



# Ageing in the Technological Era Advancing Innovation



Dr Jane Barratt  
Secretary General  
International Federation on Ageing  
[jbarratt@ifa-fiv.org](mailto:jbarratt@ifa-fiv.org)







Underneath the  
great **diversity** of older populations  
significant unresolved **inequities** exist







2.1





- 22 Facts About The Coming Demographic Tsunami That Could Destroy Our Economy All By Itself, Synder 2014
- The **Rising Tide** of Dementia in Canada, ADI 2015
- Global population ageing: **Peril** or promise, WEF 2012
- **Older people are not a burden, says WHO, BMJ 2015**





\$515b



\$825b



\$12b



\$1.4t





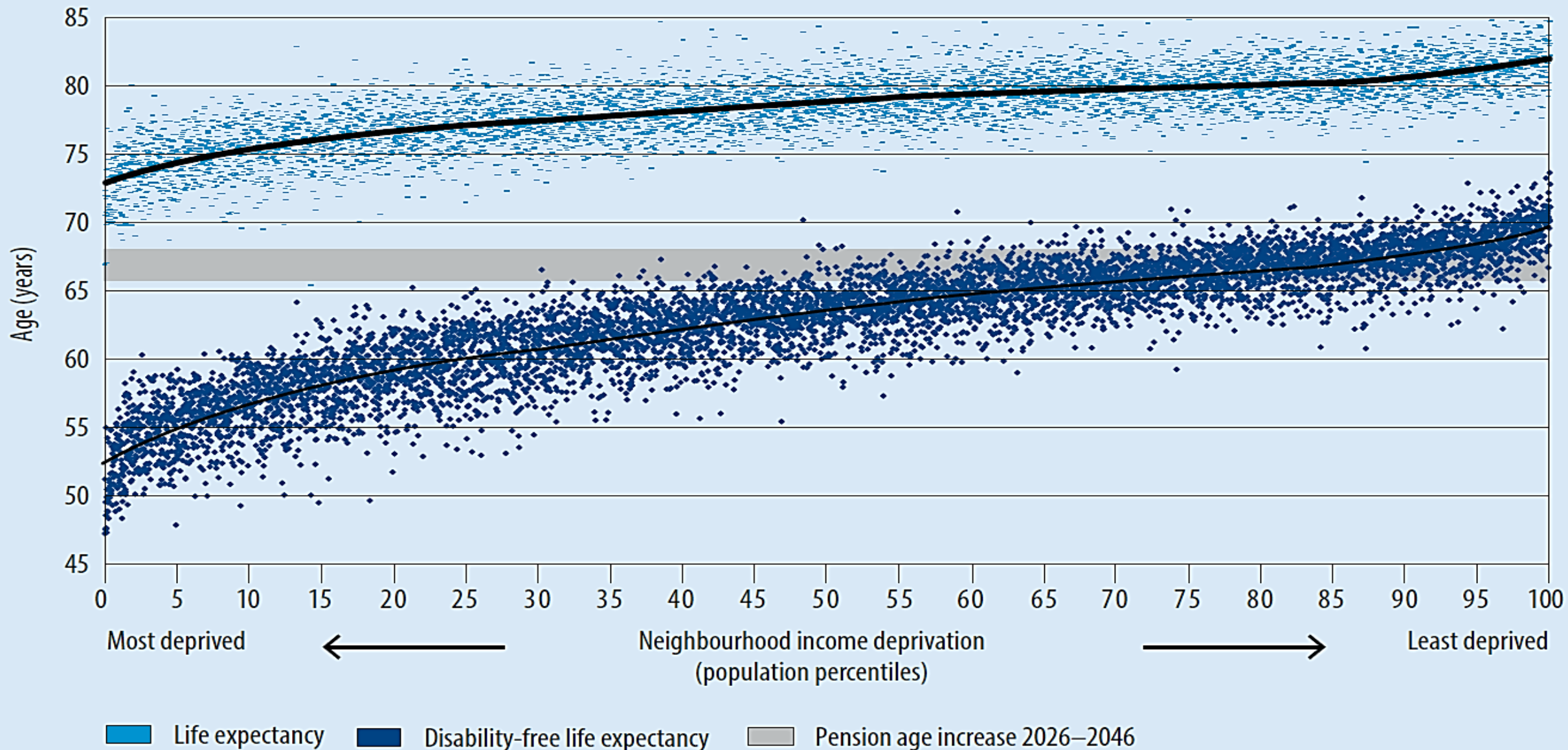


# Functions

- Movement
- Sensory
- Cognitive
- Immune



# Life expectancy and disability-free life expectancy at birth by neighbourhood income level England 1999 - 2003





WHAT IS OUR RETURN ON INVESTMENT?







World Health  
Organization

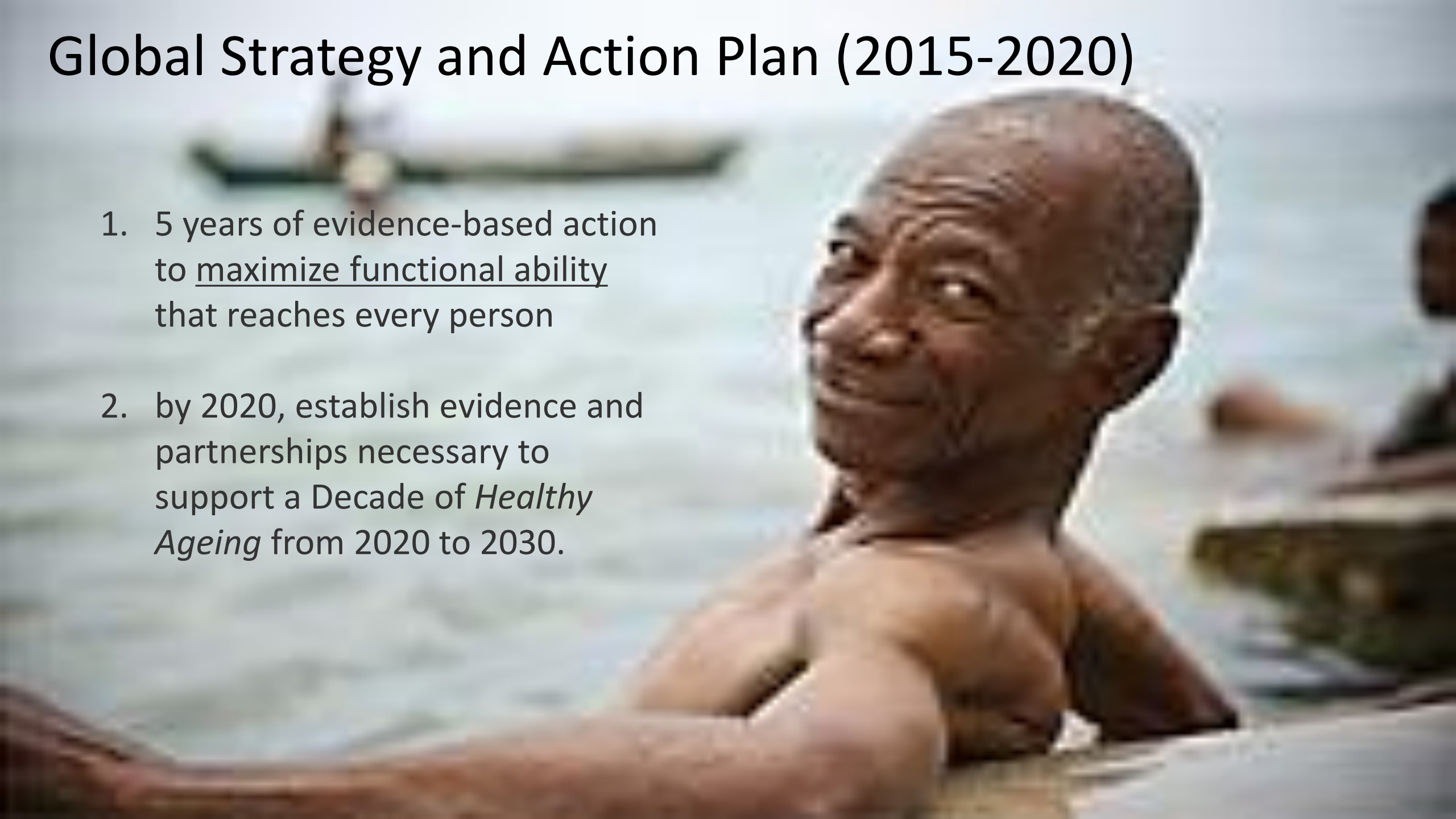
WORLD  
REPORT  
ON  
**AGEING  
AND**





# Global Strategy and Action Plan (2015-2020)

1. 5 years of evidence-based action to maximize functional ability that reaches every person
2. by 2020, establish evidence and partnerships necessary to support a Decade of *Healthy Ageing* from 2020 to 2030.





**Health** is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 1948).





# ▶ WHAT INFLUENCES HEALTH IN OLDER AGE

## INDIVIDUAL

## ENVIRONMENT THEY LIVE IN



**Behaviours**



**Age-related changes**



**Genetics**



**Disease**



**Housing**



**Assistive technologies**



**Transport**



**Social facilities**

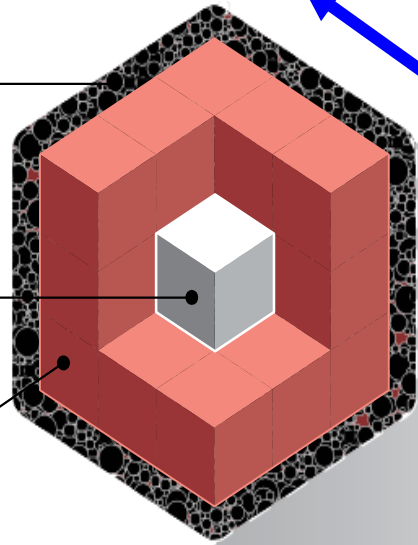


# FRAMEWORK OF HEALTHY AGEING

**Composites** of the physical and mental capacities of an individual.

Personal characteristics

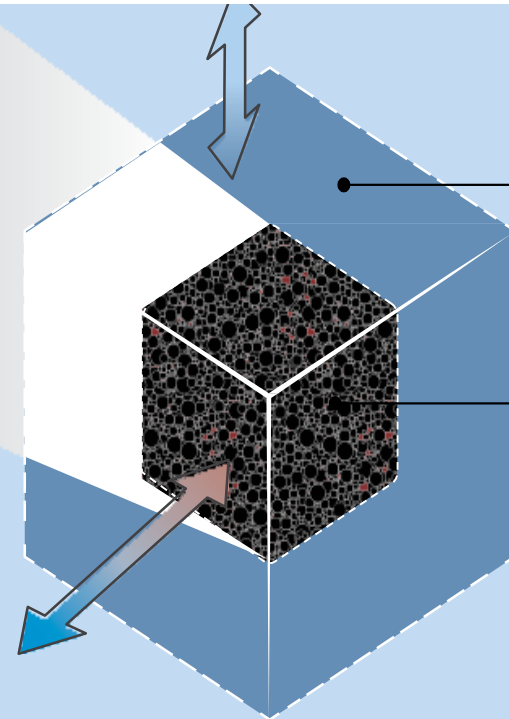
Genetic inheritance



**Factors in the extrinsic world** that form the context of an individual's life.

Functional ability

Intrinsic capacity

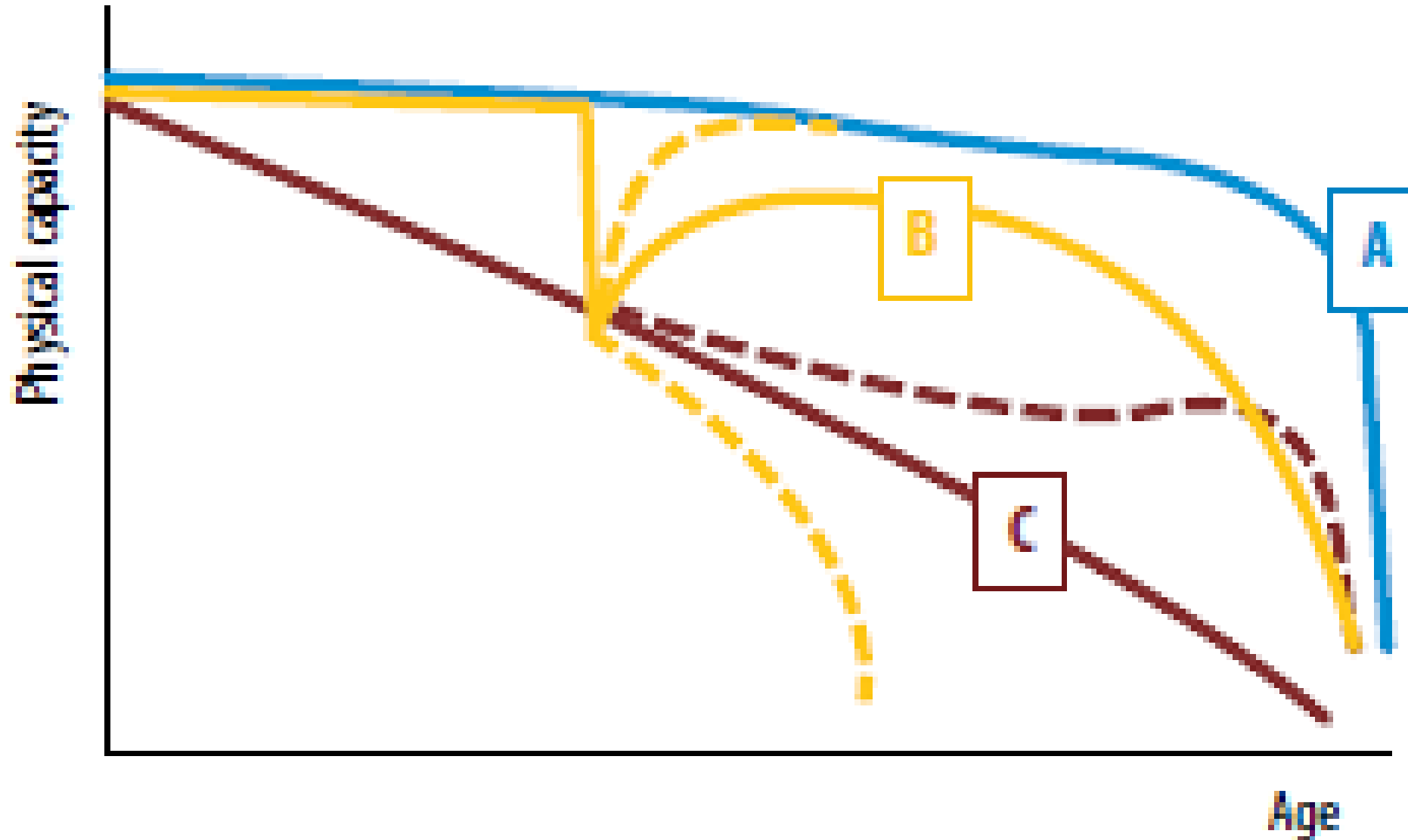


## Health characteristics

- Underlying age-related trends
- Health-related behaviors, traits, skills
- Physiological changes and risk factors
- Diseases and injuries
- Changes to homeostasis
- Broader geriatric syndromes



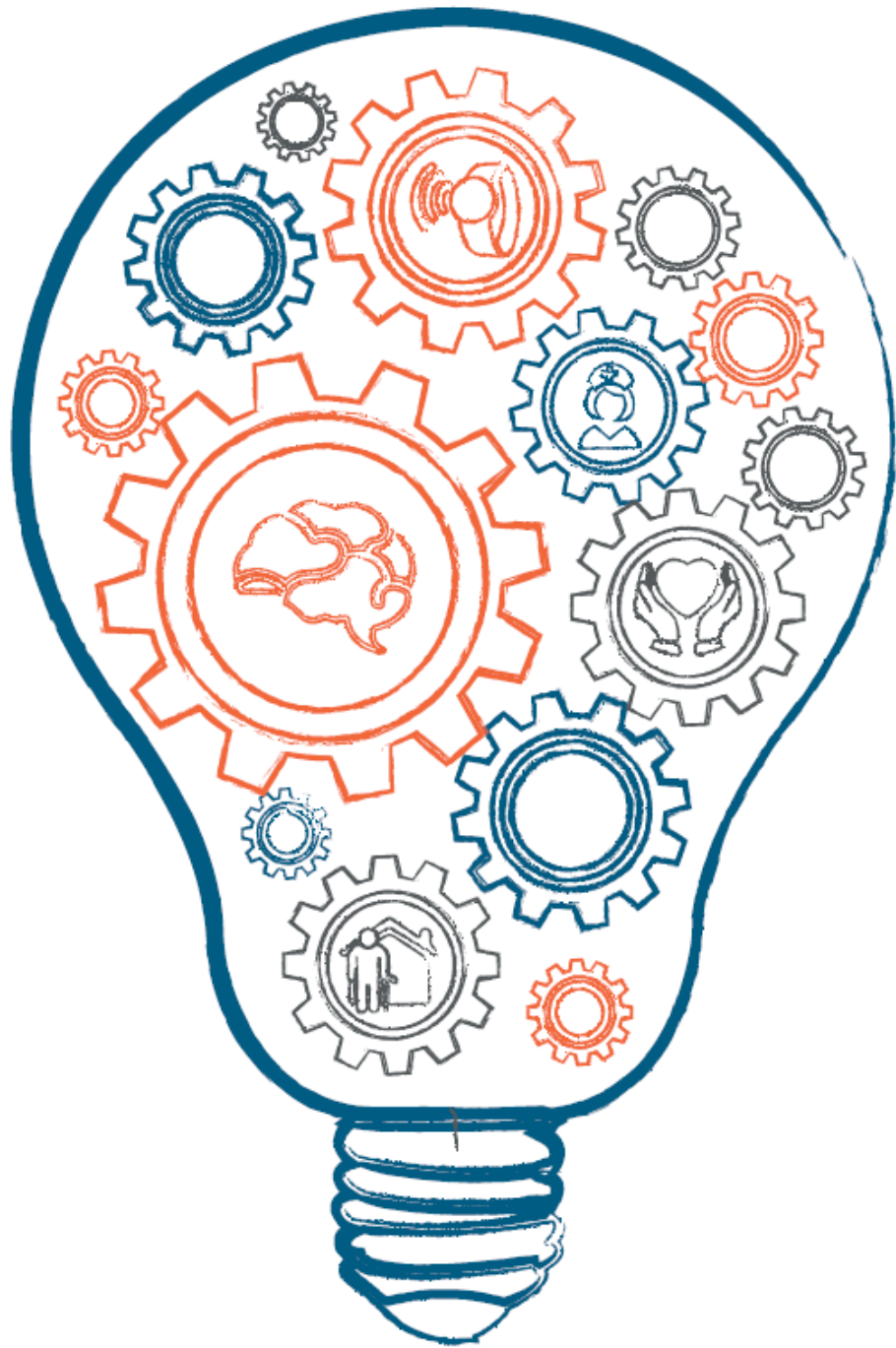
# HYPOTHETICAL TRAJECTORIES OF PHYSICAL CAPACITY











# Asking the simple questions

What do we want?  
What do we have?  
Where do we live?  
Who do we live with?











Enhance  
quality of  
life

Healthy  
Ageing

Enhance  
Functional  
Status

Minimise  
symptoms



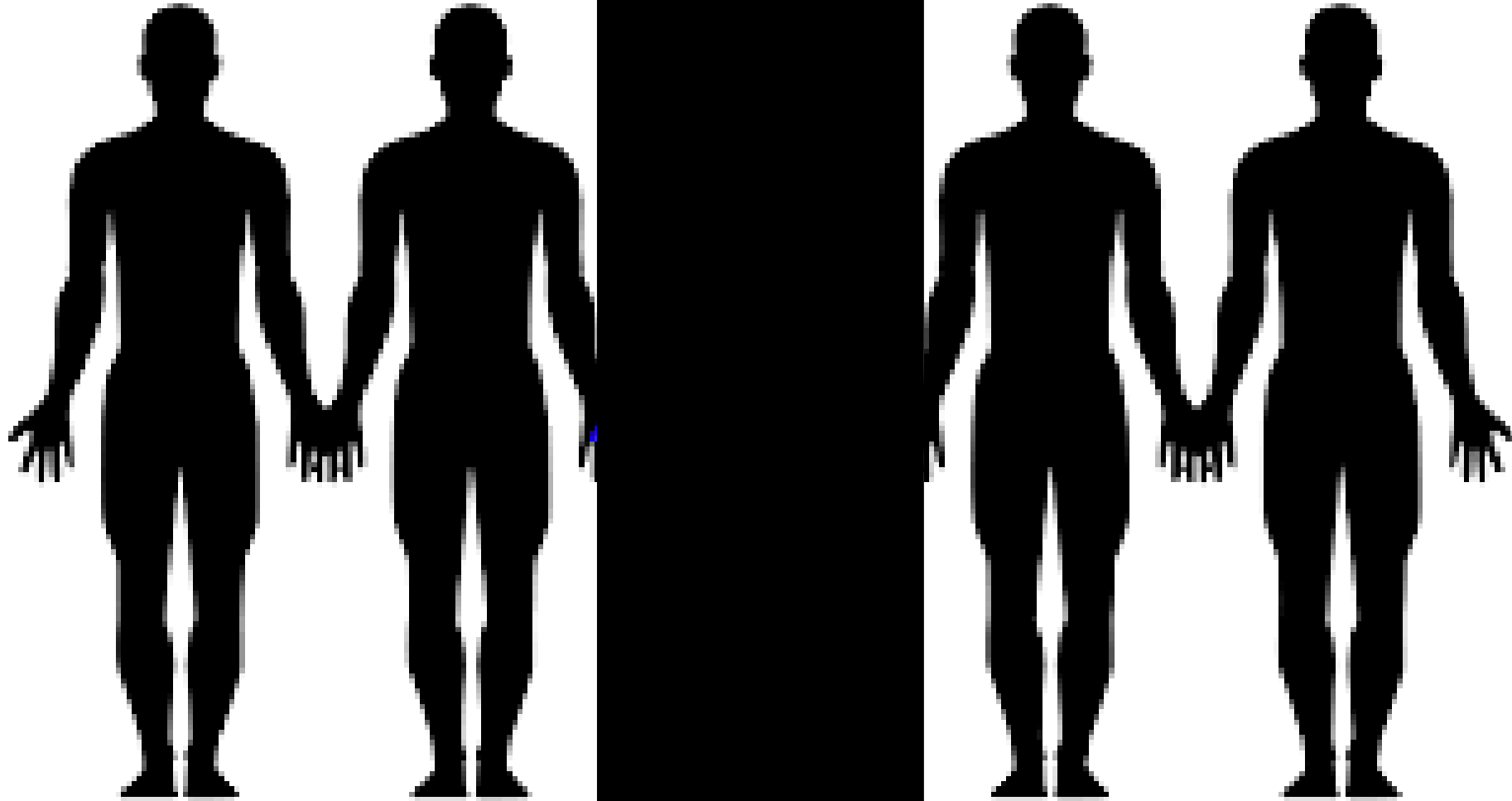


ERS Whitebook. Chapter 18. Acute lower respiratory infections. Retrieved from <http://www.erswhitebook.org/chapters/acute-lower-respiratory-infections/>

European Respiratory Society (ERS). European Lung White Book – Chapter 18. Retrieved From: <http://www.erswhitebook.org/chapters/acute-lower-respiratory-infections/pneumonia>

Welte T, Torres A, Nathwani D. Clinical and economic burden of community-acquired pneumonia among adults in Europe. *Thorax*. 2012;67: 71–79.

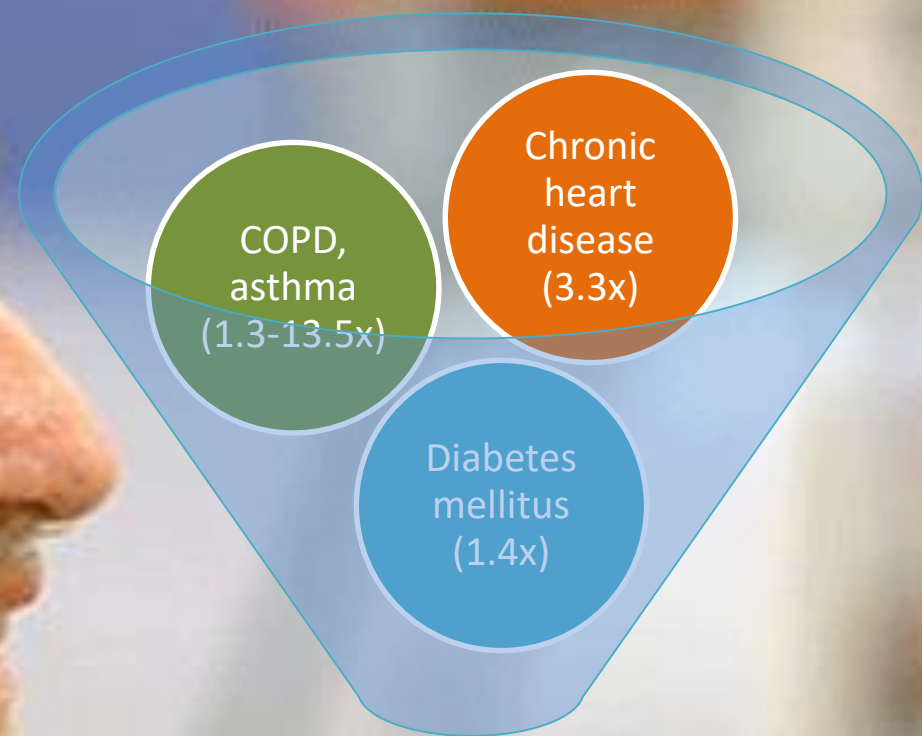
# Pneumococcal Pneumonia



Science Photo Library, <https://microbewiki.kenyon.edu/index.php/File:MicrobeWikiSciencePhoto.jpg>

<https://www.nap.edu/catalog/13531/ranking-vaccines-a-prioritization-software-tool-phase-ii-prototype-of>





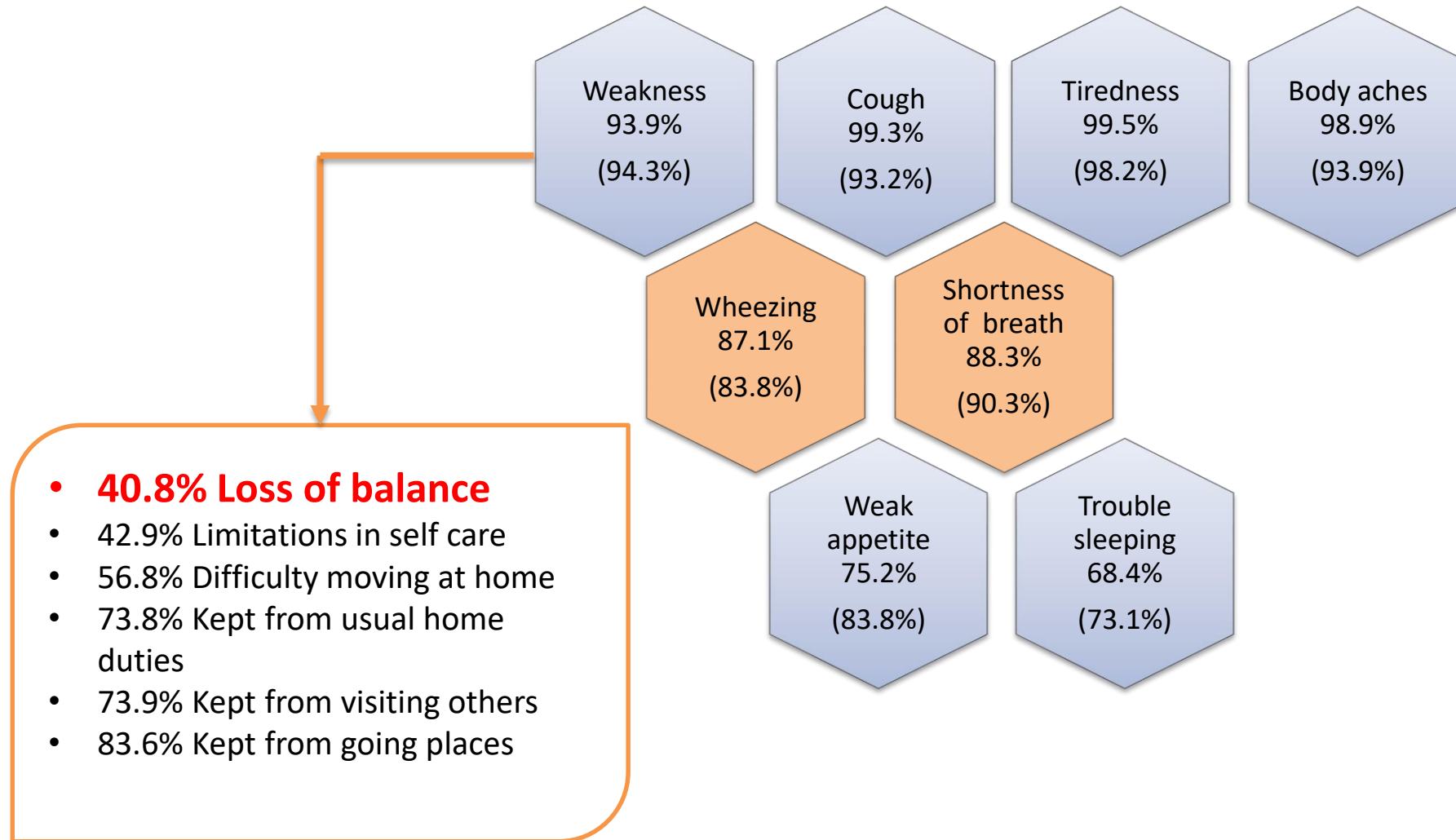
60% older adults have 2 or more underlying medical conditions



COPD and diabetes are predictors of hospitalisation

Torres, A., Blasi, F., Dartois, N. and Akova, M. 2015. Which individuals are at increased risk of pneumococcal disease and why? Impact of COPD, asthma, smoking, diabetes, and/or chronic heart disease on community-acquired pneumonia and invasive pneumococcal. Thorax, 0: 1-6.

# Prevalence of symptoms at diagnosis non-hospitalisation and (hospitalised) (n=500)





# FALLS

2nd leading cause of accidental or unintentional injury deaths worldwide

424,000  
die annually

20% - 30%  
65yrs and older

37million need  
medical attention

Cost per fall  
1049USD (Australia)  
3611 USD (Finland)



# BE MOBILE



## uberASSIST

專業無障礙交通服務 — 關懷優步

### 首次試乘即減免

# HK\$ 100

輸入優惠碼 **PROHEALTH100**



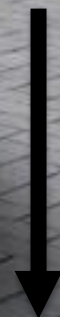
什麼是關懷優步？如何乘搭？

我們努力創造適合所有人需要的交通方式，「uberASSIST關懷優步」由專業受訓的平台夥伴提供額外協助予長者、聽障、視障者及行動不便的乘客更即時、輕省並且可靠的無障礙出行選擇。





# DIABETIC RETINOPATHY



Poor management of  
diabetes



# MEET BASIC NEEDS



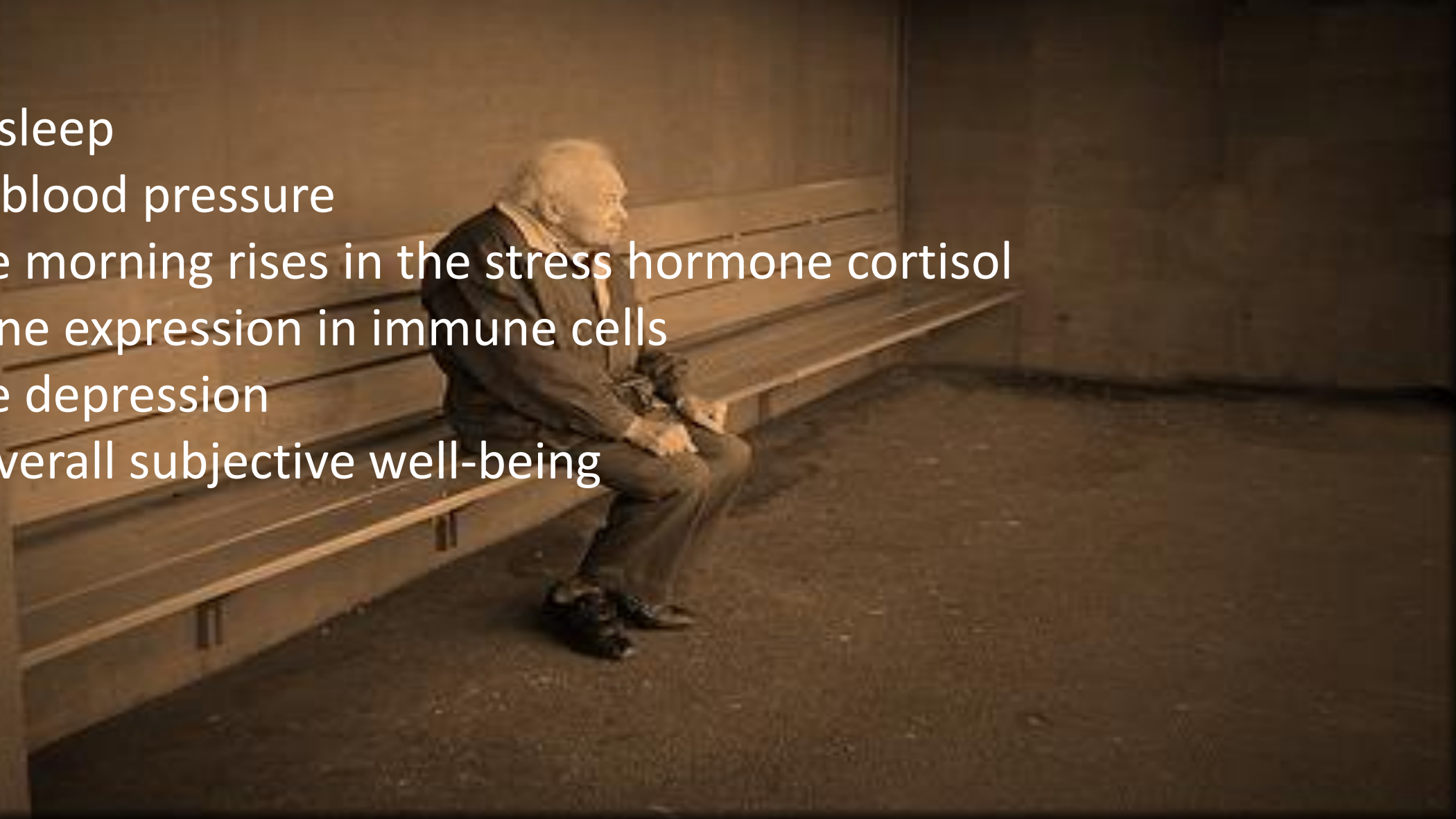
Management of medications  
Creating healthcare data



# BUILD AND MAINTAIN RELATIONSHIPS CONTRIBUTING

# FEELING ISOLATED FROM OTHERS CAN

- disrupt sleep
- elevate blood pressure
- increase morning rises in the stress hormone cortisol
- alter gene expression in immune cells
- increase depression
- lower overall subjective well-being





# BUILD AND MAINTAIN RELATIONSHIPS



my **XIMI**



**LEARN, GROW AND  
MAKE DECISIONS**

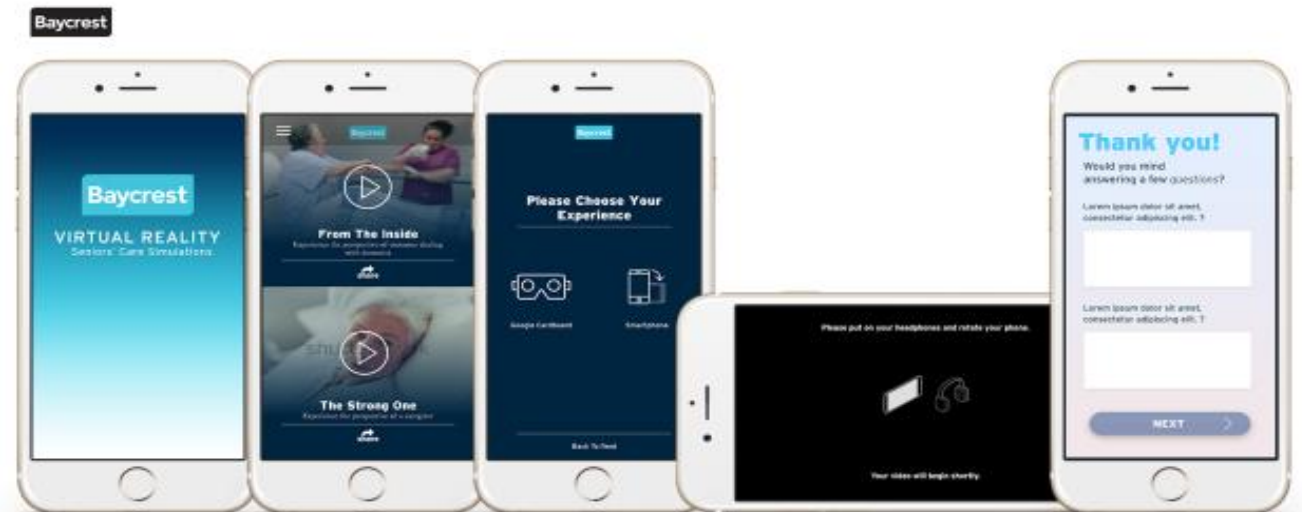




# Virtual Reality Dementia Simulation Developing Proof of Concept



<https://alzheimersnewstoday.com/2017/03/06/tackling-dementia-with-virtual-reality/>





# GAMIFIED LEARNING APP

- Goal: To improve clinical reasoning in the identification of and response to acute deterioration in the frail elderly
- A game-based series of mini, clinical case simulations with instant feedback
- Combines innovative pedagogies  
eLearning + simulation + game-based learning

Baycrest SOS MENU

4 ★ 3 ⚡ 0 \$0

Start a new case

easy hard

easy

EC999: Mrs. Y could barely make it from the TV room back to her room. Earnings:0 Spend ★1

Finished games

Rank: 2, Earnings to Date: \$25,000

Game Ended on 5/9/2016 at 15:57 Earnings: 0

Time remaining: 42:02

Results ⚡ 0 ★ 5

Case Description

Urgency  
What are some client concerns that inform urgency? How do they relate to this case? ✖

Assessment  
What other steps need to be done before calling 911? ✖

Critical Pare Path ✔

Recommendation  
Requesting for a spirometry test will not ✖

Life remaining: 39:00



Baycrest  
@Baycrest

Following

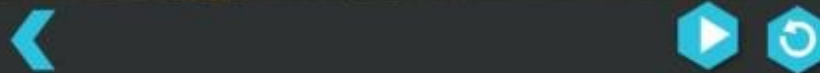
Volunteers and researchers at @Baycrest are helping to transform the journey of aging. #BaycrestEDUC8



RETWEETS 2 LIKE 1

1:33 PM - 1 May 2017

2 1



### 3. Hearing and Aging

- 3.1 Impact of Hearing Loss
- 3.2 Recognize Hearing Loss
- 3.3 Prevalence of Hearing Loss
- 3.4 Video: How we Hear
- 3.5 How Hearing Loss Occurs
- 3.6 Hearing Loss Simulations

### 4. Speech, Voice, Language

- 4.1 Language Changes: T or F
- 4.2 Language Changes in Normal Aging
- 4.3 Who Said it?
- 4.4 Voice Changes in Normal Aging

### 5. Communication Strategies

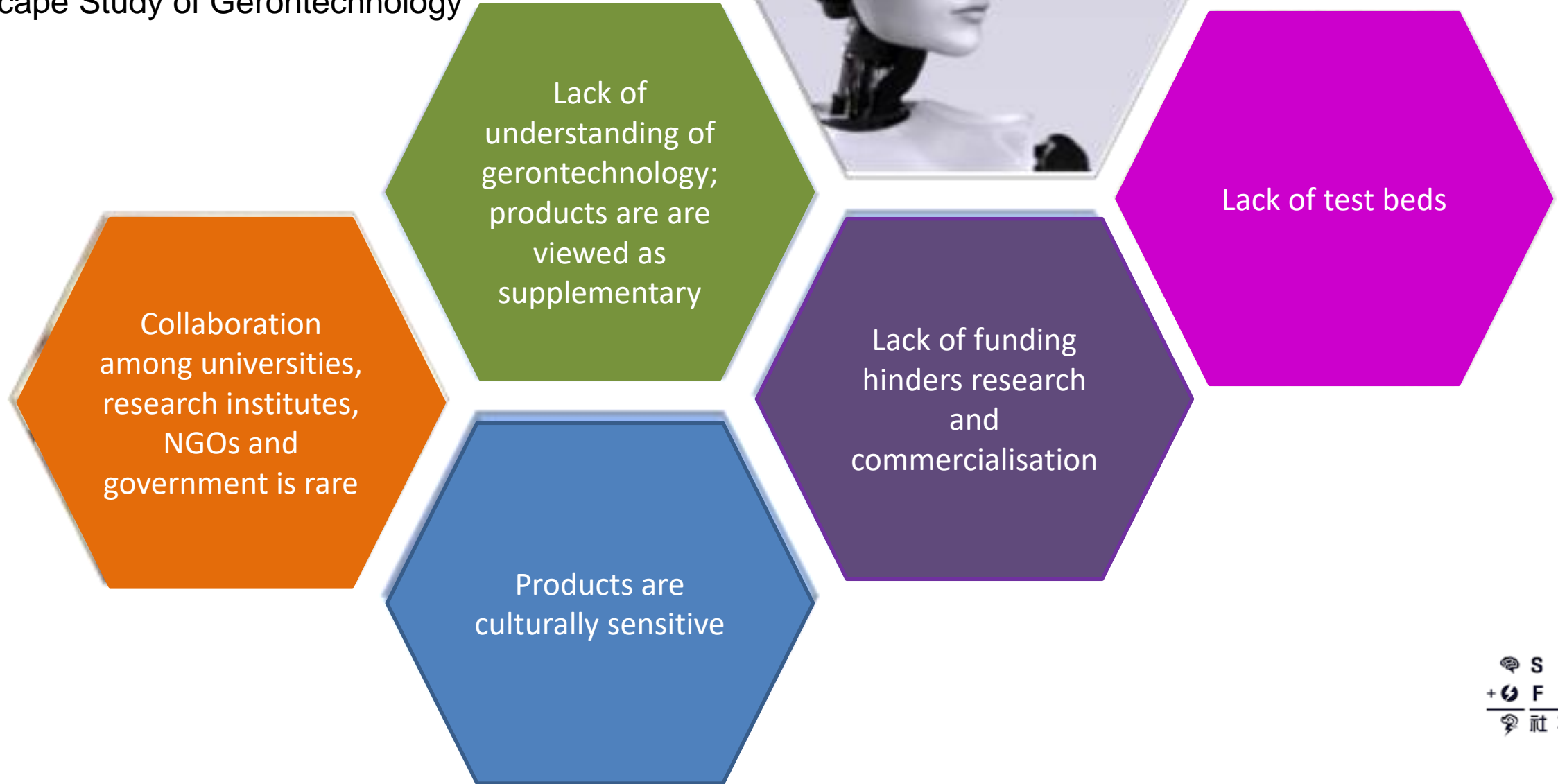
- 5.1 Video: Ineffective Strategies
- 5.2 Video: Effective Behavioural

**Baycrest** Centre for Learning, Research & Innovation in Long-Term Care

**Canadian Centre for Aging & Brain Health Innovation**



## Landscape Study of Gerontechnology





Hong Kong is the global leader in  
applied Gerontechnology







Gerontechnology  
is an enabler

Evidence-based  
innovation is  
critical

Gerontechnology  
must be viewed  
through a  
cultural lens

Products for the  
sake of products  
without humans  
are of little value

Monitoring and  
measuring  
impact is a must



# WHERE DO WE INVEST?



Dr Jane Barratt  
Secretary General  
International Federation on Ageing  
[jbarratt@ifa-fiv.org](mailto:jbarratt@ifa-fiv.org)