British Geriatrics Society
Improving healthcare for older people

OncoGeriatrics meeting 2019

27 - 28 February 2019

BGS

Can we improve frailty in older cancer patients?

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Declarations

None relevant

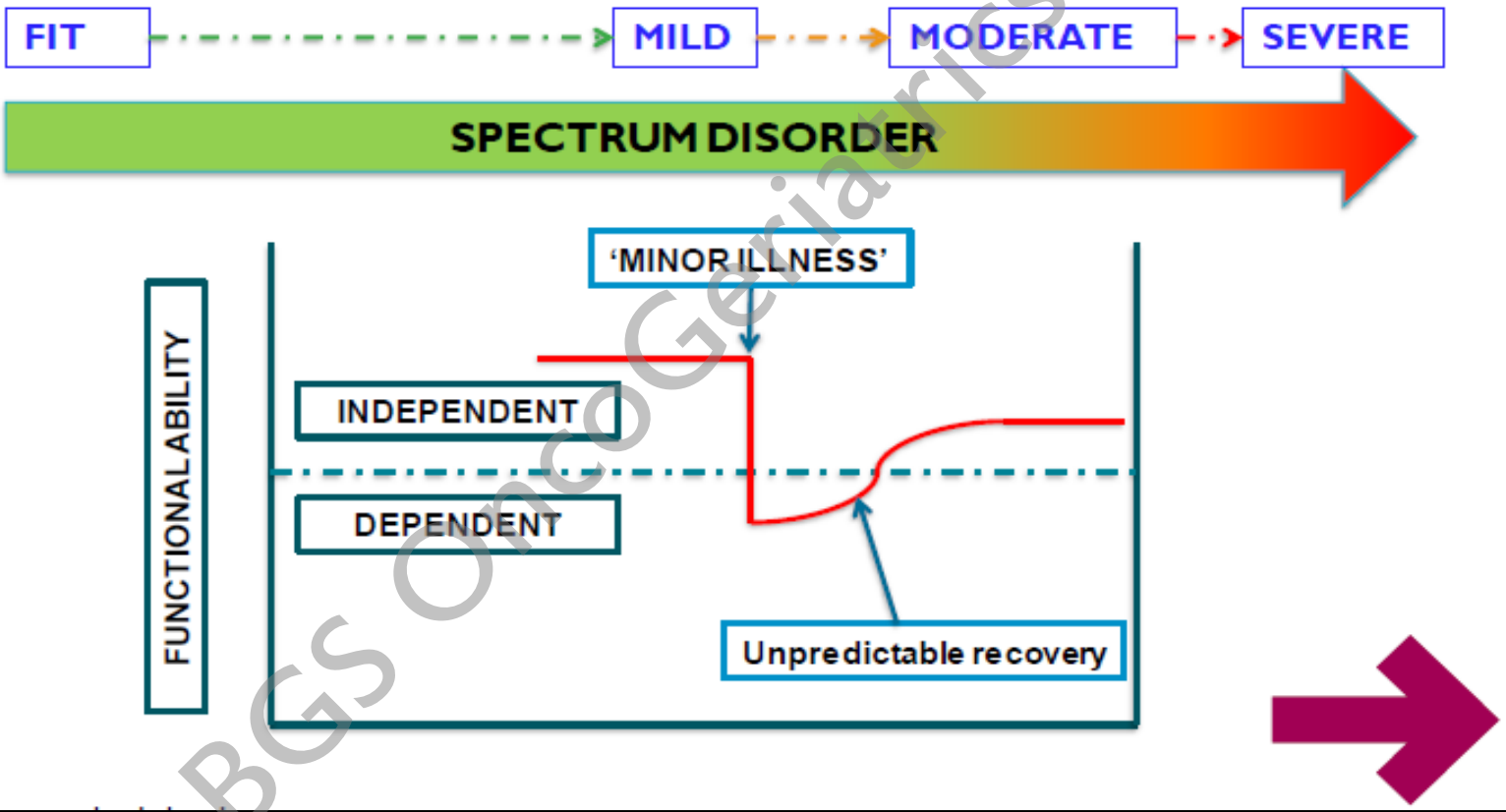
Summary

- Frailty in context of health and disease
- Definitions and operationalisations
- Frailty in Cancer: prevalence and significance
- How and when does frailty impact the patient?
- Do we want to change frailty or change outcomes?
- What is potentially amenable to change?
- Can we change these things?
- How do frailty measures reflect the clinical course?
- Take home messages

What do we mean by frailty?

NHS England

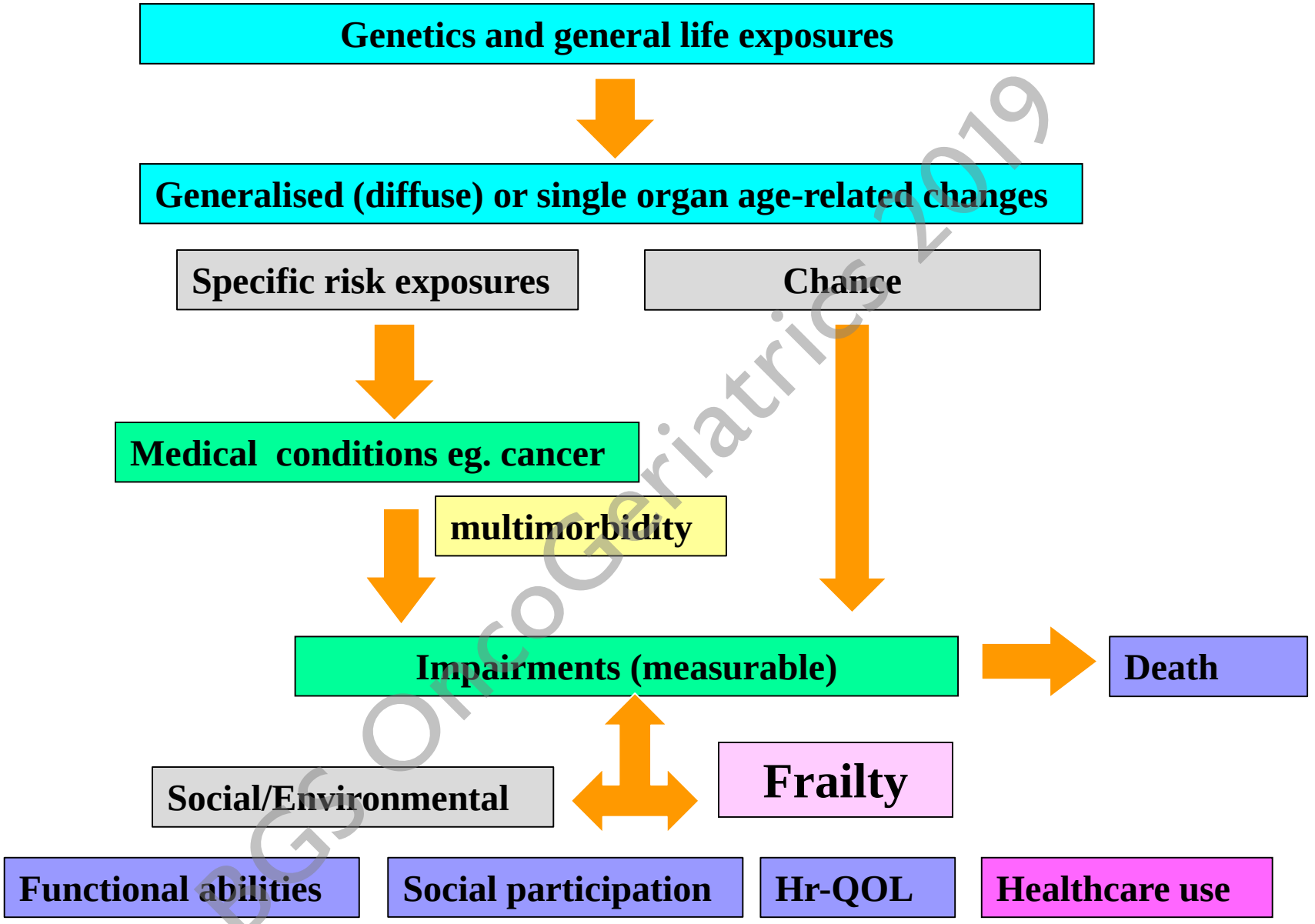
"A long-term condition characterised by lost biological reserves across multiple systems & vulnerability to decompensation after a stressor event"



- In the general population

- ~10% of people aged 65
- 25% to 50% of those aged 85 and over

Put frailty in context of the dimensions of health



Definitions and Measures of frailty

1. Phenotype *(Fried et al)*
   - distinct from co-morbidity
2. Deficit accumulation model *(Rockwood)*
   - risk prediction using disability + impairments + comorbidity +
3. CGA based "impression"

The phenotype approach

Operative definition of frailty in a general older population – *The Cardiovascular Health Study*

1. Strength (handgrip) in lowest quintile
2. Gait speed in lowest quintile
3. Unintentional weight loss ≥4,5 kg during last year
4. Increased tendency to exhaustion
5. Usual physical activity in lowest quartile

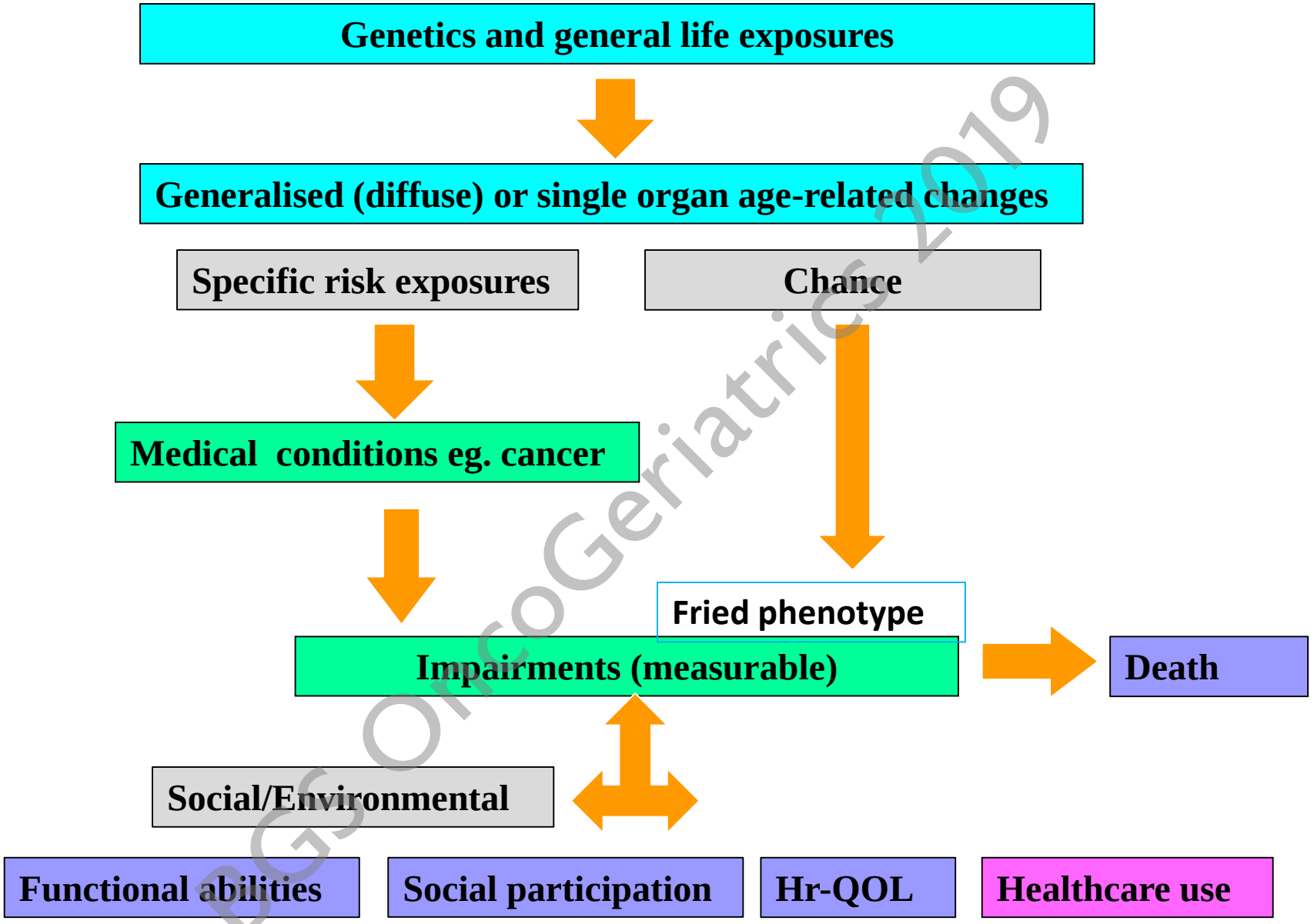
PHENOTYPE FRAILTY INDEX (PFI)

Frail: ≥3 components

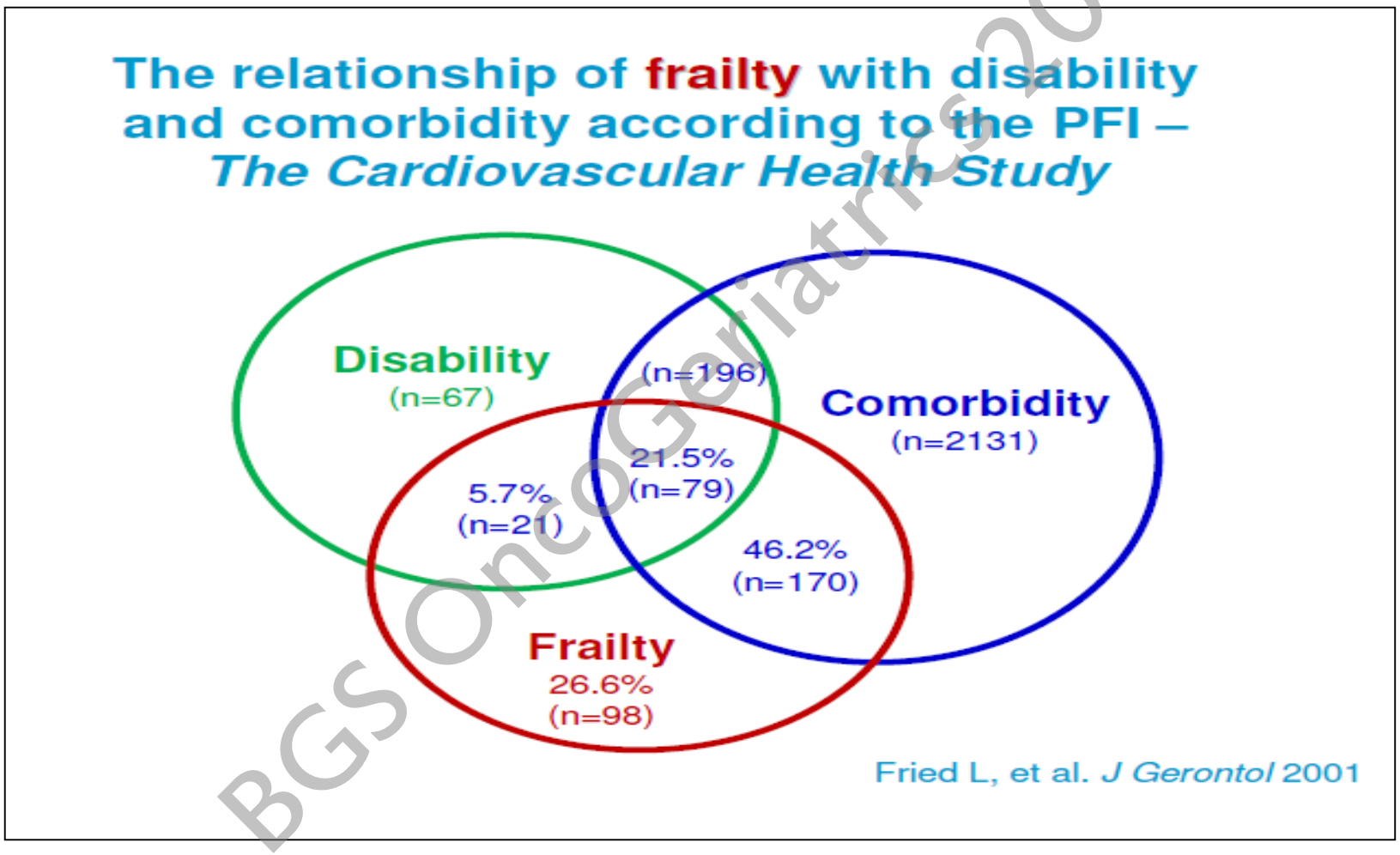
Intermediate (pre-frail): 1 or 2 components

Non frail (robust): 0 components

Fried L, et al. *J Gerontol* 2001



Is the Frailty Phenotype Distinct?

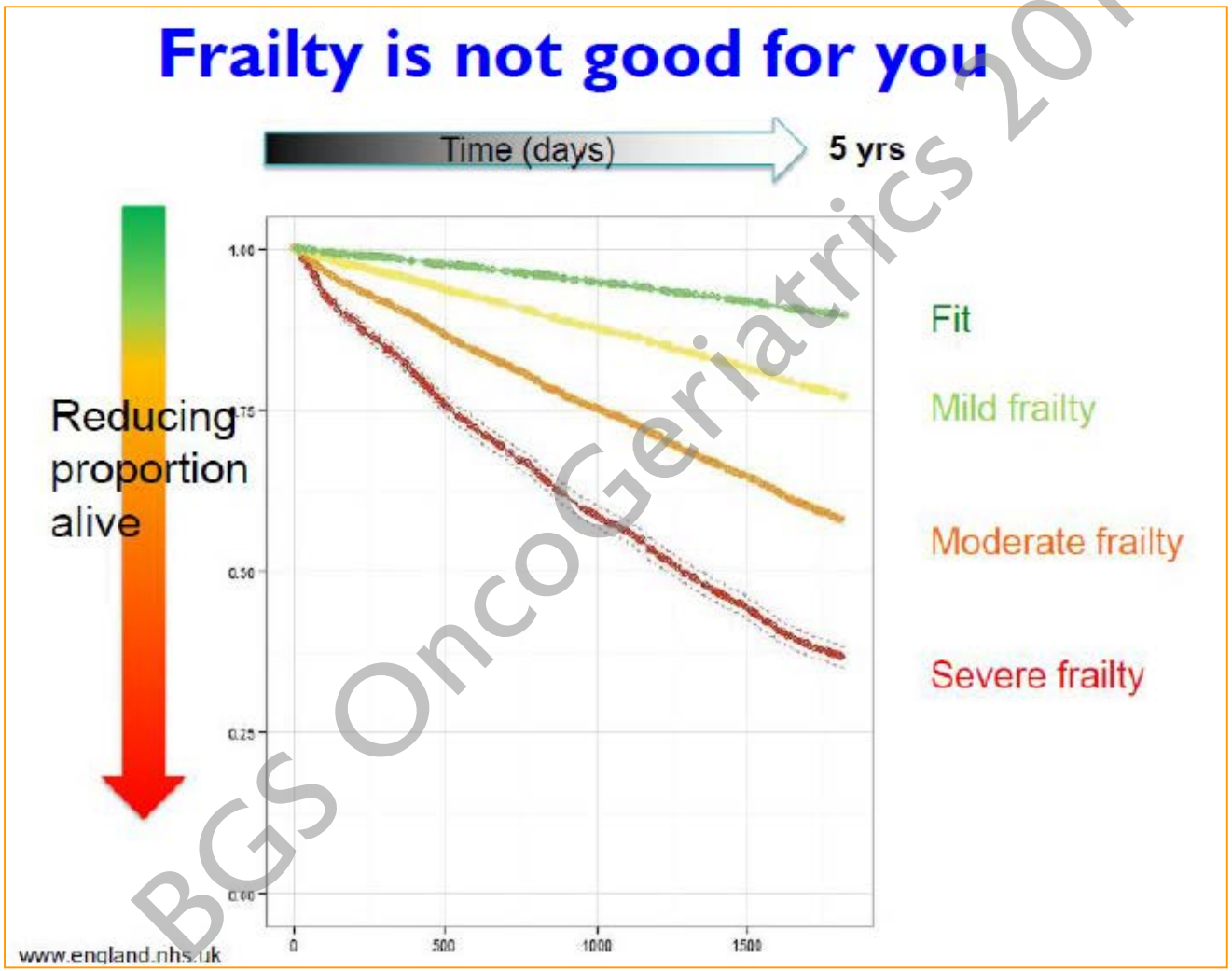


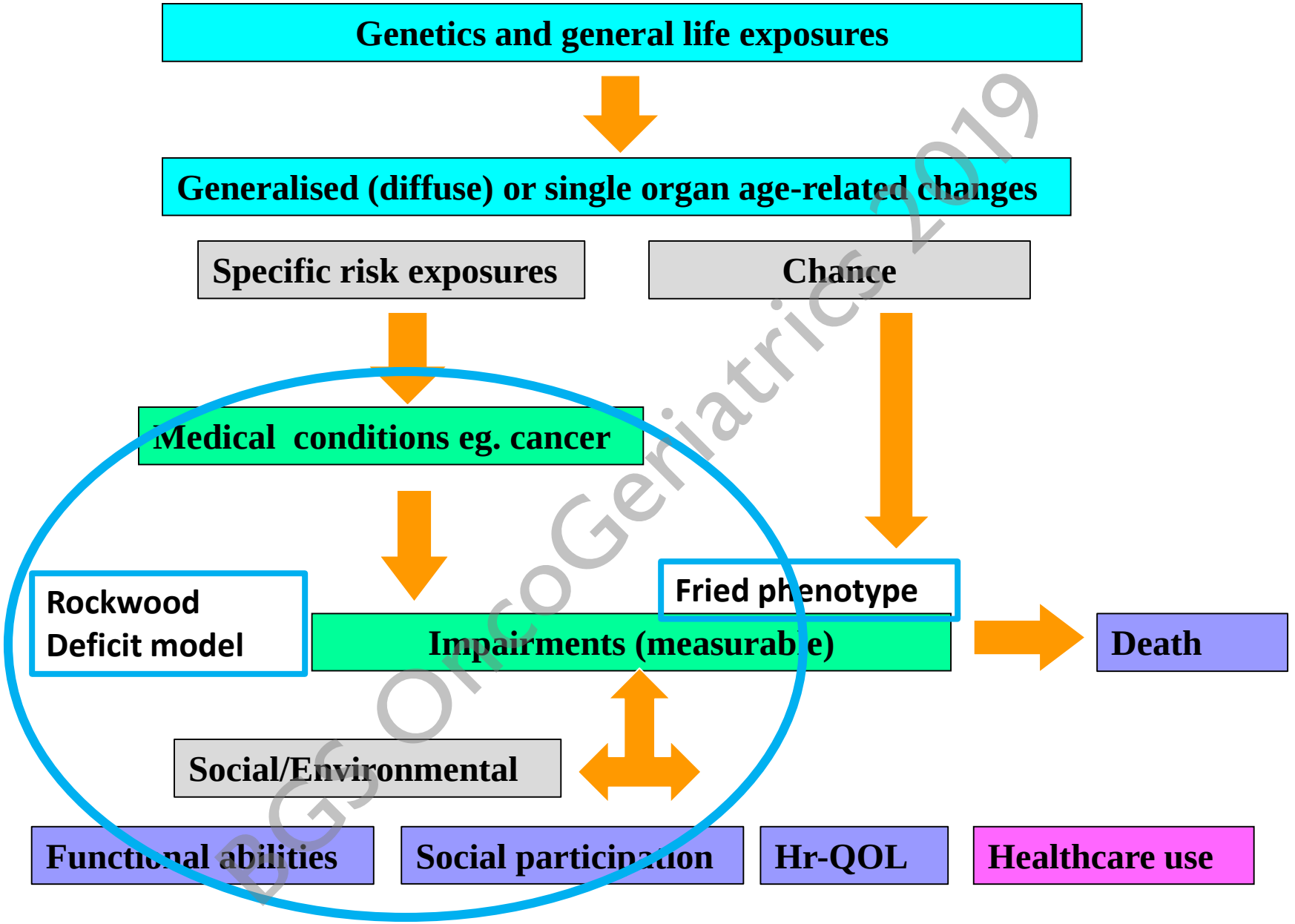
Rockwood Frailty Index
(a deficit accumulation score)

- Based on CGA which includes presence or absence of specific diseases, ADL abilities, physical signs
- Each dichotomised (0/1) or trichotomised (0, 0.33, 0.66, 1.0)
- Add all individual item scores
- Divide by number of items
- Thus the Frailty Index score is between 0 and 1
- Predictive ability improves with more parameters , >30 is enough!
- **Good evidence for all outcome prediction**

Rockwood et al JAGS 2006; 54:975-979

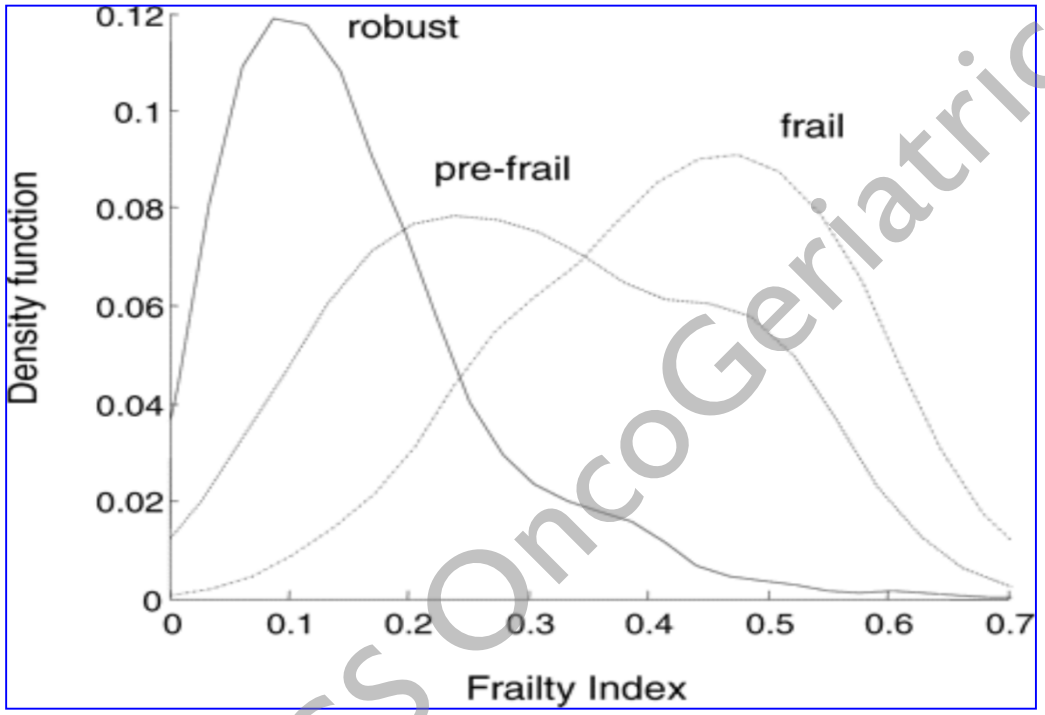
Deficit approach (eFI) based on primary care data





Do the instruments do the same thing?

2305 people 70+ in the clinical examination cohort of the 2nd wave of the Canadian Study of Health and Aging.



From: A Comparison of Two Approaches to Measuring Frailty in Elderly People
J Gerontol A Biol Sci Med Sci. 2007;62(7):738-743. doi:10.1093/gerona/62.7.738

CGA based approaches for case finding

Box 1: The CSHA Clinical Frailty Scale

1 *Very fit* — robust, active, energetic, well motivated and fit; these people commonly exercise regularly and are in the most fit group for their age

2 *Well* — without active disease, but less fit than people in category 1

3 *Well, with treated comorbid disease* — disease symptoms are well controlled compared with those in category 4

4 *Apparently vulnerable* — although not frankly dependent, these people commonly complain of being "slowed up" or have disease symptoms

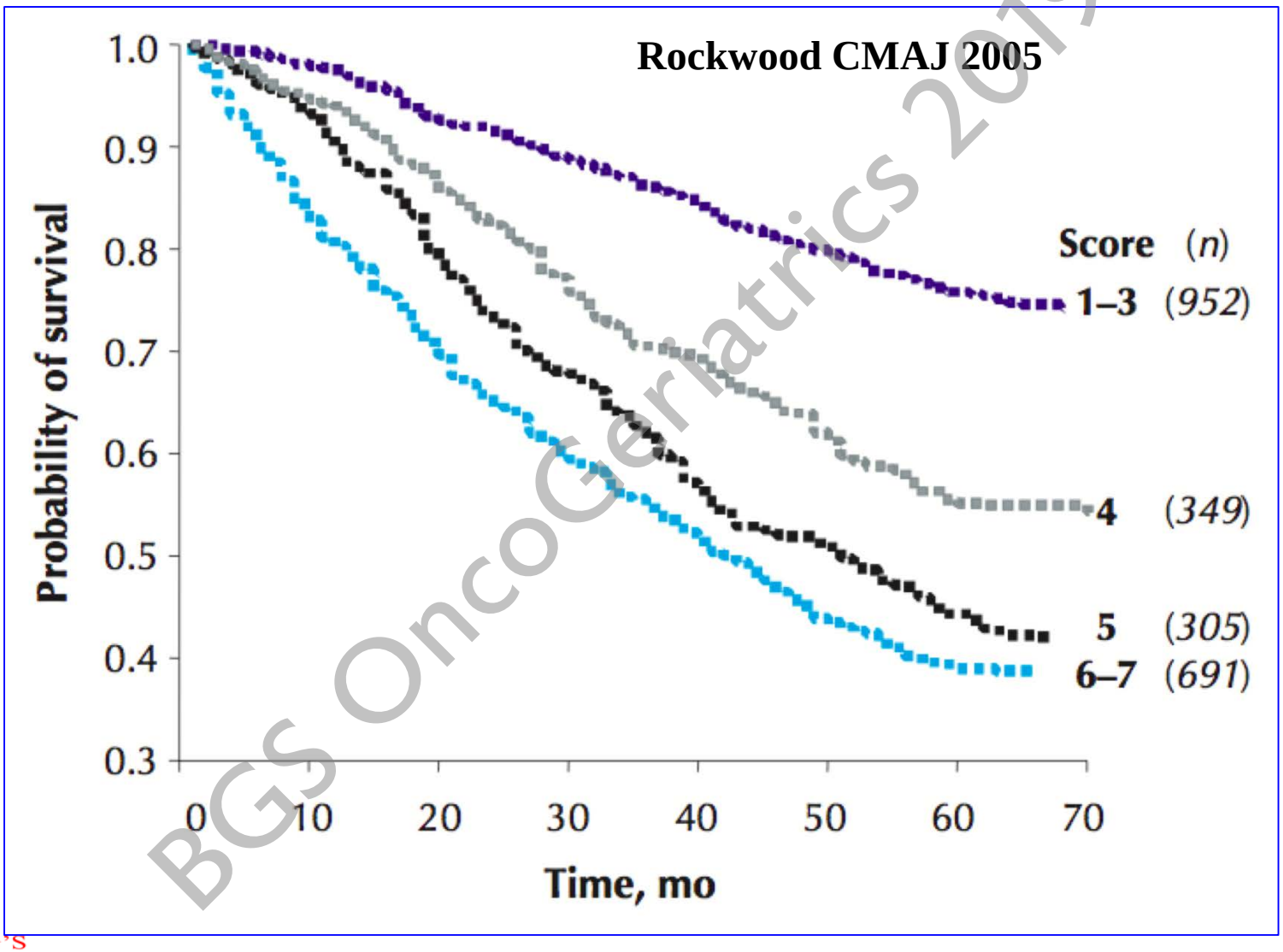
5 *Mildly frail* — with limited dependence on others for instrumental activities of daily living

6 *Moderately frail* — help is needed with both instrumental and non-instrumental activities of daily living

7 *Severely frail* — completely dependent on others for the activities of daily living, or terminally ill

Note: CSHA = Canadian Study of Health and Aging.

Mortality prediction : Clinical Frailty Scale



Extension of the CFS-case finding

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

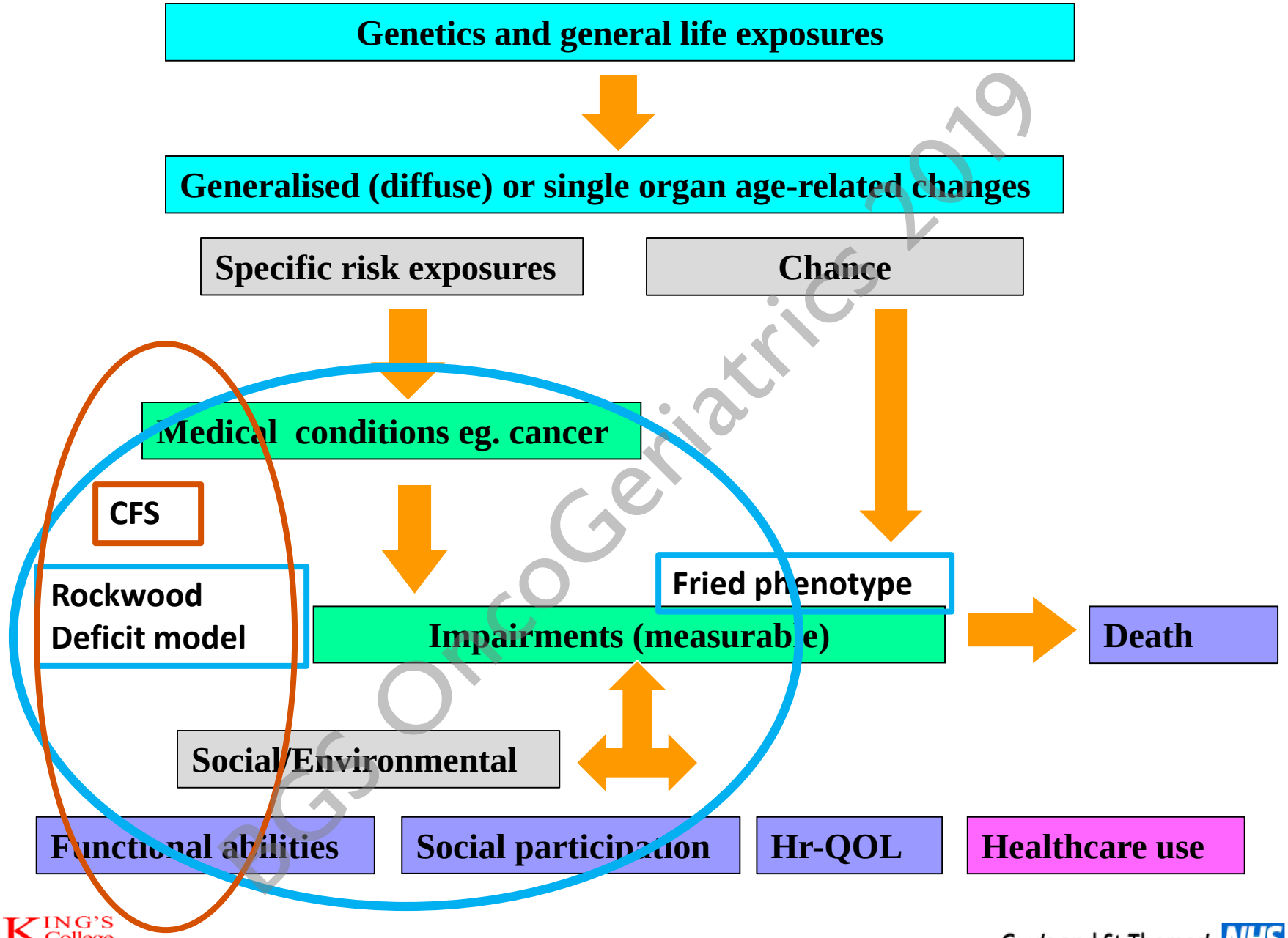
The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

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.

DALHOUSIE UNIVERSITY *Inspiring Minds*

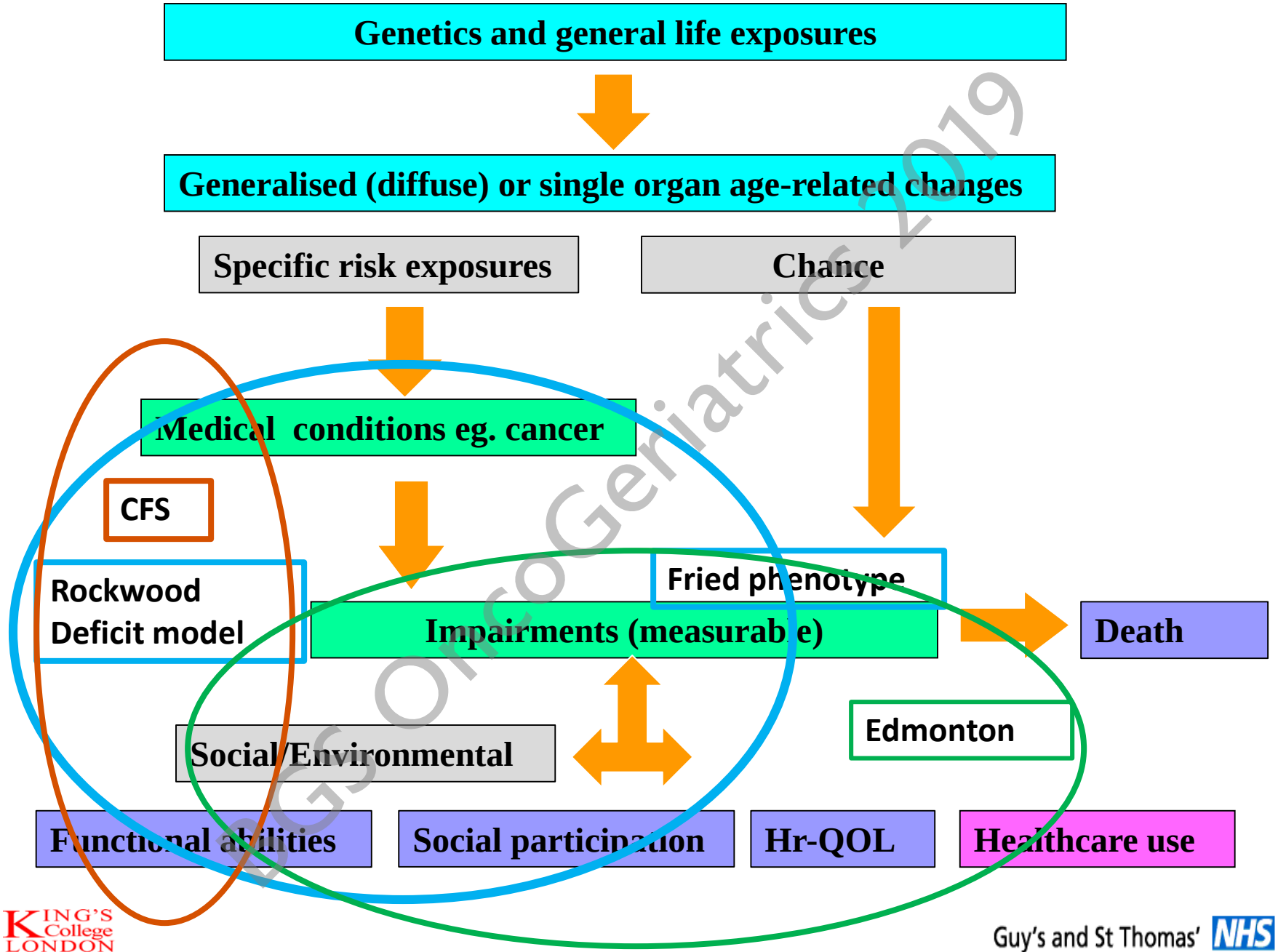


Hybrid –CGA type approach

Edmonton Frail Scale

Frailty Domain	Item	0 points	1 point	2 points
Cognition	Clock drawing	No errors ☐	Minor spacing errors ☐	Other errors ☐
General health status	In the past year, how many times have you been admitted to a hospital?	0 ☐	1-2 ☐	>2 ☐
	In general, how would you describe your health?	'Excellent' 'Very good' 'Good' ☐	'Fair' ☐	'Poor' ☐
Functional independence	With how many of the following activities do you require help? (meal preparation, shopping, transportation, telephone, housekeeping, laundry, managing money, taking medications)	0-1 ☐	2-4 ☐	5-8 ☐

Social support	When you need help can you count on someone who is willing and able to meet your needs?	Always ☐	Sometimes ☐	Never ☐
Medication use	Do you use five or more different prescription medications on a regular basis?	No ☐	Yes ☐	
	At times, do you forget to take your prescription medications?	No ☐	Yes ☐	
Nutrition	Have you recently lost weight such that your clothing has become looser?	No ☐	Yes ☐	
Mood	Do you often feel sad or depressed?	No ☐	Yes ☐	
Continence	Do you have a problem with losing control of urine when you don't want to?	No ☐	Yes ☐	
Functional performance	Timed up and go	0-10s ☐	11-20s ☐	>20s Unwilling/ unable ☐
Total				



So……

Frailty measures are different in focus

Therefore probably different in who they detect and in amenability to change

Frailty in Cancer

Annals of Oncology 26: 1091–1101, 2015
doi:10.1093/annonc/mdu540
Published online 17 November 2014

The prevalence and outcomes of frailty in older cancer patients: a systematic review

C. Handforth[1*], A. Clegg[2], C. Young[1], S. Simpkins[2], M. T. Seymour[1], P. J. Selby[1] & J. Young[2]

[1]*St James' Institute of Oncology, Leeds Teaching Hospitals NHS Trust, Leeds;* [2]*Academic Unit of Elderly Care and Rehabilitation, University of Leeds, Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust, Bradford, UK*

- 22 studies from 20 cohorts evaluating 2912 participants
- 16 used CGA as the reference standard for frailty diagnosis
- 5 used the phenotype model

- median prevalence of frailty: 42% (range 6%–86%)
- and pre-frailty was 43% (range 13%–79%)
- 32% (range 11%–78%) classified as fit.
- CGA based prevalence was much higher than Fried phenotype

Association between baseline frailty (or pre-frailty) and mortality

Study or subgroup	log (Hazard ratio)	SE	Frailty or pre-frailty Total	Fit Total	Hazard ratio IV, Random, 95% CI
1.1.1 30 day post-operative mortality (frailty)					
Kristjannson 2012	0.98207847	0.46351139	75	21	2.67 (1.08, 6.62)
1.1.2 30 day post-operative mortality (pre-frailty)					
Kristjannson 2012	0.84586827	0.33835281	80	21	2.33 (1.20, 4.52)
1.1.3 6 month mortality (frailty)					
Puts 2011	1.50629715	1.1308676	47	38	4.51 (0.49, 41.38)
1.1.4 6 month mortality (Pre-frailty)					
Puts 2011	1.35066718	1.14175318	27	38	3.86 (0.41, 36.18)
1.1.5 5 year mortality (frailty)					
Clough-Gorr 2012	0.62593843	0.16235235	146	514	1.87 (1.36, 2.57)
1.1.6 10 year mortality (frailty)					
Clough-Gorr 2012	0.55388511	0.11513048	146	514	1.74 (1.39, 2.18)

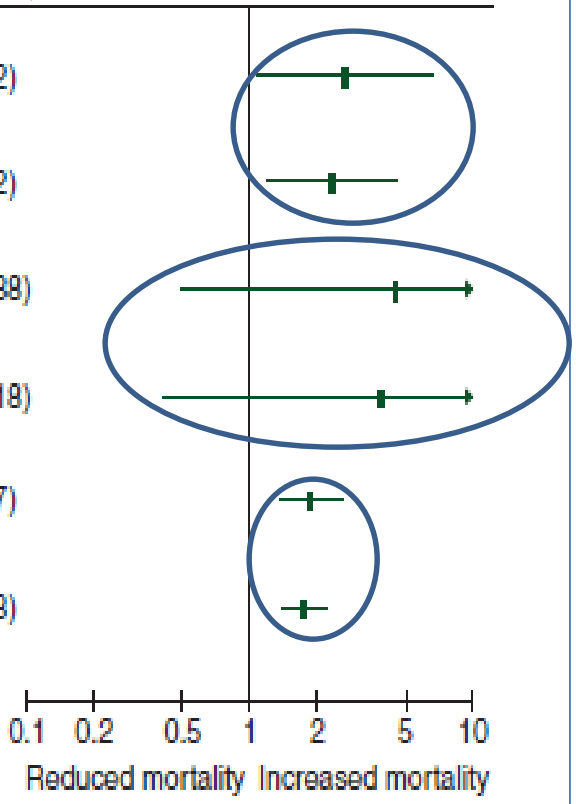


Figure 2. Forest plot showing the association between frailty, pre-frailty and mortality (adjusted data).

Association between baseline frailty (or pre-frailty) and complications, tolerance or toxicity

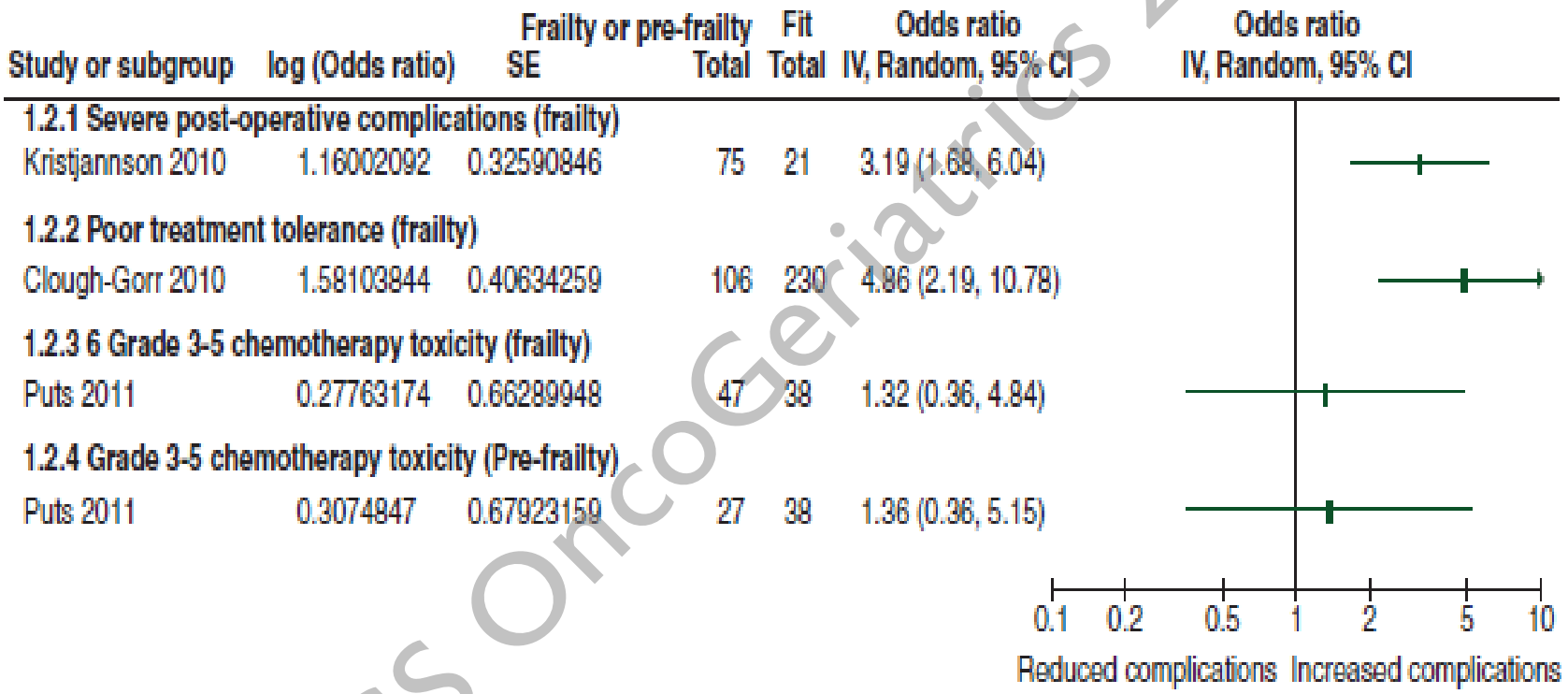


Figure 3. Forest plot demonstrating the association between frailty, pre-frailty and treatment complications (adjusted data).

Who should be assessed in detail?

Annals of Oncology 26: 288–300, 2015
doi:10.1093/annonc/mdu210
Published online 16 June 2014

Screening tools for multidimensional health problems warranting a geriatric assessment in older cancer patients: an update on SIOG recommendations†

L. Decoster[1*], K. Van Puyvelde[2], S. Mohile[3], U. Wedding[4], U. Basso[5], G. Colloca[6], S. Rostoft[7], J. Overcash[8], H. Wildiers[9], C. Steer[10], G. Kimmick[11], R. Kanesvaran[12], A. Luciani[13], C. Terret[14], A. Hurria[15], C. Kenis[16], R. Audisio[17] & M. Extermann[18]

Results: Forty-four studies reporting on the use of 17 different screening tools in older cancer patients were identified. The tools most studied in older cancer patients are G8, Flemish version of the Triage Risk Screening Tool (fTRST) and Vulnerable Elders Survey-13 (VES-13).

G8 had better overall predictive value for the presence of issues apparent when a full GA was performed

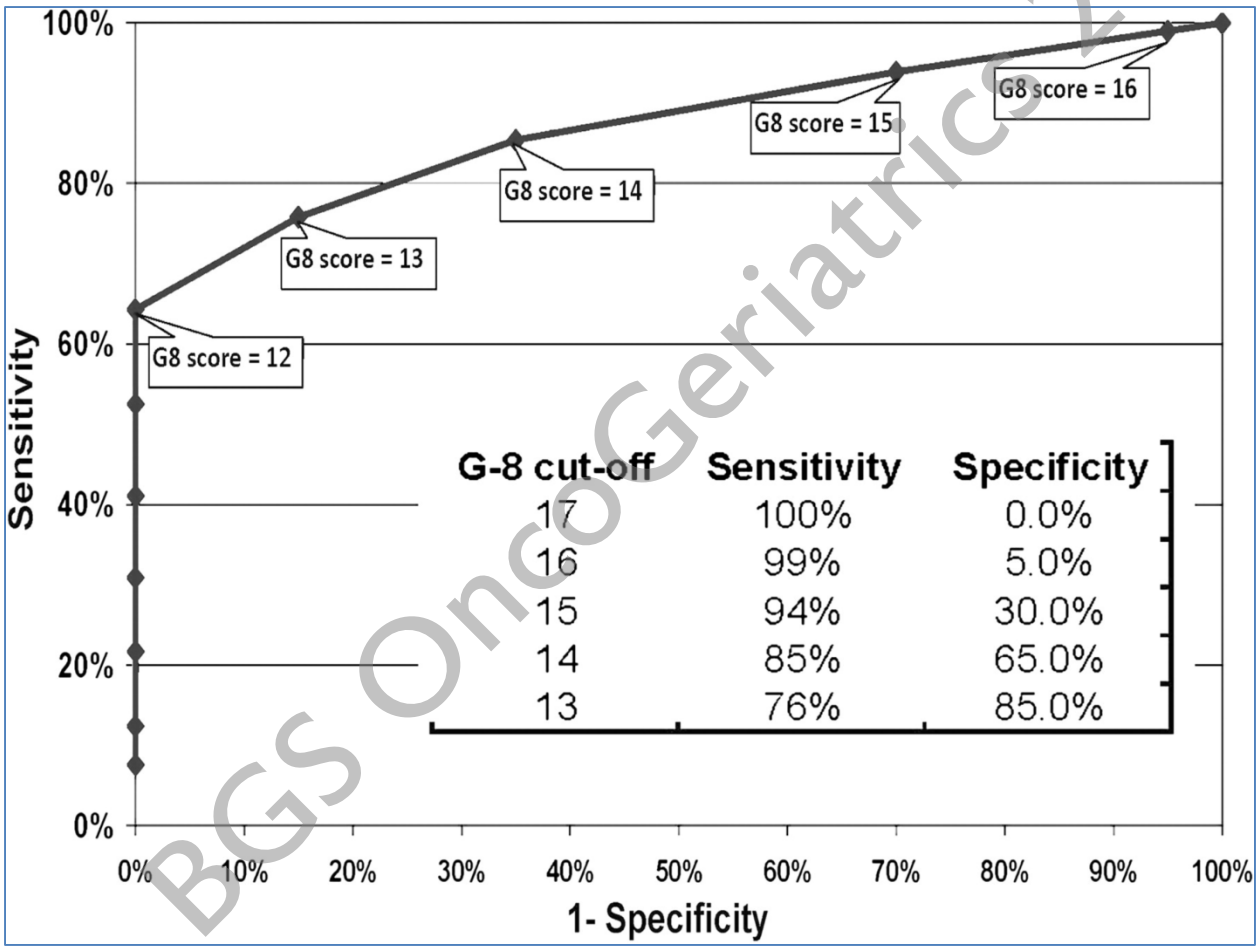
Annals of Oncology 23: 2166–2172, 2012
doi: 10.1093/annonc/mdr597
Published online 16 January 2012

Screening older cancer patients: first evaluation of the G-8 geriatric screening tool

C. A. Bellera[1,2*], M. Rainfray[3,4], S. Mathoulin-Pélissier[1,2,5], C. Mertens[4,6], F. Delva[1], M. Fonck[6] & P. L. Soubeyran[6]

- Reduced food intake
- Weight loss
- BMI
- Mobility
- Depression/dementia
- 3+ medications
- Self rated health
- Age (in bands)

Receiver operating curve for the G-8 screening tool against the reference exam consisting of seven comprehensive geriatric assessment questionnaires (> abnormal score vs none)



Annals of Oncology, Volume 23, Issue 8, 16 January 2012, Pages 2166–2172, https://doi.org/10.1093/annonc/mdr587

JOURNAL OF GERIATRIC ONCOLOGY 5 (2014) 11–19

Available online at www.sciencedirect.com

ScienceDirect

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Accuracy of the G-8 geriatric-oncology screening tool for identifying vulnerable elderly patients with cancer according to tumour site: The ELCAPA-02 study☆,☆☆

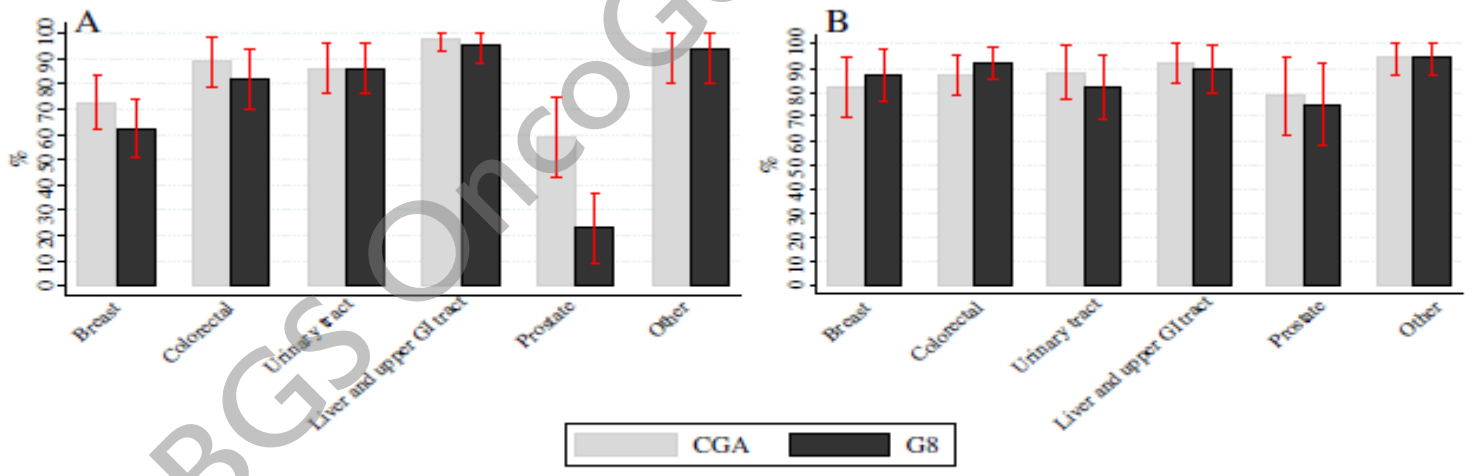

Fig. 2 – Proportion of abnormal CGA and G-8 according to tumour site and metastatic status (A: without metastases; B: with metastases). Abbreviations: CGA, Comprehensive Geriatric Assessment; GI, Gastro-Intestinal; G-8, Geriatric 8.

What can we learn from all this?

- Frailty is generally common and it matters
- Prevalence varies widely between cancer types
- The G8 screen performs a bit differently across cancers

Could CGA alter frailty and if so, how quickly?

Could CGA alter frailty and if so, how quickly?

Firstly, what does cancer and treatment do to measures of Frailty?

A clinical case

4 months of chemo, then a short extra blast and then autologous BMT

Frailty assessment	Baseline	Peak of illness	3 months later
Phenotype (0-5)	0	5	2
Deficit eFI (0-1)	0	0.20	0.03
CFS (1-9)	3	7	3
Edmonton (0-17)	1	11	3

So can we, and **do we need** to reduce frailty or improve outcomes?

Since the key notion of frailty is vulnerability to adverse outcomes, ….

then reducing adverse outcomes could be interpreted as improving frailty

Opportunities to intervene

- At a baseline assessment before treatment
  - ➢ Therapy to improve fitness etc
- At decisions on treatment
  - ➢ Reduce the magnitude of stressor (treatment)
- During treatment
  - Therapies to reduce impairments
  - Earlier detection of deterioration
  - Better responses to deterioration
- After treatment
  - Generic frailty type rehabilitation

Any examples ?

Randomized clinical trial

Randomized clinical trial of comprehensive geriatric assessment and optimization in vascular surgery

J. S. L. Partridge[1,3], D. Harari[1,3], F. C. Martin[1,3], J. L. Peacock[3], R. Bell[2], A. Mohammed[1] and J. K. Dhesi[1,3]

[1]Proactive Care of Older People undergoing Surgery (POPS), Department of Ageing and Health, and [2]Department of Vascular Surgery, Guy's and St Thomas' NHS Foundation Trust, and [3]Division of Health and Social Care Research, King's College London, London, UK

	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

British Journal of Cancer (2015), 1–10 | doi: 10.1038/bjc.2015.120

The impact of comprehensive geriatric assessment interventions on tolerance to chemotherapy in older people

T Kalsi*[,1,2], G Babic-Illman[1], P J Ross[3], N R Maisey[3], S Hughes[4], P Fields[5], F C Martin[1,2], Y Wang[2] and D Harari[1,2]

[1]Department of Ageing and Health, 9th Floor North Wing, St Thomas' Hospital, Guys & St Thomas' NHS Foundation Trust,

- Optimisation focused on novel areas eg fatigue
- Effects
  - More people completed treatment as planned
  - Fewer had toxicity
  - Fewer days in hospital
  - Popular with oncologists and patients!

Take home messages

- Frailty matters and cancer and cancer treatment makes it worse

- There is not likely one frailty measure that suits all purposes

- So best to be familiar with the specific in each case and be clear what is the intention of the assessment