

US National Academy of Medicine
Health Care & Public Health Systems for Healthy
Longevity: A Workshop for the Global Roadmap for
Healthy Longevity Initiative
Singapore Feb 3-4 2020

Keynote Address

Changing healthcare for different people
Changing systems for different healthcare

Finbarr C Martin

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Emeritus Professor of Medical Gerontology

King's Health Partners, London, UK

- Thanks to NAM and the workshop steering group
- And to our hosts here at the National University in Singapore

CONFLICT OF INTEREST DISCLOSURE

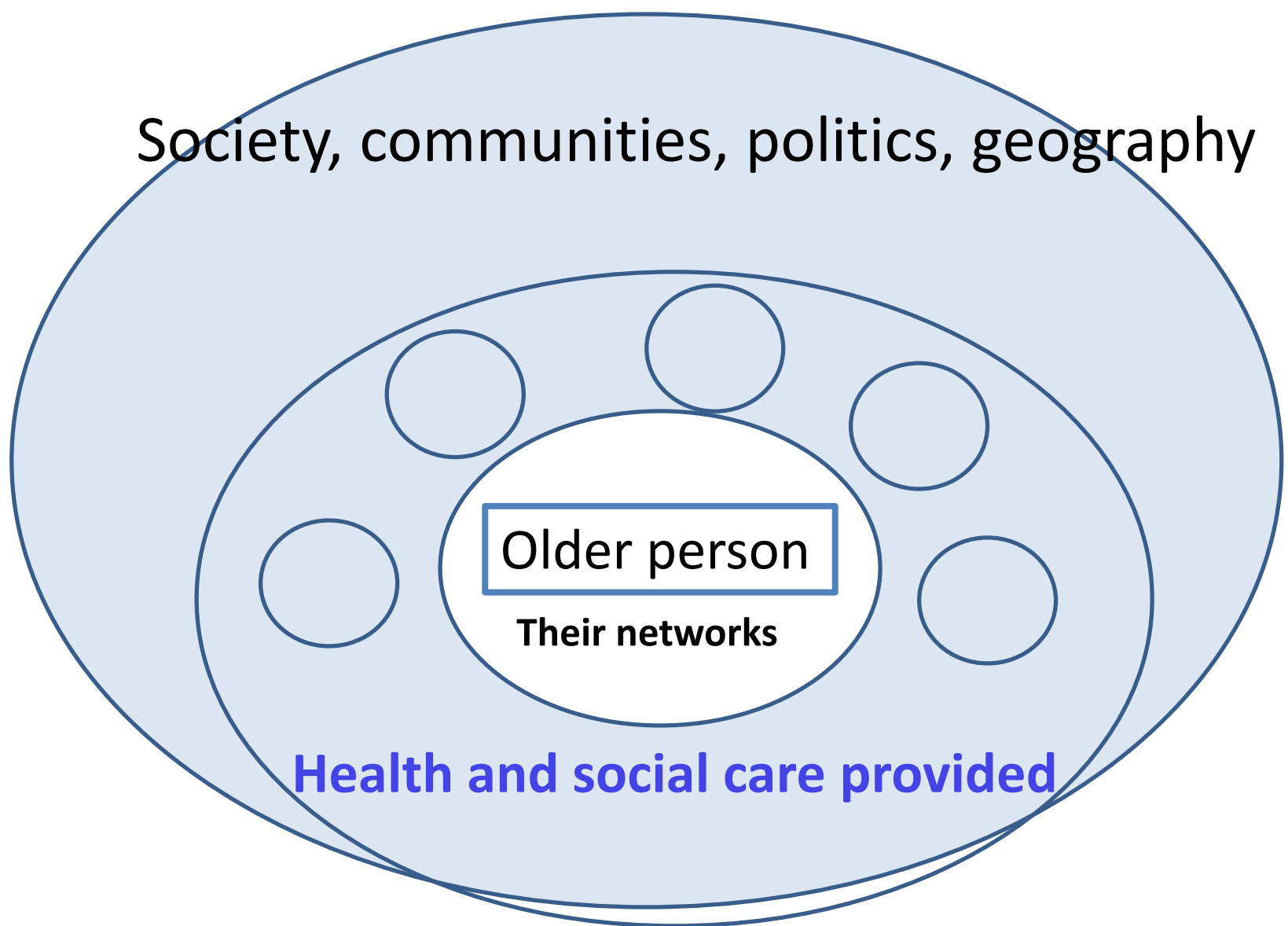
I will present some work I've been involved with at
Guys and St Thomas NHS Trust in London
NHS England,
and the WHO

No commercial conflict of interest to report

Setting the scene

- I will focus on health and healthcare
- But cognisant of the scope of the other 2 strands of the Initiative

Society, communities, politics, geography



Health and social care provided

We wish to integrate

I will consider these 3 areas

- The modern older person
- The healthcare services
- The healthcare system

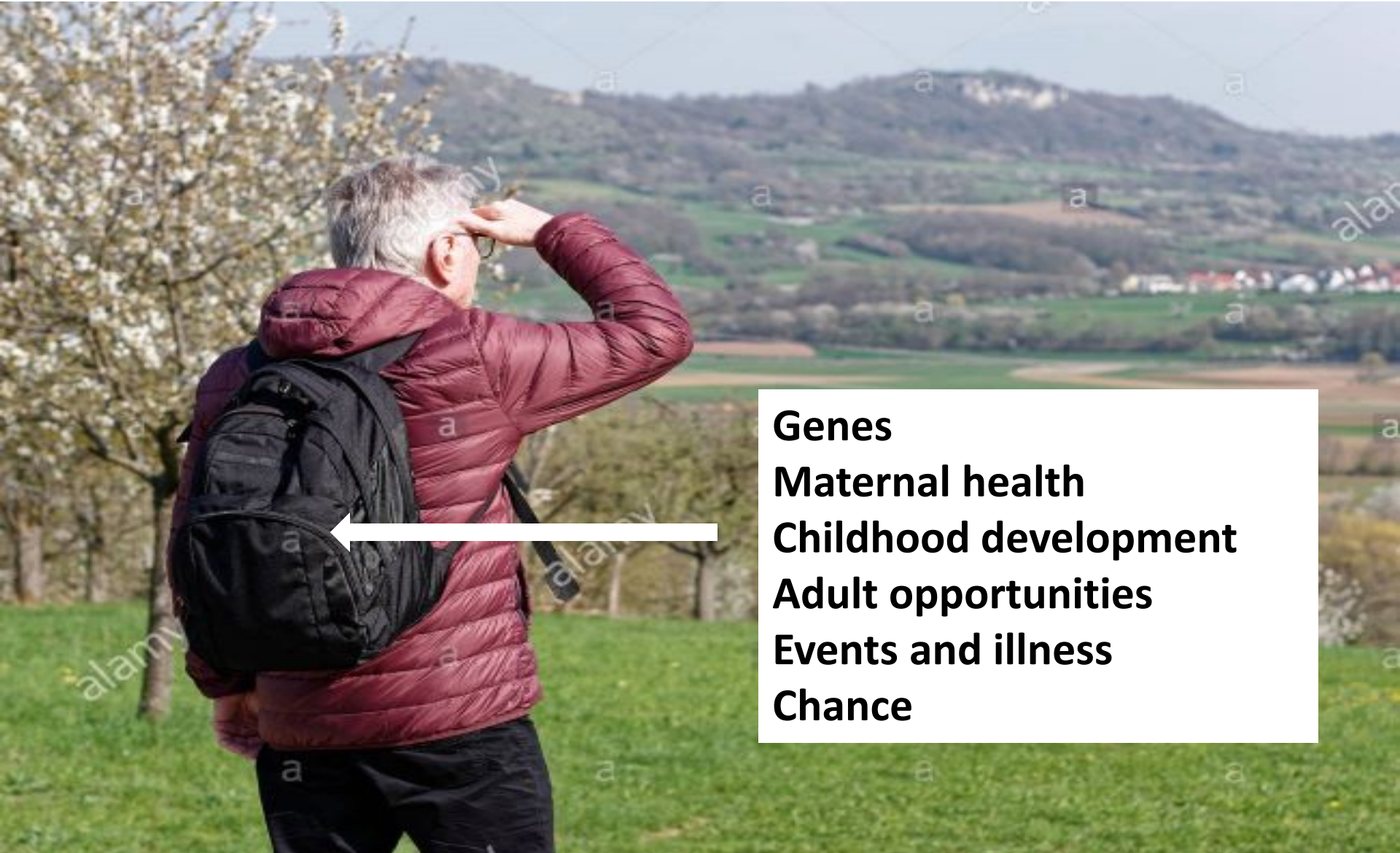
Part 1

Understanding the nature of modern older people

Looking ahead with history on your back



Looking ahead with history on your back



Genes

Maternal health

Childhood development

Adult opportunities

Events and illness

Chance

Genetics and living the life you can live



Generalised (diffuse) or single organ age-related changes

Genetics and living the life you can live

Workshop 1



Generalised (diffuse) or single organ age-related changes

Specific risk exposures

Plus Chance



Workshop 3

Medical conditions (diagnoses)

Subclinical changes (multiple mechanisms)

Genetics and living the life you can live



Generalised (diffuse) or single organ age-related changes

Specific risk exposures

Chance



Medical conditions (diagnoses)

Subclinical changes (multiple mechanisms)



Impairments (measurable)

Genetics and general life exposures



Generalised (diffuse) or single organ age-related changes

Specific risk exposures

Chance



Medical conditions (diagnoses)

Subclinical changes (multiple mechanisms)

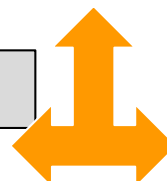


Impairments (measurable)



Death

Social/Environment



Functional abilities

Social participation

Hr-QOL

Healthcare use

Genetics and general life exposures



Generalised (diffuse) or single organ age-related changes

Specific risk exposures

Chance



Medical conditions (diagnoses)

Subclinical changes (multiple mechanisms)



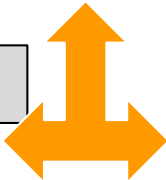
Impairments (measurable)



Death

WHO intrinsic capacity

Social/Environment



Functional abilities

Social participation

Hr-QOL

Healthcare use

WHO: functional ability

Some challenges emerge

- Recognising health states and need (if more than disease)
- Patterns of measurable change – biomarkers
- Understanding **variance in transitions**

Frailty and Resilience

Frailty – the state of vulnerability to change of health state in the face of stressors

Resilience – the ability to withstand or bounce back (?)

- Reciprocal ?
- Distinct identifiable and modifiable phenotypes?
- Different biological drivers ?

See Whitson et al 2018, J Am Geriatr Soc 2018
And others

**This raises the issue of
social resilience etc as a target for
assessment and interventions**

(Maybe more relating to this in Session III)

Clinical impact of the holistic frailty-function approach

	Past	Future
Who	Diagnosable symptoms	? Aggregate risk profiles
How	disease specific	Multimodal including ecosystem?
Success	? disease markers	function

Part 2: Age-aligning healthcare

So far, in general, we have been embedding what we know into outdated healthcare systems

- **Primary and community**
- Acute hospitals
- Inter-specialty collaborations

Primary and Community

- progress and future prospects

- Early trials (eg Germany, Netherlands, UK) disappointing

SYSTEMATIC REVIEW

OPEN

JBIC Database of Systematic reviews

Effectiveness of interventions to prevent pre-frailty and frailty progression in older adults: a systematic review

João Apóstolo¹ • Richard Cooke² • Elzbieta Bobrowicz-Campos¹ • Silvina Santana³ • Maura Marcucci^{4,5} • Antonio Cano⁶ • Miriam Vollenbroek-Hutten⁷ • Federico Germini⁵ • Barbara D'Avanzo⁸ • Holly Gwyther² • Carol Holland²

¹Health Sciences Research Unit: Nursing, Nursing School of Coimbra, Portugal Centre for Evidence Based Practice: a Joanna Briggs Institute Centre of Excellence, ²Aston Research Centre for Healthy Ageing (ARCHA), Aston University, Birmingham, United Kingdom, ³Department of Economics, Management and Industrial Engineering, University of Aveiro, Aveiro, Portugal, ⁴Geriatric Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, ⁵Department of Clinical Science and Community Health, University of Milan, Milan, Italy, ⁶Department of Paediatrics, Obstetrics and Gynaecology, Universitat de València, València, Spain, ⁷Roessingh Research and Development, Enschede, The Netherlands, and ⁸IRCCS Istituto di Ricerche Farmacologiche Mario Negri, Milan, Italy

ABSTRACT

Why?

- Wrong target populations
- Wrong interventions? Dose? Participation?
- Wrong outcome measures or timing?
- etc

- New efforts using co-design, combined and targeted “interventions” -
- Better QI in implementation

Some encouraging news now and on the way

- Life-P study (USA, Pahor et al, Field etc)
- FINGER
- SPRINTT, (Europe)
- PROSPER (UK)
- AgIL (Spain)

1260 participants age 60-77, high risk from
general population
2 year multi-domain intervention slowed
cognitive decline

FINGER



Finland
Pitkala et al

**Important lessons
that can be adapted
to various contexts!**

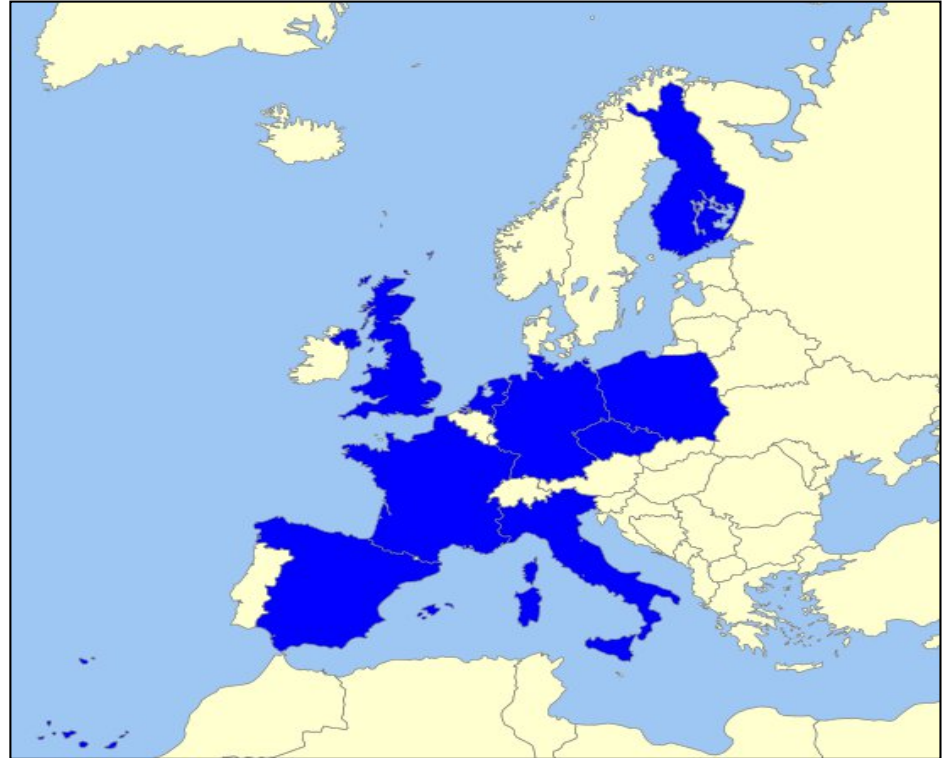
**Toolkit for implementation of
FINGER findings**

The SPRINTT randomised clinical trial

15 clinical sites (+ 1) in 9 European countries



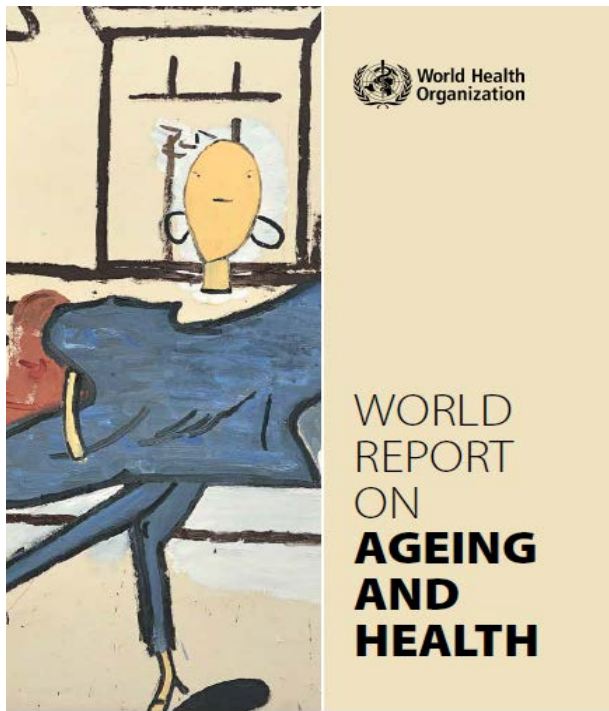
Multicomponent
treatment strategies
to reduce sarcopenia
and frailty



All this is worthwhile and encouraging proof of concept but achieved in expert hands in research contexts

For wide implementation, we need a consensus on a concept model, orientation towards feasible community based implementation and guidance that enables adaption and integration

The WHO Ageing Report 2015 and WHO Global Strategy and Action Plan on Ageing and Health 2016



Decade of Healthy Ageing 2020-2030

WHO: What is healthy ageing?

- the process of developing and maintaining the functional ability that enables **well-being** in older age
- **well-being** is considered in the broadest sense and includes domains such as happiness, satisfaction and fulfilment
- **functional ability** comprises the health related attributes that *enable people to be and to do what they have reason to value.*

WHO: What shapes functional ability?

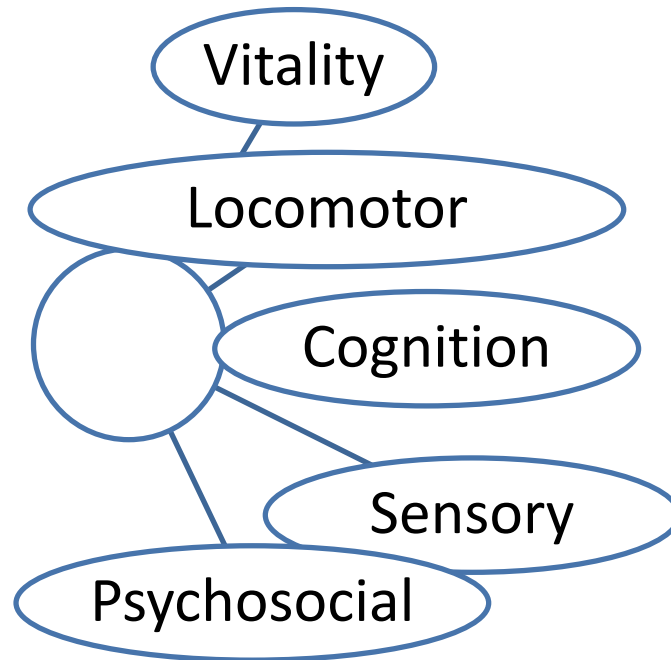
is made up of

- **Intrinsic capacity** - composite of all the physical and mental capacities of an individual.
- **Environments** comprise all the factors in the extrinsic world that form the context of an individual's life.
 - home, communities and the broader society.
 - range of factors, including the built environment
 - people and their relationships, attitudes and values
 - health and social policies, and their services

What are the important determinants of overall IC and associated losses of function?

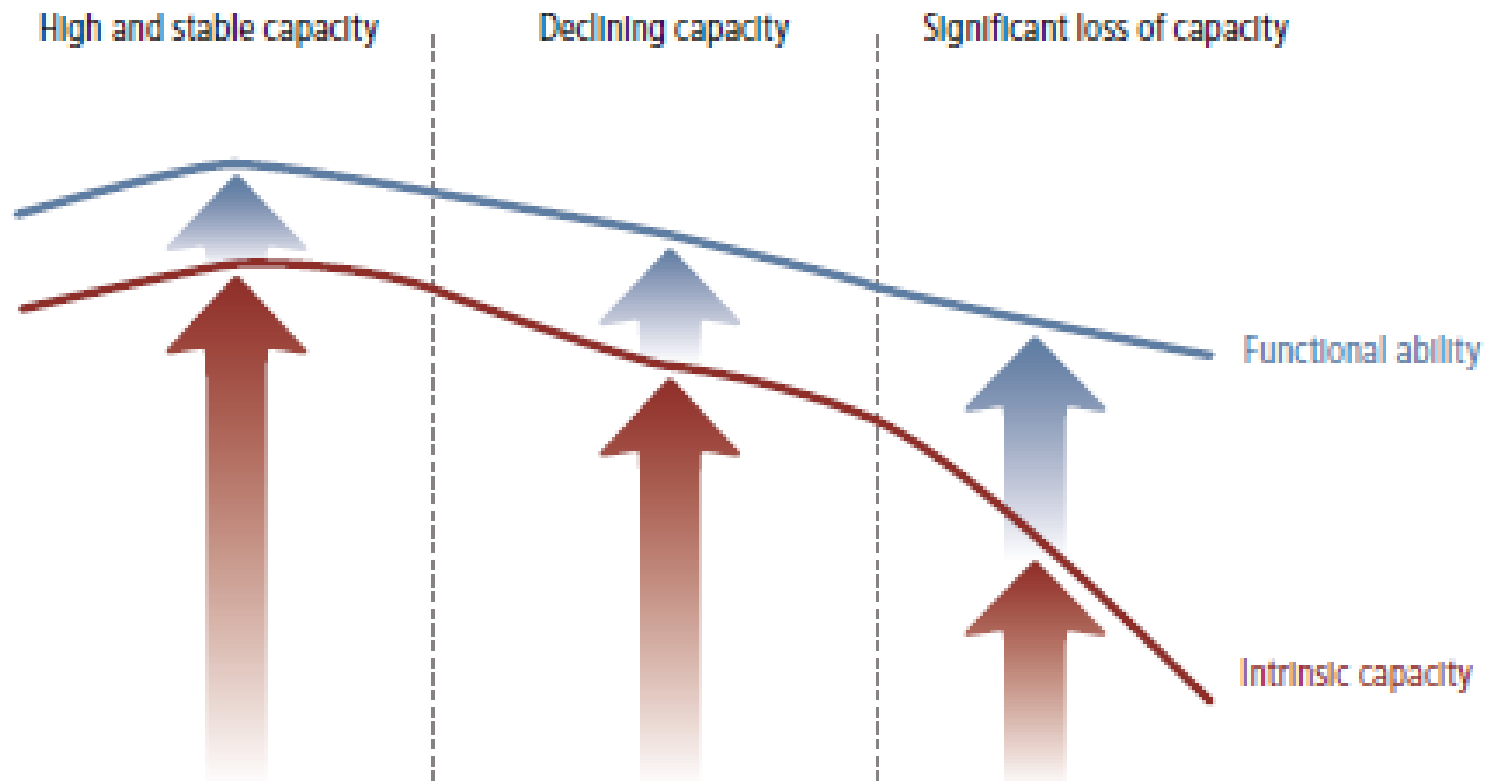
WHO commissioned systematic reviews of longitudinal studies

Beard J et al BMJ Open 2019



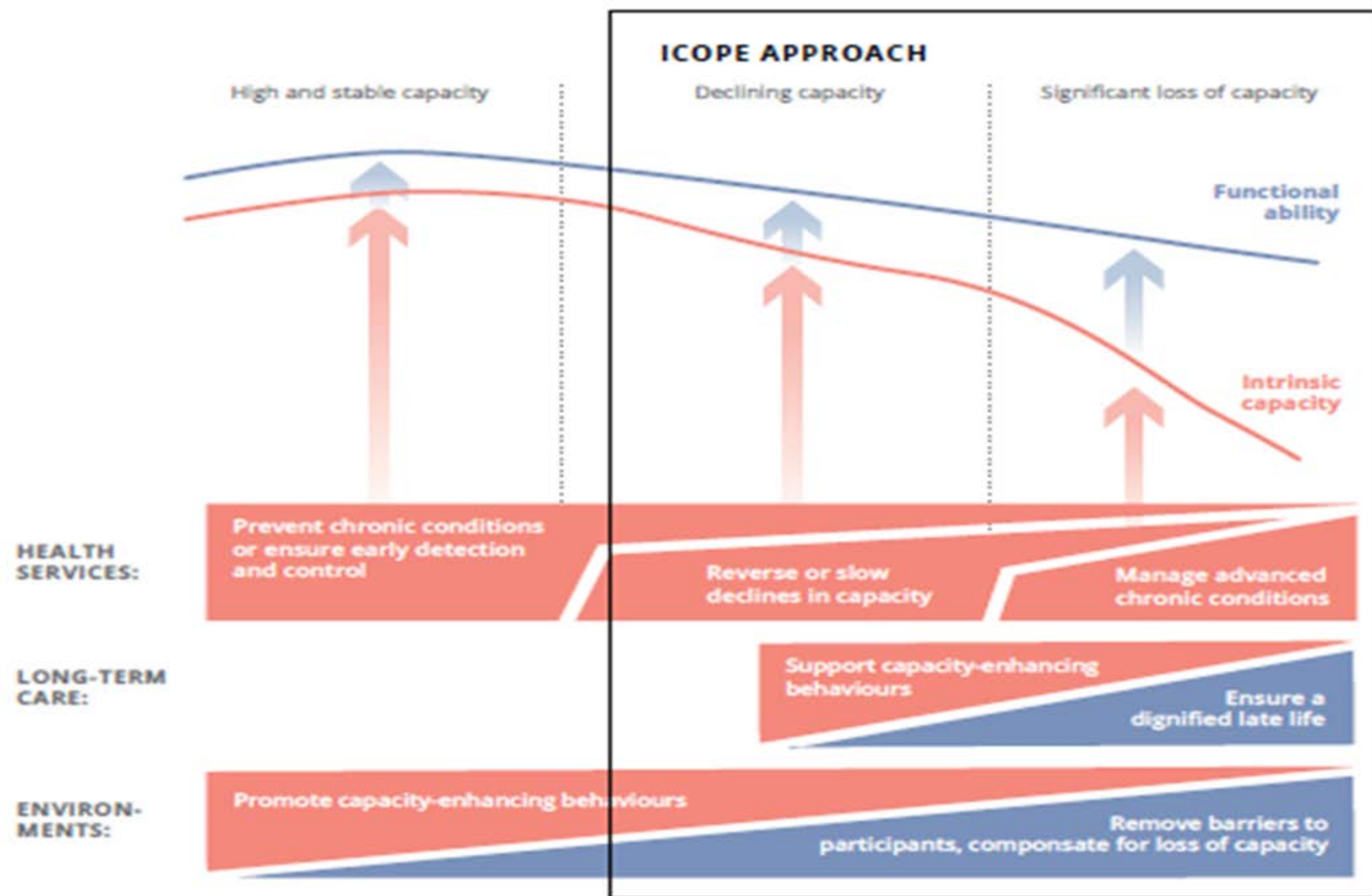
Factor structure

Mean trajectories of Intrinsic Capacity and Functional Ability



**This provides a structure for a public health
and clinical approach**

FIG. 2. A PUBLIC-HEALTH FRAMEWORK FOR HEALTHY AGEING: OPPORTUNITIES FOR PUBLIC HEALTH ACTION ACROSS THE LIFE COURSE



Source: World report on ageing and health. Geneva: World Health Organization, 2015.

Potential uses of IC in research, public health and clinical practice

- Global burden of disease surveys
- Cohort trends to inform policy
- Trajectories to monitor individuals
- Stratification to target groups
- Focus and outcome of interventions

Assessment – published October 1st 2019

ICOPE
INTEGRATED CARE FOR OLDER PEOPLE

Handbook

Guidance on person-centred assessment
and pathways in primary care



World Health
Organization

Interventions



Recommendations on interventions to manage declining physical and mental capacities in older people at community level (2017)

Thivagarajan JA et al.
Redesigning care for older people to preserve physical and mental capacity:
WHO guidelines on community-level interventions in integrated care

PLOS Medicine 2019

Challenges to Implementation

- Which population to target?
- Integration with existing healthcare programmes, structures and funding systems?
- Assessment “in the field”
- Missing issues -pain, sleep, loneliness etc
- Workforce: numbers and skills

BUT successes in practice:

China, Japan, Mexico and UK example in Session III

Age-aligning healthcare

So far, in general, we have been embedding what we know into outdated healthcare systems

- Primary and community
- **Acute hospitals**
- **Inter-specialty collaborations**

I will consider 3 aspects

- **Frailty/CGA based case-mix characterisation for service design etc**
- CGA based risk assessments for clinical decisions
- CGA based optimisation and interdisciplinary care

Hospital Frailty Risk Score (England)



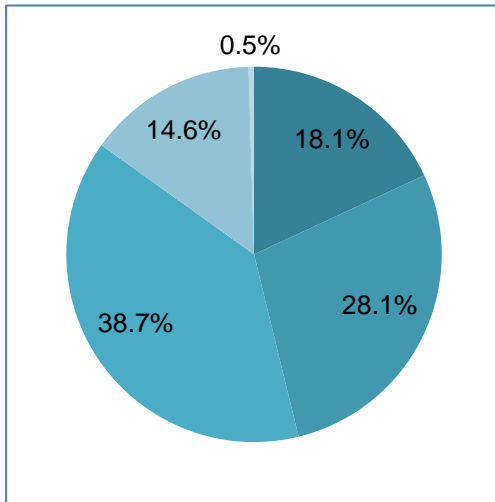
Three step approach:

1. **Cluster analysis (>75 yrs elective + non elective)** to test whether a distinct group of older patients admitted to hospital with characteristics of frailty could be identified on the basis of their ICD-10 codes and resource use.
2. **The HFRS created using ICD-10 codes** that were over-represented in the group.
3. **Two separate validation cohorts**
 - 1 x National HES validation cohort (n=1,013,590)
 - 1 x Local validation cohort (n=569) – **with manual frailty scoring**

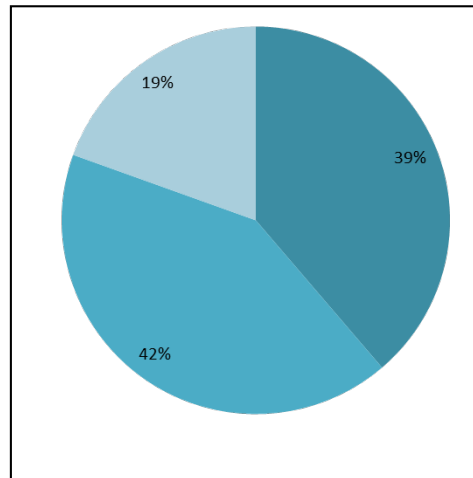
Findings and application

- HFRS discriminated between frail versus clinically non-frail.
- Positive correlation between frailty scores and the HFRS.
- Three categories, low, intermediate and high risk based on discrimination of health outcomes and resource use.

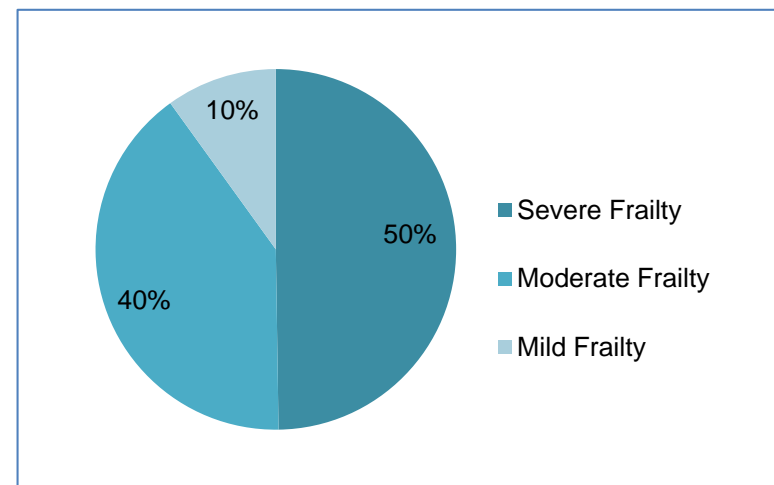
Chemotherapy, >15,000



Renal, 6474

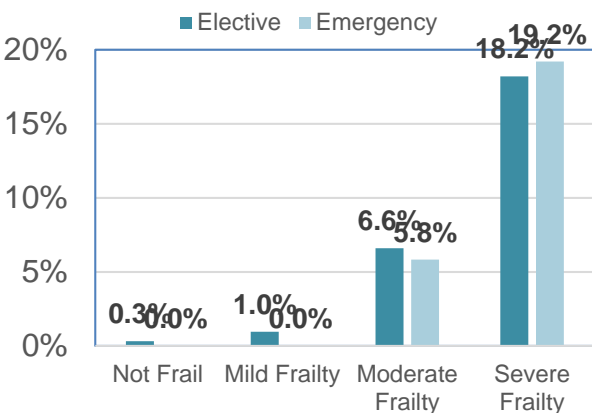


Neurosurgery, 1460

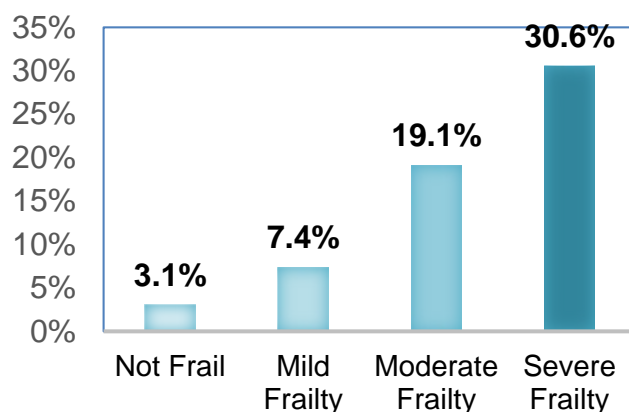


As frailty increases, in-hospital mortality increases

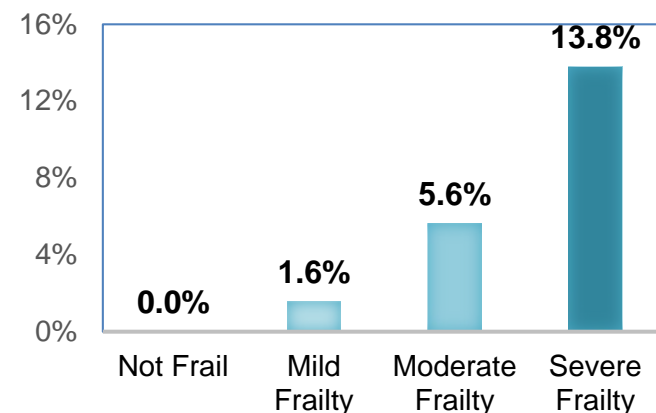
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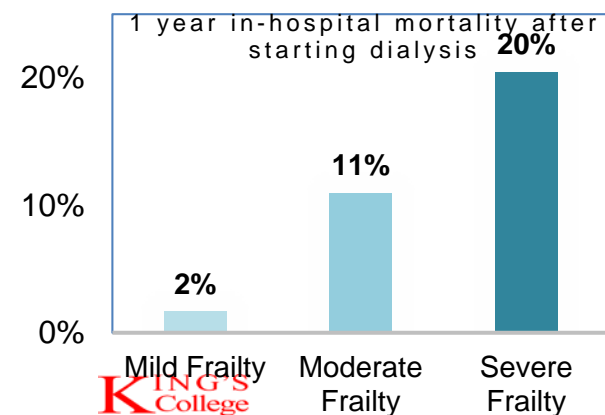
Chemotherapy



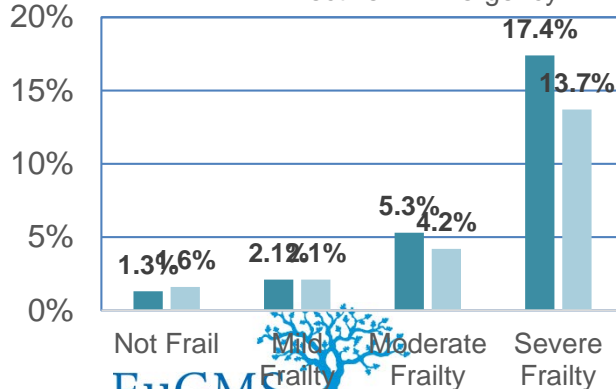
Spinal Surgery



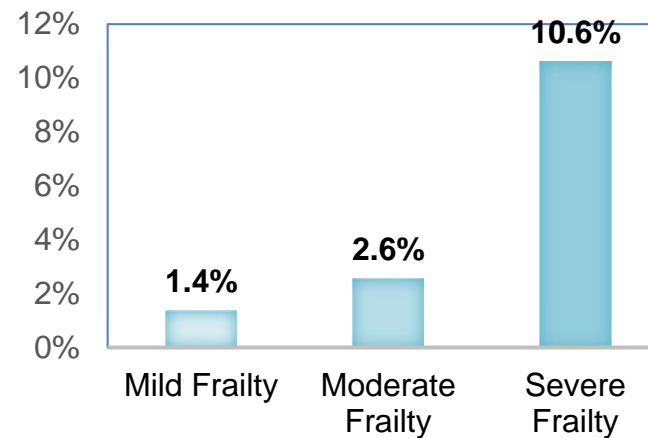
Renal



Critical Care



Neurosurgery



Summary

- **Hospital Frailty Risk Score** performs at least as well as or better than existing risk stratification tools.
- Operates at the patient **population** level.
- This could prompt **service redesign** and suggests utility of **adapting** assessment/decisions/treatments

Acknowledgements to Towhid Imam et al at NHSE

Embedding our approaches

- Frailty/CGA based case-mix characterisation for service design etc
- **CGA based risk assessments for clinical decisions**
- CGA based optimisation and interdisciplinary care

Acute Frailty Network

- An NHS funded improvement programme to support early recognition of people living with frailty who present to Urgent care settings
- Now active in about 50% of acute hospitals in England
- An interdisciplinary collaboration



Case finding – a simple tool

- CFS based on how the patient was **TWO** weeks ago

Clinical Frailty Scale*



1 **Very Fit** – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



2 **Well** – People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g. seasonally.



3 **Managing Well** – People whose **medical problems are well controlled**, but are **not regularly active** beyond routine walking.



4 **Vulnerable** – While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being “slowed up”, and/or being tired during the day.



5 **Mildly Frail** – These people often have **more evident slowing**, and need help in **high order IADLs** (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



6 **Moderately Frail** – People need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.



7 **Severely Frail** – **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



8 **Very Severely Frail** – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.



9. **Terminally Ill** - Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise evidently frail**.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia.

Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

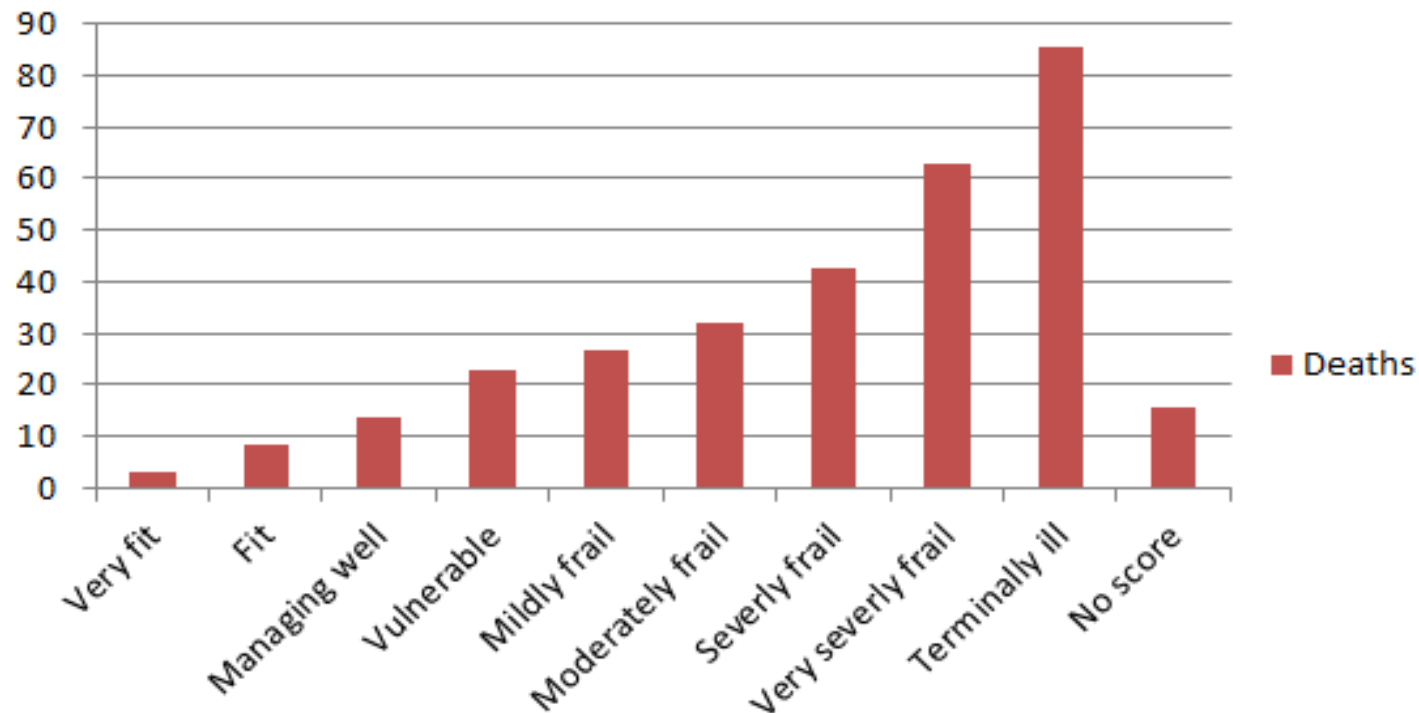
In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

* 1. Canadian Study on Health & Aging, Revised 2008.

2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

Percentage of deaths by CFS score post discharge for NEL >65 admissions who had a death date recorded by 4 April 2018
(Admissions between April – Dec 2017)



How does this help?

- Provides a guide to the *likely* clinical course now and over the following year or so
- Alerts you to the *possibility* of very different priorities for care

..What matters to you?

- Therefore guides next clinical steps (along with assessment of acuity and cognition)
- And what *skills* may be needed (MDT)

Eg prevention of delirium in higher risk patients

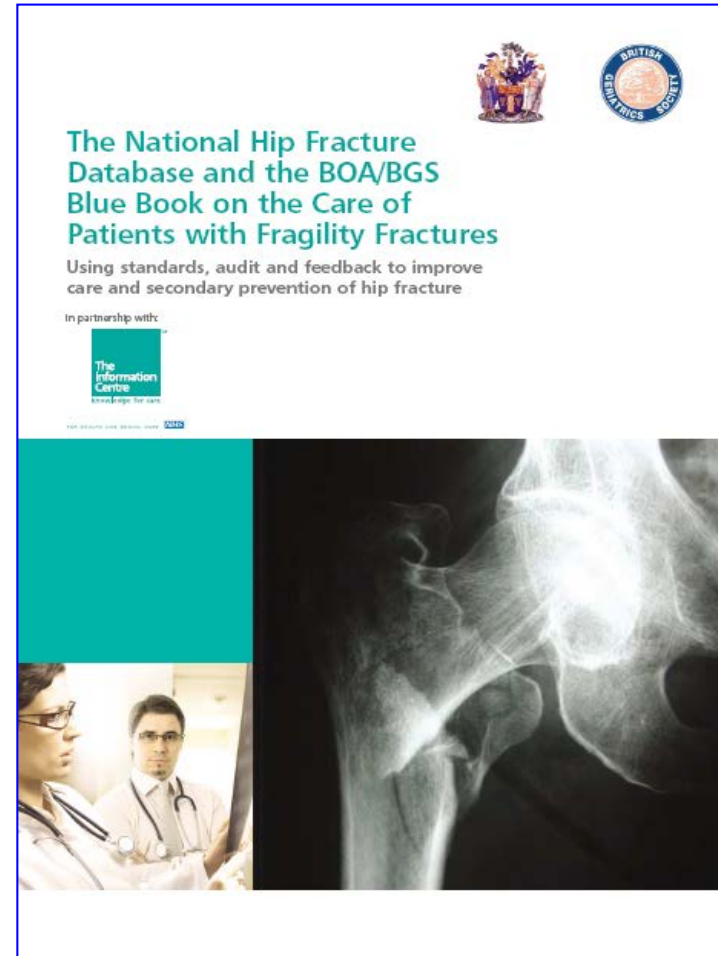
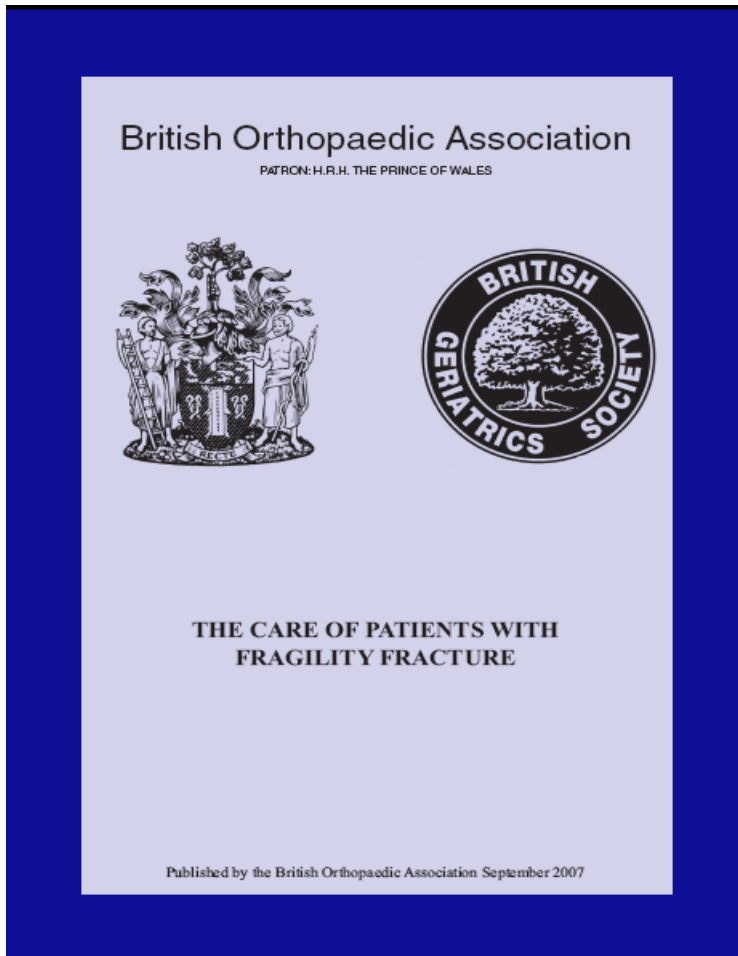
- HELP programme (Inouye)
- Effective, and disseminated in USA
- Adapted in UK

Embedding our approaches

- Frailty/CGA based case-mix characterisation for service design etc
- CGA based risk assessments for clinical decisions
- **CGA based optimisation and interdisciplinary care**

Eg Fracture services

National inter-disciplinary collaboration



Interdisciplinary hospital care

Impact of **national** collaborative approach to hip fracture care in England

- **Adherence to evidence based practice** along the care pathway for hip fracture patients from admission to secondary prevention has increased from <40% to >75% of
- **Mortality** has dropped by twice the previous rate
- **Length of stay** has reduced by nearly one third

CGA embedded in Vascular Surgery service: single site RCT in London

(Partridge J et al, 2016)

	Intervention group n=91	Control group n=85	Significance of difference
Length of hospital stay (days)	3.3	5.5	P<0.001
Post operative delirium	9 (11%)	22 (24%)	P=0.018
All complications	7%	4.2%	

Calls for change are not new

The end of the Disease Era

Tinetti et al, Am J Med, 2004

Geriatric Syndromes: Clinical, Research and Policy Implications of a Core Geriatric Concept

(Inouye, Studenski, Tinetti, Kuchel. J Am Geriatr Soc, 2007)

Set out the need for systematic approach to defining (and so researching and treating etc) geriatric syndromes

Obstacles to system change

Political – over-emphasis on individual choice, not social determinants

Cultures

Specialisms, hierarchies, workforce preferences, skills etc

Theoretical

Challenges to developing an evidence base

Financial

Cost-spreading, Reimbursement, timescales of savings

Signs of change

Rising to the challenge of multimorbidity

Whitty et al (CMO for England) and significant others

BMJ 2020; 368 doi: <https://doi.org/10.1136/bmj.l6964>

....It is possible and desirable to have both a specialist and a generalist skill set; a specialist without generalist skills will be ill equipped to deal with many of their patients.

.....The shift back to maintaining generalism in the medical workforce, should accelerate in selection, training, and reward of our future workforce.

That's it...Thank you