Courses via e-ESO.net
Your free education is just a click away!

Who is the older adult patient?

Gemelli

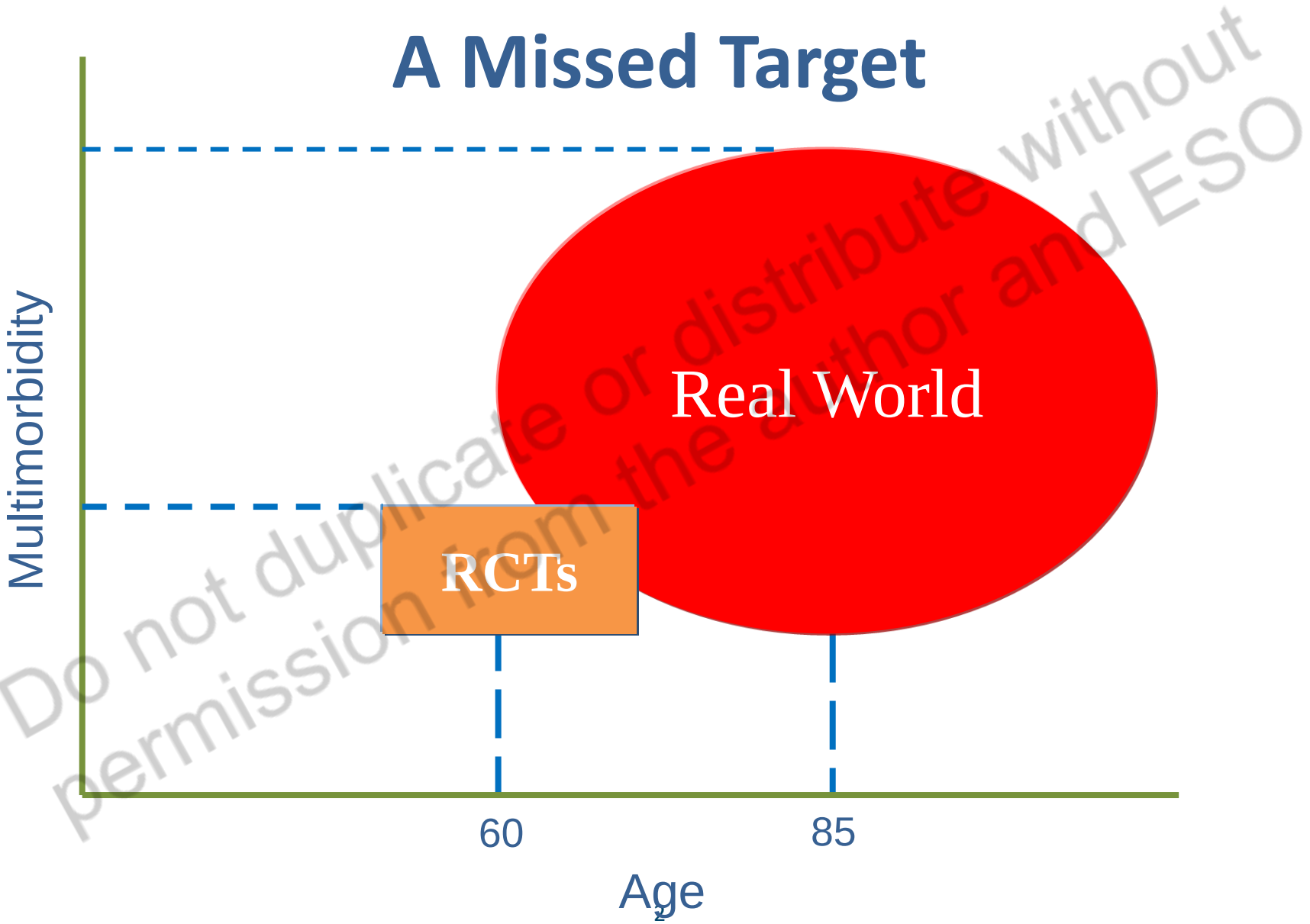
Fondazione Policlinico Universitario A. Gemelli
Università Cattolica del Sacro Cuore

ART
Advanced Radiation Therapy

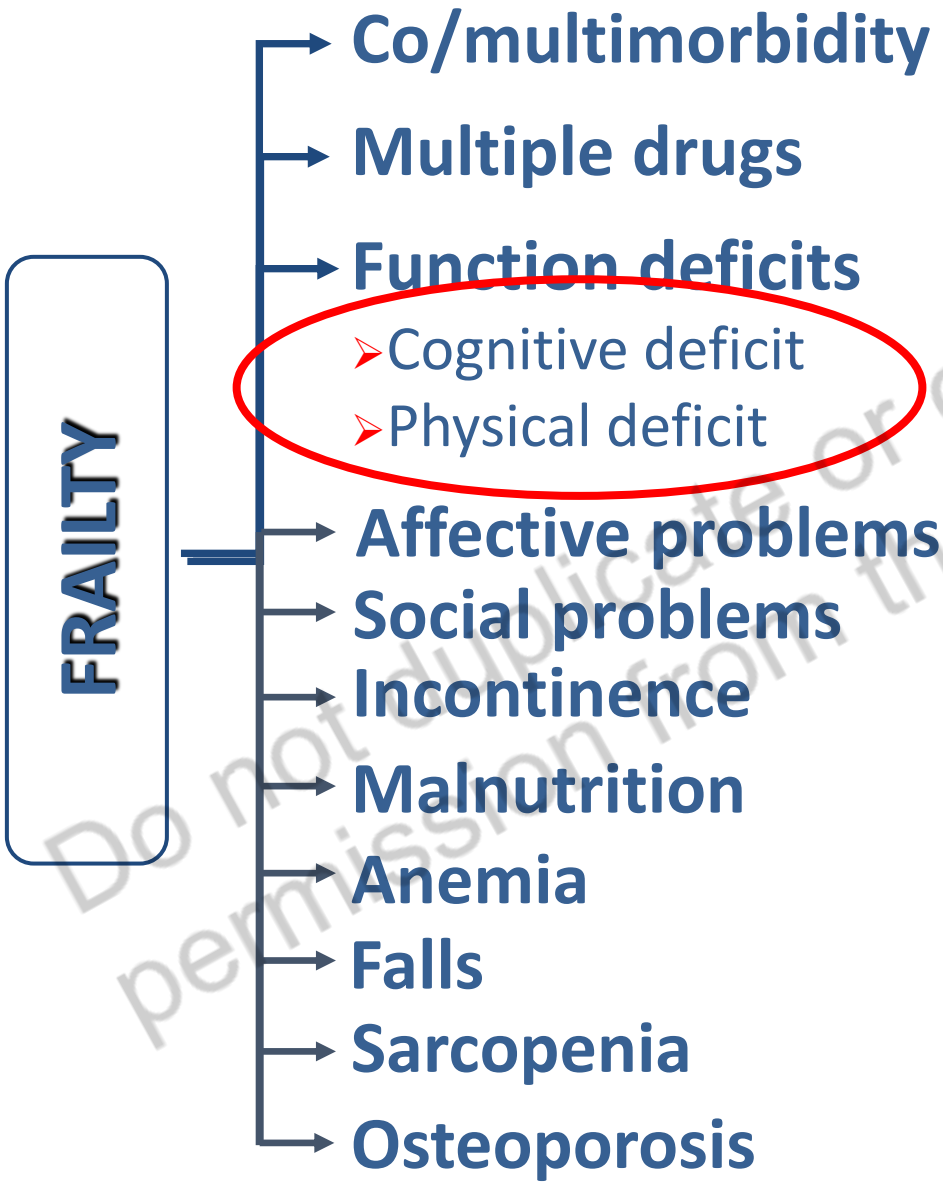
Geriatric Point of View

Giuseppe Colloca
Fondazione Policlinico Agostino Gemelli IRCCS
Università Cattolica del Sacro Cuore

Changing Patients, Changing needs



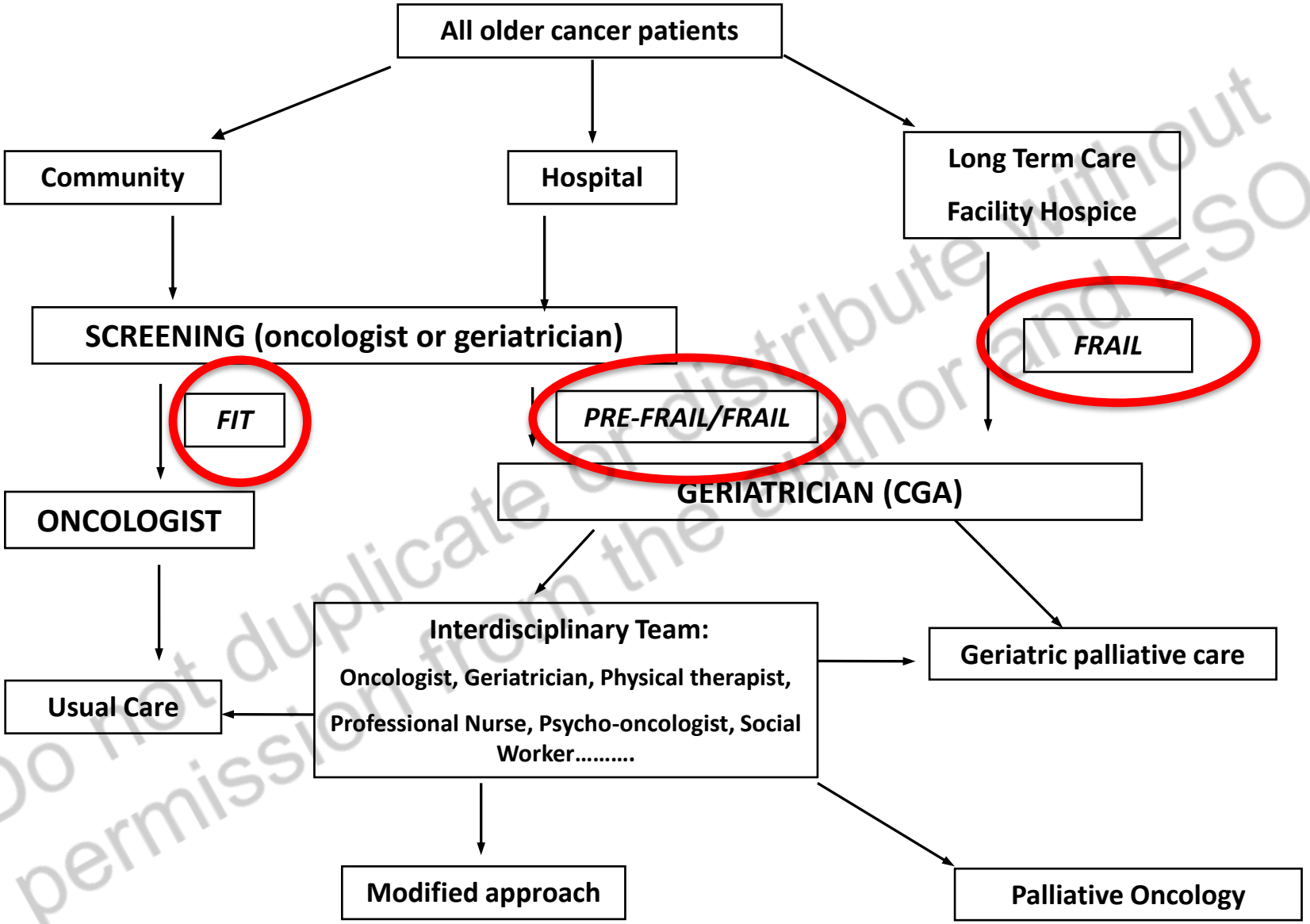
The “OLDER” Patient



Researchers have largely shied away from the complexity of multiple chronic conditions — avoidance that results in expensive, potentially harmful care of unclear benefit.

NEJM FREE FULL TEXT

Tinetti M. NEJM 2011



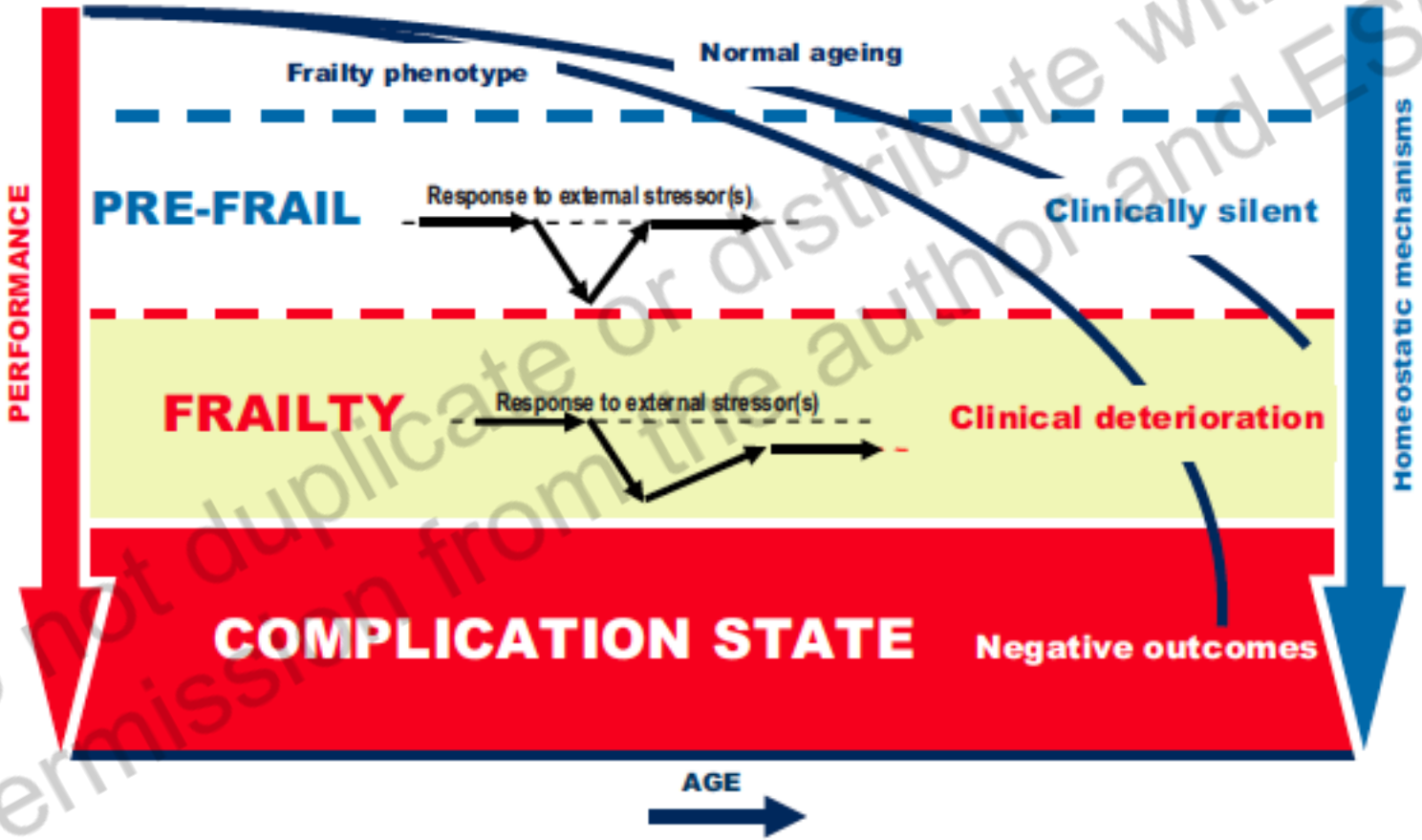
Balducci L, Colloca G et all. Surg Oncol. 2010 Sep;19(3):117-23

Frailty – Consensus Definition

A syndrome encountered in older persons that has diverse predisposing, precipitating, enabling and reinforcing factors. The key feature is a state of vulnerability to adverse health outcomes. There is a characteristic clustering of features that can lead to its recognition. The balance between assets and deficits will determine the consequences for an individual. Adaptability, physical environment & social environment are important determinants of the impact of frailty.

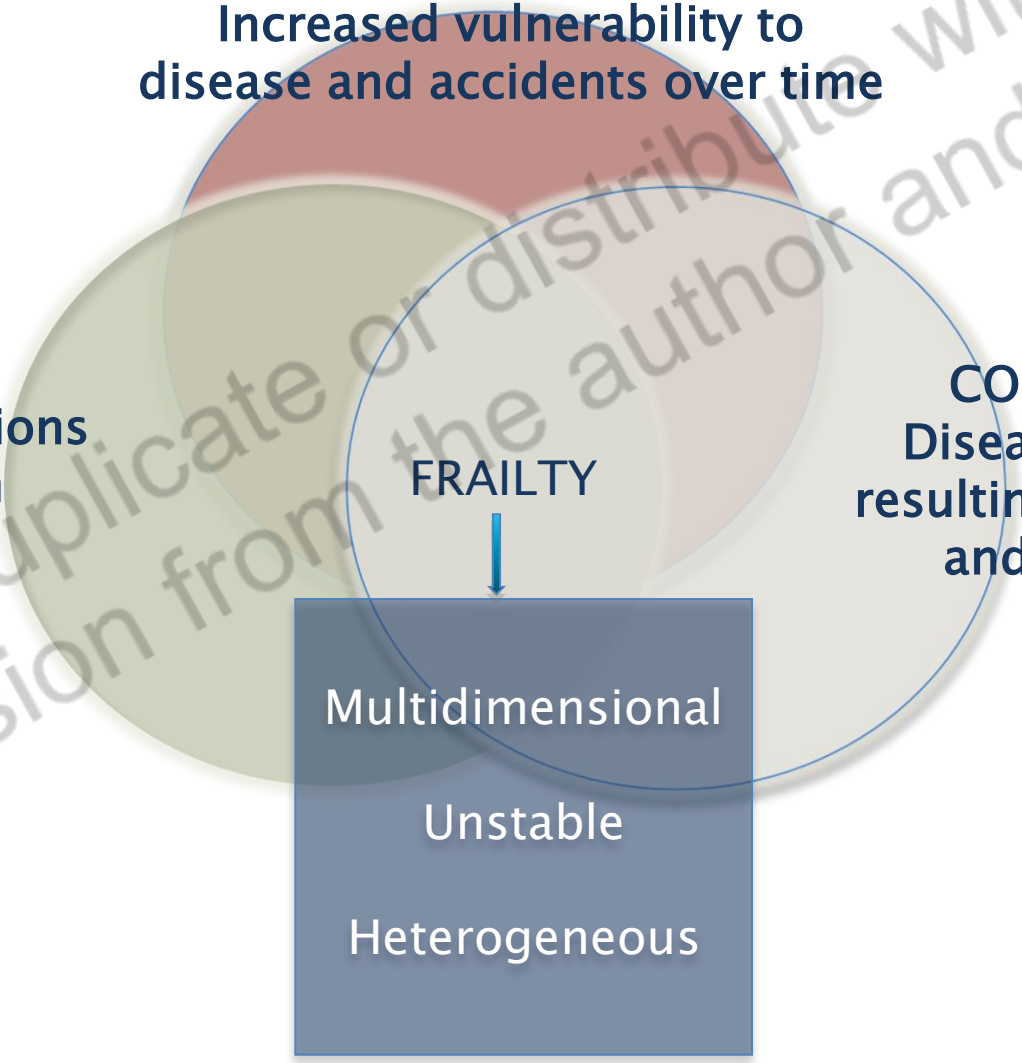
Canadian Initiative on Frailty and Aging, 2003

Development of frailty with advancing age



Colloca G et al. Aging Dis. 2020 May 9;11(3):649-657.

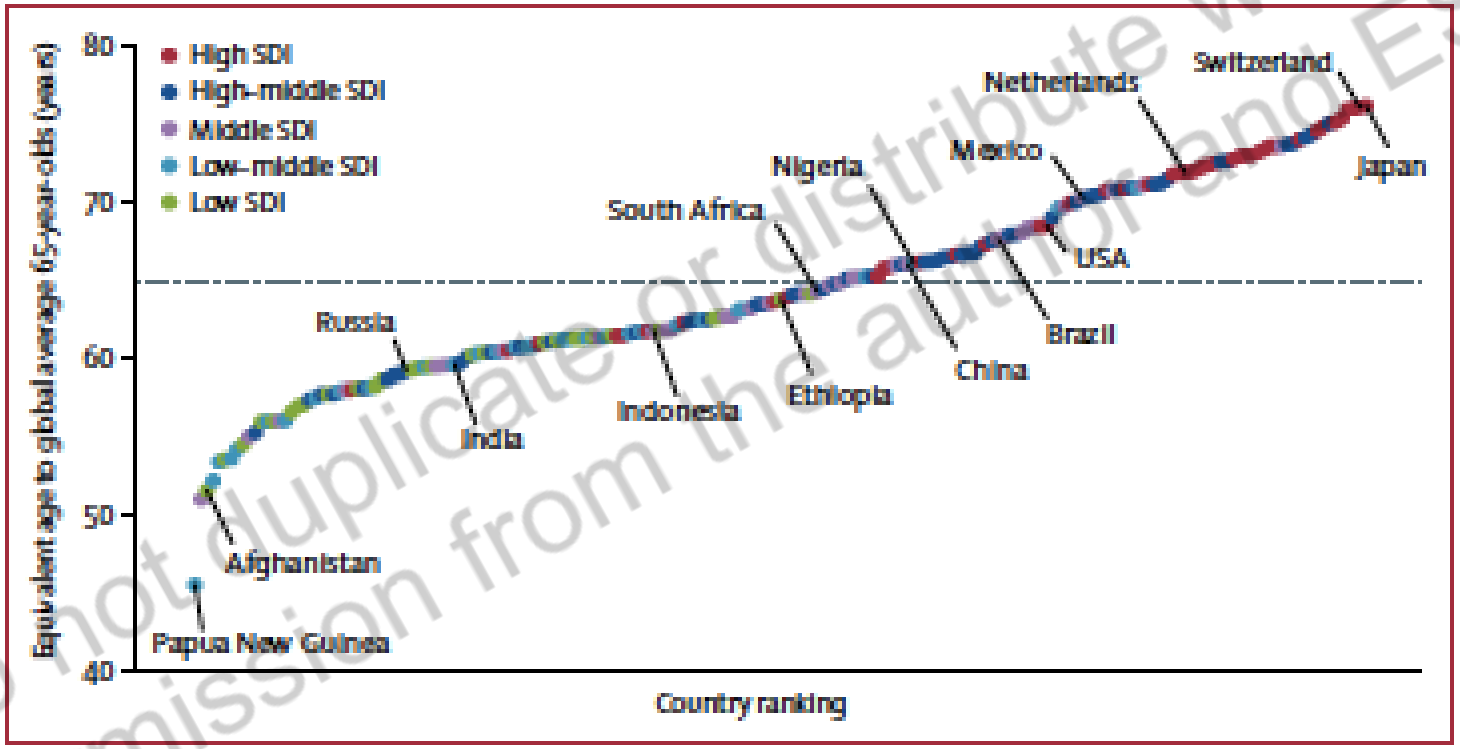
Frailty - an overlapping concept



FRAILTY and STRESS

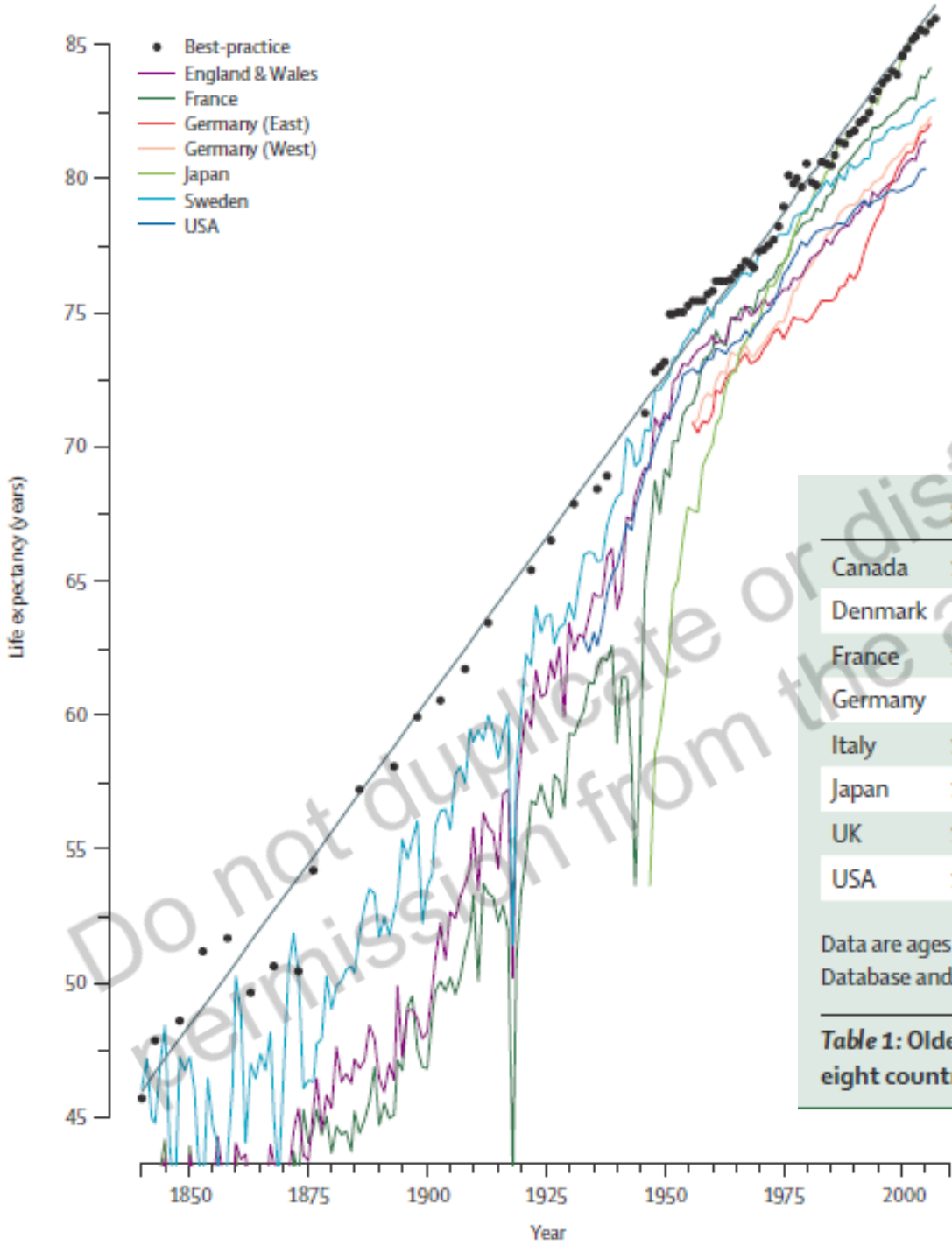
- Frailty is most obvious under "stress"
  - acute illness
  - new medications
  - surgery
  - pain
  - change in environment or support
- ***CANCER*** = Frailty Stress Tests

Measuring population ageing: an analysis of the Global Burden of Disease Study 2017



Lancet Public Health 2019; 4: e159–67

Ageing populations: the challenges ahead



	2000	2001	2002	2003	2004	2005	2006	2007
Canada	102	102	103	103	103	104	104	104
Denmark	99	99	100	100	101	101	101	101
France	102	102	103	103	103	104	104	104
Germany	99	100	100	100	101	101	101	102
Italy	102	102	102	103	103	103	104	104
Japan	104	105	105	105	106	106	106	107
UK	100	101	101	101	102	102	103	103
USA	101	102	102	103	103	103	104	104

Data are ages in years. Baseline data were obtained from the Human Mortality Database and refer to the total population of the respective countries.

Table 1: **Oldest age at which at least 50% of a birth cohort is still alive in eight countries**

Boomers Turn 70

How this generation has influenced us all ... and how it will change the world again

by **Bill Newcott**, **AARP Bulletin**, January 2016 | Comments: 16

MULTIMORBIDITY

Comorbidity: combination of additional diseases beyond an index disorder.

Multimorbidity:any co-occurrence of two or more chronic or acute diseases and medical conditions within one person, whether coincidental or not, indicating a shift of interest from a given index condition to individuals who suffer from multiple disorders.

Disease based perspective

Individual based perspective

A. Marengoni J Am Geriatr Soc 57:225–230, 2009.

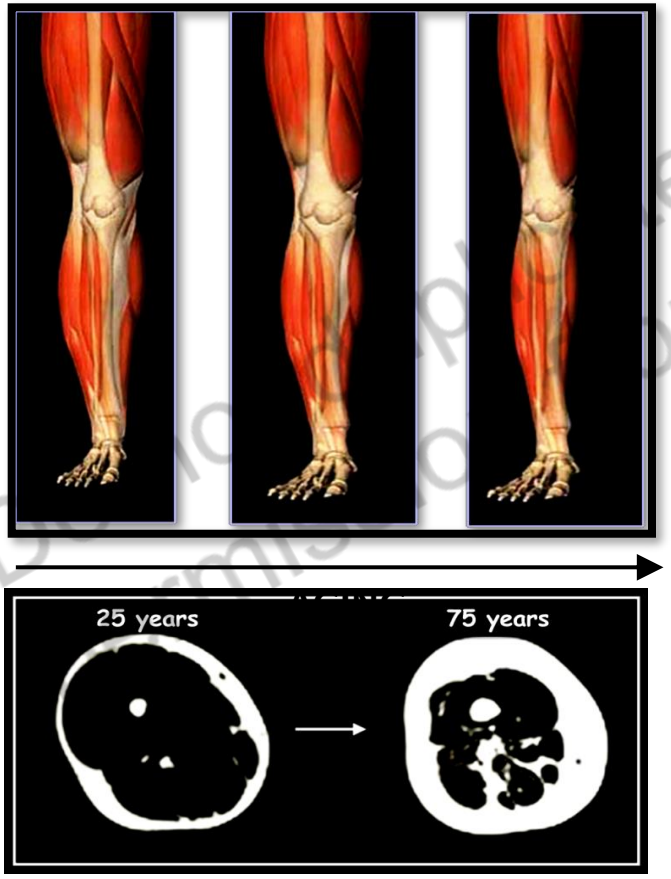
Sarcopenia

REPORT

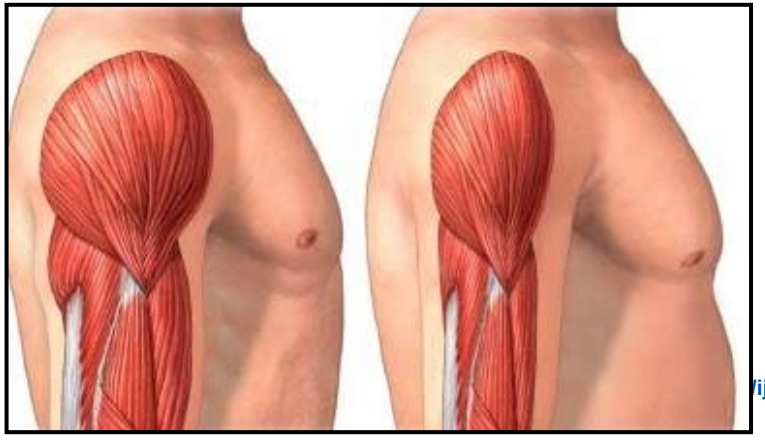
Sarcopenia: European consensus on definition and diagnosis

Report of the European Working Group on Sarcopenia in Older People

ALFONSO J. CRUZ-JENTOFT[1], JEAN PIERRE BAEYENS[2], JÜRGEN M. BAUER[3], YVES BOIRIE[4], TOMMY CEDERHOLM[5], FRANCESCO LANDI[6], FINBARR C. MARTIN[7], JEAN-PIERRE MICHEL[8], YVES ROLLAND[9], STÉPHANE M. SCHNEIDER[10], EVA TOPINKOVÁ[11], MAURITS VANDEWOUDE[12], MAURO ZAMBONI[13]



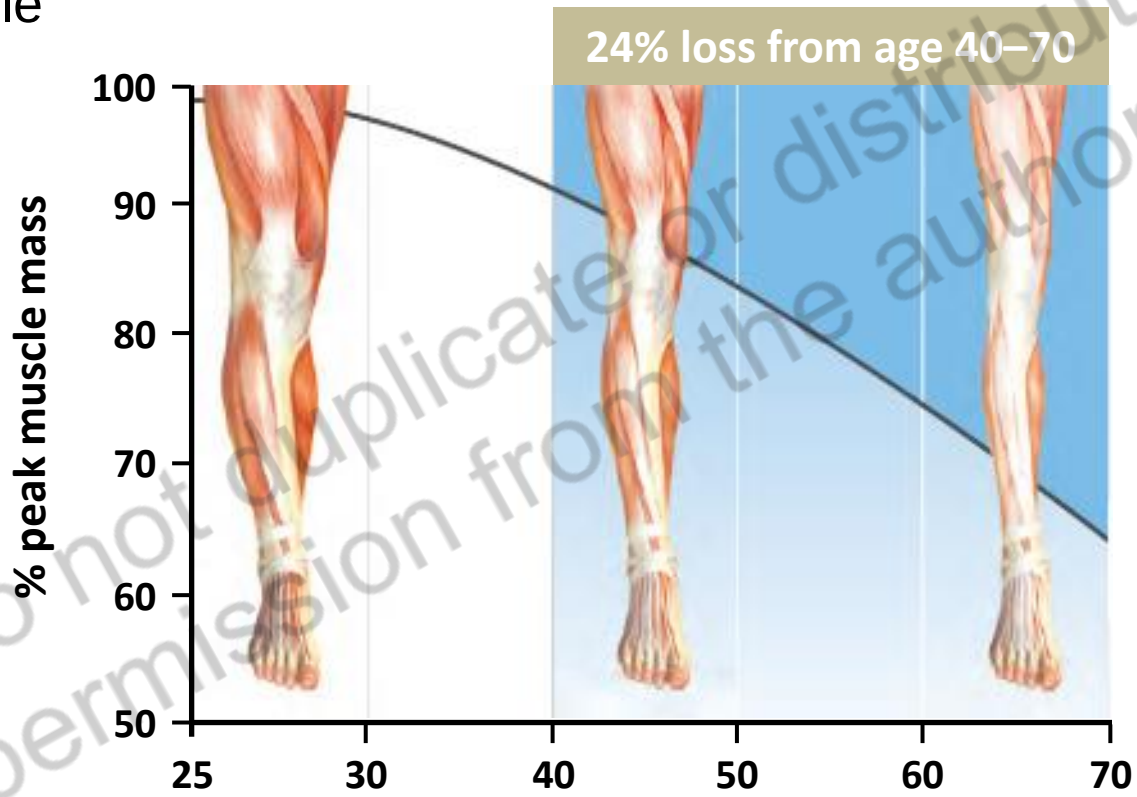
"Sarcopenia is a (geriatric) syndrome characterized by progressive and generalized loss of skeletal muscle mass and strength (and/or function) with a risk of adverse outcomes such as physical disability, poor quality of life and death"



/iju.13473)

Loss of muscle mass and strength, a natural part of aging

- After age 40, healthy adults can lose 8% of muscle every 10 years
- Between 40 to 70 years old, healthy adults lose an average of 24% of muscle

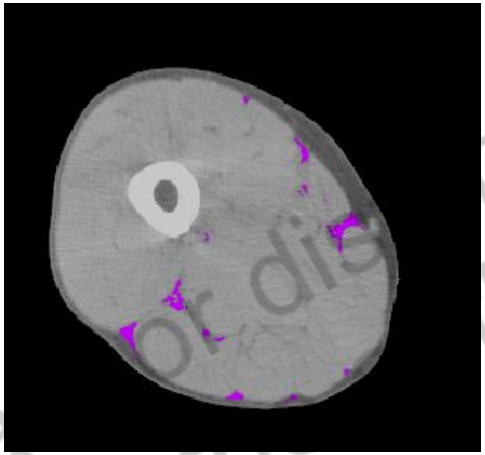


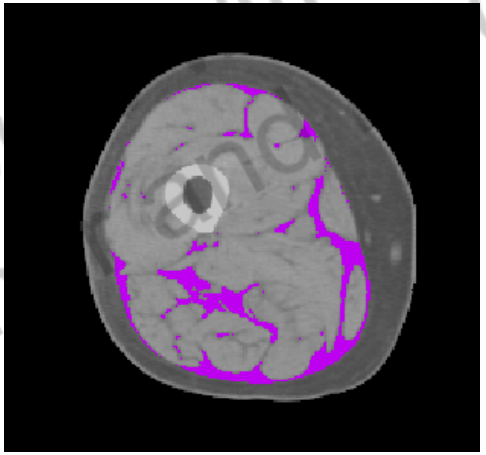
15%
Loss each decade after age 70

Colloca G, JGO. 2019

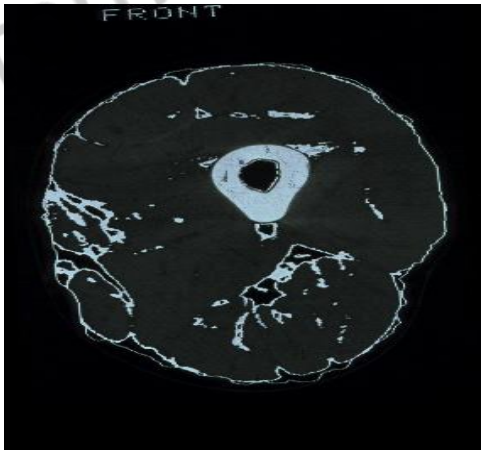
Health ABC Study:
inter- and intra-muscular fat increase even with stable body weight

Thigh cross-section view
(magnetic resonance)





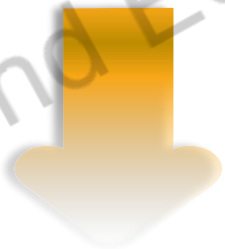
Thigh cross-section view
(computed tomography)



Delmonico MJ, et al. *Am J Clin Nutr*. 2009;90:1579-1585.

Aging and muscle
Consequences of losing LBM/Muscle

% Loss of LBM	Associated complications
10%	• Decreased immunity • Increased risk of infection
20%	• Decreased wound healing • Increased muscle weakness • Increased risk of infection
30%	• Too weak to sit • Pressure ulcers • Pneumonia • Lack of healing
40%	• Increased risk of death, usually from pneumonia

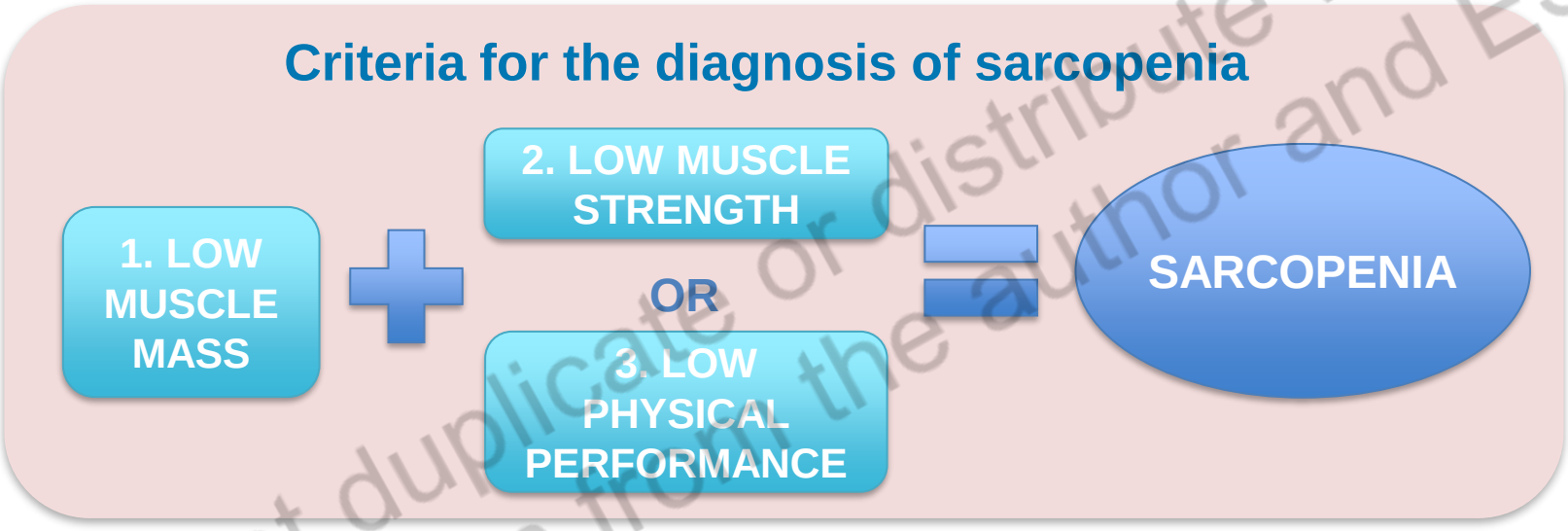


Limited activities of daily living

Lowered quality of life

Demling RH. *Eplasty*. 2009;9:65–94

European consensus definition of sarcopenia (EWGSOP*)



- A syndrome characterized by progressive and generalized loss of skeletal muscle mass and function with a risk of adverse outcomes, such as physical disability, poor quality of life, and death

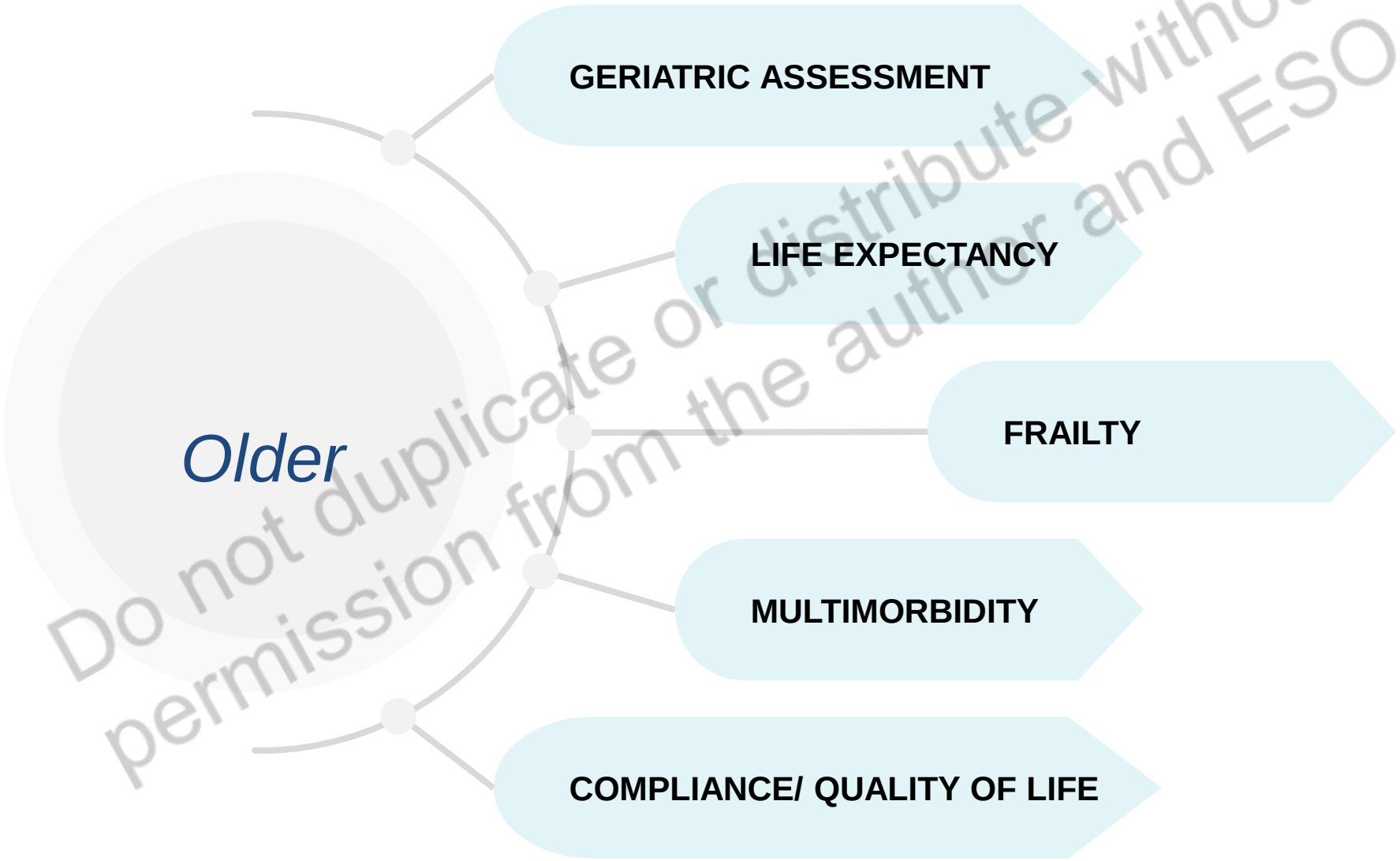
*European Working Group on Sarcopenia in Older Persons *Age Ageing.* 2019;39:412-423.

Comparing sarcopenia and cachexia

	Sarcopenia	Cachexia
Weight	=	↓↓
Lean tissue	↓	↓↓
Fat tissue	= or ↑	↓
Appetite	=	↓
Cortisol	=	↑
Inflammatory disease	No	Yes
Pathway	Does not lead to cachexia	May lead to sarcopenia

1.Thomas DR. *Clin Nutr.* 2007;26:389-399.
2.Morley JE, et al. *Nutrition.* 2008;24:815-819.

Geriatric Point of View



WHO IS THE OLDER ADULT PATIENT?

An oncologist's point of view

Alexandru Eniu, MD, PhD
Hôpital Riviera-Chablais, Vaud-Valais, Switzerland
Coordinator, Pole Oncology
Disease Leader Breast Cancer

ESO Deputy Scientific Director
Chair, College of ESO(ESCO)

Via Turati, 29
20121 Milan, Italy

Piazza Indipendenza, 2
6500 Bellinzona, Switzerland

eso@eso.net | eso.net | e-eso.net | esco.org

DISCLOSURE INFORMATION

Alexandru Eniu has received research support from:

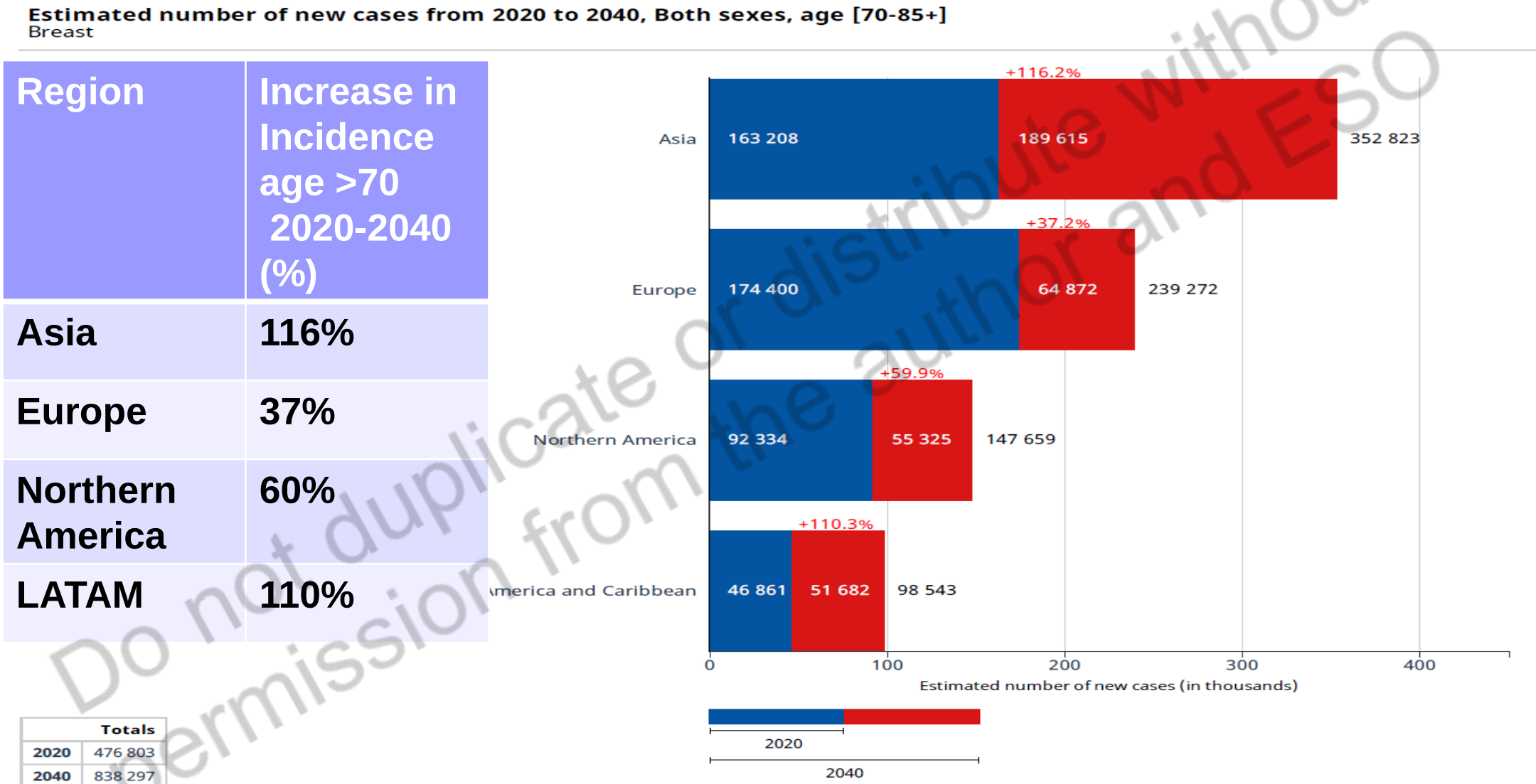
AstraZeneca, Roche, Pfizer, Celltrion, Novartis, none in relation to this presentation.

…and I am not an (onco)- geriatrician, just a

(breast) medical oncologist, caring for older patients

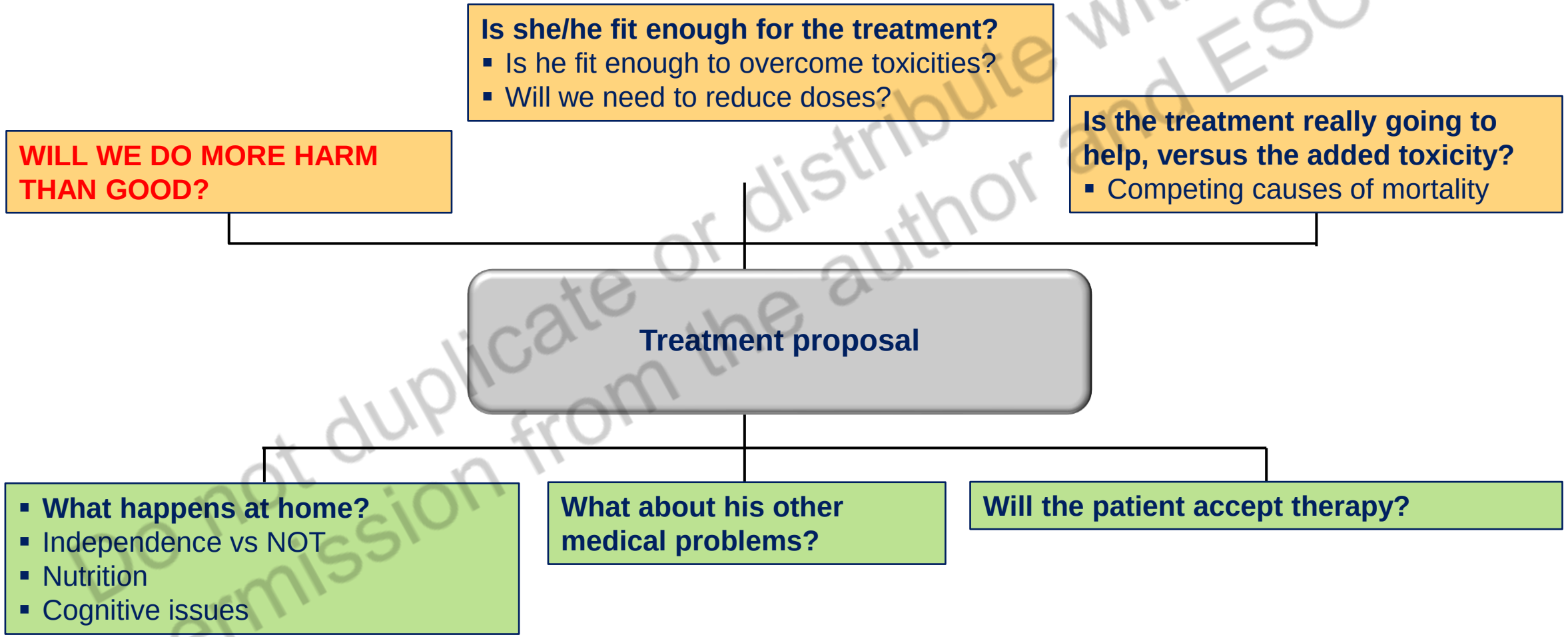
Global Burden of Breast Cancer- and trends

Region	Increase in Incidence age >70 2020-2040 (%)
Asia	116%
Europe	37%
Northern America	60%
LATAM	110%



Globocan data, www.gco.fr, accesed 08.09.2021.

Questions that we usually have in front of an older patient



All these women are 74… but looks aren't everything!

Let's be honest: age is the first parameter we take into consideration

Comparisons between different polychemotherapy regimens for early breast cancer: meta-analyses of long-term outcome among 100 000 women in 123 randomised trials

Early Breast Cancer Trialists' Collaborative Group (EBCTCG)

8575 patients anthracyclines vs no chemo

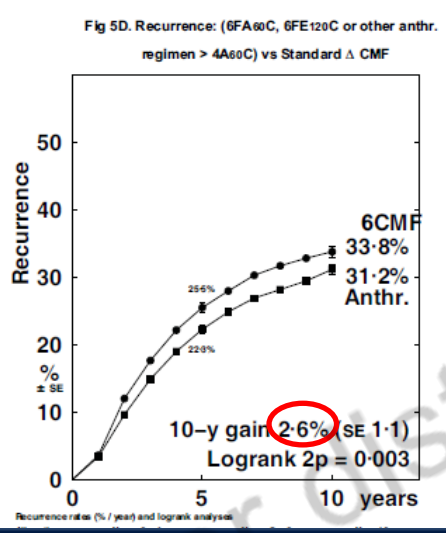
	Deaths/women		Anthracycline deaths		Ratio of annual death rates
	Allocated anthracycline	Allocated control	Log-rank O–E	Variance of O–E	Anthracycline:Control
(D) Entry age (trend χ^2_1=2·0; 2p=0·2; NS)					
<45 years	135/402 (33·6%)	127/353 (36·0%)	−4·9	53·0	0·91 (SE 0·13)
45–54 years	338/1115 (30·3%)	419/1175 (35·7%)	−34·9	139·8	0·78 (SE 0·07)
55–69 years	899/2995 (30·0%)	1071/2956 (36·2%)	−88·5	377·0	0·79 (SE 0·05)
>70 years	43/225 (19·1%)	84/232 (36·2%)	−11·7	11·4	0·36 (SE 0·19)
Unknown	1/17 (5·9%)	0/17 (0·0%)	0·2	0·1	

EBCCTG. Lancet 2012; 379: 432–44

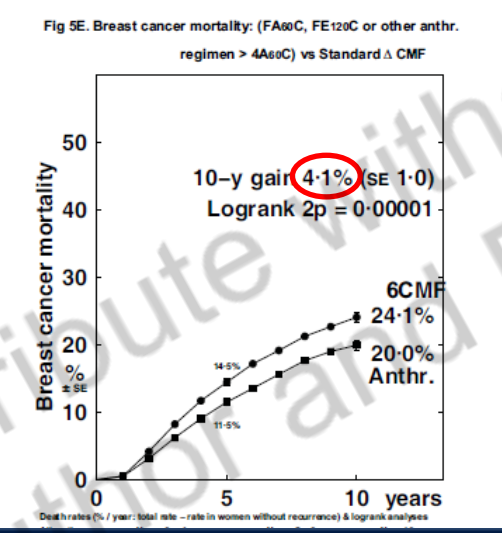
Time lag

MORE ANTHRA

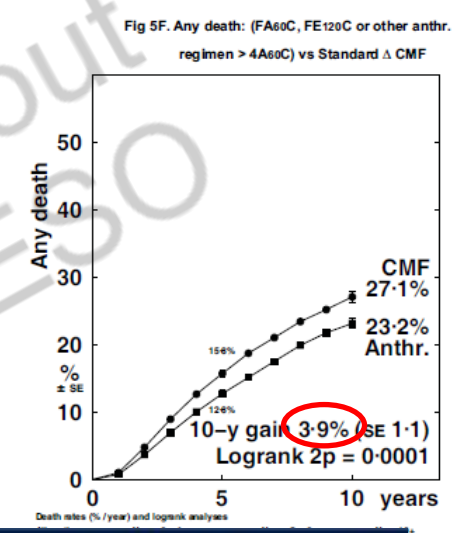
Recurrence



BC mortality



Any death



University of California San Francisco — Search UCSF — About UCSF

ePrognosis

HOME ABOUT CALCULATORS CANCER SCREENING DECISION TOOLS COMMUNICATION

Flacker 1 Year Long Stay Revised Index

One Year Mortality

Points	Risk of ONE YEAR mortality
0 - 1	9%
2 - 3	13%
4 - 5	21%
6 - 7	31%
8 - 9	41%
10 - 11	59%

HÔPITAL RIVIERA-CHABLAIS VAUD-VALAIS

Cardiac Safety

Trial	Arm	Any CHF (%)	Any LVEF drop (%)
HERA, de Azambuja, et al. (2014)	Chemo Chemo → T 1y	0 0.8	0.9 7.2
NSABP B-31, Romond, et al. (2012)	AC → P AC → PT	1.2 **3.8**	NR 12.0
NCCTG N9831, Advani, et al. (2016)	AC → P AC → P → T AC → PT	0.9 2.6 3.5	9.6 16.7 **23.8**
BCIRG 006, Slamon, et al. (2015)	AC → D AC → DT DCarboT	0.8 2.0 0.4	11.2 19.1 9.4
APT, Tolaney, et al. (2015)	PT	0.5	3.2
ALLTO, Piccart M, et al. (2016)	Chemo → T 1y Chemo → T → Lapa 1y Chemo → T + Lapa 1y	1.0 <1.0 1.0	5.0 3.0 5.0
APHINITY, von Von Minckwitz, et al. (2017)	Chemo → T 1y Chemo → T + Pertuz 1y	**0.3** 0.7	2.8 **2.7**

- Risk factors for CHF: low LVEF, age, obesity, hypertension.
- LVEF is mandatory before initiation of trastuzumab and during treatment.

Dose and dose intensity

Dose and Dose Intensity as Determinants of Outcome in the Adjuvant Treatment of Breast Cancer

*Daniel R. Budman, Donald A. Berry, Constance T. Cirrincione, I. Craig Henderson, William C. Wood, Raymond B. Weiss, Carolyn R. Ferree, Hyman B. Muss, Mark R. Green, Larry Norte Emil Frei III**

For The Cancer and Leukemia Group B

Original Paper

Dose–Response Effect of Adjuvant Cyclophosphamide, Methotrexate, 5-Fluorouracil (CMF) in Node-positive Breast Cancer

M. Colleoni,[1] K. Price,[2] M. Castiglione-Gertsch,[3] A. Goldhirsch,[1,4] A. Coates,[5] J. Lindtner,[6]

Dose-Response Relationship of Epirubicin in the Treatment of Postmenopausal Patients With Metastatic Breast Cancer: A Randomized Study of Epirubicin at Four Different Dose Levels Performed by th Breast Cancer Cooperative Group

By Lars Bastholt, Mads Dalmark, Susanne B. Gjedde, Per Pfeiffer, Dorte Pedersen, Erik Sandl Henning T. Mouridsen, Carsten Rose, Ole S. Nielsen, Preben Jakobsen, and Søren I

Phase III Trial Comparing Three Doses of Docetaxel for Second-Line Treatment of Advanced Breast Cancer

Vernon Harvey, Henning Mouridsen, Vladimir Semiglazov, Erik Jakobsen, Edouard Voznyi, Bridget A. Robinson, Vanina Groult, Michael Murawsky, and Soeren Cold

Colleoni et al, Eur J Cancer; 34(11):1693-700, 1998 ; Budman et al, J Natl Cancer Inst; 19;90(16):1205-11, 1998 ; Bastholt L, et al. J Clin Oncol; 14: 1146-1155, 1996; Harvey et al, J Clin Oncol; 24: 4963-4970, 2006

Less is more for elderly patients? No, according to these studies….

original report

Randomized Trial of Standard Adjuvant Chemotherapy Regimens Versus Capecitabine in Older Women With Early Breast Cancer: 10-Year Update of the CALGB 49907 Trial

Check for updates

Hyman B. Muss, MD[1]; Mei-Yin C. Polley, PhD[2]; Donald A. Berry, PhD[3]; Heshan Liu, MS[2]; Constanc

original articles

Weekly docet
chemoth
cancer:
ELDA tri

Original article

Adjuvant pegylated liposomal doxorubicin for older women with endocrine nonresponsive breast cancer who are NOT suitable for a "standard chemotherapy regimen": The CASA randomized trial

reast
ed phase III

F. Perrone[1*], F. N Gravina[1], G. Iodice[1], V. Labonia[1], G. Landi[1], C. Pacilio[1],

Diana Crivellari[a,*,s], Kathryn P. Gray[b,c,s], Silvia Dellapasqua[d,s], Fabio Puglisi[e,s], Karin Ribi[f,s],

Muss et al. J Clin Oncol; 10;37(26):2338-2348, 2019; Crivellari D, et al. The Breast; 22:130-137, 2013; Perrone et al, Ann Oncol; 26(4):675-682, 2015

HÔPITAL RIVIERA-CHABLAIS VAUD-VALAIS

Addition of chemotherapy to local therapy in women aged 70 years or older with triple-negative breast cancer: a propensity-matched analysis

Jennifer A Crozier, MD † • Todd A Pezzi, MD † • Caitlin Hodge, MD • Slavica Janeva, MD • Beth-Ann Lesnikoski, MD •

- 16 062 women > 70 years or older, stage I–III invasive TNBC
- Median F-U 38·3 months
- 5-year OS
  - 68·5% patients receiving CT
  - 61·1% patients recommended but not given CT
  - 53·7% for patients not recommended CT and not given
- propensity score-matched sample analysis: improved OS with CT after adjusting for age, **comorbidity score**, and tumour factors
- HR: 0·69 [95% CI 0·60–0·80]; p<0·0001).

Crozier et al. Lancet Oncol 21(12): 1611, 2020

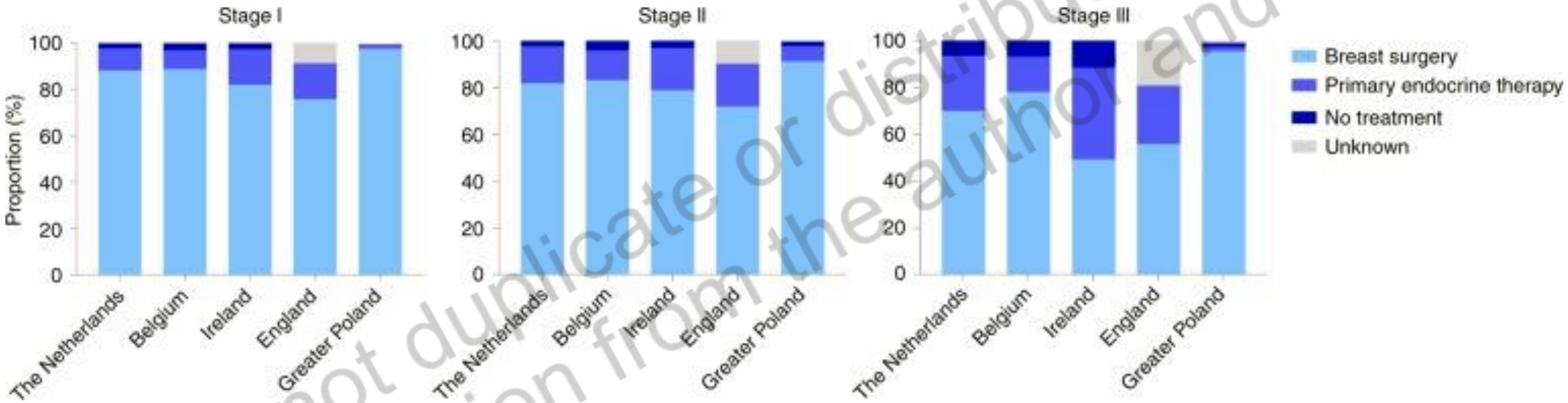
Bridging the Age Gap in breast cancer: Impact of chemotherapy on quality of life in older women with early breast cancer

Nicolò Matt

376/1520 (24.7%) received chemotherapy

Battisti et al. E J C 144: 269-280, 2021

Variation in treatment and survival of older patients with non-metastatic breast cancer in five European countries: a population-based cohort study from the EURECCA Breast

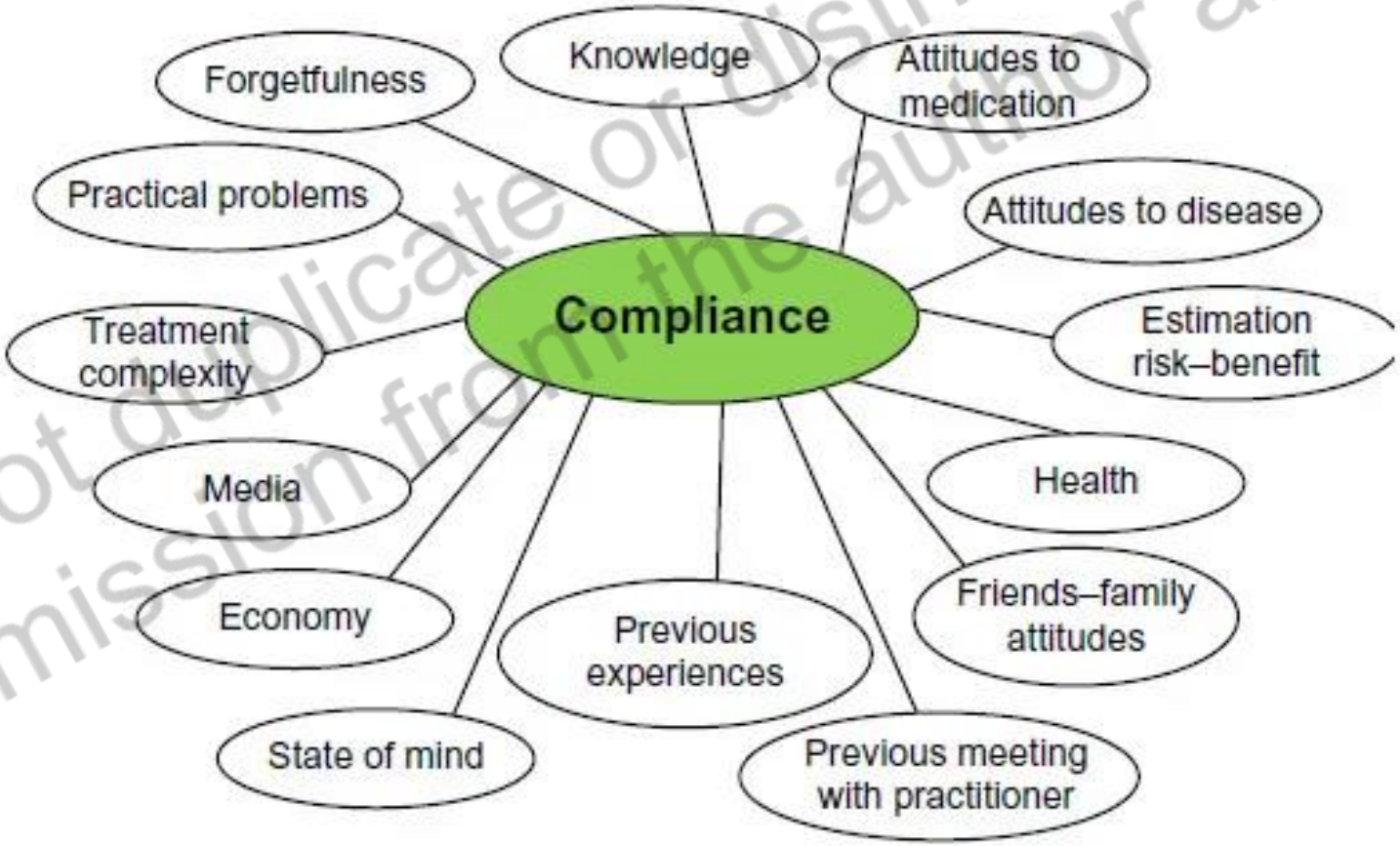


Proportion of patients receiving breast surgery, primary endocrine therapy or no therapy by stage of disease

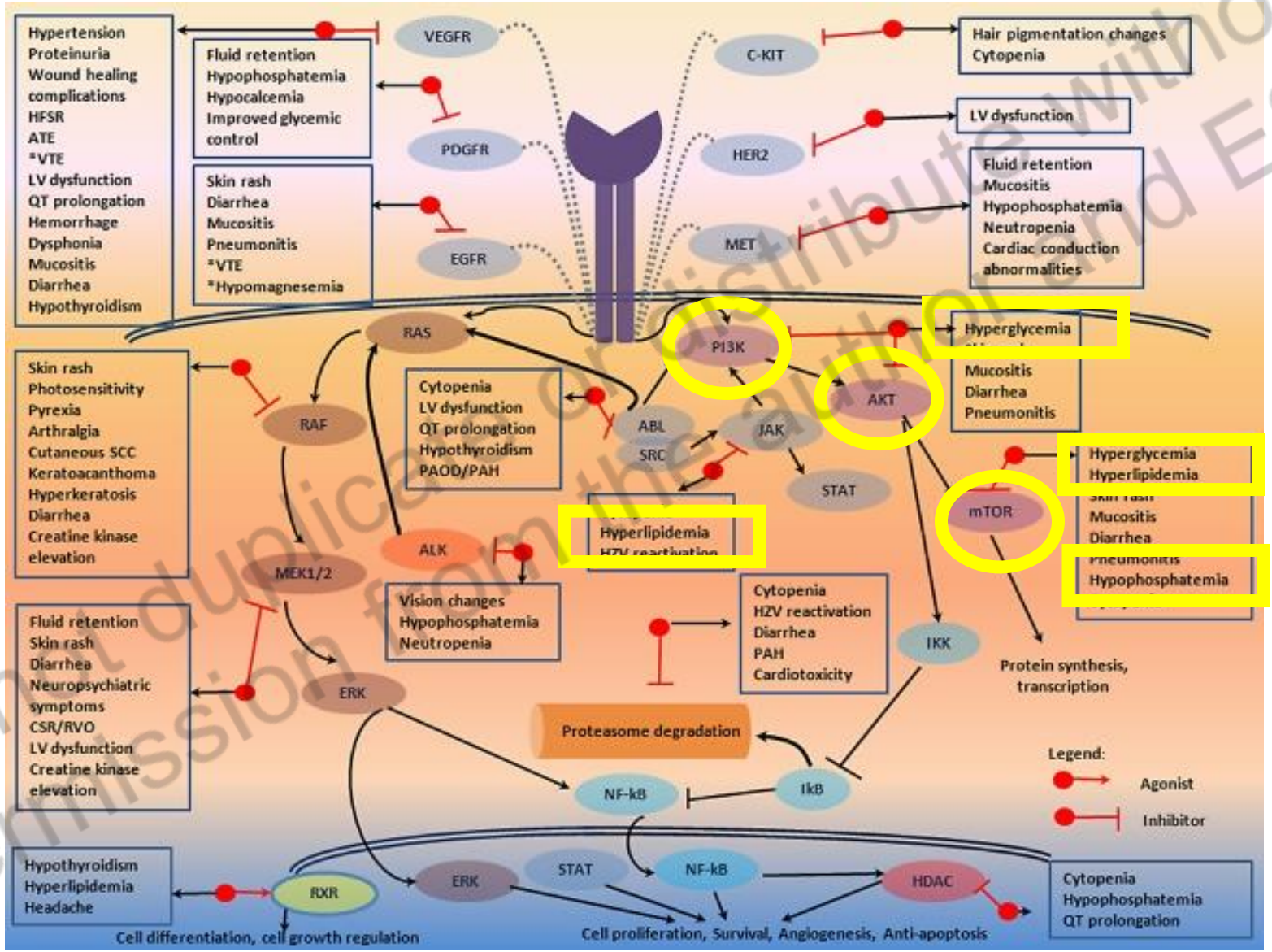
Derks et al. B J C 119:121–129, 2018

Oral therapy- Compliance issues

- Abandon of therapy for long-term treatment (hormone therapy)
- Compliance with scheduling (or multi-dose chemotherapy, CDK4/6 inhibitors…)
- Managing multiple medications- and interactions among drugs



Toxicities associated with signal transduction Inhibitors



Dy, GK et al. CA Cancer J Clin 2013;63(4):249-279

“Primum non nocere”

TUMOR BIOLOGY

Fear of symptoms

Chance of response to therapy

COMMUNICATION UNDERSTANDING

Risk of death/ progressive disease

FINANCIAL BURDEN

BURDEN ON CARE TEAM

Toxicity data

Impact on QoL

ABC 6
Bridging the Gap

Advanced Breast Cancer

Sixth International Consensus Conference

4-6 November 2021

VIRTUAL MEETING

Chair: F. Cardoso, PT
Co- Chair: R. Haidinger, DE
Honorary Chairs: E.P. Winer, US
L. Norton, US – A. Costa, CH/IT
Scientific Committee: N. El Saghir, LB - A. Eniu, CH
S. Paluch-Shimon, IL - F. Penault-Llorca, FR
H. Rugo, US - T. Wiseman, UK

recommended by

ABC GlobAlliance

ESO European School of Oncology Learning to care

Reveive updates on
www.abc-lisbon.org
#ABClisbon

UZ LEUVEN

Who is the older adult patient?

An onco-geriatrician point of view

Hans Wildiers

Medical oncologist, Leuven, Belgium

Coordinator of the Leuven Multidisciplinary Breast Centre

Past president of SIOG

Past chairman of the EORTC elderly task force

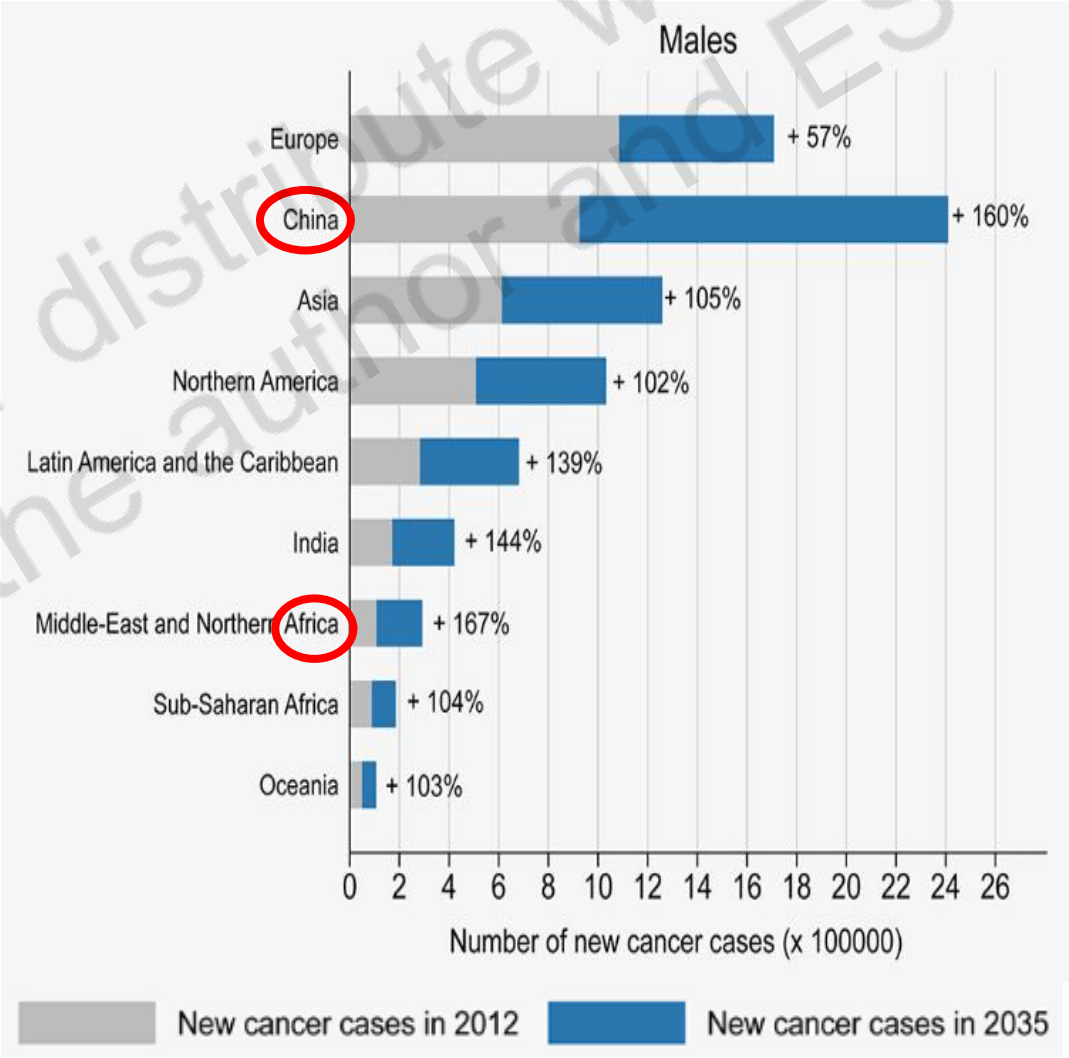
SIOG
INTERNATIONAL SOCIETY OF GERIATRIC ONCOLOGY

EORTC *The future of cancer therapy*

The majority of cancer pts = old!

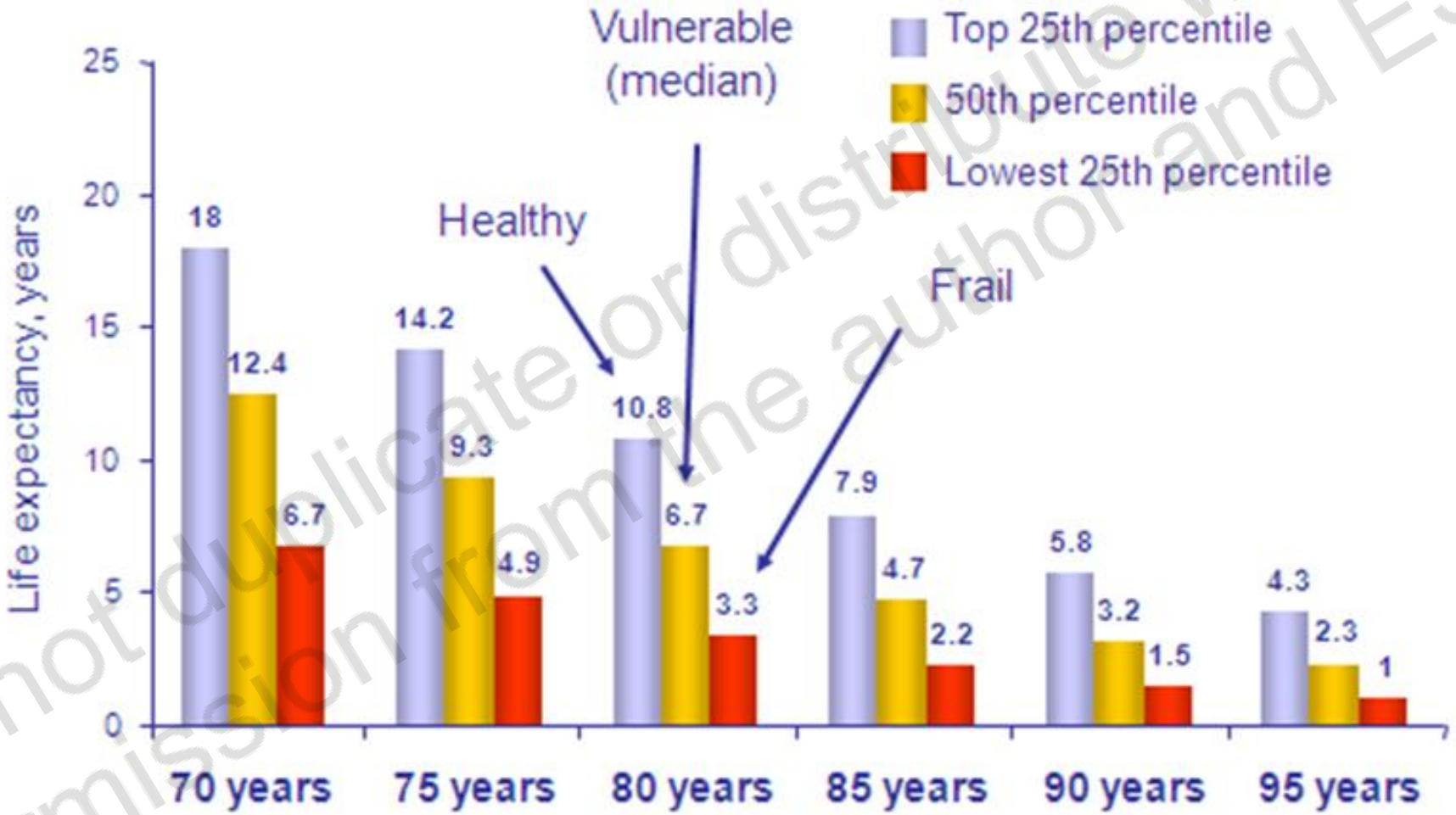
Global cancer incidence in 65+ patients in 2012 and 2035

Year	2012	2035
Number of new cancers among 65+	6,7 million	14 million
% 65+ cancers compared to global population	48%	58%
% 65+ people compared to global population	8%	13%



Pilleron et al, IJC 2019

Variability in health status: impact on life expectancy in elderly



Walter et al. JAMA 2001

Comprehensive geriatric assessment: a multistep process !

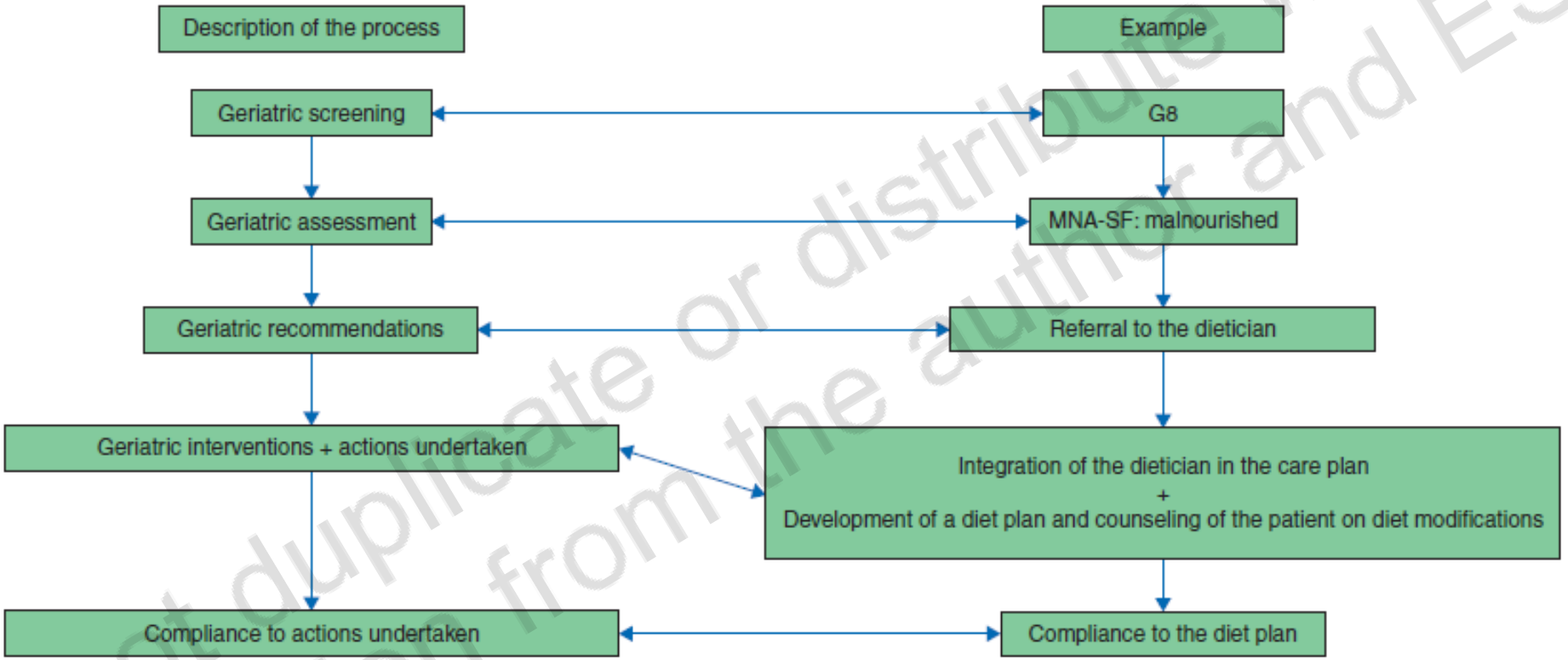


Figure 1. Description of the CGA-process. CGA, comprehensive geriatric assessment; MNA-SF, Mini-Nutritional Assessment—Short Form.

ESMO

Annals of Oncology 0: 1–8, 2018
doi:10.1093/annonc/mdy210
Published online 14 June 2018

ORIGINAL ARTICLE

Adherence to geriatric assessment-based recommendations in older patients with cancer: a multicenter prospective cohort study in Belgium

C. Kenis[1†], L. Decoster[2†], J. Flamaing[3,4], P. R. Debruyne[5,6], I. De Groof[7], C. Focan[8], F. Cornélis[9], V. Verschaeve[10], C. Bachmann[11], D. Bron[12], S. Luce[13], G. Debugne[14], H. Van den Bulck[15], J.-C. Goeminne[16], D. Schrijvers[17], K. Geboers[18], B. Petit[19], C. Langenaeken[20], R. Van Rijswijk[21], P. Specenier[22], G. Jerusalem[23], J.-P. Praet[24], K. Vandenborre[25], J.-P. Lobelle[26], M. Lycke[5,6], K. Milisen[27,28] & H. Wildiers[29,30*]

JOURNAL OF CLINICAL ONCOLOGY REVIEW ARTICLE

International Society of Geriatric Oncology Consensus on Geriatric Assessment in Older Patients With Cancer

Hans Wildiers, Pieter Heeren, Martine Puts, Eva Topinkova, Maryska L.G. Janssen-Heijnen, Martine Extermann, Claire Falandry, Andrew Artz, Etienne Brain, Giuseppe Colloca, Johan Flamaing, Theodora Karnakis, Cindy Kenis, Riccardo A. Audisio, Supriya Mohile, Lazzaro Repetto, Barbara Van Leeuwen, Koen Milisen, and Arti Hurria

Hans Wildiers, Pieter Heeren, Johan Flamaing, Cindy Kenis, and Koen Milisen, University Hospitals Leuven,

Geriatric screening

G8 screening tool

	Items	Possible answers
A	Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?	**0** = severe reduction in food intake **1** = moderate reduction in food intake **2** = normal food intake
B	Weight loss during the last 3 months?	**0** = weight loss >3kg **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 or depression **2** = no psychological problems
F	Body Mass Index (weight in kg/height in m^2)	**0** = BMI <19 **1** = 19 ≤BMI < 21 **2** = 21 ≤ BMI < 23 **3** = BMI ≥23
H	Takes more than 3 medications 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)	

Bellara, … Soubeyran. Ann Oncol 2012

Impact on overall survival

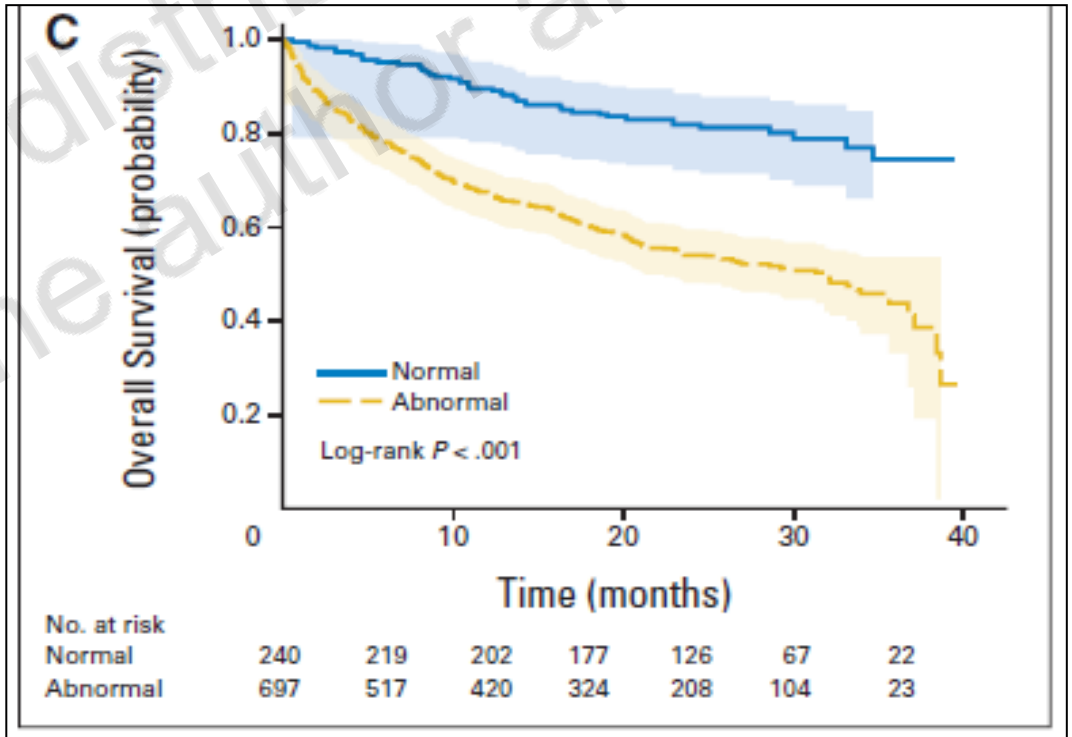


Fig 2. Prognostic value for overall survival of the Flemish version of the Triage Risk Screening Tool (fTRST), including fTRST (1), fTRST (2), and G8 (N = 937). Product-limit survival estimates with No. of patients at risk and 95% Hall-Wellner bands. (A) fTRST (1). (B) fTRST (2). (C) G8.

Decoster et al. Ann Oncol 2014

Kenis, … Wildiers. J Clin Oncol 2014

Why geriatric assessment?

JOURNAL OF CLINICAL ONCOLOGY REVIEW ARTICLE

International Society of Geriatric Oncology Consensus on Geriatric Assessment in Older Patients With Cancer

Hans Wildiers, Pieter Heeren, Martine Puts, Eva Topinkova, Maryska L.G. Janssen-Heijnen, Martine Extermann, Claire Falandry, Andrew Artz, Etienne Brain, Giuseppe Colloca, Johan Flamaing, Theodora Karnakis, Cindy Kenis, Riccardo A. Audisio, Supriya Mohile, Lazzaro Repetto, Barbara Van Leeuwen, Koen Milisen, and Arti Hurria

Hans Wildiers, Pieter Heeren, Johan Flamaing, Cindy Kenis, and Koen Milisen, University Hospitals Leuven,

SIOG INTERNATIONAL SOCIETY OF GERIATRIC ONCOLOGY

1. **Detects** multiple problems
2. Can **influence treatment choice**
3. Has **prognostic** information (OS; life expectancy)
4. Has **predictive** value for morbidity / QoL ↓ / toxicity
5. Possibility to have directed **interventions** that can lead to better QoL and OS

2. Influence of geriatric evaluation on treatment choice

	Treatment altered	More intensive treatment	Less intensive treatment
Horgan	20%	3%	17%
Caillet	21%	2%	17%
Kenis	25%	-	-
Girre	39%	2%	37%
Aliamus	45%	-	-
Chaibi	49%	28%	18%

Hamaker et al. Acta Oncologica 2013

5. Geriatric Interventions: older cancer population

Study/ presenting author	Study type	N	Population	Intervention/comparator	Primary Outcome	Effect Size	Secondary Outcomes
GAP/Mohile Abstr. 12009	Cluster randomized trial of community oncology practices	718	Pts aged > 70 with incurable solid tumors or lymphoma and > 1 impaired GA domain starting a new treatment regimen	Intervention: Oncologists received Geriatric Assessment summary/recommendations for impairments Control: usual care	Grade 3-5 toxicity	50% vs 71%. (p=0.0002)	Nonheme toxicity better: RR 0.73; (p<0.05). Overall Survival 71% vs 74% (p=0.3).
GAIN/ Li Abstr. 12010	RCT	600	Patients age ≥65, diagnosed with a solid malignancy, and starting a new chemo regimen at City of Hope	Intervention: a multidisciplinary team reviewed GA results and implemented interventions Control: usual care	Grade 3-5 chemo-related toxicity	51% vs 60% (p = 0.02).	Advance directive completion: 24 vs. 10% (p < 0.001). No significant differences in ER visits, hospitalizations, or average length of stay
INTEGERATE / Soo Abstr. 12011	RCT	154	Patients aged >70 years with cancer planned for chemotherapy, targeted therapy or immunotherapy	Intervention: integrated oncogeriatric care (geriatrician-led) Control: usual care	HRQOL (ELFI score at week 18)	72 vs 59 (p= 0.001).	Significant differences favoring the intervention group over the usual care group were seen in HRQOL, unplanned hospital admissions, and early treatment discontinuation
Perioperative Intervention/ Nipp Abstr. 12012	RCT	160	Patients ≥65 with GI cancers planning to undergo surgical resection	Intervention: preoperative meeting with geriatric assessment and recommendations and post-op inpatient consultation Control: usual care	Post-op length of stay	ITT (Intent to treat): 7.2 v 8.2 days, P = .37 PP (Per protocol): 5.9 v 8.2 days, P = .02	ITT: lower depression symptoms at post-op day 5 and fewer moderate/severe ESAS symptoms at post-op day 60 PP: lower post-op ICU

Implementation of geriatric evaluation in oncology

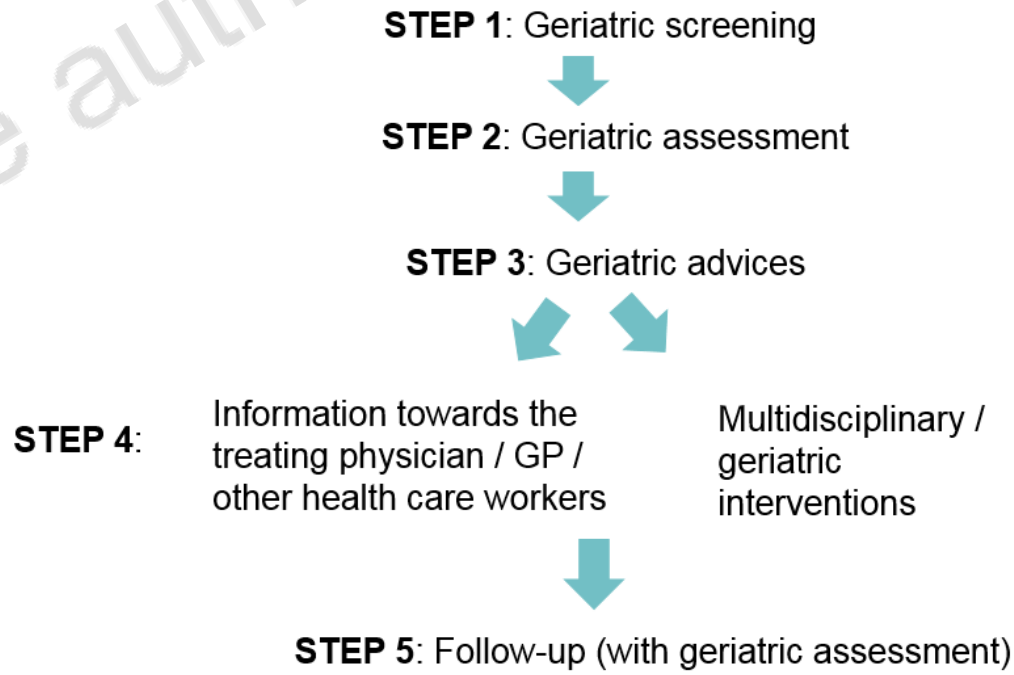
Geriatric oncology	
GA models	***Definition*** **Advantages (+) / disadvantages (-)**
Geriatric oncology unit	*A specific ward with a team specialized in caring for older cancer patients that applies GA based on the GEMU or the ACE model.* (+) centralization of geriatric expertise and treatment options (-) potential patient withdrawal from familiar treating oncologist (-) financial incentives might drive general oncologists not to refer patients (-) only a limited number of patients can be reached (-) General geriatric oncologists might miss the detailed rapidly evolving knowledge of the broad field of oncology
(I)GCT (Inpatient) Geriatric Consultation Team	*A specialized geriatric team that applies GA on non-GA wards or in other settings on a consultative basis.* (+) patients remain under the supervision of their treating oncologist (+) this model can reach a large majority of older cancer patients (+) Interaction between oncologists and geriatric teams is feasible (-) decentralization of geriatric expertise has logistic and practical (e.g. staffing) challenges. (-) several factors may lead to low compliance of treating physicians to (I)GCT's advices: GA results may be unknown at time of treatment decision making, treating physicians might not know what to do with GA results, onset of geriatric interventions or treatment adjustment depends of local possibilities. (-) patients who need referral to specific geriatric care programs, might encounter waiting lists
Geriatric expertise Not nearby	*GA in stand-alone comprehensive cancer centers without geriatric department or private practice oncology clinics* (+) patients remain under the supervision of their treating oncologist (+) validated methods can easily be used to target high-risk patients and introduce geriatric care (+) a large majority of older cancer patients can be reached (-) realization of interaction between oncologists and geriatric teams is difficult (-) there is no gold standard to screen high-risk patients (-) interrater reliability and interpretation of results can be a problem (-) patients who need referral, might encounter waiting lists

Wildiers, J Clin Oncol 2014

Implementation of geriatric assessment in clinical practice

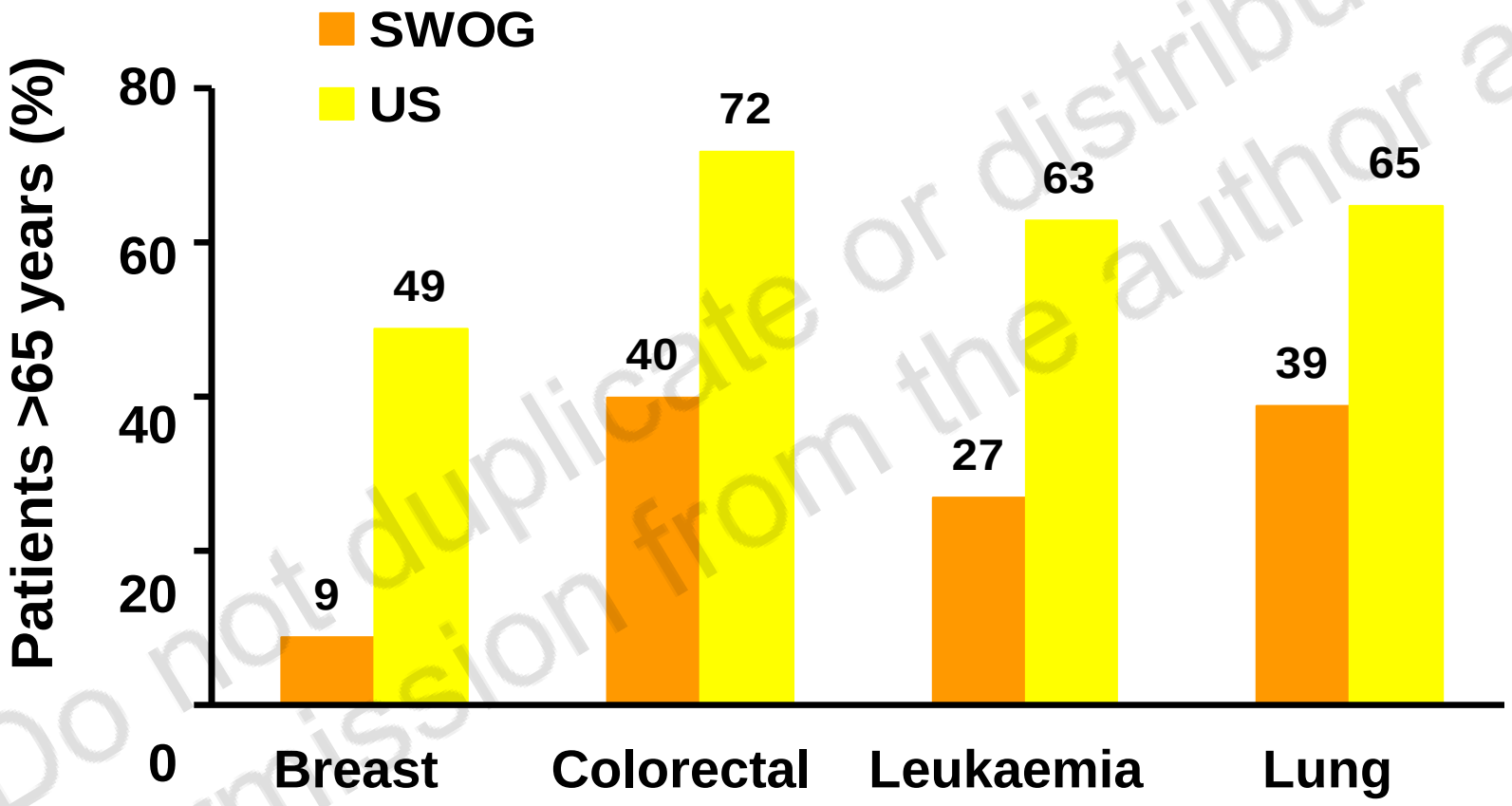
The example of Leuven, Belgium

- Age 70+
- New cancer or cancer progression
- Treatment decision (with significant potential impact) needs to be taken
- G8 screening by physician or nurse
- If G8 ≤12 referral to geriatric day hospital for geriatric assessment and advices



Older patients (>65 years) are systematically excluded from clinical trials

Older patients in SWOG clinical trials vs US population



SWOG = South Western Oncology Group

Hutchins LF, et al. N Engl J Med. 1999

Chemotherapy pharmacokinetic parameters that might change with aging

Parameter changes	Clinical consequences
Absorption decreased	Oral chemotherapy (e.g. capecitabine) might be less effective in the elderly
Distribution volume decreased	Serum concentrations and toxicity of several chemotherapeutics might increase (e.g. taxanes)
Hepatic metabolism decreased	Not well known, may affect serum concentrations of chemotherapeutics elimitated by hepatic metabolisation (e.g. taxanes, cyclophosphamide, anthracyclines)
Renal excretion decreased	Dosing should be adapted to recommendations in order to avoid excessive serum concentrations and toxicity from renally excreted chemotherapeutics (e.g. carboplatin, methotrexate)

J Clin Oncol 2007; 25(14): 1832-43.; Eur J Cancer 2007; 43(1):14-34
Eur J Cancer 2007, 43(15): 2235-41
Ann Oncol 2007; 18(8):1314-21. Clin pharmacokinet 2003; 1213-27

SIOG
INTERNATIONAL SOCIETY OF GERIATRIC ONCOLOGY

Same chemotherapy dose in older persons? No!

REVIEW ARTICLE

Clin Pharmacokinet 2003; 42 (14): 1213-1242
0312-5963/03/0014-1213/$30.00/0

Pharmacology of Anticancer Drugs in the Elderly Population

Hans Wildiers,[1,2] *Martin S. Highley,*[1,3] *Ernst A. de Bruijn*[1] and *Allan T. van Oosterom*[1,2]

VOLUME 25 · NUMBER 14 · MAY 10 2007

JOURNAL OF CLINICAL ONCOLOGY

REVIEW ARTICLE

International Society of Geriatric Oncology Chemotherapy Taskforce: Evaluation of Chemotherapy in Older Patients—An Analysis of the Medical Literature

Stuart M. Lichtman, Hans Wildiers, Etienne Chatelut, Christopher Steer, Daniel Budman, Vicki A. Morrison, Brigitte Tranchand, Iuliana Shapira, and Matti Aapro

EUROPEAN JOURNAL OF CANCER 43 (2007) 14–34

ELSEVIER

available at www.sciencedirect.com

ScienceDirect

journal homepage: www.ejconline.com

EJC

Position Paper

International Society of Geriatric Oncology (SIOG) recommendations for the adjustment of dosing in elderly cancer patients with renal insufficiency

Stuart M. Lichtman[a], *Hans Wildiers*[b], *Vincent Launay-Vacher*[c], *Christopher Steer*[d], *Etienne Chatelut*[e], *Matti Aapro*[f,*]

Anticancer drugs are NOT well tolerated in all older patients with cancer

Hans Wildiers, Nienke A de Glas

Lancet Healthy Longev 2020; 1: e43–47

Panel: Reports on new anticancer drugs lack evaluation of frailty

- Many scientific publications conclude that new anticancer drugs are well tolerated by and feasible for older patients (aged 70 years or older) with cancer
- Most reports do not recognise that the older population enrolled in trials does not reflect the general older population, in which frailty is a common issue
- Incorporating measurements of frailty in clinical trials is important because these individuals have an increased risk of worse outcomes
- Tolerance of new anticancer agents should be evaluated in older frail patients before concluding that the treatment is well tolerated in all older patients

Endpoints in geriatric oncology research

- Classical endpoints (disease free survival, response rate, …) often no priority for elderly
- Interesting concepts for older cancer patients
  - QoL even more important than in younger
  - Co-primary endpoints
  - Composite endpoints (e.g. Overall Treatment Utility)
  - …
- Integration of geriatric assessment / frailty assessment is crucial

VOLUME 31 · NUMBER 29 · OCTOBER 10 2013
JOURNAL OF CLINICAL ONCOLOGY
SPECIAL ARTICLE

End Points and Trial Design in Geriatric Oncology Research: A Joint European Organisation for Research and Treatment of Cancer–Alliance for Clinical Trials in Oncology–International Society of Geriatric Oncology Position Article

Hans Wildiers, Murielle Mauer, Athanasios Pallis, Arti Hurria, Supriya G. Mohile, Andrea Luciani, Giuseppe Curigliano, Martine Extermann, Stuart M. Lichtman, Karla Ballman, Harvey Jay Cohen, Hyman Muss, and Ulrich Wedding

Is cancer biology different in older persons?

Breast cancer	- Older age is associated with slightly less high-grade tumors, less TNBC and HER2+ subtype, and more luminal tumors, but all subtypes occur in all age categories. - The tumor mutational landscape differs with age; for example, less *TP53* and more *PIK3CA* mutations occur in the older breast cancer population. - Age-dependent changes in systemic and peritumoral immunity have been reported but require further research in the different breast cancer subtypes.

Is cancer biology different in older patients?

Yannick Van Herck, Annelies Feyaerts*, Shabbir Alibhai, Demetris Papamichael, Lore Decoster, Yentl Lambrechts, Michael Pinchuk, Oliver Bechter, Jaime Herrera-Caceres, Frédéric Bibeau, Christine Desmedt, Sigrid Hatse, Hans Wildiers*

Van Herck et al, Lancet Healthy Longev 2021, in press

Is cancer biology different in older persons?

Breast cancer	- Older age is associated with slightly less high-grade tumors, less TNBC and HER2+ subtype, and more luminal tumors, but all subtypes occur in all age categories. - The tumor mutational landscape differs with age; for example, less *TP53* and more *PIK3CA* mutations occur in the older breast cancer population. - Age-dependent changes in systemic and peritumoral immunity have been reported but require further research in the different breast cancer subtypes.

Is cancer biology different in older patients?

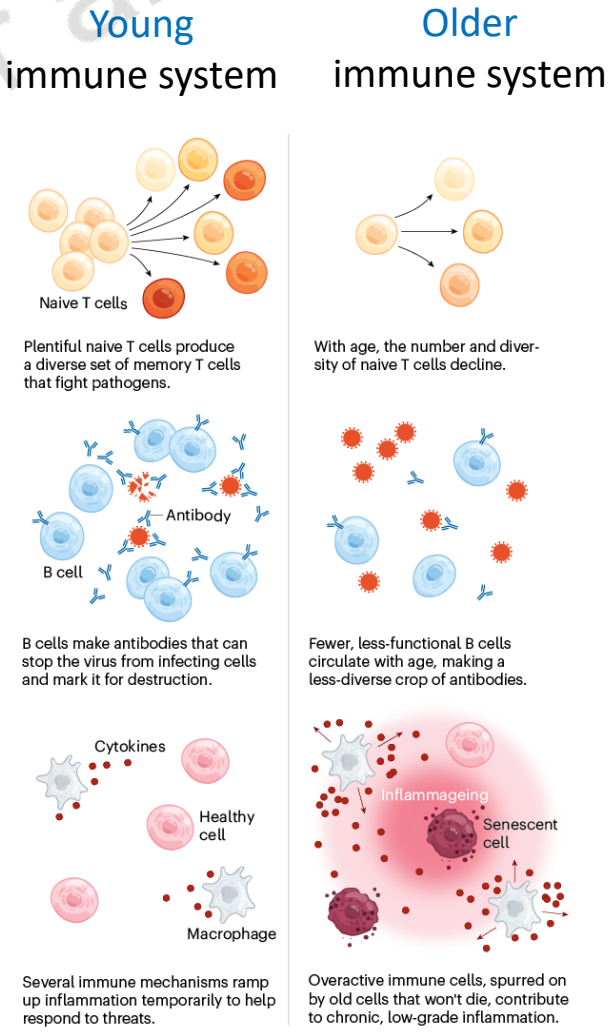
Yannick Van Herck, Annelies Feyaerts*, Shabbir Alibhai, Demetris Papamichael, Lore Decoster, Yentl Lambrechts, Michael Pinchuk, Oliver Bechter, Jaime Herrera-Caceres, Frédéric Bibeau, Christine Desmedt, Sigrid Hatse, Hans Wildiers*

Van Herck et al, Lancet Healthy Longev 2021, in press

Is immunity different in older persons?

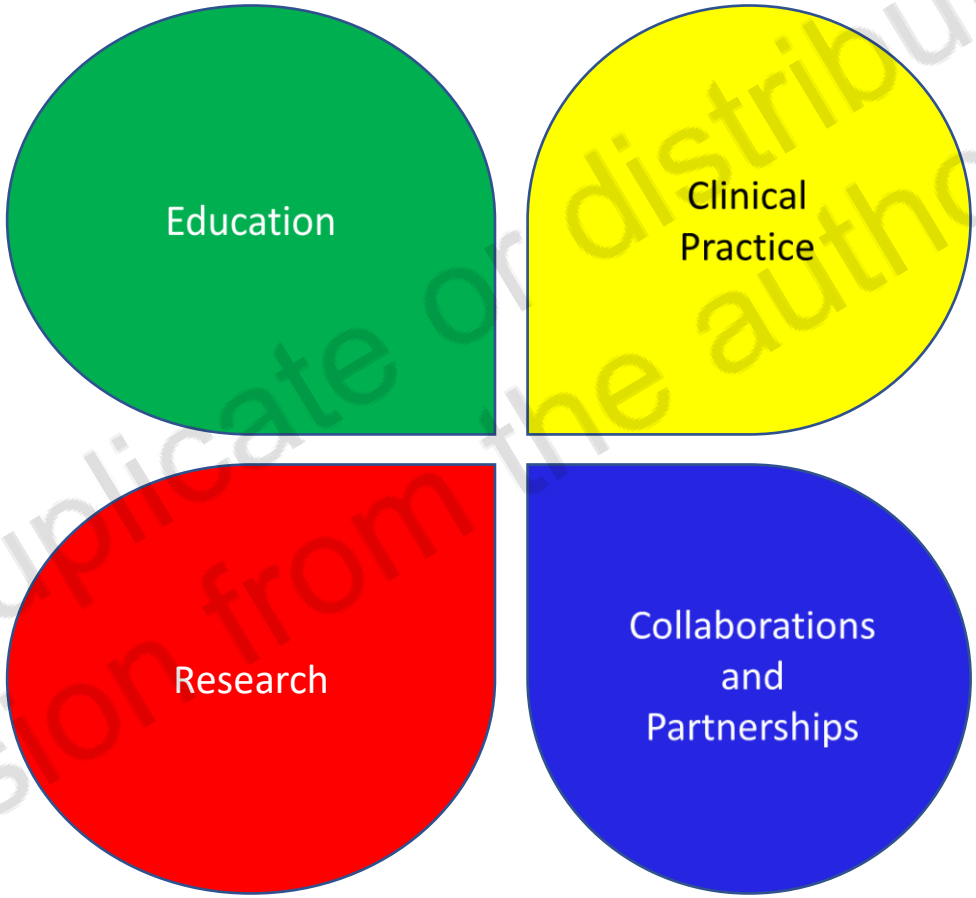
The concept of ***immunosenescence***

Nature 2020; Willyard et al



2019 SIOG Top Priorities for the worldwide advancement of cancer care in older adults

SIOG
INTERNATIONAL SOCIETY OF GERIATRIC ONCOLOGY

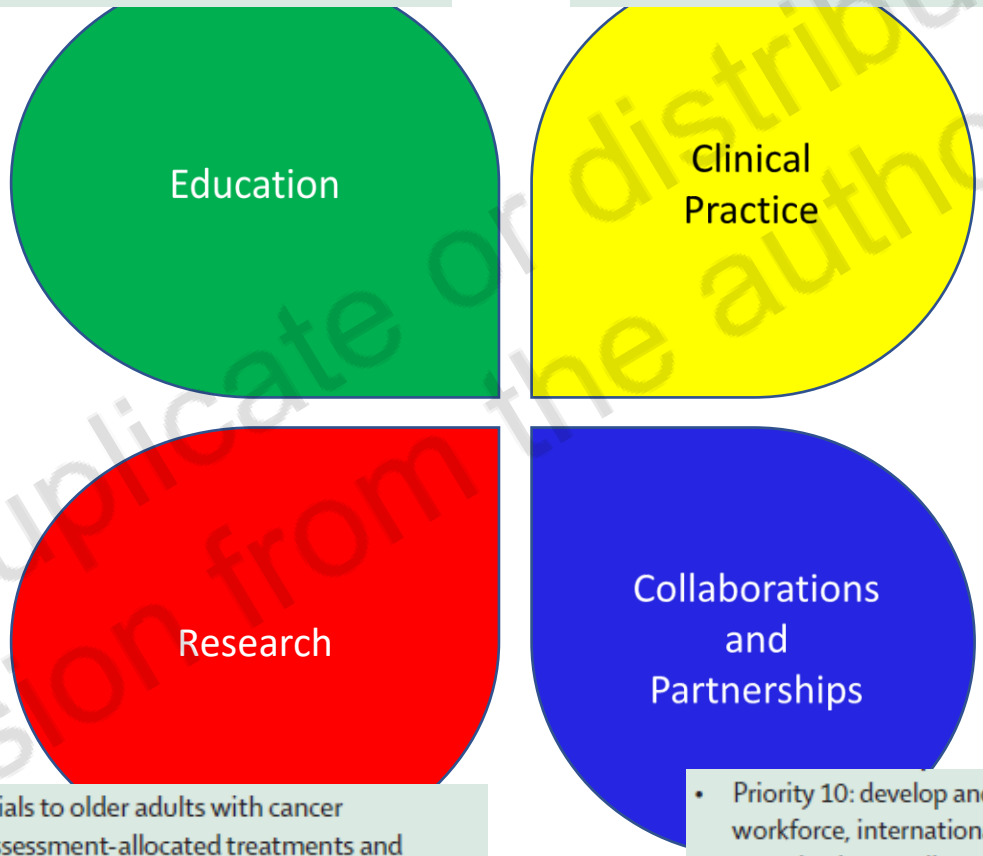


Exterman et al, Lancet oncol 2019

2019 SIOG Top Priorities for the worldwide advancement of cancer care in older adults

- Priority 1: integrate geriatric oncology into medical, nursing, and allied health professionals schools and residency training programmes, and promote involvement of trainees in research
- Priority 2: provide educational material and organise formal educational activities focused on geriatric oncology for practising health-care professionals
- Priority 3: educate the general public about the relevance of providing age-appropriate care for older adults with cancer

- Priority 4: develop and implement models to provide optimal care for older adults with cancer
- Priority 5: develop guidelines for the optimal treatment of older adults with cancer
- Priority 6: establish centres of excellence in geriatric oncology for delivering clinical care, conducting clinical and translational research, and providing educational opportunities



SIOG
INTERNATIONAL SOCIETY OF GERIATRIC ONCOLOGY

Exterman et al, Lancet oncol 2019

- Priority 7: improve the relevance of clinical trials to older adults with cancer
- Priority 8: evaluate the benefits of geriatric assessment-allocated treatments and geriatric comanagement in improving treatment outcomes for older adults with cancer
- Priority 9: use personalised medicine technologies to enhance cancer understanding and management of older adults

- Priority 10: develop and strengthen links between SIOG and the geriatric oncology workforce, international specialised agencies, global and regional professional organisations, policy makers, and patient advocacy groups
- Priority 11: promote the inclusion of specific provisions for delivering high-quality, evidence-based care for older adults in national cancer control plans
- Priority 12: create global funding mechanisms aimed at fostering professional development of the geriatric oncology workforce and promoting research on the interface of cancer and ageing

Who is the older adult patient?

An onco-geriatrician point of view

- Older patients represent the majority, not the minority
- Extreme variability in health status.
  - Geriatric assessment is the cornerstone for personalized care
  - Major challenges for implementation
- Careful interpretation of 'general population' study results
  - Benefit may be less and toxicity higher in frail pts
  - Endpoints of clinical trials may not be relevant for older persons
- Cancer may behave differently in elderly (biology differences)
- '***Every oncologist should become a geriatric oncologist***'