

Head and Neck Symposium
4th November 2022

Assessment of Older Patients



- Senior Adult Oncology -

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Disclosures

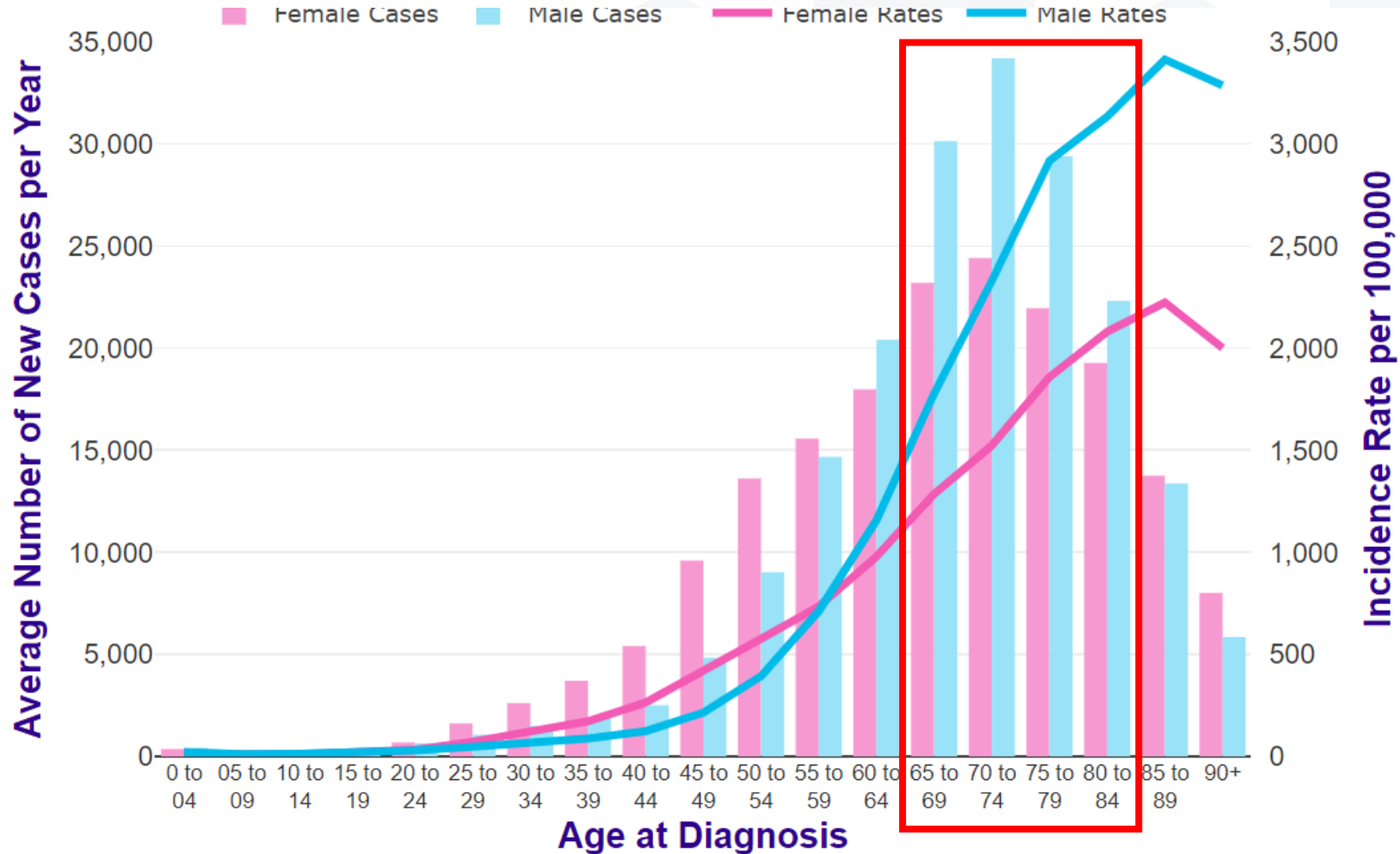
I have no disclosures.



Cancer Demographics

All Cancers

Average Number of New Cases per Year and Age-Specific Incidence Rates per 100,000 UK Population, 2016-2018



Cancer Demographics

Older population

Comorbidity

Comorbid patient group

- 51% have at least one comorbidity
- 18% have at least four comorbidities



Cancer Demographics

Older population

Frailty

~ 40% of older cancer patients have frailty



Everyday practice in oncology!

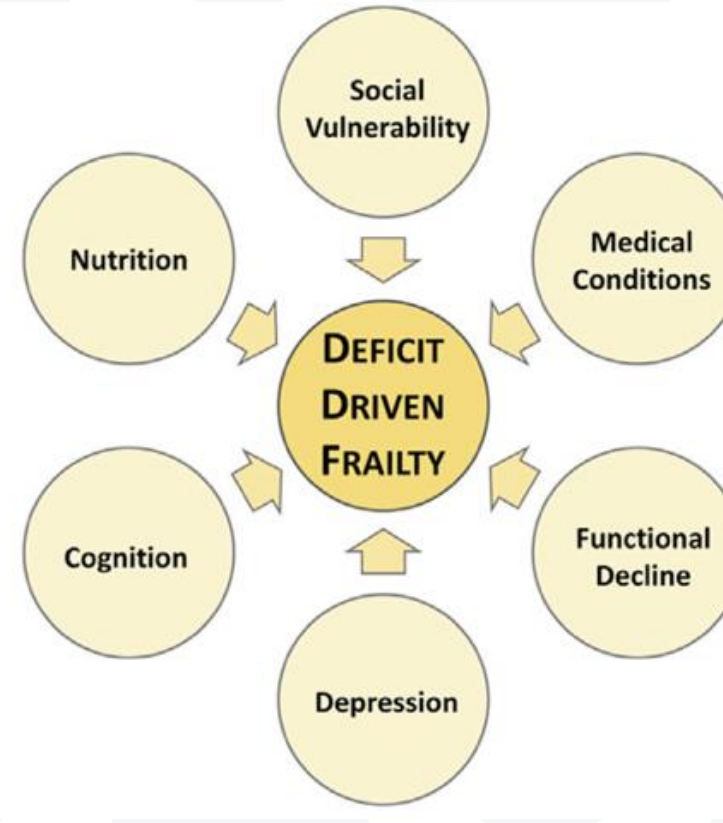
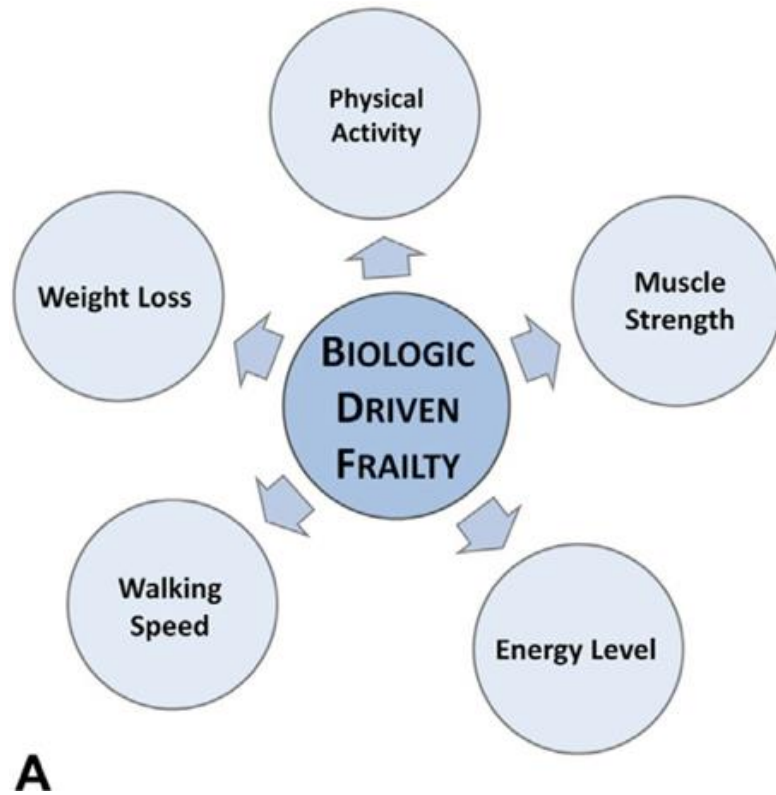


Defining frailty

- Higher risk (vulnerability) of a significant decline in health after an event with poor resolution to the baseline, which is due to decline in function and reserve across multiple organ systems
- Associated with ageing

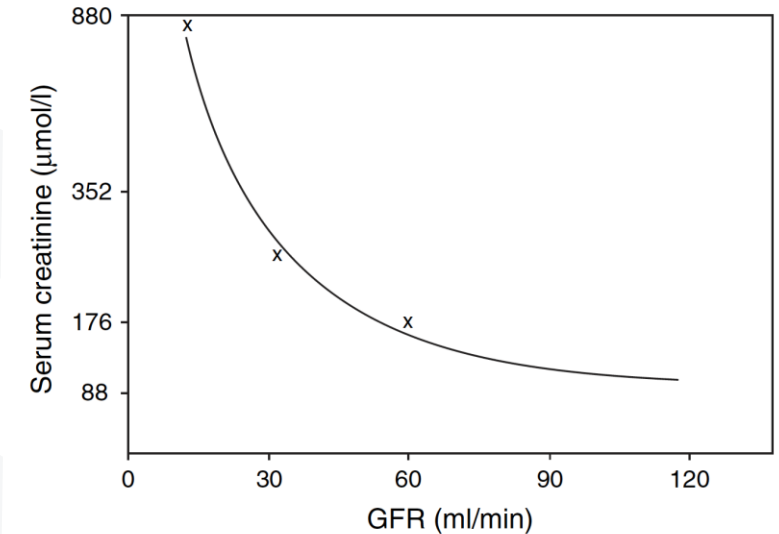


Defining frailty



Organ reserve decline

- **Gradual decline in renal function**
 - Serum creatinine \neq reliable renal function measure owing to loss of muscle mass
- **Higher peak drug levels and more prolonged chemo exposure**
 - Increased risk of toxicities for renally excreted drugs
- Chemotherapy may be **safely administered with dose adjustments**



review

Annals of Oncology 18: 1314–1321, 2007
doi:10.1093/annonc/mdm011
Published online 13 July 2007

Renal insufficiency in elderly cancer patients: International Society of Geriatric Oncology clinical practice recommendations

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Organ reserve decline

- **Liver size and hepatic blood flow decline** – usually not enough to warrant routine dose modifications
- Not often age-related but due to **concurrent hepatic impairment (malignancy, comorbidities, medications)** may require dose adjustments
- Relevant for a number of commonly used drugs:
 - Anthracyclines
 - 5-FU
 - Taxanes
 - Cyclophosphamide
 - Methotrexate



Organ reserve decline

- Gradual decline in heart function
- Increased risk of
 - **Heart failure** associated with anthracyclines and trastuzumab
 - **Coronary artery vasospasm** due to fluoropyrimidines

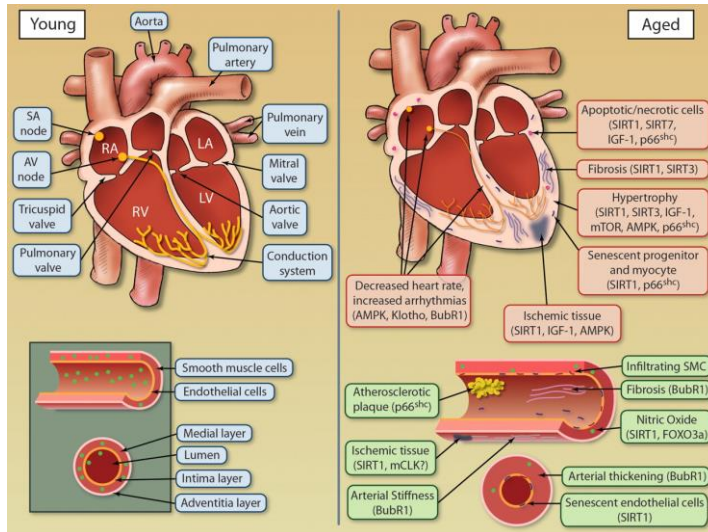


Table 2 – Cardiac toxicity of anticancer agents.

Agent	Mechanism	Toxicity
Anthracyclines	Free radical cellular damage Myocyte apoptosis	CHF, LV systolic dysfunction Advanced age is a risk factor
Trastuzumab	Inhibition of cardiomyocyte HER2 ATP depletion Myofibrillar disarray	CHF, LV systolic dysfunction Age >50 is a risk factor
VEGF-receptor ligand Ab Bevacizumab	Inhibition of nitric oxide Vasoconstriction Endothelial cell proliferation	Hypertension, ischemia, MI Ventricular arrhythmias CHF, LV dysfunction Arterial thrombosis Age >59 is a risk factor
VEGF-TKI Sunitinib, Imatinib and Sorafenib	Inhibition of nitric oxide Vasoconstriction Mitochondrial damage of cardiomyocytes	Hypertension, ischemia, MI CHF, LV dysfunction Adverse events more common in elderly
TKI Imatinib	Inhibition of c-Abl, which appears to have a survival function in cardiomyocytes	CHF, LV dysfunction Advanced age and CV RF increase risk
Fluoropyrimidines 5-FU and Capecitabine	Thrombosis, arteritis, vasospasm Direct toxicity to myocardium Myocyte apoptosis	Myocardial ischemia, MI
Alkylating agents Cyclophosphamide Cisplatin	May cause direct endothelial injury Coronary vasospasm Platelet activation and aggregation Altered endothelial cell integrity Vasospasm	CHF, LV dysfunction Pericardial effusion/tamponade Hemorrhagic myocarditis CHF, LV dysfunction Hypertension Venous thrombosis (PE, DVT)

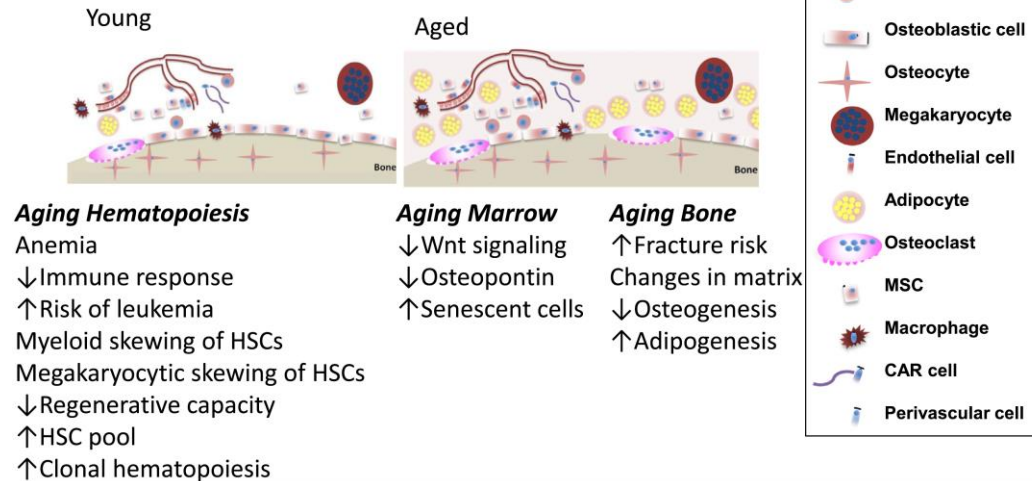
Abbreviations: 5-FU, 5-fluorouracil; Ab, antibody; ATP, adenosine triphosphate; CHF, congestive heart failure; HER2, human epidermal growth factor 2; CV, cardiovascular; DVT, deep vein thrombosis; LV, left ventricular; MI, myocardial infarction; RF, risk factors; PE, pulmonary embolism; TKI, tyrosine kinase inhibitor; VEGF, vascular endothelial growth factor.



Organ reserve decline

- **Gradual decline in bone marrow stem cell reserve**
 - Increased rates of haematological toxicities in older patients
 - More frequent infectious complications, hospitalizations and mortality

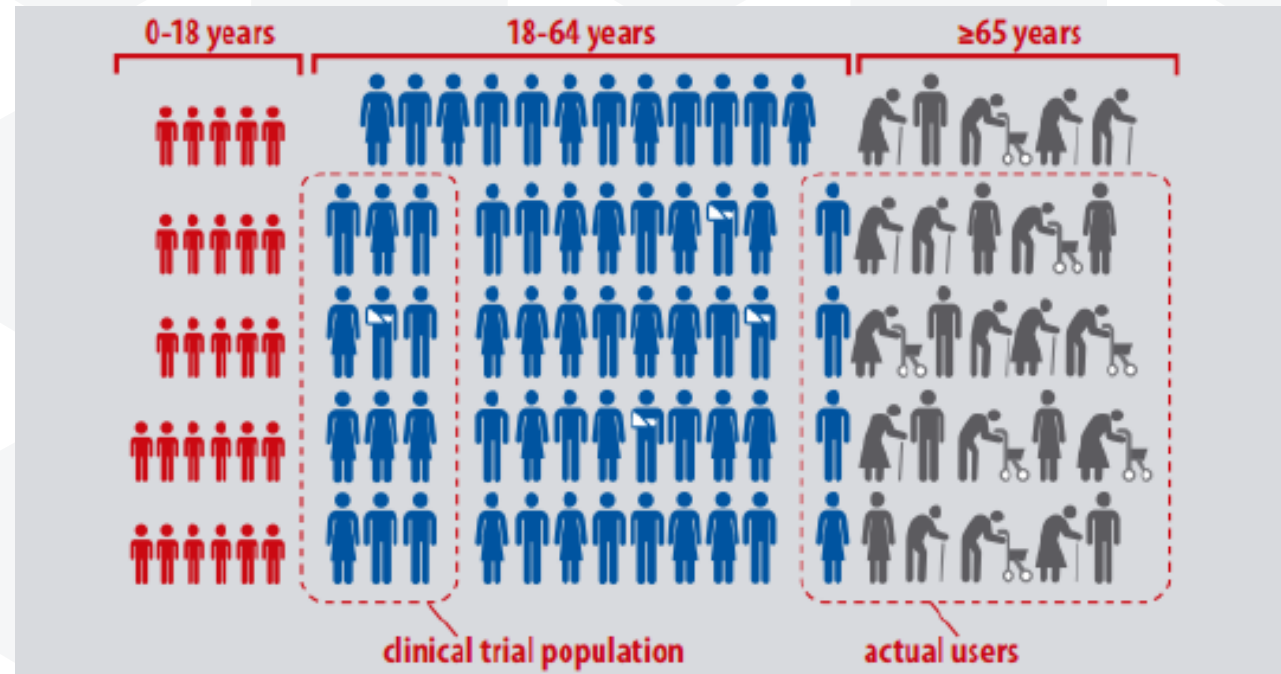
Modified from the *Primer on Metabolic Bone Diseases and Disorders of Mineral Metabolism, 8th Edition*



Clinical trials and real world populations



The conflict between clinical trials and real-world



Impact of frailty

1. Cancer treatment decisions

- Access to clinical trials
- Under-treat / over-treat

2. Treatment compliance and tolerability

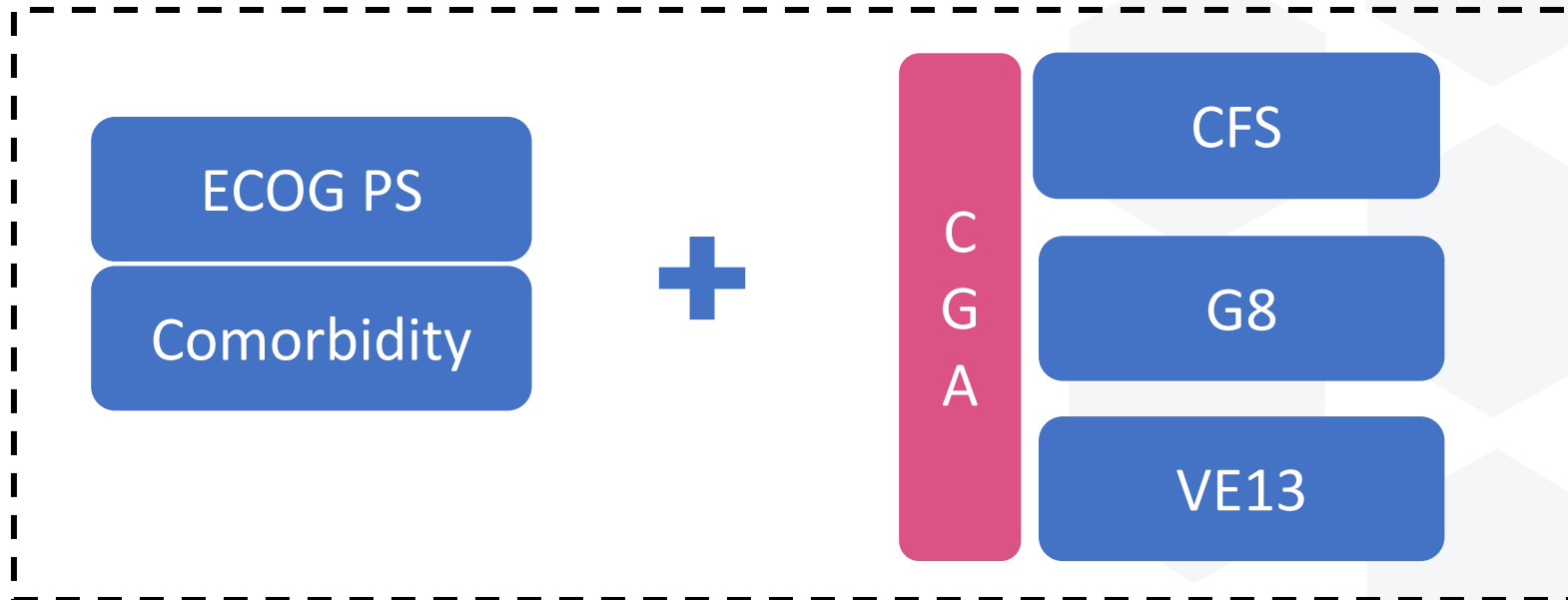
- Admissions (frequency/length)
- Treatment deferrals/dose reductions

3. Patient experience and quality of life

4. Survival



Frailty assessment



CGA domains

- Comorbidity
- Medication review
- Functional status
- Cognitive status
- Nutritional status
- Psychological status
- Social support

ECOG PS scale **underrepresents the degree of functional impairment** in older patients yet **determines access to SACT**

Incorporation of frailty/geriatric assessments is recommended (e.g. ASCO and SIOG guidelines)²



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PS = performance status; CFS = Rockwood Clinical Frailty Scale; G8 = geriatric 8; VE13 = vulnerable elders survey 13;
CGA = comprehensive geriatric assessment.

Frailty screening

Vulnerable Elders Survey

Geriatric 8 (G8)

Groningen Frailty Index (GFI)

Rockwood Frailty Scale

Abbreviated CGA

Fried Frailty Criteria

Senior Adult Oncology Program (SAOP) 2



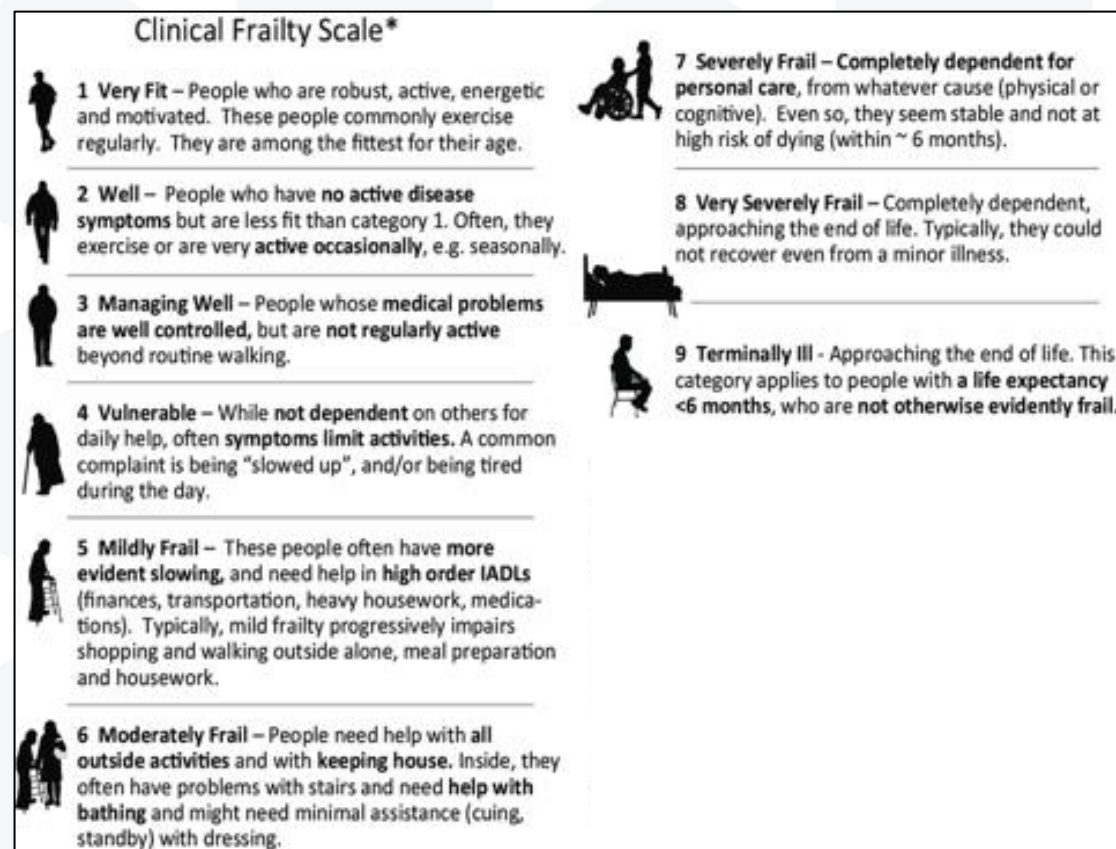
Frailty screening

G8¹

	Items	Possible responses (score)
A	Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing, or swallowing difficulties?	0 = severe decrease in food intake 1 = moderate decrease in food intake 2 = no decrease in food intake
B	Weight loss during the last 3 months?	0 = weight loss > 3 kg 1 = does not know 2 = weight loss between 1 and 3 kg 3 = no weight loss
C	Mobility?	0 = bed or chair bound 1 = able to get out of bed/chair but does not go out 2 = goes out
E	Neuropsychological problems?	0 = severe dementia or depression 1 = mild dementia 2 = no psychological problems
F	BMI? (weight in kg)/(height in m ²)	0 = BMI < 19 1 = BMI 19 to < 21 2 = BMI 21 to < 23 3 = BMI ≥ 23
H	Takes more than three prescription drugs per day?	0 = yes 1 = no
P	In comparison with other people of the same age, how does the patient consider his/her health status?	0.0 = not as good 0.5 = does not know 1.0 = as good 2.0 = better
	Age	0: > 85 1: 80-85 2: < 80
	Total score	0-17

CFS²

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**.

Figure adapted from Clinical Frailty Scale.

Figure adapted from G8 Questionnaire.

BMI, body mass index



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1. G8 Questionnaire. Accessed January 2022. https://www.sio.org/files/public/g8_english_0.pdf; 2. Clinical Frailty Scale. Accessed January 2022.

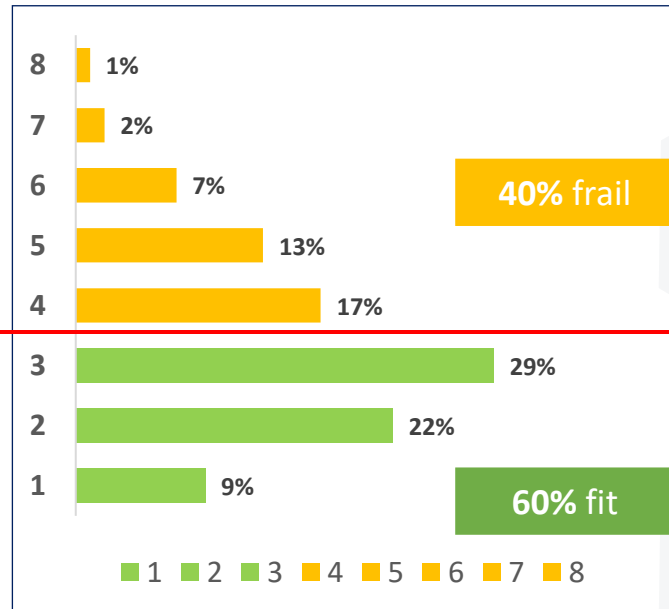
https://www.bgs.org.uk/sites/default/files/content/attachment/2018-07-05/rockwood_cfs.pdf; 3. Soubeyran J, et al. *J Clin Oncol*. 2011; 29:15_suppl, 9001–9001; 4. Rockwood

K, et al. *CMAJ* 2005; 173(5):489–95.

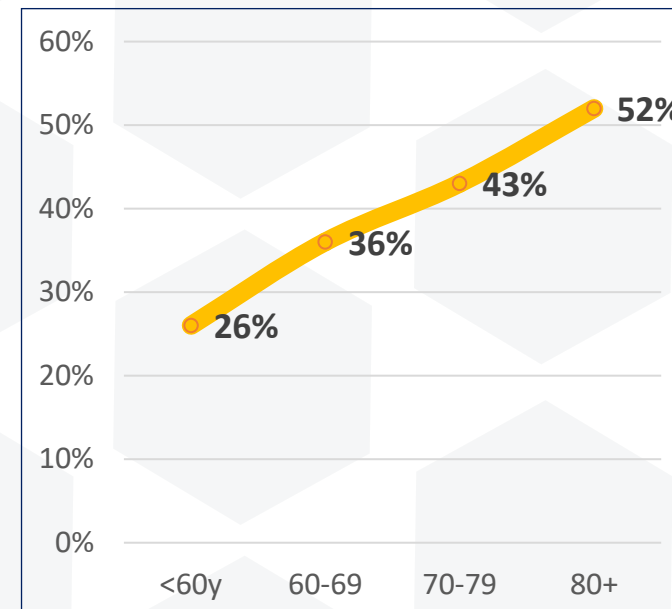
The Christie experience

(with lung cancer patients)

Frailty incidence



Frailty and ageing



The Christie experience

(with lung cancer patients)

Frailty and PS

Rockwood score	performance status				
	0	1	2	3	4
1	13	11	1		
2	8	38	5	1	
3	2	48	13	1	
4		10	30	8	
5		11	21	13	
6			13	28	1
7				3	1
8			1	2	

PS 0-1

16% are frail

PS 2

23% are fit



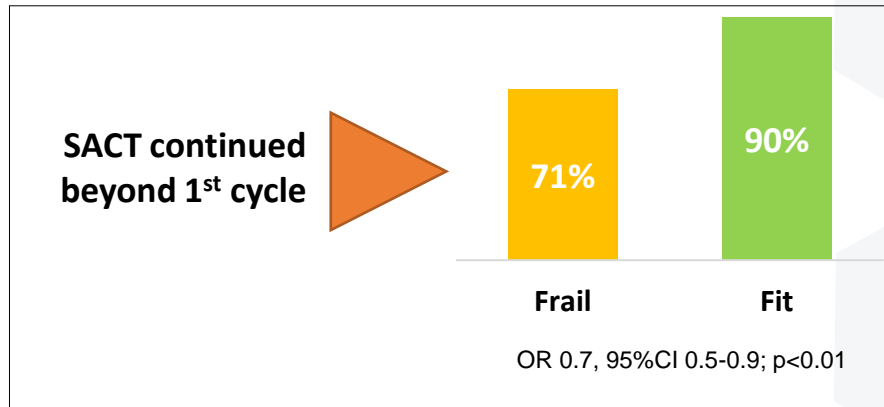
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PS, performance status
Gomes F, et al. Lung Cancer. 2020;139:S45–S.

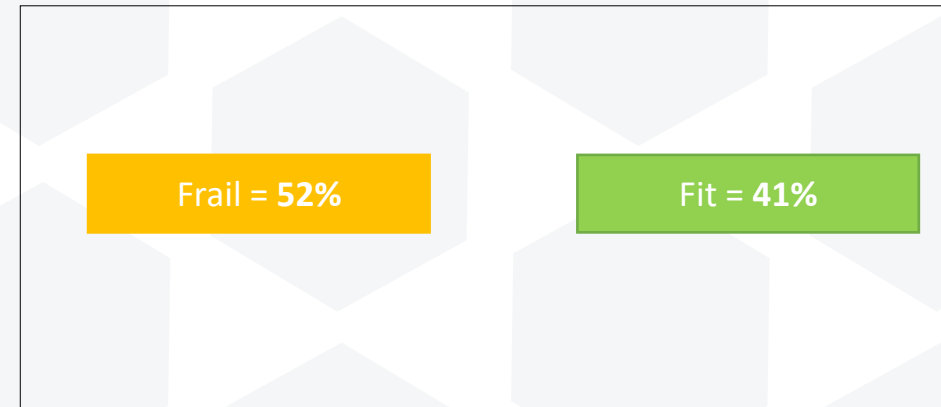
The Christie experience

(with lung cancer patients)

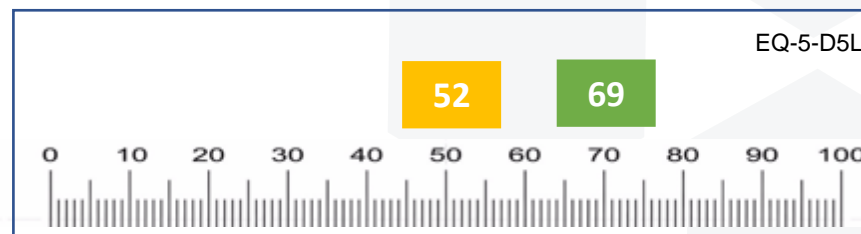
Frailty and treatment pathway



Frailty and hospital admission

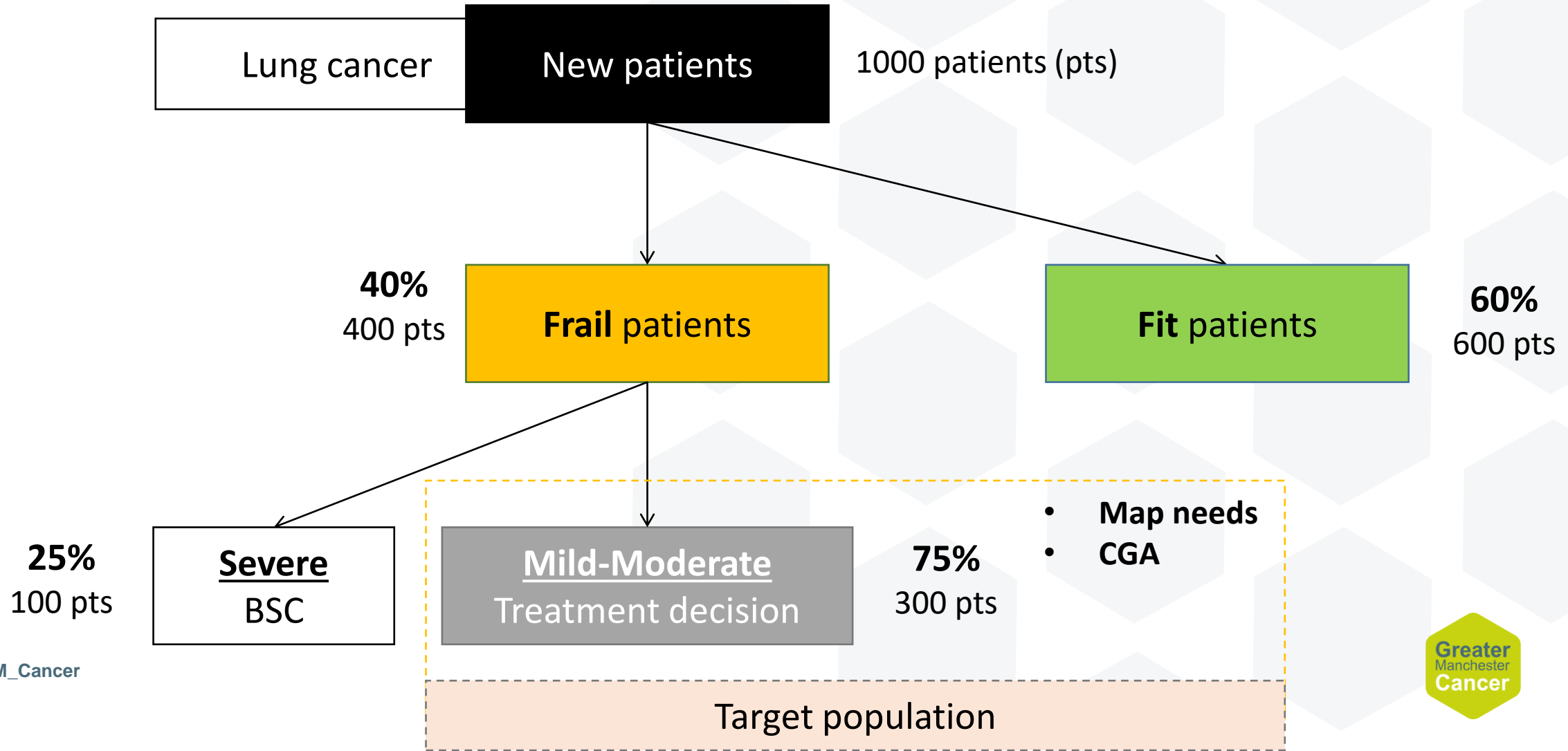


Frailty and quality of life (ePROMS)



The Christie experience

(with lung cancer patients)



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Comprehensive Geriatric Assessment

What are the domains of a CGA?

Functional/physical status

Cognitive status

Nutritional status

Psychological status

Social support

Comorbidity

Medication review



Comprehensive Geriatric Assessment

Functional/physical status

Performance status score - ECOG or Karnofsky

Activities of daily living (ADL) – Katz or Barthel scales

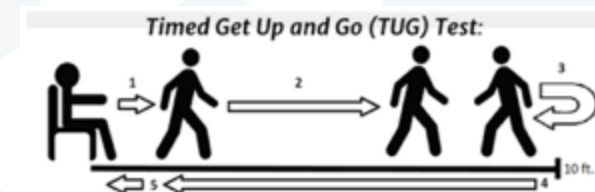
Bathing, dressing, feeding, toileting, transferring, continence

Instrumental activities of daily living (IADL) – Lawton & Brody scale

Ability to use telephone, shopping, food preparation, house keeping, laundry, managing finances, managing medication

Mobility / Transfer / Fall risk – Get Up and Go Test or Holden scale

Muscle strength – Handgrip strength



Comprehensive Geriatric Assessment

Cognitive status

Mini-mental state examination (MMSE), Montreal Cognitive Assessment (MoCA)

Nutritional status

Mini-nutritional assessment (MNA)

Psychological status

Geriatric depression scale (GDS-15)

Social support

Comorbidity and medications

Charlson Comorbidity Index (CCI), Cumulative Illness Rating Scale (CIRS)

Inappropriate medication – **STOPP** **START** Toolkit or Beers criteria



Benefits of CGA

Detect problems not found by routine assessments

→ Plan interventions to improve fitness levels **and** QoL

Assist in cancer treatment decisions

→ Fit – Vulnerable – Frail

Predict toxicity from cancer treatments

→ CRASH and CARG scores (chemo)

Estimate prognosis / survival



Benefits of CGA

'Rochester trial'¹ US

- RCT with 718 pts >70y for SACT
- Can we reduce grade 3–5 toxicity by doing GA and informing oncologist of results and recommendations for impairments identified **vs** no GA?
- Reduction: 71% vs 50%
- RR 0.74 (95%CI 0.63–0.87; p=0.0002)
- OS not compromised

GAIN² US

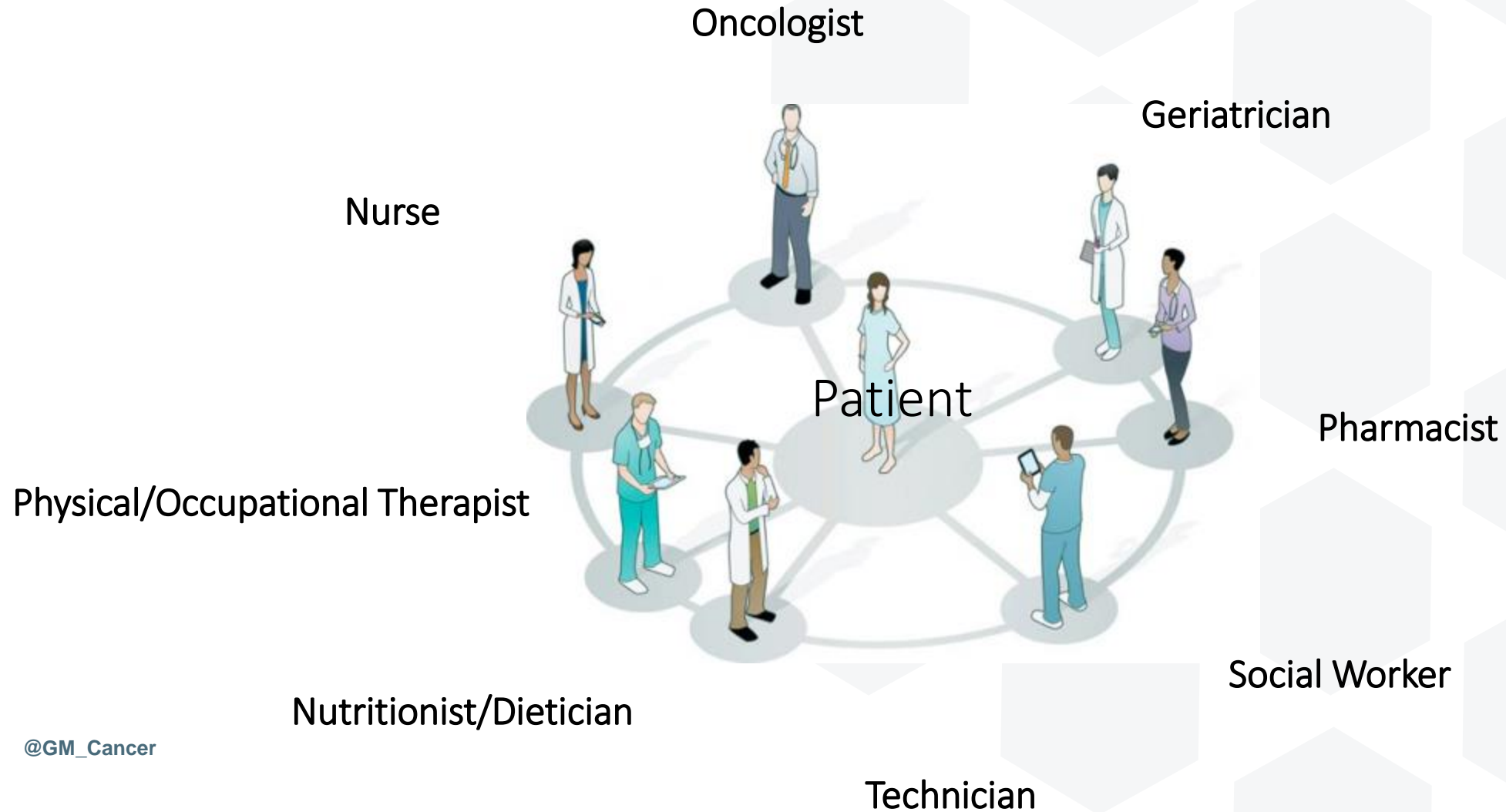
- RCT with 600 pts >65y for SACT
- Can we reduce grade 3–5 toxicity by doing GA and implementing interventions (CGA) **vs** only GA and informing oncologists?
- Reduction: 60% vs 50% (p=0.02)

INTEGRATE³ AUS

- RCT with 154 pts >70y for SACT
- Can we improve QoL by integrating CGA **vs** no CGA?
- Improved QoL at all timepoints (maximum difference at w18, p=0.001)
- Reduced hospital admissions (p<0.001)



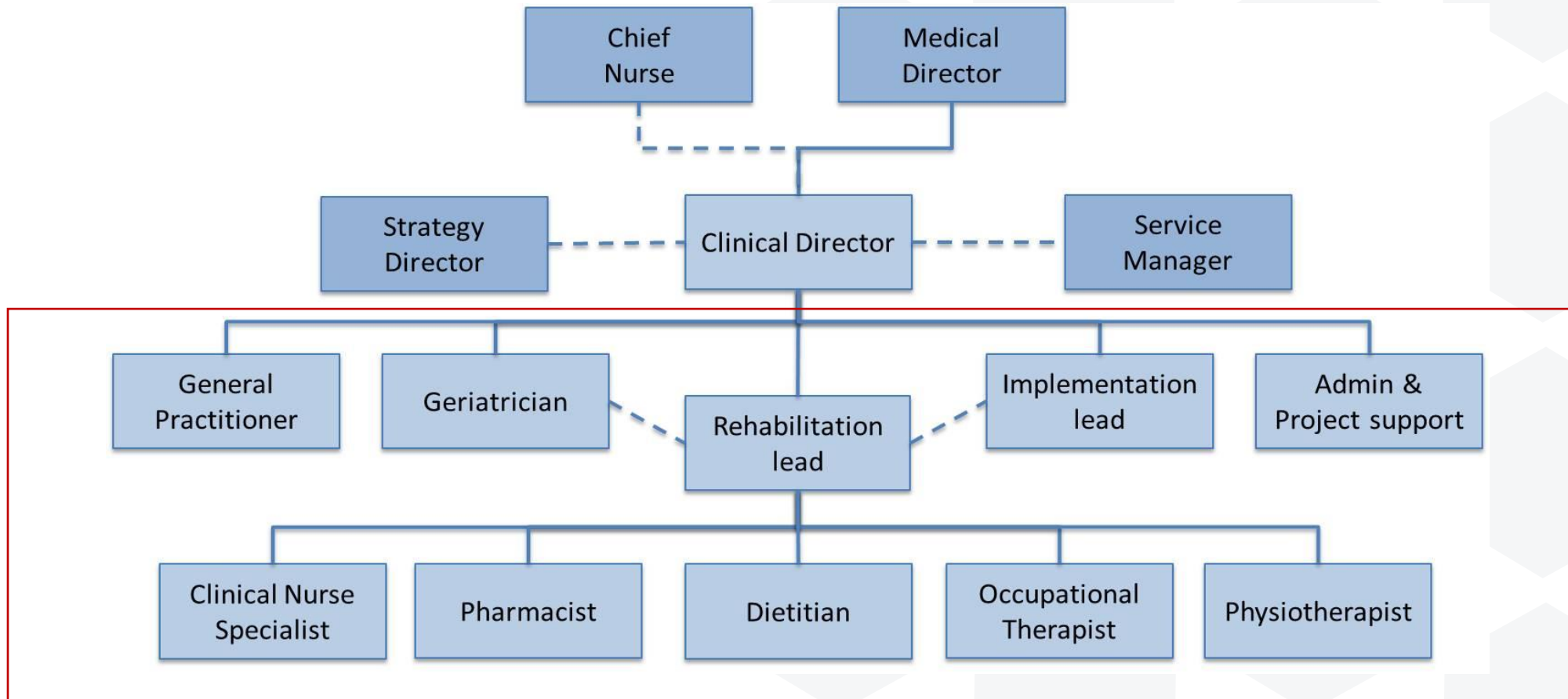
Multidisciplinary team



The new Senior Adult Oncology service



The new Senior Adult Oncology service



The new Senior Adult Oncology service

Aims?

Support decision-making for anti-cancer treatment
Support patients throughout the treatment

Referral eligibility?

Older patients (70+) with CFS 4+ starting/on anti-cancer treatment
Open for referrals for younger complex patients with frailty

Service setting?

Outpatient-based
Starting with lung cancer patients but expanding to other disease groups (e.g. H&N)

Activity?

~20 patients in the first month



TAKE HOME MESSAGES

- Frailty management provides an opportunity to improve patient outcomes
- There is high level evidence of the value of patient optimization in this setting, particularly for older adults
- Requires interdisciplinary work
- More research is needed to identify which interventions are most feasible, efficacious and cost effective
- The new Christie Senior Adult Oncology is expanding and keen to support complex older patients with H&N cancer



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Questions?