SWEDEHEART

Swedish Web-system for Enhancement and
Development of Evidence-based care in Heart disease
Evaluated According to Recommended Therapies

Tomas Jernberg

Chairman, SWEDEHEART

Karolinska University Hospital, Stockholm

Why SWEDEHEART ?

- National registry of coronary artery disease care and valvular interventions
- Effects
  - Improves quality of care
  - Improves outcome
  - Powerful tool for research
  - Improves cost-effectiveness and saves money

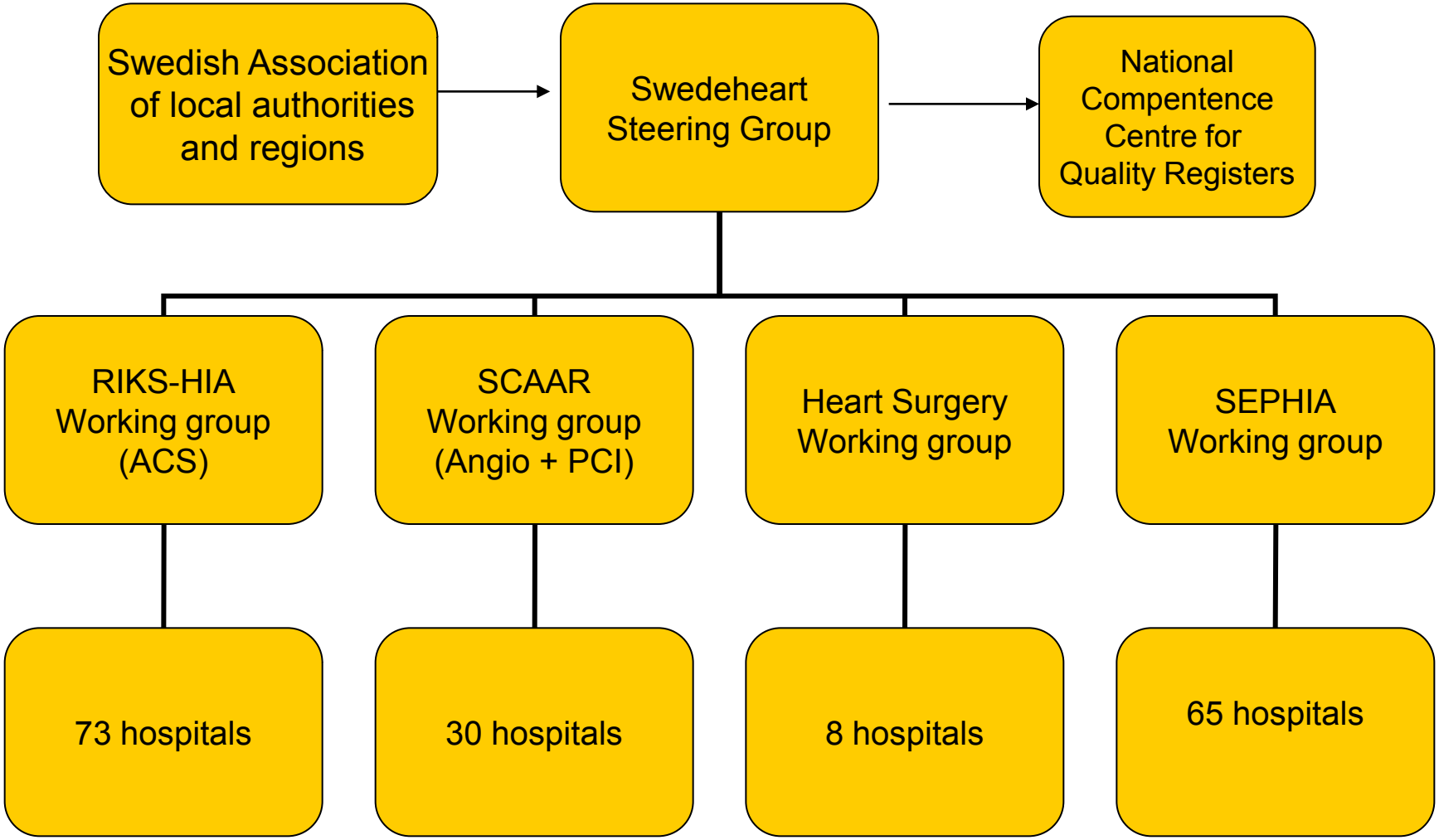
SWEDEHEART

- Started in 2009
- Merge of
  - RIKS-HIA: Acute coronary care registry, 1995
  - SEPHIA: Secondary prevention registry, 2005
  - SCAAR: Angiography and PCI registry, 1998
  - Swedish Heart Surgery registry, 1992

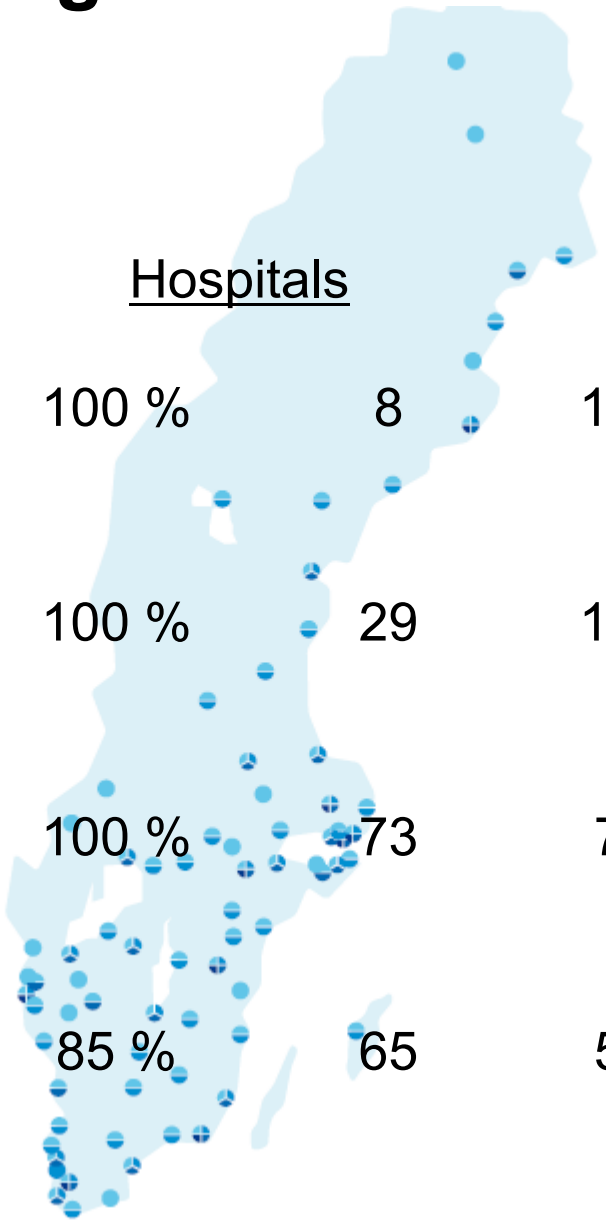
SWEDEHEART

- Reason for the merge
  - To keep the whole process of care together, all data entered into one web-based case report form.
  - To avoid redundant entering of the same data into several different registries.

SWEDEHEART - Organisation



National coverage



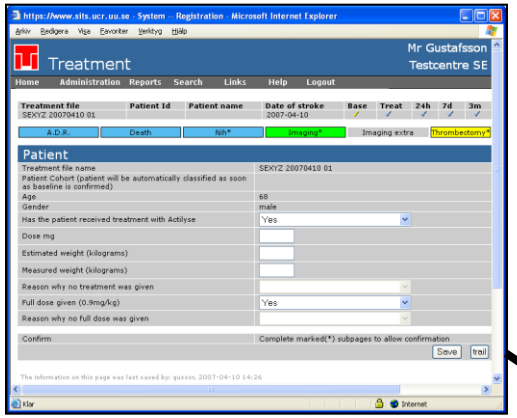
	Hospitals		Patients	
Heart surgery	100 %	8	100 %	7000
SCAAR (angio+PCI)	100 %	29	100 %	40 000
RIKS-HIA (ACS)	100 %	73	70 %	60 000
SEPHIA (<75 years)	85 %	65	55 %	5000

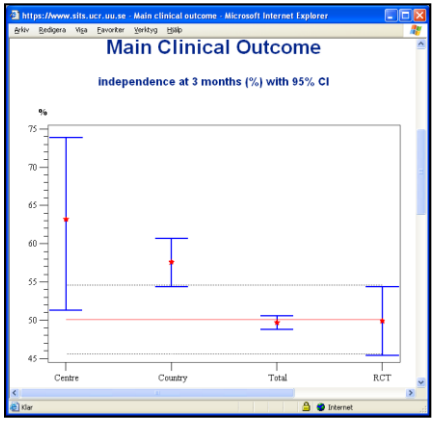
SWEDEHEART

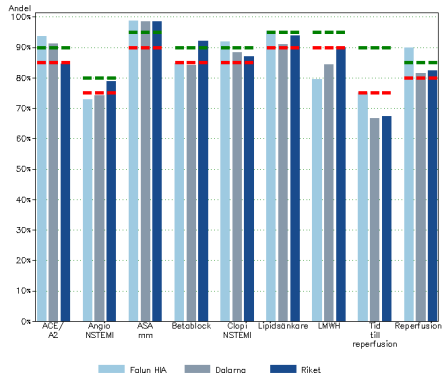
- Annual enrolment: 80 000 cases
  - 20 000 myocardial infarctions
  - 10 000 unstable angina
  - 25 000 with other causes to their symptoms

  → RIKS-HIA
  - 40 000 coronary angiography or angioplasty → SCAAR
  - 7 000 Heart surgery → Heart surgery registry
  - 6 000 secondary prevention → SEPHIA
- >500 variables
- 2737 users (mainly doctors and nurses)
- At a given time: ~ 60 simultaneous users

Quality Register







Central server

Electronic Patient Health record

National Health Data Registries

research db

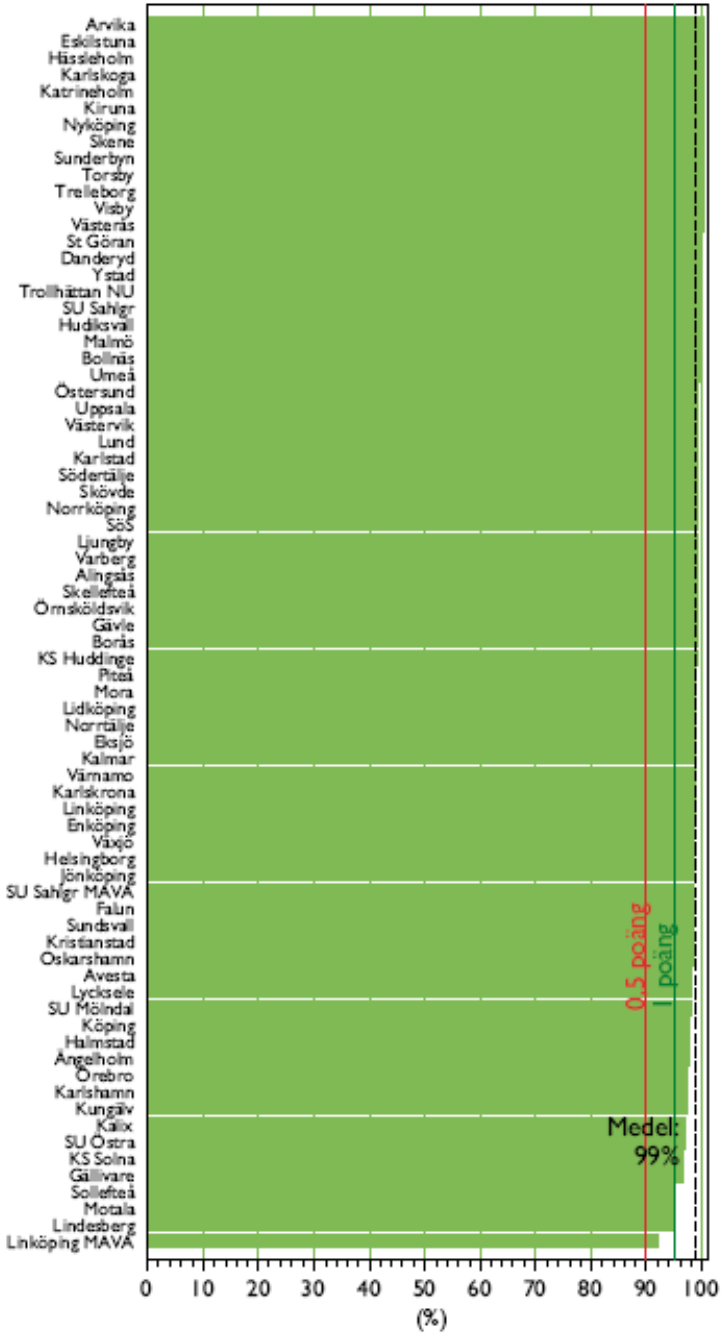
Publications

Årsrapport SWEDEHEART 2010

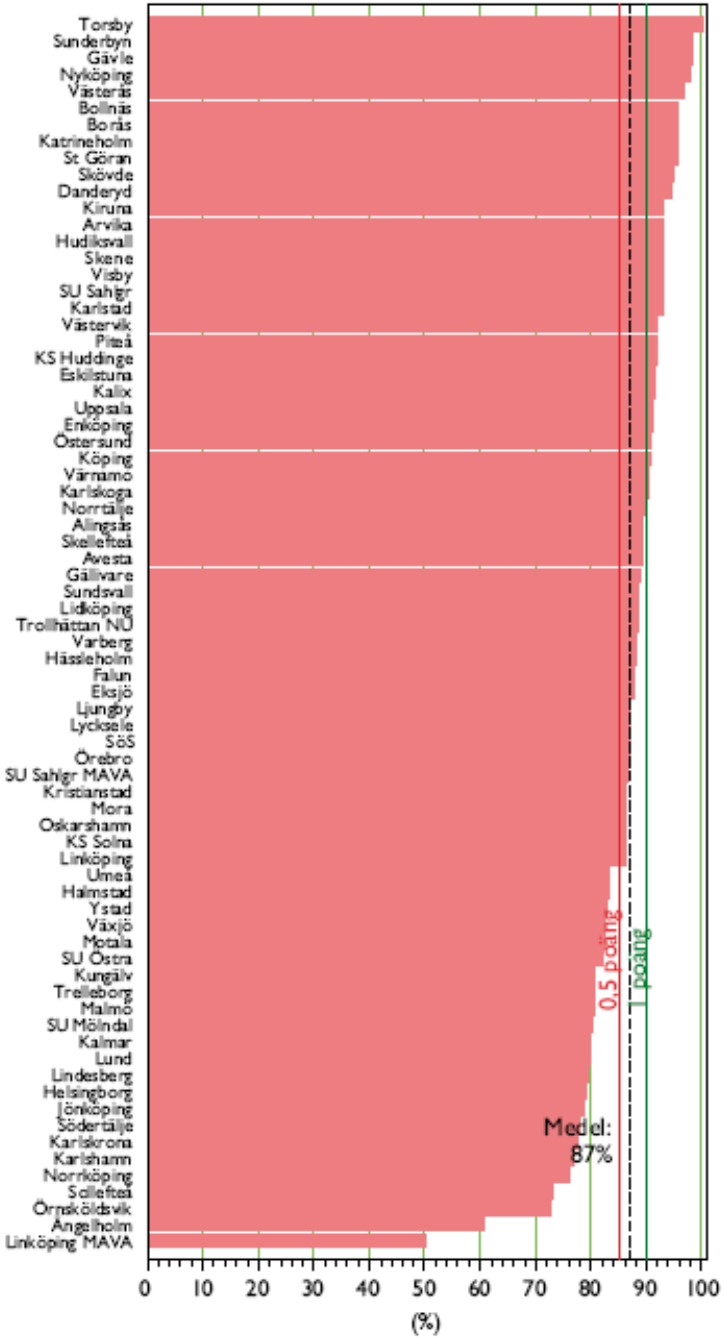
Utgiven 2011

RIKS-HIA	SCAAR	Hjärtkirurgi	SEPHIA	TAVI
PRESENTERAD AV	PRESENTERAD AV	PRESENTERAD AV	PRESENTERAD AV	PRESENTERAD AV
Tomas Jernberg, Claes Held och Per Johanson	Stefan James och Bo Lagerqvist	Torbjörn Ivert och Louise Lindblom	Kristina Hambraeus, Jan-Erik Karlsson och Lars Svennberg	Johan Nilsson

Proportion of MI-patients treated with ASA



Proportion of NSTEMI-patients treated with P2Y12-rec block



RIKS-HIA Quality index (0-9) in treatment of MI 2008 in hospital or at discharge in target patients

Factors in index (% adherence to guidelines)

STEMI

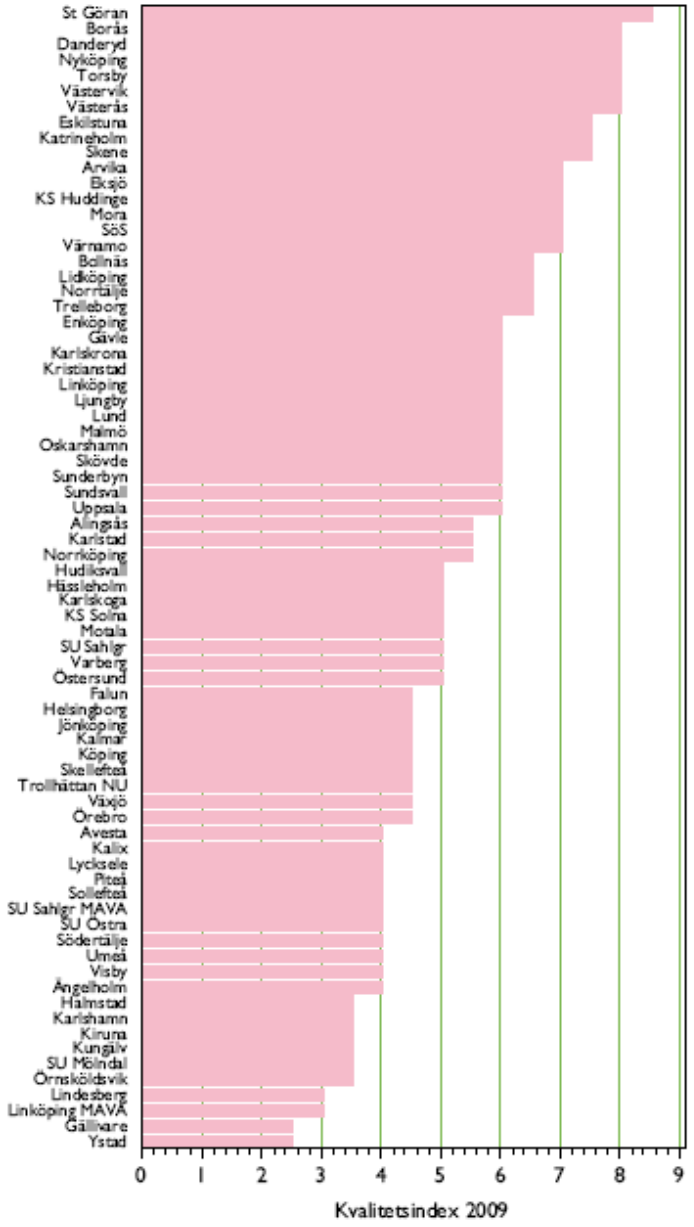
- Reperfusion
- Time to reperfusion

NSTEMI

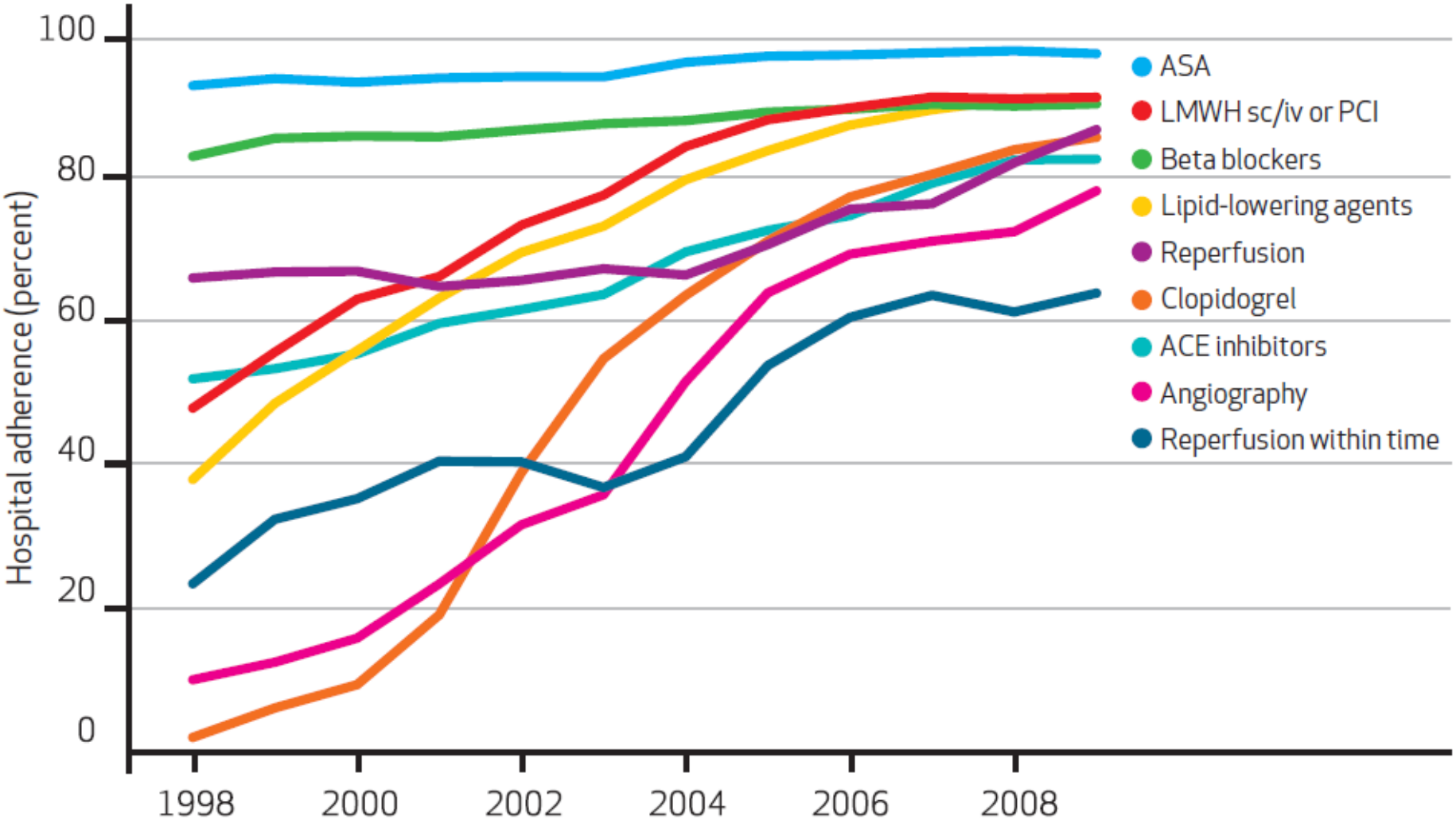
- Coronary angio at high risk
- LMWH
- Clopidogrel or Prasugrel

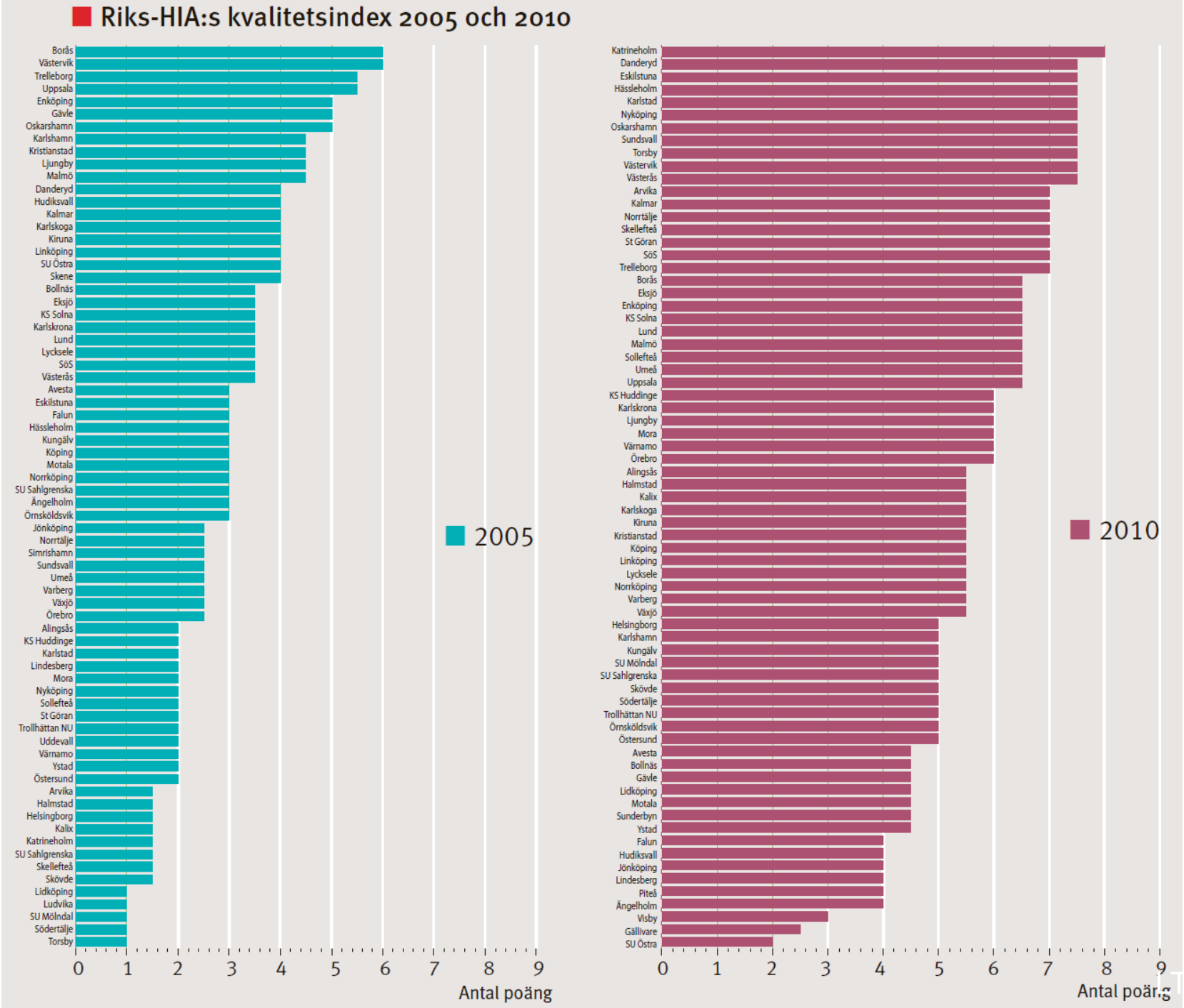
All MI

- ASA
- Statin at LDL> 2.5mm/L
- Beta-blockade
- ACEI/ARB at LV dysf



Hospitals' Adherence To Swedish National Guidelines For Treating Acute Myocardical Infarction, 1998–2009




Riks-HIA:s kvalitetsindex 2005 och 2010
Borås
Västervik
Trelleborg
Uppsala
Enköping
Gävle
Oskarshamn
Karlshamn
Kristianstad
Ljungby
Malmö
Danderyd
Hudiksvall
Kalmar
Karlskoga
Kiruna
Linköping
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Bollnäs
Eksjö
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Lund
Lycksele
SöS
Västerås
Avesta
Eskilstuna
Falun
Hässleholm
Kungälv
Köping
Motala
Norrköping
SU Sahlgrenska
Ängelholm
Örnsköldsvik
Jönköping
Norrtälje
Simrishamn
Sundsvall
Umeå
Varberg
Växjö
Örebro
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Karlstad
Lindesberg
Mora
Nyköping
Sollefteå
St Göran
Trollhättan NU
Uddevall
Värnamo
Ystad
Östersund
Arvika
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Helsingborg
Kalix
Katrineholm
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Ludvika
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Oskarshamn
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Arvika
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Norrtälje
Skellefteå
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Motala
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SU Östra
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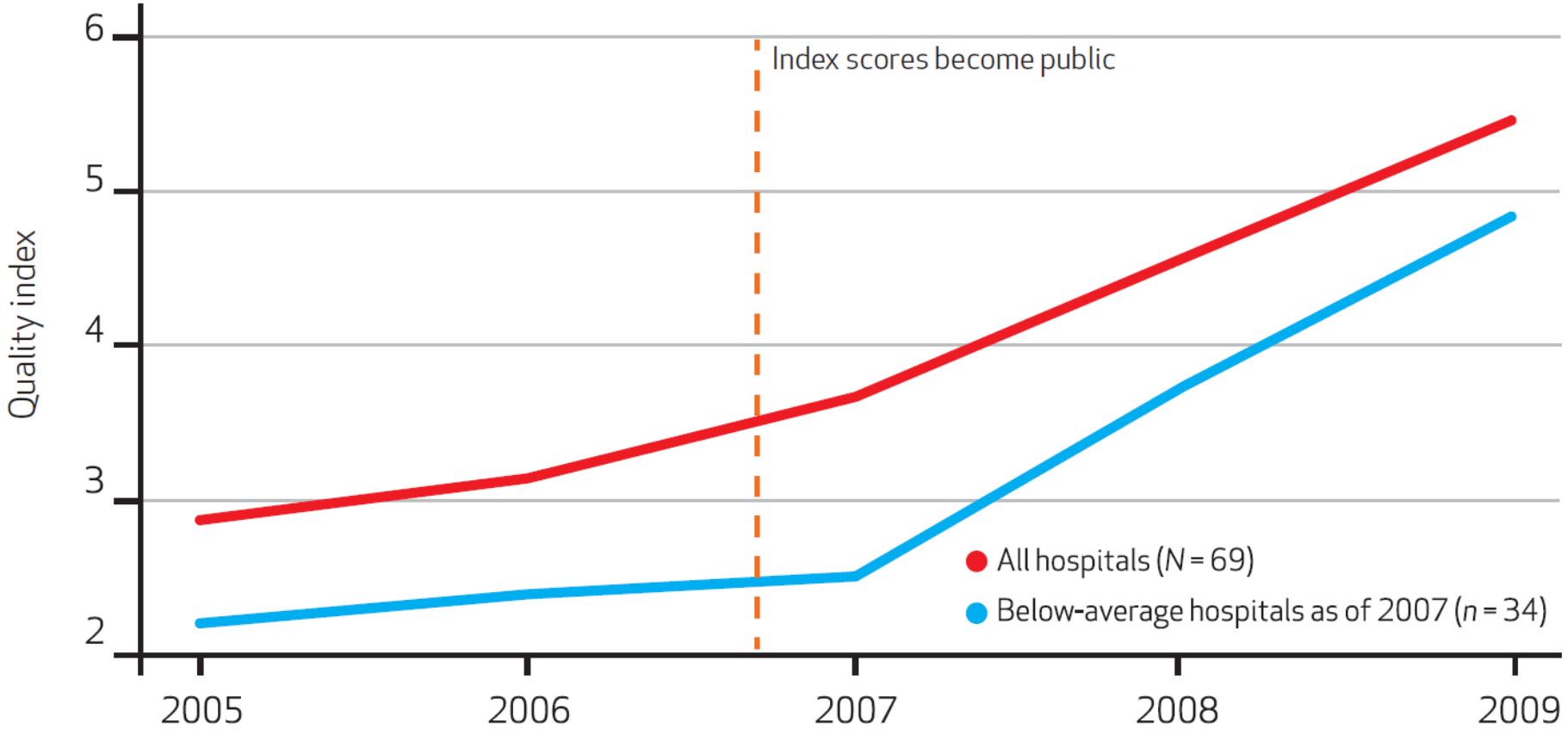
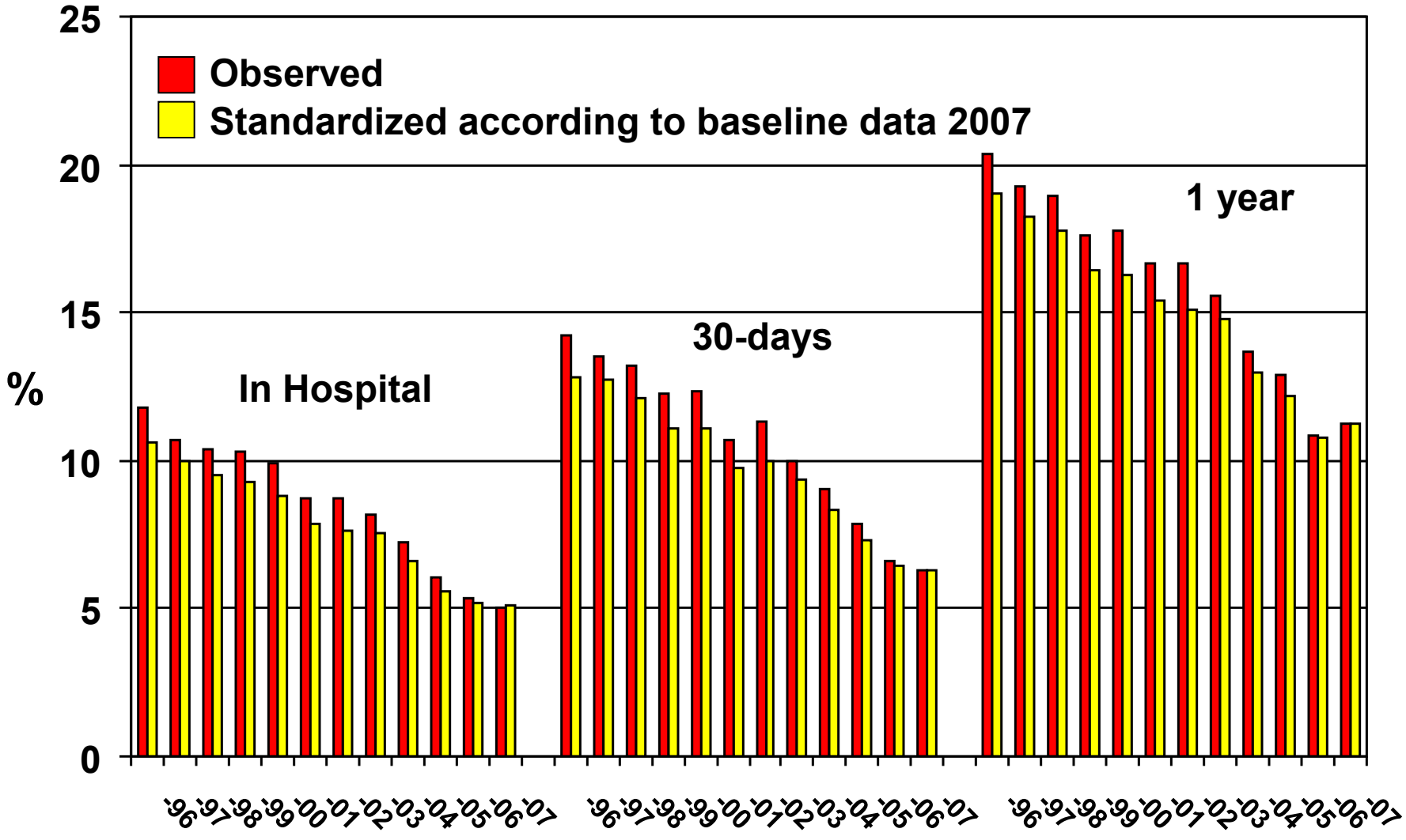
Antal poäng

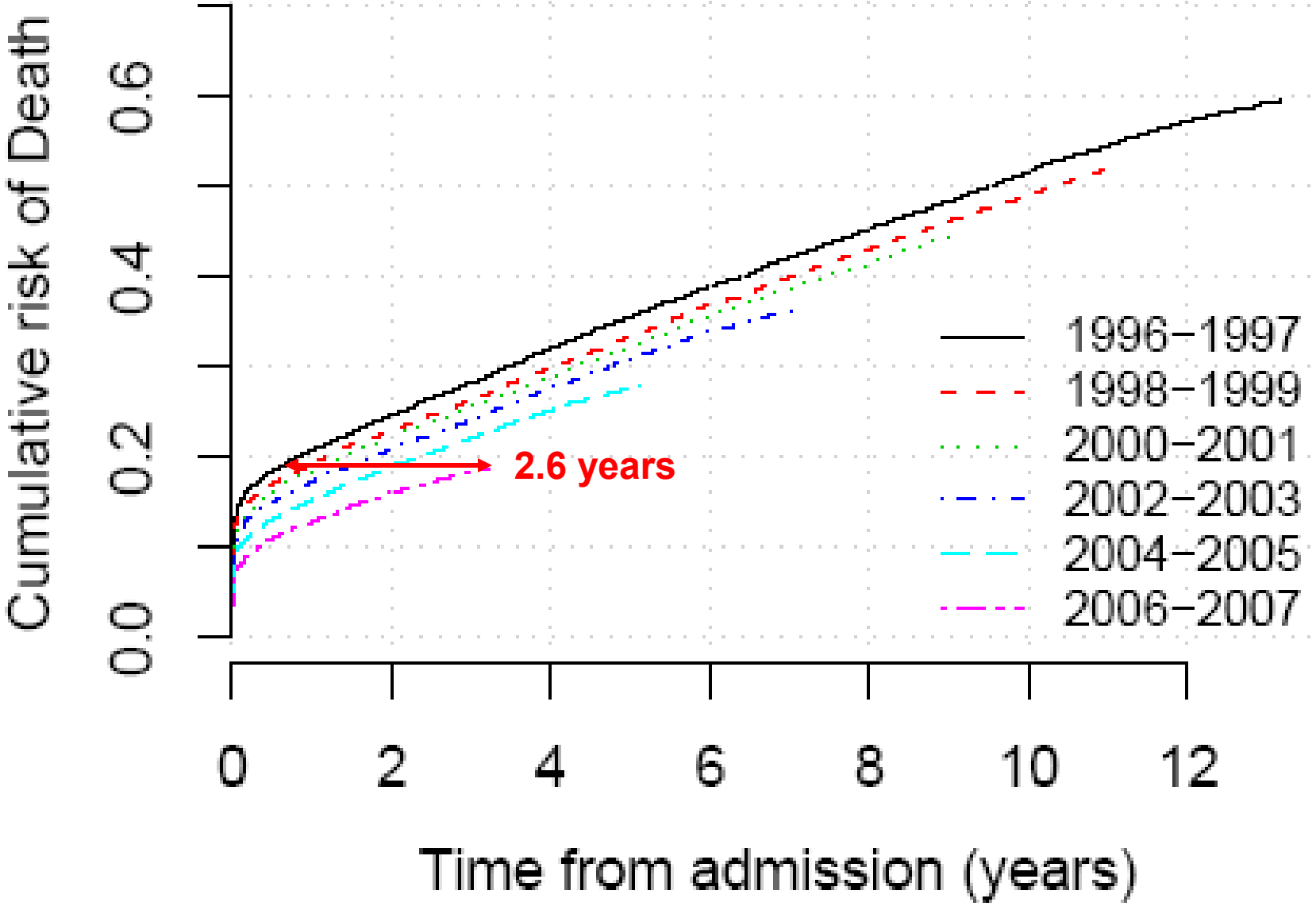
Hospital Scores On The Swedish Coronary Care Registry Quality Index, 2005–09



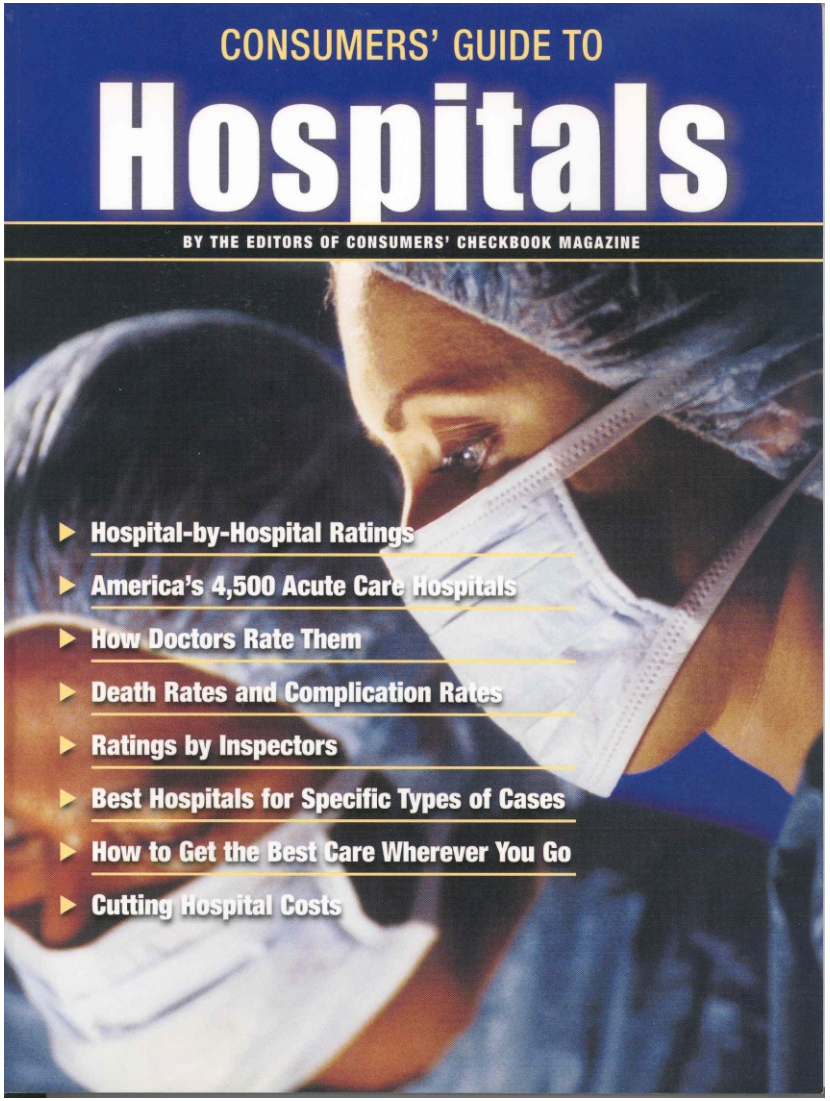
Mortality in STEMI



Long-term mortality in STEMI



Public awareness



"The most dangerous hospitals for patients with heart disease – see the complete list"

Register research

- Every hospital owns its own data – participation in National reports and scientific databases voluntary
- Research projects based on the National database must be approved by SWEDEHEART-steering group
- All projects must be approved by an Ethical Committee
- Any database is de-identified before reaching the scientist
- Statistical analyses are often done in collaboration with epidemiologist/biostatistician from National Competence Center

SWEDEHEART - Research

Nationwide Cohort Study of Risk of Ischemic Heart Disease in Patients With Celiac Disease

Jonas F. Ludvigsson, MD, PhD; Stefan James, MD, PhD; Johan Askling, MD, PhD; Ulf Stenestrand, MD, PhD†; Erik Ingelsson, MD, PhD

Background—Studies on ischemic heart disease (IHD) incidence in individuals with celiac disease (CD) are contradictory and do not take small intestinal pathology into account.

Methods and Results—In this Swedish population-based cohort study, we examined the risk of IHD in patients with CD based on small intestinal histopathology. We defined IHD as death or incident disease in myocardial infarction or angina pectoris in Swedish national registers. In 2006 [illegible] villous atrophy; Marsh 3; n=28 190 unique in[illegible]

(*Circulation*. 2011;123:483-490.)

Association Between Admission Supine Systolic Blood Pressure and 1-Year Mortality in Patients Admitted to the Intensive Care Unit for Acute Chest Pain

Ulf Stenestrand, MD, PhD†
Magnus Wijkman, MD
Mats Fredrikson, PhD
Fredrik H. Nystrom, MD, PhD

Context High resting blood pressure (BP) is among the best studied and established risk factors for cardiovascular disease. However, little is known about the relationship between BP under acute stress, such as in acute chest pain, and subsequent mortality.

Objective To study long-term mortality related to supine BP in patients admitted to the medic

Design, [illegible]

IGH BLOOD PRESSURE (BP) [illegible]

JAMA. 2010;303(12):1167-1172

Influence of Renal Function on the Effects of Early Revascularization in Non–ST-Elevation Myocardial Infarction

Data From the Swedish Web-System for Enhancement and Development of Evidence-Based Care in Heart Disease Evaluated According to Recommended Therapies (SWEDEHEART)

Karolina Szummer, MD; Pia Lundman, MD, PhD; Stefan H. Jacobson, MD, PhD; Staffan Schön, MD; Johan Lindbäck, MSc; Ulf Stenestrand, MD, PhD; Lars Wallentin, MD, PhD; Tomas Jernberg

Background—It is unknown whether patients with

(*Circulation*. 2009;120:851-858.)

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 MAY 7, 2009 VOL. 360 NO. 19

Long-Term Safety and Efficacy of Drug-Eluting versus Bare-Metal Stents in Sweden

Stefan K. James, M.D., Ph.D., Ulf Stenestrand, M.D., Ph.D., Johan Lindbäck, M.Sc., Jörg Carlsson, M.D., Ph.D., Fredrik Scherstén, M.D., Ph.D., Tage Nilsson, M.D., Ph.D., Lars Wallentin, M.D., Ph.D., and Bo Lagerqvist, M.D., Ph.D., for the SCAAR Study Group*

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Long-Term Outcomes with Drug-Eluting Stents versus Bare-Metal Stents in Sweden

Bo Lagerqvist, M.D., Ph.D., Stefan K. James, M.D., Ph.D., Ulf Stenestrand, M.D., Ph.D., Johan Lindbäck, M.Sc., Tage Nilsson, M.D., Ph.D., and Lars Wallentin, M.D., Ph.D., for the SCAAR Study Group*

Long-term Outcome of Primary Percutaneous Coronary Intervention vs Prehospital and In-Hospital Thrombolysis for Patients With ST-Elevation Myocardial Infarction

Ulf Stenestrand, MD, PhD
Johan Lindbäck, MSc

Context Whether the su[illegible] reported in clinical trials in

JAMA. 2006;296:1749-1756

Anticoagulation Therapy in Atrial Fibrillation in Combination With Acute Myocardial Infarction Influences Long-Term Outcome

A Prospective Cohort Study From the Register of Information and Knowledge About Swedish Heart Intensive Care Admissions (RIKS-HIA)

Ulf Stenestrand, MD, PhD; Johan Lindbäck, MSc; Lars W[illegible]

(*Circulation*. 2005:

Early revascularisation and 1-year survival in 14-day survivors of acute myocardial infarction: a prospective cohort study

Ulf Stenestrand, Lars Wallentin

Summary

Background Randomised trials of early revascularisation in acute coronary syndromes have yielded conflicting results

Introduction

Results of randomised trials on the survival benefits of early revascularisation after acute coronary syndromes are incons[illegible]

Lancet 2002; **359:** 1805–11

Association Between Adoption of Evidence-Based Treatment and Survival for Patients With ST-Elevation Myocardial Infarction

Tomas Jernberg, MD, PhD
Per Johanson, MD, PhD
Claes Held, MD, PhD
Bodil Svennblad, MSc

Context Only limited information is available on the speed of implementation of new evidence-based and guid[illegible] vival in real life health care

Objective To describe

JAMA. 2011;305(16):1677-1684

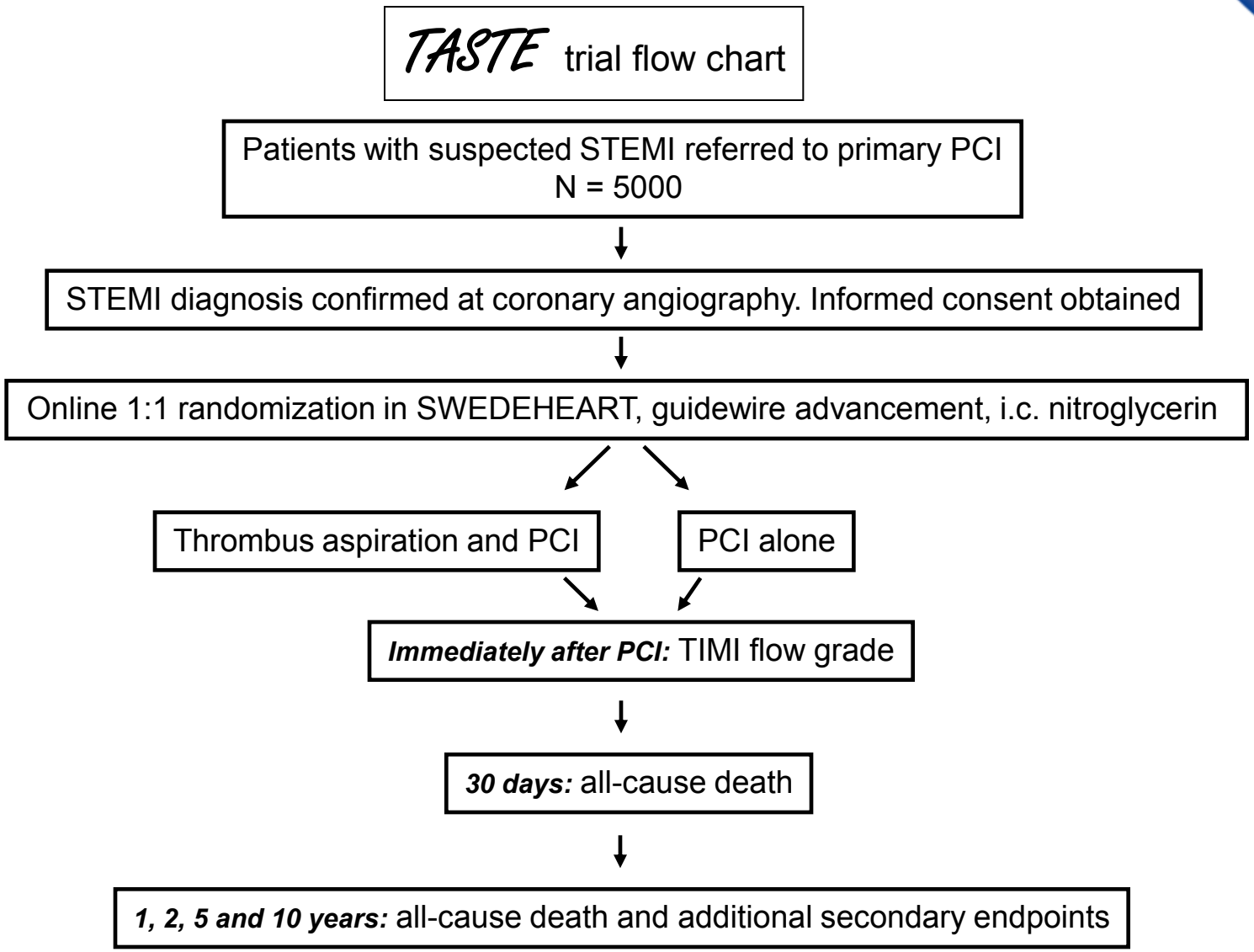
Future developments

- Randomisation module for prospective randomised registry based trial
- Integration with Patient Electronic Health Records
- Patients will be able to report directly into the system
- Integration with modules for blood sampling for biobanking for genetic and proteomic research
- International collaborations: MINAP (UK), Infarctus Regiszter (Hungary), ACTION (USA)

Randomised trials in registries

- Simple but clinically important question
- Simple and clear outcome variables
- Require very limited changes of the registry
- Vast majority of eligible patients included

TASTE trial flow chart



Reasons for success

- Initiated by cardiologists, driven by National and local enthusiasts
- Highly motivated users
- Immediate benefit at the local unit – on-line-reports.
- Open comparison of hospital performances
- We have demonstrated that we can improve quality of care
- High degree of transparency

SWEDEHEART

Thank you for you attention !

RIKS-HIA SEPHIA SCAAR Svenska Hjärtkirurgiregistret