FALLS AND FRAILTY

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MENU

- Falls and frailty; the national perspective
- What is frailty and why is it important
- How do we recognise frailty?
- What do we do about frailty; comprehensive Geriatric assessment
- Prevention of frailty
- Falls: definition
- Epidemiology
- Risk factors, causes and consequences
- Case study to illustrate what we have been learning about
- What does NICE say?
- Take home messages
- questions

Falls and frailty – why are they important?

Ageing population

Frailty often diagnosed at crisis point e.g. ED

Can be identified in order to:

- help patients retain independence longer
- help prevent acute deteriorations
- reduce admissions, readmissions, nursing home admissions

Falls can be an indicator of underlying frailty

Frailty can be partially reversed

An ageing population

1991 = 9.1 million over 65s (15.8% of the pop)

2016 = 11.8 million (18%)

2041 (projected) = 20.4 million (26%)

Fastest increase in >85s

Ageing with more complexity with increased costs

Falls

1/3 fall at least once yearly and the proportion increases to 50% in those aged 80+

2,314,000 older people attend ED with fall related injuries each year

6,340 per day i.e. 9 falls every two minutes

1,443,000 patients with falls related injuries are admitted to hospital each year

36,000 fall related deaths on an annual basis

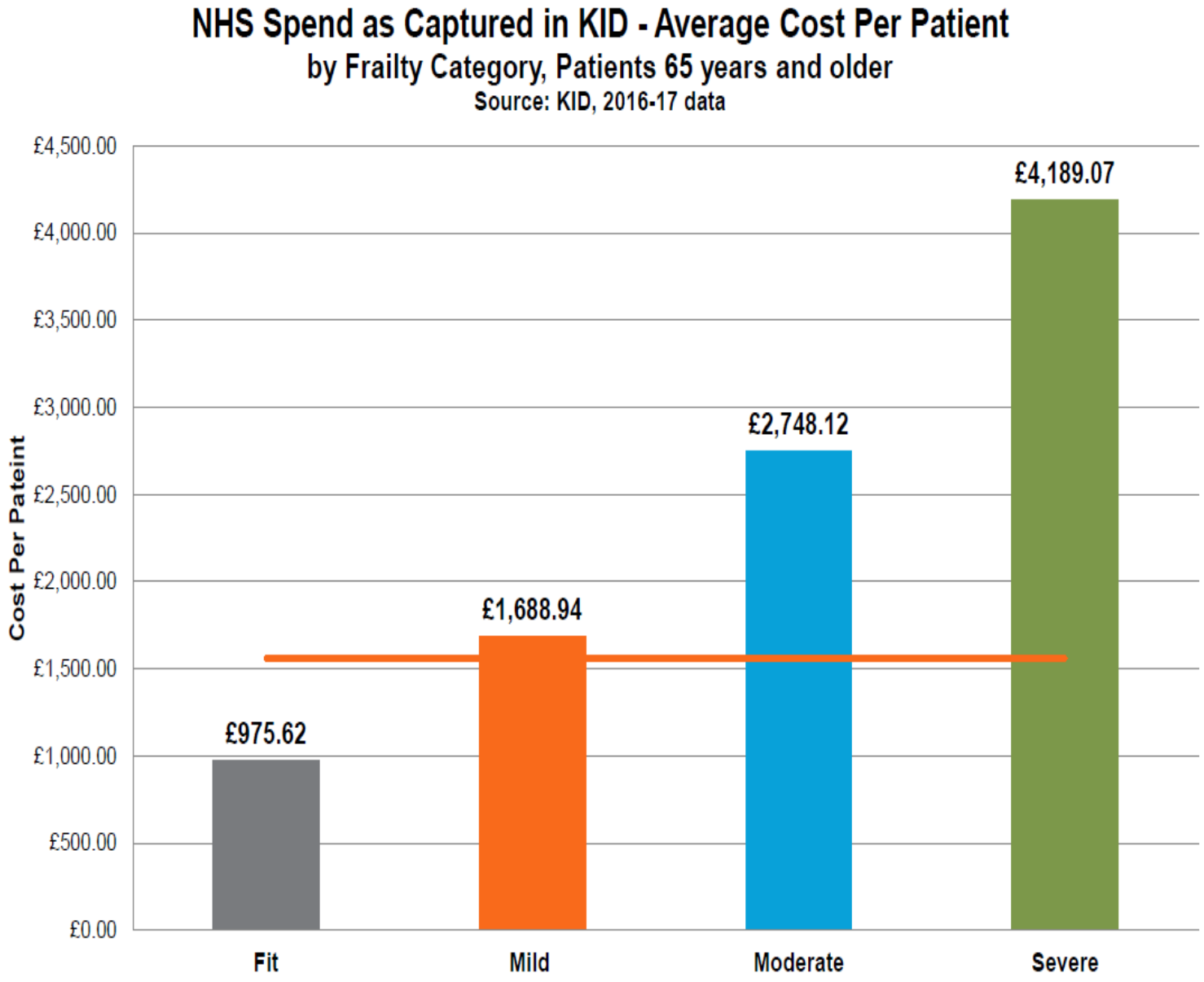
EPIDEMIOLOGY OF FALLS

- Falls and near-falls occur in more than 30% of people aged 65 years or older
- 50% of people in the community older than 80 years have a fall
- Approximately 60% of nursing home residents fall each year
- The incidence of falls in the elderly is growing every year, reflecting the growth of the elderly population
- By the year 2050, the projected proportion of people older than 65 years will be 23%
- Women experience a greater proportion of falls because they make up the majority of the total population as they age, a difference mostly due to the earlier mortality of men.
- Falling is the most common cause of traumatic brain injury in those older than 65 years
- About 14-50% of patients who fall are unable to rise after a fall

- 25% of elderly people have at least 1 fall per year
- 75% of fallers will fall again in the same year
- 70% of falls are unwitnessed

COMMUNITY NON-DISABLED	COMMUNITY DISABLED	IN HOSPITAL	NURSING HOME
15 %	30%	40%	60% (36%-75%)

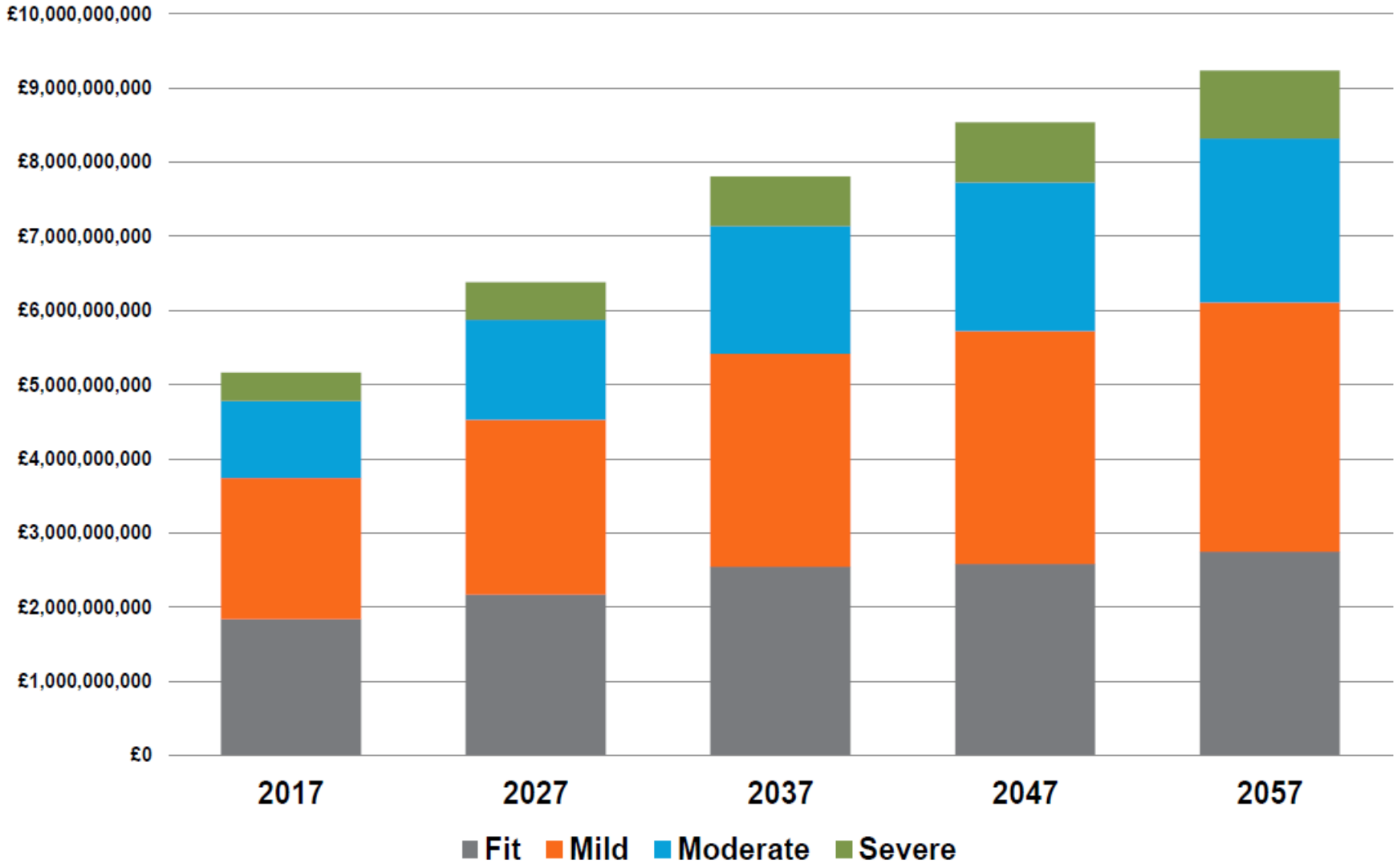
Frailty costs



Estimated Total National GP Costs per Frailty Category - 2017 through 2057

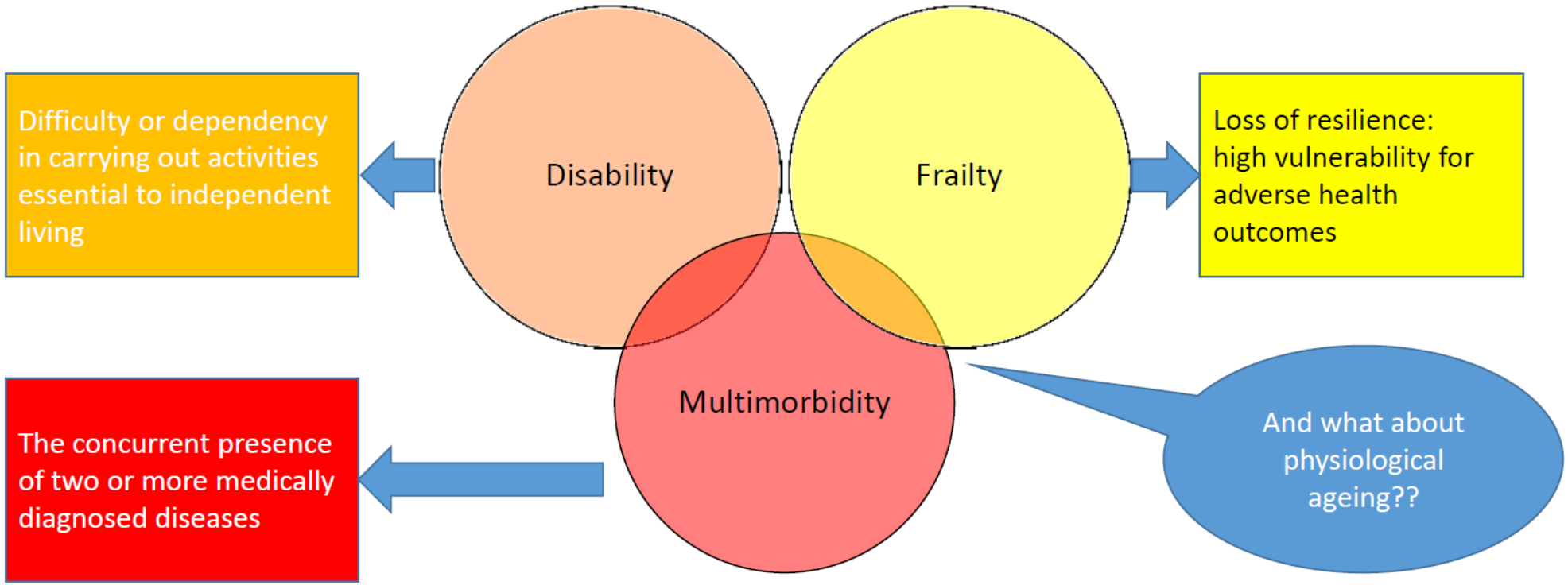
Source for population estimates: ONS 2014-based National Population Projections, published 29 Oct 2016

Source for per patient figures used in estimate: Kent Integrated Dataset (KID)



What is frailty?

Three terms are commonly used interchangeably to identify vulnerable older adults……



Fried et al (2004). Journal of Gerontology: 2004, Vol. 59, No. 3, 255–263

What is frailty?

"A clinically recognized state of increased **vulnerability** that results from aging, associated with a **decline** in the body's physical and psychological **reserves**."

BGS definition

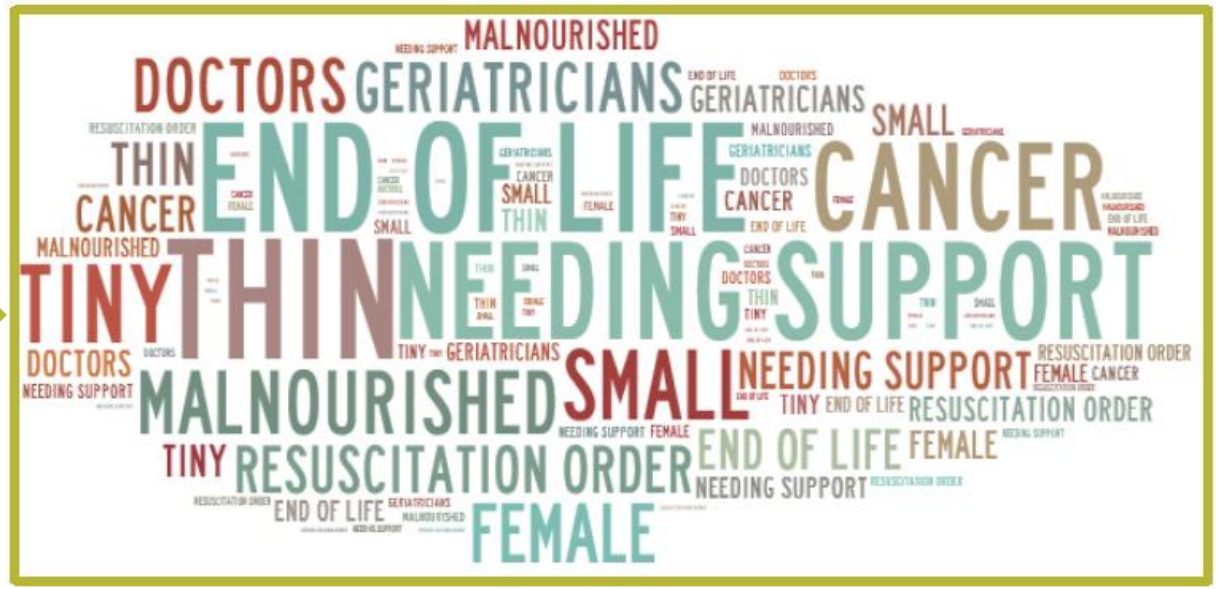
But what does this actually mean?

Frailty: Language and Perceptions (BGS, Age UK) June 2015

Older People

"Frailty" means different things to different people

Non-Specialist Health Care Professionals



What is frailty?

State of vulnerability

Living close to a line of decompensation

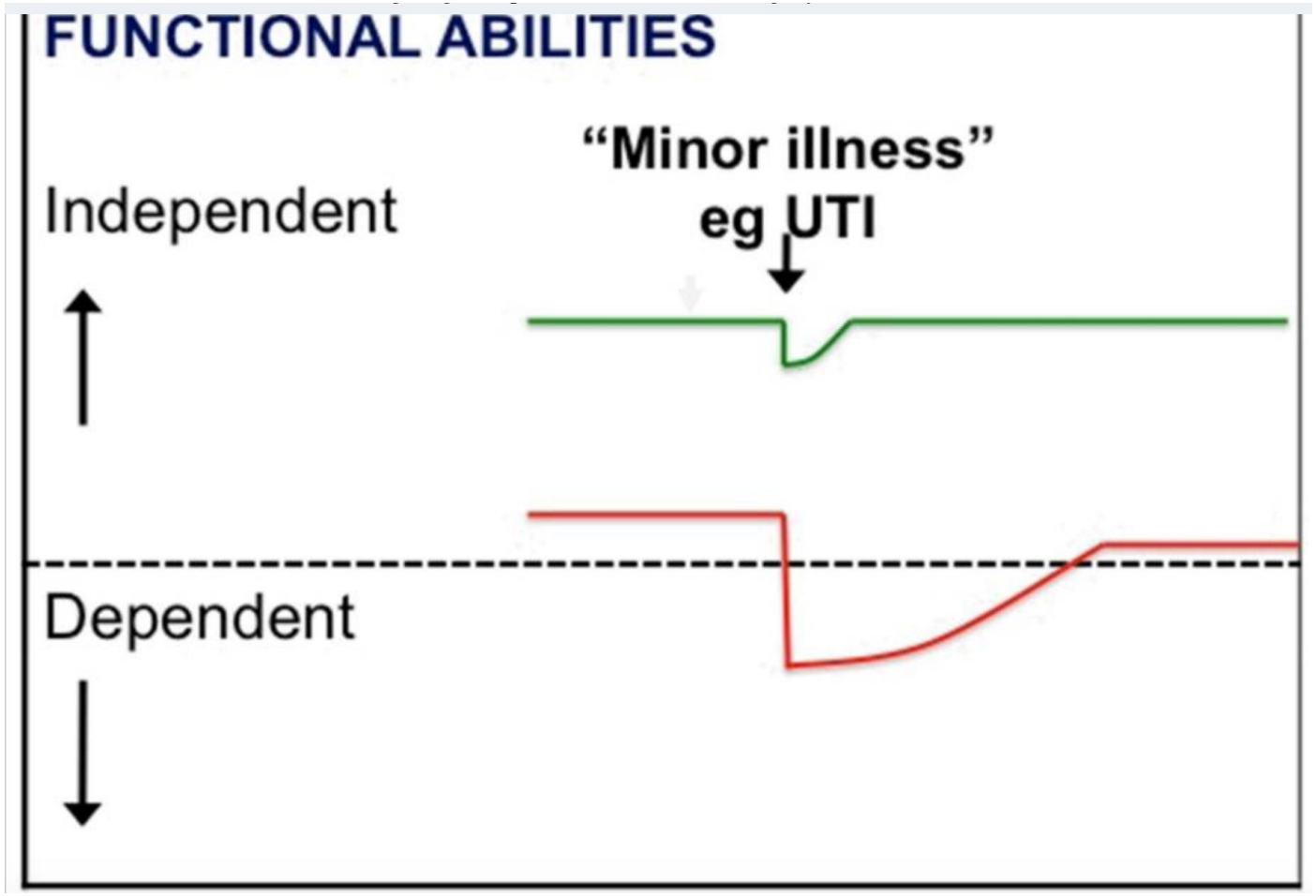
Minor trauma has a major impact

Tip over the edge with minor illness

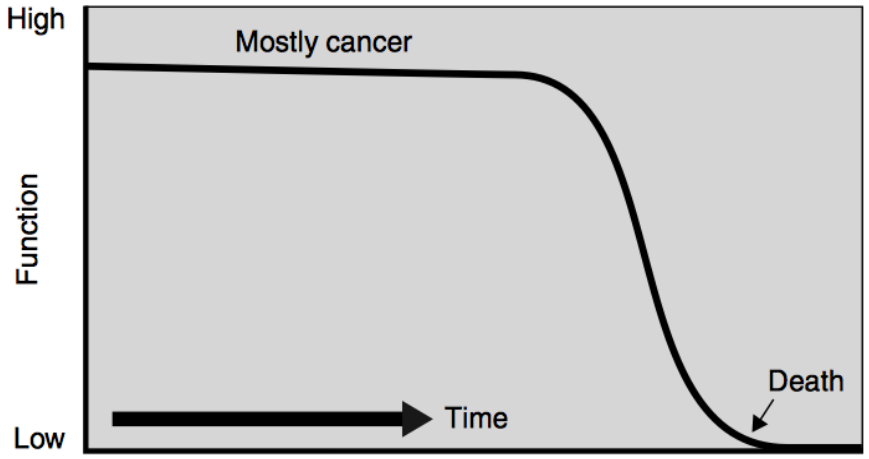
Independent ➔ Dependent

Clegg et al (2013)

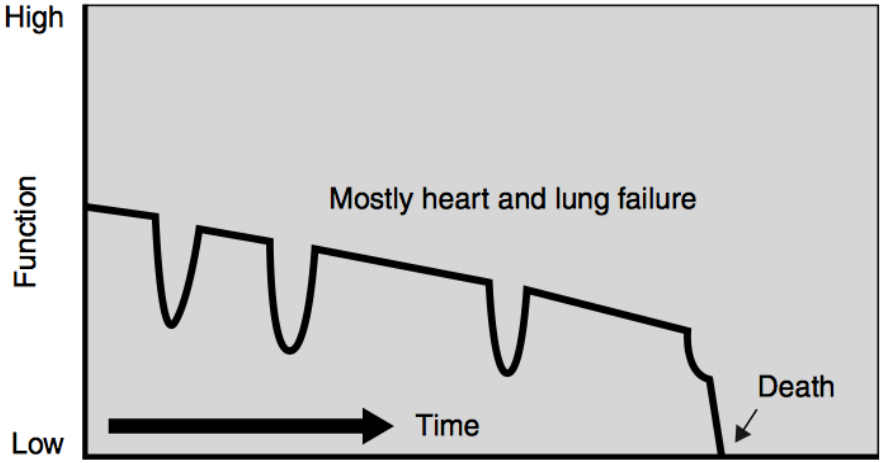
Decreased vulnerability to stressors



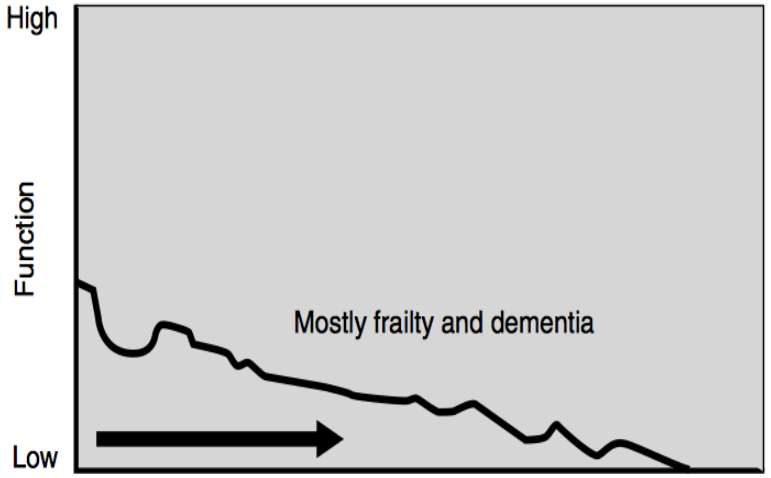
Clegg et al, Lancet 2013



Short period of evident decline

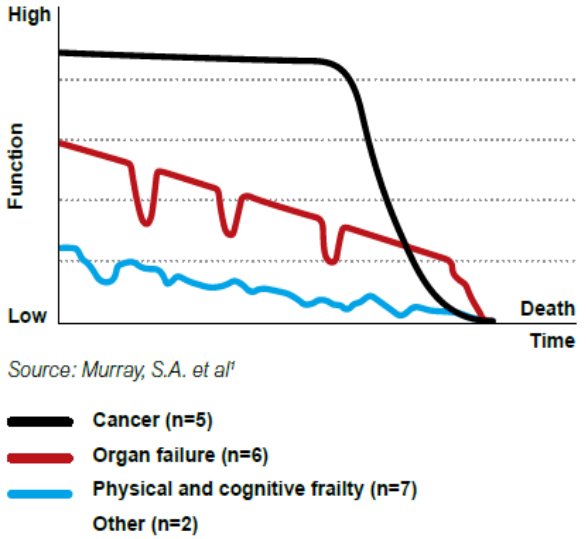


Long-term limitations with intermittent serious episodes



Prolonged dwindling

Lynn + Adamson 2003



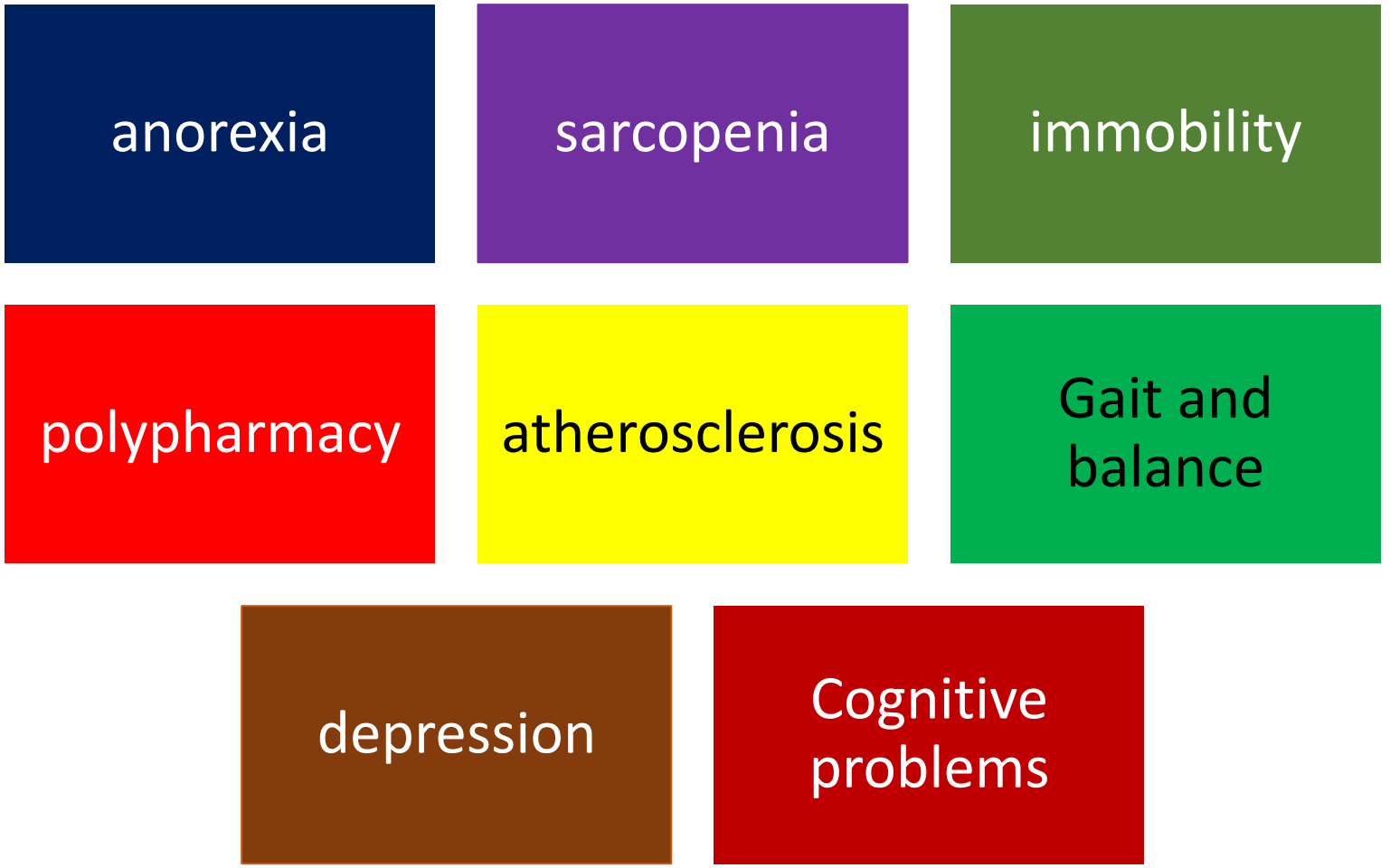
Difficult condition to predict

Physical frailty

- Weight loss
- Exhaustion
- Weakness (low grip strength)
- Slowness (walking speed)
- Low energy expenditure

Freid et al. J Gerontol Bio Med Sci 2004;59a:255-263

Contributors to frailty



Why is frailty important?

- **Associated with increased risk of:**
  - Falls
  - Disability
  - Hospitalisation
  - Death

  Clegg et al, 2013

- **Frail patients in hospital**
- Increased risk of:
  - Delirium
  - Increased length of stay
  - Discharge to a care home
  - Death

  Winogred et al, 1991, Eeles et al, 2002

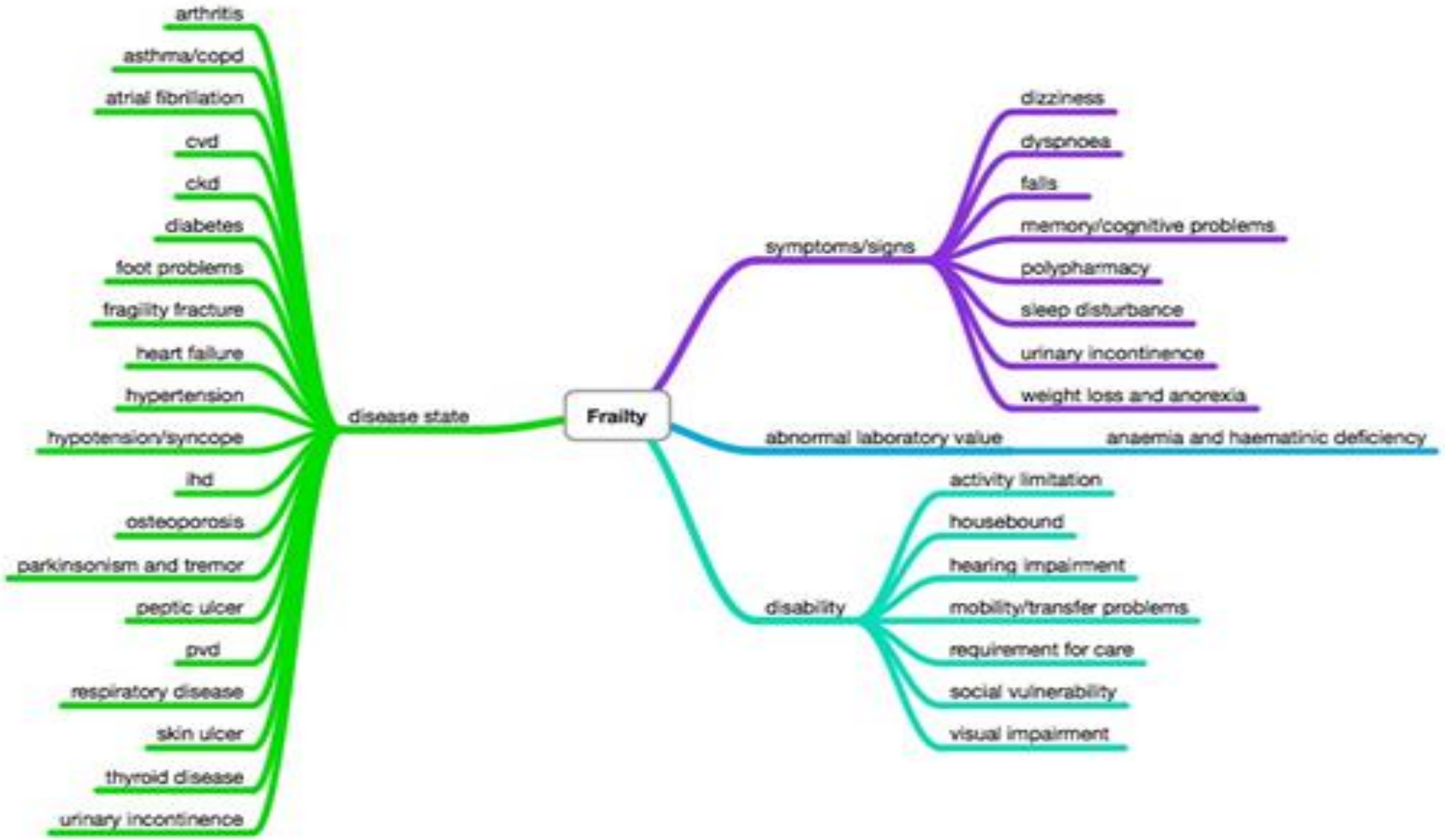
HOW DO WE RECOGNISE FRAILTY?

Two international models of frailty

- Frailty phenotype (Fried et al, 2001)
  - 3 or more of
    - unintentional weight loss (10 lbs in past year)
    - self-reported exhaustion
    - weakness (grip strength)
    - slow walking speed
    - low physical activity

- Cumulative deficit model (Rockwood et al, 2005)
    - eFI
    - maps well onto Clinical Frailty Score

Electronic frailty index

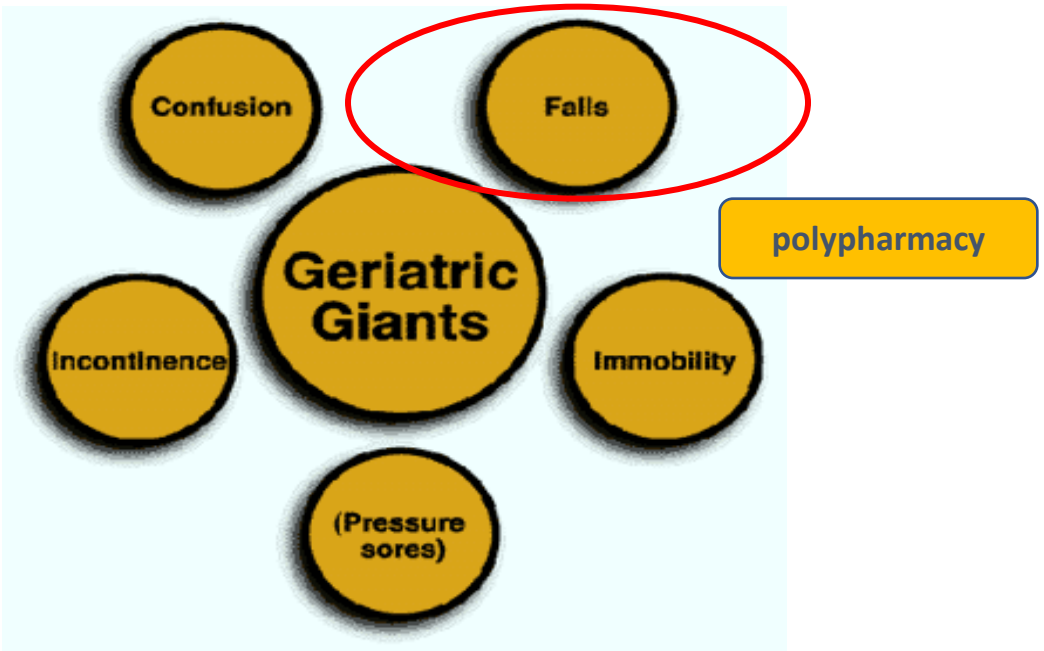


How do we recognise frailty?

Clinically- frailty syndromes

Screening- primary and secondary care

Frailty syndromes - the geriatric giants



Screening in primary or secondary care

- Simple rapid screening tests have been developed and validated
- Allows clinicians to objectively recognise frail persons

- Frail scale
- Clinical frailty scale (Rockwood)
- Gerontopole frailty screening tool
- PRISMA 7
- Edmonton frailty scale
- Timed up and Go (TUG)

Clinical Frailty Scale*

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Scoring frailty in people with dementia

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

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

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2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

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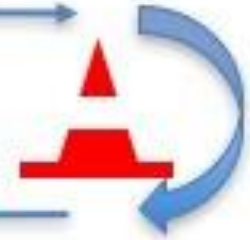
The Timed Up and Go Test

Step 1: Stand up

Step 2: Walk 3 metres



Step 3: Turn around

Step 4: Walk 3 metres

Step 5: Sit down

>14 seconds = high risk of falls, and frailty

What do we need to do about frailty?

- Recognize it before crisis point
- Recognize the risks associated with it
- Remember its not static
- Carry out a comprehensive geriatric assessment
- Prevent it

Comprehensive geriatric assessment

- Evidence-based approach to the care of older people
- Helps clinicians form a holistic, patient-centred management plan
- **Addresses what matters to the patient** more than what is the matter with the patient

Comprehensive geriatric assessment

- Medical
- Psychological
- Functional ability
- Social circumstances
- Environment

Cochrane review of 2017; 29 studies: more likely to be living at home and less likely to be living in a care home up to 1 year after hospital admissiion

Frailty Mini Comprehensive Geriatric Assessment

Date and time of assessment _____

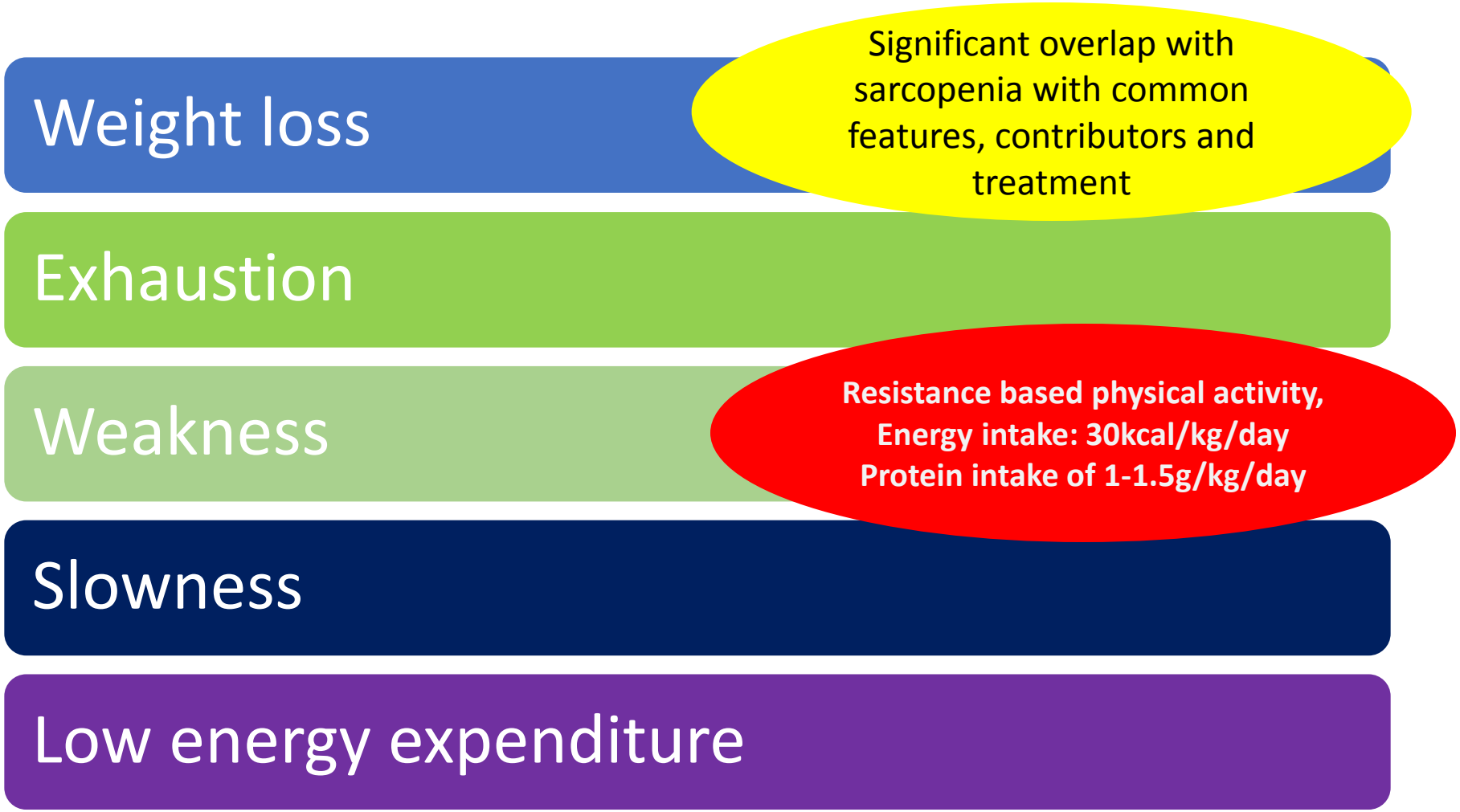
Person Completing assessment (inc grade) _____

Rockwood Clinical Frailty Score _____

F	R	A	I	L	I	N	E	D

F	alls / Immobility	Check for injury (consider anticoag). Consider postural BP, arrhythmia, vision		Physio L/S BP Consider referral to falls clinic
R	esidence / Social support	Home / warden controlled / RH / NH? Package of care? Do they have someone they can they call in a crisis/ NOK?		Social services Age Concern Age UK
A	DLs	Do they need help with E+D / bathing /dressing/ toileting /cooking/cleaning/shopping/ Medication		Consider therapies referral
I	ncontinence /constipation	Newly incontinent? → Consider PR / bladder scan / urine dip neuro red flags?		Avoid catheterisation if possible
L	ist of medications	If >5 medications needs a medication review		Use STOPP/START
I	nfection	May present atypically		Consider septic screen
N	utrition / Hydration	Weight loss Appetite / fluid intake Swallow		Consider dietician referral (inpatient or outpatient via GP) Consider SALT review
E	scalation	Advanced care plan / wishes? DNAR decision? LPA?		
D	elirium/dementia/ depression	Is confusion new or fluctuating? → Perform 4AT Have they had memory problems? → Perform AMTS Are they low in mood? Are they lonely? Withdrawal? (drugs/ alcohol/ nicotine)		Delirium management strategies – see link Consider memory clinic referral Age Concern Silverline helpline Consider psych liaison referral EtOH detox/pabrinex?

Managing frailty



Preventative approaches to frailty

- Food intake maintained
- Resistance exercises
- Atherosclerosis prevention
- Isolation avoidance
- Limit pain
- Tai chi or other balance exercises
- Yearly check for testosterone deficiency

Morley J.Frailty http://cyberounds.com/cmecontent/art201.htmlaccessed Sept 2019

Physical frailty can potentially be prevented or treated with specific modalities

Morley et al. Frailty consensus: a call to action. J Am Med Dir assoc.2013 Jun;14(6): 392-7

FALLS

- How many of you have had a fall?

WHAT IS A FALL?

- There are many definitions that have been proposed for the term “fall”.

- The World Health Organisation define a fall as:

  “an event which results in a person coming to rest inadvertently on the ground or floor or other lower level”

DEFINITION OF A FALL

- ‘unintentionally coming to rest on the ground, floor or other lower level; excluding coming to rest against furniture, wall, or other structure'

- 'a sudden, unintentional change in position causing an individual to land at a lower level, on an object, the floor, or the ground, other than as a consequence of a sudden onset of paralysis, epileptic seizure, or overwhelming external force'

- One of the problems is that definitions not only vary between health care professionals but also between patients and doctors

- A fall is a common reason for attendance at hospital, and can be a non-specific presentation of an underlying physical illness.

- What do you think the economic cost of falls to the UK economy was estimated to be in 2019?

ECONOMIC COST

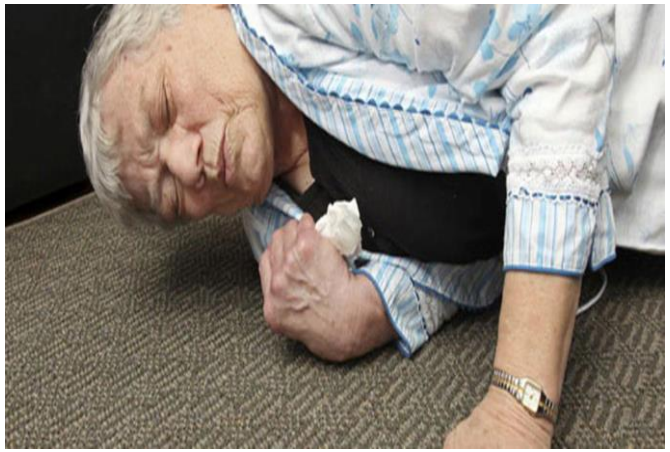
The economic cost was nearly £4.4 Billion

Hip fractures account for £2 billion

Social care £1.1 billion

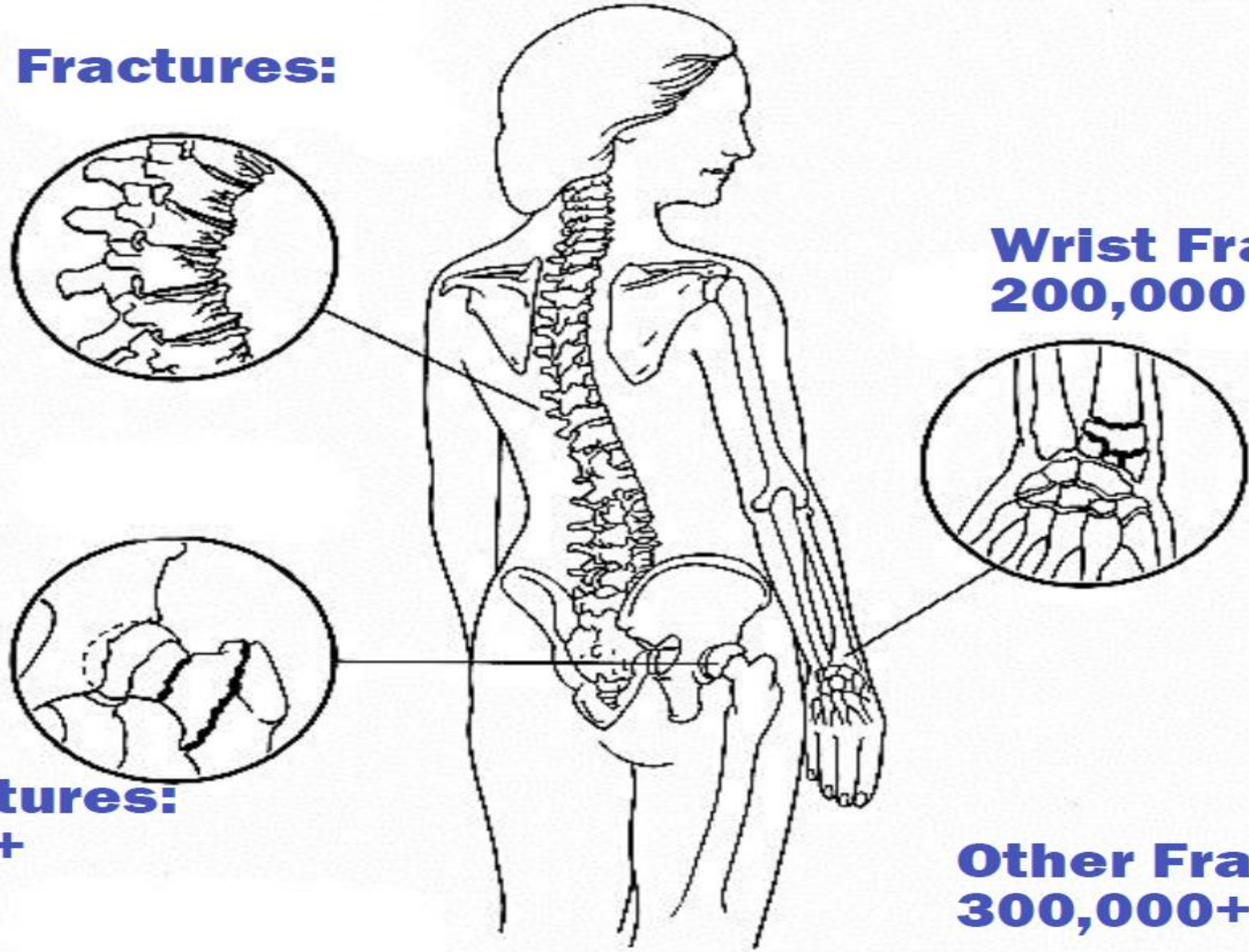
INPATIENT FALLS

- Most commonly reported adverse event in hospital
- Over 600 reported daily in England and Wales
- More than 2500 hip fractures occur in hospital (4.2%)
- Severe head injuries can result in death
- Costs 15 million per year



Number of fractures treated each year

Vertebral Fractures:
700,000+



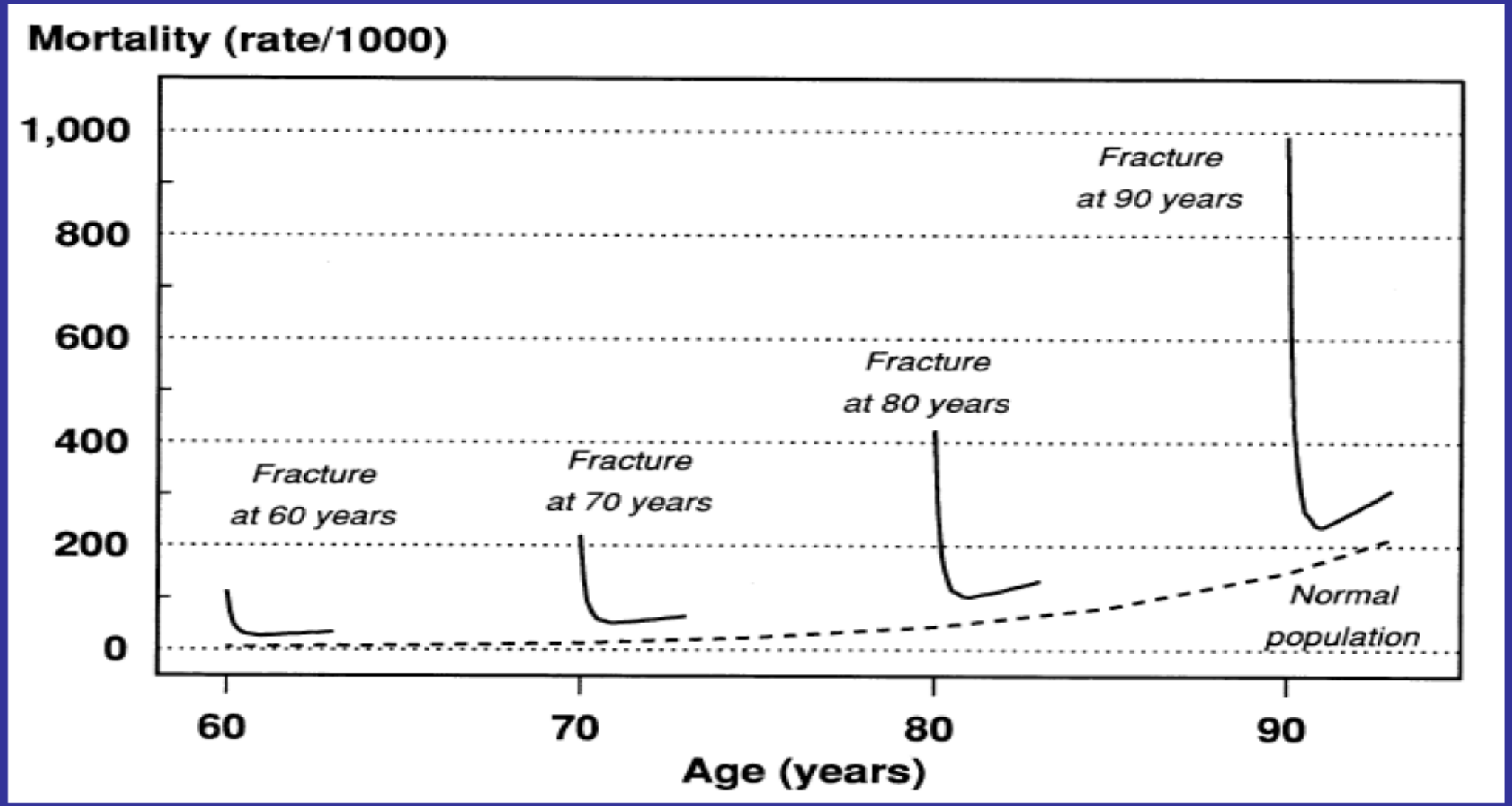
Wrist Fractures:
200,000+

Hip Fractures:
300,000+

Other Fractures:
300,000+

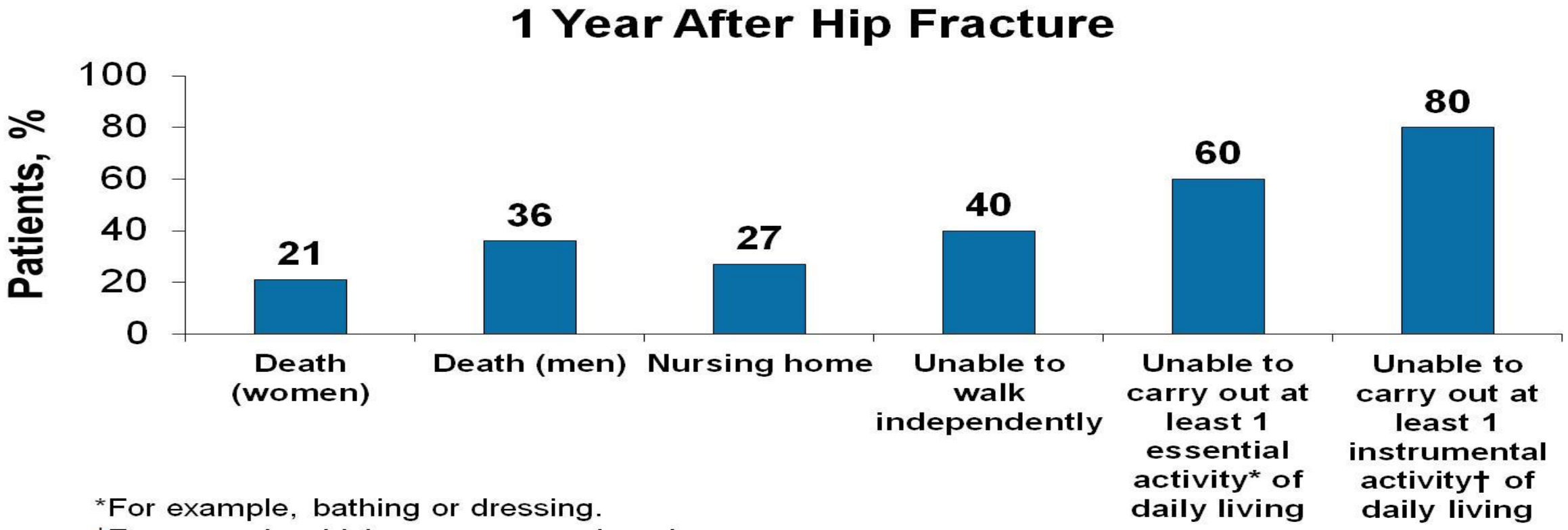
Source: National Osteoporosis Foundation, 2000

Pattern of mortality in the general population after Hip Fracture *(158.589 patients)*



Kanis J. Bone 2003

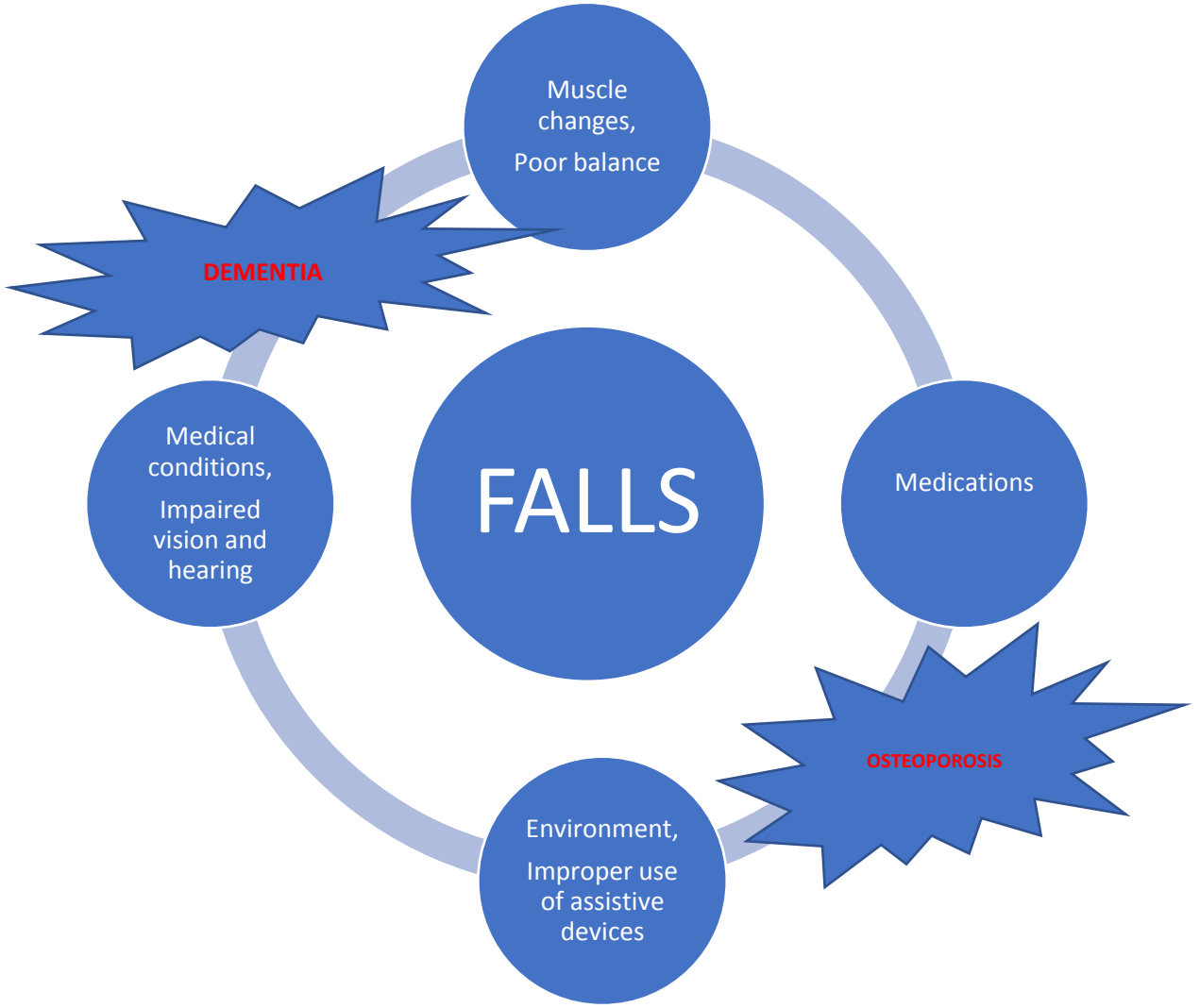
Hip Fractures Are Associated With Increased Morbidity and Mortality



*For example, bathing or dressing.
†For example, driving or grocery shopping.

Cooper C, et al. *Am J Med.* 1997;103:12S-17S.[1]

FALLS ARE MULTIFACTORIAL



RISK FACTORS FOR FALLS

INTRINSIC FACTORS

- Intrinsic factors are basically related to how well the person can see, how well they can walk or maintain their balance, what kind of muscle strength they exhibit, and how well they can endure physical activity
- Diseases that affect the cardiovascular, neurological, or musculoskeletal systems can increase an older person's risk of falling

EXTRINSIC FACTORS

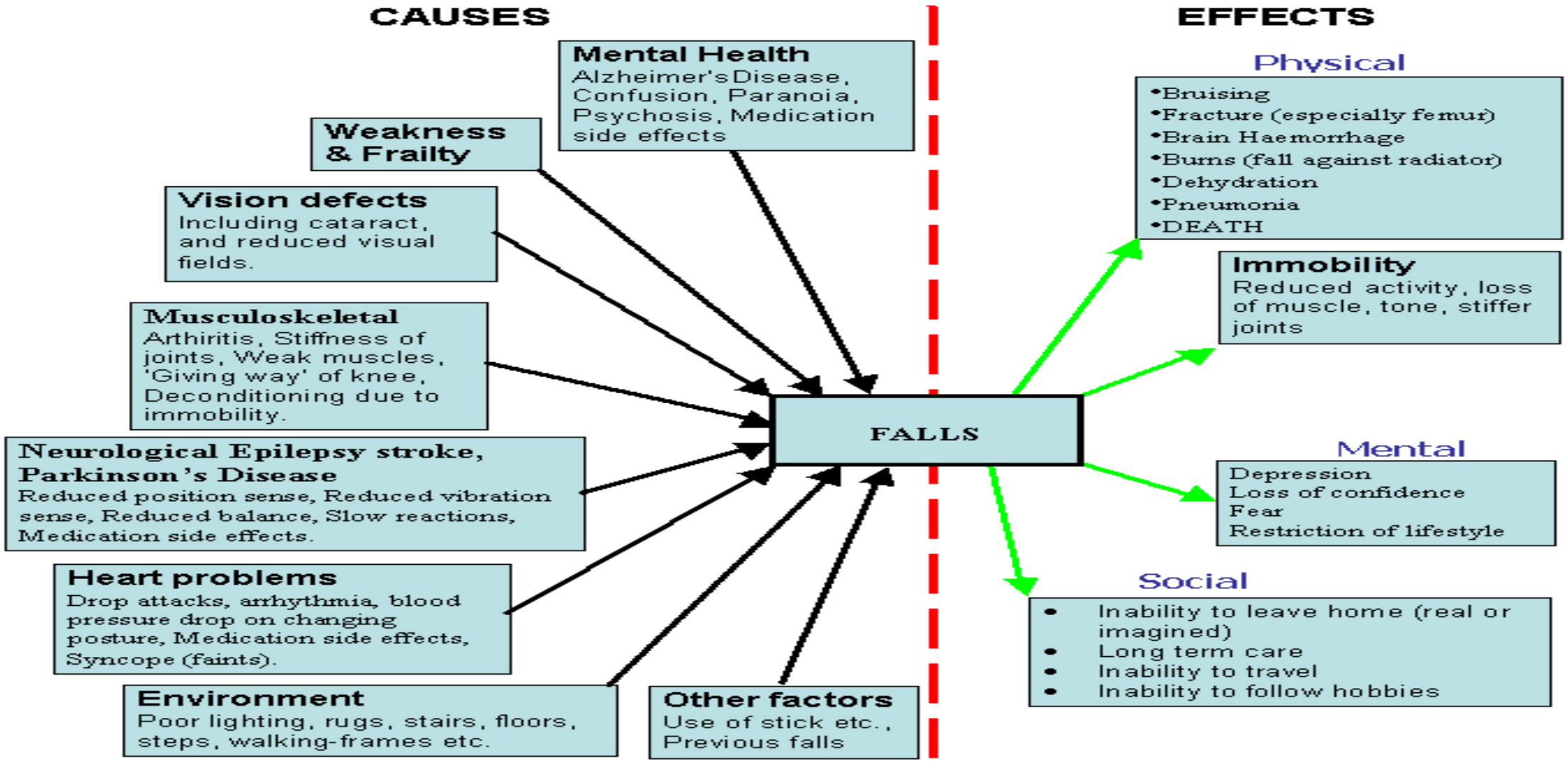
- Extrinsic factors are related to the person's physical environment, including their home, such as poor lighting, slippery floors, or throw rugs.
- This category also includes assistive devices such as use of a cane, frame, or wheelchair and inappropriate clothing or footwear

RISK FACTORS FOR FALLING

- **AGE RELATED PHYSIOLOGICAL CHANGES**
- Decreased muscle mass (which decreases overall strength)
- Postural changes of the hips with increasing valgus deformity
- Change in the centre of gravity to behind the hips
- Increased postural sway
- Decreased righting reflexes
- Increased reaction time
- Visio-perceptual decline
- Decreased vibratory sensation and altered proprioception

- Alcohol-related falls are more common in men than in women
- History of a previous fall
- Depression, delirium, dementia
- Balance disorders
- Syncope
- Orthostatic hypotension
- Adverse effects of medications, polypharmacy, and environmental hazards
- Psychotropics, neuroleptics, tricyclic antidepressants, benzodiazepines, analgesics, sedatives, skeletal muscle relaxants, cardiac drugs (diuretics, antiarrhythmics), vasodilators, and antihistamines
- Fatigue induced by radiation therapy or chemotherapy
- Environmental barriers include stairs, uneven footpaths, polished floors, thick mats or carpeting, and poor footwear choices (eg, wearing of high-heeled shoes

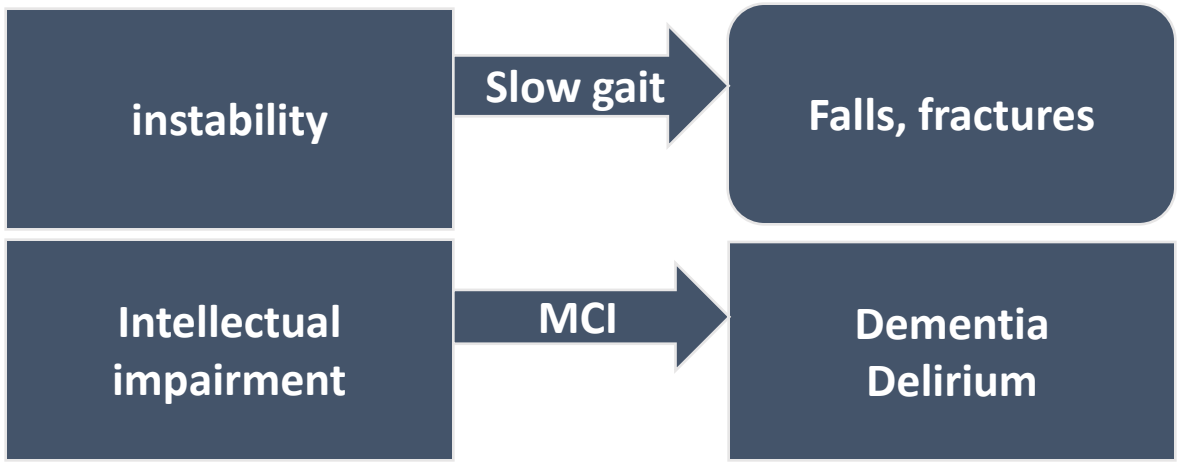
CAUSES OF FALLS



WHAT ARE CONSEQUENCES OF FALLS?

CUTTING EDGE ISSUES IN FALLS

- Gait performance and cognitive function (memory)
- Both deteriorate with age yielding instability and intellectual impairment



DUAL TASK PARADIGM

- Dual task challenge (talking or counting when walking) interferes with gait, more importantly when “brain reserve” is impaired
- Possible shared brain networks of cognitive and motor function
- Complexity of dual tasking affects gait
- Gait variability seems to be very sensitive to dual-tasking
- Dual task challenge: improved understanding of the implication of cortex in gait control

Lundin-Olsson L et al, Lancet 1997; 36:418-23

Case study

- 89 year old male with recurrent falls
- 1-2 times monthly
- “I just lose my balance”

Past medical history:

- Right ulnar nerve palsy
- Restless leg syndrome
- Benign prostatic hyperplasia
- Anxiety after the death of his wife 10 years previously
- Atrial fibrillation
- Hypertension
- Diabetes mellitus
- Osteoarthritis right knee
- Age related macular degeneration

Case study

Medications

- Mirtazapine 15mg daily
- Pramipexole 0.08mg; 2 at night
- Amlodipine 10mg daily
- Lansoprazole 30mg daily
- Pregabalin 75mg bd
- Finasteride 5mg daily
- Aspirin EC 75 mg daily
- Amitriptyline 10mg Notre
- Bendroflumethiazide 2.5 mg daily
- Amiodarone 200mg daily
- Simvastatin20mg daily
- Diphenhydramine 25mg nocte
- Co-codamol 8/500 2 tabs 4 times daily

No known drug allergies

Home situation

- Lives in a house
- Mobile with a rollator frame
- Neighbour does shopping
- Requires help from carer for washing and dressing
- Heats up microwave meals
- Ex smoker; stopped 20 years ago
- Family: a sister who is 2 years older, no children
- Recently stopped driving as he was concerned about his memory

Problem list from the history

- Falls
- Visual impairment
- Polypharmacy
- Dizziness on standing particularly in the mornings
- Moderate frailty
- Impaired balance
- Right claw hand deformity

What is his Rockwood score?

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Scoring frailty in people with dementia

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

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

* 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.

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Assessment

- A post fall assessment is the only means of determining the underlying cause of a fall
- Must be conducted ideally immediately post fall
- Can be done by any health care professional
- Comprehensive fall focussed history, examination and evaluation of the circumstances surrounding the fall event

Salient points in the “falls” history

- Activity at the time of the fall
- location of falls, what happened, any injuries, were u able to get off the floor
- any difficulties with gait and or balance,
- previous falls, comorbidities (dementia, Parkinson’s, aortic stenosis etc)
- blacking out (syncope)
- dizziness
- Lightheadedness, palpitations, chest pain
- weakness or fatigue
- lower-extremity muscle weakness
- seizures
- incontinence

PHYSICAL EXAMINATION

- I HATE FALLING….

“I HATE FALLING”

Inflammation of joints/deformity	**F**oot problems
Hypotension	**A**rrhythmias, heart block, valvular disease
Auditory and visual	**L**eg length discrepancy
Tremor	**L**ack of conditioning
Equilibrium problems	**I**llness
	Nutrition
	Gait disturbance

Frailty Mini Comprehensive Geriatric Assessment

Date and time of assessment _____

Person Completing assessment (inc grade) _____

Rockwood Clinical Frailty Score _____

F	R	A	I	L	I	N	E	D

F	alls / Immobility	Check for injury (consider anticoag). Consider postural BP, arrhythmia, vision	Postural hypotension, impaired vision	Physio L/S BP Consider referral to falls clinic
R	esidence / Social support	Home / warden controlled / RH / NH? Package of care? Do they have someone they can they call in a crisis/NOK?	Home, package of care OD, NOK is elderly sister	Social services Age Concern Age UK
A	DLs	Do they need help with E+D / bathing /dressing/ toileting /cooking/cleaning/shopping/ Medication	Needs help with W&D, cooking, cleaning	Consider therapies referral
I	ncontinence /constipation	Newly incontinent? → Consider PR / bladder scan / urine dip neuro red flags?	Continent	Avoid catheterisation if possible
L	ist of medications	If >5 medications needs a medication review	Polypharmacy	Use STOPP/START
I	nfection	May present atypically	No infection	Consider septic screen
N	utrition / Hydration	Weight loss Appetite / fluid intake Swallow	Weight loss	Consider dietician referral (inpatient or outpatient via GP) Consider SALT review
E	scalation	Advanced care plan / wishes? DNAR decision? LPA?	DNAR DISCUSSED	
D	elirium/dementia/ depression	Is confusion new or fluctuating? → Perform 4AT Have they had memory problems? → Perform AMTS Are they low in mood? Are they lonely? Withdrawal? (drugs/ alcohol/ nicotine)	4 AT 1 AMTS 8/10 Lonely Not depressed Watch out for withdrawal symptoms of medication	Delirium management strategies – see link Consider memory clinic referral Age Concern Silverline helpline Consider psych liaison referral EtOH detox/pabrinex?

- Any problems on the stairs or in the shower

- Don’t forget medications; psychotropics, neuroleptics, tricyclic antidepressants, benzodiazepines, analgesics, sedatives, skeletal muscle relaxants, cardiac drugs (diuretics, antiarrhythmics), vasodilators, and antihistamines may contribute to falls

Medication review

- **Medications**
- Mirtazapine 15mg daily
- Pramipexole 0.08mg; 2 at night
- Amlodipine 10mg daily
- Lansoprazole 30mg daily
- Pregabalin 75mg bd
- Finasteride 5mg daily
- Aspirin EC 75 mg daily
- Amitriptyline 10mg Notre
- Bendroflumethiazide 2.5 mg daily
- Amiodarone 200mg daily
- Simvastatin 20mg daily
- diphenhydramine 25mg nocte
- Co-codamol 8/500 2 tabs 4 times daily
- NOAC
- Paracetamol

START STOPP
BEERS CRITERIA
MEDSTOPPER.COM
TRIAL OF DISCONTINUATION
STOPPFRAIL

STOPPFRAIL

- STOPPFrail is a list of potentially inappropriate prescribing indicators designed to assist physicians with stopping such medications in older patients (≥65 years) who meet ALL of the criteria listed below:

1. End-stage irreversible pathology

2. Poor one year survival prognosis

3. Severe functional impairment or
   severe cognitive impairment or both

4. Symptom control is the priority rather than prevention of disease progression

Age and Ageing 2017; **0:** 1–8
doi: 10.1093/ageing/afx005

STOPPFrail (Screening Tool of Older Persons Prescriptions in Frail adults with limited life expectancy): consensus validation

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Table 1. Final STOPPFrail criteria

...st of potentially inappropriate prescribing indicators ...f physicians with stopping such medications in older ...rs) who meet ALL of the criteria listed below:
...ible pathology
...rival prognosis
...mpairment or severe cognitive impairment or both
...s the priority rather than prevention of disease progression

The decision to prescribe/not prescribe medications to the patient, should also be influenced by the following issues:
(1) Risk of the medication outweighing the benefit
(2) Administration of the medication is challenging
(3) Monitoring of the medication effect is challenging
(4) Drug adherence/compliance is difficult

Section A: General
...patient persistently fails to take or tolerate despite ...d consideration of all appropriate formulations.
...t clear clinical indication.

Section B: Cardiovascular system
B1. Lipid lowering therapies (statins, ezetimibe, bile acid sequestrants, fibrates, nicotinic acid and acipimox)
These medications need to be prescribed for a long duration to be of benefit. For short-term use, the risk of ADEs outweighs the potential benefits [43–45]
B2. Alpha-blockers for hypertension
Stringent blood pressure control is not required in very frail older people. Alpha blockers in particular can cause marked vasodilatation, which can result in marked postural hypotension, falls and injuries [46]

Section C: Coagulation system
C1: Anti-platelets
Avoid anti-platelet agents for primary (as distinct from secondary) cardiovascular prevention (no evidence of benefit) [47]

Section D: Central Nervous System
D1. Neuroleptic antipsychotics
Aim to reduce dose and gradually discontinue these drugs in patients taking them for longer than 12 weeks if there are no current clinical features of behavioural and psychiatric symptoms of dementia (BPSD) [48–52]
D2: Memantine
Discontinue and monitor in patients with moderate to severe dementia, unless memantine has clearly improved BPSD (specifically in frail patients who meet the criteria above) [53–56]

Section E: Gastrointestinal system
E1. Proton Pump Inhibitors
Proton Pump Inhibitors at full therapeutic dose ≥8/52, unless persistent dyspeptic symptoms at lower maintenance dose [57]
E2: H2 receptor antagonist
H2 receptor antagonist at full therapeutic dose for ≥8/52, unless persistent dyspeptic symptoms at lower maintenance dose [57]
E3. Gastrointestinal antispasmodics
Regular daily prescription of gastrointestinal antispasmodics agents unless the patient has frequent relapse of colic symptoms because of high risk of anti-cholinergic side effects [57]

Section F: Respiratory system
F1. Theophylline
This drug has a narrow therapeutic index, requires monitoring of serum levels and interacts with other commonly prescribed drugs putting patients at an increased risk of ADEs [58–60]
F2. Leukotriene antagonists (Montelukast, Zafirlukast)
These drugs have no proven role in COPD, they are indicated only in asthma [61]

Section G: Musculoskeletal system
G1: Calcium supplementation
Unlikely to be of any benefit in the short term
G2: Anti-resorptive/bone anabolic drugs *FOR OSTEOPOROSIS* **(bisphosphonates, strontium, teriparatide, denosumab)**
Unlikely to be of any benefit in the short term
G3. SORMs for osteoporosis
Benefits unlikely to be achieved within 1 year, increased short–intermediate te... risk of associated ADEs particularly venous thromboembolism and stroke [57]
G4. Long-term oral NSAIDs
Increased risk of side effects (peptic ulcer disease, bleeding, worsening heart failure, etc.) when taken regularly for ≥2 months [62–64]
G5. Long-term oral steroids
Increased risk of side effects (peptic ulcer disease, etc.) when taken regularly fo... ≥2 months. Consider careful dose reduction and gradual discontinuation [65]

Section H: Urogenital system
H1. 5-Alpha reductase inhibitors
No benefit with long-term urinary bladder catheterisation [66, 67]
H2. Alpha blockers
No benefit with long-term urinary bladder catheterisation [66, 67]
H3. Muscarinic antagonists
No benefit with long-term urinary bladder catheterisation, unless clear history of painful detrusor hyperactivity [66, 67]

Section I: Endocrine system
I1. Diabetic oral agents
Aim for monotherapy. Target of HbA1c < 8%/64 mmol/mol. Stringent glycaemic control is unnecessary [68]
I2. ACE-inhibitors for diabetes
Stop where prescribed only for prevention and treatment of diabetic nephropathy. There is no clear benefit in older people with advanced frailty with poor survival prognosis [69]
I3. Angiotensin receptor blockers
Stop where prescribed only for prevention and treatment of diabetic nephropathy. There is no clear benefit in older people with advanced frailty with poor survival prognosis [69]
I4. Systemic oestrogens for menopausal symptoms
Increases risk of stroke and VTE disease. Discontinue and only consider recommencing if recurrence of symptoms [57]

Section J: Miscellaneous
J1. Multi-vitamin combination supplements
Discontinue when prescribed for prophylaxis rather than treatment
J2. Nutritional supplements (other than vitamins)
Discontinue when prescribed for prophylaxis rather than treatment [70]
J3: Prophylactic antibiotics
No firm evidence for prophylactic antibiotics to prevent recurrent cellulitis or UTIs [71–73]

Disclaimer (STOPPFrail)
Whilst every effort has been made to ensure that the potentially inappropriate prescribing criteria listed in STOPPFrail are accurate and evidence-based, it is emphasized that the final decision to avoid or initiate any drug referred to in these criteria rests entirely with the prescriber. It is also to be noted that the evidence base underlying certain criteria in STOPPFrail may change after the time of publication of these criteria. Therefore, it is advisable that prescribing decisions should take account of current published evidence in support of or against the use of drugs or drug classes described in STOPPFrail.

Lipid lowering therapies

Neuroleptics
PPIs

Alpha reductase inhibitors

Multivitamins
Prophylactic antibiotics

CGA in this gentleman.. Why is he falling

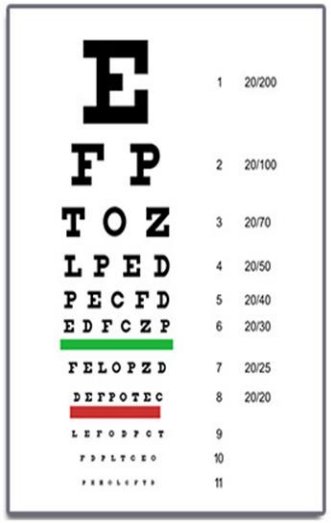
- Multifactorial falls
- Polypharmacy
- Sedative effects of medication
- Reduced vision
- Kyphoscoliosis
- Claw right arm deformity
- Timed up and go:16secs
- Postural hypotension with BP 140/90 lying down, 100/50 standing at 1 minute and 80/45 at 3 mins
- Peripheral neuropathy
- Right foot drop
- Impaired gait and balance

Management plan

- Deprescribe to reduce sedative effects and reduce postural hypotension
- Physiotherapy and postural stability classes (Otago programme)
- Occupational therapy for aids for claw hand, ankle foot orthosis, visual aids, life line/pendant alarm, home hazards assessment
- Dietician
- Age UK
- Social worker

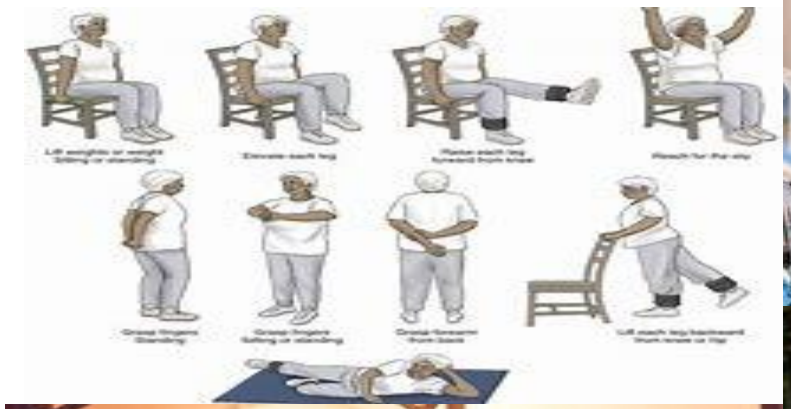
DON’T FORGET

- Vision: Modify vision as part of multifactorial approach including cataract surgery
- Feet/footwear
- Vitamin D supplementation
- Osteoporosis treatment



DON’T STOP AT ASSESSMENT

- Balance, gait and strength training exercise
- Formal physical and occupational therapy



INDIVIDUALIZED APPROACHES

- May need blood tests as part of workup
- Access to rehabilitation is important; use of proper transfer techniques and moderate exercise (20-min sessions 5 d/wk)
- Incorporation of resistance training 2-3 times per week into the patient's rehabilitation program
- Opportunities for exercise eg swimming, yoga, tai chi, postural stability, otago exercise programme in their community
- A home-based program that targets the patient's underlying physical impairments
- Educating patients and their caregivers and supportive family members about fall prevention and the risk factors for falls in older people

- Strategies for successful rehabilitation include education about falls, modification of the environment, implementation of exercise programs, supplying and repairing aids, and reviewing drug regimens
- home-hazard management

Modify home/environment to ensure safe activities of daily living performance

- Modifications to the patient's home environment smoothing out uneven surfaces
- Using ramps instead of stairs
- Applying non-skid and coloured tape on the outer edges of steps
- Installing rails on stairs
- Eliminating throw rugs
- Removing thick carpet
- Repairing unstable furniture
- Installing good lighting.
- Large touch-lights or automatic sensory lights, which do not require dexterity, can be placed at the patient's bedside or in other areas to help decrease the risk of falls, especially at night.
- Motion-detector lights are helpful in providing illumination (eg, to the bathroom) at night.

- Falls in the shower and bathtub are the third leading cause of accidental death, and more than half can be prevented with environmental modifications.
- installation of tub mats
- tub benches or seats
- raised toilet seats, and grab bars in the shower and bathroom
- Walkie-talkies, cell phones attached to waist clips, and lifelines are all excellent communication devices for the elderly, and these can be valuable in the event of a fall.
- Medical-alert bracelets can be useful to rescuers.

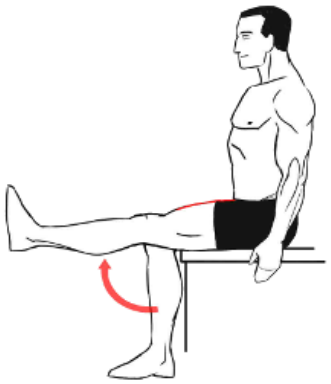
OTAGO EXERCISE PROGRAMME

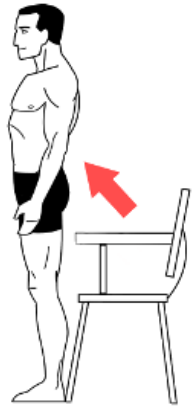
The OEP comprises five strengthening exercises and 12 balance exercises.

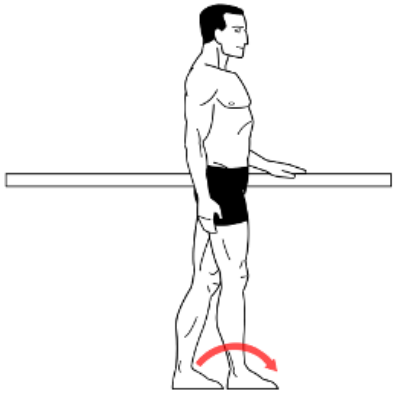
Participants are instructed to perform the exercises three times a week.

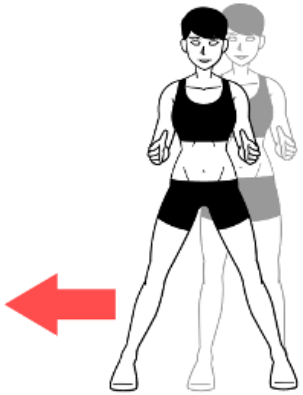
In addition, participants are instructed to walk twice a week for 30 minutes (can be broken into smaller periods e.g. three ten-minute blocks)

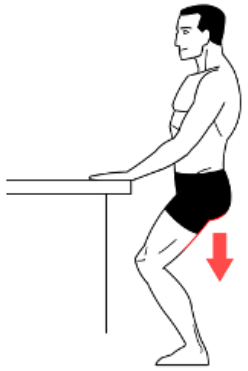
Depending on the individual's strength and mobility, the exercises can be progressed. For example, adding hand weights to squats and other weight-bearing exercises or increasing repetitions.

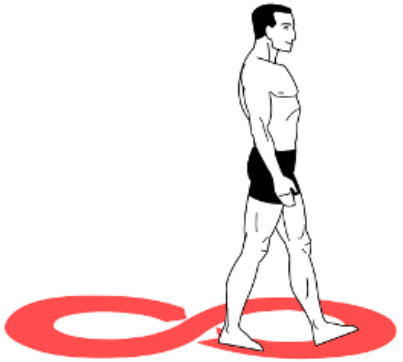












- https://youtu.be/cC0JTSO3oww

TAI CHI

Tai chi quan, or tai chi chuan, is a physical exercise that enhances balance and body awareness. In the rehabilitation community, the practice of tai chi is known to reduce falls.

Yao L, Giordani B, Alexander NB. Developing a positive emotion-motivated Tai Chi (PEM-TC) exercise program for older adults with dementia. *Res Theory Nurs Pract*. 2008;22(4):241-55. [Medline]

WHEN TO REFER FROM PRIMARY CARE

- When to refer?
  - Complexity / uncertainty
- Where to refer?
  - Frailty clinics / hubs
  - Falls clinic
  - Geriatrician directly (hot line)

  Dependent on area where you are working

Patient referral and care pathway

NHS
National Institute for Clinical Excellence

CASE/RISK IDENTIFICATION IN GENERAL SERVICES
Ask if fallen in the past year and about frequency, context and characteristics of the fall. C
Observe for balance and gait deficit and potential to benefit from interventions to improve balance and mobility. C

FALLS SERVICE
All healthcare professionals dealing with patients known to be at risk of falling should develop and maintain basic professional competence in falls assessment and prevention. D

Primary and community care

Case/risk identified at health screen

Case/risk identified opportunistically at presentation with fall/other problem

Secondary care

Case/risk identified opportunistically at presentation with fall/other problem

Presentation at A&E with fall injury

MULTIFACTORIAL FALLS RISK ASSESSMENT
Offer multifactorial falls assessment. C This may include: C
- falls history
- gait, balance, mobility, muscle weakness
- osteoporosis risk*
- perceived functional ability
- fear of falling
- visual impairment
- cognitive impairment
- neurological examination
- continence
- home hazard
- cardiovascular examination
- medication review.

*Refer as necessary

The specialist services for falls and for osteoporosis should be operationally linked or dovetailed.

MULTIFACTORIAL INTERVENTIONS
Offer individualised multifactorial intervention to older people at risk including: A
- strength and balance training
- home hazard assessment and intervention
- vision assessment and referral
- medication review/withdrawal

After medical treatment for an injurious fall, patients should be offered multidisciplinary assessment and intervention. A

STRENGTH AND BALANCE TRAINING A

HOME HAZARD INTERVENTION AND FOLLOW-UP A

MEDICATION REVIEW/WITHDRAWAL B

CARDIAC PACING B

EDUCATION AND INFORMATION
To promote participation of older people, falls prevention programmes should: D
- discuss changes a person is willing to make to prevent falls
- information should be relevant and available in languages in addition to English
- address potential barriers such as low self-efficacy and fear of falling.

Programmes should be flexible to accommodate different needs. D
Information on the following should be provided orally and in writing: D
- measures to prevent falls
- motivation
- preventable nature of some falls
- physical/psychological benefits of modifying risk
- further advice and assistance
- how to cope with a fall.

Interventions that cannot be recommended
Brisk walking. There is no evidence that brisk walking reduces the risk of falling. One trial showed that an unsupervised brisk walking programme increased the risk of falling in postmenopausal women with an upper limb fracture in the previous year. However, there may be other benefits of brisk walking by older people.

Interventions that cannot be recommended because of insufficient evidence
We do not recommend implementation of the following interventions at present. This is not because there is strong evidence against them, but because there is insufficient or conflicting evidence supporting them.

- **Low intensity exercise combined with incontinence programmes.** There is no evidence that low intensity exercise interventions combined with continence promotion programmes reduce the incidence of falls in older people in extended care settings.
- **Group exercise (untargeted).** Exercise in groups should not be discouraged as a means of health promotion, but there is little evidence that exercise interventions that were not individually prescribed for community-dwelling older people are effective in falls prevention.
- **Cognitive/behavioural interventions.** There is no evidence that cognitive/behavioural interventions alone reduce the incidence of falls in community-dwelling older people of unknown risk status. Such interventions included risk assessment with feedback and counselling and individual education discussions. There is no evidence that complex interventions in which group activities included education, a behaviour modification programme aimed at modifying risk, advice and exercise interventions are effective in falls prevention with community-dwelling older people.
- **Referral for correction of visual impairment.** There is no evidence that referral for correction of vision as a single intervention for community-dwelling older people is effective in reducing the number of people falling. However, vision assessment and referral has been a component of successful multifactorial falls prevention programmes.
- **Vitamin D.** There is evidence that vitamin D deficiency and insufficiency are common among older people and that when present they impair muscle strength and possibly neuromuscular function via CNS-mediated pathways. In addition, the use of combined calcium and vitamin D3 supplementation has been found to reduce fracture rates in older people in residential/nursing homes and sheltered accommodation. Although there is emerging evidence that correction of vitamin D deficiency or insufficiency may reduce the propensity for falling, there is uncertainty about the relative contribution to fracture reduction via this mechanism (as opposed bone mass) and about the dose and route of administration required. No firm recommendation can therefore currently be made on its use for this indication. Guidance on the use of vitamin D for fracture prevention will be contained in the forthcoming NICE clinical practice guideline on osteoporosis, which is currently under development.
- **Hip protectors.** Reported trials that have used individual patient randomisation have provided no evidence for the effectiveness of hip protectors to prevent fractures when offered to older people living in extended care settings or in their own homes. Data from cluster randomised trials provide some evidence that hip protectors are effective in the prevention of hip fractures in older people living in extended care settings who are considered at high risk.

Take home messages

- Frailty is a broad multifaceted concept which confers increased morbidity and mortality
- Healthcare professionals should screen for frailty with rapid simple screening measures
- Nutrition and exercise are key concepts to reversing frailty
- Falls are a significant problem for many older adults
- Its everyone's business
- Comprehensive Geriatric assessment is effective
- Frailty could be prevented/ delayed/treated in the early phase


If I tell anyone I've fallen I'll lose my independence.
Don't worry! I fell too, but after my fall:
• I had a check up to make sure I was well
• Some of my medicines were changed
• I was given advice on how to make my home safer
• I was given information about suitable exercise classes