Keynote Address

Changing healthcare for different people
Changing systems for different healthcare

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• 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
We wish to integrate

Older person

Their networks

Health and social care provided

Society, communities, politics, geography
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

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

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

Medical conditions (diagnoses)

Subclinical changes (multiple mechanisms)

Impairments (measurable)

Death

Chance

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

Medical conditions (diagnoses)

Subclinical changes (multiple mechanisms)

Chance

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

<table>
<thead>
<tr>
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<th>Past</th>
<th>Future</th>
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<tbody>
<tr>
<td>Who</td>
<td>Diagnosable symptoms</td>
<td>? Aggregate risk profiles</td>
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<tr>
<td>How</td>
<td>disease specific</td>
<td>Multimodal including ecosystem?</td>
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<tr>
<td>Success</td>
<td>? disease markers</td>
<td>function</td>
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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
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

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

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

Vitality

Locomotor

Cognition

Sensory

Psychosocial
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

ICOPE APPROACH

High and stable capacity
Declining capacity
Significant loss of capacity

Functional ability
Intrinsic capacity

HEALTH SERVICES:
Prevent chronic conditions or ensure early detection and control
Reverse or slow declines in capacity
Manage advanced chronic conditions

LONG-TERM CARE:
Support capacity-enhancing behaviours
Ensure a dignified late life

ENVIRONMENTS:
Promote capacity-enhancing behaviours
Remove barriers to participants, compensate for loss of capacity

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

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
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

**TAVI**
- Not Frail: 0.3%
- Mild Frailty: 1.0%
- Moderate Frailty: 6.6%
- Severe Frailty: 18.2%

**Chemotherapy**
- Not Frail: 3.1%
- Mild Frailty: 7.4%
- Moderate Frailty: 19.1%
- Severe Frailty: 30.6%

**Spinal Surgery**
- Not Frail: 0.0%
- Mild Frailty: 1.6%
- Moderate Frailty: 5.6%
- Severe Frailty: 13.8%

**Renal**
- Not Frail: 2%
- Mild Frailty: 11%
- Moderate Frailty: 20%
- Severe Frailty: 20%

**Critical Care**
- Not Frail: 1.3%
- Mild Frailty: 6%
- Moderate Frailty: 2.1%
- Severe Frailty: 4.2%

**Neurosurgery**
- Not Frail: 1.4%
- Mild Frailty: 2.6%
- Severe Frailty: 10.6%

1 year in-hospital mortality after starting dialysis
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

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

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**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.
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)**

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<thead>
<tr>
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<th>Intervention group n=91</th>
<th>Control group n=85</th>
<th>Significance of difference</th>
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<tbody>
<tr>
<td>Length of hospital stay (days)</td>
<td>3.3</td>
<td>5.5</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>Post operative delirium</td>
<td>9 (11%)</td>
<td>22 (24%)</td>
<td>P=0.018</td>
</tr>
<tr>
<td>All complications</td>
<td>7%</td>
<td>4.2%</td>
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Calls for change are not new

The end of the Disease Era


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


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](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