

**Science for Health:  
Ensuring Universal Access to Health  
Role of InterAcademy  
Medical Panel**

*By*

**Professor Dr. Lai-Meng Looi**

*Co-Chair, InterAcademy Medical Panel*

*Senior Fellow (Academician), Academy of Sciences Malaysia*

*Distinguished Professor, University of Malaya*



# Science is about People

People's needs

Solving people's needs



◆ Science has to be relevant to needs



## □ Home & Society

- ◆ Secure home; raise family
- ◆ Enjoy friends
- ◆ Education & harmonious society

## □ Health (Longevity)

- ◆ Food security
- ◆ Sanitary & healthy environment
- ◆ Medical and healthcare services
- ◆ Sustaining health

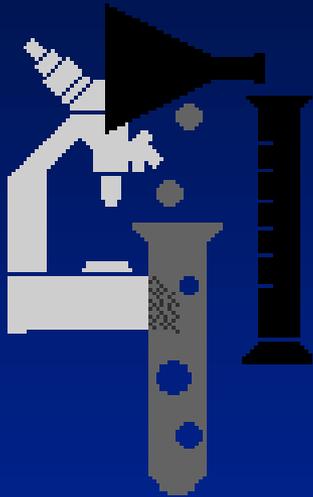
## □ Wealth (Prosperity)

- ◆ Pursue interests/leisure
- ◆ Quality of life
- ◆ Societal progress

# Essentials of a good life



# 20<sup>th</sup> Century Advances from Science

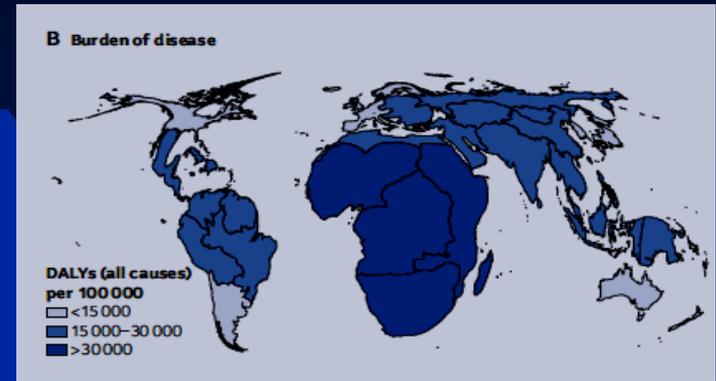


- ❑ Infusion of Science into education and medical practice
- ❑ Problem-based innovations
  - ◆ Water, electricity, food
  - ◆ Buildings, roads, mass transport
  - ◆ Communications, IT, entertainment
  - ◆ Surgery, drugs, vaccines, diagnostics
  - ◆ Many more
- ❑ Training, professionalism & ethics
- ❑ Led to doubling of human life-span



# 21<sup>st</sup> Century

## The World is far from well: The Unequal World

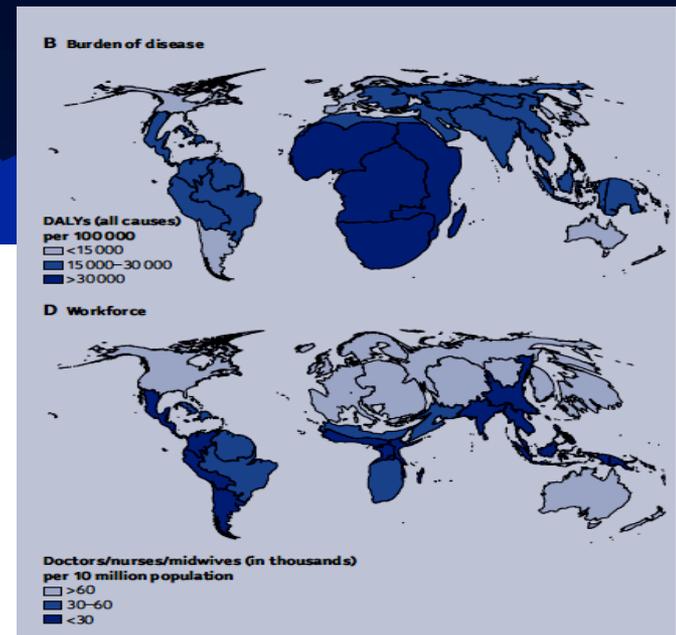
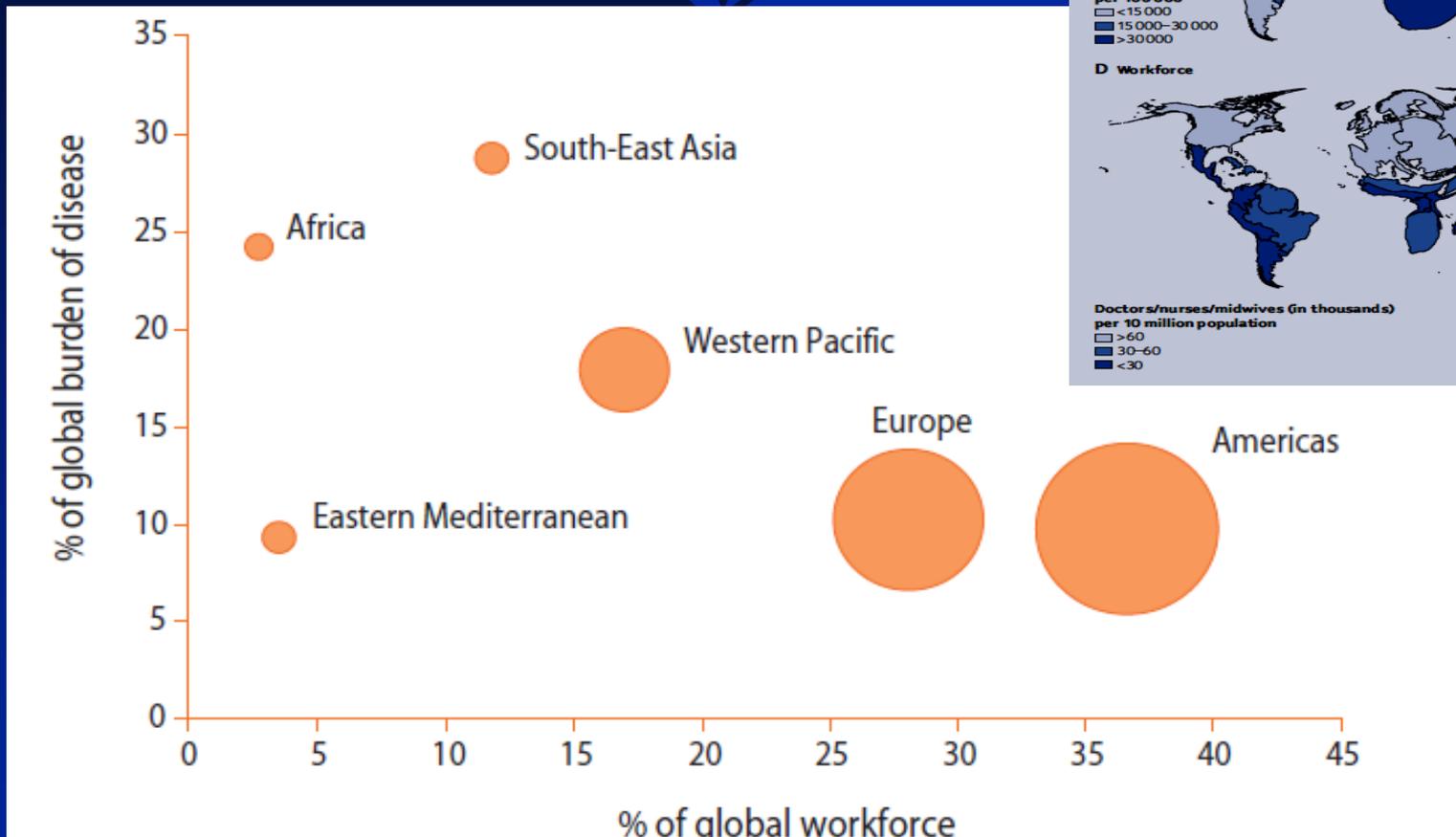


- Gaps and inequities in health
  - ◆ Many do not benefit from 20<sup>th</sup> Century advances
  - ◆ Poor and developing countries left behind
- 10/90 gap
  - ◆ Only 10% of global spending on health research is devoted to diseases or conditions that account for 90% of the global disease burden.



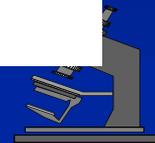
Map From: Frenk J, Chen L, et al. *Health professionals for a new century: transforming education to strengthen health systems in an interdependent world*. Published online at [www.thelancet.com](http://www.thelancet.com) on Nov 29, and in *The Lancet* Dec 4, 2010, vol 376; pp 1923–58); reproduced in expanded book, distributed by Harvard University Press.

# Inequalities in health workforce distribution by WHO regions



◆ Source: World Health Report, WHO 2006

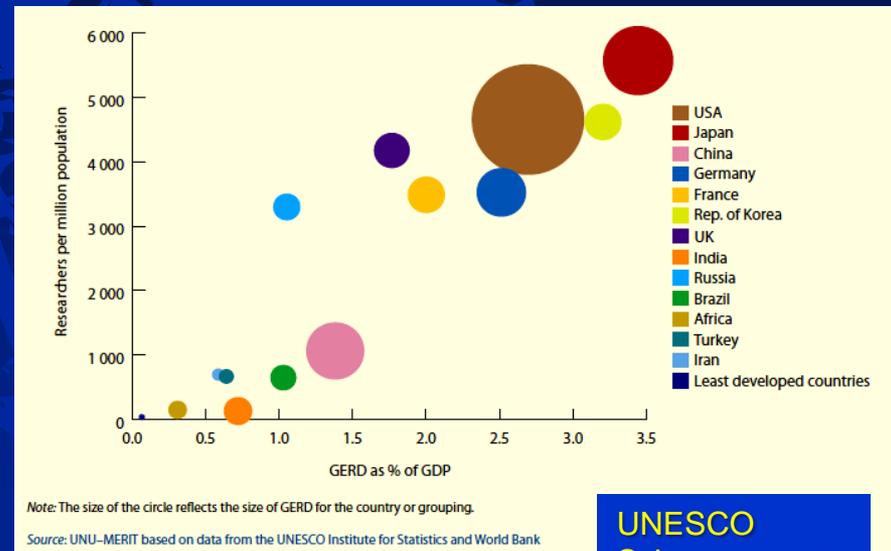
◆ Map from: From: Frenk J, Chen L, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. Published online at [www.thelancet.com](http://www.thelancet.com) on Nov 29, and in *The Lancet* Dec 2010



# Research Capacity of Low and Middle Income Countries

- ❑ Lags behind high income countries
- ❑ Less resources to support creative investigation
  - ◆ \*Gross domestic expenditure on R&D as % of GDP
    - China (1.98); Malaysia (1.07), Thailand (0.25); Vietnam (0.19); Philippines (0.09);
    - USA (2.79); Germany (2.92); Japan (3.67); South Korea (4.04); Taiwan (2.3); Singapore (2.1);
- ❑ Smaller pool of quality researchers
- ❑ Brain-drain from under-resourced to high income countries

## ❑ Global investment in R&D 2007

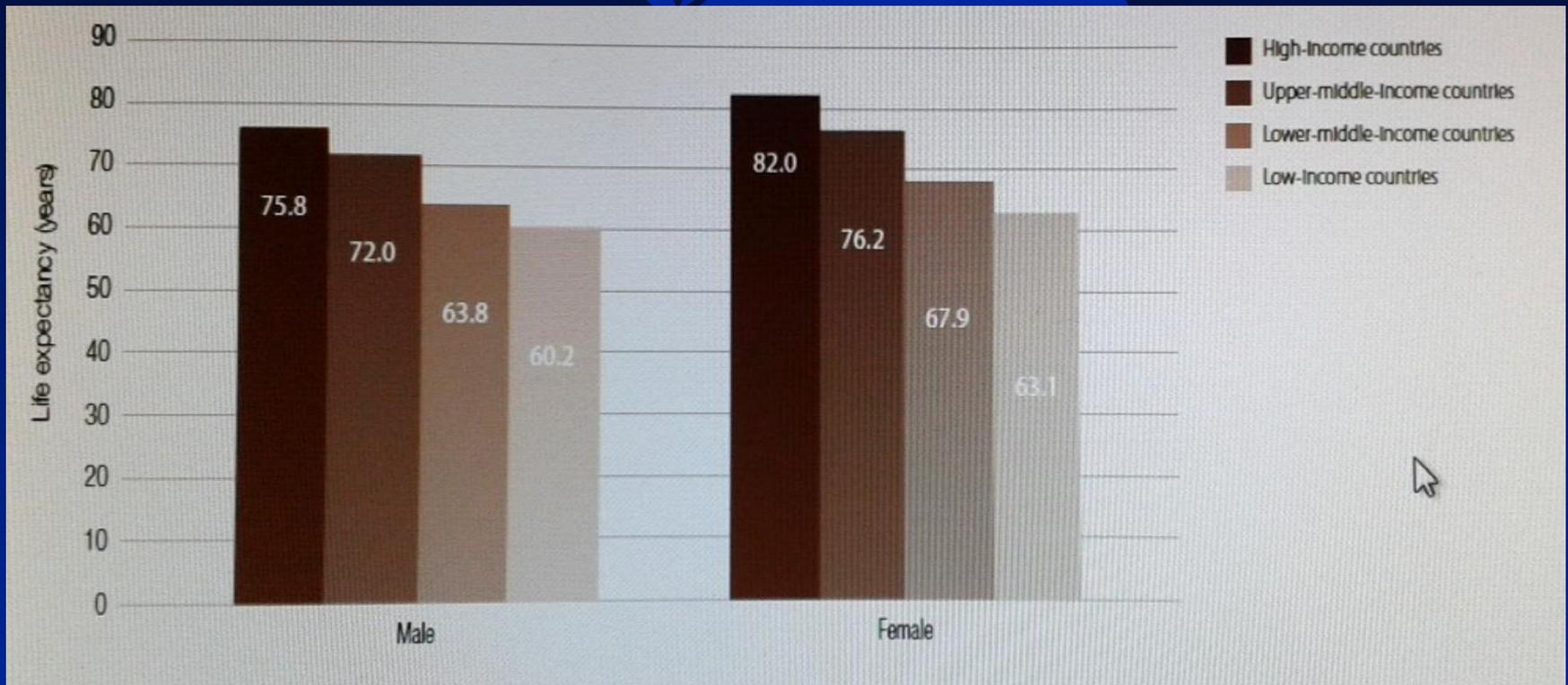


UNESCO  
Science report  
2010



◆ \*UNESCO UIS 2013/ World Bank 2014

# Life expectancy by income group countries, 2012



□ We live in an unequal world



World Health Statistics 2014. WHO.

# Universal Health Coverage (UHC)

## □ Definition

- ◆ Entire population has access to needed health services which are of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services

## □ Two essential components

- ◆ Universal access to effective health care
- ◆ Financial risk protection for health



# Universal Health Coverage

## □ Universal Access to Health care

- ◆ Sufficient human expertise and technical resources
  - Appropriate comprehensive package of services
    - ↓ Curative interventions: Medical, surgical, rehabilitative and diagnostic
    - ↓ Preventive & promotive
  - Better health outcomes when built on Primary Health Care
- ◆ Suitable social infrastructure
- ◆ No discrimination (income, gender, ethnic, religious, etc)

## □ Financial Risk Protection for Health

- ◆ Financing through general taxation and/or mandatory universal insurance.
- ◆ Favour publicly funded health-care system
- ◆ Minimize out-of-pocket spending on health care & catastrophic household health costs



# UHC – What to cover?

- Determination of healthcare package that is the entitlement of all

- ◆ Package varies with countries?
- ◆ Global package of essential services?

- What about?

- ◆ Rare diseases
- ◆ High cost diseases



# Global Prevalence of UHC, 2009



Source: STUCKLER, D., FEIGL, A. B., BASU, S. & MCKEE, M. 2010. The political economy of universal health coverage. Geneva: World Health Organization.

◆ The United States was not included because its current legislation will only achieve >90% insurance coverage by 2014.

# Social Determinants of Health

- ❑ Commission on Social Determinants of Health (2005-2008), set up by the World Health Organization and chaired by Sir Michael Marmot
  - ◆ In countries at all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health
  - ◆ Significantly affected by economic & political system
- ❑ “Science shows that social factors account for the bulk of the global burden of disease and of health inequalities between and within countries.” – WHO



# Social Determinants of Health

## □ The WHO Commission's three principles for action :

- ◆ Improve the conditions of daily life – the circumstances in which people are born, grow, live, work, and age.
- ◆ Tackle the inequitable distribution of power, money, and resources – the structural drivers of those conditions of daily life – globally, nationally, and locally.
- ◆ Measure the problem, evaluate action, expand the knowledge base, develop a trained workforce and raise public awareness.

- World Health Assembly resolution (May 2009) urged all member states to tackle health inequities through action on the social determinants of health
- Growing need for sharing knowledge between and within countries about the social determinants of health and what can be done to reduce health inequity and improve population health.
- Research & monitoring. No data means no recognition of the problem.

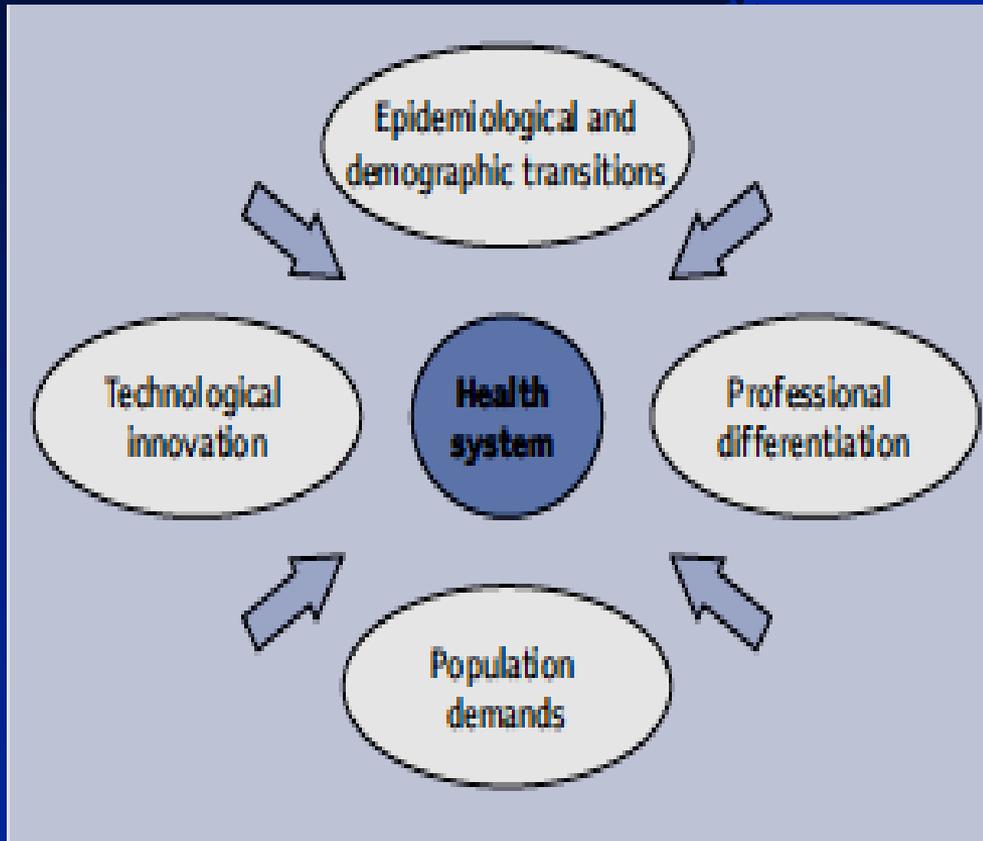


# 21<sup>st</sup> Century Challenges in Health and Social conditions

- Multi-faceted, rapidly changing
  - ◆ Healthcare systems and practices
  - ◆ Resilience & capacity to cope with extreme changes
  - ◆ Societal demographics & dynamics



# Complex health systems



- ◆ **Rising costs & demands**
  - ◆ Integrate explosive growth of knowledge
  - ◆ Expanding functions – prevention, complex care, community-based, superspecialisation; personalised medicine
  - ◆ Socially diverse patients
- ◆ **Unprecedented teamwork required**
  - ◆ Demands on training and education of healthcare professionals (expertise)
- ◆ **Demands on Healthcare financing**

From: Frenk J, Chen L, et al. *Health professionals for a new century: transforming education to strengthen health systems in an interdependent world*. Published online at [www.thelancet.com](http://www.thelancet.com) on Nov 29, and in *The Lancet* Dec 4, 2010, vol 376; pp 1923–58); reproduced in expanded book, distributed by Harvard University Press.



# Antimicrobial Resistance: A Call for Action

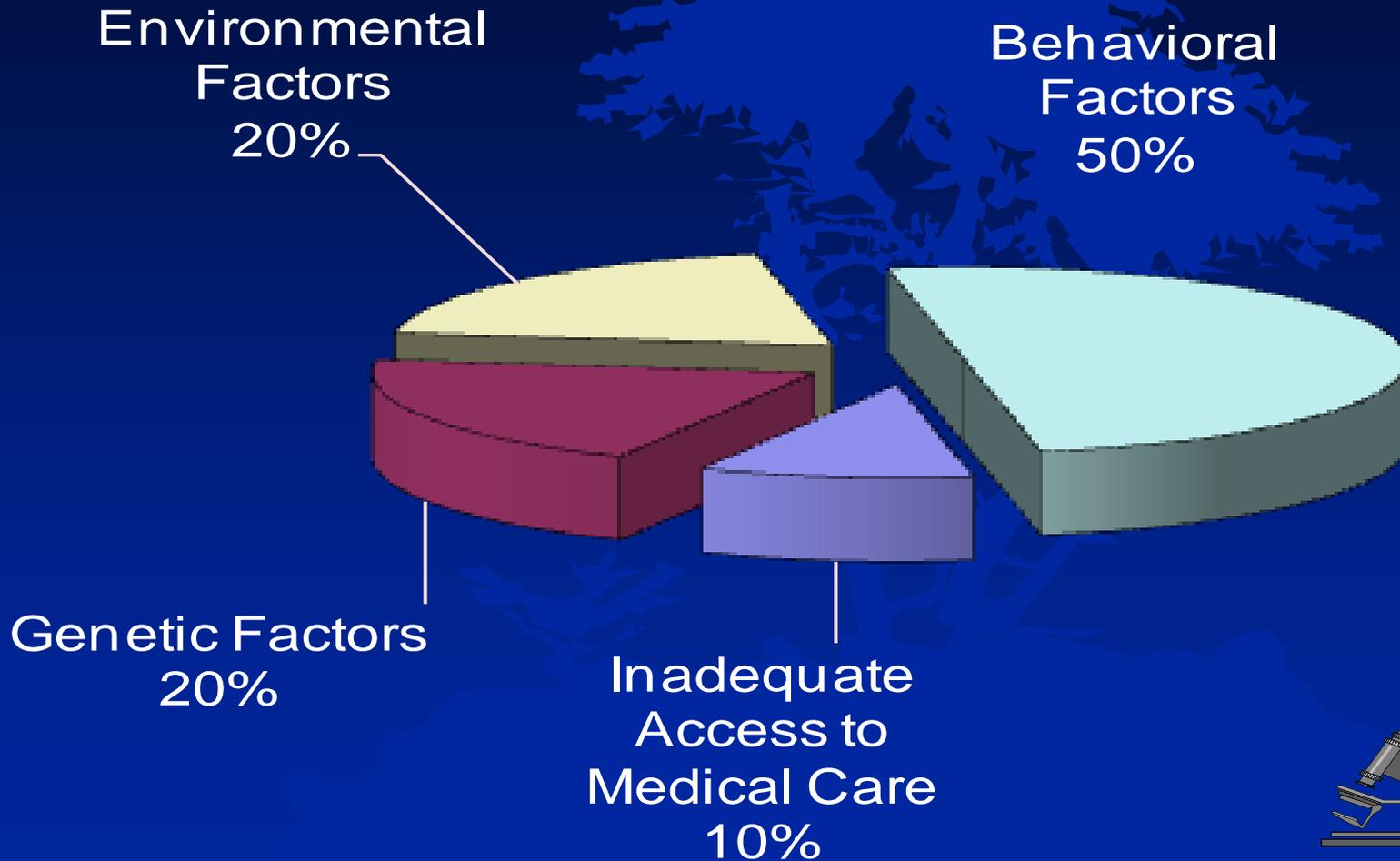
## Introduction

Infectious diseases account for about one-quarter of deaths worldwide. Since the introduction of penicillin in the 1940s, antibiotics have occupied a central place in the treatment of bacterial infections and make possible many of the procedures of modern medicine such as chemotherapy, organ transplantation and the care of premature babies. However, although there have been major advances in research into, and treatment of, many communicable diseases, continuing progress in tackling these major challenges for public health is threatened by the dramatic increase in the number and distribution worldwide of pathogens resistant to antimicrobial (antibacterial, antiviral and antifungal) drugs. For example, a recent report by the UK Chief Medical Officer<sup>1</sup> concludes that *"antimicrobial resistance poses catastrophic threat"*. The latest G8 Science Ministers Statement (2013) focused on the global challenge of antimicrobial resistance and the World Health Organisation expressed concern that this rapidly growing problem may impede progress towards

- Antibiotic usage
- Antibiotic policies
- Industrial & agricultural use
- We are running out of antibiotics to use!

Taken together, the work of the academies has compiled a broad range of recommendations for policy development to combat antimicrobial resistance with specific proposals for the coordinated action needed in support of surveillance, technical assistance, research and innovation. It is vital both to preserve the efficacy of existing antimicrobial agents and accelerate the discovery and development of new agents. To be successful, this broad strategy requires a higher political and public profile and a cross-sectoral approach involving health, agriculture, development, economics

# Causes of Premature Mortality



# Climate change

## □ Green house gas emissions & chronic diseases

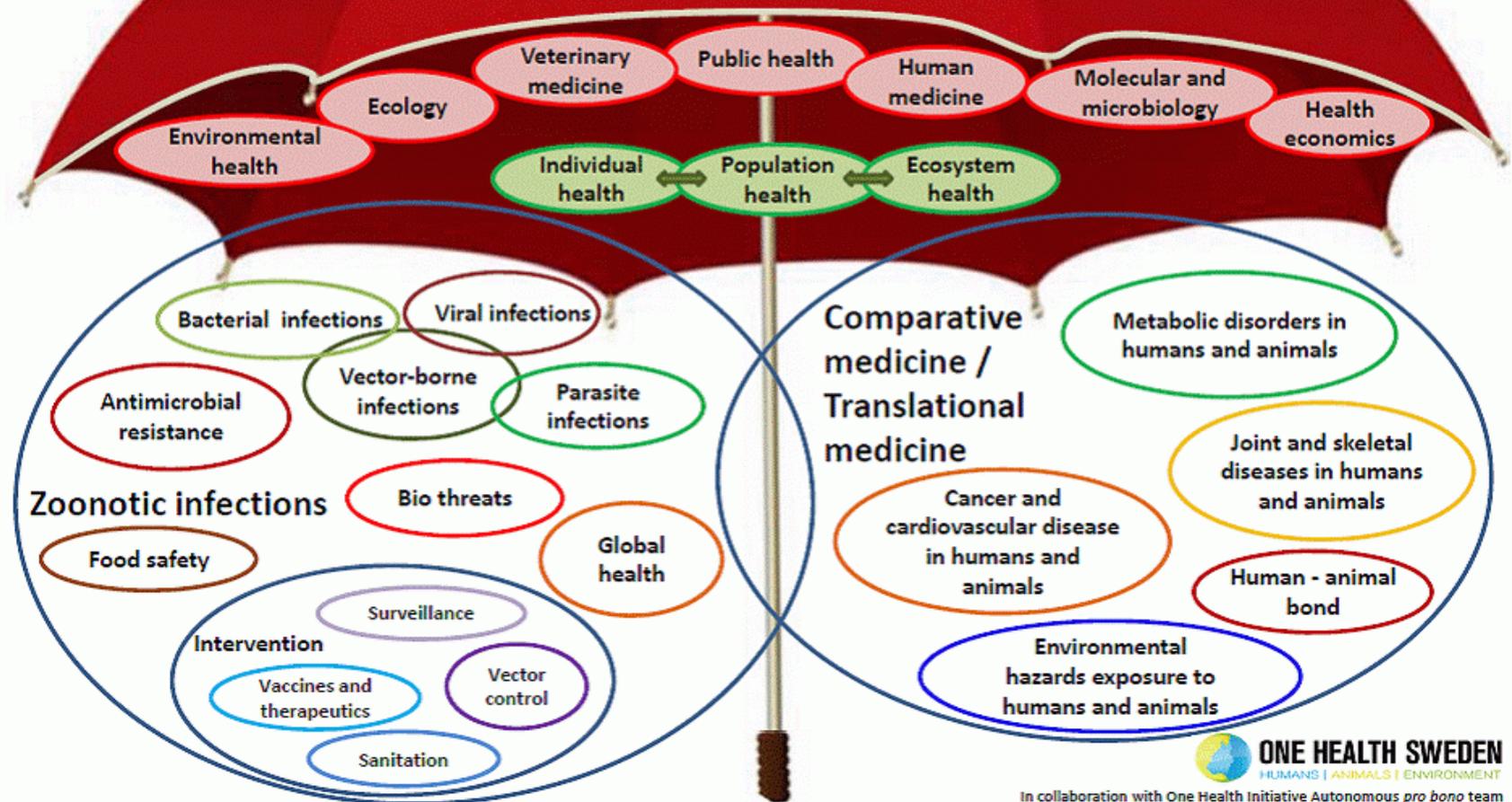
- ◆ Over the last 25 years, global warming has accelerated.
- ◆ Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter.
- ◆ In London, strategies to mitigate climate change could reduce heart disease and stroke by 10-20%, breast cancer by 12-13%. In Delhi, they are projected to bring a 11-25% cut in the burden of heart disease and stroke, and a 6-17% reduction in diabetes.

## □ Environmental disasters & disease outbreaks

## □ One Health



# One Health



# Rapid & mass global travel

- ❑ Disease outbreaks
- ❑ Cosmopolitan society

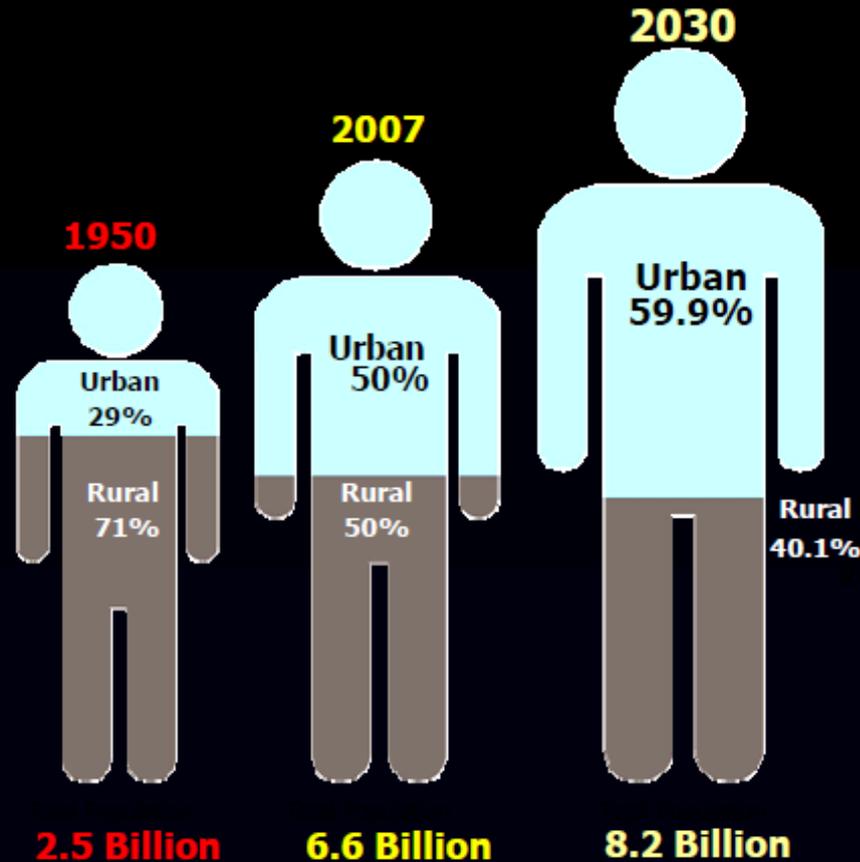
◆ “...the concept of [domestic] as distinct from “international health” is outdated. Such a dichotomous concept is no longer germane to infectious diseases in an era in which commerce, travel, ecologic change and population shifts are intertwined on a truly global scale.”

◆ -U.S. CDC, “Addressing Emerging Infectious Disease Threats: A Prevention Strategy for the United States,”



# Urbanisation

## Global Population Growth Trends



(United Nations, 2005)

◆ “In 2007, for the first time in world history, half of the world’s population is urban”

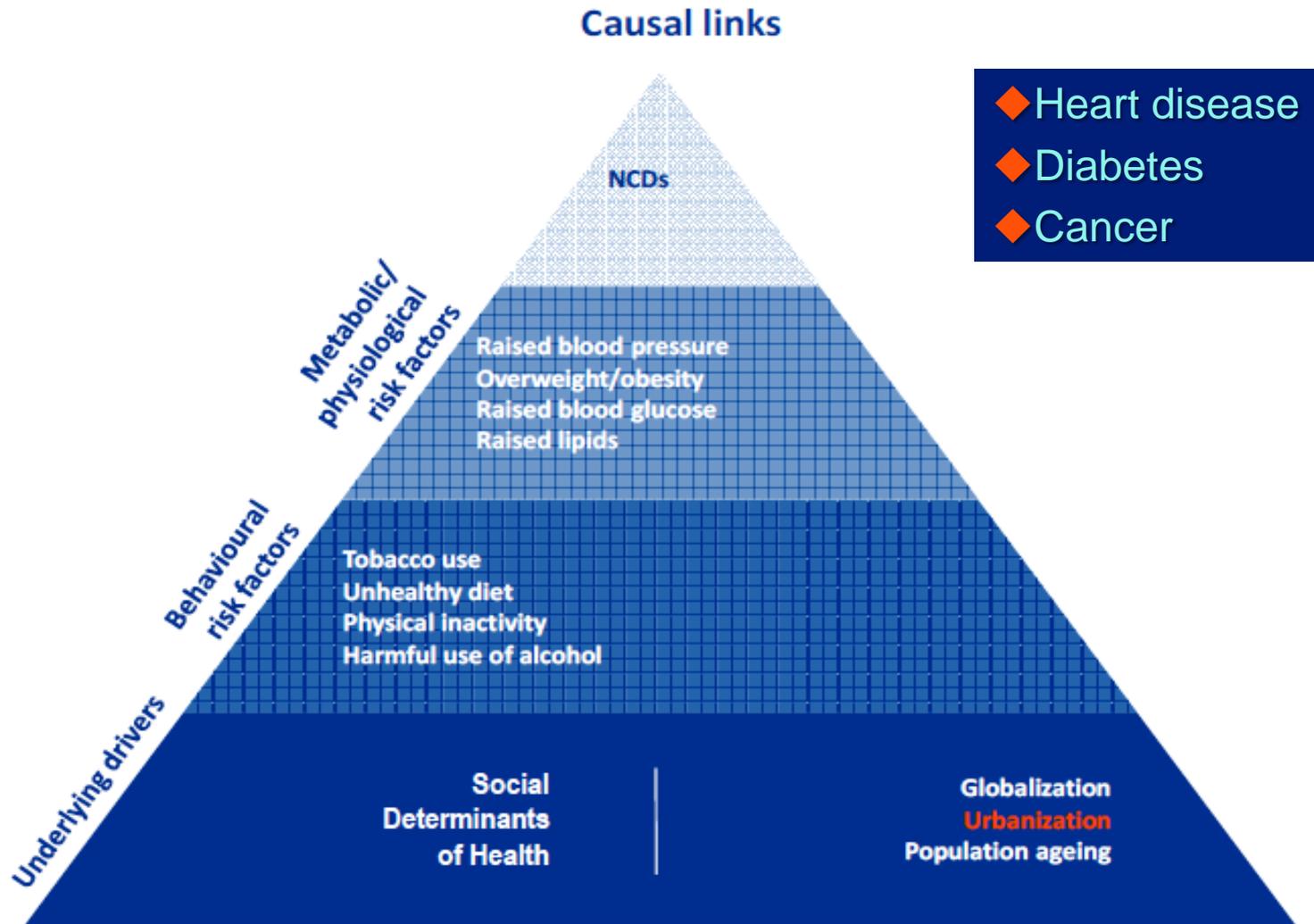
◆ *UN Habitat, 2003*

## ◆ The problems of mega-cities

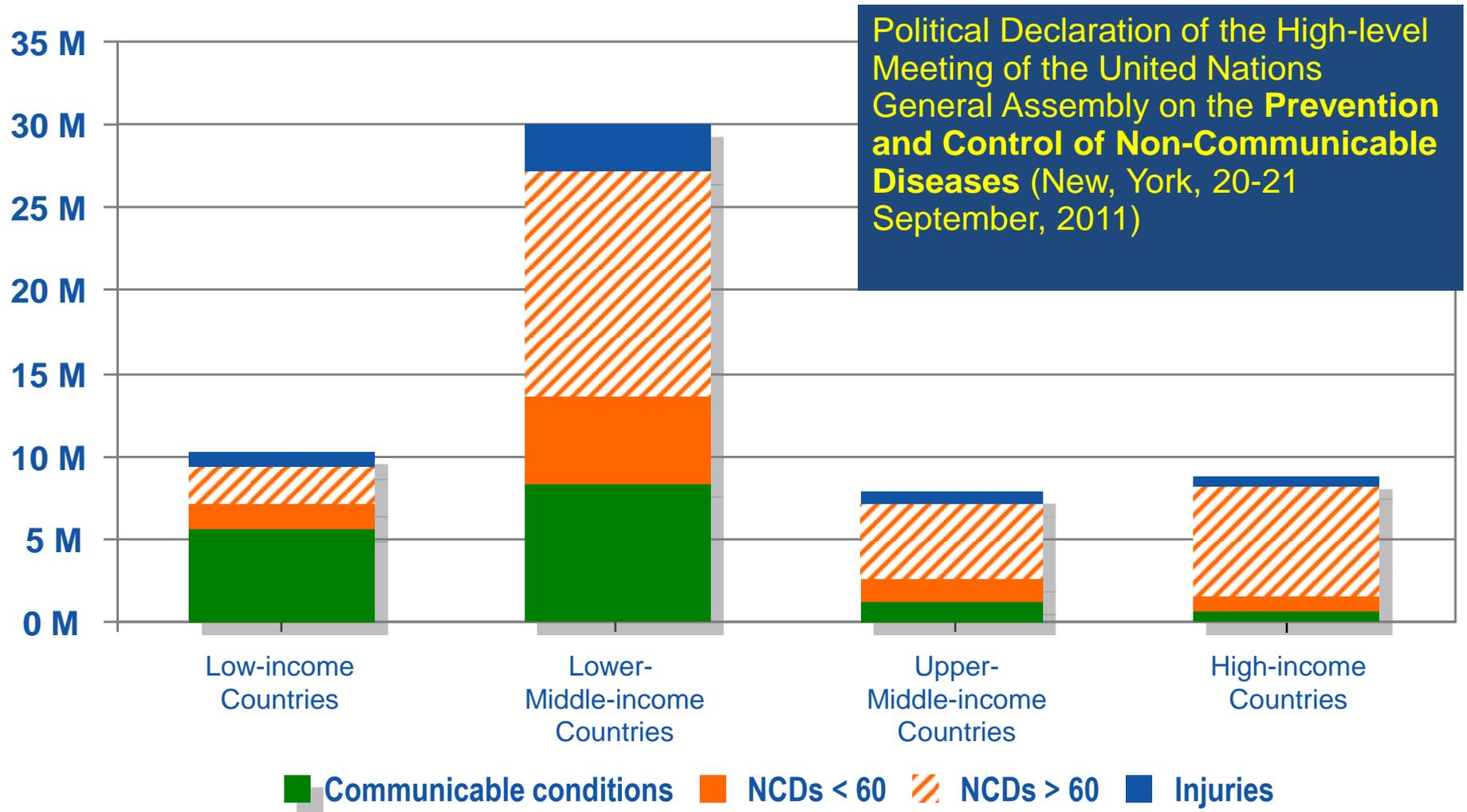
- ◆ Isolation
- ◆ Mental health
- ◆ Adolescent problems
- ◆ Crime



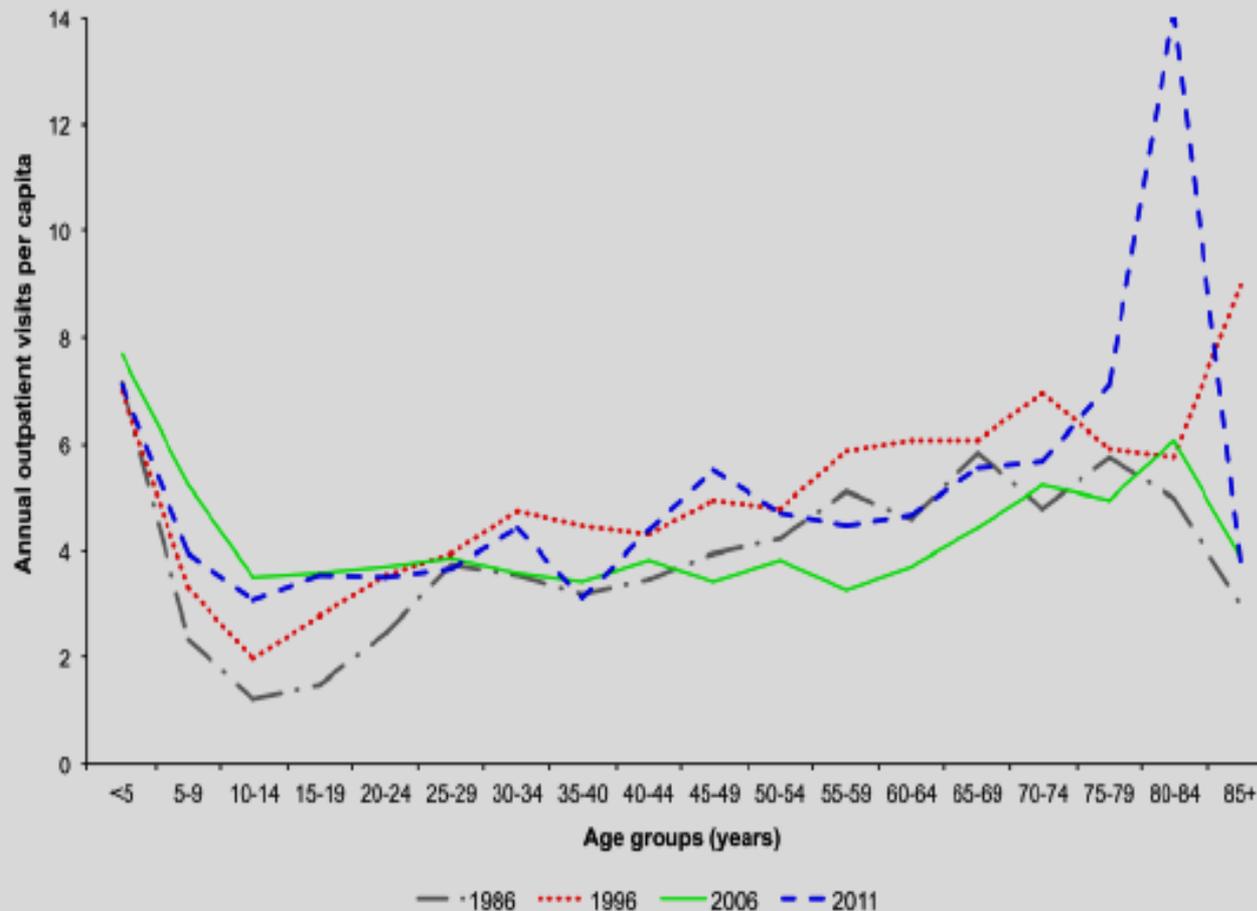
# Urbanisation and NCD



# Premature NCD deaths before the age of 60



# Ageing and healthcare utilization



Source: HEALTH POLICY RESEARCH ASSOCIATES, INSITUTE FOR HEALTH SYSTEMS RESEARCH & INSITUTE FOR HEALTH POLICY 2013. Malaysia Health Care Demand Analysis. Inequalities in Healthcare Demand & Simulation of Trends and Impact of Potential Changes in Healthcare Spending. Kuala Lumpur: Institute for Health Systems Research.



the interacademy medical panel

# The InterAcademy Medical Panel

- ❑ is the global network of the world's medical academies and medical sections of academies of science and engineering
- ❑ has 74 member academies
- ❑ is committed to improving health world-wide
- ❑ IAMP activities focus on institutional collaboration to strengthen the role of all academies
  - ◆ to alleviate the health burdens of the world's poorest people;
  - ◆ to build scientific capacity for health;
  - ◆ to provide independent evidence-based scientific advice on promoting health science and health care policy to national governments and global organizations.



# Scientists wear many hats!



# International Partners in Research Capacity Strengthening

## □ Key players: Agencies, Foundations, Global networks, Academic consortia

### ◆ Research funding

### ◆ Training

- Research technologies
- Research management
- Leadership

### ◆ Development & support of networks

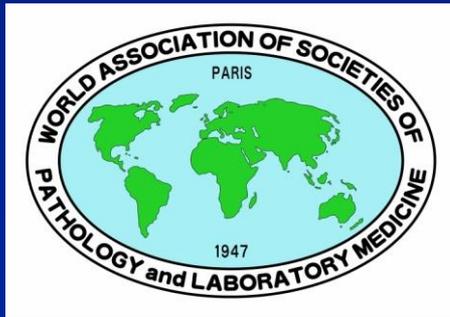
### ◆ Pairing (North-South; South-South)

- Sandwich PhD
- Collaborative projects, etc

◆ Scientists are  
key players!



# Global collaboration for capacity building in low-resource countries



# HEALTH PROFESSIONALS FOR A NEW CENTURY: Transforming Education Systems in an interdependent world

**HEALTH  
PROFESSIONALS  
FOR A NEW  
CENTURY**

Transforming education to  
strengthen health systems in  
an interdependent world

◆ 30 Nov – 1 Dec 2010

◆ Launch of Lancet Commission  
Report

- ◆ Informative learning:
  - ◆ acquiring knowledge and skills - produce experts.
- ◆ Formative learning:
  - ◆ socialising around values - produce professionals
- ◆ Transformative learning
  - ◆ developing leadership attributes - produce enlightened change agents.

The Lancet Commissions

**THE LANCET**

EDUCATION OF HEALTH PROFESSIONALS  
FOR THE 21<sup>ST</sup> CENTURY  
A GLOBAL INDEPENDENT COMMISSION

**Health professionals for a new century: transforming education to strengthen health systems in an interdependent world**

*John Frank\*, Lincoln Chert\*, Zulfiqar A. Bhutta, Jordan Cohen, Nigel Crisp, Timothy Evans, Harvey Fineberg, Patricia Garcia, Yong Ke, Patrick Kelly, Barry Kitson, Arif Malik, David Nayyar, Arif Pabon-Mendez, Sarah Reddy, Susan Seuring, Jaime Sepúlveda, David Smeeth, Heidi Turjak*

**Executive summary**

**Problem statement**

100 years ago, a series of studies about the education of health professionals, led by the 1910 Flexner report, sparked groundbreaking reforms. Through integration of modern science into the curricula of university-based schools, the reforms equipped health professionals with the knowledge that contributed to the doubling of life spans during the 20th century.

In the beginning of the 21st century, however, all is not well. Glaring gaps and imbalances in health persist both within and between countries, undermining our collective future to share the dramatic health advances ubiquitously. At the same time, fresh health challenges loom. New infectious, environmental, and behavioral risks, at a time of rapid demographic and epidemiological transitions, threaten health security of all. Health systems worldwide are struggling to keep up, as they become more complex and costly, playing additional demands on health workers.

Professional education has not kept pace with these challenges, largely because of fragmented, outdated, and static curricula that produce ill-equipped graduates. The problems are systemic: mismatch of competencies to patient and population needs; poor teamwork; persistent gender stratification of professional status; narrow technical focus without broader contextual understanding; episodic innovation rather than continuous care; predominant hospital orientation at the expense of primary care; quantitative and qualitative imbalances in the professional labour market; and weak leadership to improve health system performance. Available efforts to address these deficiencies have mostly flourished, partly because of the so-called rebellion of the professionals—i.e., the tendency of the various professions to act in isolation from or even in competition with each other.

**Design of professional health education is necessary and timely in view of the opportunities for mutual learning and joint solutions offered by global interdependence due to acceleration of flows of knowledge, technology, and financing across borders, and the impetus of both professionals and patients. What is clearly needed is a thorough and authoritative re-examination of health professional education, matching the ambitious work of a century ago.**

That is why this Commission, consisting of 20 professional and academic leaders from diverse countries, came together to develop a shared vision and a common strategy for postsecondary education in medicine, nursing, and public health that reaches beyond the confines of national borders and the silos of individual professions. The Commission adopted a global outlook, a multiprofessional perspective, and a systems approach. This comprehensive framework considers the connections between education and health systems. It is centred on people as co-producers and as drivers of needs and demands in both systems. By interaction through the labour market, the provision of educational services generates the supply of an educated workforce to meet the demand for professionals to work in the health system. To have a positive effect on health outcomes, the professional education sub-system must design new instructional and institutional strategies.

**Major findings**

Worldwide, 2420 medical schools, 467 schools or departments of public health, and an indeterminate number of postsecondary nursing educational institutions train about 1 million new doctors, nurses, midwives, and public health professionals every year. Severe institutional shortages are exacerbated by maldistribution, both between and within countries.

London, UK, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
Boston, MA, USA (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
London, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
London, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
London, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
London, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
London, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
London, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
London, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)  
London, UK (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)

www.thelancet.com Vol 376 December 4, 2010

193

# IAMP is a partner with China Medical Board and the (US) Institute of Medicine in promoting global dissemination of the report

- ❑ Discussion of report's conclusions and recommendations at a national level.
- ❑ Encourage regional networks of academies to address these issues, and function as forum for information exchange and coordination.



# IAMP Young Physician Leaders (YPL) Programme

- ❑ Foster “a new generation of leaders in global health for the 21st Century”.
- ❑ Develop a critical mass of young physician leaders in a learning and action network worldwide
- ❑ challenge member academies to support young physicians in their countries and to strengthen their leadership skills.

## THE LANCET

The Lancet, [Volume 379, Issue 9813](#), Page e25, 28 January 2012  
doi:10.1016/S0140-6736(12)60148-2

IAMP tackles a void in medical education: leadership



- ◆ *Launch in 2011 in conjunction with the World Health Summit (WHS) in Berlin, Germany*
- ◆ *Now a network of 108 YPL*



# Science advice & advocacy



INTER **iamp**  
the interacademy m

Statement on t

A CALL FOR ACTI  
IN I

IAMP endorsed G8  
statement “**Water and  
Health**” August 2011

**M8** Alliance  
Academic Health Centers, Universities and National Academies

**iap**  
the global network  
of science academies

**Antimicrobial Resistance:  
A Call for Action**

**iamp**  
the interacademy medical panel

**One Health approach acknowledged worldwide—Example Europe February 24, 2014  
Endorsement**

**Interacademy Medical Panel (IAMP) and the Federation of European Academies of Medicine (FEAM)** organized an International Workshop “Integrated Education in One Health” Hungarian Academy of Sciences, Budapest, Hungary on 5 June 2013.

# **Conference and Workshop** *IAMP Scientific Meetings*

Political Declaration  
of the High-level  
Meeting of the  
United Nations  
General Assembly  
on the Prevention  
and Control of Non-  
Communicable  
Diseases (New, York,  
20-21 September,  
2011)



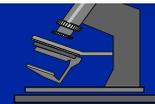
## ***IAMP Scientific Meetings on Non-Communicable Diseases (NCDs)***

*Brazilian Academy of Sciences 2012*

*Academy of Sciences of South Africa  
in August 2013*



**Conference and Workshop**  
**Conference on Mental Health**  
**International Conference on**  
**Child and Adolescent Mental Health**  
(The Royal Swedish Academy of Sciences,  
Stockholm, 22-23 Oct. 2013)



# IAMP workshop in Trieste, Italy, 3-4 July 2014.

## ‘Promoting action on the Social determinants of Health’,



### Intended outputs:

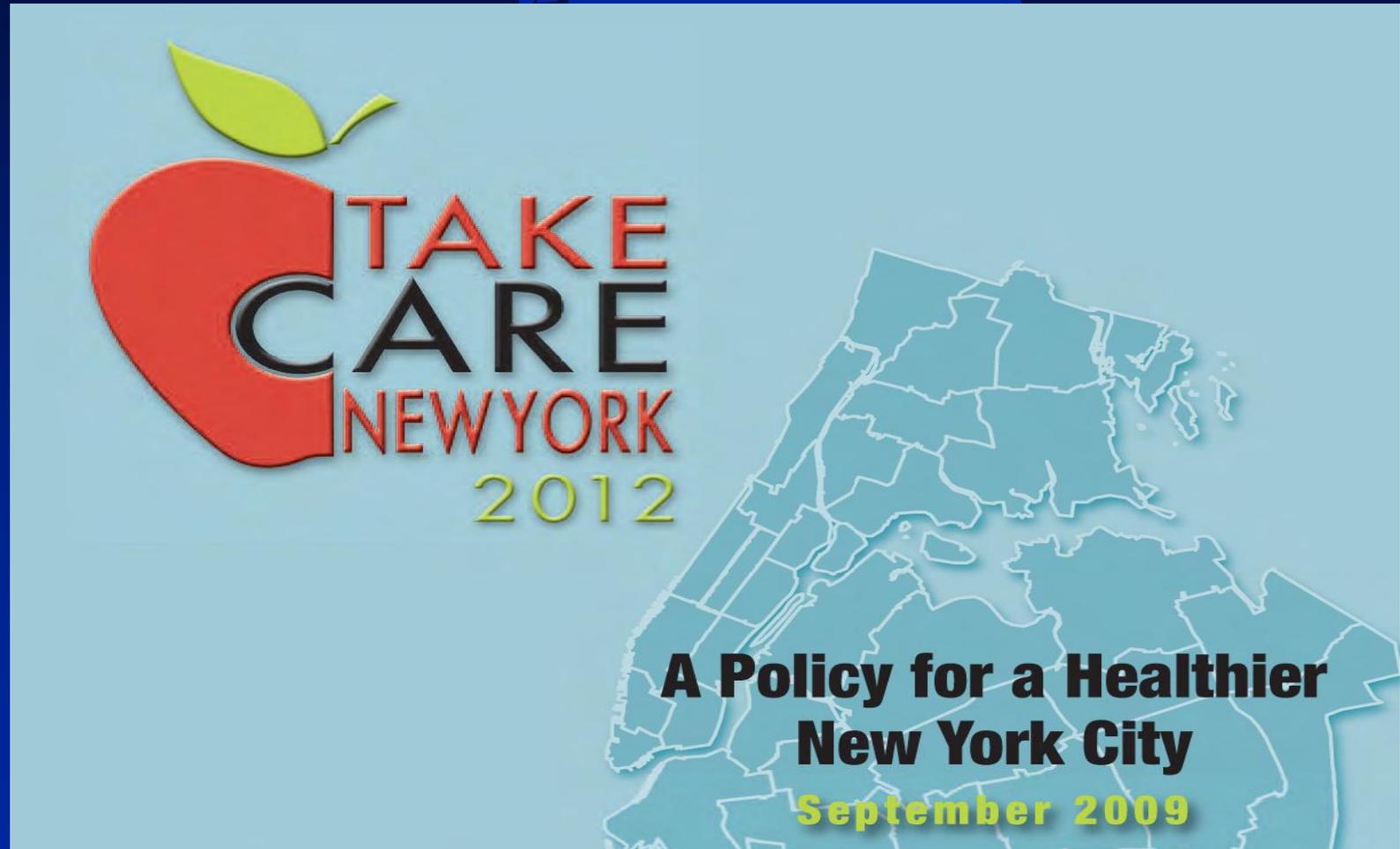
- ❑ Call for action by governments and other stakeholders to address social determinants of health and their impact on health inequity
- ❑ Regional versions of workshop to reach a wider audience to increase knowledge, awareness & action



- ❑ Over 35 participants from 25 countries
- ❑ Academies of Sciences & Medicine and Government officials

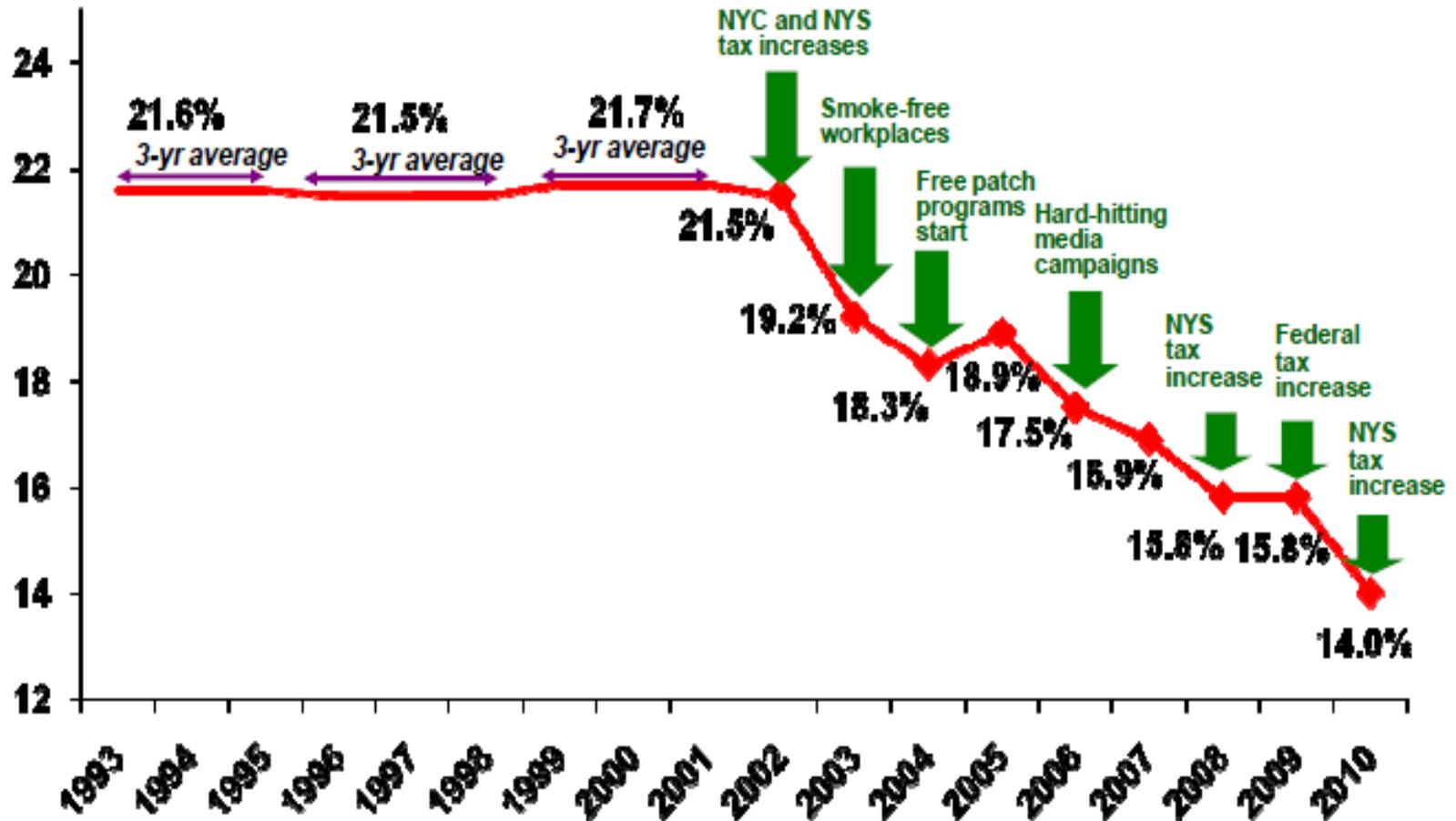


# Sustainable Health: Preventive and Promotive action



# Effect of Environmental Approaches to Smoking Prevention. NYC, 2002-2010

◆ Percent of adults



# Promoting Physical Activity



Find free and low cost exercise classes  
and sports leagues at [BeFitNYC.org](http://BeFitNYC.org)

**NYC**

Department of Health  
and Mental Hygiene  
Thomas Farley, M.D., M.P.H.  
Commissioner

Department of  
Transportation  
Janette Sadik-Khan  
Commissioner



WANT TO LOWER YOUR BLOOD PRESSURE?

**MAKE NYC  
YOUR GYM**



Made possible by funding from the Department of Health and Mental Hygiene

# NYC Green Carts: Promoting Access to Fresh Fruits and Vegetables



# Media Messages

## Clear Your Kitchen of Trans Fat

### 1. CHANGE your oils.

For cooking and frying, check the ingredients on all oils. If "partially hydrogenated" is listed, switch to a non-hydrogenated oil instead. If there is no ingredients list, ask your supplier or the manufacturer.

For baking, use non-hydrogenated oils or shortenings with low or **no trans fat**.

### 2. CHOOSE healthy spreads.

Instead of stick margarine or butter, use soft tub spreads with low saturated fat and **no trans fat**.

### 3. ORDER prepared foods without trans fat.

Check ingredients and ask your supplier for baked products, pre-fried, and pre-mixed foods that are free of partially hydrogenated vegetable oils.

**INGREDIENTS:** Pasteurized Grade A Non-fat Milk, ~~Fructose~~, ~~Red Bell Pepper~~, ~~Partially Hydrogenated Soybean Oil~~, Salt, Modified Cornstarch, Garlic, Lemon Juice

## Make an Oil Change

Read labels and choose products that are free of partially hydrogenated oils.

CALL 311

and ask for *trans fat* or visit [nyc.gov/health](http://nyc.gov/health) for more information



THE NEW YORK CITY DEPARTMENT  
of HEALTH and MENTAL HYGIENE  
Richard R. Bostrom, M.D.  
Thomas R. Frieden, M.D., M.P.H., Commissioner  
[nyc.gov/health](http://nyc.gov/health)



HPDP1X25501 - 7.05

## Does Your Kitchen Need an Oil Change?



What Every  
Restaurant and  
Food Service  
Establishment  
Needs to  
Know About  
Trans Fat



## ARE YOU POURING ON THE POUNDS?

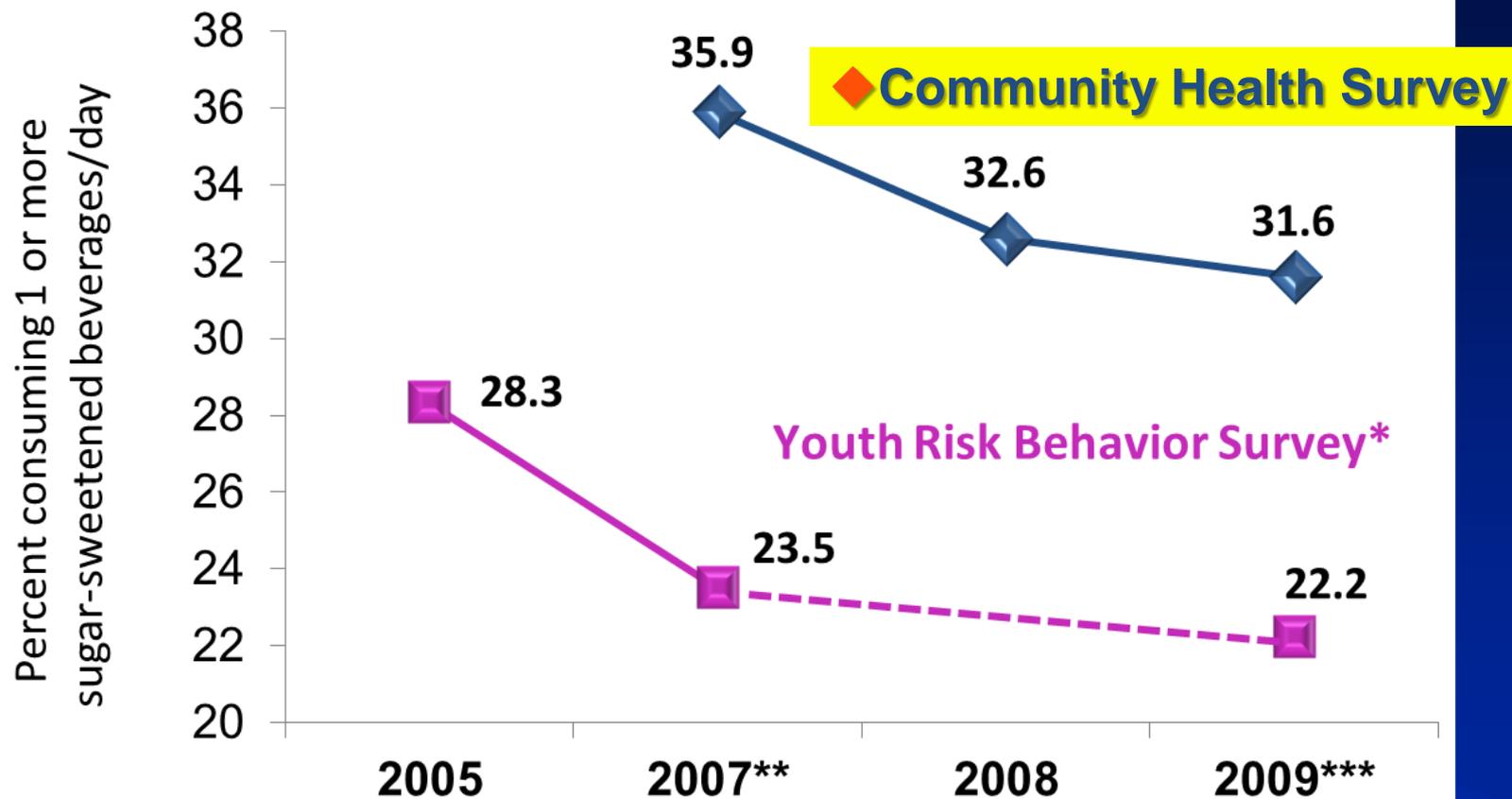


### DON'T DRINK YOURSELF FAT.

Cut back on soda and other sugary beverages.  
Go with water, seltzer or low-fat milk instead.



# Decline in Sugary Drink Consumption in NYC 2005-2009



◆ Sources: NYC Community Health Survey 2002-2009. NYC Youth Risk Behavior Survey 2005, 2007, 2009.

# Changing landscape of global collaboration

## □ 20 years of change

- ◆ Millennium development goals (MDGs)
- ◆ Global Fund (fight AIDS, TB, malaria)
- ◆ GAVI Alliance
- ◆ Development funds for health
  - 2010- US\$6.7 billion
  - 2011 - US\$28.4 billion

## □ Global collaborations can make a difference!



# Changing landscape of global collaboration

## □ Now in critical transition

◆ From MDG to  
an era of  
sustainable  
development  
goals (post-  
2015)

- End poverty
- End hunger; sustainable agriculture
- Healthy lives
- Inclusive education
- Gender equality
- Clean water for all
- Sustainable energy
- Economic growth & employment
- Resilient infrastructure
- Reduce inequality between countries
- Safe cities
- Sustainable consumption
- Combat climate change
- Conserve oceans & marine resources
- Protect & restore ecosystems
- Promote peaceful societies
- Strengthen global partnership



# Selling point

- *“You cannot tackle hunger, disease, and poverty unless you can also provide people with a healthy ecosystem in which their economies can grow.”*

Gro Brundtland



# Selling point: Investing in Health

- “Between 2000 and 2011, about 24% of the growth in full income from low-income and middle-income countries resulted from health improvements”
  - ◆ Governments should prioritize investment in health

*The Lancet Commission on Investing in Health, December 2013*

**Global Health 2035: a world converging within a generation**



**Thank you!**

