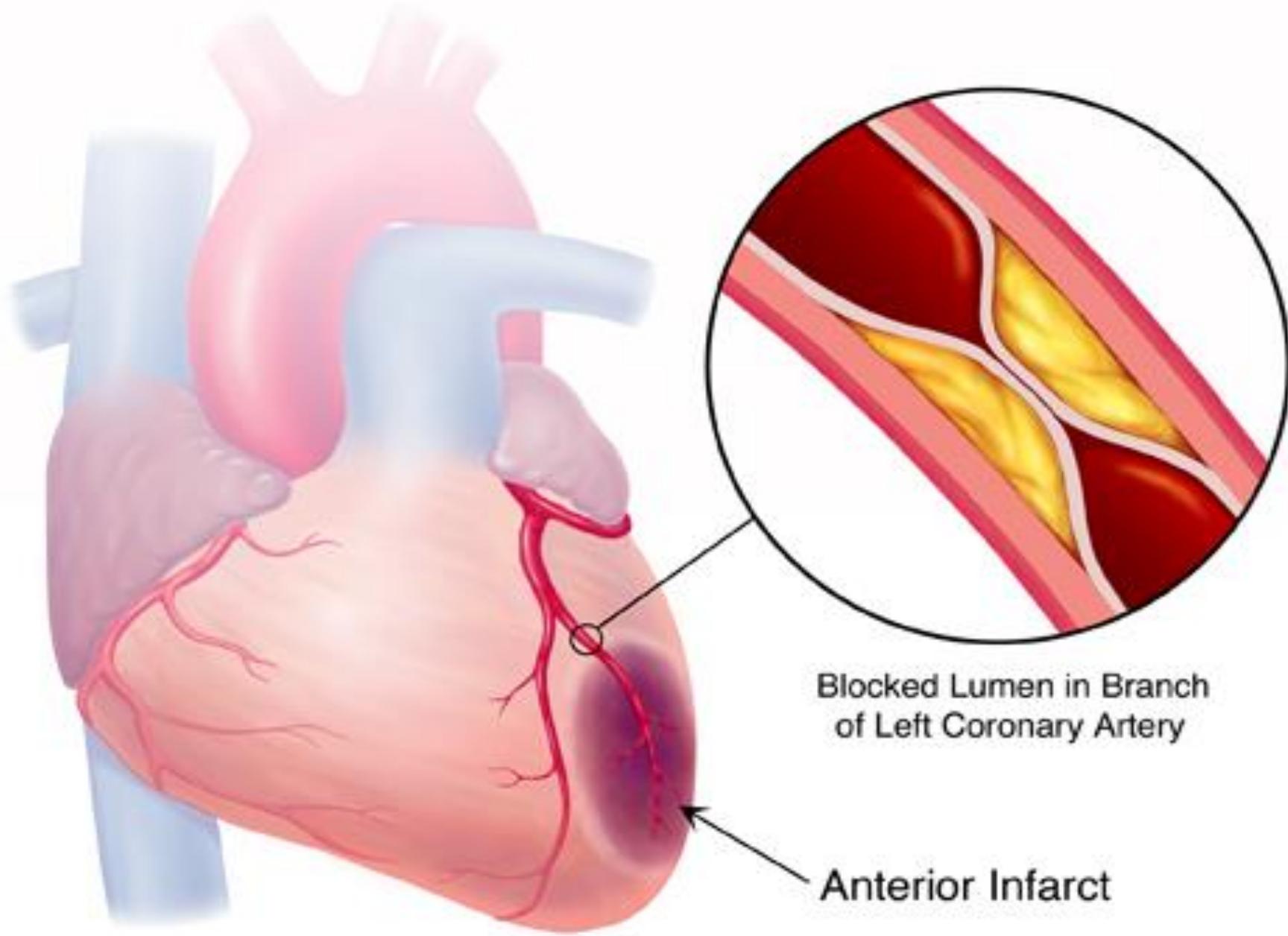


Når biomarkører bidrager til præhospital diagnostik

Christian Juhl Terkelsen,
Overlæge, Dr.med., PhD,
Hjertesygdomme,
Aarhus Universitetshospital.

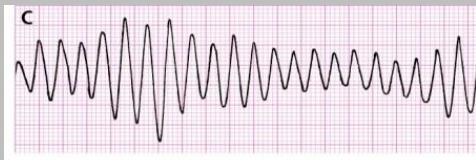
Aarhus University Hospital, Denmark





Bedre overlevelse
Optimale patientforløb
Kortere indlæggelse / Undgå indlæggelse
Undgå dobbeltundersøgelser
Mere sundhed for samme midler

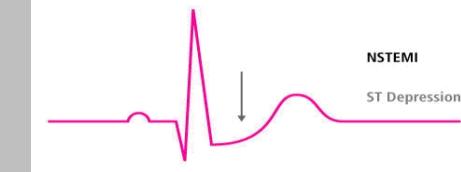
OHCA



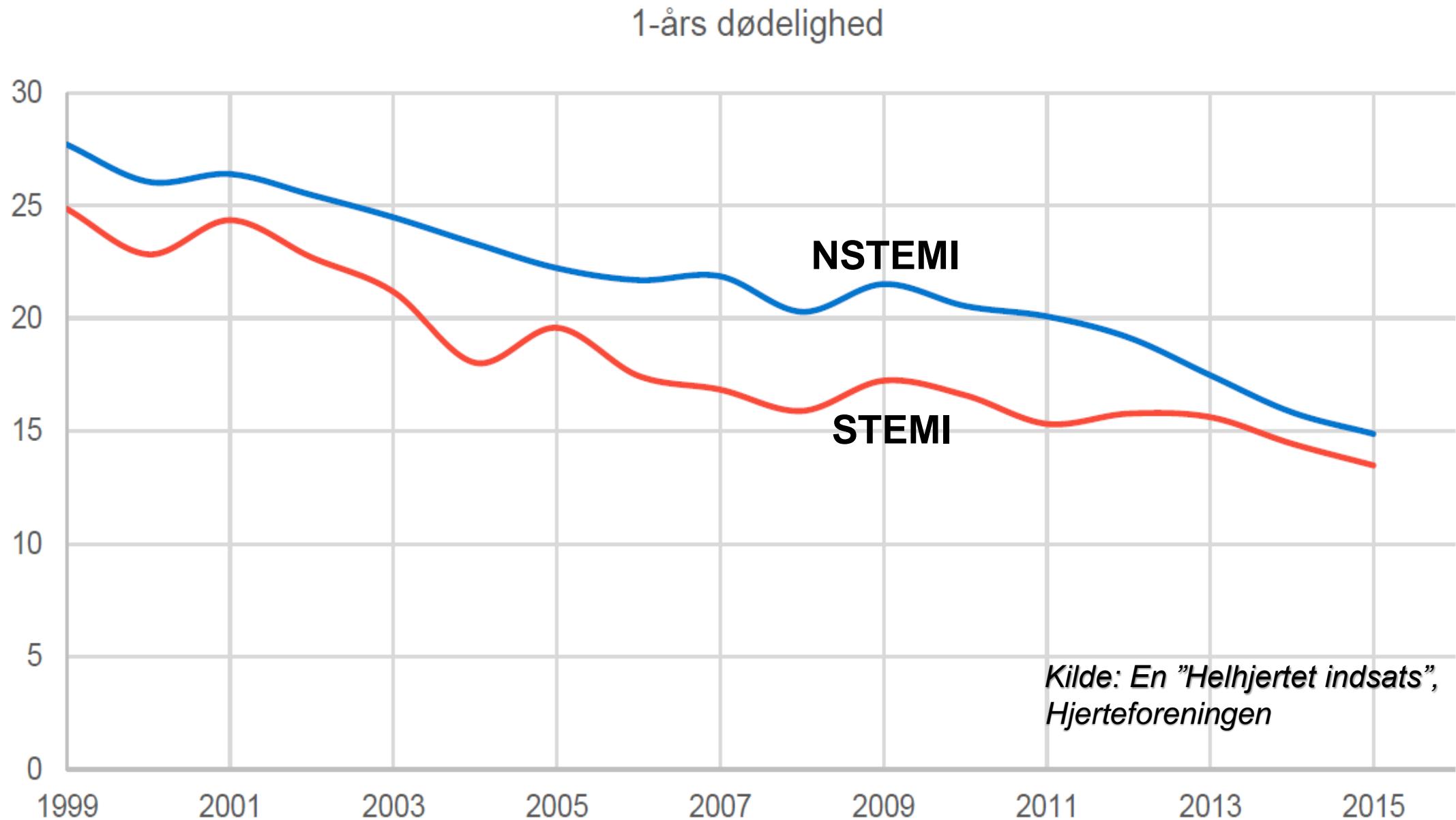
STEMI



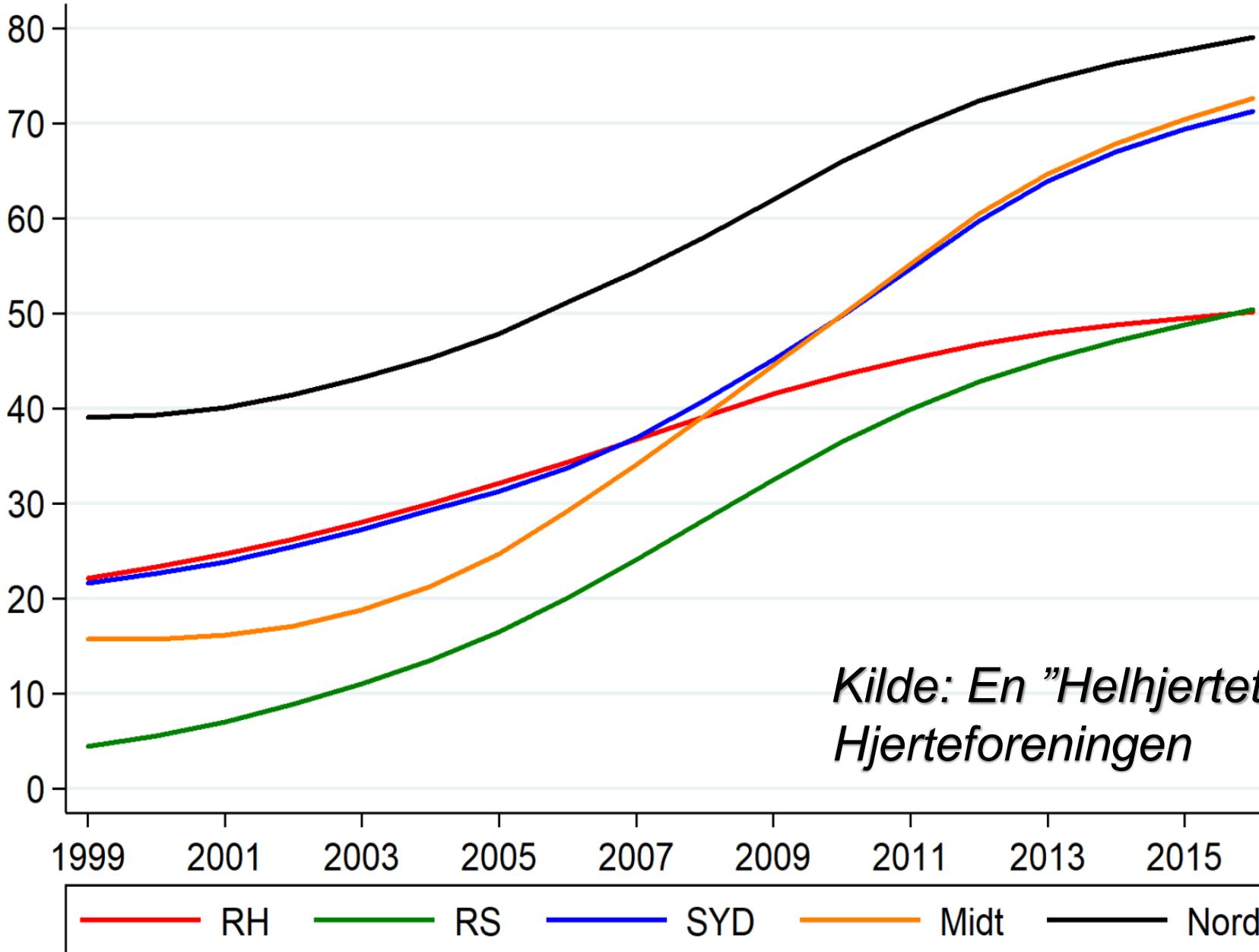
NSTEMI



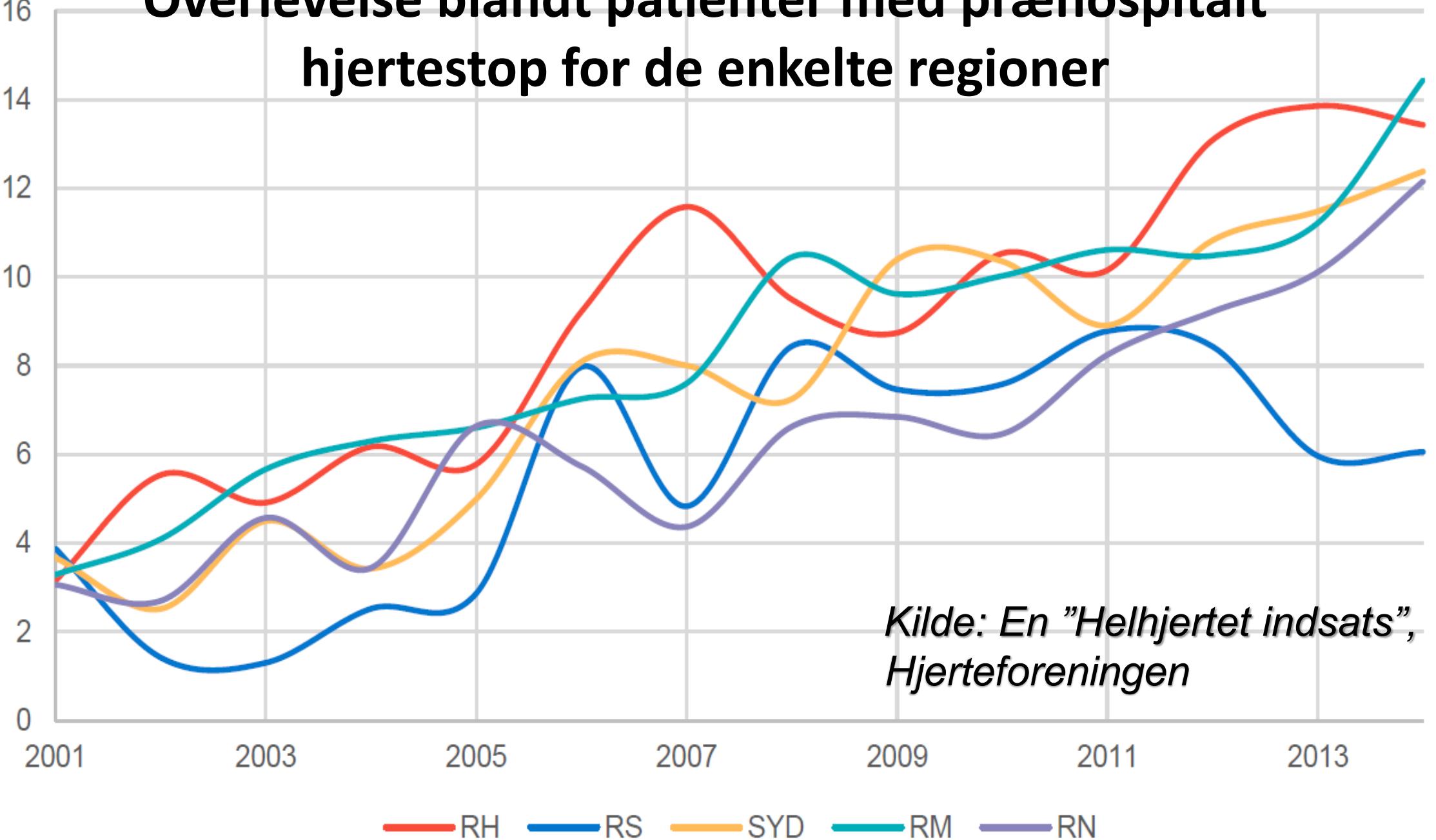
Figur 1 Dødelighed blandt patienter med blodprop i hjertet (Akut Myokardieinfarkt/AMI)

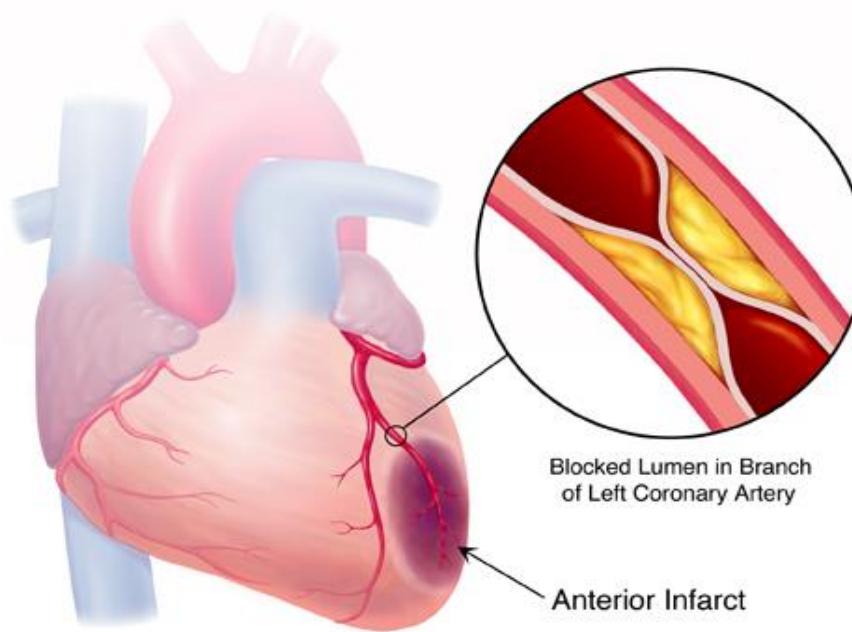


Patienter med STEMI indlagt direkte på center

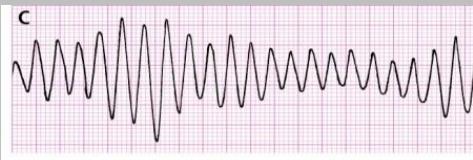


Overlevelse blandt patienter med præhospitalt hjertestop for de enkelte regioner





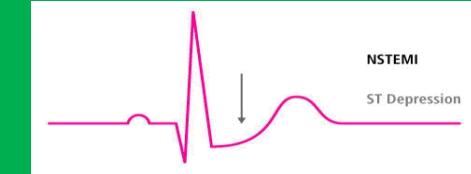
OHCA



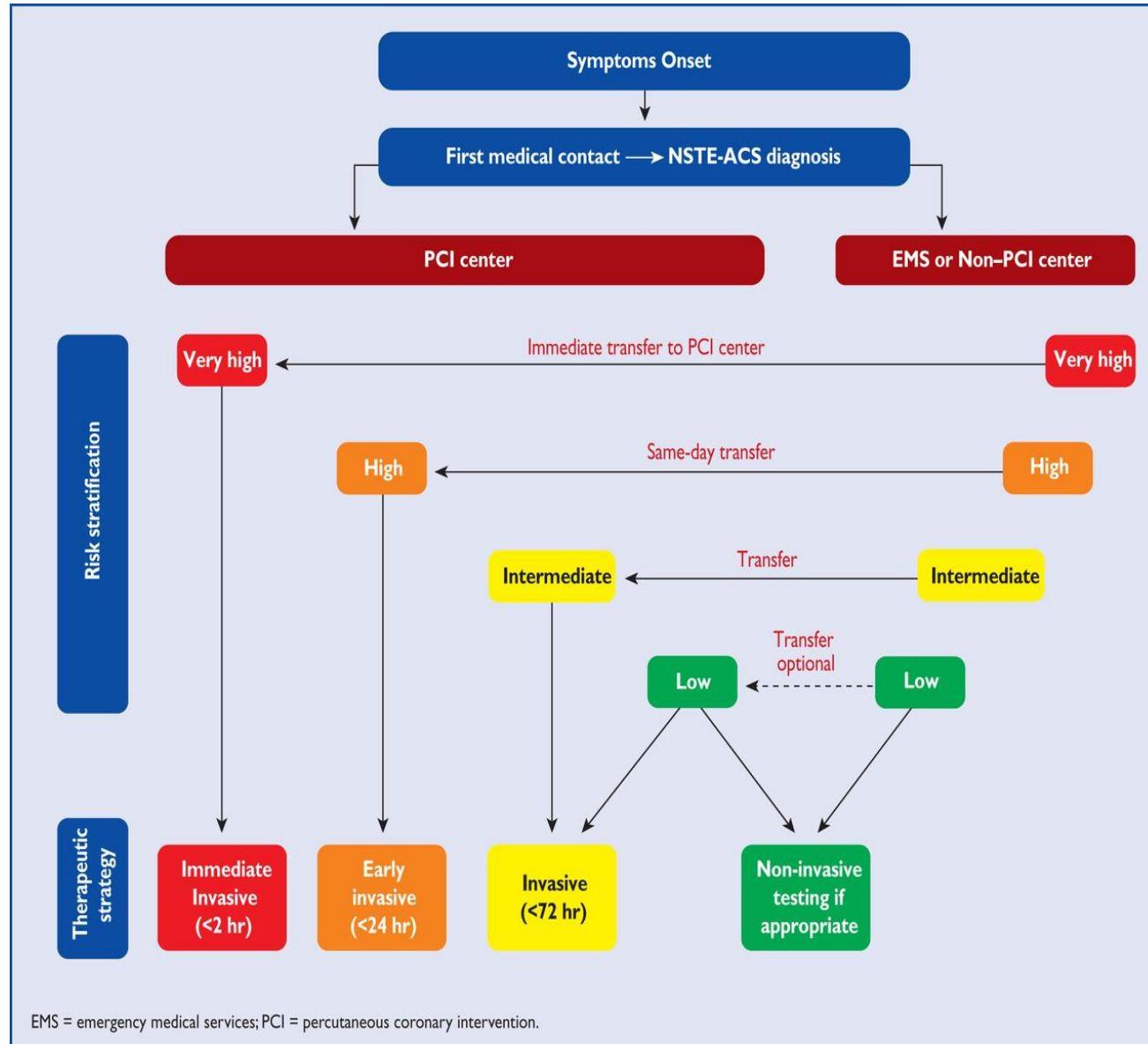
STEMI



NSTEMI



ESC guidelines



ESC guidelines

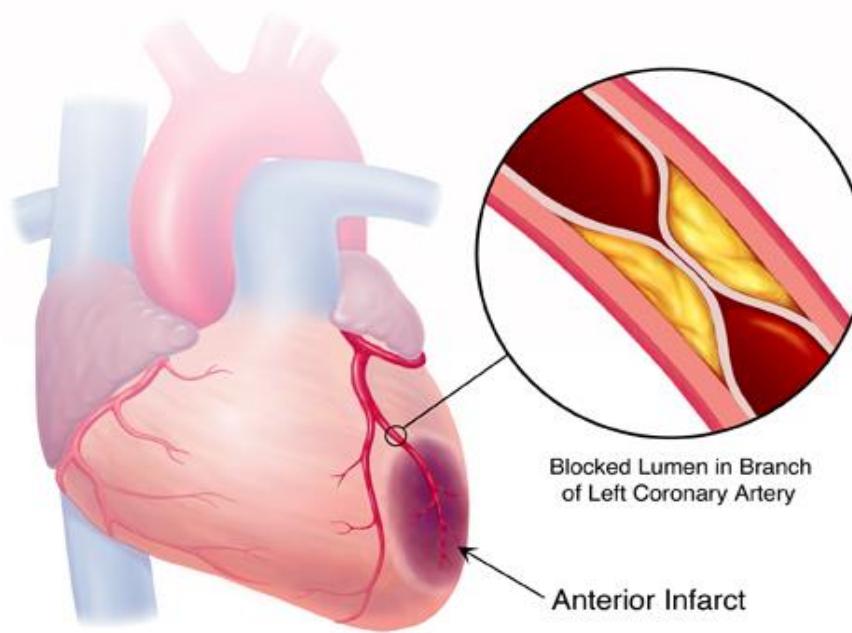
KAG < 2 timer

KAG < 24 timer

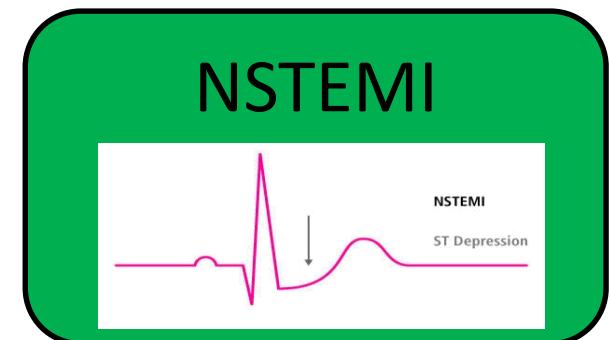
KAG < 72 timer

Table I3 Risk criteria mandating invasive strategy in NSTE-ACS

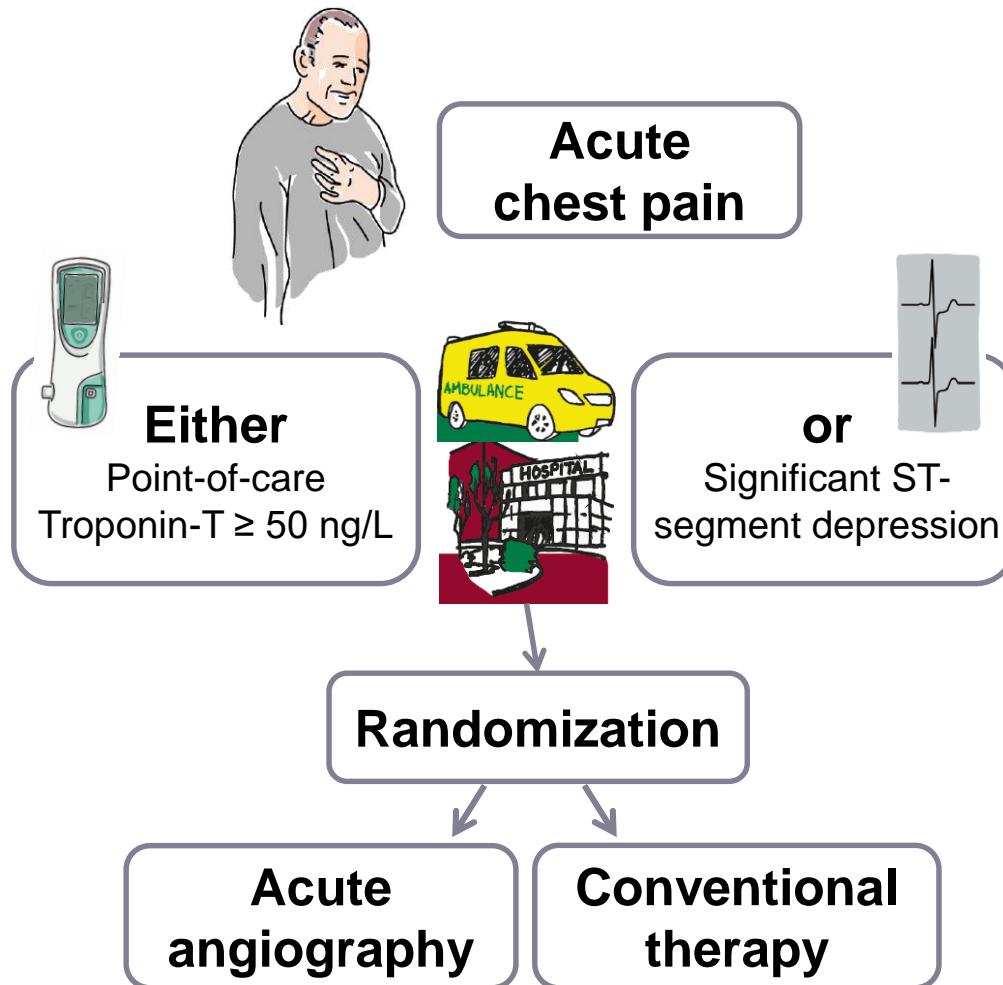
Very-high-risk criteria
• Haemodynamic instability or cardiogenic shock
• Recurrent or ongoing chest pain refractory to medical treatment
• Life-threatening arrhythmias or cardiac arrest
• Mechanical complications of MI
• Acute heart failure
• Recurrent dynamic ST-T wave changes, particularly with intermittent ST-elevation
High-risk criteria
• Rise or fall in cardiac troponin compatible with MI
• Dynamic ST- or T-wave changes (symptomatic or silent)
• GRACE score >140
Intermediate-risk criteria
• Diabetes mellitus
• Renal insufficiency (eGFR <60 mL/min/1.73 m ²)
• LVEF <40% or congestive heart failure
• Early post-infarction angina
• Prior PCI
• Prior CABG
• GRACE risk score >109 and <140
Low-risk criteria
• Any characteristics not mentioned above



Kan vi ikke bare diagnosticere dem i ambulancen og køre direkte til center ?



NONSTEMI-I



NONSTEMI trial

Design:

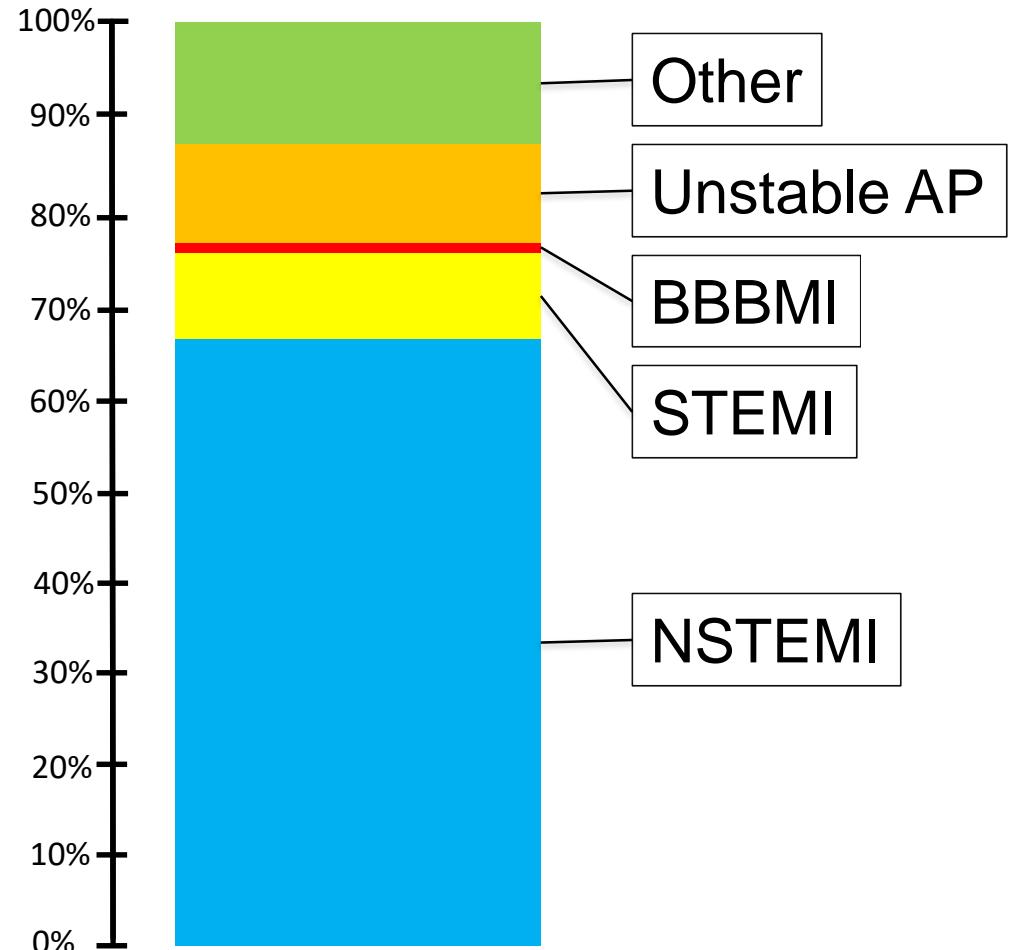
500 patients, randomized, open labelled, intention to treat, prehospital/acute hospital randomization

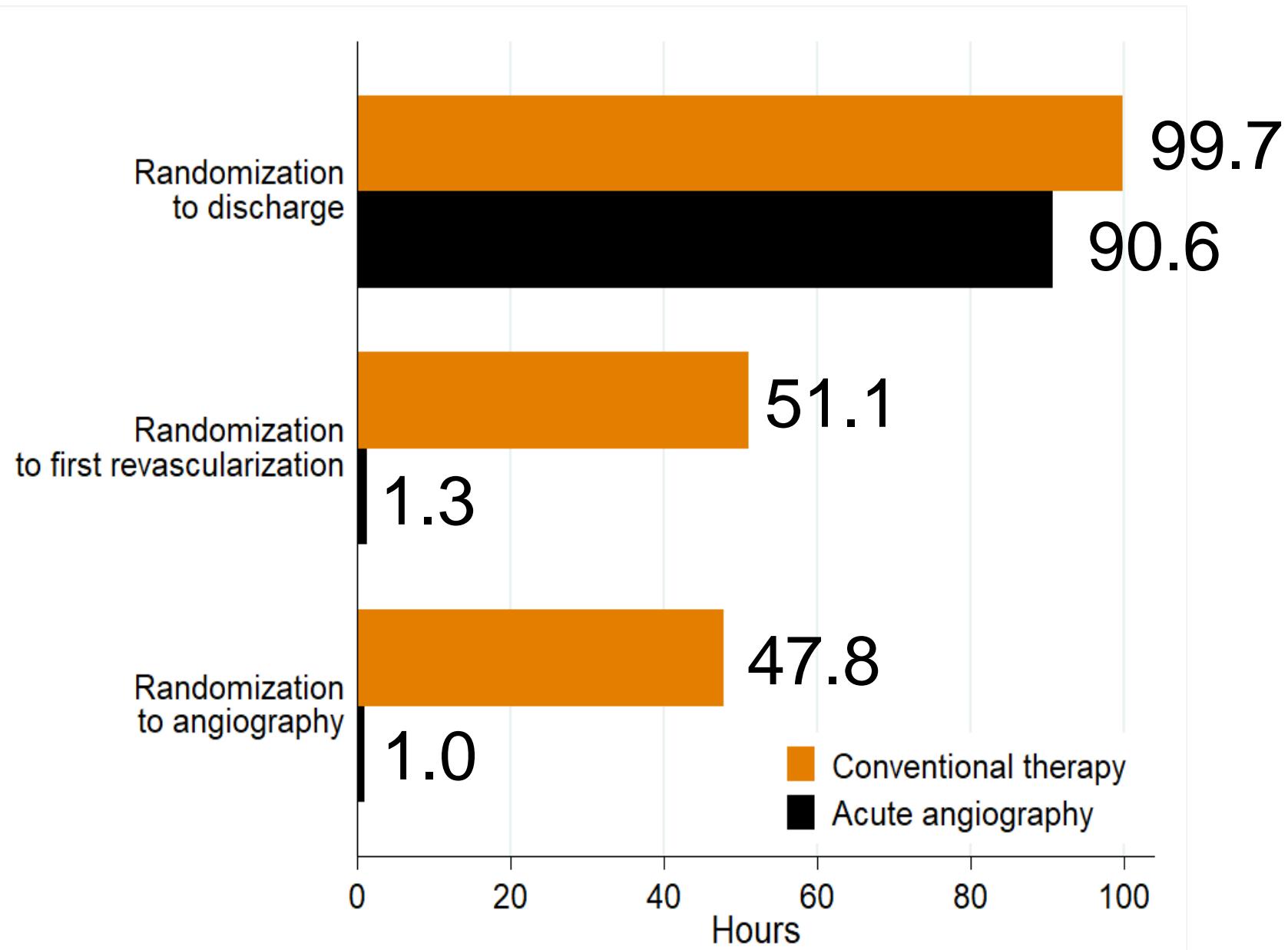
Primary endpoint:

Composite of death, re-infarction and readmission with congestive heart failure within one year from randomization

Final diagnosis

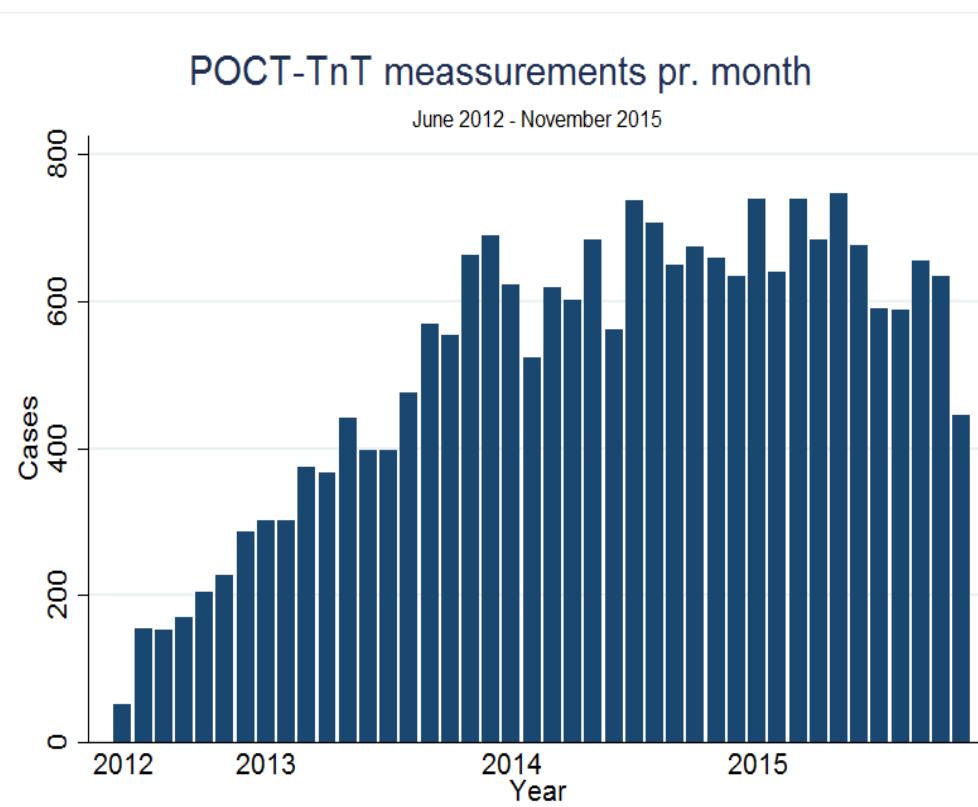
Acute coronary syndrome	86.5%
NSTEMI	66.9%
STEMI	9.5%
STEMI visible at inclusion	7.7%
STEMI after inclusion	1.8%
BBB myocardial infarction	1.0%
Unstable angina pectoris	9.1%
Other	13.5%





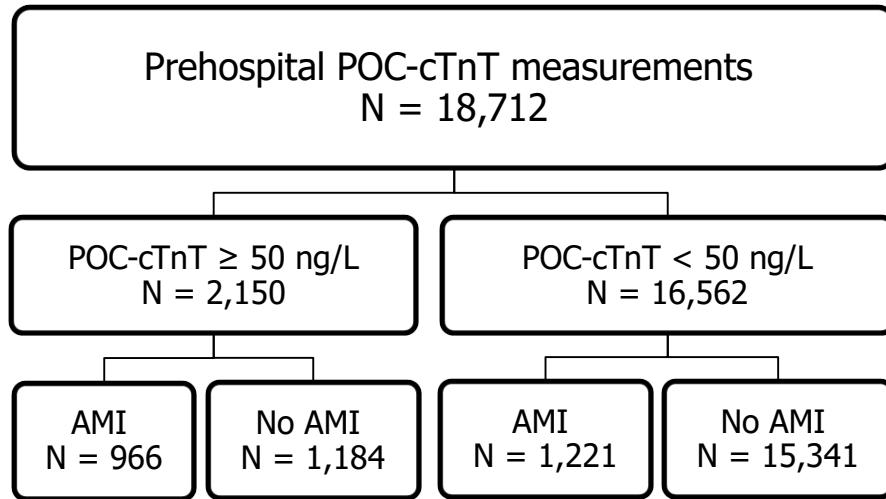
NONSTEMI-II

NONSTEMI-2: Data from all-comers



Cases in total	18,712
POC-cTnT \geq 50 ng/L	2,150 (11,5%)
POC-cTnT < 50 ng/L	16,562 (88,5%)

POC-cTnT measurements performed



Diagnostic properties

POC-cTnT \geq 50 ng/L
(N=2,150)

Sensitivity 44.2

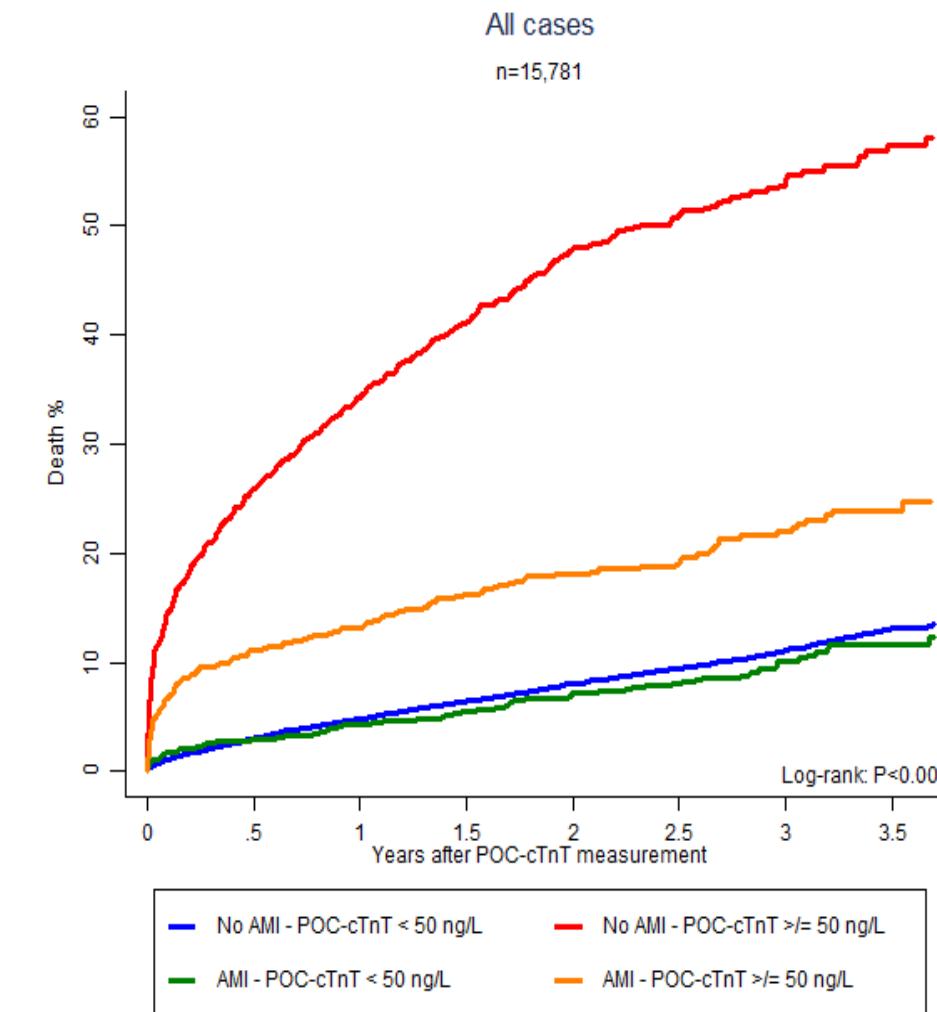
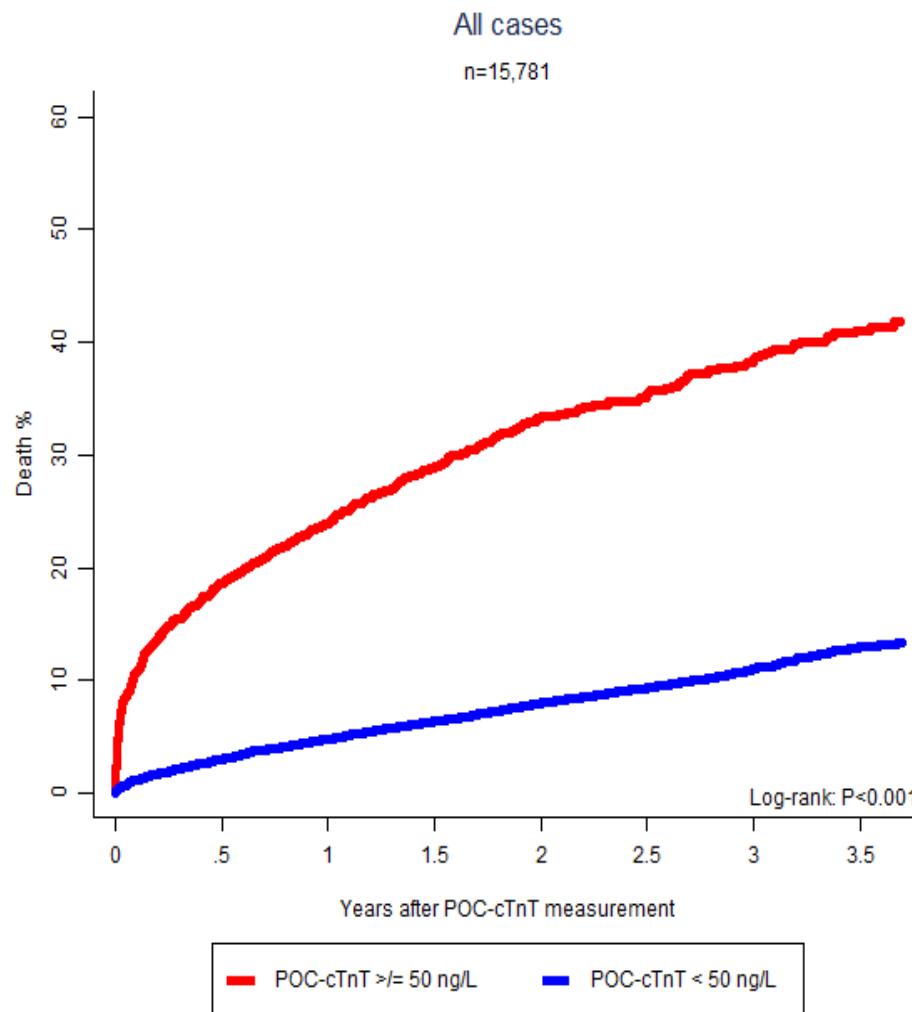
Positive predictive value 44.9

POC-cTnT < 50 ng/L
(N=16,562)

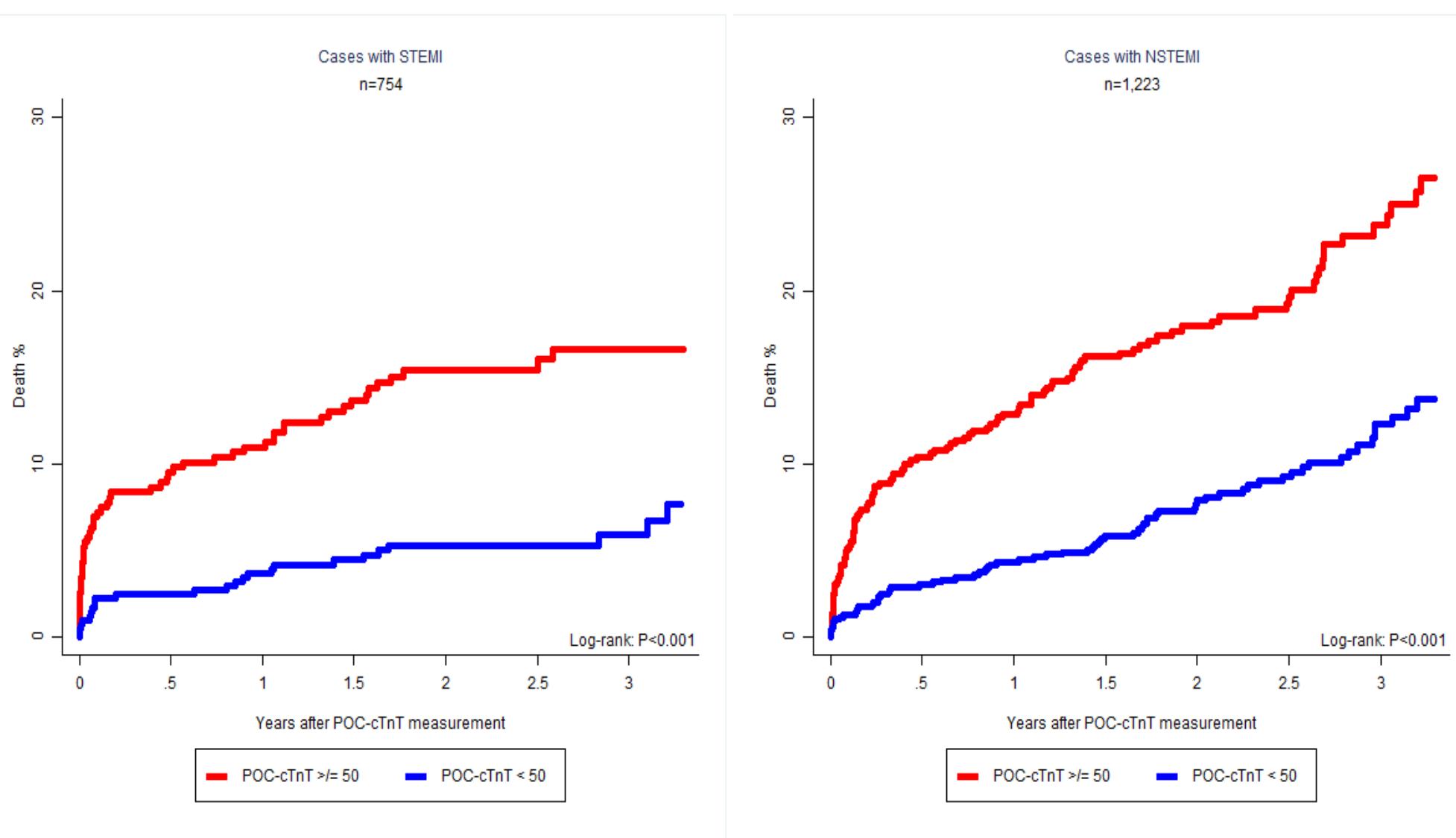
Specificity 92.8

Negative predictive value 92.6

Mortality



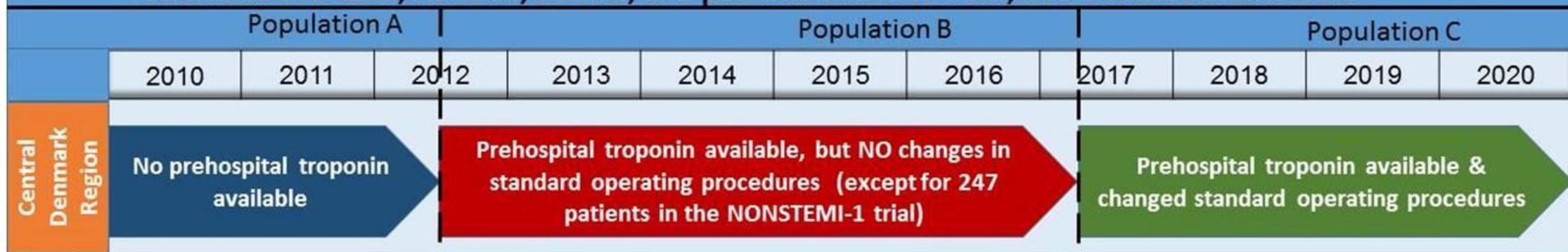
Mortality



NONSTEMI-III

Routine use of “NONSTEMI”- algorithm: All suspected high-risk NST-ACS patients triaged for tertiary PCI capable center. Acute/subacute CAG.

Patients with STEMI, NSTEMI, BBBMI, and patients with non-AMI, but elevated biomarkers



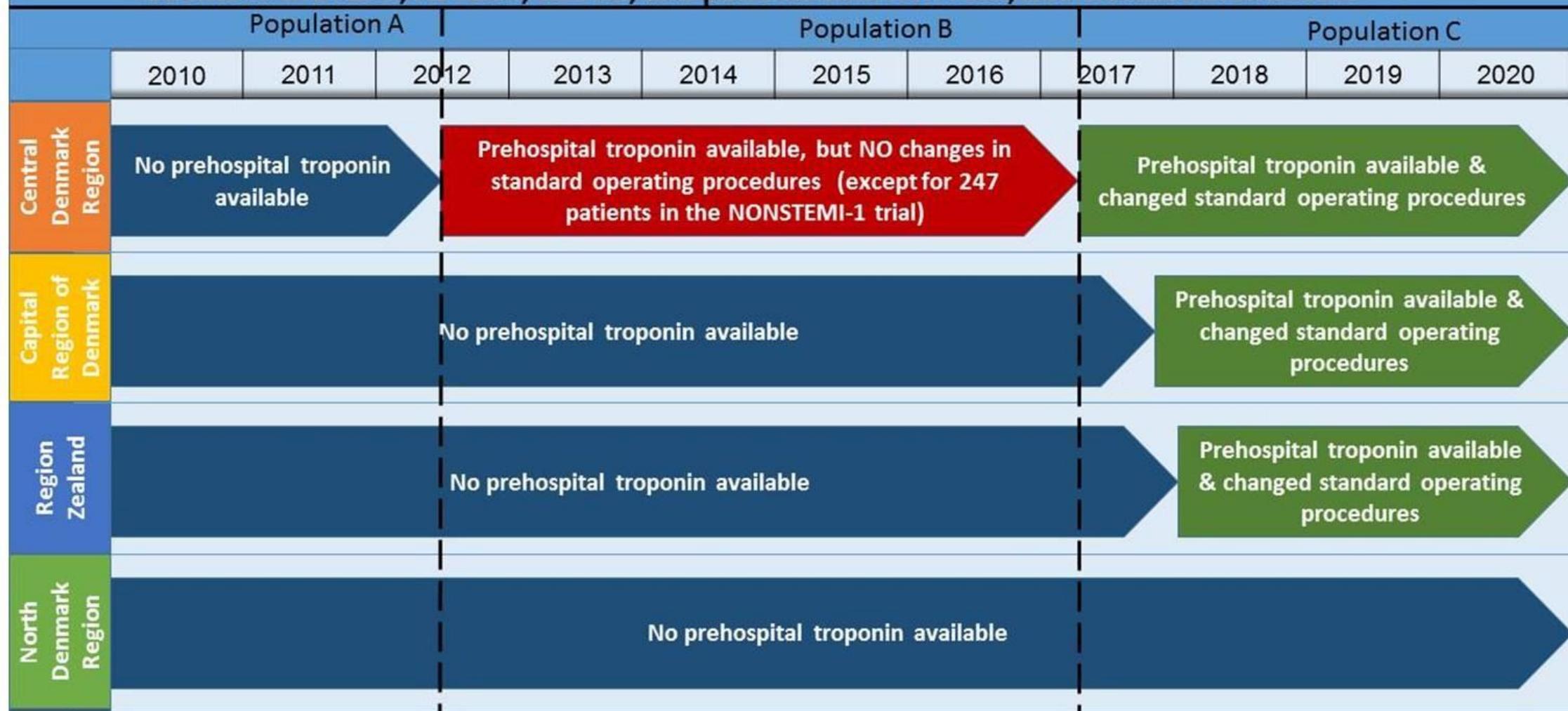
Patients with STEMI, NSTEMI, BBBMI, and patients with non-AMI, but elevated biomarkers



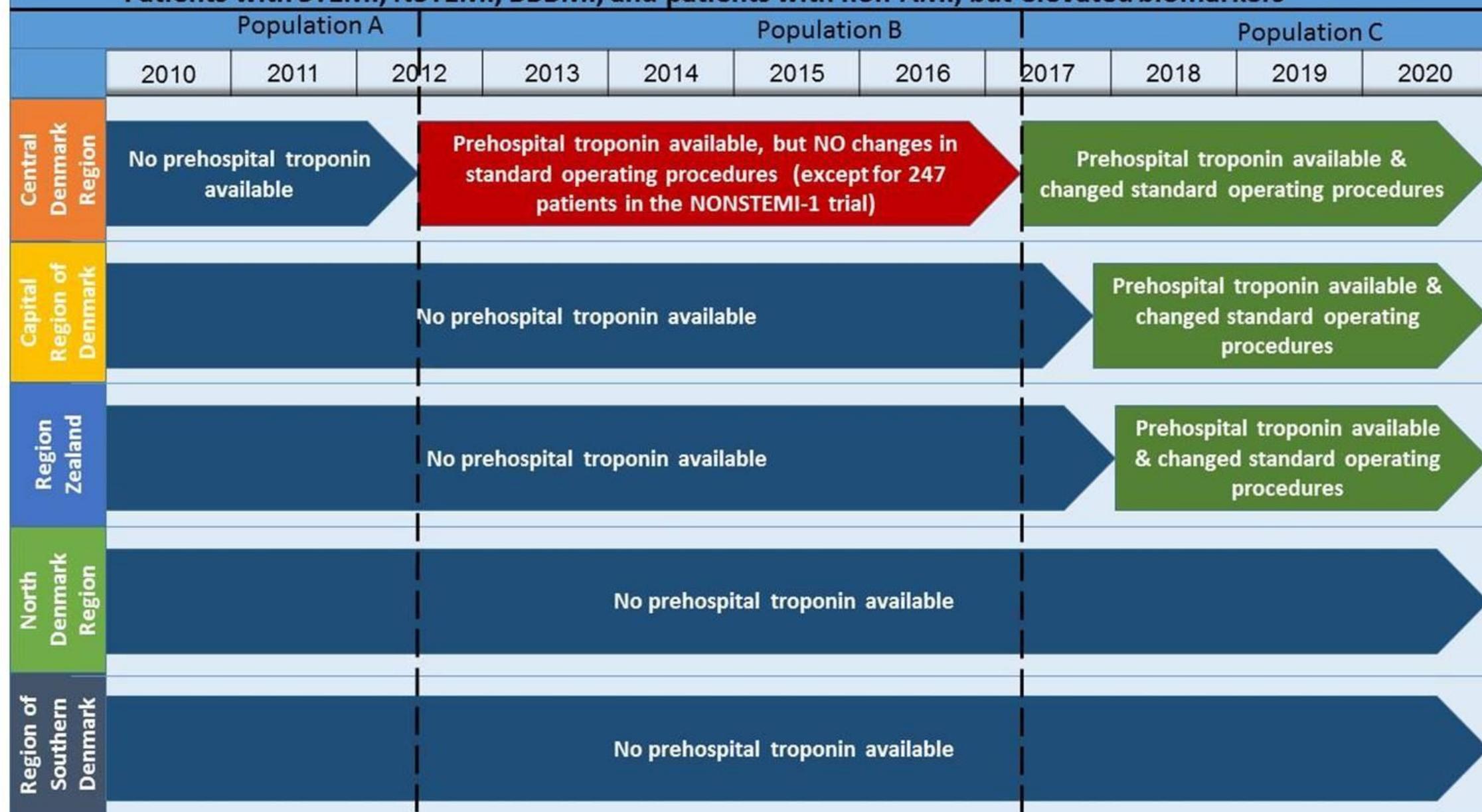
Patients with STEMI, NSTEMI, BBBMI, and patients with non-AMI, but elevated biomarkers



Patients with STEMI, NSTEMI, BBBMI, and patients with non-AMI, but elevated biomarkers



Patients with STEMI, NSTEMI, BBBMI, and patients with non-AMI, but elevated biomarkers



Case – "Gunnars" story

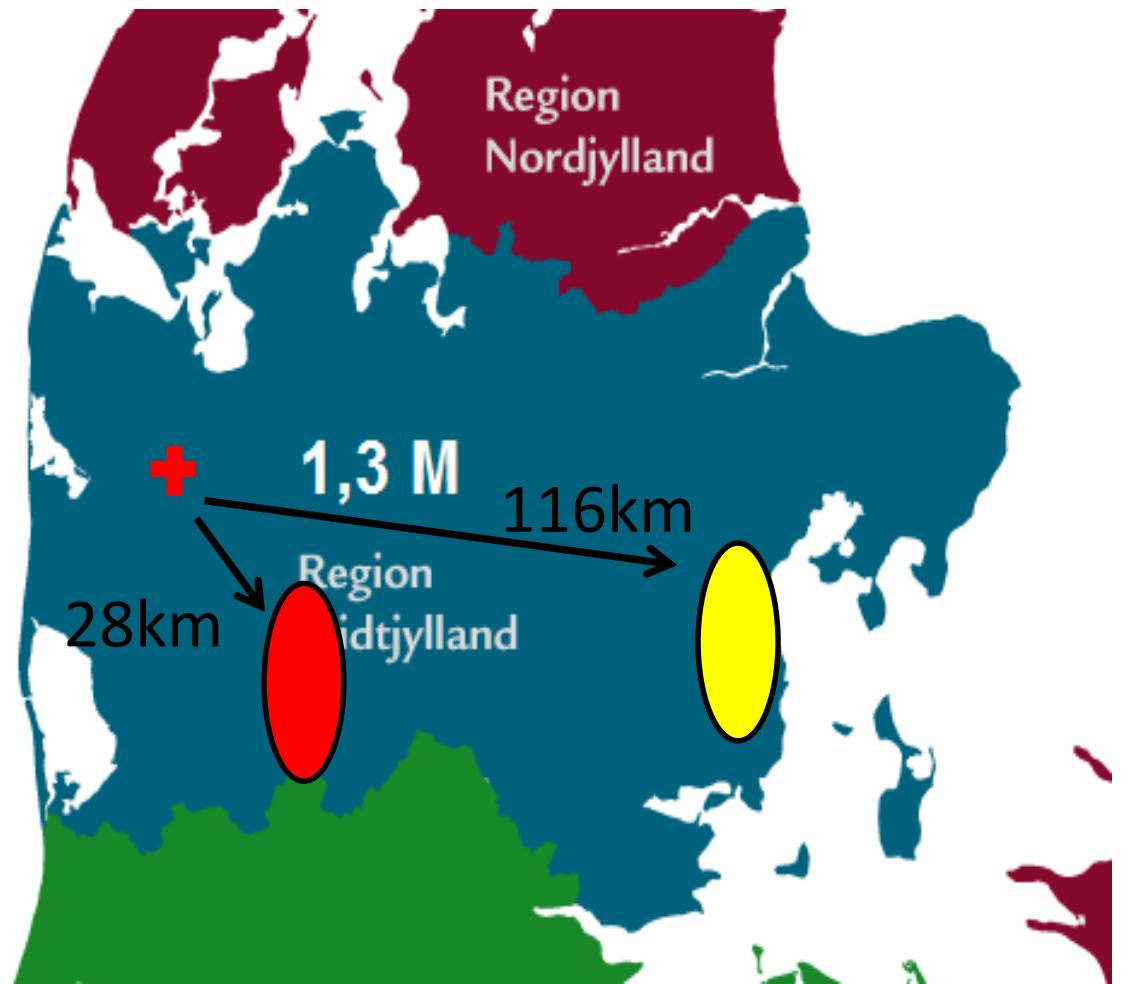


Aarhus Universitetshospital 😊 føler sig begejstret. Synes godt om side

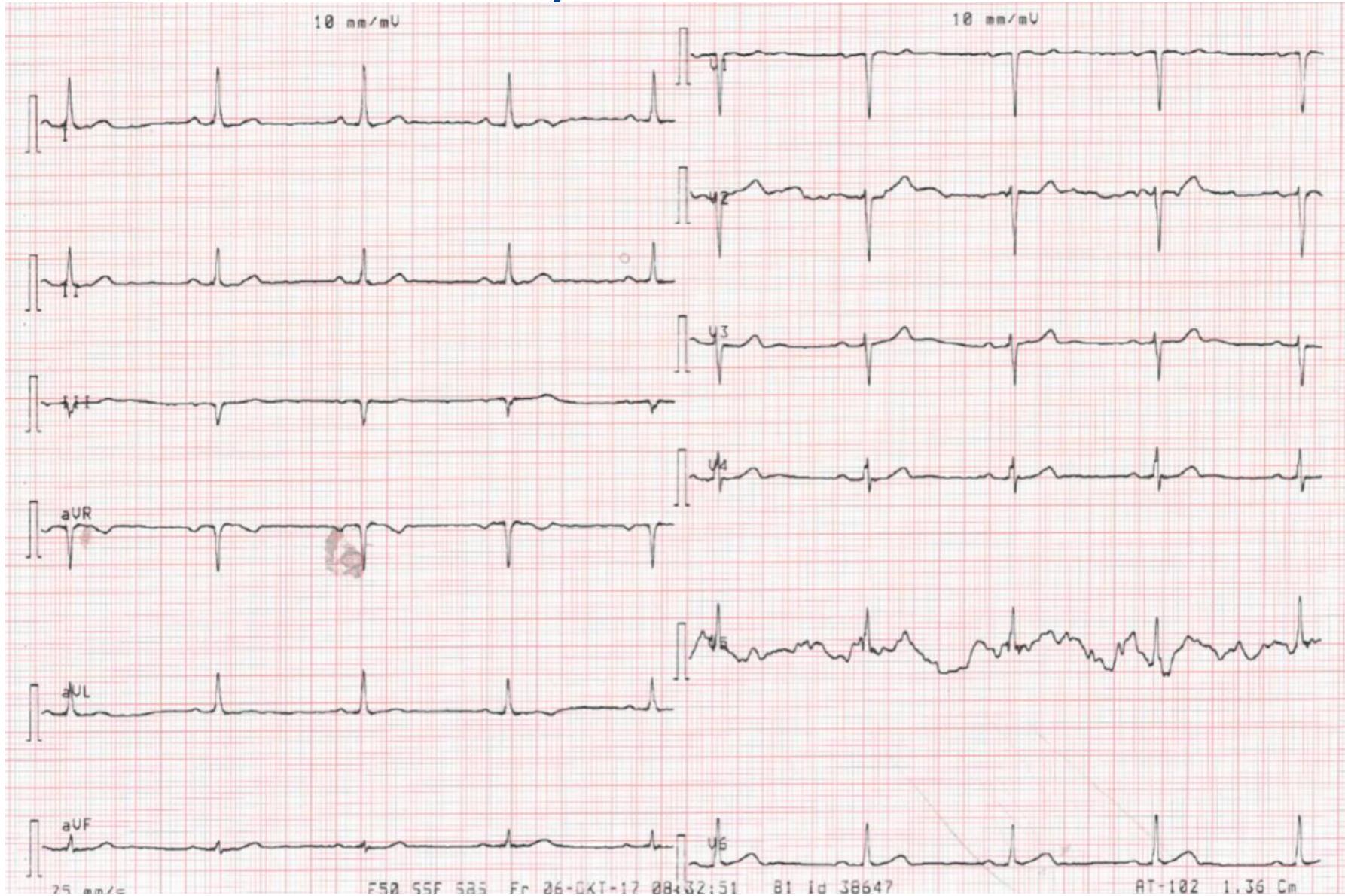
30. oktober 2017

BLODPRØVE SENDTE GUNNAR JENSEN MED HELIKOPTER TIL AARHUS UNIVERSITETSHOSPITAL
Region Midtjylland har indført en blodprøve, som tages af ambulancerederne ved mi...
Se mere

- › 61 years old, active life
- › AMI x 2 (last 2007), normal LVEF

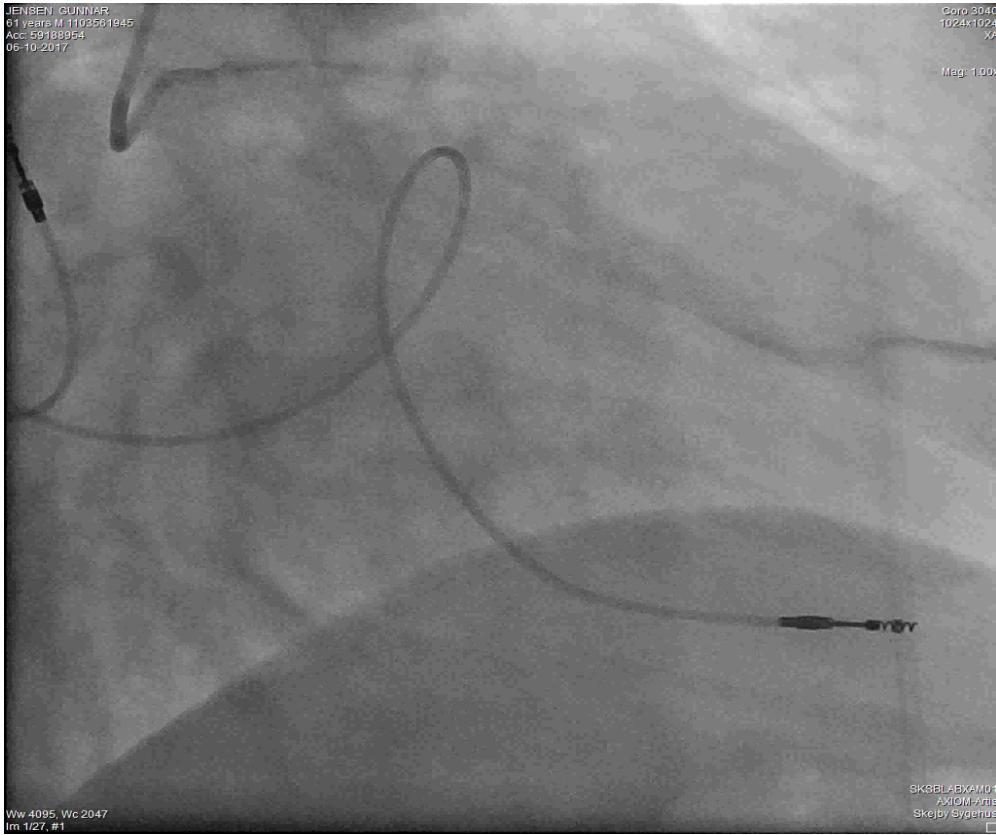


Case – "Gunnars" story

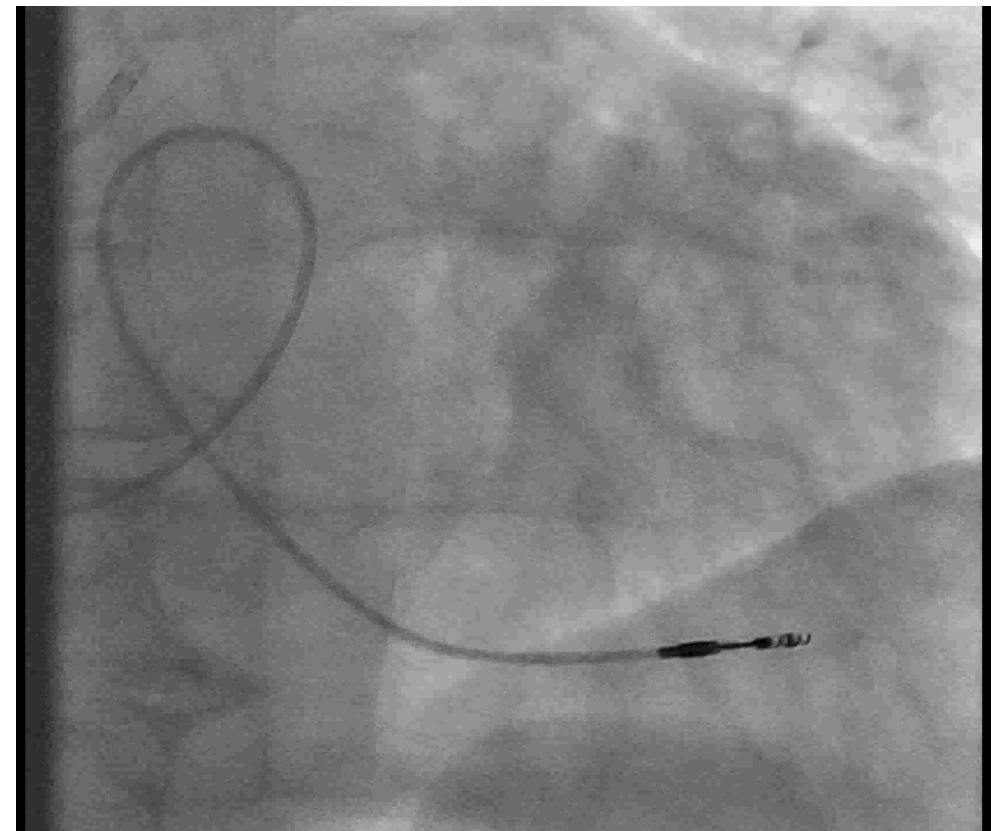


KAG

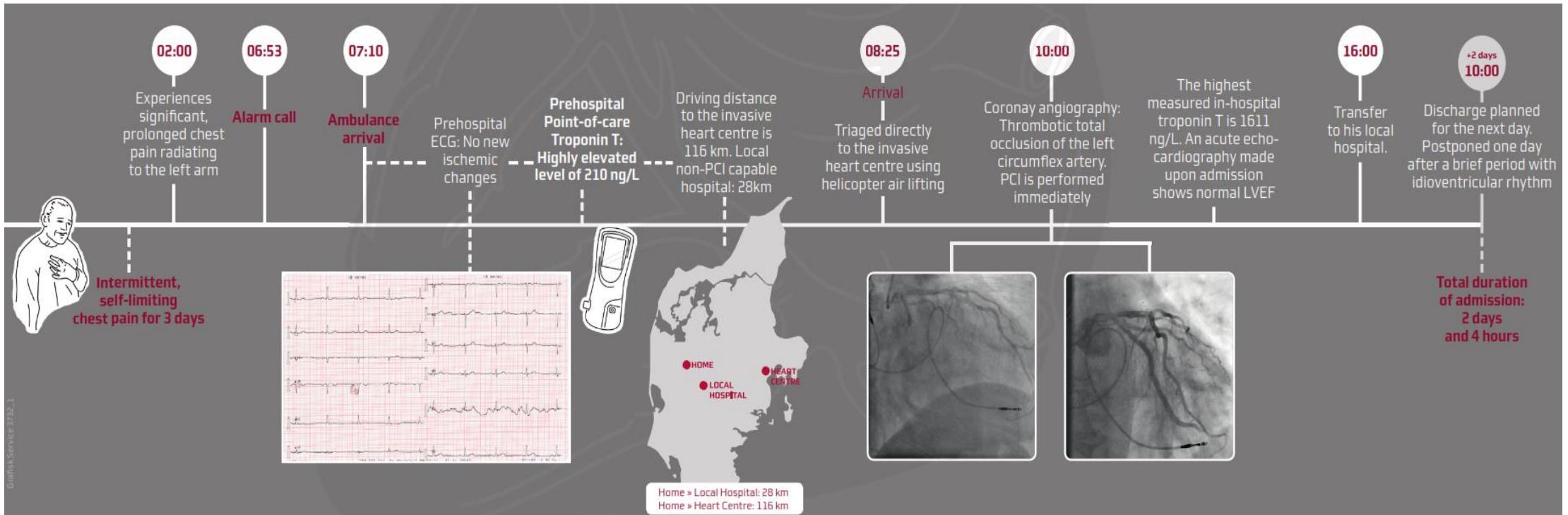
Før



Efter



Case – “Gunnars” story



NONSTEMI-III

Routine use of “NONSTEMI”- algorithm: All suspected high-risk NST-ACS patients triaged for tertiary PCI capable center. Acute/subacute CAG.

Aktuelt omvisiteres ca. 350 patienter med NSTEMI direkte til Aarhus Universitetshospital hvert år.

Sparer vi 700 indlæggelsesdage ?

Kan det kopieres til øvrige regioner ?

AROMI

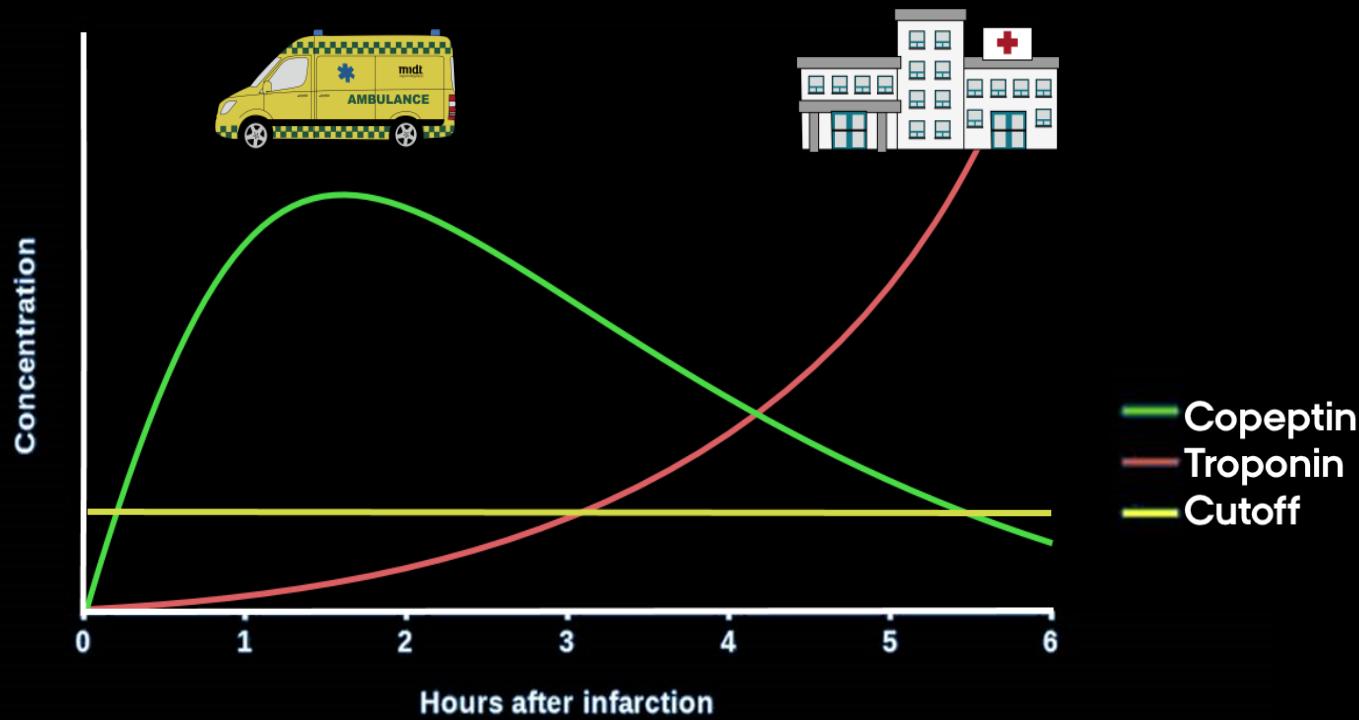
Accelerated **R**ule **O**ut of acute **M**yocardial **I**nfarction
- using prehospital Copeptin and in-hospital hs-Troponin

Kan vi helt undgå indlæggelse ?

90% med brystsmerter jo ikke AMI !

Biomarker kinetics in AMI: copeptin + troponin

- Copeptin rises early
- covers blind period
- Copeptin is optimally be measured early – troponin late



AROMI

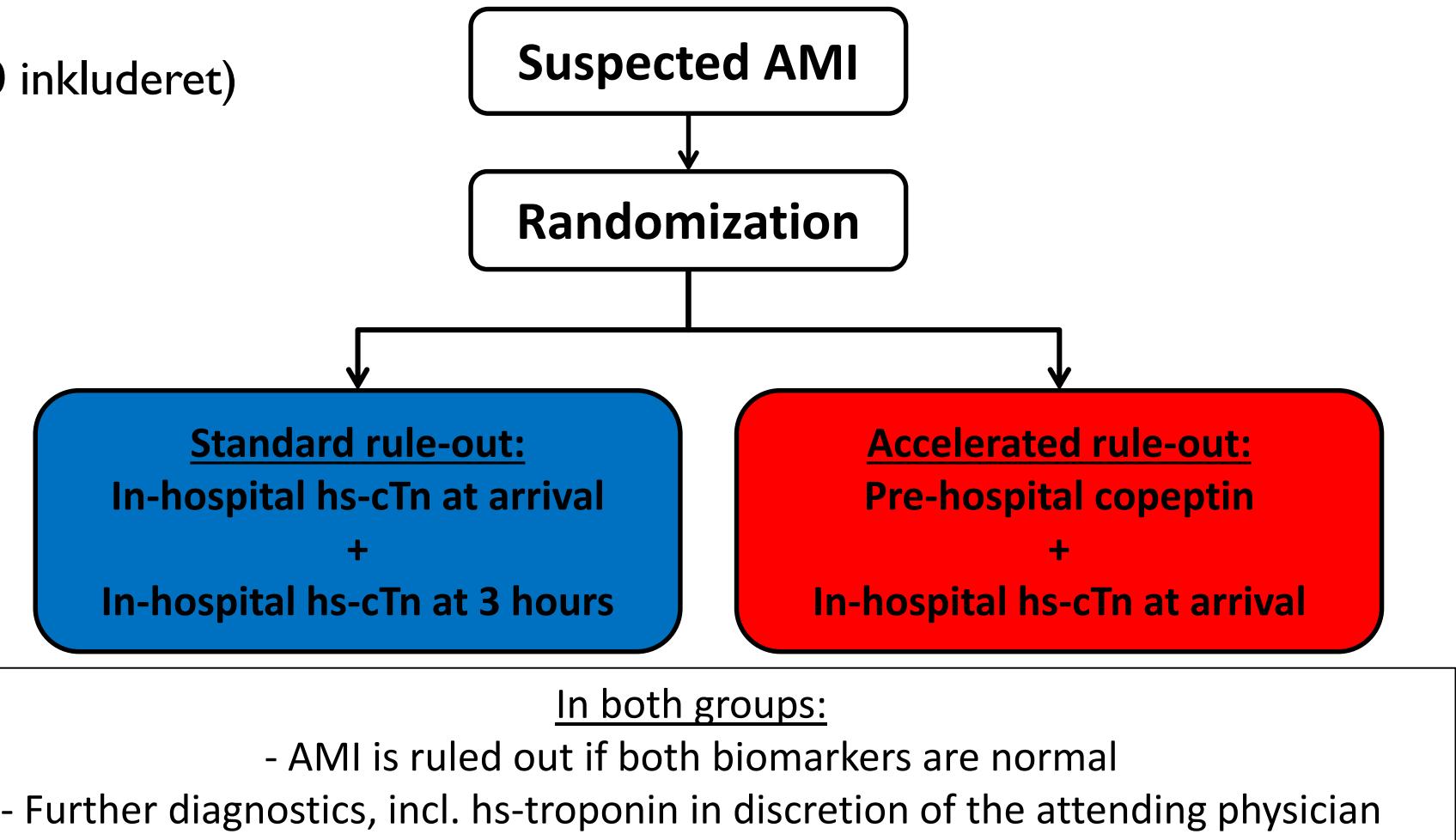
Design:

RCT, N=4800 (ca. 4000 inkluderet)

Aim:

To evaluate:

1. *Length of stay*
2. *MACE-rate.*



AROMI

Accelerated **R**ule **O**ut of acute **M**yocardial **I**nfarction
- using prehospital Copeptin and in-hospital hs-Troponin

Kan vi helt undgå indlæggelse ?

Hvis normal Copeptin + Troponin i ambulance ?

Bedre overlevelse
Optimale patientforsørger
Kortere indlægsgange
Undgå indlæggelse
Undgå dobbeltundersøgelser
Mere sundhed for samme midler

Præhospital diagnostik inklusive biomarkører nødvendige !

