EUROPEAN HEALTH CARE OUTCOMES, PERFORMANCE AND EFFICIENCY

In the heart of AMI – Comparing differences in Europe

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EuroHOPE

Definition of Acute Myocardial Infarction (AMI)

- Detection or rise and/or fall cardiac biomarkers (preferably troponin) with at least one value above the 99th percentile of the upper reference limit (URL) together with evidence of myocardial ishaemia with at least one of the following:
  - Symptoms of ischaemia;
  - ECG changes indicative of new ischaemia (new ST-T changes or new left bundle branch block (LBBB));
  - Development of pathological Q waves in the ECG;
  - Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality.

(*Circulation,* 2007;116:2634-2653.)

Data and methods

- inpatient, outpatient, medication administrative data and death registries
- **AMI** codes: ICD-9: **410**, ICD 10: **I21, I22**
- inclusion criteria: **valid ID, resident, age 18-X**
- **index** hospital **admission**:
  - main diagnosis is AMI, no AMI within 365 prior the admission
- **linkage** of individual episodes with **patient IDs**
- first analysis:
  - FIN, HUN, NL, SWE - 2007
  - NOR - 2009

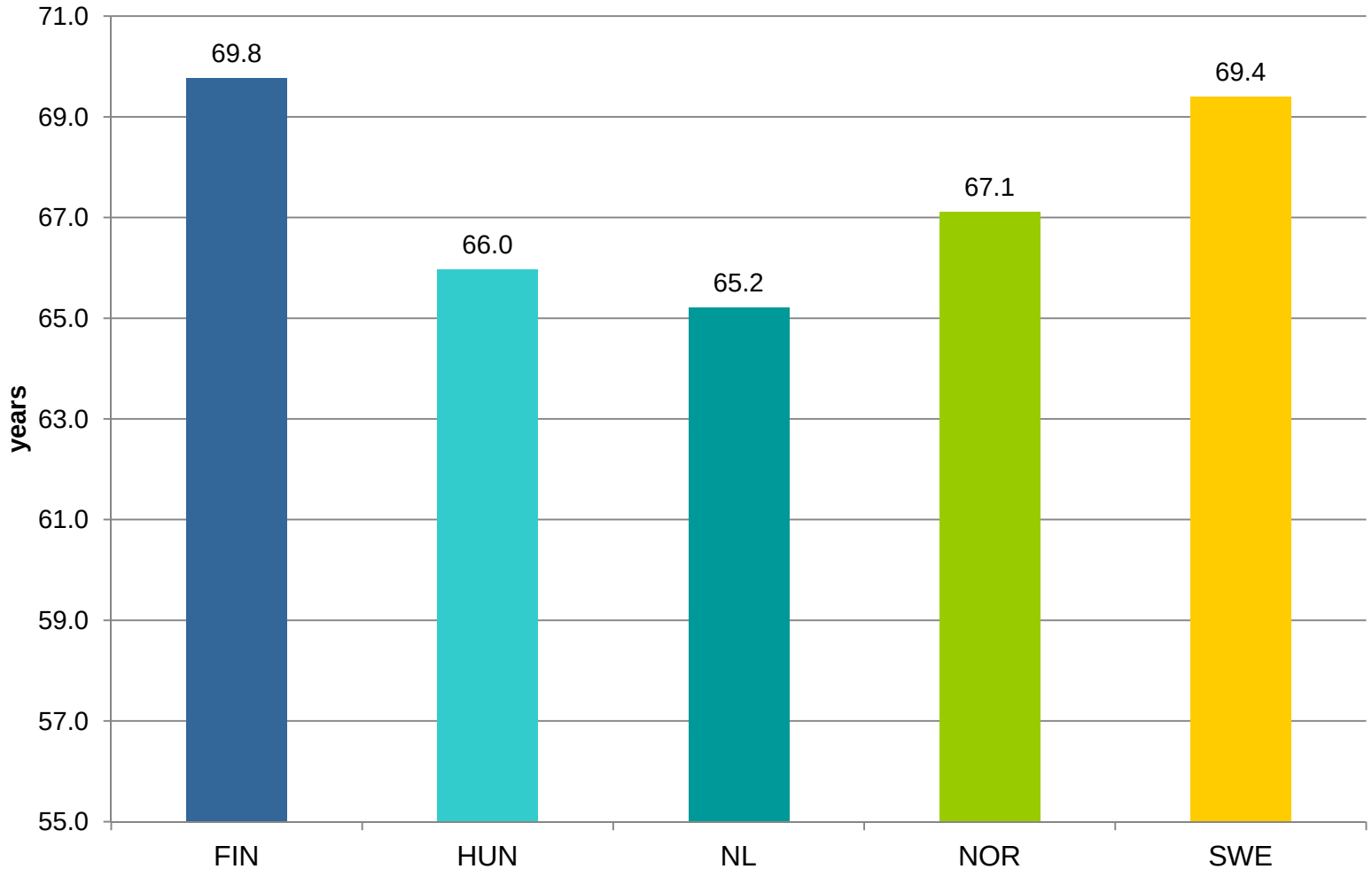
RESULTS

Number of AMI patients and incidence of the AMI cases by countries (per 10.000 population)

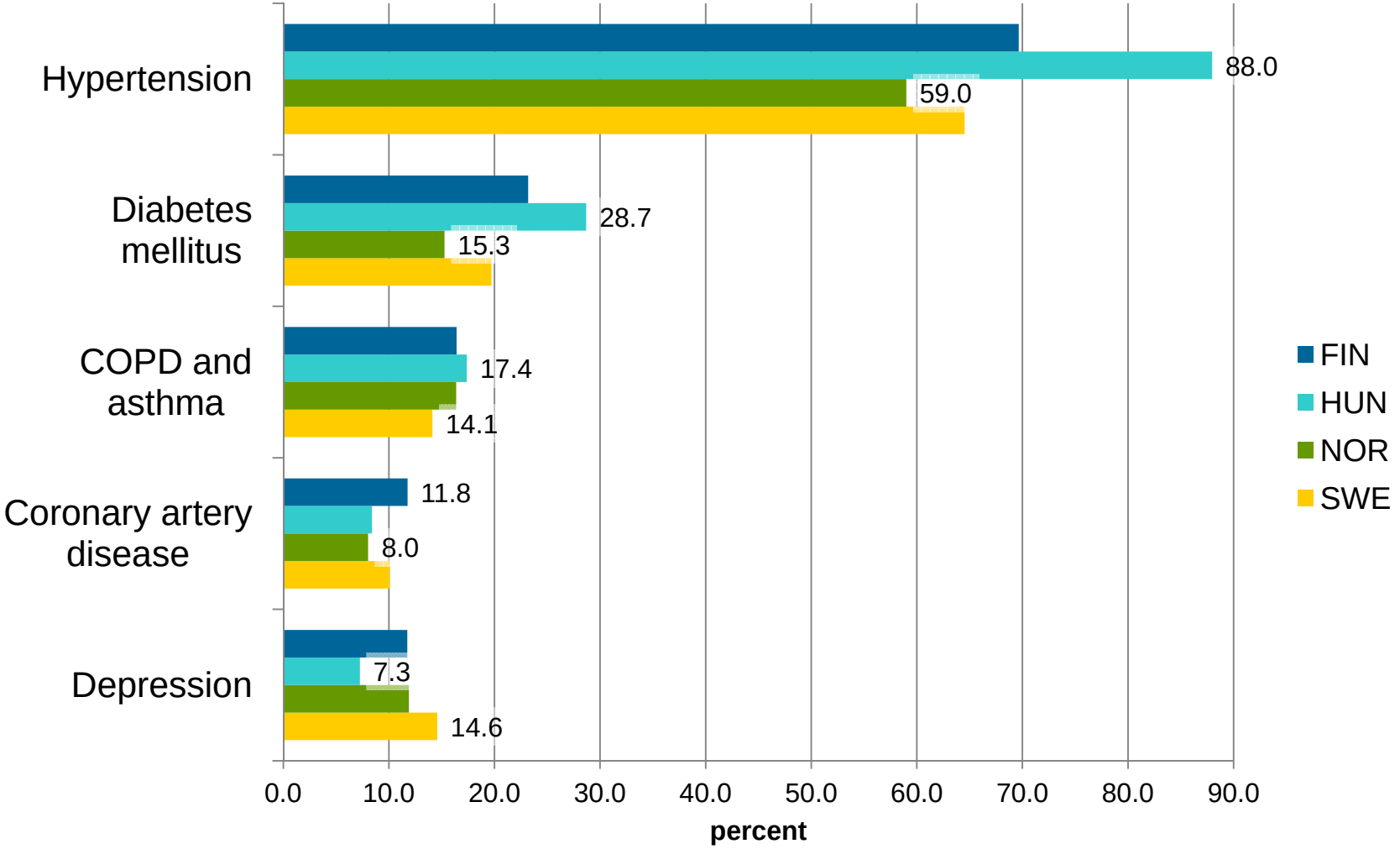
Country	No of AMI patients			Incidence (/10.000 pop)		
	Aged 40-64	Aged 65-84	Total	Aged 40-64	Aged 65-84	Total
FIN	2 433	5 486	**7 919**	13.0	70.7	**29.8**
HUN	5 576	7 265	**12 841**	16.8	49.2	**26.8**
NL*	7 113	8 170	**15 283**	-	-	(~23.0)
NOR	3 952	5 657	**9 609**	25.6	96.7	**45.2**
SWE	6 068	12 490	**18 558**	19.9	92.1	**42.1**

*based on sample of hospitals

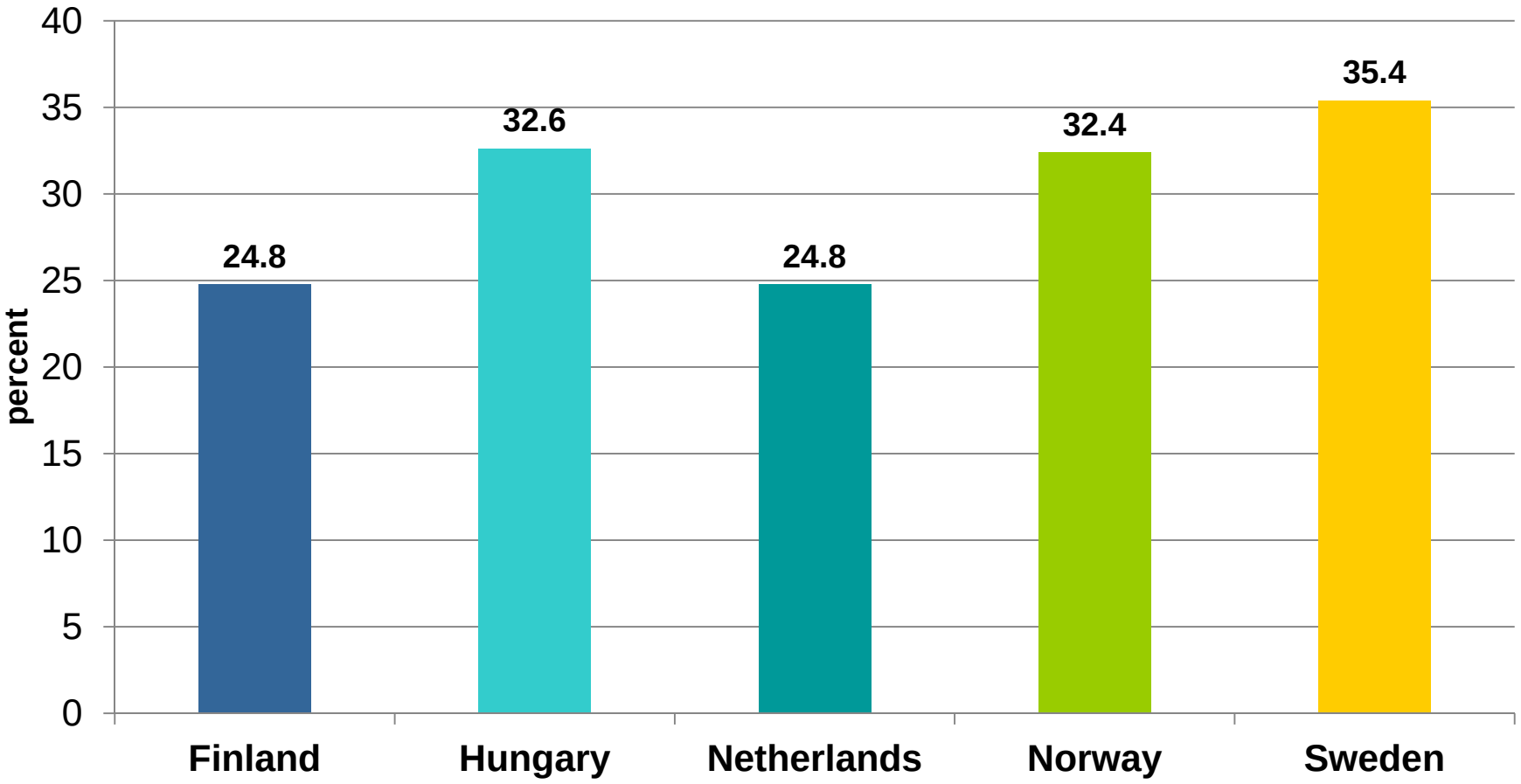
Average age of 40-84 aged AMI pts (years) - depends on the age distribution of the population, too



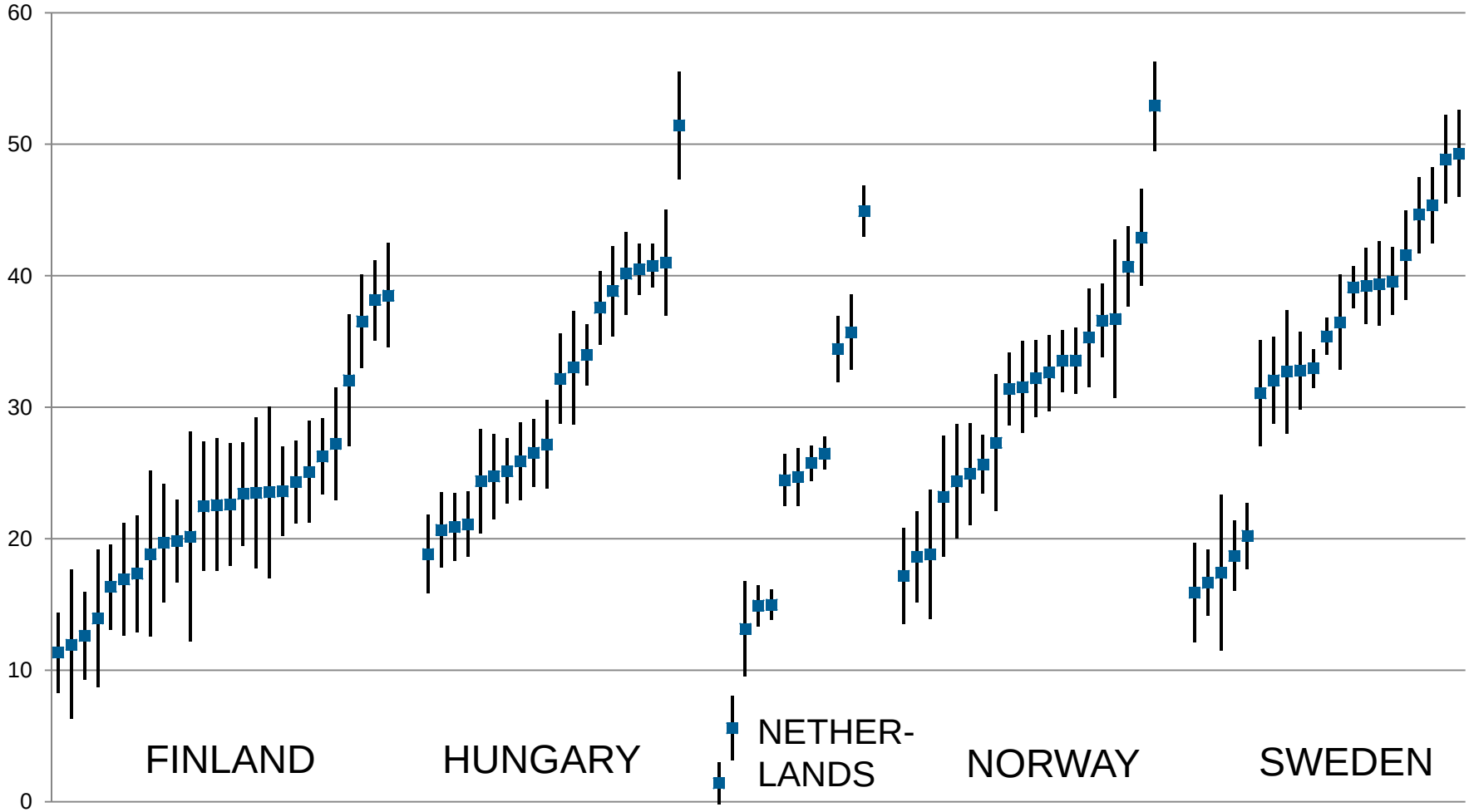
Co-morbidities: medicine purchase, or main or secondary diagnosis during the previous 365 days - 5 most frequent diagnoses



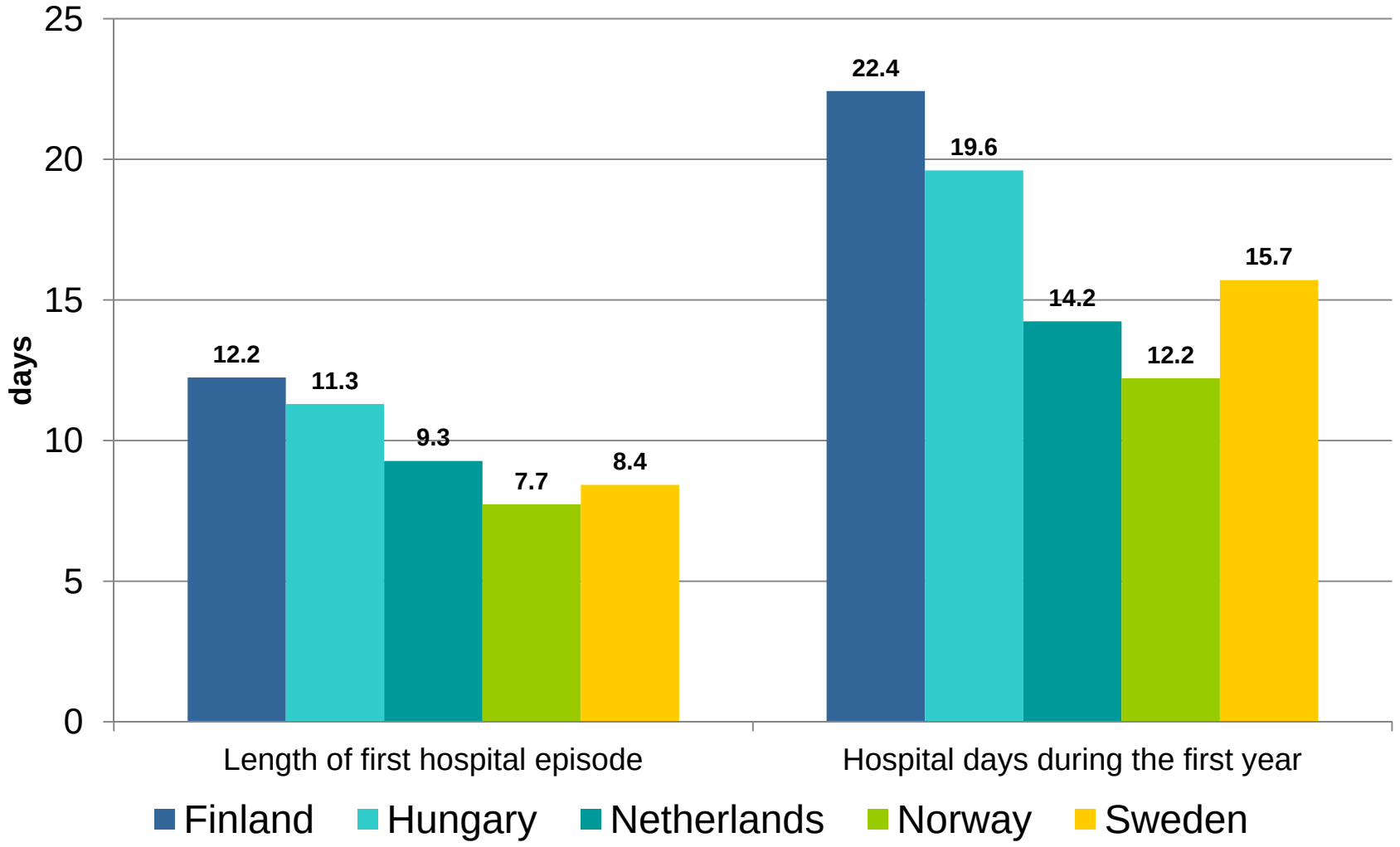
2-day PCI rate (%) of AMI patients by country, adjusted for age and sex



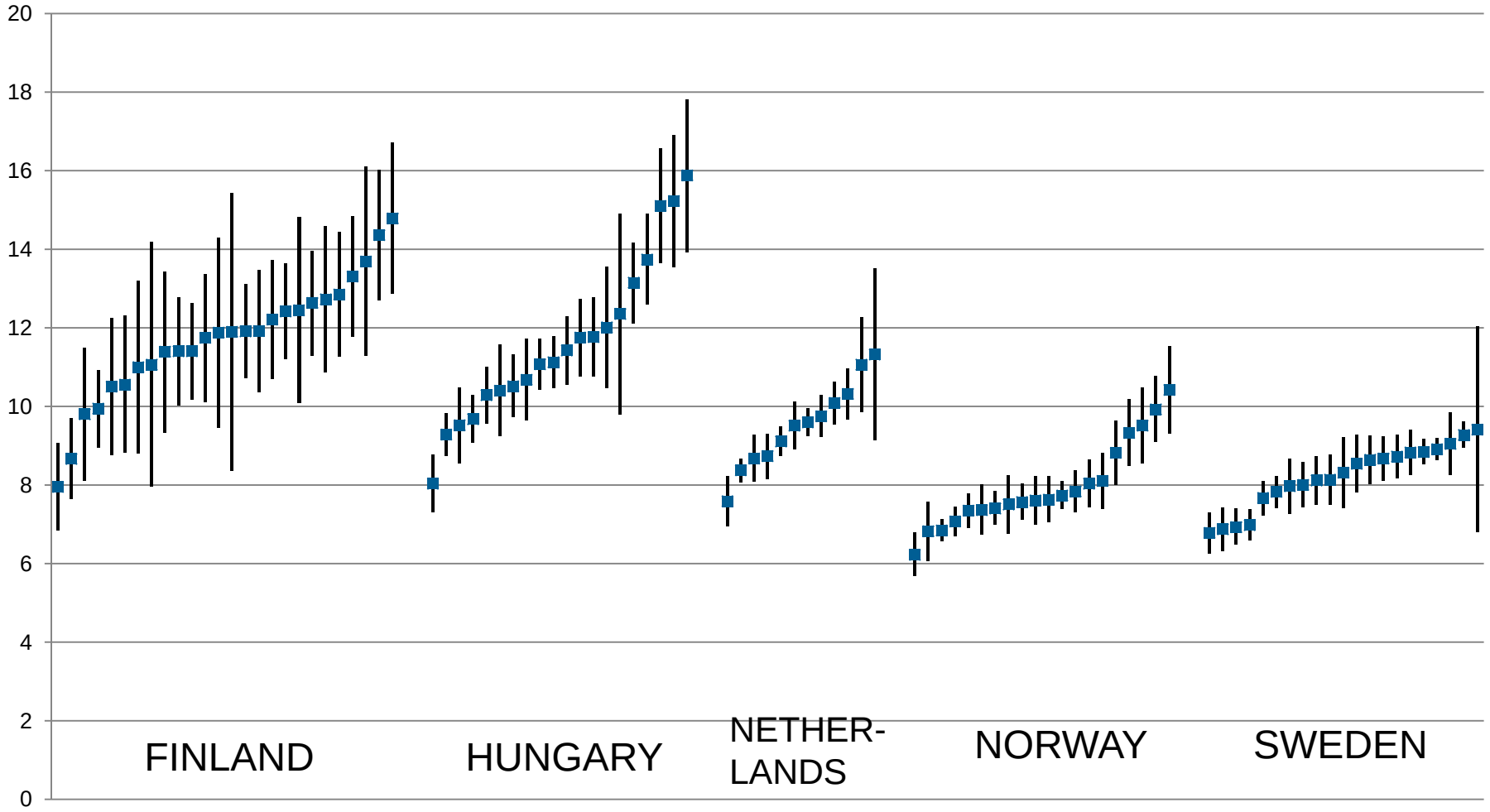
2-day PCI rate (%) of AMI patients per region by country, adjusted for age and sex, with confidence intervals



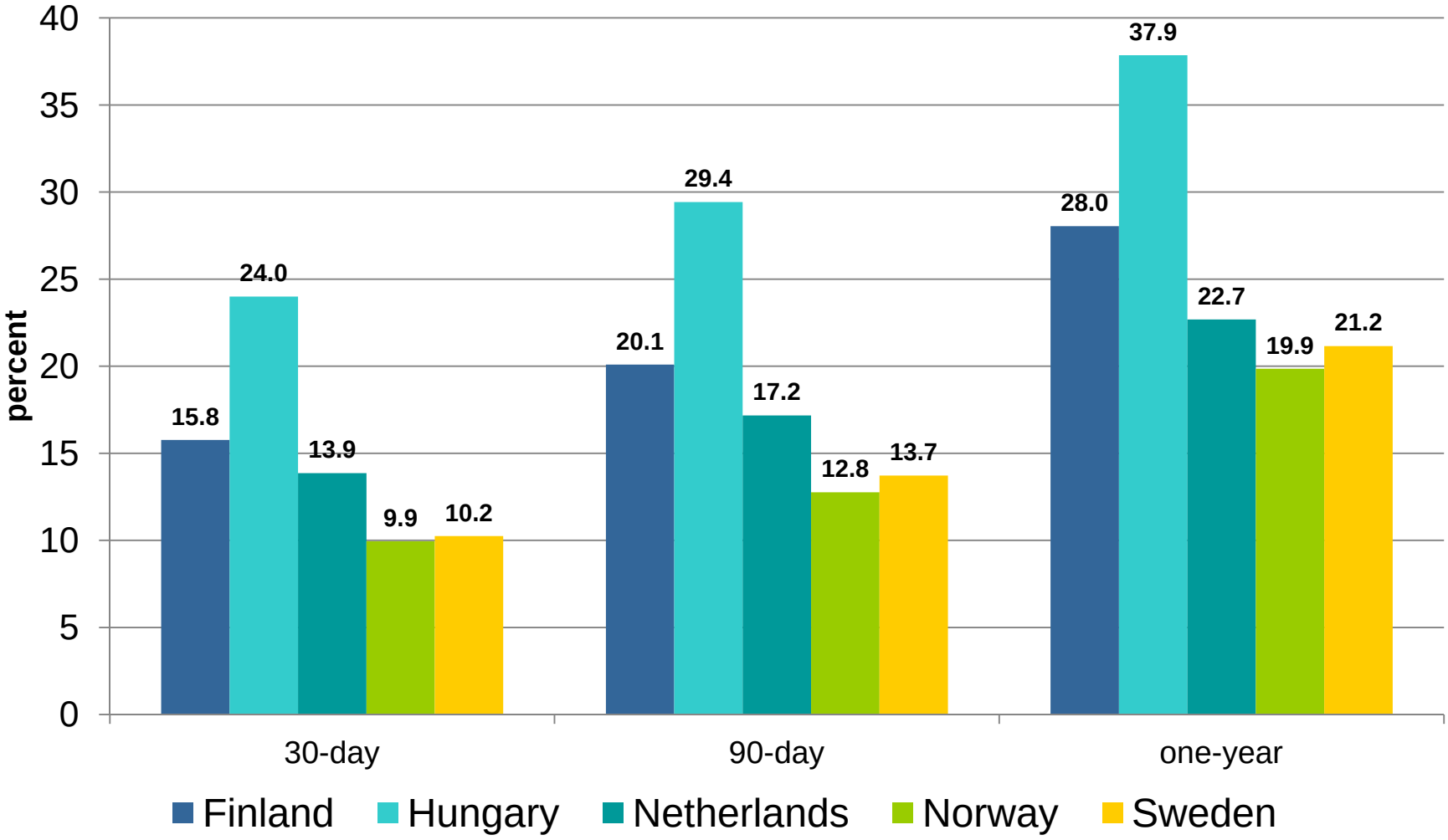
Mean hospital days of AMI patients during first hospital episode and the first year by country, adjusted for age and sex



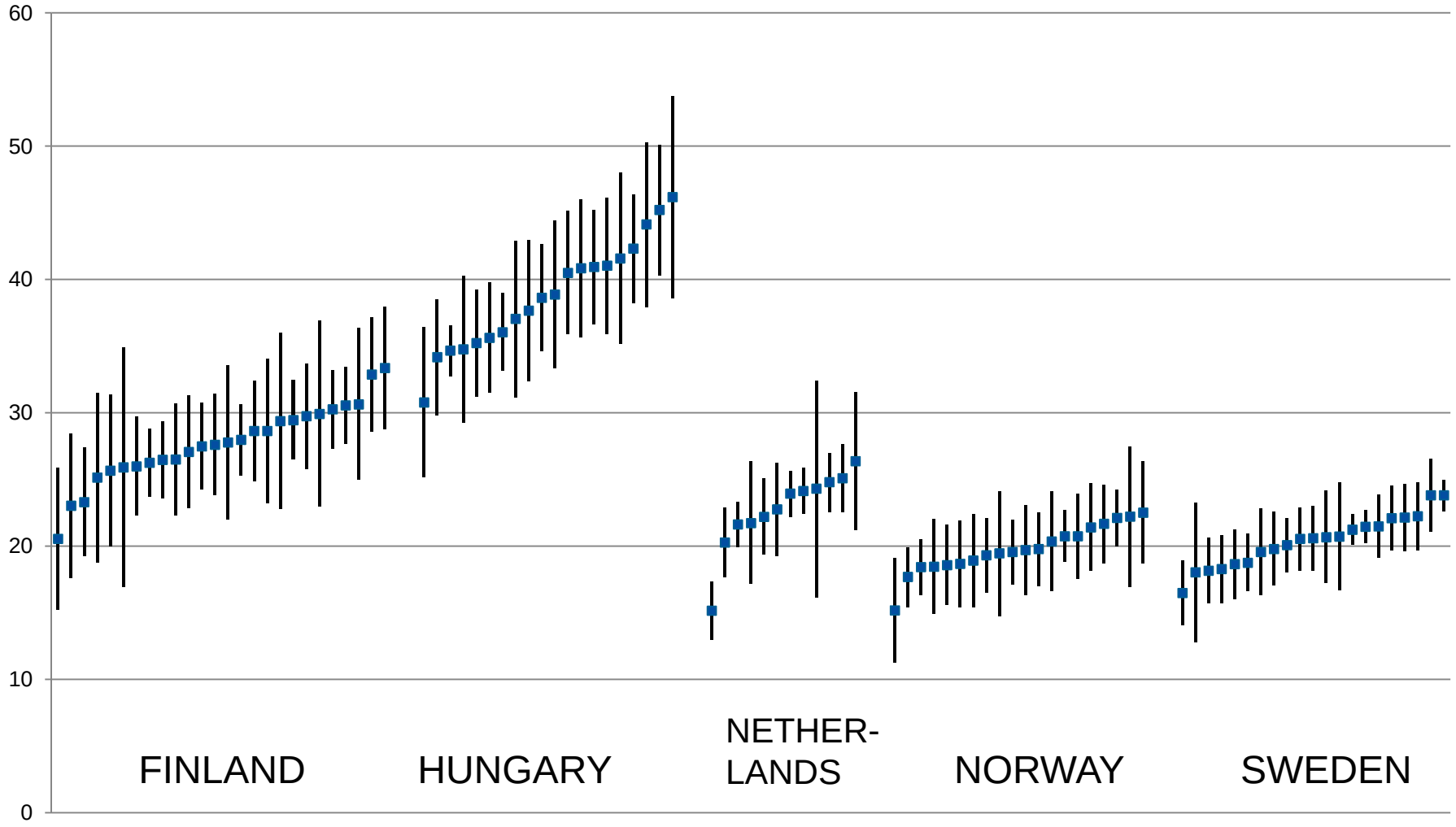
Mean length of first hospital episode of AMI patients per region by country, adjusted for age and sex, with confidence intervals



Mortality (30-, 90-day and one-year %)) of AMI patients by country, adjusted for age and sex



One-year mortality of AMI patients per region by country, adjusted for age and sex, with confidence intervals



Summary and conclusions I.

- advantage:
  - recorded co-morbidities imply the eligibility of the administrative data
  - indicator values are accepted by cardiologists

- barrier:
  - not possible to separate STEMI and NSTEMI in all countries

- high incidence + low mortality (NOR, SWE) vs low incidence + high mortality (HUN, FIN)
  - probably not coding problem, it needs further investigation (AMI + acute coronary syndrome)

Summary and conclusions II.

- **high variation** among and within the countries in
  - **health status** of the AMI pts
  - **LOS**
    - **depends on** the rehabilitation and long term **care system**
  - **PCI%**
    - extremely **high variations within** the countries - possibly it has changed since then
  - **outcome - twofold mortality** (HUN vs NOR)!
    - role of the different health status of population?
    - less in NL, NOR, SWE - why?
      - more pts per region?
      - accepted guidelines and compliance?

Summary and conclusions III.

- Remarkable and important results
- Experiences of this study and data from other years are needed for deeper analysis

THANK YOU YOUR ATTENTION!