Treviso Geriatric Oncology Advanced Course

Comprehensive Geriatric Assessment
CGA

If you do not ask the right questions, you do not get the right answers. A question asked in the right way often points to its own answer. Asking questions is the A-B-C of diagnosis. Only the inquiring mind solves problems
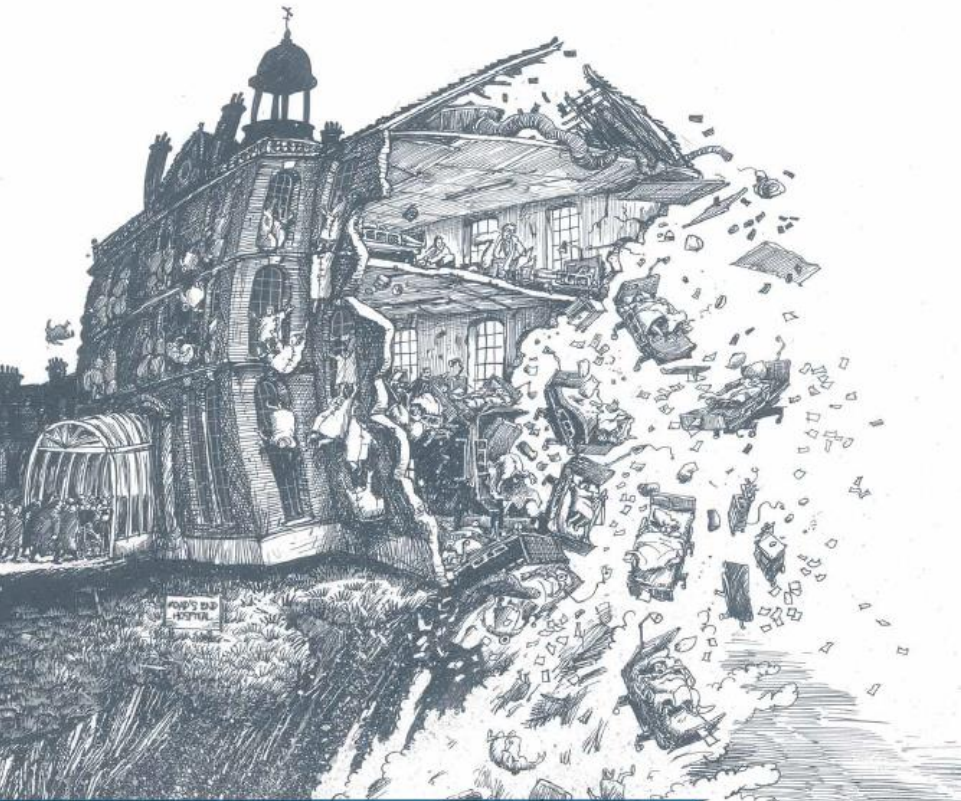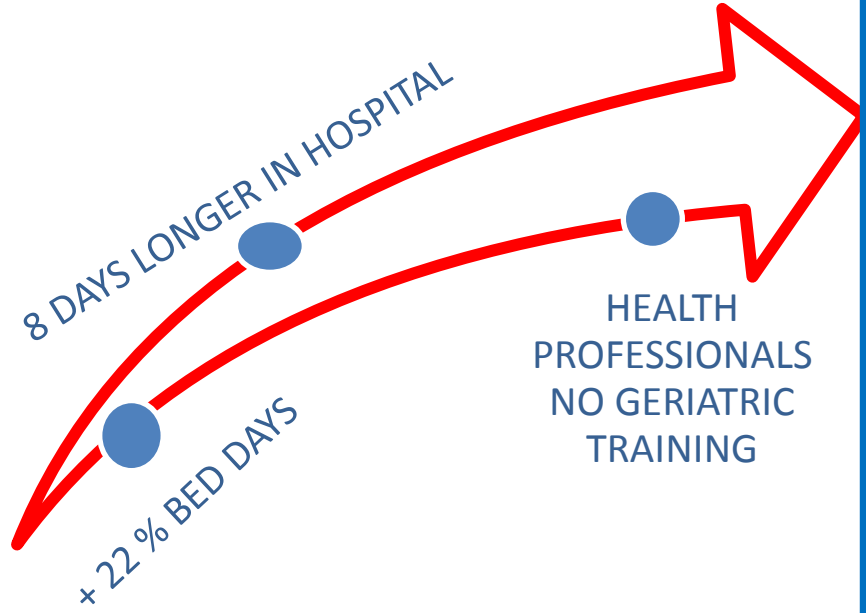
Edward Hodnett

Changing Patients, Changing needs

PATIENTS OVER 80:
OVER THE PAST 10 YEARS

8 DAYS LONGER IN HOSPITAL

+ 22 % BED DAYS

HEALTH
PROFESSIONALS
NO GERIATRIC
TRAINING

Royal College
of Physicians

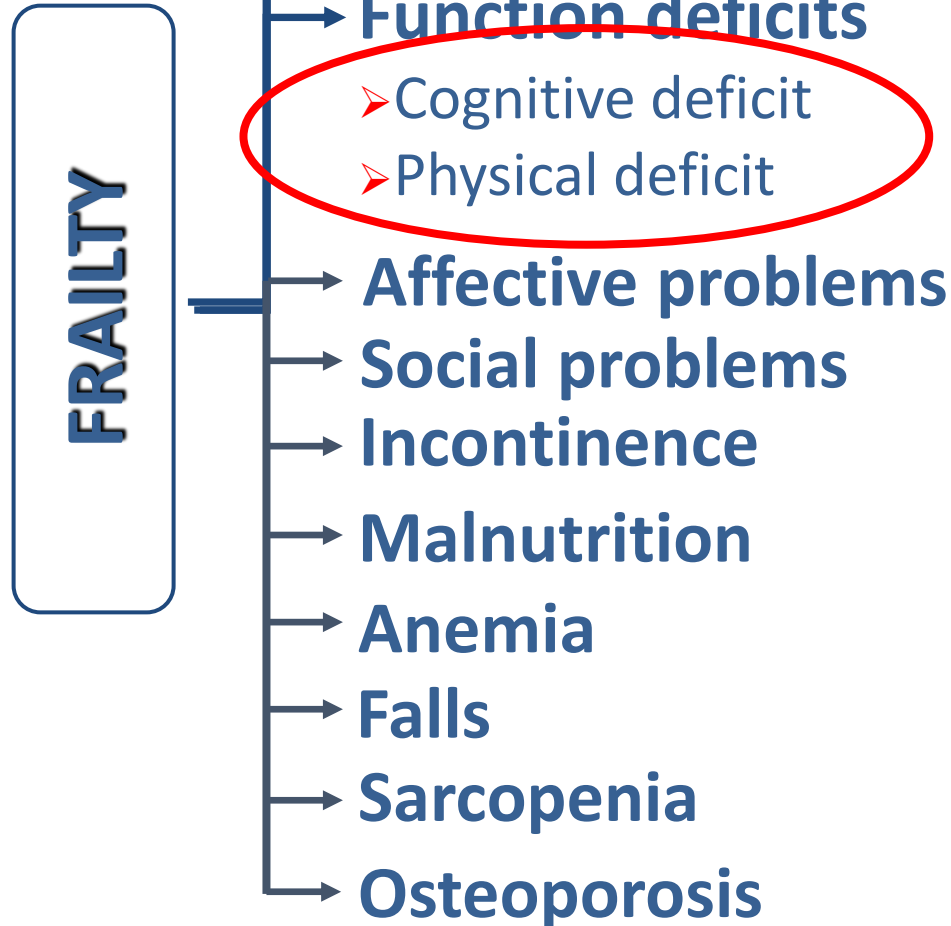Setting higher standards

Hospitals on the edge?
The time for action

A report by the Royal College of Physicians
September 2012

The "Modern" Patient

FRAILTY

- → **Co/multimorbidity**
- → **Multiple drugs**
- → **Function deficits**
  - ➤ Cognitive deficit
  - ➤ Physical deficit
- → **Affective problems**
- → **Social problems**
- → **Incontinence**
- → **Malnutrition**
- → **Anemia**
- → **Falls**
- → **Sarcopenia**
- → **Osteoporosis**

*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

PATTERNS OF CHRONIC MULTIMORBIDITY IN THE ELDERLY POPULATION
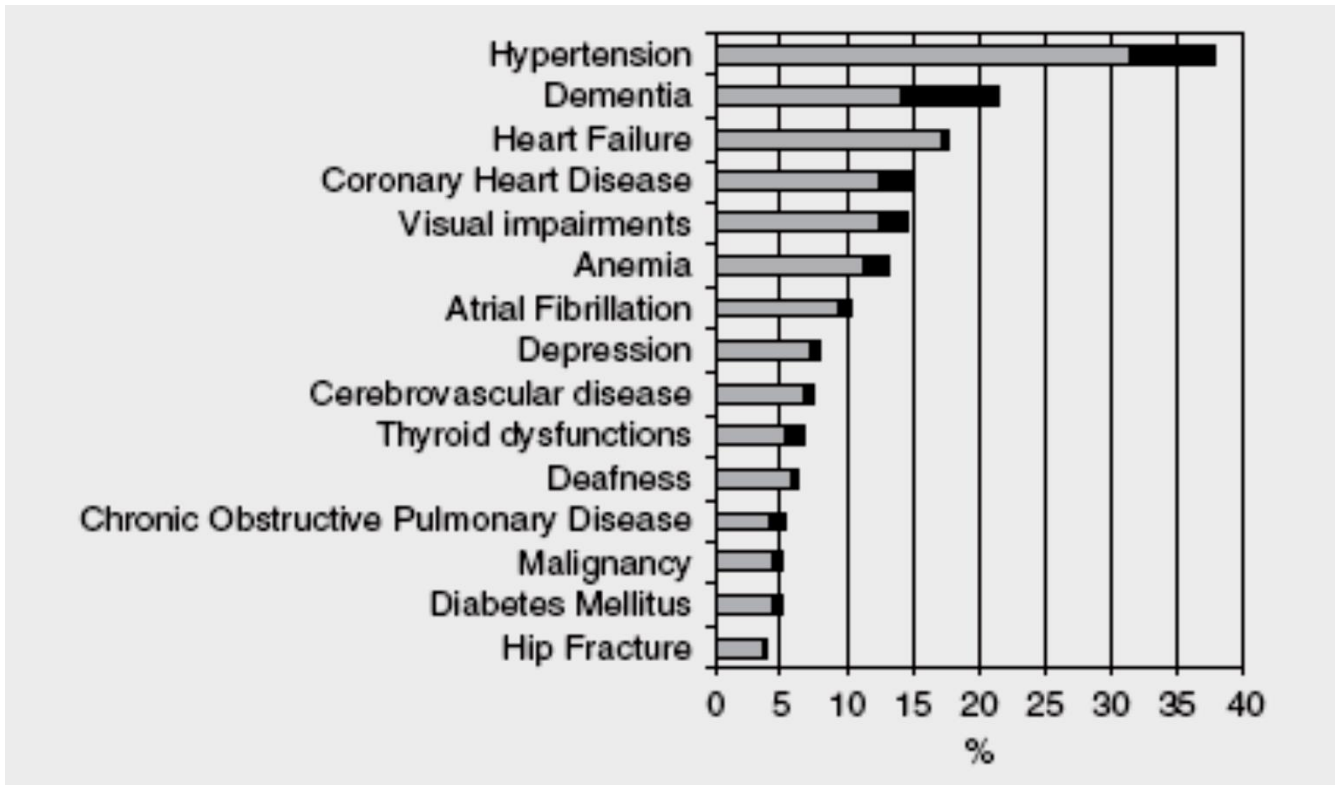
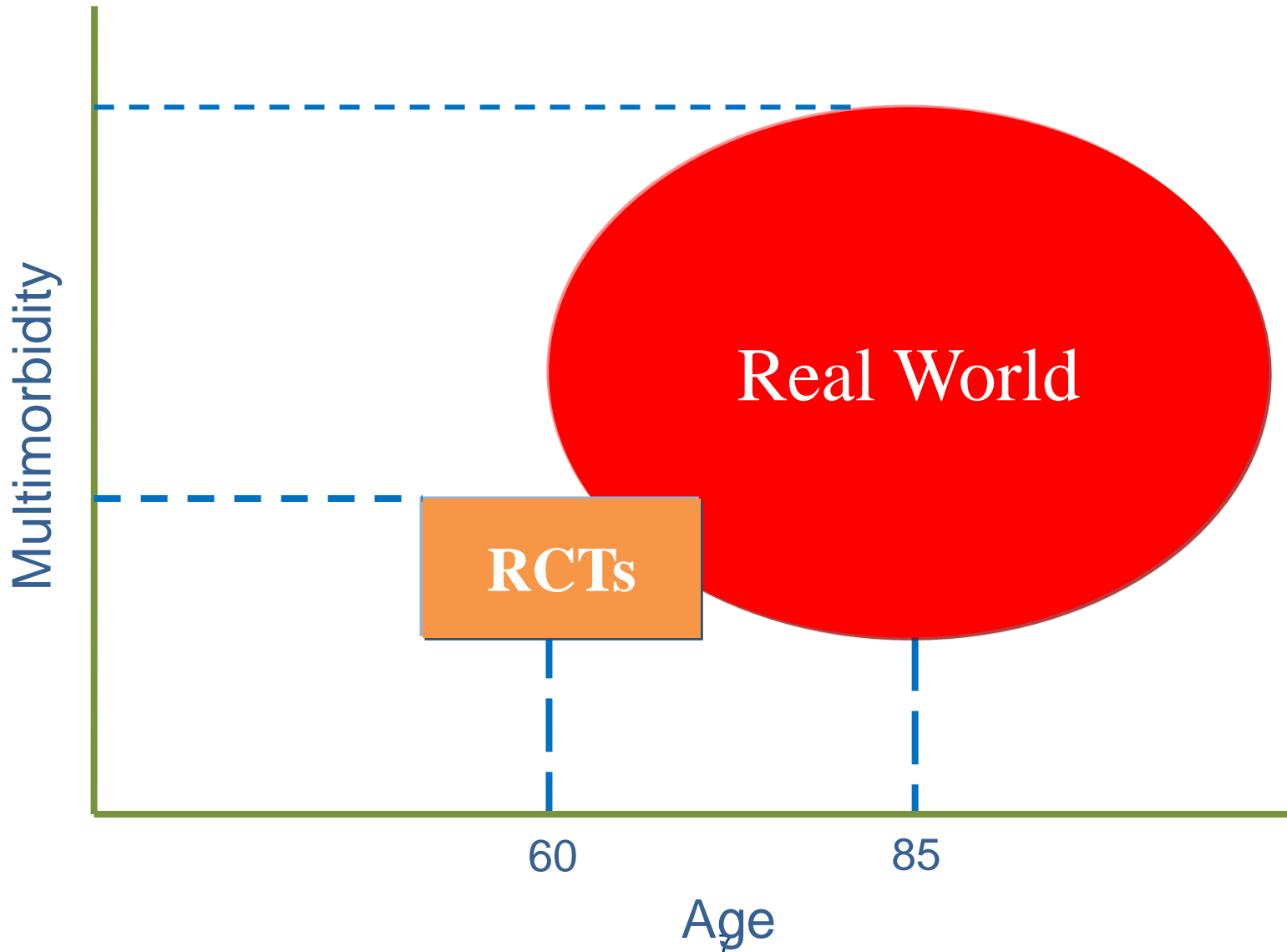Prevalence per 100 of most frequent chronic diseases occurring independently of comorbidity (gray1black) or without any comorbidity (black).

Evidence Based Medicine (EBM)
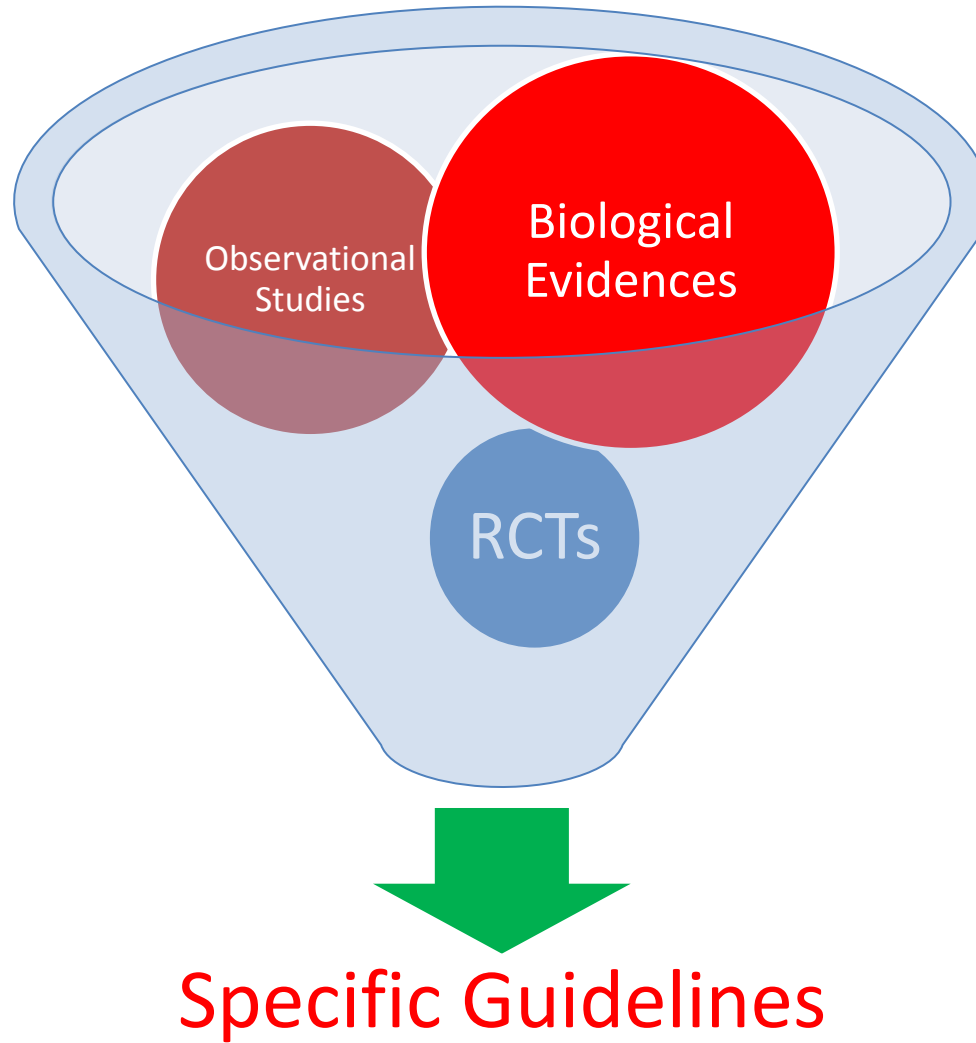
A Missed Target

Guidelines for Older Adults

The management of cancer in the older person

- GERIATRIC ASSESSMENT

- LIFE EXPECTANCY (LONGEVITY)

- FRAILTY

- COMORBIDITY/MULTIMORBIDITY

- COMPLIANCE/QUALITY OF LIFE

Table 3. **Estimated Life Expectancy, by Comorbidity Groups***

Age, y	Life Expectancy in Men, y							Life Expectancy in Women, y						
	Average U.S. Population†	Comorbidity						Average U.S. Population†	Comorbidity					
		None	Low/ Medium	High	Diabetes‡	COPD§	CHF‖		None	Low/ Medium	High	Diabetes‡	COPD§	CHF‖
All races														
66	15.4	18.5	15.7	9.9	14.7	12.2	7.4	18.4	22.5	18.4	12.0	16.1	15.4	8.0
70	12.8	16.3	13.5	8.9	13.1	11.0	7.0	15.4	19.2	15.7	10.8	14.7	13.3	8.0
75	9.9	12.7	11.0	7.4	10.3	8.9	5.8	12.0	15.3	12.4	8.5	11.4	10.8	7.1
80	7.4	9.8	8.2	5.8	7.4	7.0	4.8	9.0	11.6	9.4	6.6	8.5	8.0	5.8
85	5.5	7.2	5.8	4.2	5.5	5.1	3.7	6.6	8.7	7.0	5.1	6.2	6.2	4.7
90	3.9	5.1	3.9	3.0	3.7	3.7	3.0	4.7	5.7	4.7	3.5	4.4	4.4	3.5
White persons														
66	15.5	18.6	16.1	9.9	14.8	12.2	7.9	18.5	22.6	18.5	12.0	16.2	14.7	8.5
70	12.9	16.3	13.9	8.9	13.2	11.0	7.0	15.5	19.4	15.8	10.8	14.0	12.7	8.0
75	9.9	12.8	10.7	7.4	10.3	8.9	5.8	12.0	15.3	12.4	8.5	11.4	10.2	7.0
80	7.4	9.9	8.2	5.4	7.4	6.6	4.8	9.0	11.7	9.0	6.6	8.5	8.0	5.8
85	5.4	7.2	5.8	4.2	5.4	4.8	3.6	6.6	8.2	6.6	5.0	6.2	6.2	4.7
90	3.9	5.0	3.9	3.0	3.6	3.6	3.0	4.7	5.7	4.7	3.8	4.3	4.3	3.5
Black persons														
66	13.5	16.3	14.2	9.1	13.5	11.9	7.1	17.0	21.3	17.8	10.9	17.0	17.0	8.1
70	11.4	14.7	12.4	7.9	11.4	9.5	6.4	14.4	18.7	15.3	9.9	14.7	13.8	8.1
75	9.1	11.9	10.0	6.4	9.4	7.9	5.2	11.5	15.3	12.5	8.5	11.5	11.8	7.2
80	7.1	9.8	8.0	5.2	7.7	6.8	4.5	9.0	12.1	10.0	6.9	9.3	9.0	6.1
85	5.5	7.3	6.3	4.5	5.5	5.2	3.8	6.9	9.0	7.5	5.5	6.5	6.9	5.2
90	4.2	5.7	4.7	3.6	4.5	3.1	3.4	5.2	6.7	5.7	4.1	5.2	5.2	4.1

CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease.
* Rounded to the nearest tenth.
† From the 2000 U.S. decennial life table at the chronological age.
‡ Includes diabetes only or diabetes with other conditions except COPD and CHF.
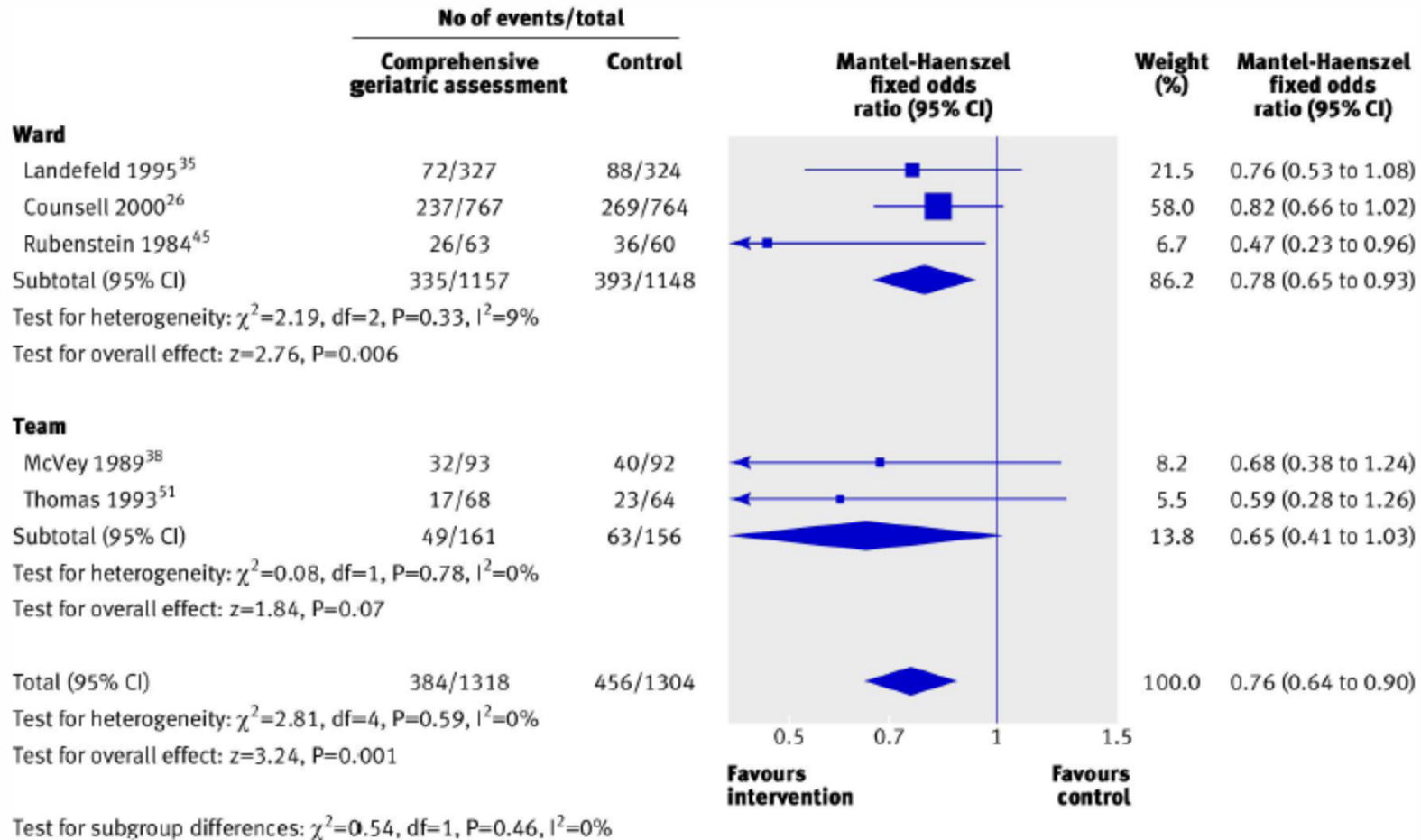§ Includes COPD only or COPD with other conditions except CHF.
‖ Includes CHF only or CHF with other conditions.

COMPREHENSIVE GERIATRIC ASSESSMENT DEFINITION

The CGA is "a multidisciplinary evaluation in which the multiple problems of older persons are uncovered, described, and explained, if possible, and in which the resources and strengths of the person are catalogued, need for services assessed, and a coordinated care plan developed to focus interventions on the person's problems"

Solomon D. J Am Geriatr Soc, 36 (1988), pp. 342–347

CGA META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS

	No of events/total		Mantel-Haenszel fixed odds ratio (95% CI)	Weight (%)	Mantel-Haenszel fixed odds ratio (95% CI)
	Comprehensive geriatric assessment	Control			
Ward					
Landefeld 1995[35]	72/327	88/324		21.5	0.76 (0.53 to 1.08)
Counsell 2000[26]	237/767	269/764		58.0	0.82 (0.66 to 1.02)
Rubenstein 1984[45]	26/63	36/60		6.7	0.47 (0.23 to 0.96)
Subtotal (95% CI)	335/1157	393/1148		86.2	0.78 (0.65 to 0.93)
Test for heterogeneity: $\chi^2=2.19$, df=2, P=0.33, $I^2=9\%$					
Test for overall effect: z=2.76, P=0.006					
Team					
McVey 1989[38]	32/93	40/92		8.2	0.68 (0.38 to 1.24)
Thomas 1993[51]	17/68	23/64		5.5	0.59 (0.28 to 1.26)
Subtotal (95% CI)	49/161	63/156		13.8	0.65 (0.41 to 1.03)
Test for heterogeneity: $\chi^2=0.08$, df=1, P=0.78, $I^2=0\%$					
Test for overall effect: z=1.84, P=0.07					
Total (95% CI)	384/1318	456/1304		100.0	0.76 (0.64 to 0.90)
Test for heterogeneity: $\chi^2=2.81$, df=4, P=0.59, $I^2=0\%$					
Test for overall effect: z=3.24, P=0.001					

0.5   0.7   1   1.5

Favours intervention — **Favours control**

Test for subgroup differences: $\chi^2=0.54$, df=1, P=0.46, $I^2=0\%$

Odds ratios for death or deterioration at the end of follow-up (median 12 months) in elderly patients according to comprehensive geriatric assessment after emergency admission at baseline

Graham E. et al BMJ 2011

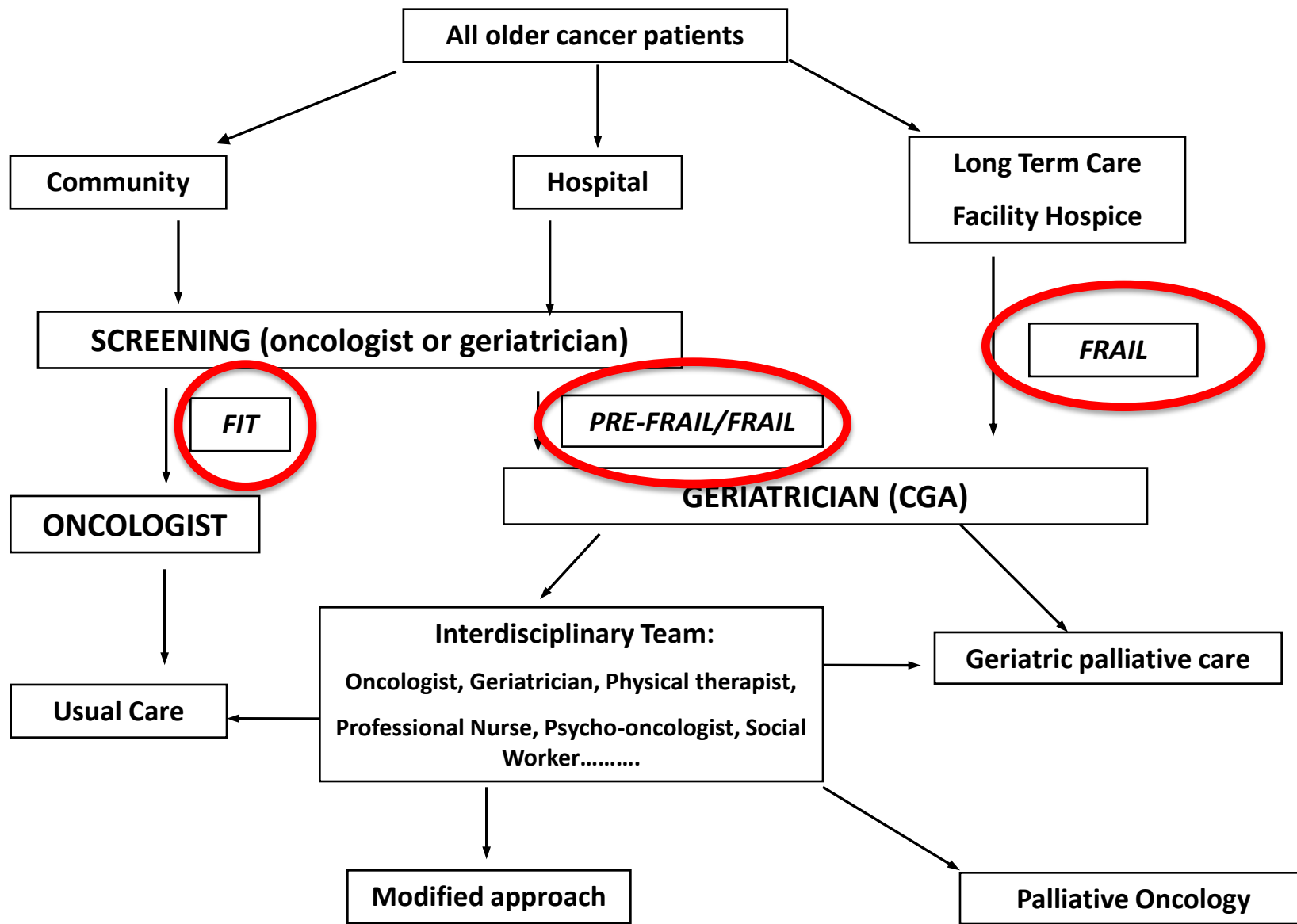# COMPREHENSIVE GERIATRIC ASSESSMENT

- WHEN?
- HOW?
- WHY?

COMPREHENSIVE GERIATRIC ASSESSMENT

- WHEN?

  ✓ Before surgical treatment?

  ✓ Before chemotherapy?

  ✓ Before radiotherapy?

  ✓ Before decision making?

Best choice: always … or it depends

COMPREHENSIVE GERIATRIC ASSESSMENT

- WHY?

All older cancer patients

Community | Hospital | Long Term Care Facility Hospice

SCREENING (oncologist or geriatrician)

FIT

PRE-FRAIL/FRAIL

FRAIL

ONCOLOGIST

GERIATRICIAN (CGA)

Usual Care

Interdisciplinary Team:
Oncologist, Geriatrician, Physical therapist, Professional Nurse, Psycho-oncologist, Social Worker……….

Geriatric palliative care

Modified approach

Palliative Oncology

ATYPICAL DISEASE PRESENTATIONS

- Delirium
- Falls & Immobility
- Acute Urinary Incontinence
- Dehydration or Acute Nutritional Crisis
- Functional Decompensation

Why might each frail older adult manifest the same stressor with a unique disease presentation?

Frailty as a phenotype

"Increasingly, geriatricians define frailty as a biological syndrome of decreased reserve and resistance to stressors, resulting from cumulative declines across multiple physiologic systems, and causing adverse outcomes. This concept distinguishes frailty from disability"

Fried LP et al, Cardiovascular Health Study

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.
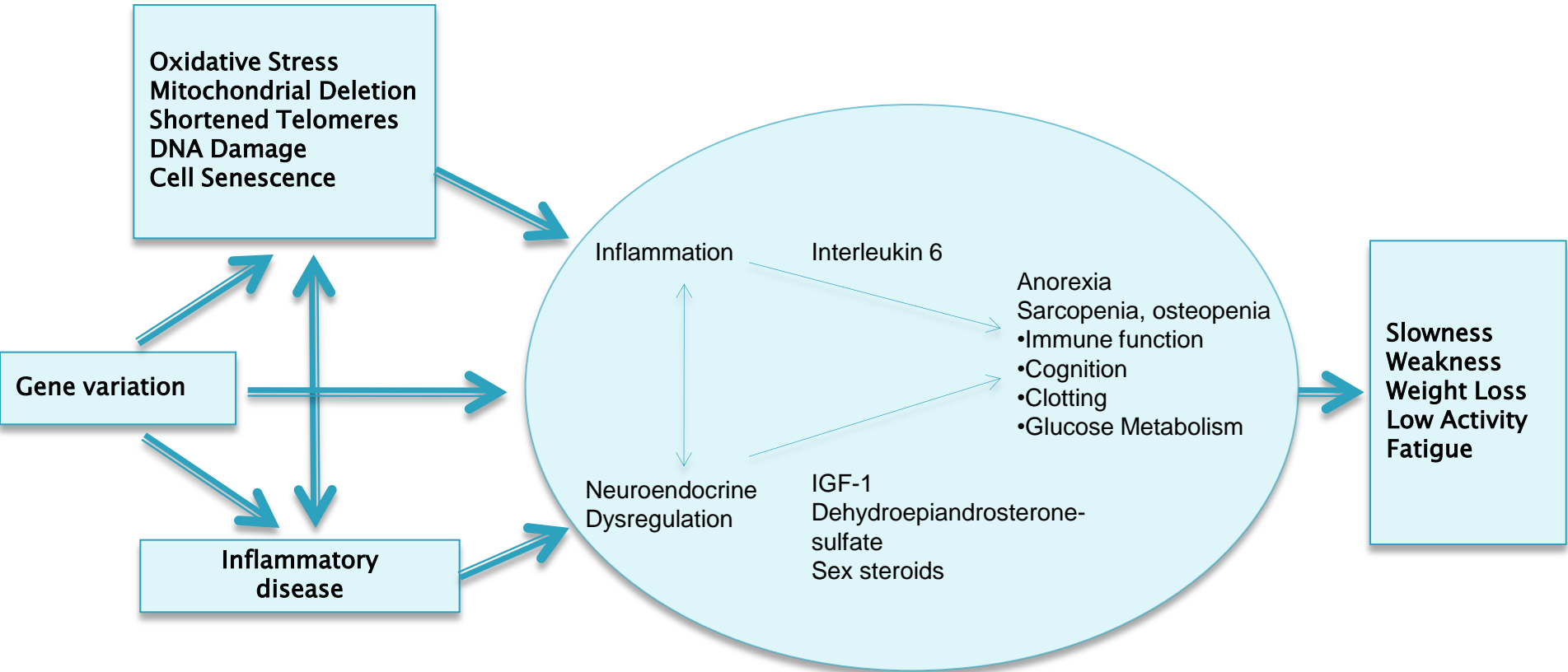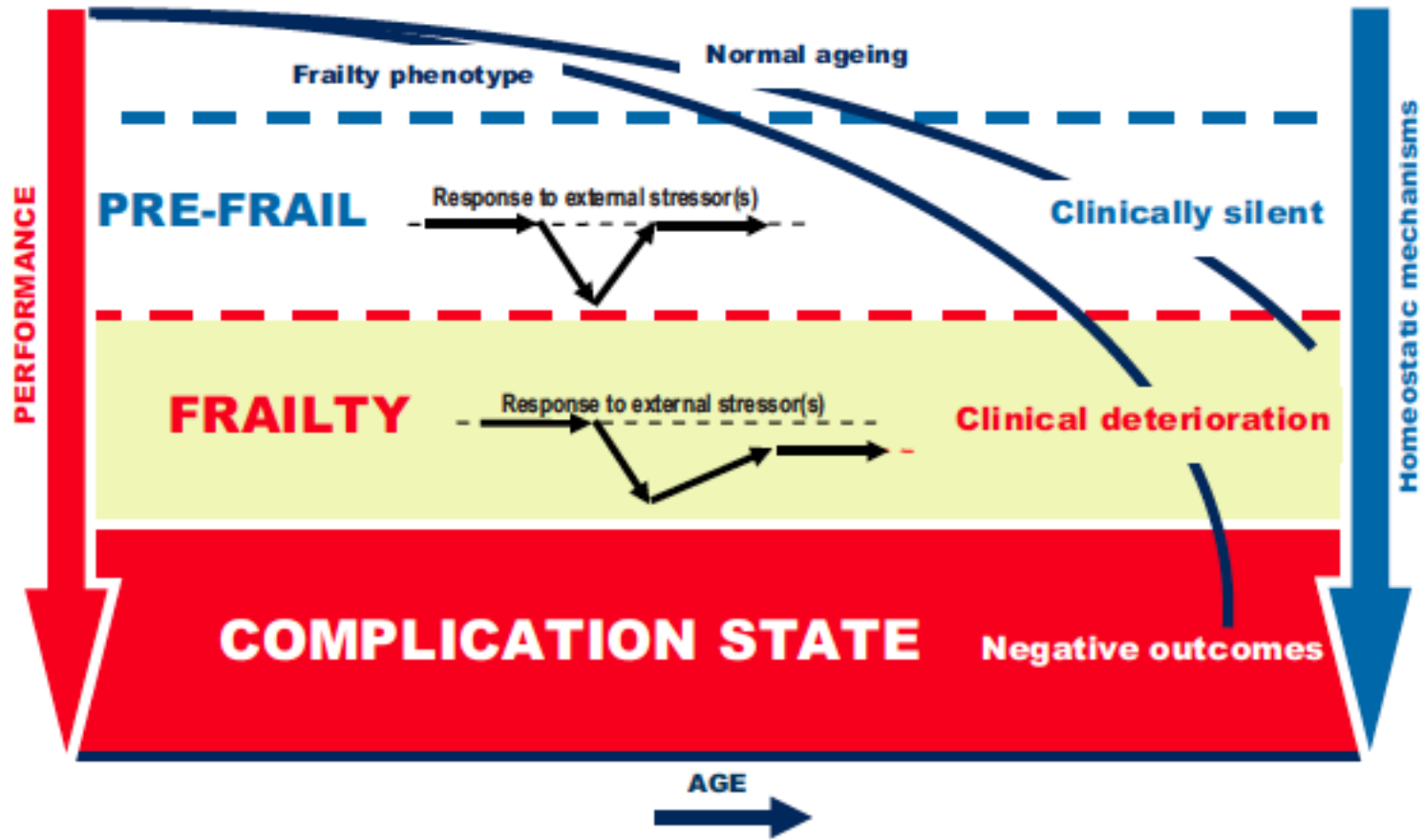
Canadian Initiative on Frailty and Aging, 2003

Frailty – an overlapping concept

AGING
Increased vulnerability to disease and accidents over time

DISABILITY
Functional limitations resulting from impairments

COMORBIDITY
Disease processes resulting from biology and exposures

FRAILTY

Multidimensional

Unstable

Heterogeneous
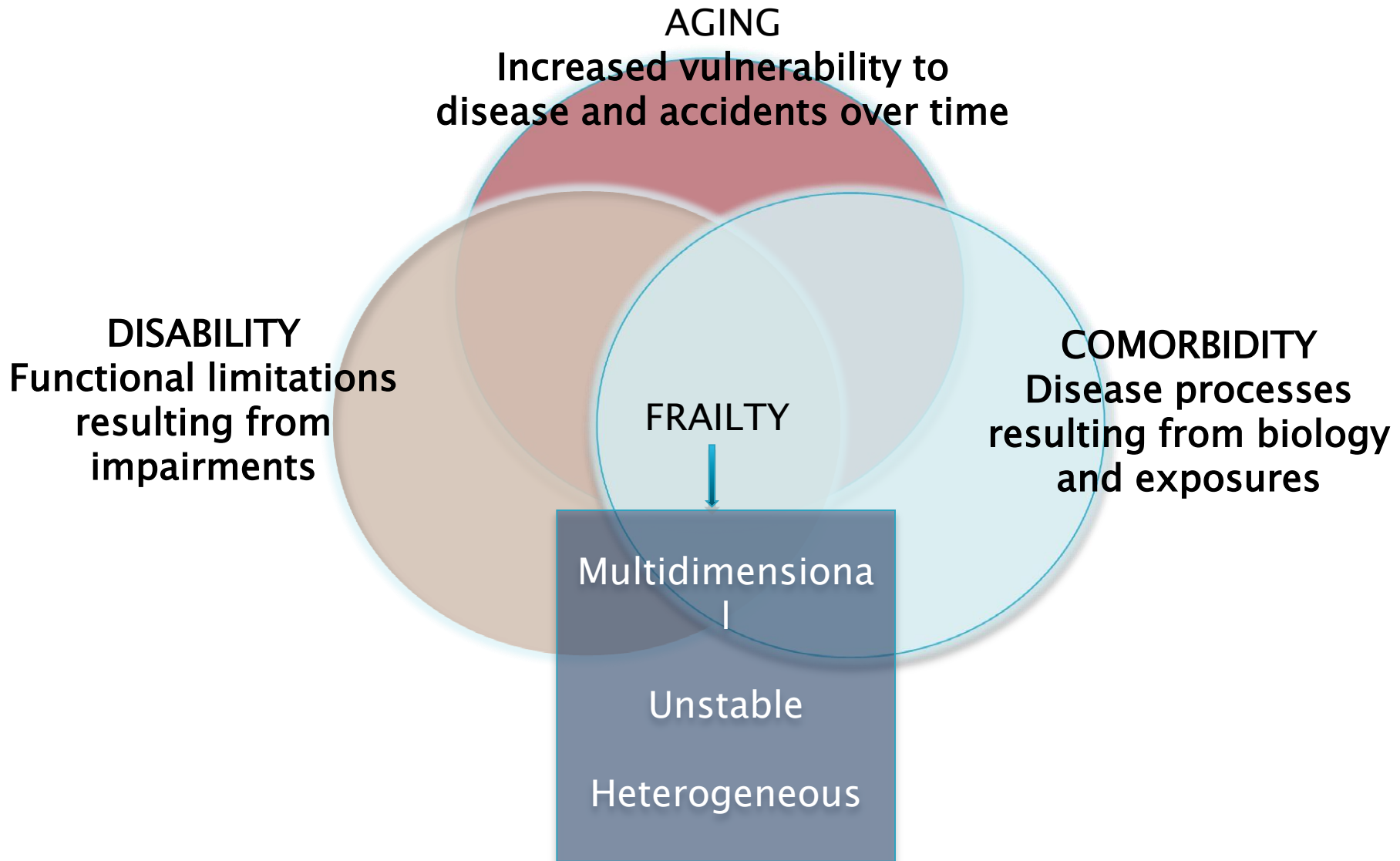
Molecular and Disease

Impaired Physiological

Clinical

Oxidative Stress
Mitochondrial Deletion
Shortened Telomeres
DNA Damage
Cell Senescence

Gene variation

Inflammatory disease

Inflammation   Interleukin 6

Anorexia
Sarcopenia, osteopenia
•Immune function
•Cognition
•Clotting
•Glucose Metabolism

Neuroendocrine
Dysregulation

IGF-1
Dehydroepiandrosterone-
sulfate
Sex steroids

Slowness
Weakness
Weight Loss
Low Activity
Fatigue

Walston J, Ferrucci L,Fried L, J Am Geriatr Soc. 2006 Jun;54(6):991–1001

Development of frailty with advancing age

Lang PO, Zekry D Gerontology. 2009;55(5):539-49.

- Frailty is most obvious under "stress"

    acute illness

    new medications

    surgery

    pain

    change in environment or support
- Surgery and Illness - Frailty Stress Tests

Patterns of Chronic Multimorbidity in the Elderly Population

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.

COMPREHENSIVE GERIATRIC ASSESSMENT

- HOW?

Comorbidity	Charlson comorbidity index
	CIRS CIRS-G
	NYHA
	No. of comorbid conditions
	Simplified comorbidity score
	Summary of comorbidities
	Hematopoietic cell transplantation comorbidity index
Functional status	ADLs (Katz index)
	IADLs (Lawton scale)
	PS index
	Barthel index (any version)
	Visual and/or hearing impairment, regardless of use of glasses or hearing aids
	MOS Physical Health
	Mobility problem (requiring help or use of walking aid)
	Timed Get Up and Go
	Hand grip strength
	Short Physical Performance Battery
	One-leg standing balance test
	ECOG PS
	Karnofsky self-reported performance rating scale

Cognition	Mini Mental State Examination (any version)
	Informant Questionnaire on Cognitive Decline in the Elderly (any version)
	Modified Mini Mental State Examination
	Clock-drawing test
	Blessed Orientation-Memory-Concentration Test
Depression	Geriatric Depression Scale
	Center for Epidemiologic Studies Depression Scale
	Hospital Anxiety and Depression Scale
	Mental health index
	Presence of depression (as geriatric syndrome)
	Distress thermometer
Nutrition	Body-mass index (weight and height)
	Weight loss (unintentional loss in 3 or 6 months)
	Mini Nutritional Assessment (any version)
	Short Nutritional Assessment Questionnaire

Polypharmacy	Beers criteria
	STOPP and START criteria
Geriatric syndromes	Dementia
	Delirium
	Incontinence (fecal and/or urinary)
	Osteoporosis or spontaneous fractures
	Neglect or abuse
	Failure to thrive
	Self-reported No. of falls (within different time frames)
	Constipation
	Polypharmacy
	Pressure ulcers
	Sarcopenia

Think different

IADLs

Shopping

Cooking / Cleaning

Using Telephone or Transportation

Managing Money and Medications

ADL

Ambulation

Bathing

Eating

Dressing

Grooming

Toilet

IADL

Finances

Food Preparation

Housekeeping

Laundry

Medication

Shopping

Telephone

Transportation

Screening Tool:
Geriatric Depression Scale (GDS)

1.	Are you basically satisfied with your life?	Yes	**No (1)**
2.	Have you dropped many of your activities and interests?	**Yes (1)**	No
3.	Do you feel that your life is empty?	**Yes (1)**	No
4.	Do you often get bored?	**Yes (1)**	No
5.	Are you in good spirits most of the time?	Yes	**No (1)**
6.	Are you afraid that something bad is going to happen to you?	**Yes (1)**	No
7.	Do you feel happy most of the time?	Yes	**No (1)**
8.	Do you often feel helpless?	**Yes (1)**	No
9.	Do you prefer to stay at home, rather than going out and doing new things?	**Yes (1)**	No
10.	Do you feel you have more problems with memory than most?	**Yes (1)**	No
11.	Do you think it is wonderful to be alive now?	Yes	**No (1)**
12.	Do you feel pretty worthless the way you are now?	**Yes (1)**	No
13.	Do you feel full of energy?	Yes	**No (1)**
14.	Do you feel that your situation is hopeless?	**Yes (1)**	No
15.	Do you think that most people are better off than you are?	**Yes (1)**	No

Sum all bolded answers (worth one point each) for a total score: _____

A score >5 points is suggestive of depression and should warrant follow-up intervention.

A score >10 points is almost always depression.

Mini-Mental State Examination (MMSE)

Patient's Name: _____   Date: _____

Instructions: **Ask the questions in the order listed. Score one point for each correct response within each question or activity.**

Maximum Score	Patient's Score	Questions
5		"What is the year? Season? Date? Day of the week? Month?"
5		"Where are we now: State? County? Town/city? Hospital? Floor?"
3		The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until patient learns all of them, if possible. Number of trials: _____
5		"I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, ...) Stop after five answers. Alternative: "Spell WORLD backwards." (D-L-R-O-W)
3		"Earlier I told you the names of three things. Can you tell me what those were?"
2		Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them.
1		"Repeat the phrase: 'No ifs, ands, or buts.'"
3		"Take the paper in your right hand, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.)
1		"Please read this and do what it says." (Written instruction is "Close your eyes.")
1		"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)
1		"Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.)
30		TOTAL

(Adapted from Rovner & Folstein, 1987)

GAIT SPEED AS VITAL SIGN IN OLD AGE
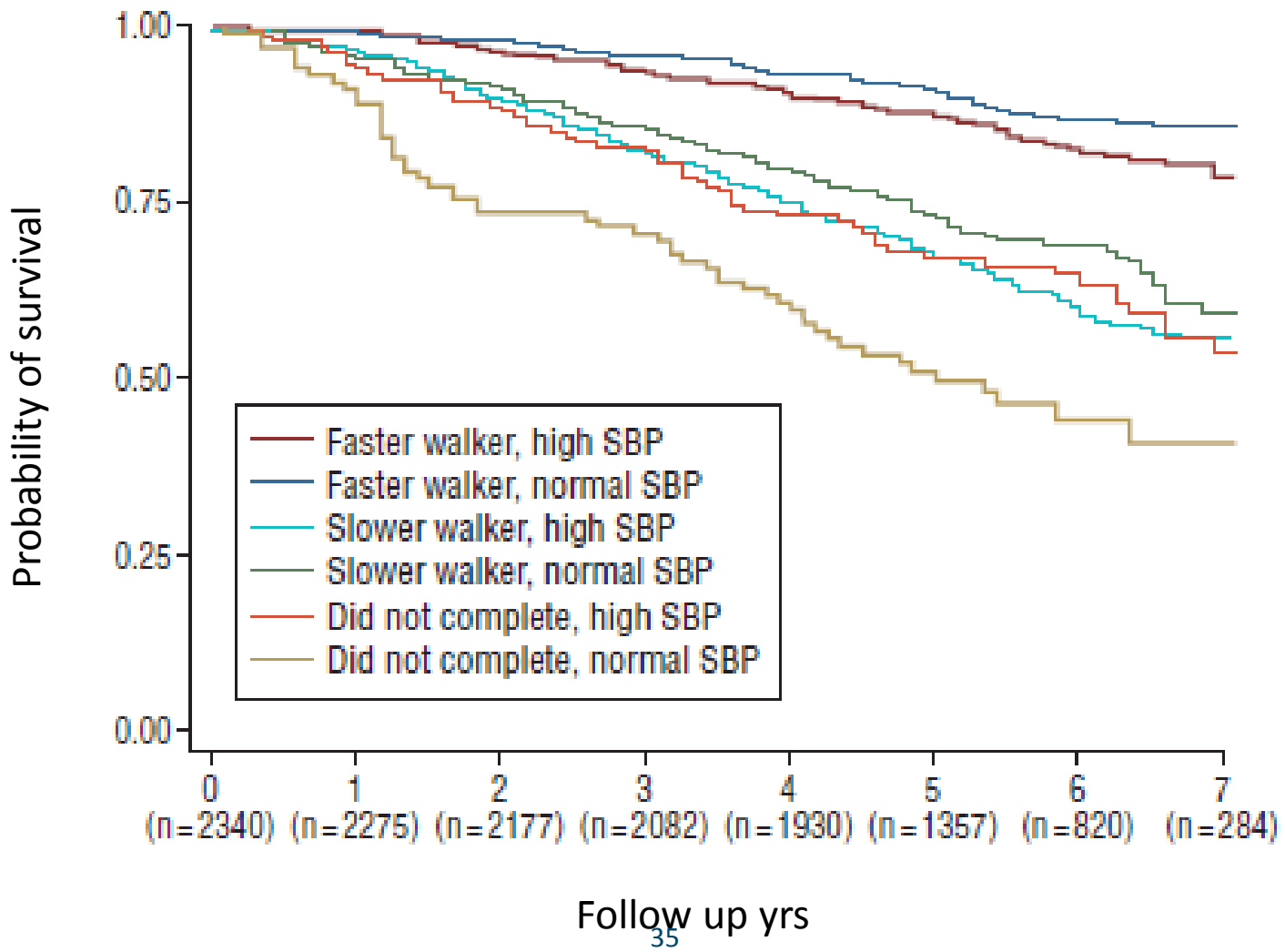
Short Physical Performance Battery

1. Repeated Chair Stands

Time: _____ sec (if five stands are completed)

Number of Stands Completed: 1 2 3 4 5

Chair Stand Ordinal Score: _____
0 = unable
1 = > 16.7 sec
2 = 16.6-13.7 sec
3 = 13.6-11.2 sec
4 = < 11.1 sec

2. Balance Testing

a. Semitandem Stand

Circle one number

2. Held for 10 sec
1. Held for less than 10 sec; number of seconds held _____
0. Not attempted

b. Side-by-Side stand

Grading

2. Held of 10 sec
1. Held for less than 10 sec; number of seconds held _____
0. Not attempted

c. Tandem Stand

Grading

2. Held of 10 sec
1. Held for less than 10 sec; number of seconds held _____
0. Not attempted

Balance Ordinal Score: _____

0 = side by side 0-9 sec or unable
1 = side by side 10, <10 sec semitandem
2 = semitandem 10 sec, tandem 0-2 sec
3 = semitandem 10 sec, tandem 3-9 sec
4 = tandem 10 sec

3. 8' Walk (2.44 meters)

Time: _____ sec

Gait Ordinal Score: _____
0 = could not do
1 = >5.7 sec (<0.43 m/sec)
2 = 4.1-6.5 sec (0.44-0.60 m/sec)
3 = 3.2-4.0 (0.61-0.77 m/sec)
4 = <3.1 sec (>0.78 m/sec)

Summary Ordinal Score: _____

Range: 0 (worst performance) to 12 (best performance). Shown to have predictive validity showing a gradient of risk for mortality, nursing home admission, and disability.

Second and third generation assessment instruments: the birth of standardization in geriatric care

The systematic adoption of "second-generation" comprehensive geriatric assessment instruments, initiated with the Minimum Data Set (MDS) implementation in U.S. nursing homes, and continued with the uptake of related MDS instruments internationally, has contributed to the creation of large patient-level data sets.

We argue that the harmonization by InterRAI of the MDS forms for different health settings, referred to as "the third generation of assessment," has produced the first scientific, standardized methodology in the approach to effective geriatric care

Bernabei et al. J Gerontol A Biol Sci Med Sci 2008

INTERRAI MISSION STATEMENT

inter*RAI* believes that standardized assessment provides crucial information about the needs of the elderly population which is rapidly growing world-wide. Comprehensive evaluation, including functional, psychosocial and environmental needs, is the key to care planning decisions resulting in quality care for the individual and information for wider policy issues.

INTERRAI SUITE
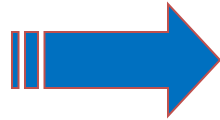
Patient level → Make the physical exam complete

Better care plan

Population level → Database ⎰ Prognostic factors

Outcome measurements

Quality control indicators

Comparisons

Improve Your Life #6:
Consider the Point of View of Others