

# Measurement, risk, burden and outcome

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# Needs for Better Evidence

- International and national strategic decision-making
- Informing programme managers to improve implementation
- Dynamic monitoring critical outcomes -- key to accountability
- Building the evidence base on determinants and interventions for health



# Rising Demand for Authoritative Independent Monitoring

- New investment mechanisms e.g. GAVI, GFATM, require authoritative independent monitoring of key health outcomes
- Millennium Declaration and Millennium Development Goals becoming the common core framework for all development dialogue



# WHO Monitoring

- Each year in the World Health Report WHO reports on
  - infant and child mortality, adult mortality,
  - life expectancy & healthy life expectancy,
  - mortality by cause for 14 regions,
  - burden of disease for 14 regions, and
  - national health accounts
- For 2003, an expanded set of core indicators will be reported, including the 17 health-related MDG indicators



# Reporting Criteria

- Each figure to be included must:
  - established validity of the measurement method
  - reliability quantified through an assessment of uncertainty
  - established inter-individual and cross-population comparability
  - period of *consultation* not concurrence with Member States
  - data audit trail

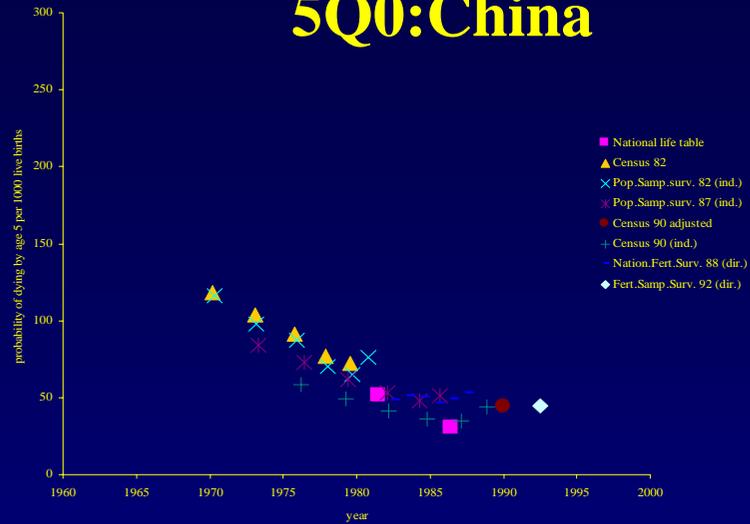


# AVAILABILITY OF NEW OR RECENT VITAL REGISTRATION DATA (complete or partial) WHR2000 & WHR2001

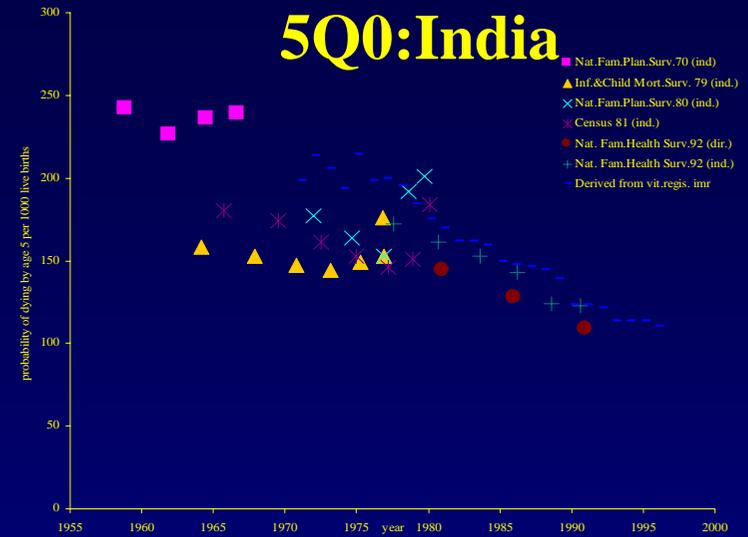
	Number of countries with recent Vital Registration data	
	WHR2000	WHR2001
Africa	3	7
The Americas	21	33
Eastern Mediterranean	3	10
Europe	43	51
South-East Asia	4	6
Western Pacific	8	21
World	82	128



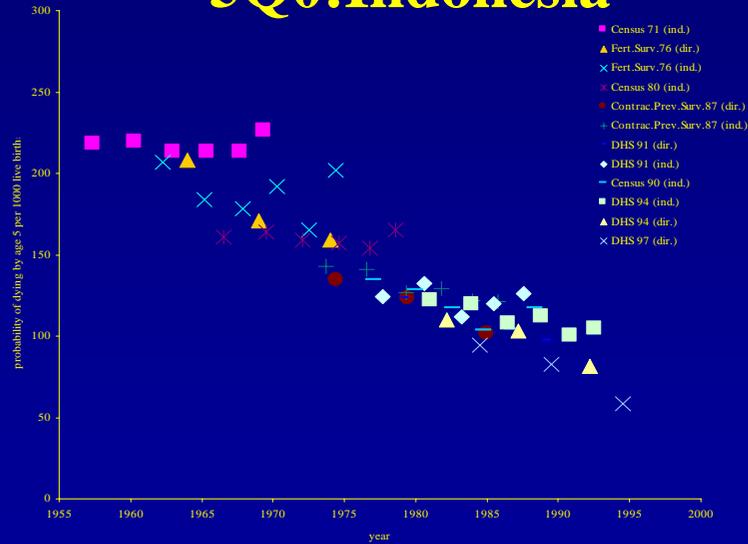
# 5Q0:China



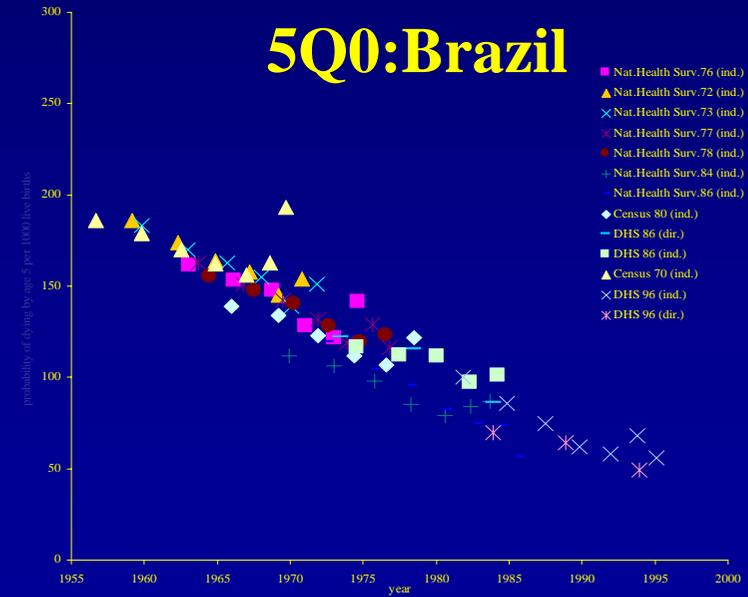
# 5Q0:India



# 5Q0:Indonesia



# 5Q0:Brazil

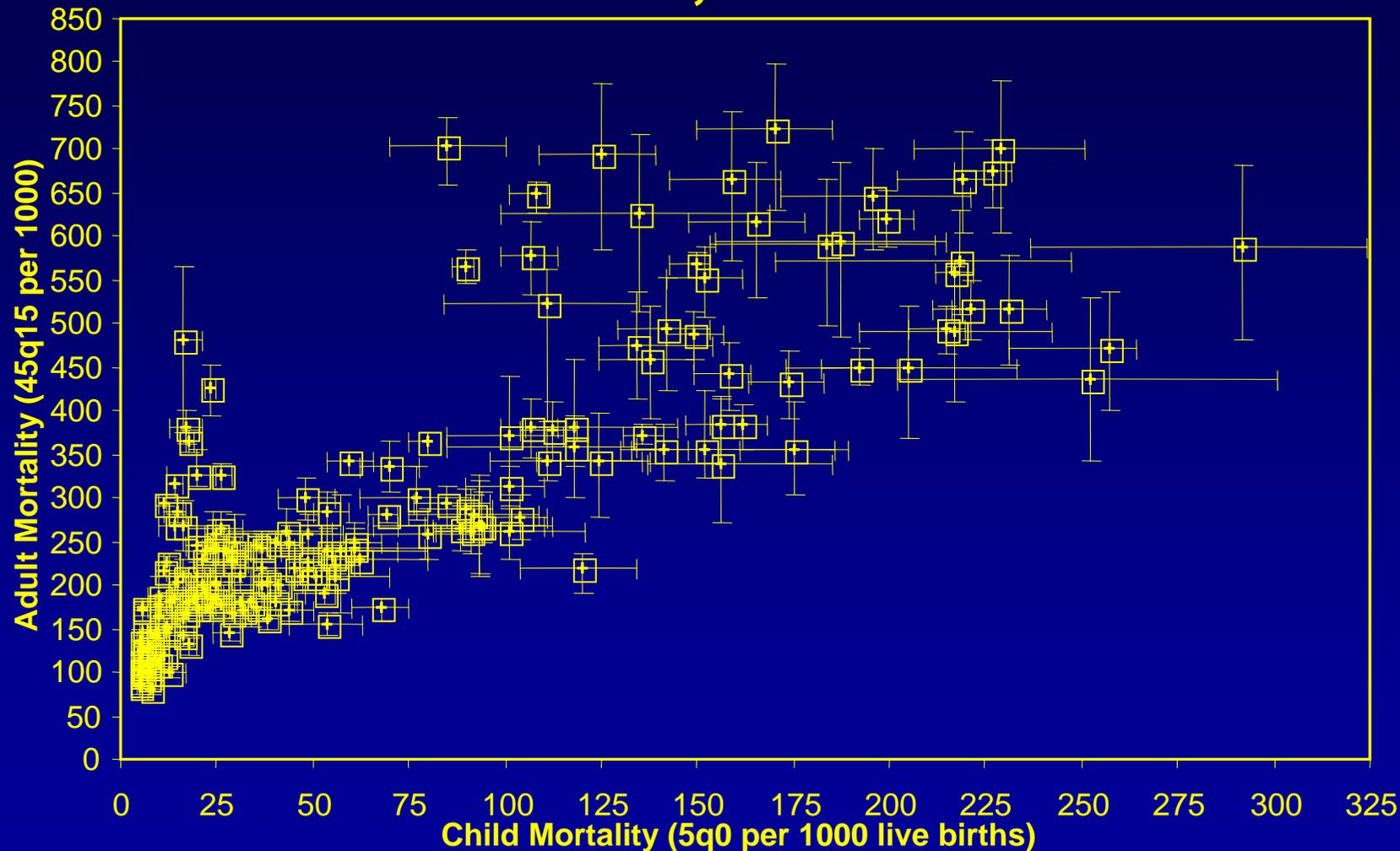


# Sources for Estimating Adult Mortality

- Complete vital registration (60 countries)
- Incomplete vital registration (50 countries)
- Sample registration systems (India, China); Population surveillance systems
- Deaths in last time period from censuses and surveys
- Sibling survival from censuses and surveys -- approximately 30% events detected



# Adult vs. child mortality, males, 191 Member states, 2000



# Sources for Causes of Death

- Vital registration with ICD cause (20 million deaths)
- Sample registration (e.g. SCD(R), DSPs) and population surveillance systems with some verbal autopsy
- Household survey data on sibling survival and deaths in last 12 months with verbal autopsy



# Key Challenges for Cause of Death Analysis

- Misattribution of causes of death especially CVD, cancers, and injuries
- Cause-specific selection bias in incomplete vital registration systems
- Reliability and validity of verbal autopsy instruments used in population surveillance systems

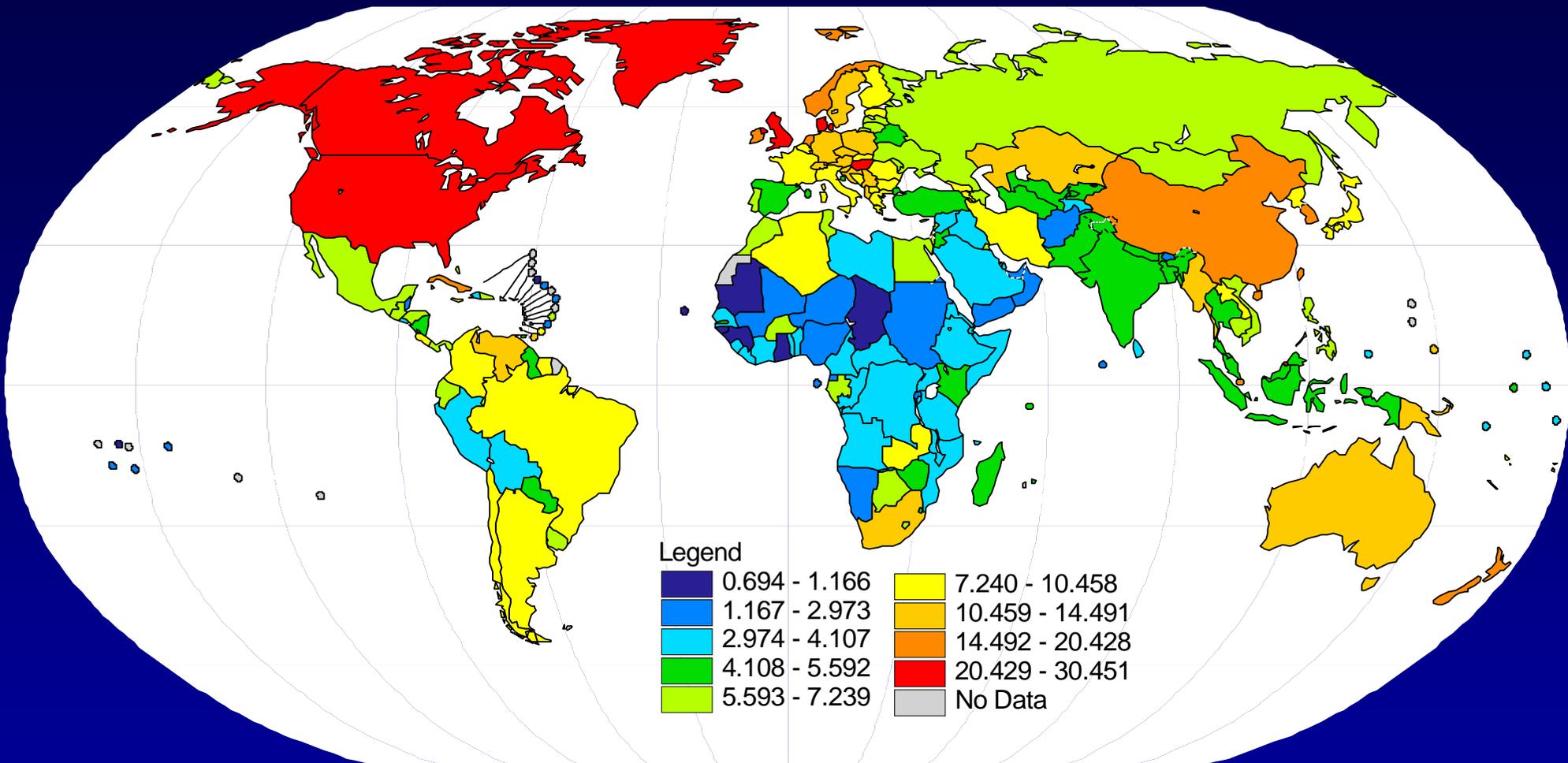


# Leading Causes of Mortality 1990 and 2000

1990		2000	
	%		%
• Ischaemic heart disease	12.4	• Ischaemic heart disease	13.7
• Stroke	8.7	• Stroke	9.5
• Lower resp. infections	8.5	• Lower resp. infections	6.4
• Diarrhoeal diseases	5.8	• <b>HIV/AIDS</b>	<b>4.2</b>
• Perinatal conditions	4.8	• COPD	4.2
• COPD	4.4	• Diarrhoeal diseases	4.1
• Tuberculosis	3.9	• Perinatal conditions	4.0
• Measles	2.1	• Tuberculosis	2.8
• Road traffic accidents	2.0	• <b>Lung Cancer</b>	<b>2.3</b>
• <b>Lung Cancer</b>	<b>1.9</b>	• Road traffic accidents	2.2



# ASDR: Trachea, bronchus and lung cancers, females, 2001



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# Burden of Disease

- Burden of disease analysis provides a standardized framework for integrating all available information on mortality, causes of death, individual health status, and condition-specific epidemiology to provide an overview of the the levels and causes of population health



# Burden of Disease Study Steps

1. Study current knowledge of each disease
2. Construct diagram of natural history of disease
3. Identify **all** epidemiological indicators to be estimated
4. Review all published and unpublished data available to date
5. Appraise evidence and define best estimates
6. Check internal consistency of calculations (DISMOD)
7. Apply calculations and discuss their plausibility with local experts, compare with other BoD studies etc.



# Burden of Disease II

- WHO undertakes regular updating sub-regional epidemiology for each major condition, causes of death and mortality.
- Based on input from both disease specific technical programmes and EIP.
- Annexes to WHR provide latest updates



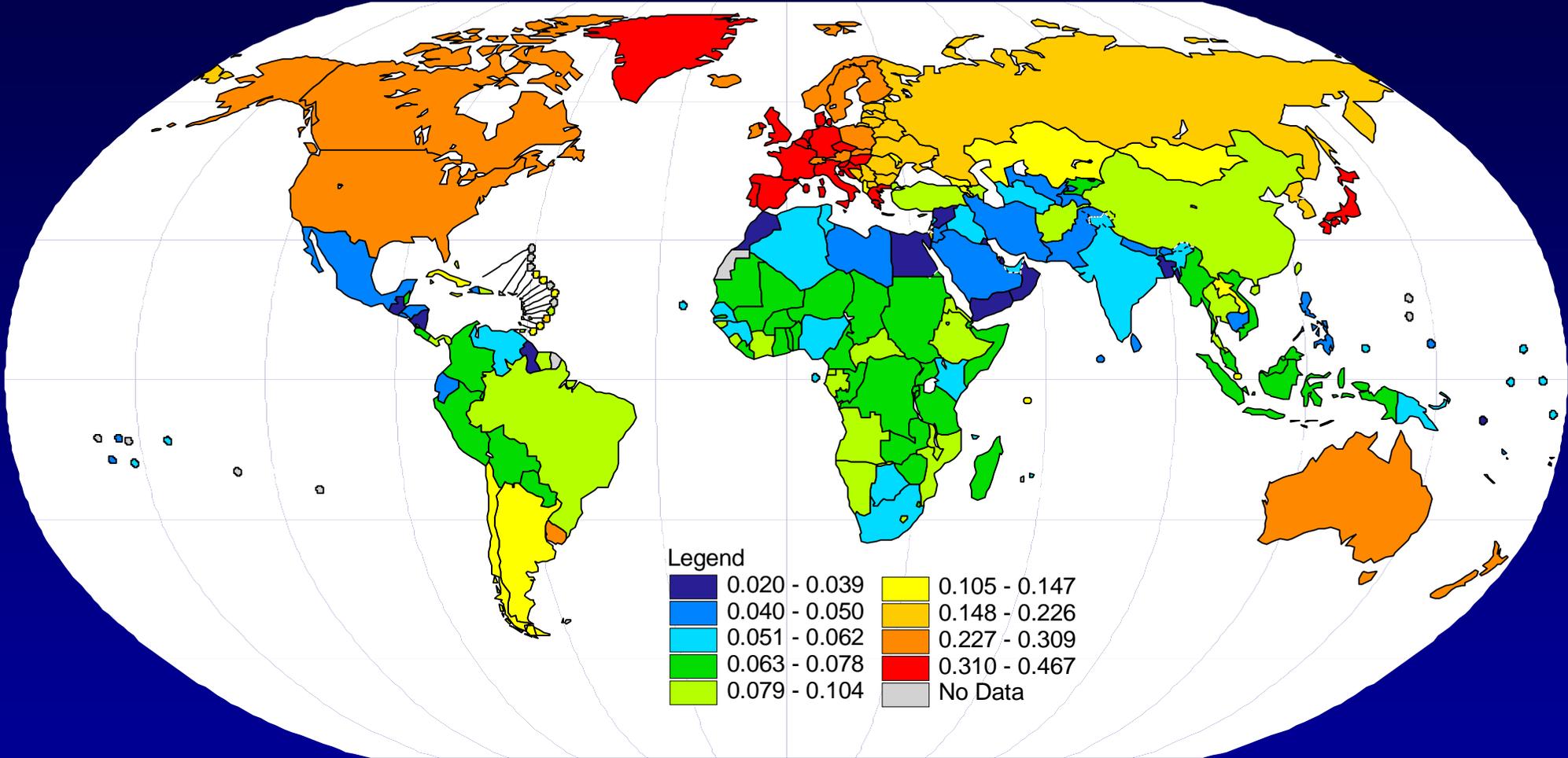
# Leading Causes of Mortality and Burden of Disease

## Preliminary estimates for 2000

Mortality		DALYs	
	%		%
• Ischaemic heart disease	13.7	• Lower respiratory infections	6.7
• Cerebrovascular disease	9.5	• <b>HIV/AIDS</b>	<b>6.2</b>
• Lower respiratory infections	6.4	• Perinatal conditions	6.2
• <b>HIV/AIDS</b>	<b>4.2</b>	• Diarrhoeal diseases	5.0
• COPD	4.2	• Depression	4.1
• Diarrhoeal diseases	4.1	• Ischaemic heart disease	4.1
• Perinatal conditions	4.0	• Cerebrovascular disease	3.5
• Tuberculosis	2.8	• Malaria	3.1
• Lung Cancer	2.3	• Road traffic accidents	2.8
• Road traffic accidents	2.2	• COPD	2.7



# Malignant neoplasms: prevalence per 1000, males, 2001



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