



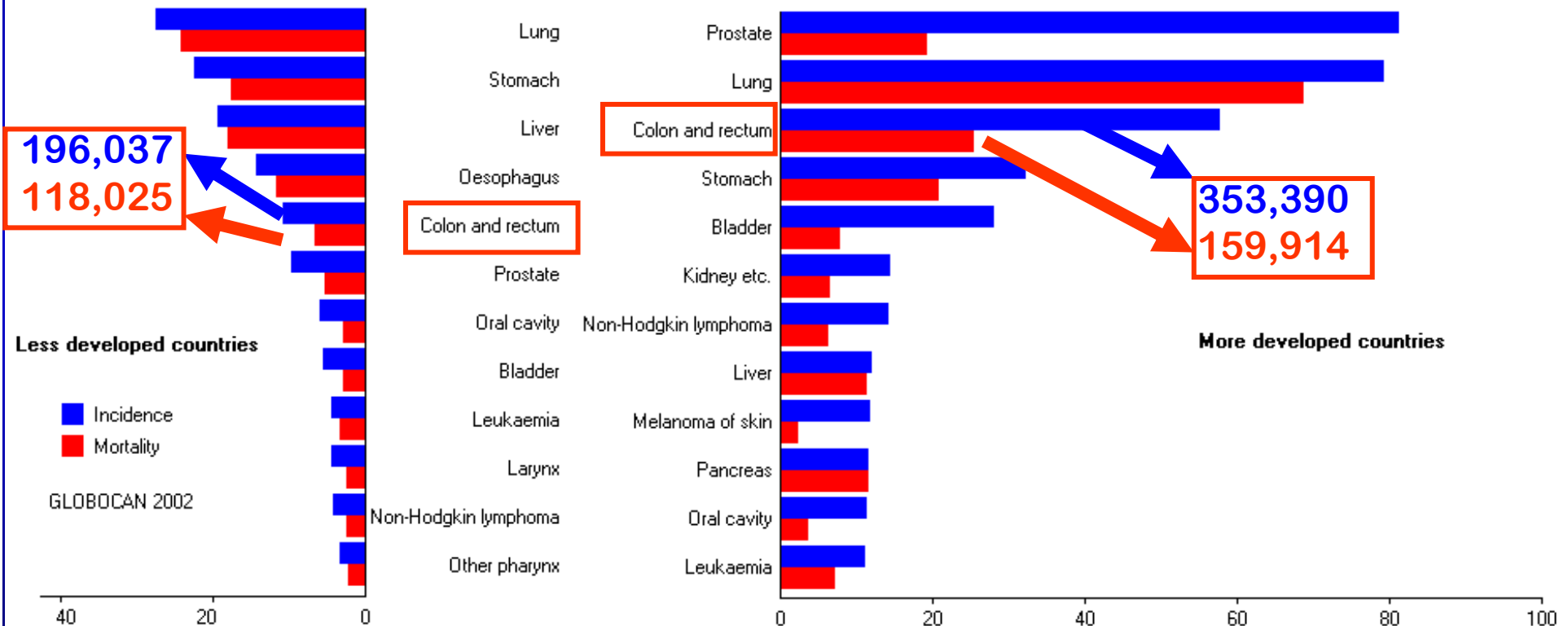
Colorectal Cancer:  
not "*just*" a western  
disease

***Massimo CRESPI, Daniele LISI***

*National Cancer Institute  
"Regina Elena" – Roma, Italy*

# Cancer Incidence and Mortality in “Less” and “More” Developed Countries - Males

ASR (World) (per 100,000)-Male (All ages)



(Globocan 2002)

# Cancer Incidence and Mortality in “Less” and “More” Developed Countries

In brutal figures ...

| <b>Globocan 2002</b> | <b>More Developed</b> |               | <b>Less Developed</b> |               |
|----------------------|-----------------------|---------------|-----------------------|---------------|
| <b>Incidence</b>     | M 353,390             |               | M 196,037             |               |
|                      | F 312,341             |               | F 159,664             |               |
|                      | <b>T 665,731</b>      | <b>65.2 %</b> | <b>T 355,701</b>      | <b>34.8 %</b> |
| <b>Mortality</b>     | M 159,914             |               | M 118,025             |               |
|                      | F 153,980             |               | F 96,184              |               |
|                      | <b>T 313,894</b>      | <b>59.4 %</b> | <b>T 214,209</b>      | <b>40.6 %</b> |

# Life Expectancy at birth (years) top 10 and bottom 10 countries, 1999

| Top 10 countries   |      | Bottom 10 countries |      |
|--------------------|------|---------------------|------|
| <i>Japan</i>       | 80.9 | <i>Sierra Leone</i> | 34.3 |
| <i>Australia</i>   | 79.5 | <i>Malawi</i>       | 37.9 |
| <i>Sweden</i>      | 79.5 | <i>Zambia</i>       | 38.5 |
| <i>Switzerland</i> | 79.3 | <i>Niger</i>        | 38.9 |
| <i>France</i>      | 79.3 | <i>Botswana</i>     | 39.4 |
| <i>Monaco</i>      | 79.1 | <i>Zimbabwe</i>     | 40.5 |
| <i>Canada</i>      | 79.1 | <i>Rwanda</i>       | 41.8 |
| <i>Andorra</i>     | 78.8 | <i>Uganda</i>       | 42.2 |
| <i>Italy</i>       | 78.7 | <i>Ethiopia</i>     | 42.3 |
| <i>Spain</i>       | 78.7 | <i>Mali</i>         | 42.7 |

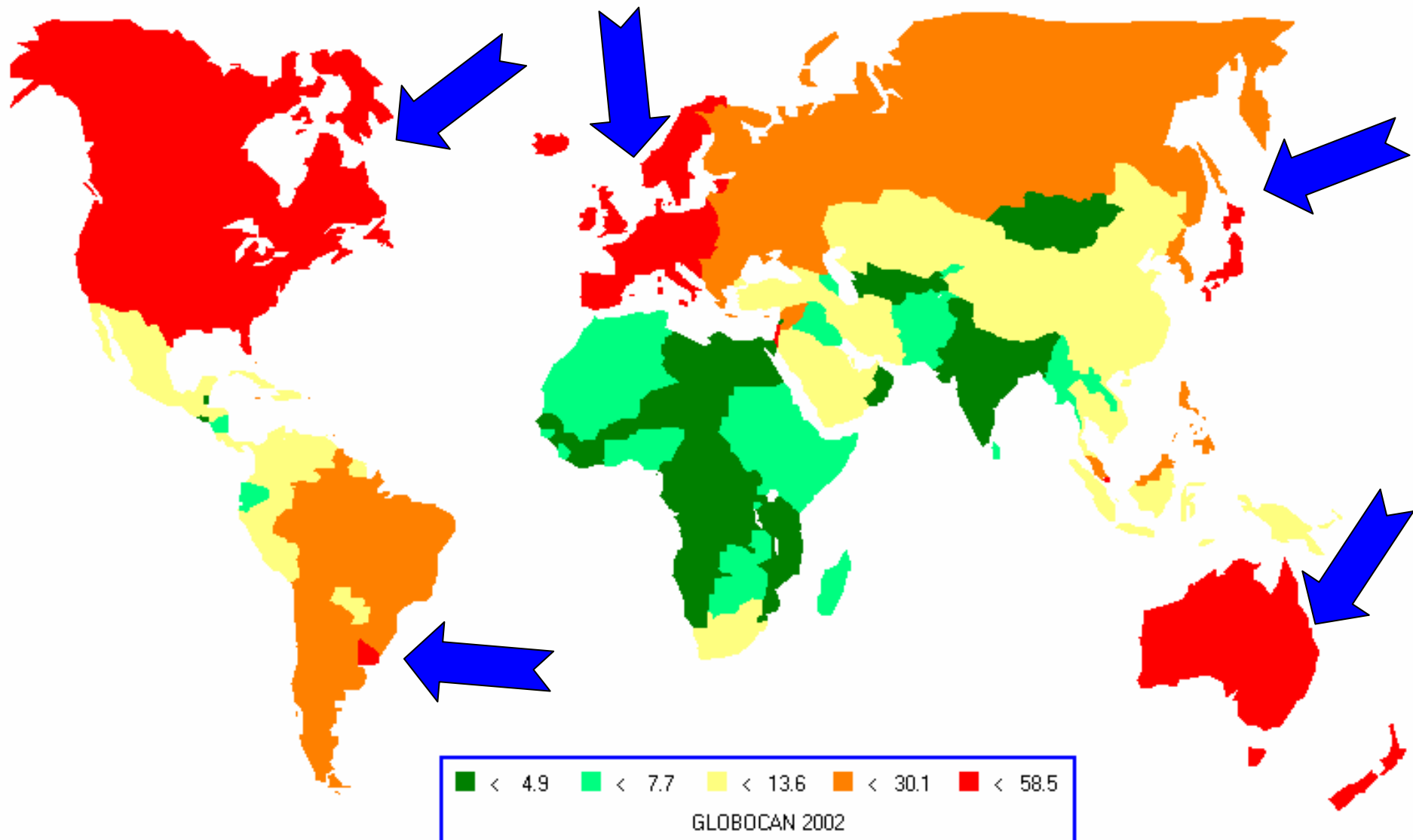
# Rate of CRC on total deaths by WHO region

| WHO Regions           | *Colorectal cancer | *All cancer | *All causes | % CRC / All cancer | % CRC / All causes |
|-----------------------|--------------------|-------------|-------------|--------------------|--------------------|
| Africa                | 27                 | 544         | 10681       | 4.96               | <b>0.25</b>        |
| The Americas          | 108                | 1111        | 5911        | 9.72               | <b>1.83</b>        |
| Eastern Mediterranean | 15                 | 279         | 4156        | 5.38               | <b>0.36</b>        |
| Europe                | 235                | 1867        | 9703        | 12.59              | <b>2.42</b>        |
| South East Asia       | 58                 | 1113        | 14467       | 5.21               | <b>0.40</b>        |
| Western Pacific       | 174                | 2202        | 11636       | 7.90               | <b>1.49</b>        |
| Total                 | 615                | 7115        | 56554       |                    |                    |

*\* x 1000*

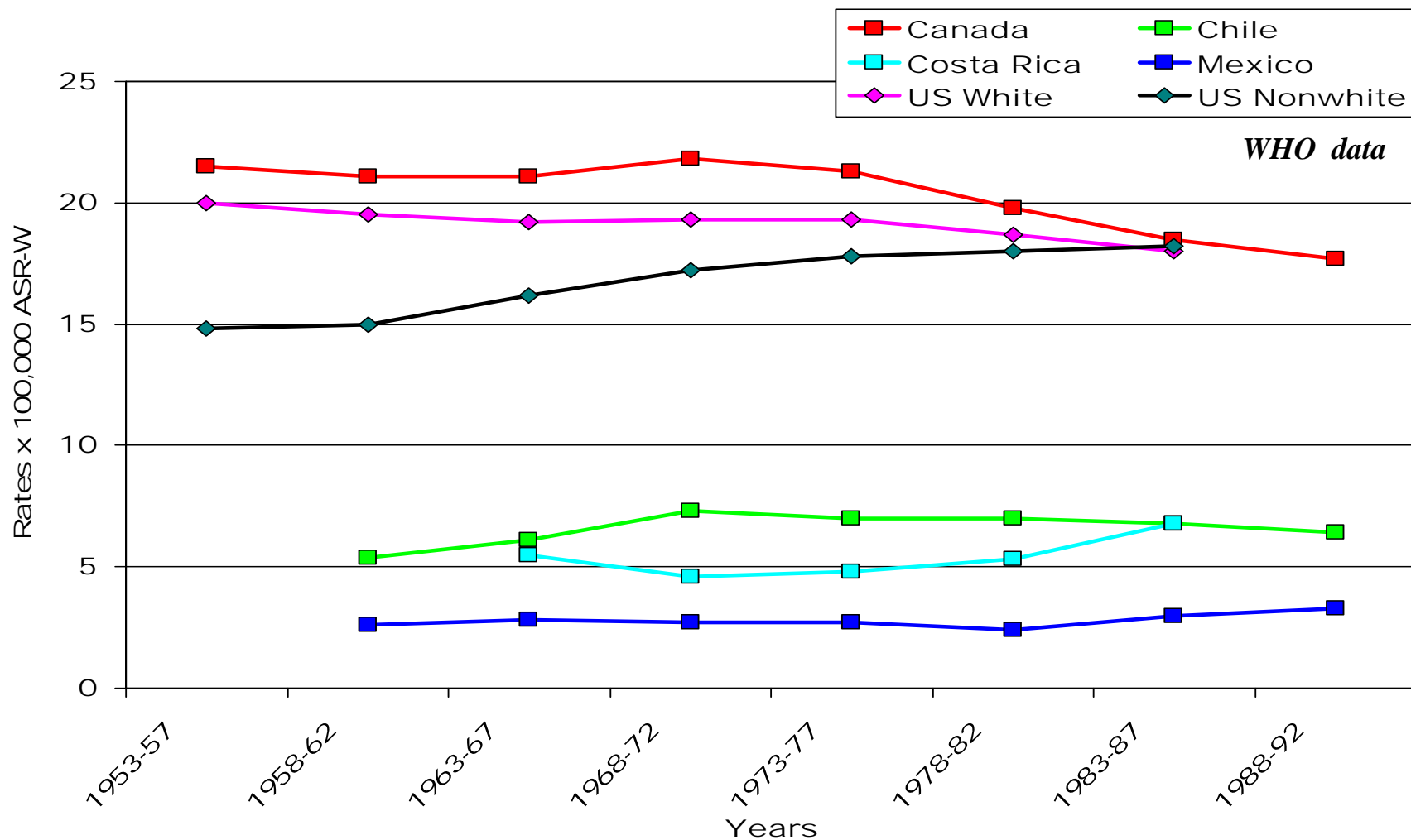
*WHO estimates for 2001*

# Incidence of CRC (ASR-W Males, All ages)

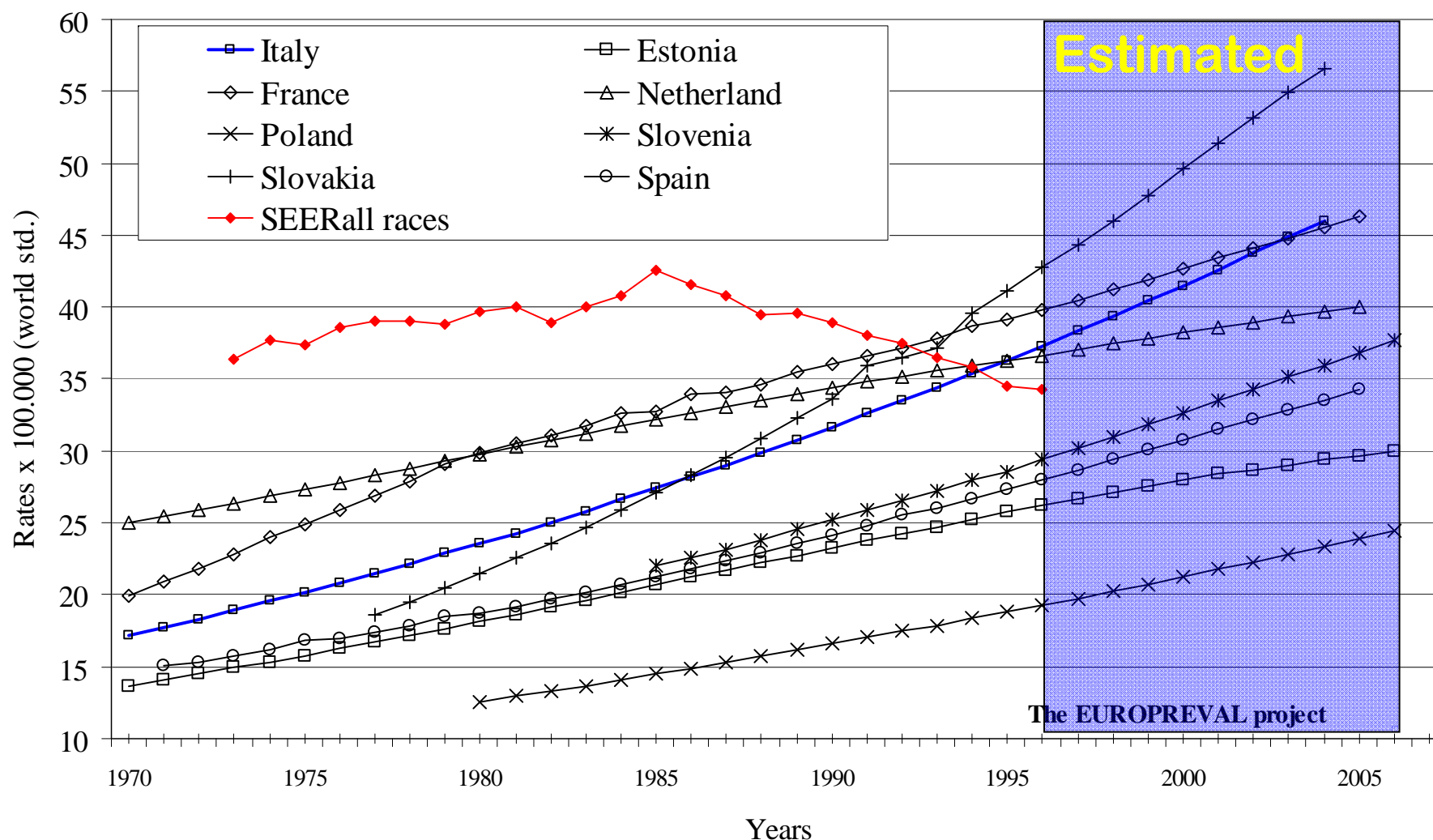


# CRC Mortality trends in WHO Regions

## Males – The Americas

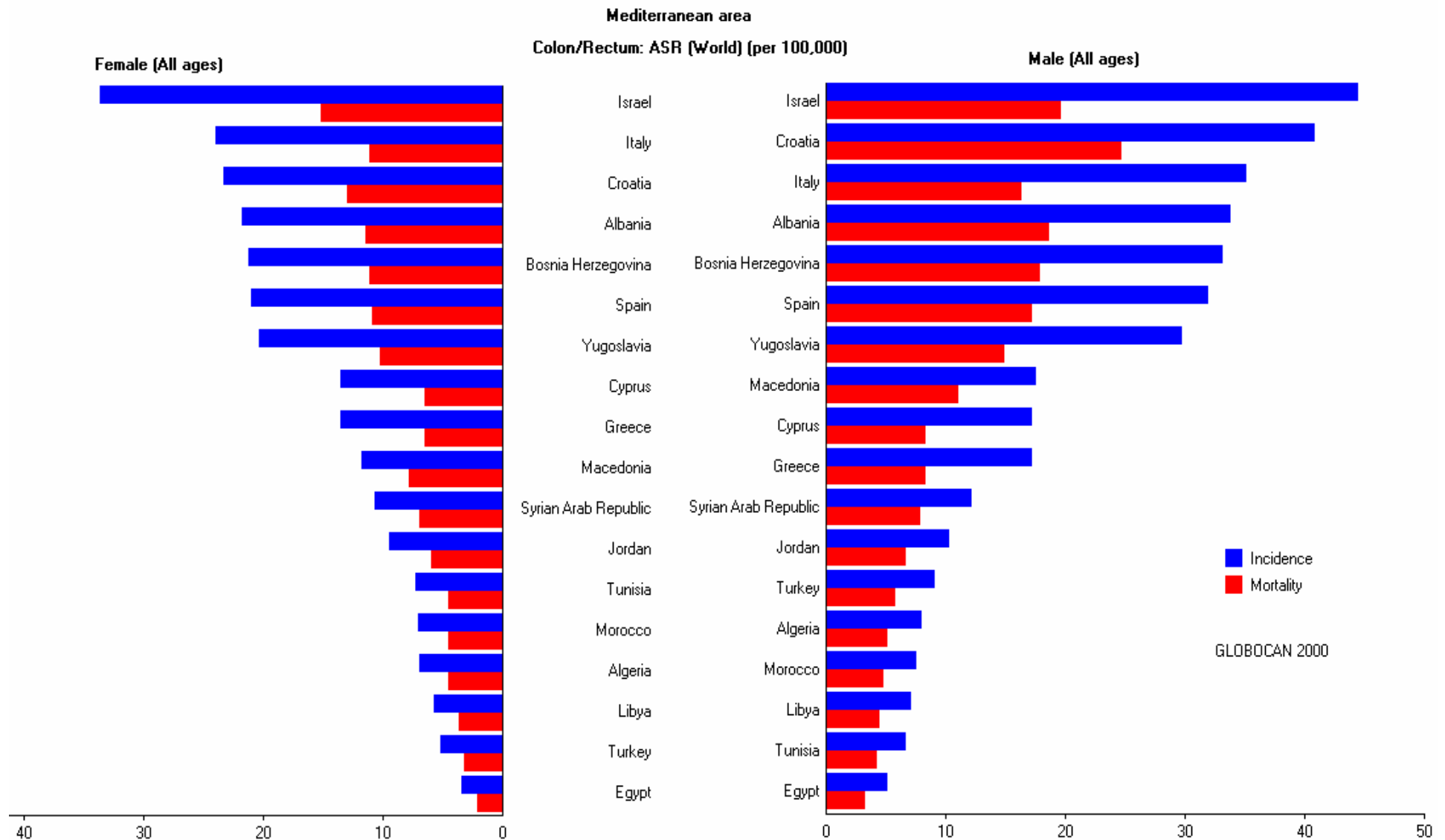


# Trends in Incidence (M + F) of CRC in Europe vs USA Seer selected Countries

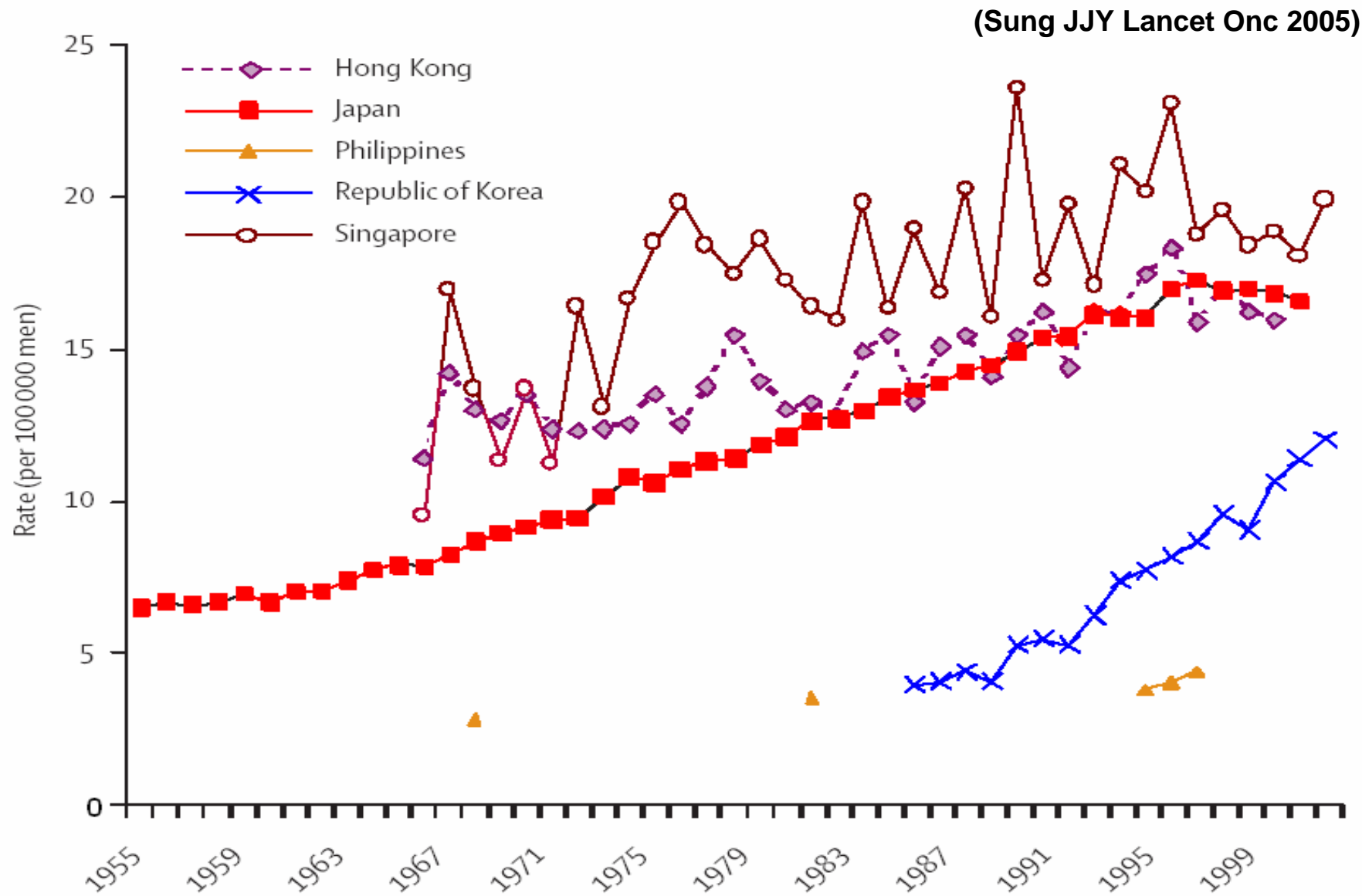




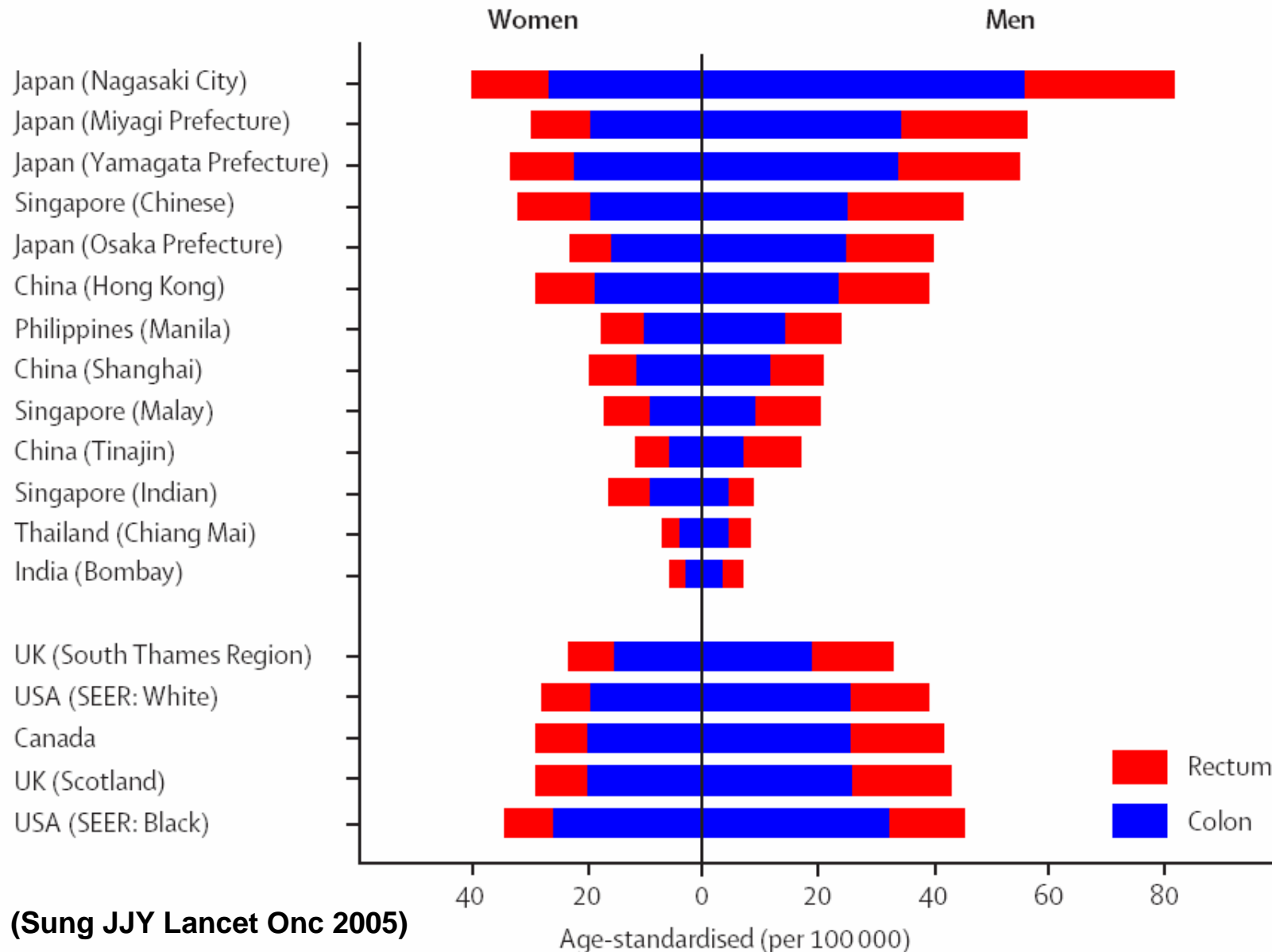
# COLON cancer Incidence and Mortality in Mediterranean area



# Mortality trends of CRC in Asian populations (Males 1955 – 1999)



# Incidence of CRC in Asian populations compared with US and UK (1993 – 1997)



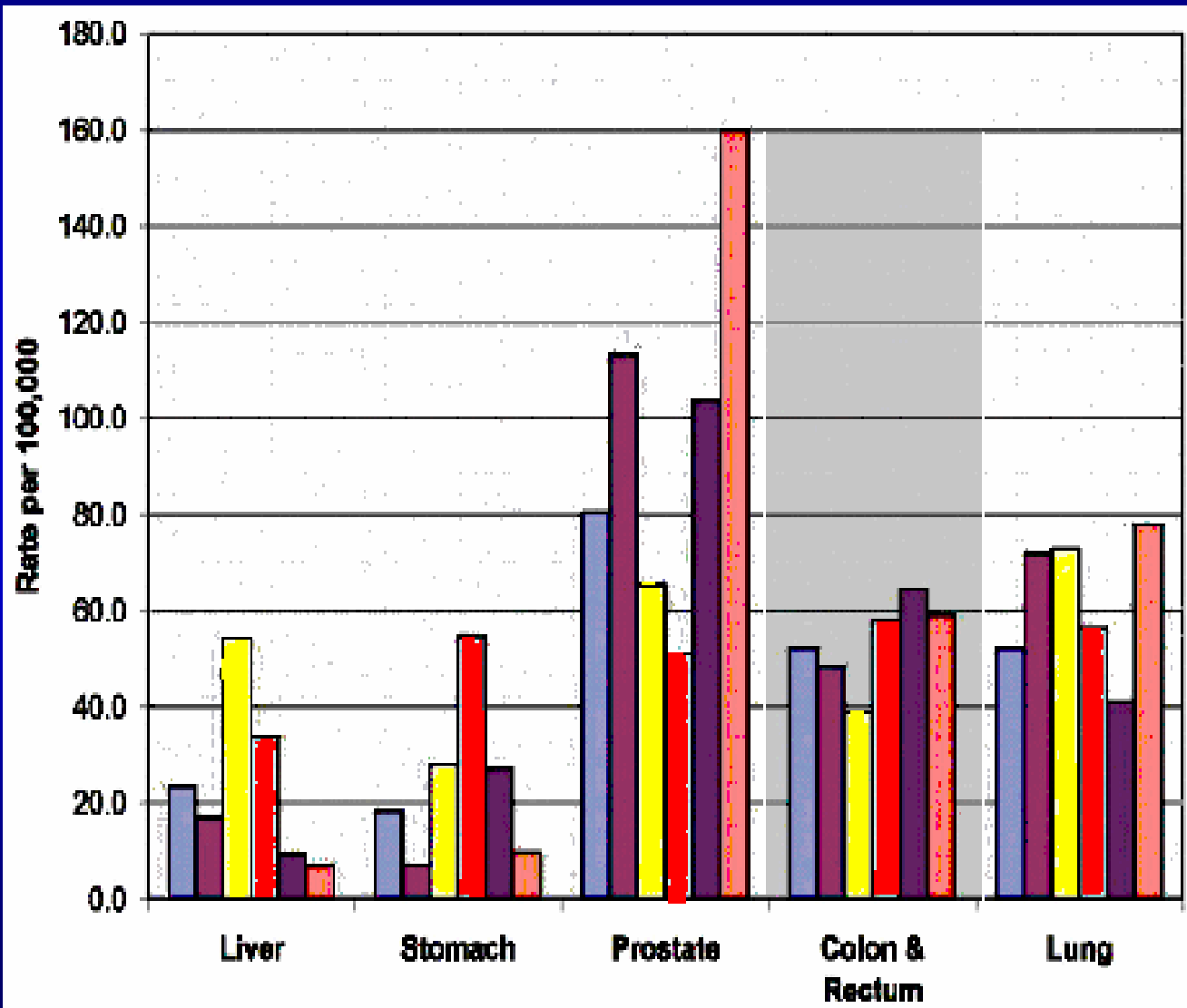
(Sung JJY Lancet Onc 2005)

**The effect of the progressive  
“westernization” of Asian countries  
may be well projected from the US  
data by ethnicities**

**(Mc Cracken M et al, 2007)**

**With expanding globalization it seems  
that even Western Nations have an  
“in house” problem ! ! !**

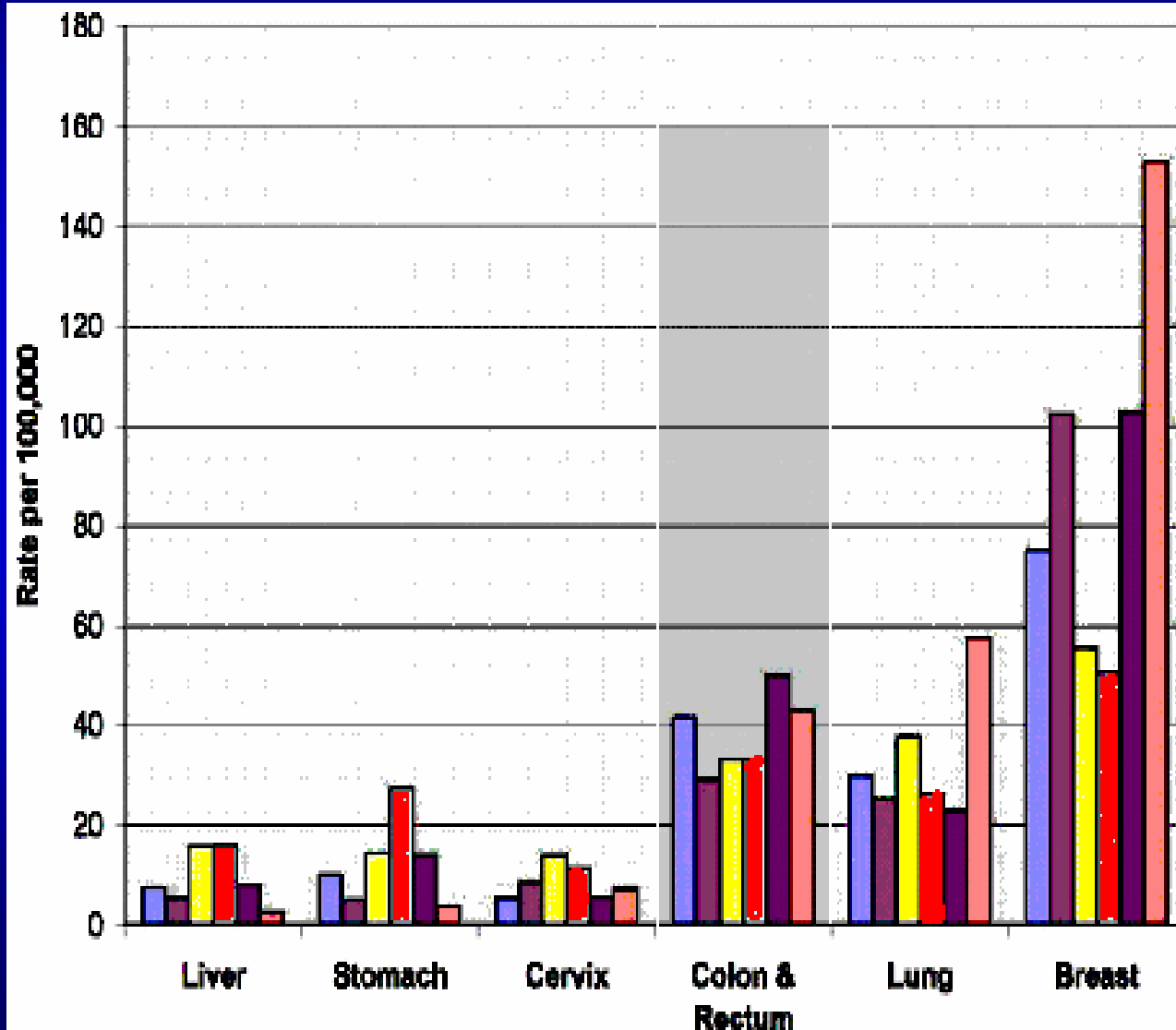
# Cancer incidence in Asian American Ethnic groups (Males), compared to California white



McCracken, M. et al.  
CA Cancer J Clin 2007

- Chinese
- Filipino
- Vietnamese
- Korean
- Japanese
- Non-Hispanic White

# Cancer incidence in Asian American Ethnic groups (Females), compared to California white



McCracken, M. et al.  
CA Cancer J Clin 2007

- Chinese
- Filipino
- Vietnamese
- Korean
- Japanese
- Non-Hispanic White

# Possible actions for CRC Prevention

| <i>Summary of action with level II or III of evidence</i> |                           |
|---|---------------------------|
| Energy intake   | Physical activity         |
| Dietary fat   | Fresh fruit and vegetable |
| Fiber   | Calcium                   |
| Selenium  | Anti-oxidant vitamins     |
| Anti-inflammatory drugs                                   | <b>SCREENING</b>          |

Level II: *Obtained from at least one properly designed RCT*

Level III: *Obtained from a control trial without randomisation,  
 “ “ cohort or case-control analytic studies,  
 “ “ multiple time-series with/without the intervention*

# SCREENING STRATEGIES AND AVAILABLE RESOURCES

In most developing nations, Africa, Asia (3.8 billion population), CRC screening is not a priority, resources are limited, awareness still low or restricted to the more affluent (private care)

The preferred and more affordable screening strategy worldwide is FOBT (trend towards iFOBT). Bleeding from worm infestation is a problem in developing countries

Primary TC / FS screening offered only in a few affluent nations (US, UK Germany, Italy, Austria, Luxemburg, Poland), FOBT as alternative



# In the real world....

- Uptake of screening opportunities is not exceeding 40 to 50% even in the more developed, wealthy nations
- In unselected general population it is as low as 20% (Australia, Canada)
- The scarce convincememnt of GPs in advising CRC screening and the embarrassment to discuss bowel matters are problems that only a strong action towards increased awareness may overcome

# Alternate strategies in low resource settings

To aim at familiar / genetic risk for CRC  
(just few key questions by a health professional)

In subjects aged <45 years (rates on total cases)

|           | More Developed | Less Developed |
|-----------|----------------|----------------|
| Incidence | M 3.6 %        | M 16.4 %       |
|           | F 3.8 %        | F 15.4 %       |

# Survival of Cancer Patients

The ultimate efficiency indicator of  
**preventive**  
**diagnostic**  
**therapeutic strategies**  
and the frame for evaluation of  
Health Systems



EUROCARE



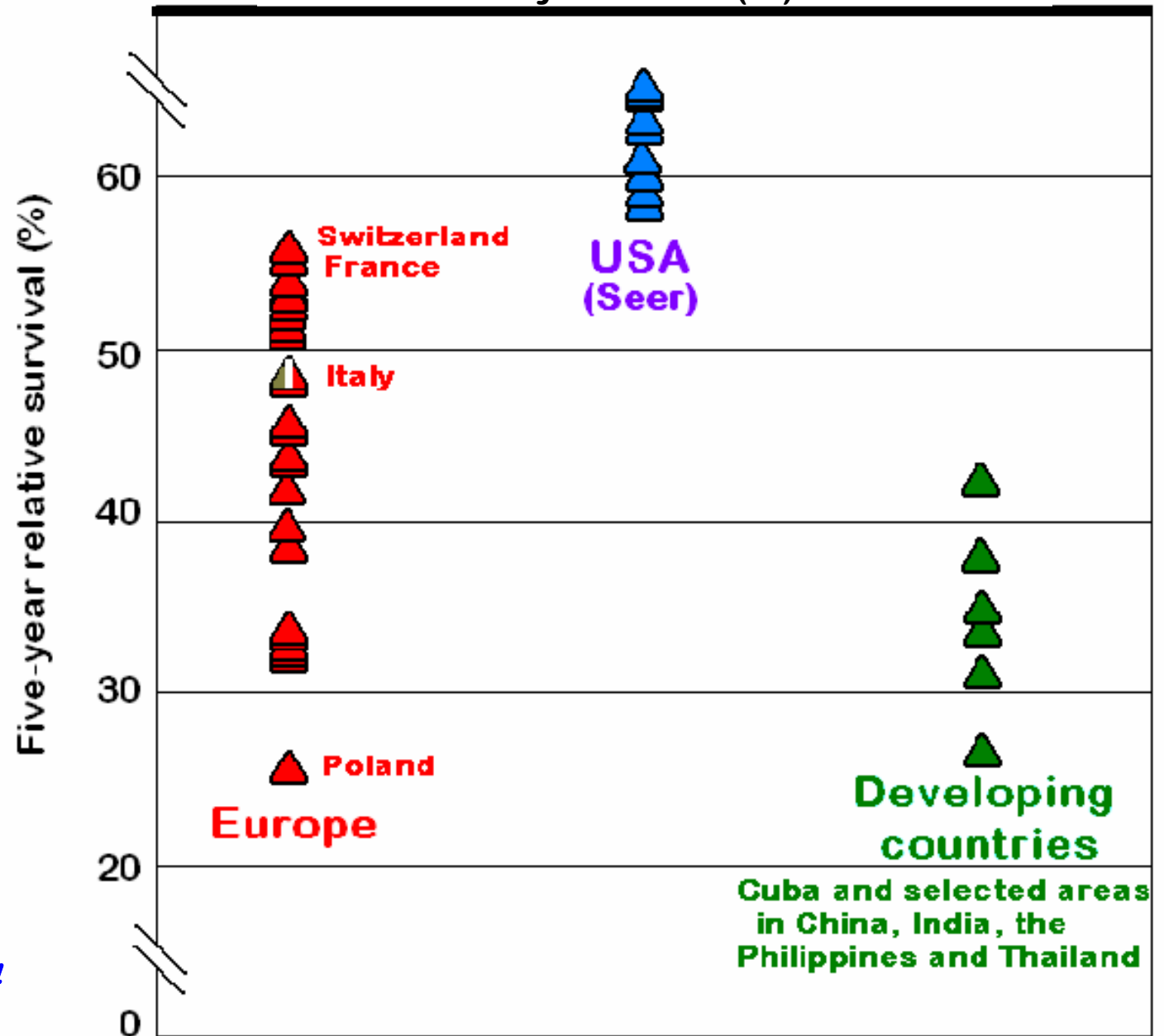
[EPICENTRO.ISS.IT](http://EPICENTRO.ISS.IT)

[EUROCARE.IT](http://EUROCARE.IT)

*Eurocare-3 study  
Annals of Oncology  
2003 (Suppl. 5) vol. 14*

# Colorectal Cancer (Males)

## 5y Survival (%)



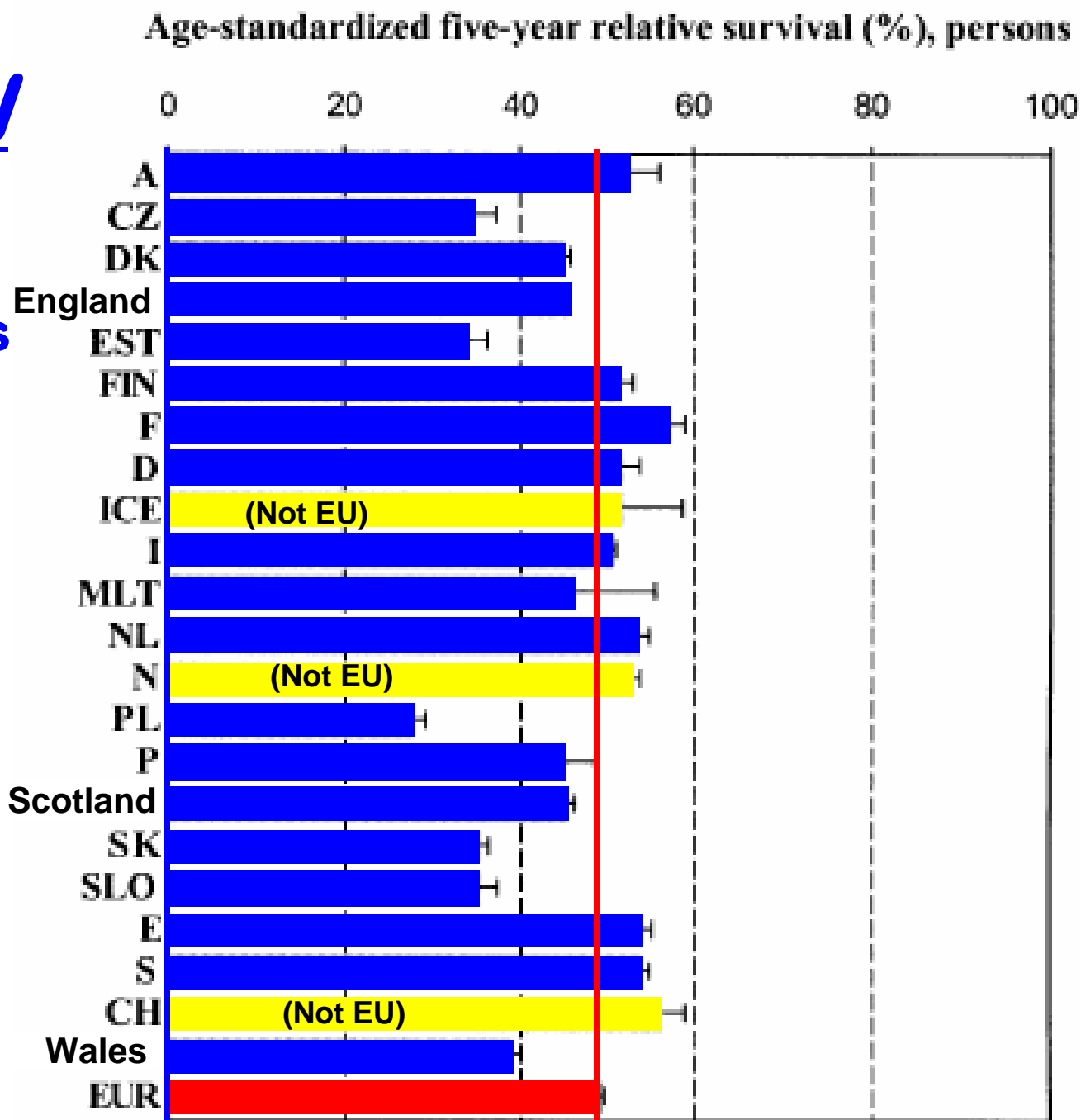
# 5y survival of CRC from Cancer Registries



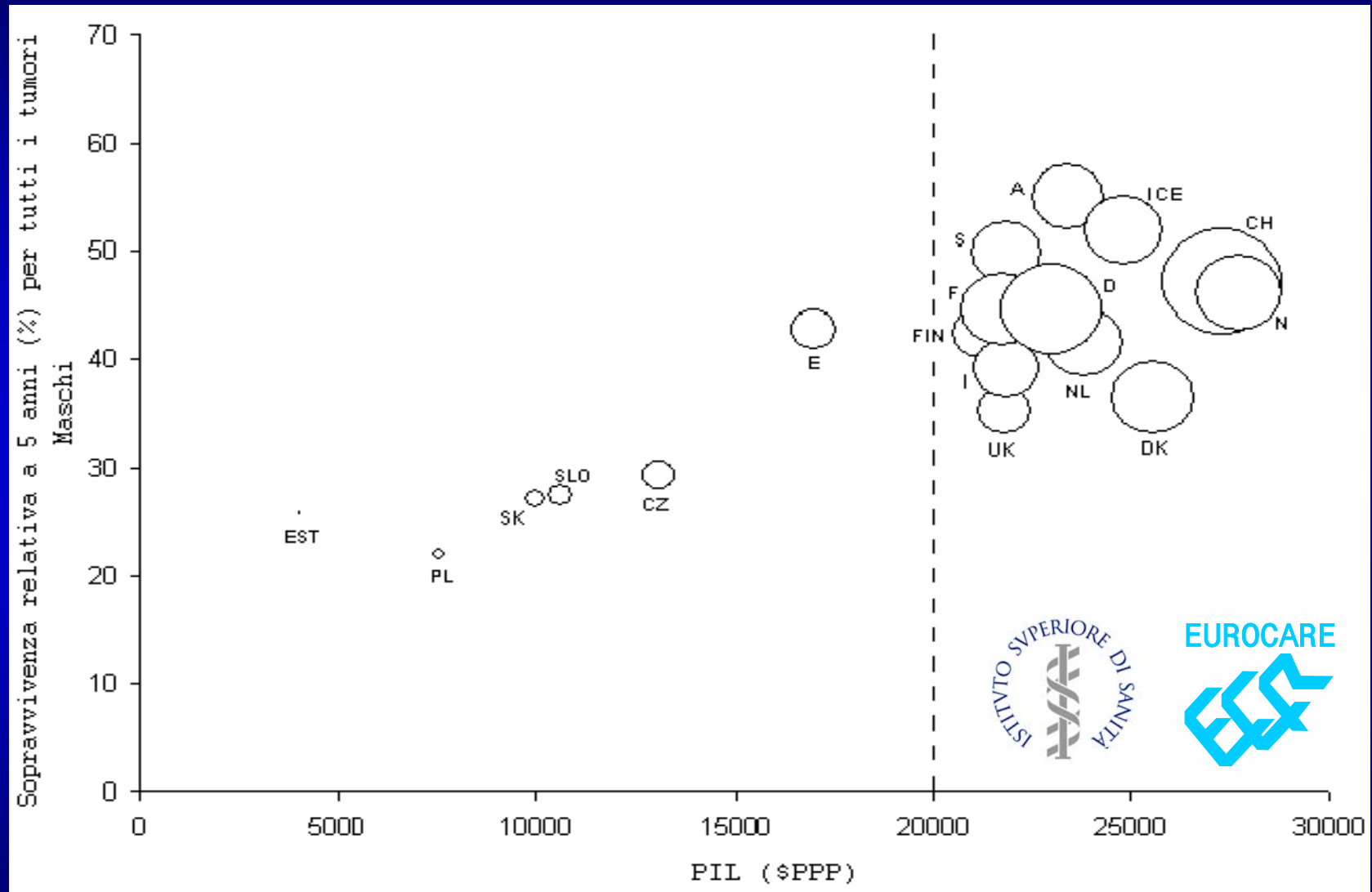
[EPICENTRO.ISS.IT](http://EPICENTRO.ISS.IT)

[EUROCARE.IT](http://EUROCARE.IT)

*Eurocare-3 study  
Annals of Oncology  
2003 (Suppl. 5) vol. 14*



# Gross Internal Product (1997) and all cancer 5y-Survival (adj. for age and site) (%) - Males



**Disks area is proportional to National Health Expenditure (\$ PPP) del paese**

\$ PPP: Parity Purchasing Power per capita (US \$) - From: OECD 2002 for GIP and NHE; EUROCARE-3 for survival

## Prevalence at 5y of CRC patients

|                       | 5y prevalence |
|-----------------------|---------------|
| North America         | 618,403       |
| Central America       | 28,350        |
| South America         | 98,150        |
| Europe                | 999,612       |
| Africa                | 38,614        |
| Asia                  | 1,003,456     |
| Australia and Pacific | 43,630        |

**(Globocan 2002)**

**D.K. Podolsky (NEJM, 2000):**

**“The barrier to reducing the numbers of deaths from Colorectal Cancer is not a lack of scientific data but a lack of organization, financial and societal commitment!”**

**After 7 years barriers are still barriers!**





## Table 1 Incidence and Mortality of CRC in EU (Globocan 2002)

| Colon-rectum    | Male (All ages) |               |               |               | Female (All ages) |               |               |               |
|-----------------|-----------------|---------------|---------------|---------------|-------------------|---------------|---------------|---------------|
|                 | Cases           | ASR (W)       | Deaths        | ASR (W)       | Cases             | ASR (W)       | Deaths        | ASR (W)       |
| Austria         | 2713            | 42.1          | 1325          | 20.1          | 2451              | 27.8          | 1325          | 13.9          |
| Belgium         | 3304            | 37.0          | 1732          | 18.7          | 3130              | 26.8          | 1764          | 14.1          |
| Bulgaria        | 1631            | 25.6          | 1114          | 17.1          | 1358              | 17.0          | 953           | 11.4          |
| Cyprus          | 123             | 23.1          | 83            | 15.2          | 122               | 19.6          | 81            | 12.8          |
| Czech Republic  | 4374            | 58.5          | 2559          | 34.0          | 3243              | 32.0          | 1938          | 18.0          |
| Denmark         | 1828            | 41.0          | 1058          | 23.3          | 1800              | 33.0          | 1114          | 19.2          |
| Estonia         | 282             | 31.7          | 160           | 17.9          | 350               | 23.2          | 199           | 12.6          |
| Finland         | 1031            | 25.5          | 477           | 11.5          | 1146              | 21.1          | 573           | 9.8           |
| France          | 19229           | 40.8          | 9078          | 18.2          | 15718             | 25.9          | 8019          | 11.8          |
| Germany         | 31756           | 45.5          | 14396         | 19.9          | 32053             | 33.1          | 16467         | 15.7          |
| Greece          | 1937            | 19.4          | 1025          | 9.7           | 1832              | 15.6          | 1006          | 8.0           |
| Hungary         | 3977            | 56.6          | 2543          | 35.6          | 3509              | 33.7          | 2346          | 21.2          |
| Ireland         | 1075            | 43.1          | 591           | 23.6          | 813               | 27.0          | 433           | 13.7          |
| Italy           | 20457           | 39.2          | 9061          | 16.5          | 17276             | 26.6          | 7909          | 10.9          |
| Latvia          | 372             | 24.2          | 279           | 18.0          | 488               | 17.9          | 368           | 12.3          |
| Lithuania       | 615             | 26.5          | 424           | 18.0          | 616               | 16.8          | 434           | 11.3          |
| Luxembourg      | 146             | 43.6          | 65            | 18.6          | 141               | 30.7          | 66            | 13.4          |
| Malta           | 77              | 27.1          | 46            | 16.1          | 78                | 22.5          | 46            | 13.1          |
| Poland          | 7671            | 31.9          | 4432          | 18.2          | 7909              | 23.5          | 4082          | 11.4          |
| Portugal        | 2826            | 35.9          | 1643          | 20.0          | 2158              | 21.0          | 1307          | 11.9          |
| Romania         | 3429            | 22.0          | 2172          | 13.6          | 2808              | 14.4          | 1843          | 9.0           |
| Slovakia        | 1745            | 54.5          | 1071          | 33.2          | 1227              | 27.4          | 752           | 16.0          |
| Slovenia        | 628             | 43.8          | 349           | 24.1          | 503               | 25.4          | 295           | 14.0          |
| Spain           | 12418           | 36.8          | 6553          | 18.5          | 9546              | 22.5          | 5206          | 11.3          |
| Sweden          | 2761            | 33.4          | 1273          | 14.9          | 2634              | 26.2          | 1209          | 11.1          |
| The Netherlands | 4940            | 40.9          | 2329          | 18.9          | 4582              | 30.8          | 2313          | 14.4          |
| United Kingdom  | 19407           | 39.2          | 8912          | 17.5          | 16562             | 26.5          | 8278          | 12.4          |
| <b>EU</b>       | <b>150752</b>   | <b>27,39%</b> | <b>74750</b>  | <b>26,85%</b> | <b>134053</b>     | <b>28,36%</b> | <b>70326</b>  | <b>28,07%</b> |
| <b>World</b>    | <b>550465</b>   |               | <b>278446</b> |               | <b>472687</b>     |               | <b>250532</b> |               |