



# Epidemiology Cardiovascular Disease in Europe

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# Disclosures

- No conflict of interest

# Data sources

- WHO European Health for all database (HFA-DB)
- WHO Mortality database (WHO-MDB)
- Provides health statistics for 52 Member States of the WHO European Region
- Initiated mid-80s
- Data mainly submitted by member states
- Data from international organisations, e.g.,
  - OECD health database, Paris
  - United Nations Food and Agriculture Organization, Rome
  - UNESCO statistical yearbook, Paris
- New data is continuously collected
- June 2008

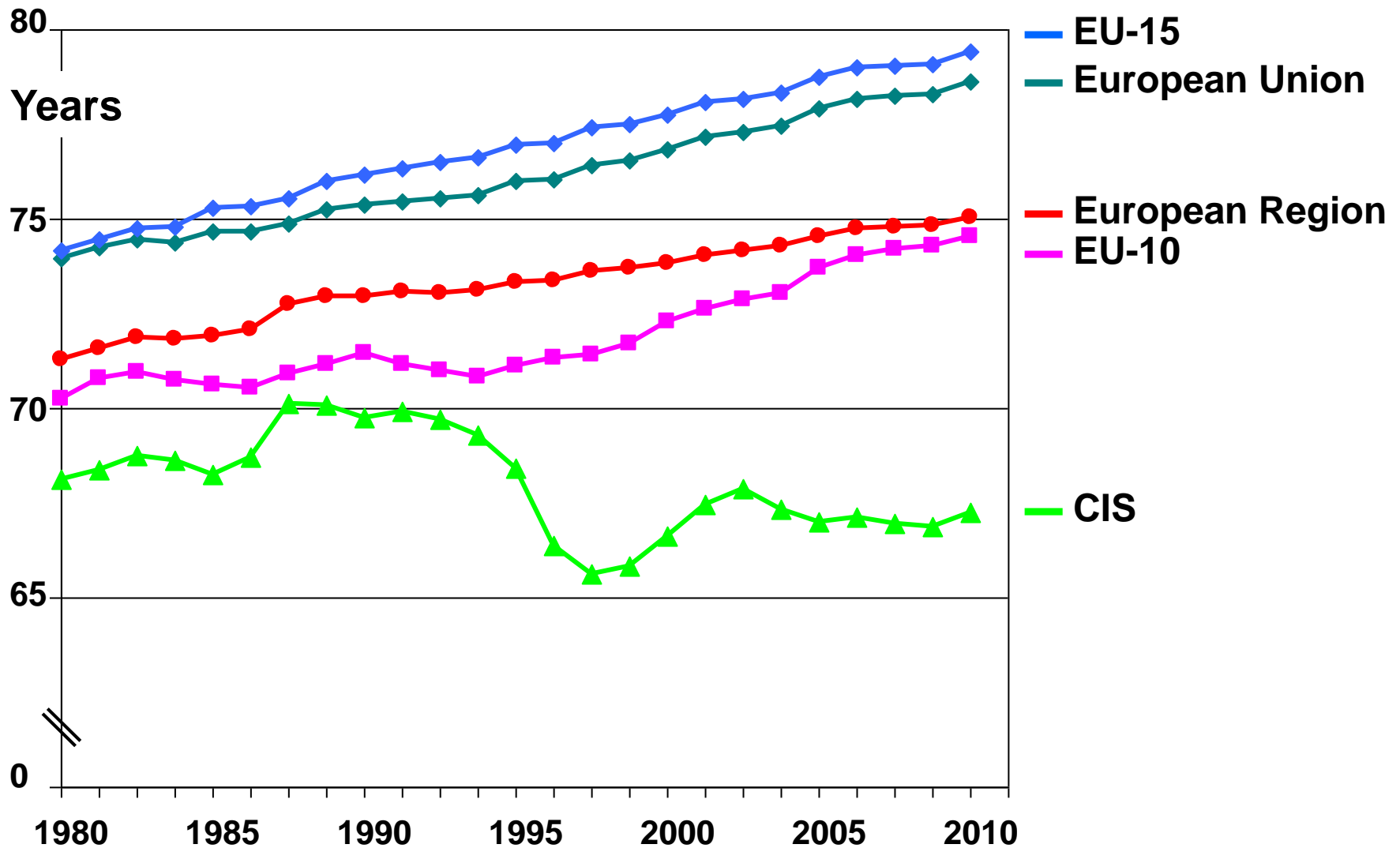
# Groups of countries

- **European Region:** the 52 countries of the WHO Region
- **EU:** the Member States of the European Union
- **EU-15:** the 15 Member States of the European Union prior to 1 May 2004
- **EU-10:** the 10 Member States which joined the European Union from 1 May 2004
- **CIS:** the 12 countries of the Commonwealth of Independent States, which are 12 out of 15 countries of the former USSR

# Increasing Life Expectancy



# Life expectancy at birth in Europe





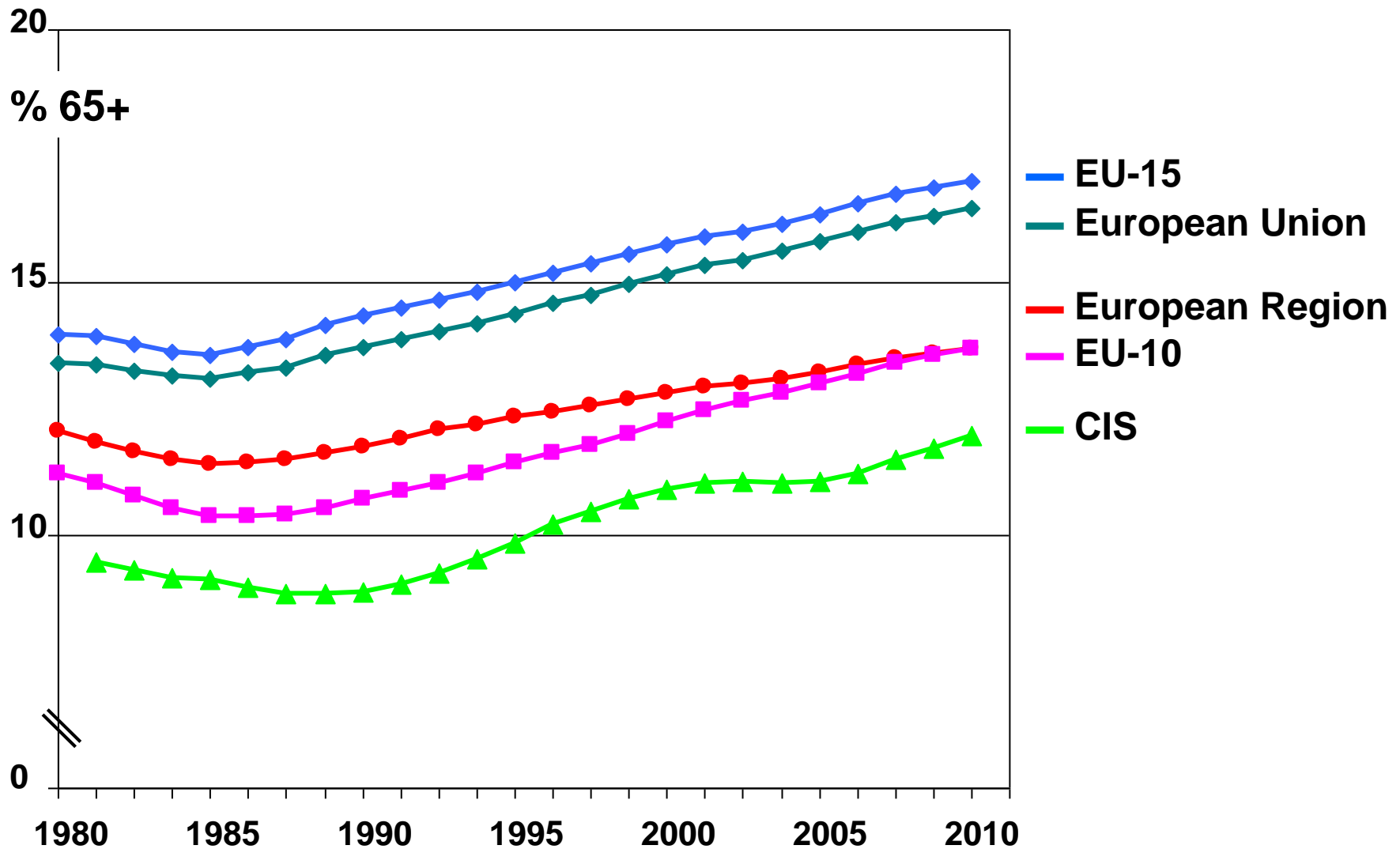




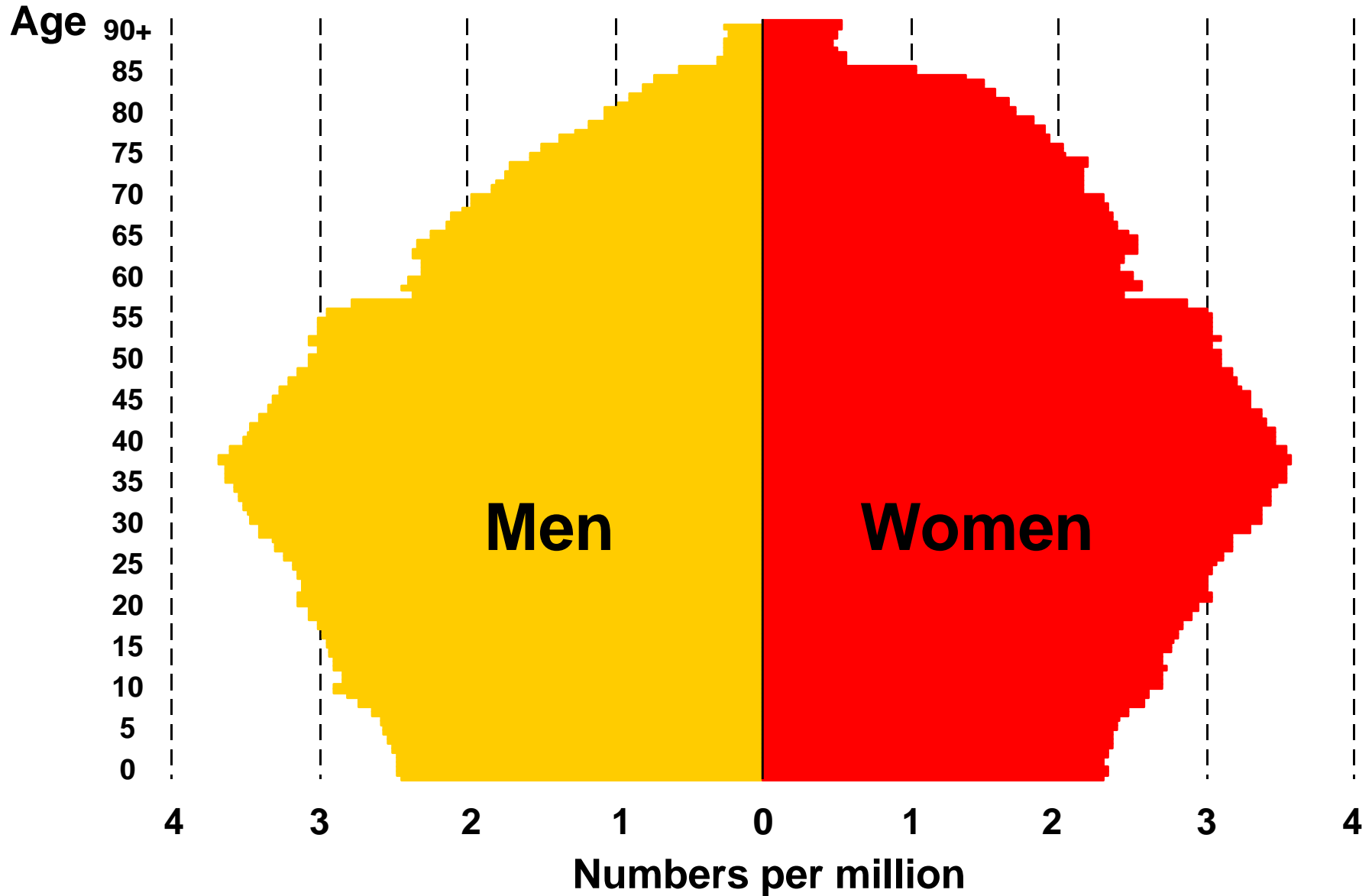
# Europe is ageing rapidly



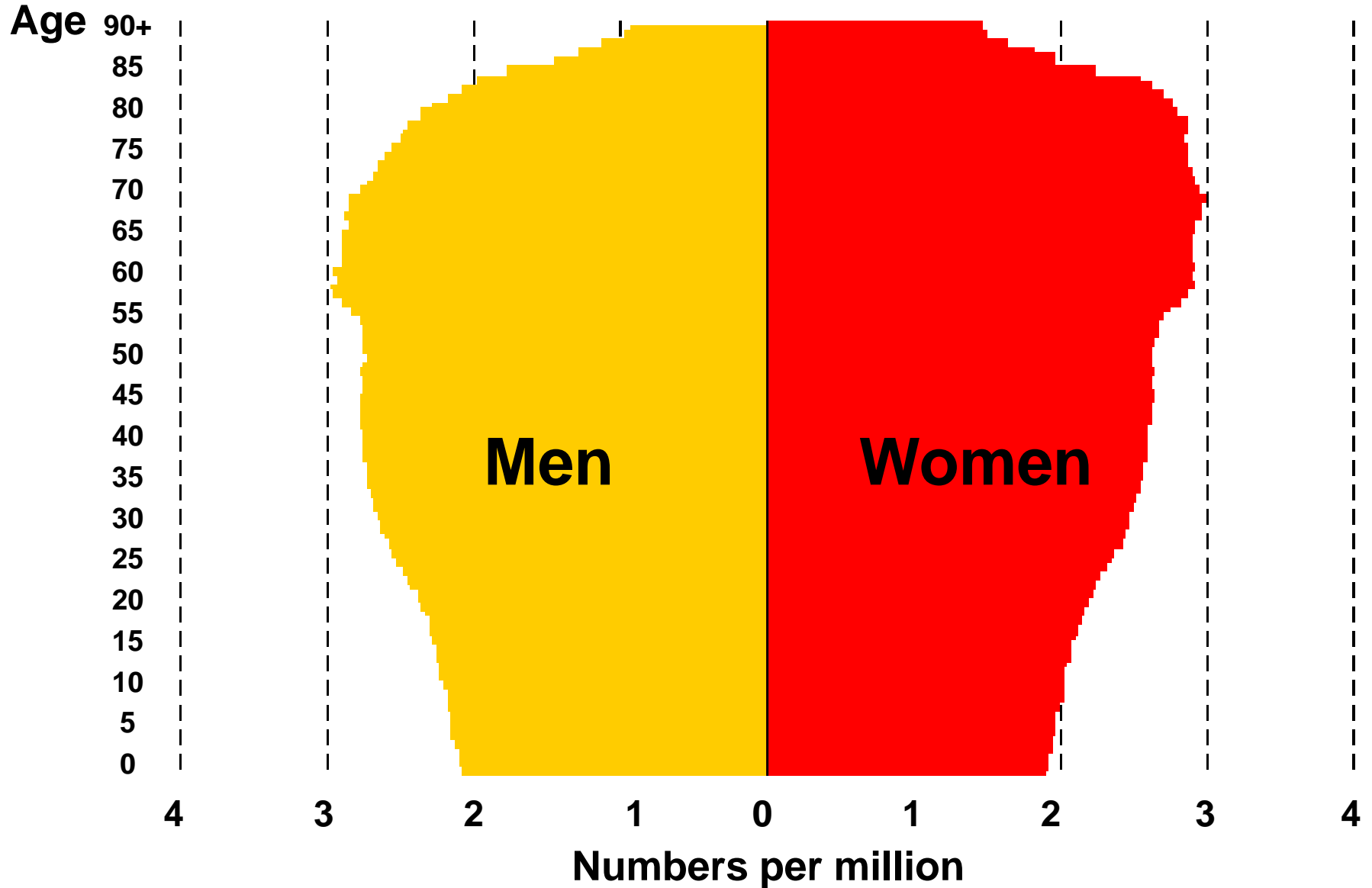
# Proportion of 65+ years of age



# Age pyramid for Europe in 2008



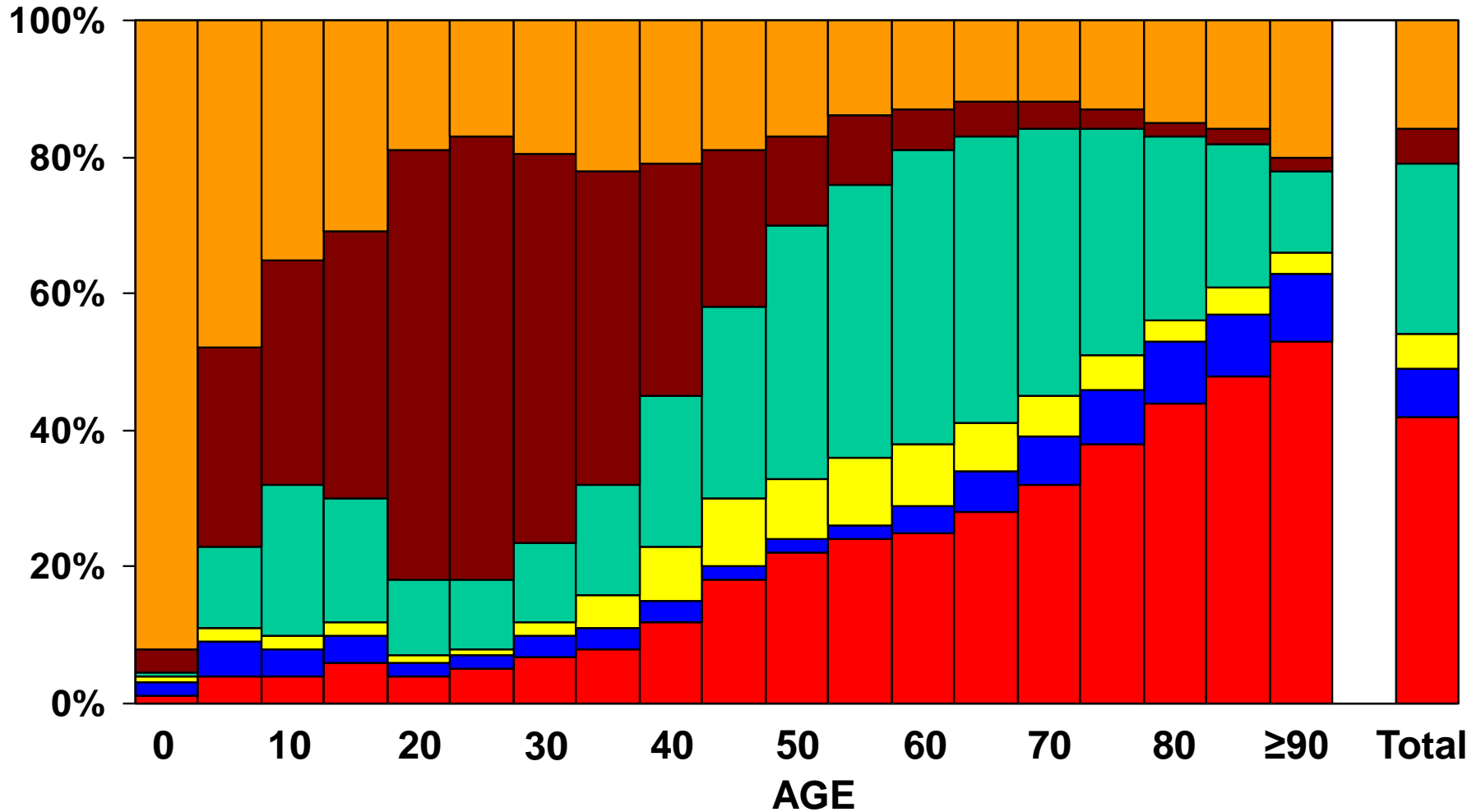
# Age pyramid for Europe in 2050



↑ Age = ↑ CVD



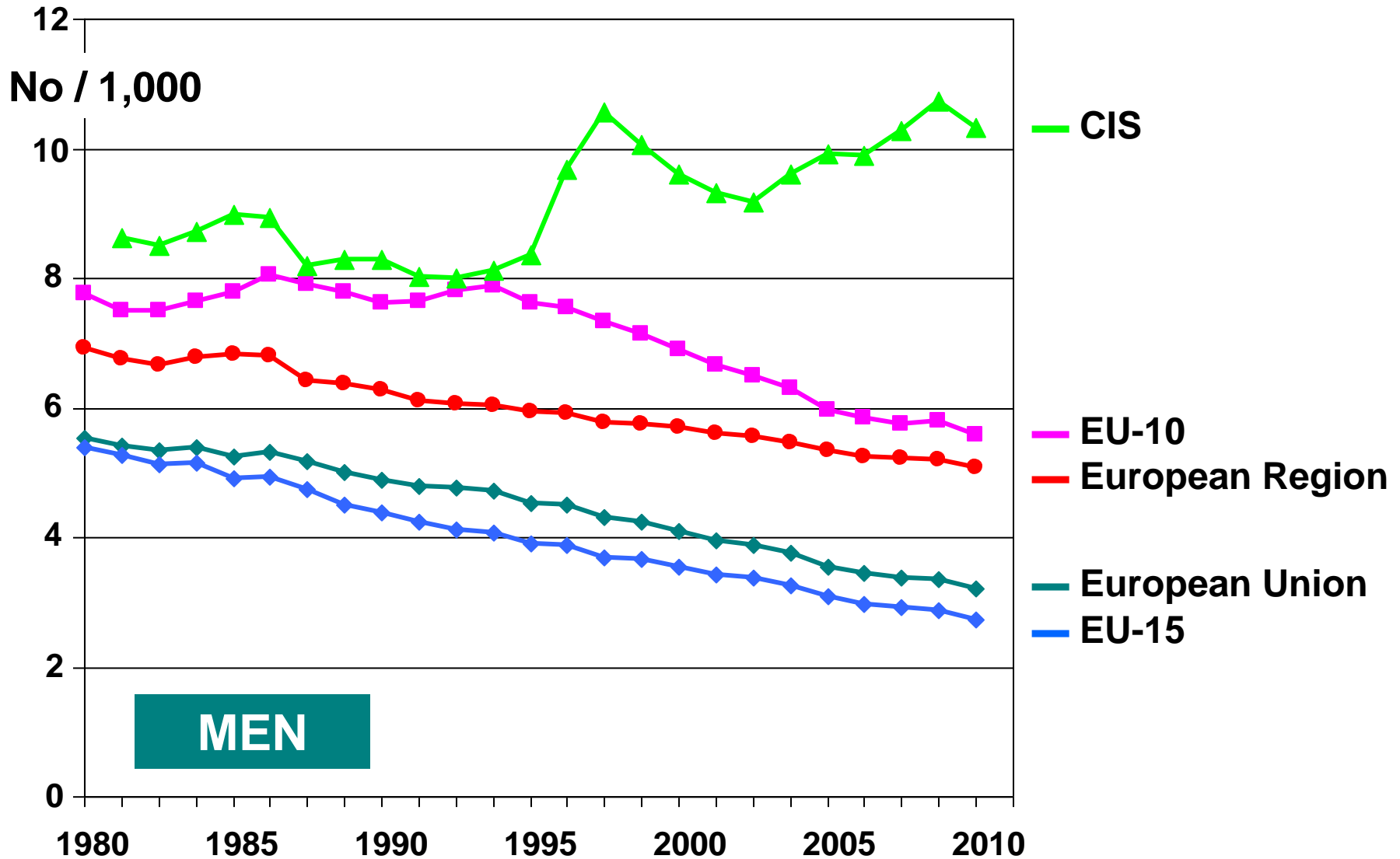
# Major causes of death by age



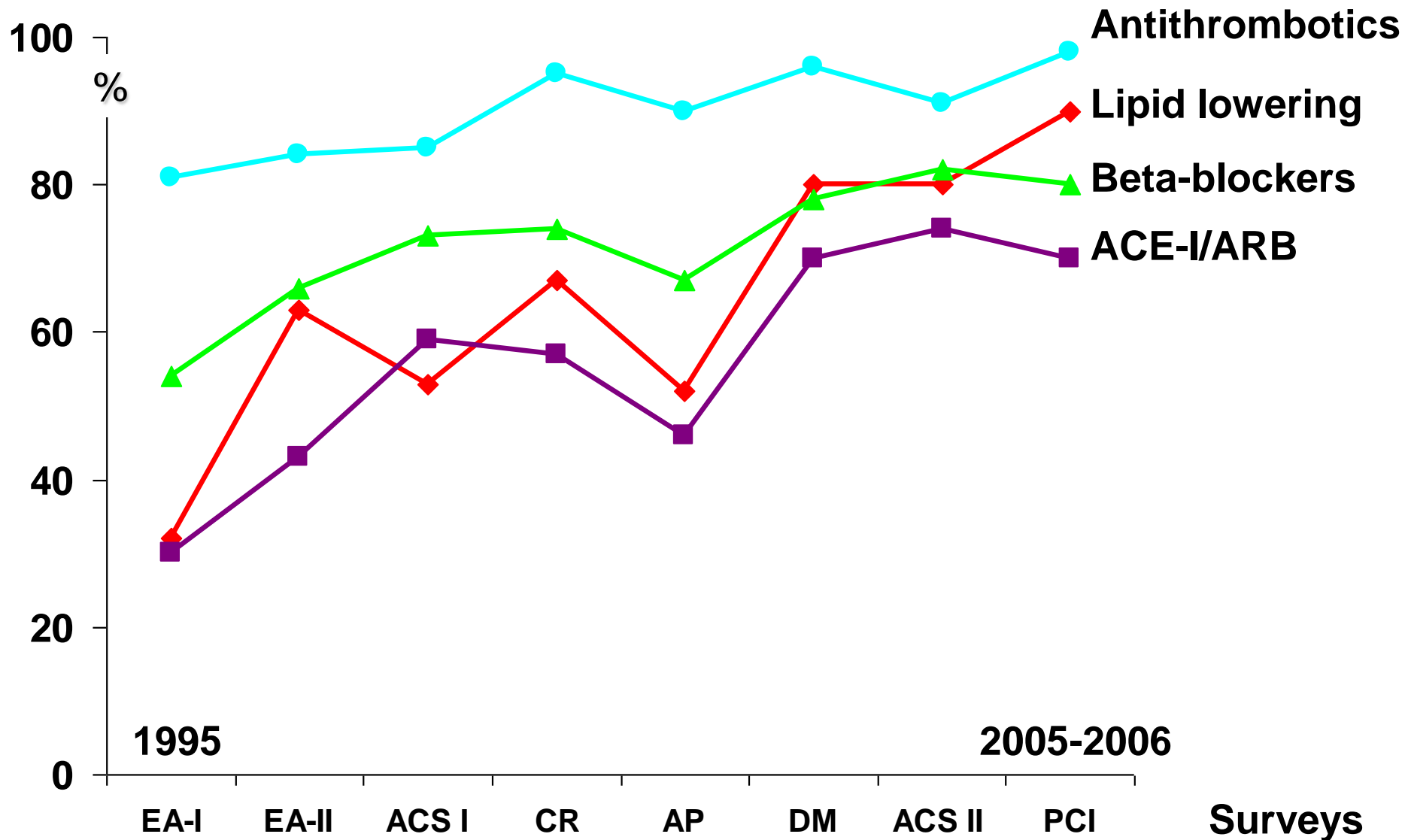
- Cardiovascular diseases
- Respiratory diseases
- Digestive disease
- Cancer
- External causes of injury
- Other

# Decreasing CVD mortality?

# Standardised Cardiovascular Mortality



# Improved Secondary Prevention since 1995



# Standardisation procedure

- Large heterogeneity in age across countries
- Standardisation is needed for *comparison* of health indicators (e.g., mortality)
- Age-standardised death rates are calculated using the direct method
  - They represent what the crude rate would have been if the population had the same age distribution as the European standard population, as follows ...

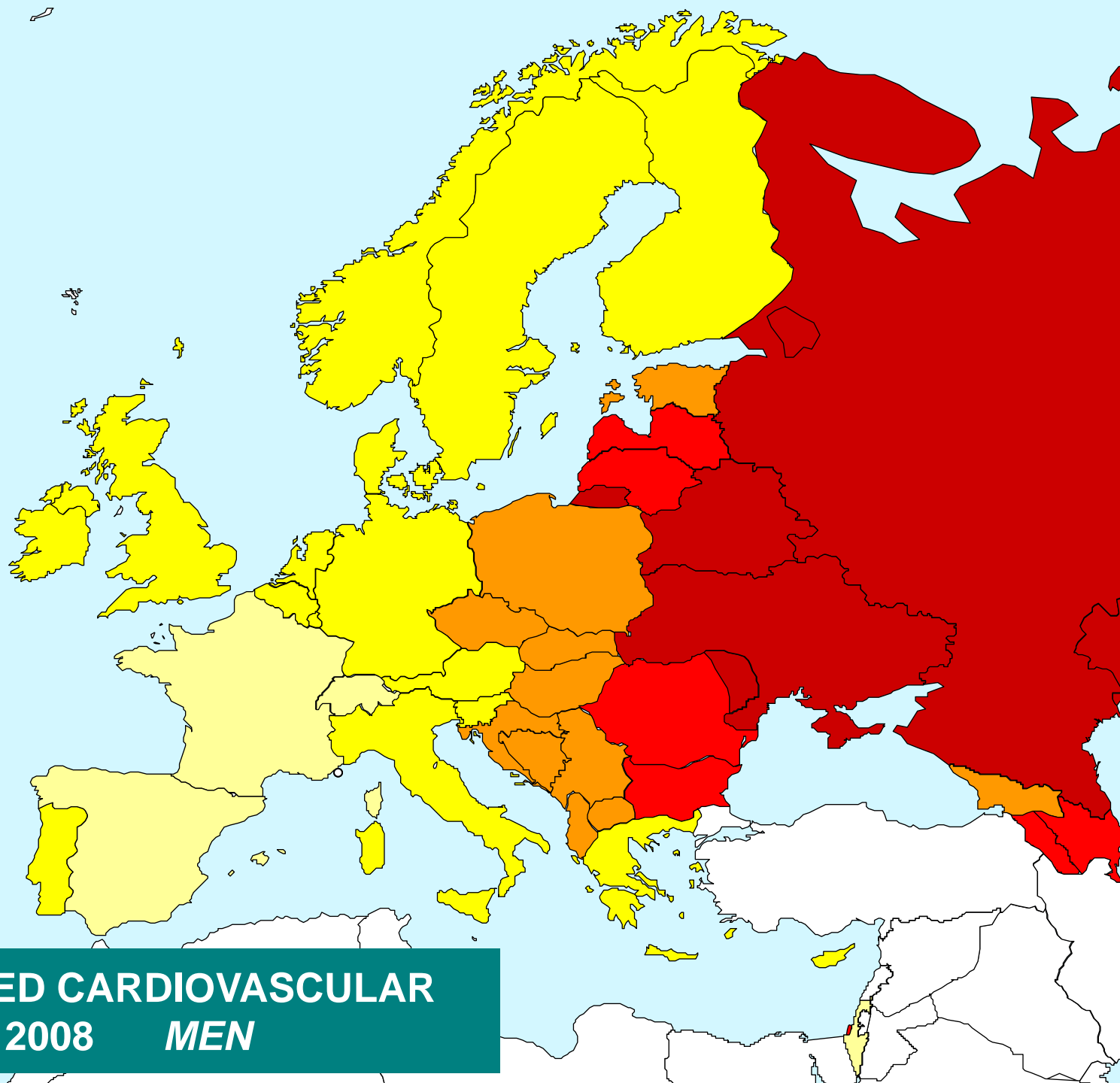
# European standard population

<b>Age group (years)</b>	<b>European standard population</b>
0	1600
1-4	6400
5-9	7000
10-14	7000
15-19	7000
20-24	7000
25-29	7000
30-34	7000
35-39	7000
40-44	7000
45-49	7000
50-54	7000
55-59	6000
60-64	5000
65-69	4000
70-74	3000
75-79	2000
80-84	1000
85 +	1000
<b>Total</b>	<b>100000</b>



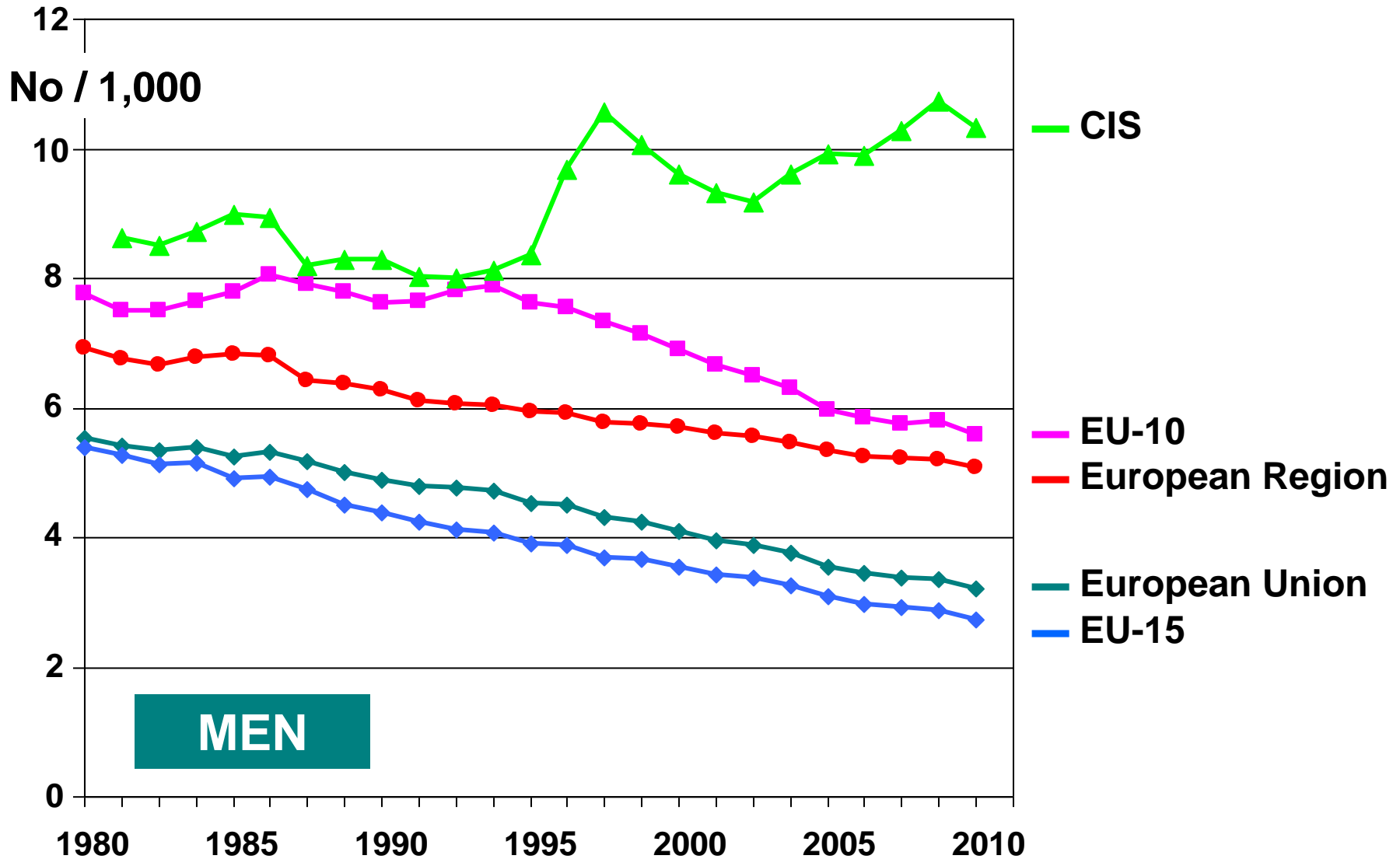
Number/1,000

-   $\leq 2.4$
-  2.4 to 4.8
-  4.8 to 7.2
-  7.2 to 9.6
-  9.6 to 12.0
-  No data

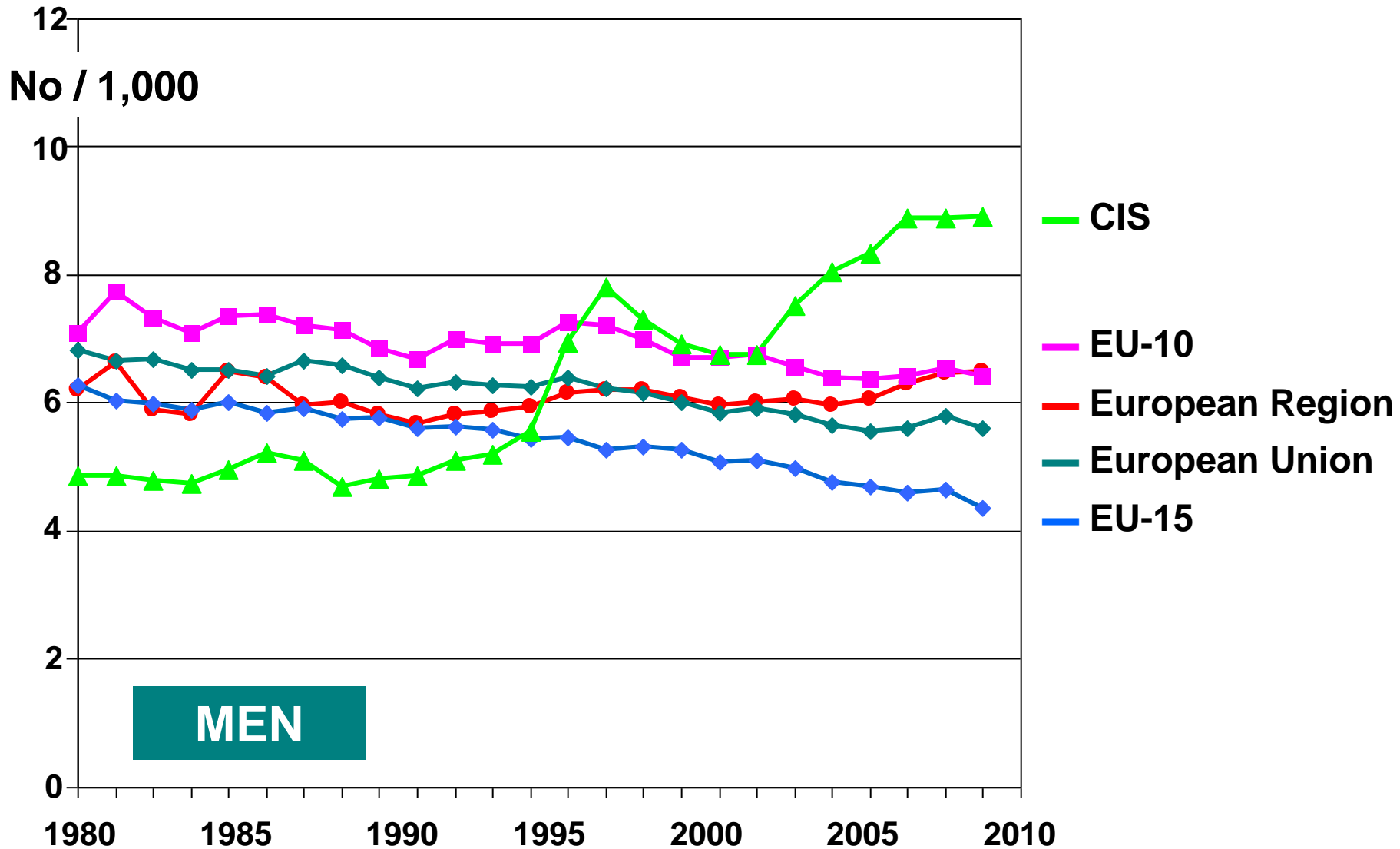


**STANDARDISED CARDIOVASCULAR MORTALITY ~ 2008 MEN**

# Standardised Cardiovascular Mortality

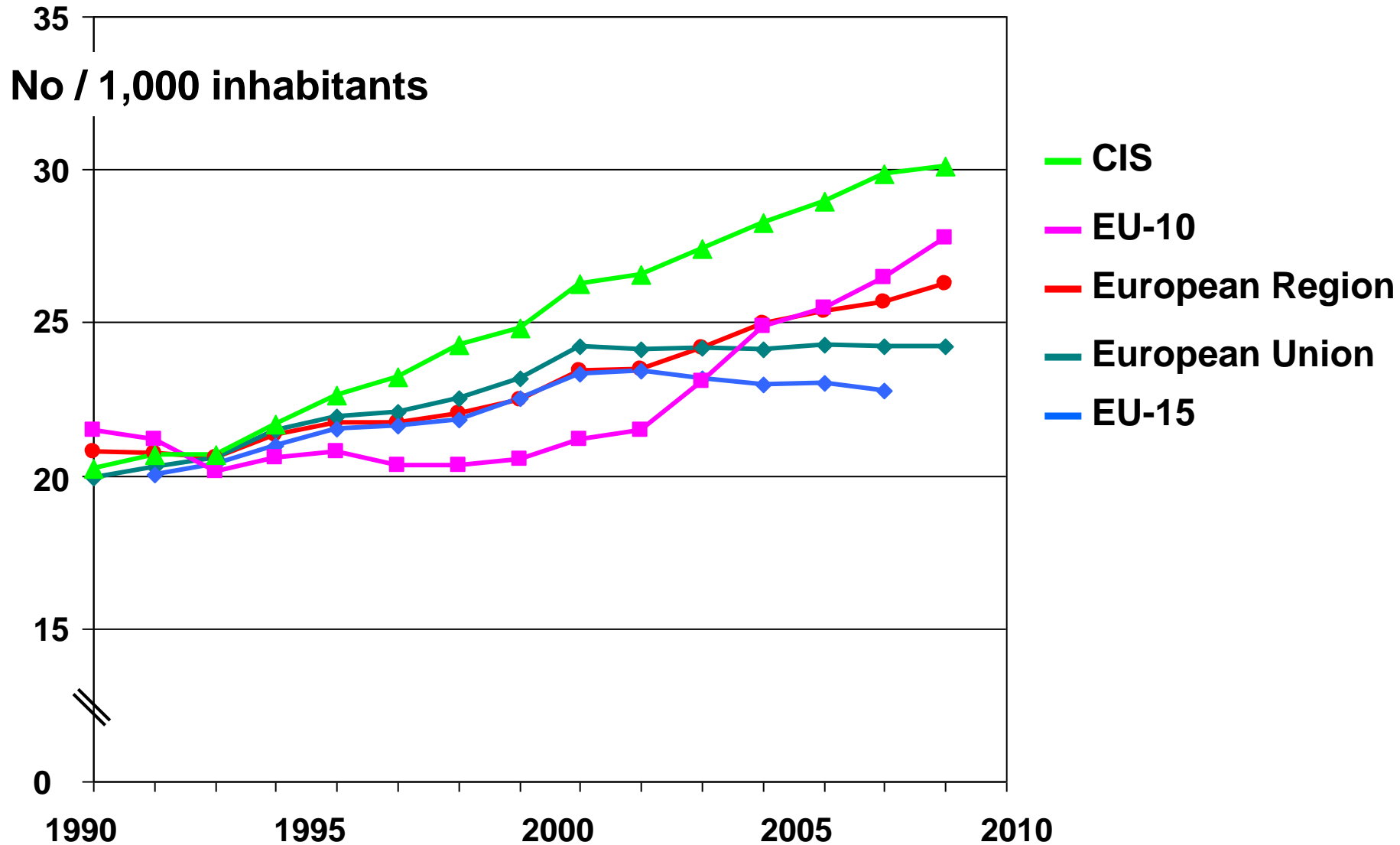


# Crude Cardiovascular Mortality

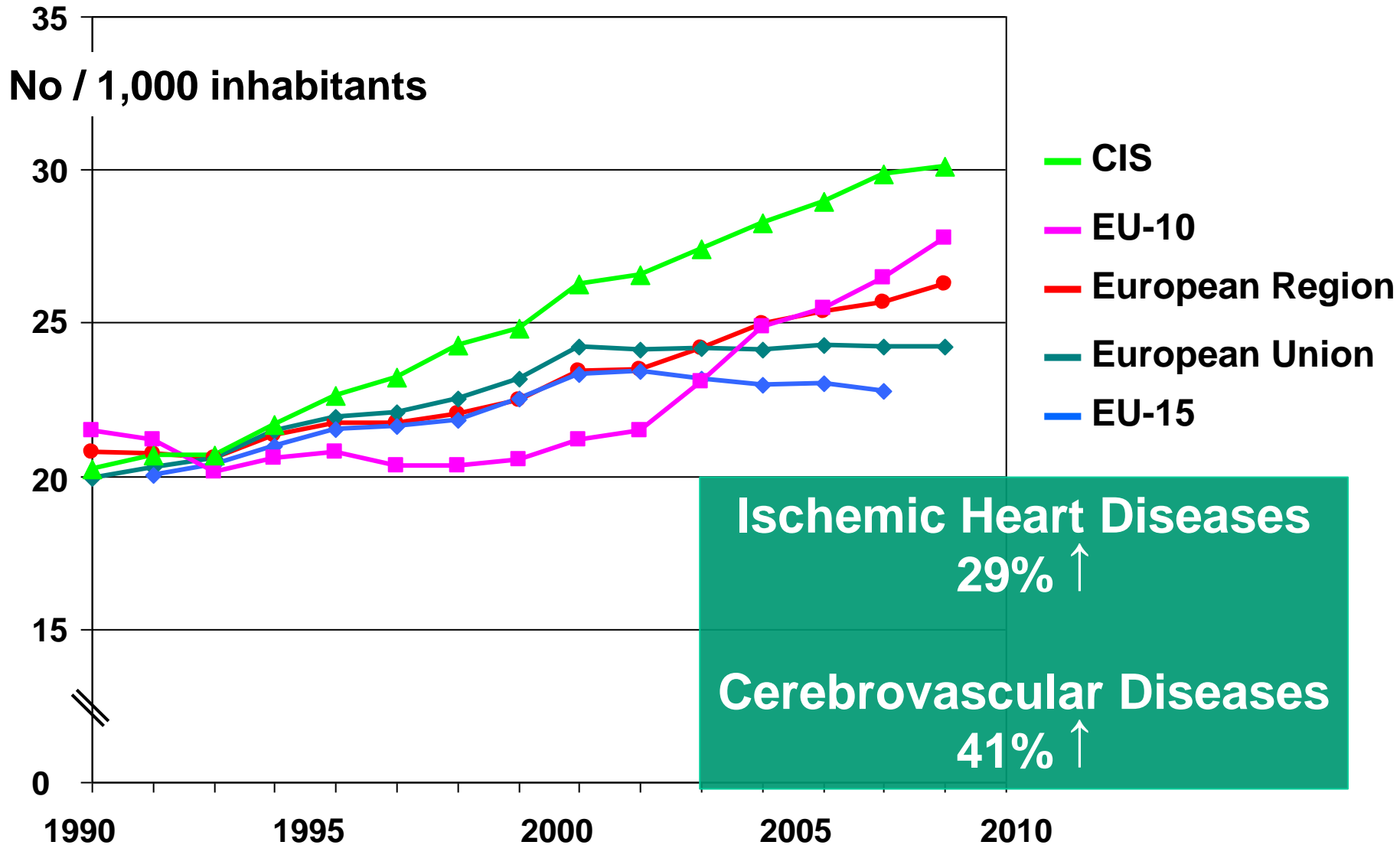


# Increasing number of hospital discharges

# Hospital Discharge Cardiovascular Disease

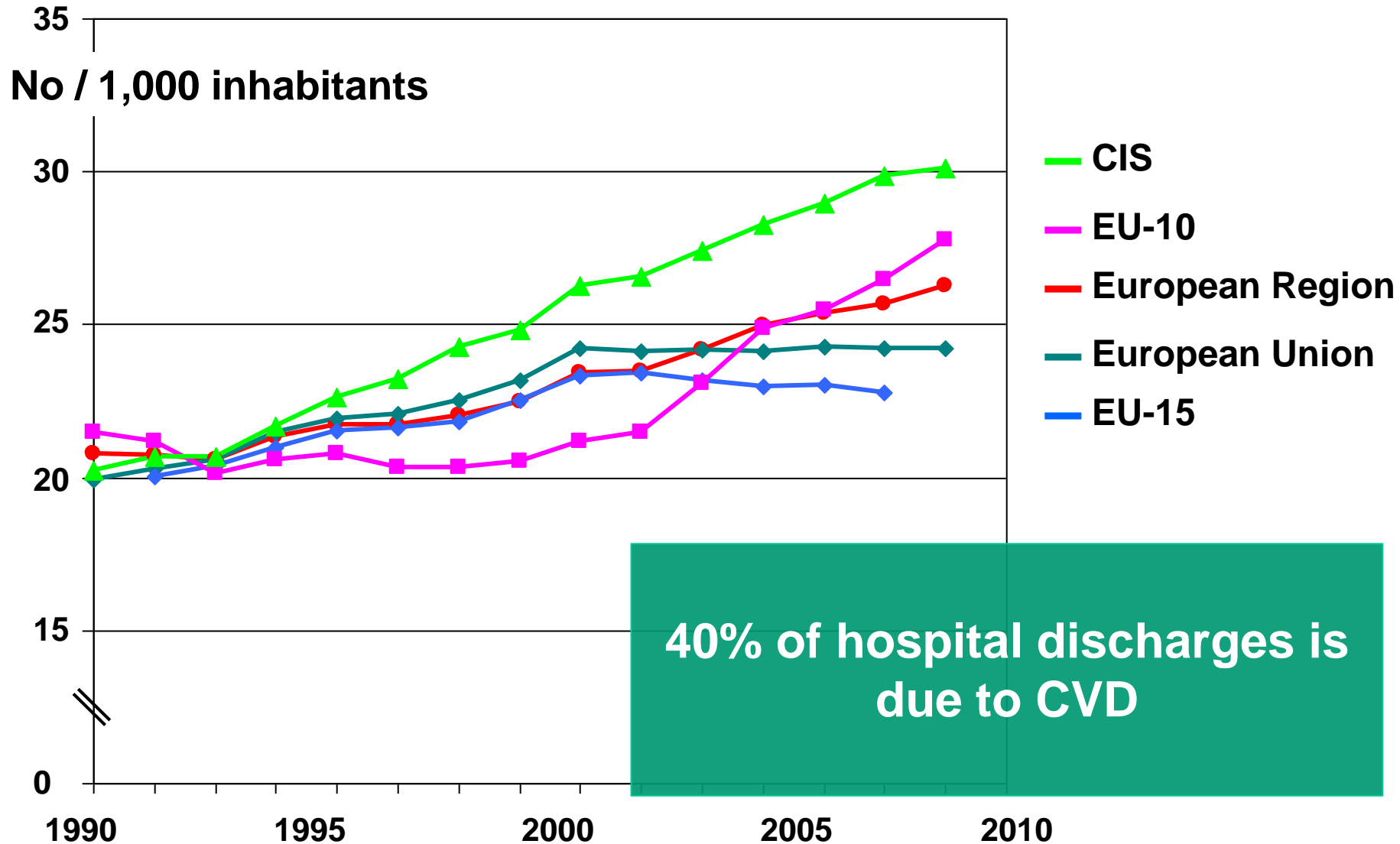


# Hospital Discharge Cardiovascular Disease

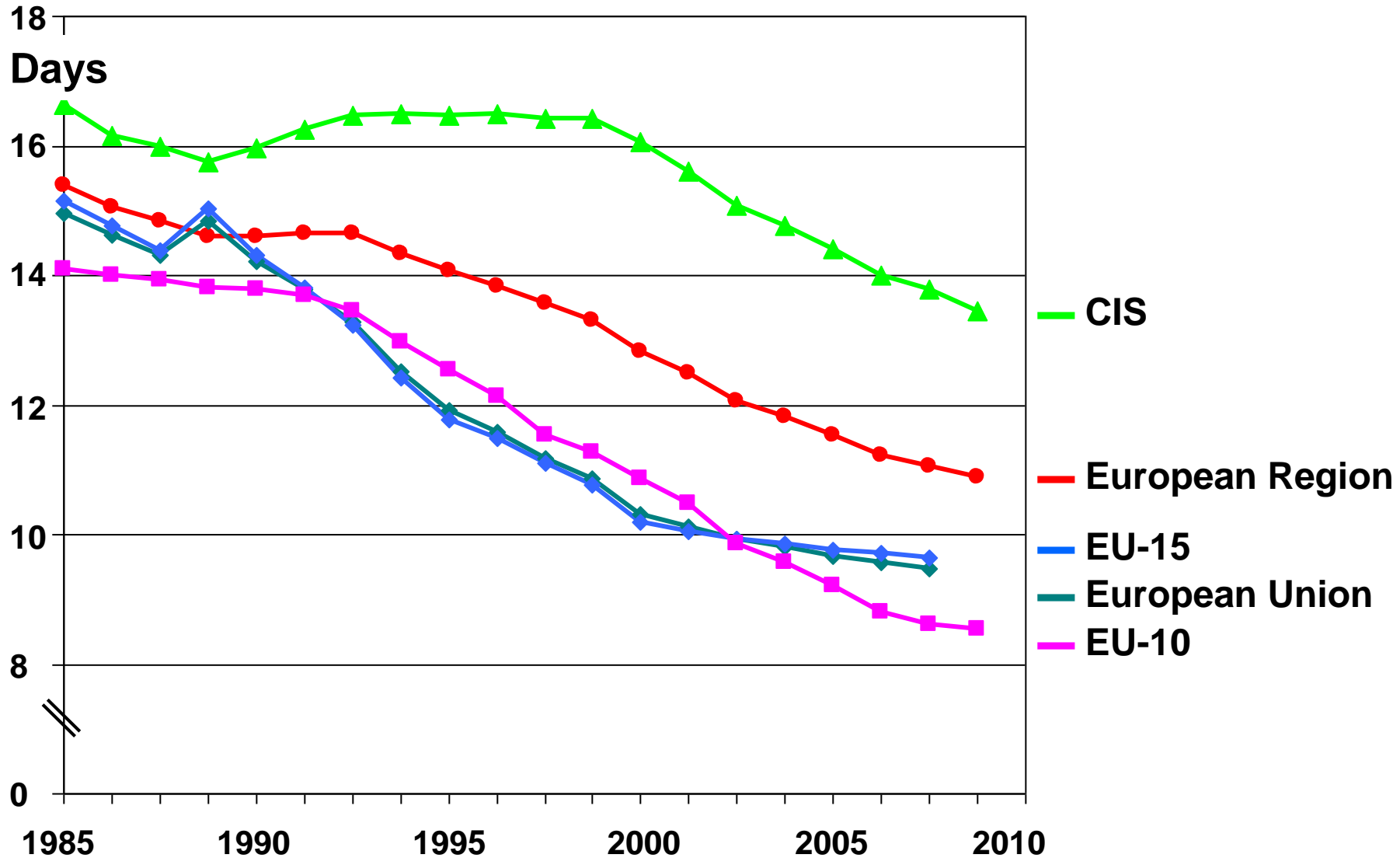




# Hospital Discharge Cardiovascular Disease

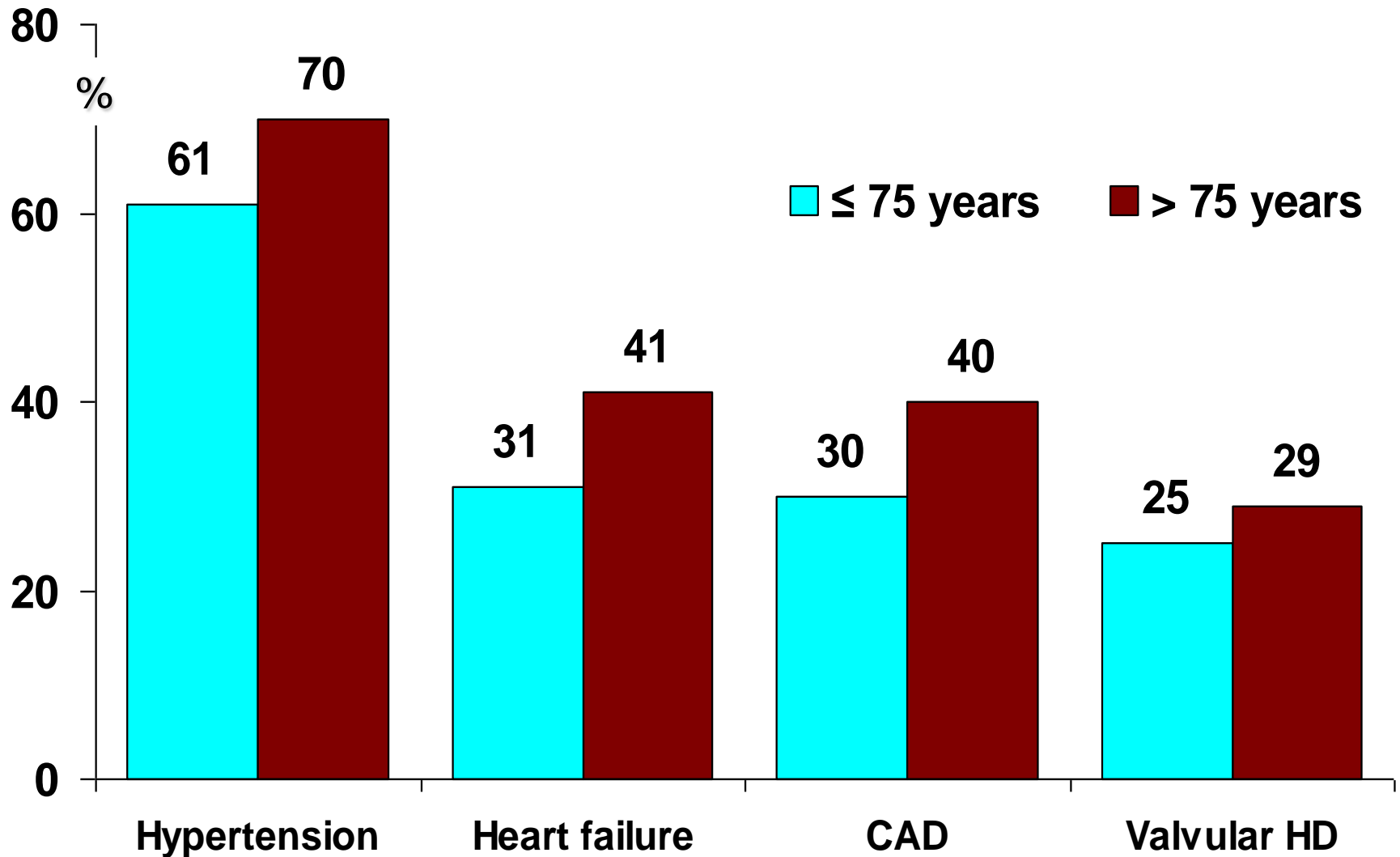


# Length of Hospital Stay

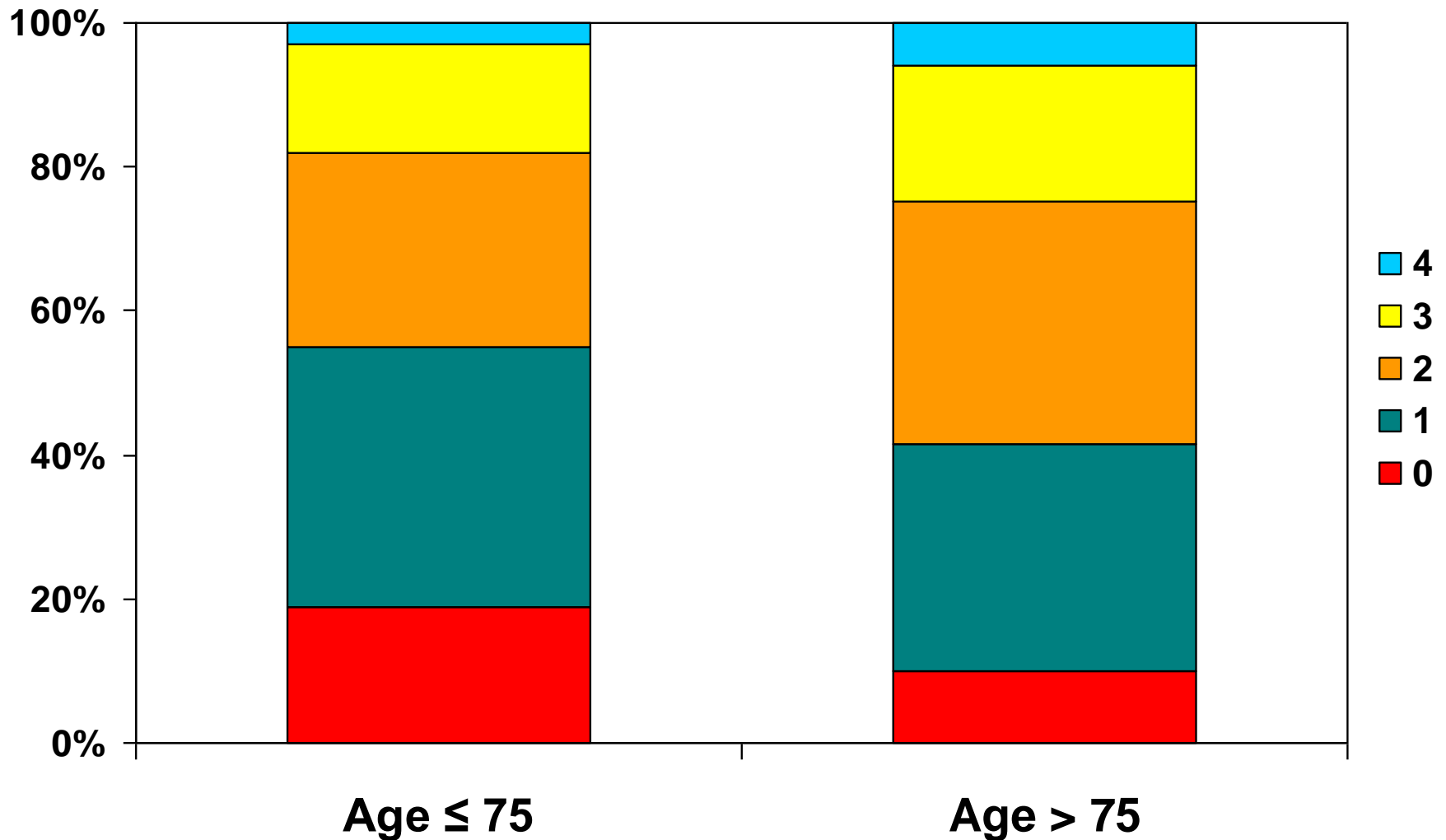


# CVD patients often suffer from comorbidity

# Underlying Heart Diseases in AFib



# Number of underlying Heart Diseases

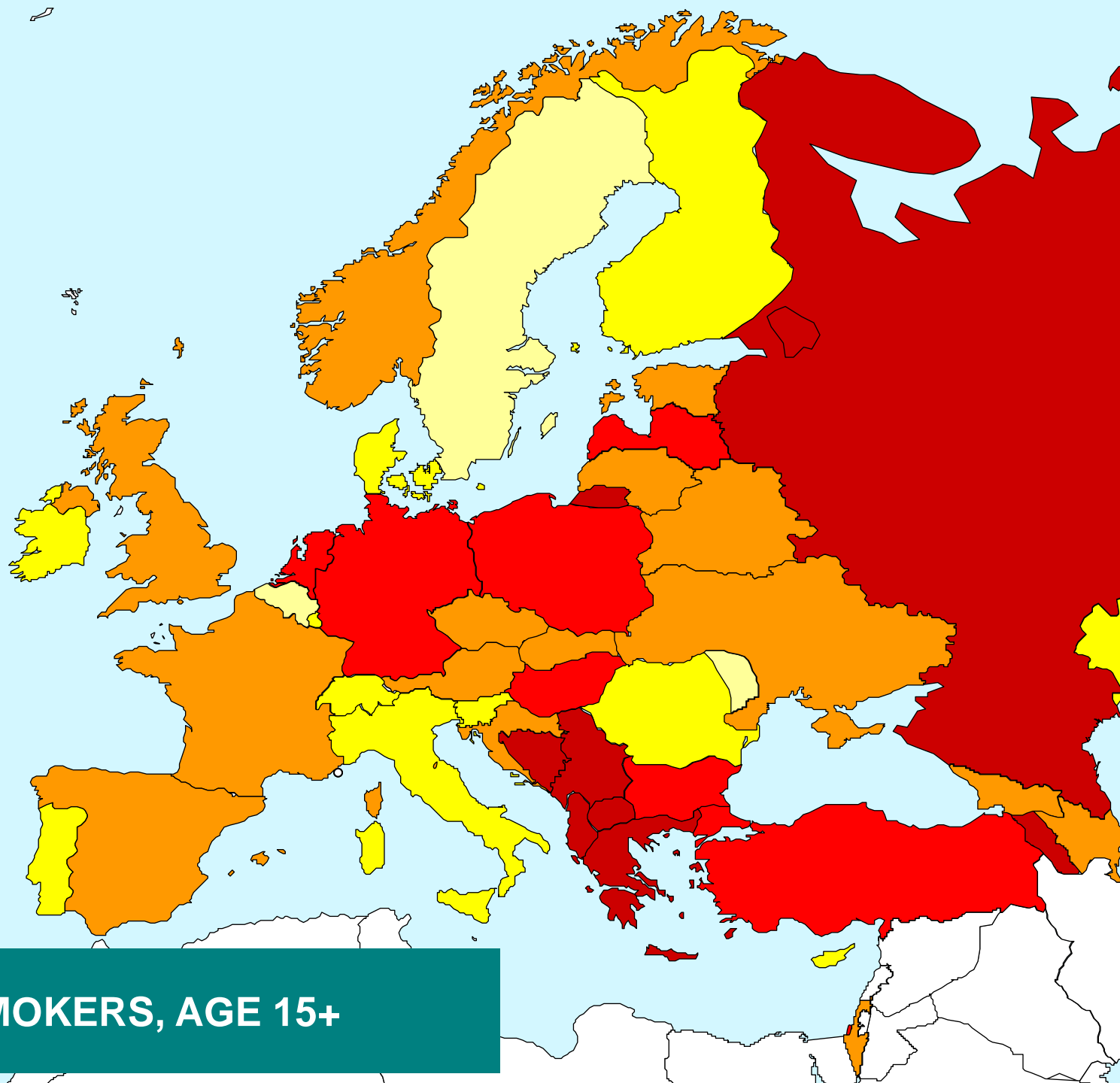


# Increasing number of persons at risk



Percentage

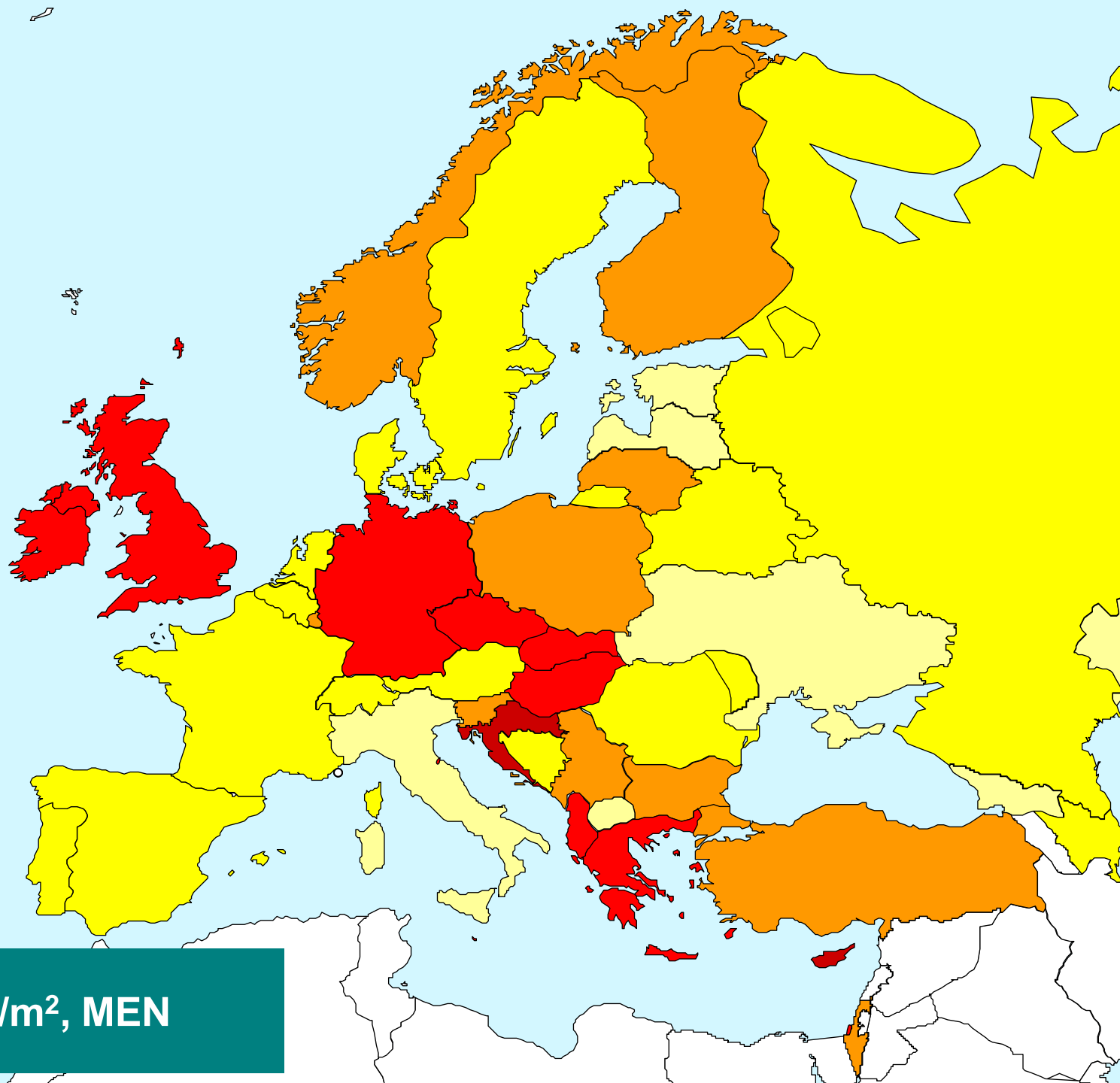
- < 20
- 20 to 25
- 25 to 30
- 30 to 35
- 35 to 40
- No data



**DAILY SMOKERS, AGE 15+**

Percentage

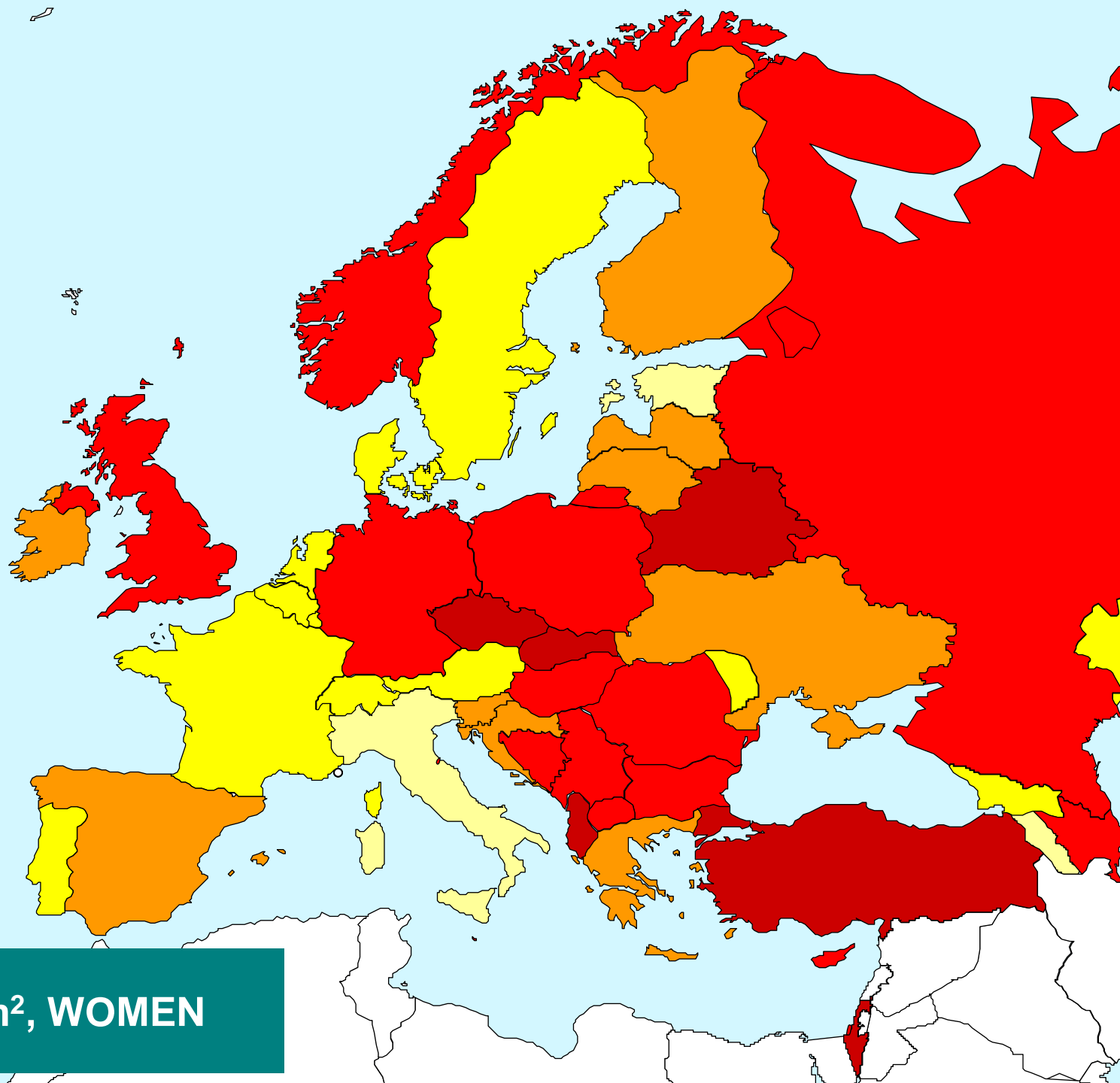
- < 10
- 10 to 15
- 15 to 20
- 20 to 25
- > 25
- No data



**BMI  $\geq$  30 kg/m<sup>2</sup>, MEN**

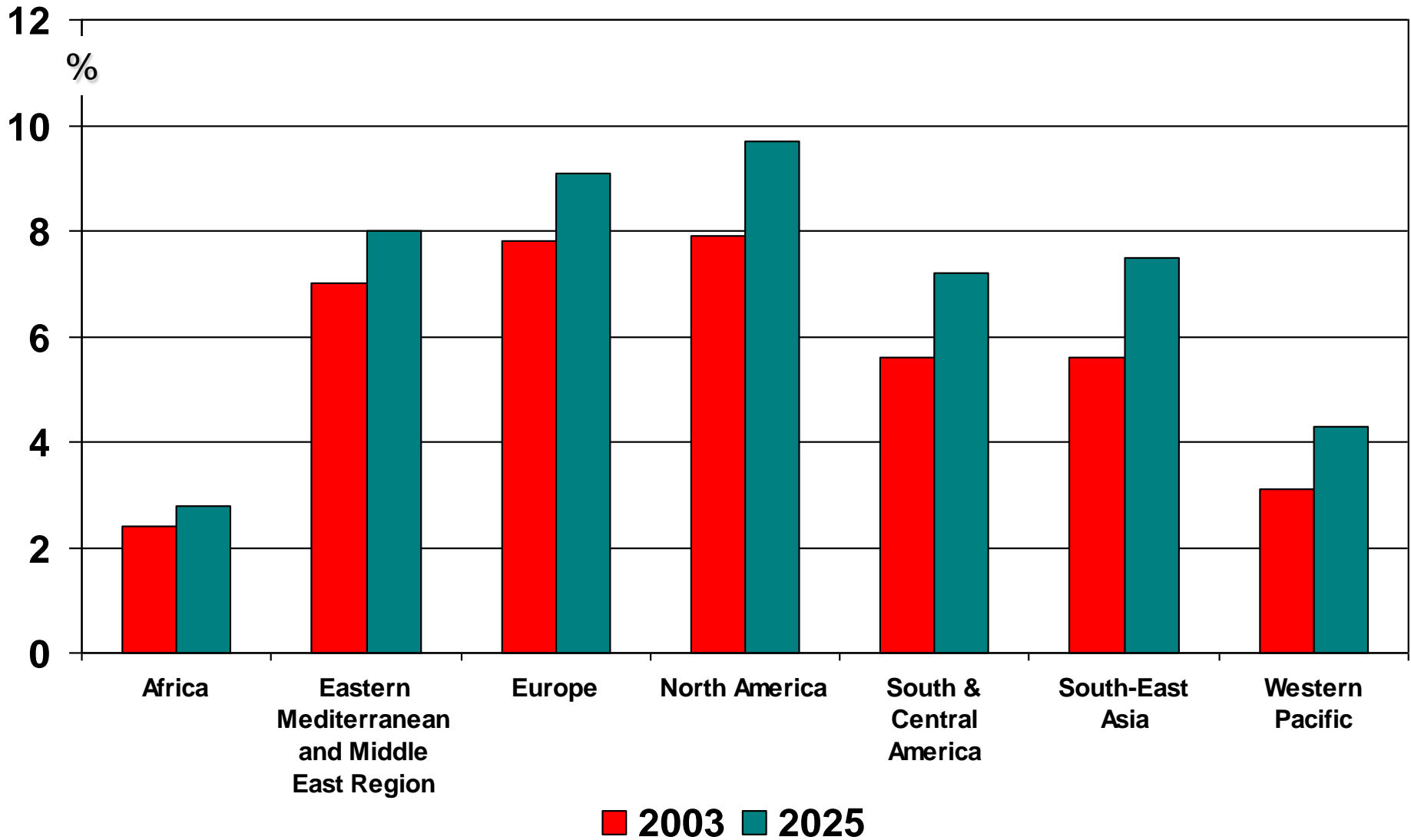
Percentage

- < 10
- 10 to 15
- 15 to 20
- 20 to 25
- > 25
- No data



**BMI  $\geq$  30 kg/m<sup>2</sup>, WOMEN**

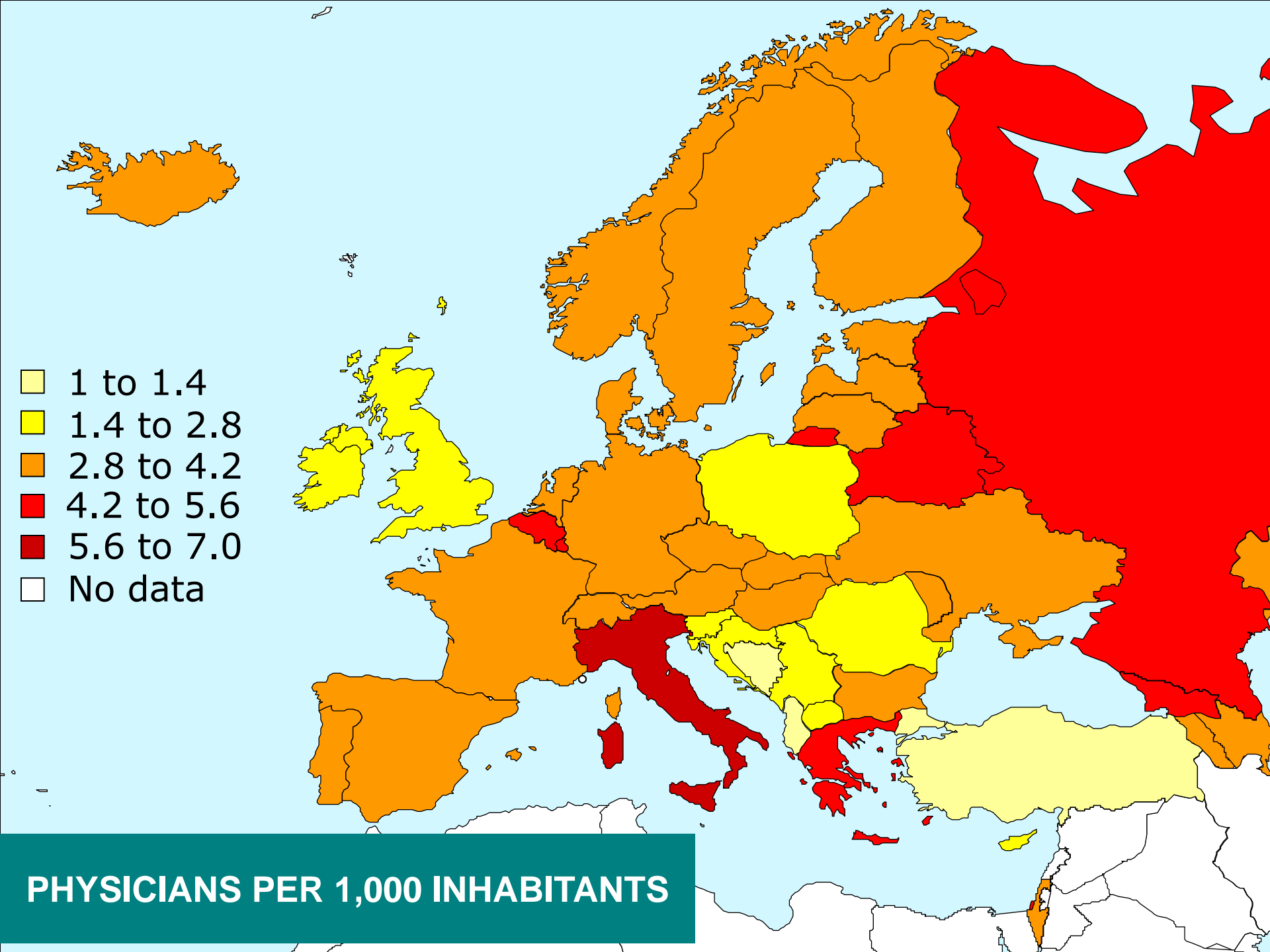
# Prevalence of Diabetes in Adults (Age 20-29)



Also increasing number of  
caregivers ?

- 1 to 1.4
- 1.4 to 2.8
- 2.8 to 4.2
- 4.2 to 5.6
- 5.6 to 7.0
- No data

**PHYSICIANS PER 1,000 INHABITANTS**



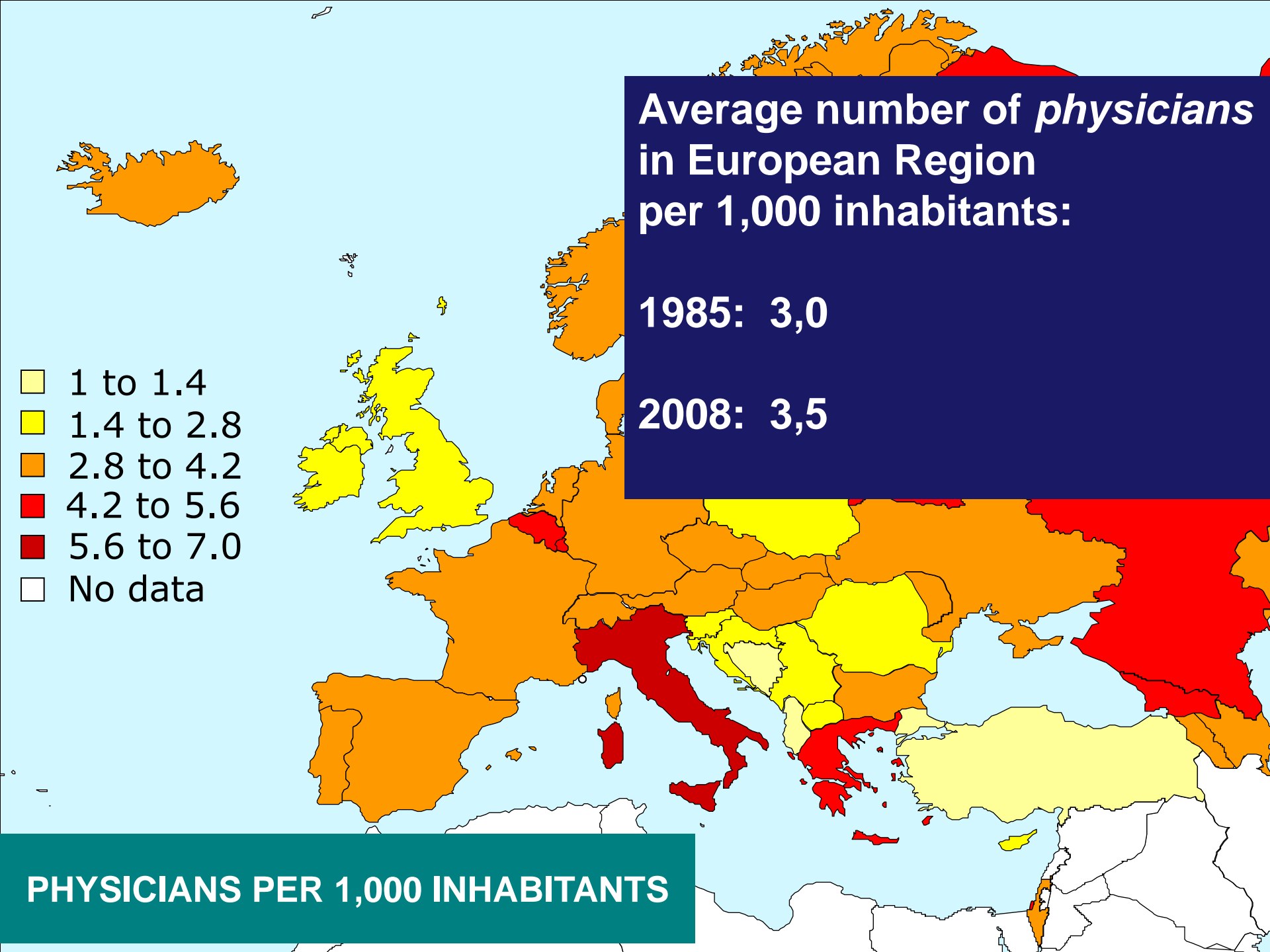
Average number of *physicians* in European Region per 1,000 inhabitants:

1985: 3,0

2008: 3,5

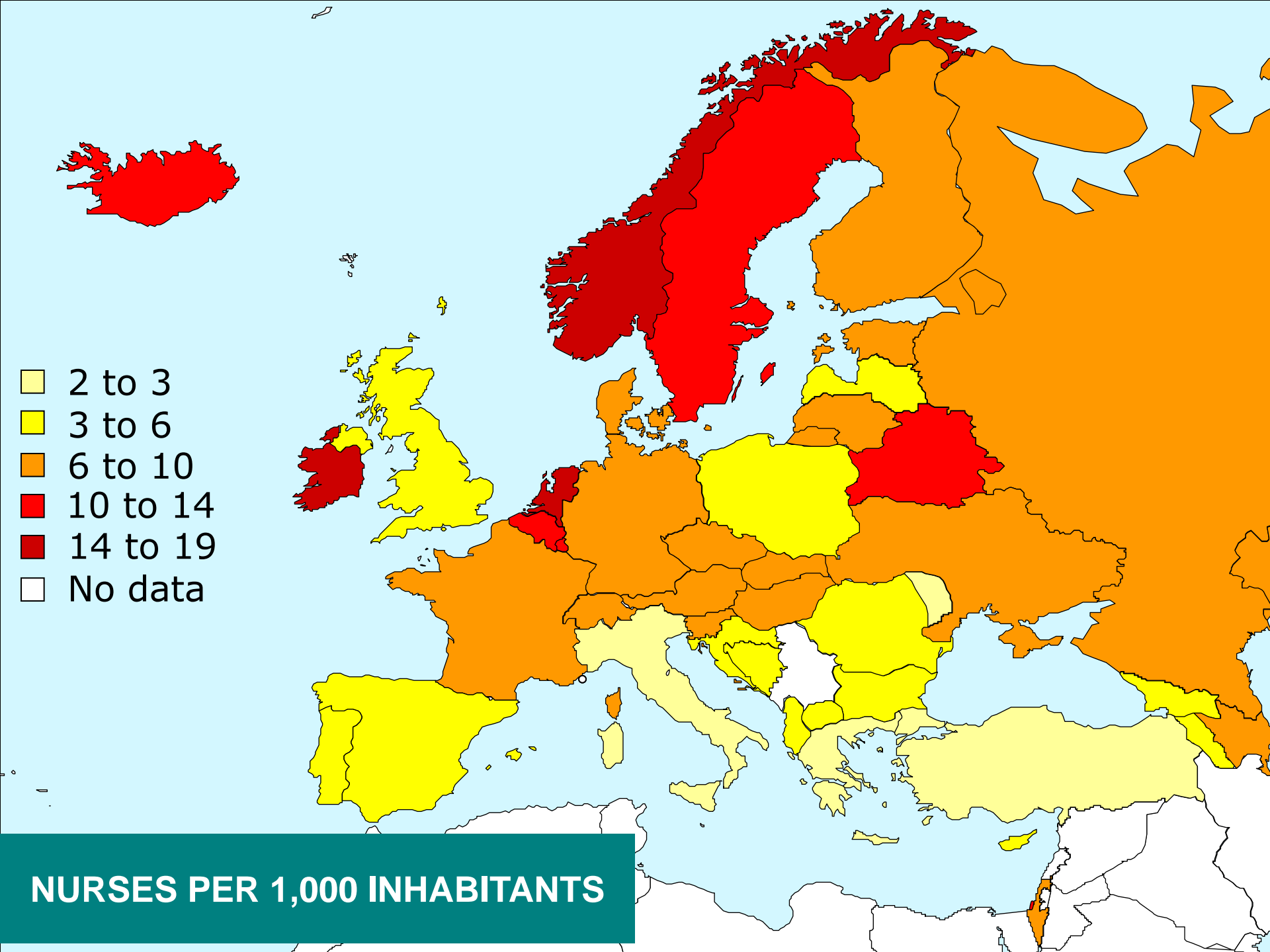
- 1 to 1.4
- 1.4 to 2.8
- 2.8 to 4.2
- 4.2 to 5.6
- 5.6 to 7.0
- No data

PHYSICIANS PER 1,000 INHABITANTS



- 2 to 3
- 3 to 6
- 6 to 10
- 10 to 14
- 14 to 19
- No data

**NURSES PER 1,000 INHABITANTS**

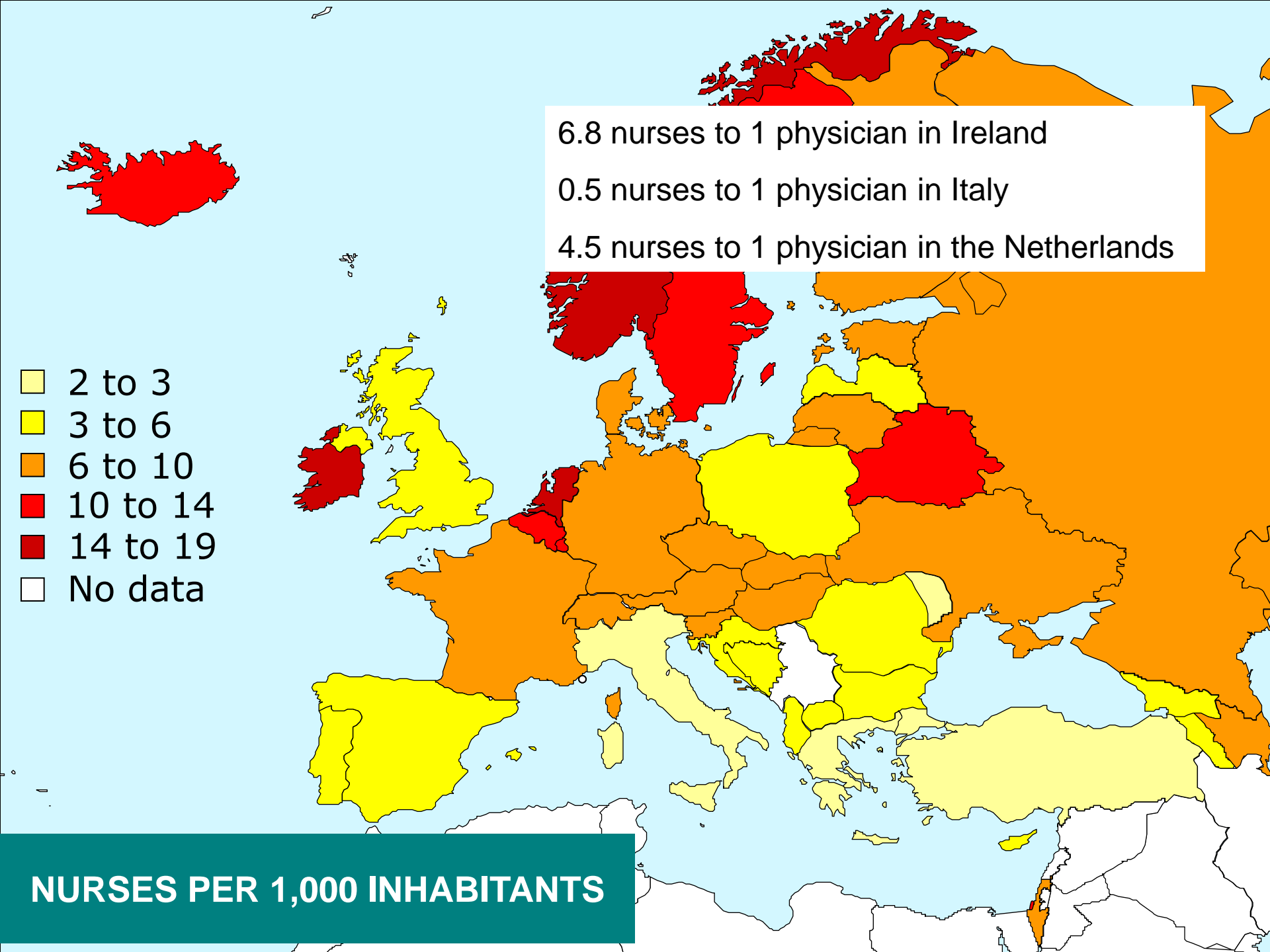




6.8 nurses to 1 physician in Ireland  
0.5 nurses to 1 physician in Italy  
4.5 nurses to 1 physician in the Netherlands

- 2 to 3
- 3 to 6
- 6 to 10
- 10 to 14
- 14 to 19
- No data

**NURSES PER 1,000 INHABITANTS**



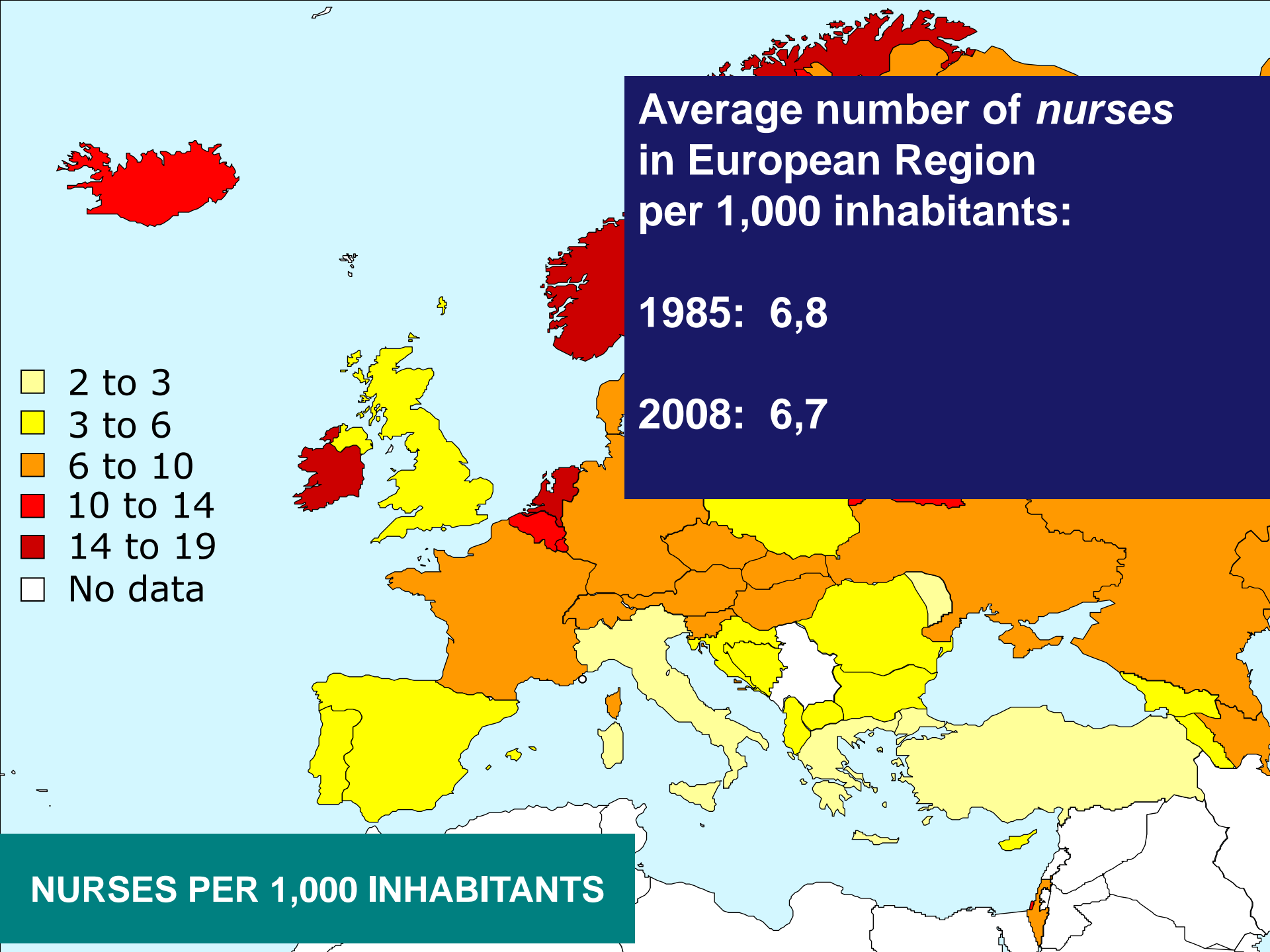
Average number of *nurses*  
in European Region  
per 1,000 inhabitants:

1985: 6,8

2008: 6,7

- 2 to 3
- 3 to 6
- 6 to 10
- 10 to 14
- 14 to 19
- No data

**NURSES PER 1,000 INHABITANTS**





Thank you



Hogeschool van Amsterdam