



Global Patterns of Youth Mortality

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World Congress of Internal Medicine: 23rd

March, 2010

Campus partners



“Only the young depart from life without pangs. They are not fettered to this earth by the thousand threads that civil life weaves around us. They mount the hill without perceiving the abruptness of the precipice on the other side.”



Baron Colmar von der Goltz 1883

Paradox of Adolescent Health

Epidemiological Transition

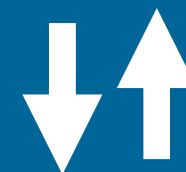
Stronger, faster, fitter, smarter
but
morbidity and mortality
worsen?

Epidemiological transition

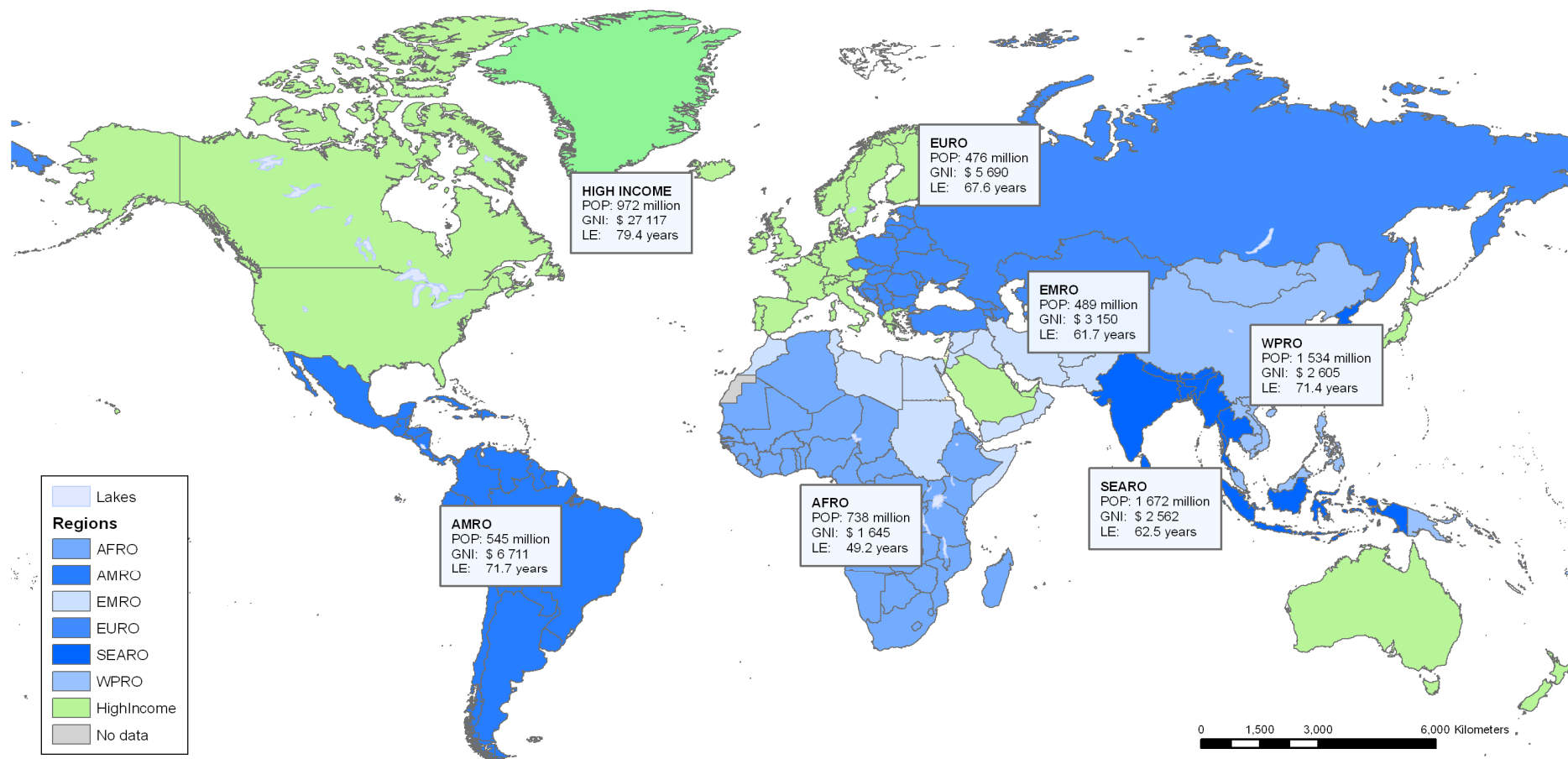
- Nutrition, housing & sanitation
- Infant care
- Vector control & Vaccination
- Female education
- Antibiotics & Medical technologies...

Health transition & Policy

- Infectious disease
- Maternal-Infant mortality
- Non-communicable
- Injuries



Global burden of disease - 2004



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
 Map Production: Public Health Mapping and GIS
 World Health Organization



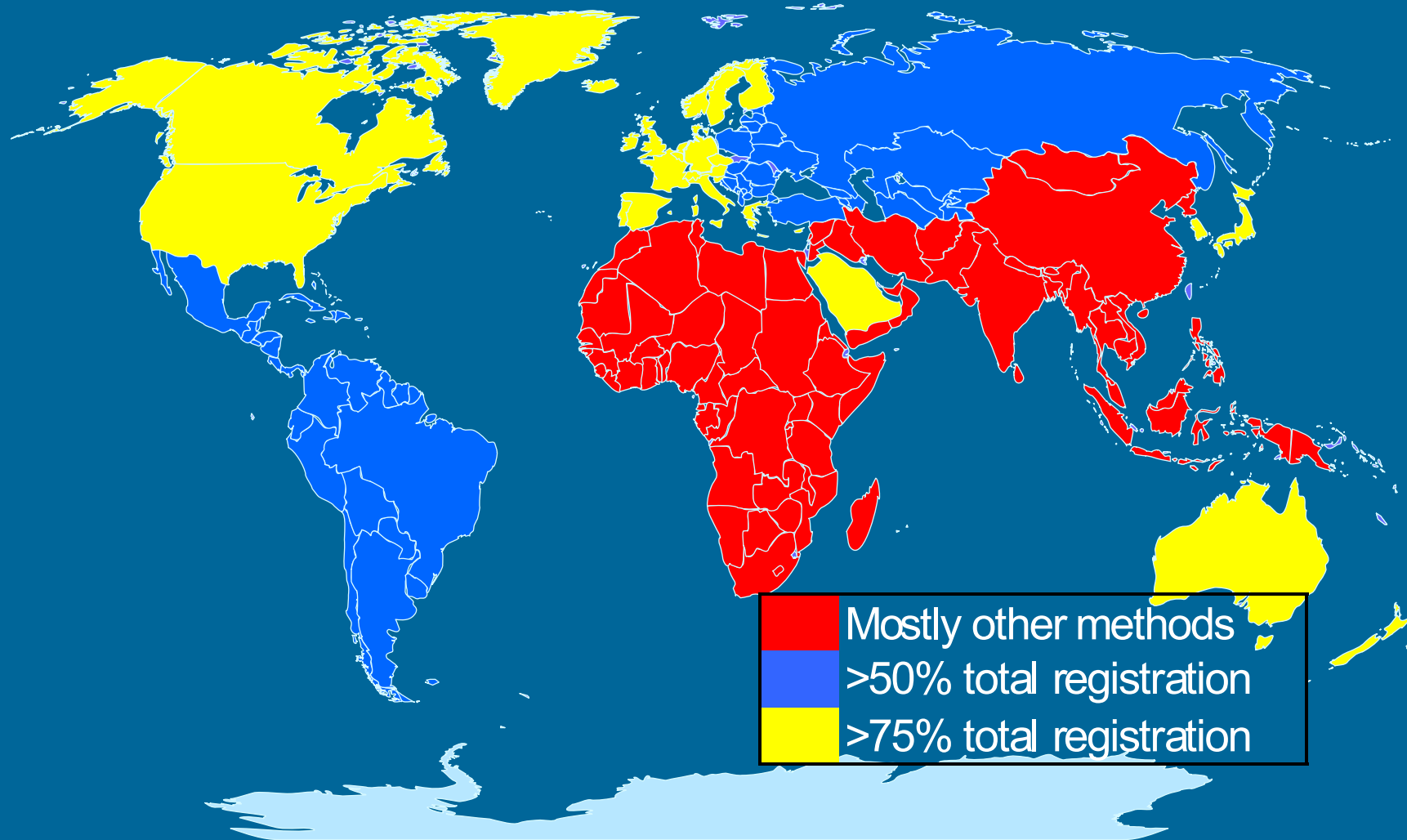
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Global Mortality Data

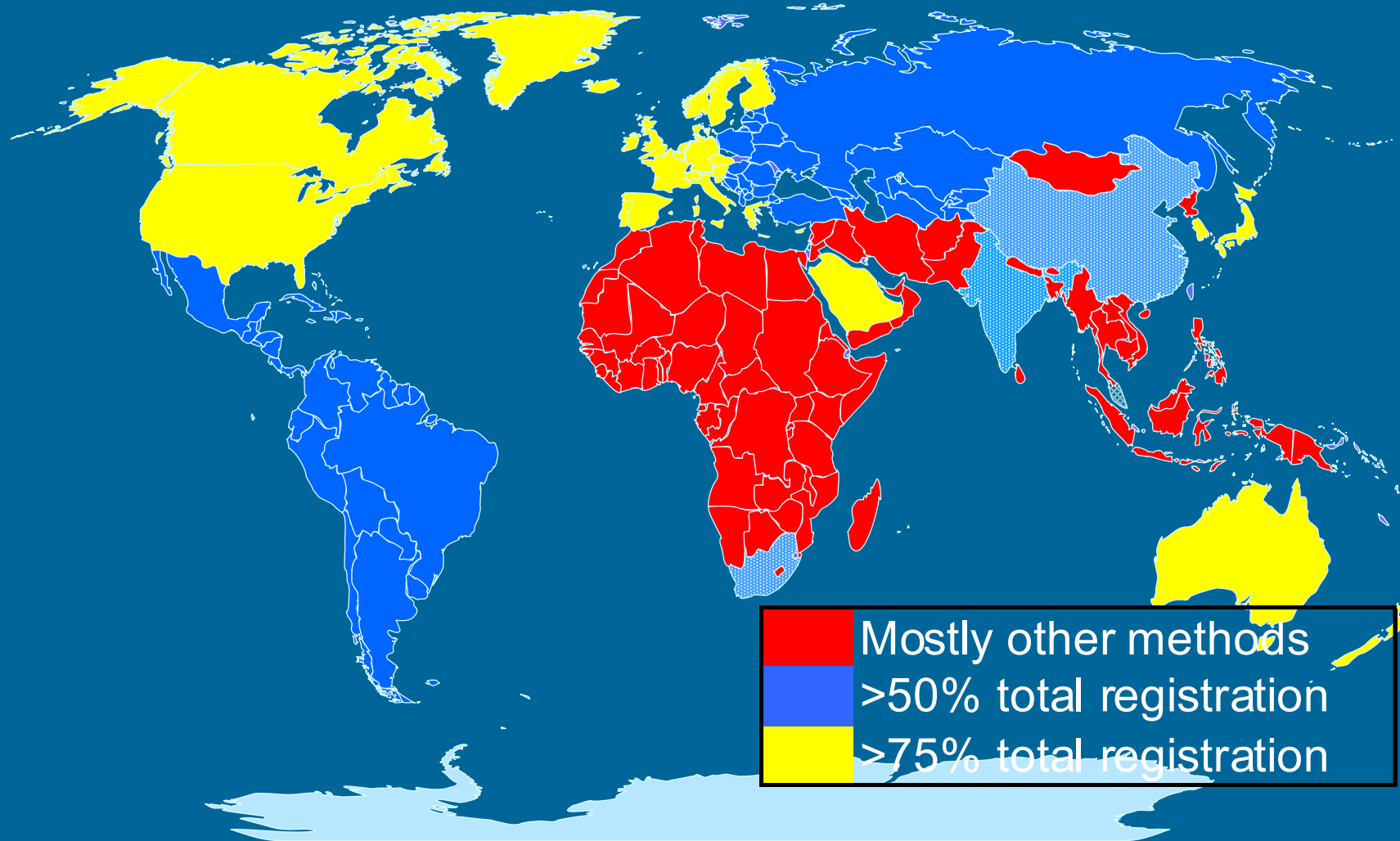
- Registries >85% (78)
- Registries <85% (34)
- *Sample registries (2)*
- *Other methods (78)**

* eg Verbal autopsy, Specific disease surveys

Quality of Mortality Data



Quality of Mortality Data



1 How many deaths?

2 Causes?

3 DALYs?

4 Policy implications?

1 How many deaths?

– regional variation

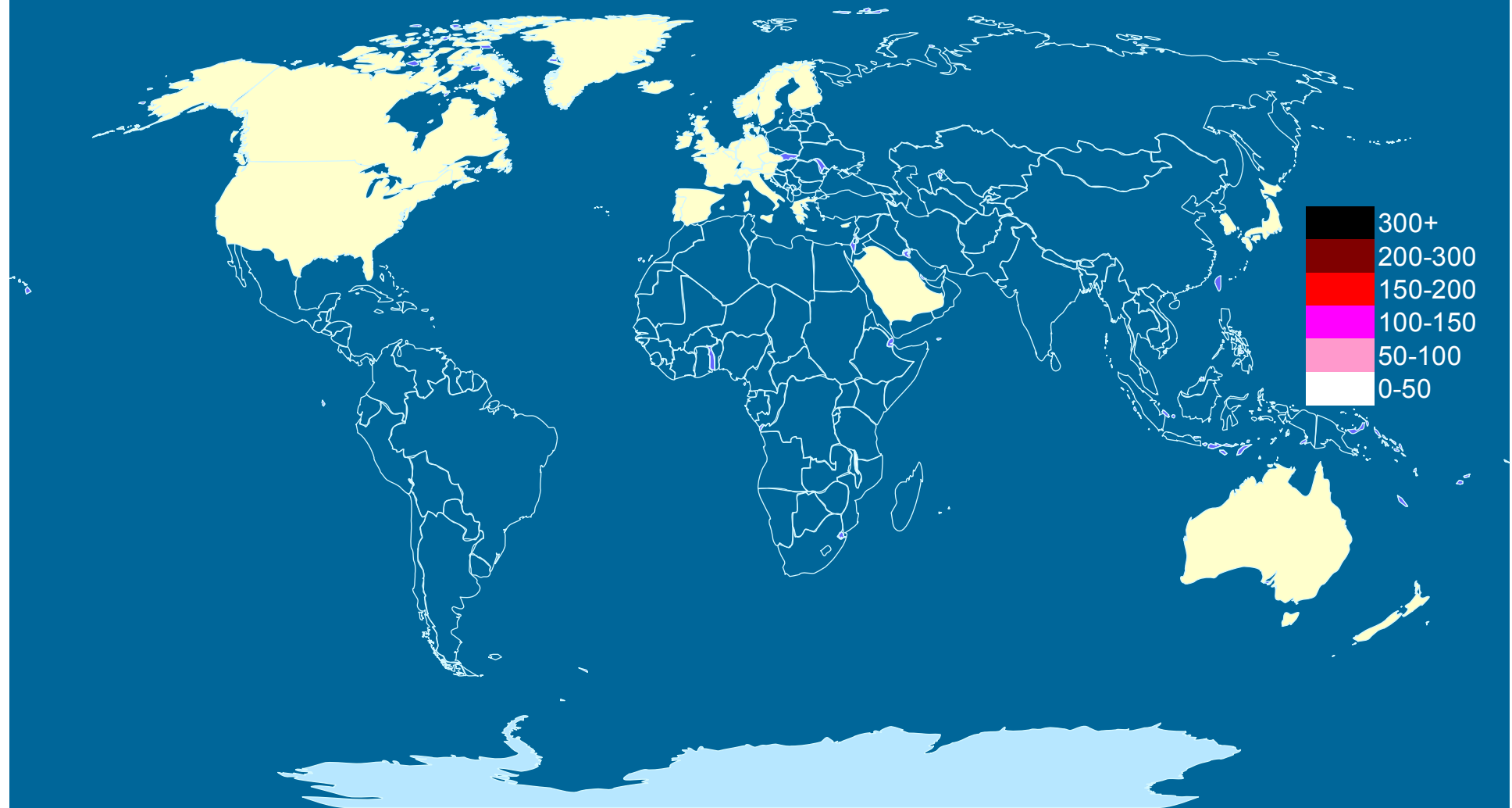
– age variation

2 Causes?

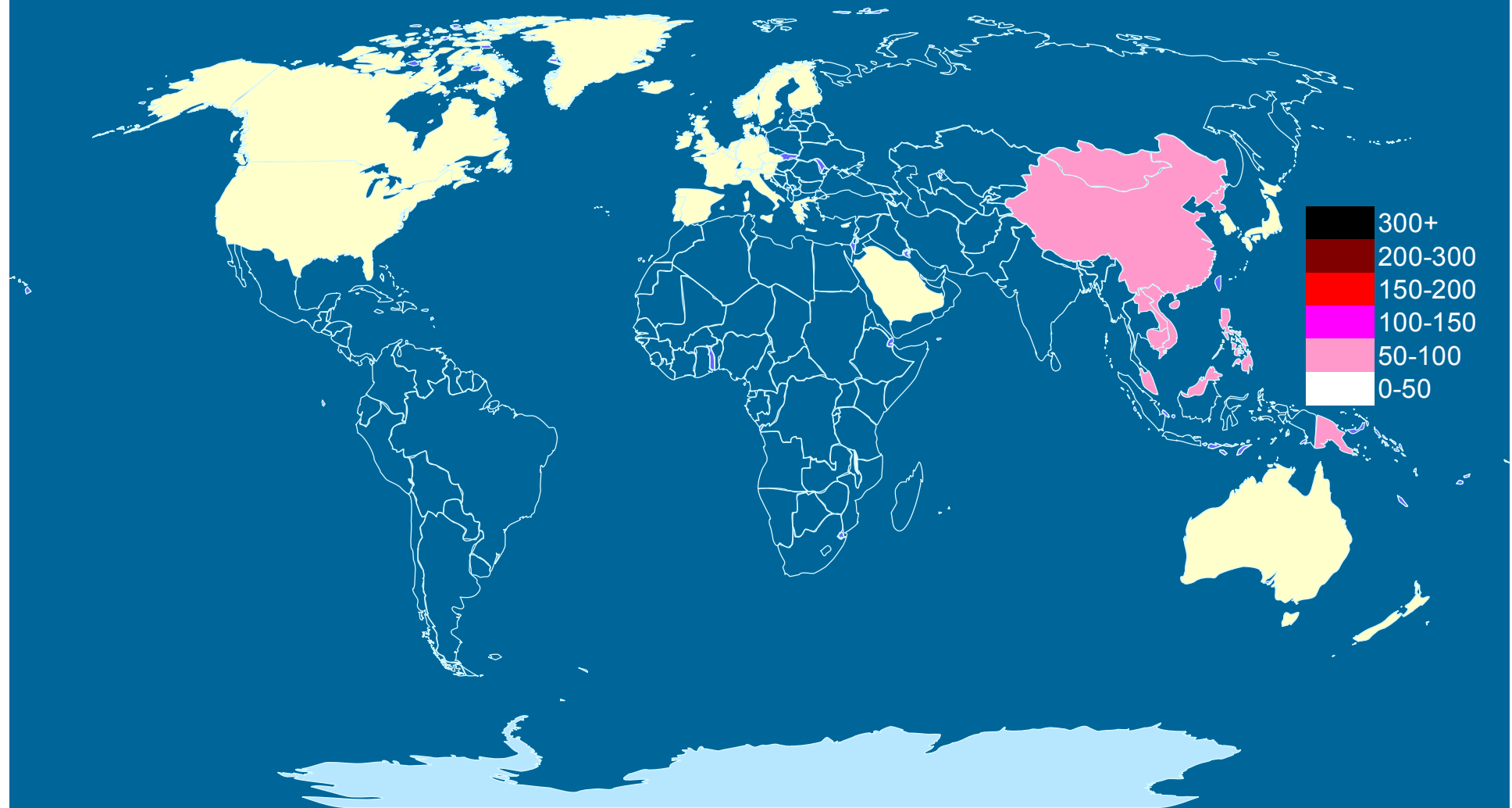
3 DALYs?

4 Policy implications?

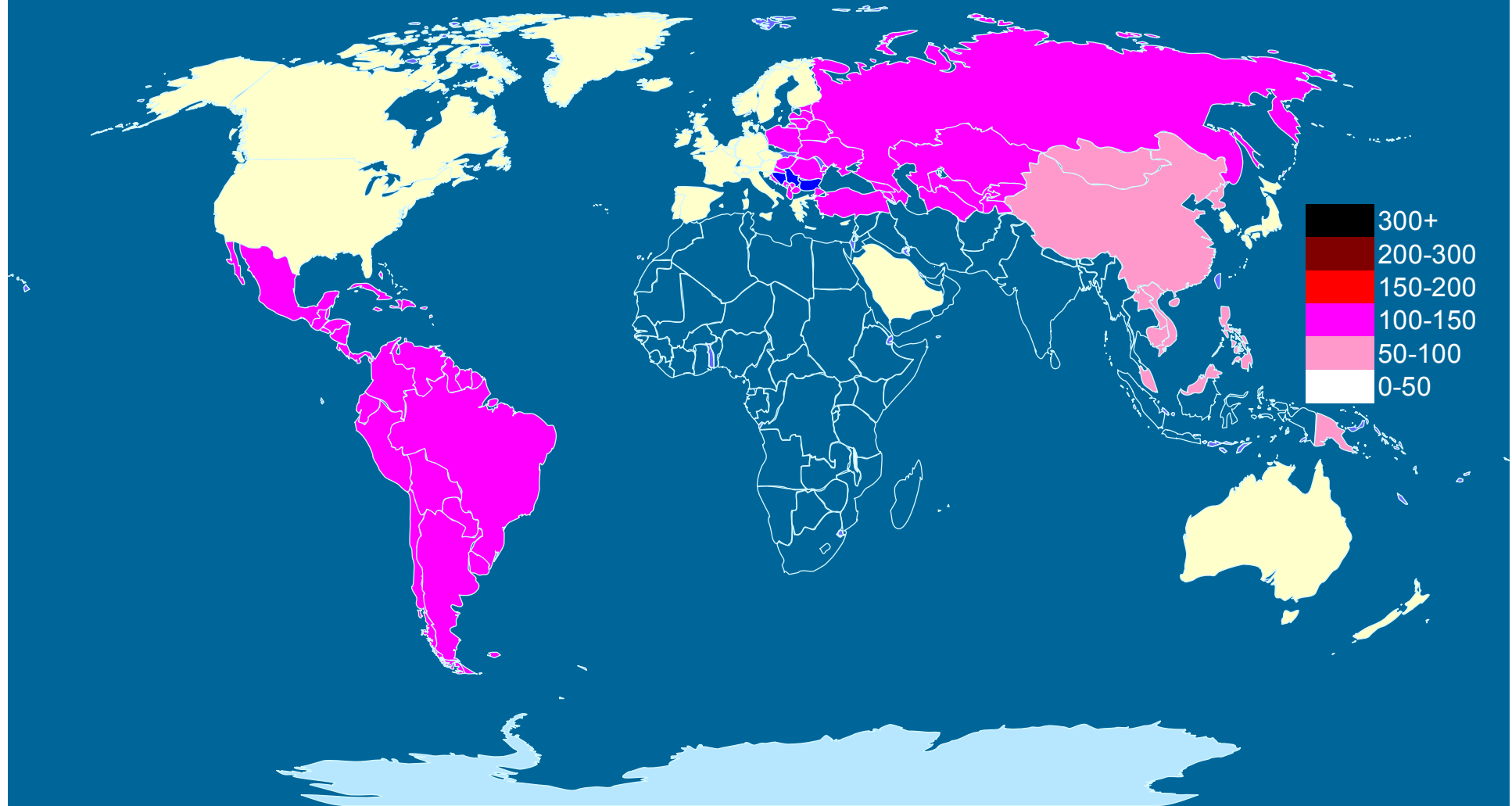
All-cause Mortality 10-24 years



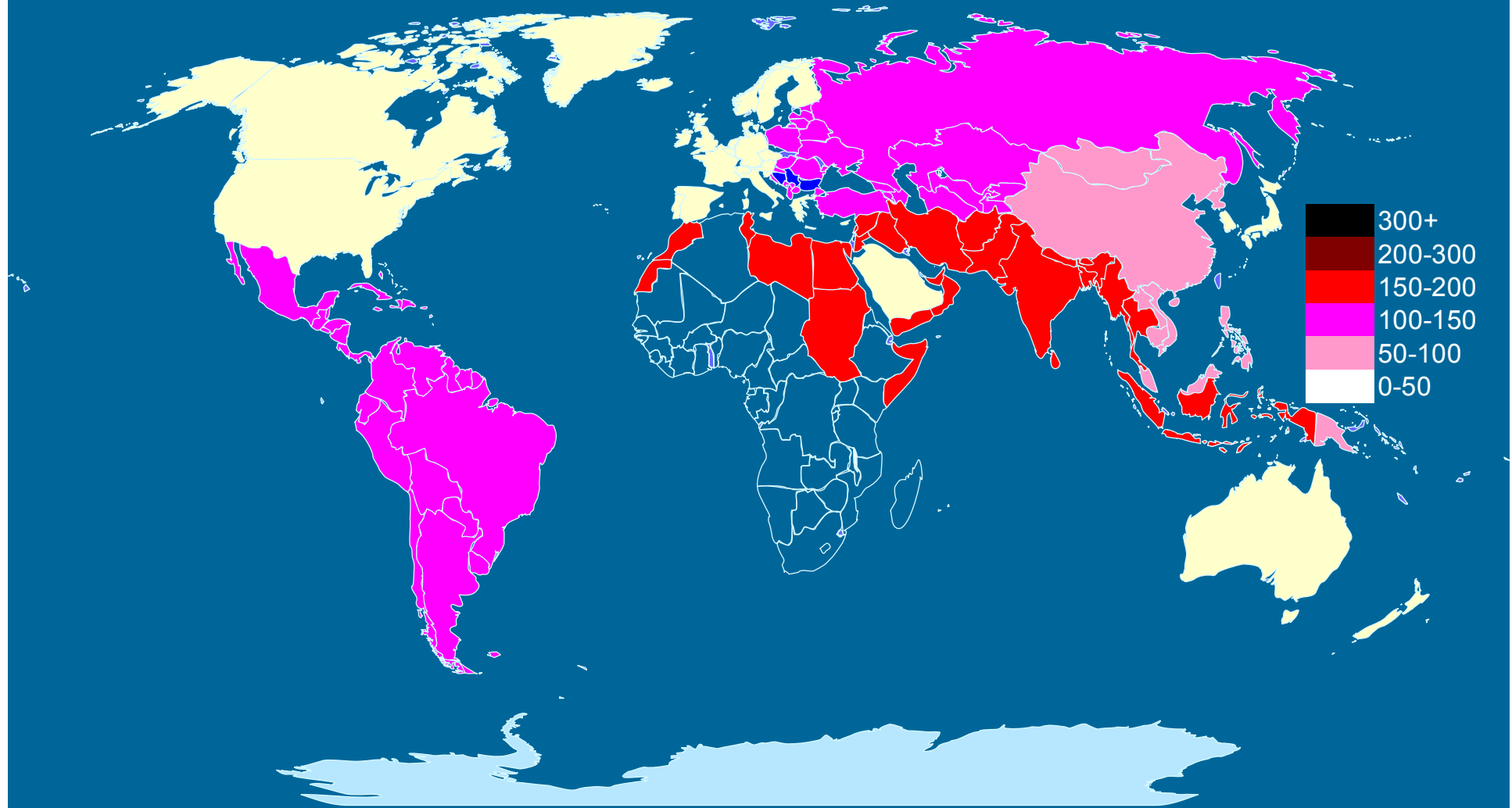
All-cause Mortality 10-24 years



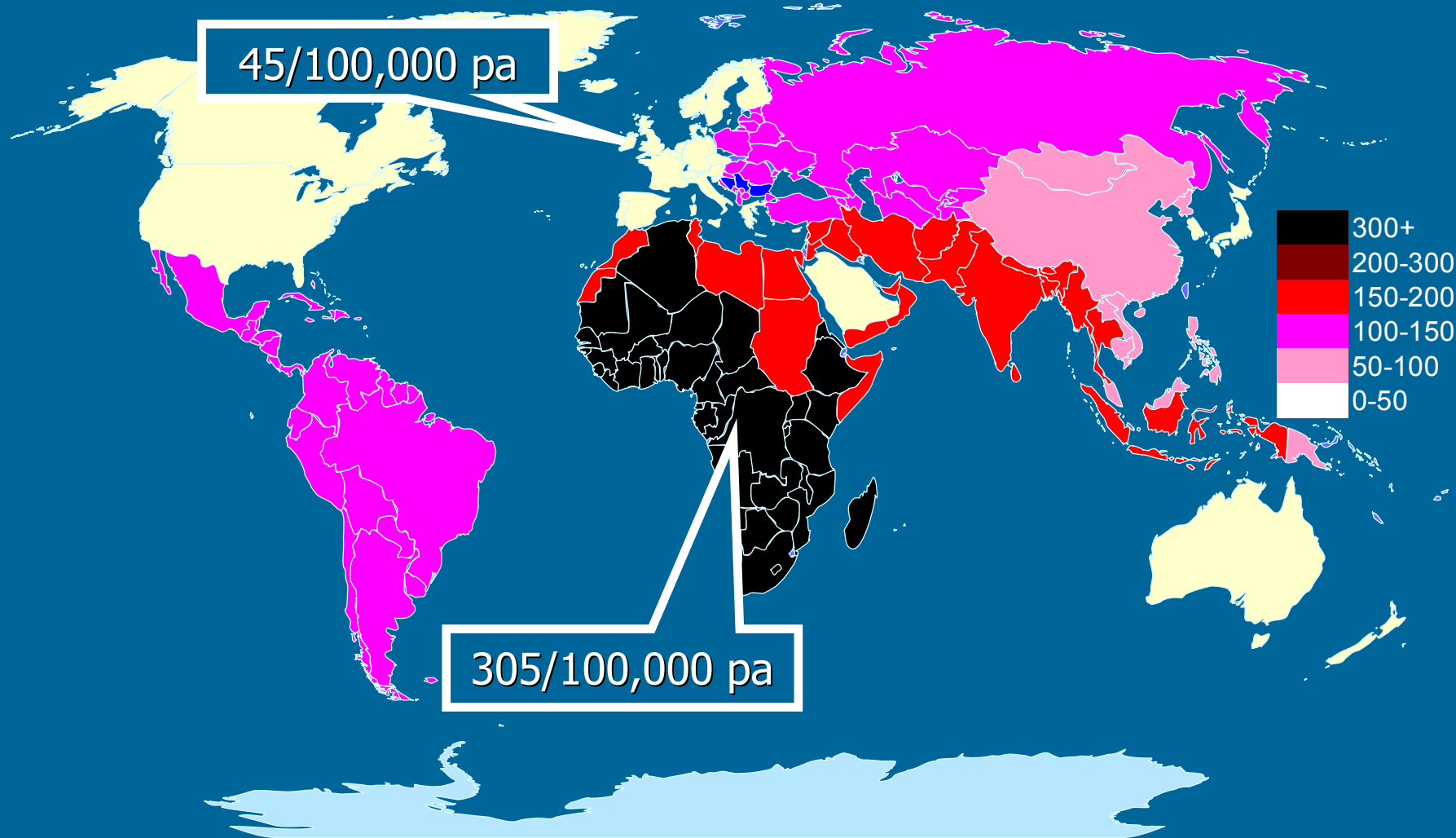
All-cause Mortality 10-24 years



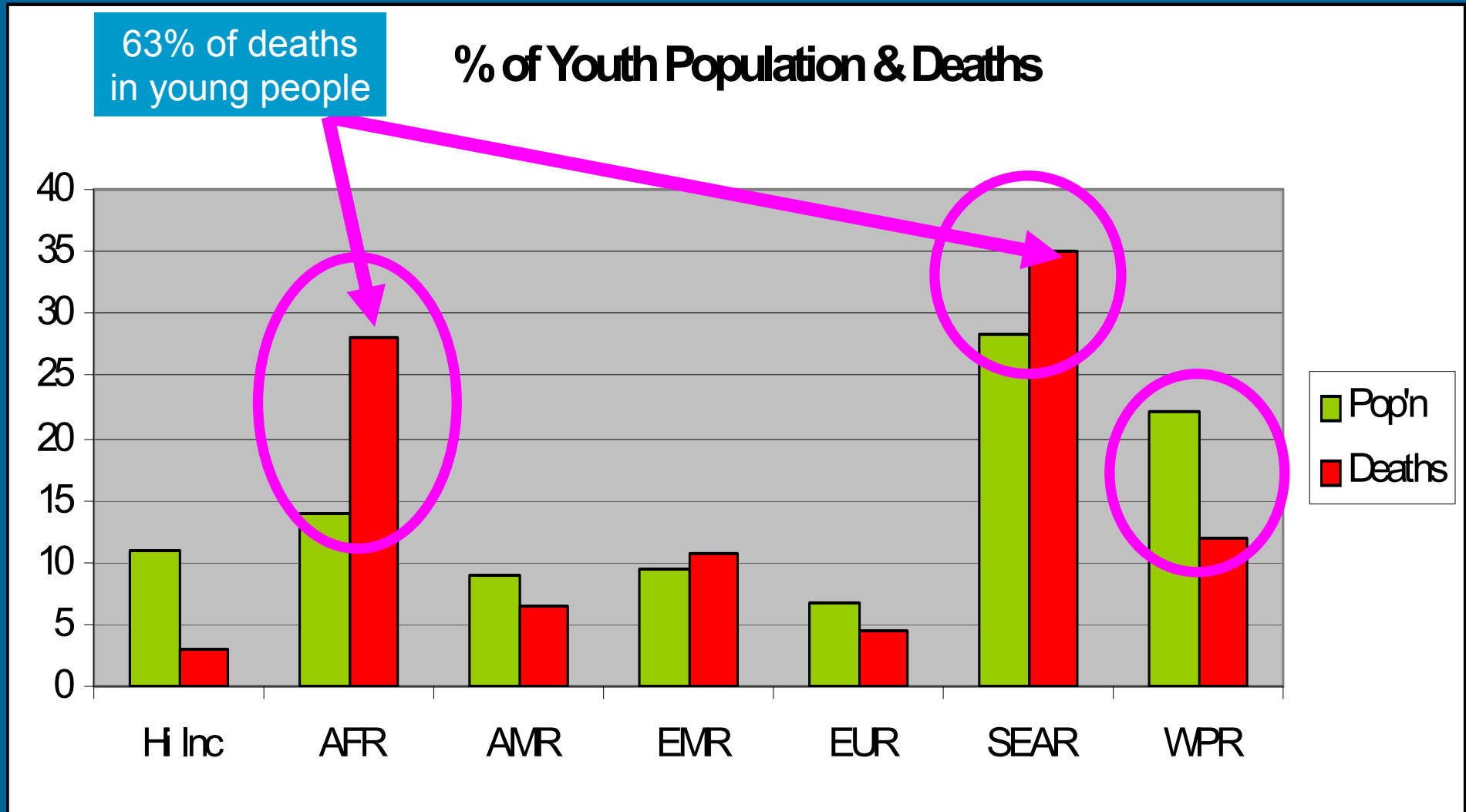
All-cause Mortality 10-24 years



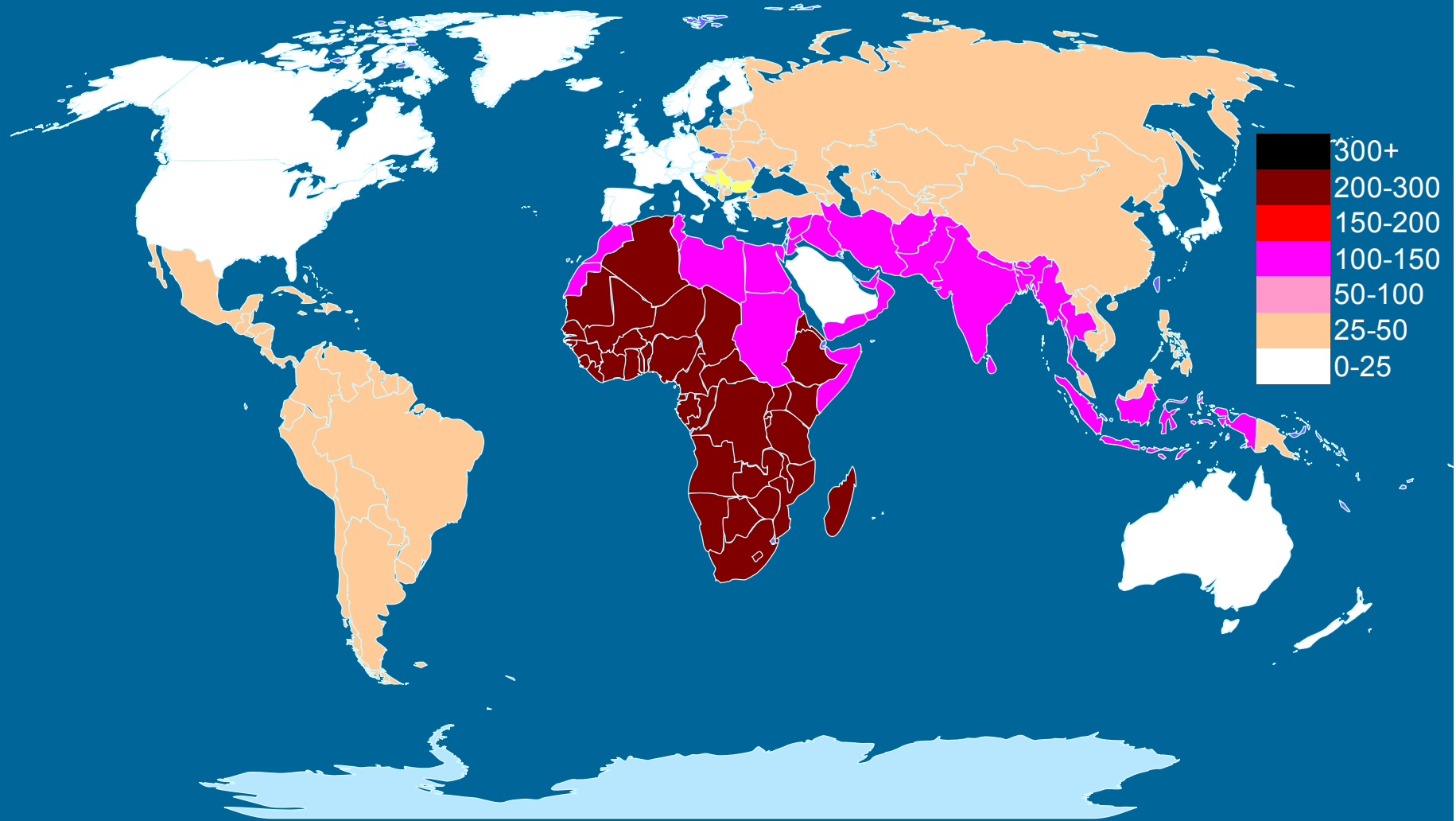
All-cause Mortality 10-24 years



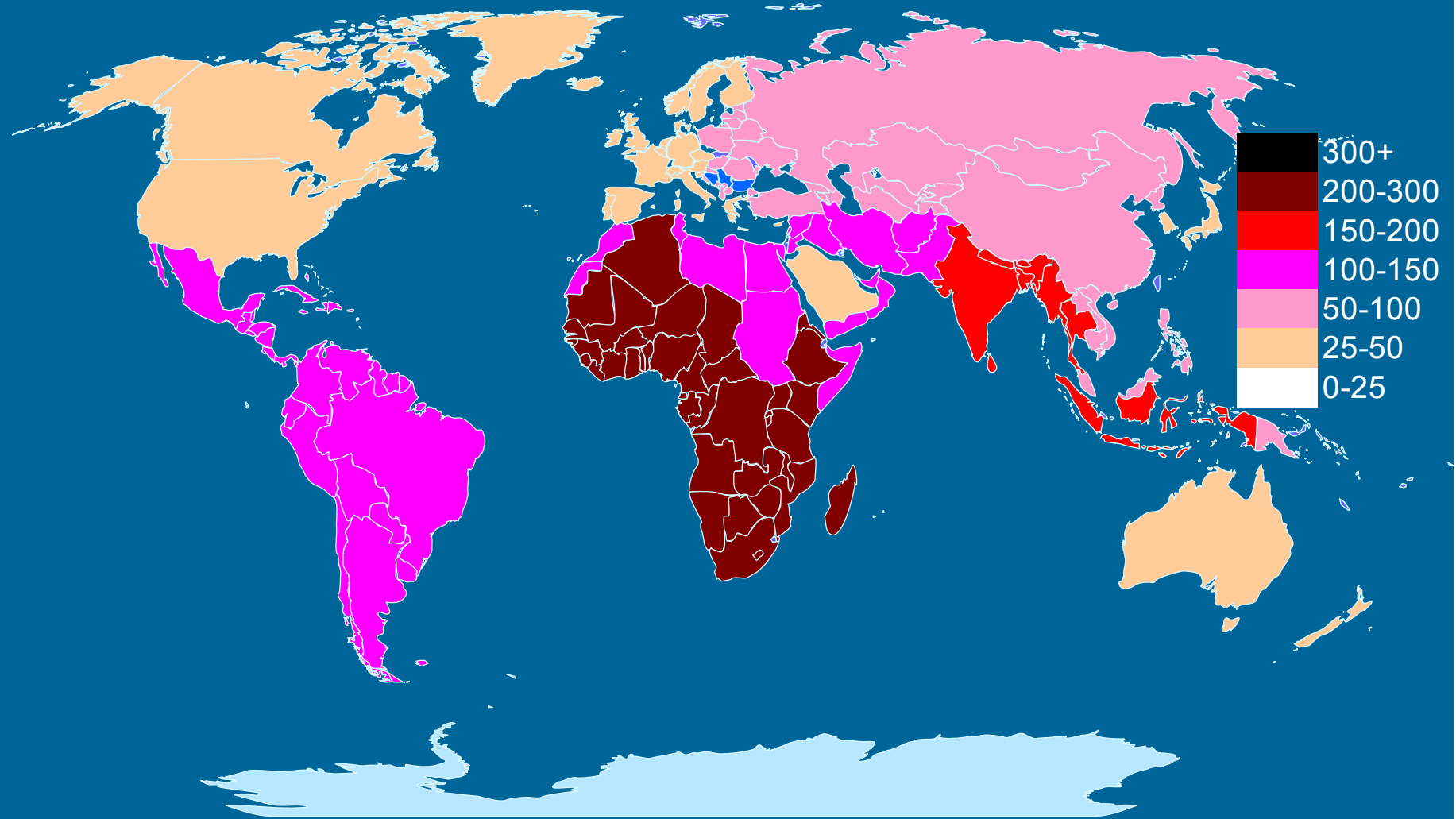
2.6 million deaths each year...



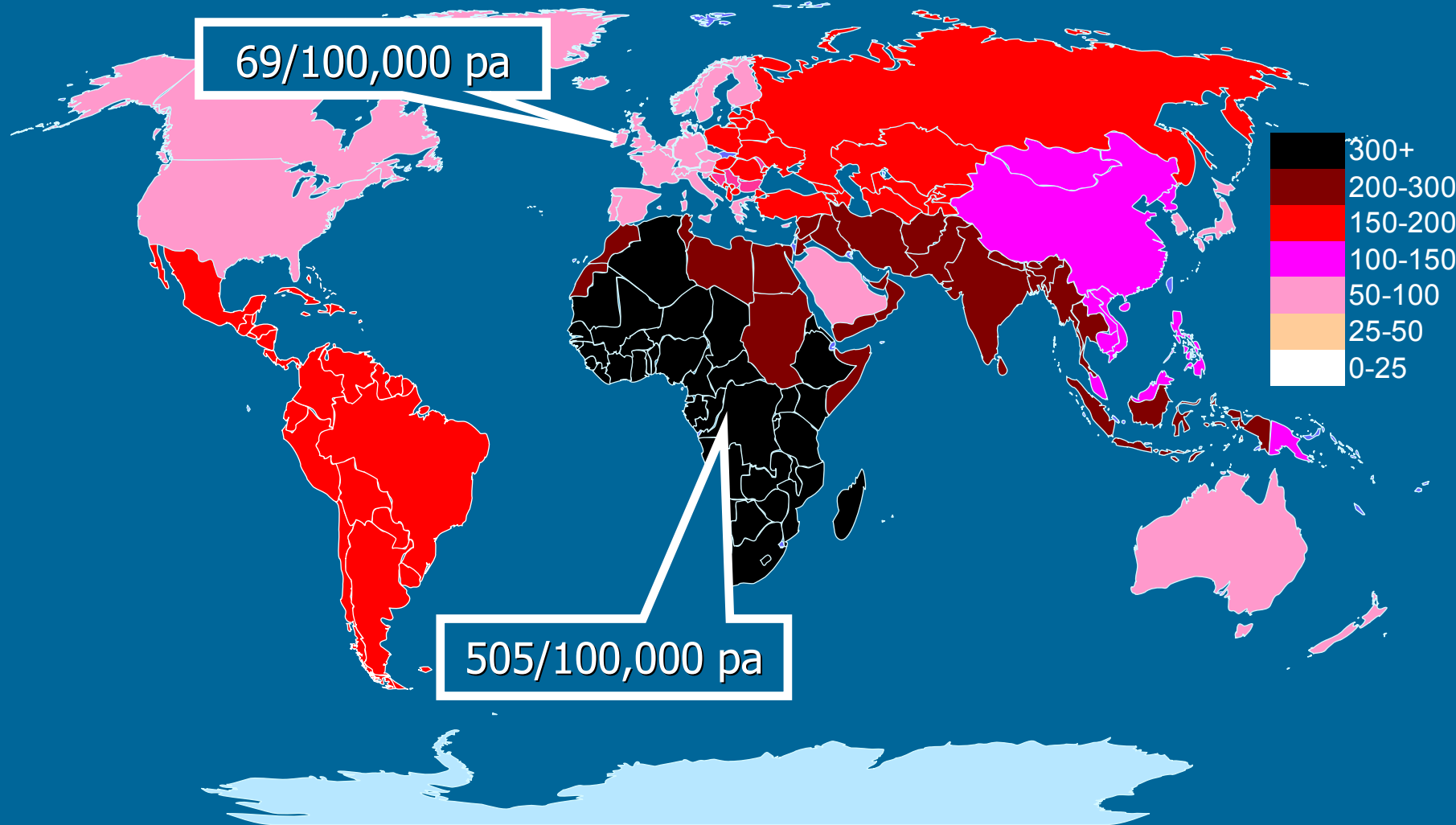
All-cause Mortality 10-14 years



All-cause Mortality 15-19 years

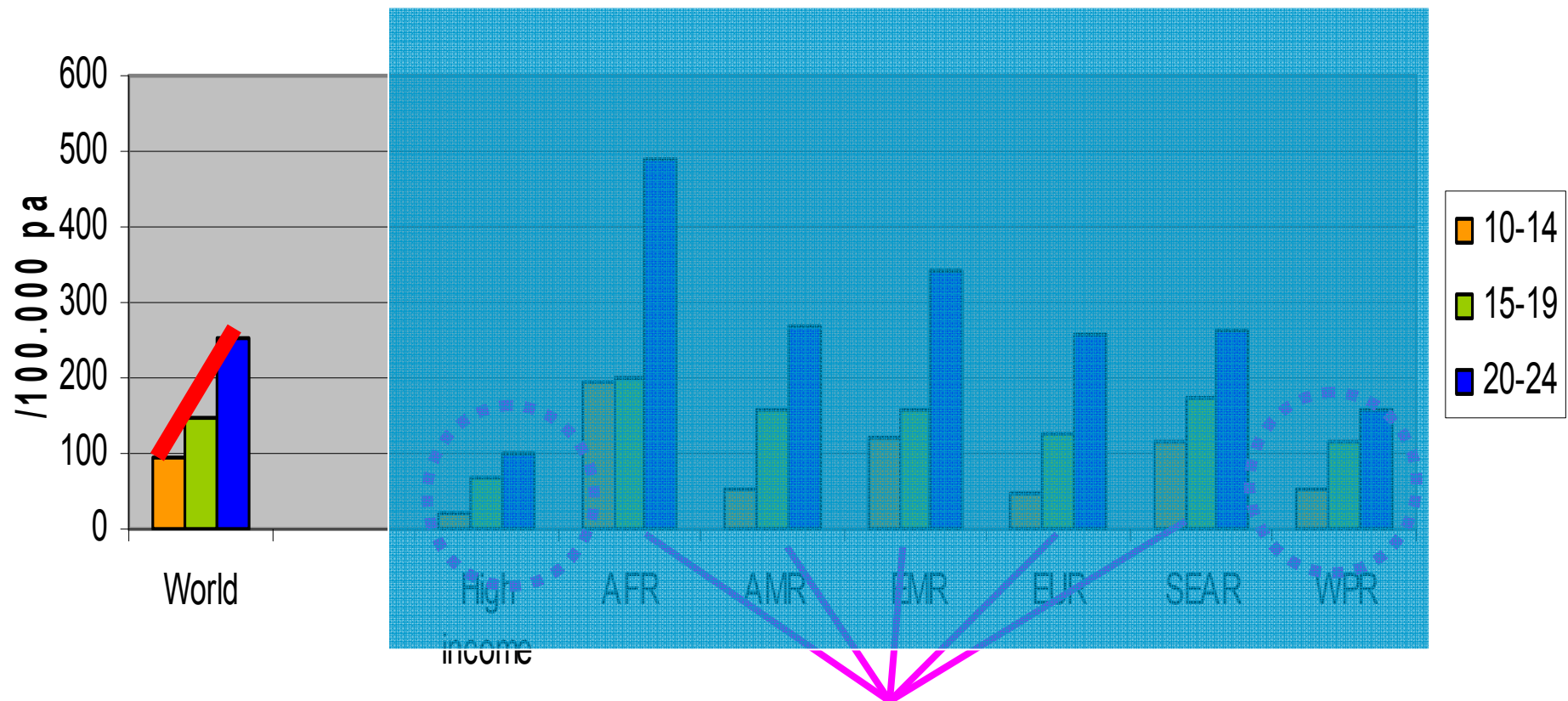


All-cause Mortality 20-24 years



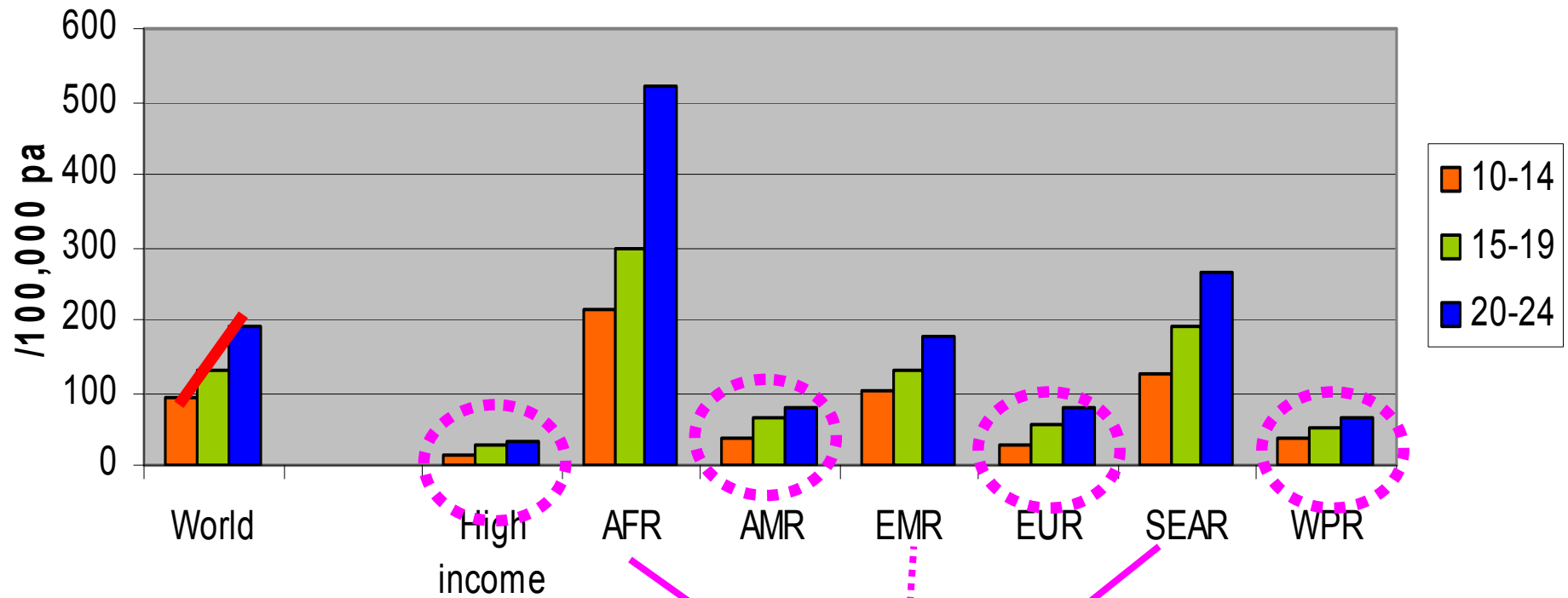
All Cause Mortality

Males



All Cause Mortality

Females



1 How many deaths?

2 Causes?

– regional variation

– leading global causes

3 DALYs?

4 Policy Implications?

Mortality Classification

Group Ia - Maternal

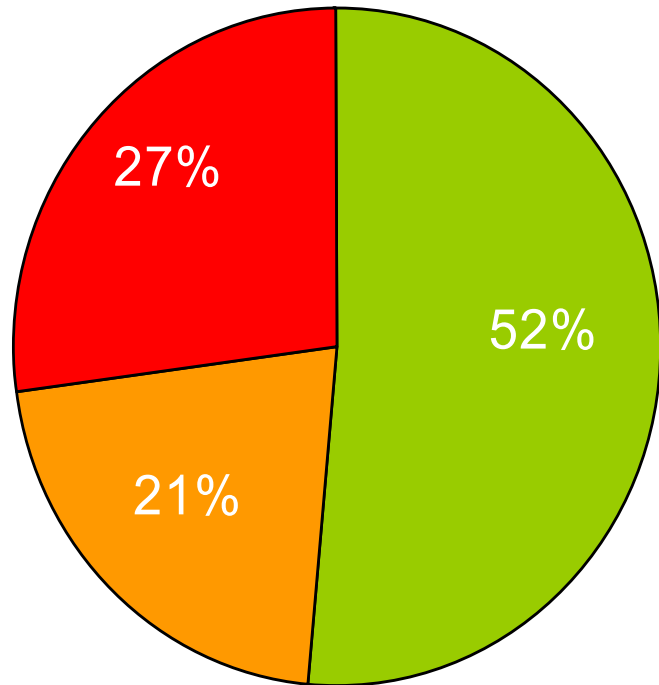
Group Ib - Infectious, Nutritional

Group II - Non-communicable

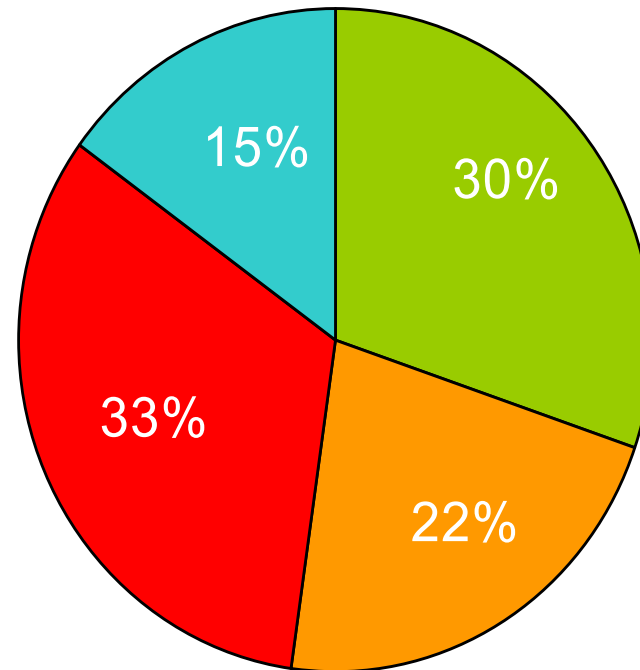
Group III – Injuries*

** Traffic, Suicide, Violence & War, Drowning & Burns*

Male deaths by Group

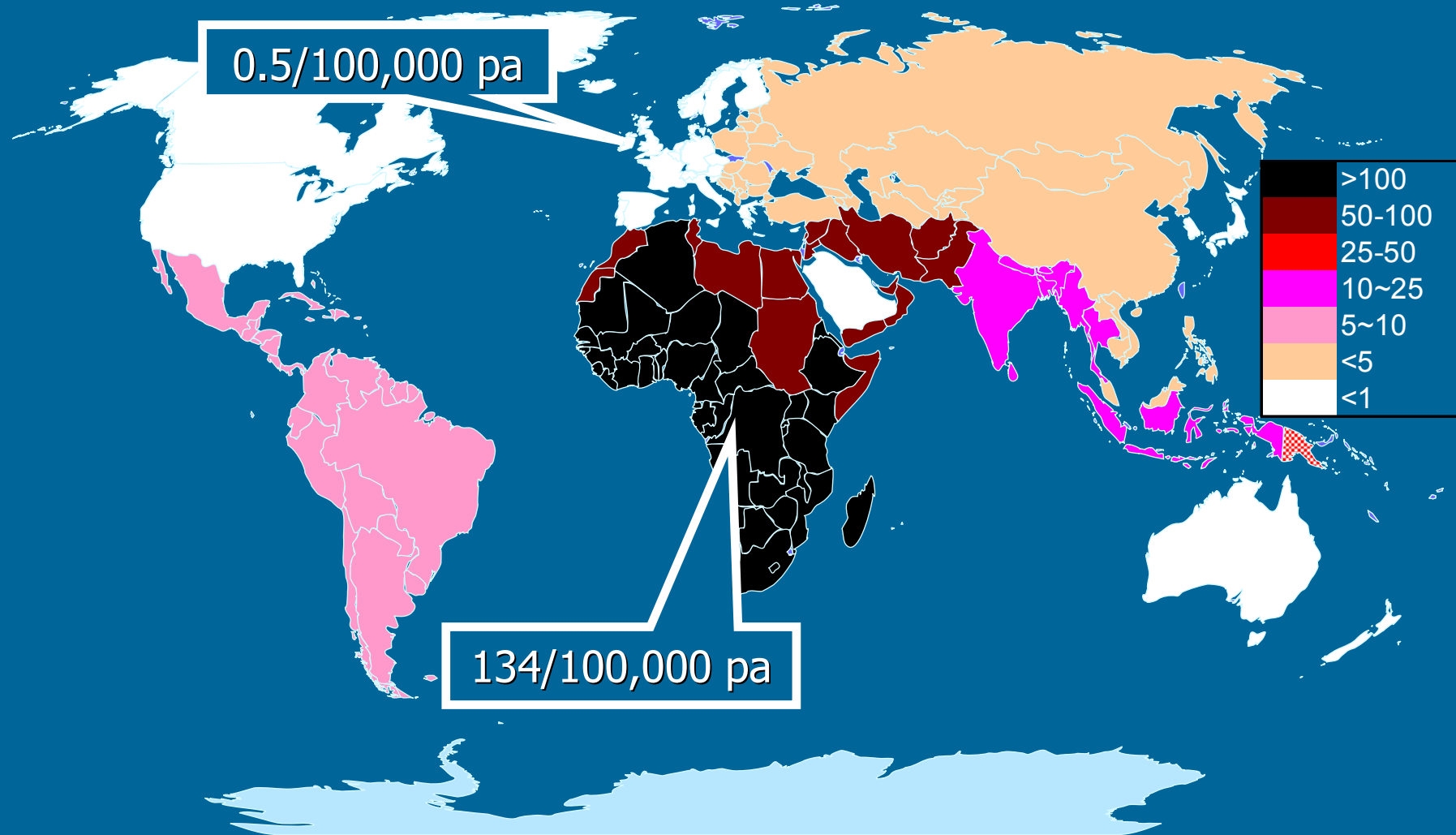


Female deaths by Group

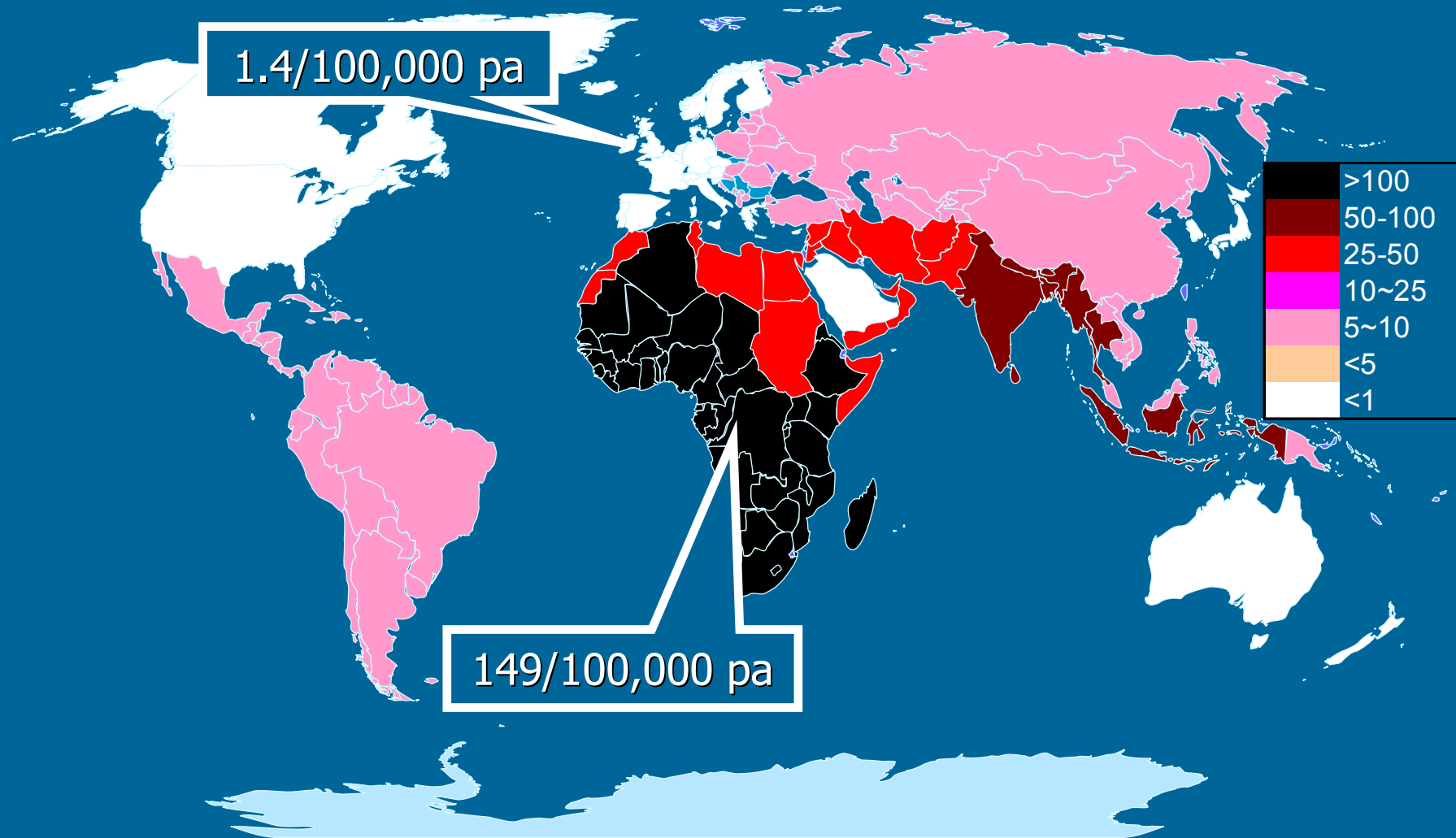


- Injury
- Chronic
- Infectious
- Maternal

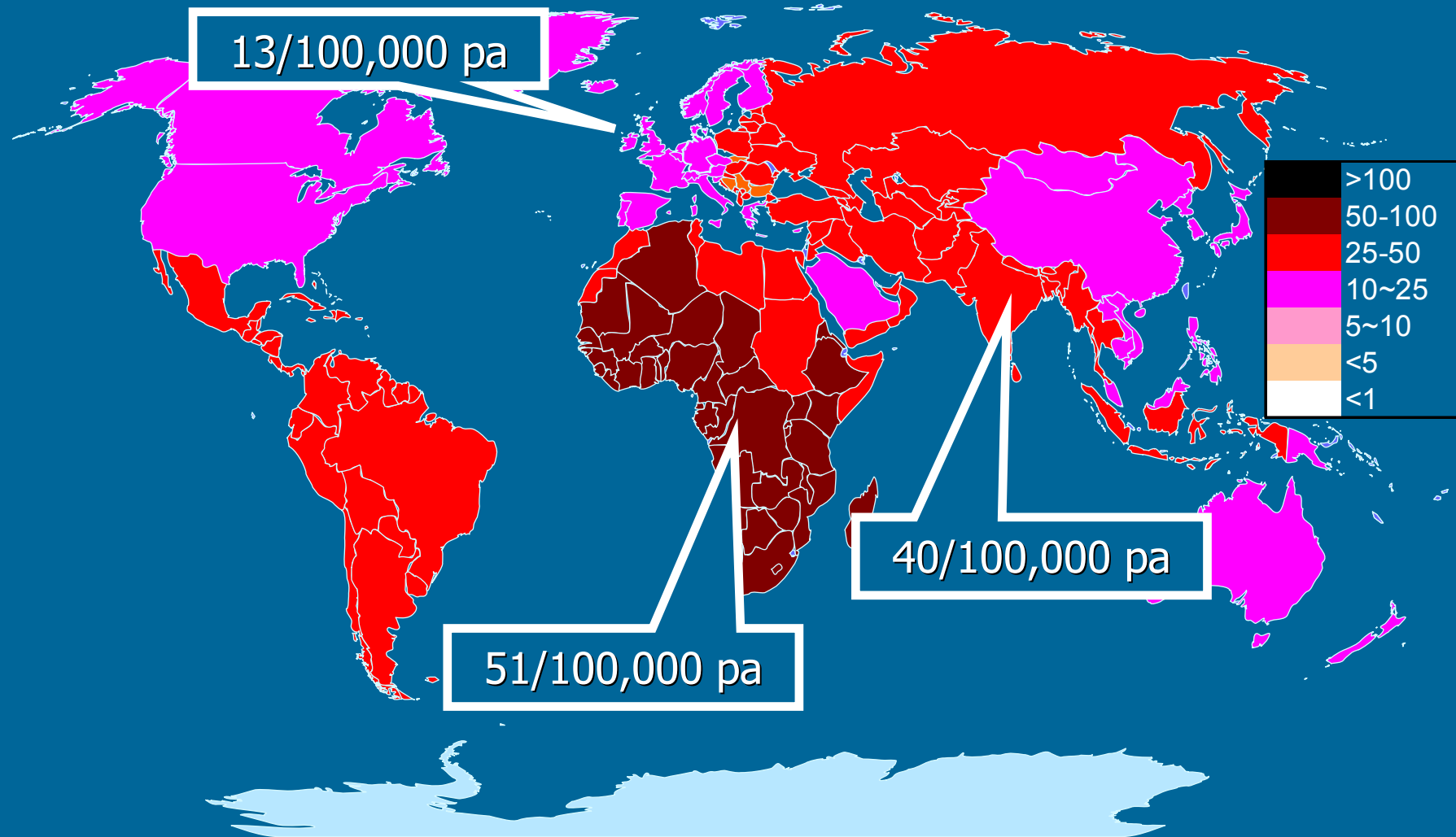
Maternal Deaths 15-24 years



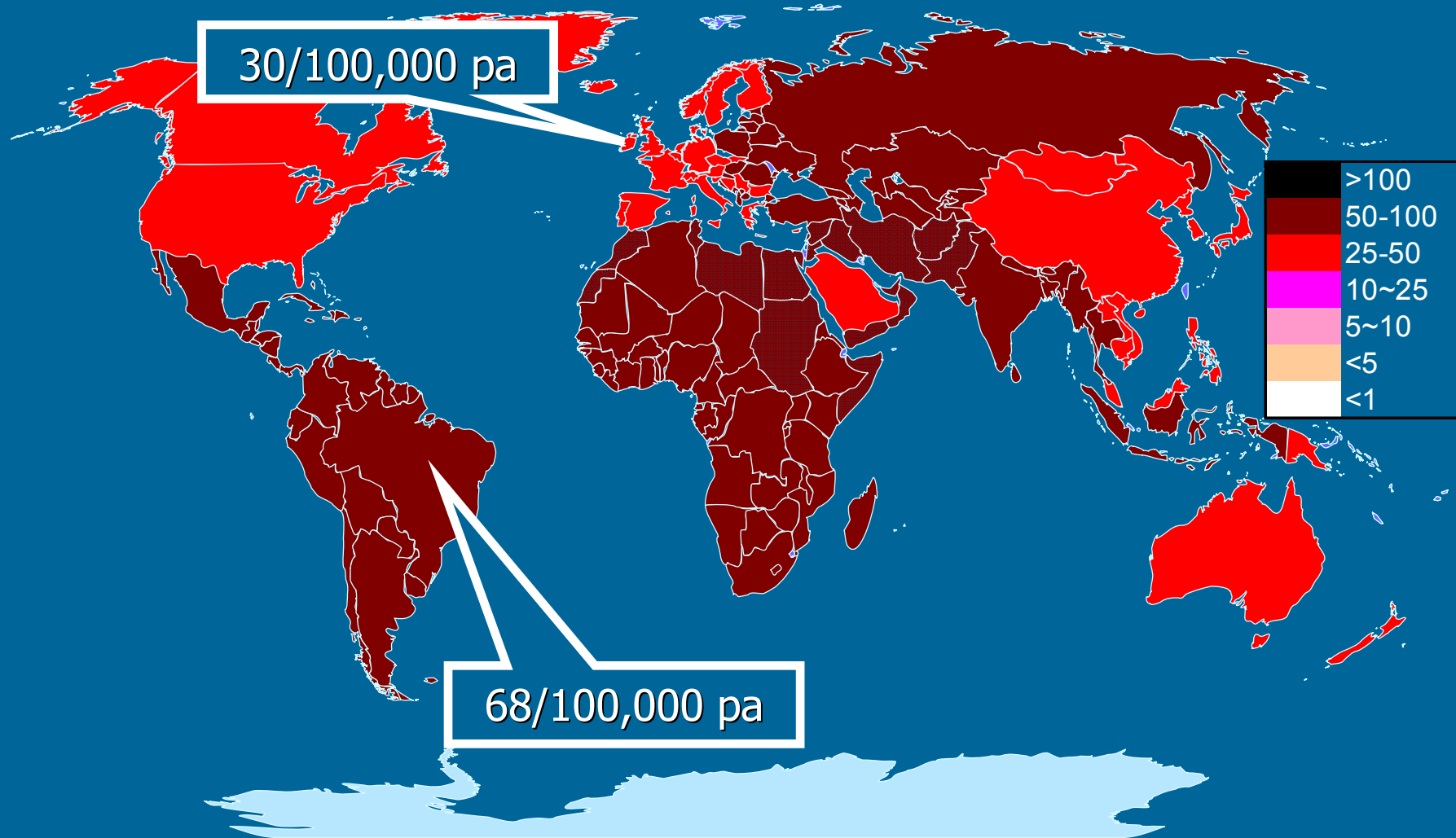
Infectious Disease Deaths 10-24 years



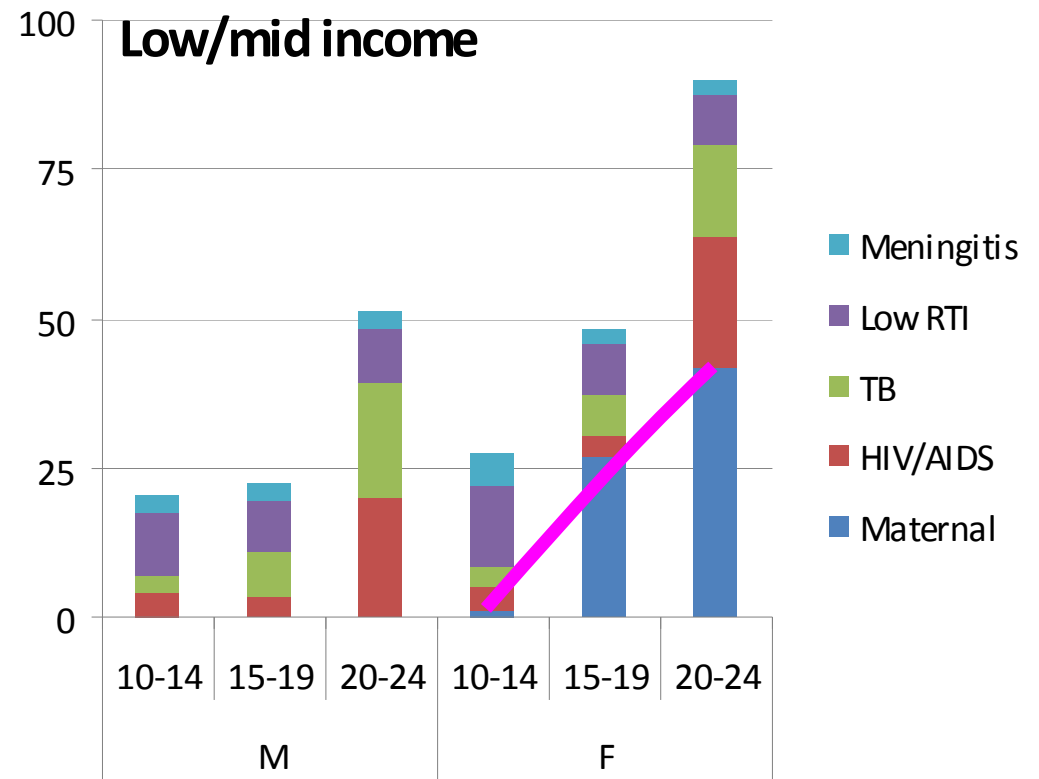
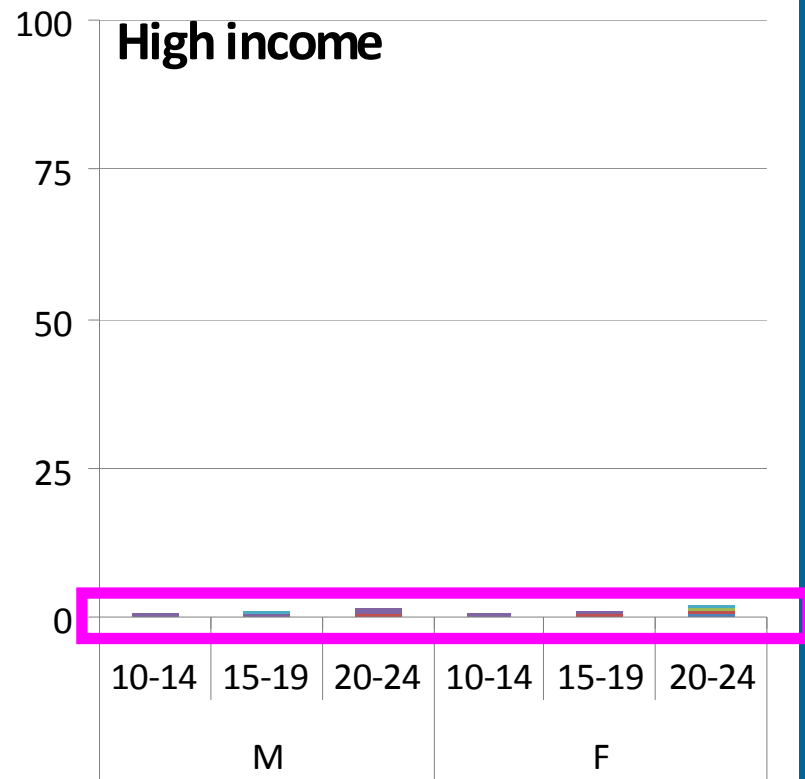
Chronic Disease Deaths 10-24 years



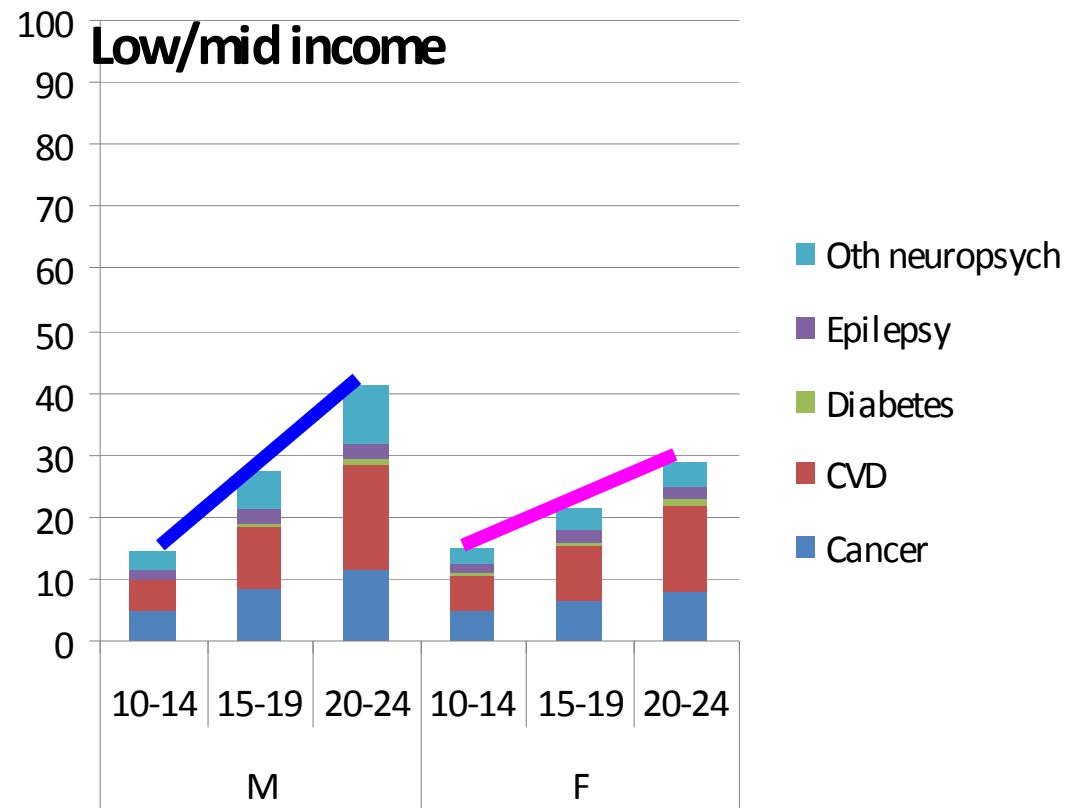
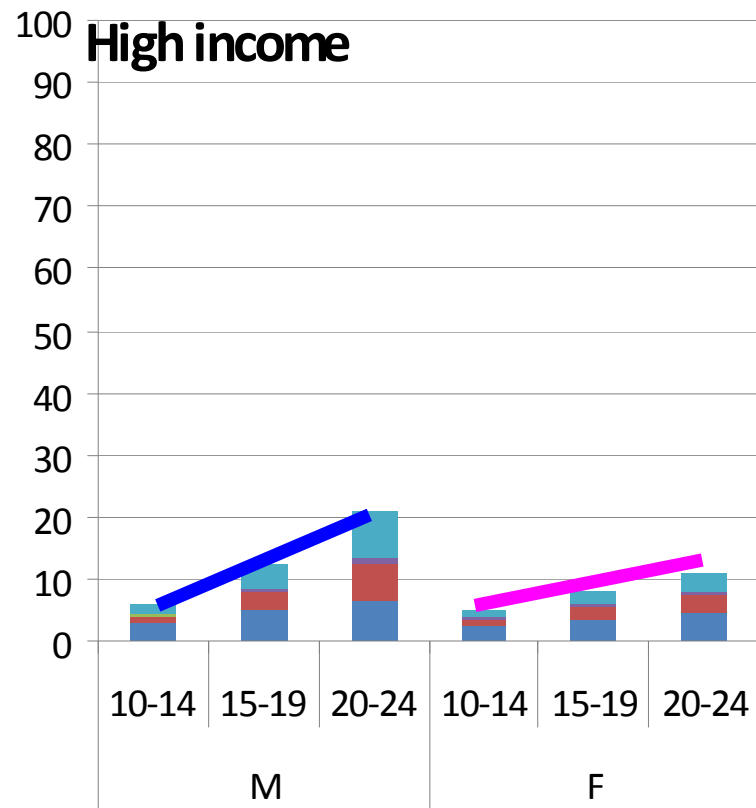
Injury Deaths 10-24 years



Infectious disease & maternal mortality by age & sex

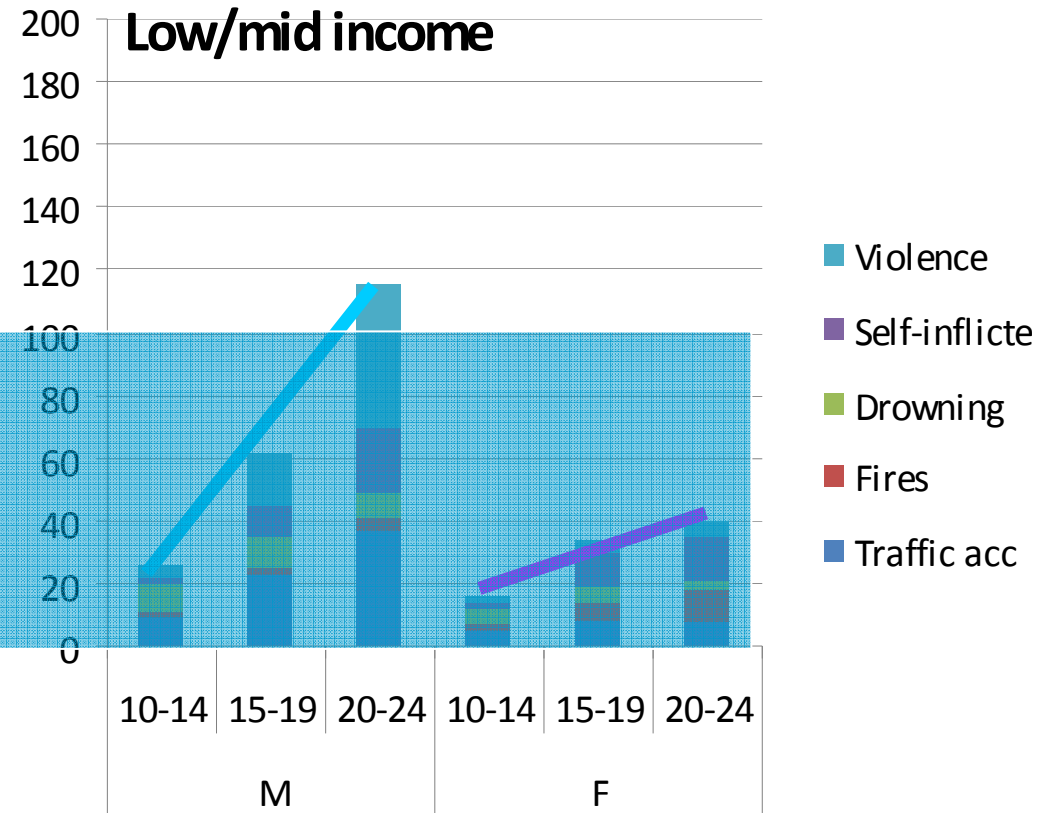
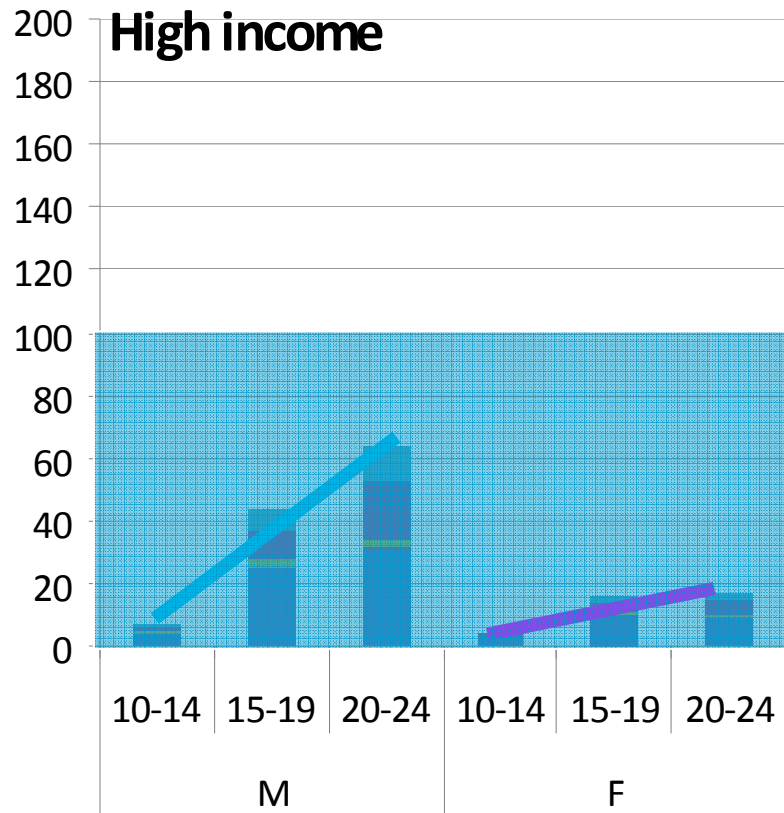


Chronic illness mortality by age & sex



- Oth neuropsych
- Epilepsy
- Diabetes
- CVD
- Cancer

Injury mortality by age & sex



10 Leading Causes of Death 10 to 24 year olds

Rank		% total
1	Road traffic accidents	10.0
2	Self-inflicted injuries	6.3
3	Violence	6.0
4	Lower respiratory infections	5.9
5	Tuberculosis	5.5
6	HIV/AIDS	5.5
7	Drownings	4.1
8	Fires	2.6
9	Meningitis	2.0
10	War	1.8

10 Leading Causes of Death in 10 to 24 year olds

Males

Rank		% total
1	Road traffic accidents	13.9
2	Violence	9.2
3	Self-inflicted injuries	6.4
4	Drownings	5.3
5	Tuberculosis	5.2
6	Lower respiratory infections	5.2
7	HIV/AIDS	4.9
8	War	2.8
9	Leukaemia	1.9
10	Meningitis	1.8

Females

	% total
Lower respiratory infections	6.7
Self-inflicted injuries	6.2
HIV/AIDS	6.1
Tuberculosis	5.8
Road traffic accidents	5.0
Fires	4.3
Maternal haemorrhage	3.2
Abortion	2.6
Drownings	2.5
Meningitis	2.3

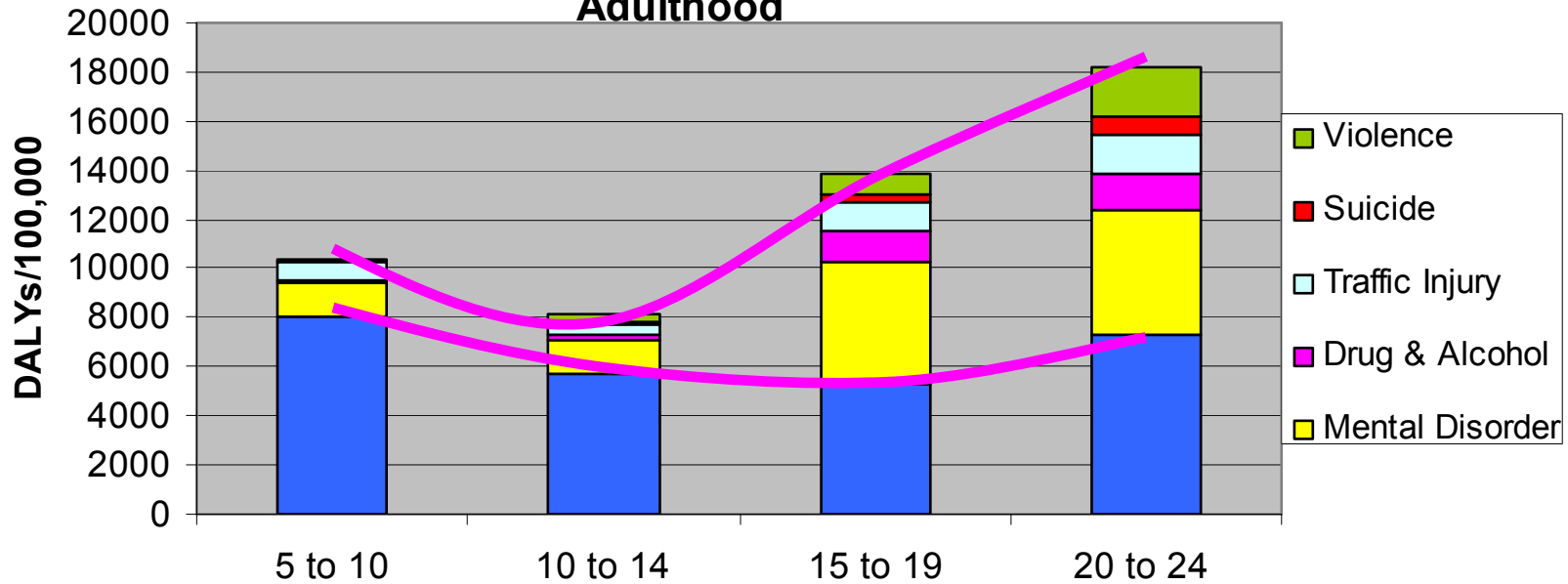
1 How many death?

2 Causes?

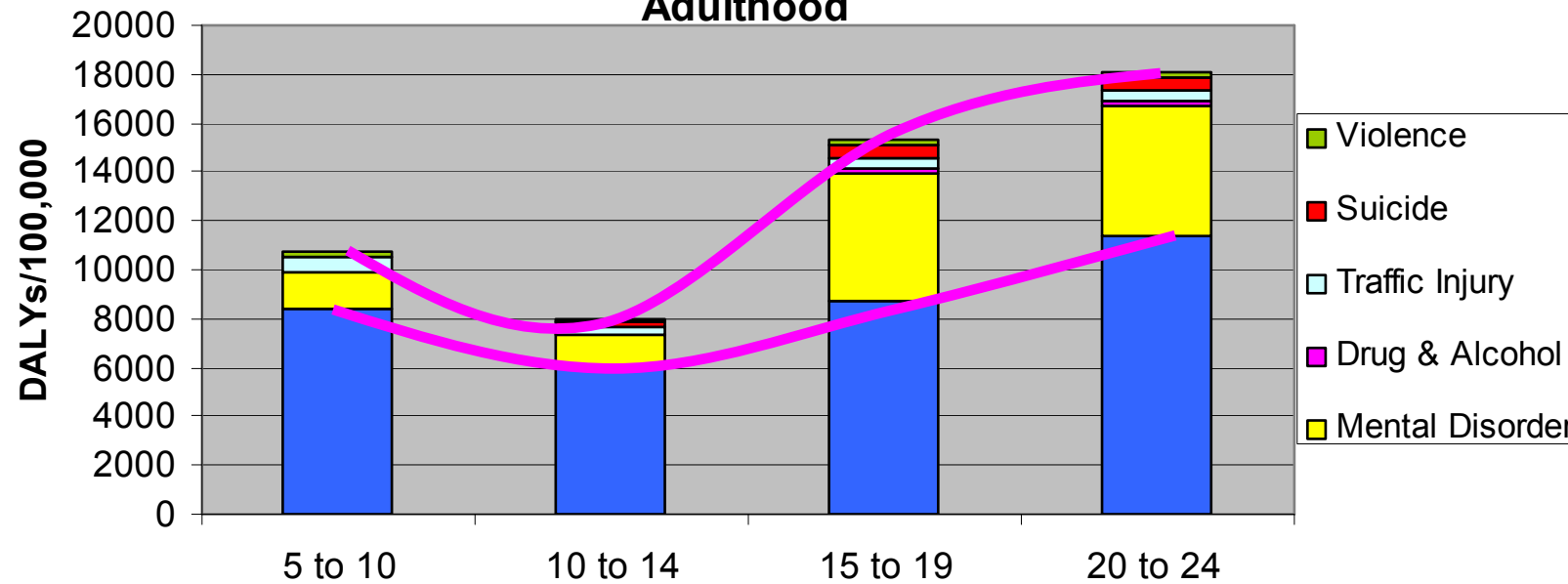
3 DALYs?

4 Policy Implications?

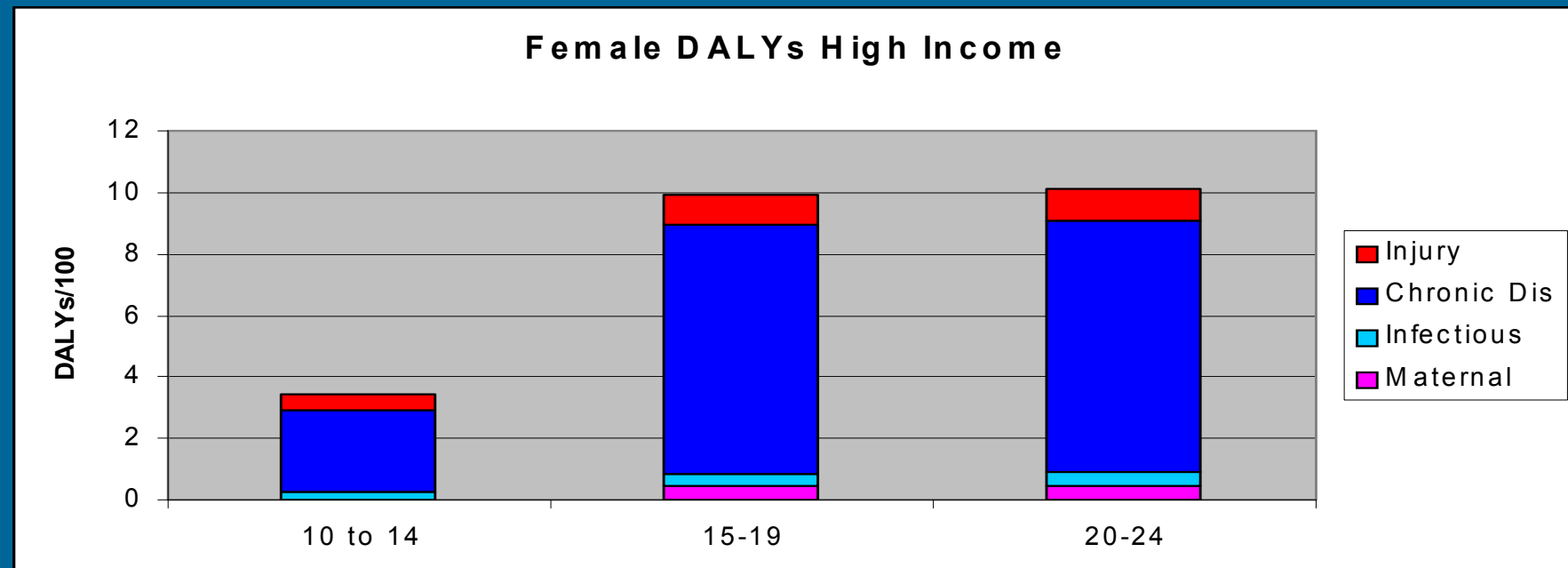
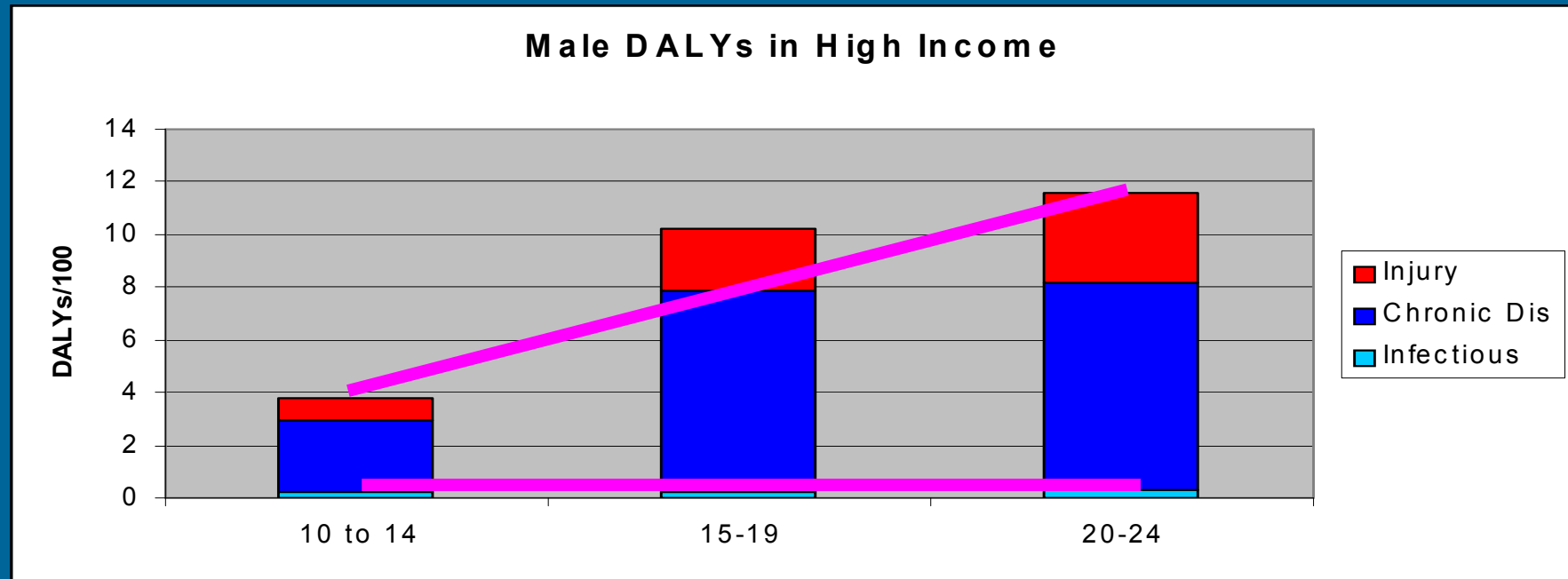
Global Male Disease Burden from Childhood to Young Adulthood



Global Female Disease Burden from Childhood to Young Adulthood



Adolescent DALYs in High Income Countries



1 How many death?

2 Causes?

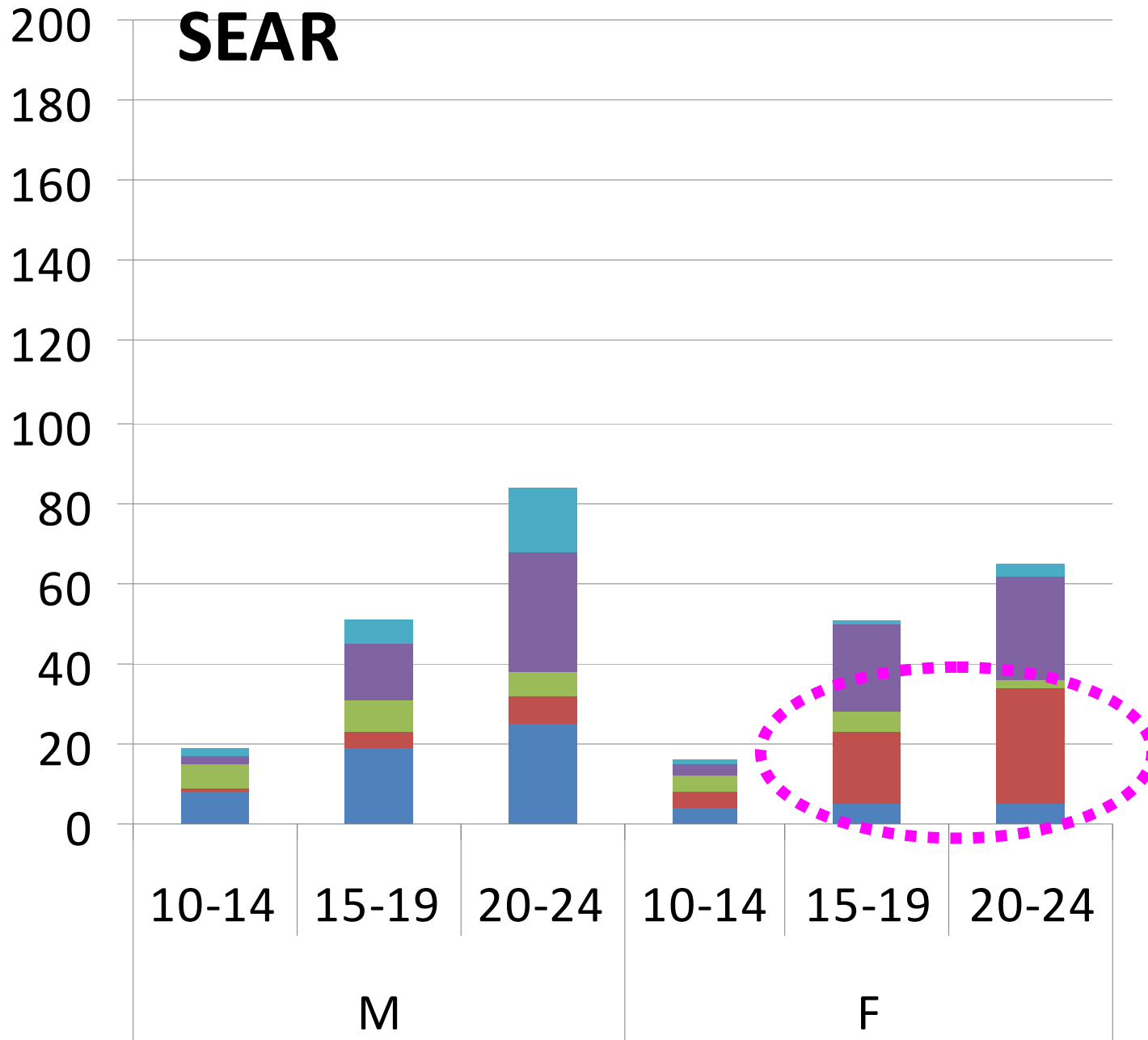
3 DALYs?

4 Policy Implications?



Burning Deaths

SEAR



Violence

Suicide

Drowning

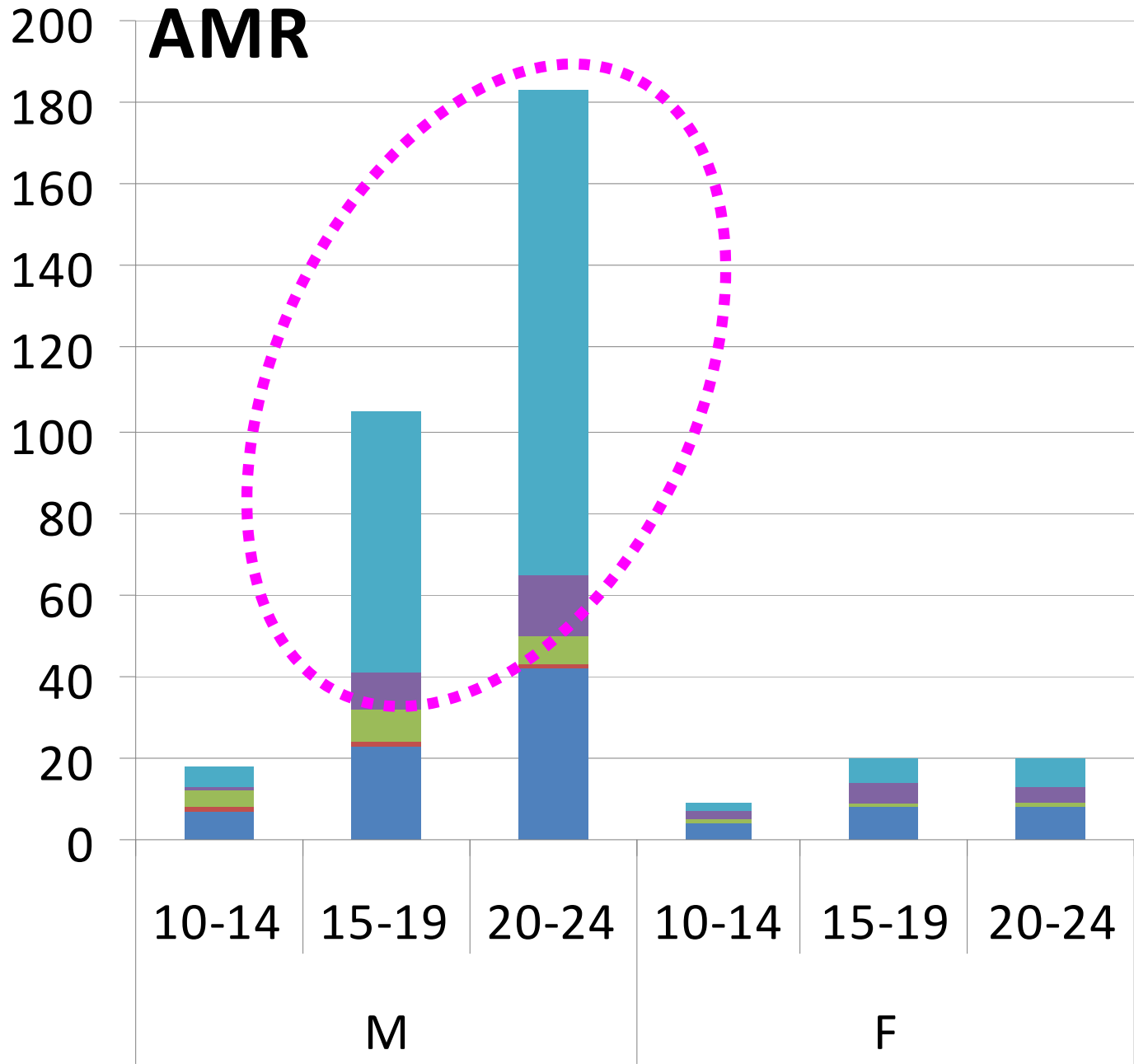
Fires

Traffic Inj



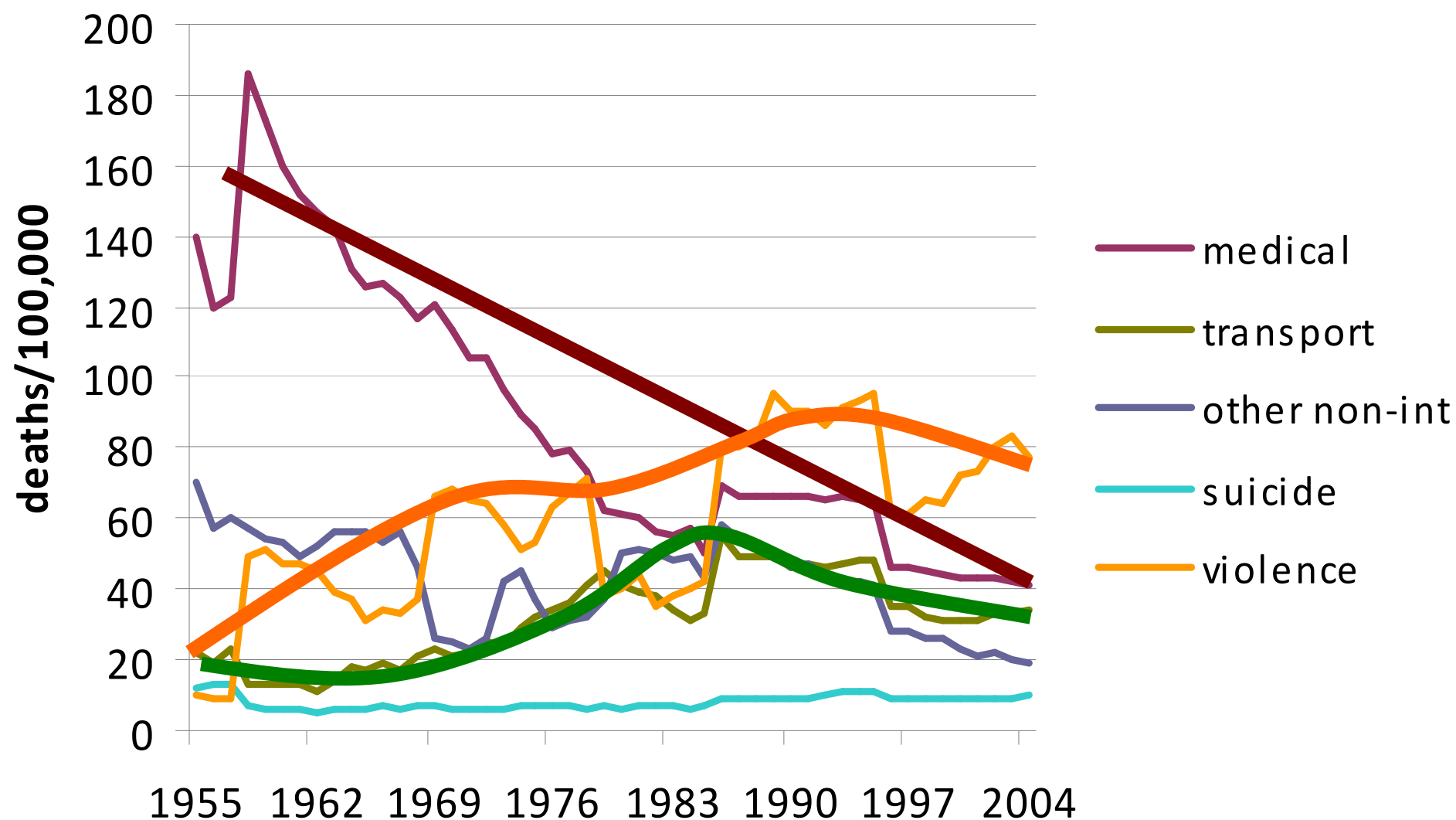
Gun Deaths in Central & South America

AMR

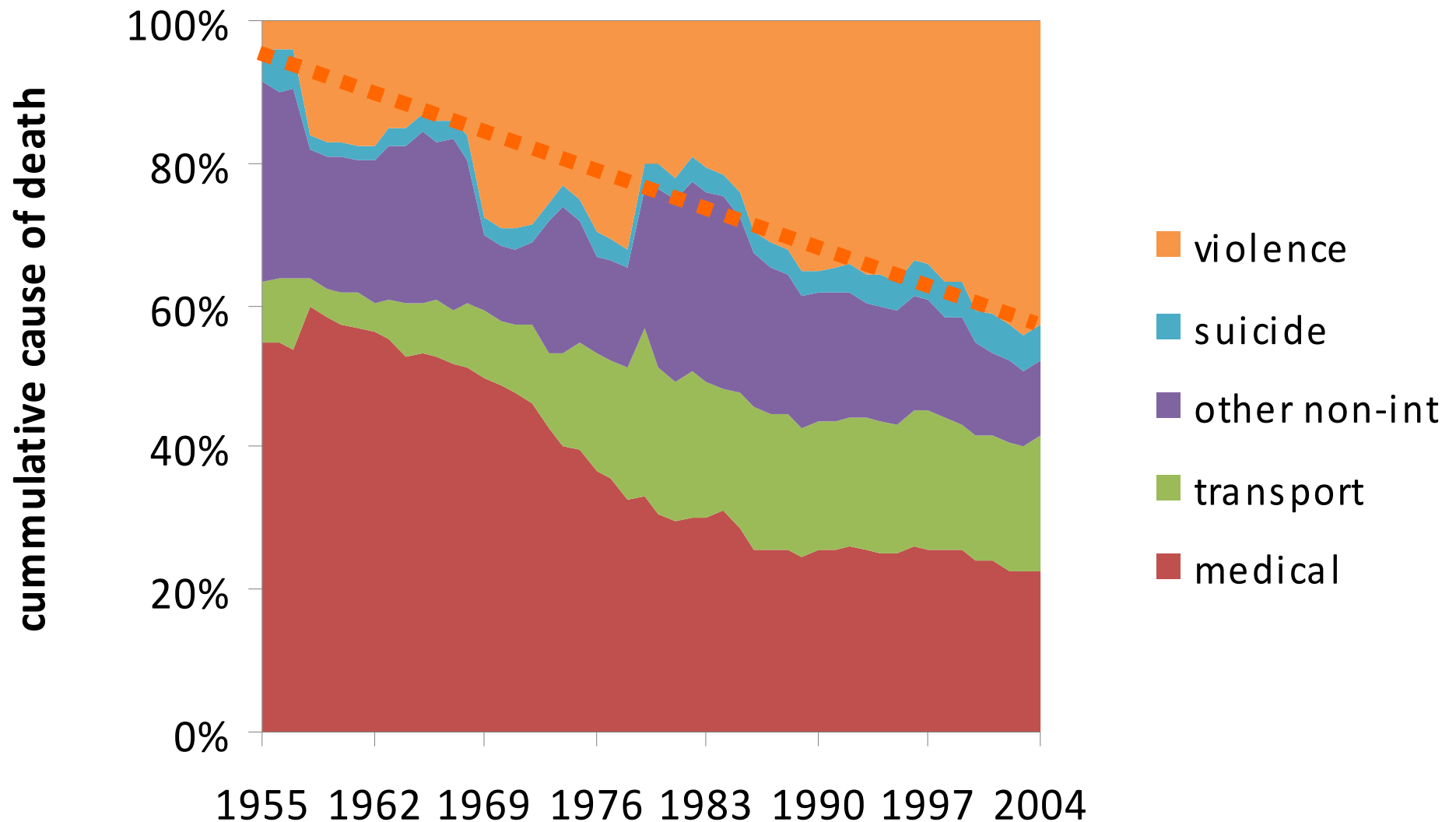


- Violence
- Suicide
- Drowning
- Fires
- Traffic Inj

50-year Sth America: Cause-specific death rates in 15-24yo males

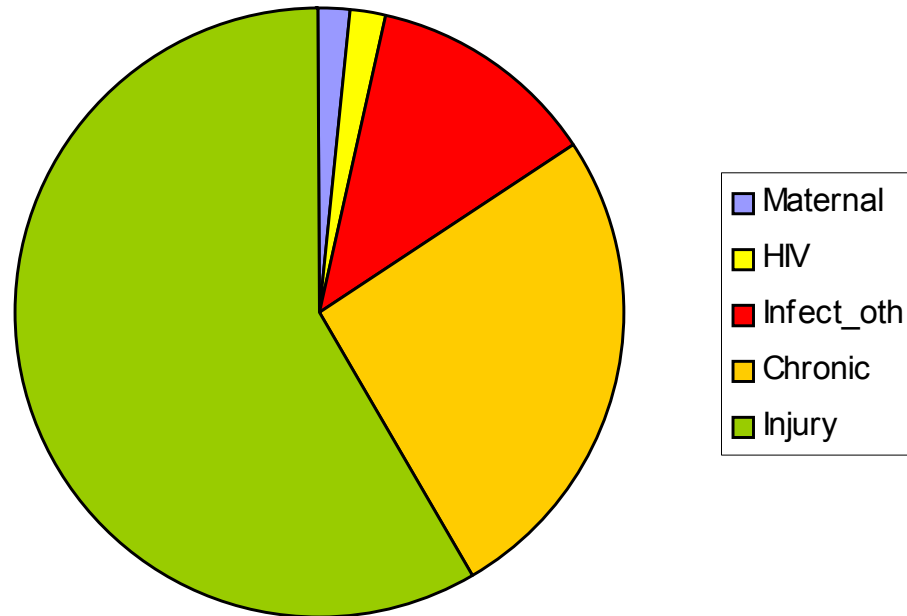


50-year Sth America: Cause specific proportions of 15-24yo male deaths



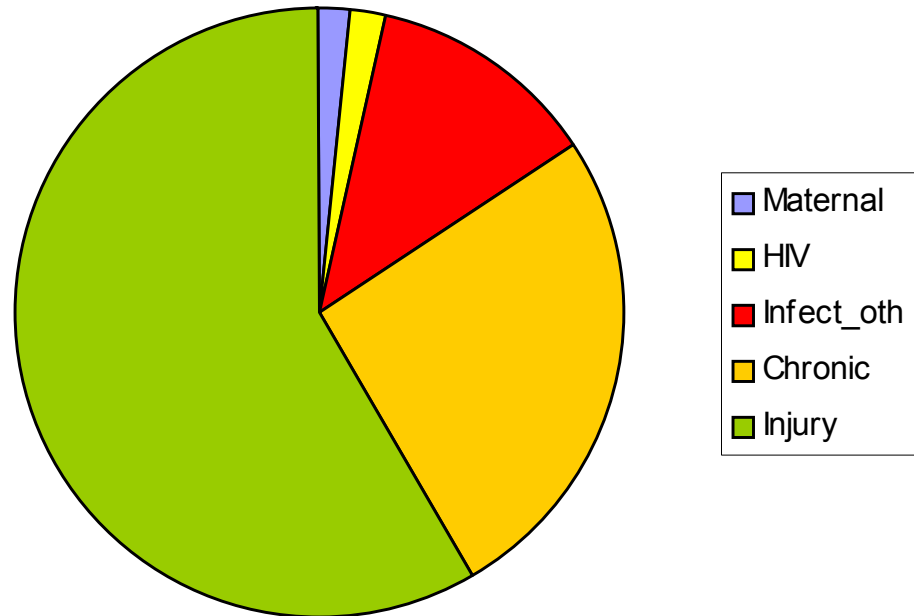
Rapidly Changing Priorities in Youth Health

Proportion of deaths in 10-24 yo in WPR

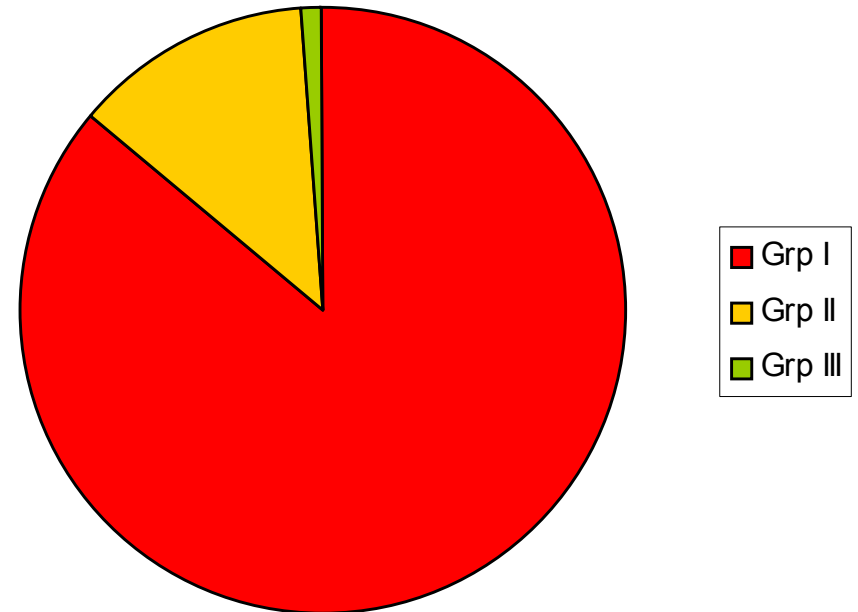


Rapidly Changing Priorities in Youth Health

Proportion of deaths in 10-24 yo in WPR

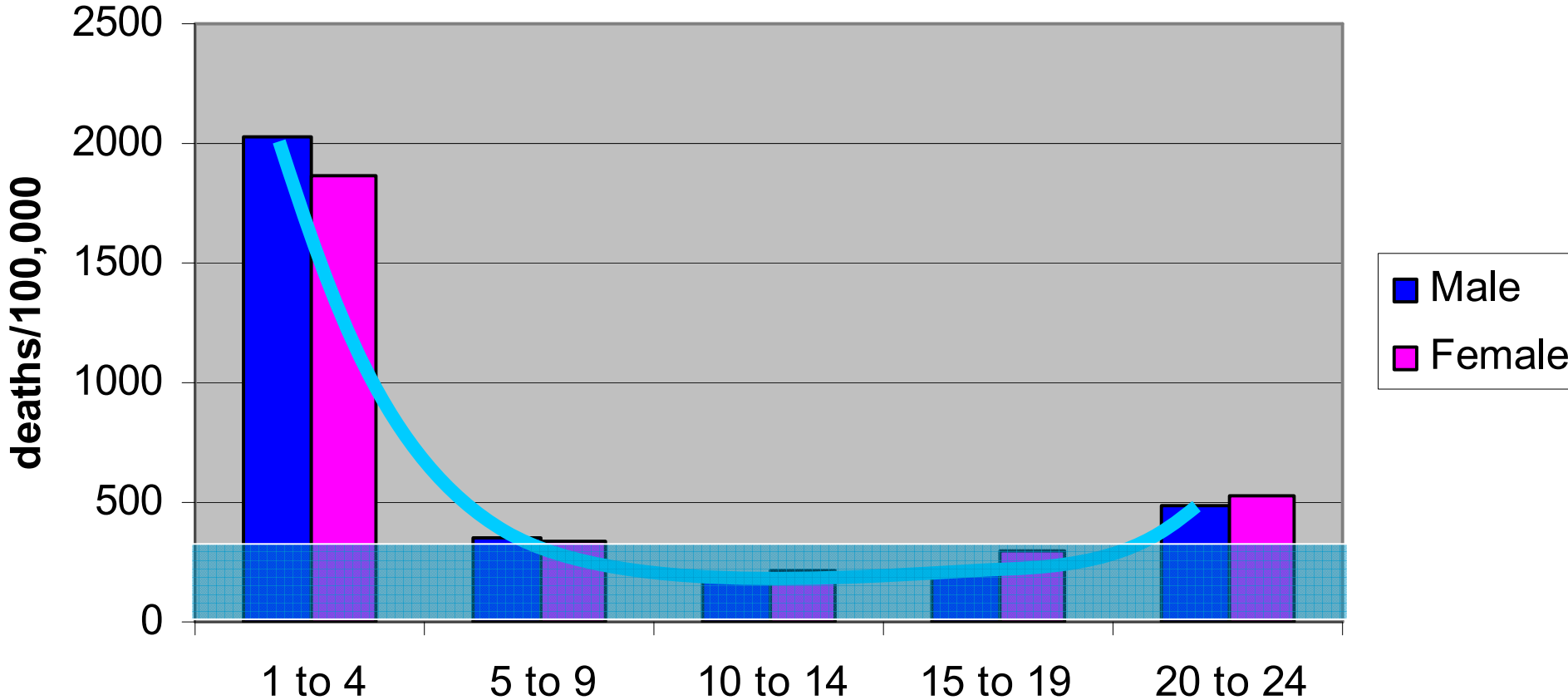


Proportion of WPR spending by Group

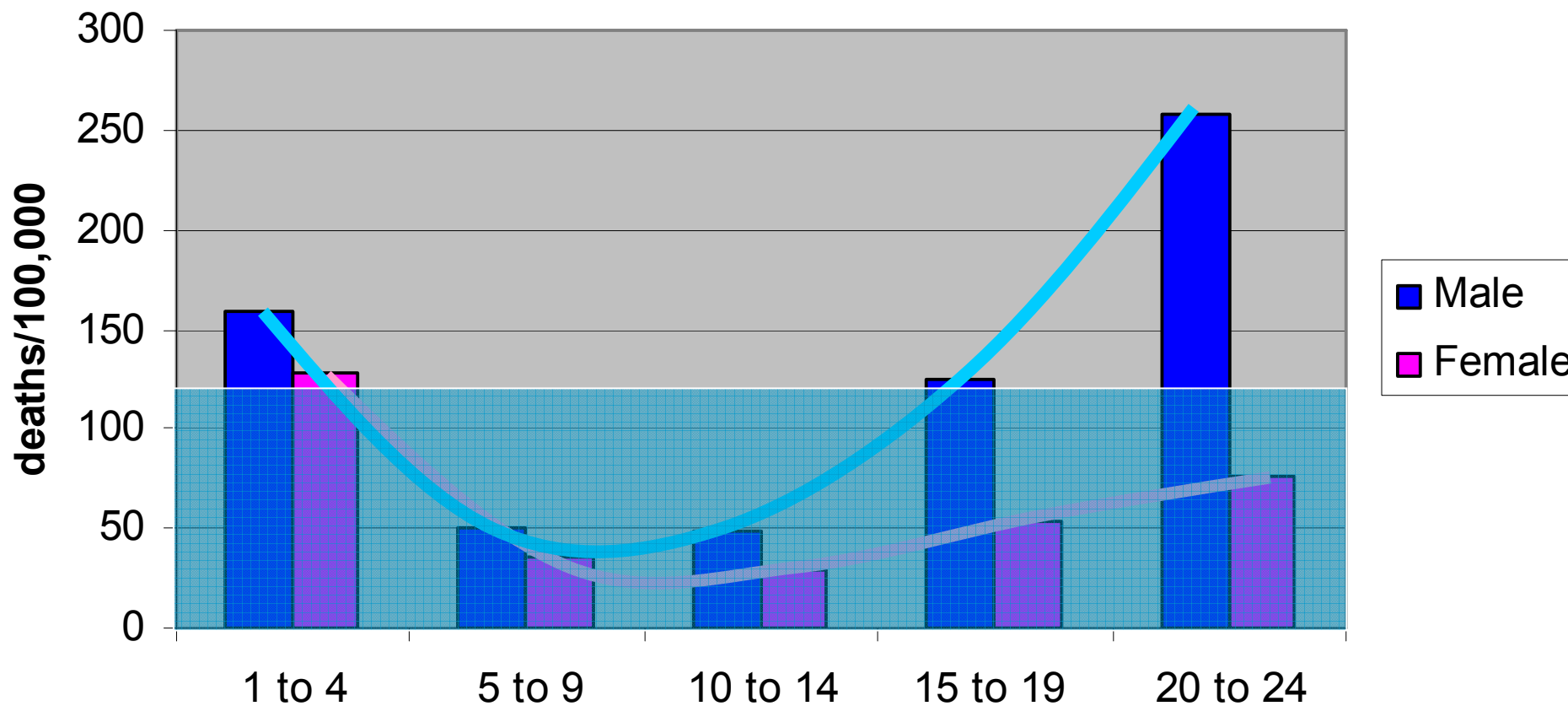


Health transition and child and adolescent health

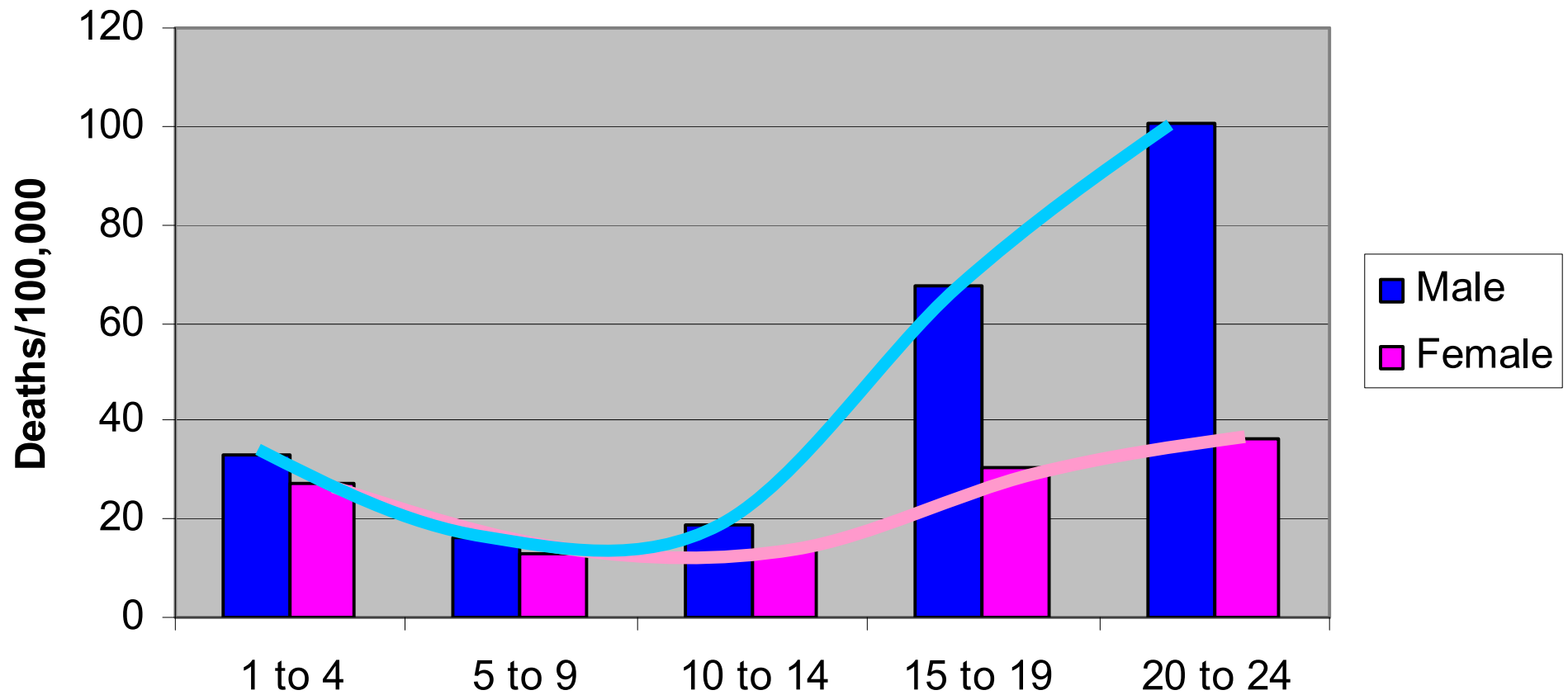
African mortality from 1 to 24 years



Eastern European mortality from 1 to 24 years

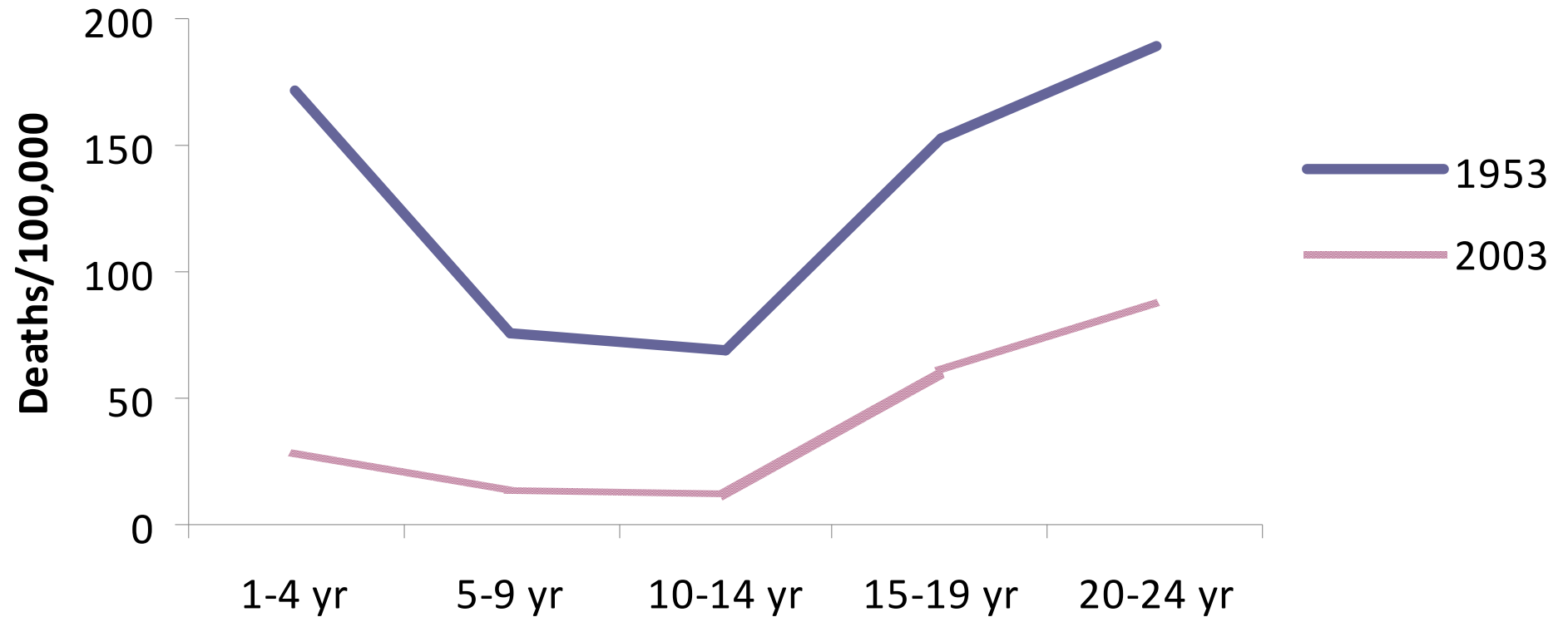


High Income Country mortality from 1 to 24 years

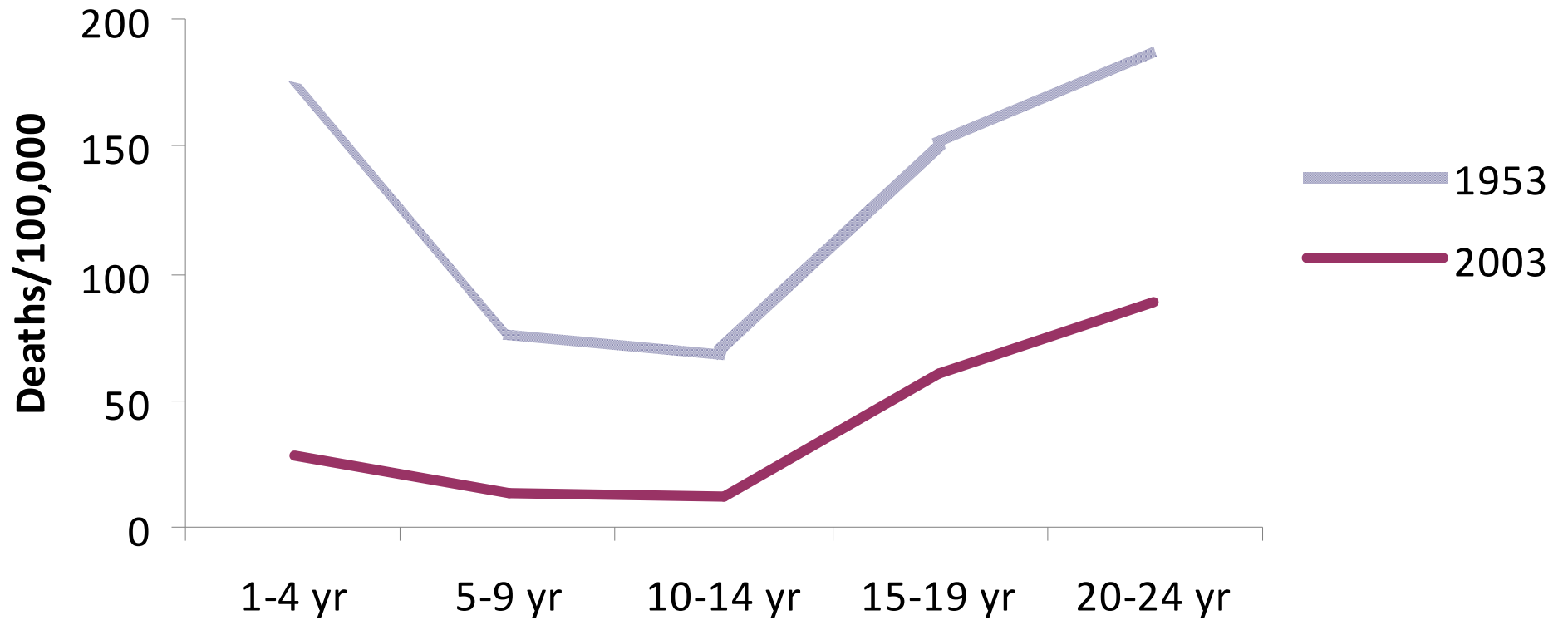


Australian Youth Deaths

Male deaths in Australia



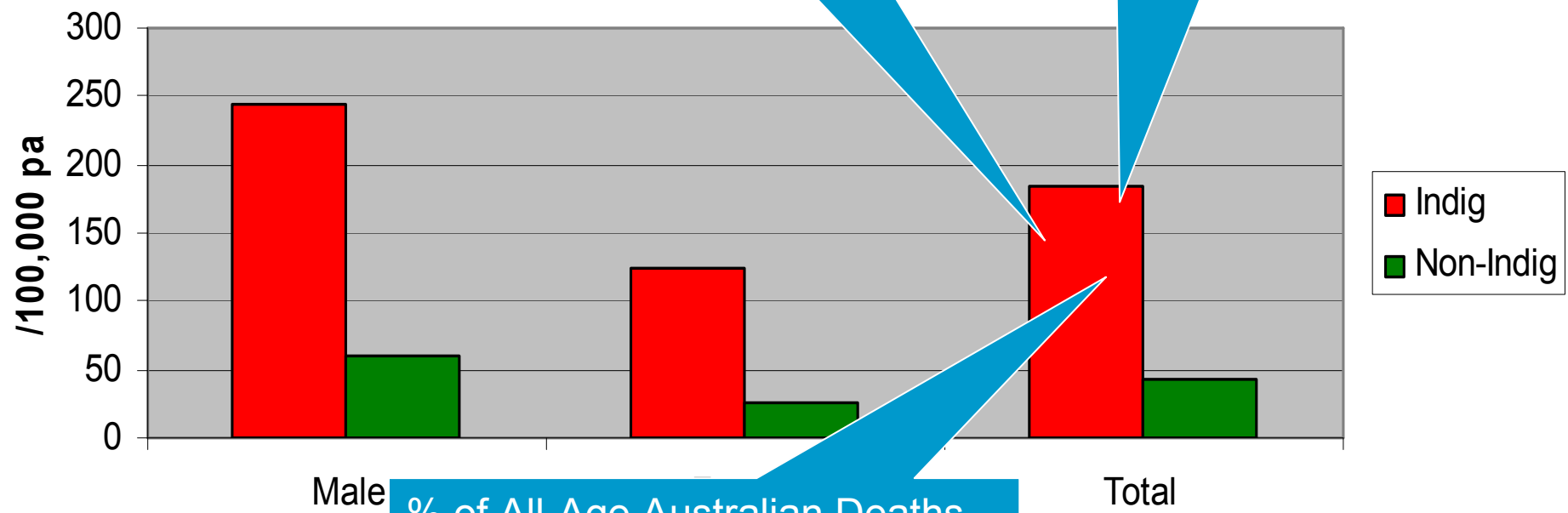
Male deaths in Australia



Indigenous death rates 4 times higher...

Comparisons (/100,000 pa)	
Indigenous Aus	185
LMIC	162
LMI SEA	187
AFR	305

Death Rates in Indigenous vs Non-Indigenous Australians



% of All-Age Australian Deaths	
Indigenous	6%
Non-Indigenous	1%

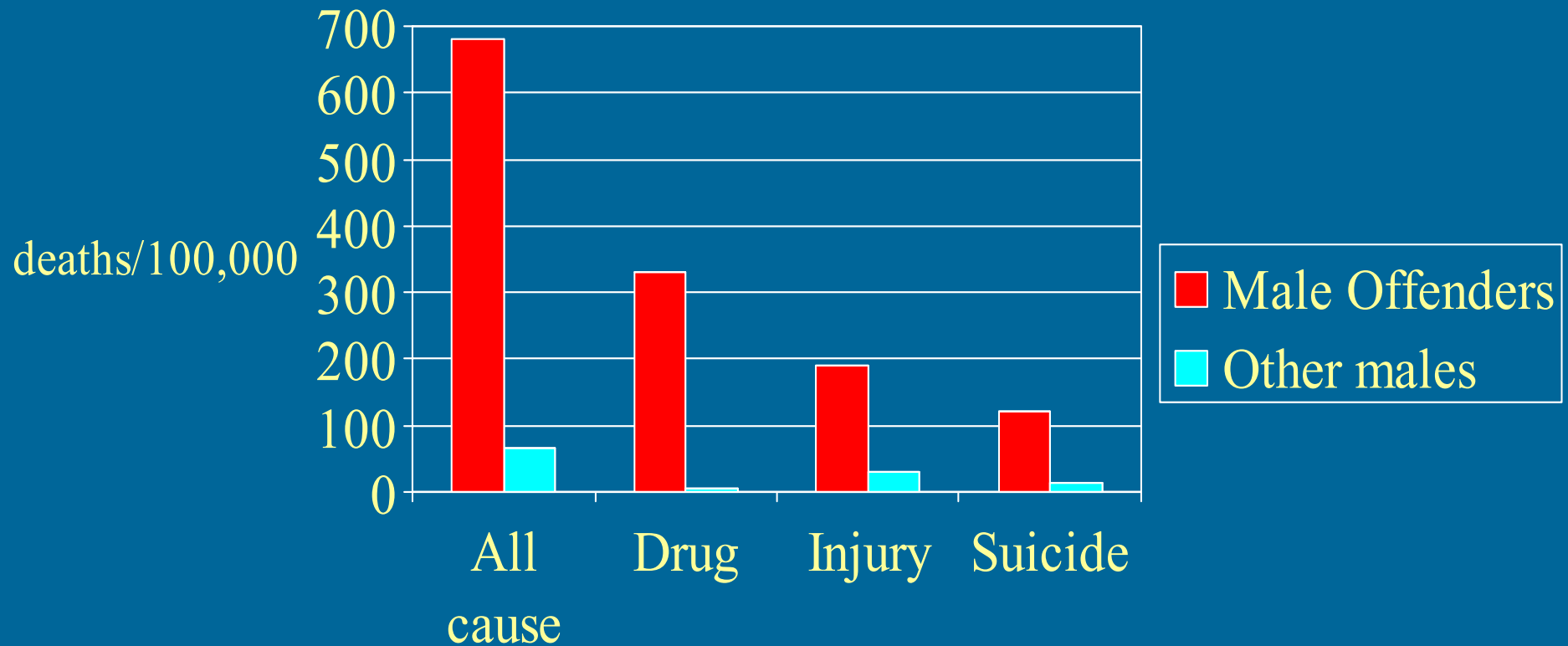
Three causes of death

Males%

Females%

	HIC	Australia	Indigen	HIC	Australia	Indigen
Traffic Injury	32	32	29	27	26	20
Suicide	15	20	33	12	15	29
Violence	6	1.2	4	5	0.4	12

Death rates in male offenders aged 15-19 years



Two worlds of young Australian Deaths

- Higher death rates in older adolescents and young adults than younger children
- Youth at the margins faring badly
 - Indigenous
 - Remote Rural
 - Young offenders

Epidemiological transition & mortality in the young

- Paradox of adolescent health becomes more apparent
 - Real shift of mortality to adolescence
 - Profound change in adolescent causes of death
 - Sensitivity of adolescents to socio-cultural-political-economic shifts
- Need to tailor responses to country to region but with care to sub-groups

Krishna Bose

Carolyn Coffey

Jane Ferguson

Colin Mathers

Susan Sawyer

Russell Viner

Theo Vos