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BUILDING HEALTH THROUGH THE LIFE COURSE

8TH INTERNATIONAL CONFERENCE ON GLOBAL HEALTH

Miami, 2018

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THE LIFE COURSE APPROACH IN POLICY

SUSTAINABLE DEVELOPMENT GOAL 3:

To ensure a healthy life and promote **well-being for all at all ages**

OBJECTIVE 3: WHO/PAHO STRATEGIC PLAN

Determinants of health and health promotion **through the life course- promoting health and well-being from preconception to old age**

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Lifecourse Health Development: Past, Present and Future

Neal Halfon · Kandyce Larson · Michael Lu · Ericka Tullis · Shirley Russ

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Abstract During the latter half of the twentieth century, an explosion of research elucidated a growing number of causes of disease and contributors to health. Biopsychosocial models that accounted for the wide range of factors influencing health began to replace outmoded and overly simplified biomedical models of disease causation. More recently, models of lifecourse health development (LCHD) have synthesized research from biological, behavioral and social science disciplines, defined health development as a dynamic process that begins before conception and continues throughout the lifespan, and paved the way for the creation of novel strategies aimed at optimization of indi- to inform and r... system has s... knowledge ... to chart the ... trate its potentia... addresses social, psyc... influences on health, elimin... chronic illness, and contains hea... approach can serve to highlight the ... tance of MCH, moving it from the marg... debate to the forefront of healthcare reform e... paper concludes with suggestions for innovations

FRAMEWORK FOR POPULATION HEALTH

By Neal Halfon, Peter Long, Debbie I. Chang, James Hester, Moira Inkelas, and Anthony Rodgers

ANALYSIS & COMMENTARY

Applying A 3.0 Transformation Framework To Guide Large-Scale ...lth System Reform

Systems Strategies for Better Health Throughout the Life Course

A Vital Direction for Health and Health Care

J. Michael McGinnis, National Academy of Medicine; Donald M. Berwick, Institute for Healthcare Improvement; The Honorable Thomas A. Daschle, The Daschle Group; Angela Diaz, Mount Sinai Icahn School of Medicine; Harvey V. Fineberg, Gordon and Betty Moore Foundation; The Honorable William H. Frist, Vanderbilt University; Atul Gawande, Brigham and Women's Hospital; Neal Halfon, University of California, Los Angeles; Risa Lavizzo-Mourey, Robert Wood Johnson Foundation

September 19, 2016

...omics of human longevity

CLINICAL INVESTIGATIONS

Effect of Health Protective Factors on Health Deficit Accumulation and Mortality Risk in Older Adults in the Beijing Longitudinal Study of Aging

Chunxiu Wang, PhD, ... PhD, Arnold Mitnitski, PhD, Xianghua Fang, MD, Zhe Tang, MD, ... Rockwood, MD

Niedzwiedz et al. BMC Public Health 2012, 12:628
http://www.biomedcentral.com/1471-2458/12/628

RESEARCH ARTICLE — Open Access — BMC Public Health

Life course socio-economic position and quality of life in adulthood: a systematic review of life course models

Claire L Niedzwiedz, Srinivasa V Katikireddi, Jill P Pell and Richard Mitchell

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Lifetime Risks of Cardiovascular Disease

...erry, M.D., Alan Dyer, Ph.D., Xuan Cai, M.S., Daniel B. Garside, B.S., ...ngyan Ning, M.D., Avis Thomas, M.S., Philip Greenland, M.D., Linda Van Horn, R.D., Ph.D., Russell P. Tracy, Ph.D., and Donald M. Lloyd-Jones, M.D.

ABSTRACT

...lifetime risks of cardiovascular disease have not been reported across the age ...ctrum in black adults and white adults.

We conducted a meta-analysis at the individual level using data from 18 cohort studies involving a total of 257,384 black men and women and white men and

WHY NOW?

1. THE LONGEVITY REVOLUTION
2. THE CHRONICITY EFFECT
3. HEALTH FOR THE HUMAN DEVELOPMENT

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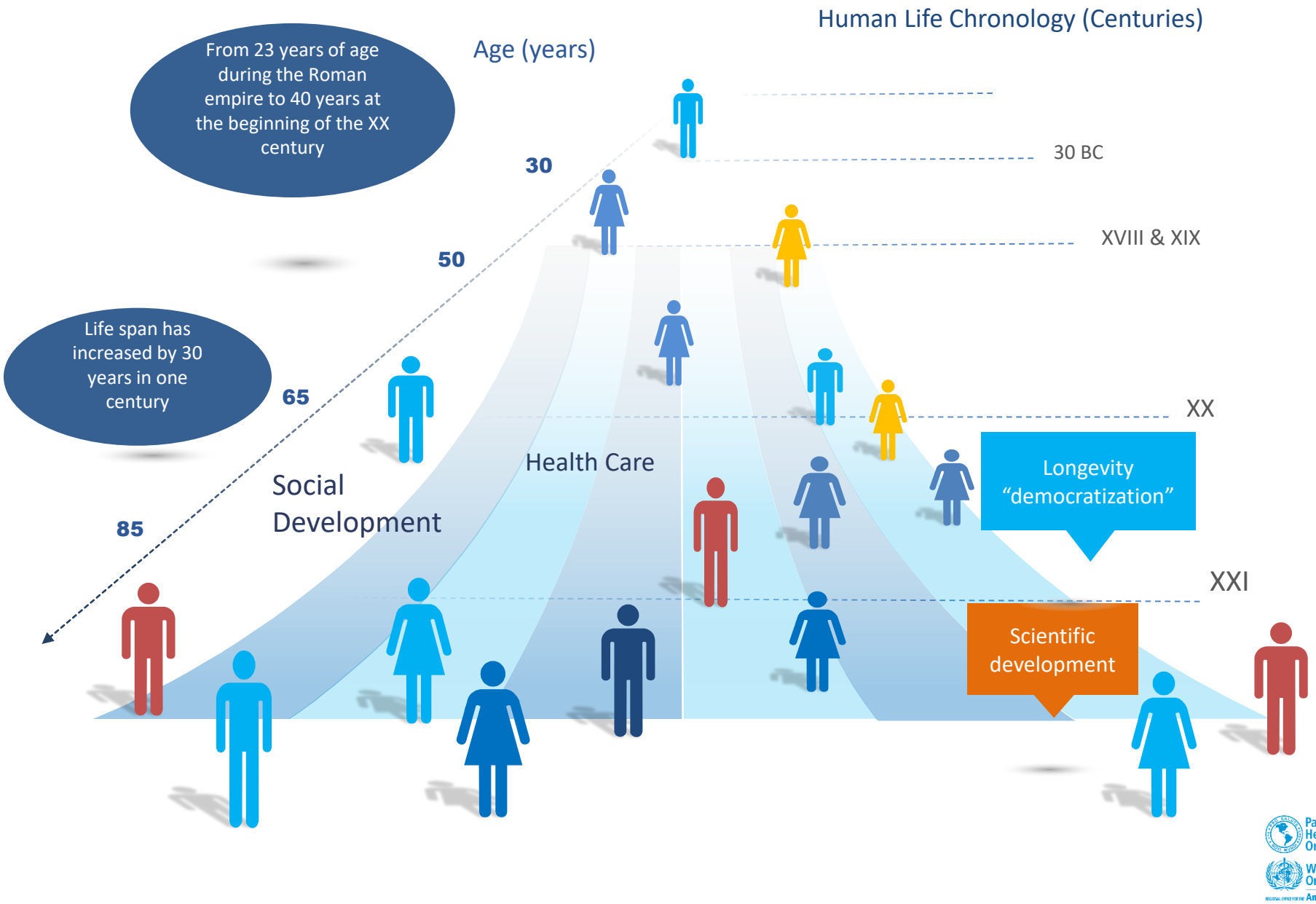
Human Life Chronology (Centuries)
From 23 years of age during the Roman empire to 40 years at the beginning of the XX century
Age (years)
30
50
65
85
30 BC
XVIII & XIX
XX
XXI
Life span has increased by 30 years in one century
Social Development
Health Care
Longevity "democratization"
Scientific development
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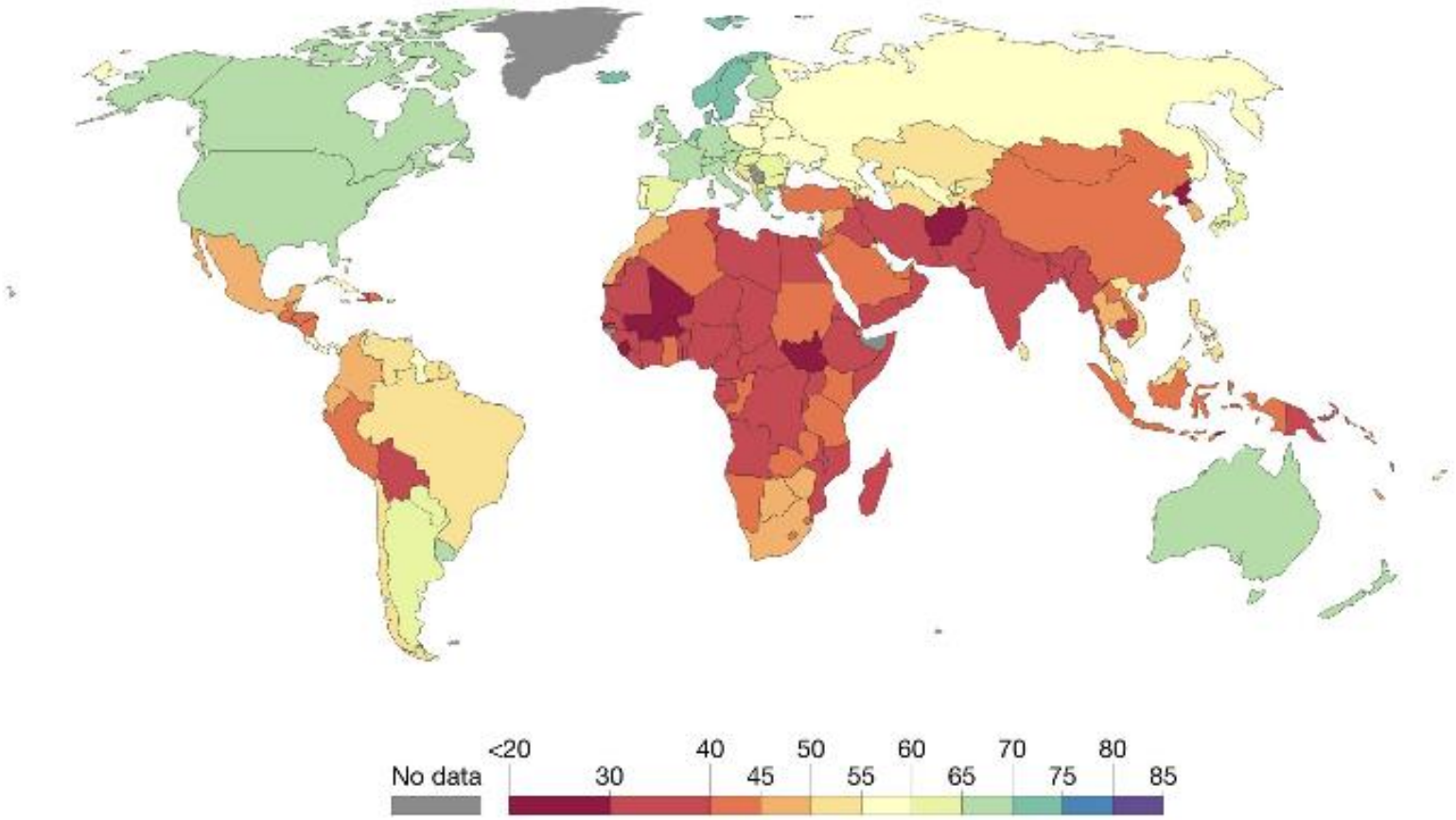
Life expectancy, 1950

Shown is period life expectancy at birth. This corresponds to an estimate of the average number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life

Our World in Data



Source: Clio-Infra estimates until 1949; UN Population Division from 1950 to 2015
OurWorldInData.org/life-expectancy-how-is-it-calculated-and-how-should-it-be-interpreted/ • CC BY-SA

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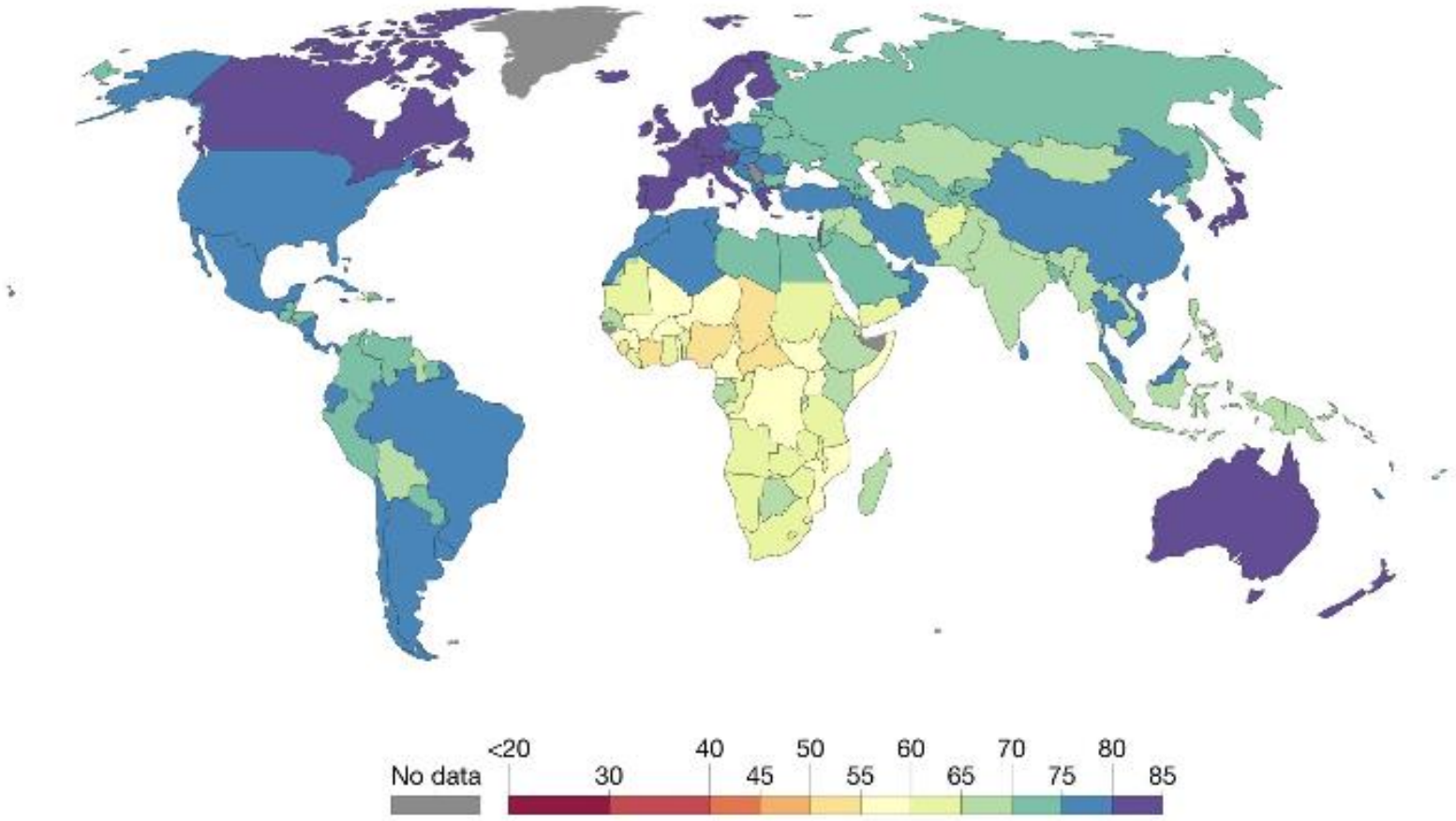
Life expectancy, 2015

Shown is period life expectancy at birth. This corresponds to an estimate of the average number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life

Our World in Data



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OurWorldInData.org/life-expectancy-how-is-it-calculated-and-how-should-it-be-interpreted/ • CC BY-SA

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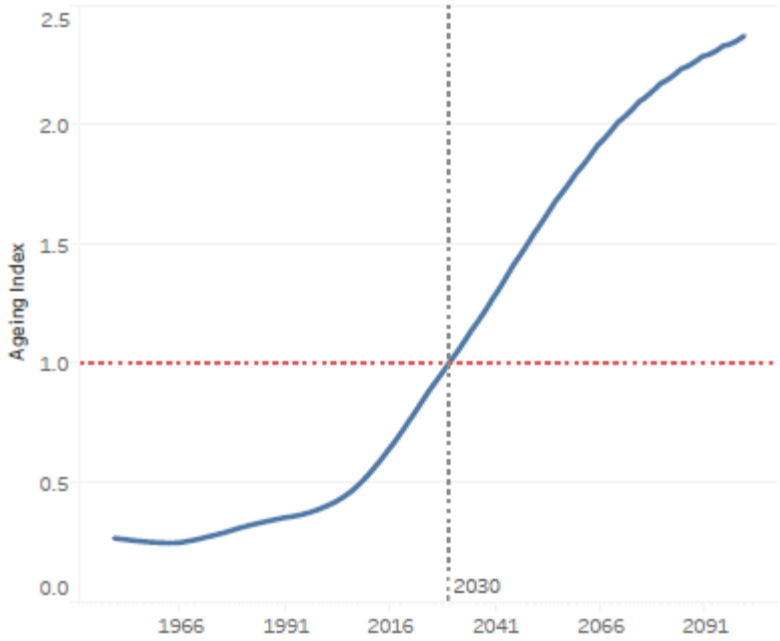
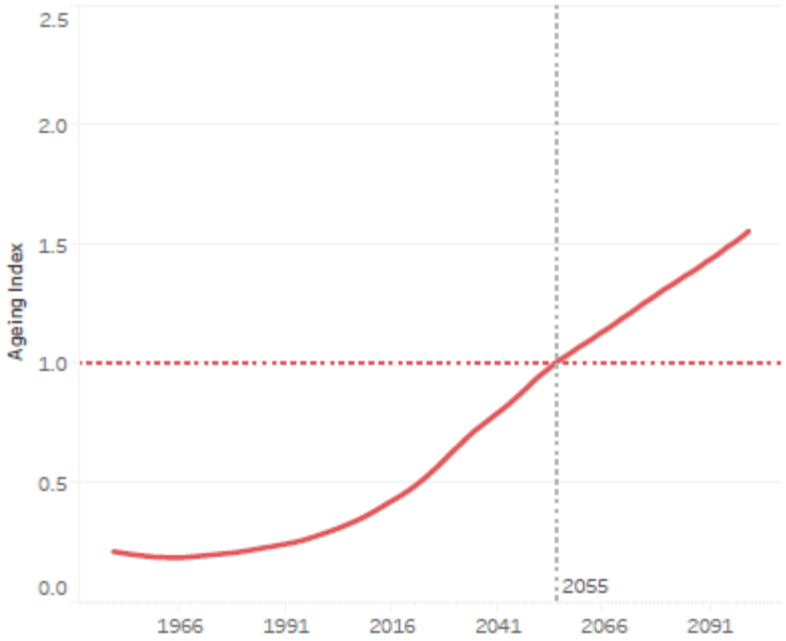
Ageing Index

Americas



Global



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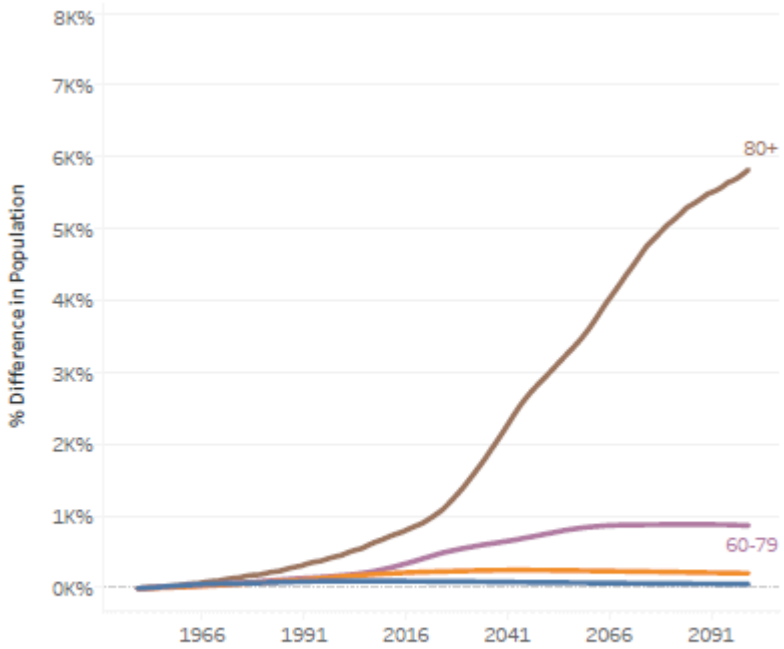
Trend by age group: Change relative to 1950

Americas



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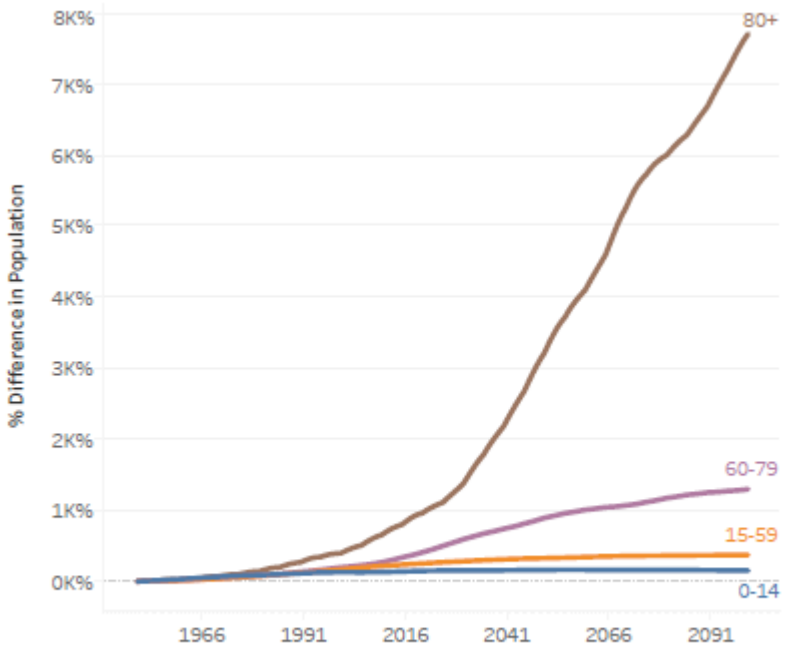

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GENERATIONAL SHIFT

GENERATIONAL SHIFT

	Great/Silent Generation 1925-1945	Baby Boomers 1946-1964	Generation X 1965-1984	Millennials 1985-1995	Post-millennials 1995
Characteristics	**Adhere to rules** Conformers/Conformity	Involvement Personal growth **Question everything**	**Independent** Informality Lack of organizational loyalty	**Avid consumer** **Extremely tech-savvy** Like personal attention	**Strive for a 'balanced' life** Only lived in times when **everything can be done on a mobile device**
Needs	**More and frequent** patient visits	**Increased** patient visits	Health system that **supports** decisions	**Personalized** experience	Focus on **wellness** than response to illness
Wants	**High** level of service	**Quality** care	'**Shop**' for healthcare	Healthcare system to replicate the level of **ubiquitous access technology has**	**Proactive participants** in their health and wellbeing
Meaning	One way communication, patient compliant **Follow the recommendations** and health information from physicians	**Considers reviews and ratings** Searches for two-way communication and shared decision making	Pay attention to reputation/takes into account public perception **Will switch provider frequently**	Ability to connect with physicians via technology **Likely to switch provider if there is a negative experience**	Face-to-face visits less " normal' **Emphasis on convenience and availably** Tele-health will be 'normal' expectations
Access	Relies heavily on **direct information from provider** Input from children	Dependent on asking providers questions But will go on to do **independent research**	Significant time online seeking information **Search for diagnoses and treatment options via the internet**	Prefer to communicate and **engage** through **mHealth applications**	Rely on **peer recommendations/reviews** Expects **transparency** since 'all' Information is at their fingertips

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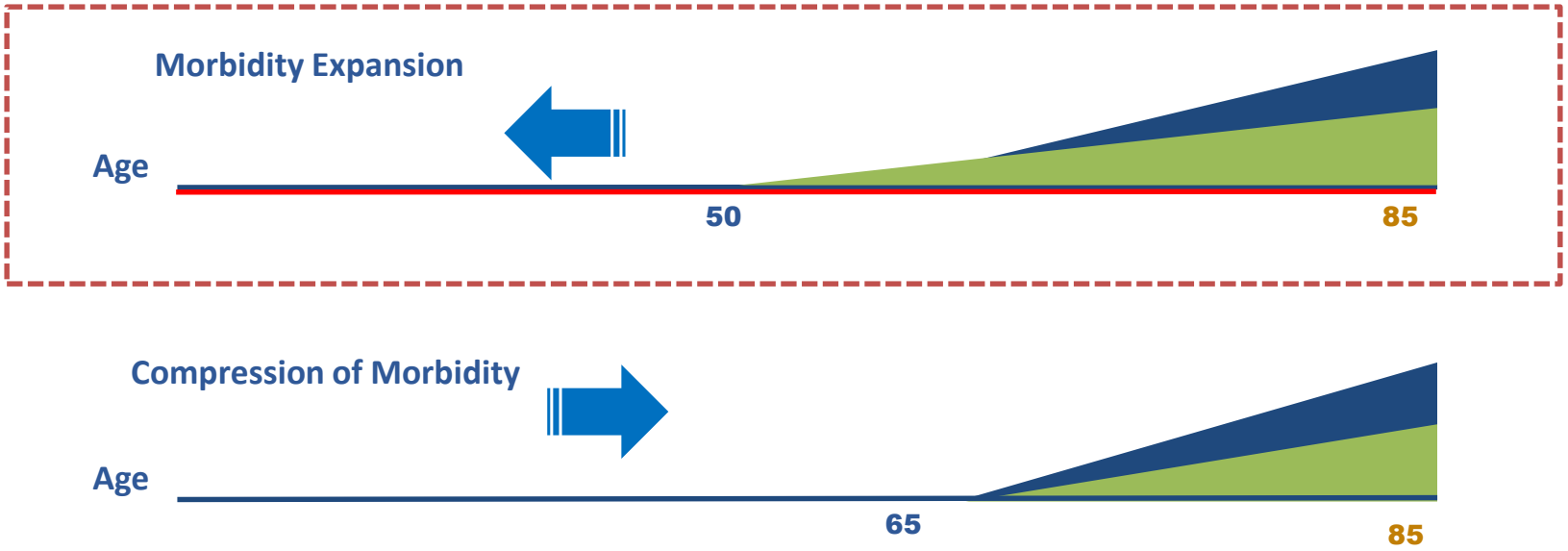
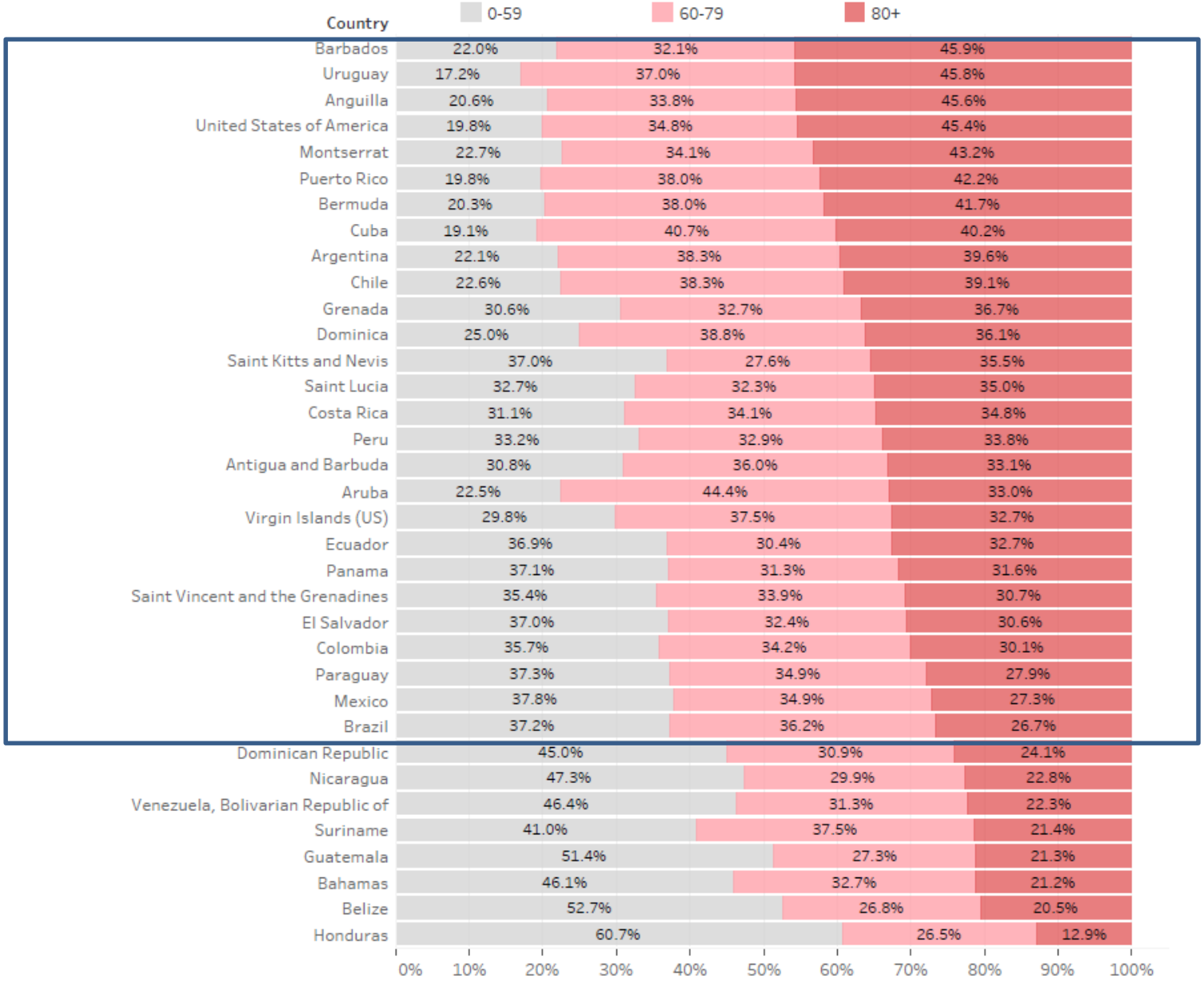


Adapted from JF Fries Aging, natural death, and the compression of morbidity. *NEJM* 1980, Volume 303:130-135.

Proportion of deaths by age groups and countries in LAC



% Of total deaths -

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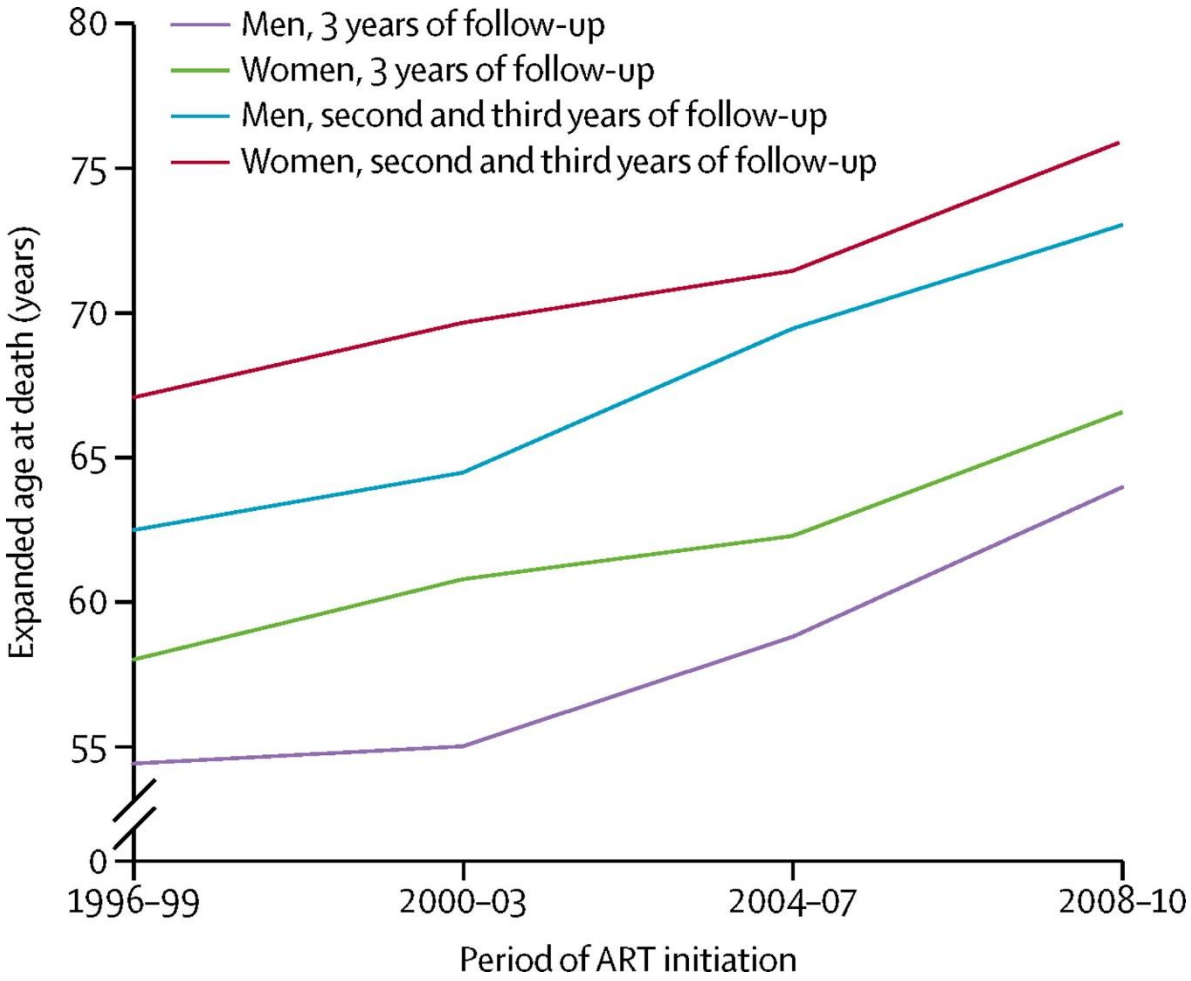
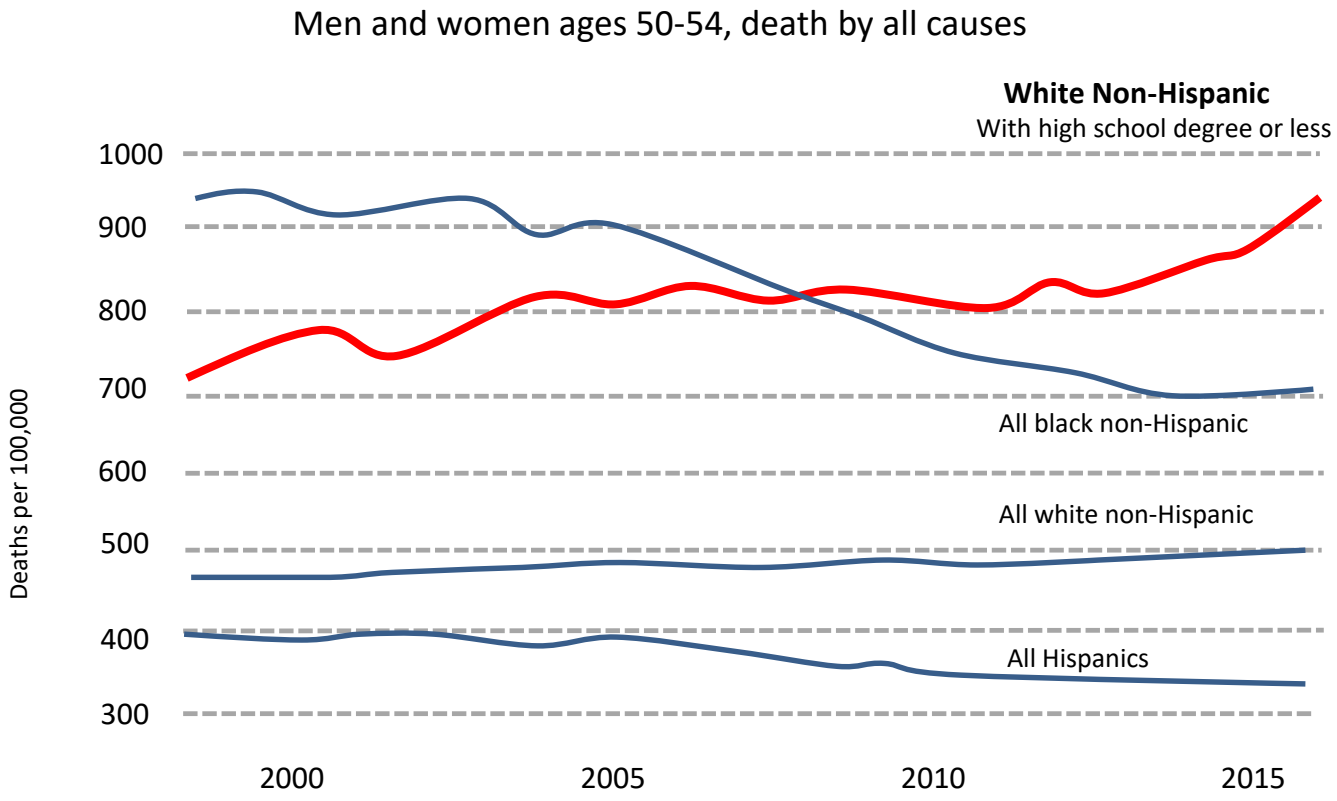
Survival of HIV-positive patients starting antiretroviral therapy between 1996 and 2013: a collaborative analysis of cohort studies



Source: The Lancet HIV Volume 4, Issue 8, Pages e349-e356 (August 2017) DOI: 10.1016/S2352-3018(17)30066-8

THE GREY ZONES
Midlife mortality by all causes in the U.S

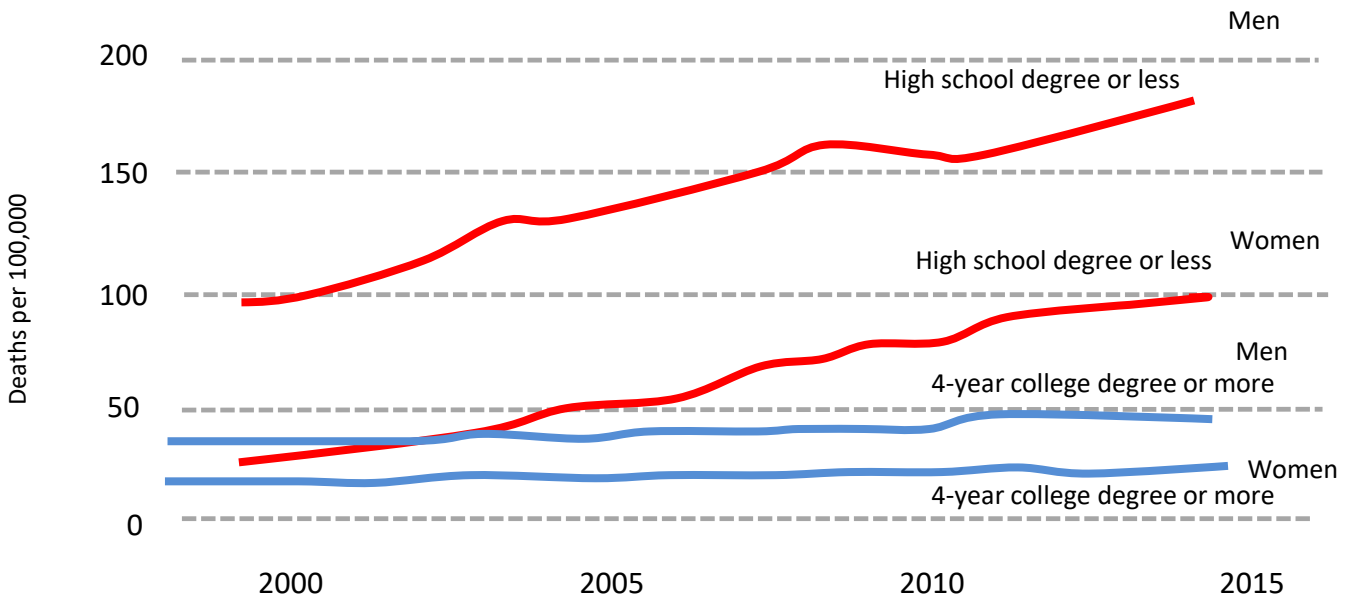


Source: "Mortality and morbidity in the 21st century" by Anne Case and Angus Deaton, Brookings Papers on Economic Activity, Spring 2017

THE GREY ZONES

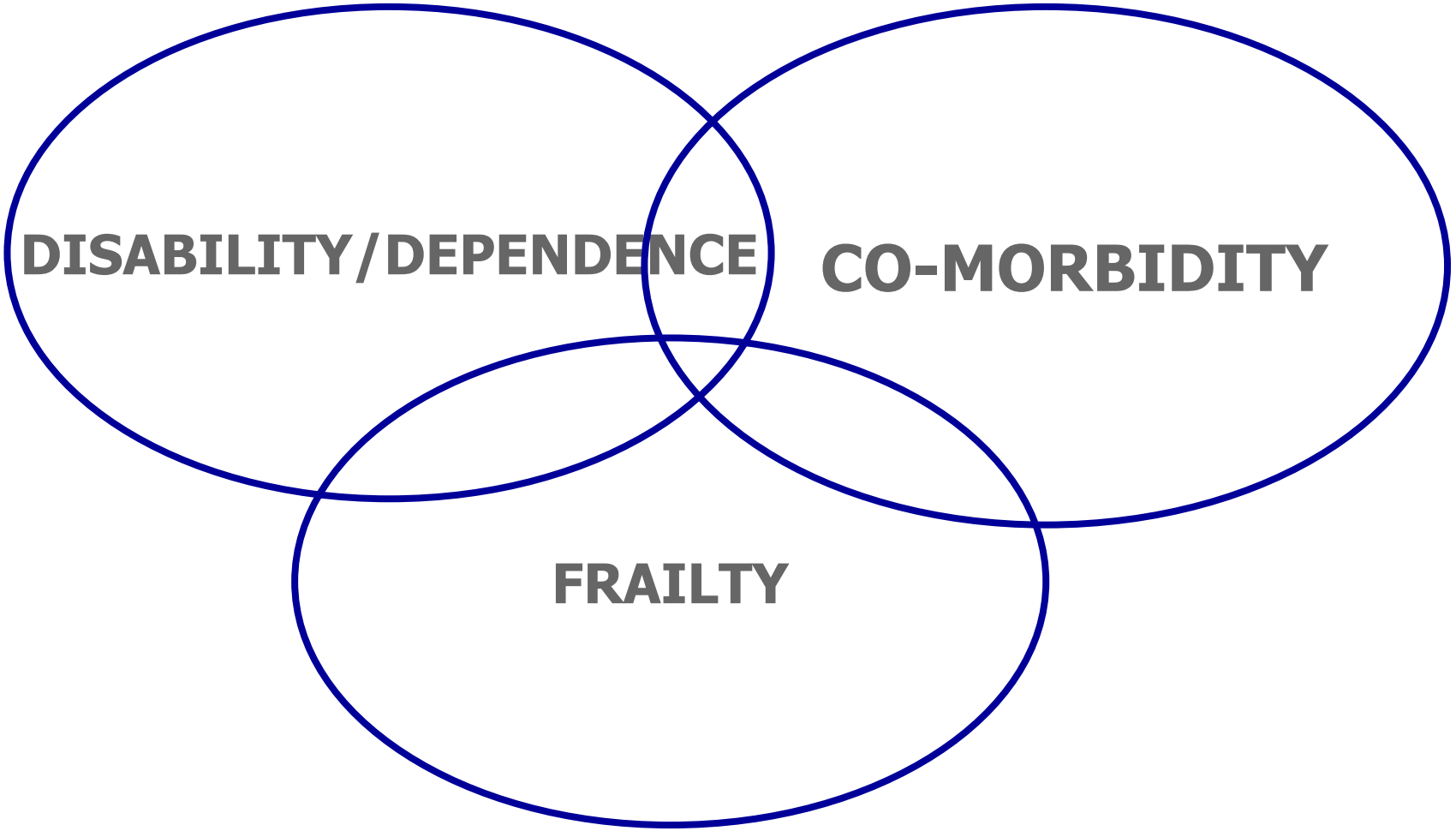
White non-Hispanic midlife mortality from "deaths of despair" in the U.S. by education

Ages 50-54, deaths by drugs, alcohol, and suicide

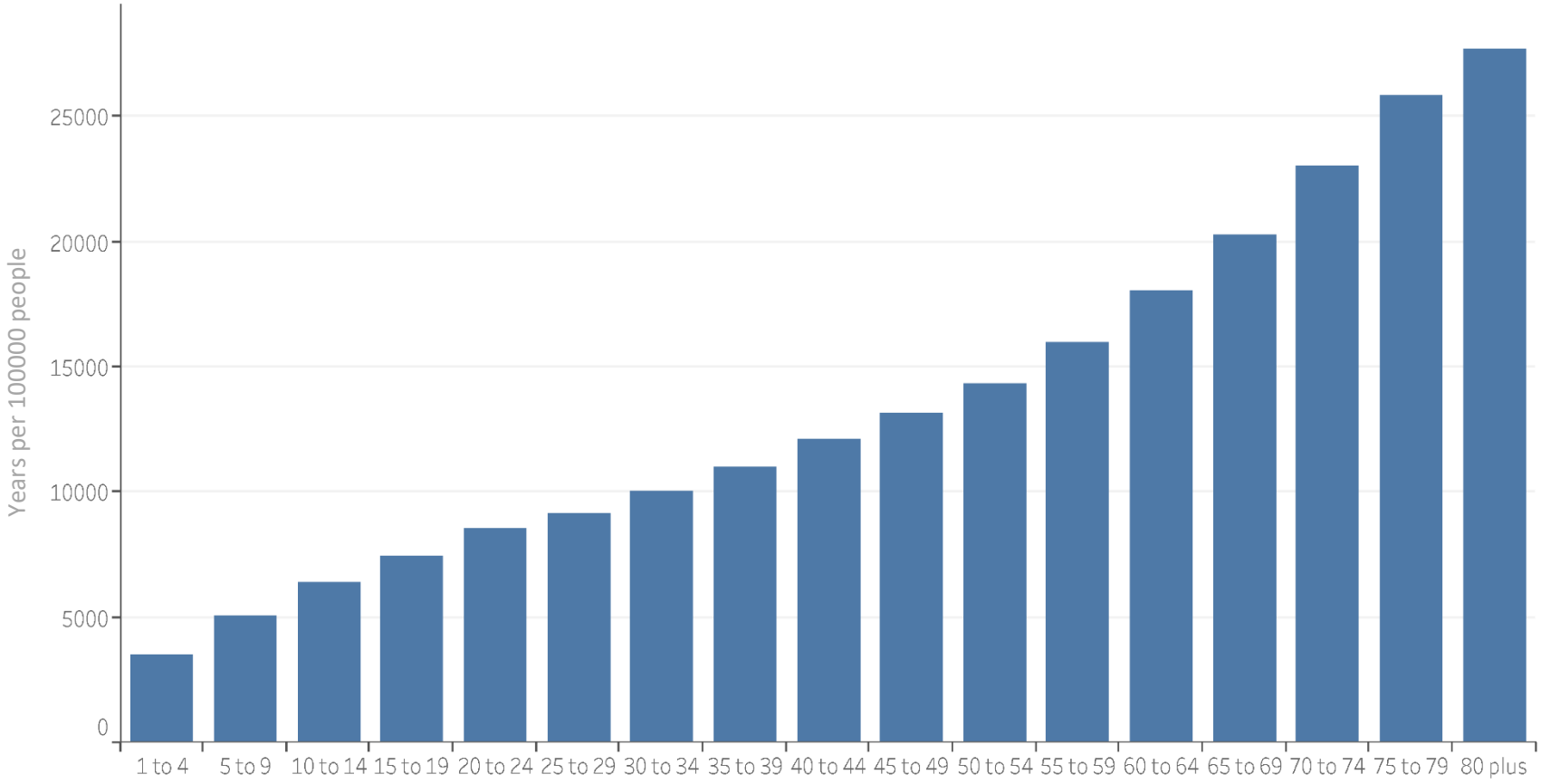


Source: Mortality and morbidity in the 21st century
Anna Case, Angus Deaton, Princeton University.

NEW PROBLEMS



YEARS LIVED WITH DISABILITIES BY AGE GROUPS IN THE AMERICAS, 2015



Source: Global Burden of Disease Study, 2015. Institute of Health and Evaluation

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The speed of change increases with each generation

Adapted from Halfon et al., 2014. Health Development: Past, Present and Future.

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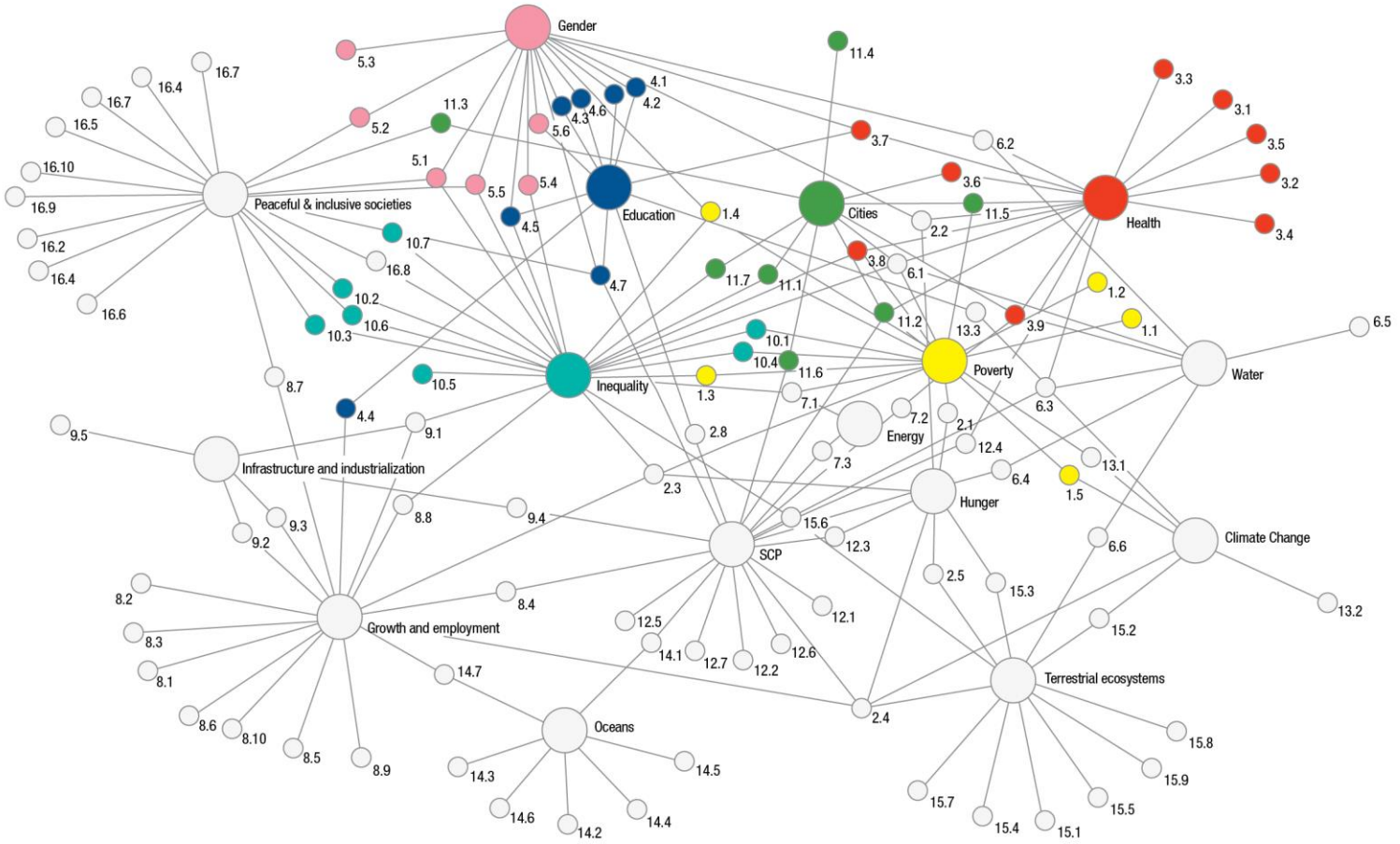
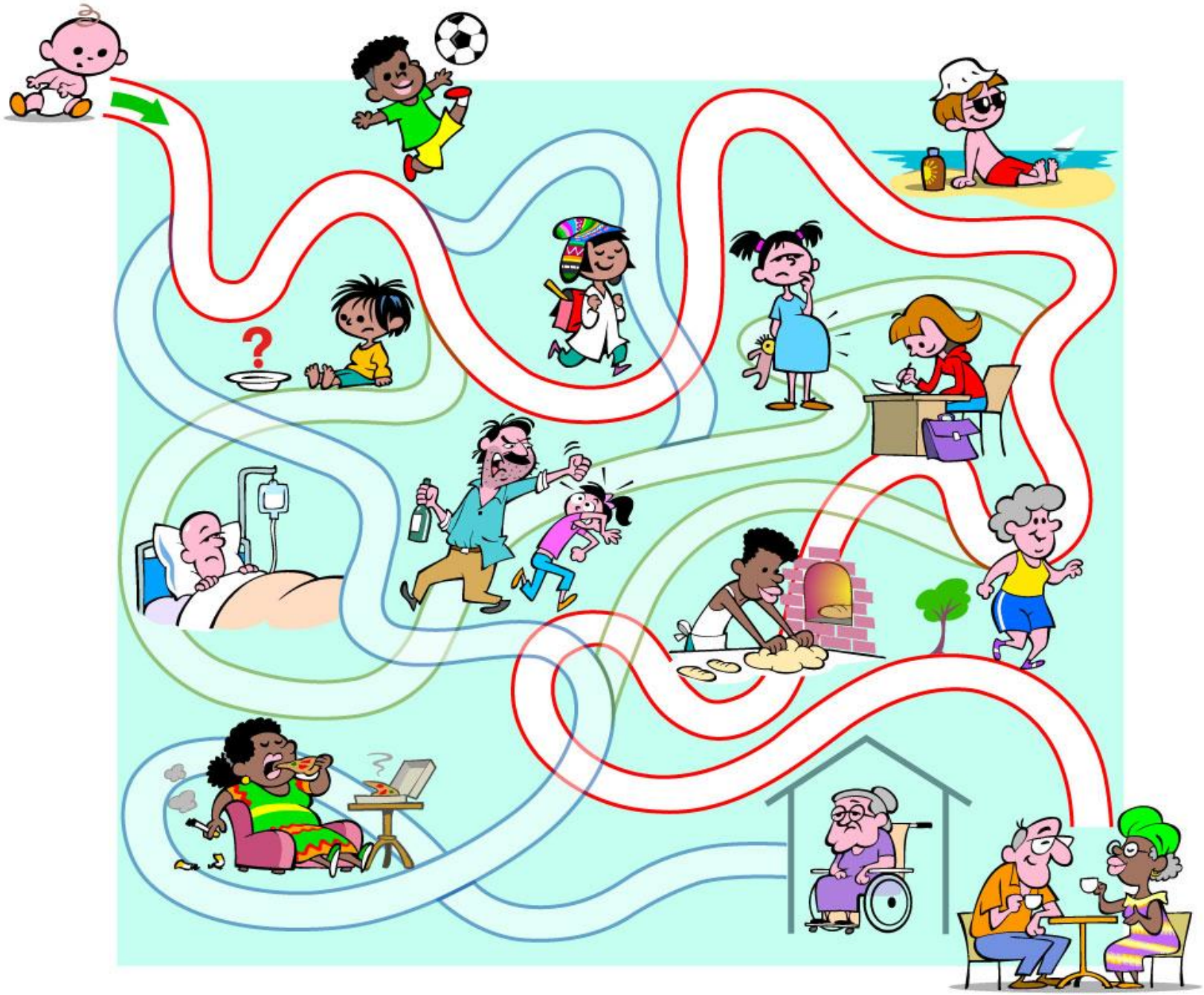
Health in Development- NETWORK ANALYSIS



Source: Blanc, D. Le & Le Blanc, D., 2015. Towards Integration at Last? The Sustainable Development Goals as a Network of Targets. *Sustainable Development*, 1(141), p.n/a–n/a.



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Health Highlights 2017

Life expectancy reached ~ 75 years of age (2010-2015)

32% of newborns are close to being exclusively breastfeed during the first 6 months

MMR has decreased from 68.4 deaths per 100,000 live births (2002-2005) to 58.2 deaths per 100,000 in 2010-2013 (~15% reduction)

Infant mortality rate declined from 18 deaths per 1,000 live births (2002-2005) to 13.6 (2010-2013) (24% reduction)

The Region achieved 67% reduction under 5 mortality rates from 53.8 per 1,000 live births (1990) to 17.9 per 1,000 live births (2015)

Fertility Rate among LAC adolescents declined from 70.4 births per 1,000 women (15-19 years old) in 2005-2010 to 67 in 2010-2015 (5.5% reduction)

NCDs are leading cause of death (4 out of 5 deaths annually)

- Top 4: Cardiovascular disease, cancer respiratory disease and diabetes
- Leading NCDs risk factors: unhealthy diet, physical inactivity tobacco use and harmful use of alcohol

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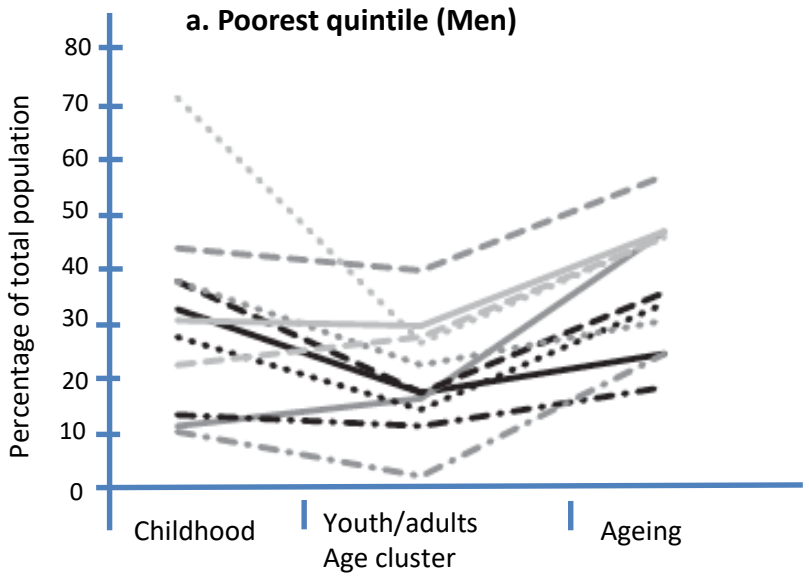
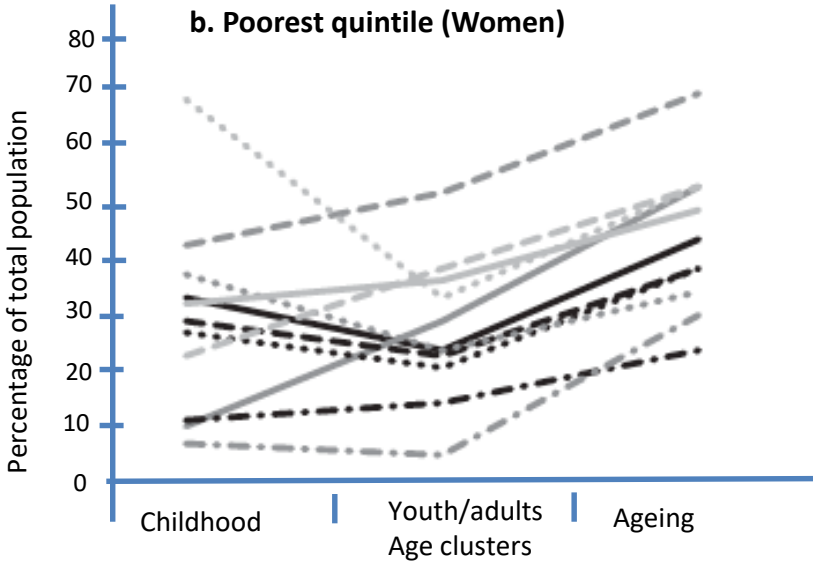
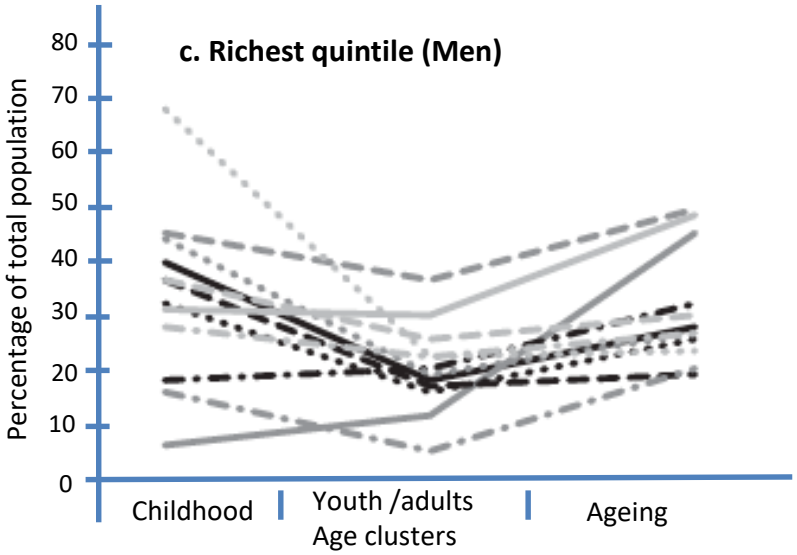
Source: The Pan American Health Organization. Health in the Americas, 2017 Edition. Summary: Regional Outlook and country Profiles. Washington, DC: PAHO; 2017.

PERCEIVED HEALTH NEEDS....

Population with perceived health needs in LAC as percentage of total population by age clusters, gender, and income quintile, 1997-1999







Source: MECOVI household surveys 1997–99.

HEALTH DEFINED BY WHO

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

-Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946;

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"…Health is a resource for everyday life, not the objective of living: it is a positive concept emphasizing social and personal resources as well as physical capacities."

-OMS-European Region 1990

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DEFINITION

"The life course approach is understood as the dynamic relationship between previous life exposures, subsequent health outcomes, and the mechanisms by which positive and negative influences shape the human life course and social development, with an impact on health outcomes throughout the life span of individuals and populations."

PAHO-HL, 2015

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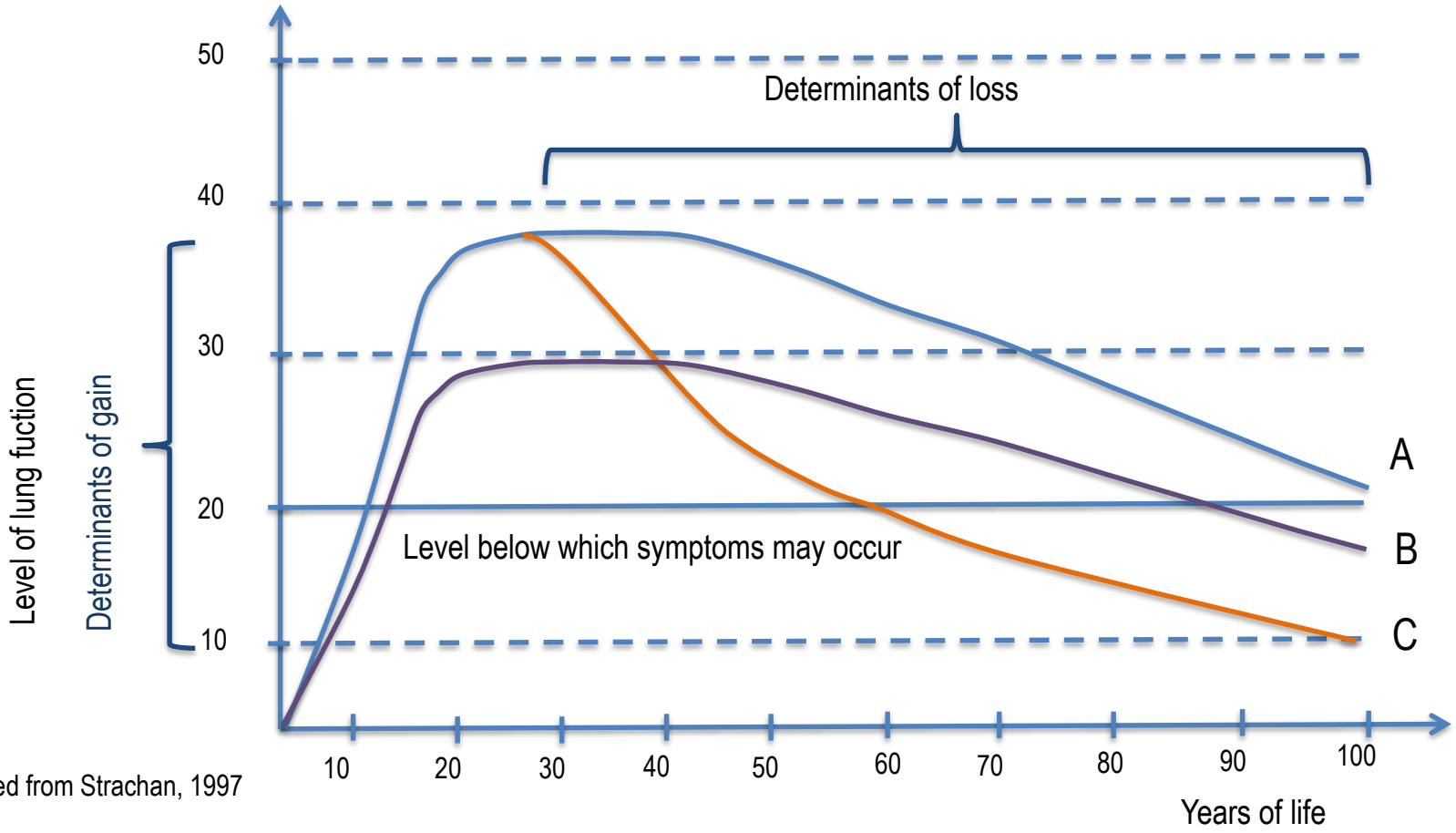
LIFE COURSE APPROACH

- Inherent to the life span (before birth to the end of life; even transcends other generations)
- Health is reflected in trajectories
- There are critical an sensitive periods (life has certain moments in which protective and damage events are more marked)
- Latent periods and cumulative effects (the action or inaction during one of the life stages will be reflected later in life: i.e. low birth weight and NDCs or the HPV vaccine
- Intrinsic relation of social determinants and risk (risk vs. vulnerability)

THE CONCEPT

Relative importance of exposure acting across different life course time windows in terms of the natural history of lung function.

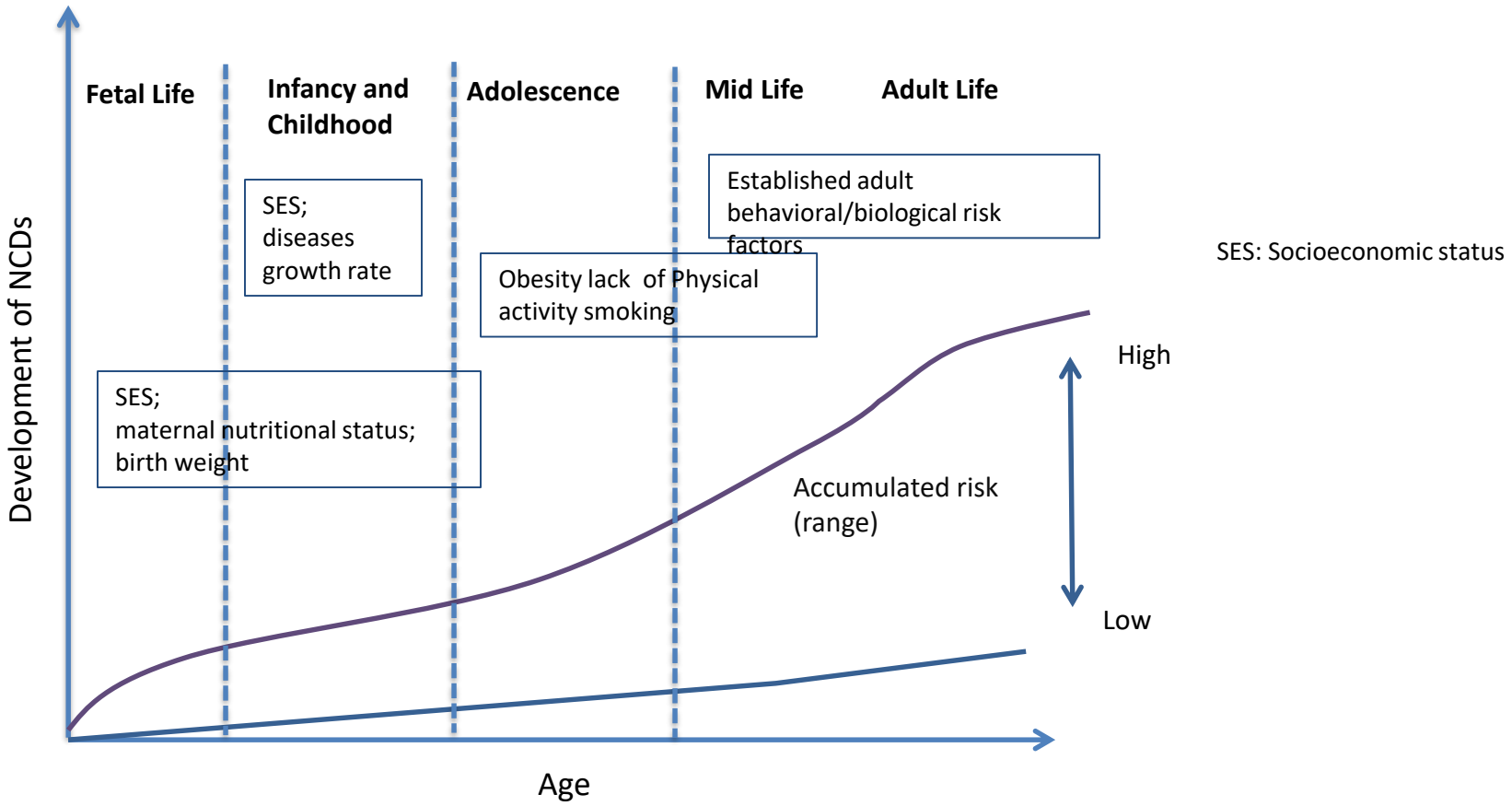


Source: Adapted from Strachan, 1997

A: Normal development and decline. B: Exposure in early life reducing lung functional potential
C: Exposure acting in mind to later life accelerating age related decline

Health Promotion and Prevention

A Scope for non communicable diseases prevention, a life course approach

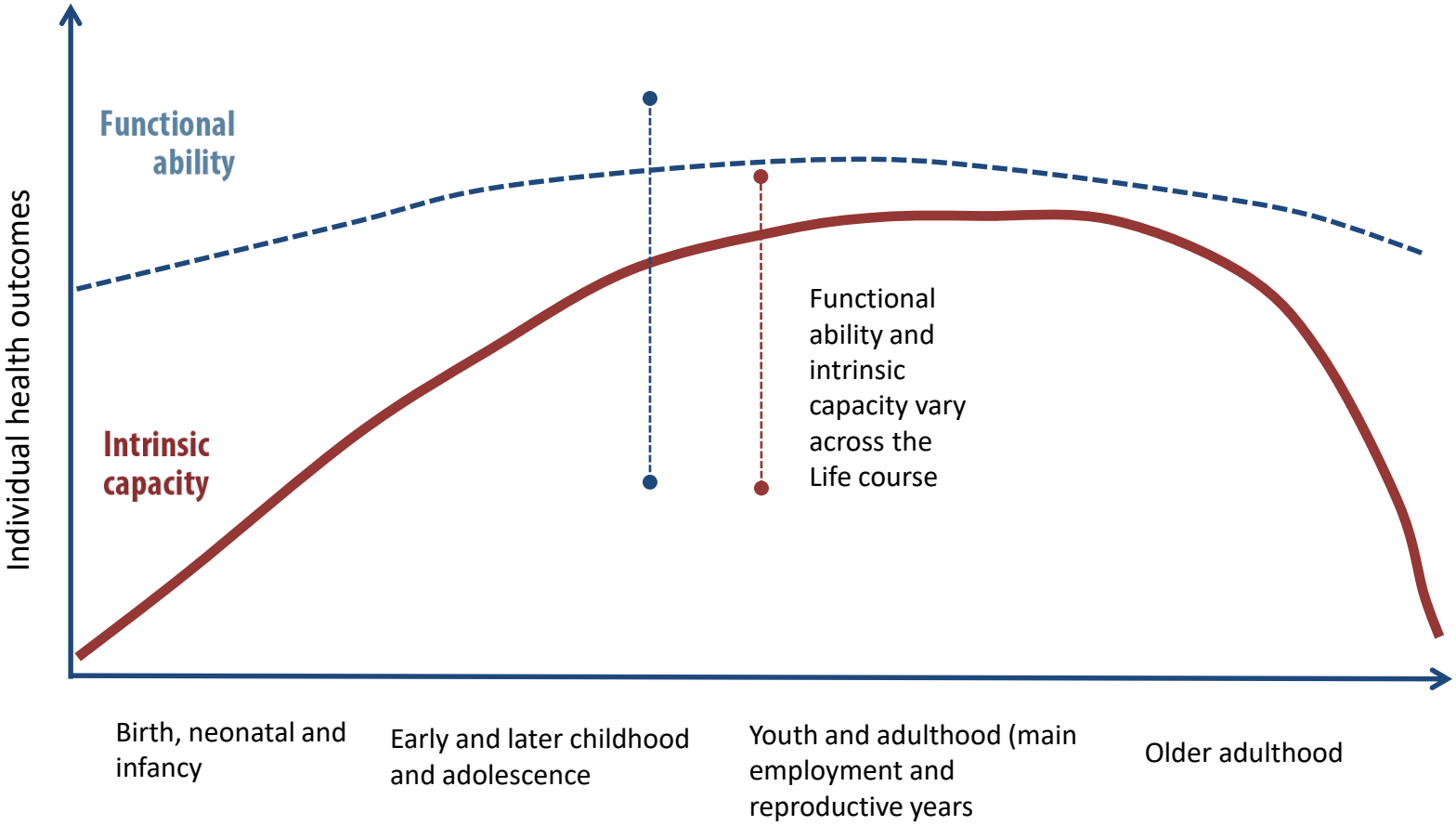


Source: Aboderin et al. 2002 ; Kalache and Kickbuch, 1997

Impact of Inequality on the Future Elderly

Source: OECD Workshop. Impact of Inequality on the Future Elderly – Policy Tools and Actions.

Intrinsic and Functional Capacity Across the Life Course



Source: Kuruvilla, S., Sadana, R., Montesinos, E. V., Beard, J., Vasdeki, J. F., Araujo de Carvalho, I., … Bustreo, F. (2018). A life-course approach to health: synergy with sustainable development goals. *Bulletin of the World Health Organization*, *96*(1), 42–50. http://doi.org/10.2471/BLT.17.198358

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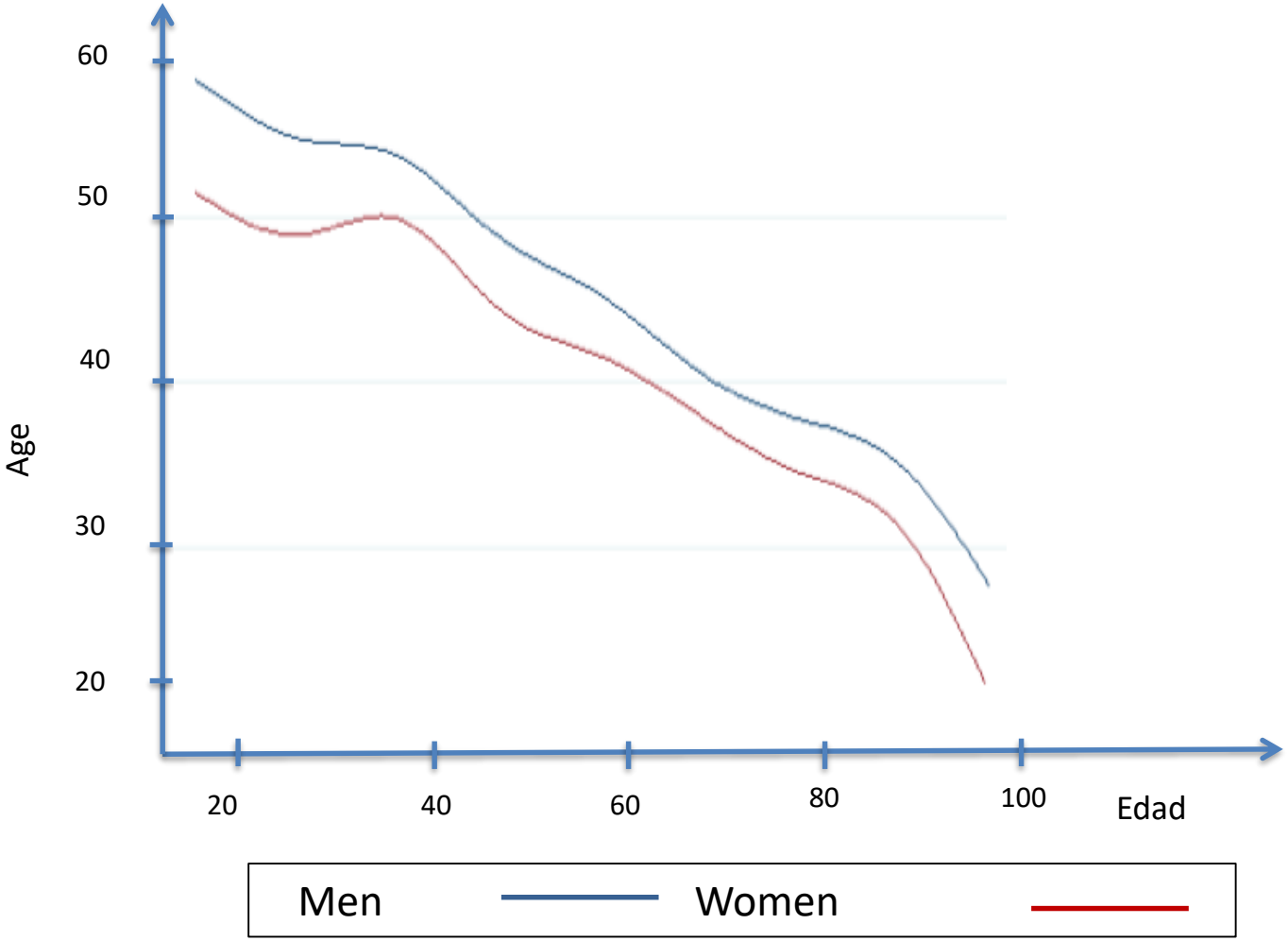
DECLINES IN PHYSICAL HEALTH BY AGE AND SEX



Source: WHO SAGE Study. Dr. Somnath Chatterji. Personal communication.

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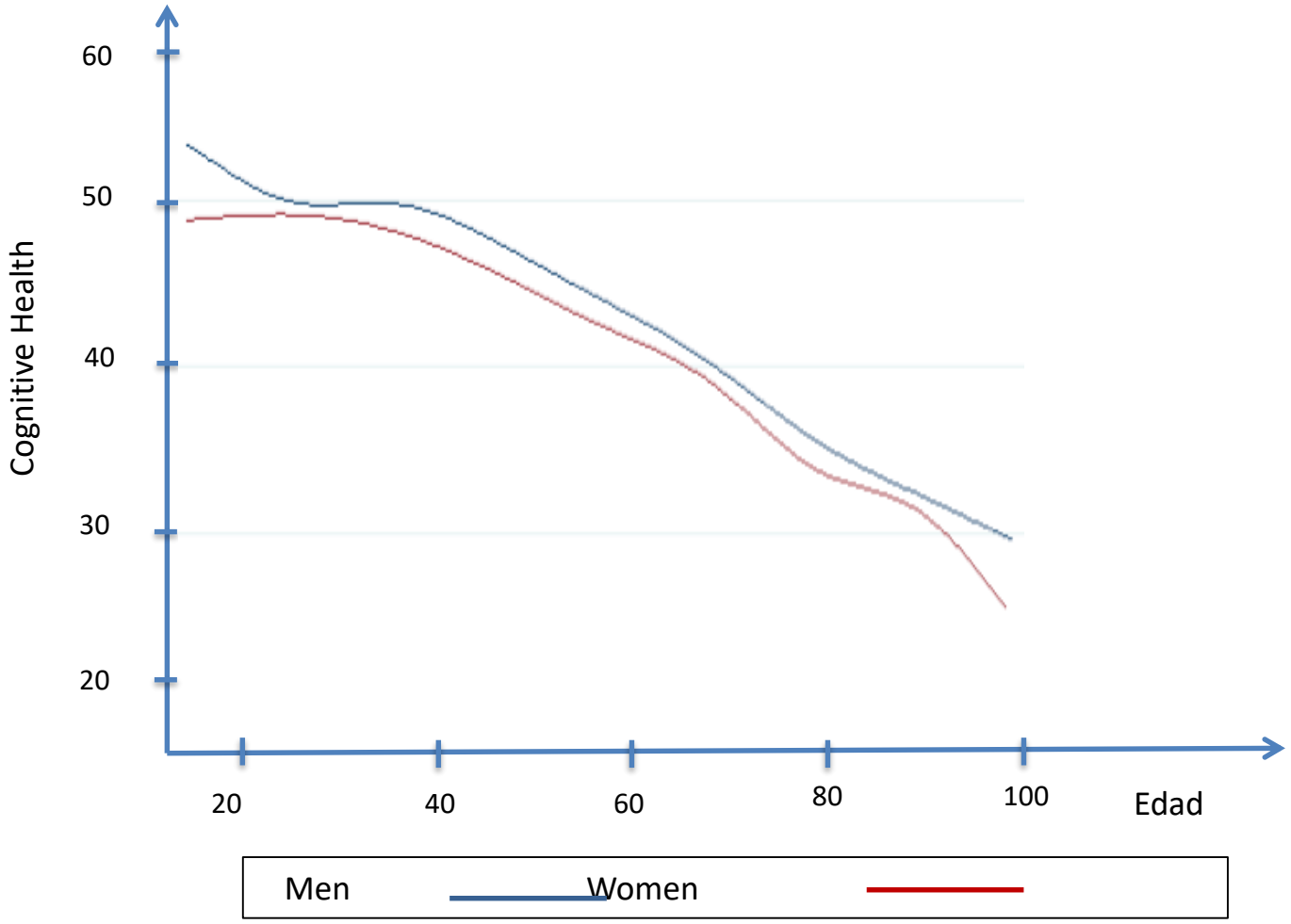
DECLINES IN COGNITIVE HEALTH



Source: WHO SAGE Study. Dr. Somnath Chatterji. Personal communication.

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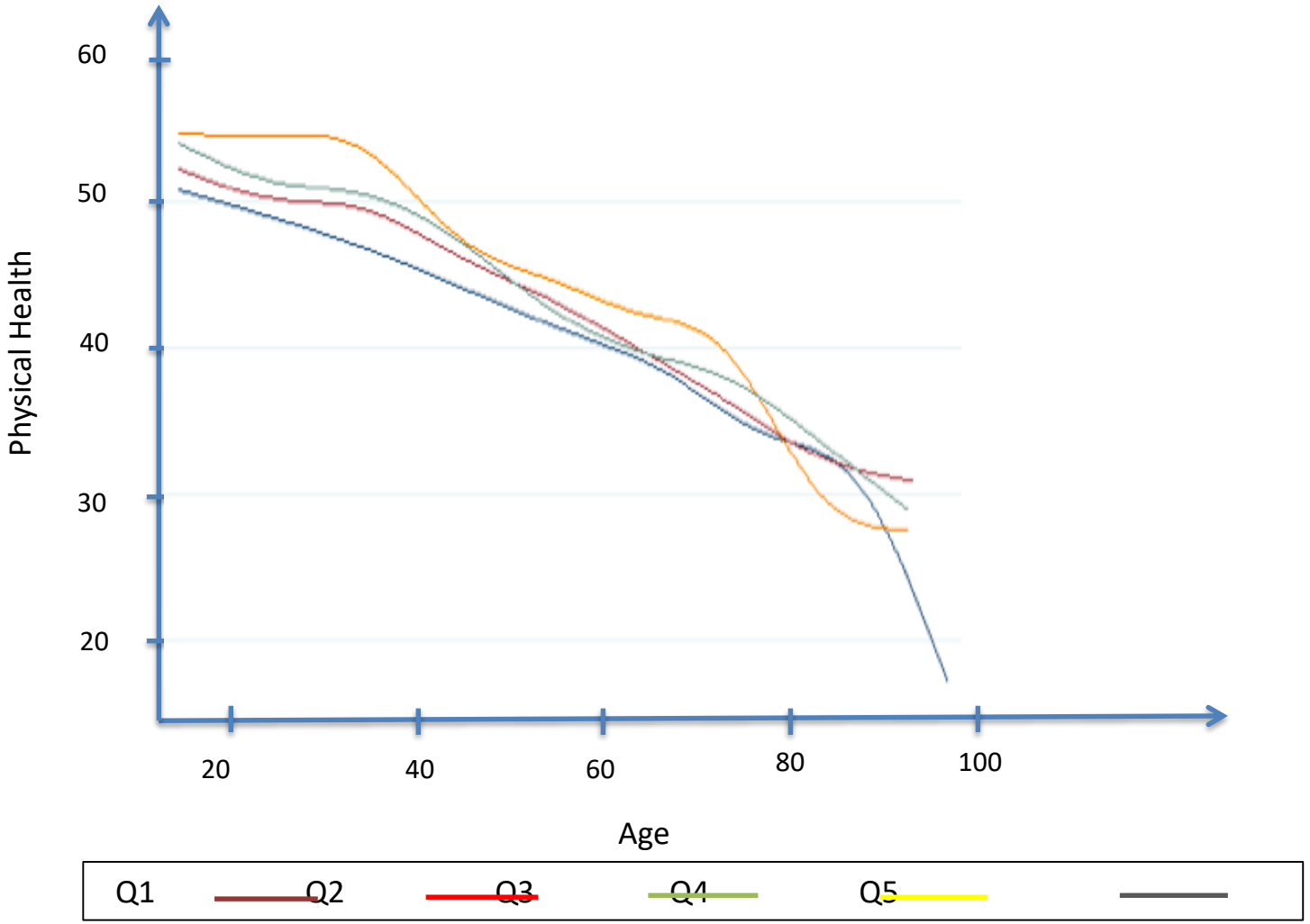
DECLINES IN PHYSICAL HEALTH BY WEALTH



Source: WHO SAGE Study. Dr. Somnath Chatterji. Personal communication.

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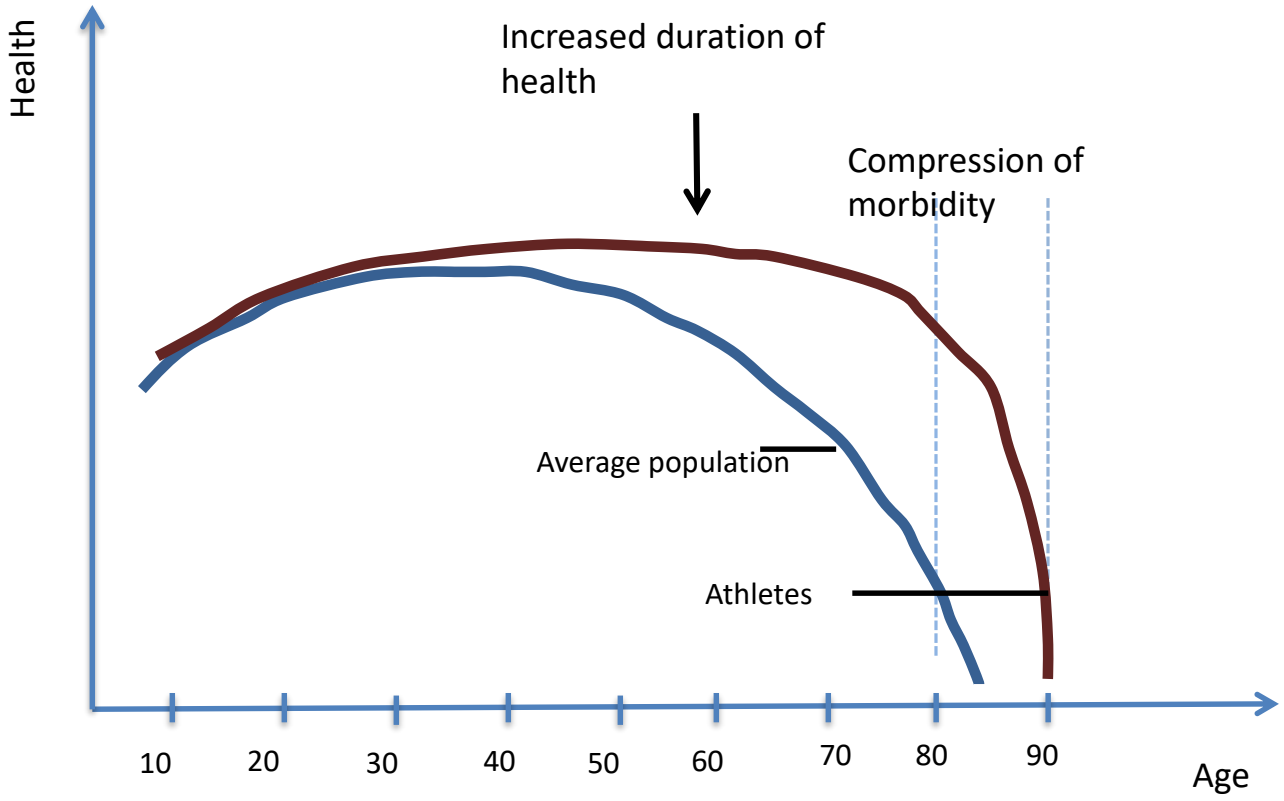
THE PERFORMANCE OF ATHLETES CAN GIVE US A BIOLOGICAL MODEL TO UNDERSTAND WHAT LOOKS LIKE HEALTHY AND OPTIMAL AGING



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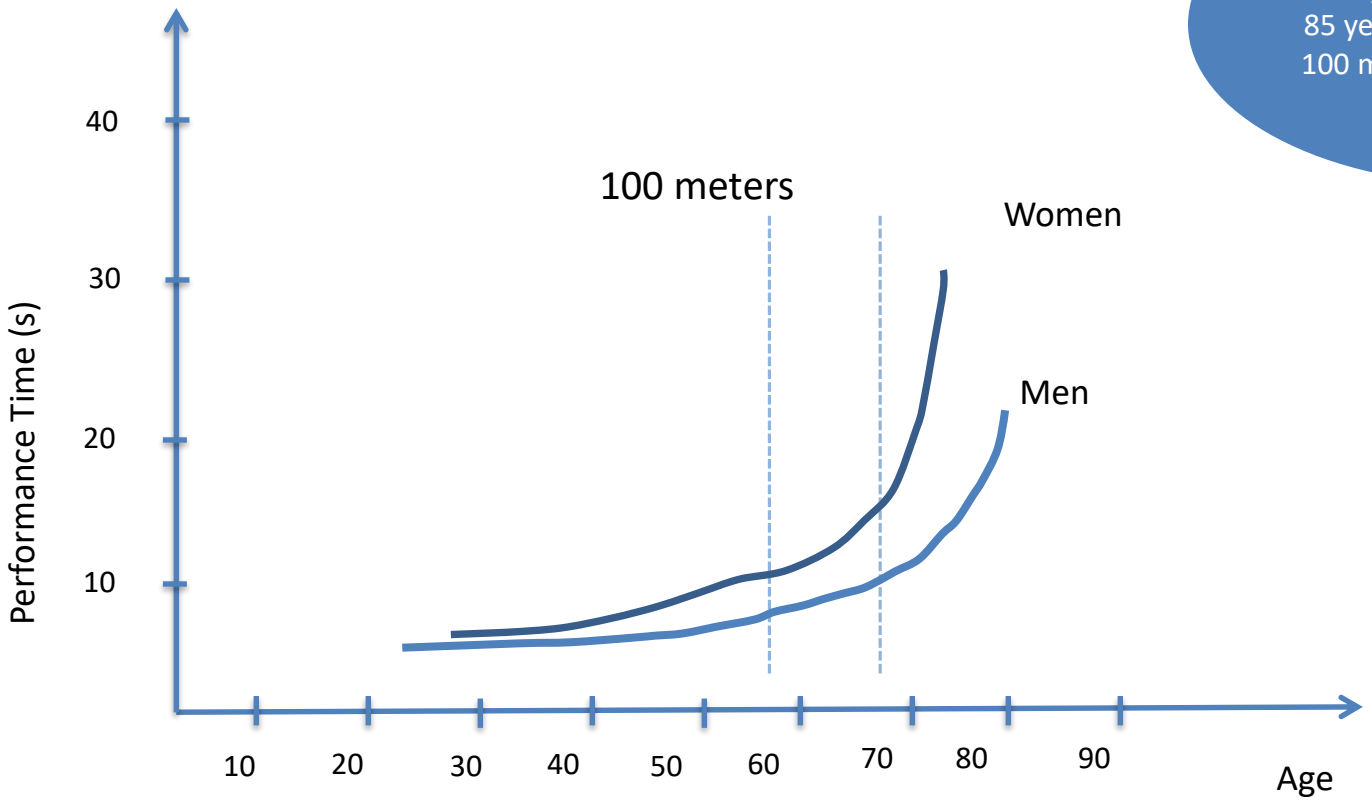
THE PERFORMANCE OF MASTERS ATHLETES CAN PROVIDE US WITH A BIOLOGICAL MODEL TO UNDERSTAND WHAT HEALTHY, OPTIMUM AGING LOOKS LIKE..

In July of 2016, Hiroo Tanaka, 85 years old, from Japan ran 100 meters in 15,19 seconds.



Source: World Economic Forum. How to Growth old like an athlete. Ageing is not a fixed process - we can change its trajectory. https://www.weforum.org/agenda/2017/02/healthspanlifespan?utm_content=buffer29aec&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

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SURVIVE

To end preventable deaths

THRIVE

To ensure health and well-being

TRANSFORM

To expand enabling environments

The Global Strategy for Women's, Children's and Adolescent's Health

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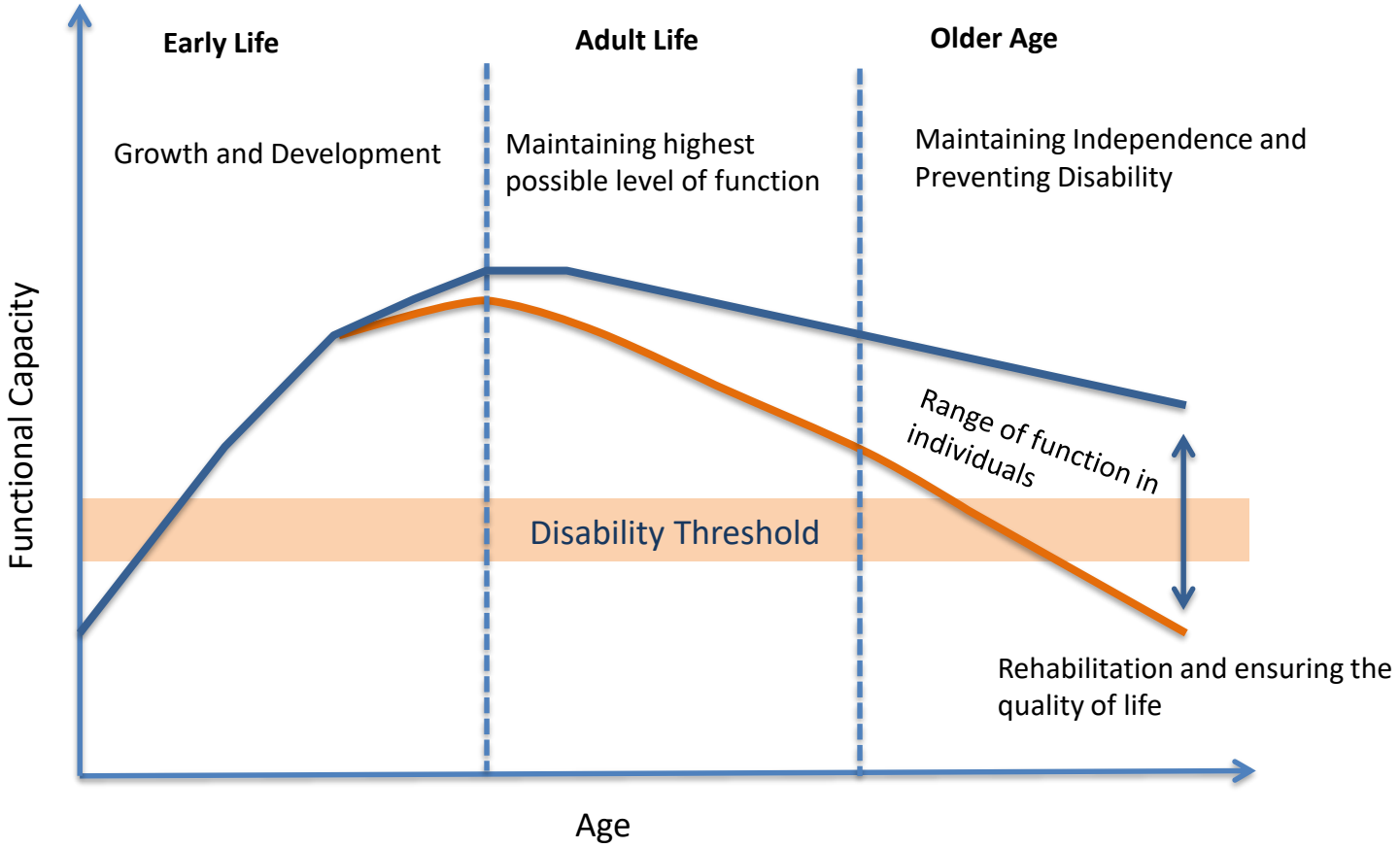
APPLICABILITY IN PUBLIC HEALTH



Source: Kalache and Kickbuch, 1997

POTENTIAL ACTION AREAS

COUNTRY LEADERSHIP

INDIVIDUAL POTENTIAL

HUMANITARIAN AND FRAGILE SETTINGS

FINANCING FOR HEALTH

HEALTH SYSTEMS RESILIENCE

RESEARCH AND INNOVATION

COMMUNITY ENGAGEMENT

MULTISECTOR ACTION

ACCOUNTABILITY

- When we think about breastfeeding, we relate it to the mother and her baby
- In the Americas, less than 32% of the infants are exclusively breastfed within the first 6 months of life.
- Prolonged breastfeeding is associated with a 13% reduction in the prevalence of overweight and obesity and with a 35% reduction in the incidence of type 2 diabetes.
- Current breastfeeding rates prevent almost 20,000 maternal deaths from breast cancer every year, and other 20,000 deaths could be prevented with improved breastfeeding practices.

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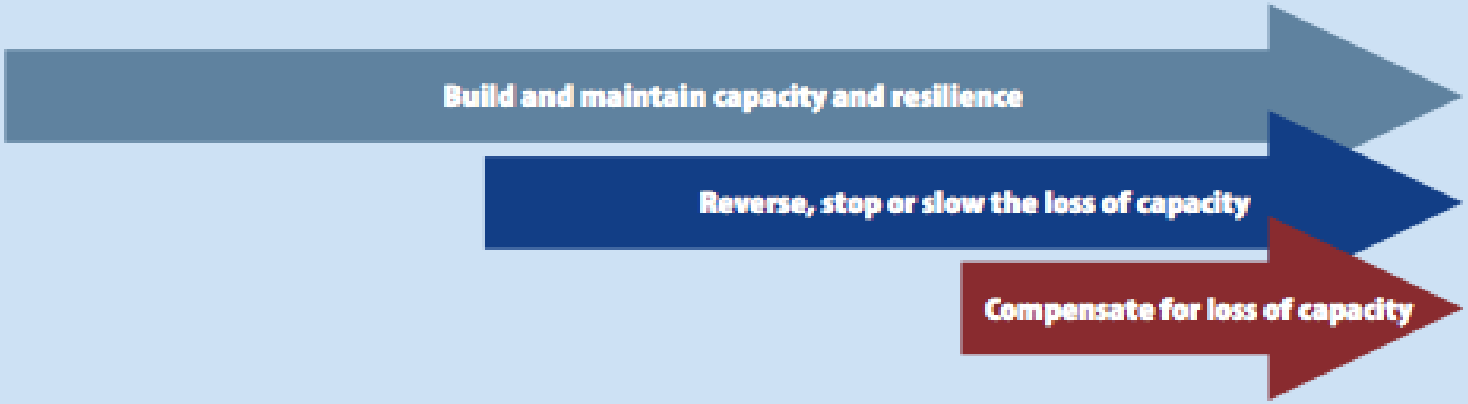
Periods of intrinsic capacity in older age, risks and challenges, goals, and key responses of a health system

Period	High and stable capacity	Declining capacity	Significant loss of capacity
Risks and challenges	Risk behaviours, emerging NCDs	Falling mobility, sarcopaenia, frailty, cognitive impairment or dementia, sensory impairments	Difficulty performing basic tasks, pain and suffering caused by advanced chronic conditions
Goals			
Responses	Reduce risk factors and encourage healthy behaviours Early detection and management of chronic diseases Build resilience through capacity-enhancing behaviours, strengthening personal skills and building relationships	Implement multicomponent programmes delivered at primary health-care level Treat the underlining causes of declines in capacity Maintain muscle mass and bone density through exercise and nutrition	Interventions to recover and maintain intrinsic capacity Care and support to compensate for losses in capacity and ensure dignity Rapid access to acute care Palliative and end-of-life care

HEALTH SYSTEM TRANSFORMATION

	1 era-1.0 medical care and public health services(1850-1960)	2 era-2.0 health care systems (1950s to present day)	3 era-3.0 health systems (2000 going forward)
Definition of health	Absence of acute disease	Reduction of chronic disease	Creating capacities to achieve goals, satisfy needs, fortify reserves
Goal of health systems	Improve life expectancy	Reduce disability	Optimize health
Model of health and disease causation	Biomedical	biopsychosocial	Life-course health development
Primary focus on services	Diagnose and treat acute conditions	Prevent and manage chronic disease	Promote and optimize health of individuals and populations
Organizational operational model	Clinics and offices linked to hospitals	Accountable care organizations and medical homes	Community-accountable health development systems
Dominant payment mechanisms	Indemnity insurance; free for services	Prepaid health benefits, capitation	Health trusts and management of balanced portfolio of financing vehicles
Role of health care provider/ organization	To protect from harm, cure the sick , and heal the ill	To prevent and control risk, manage chronic disease, and improve quality of care	To optimize health and well-being
Role of individual and community	Inexperience patient	Activated partner in care	Co-designers of health

Source: Halfon et al. (2014). Applying a 3.0 transformation framework to guide large scale health system reform.

LINES OF ACTION

- Place health in the context of development
- Intersectoral leadership
- Coherence between social determinants and risk factors
- Form a true paradigm for PHC, Family Medicine and socio-health integration
- People-centered services
- New generation of measurement of results in health
- New promotion and prevention strategies

BARRIERS

- Distal results remain complex and difficult
- Little reflection in Academia
- Need for Public Health paradigm; results are increasing but isolated
- New outcomes need new metrics
- A scaled translation of results is needed so as not to affect the Governance of Health Services

It is easy to stress the usual answers – "Intentional ignorance dates from the first few days ...”

-Noam Chomsky

Pan American Health Organization
World Health Organization
REGIONAL OFFICE FOR THE Americas