Health: Is It a Personal, Public, or Social Issue?

Jay C. Butler, MD

Alaska World Affairs Council

November 22, 2013

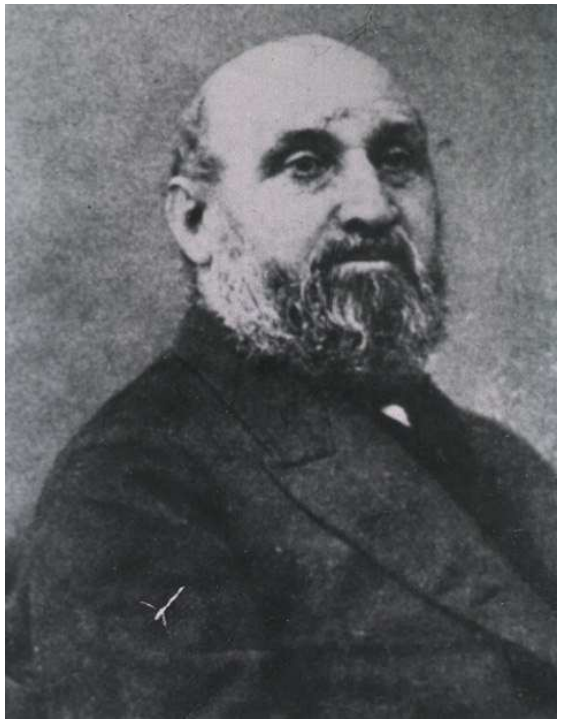
What is *Health*?

- "State of complete physical, mental, and social well being, and not merely the absence of disease or infirmity.“
  - Preamble to the Constitution of the WHO, 1948

"Death is a fact. All else is inference."

William Farr

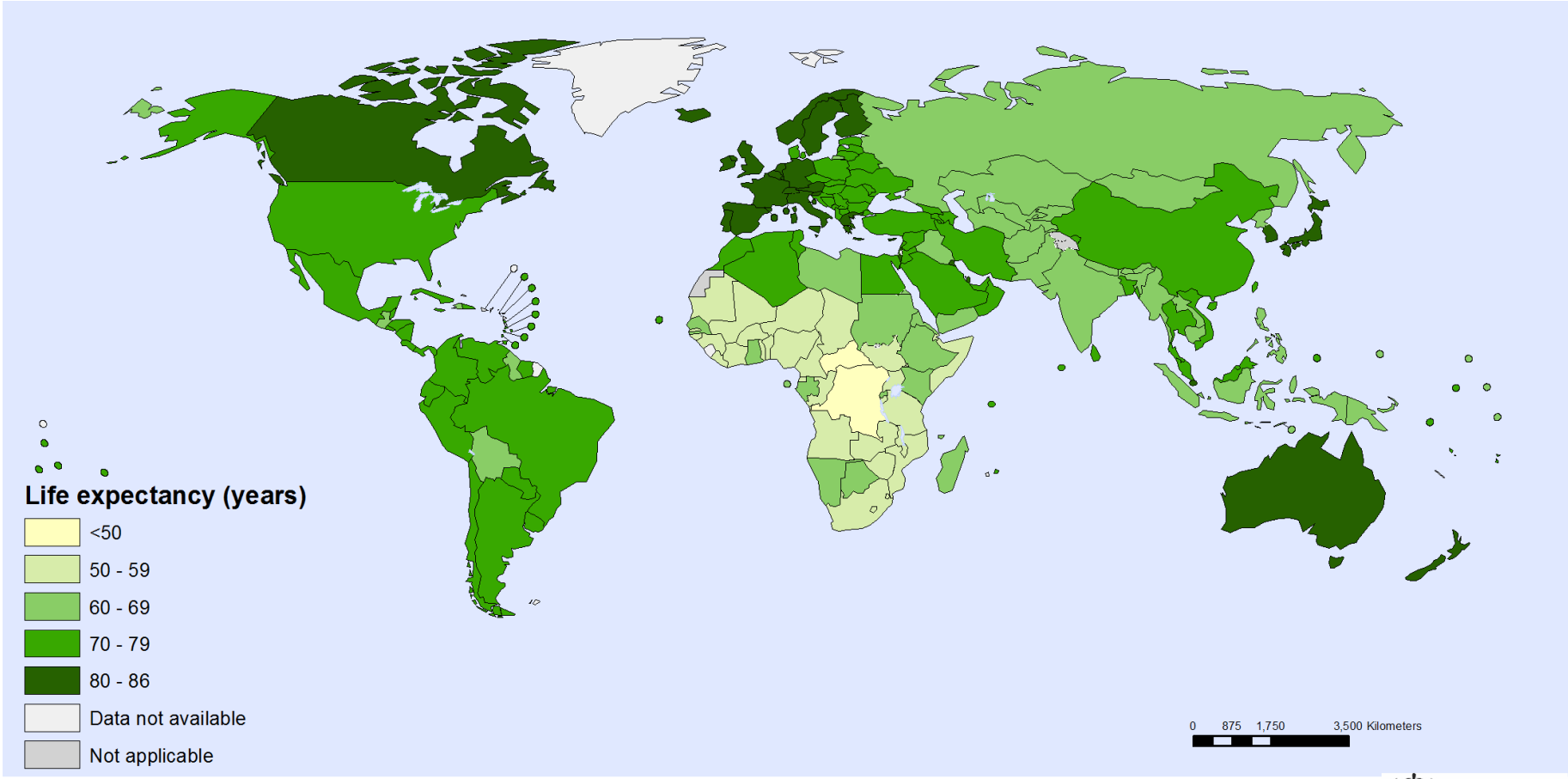
(1807–1883)



Some Measures of Health

- Life expectancy
- Causes of death
- Premature Death: Years of potential life lost (YPLL)
- Healthy life expectancy: Disability-Adjusted Life Years (DALYs) lost
  - YPLL + years of disability

Life Expectancy at Birth, 2011



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 and dashed 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 Information and Geographic Information Systems (GIS)
World Health Organization

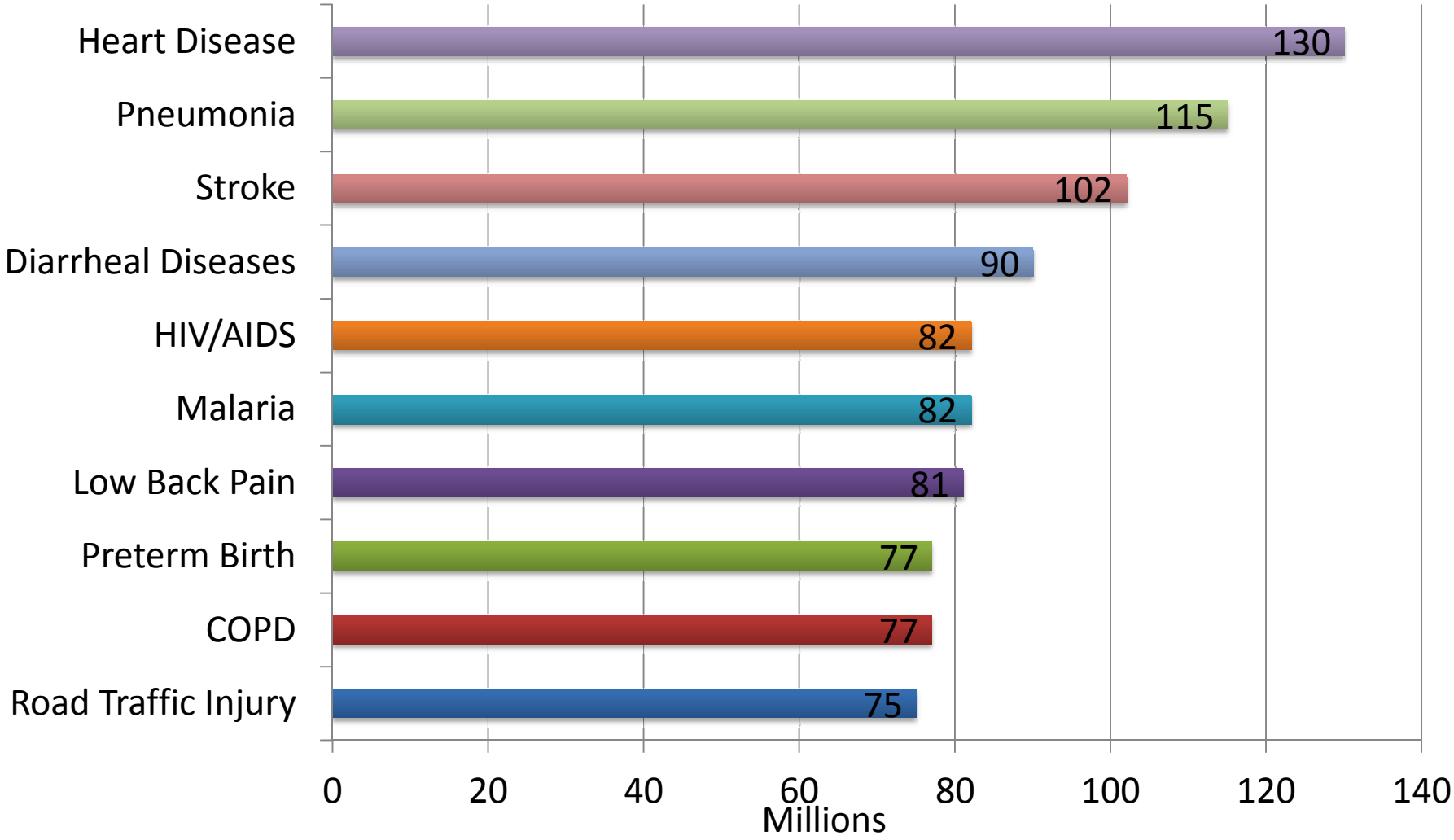
World Health Organization

© WHO 2013. All rights reserved.

Leading Causes of Death, Low-Income and High-Income Countries, 2011

- Low Income
  1. Pneumonia
  2. HIV/AIDS
  3. Diarrheal Diseases
  4. Stroke
  5. Ischemic Heart Disease
  6. Prematurity
  7. Malaria
  8. Tuberculosis
  9. Malnutrition
  10. Birth asphyxia/trauma
- High Income
  1. Ischemic Heart Disease
  2. Stroke
  3. Lung Cancer
  4. Alzheimer's Disease
  5. COPD
  6. Pneumonia
  7. Colon Cancer
  8. Diabetes
  9. High Blood Pressure
  10. Breast Cancer

Ten Leading Causes of Disability-Adjusted Life Years Lost in the World, 2010

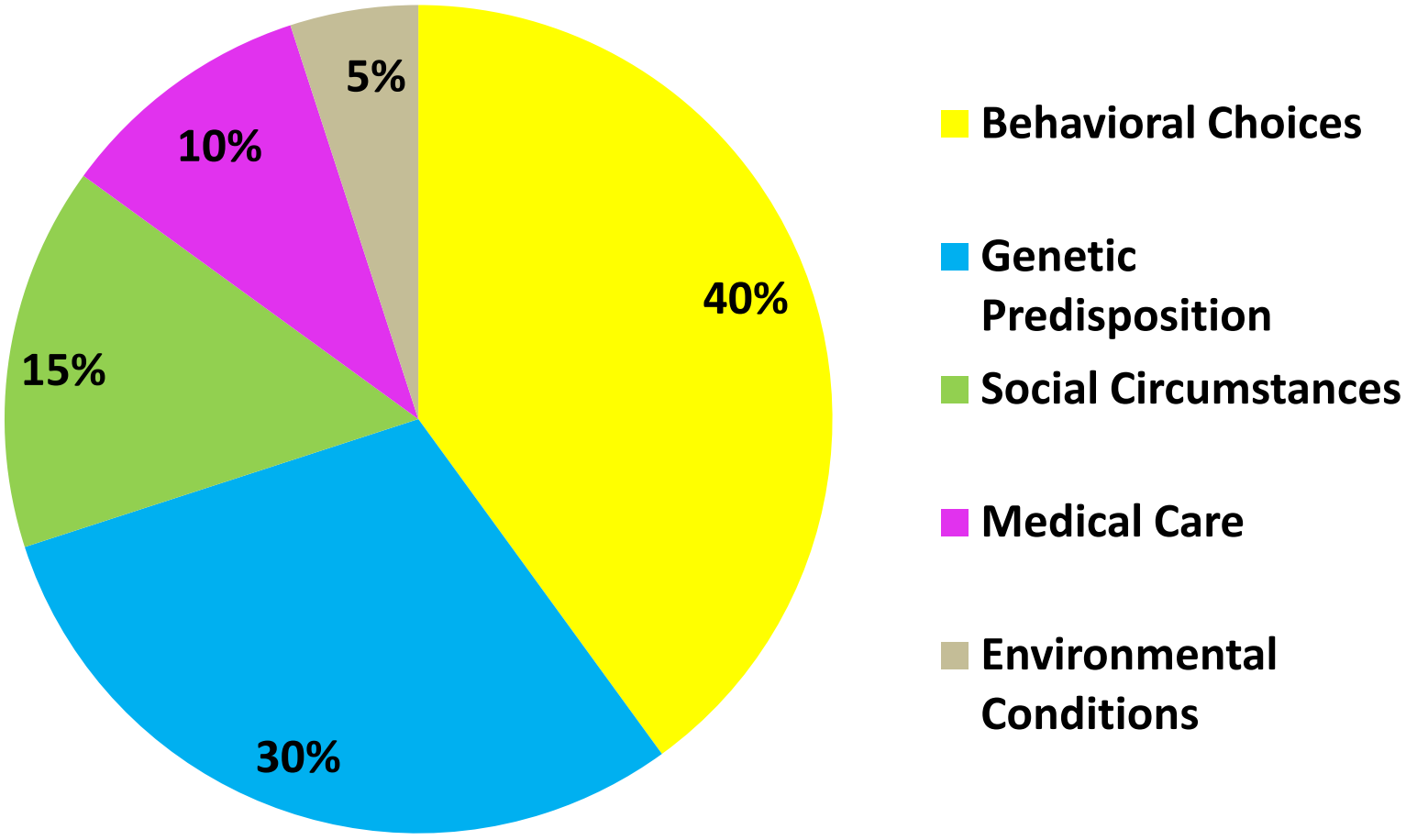


Data from: Murray CJL, Lopez AD. *N Engl J Med* 2013; 369:448-457

Four Realms of Influence For Improving Health

1. *Personal* Medical Care: individual provider uses clinical training and experience to treat the individual patient
2. *Personal* Responsibility: the individual utilizes available knowledge and alters behavior to improve and maintain health
3. *Public* Health: addresses issues that influence the health status of the population
4. *Social* Determinants of Health: includes broader range of factors that affect health

Five Domains Shaping Health



McGinnis JM, Williams-Russo P, Knickman JR. *Health Affairs.* 2002;21:78-93.

Essential Public Health Services

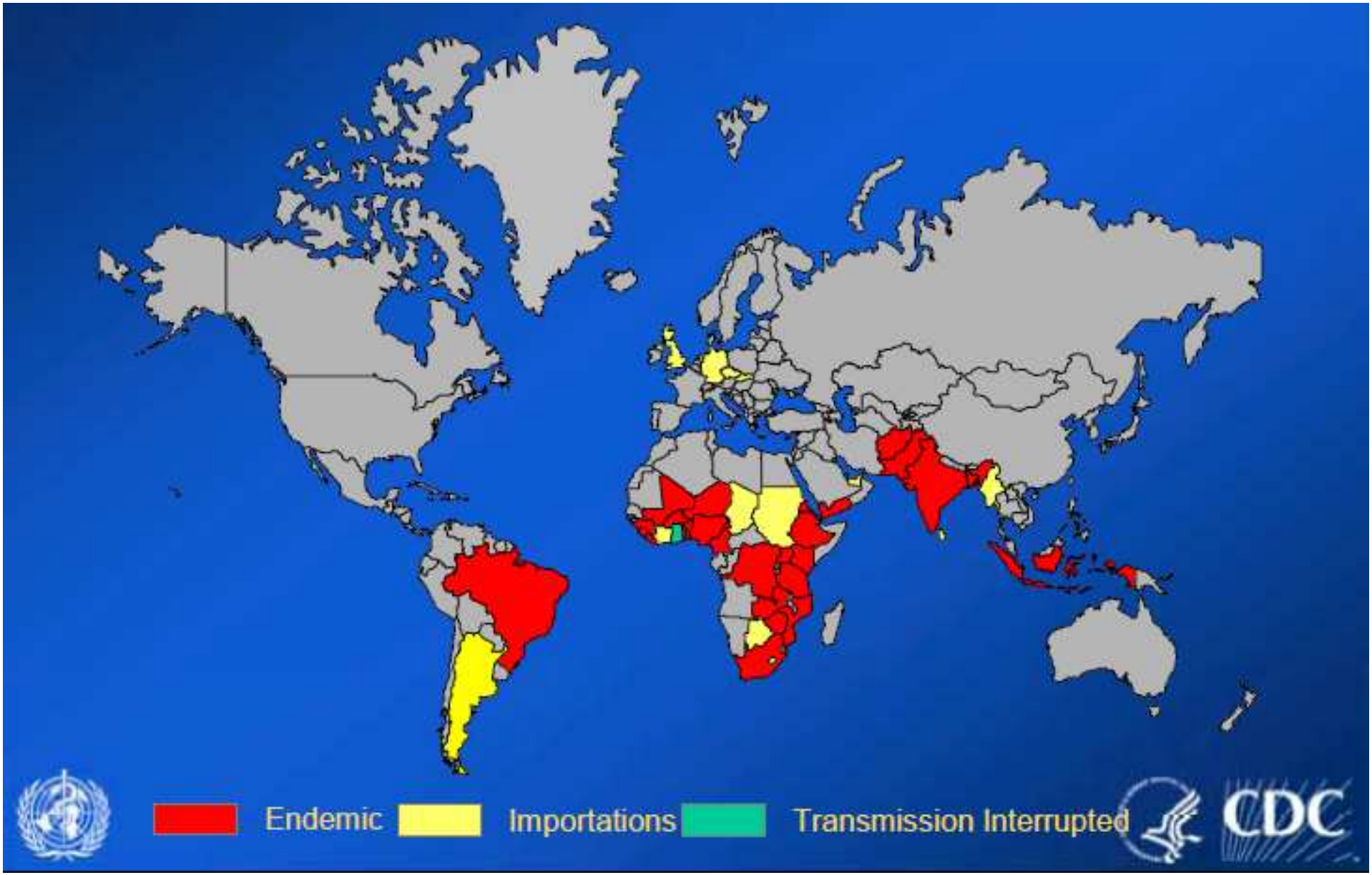
- **Monitor** health status to identify community health problems.
- **Diagnose and investigate** health problems and health hazards in the community.
- **Inform, educate, and empower** people about health issues.
- **Mobilize** community partnerships to identify and solve health problems.
- **Develop policies and plans** that support individual and community health efforts.
- **Enforce** laws and regulations that protect health and ensure safety.
- **Link** people to needed personal health services and assure the provision of health care when otherwise unavailable.
- **Assure** a competent public health and personal healthcare workforce.
- **Evaluate** effectiveness, accessibility, and quality of personal and population-based health services.
- **Research** for new insights and innovative solutions to health problems.

Source: American Public Health Association

Disease Elimination and Eradication

- Elimination
  - Zero disease in a defined geographic area
  - Control measures still needed to prevent re-establishment of transmission
- Eradication
  - Zero disease globally
  - Control measures no longer needed

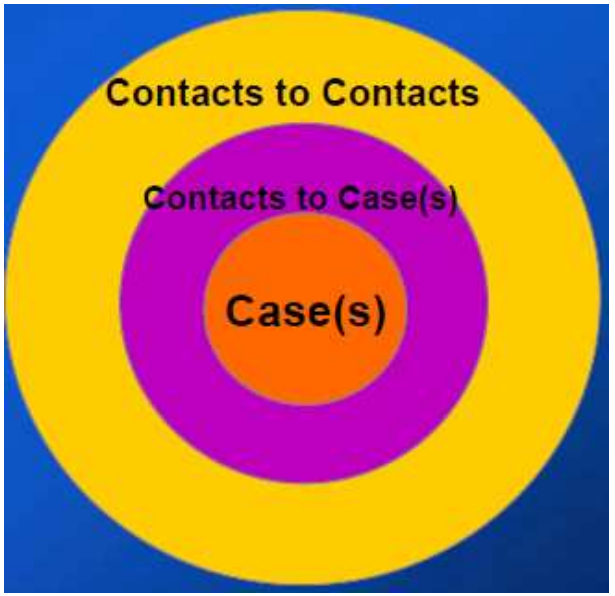
Smallpox, 1967

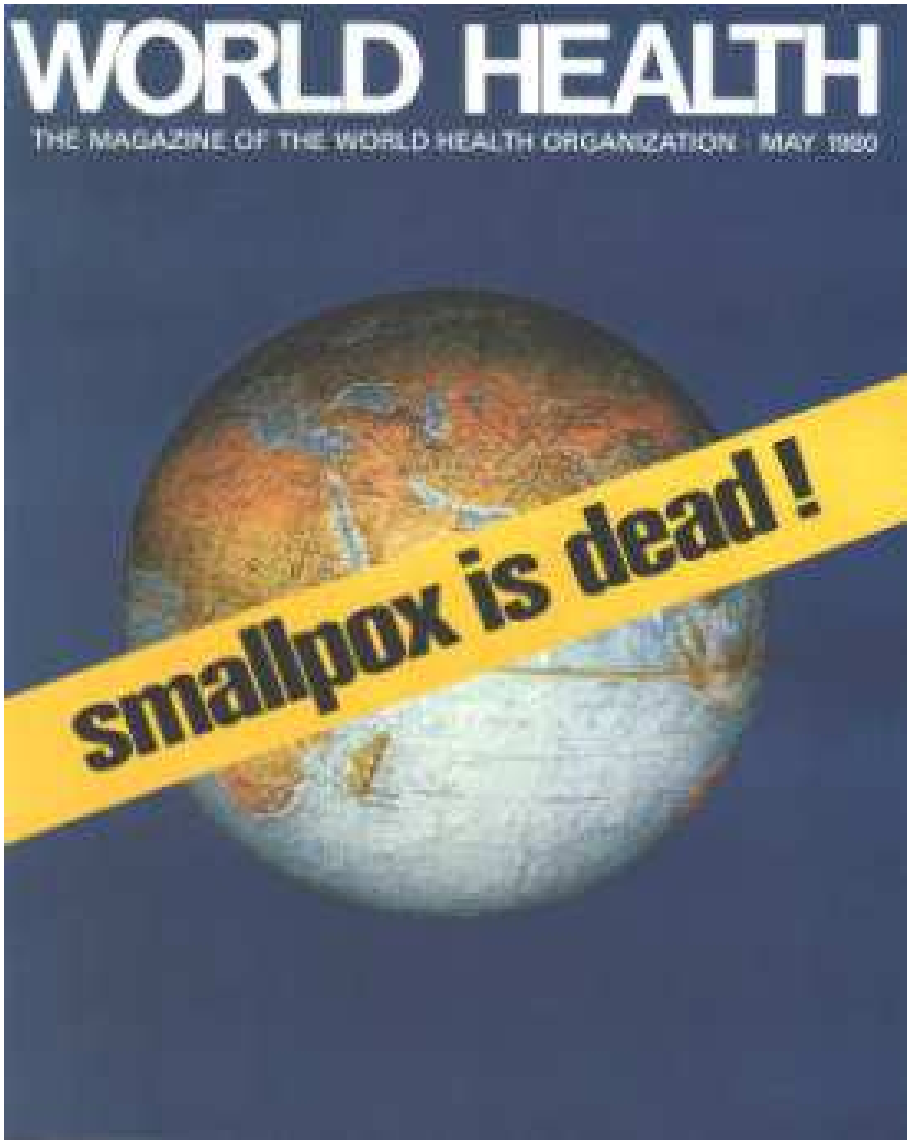


Smallpox Eradication Strategy

Surveillance and Containment

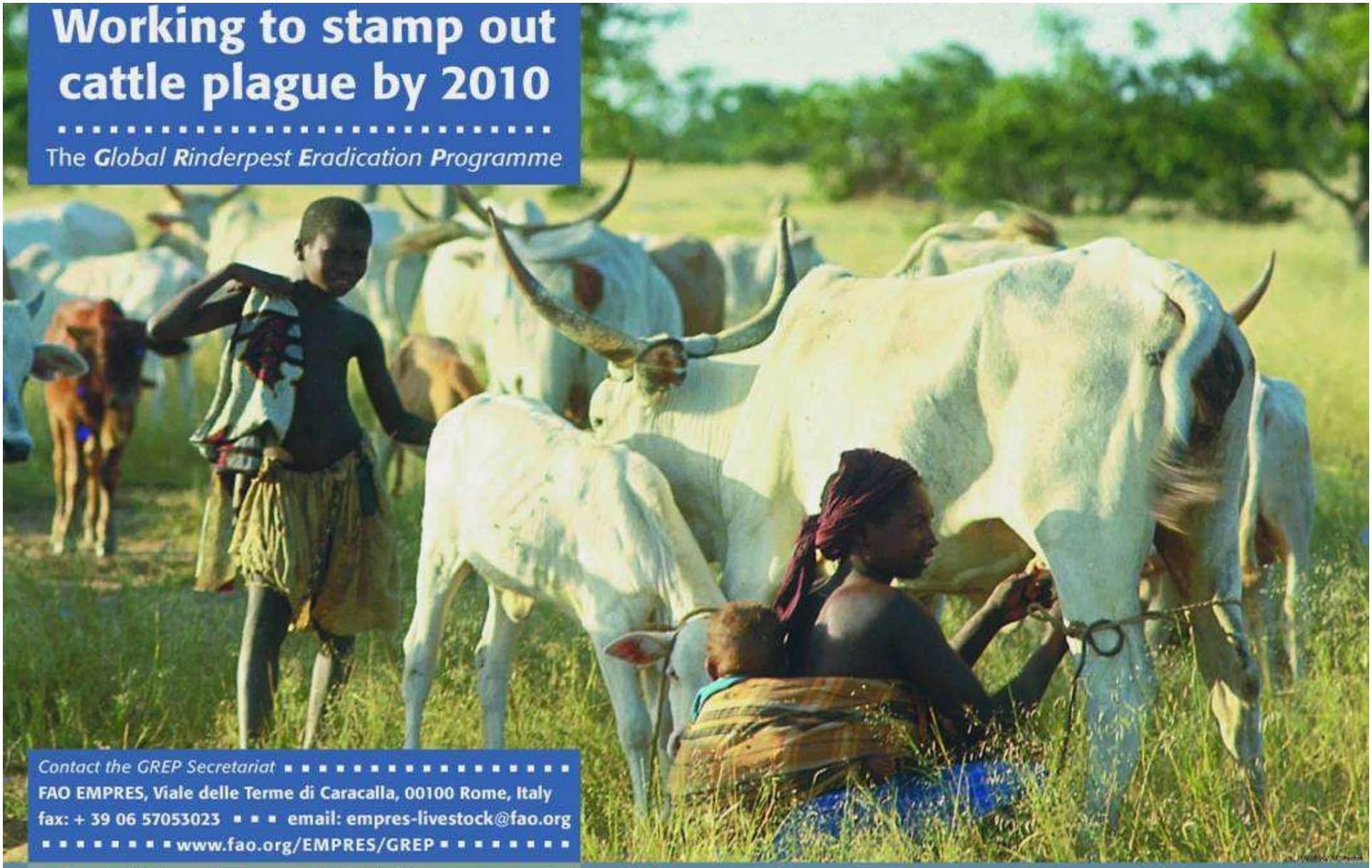
- Search for cases
- Vaccinate case contacts and their contacts




WORLD HEALTH
THE MAGAZINE OF THE WORLD HEALTH ORGANIZATION MAY 1980
smallpox is dead!

Working to stamp out cattle plague by 2010

The *G*lobal *R*inderpest *E*radication *P*rogramme



Contact the GREP Secretariat

FAO EMPRES, Viale delle Terme di Caracalla, 00100 Rome, Italy

fax: + 39 06 57053023 ▪ ▪ ▪ email: empres-livestock@fao.org

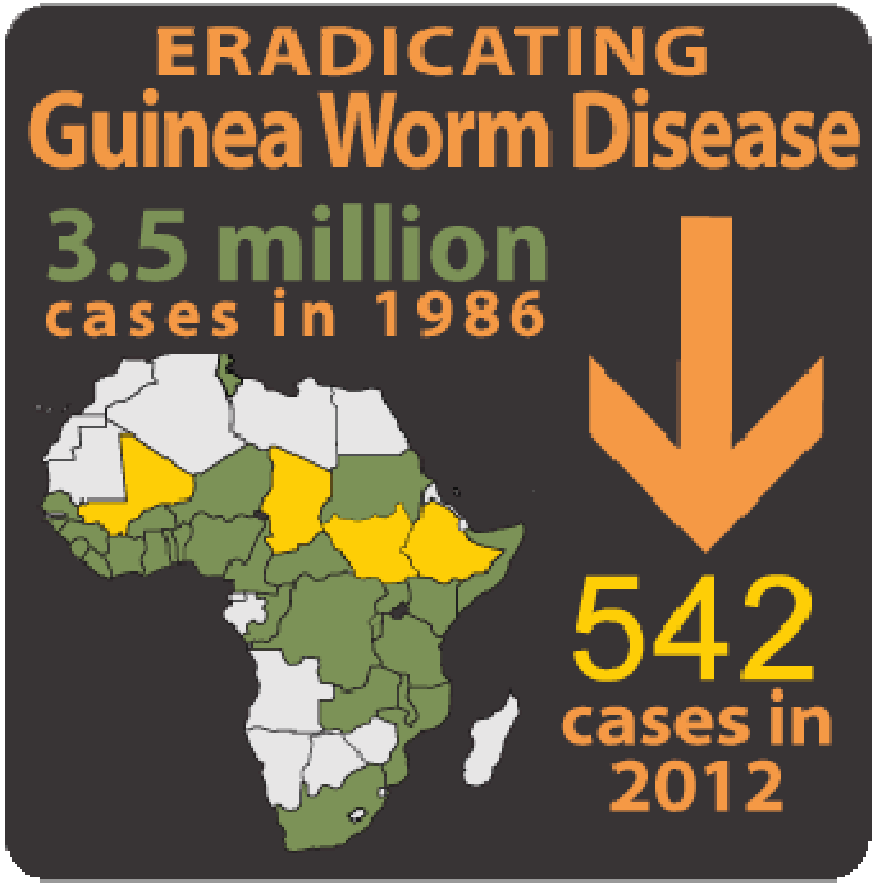
▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ www.fao.org/EMPRES/GREP ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪

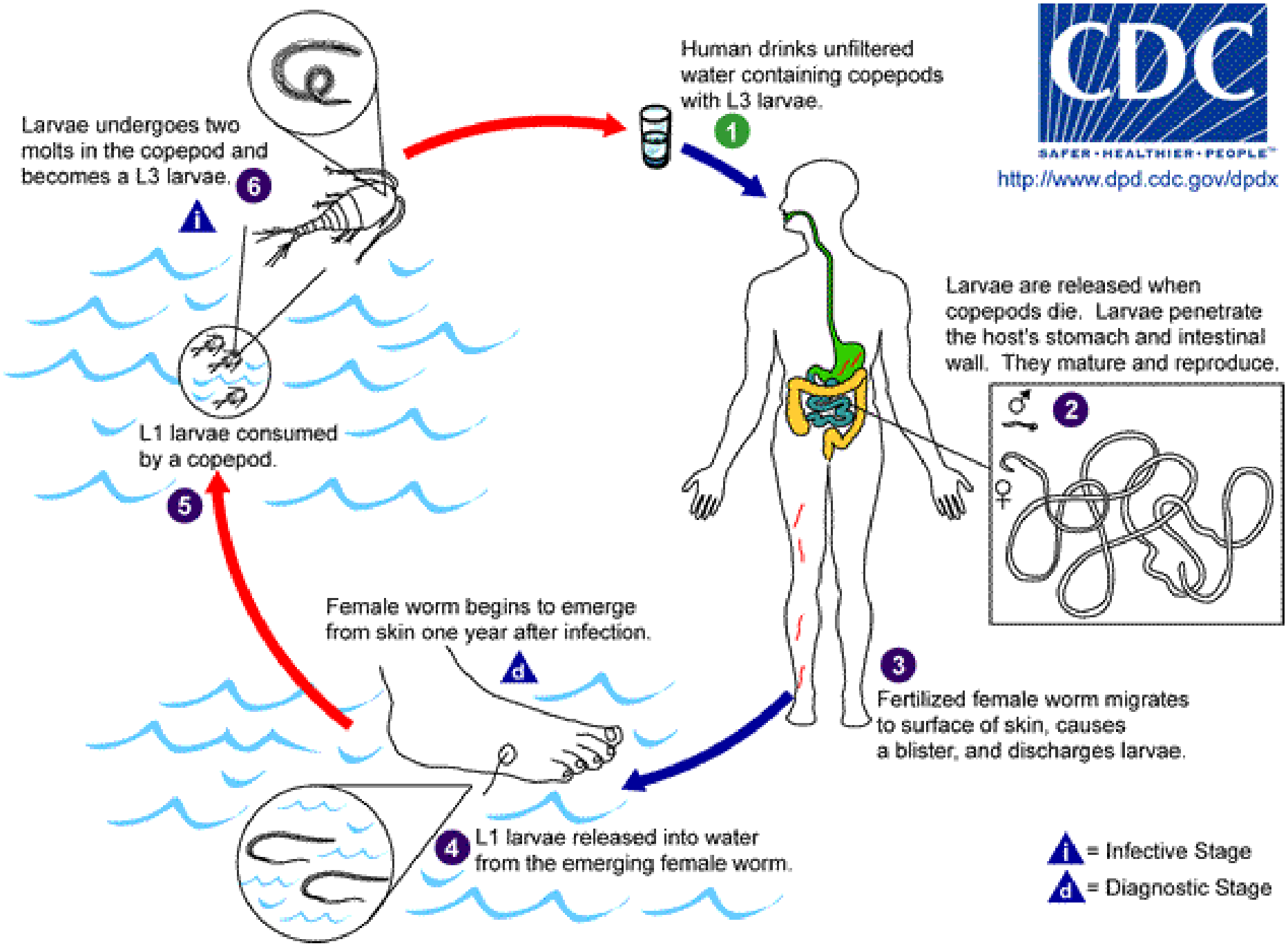
Food and Agriculture Organization of the United Nations

Produced with the financial support of the Government of Ireland

EMPRES EMERGENCY PREVENTION SYSTEM

Guinea Worm (Dracunculiasis): Eradication Through Information




Human drinks unfiltered water containing copepods with L3 larvae.
1
Larvae are released when copepods die. Larvae penetrate the host's stomach and intestinal wall. They mature and reproduce.
2
Fertilized female worm migrates to surface of skin, causes a blister, and discharges larvae.
3
L1 larvae released into water from the emerging female worm.
4
L1 larvae consumed by a copepod.
5
Larvae undergoes two molts in the copepod and becomes a L3 larvae.
6
Female worm begins to emerge from skin one year after infection.
d
CDC
SAFER·HEALTHIER·PEOPLE™
http://www.dpd.cdc.gov/dpdx
i = Infective Stage
d = Diagnostic Stage

Photos: Centers for Disease Control and Prevention and The Carter Center

Social Determinants of Health Defined in the 21st Century

"…the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities…"

World Health Organization

Examples of Social Determinants of Health

- Employment and working conditions
- Poverty and socioeconomic factors
- Education and literacy
- Transportation
- Housing
- Discrimination (e.g., race, gender, or class)
- Political unrest and war

Social Determinant Impact on the Personal Realm: The Story of Jason

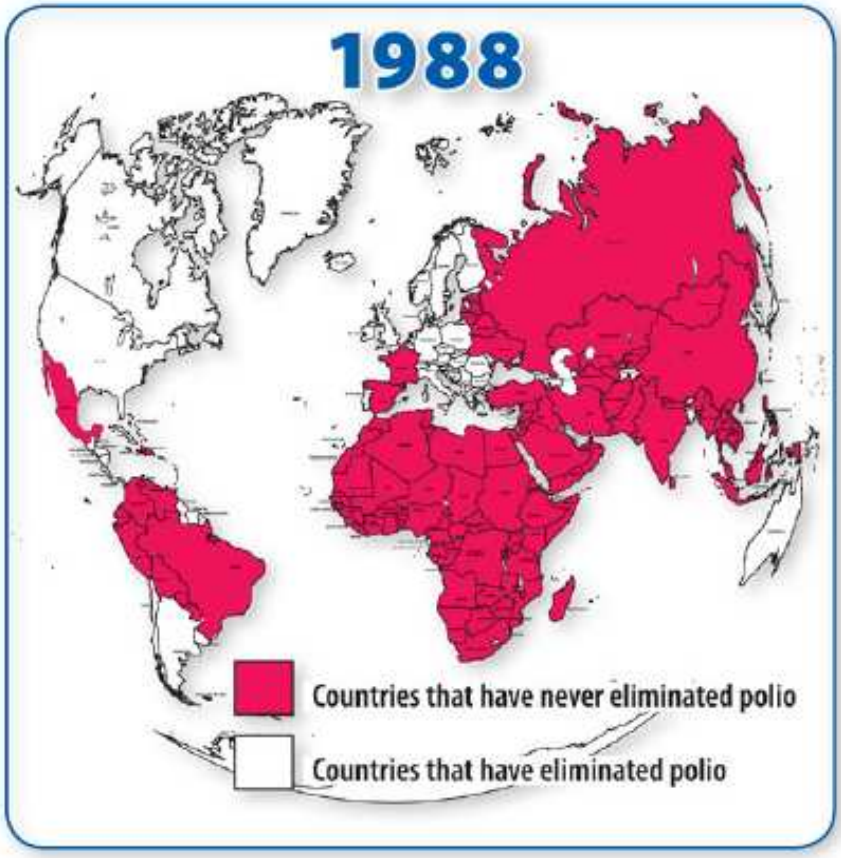
- "Why is Jason in the hospital?
  He has an infection in his leg.
- Why does he have an infection?
  He cut his leg and it got infected.
- Why does he have a cut on his leg?
  He was playing in the junk yard next to his apartment building and fell on a sharp, jagged piece of steel.
- Why was he playing in a junk yard?
  A lot of kids play there. There is no playground in his neighborhood.
- Why does he live in that neighborhood?
  His parents can't afford a nicer place to live.
- Why can't his parents afford a nicer place to live?
  His Dad is unemployed and his Mom is sick.
- Why is his Dad unemployed?
  He doesn't have much education and where he used to work has closed.
- But why …?"

Based on a story in *Toward a Healthy Future: Second Report on the Health of Canadians*

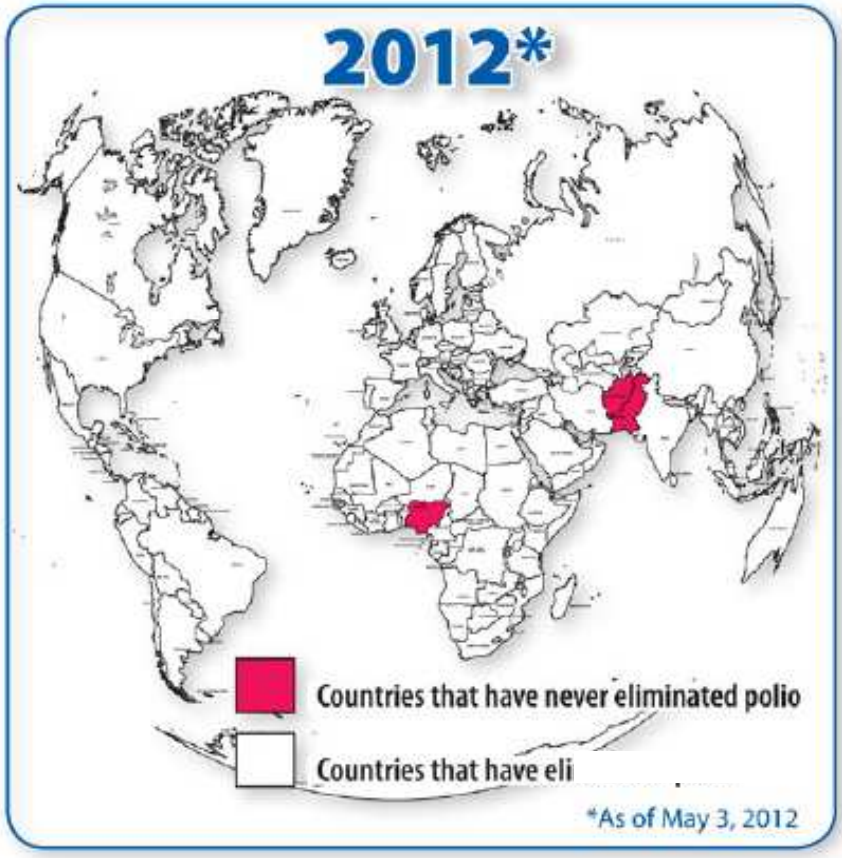
http://www.phac-aspc.gc.ca/ph-sp/determinants/determinants-eng.php

Social Determinant Impact on the Public Realm: The Global Polio Eradication Initiative

GPEI Founding Partners: Rotary, CDC, WHO, UNICEF

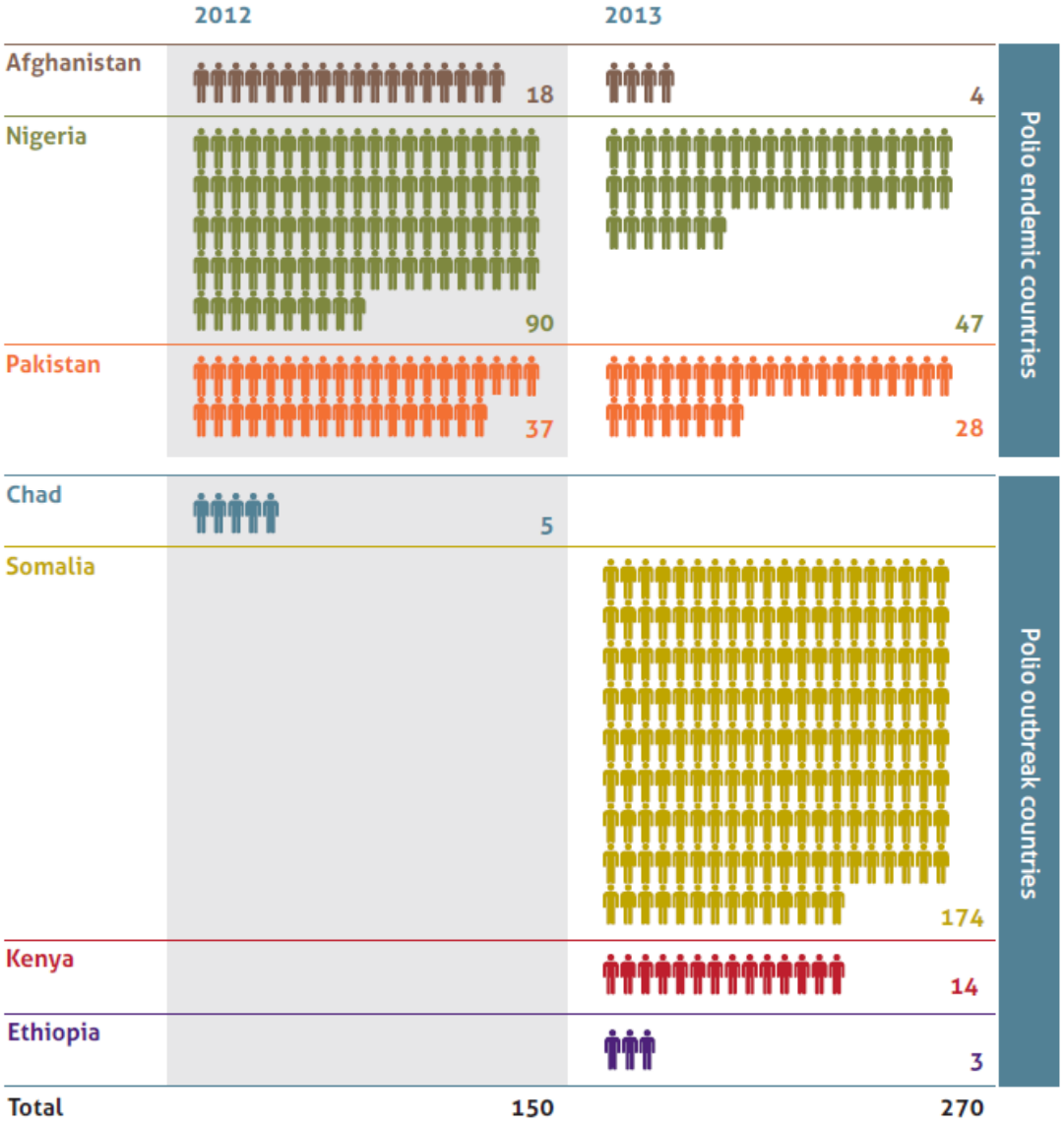


350,000 Cases



223 Cases

Global Polio, Jan-Sept 2012 and 2013



Independent Monitoring Board of the Global Polio Eradication Initiative, 2013

The New York Times

Asia Pacific

WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS | OPINION

Gunmen in Pakistan Kill Women Who Were Giving Children Polio Vaccines

Re-Emergence of Polio in Syria, 2013

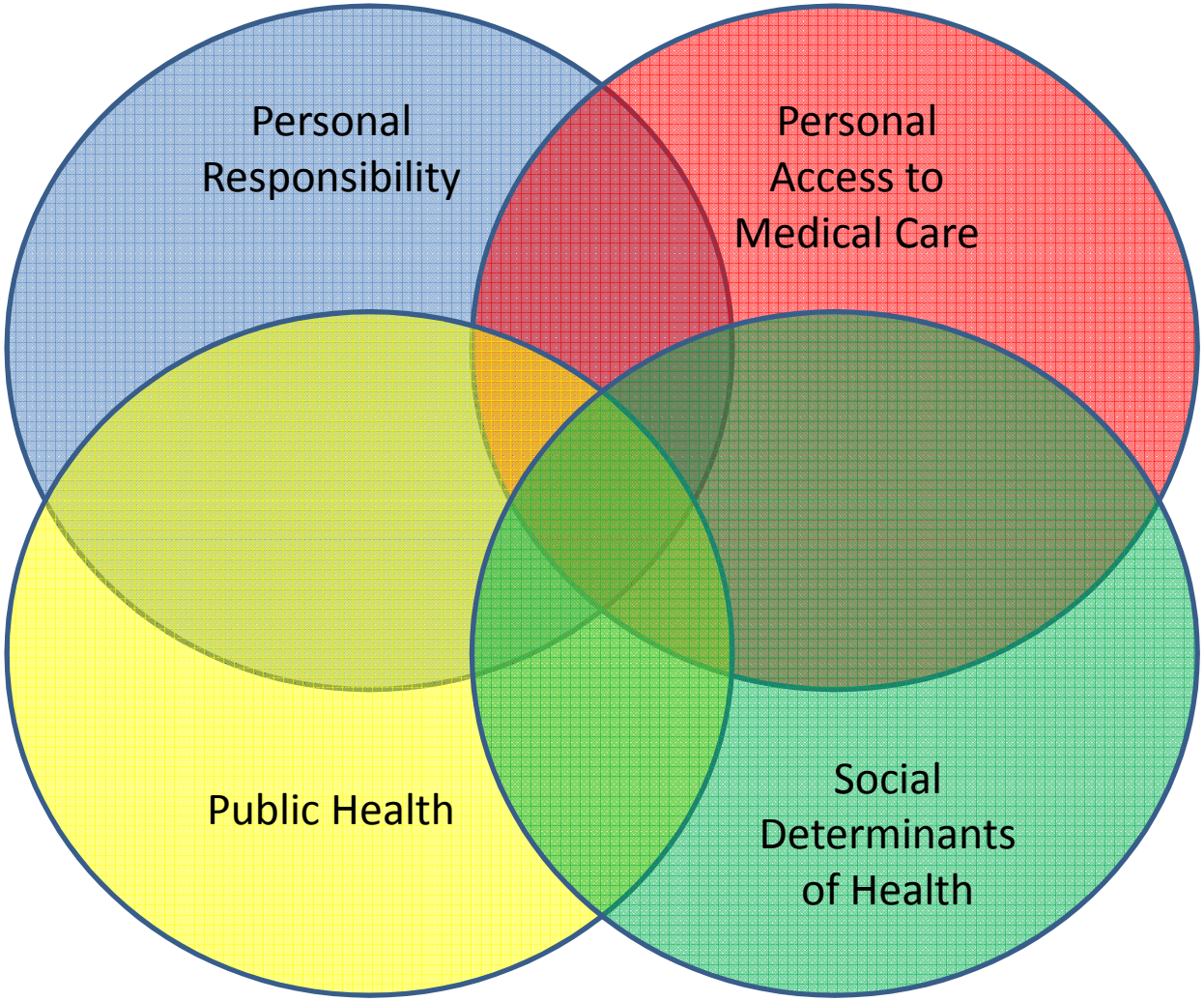
- Over 4,000,000 people have been displaced by the war in Syria

Photo: New York Times

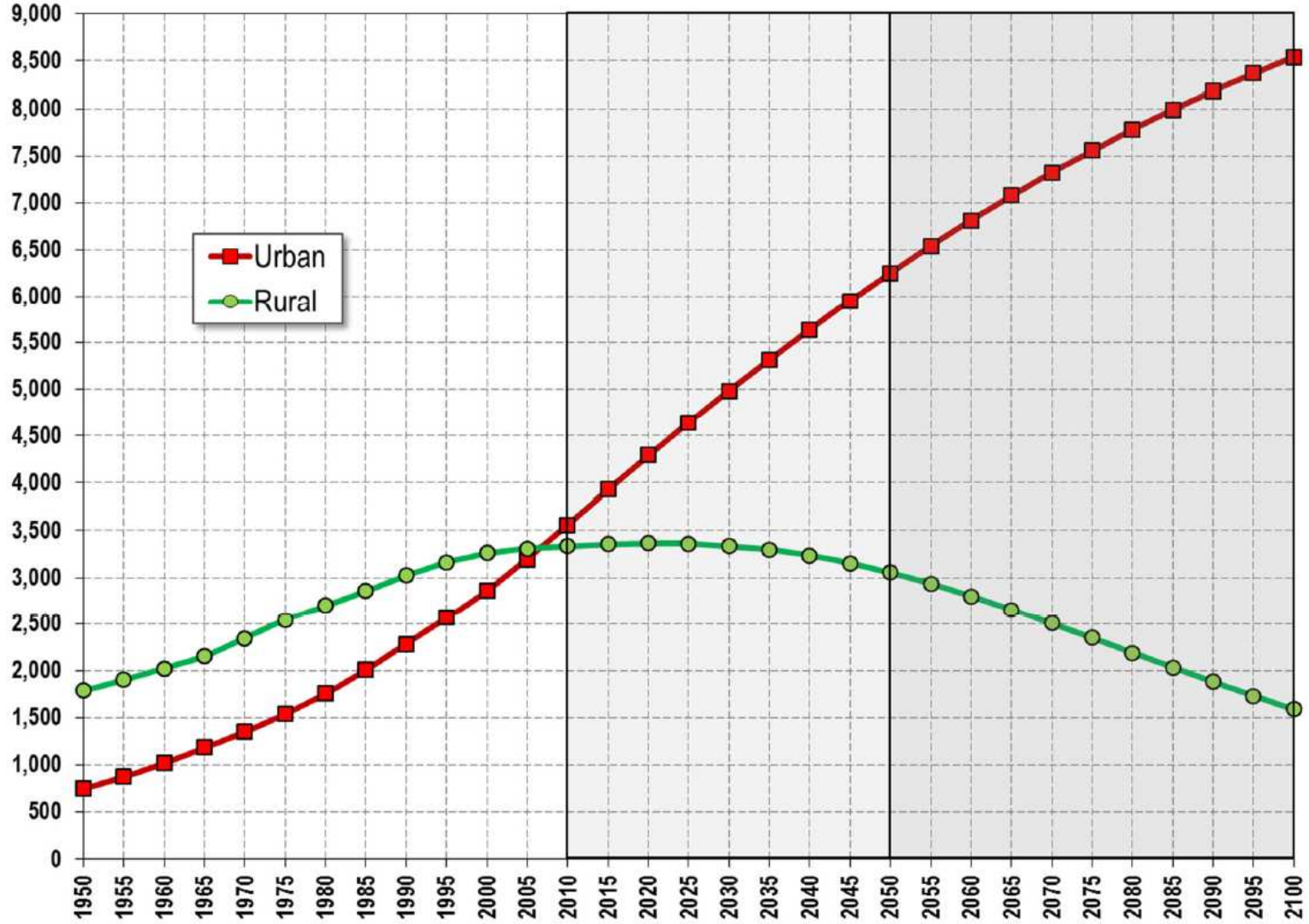
As of November 11, 2013

- 13 cases of confirmed polio
- First cases in 1999

Is Health a Personal, Public, or Social Issue?



World: Urban and rural Population: 2010-2100



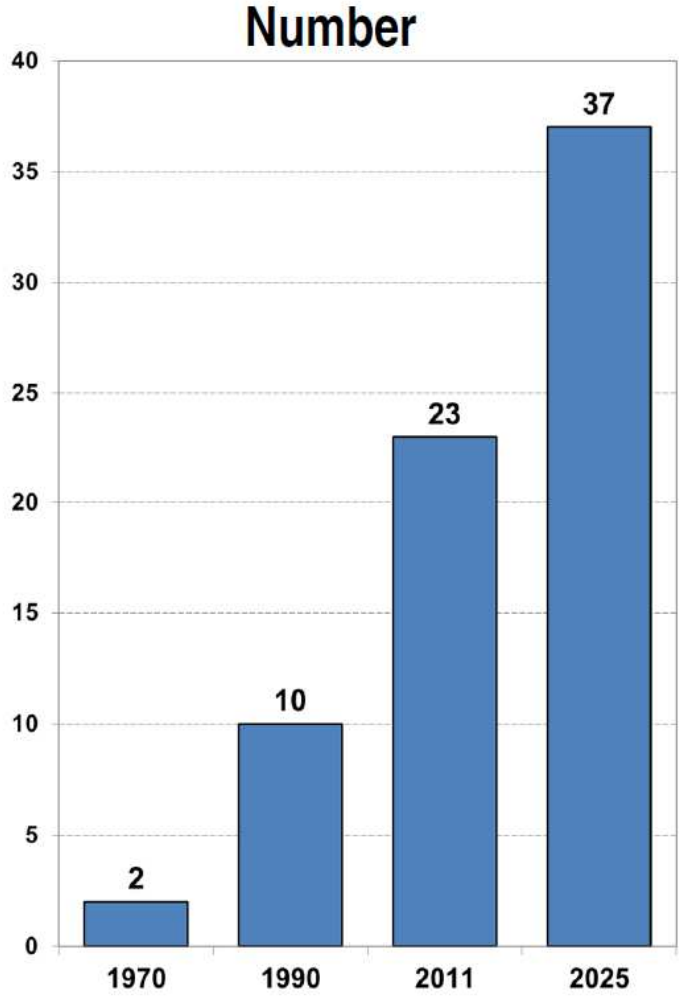
United Nations Department of Economic and Social Affairs – Population Division

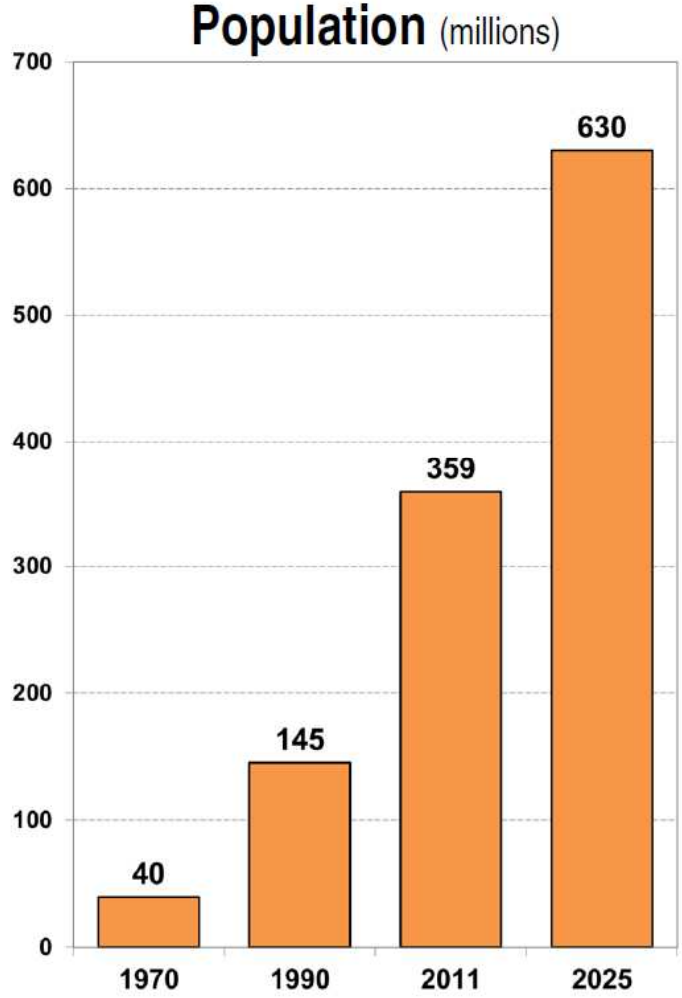
Source: United Nations, Department of Economic and Social Affairs, Population Division (2012): World Urbanization Prospects, the 2011 Revision. New York

World: Mega-Cities with 10+ Million Inhabitants

2

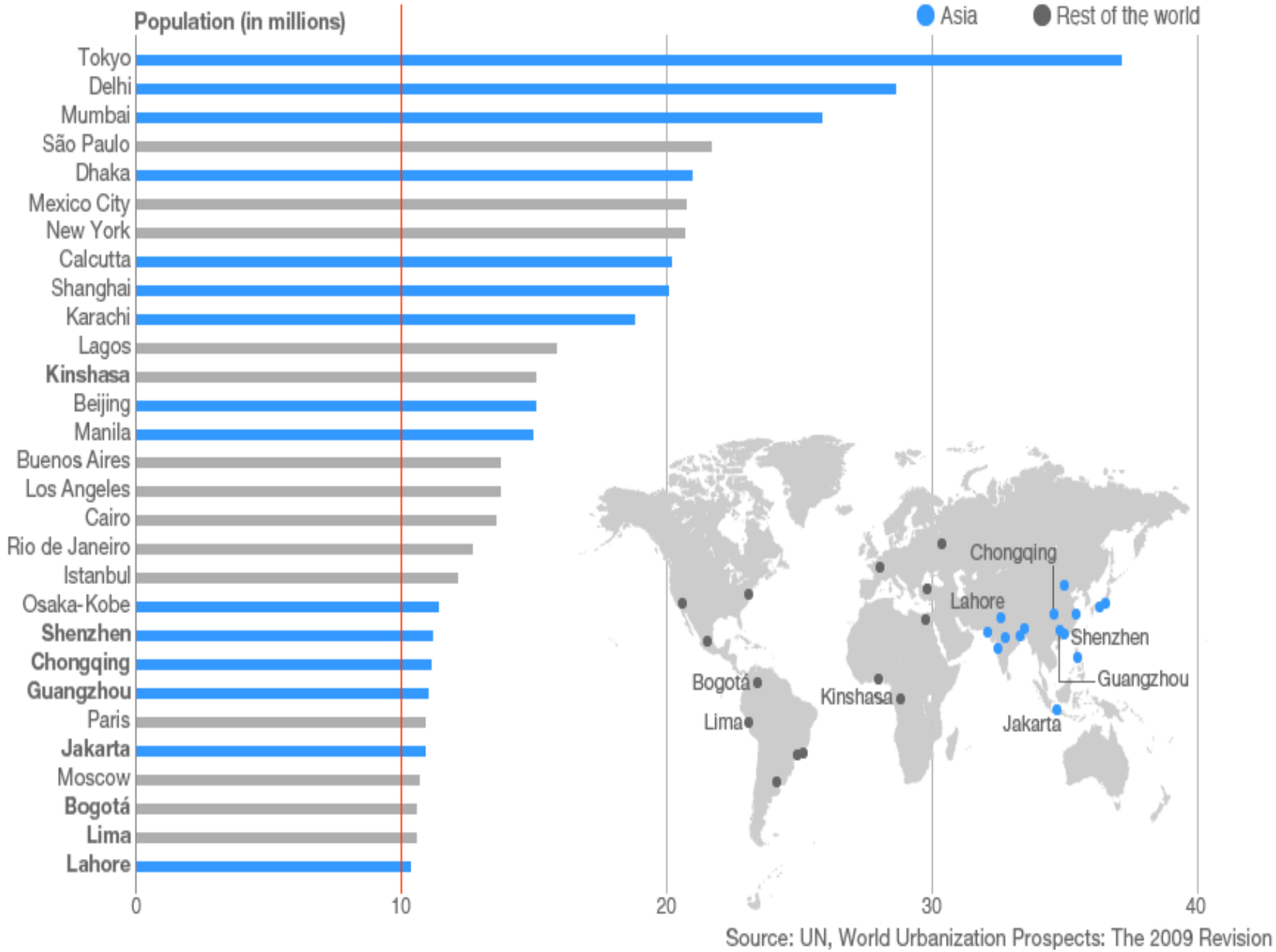
United Nations Department of Economic and Social Affairs – Population Division





Source: United Nations, Department of Economic and Social Affairs, Population Division (2012): World Urbanization Prospects, the 2011 Revision. New York

2025

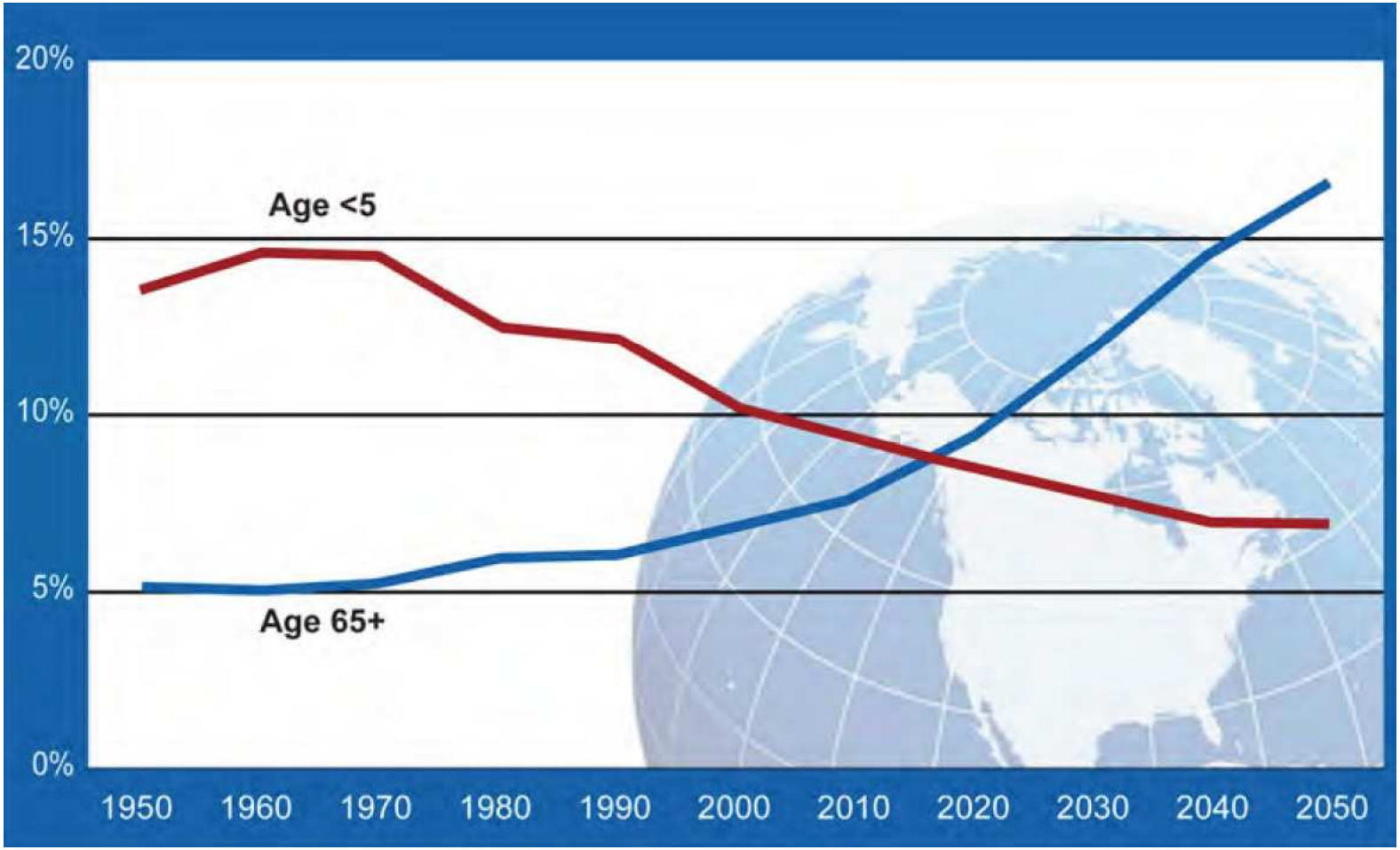


Source: UN, World Urbanization Prospects: The 2009 Revision

Effects of Urbanization on Health

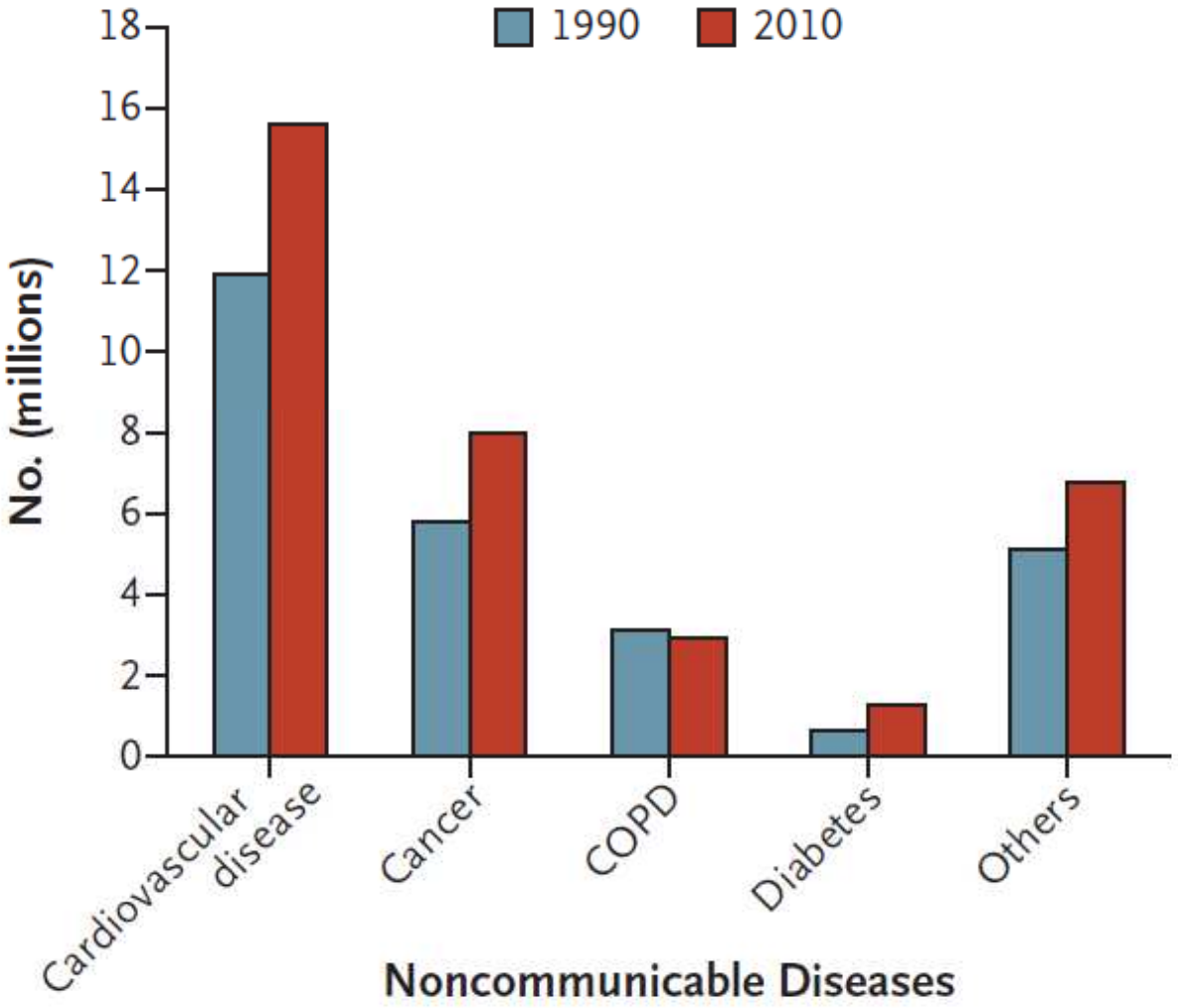
- Opportunities
  - Utilities
  - Employment
  - Education
  - Health services
  - Entertainment
  - Political participation
- Challenges
  - Air and water quality
  - Crowding
  - Land use impact
  - Microclimate
  - Housing
  - Traffic/transportation

Proportion of the Global Population Aged < 5 Years and ≥65 Years



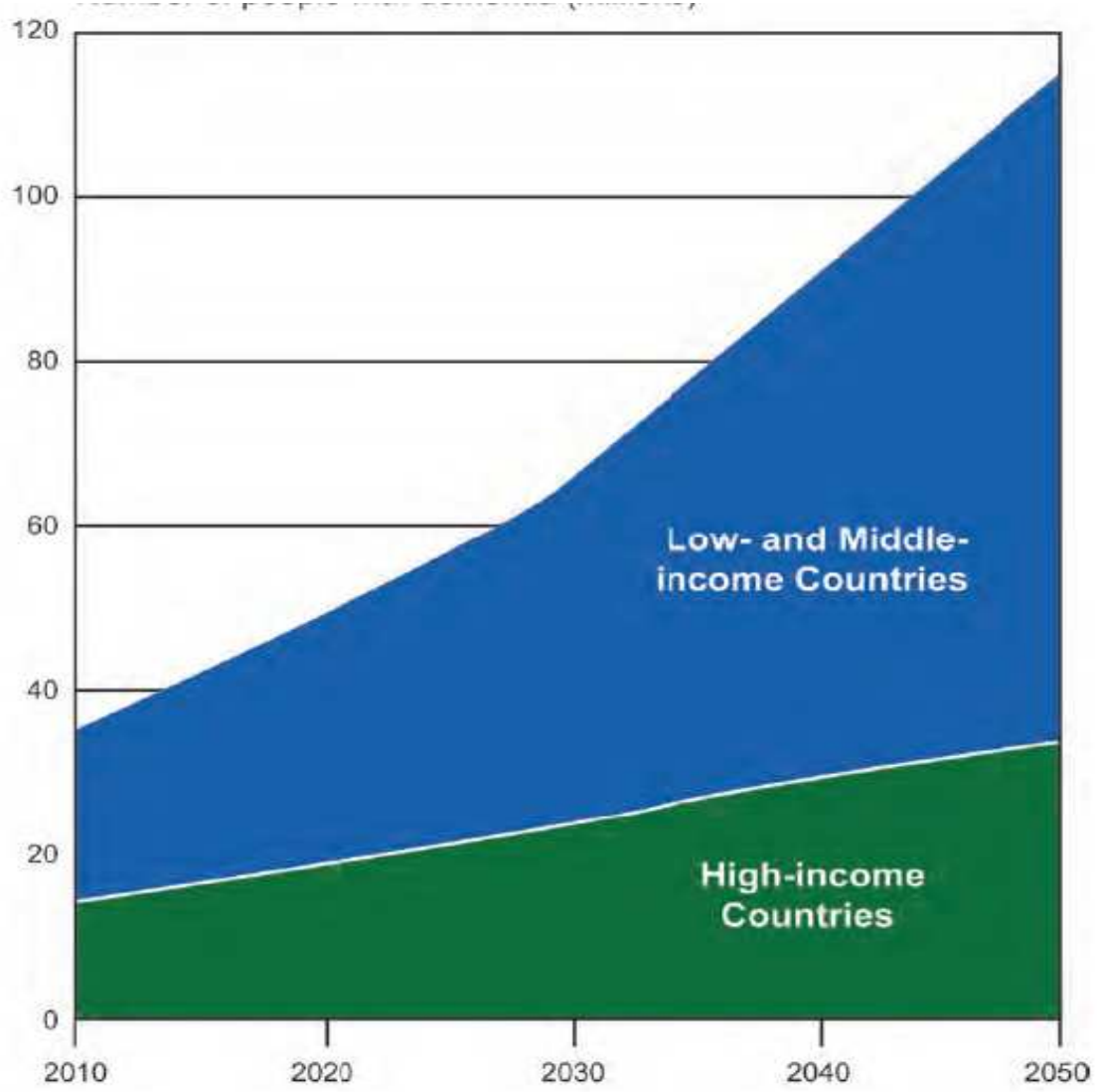
Source: United Nations. *World Population Prospects: The 2010 Revision.*
Available at: http://esa.un.org/unpd/wpp

Global Deaths Due to Chronic (Non-communicable) Diseases



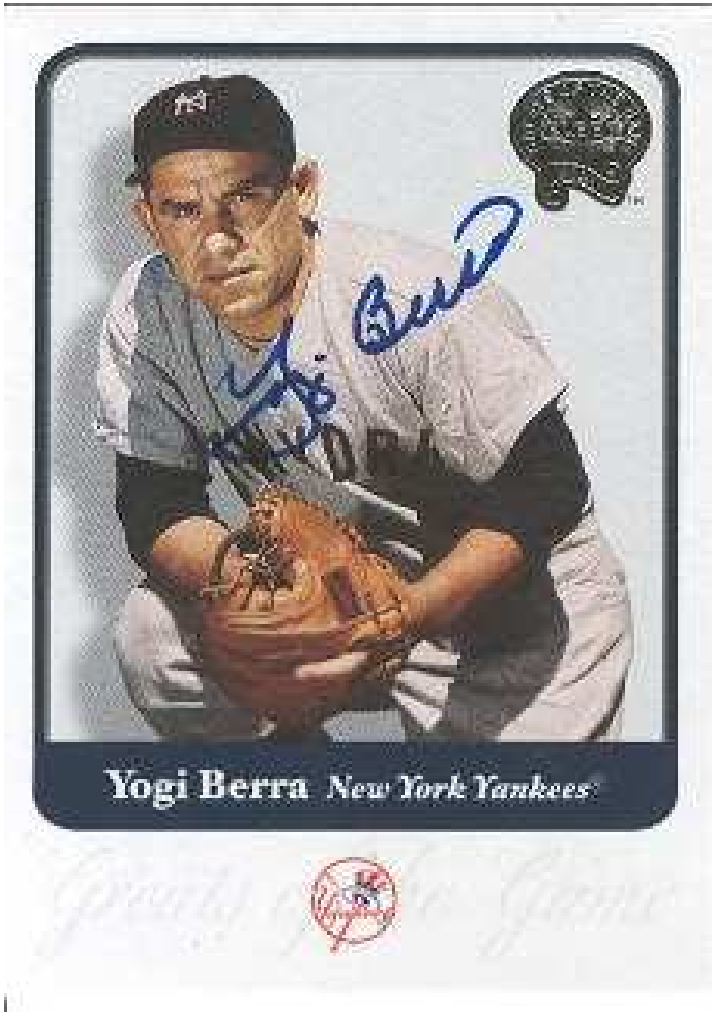
Hunter DJ, Reddy KS. *N Engl J Med* 2013; 369:1336-43

Projected Global Population With Dementia, 2010-2050



Source: Alzheimer's Disease International, *World Alzheimer Report, 2010*.

- "Predictions are hard to make, especially about the future"
  - Niels Bohr

- **“The future ain't what it used to be.”**

  – Yogi Berra