Burden of Disease: Non-communicable conditions and their risk factors

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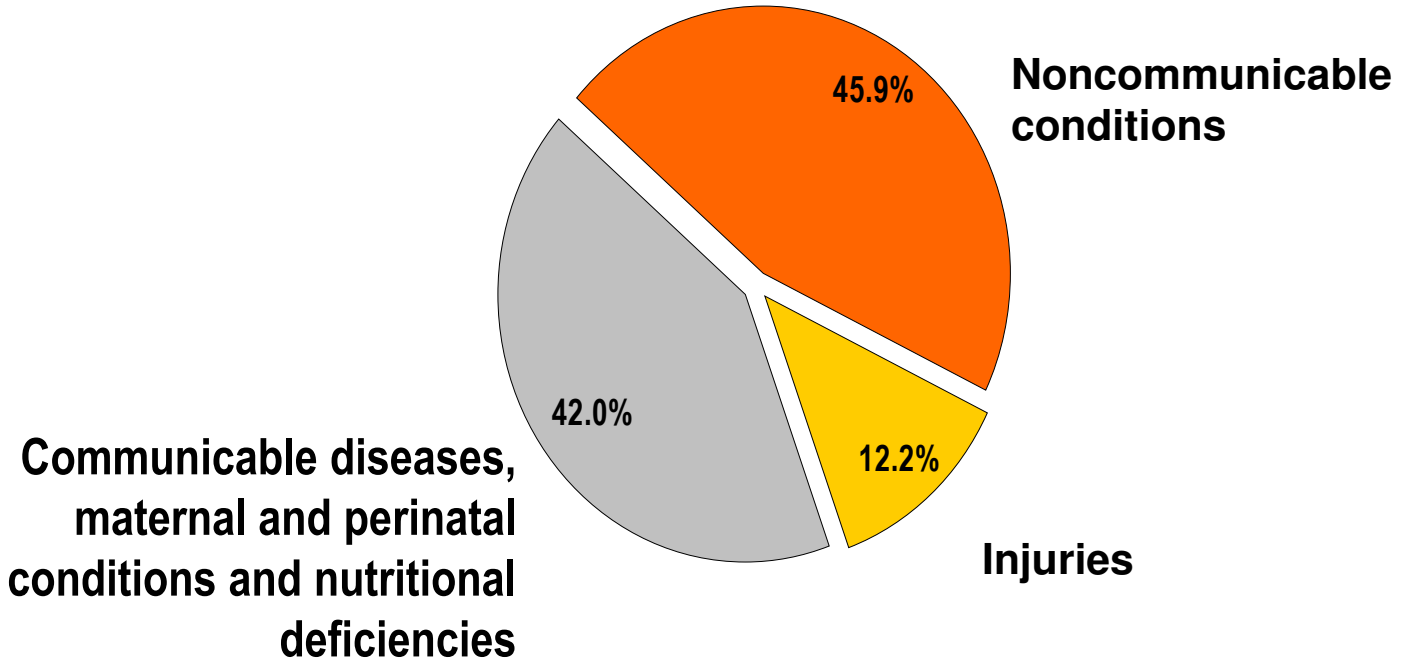
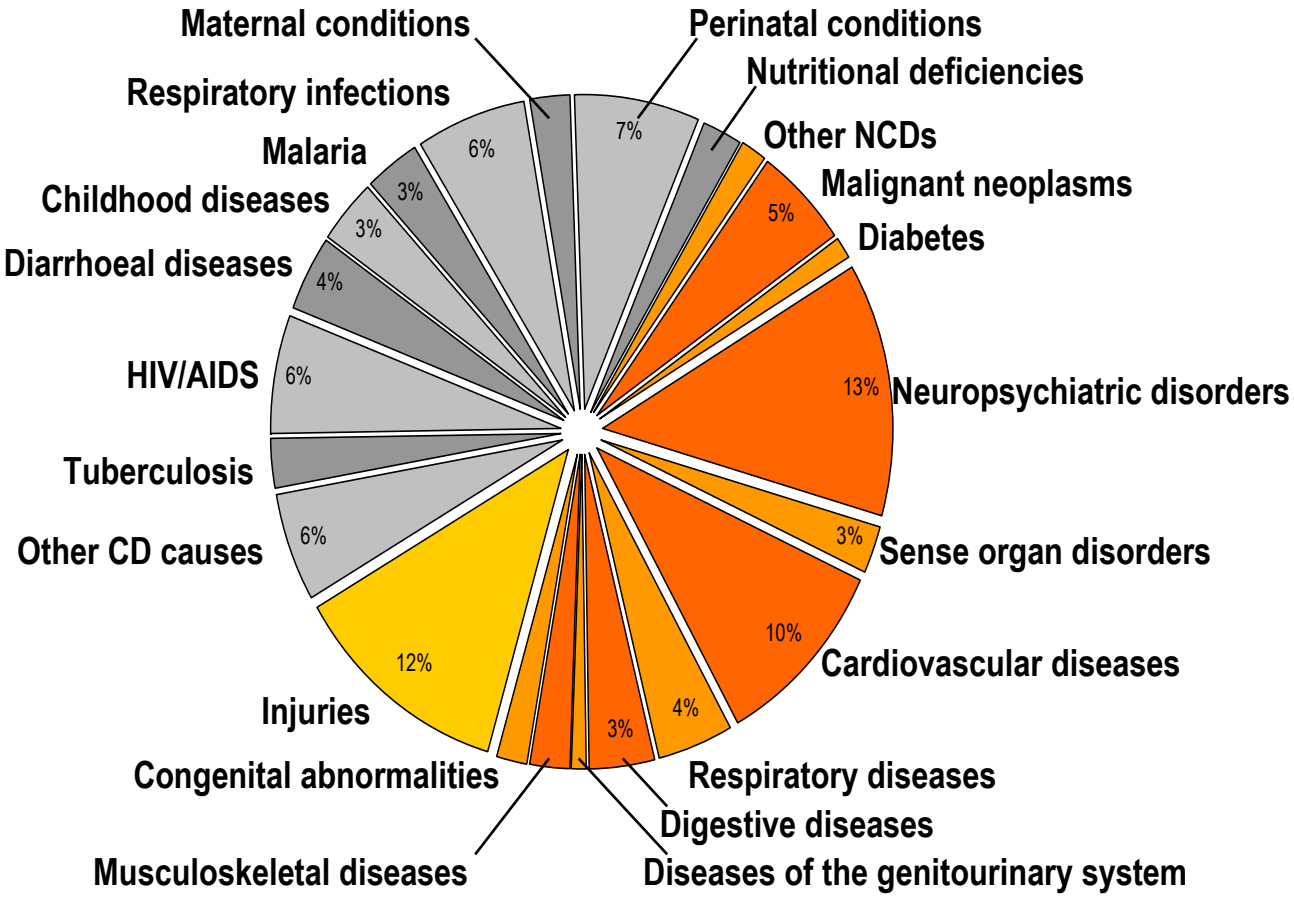
WORLD
Disease Burden (DALYs), by broad cause group, 2001



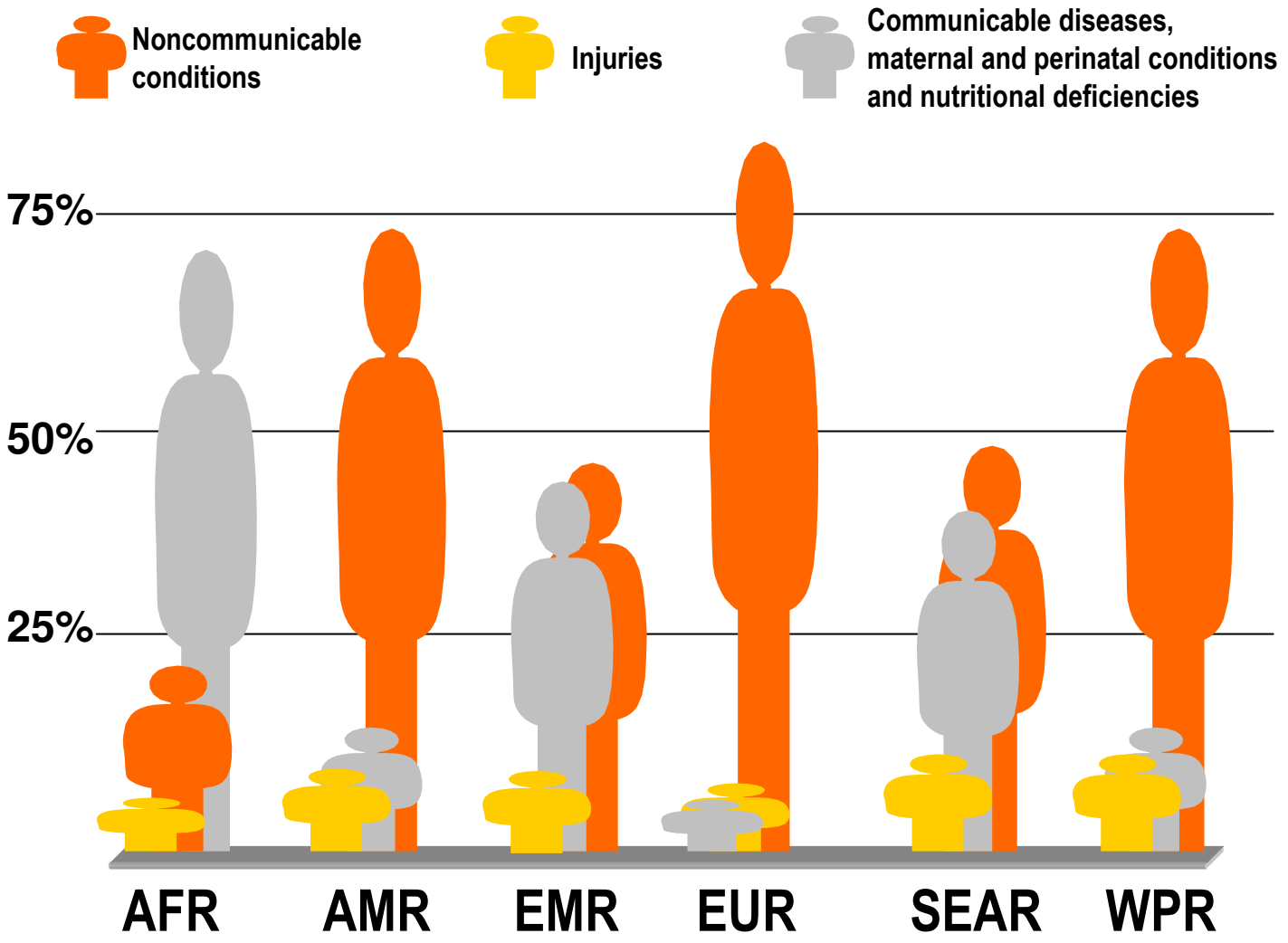
Source: WHR 2002

WORLD
Disease burden (DALYs), 2001



Source: WHR 2002

Deaths, by broad cause group and WHO Region, 2001



Source: WHR 2002

Risks quantified in WHR2002

Child & maternal under-nutrition
- Underweight
- Iron deficiency
- Vitamin A deficiency
- Zinc deficiency

OOther diet-related risks & inactivity
- Blood pressure
- Cholesterol
- High body mass index
- Inadequate fruit and vegetable intake
- Physical inactivity

Sexual and reproductive health risks
- Unsafe sex
- Lack of contraception

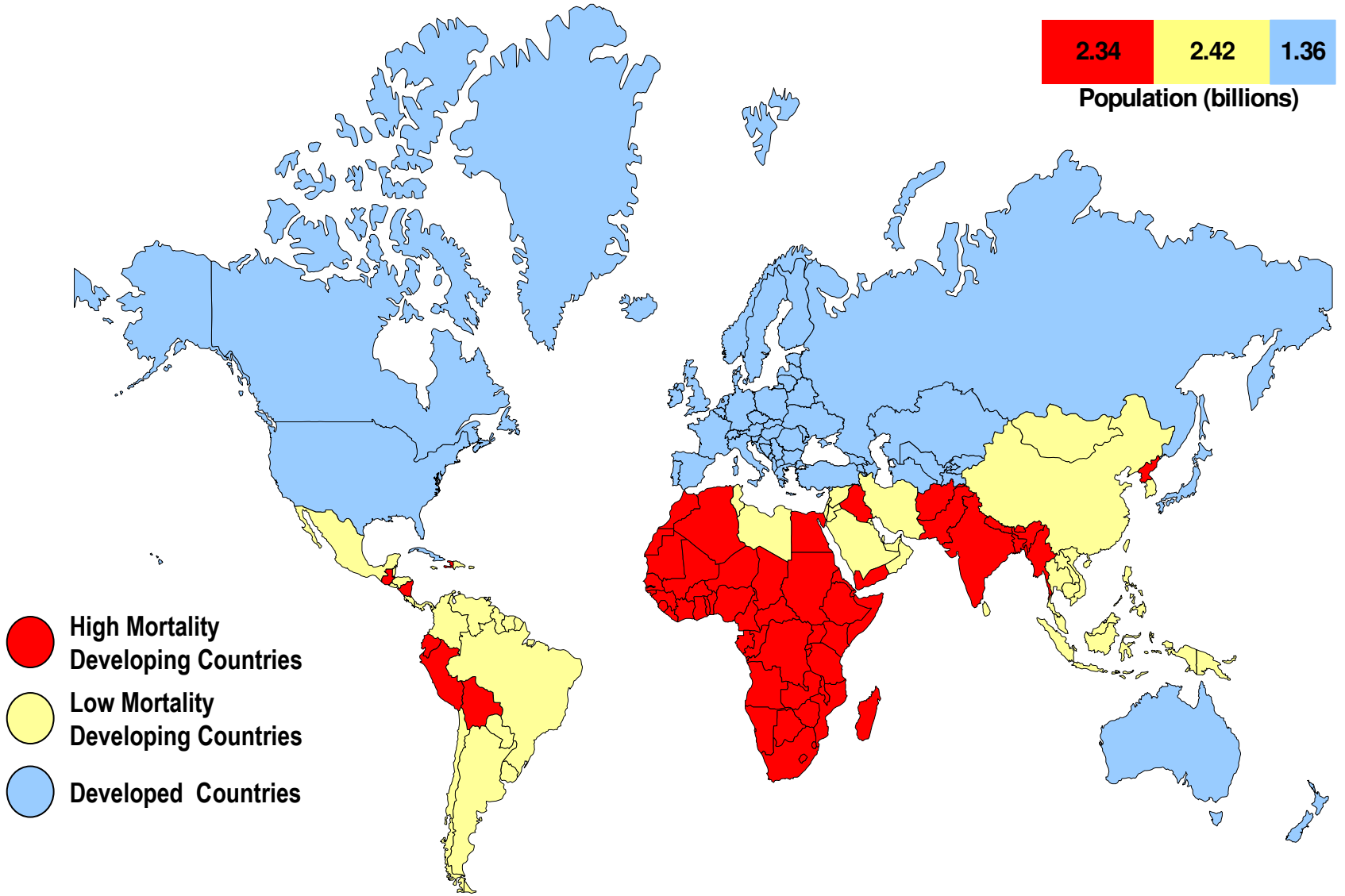
AAddictive substances
- Smoking and oral tobacco
- Alcohol
- Illicit drugs

Environmental risks
- Unsafe water, sanitation, and hygiene
- Urban air pollution
- Indoor smoke from solid fuels
- Lead exposure
- Climate change

OOccupational risks
- Risk factors for injury
- Carcinogens
- Airborne particulates
- Ergonomic stressors
- Noise

OOther selected risks to health
- Unsafe health care injections
- Childhood sexual abuse

ubregions by economic and demographic development and mortality pattern



Immersed in a sea of risk

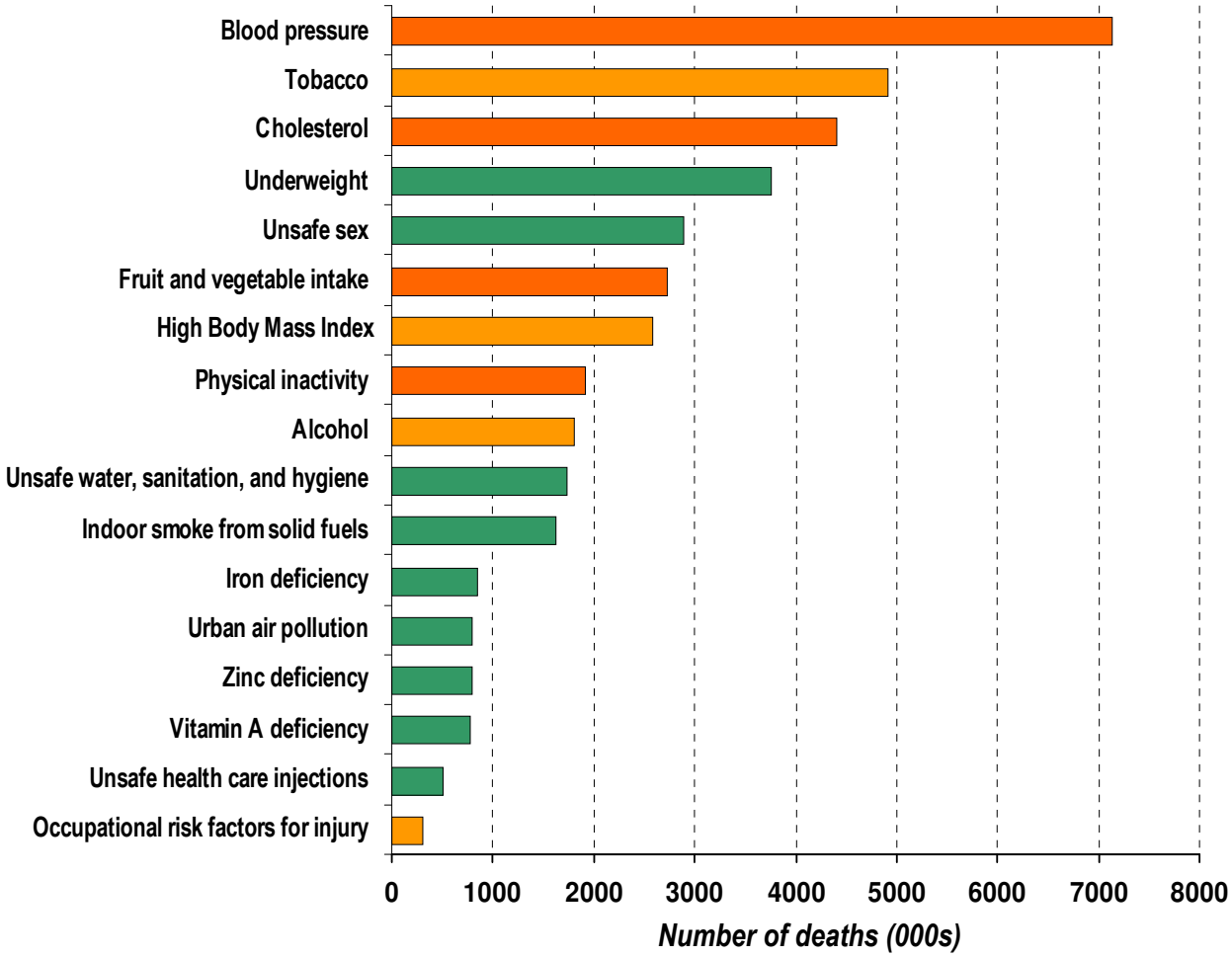
Leading 12 selected risk factors as causes of disease burden

= *Major NCD risk factors*

	Developing countries		*Developed countries*
	High Mortality	*Low Mortality*	
1	Underweight	Alcohol	Tobacco
2	Unsafe sex	Blood pressure	Blood pressure
3	Unsafe water	Tobacco	Alcohol
4	Indoor smoke	Underweight	Cholesterol
5	Zinc deficiency	Body mass index	Body mass index
6	Iron deficiency	Cholesterol	Low fruit & veg. intake
7	Vitamin A deficiency	Low fruit & veg intake	Physical inactivity
8	Blood pressure	Indoor smoke - solid fuels	Illicit drugs
9	Tobacco	Iron deficiency	Unsafe sex
10	Cholesterol	Unsafe water	Iron deficiency
11	Alcohol	Unsafe sex	Lead exposure
12	Low fruit & veg intake	Lead exposure	Childhood sexual abuse

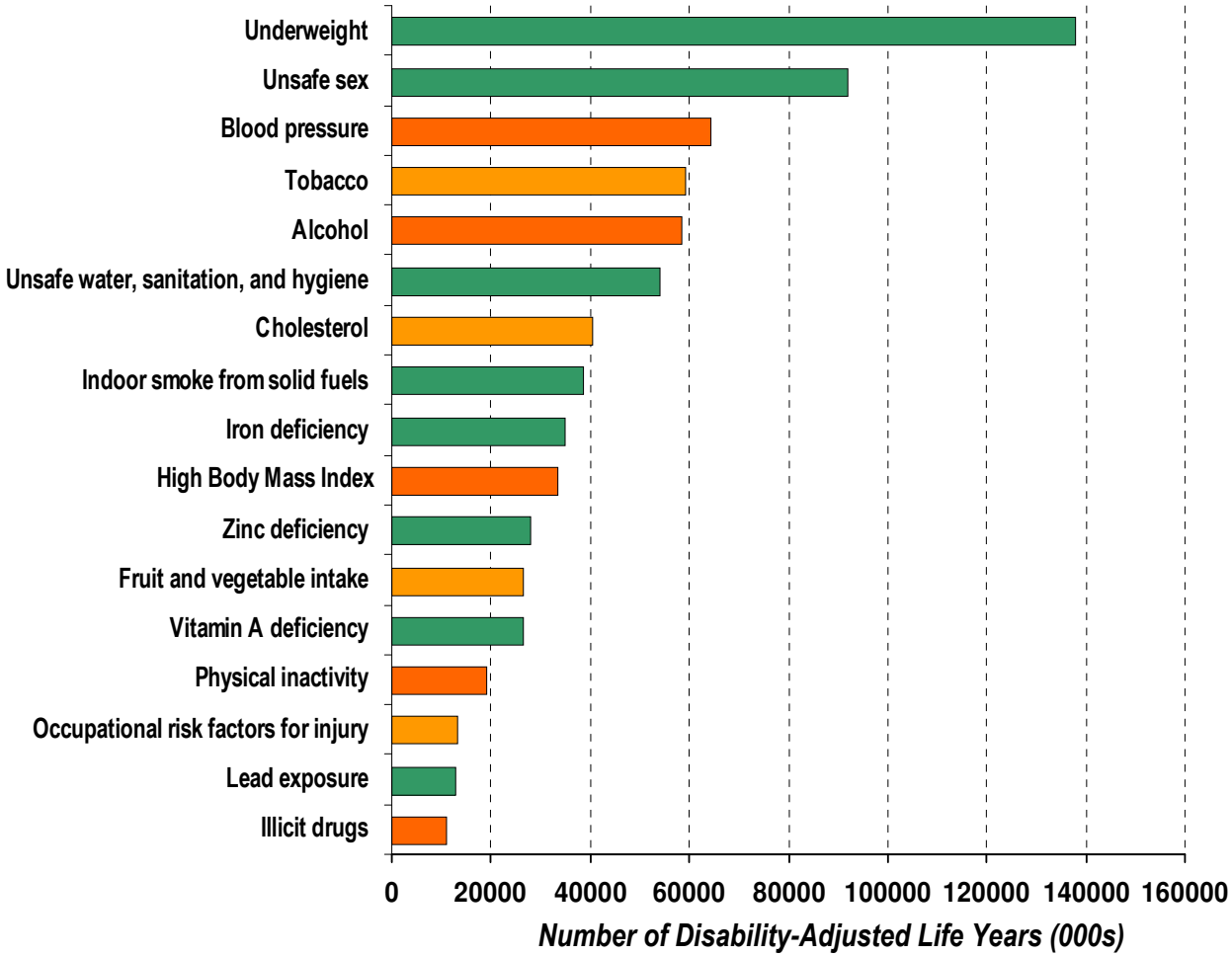
World

Deaths in 2000 attributable to selected leading risk factors



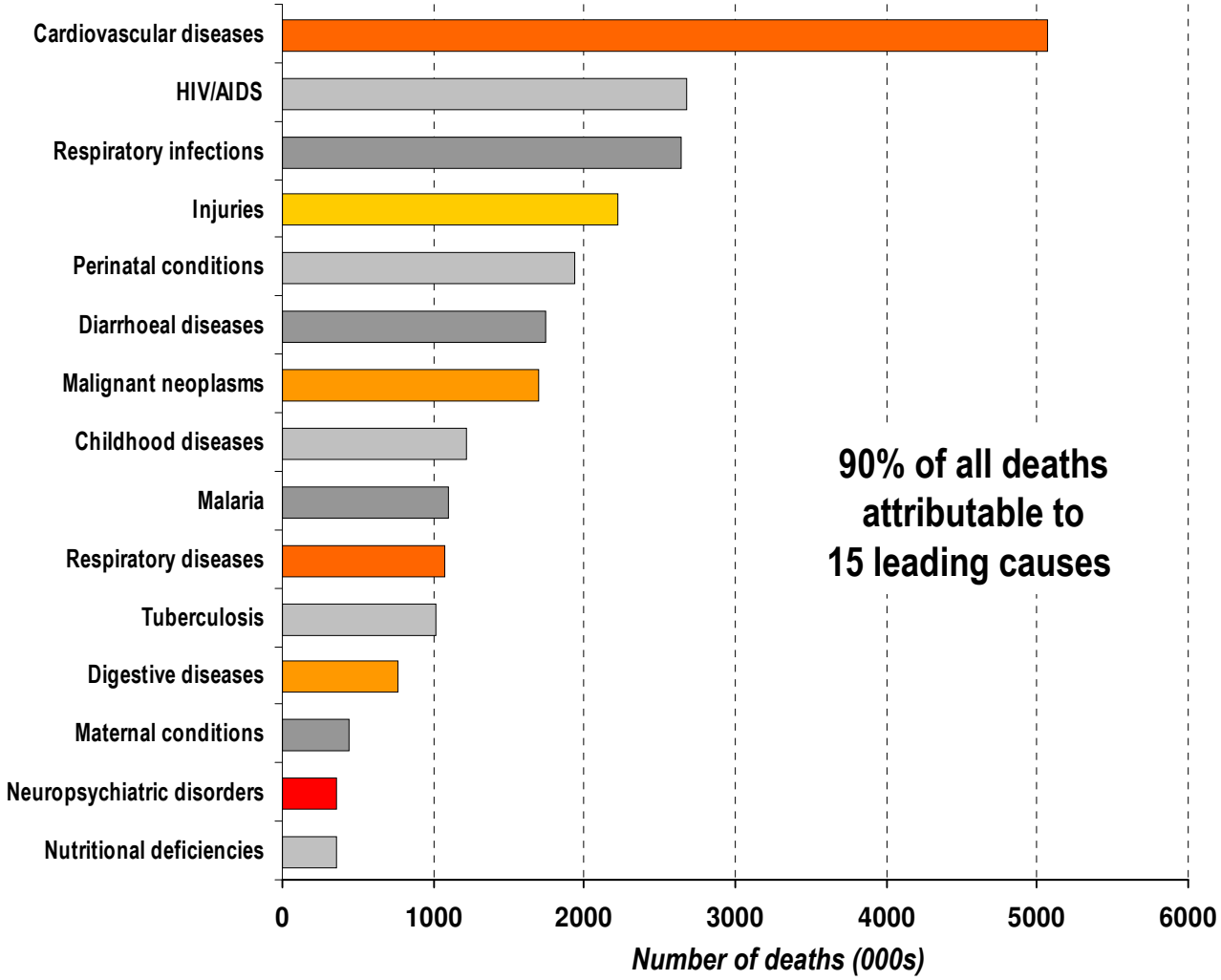
World

Disease burden (DALYs) in 2000 attributable to selected leading risk factors



High Mortality Developing Countries

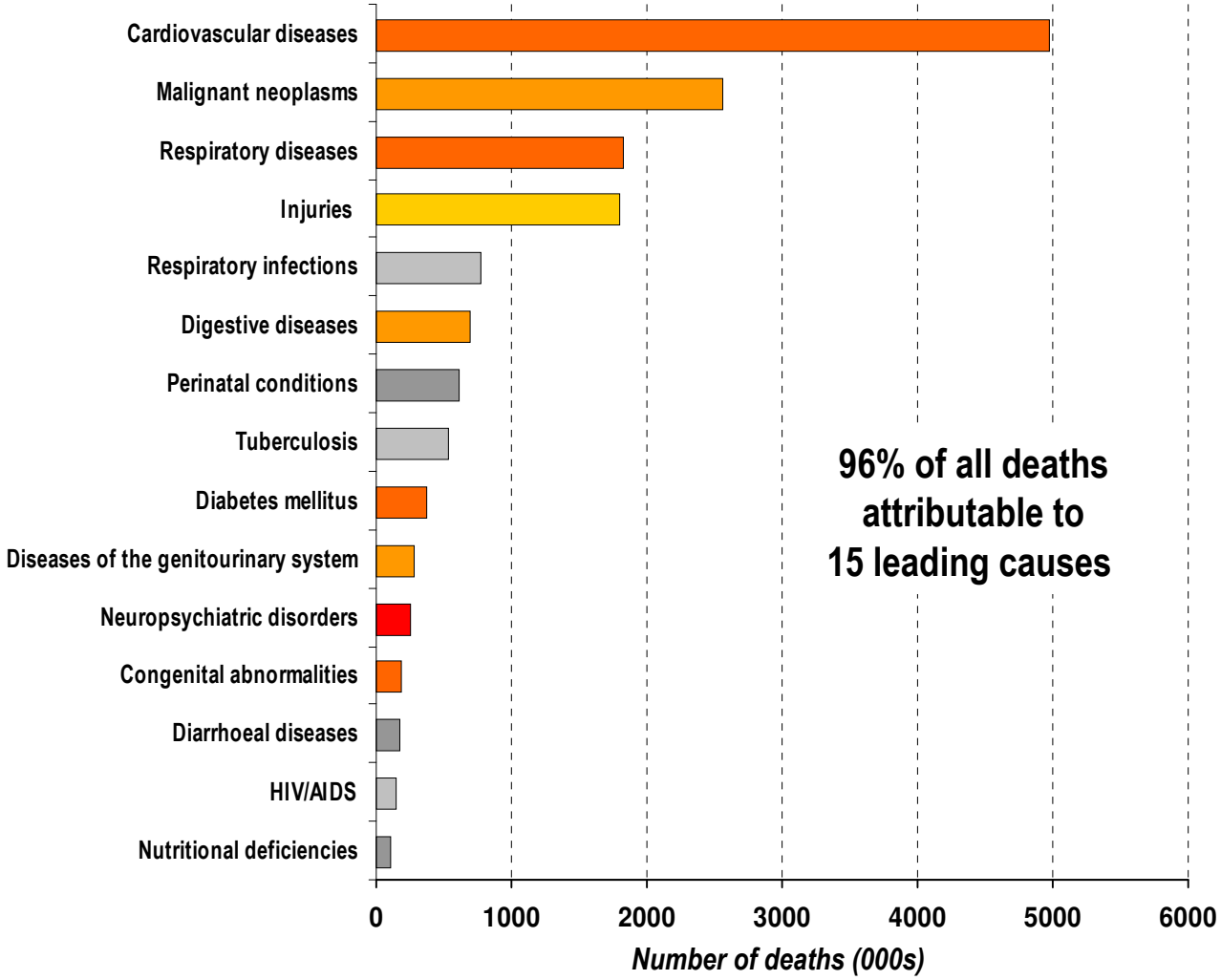
Deaths in 2001 attributable to 15 leading causes



Source: WHR 2002

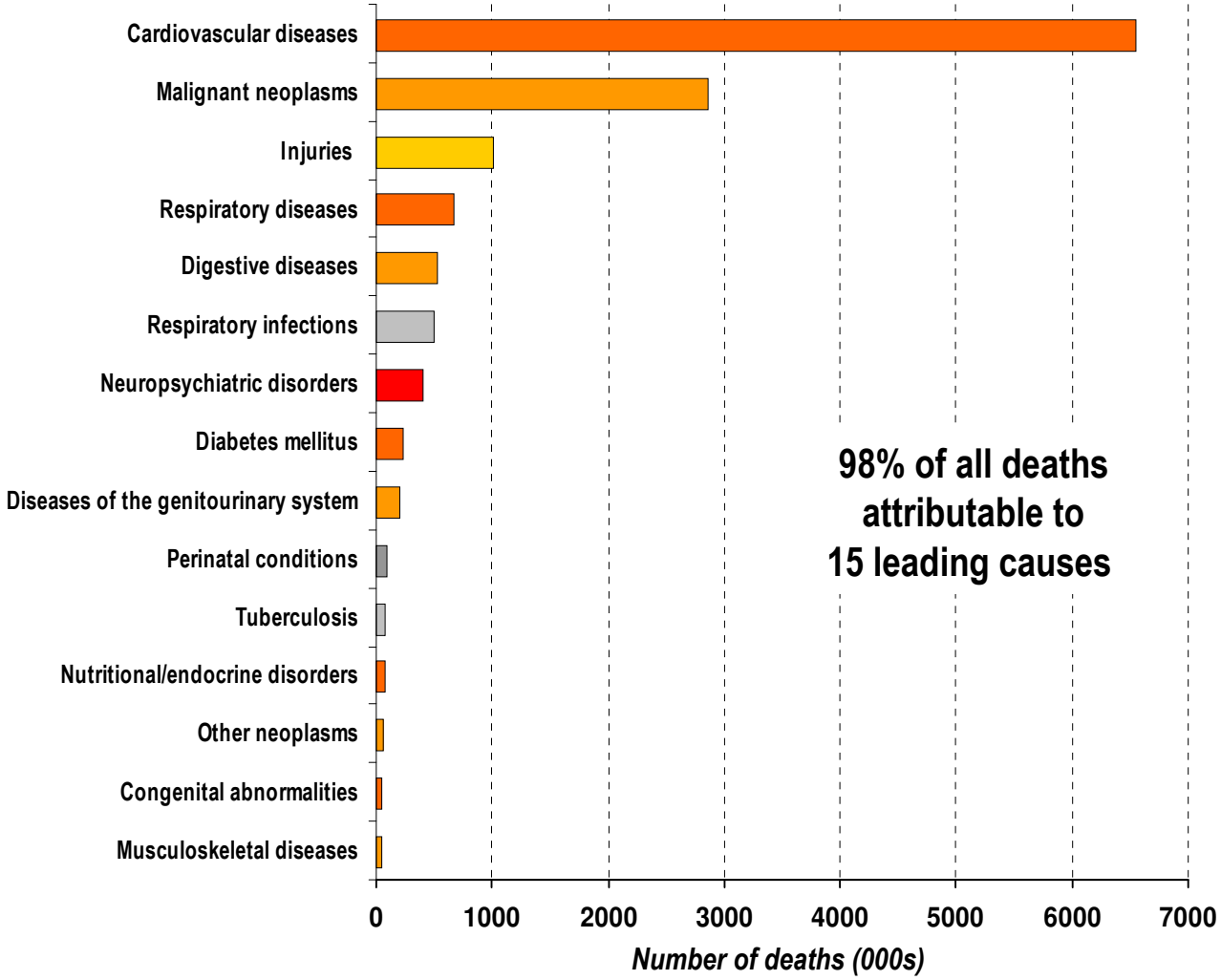
Low Mortality Developing Countries

Deaths in 2001 attributable to 15 leading causes



Source: WHR 2002

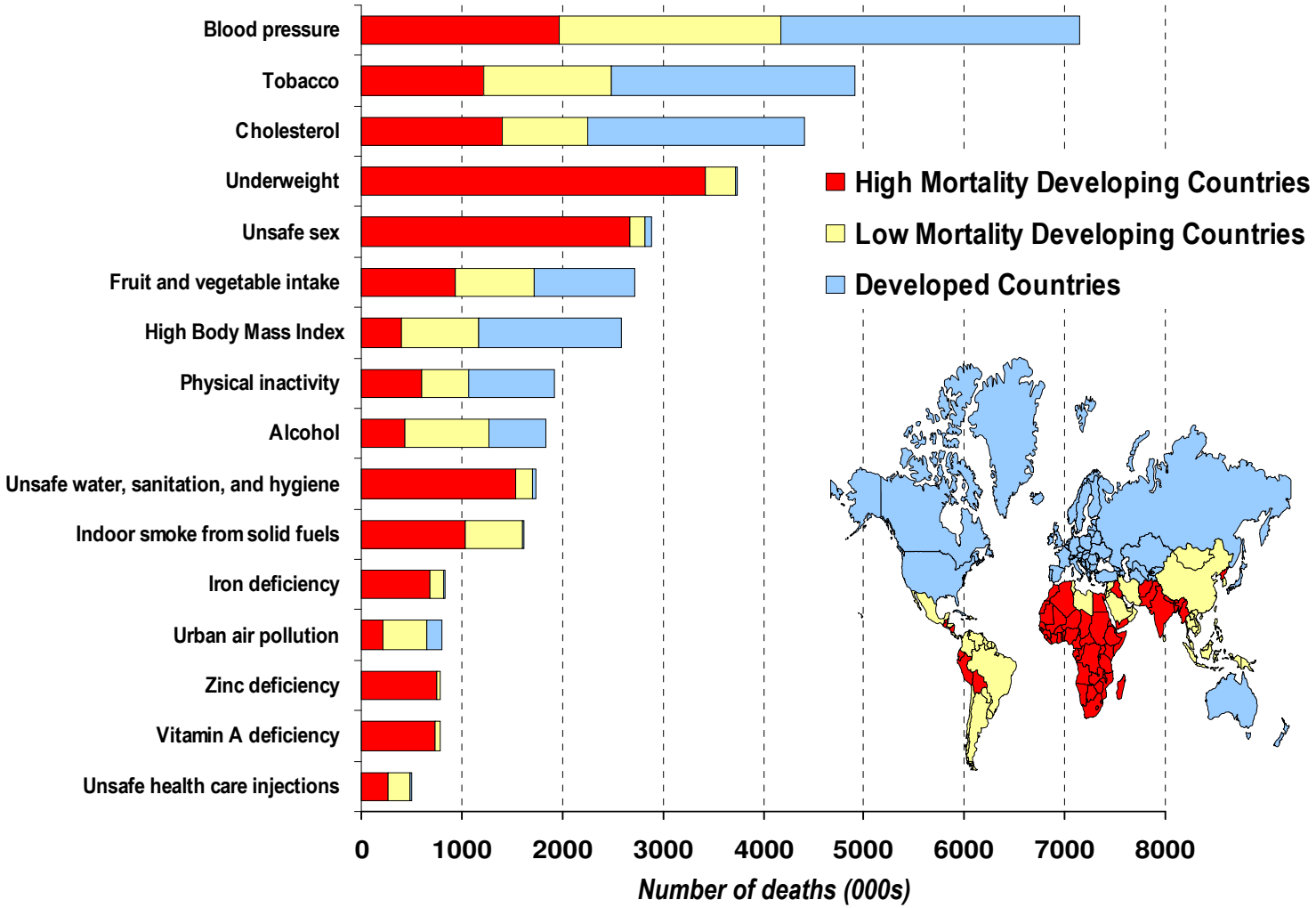
Developed Countries
Deaths in 2001 attributable to 15 leading causes



Source: WHR 2002

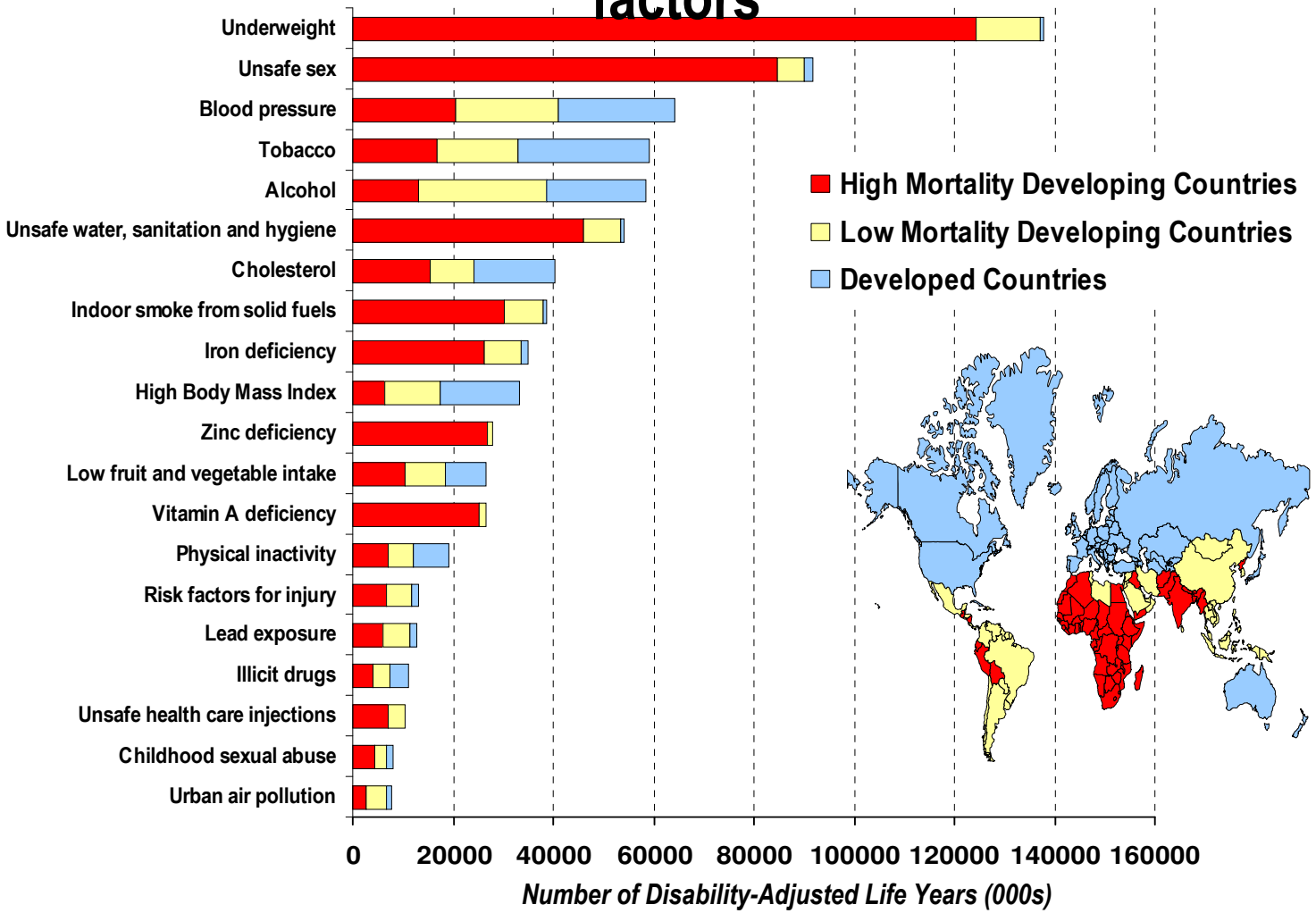
World

Deaths in 2000 attributable to selected leading risk factors



World

Disease burden (DALYs) in 2000 attributable to selected leading risk factors



High Mortality Developing Countries

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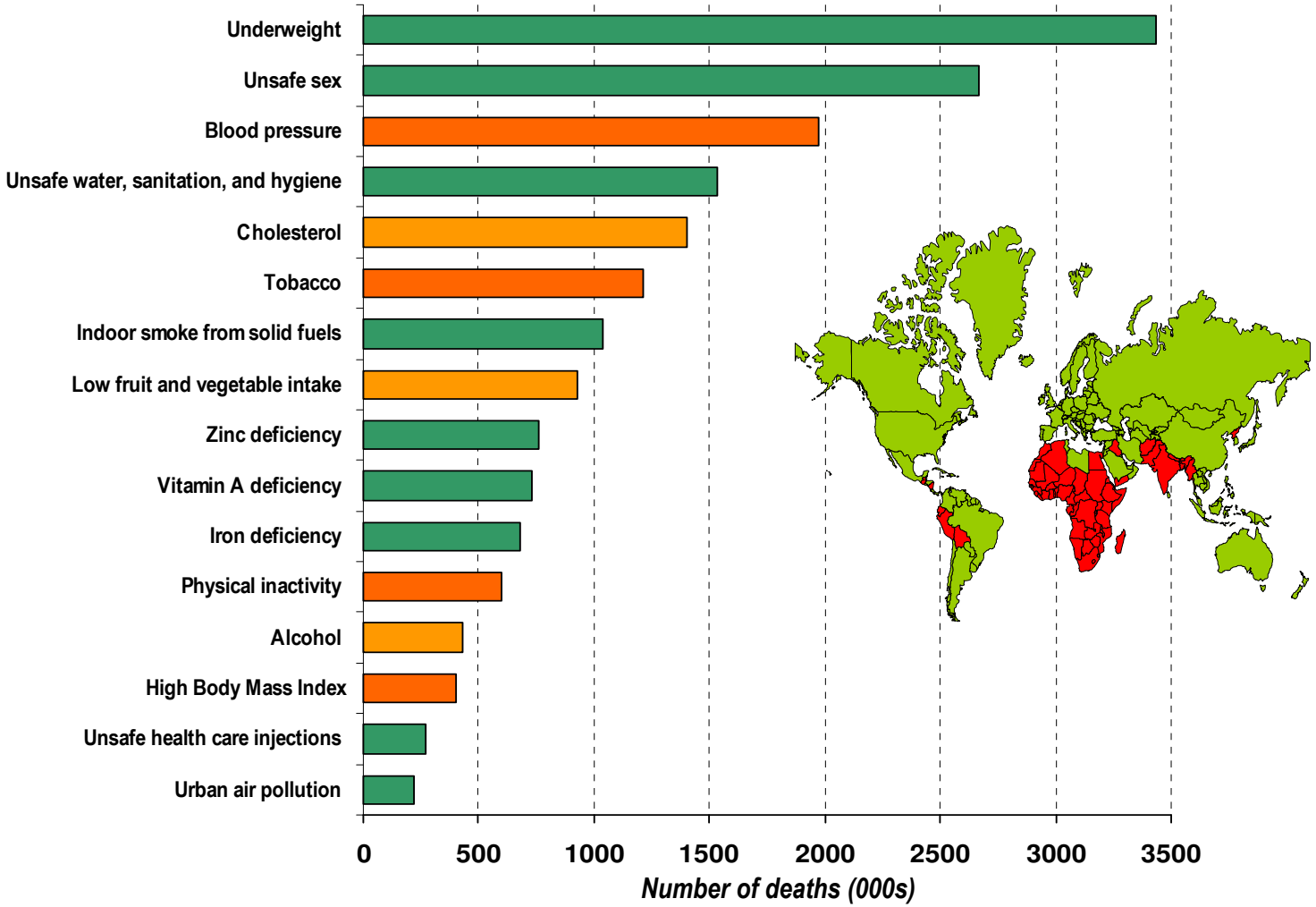
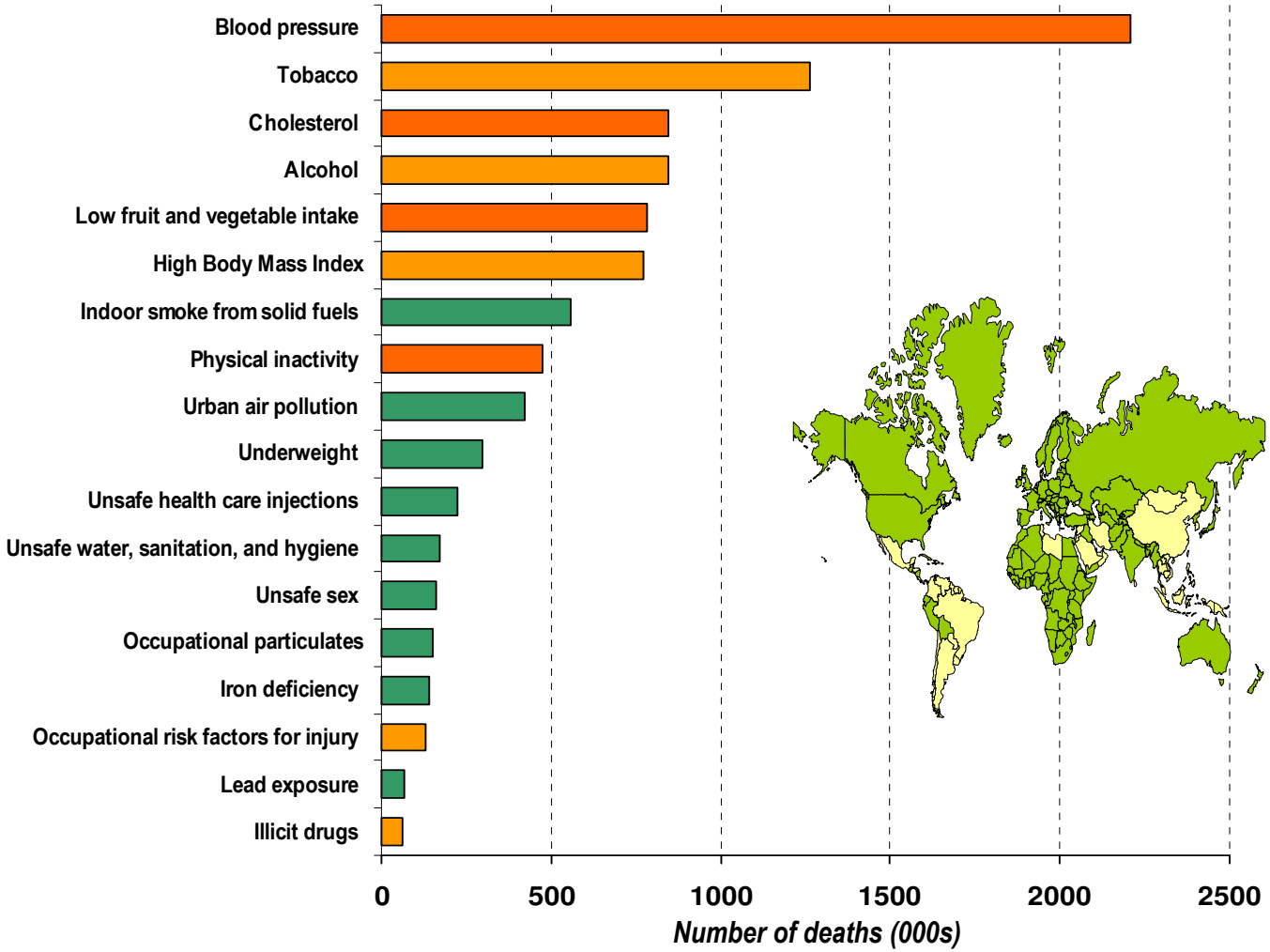


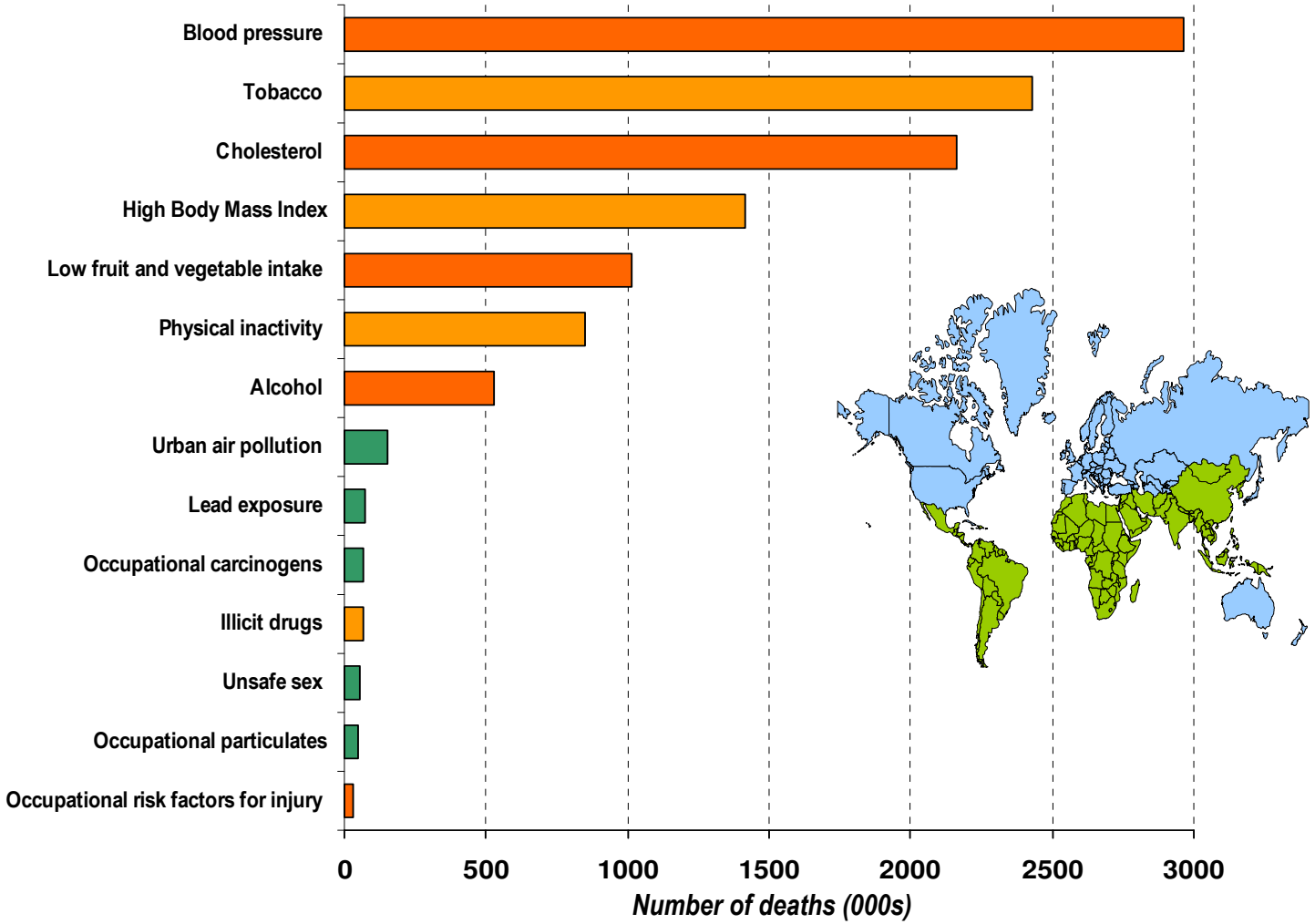
Low Mortality Developing Countries

Deaths in 2000 attributable to selected leading risk factors



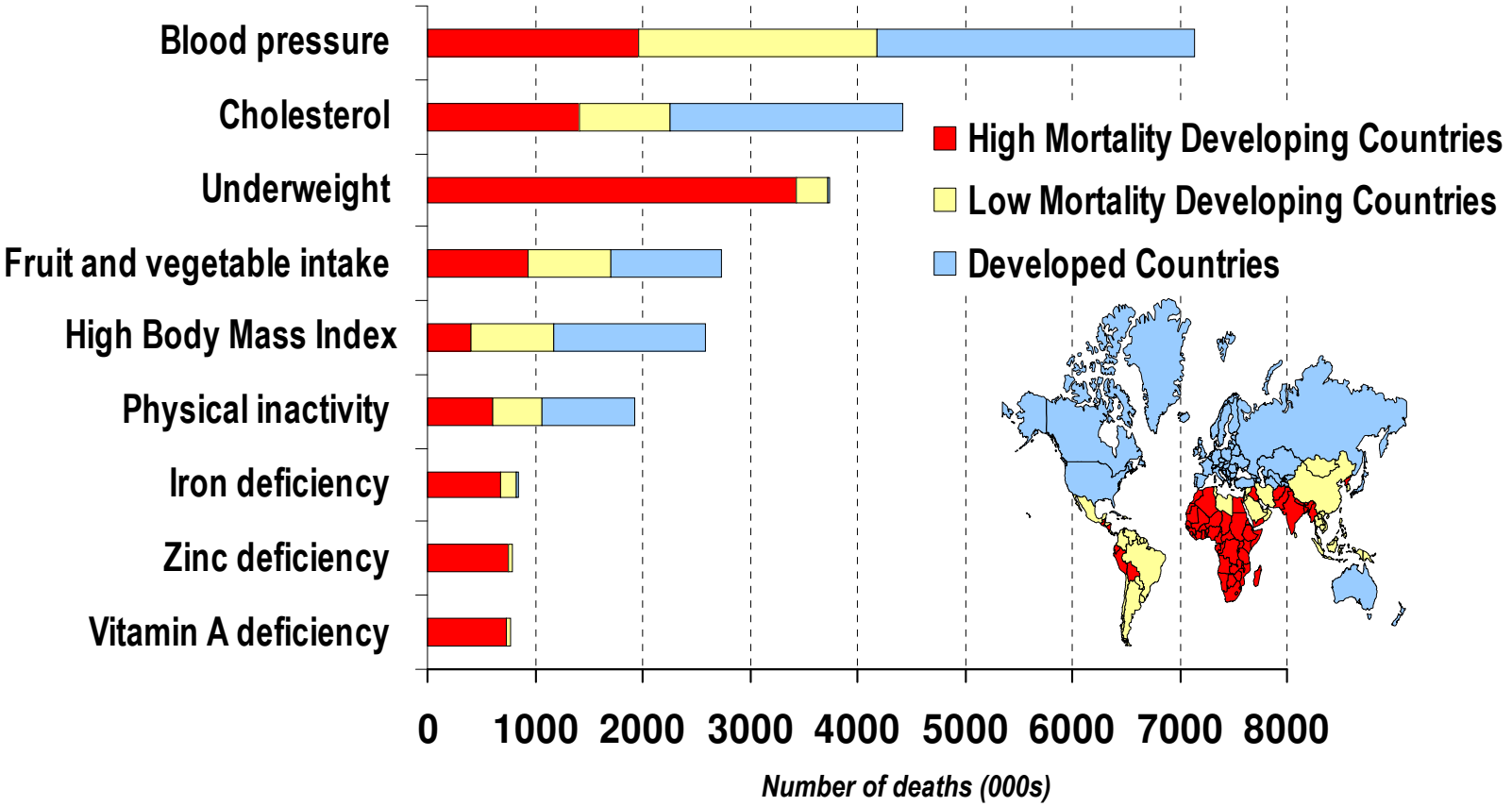
Developed Countries

Deaths in 2000 attributable to selected leading risk factors



World

Deaths in 2000 attributable to Undernutrition and Diet-related Risks and Physical Inactivity



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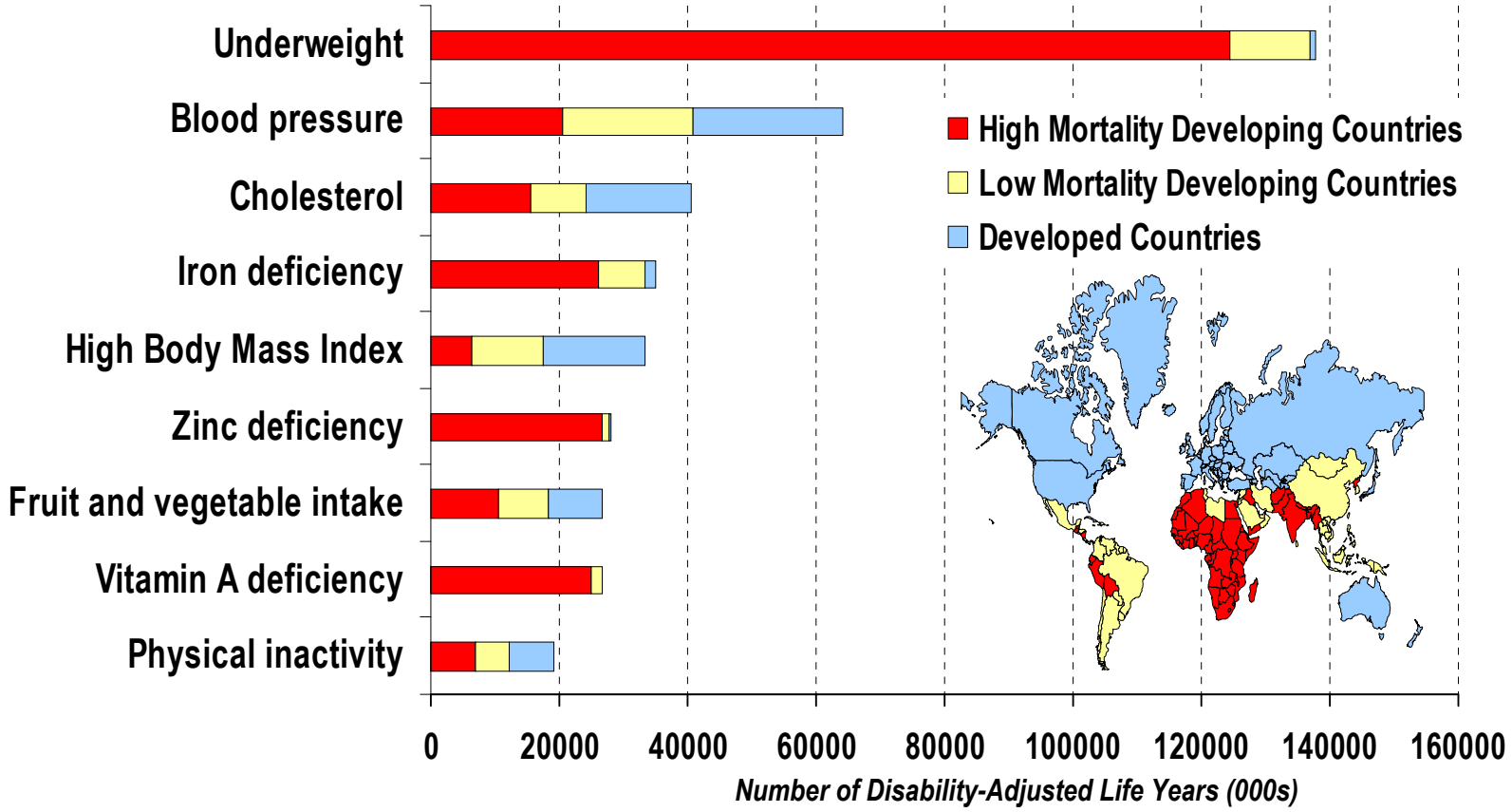
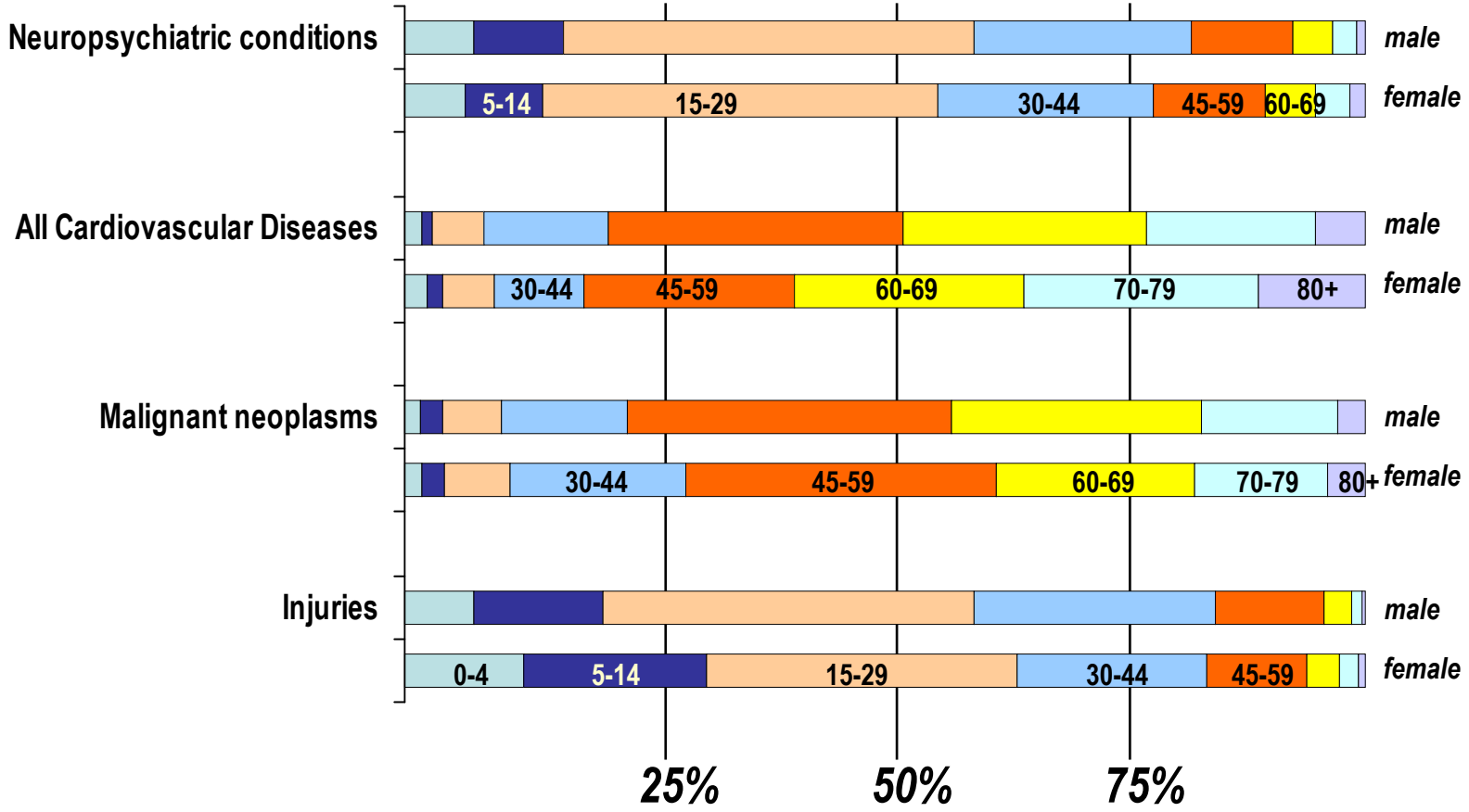


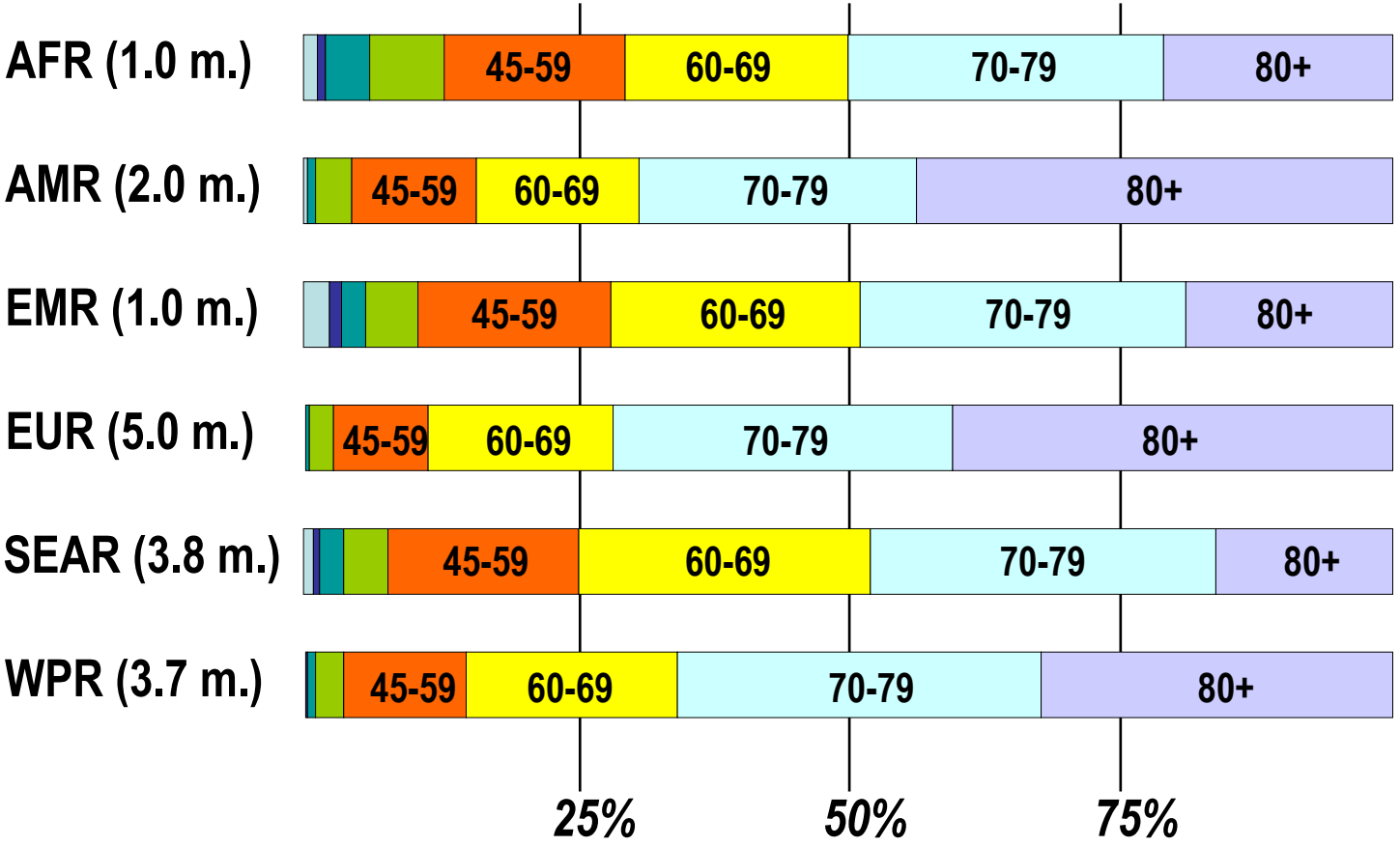
WORLD

DALYs in 2000 attributable to selected causes, by age and sex



Source: WHR 2002 Database

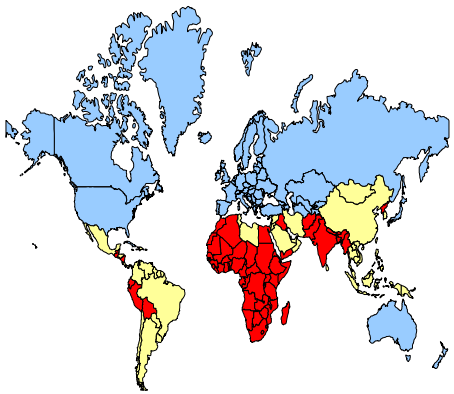
WHO Regions
Cardiovascular Diseases, deaths by age, 2000



Source: WHR 2002 Database

World

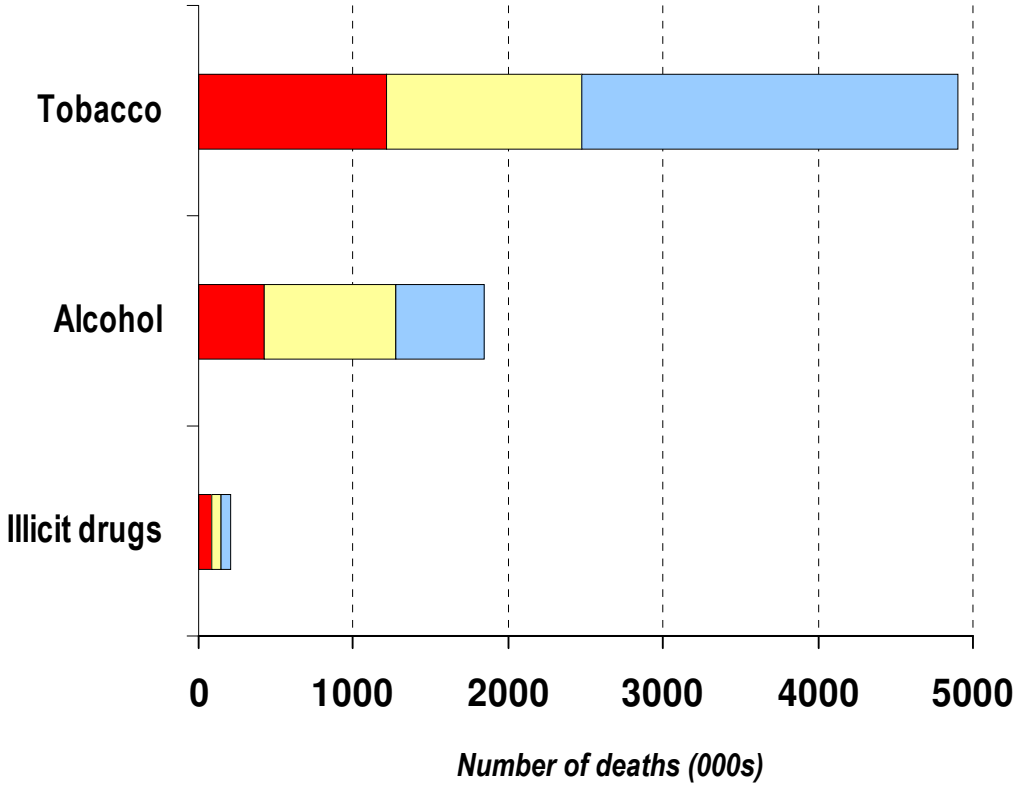
Deaths in 2000 attributable to Addictive Substances related Risks



High Mortality Developing Countries

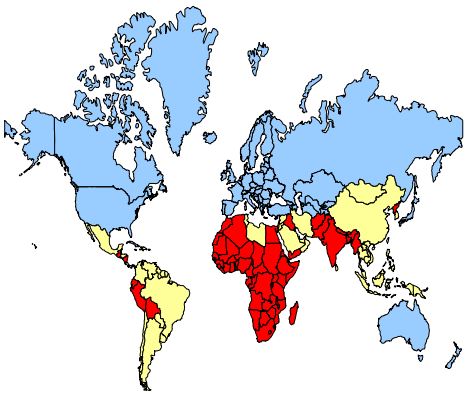
Low Mortality Developing Countries

Developed Countries



World

Disease burden (DALYs) in 2000 attributable to Addictive Substances related Risks



High Mortality Developing Countries

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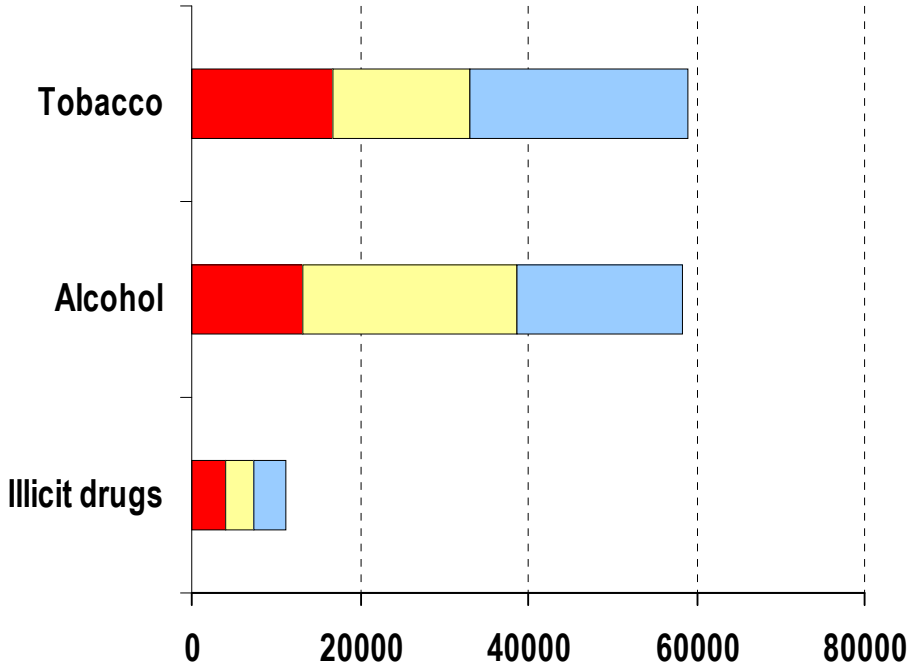
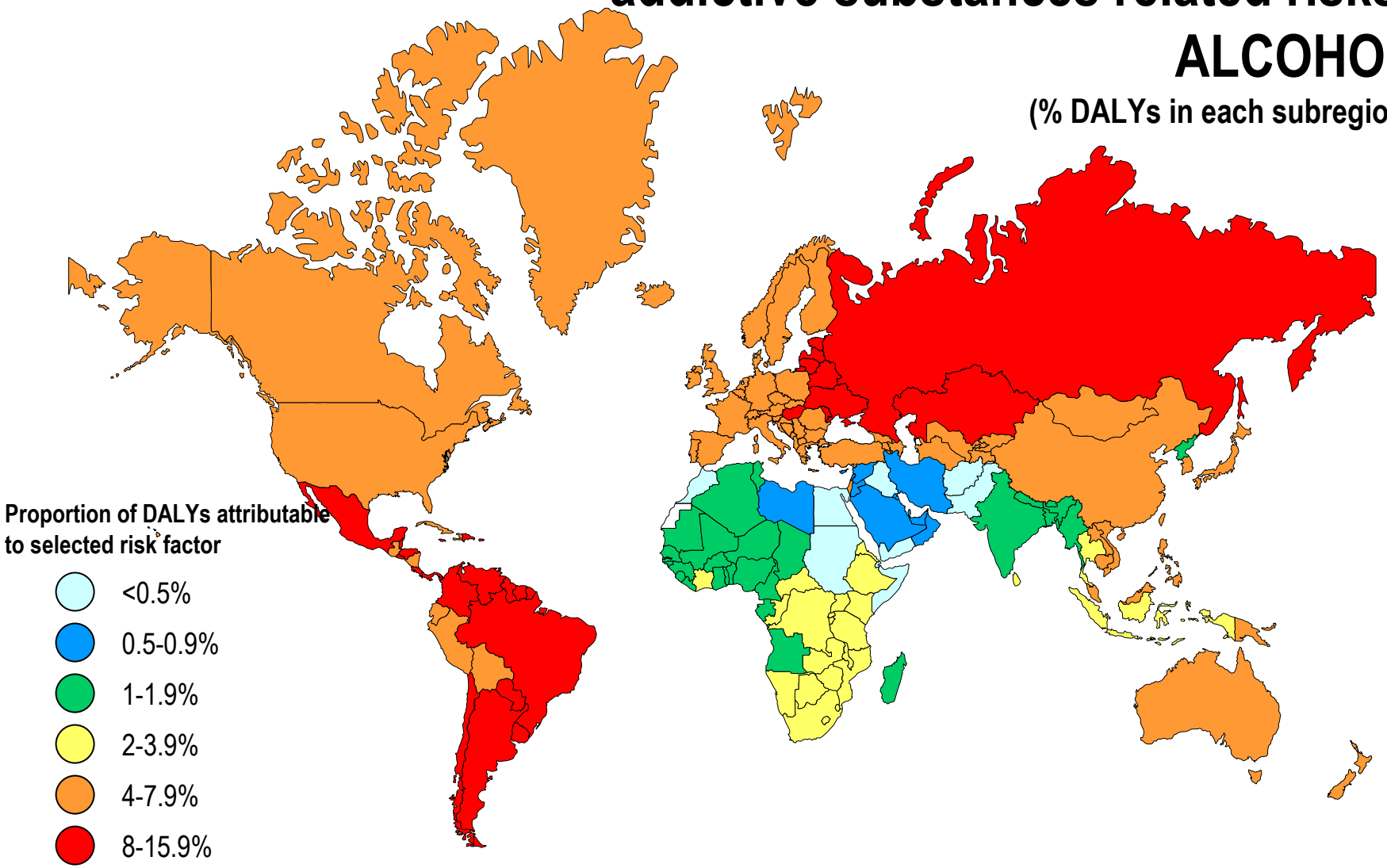


Number of Disability-Adjusted Life Years (000s)

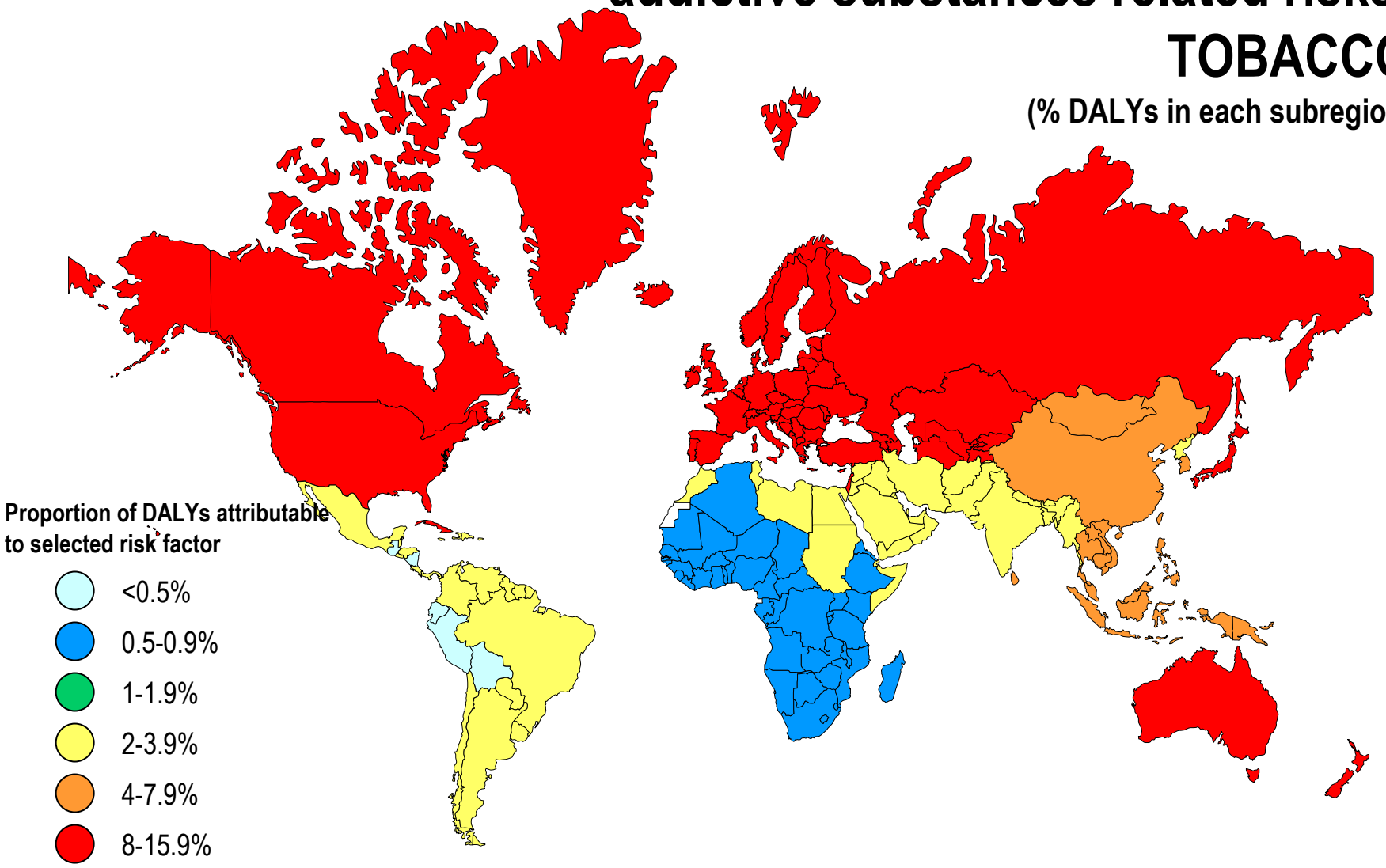
Burden of disease attributable to addictive substances related risks: ALCOHOL

(% DALYs in each subregion)



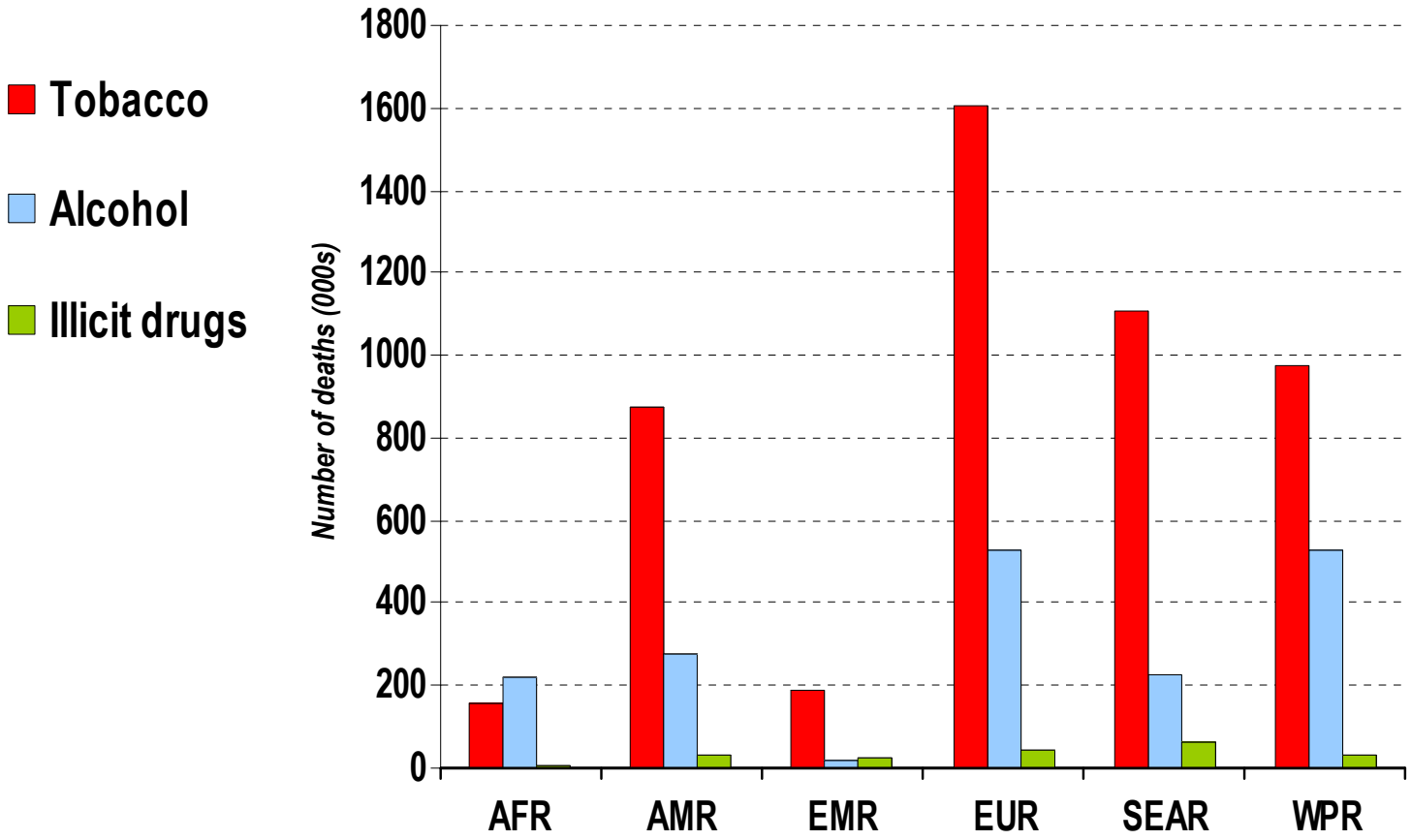
Burden of disease attributable to addictive substances related risks: TOBACCO

(% DALYs in each subregion)



WHO Regions

Deaths in 2000 attributable to selected leading risk factors



WHO Regions

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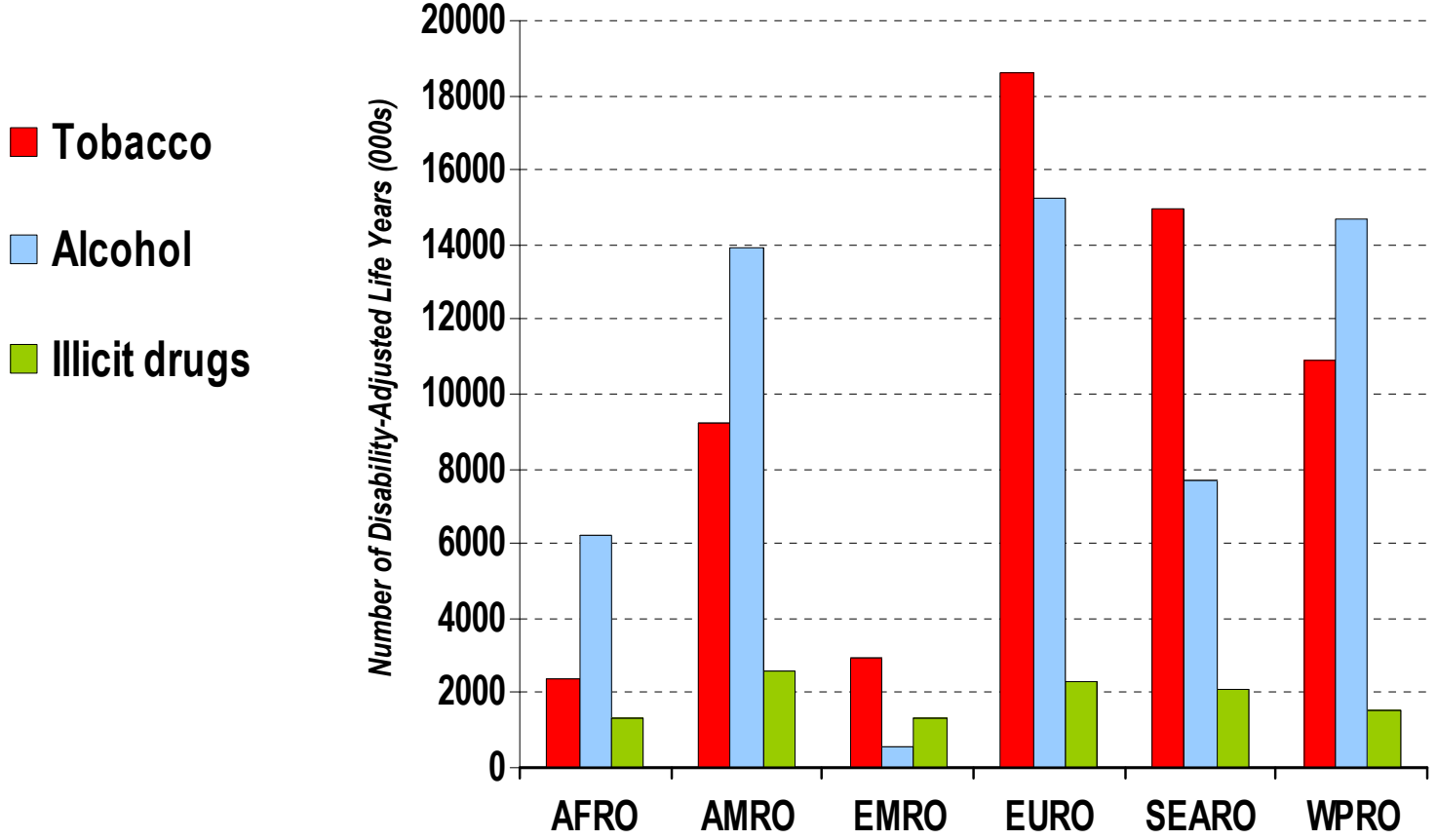

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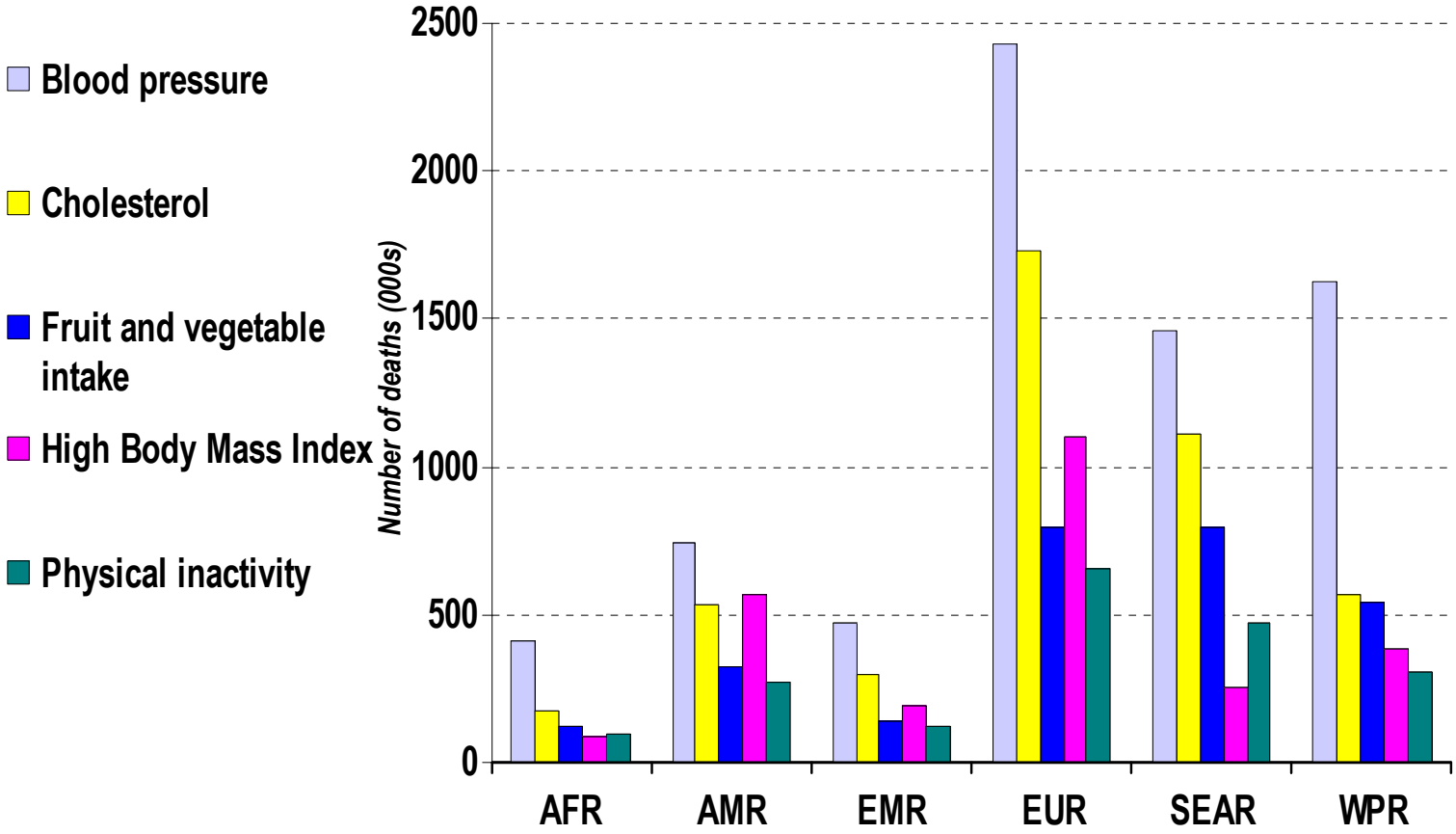
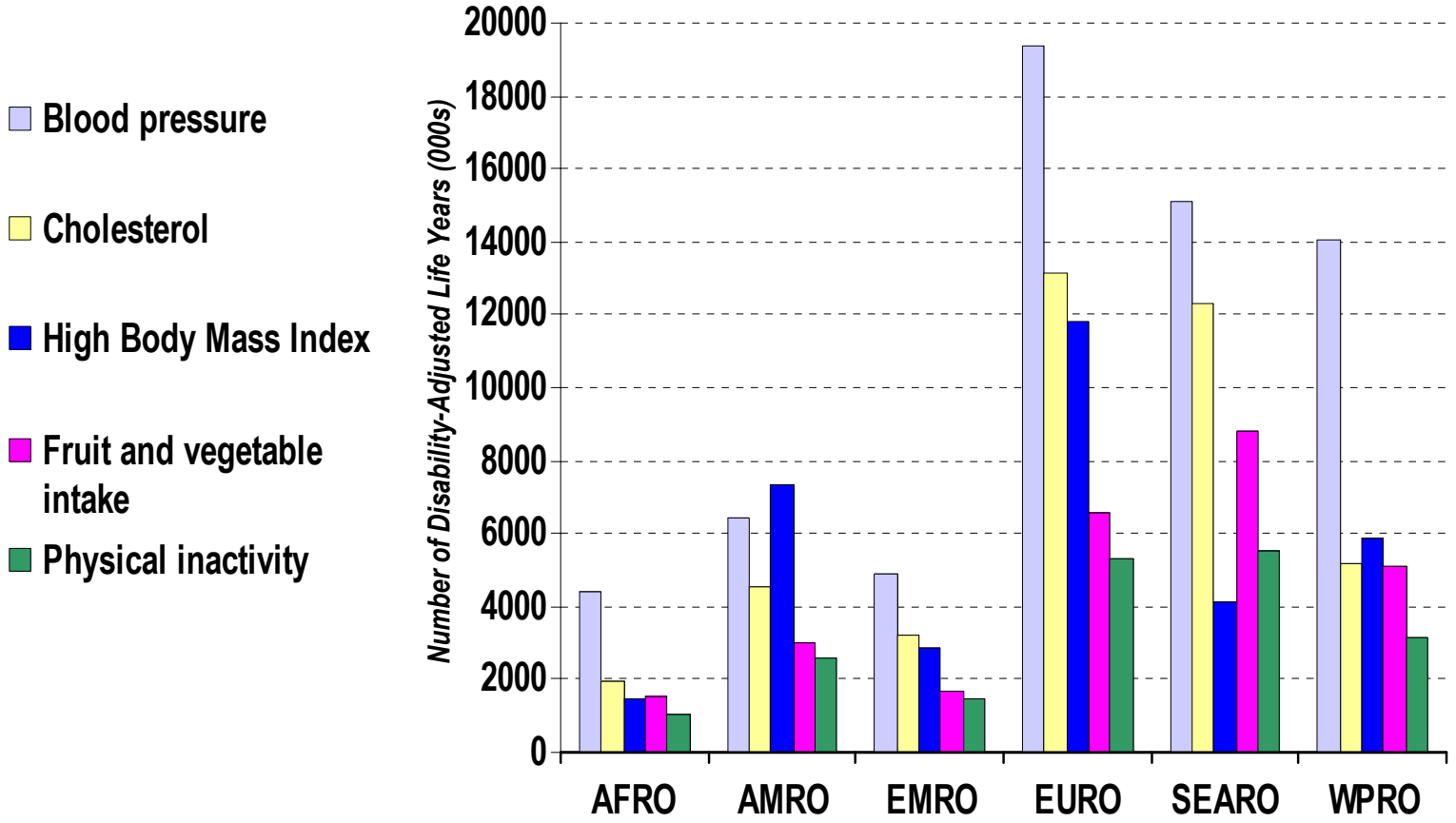


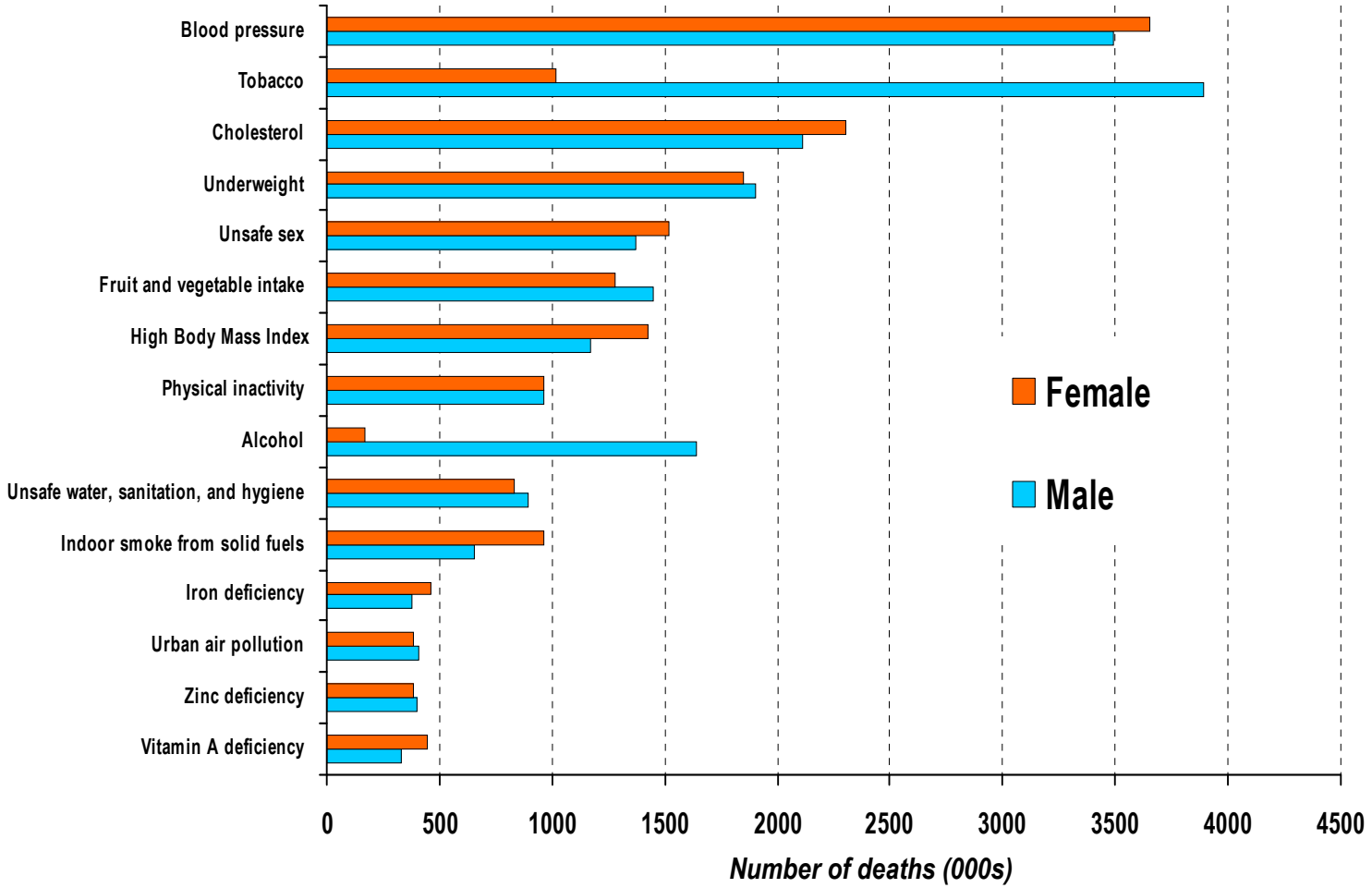
WHO Regions

Disease burden (DALYs) in 2000 attributable to selected leading risk factors

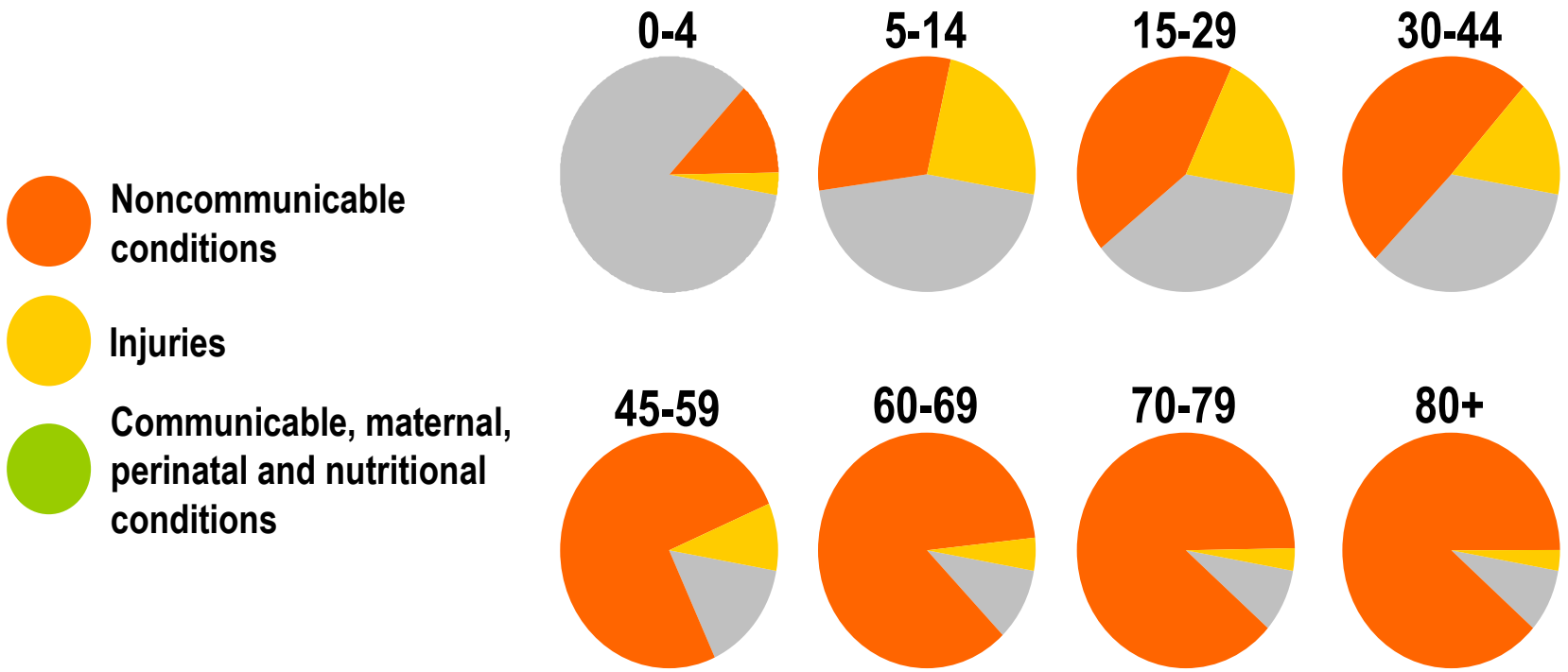


World

Deaths in 2000 attributable to selected leading risk factors, by sex



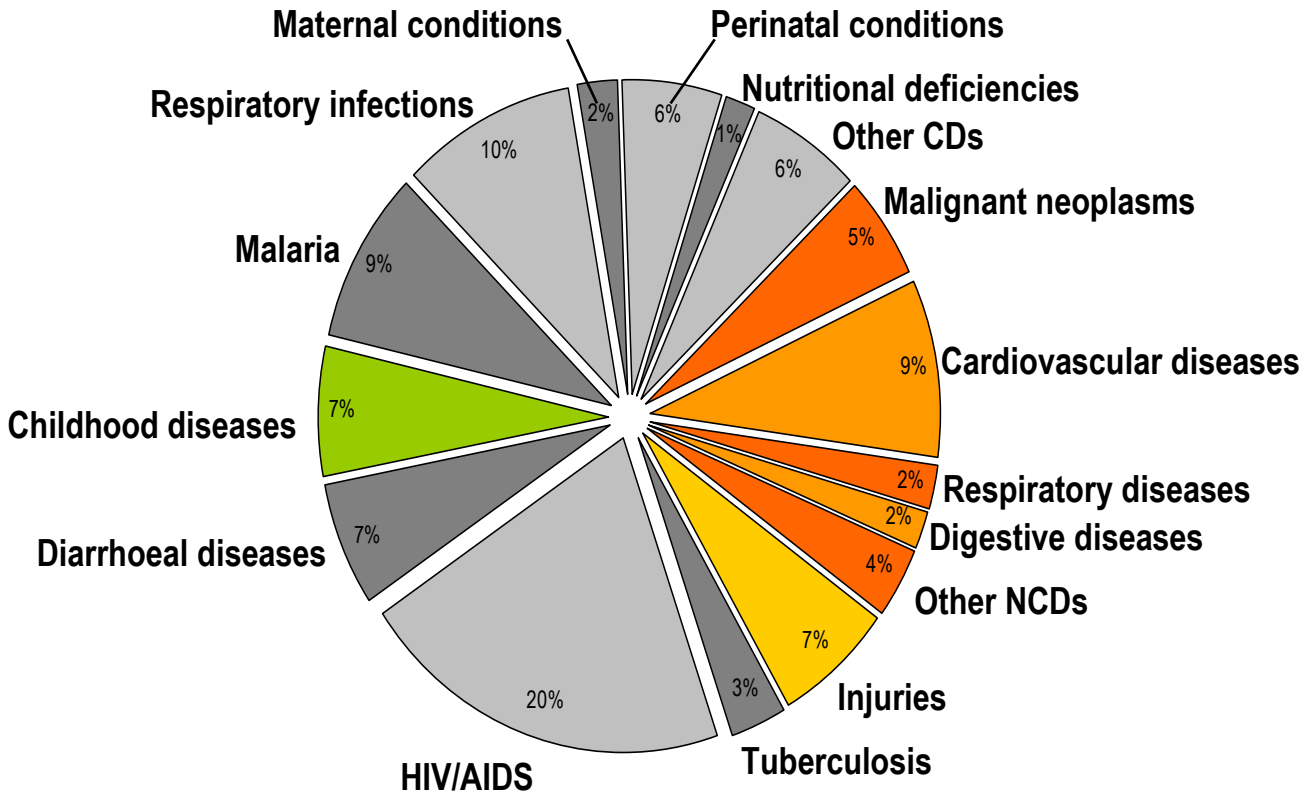
WORLD
DALYs, by broad cause group and by age, 2000



Source: WHR 2002 Database

Distribution of causes of death in Africa, 2001

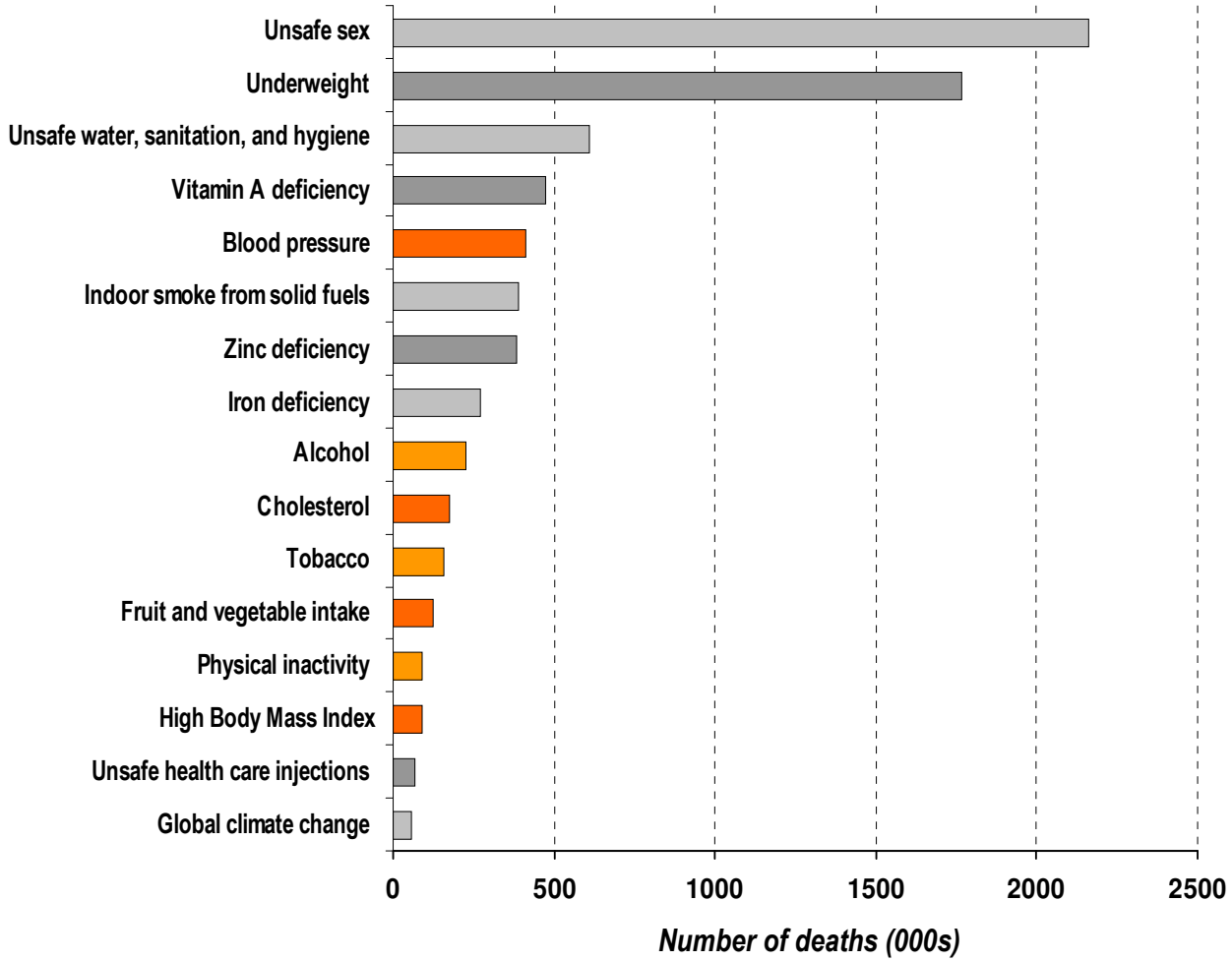
Total deaths: 10,644,000



Source: WHR 2002

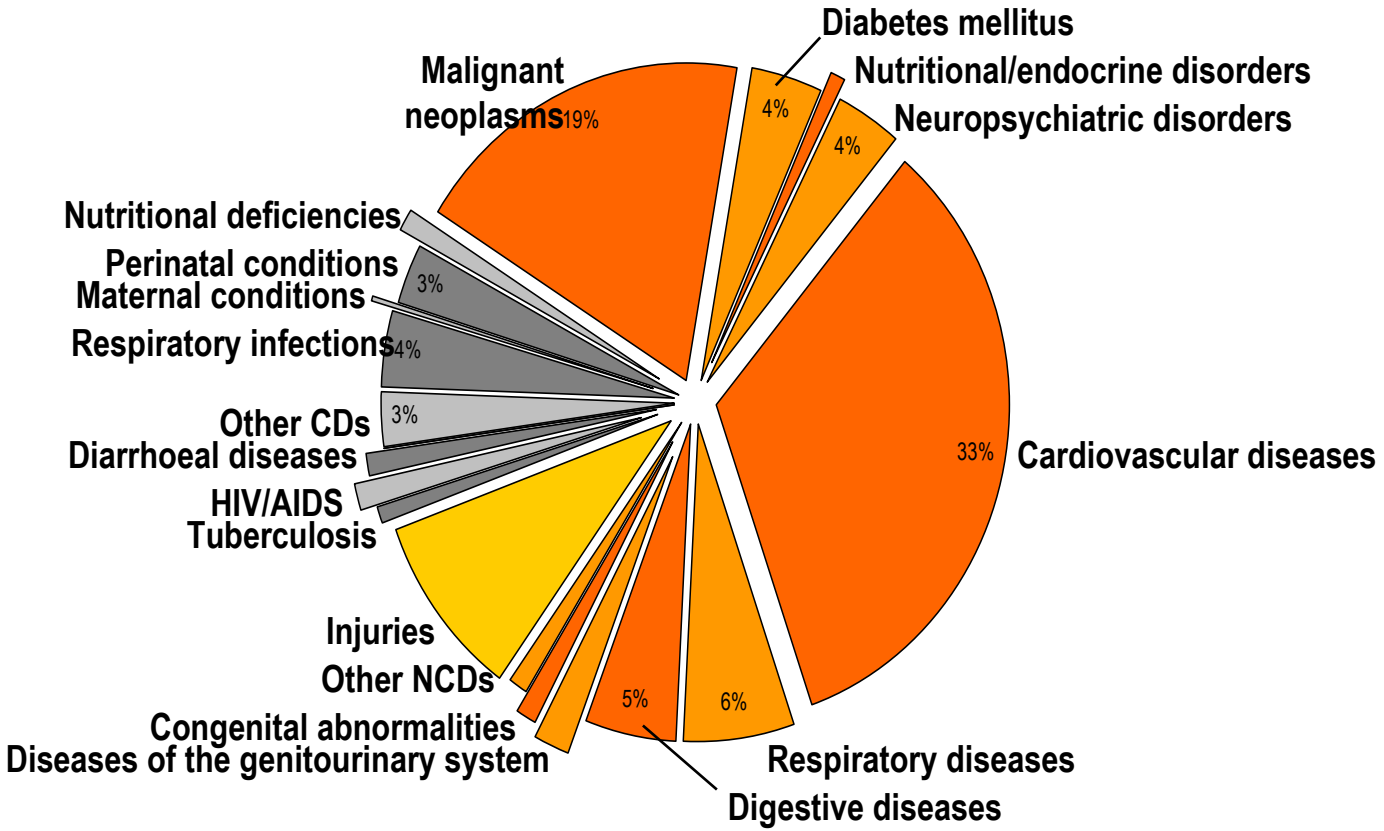
AFRICA

Deaths in 2000 attributable to selected leading risk factors



Distribution of causes of death in Americas, 2001

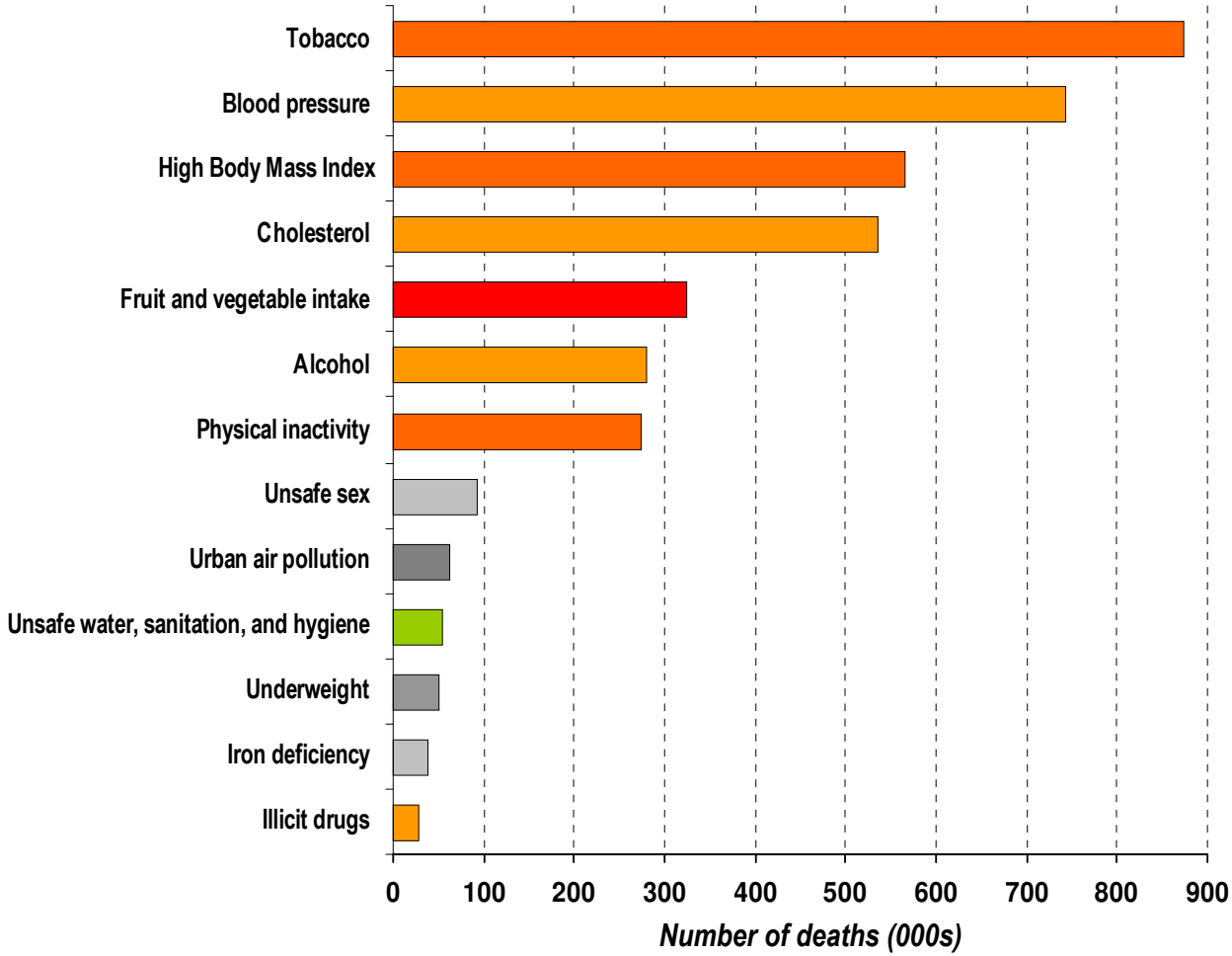
Total deaths: 5,910,000



Source: WHR 2002

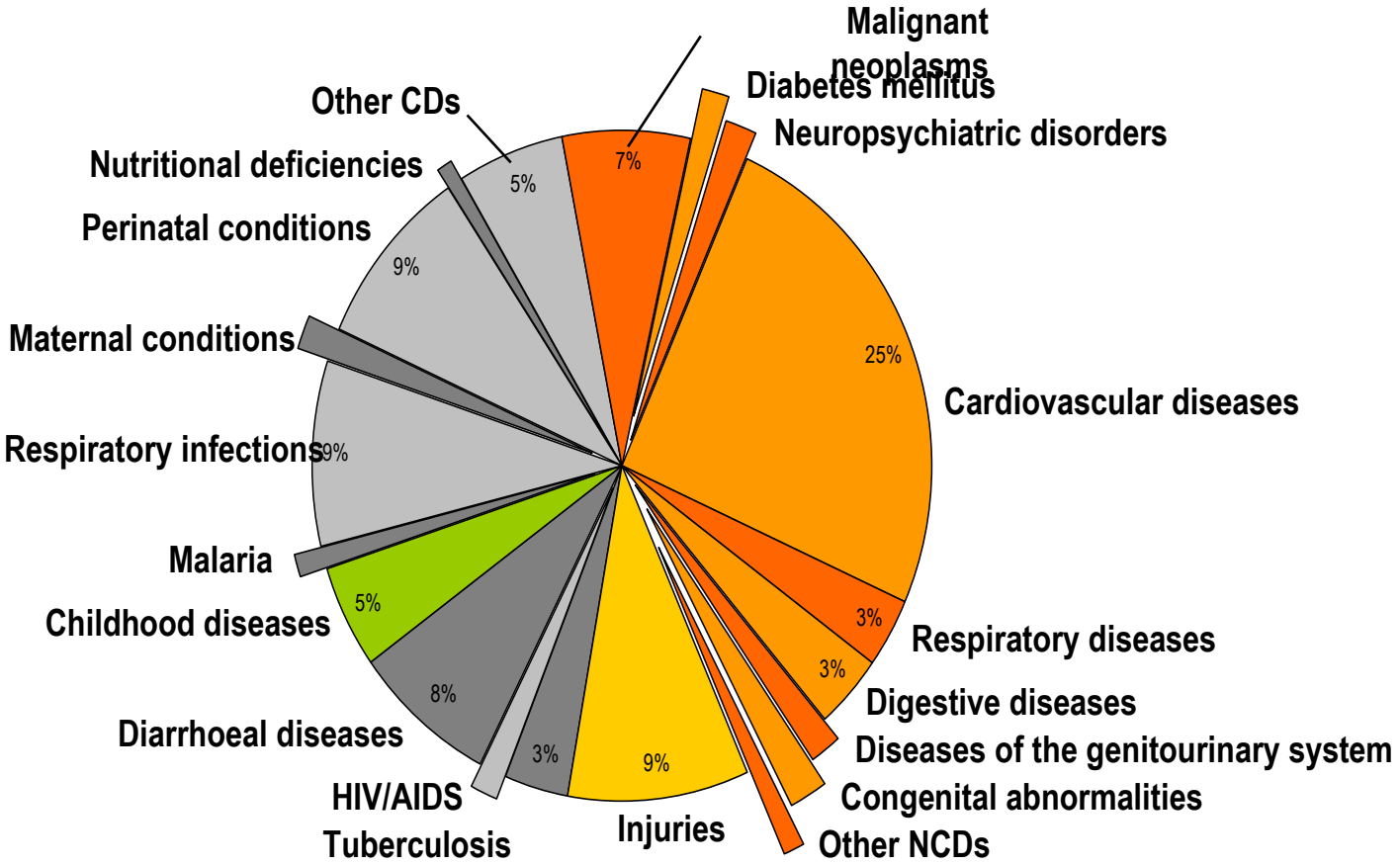
AMERICAS

Deaths in 2000 attributable to selected leading risk factors



Distribution of causes of death in Eastern Mediterranean, 2001

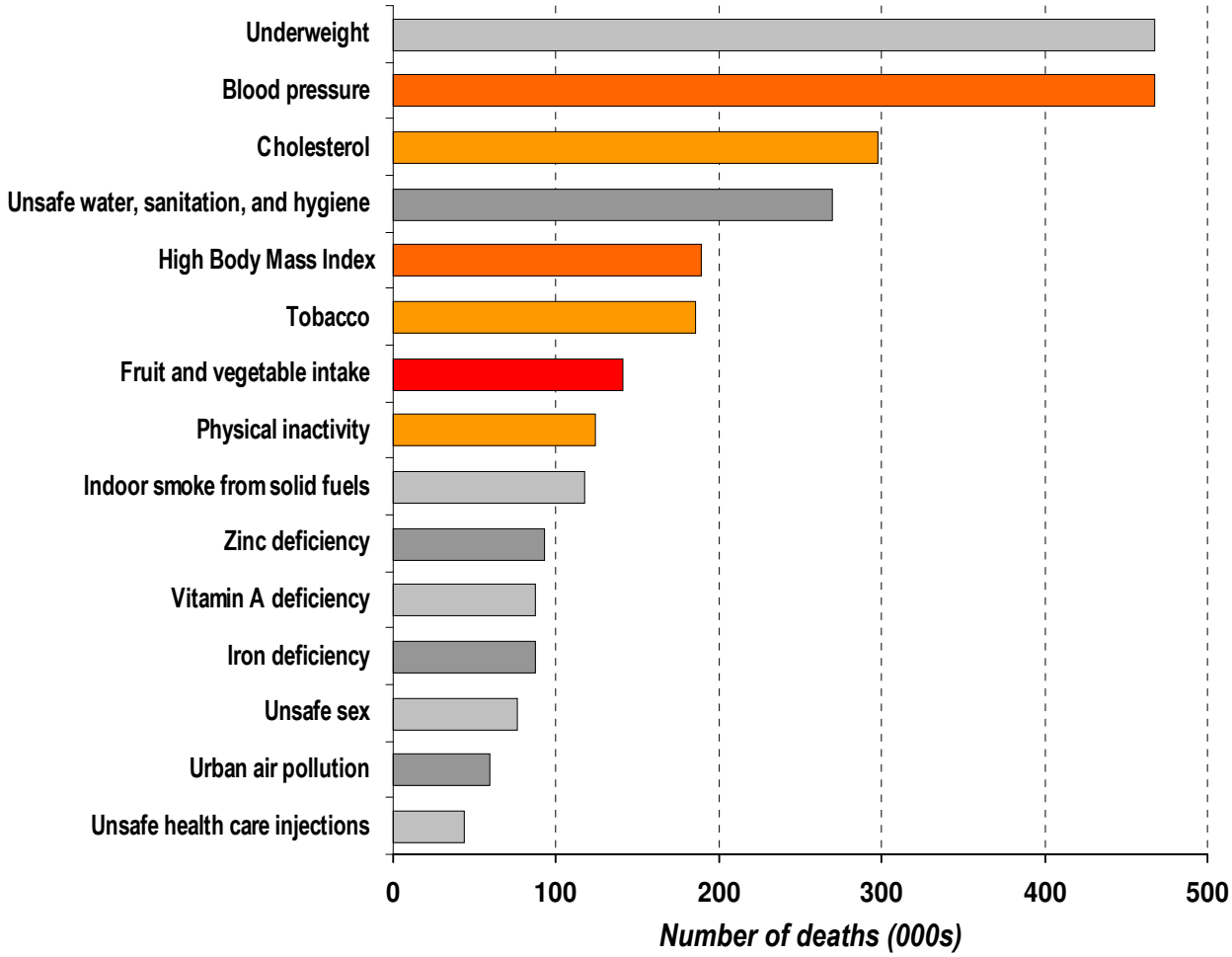
Total deaths: 4,156,000



Source: WHR 2002

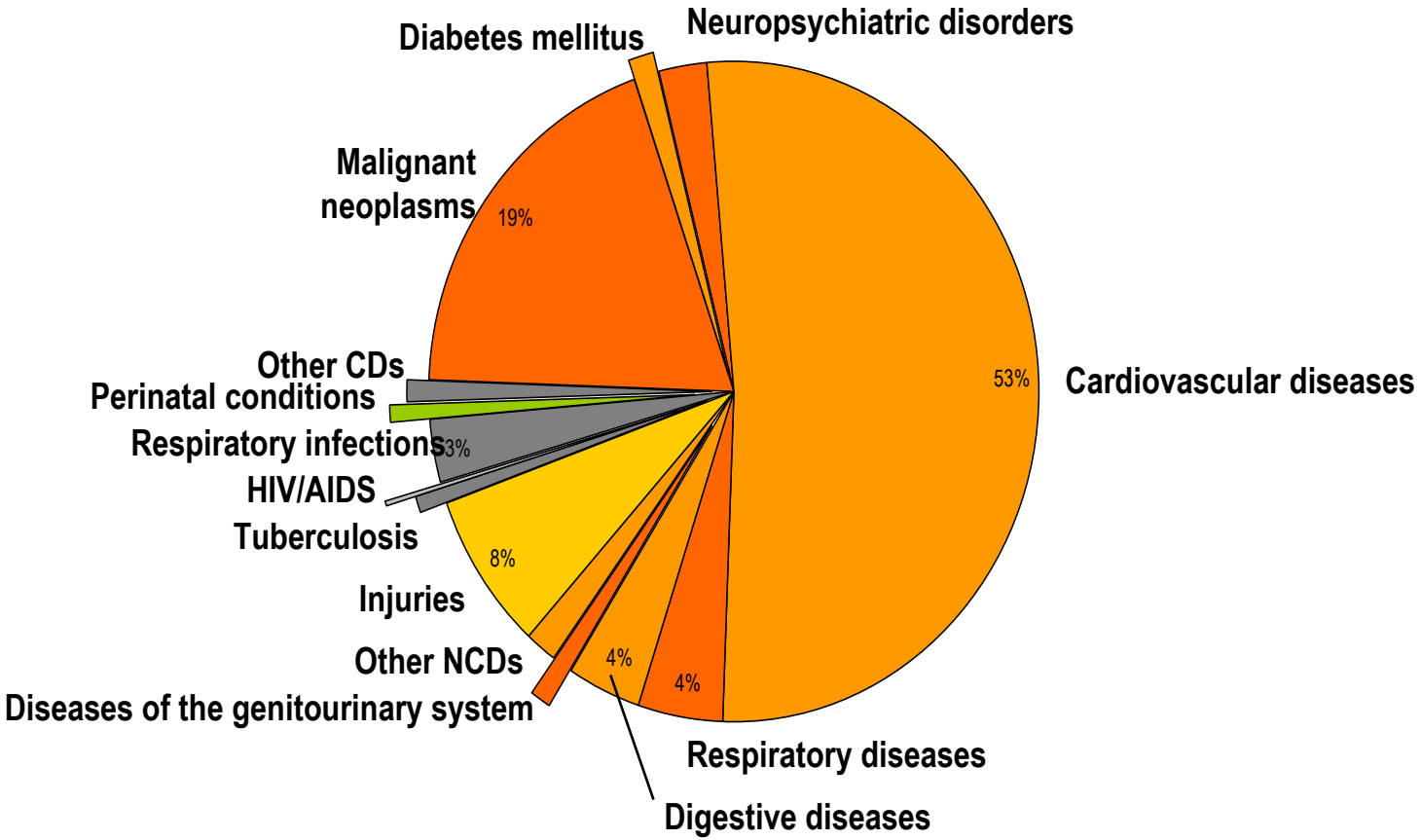
EASTERN MEDITERRANEAN

Deaths in 2000 attributable to selected leading risk factors



Distribution of causes of death in Europe, 2001

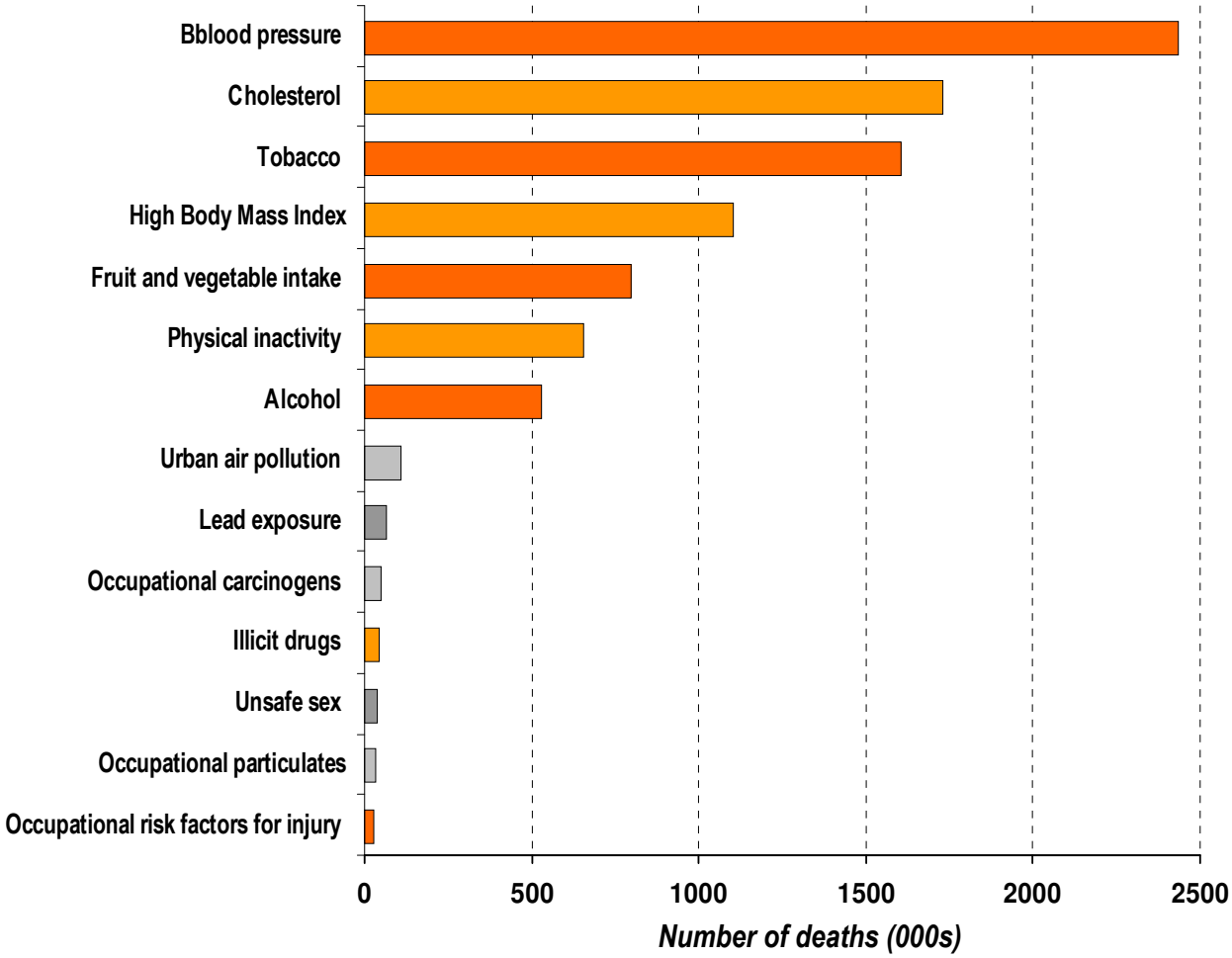
Total deaths: 9,699,000



Source: WHR 2002

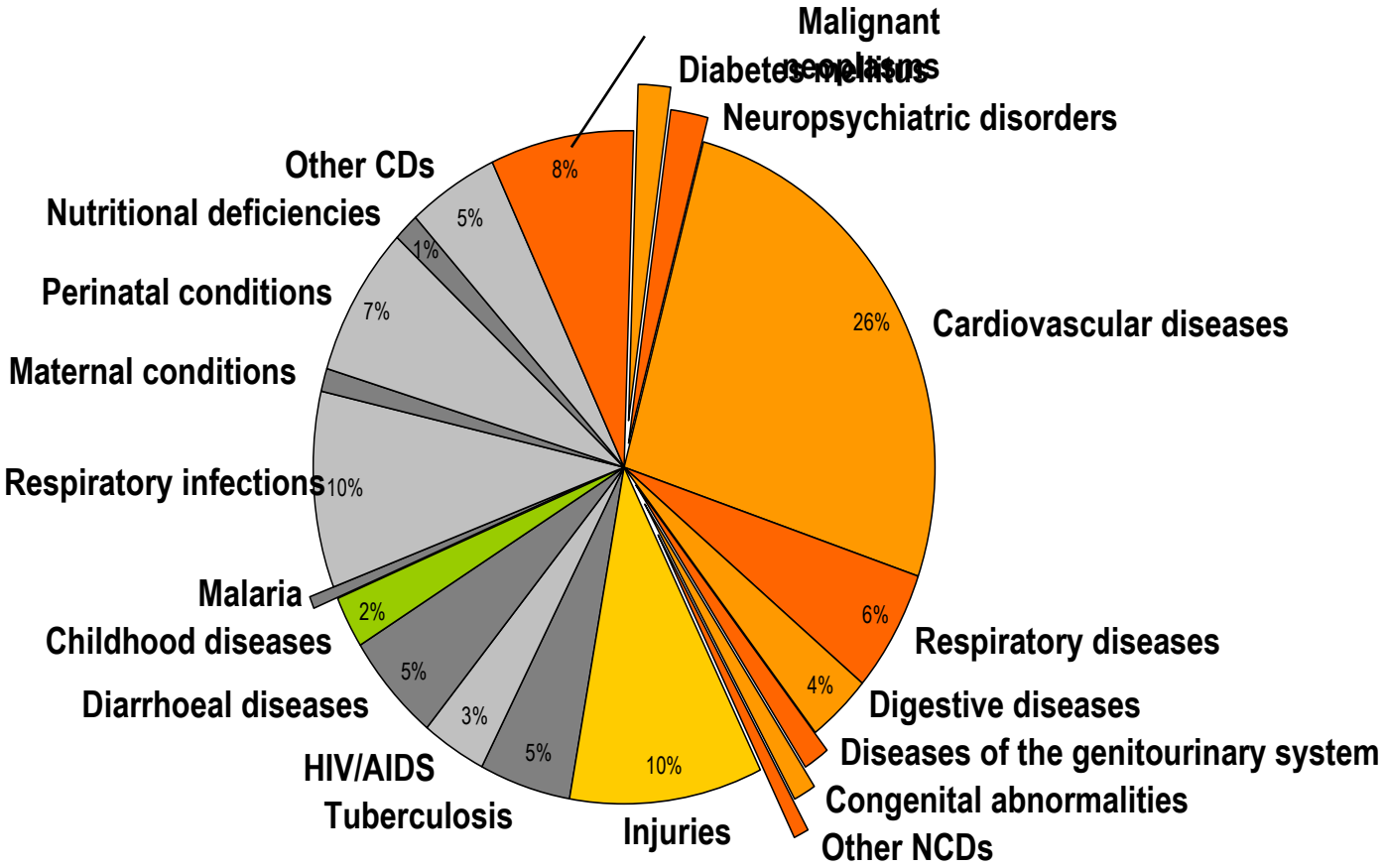
EUROPE

Deaths in 2000 attributable to selected leading risk factors



Distribution of causes of death in South-East Asia, 2001

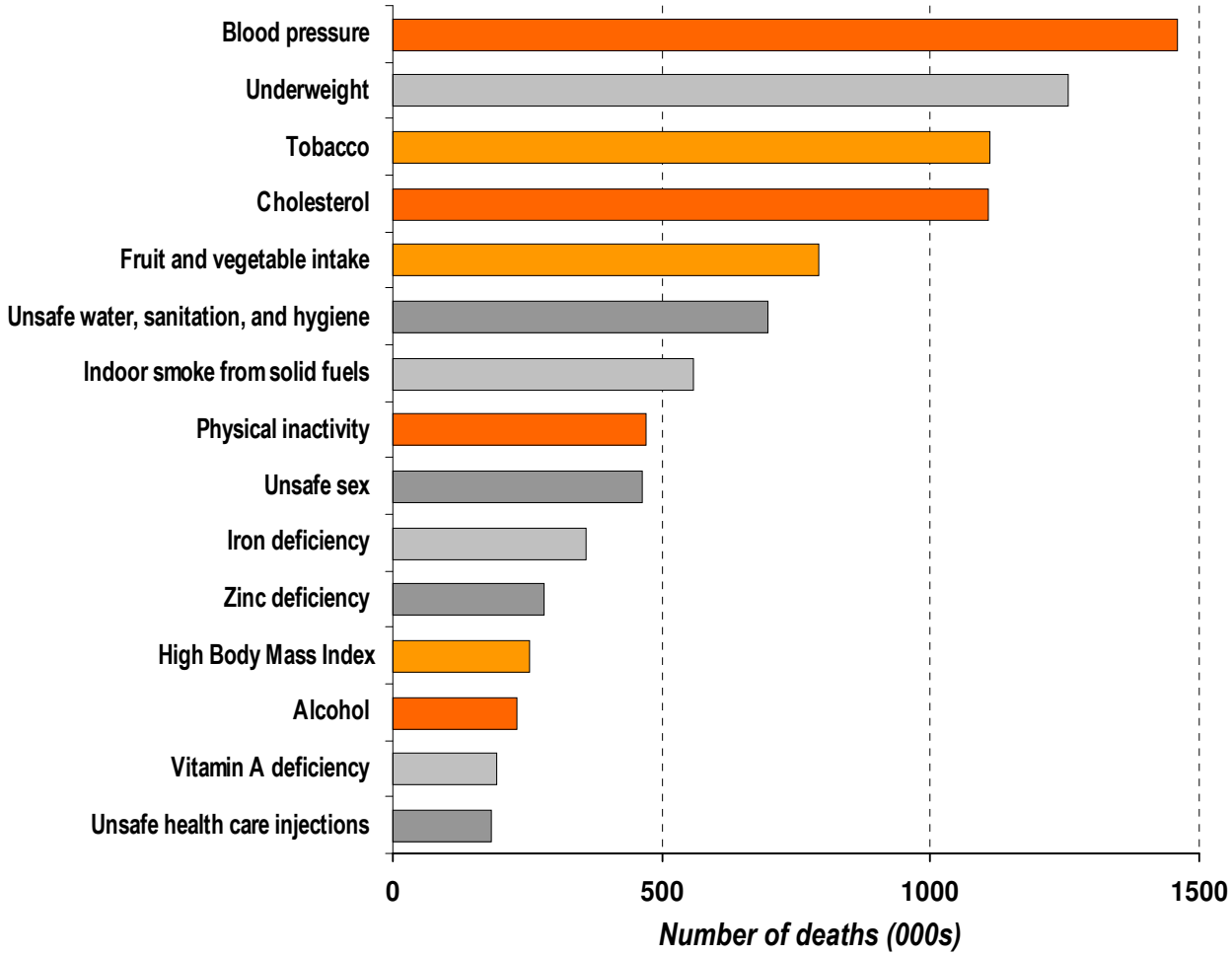
Total deaths: 14,467,000



Source: WHR 2002

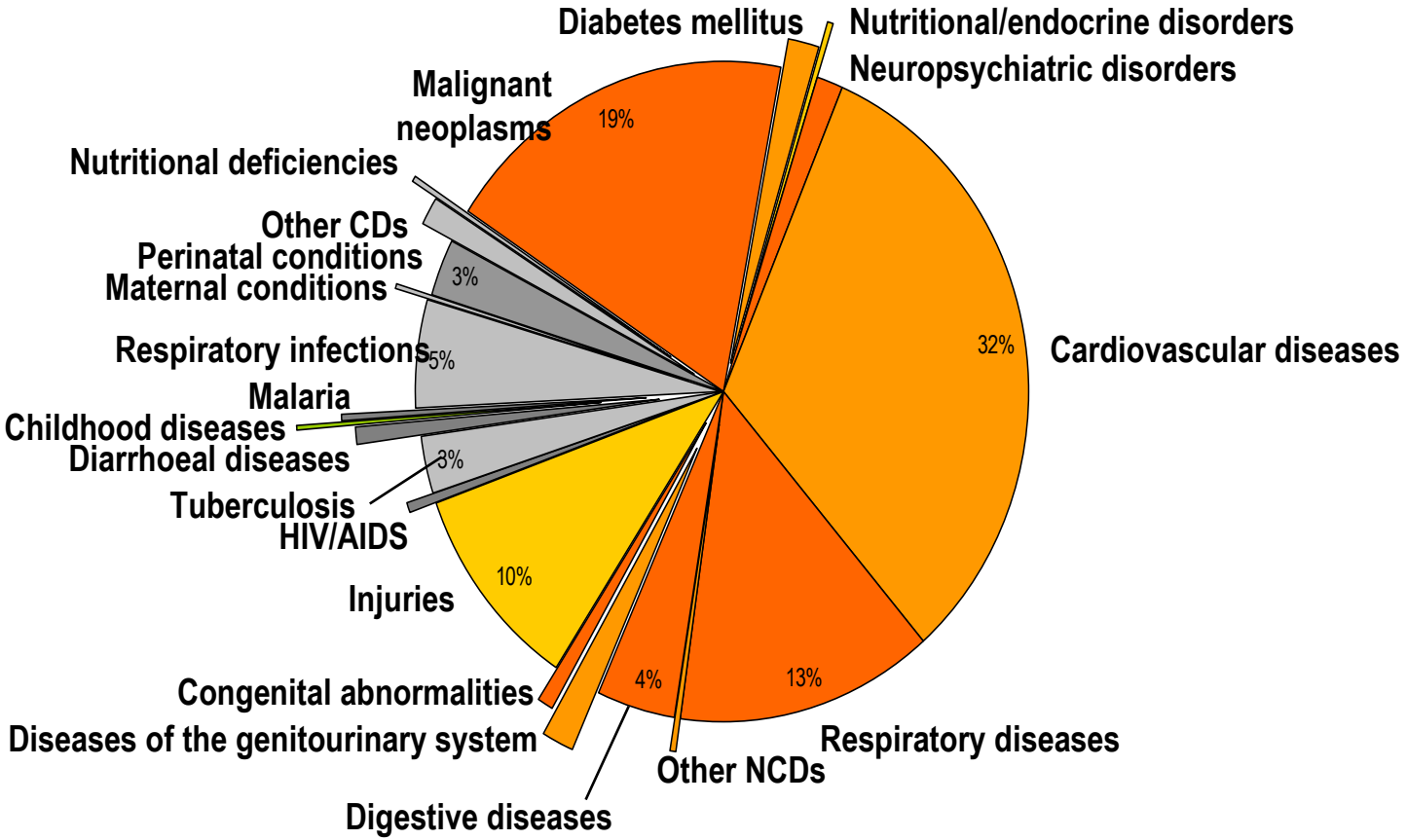
SOUTH-EAST ASIA

Deaths in 2000 attributable to selected leading risk factors



Distribution of causes of death in Western Pacific, 2001

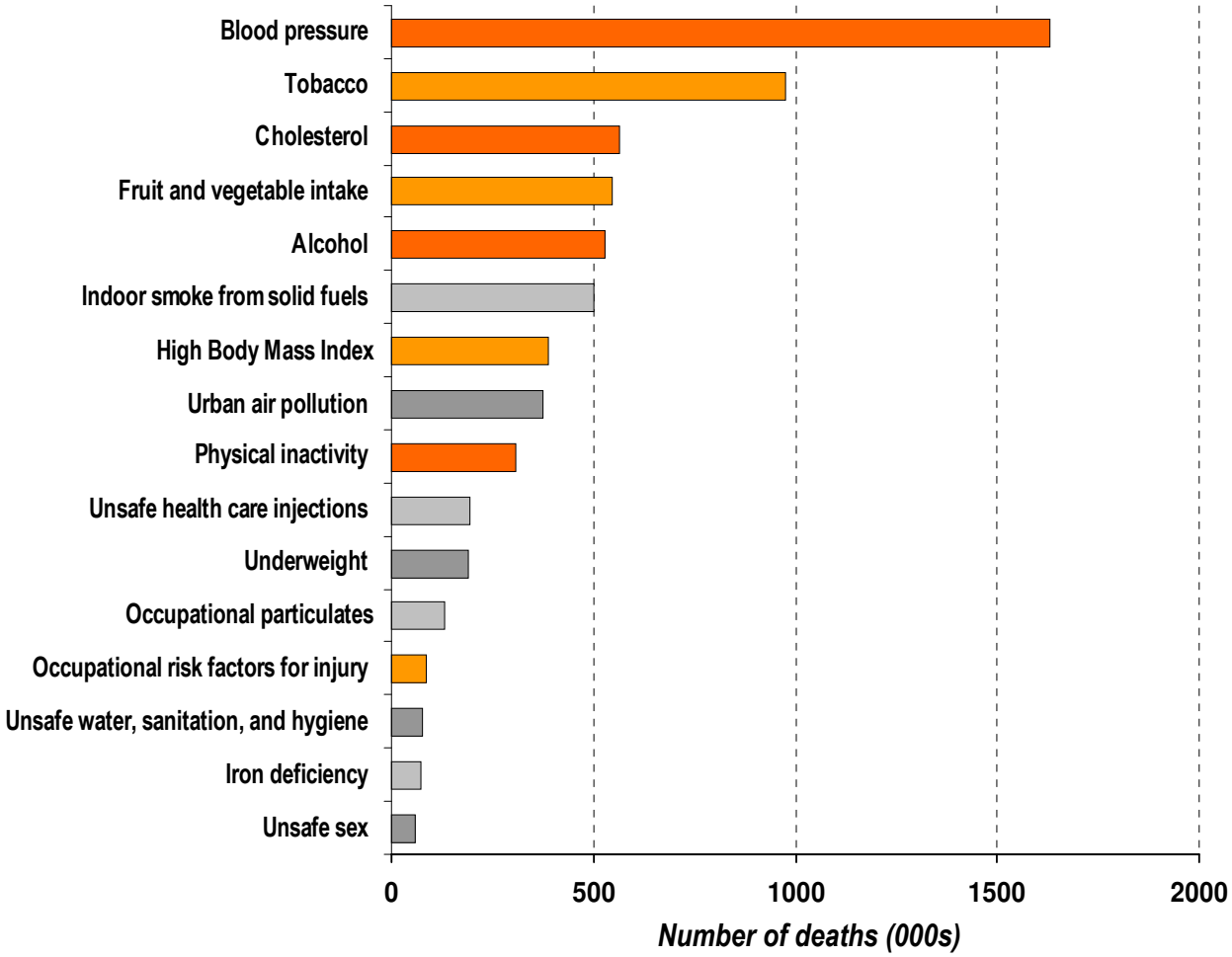
Total deaths: 11,636,000



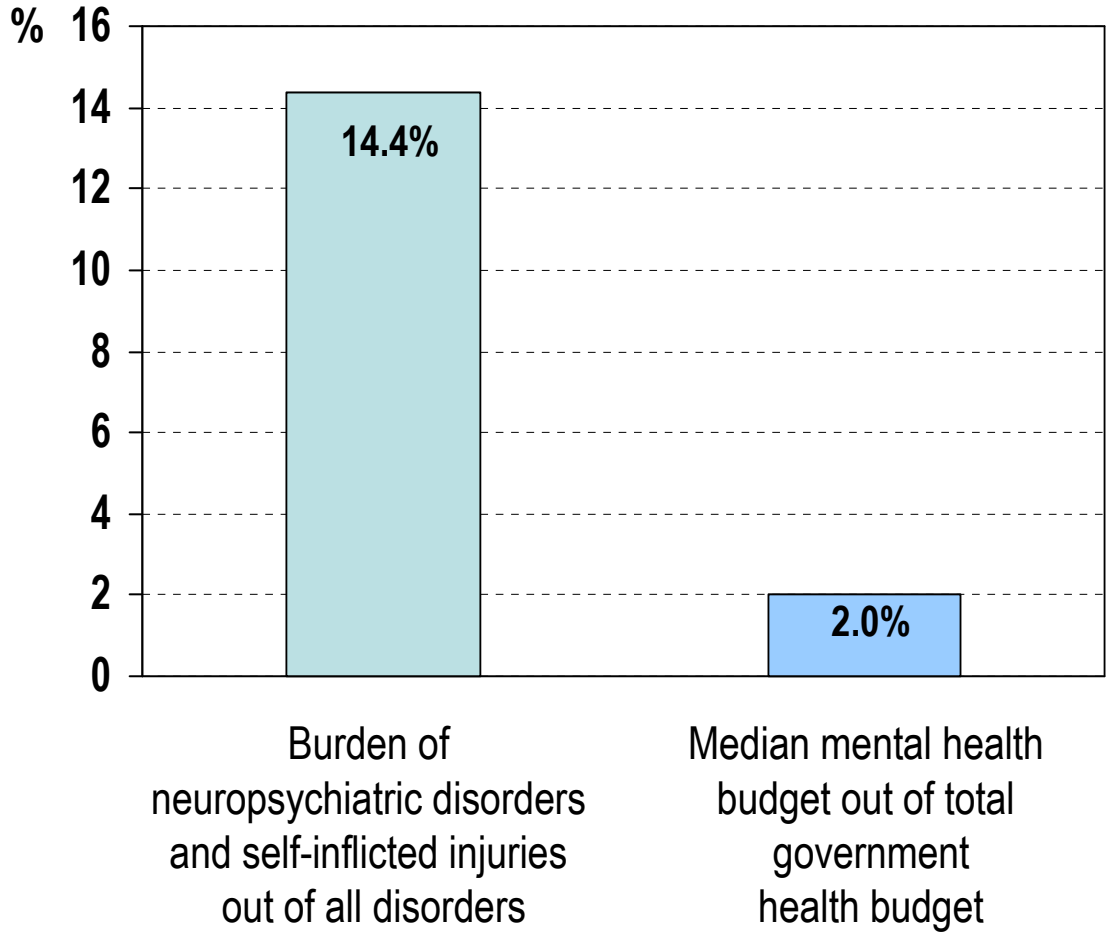
Source: WHR 2002

WESTERN PACIFIC

Deaths in 2000 attributable to selected leading risk factors



Burden of Neuropsychiatric Disorders and Self-Inflicted Injuries versus Budget



Project Atlas, WHO 2001

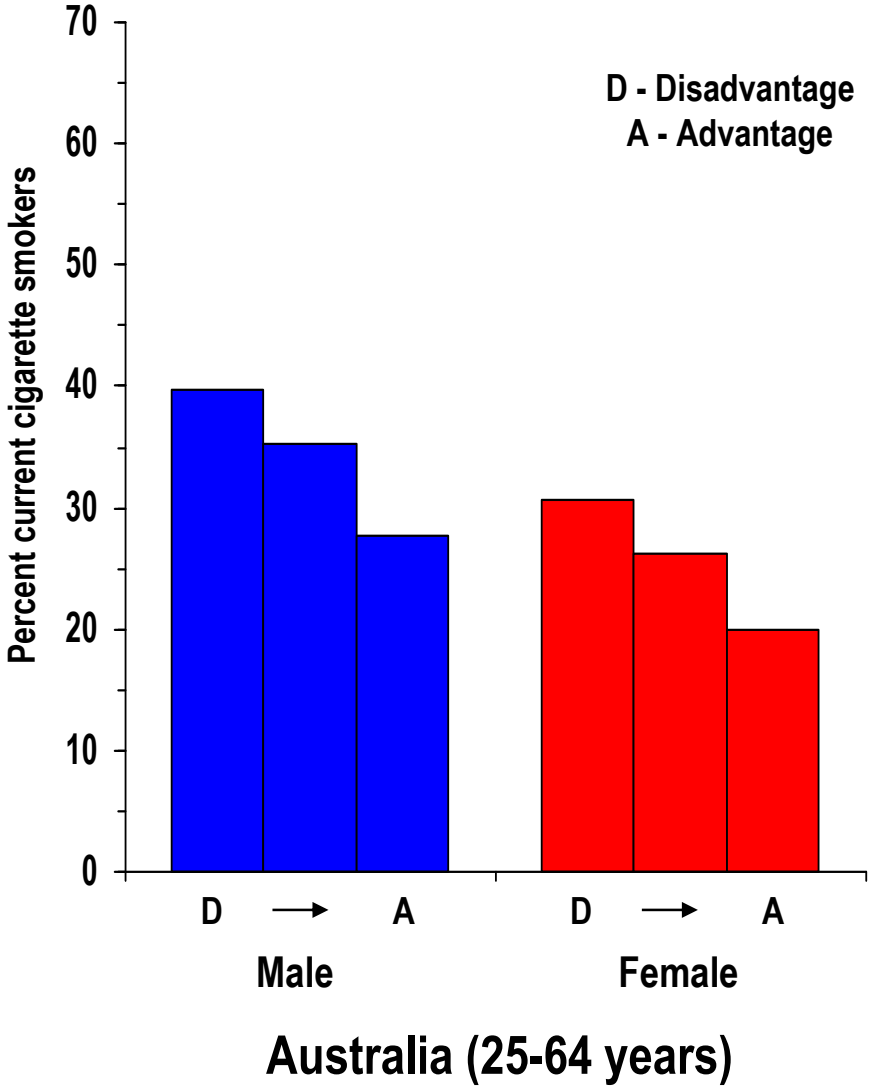
Country level and trends of major noncommunicable disease risk factors

- Many countries collecting data on risk factors for noncommunicable diseases include information on social class, income, education, and other determinants of health such as rural/urban status.

This information has been very useful in predicting the growing burden of chronic disease in many low and middle income countries where the trends and risk factors are increasing.

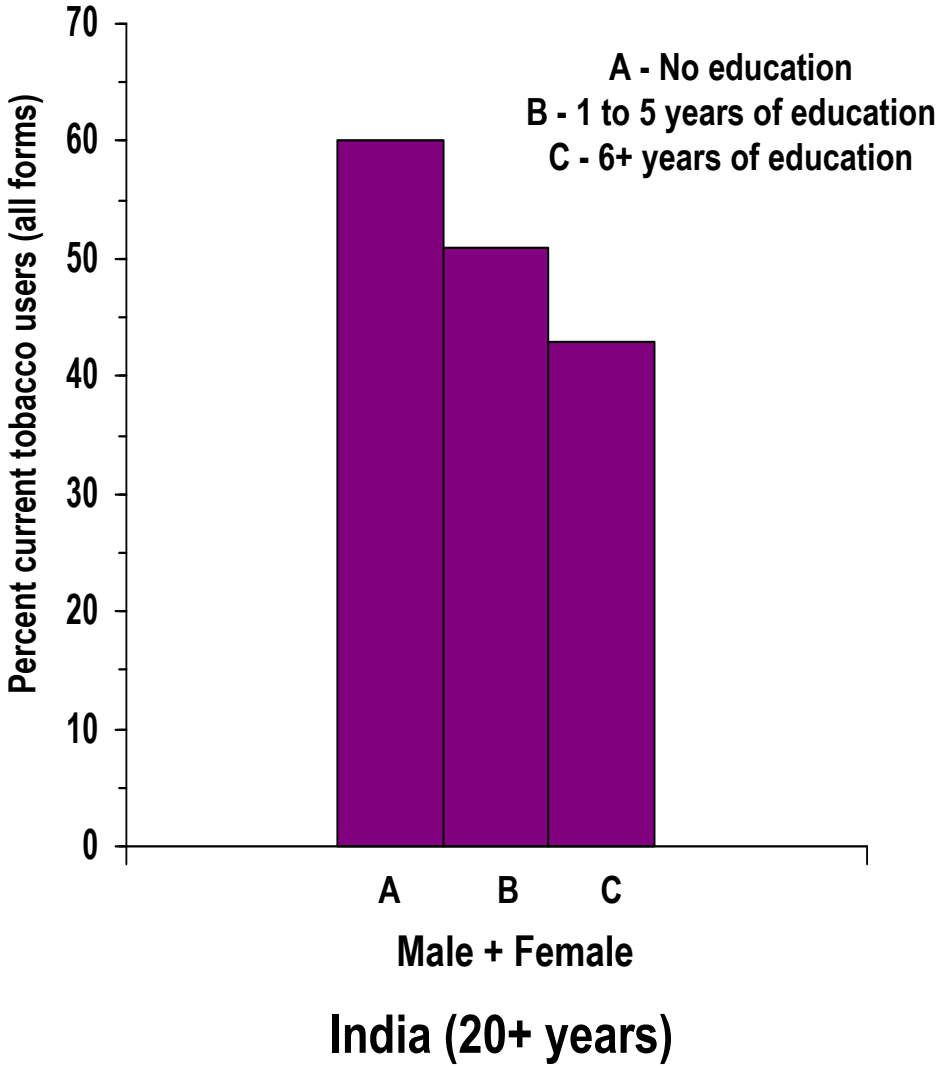
Such information also helps in designing and implementing context-specific interventions and policies.

Tobacco use in adults by social class; Australia and India



Australia (25-64 years)

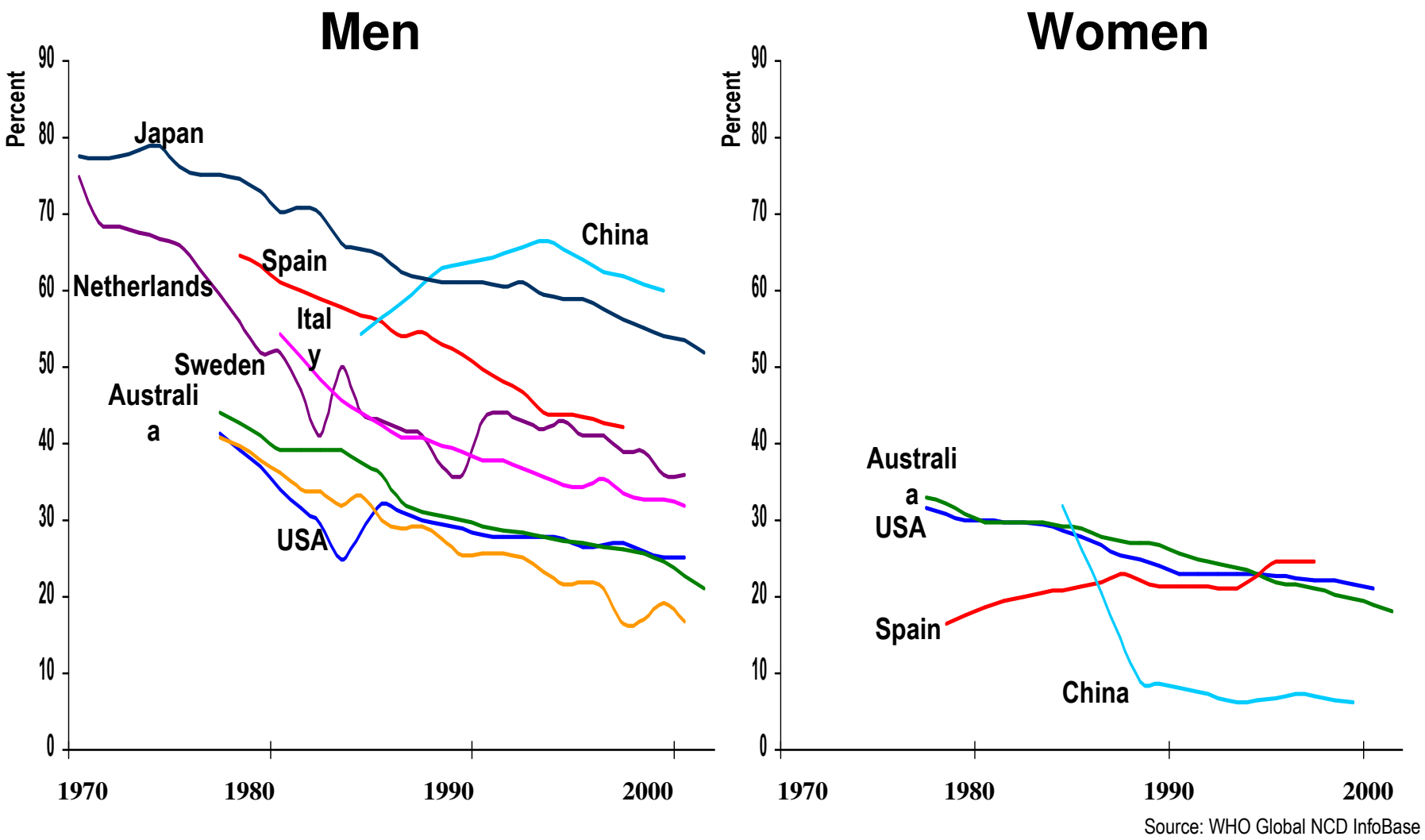
Source: Mathers 1994



India (20+ years)

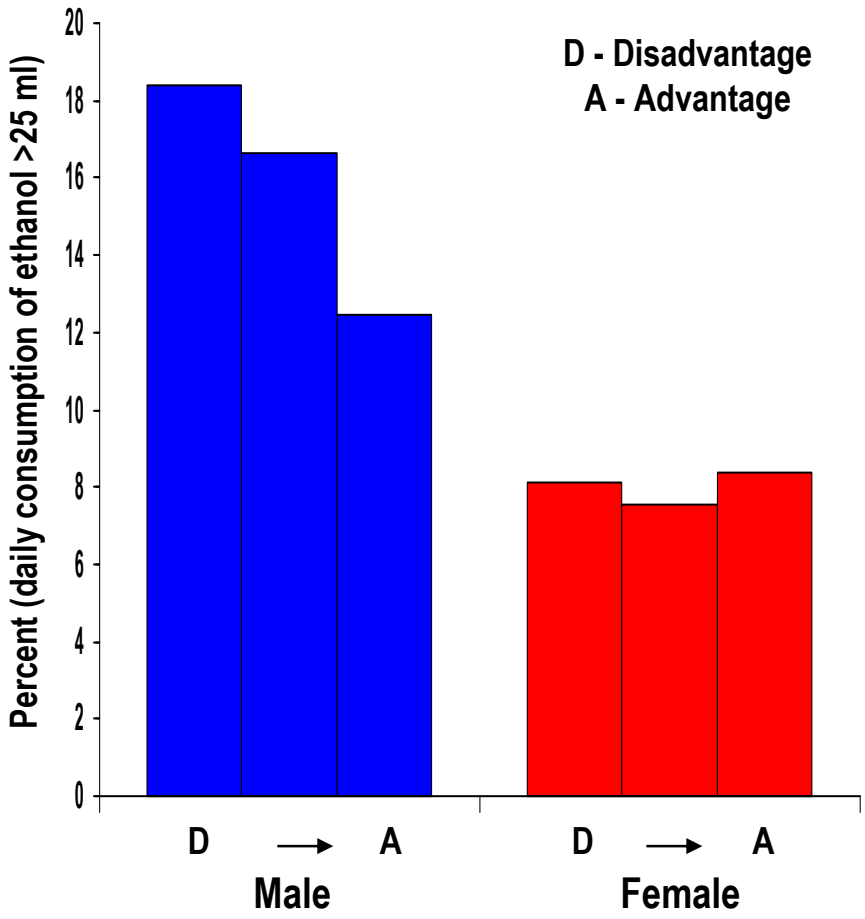
Source: Gupta et al. 1991

Trends in tobacco use in adults, selected countries



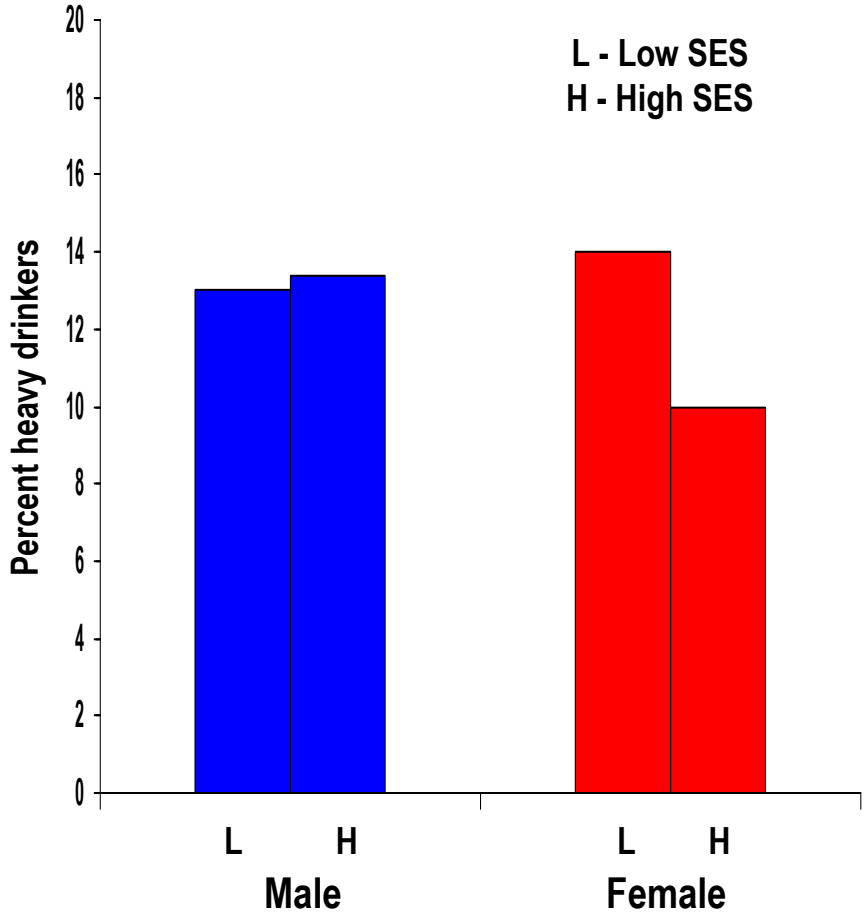
Source: WHO Global NCD InfoBase

At risk alcohol drinking in adults by social class; Australia and Nigeria



Australia (24-65 years)

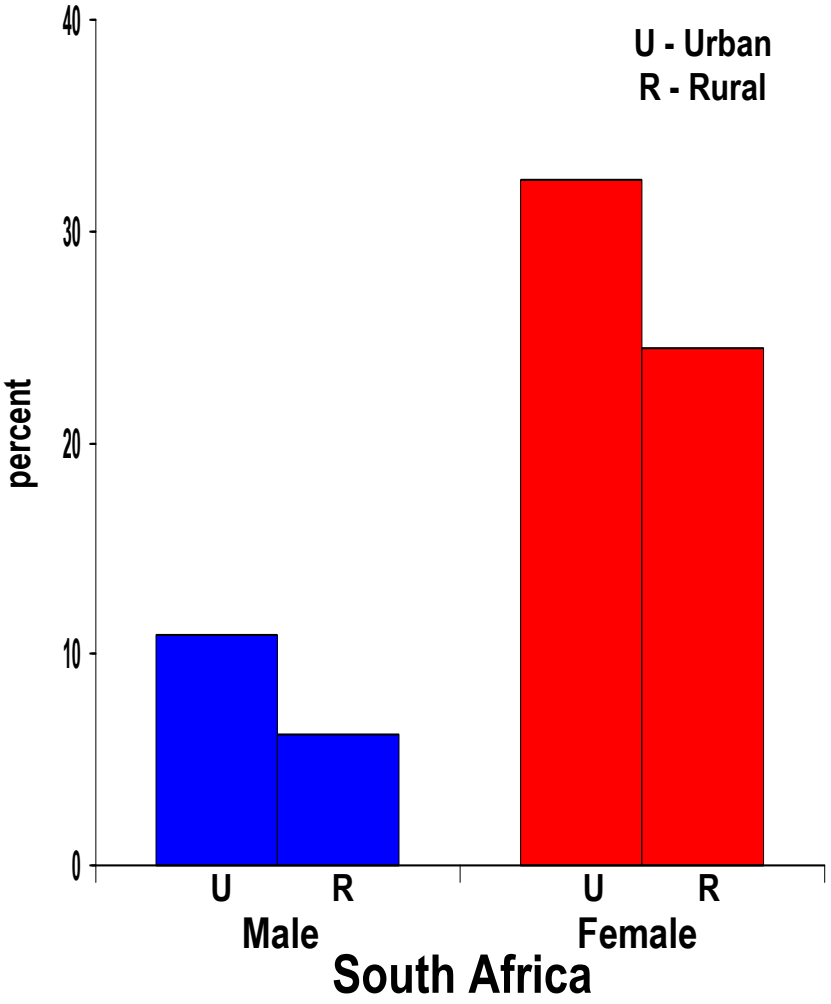
Source: Mathers 1994



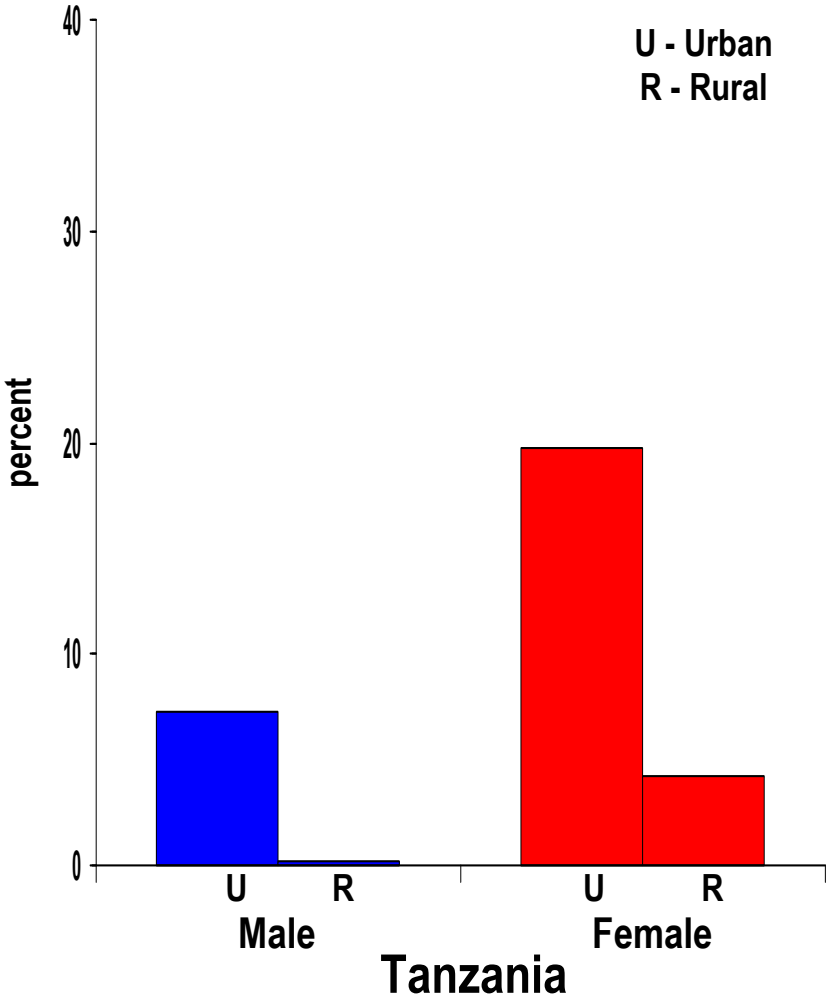
Nigeria (15+ years)

Source: Nigerian National Survey (published 1997)

Obesity (BMI >= 30) in adults (15+ years) by rural/urban, South Africa and Tanzania

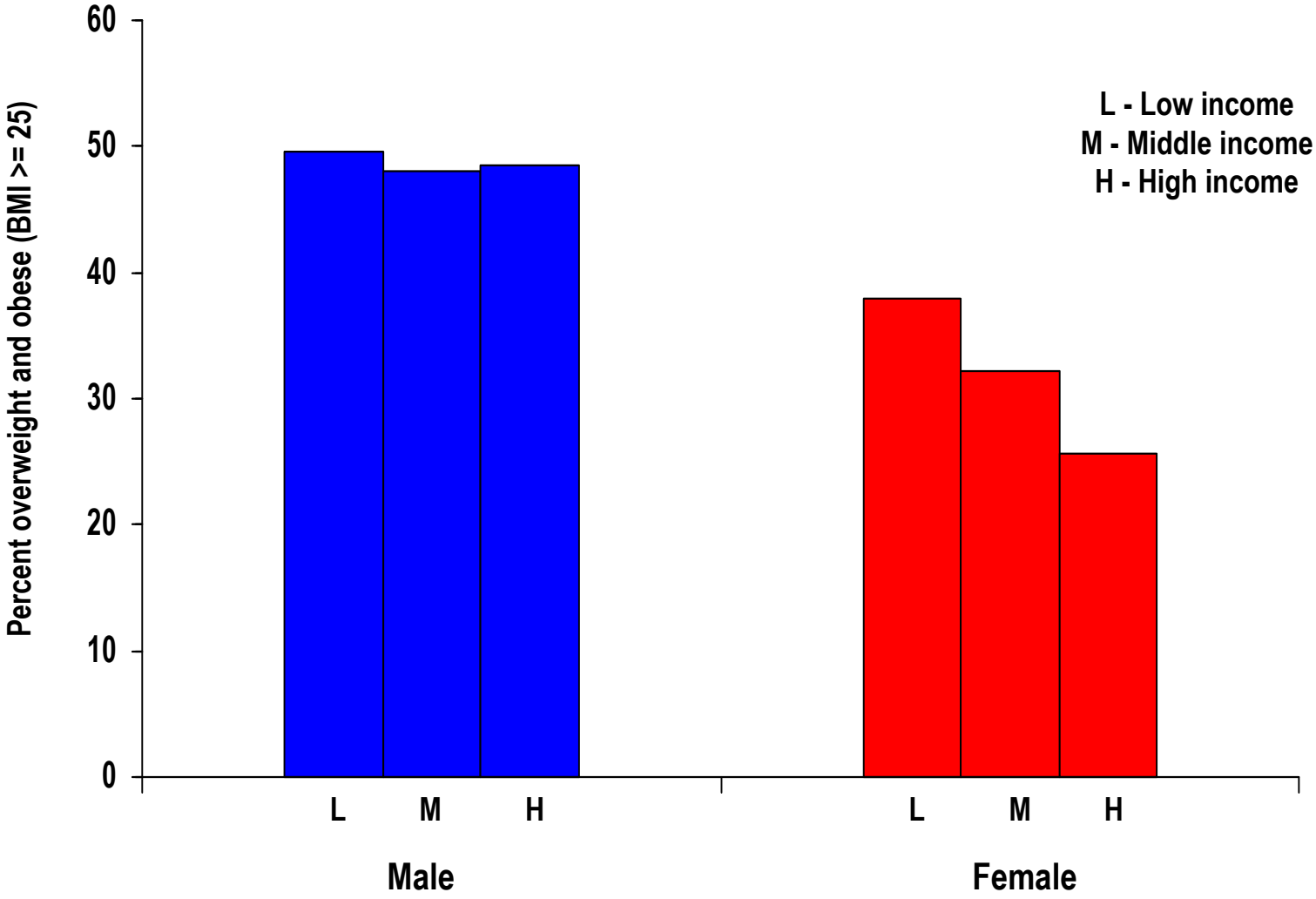


Source: SA Demographic Health Survey 1998



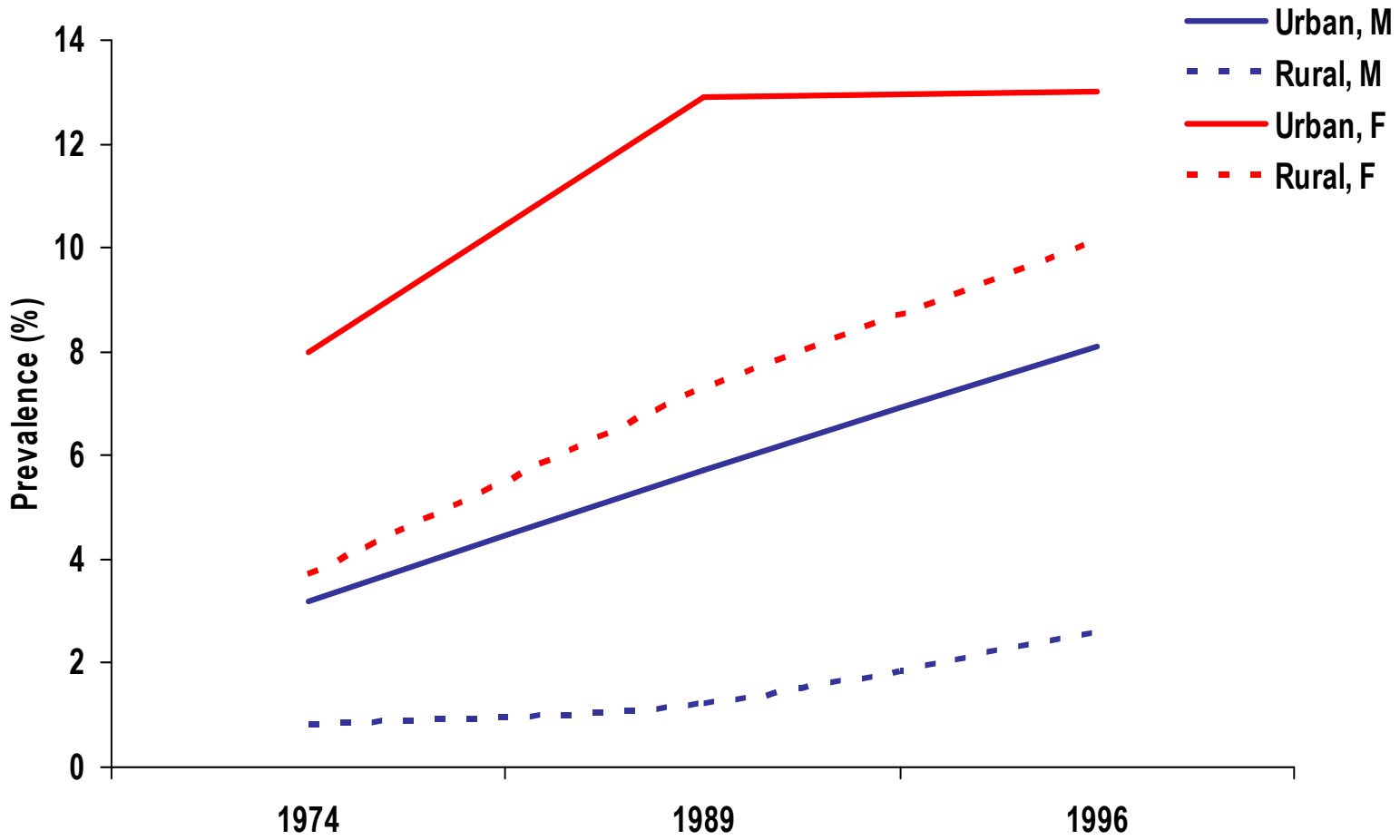
Source: Aspray T. J. et al. 2000.

Overweight and obesity (BMI >= 25) in adults (25-64 years) by social class; Australia



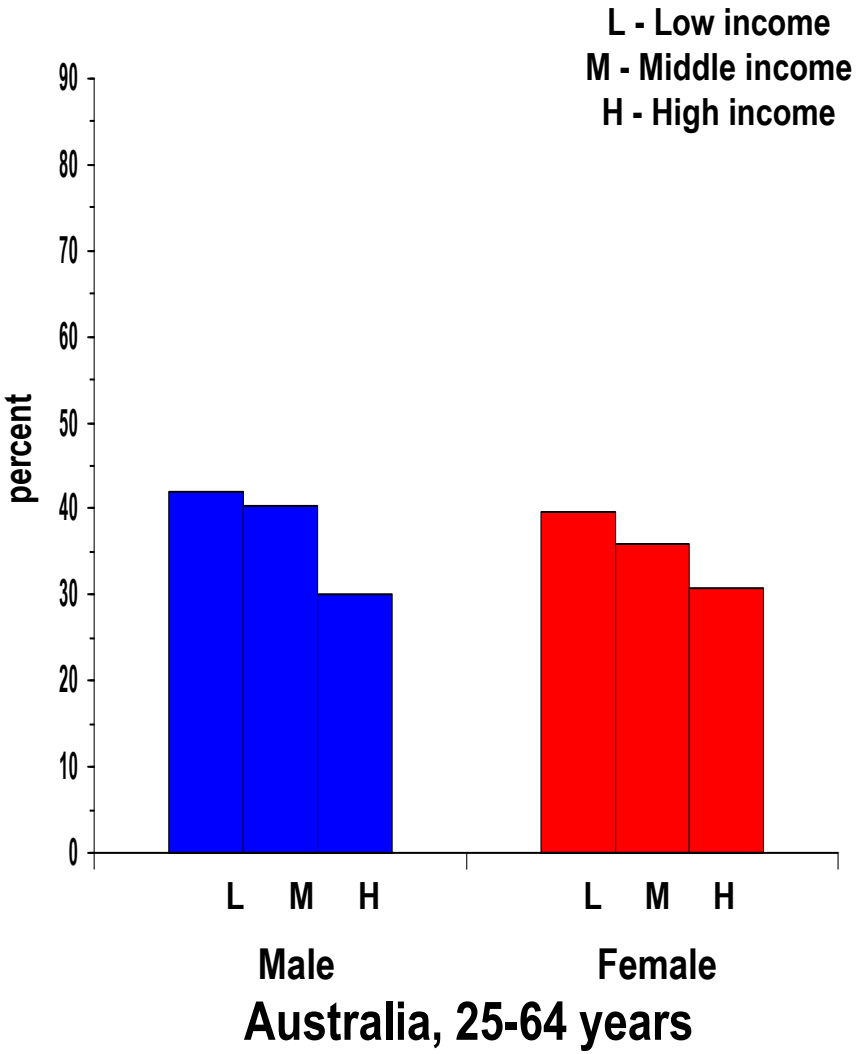
Source: Mathers 1994

Trends in obesity (BMI>30), Brazil 1974-1996



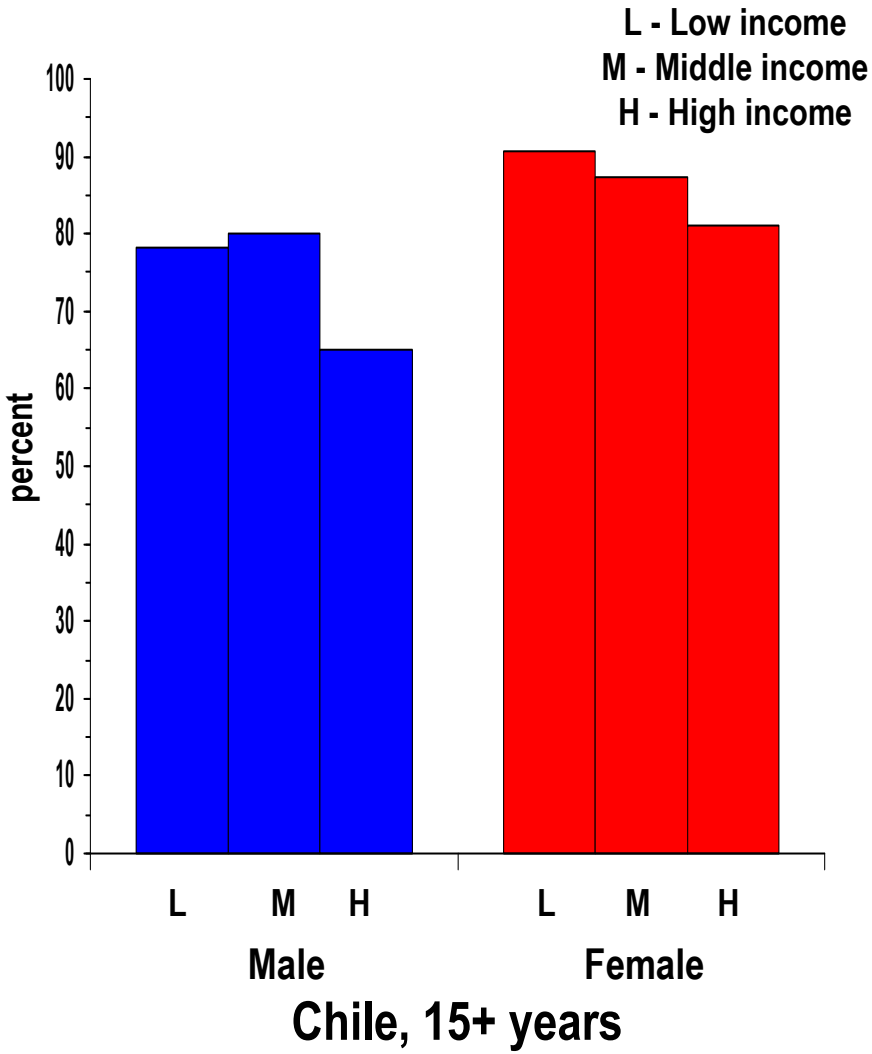
Source: Monterio CA. Et al. 2000

Physical inactivity in adults by social class, Australia and Chile



Australia, 25-64 years

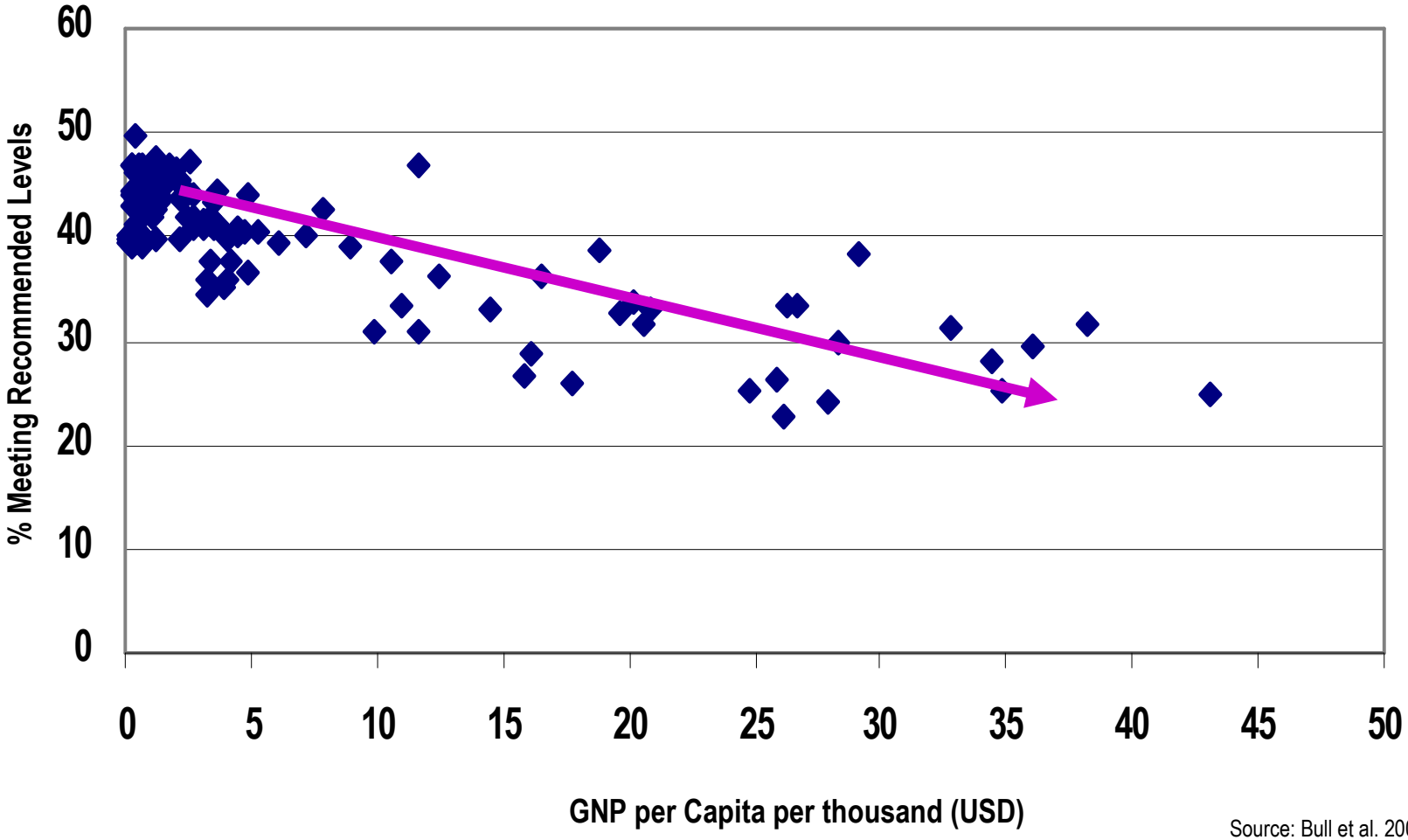
Source: Mathers 1994



Chile, 15+ years

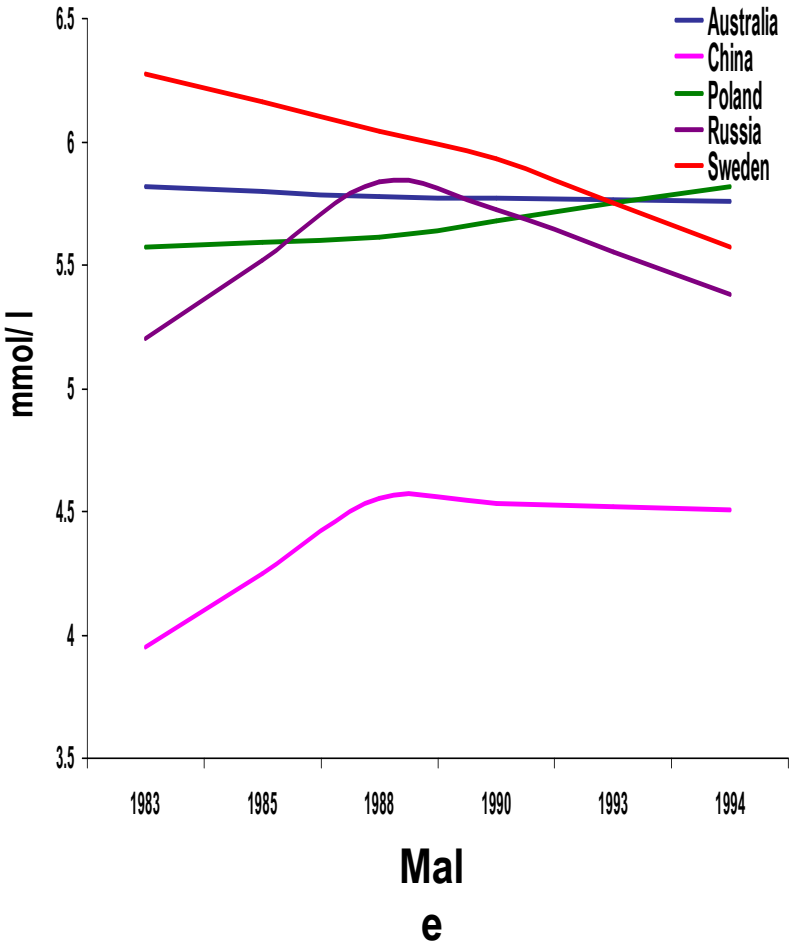
Source: Berrios C. et al. 1990

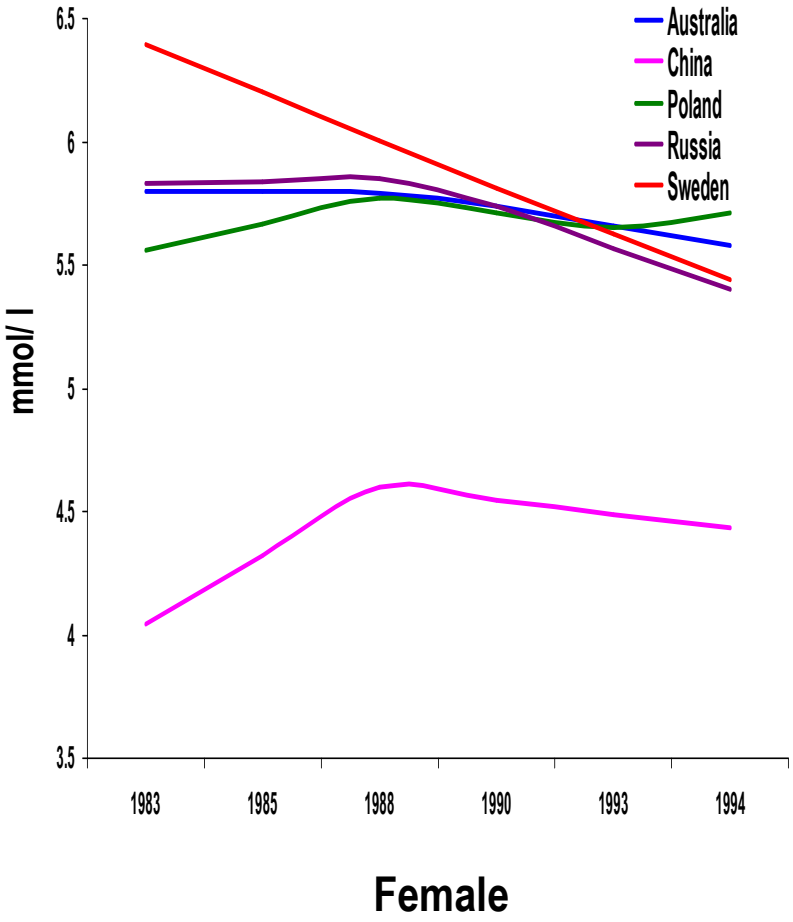
Trends in physical activity by GNP per capita



Source: Bull et al. 2002

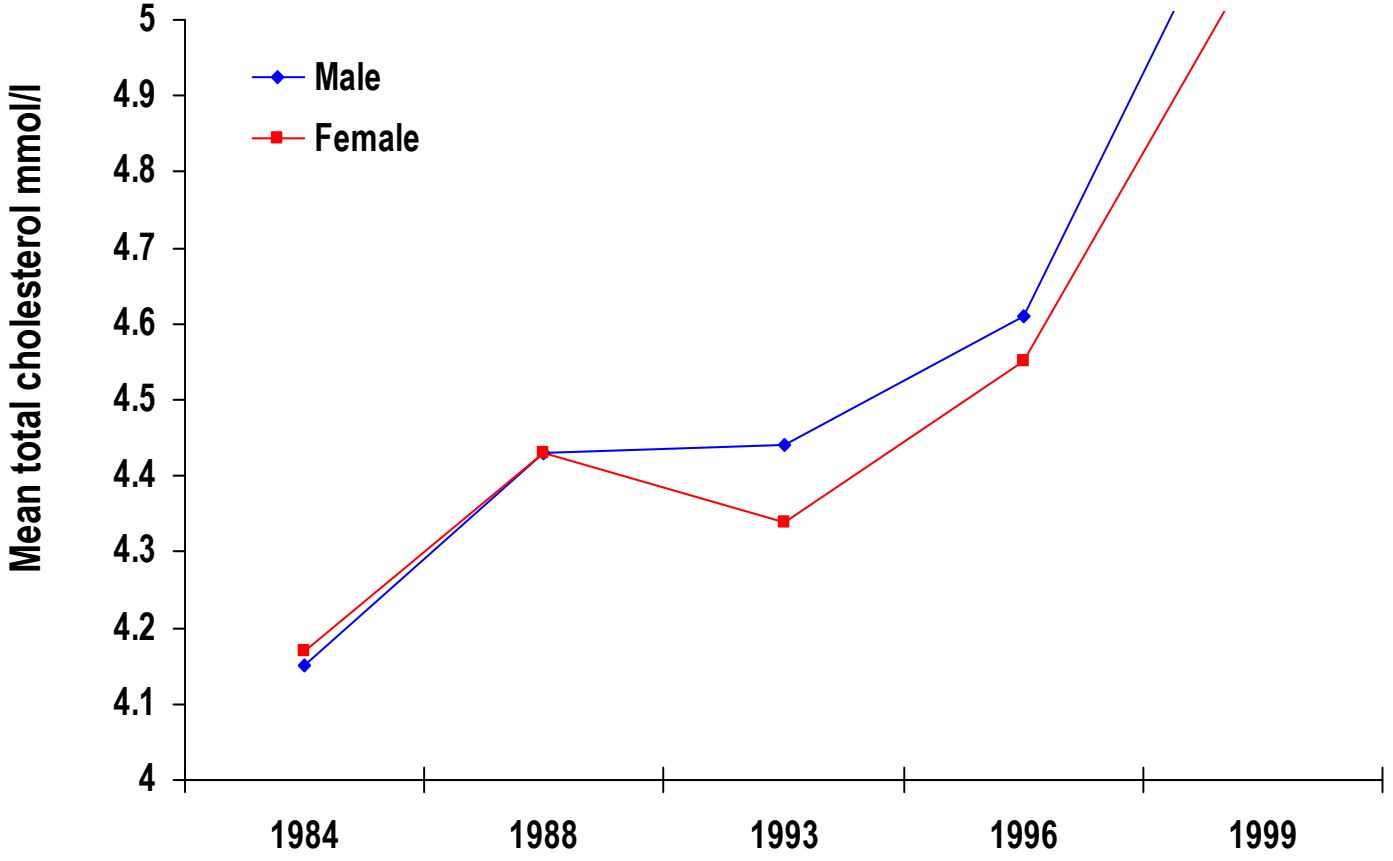
Trends in mean cholesterol in adults (35-64 years) for selected countries from the WHO MONICA Project





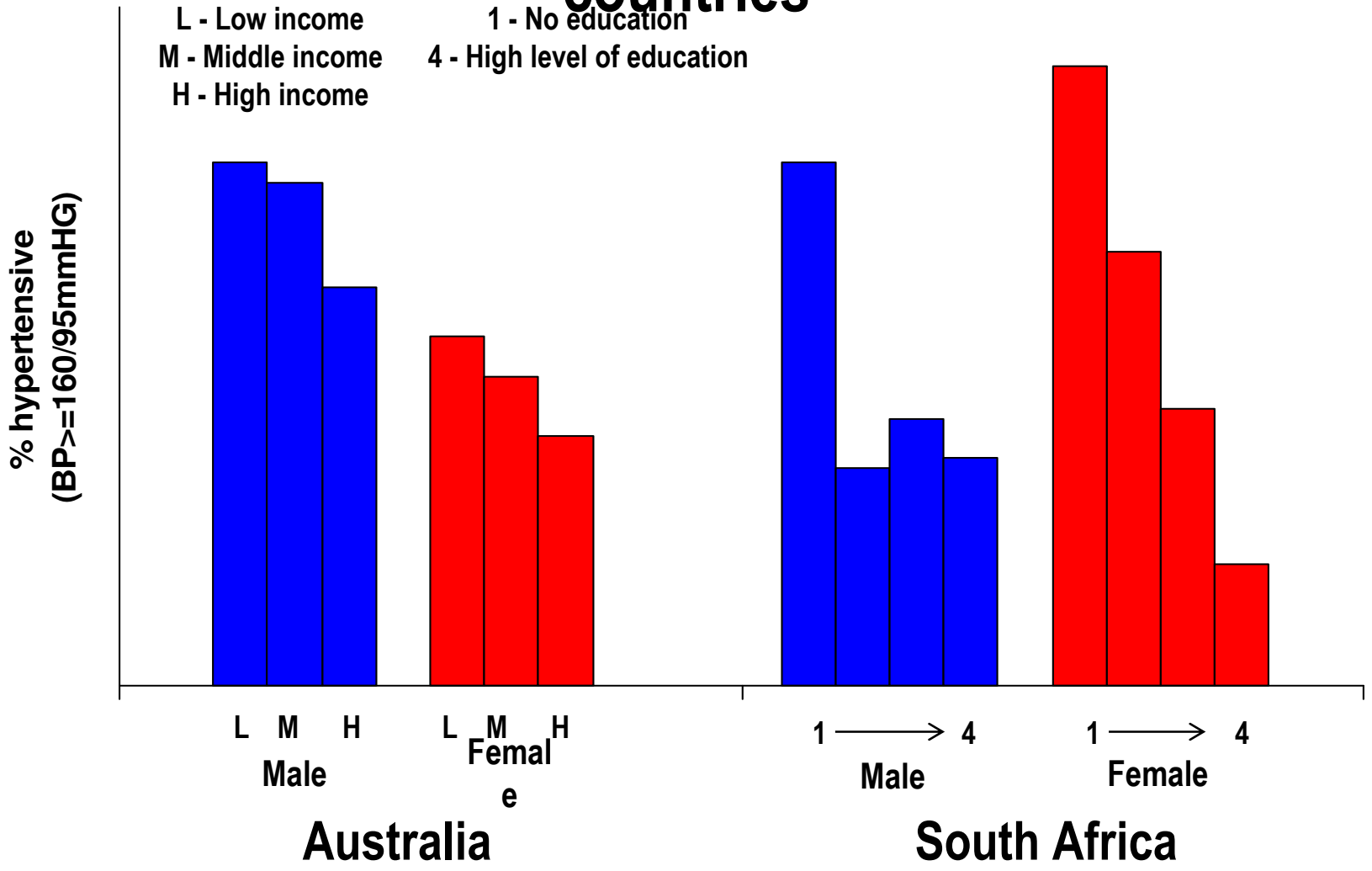
Source: WHO Global NCD Infobase

Trends in mean total cholesterol; Beijing China, 25-64



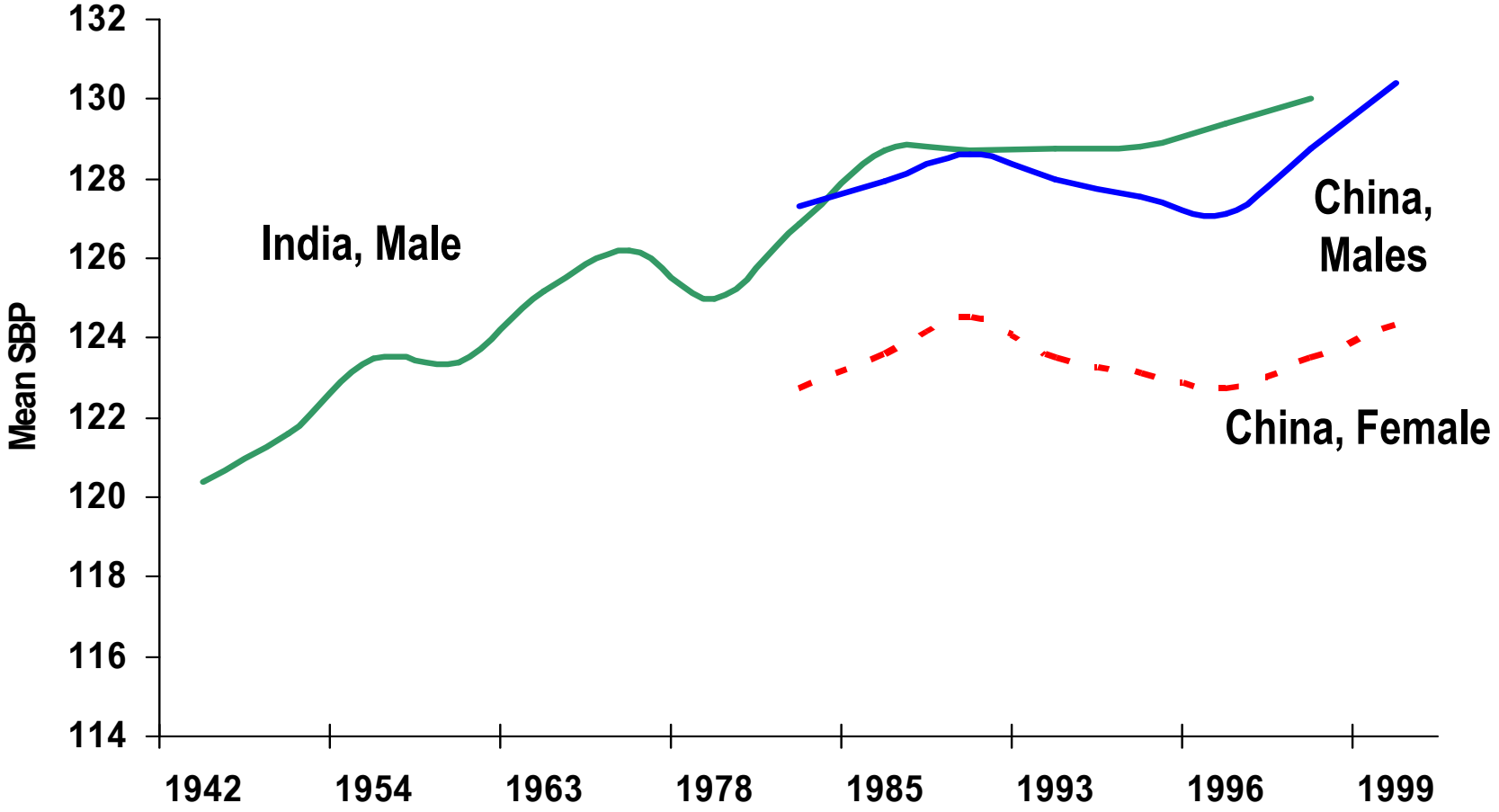
Source:; Subnational, Beijing, MONICA

Blood pressure (>160/95) by social class in selected countries



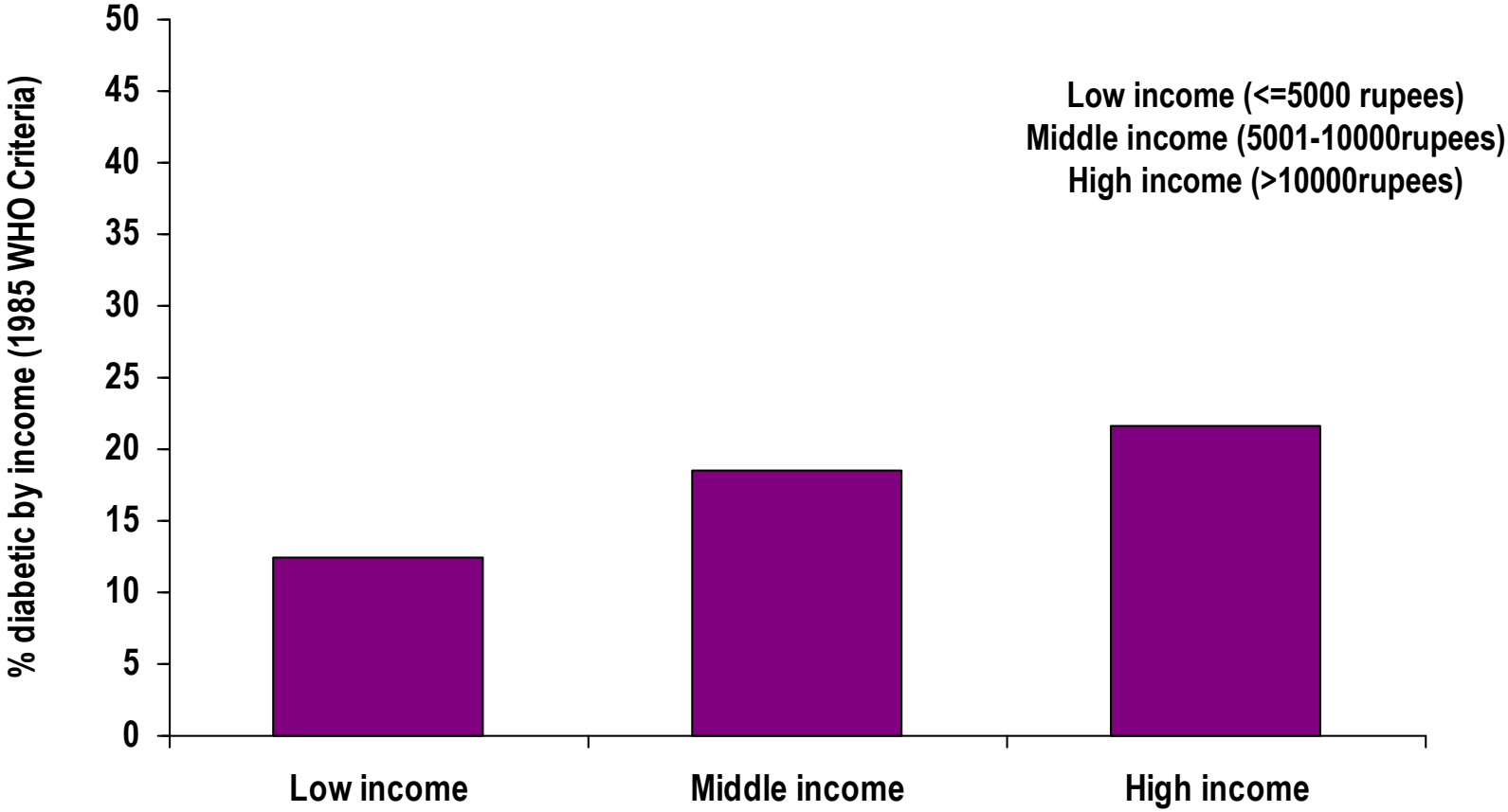
Source: 1998Mathers 1994; SA Demographic Health Survey

Trends in mean systolic blood pressure; Urban India (40-49 years) and Urban China (25-64 years)



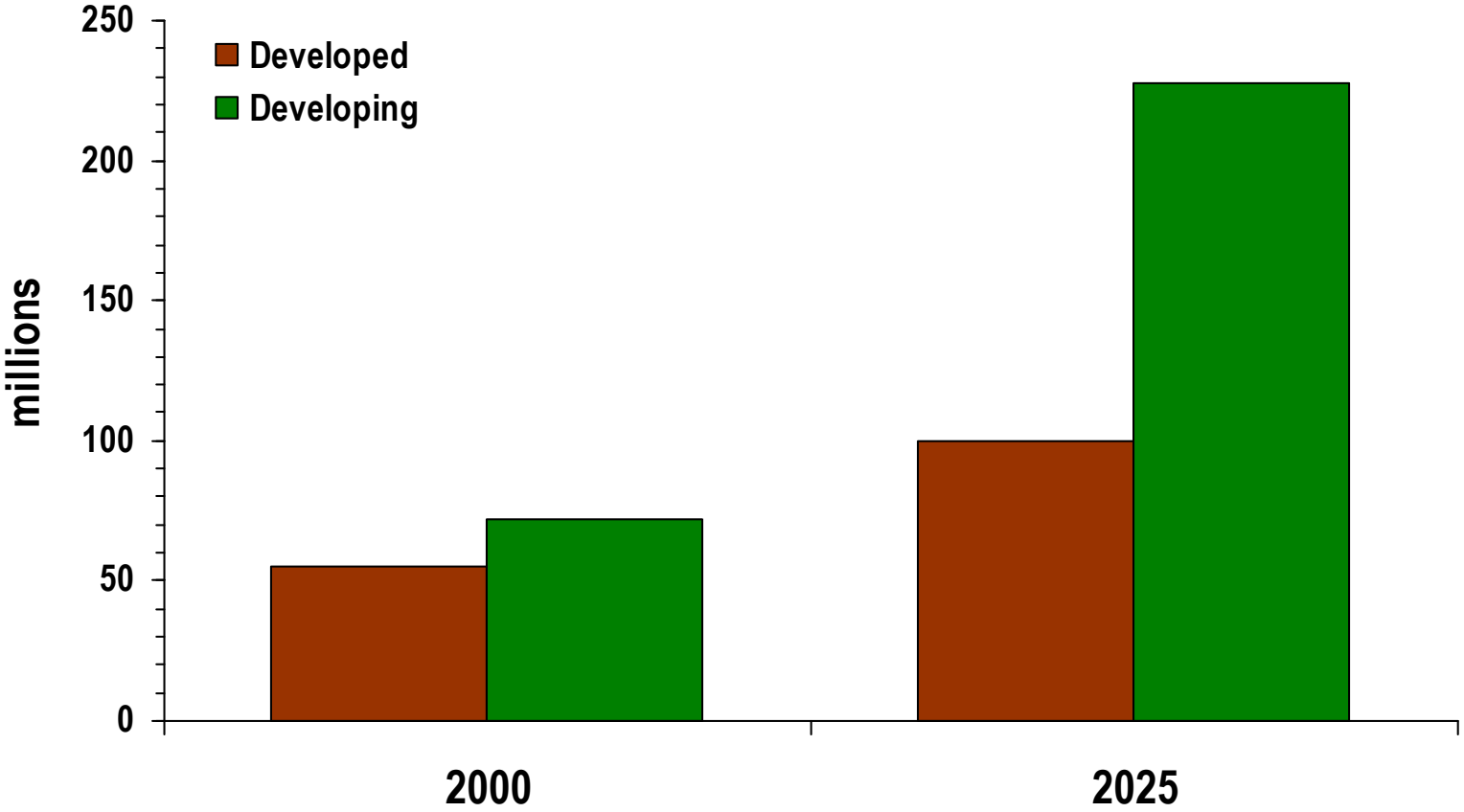
Source: Singh et al. 1997; Subnational, Beijing, MONICA

Diabetes by social class in adults, male and female combined, India



Source: National Urban Diabetes Survey, A. Ramachandran

Number of persons with diabetes: trends in developed vs. developing countries



Conclusions

- NCD´ share to total disease burden substantial
- Common risk factors for NCD´s
- Known interventions
- Modifying risk factors cost benificial in reducing overall disease burden