Function, frailty and failing cognition:

Supporting our patients to full potential in their senior years.

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Disclosure

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- Salary:
  - Baycrest Health Sciences,
  - Centre for Effective Practice,
  - College of Family Physicians of Canada,
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Disclosure

Potential for conflict of interest:

- None

Disclosure

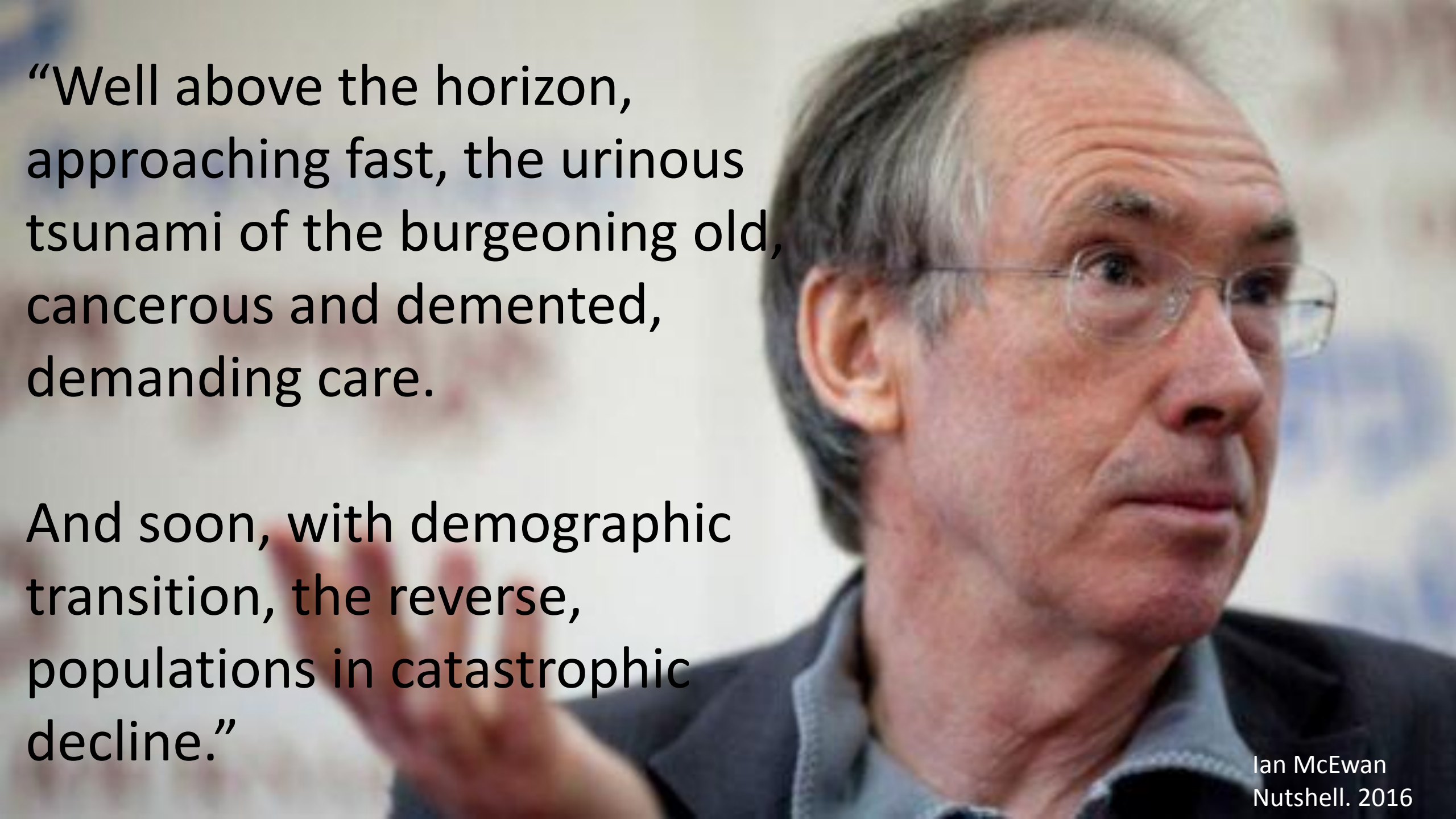
Mitigation:

- None required

By the end of this session, participants will be better able to:

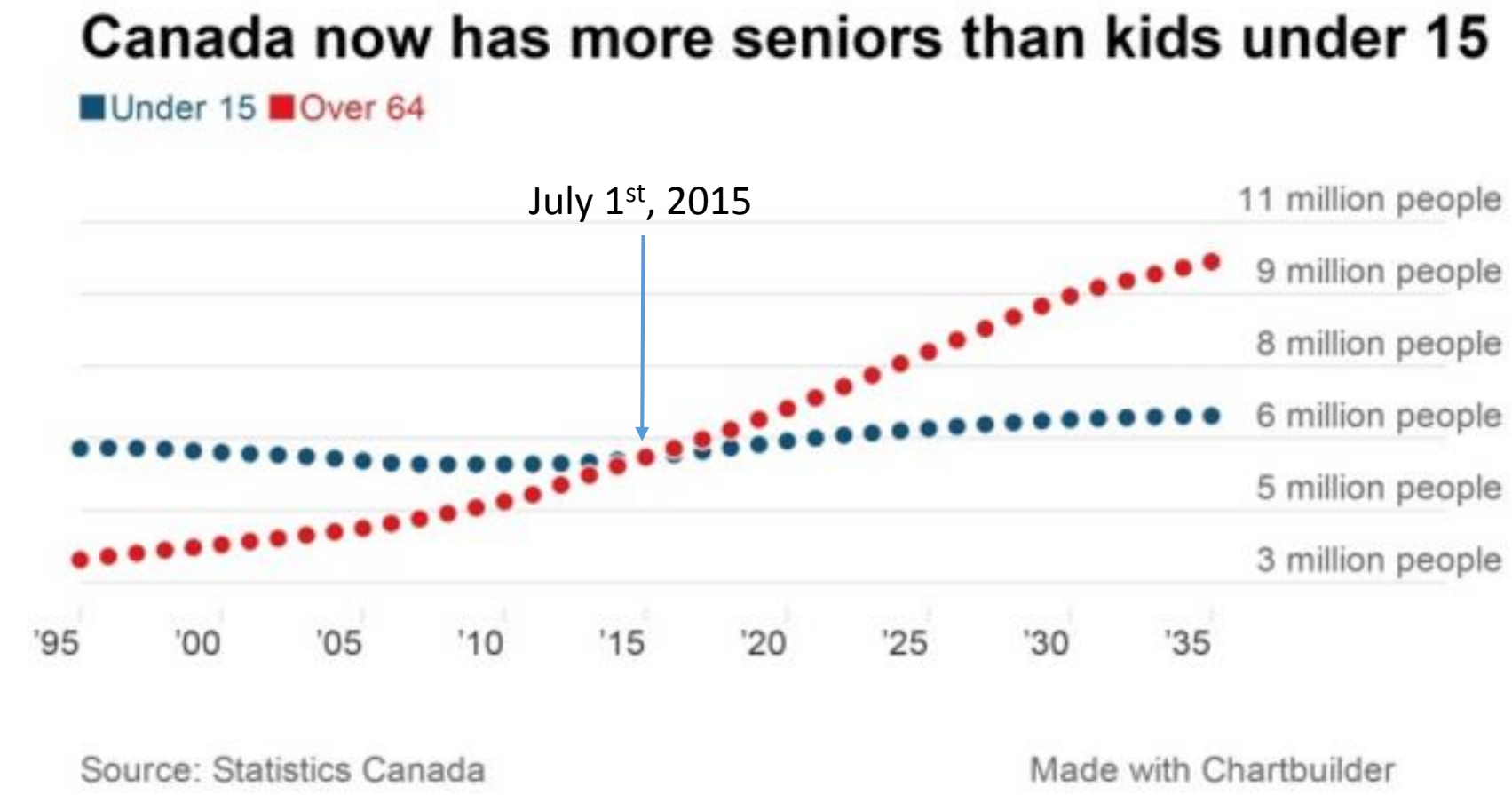
- Support patients to age well
- Test function in the office/clinic setting
- Describe, recognize, assess and manage frailty
- Access great tools to support patients with dementia

Dr. Edward Feldman
1920-2017


“Well above the horizon, approaching fast, the urinous tsunami of the burgeoning old, cancerous and demented, demanding care.
And soon, with demographic transition, the reverse, populations in catastrophic decline.”
Ian McEwan
Nutshell. 2016

Isidor Rabi, 1898-1988
Nobel Prize in Physics 1944

How can we support our elderly patients to full potential in their senior years?

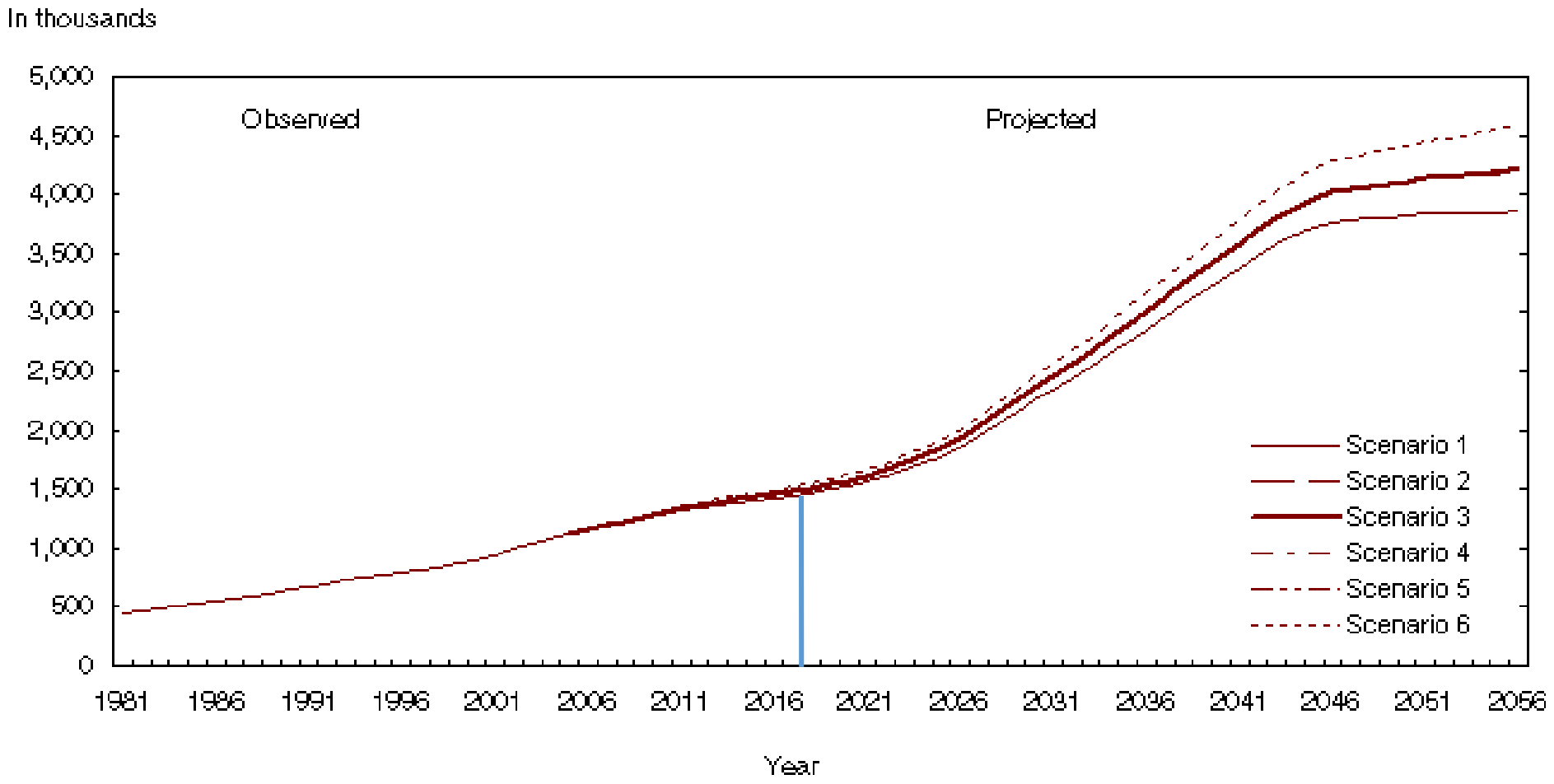


If current population trends continue, Statistics Canada estimates that seniors will outnumber children in Canada by a factor of three to two in 20 years' time. (Pete Evans/CBC)

Percent of population over age 65

Statistics Canada 2011

Demographics of aging: Population aged 80 and over



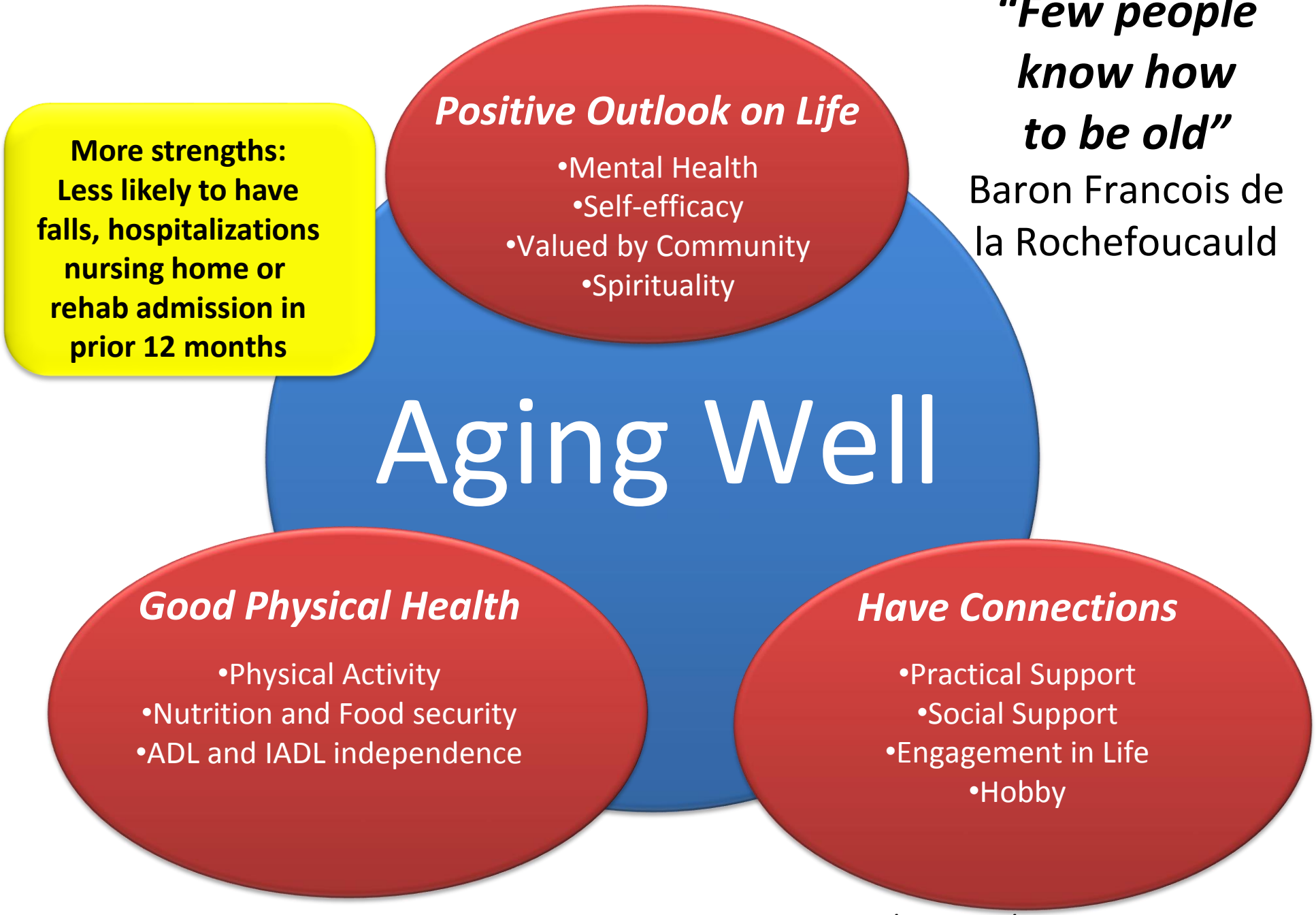
Statistics Canada 2011

Imagine what could be…

Now turn to another neighbour …

When you envision ***yourself*** getting older,
what are some things that you want?

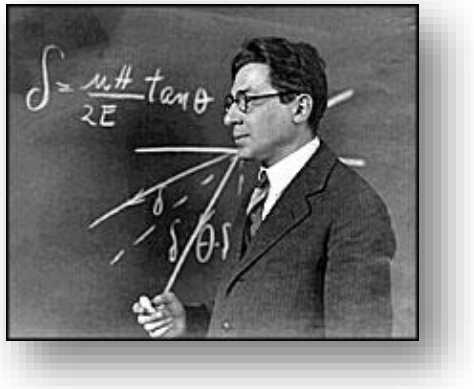
Imagine the world
as you want it to be
as you get older…



More strengths: Less likely to have falls, hospitalizations nursing home or rehab admission in prior 12 months

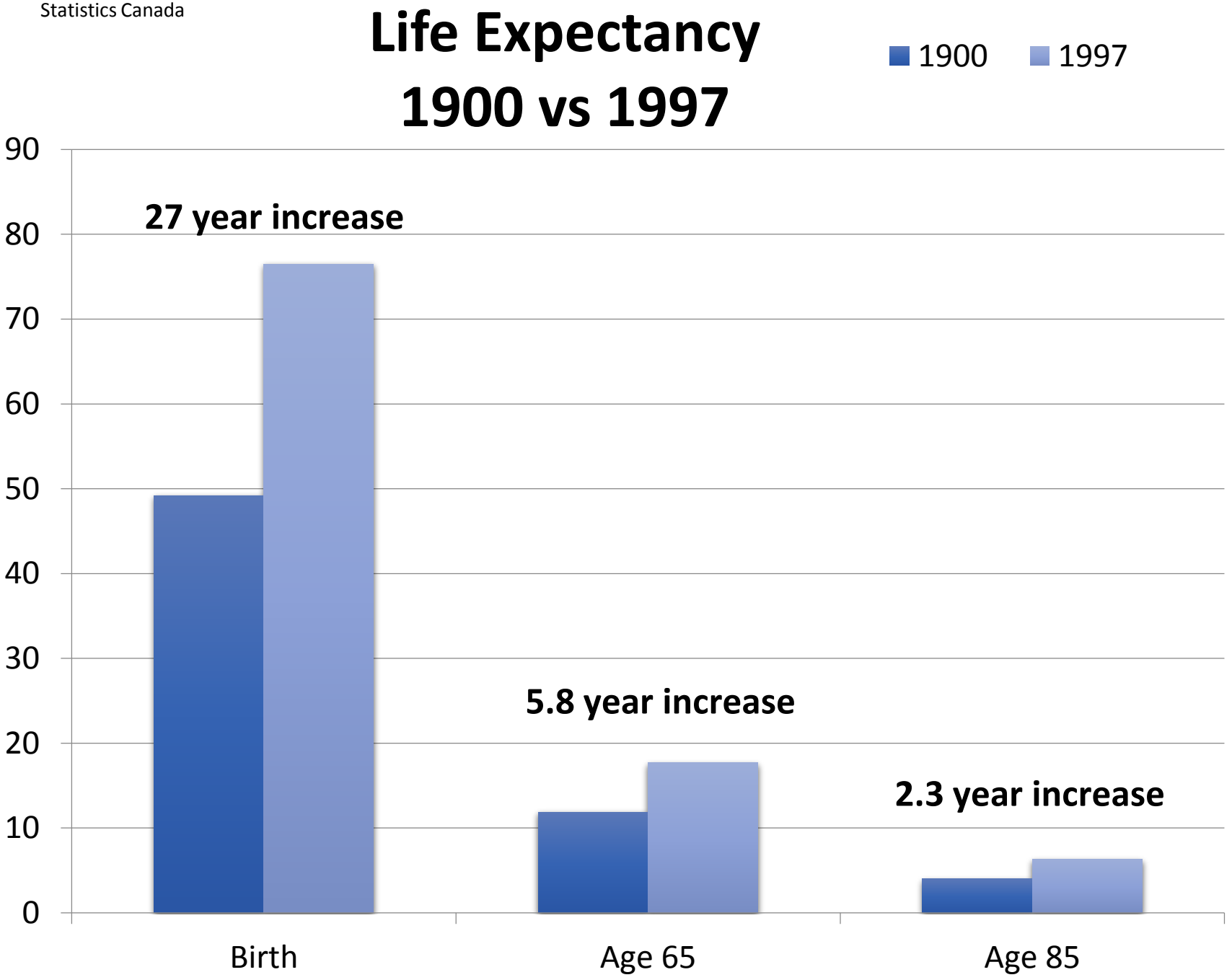
"Few people know how to be old"
Baron Francois de la Rochefoucauld

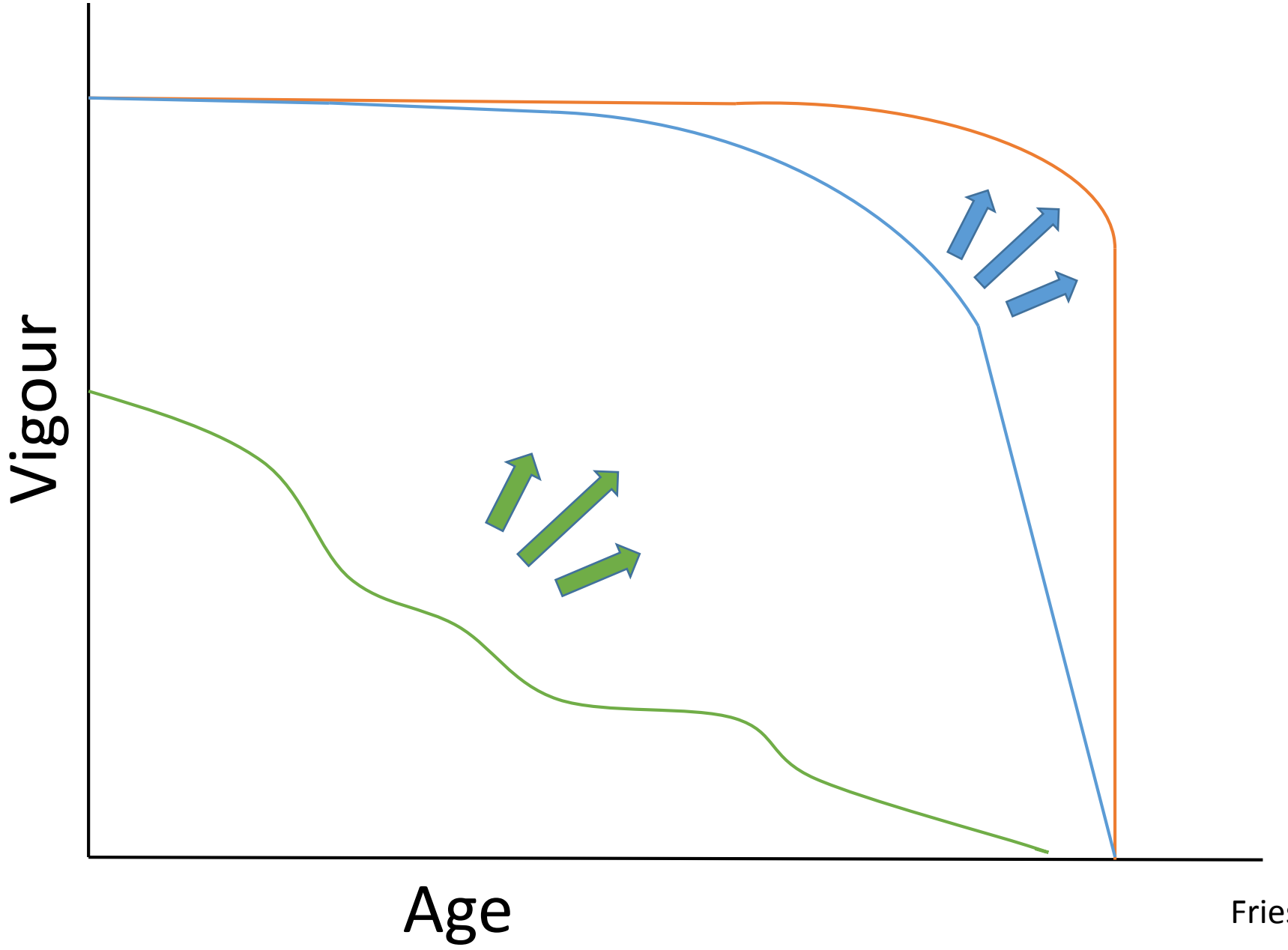
National Research Center Boulder Colorado. www.n-r-c.com/services/needs_agingwell.html



What’s our goal?

Statistics Canada





Fries J, NEJM, 1980

Morbidity compression:

“Squaring the curve”

Evidence supports morbidity compression

2300 alumnae 60+ x 20 yrs

Weight **Exercise** **Smoking** → ***Risk:***

Low

Medium

High

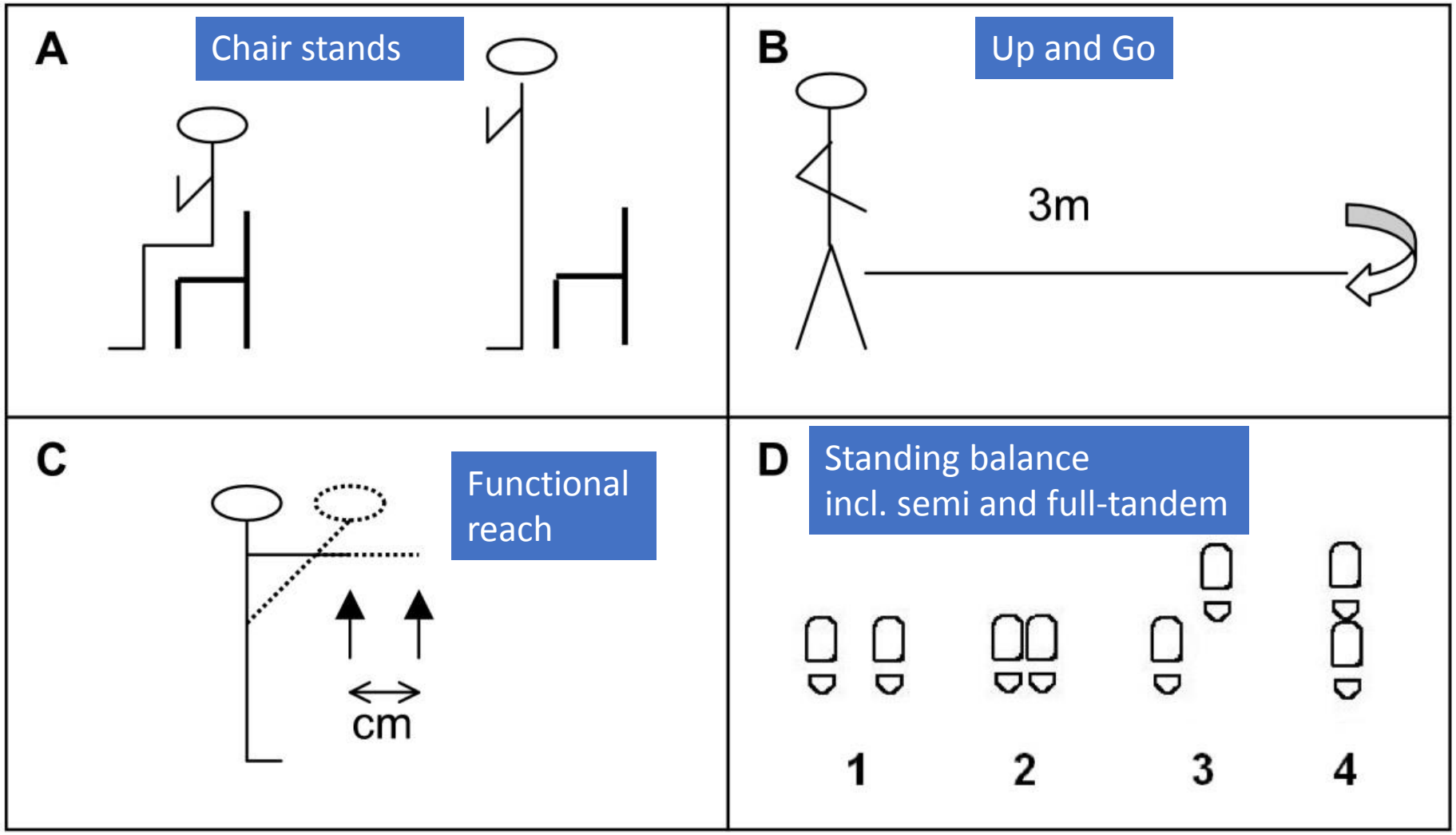
Results: Low-risk subjects had onset of moderate disability delayed by 8.3 years compared with high-risk; substantial difference in mortality 247 vs 384/10,000 patient years

Chakravarty EF et al. Am J Med 2012;125(2)190-197.

From Fit to Frail…

Chronologic age ≠ functional age

Schematic: Some office assessments of function



biomedcentral.com/content/figures/1471-2318-7-15-2-l.jpg

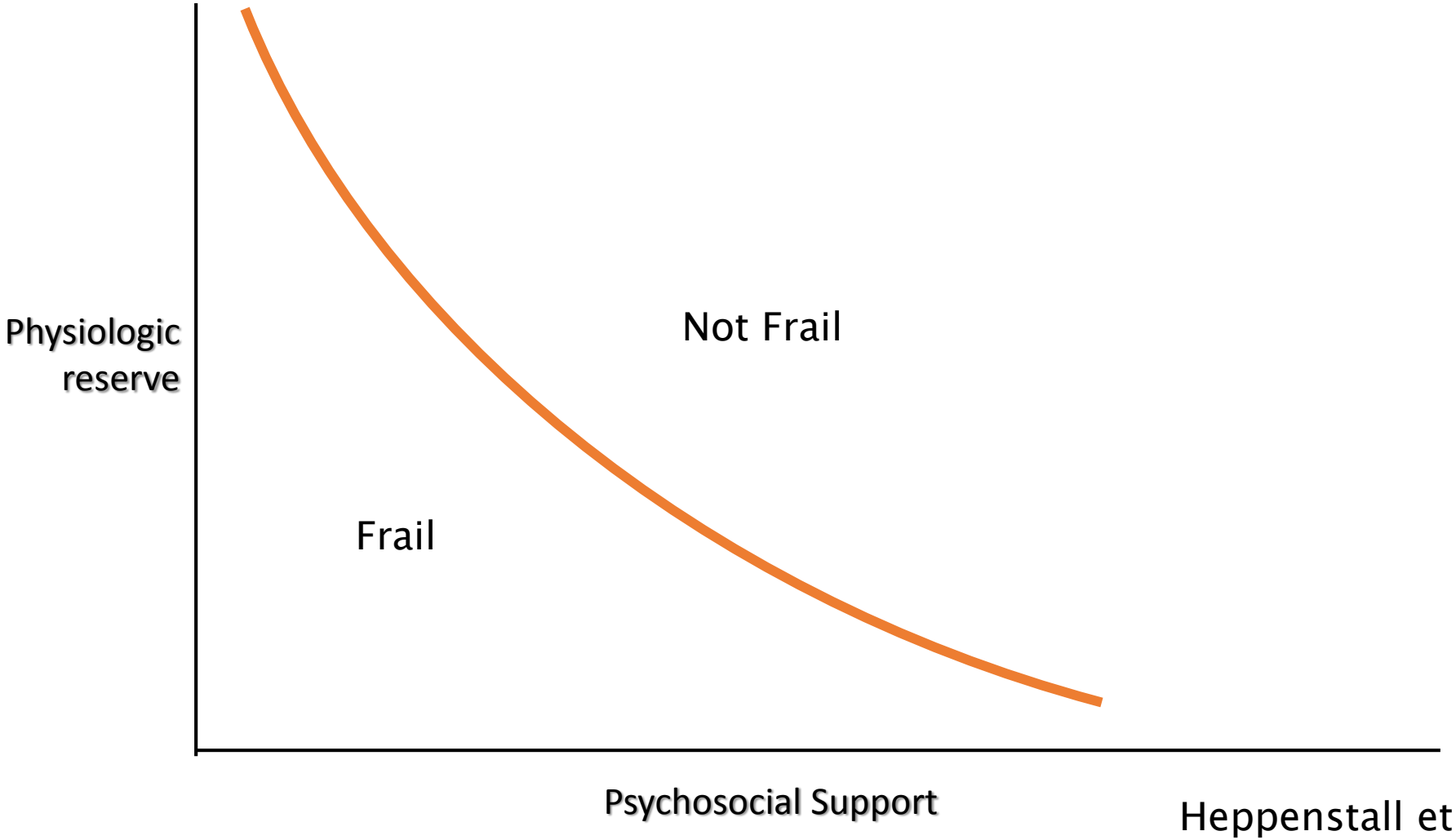
Functional Reach

"How far can you reach forward without moving your feet?"

Reach in inches	≥2 falls in next 2 months (OR)
≥10 inches	1
6-10	2
<6	4
Unable to reach	8

Frailty: A state of increased vulnerability due to age-associated decline in reserve and function resulting in reduced ability to cope with stressors.

Frailty



Heppenstall et al
NZJM 2009

Clinical Frailty Scale

1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2 Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3 Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4 Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up", and/or being tired during the day.

5 Mildly Frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6 Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.

7 Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9 Terminally Ill – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

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

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

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

Rockwood K, et al CMAJ 2005;173(5):489-95

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Clinical Frailty Scale

Goals of Care

1. **Very fit**
2. **Well**
3. **Well, with treated co-morbid disease**
4. **Apparently vulnerable**
5. **Mildly frail**
6. **Moderately frail**
7. **Severely frail**
8. **Very Severely frail**
9. **Terminally Ill**

Health maintenance and health promotion

Chronic Disease Management

Protection Harm Reduction Maintain Function

Comfort

Rockwood K, et al CMAJ 2005;173(5):489-95

Fried clinical phenotype:

- Slowed walking speed
- Low physical activity
- Unintentional weight loss (>10 lbs)
- Low energy/exhaustion
- Weakness (low grip strength)

Fried LP et al. JGerontol A Biol Sci Med Sci 2001;56(3);M146-56

Grip Strength

- 17 countries x 4 years,
- n >140,000
- Grip strength predicted:
  - All-cause mortality (better than sBP)
  - Cardiovascular mortality (better than sBP)
  - Non-cardiovascular mortality
  - Myocardial infarction
  - Stroke

Leong et al, thelancet.com 386 July 18 2015

Table 3. Diagnostic accuracy of frailty markers

FRAILTY-DEFINING CRITERION	SENSITIVITY, % (95% CI)	SPECIFICITY, % (95% CI)	POSITIVE PREDICTIVE VALUE, % (95% CI)	ACCURACY, % (95% CI)	POSITIVE LIKELIHOOD RATIO (95% CI)
Individual markers					
• Gait speed	87.5 (66.5-96.7)	94.6 (91.6-96.7)	52.5 (36.3-68.1)	94.2 (91.2-96.3)	16.2 (10.3-26.0)
• Grip strength	100.0 (83.4-100.0)	90.5 (86.9-93.2)	42.4 (29.8-55.9)	91.1 (87.7-93.6)	10.5 (7.6-14.5)
• Low exercise	100.0 (83.4-100.0)	86.0 (81.9-89.3)	33.3 (23.1-45.2)	86.9 (83.0-90.0)	7.1 (5.5-9.2)
• Weight loss	8.3 (0.4-40.2)	97.4 (94.4-98.8)	12.5 (0.7-53.3)	93.5 (90.0-96.0)	3.2 (0.4-23.6)
• Exhaustion	81.8 (47.8-96.8)	90.4 (85.2-94.0)	32.1 (16.6-52.4)	90.0 (84.9-93.5)	8.5 (5.1-14.2)
Combined markers					
• Gait speed and grip strength	87.5 (66.5-96.7)	99.2 (97.3-99.8)	87.5 (66.5-96.7)	98.4 (96.4-99.4)	103.5 (33.2-322.7)

Lee et al. CFP 2017;63(1):e51-57

Frailty and social determinants of health

- Low income associated with frailty (OR 2.01)
- Low education associated with frailty (OR 3.01)

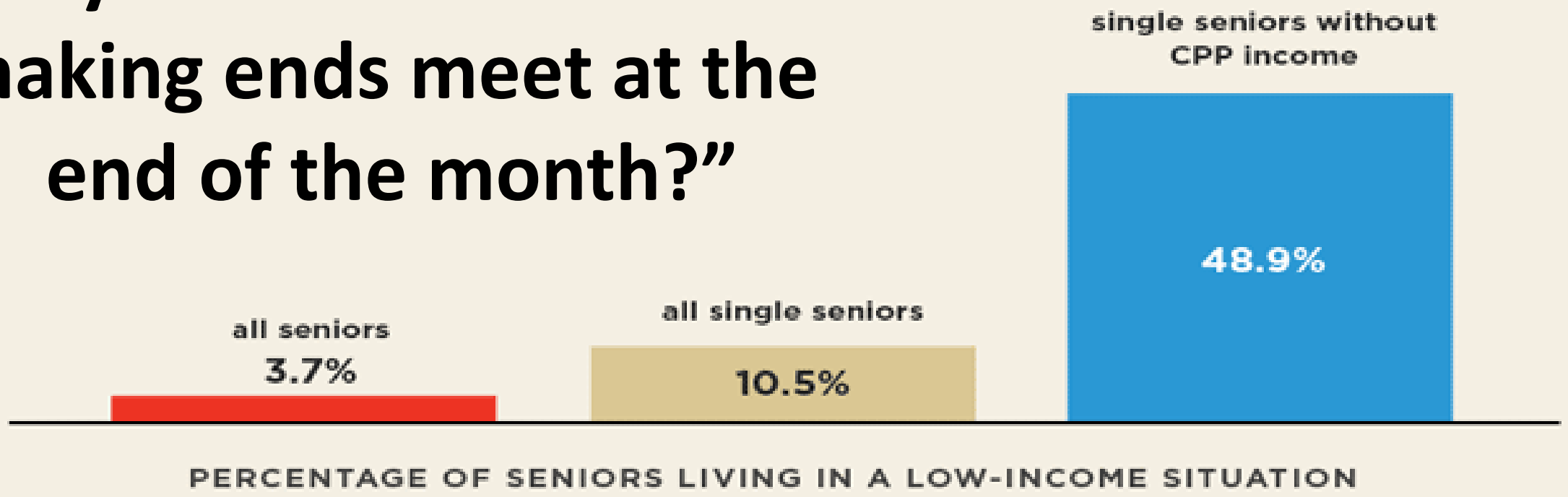
“Do you ever have trouble making ends meet at the end of the month?”

Statistics Canada 2014

Szanton SL, et al. J Epidemiol Community Health 2010;64(1):63-67

Single seniors living alone are Canada's most financially vulnerable and unlikely helped by CPP expansion, 2013

"Do you ever have trouble making ends meet at the end of the month?"



fraserinstitute.org/5-myths-of-the-cpp-myth5

Centre for Effective Practice

Poverty: A Clinical Tool for Primary Care Providers (MB)

Poverty is not always apparent: In Manitoba, approximately 12.1% of families and 29% of children live in poverty. [1,2]

1 Screen Everyone

"Do you ever have difficulty making ends meet at the end of the month?"

(Sensitivity 98%, specificity 40% for living below the poverty line)[3]

2 Poverty is a Risk Factor

Consider:

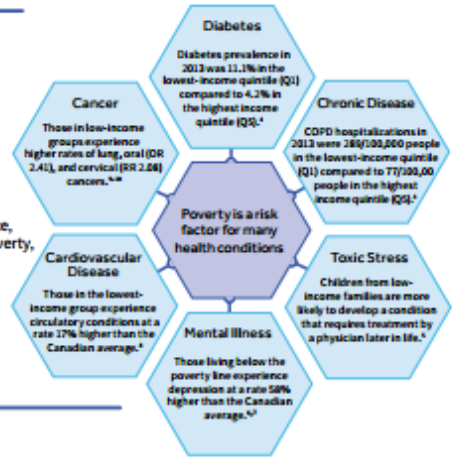
New immigrants, women, Indigenous peoples, and LGBTQ+ are among the highest risk groups.

Example 1:

If an otherwise healthy 35-year-old comes to your office, without risk factors for diabetes other than living in poverty, you consider ordering a screening test for diabetes.

Example 2:

If an otherwise low-risk patient who lives in poverty presents with chest pain, this elevates the pre-test probability of a cardiac source and helps determine how aggressive you are in ordering investigations.



3 Intervene

Ask Everyone: "Have you filled out and sent in your tax forms?"

- Ask questions to find out more about your patient—their employment, living situation, social supports, and the benefits they receive. Tax returns are required to access many income security benefits: e.g., GST / HST credits, child benefits, working income tax benefits, and property tax credits. Connect your patients to Free Community Tax Clinics and Community Financial Counselling Services.
- Even people without official residency status can file returns.
- Drug Coverage: The patient must have up-to-date tax filings and have a Health Card issued by the Province of Manitoba. Visit drugcoverage.ca for more options.

Ask questions to find out more about your patient—their living situation, and the benefits they currently receive.

The following resources are available to Manitobans: Manitoba Government Services Portal, Winnipeg 311 City Services, and Manitoba Residents' Portal

Intervene by connecting your patients and their families to benefits, resources, and services.

more interventions on reverse

"Have you filled out and sent in your tax forms?"

"Do you receive Old Age Security (OAS) and Guaranteed Income Supplement (GIS)?"

thewellhealth.ca/wp-content/uploads/2016/11/Poverty_flowMB-2016-Oct-28.pdf

canadarunningseries.com/2017/03/remembering-e

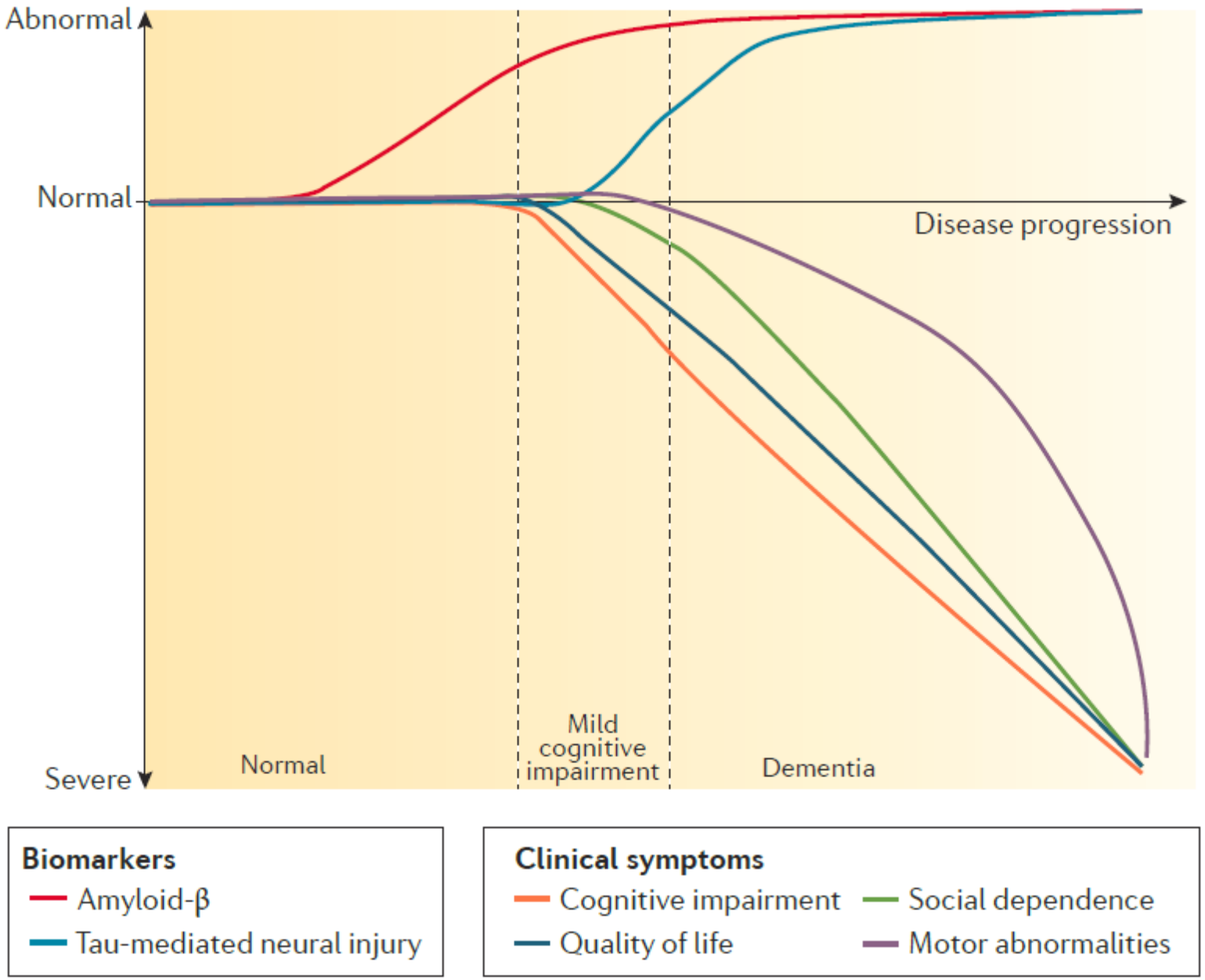
baycrest.org/Breakthroughs/2010/images/secondHalfofLife.jpg

Pharmacological debridement

Consider removing drugs that are:

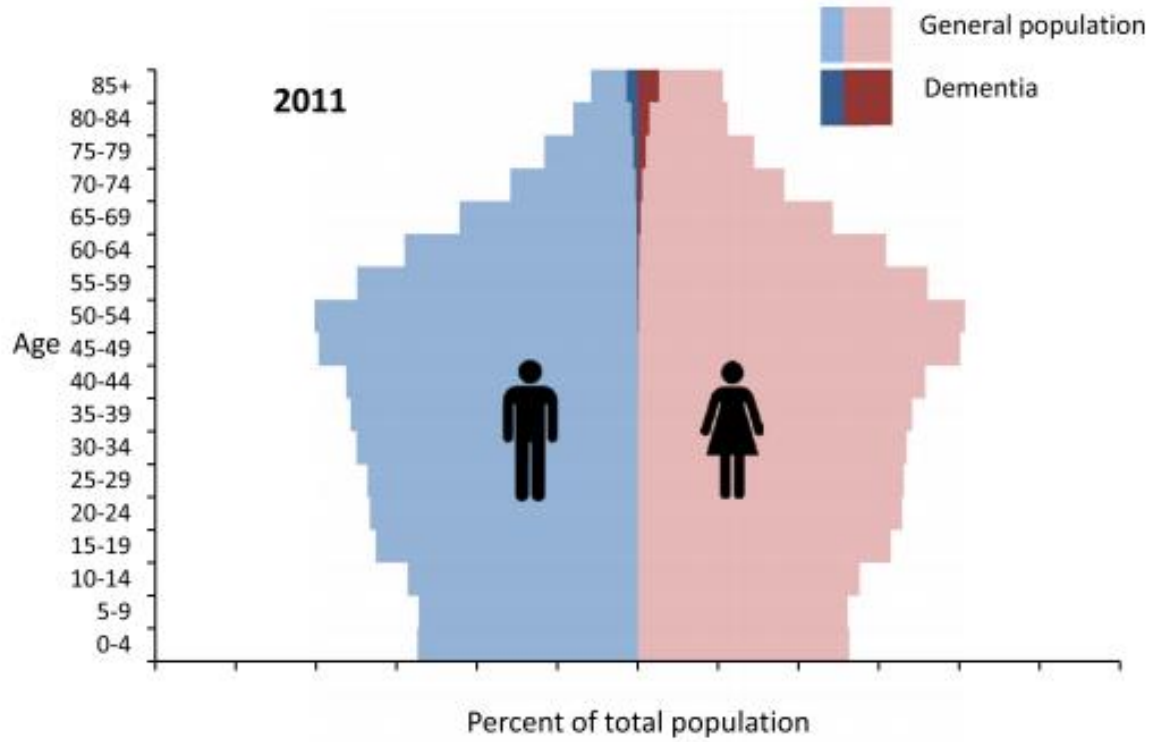
- Historical only
- Symptom control
- Prevention (consider goals of care, life expectancy)
- Pose significant risk
- Senseless combinations
- More aggressive than is reasonable
- Confusing

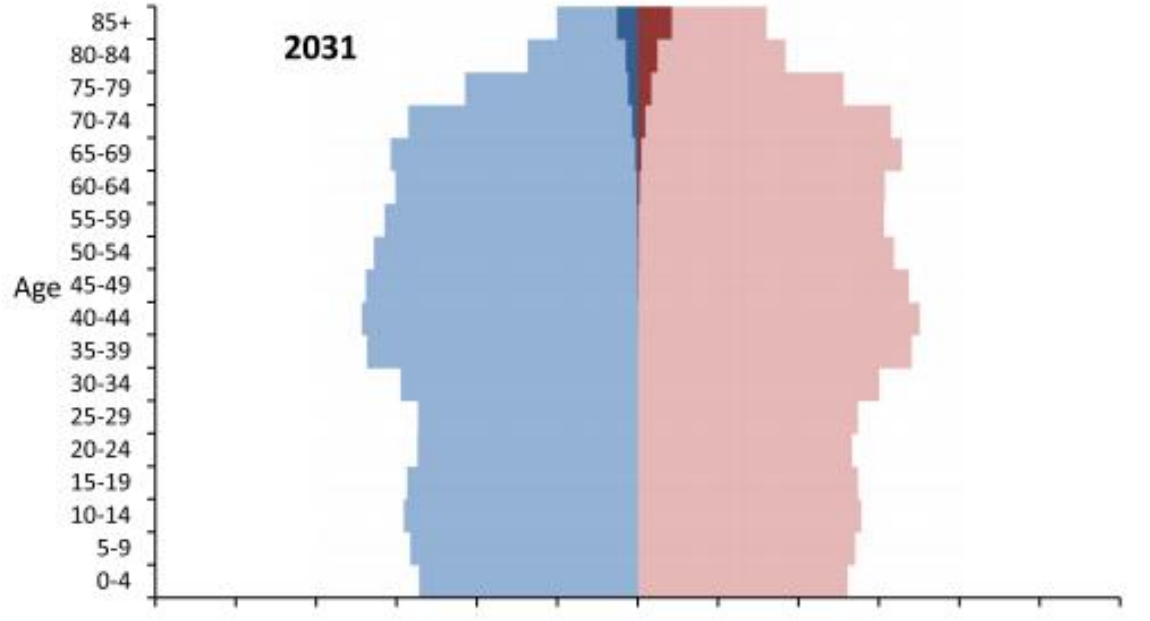
Dementia



Nature.com/ nrdp. Masters CL et al, Nature Reviews 2015;1(1) Article number: 15056 doi:10.1038/nrdp.2015.56

Demographics of dementia





Manuel et al. Population Health Metrics 2016;14:37

Toward Optimized Practice

Cognitive Impairment: SymptomsTo Management

Summary of the Clinical Practice Guideline | February 2017

Toward Optimized Practice

Cognitive Impairment – Part 1: Symptoms to Diagnosis

Clinical Practice Guideline | February 2017

Toward Optimized Practice

Cognitive Impairment – Part 2: Diagnosis to Management

Clinical Practice Guideline | February 2017

Toward Optimized Practice

Cognitive Impairment:

Professional Services and Resources in Alberta for Patient/Family/Caregiver and Future/Advanced Planning Tools & Tips for Aging Individuals

Supplement to the Clinical Practice Guidelines:

- Part 1: Symptoms to Diagnosis
- Part 2: Diagnosis to Management

topalbertadoctors.org/cpgs

For the patient presenting with memory concerns:

Diagnosis

1. Is it delirium or depression?
2. Is there a “reversible/modifiable” component?
3. Is it normal, MCI or dementia? If dementia, what type?
4. Are there mood or behavioural concerns?

Management and Support

5. How can we support patient/caregivers and who can help?
6. Is pharmacotherapy appropriate?
7. Are there safety concerns (including driving)?
8. Are there capacity issues?

Adapted from a clinical reasoning model developed by the CFM Memory Clinic, Kitchener ON
Lee L et al, Can Fam Phys 2013;59:249-54

The Centre for Family Medicine

Memory Clinic Brain Map

Name: _____

Date: _____

Has delirium been ruled out?

Acute onset?	No	Yes
Fluctuating course?	No	Yes
Inattention?	No	Yes
Disorganized thinking?	No	Yes
Altered level of consciousness?	No	Yes

Has depression been ruled out?

SIGECAPS, GDS or Cornell Scale	Yes	No

Is there a reversible cause?

Cranial imaging required?	No	Yes

☐CBC, ☐TSH, ☐electrolytes, ☐creatinine, ☐calcium, ☐glucose, ☐B_{12}

Is there functional impairment?

Independent Activities of Daily Living	Basic Activities of Daily Living
Shopping/social functioning	Dressing
Housework/hobbies	Eating
Accounting – banking, bills, taxes, handling cash	Ambulation
Food preparation	Toileting
Telephone/Tools/Transportation	Hygiene
Medication management	

Are there deficits involving the **medial temporal lobe/hippocampus**?

Episodic Memory	3 word recall on MMSE	3	2	1	0		
	5 word recall on MoCA	5	4	3	2	1	0
	current day/day of week/season	intact		impaired			
	current events	intact		impaired			
	what the person had for breakfast/dinner (corroborated)	intact		impaired			

Are there deficits involving the **parietal lobe**?

Praxis	Constructional praxis (visuospatial relationships)	intersecting pentagons on MMSE		intact	impaired
		cube draw on MoCA		intact	impaired
		clock draw		intact	impaired[1]
	Ideomotor praxis (complex commands)	limb	Gestures – wave goodbye, salute, hitchhike / Pantomime tool use – hammer, comb	intact	impaired[2]
		Bucco-facial	"blow out a match"	intact	impaired[3]

[1] parietal and frontal (visuospatial and executive function)
[2] primarily parietal, but also dependent on frontal and occipital lobes
[3] parietal and/or frontal

Are there deficits involving the **frontal lobe**?

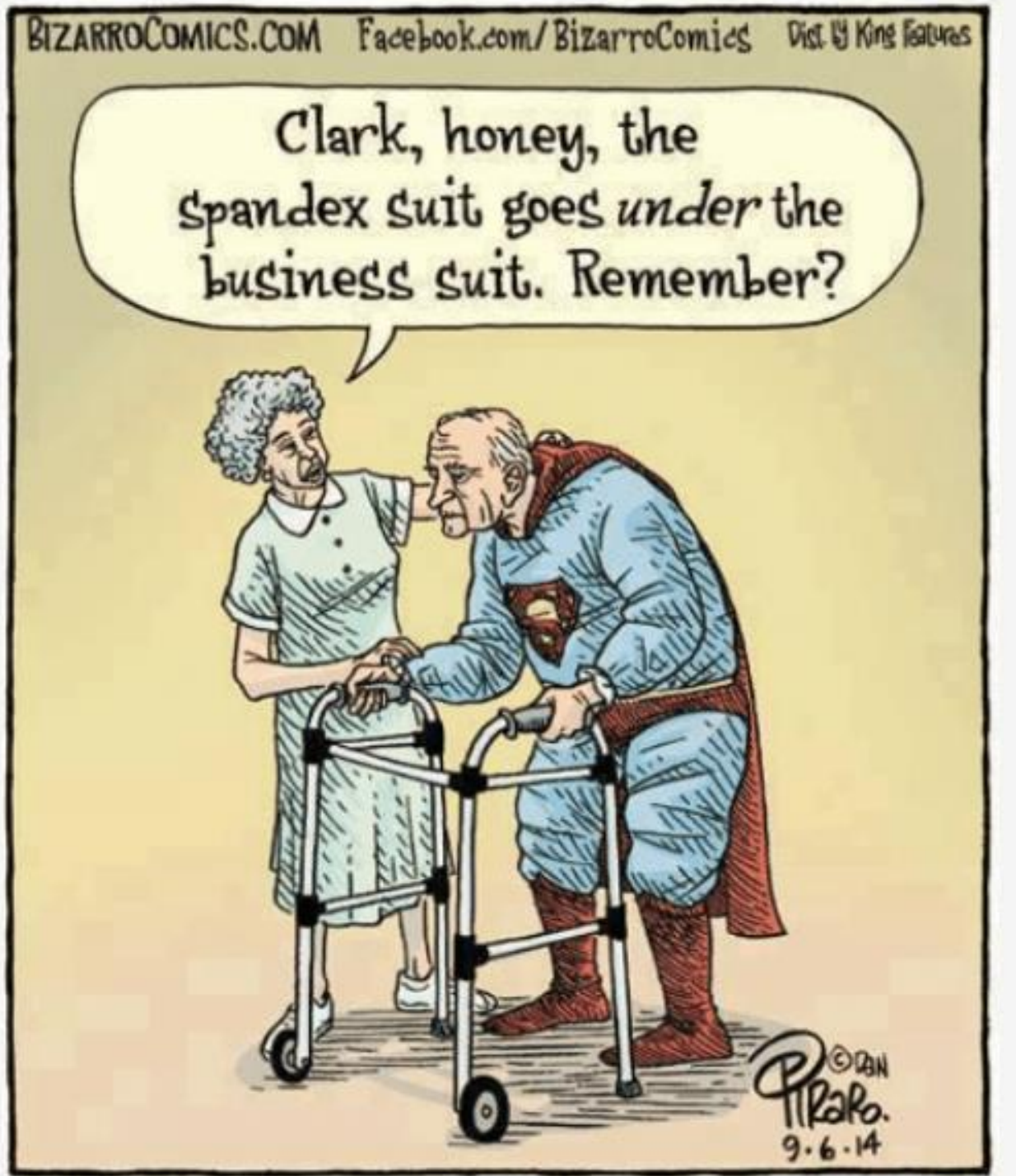
Working Memory	digit span or WORLD forwards	intact	impaired
	digit span or WORLD backwards	intact	impaired
Executive Function	CLOX	intact	impaired
	clock draw	intact	impaired[1]
	Luria hand test	intact	impaired
	Trails B (task switching)	Intact	impaired
	Go-No Go (inhibitory control)	intact	impaired
	"f"words: ____ (phonemic verbal fluency)	11+	<11
	months of year backwards	intact	impaired
	animal list generation: ____	intact	impaired[2]
	proverbs, similarities (abstraction)	intact	impaired
Frontal Behavioral Inventory score[3]: ____		< 30	30+

[1] frontal and parietal (executive and visuospatial function)
[2] frontal and anterior/inferolateral temporal lobe (executive function and semantic memory)
[3] score of 30+ often seen in behavioral-variant FTD

Note: subcortical lesions can cause deficits in many of the above areas

MMSE score: _____ MoCA score: _____

family-medicine.ca/images/CFFM-Brain-Map-for-Memory-Clinics-Version-2b2.pdf



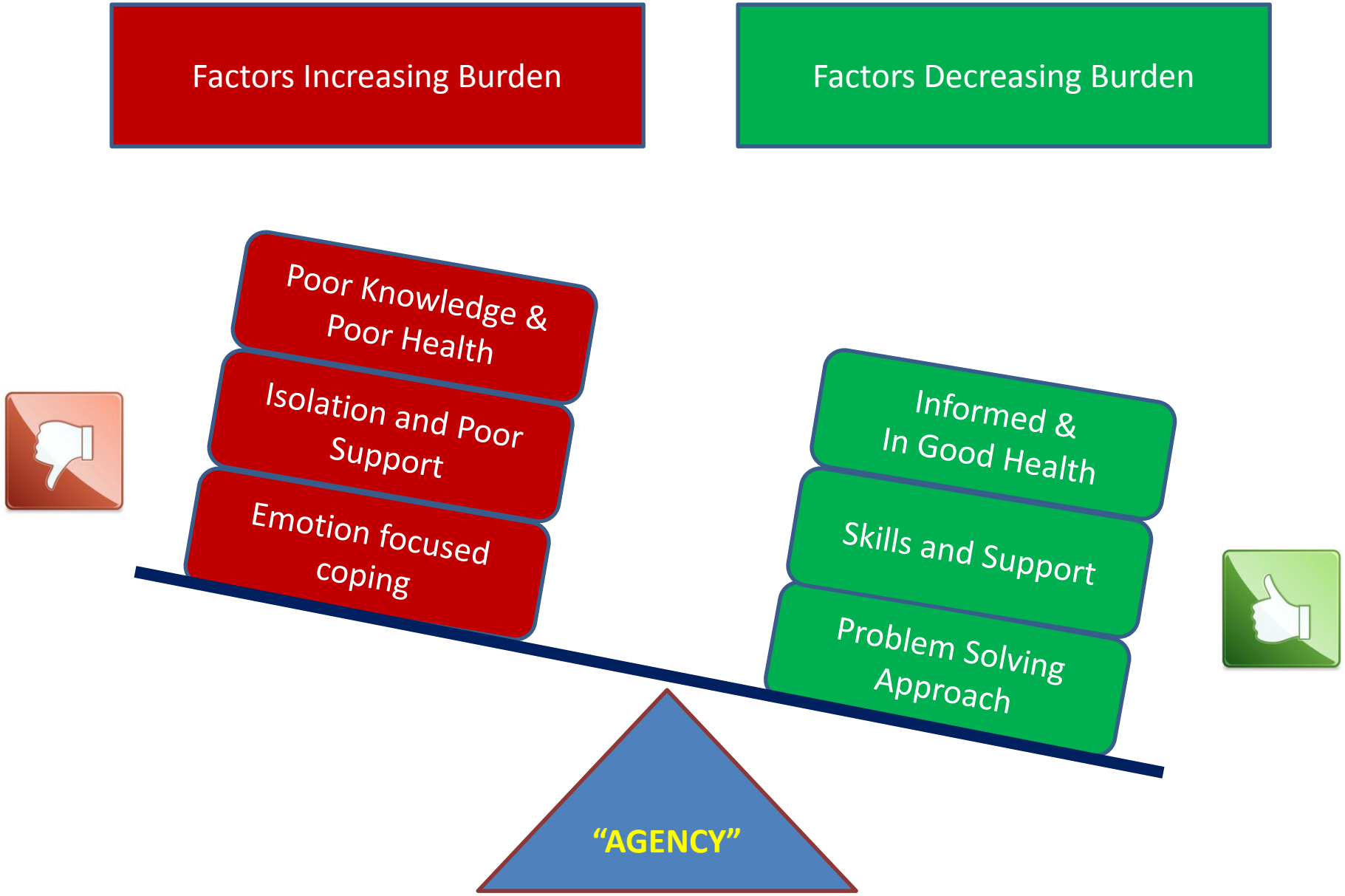
Caregivers

"If you fail, he fails."

Dr. Michael Gordon

"What's good for caregivers is good for patients."

Dr. Carole Cohen



R. Feldman, E. Danieli. Reitman Centre, Mount Sinai Hospital: www.mountsinai.on.ca/care/psych/patient-programs/geriatric-psychiatry/prc-dementia-resources-for-primary-care/dementia-toolkit-for-primary-care/caregiver-support/supporting-caregivers-a-guide-for-primary-care/view

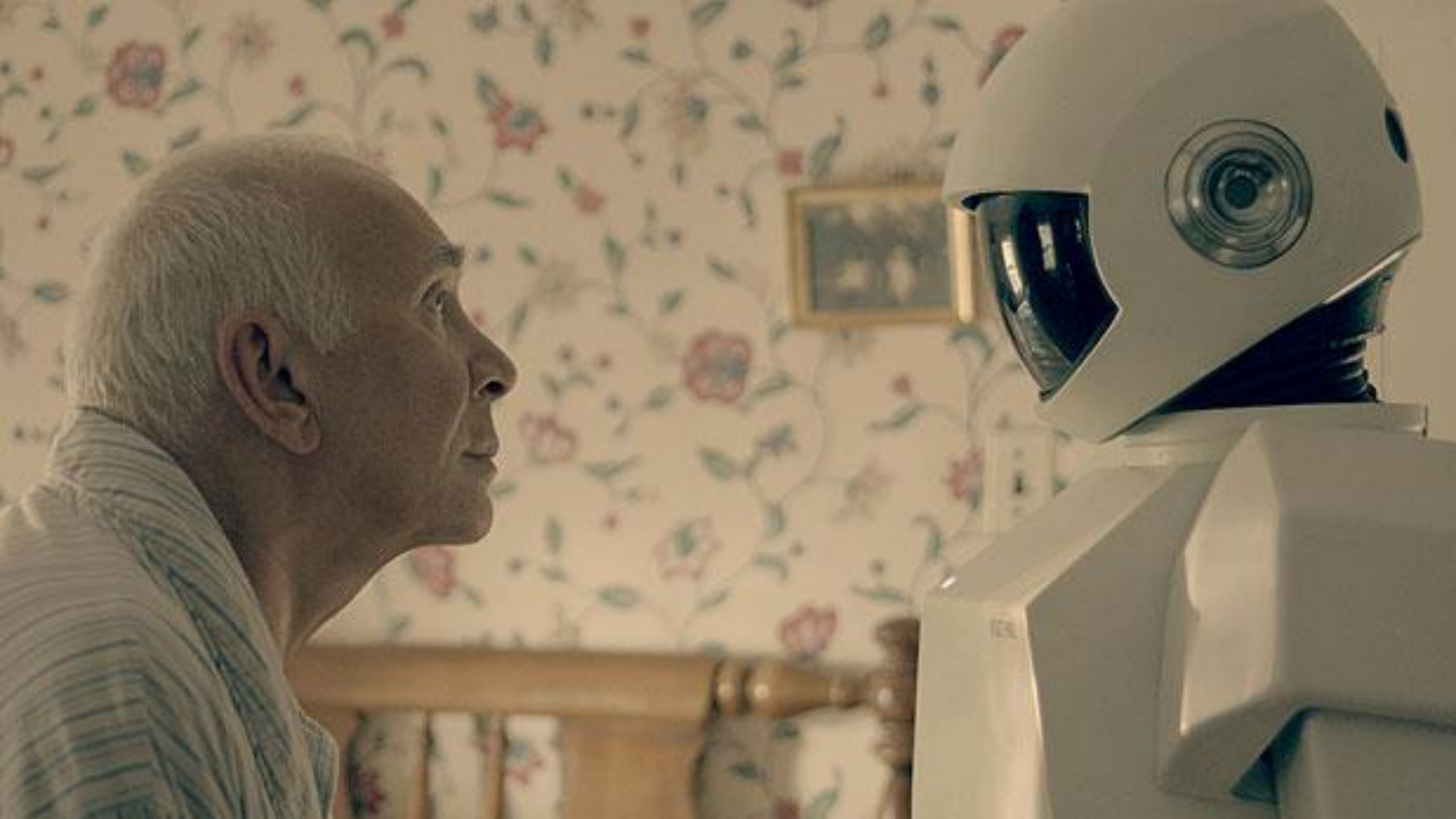
Acknowledge and empathize

Focus on adaptation, not recovery

"Re-membering":
Strengths that remain

Non-finite loss and Chronic Sorrow

Darcy Harris, King's College University, London ON






Dr. Edward Feldman 1920-2017

How can we support our elderly patients to full potential in their senior years?

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