

Frailty and Vulnerability

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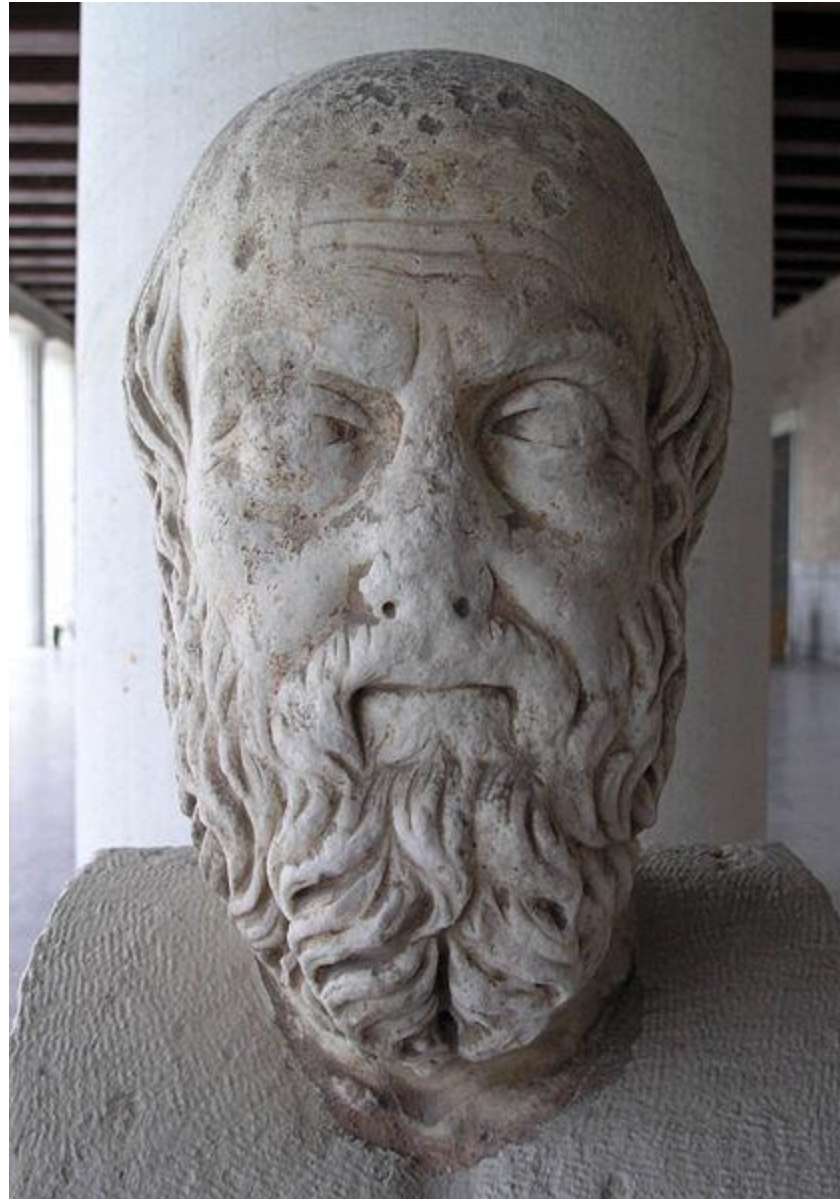


"I just want to apologize beforehand if you miss."

CN
COLLECTION

Overview

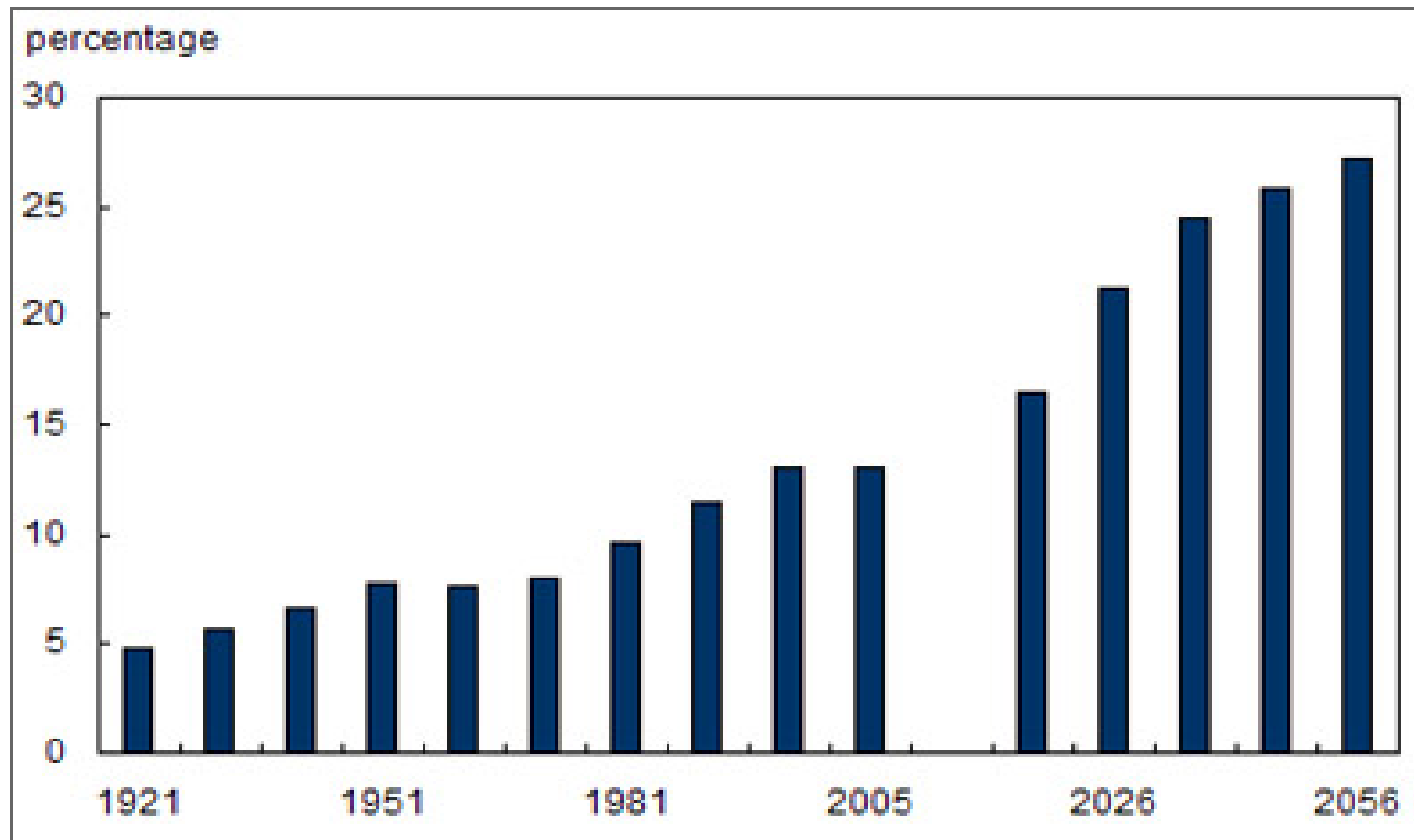
- 1.) Demographic Transition and Multi-morbidity
- 2.) System Transformation
- 3.) Complexity
- 4.) Frailty and Vulnerability
- 5.) Some Thoughts for the Future



Babylon

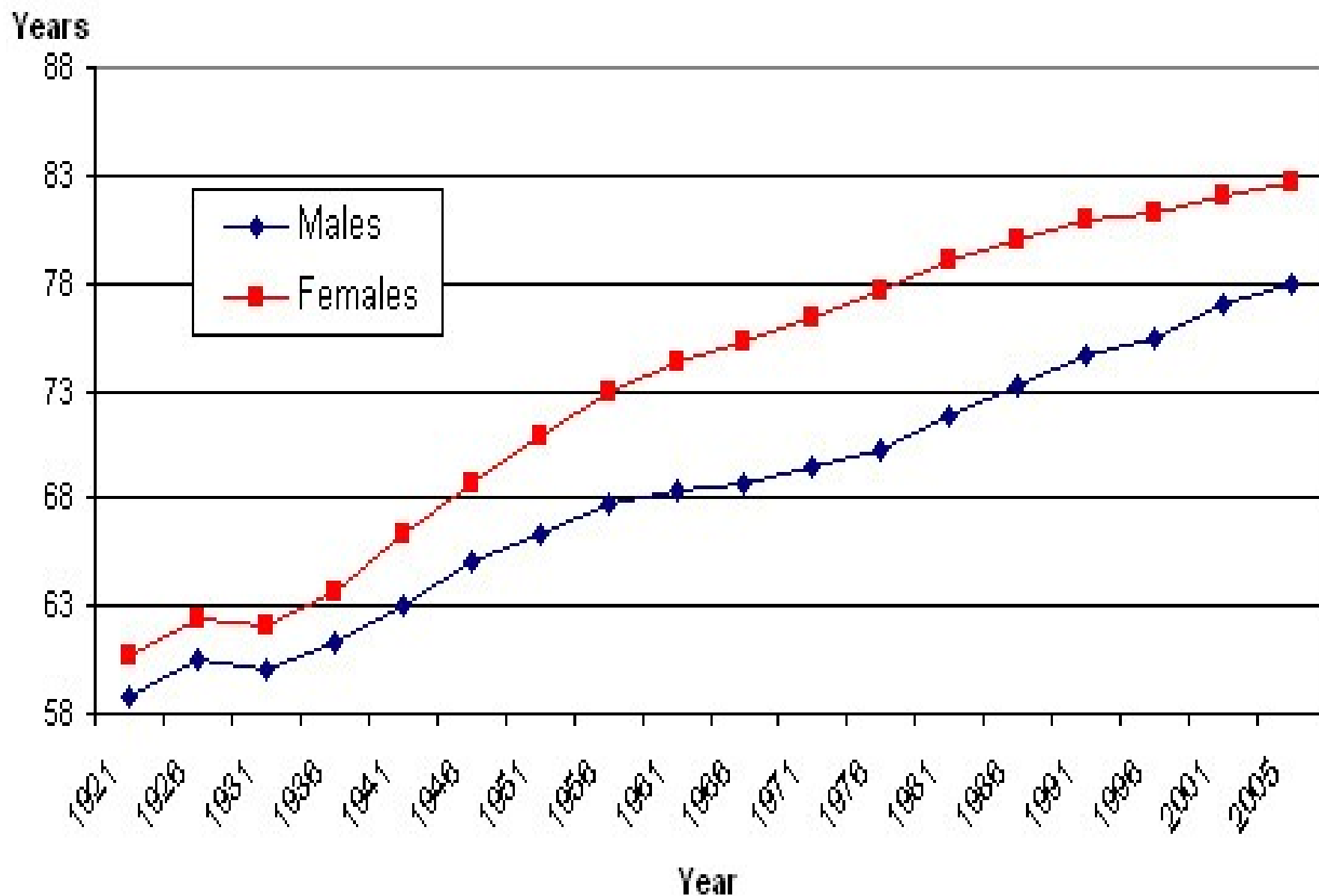
- Next in ingenuity to the marriage custom is their treatment of disease. They have no doctors, but bring their invalids out into the street, where anyone who comes along offers the sufferer advice on his complaint, either from personal experience or observation of a similar complaint in others...Nobody is allowed to pass a sick person in silence; but everyone must ask him what is the matter.

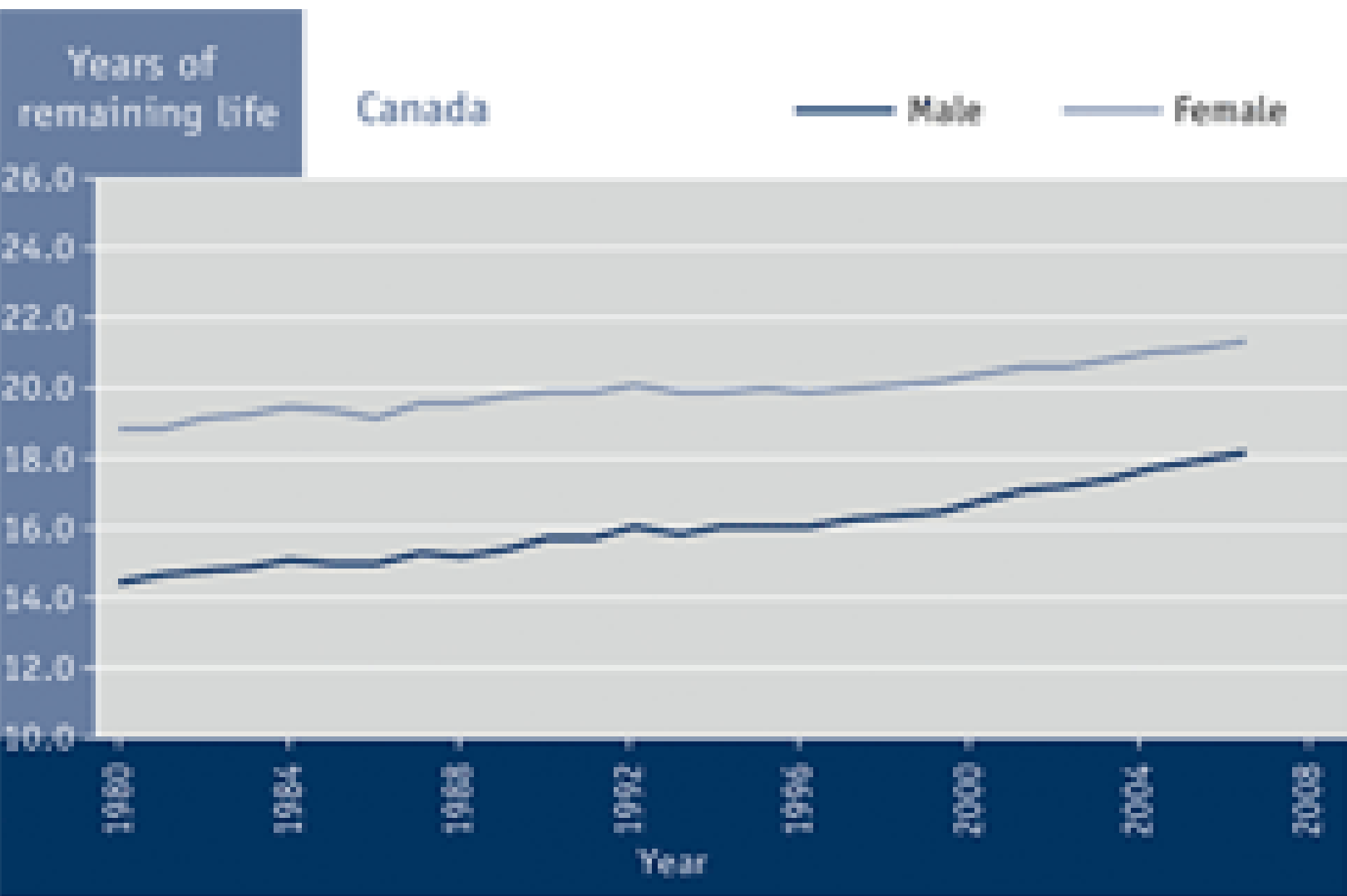
Demographic Transition



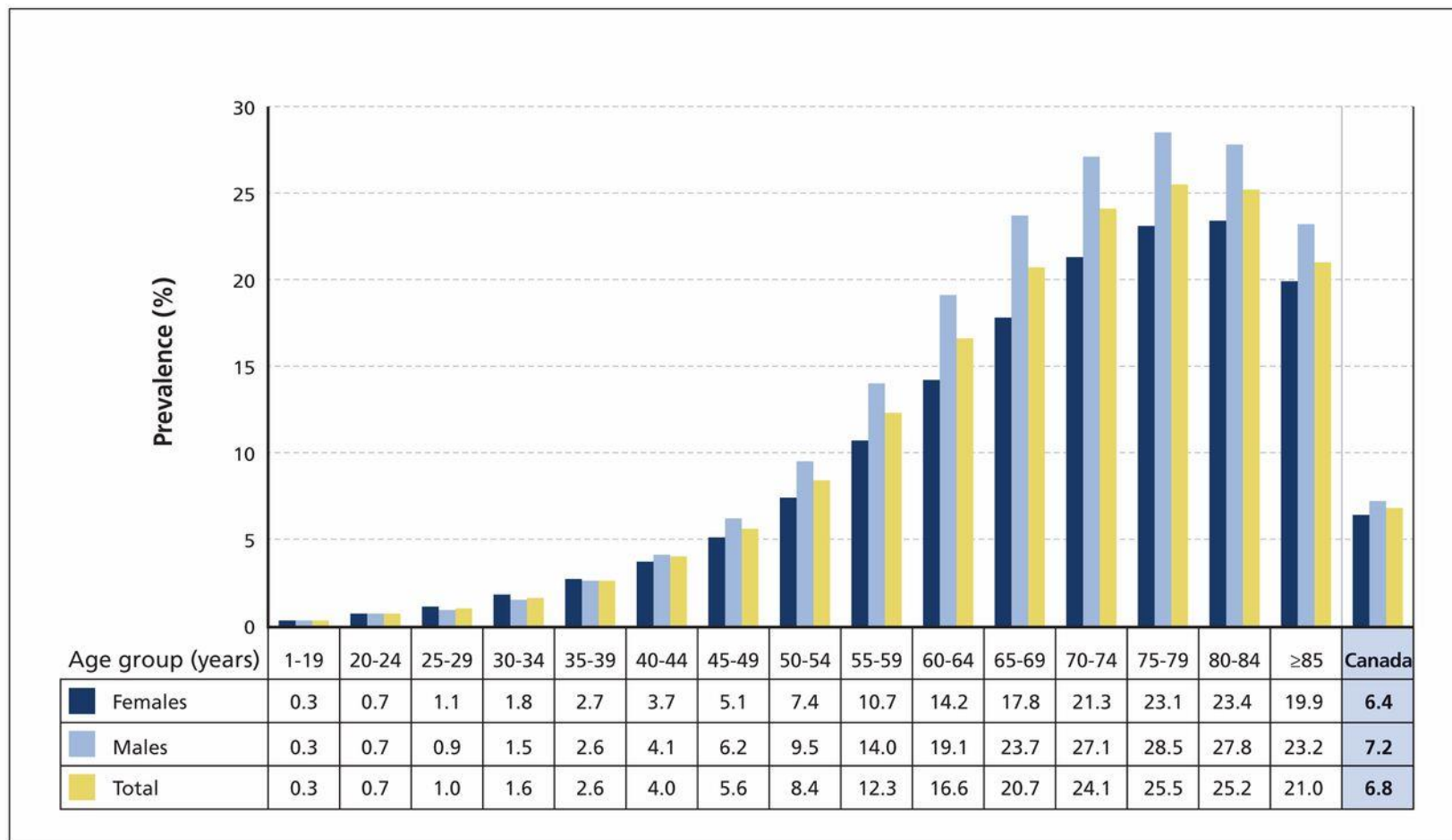
Percentage of Canadian population comprised of persons aged 65 or older, 1921 to 2005 and projections to 2056 (Sources: Statistics Canada, Censuses of Canada; Population projections for Canada, provinces and territories.)

Life expectancy at birth, by sex, Canada, 1956 to 2005





Prevalence of diagnosed diabetes among individuals aged 1 year and older, by age group and sex, Canada, 2008/09.

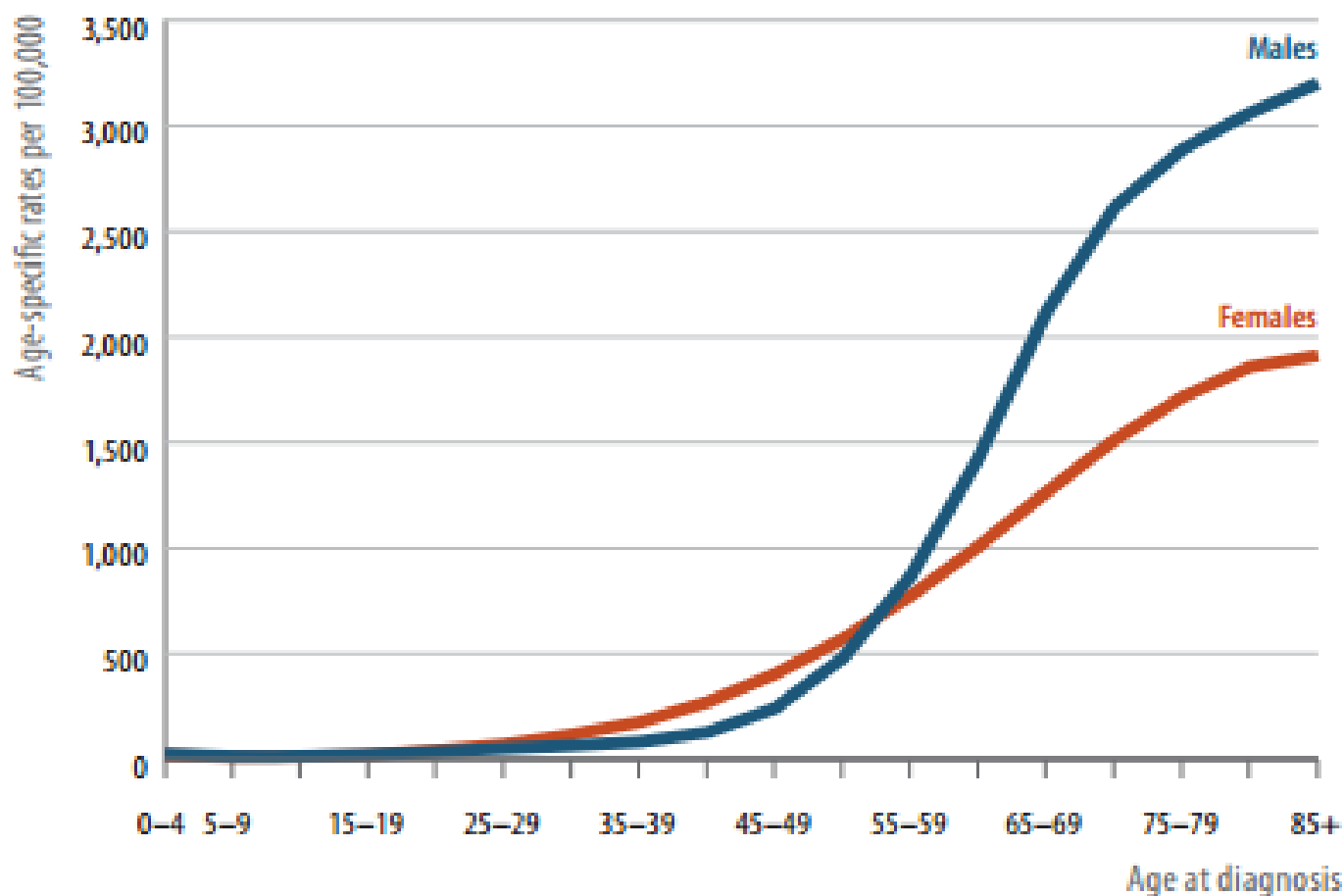


Canadian Task Force on Preventive Health Care CMAJ
2012;184:1687-1696

CMAJ·JAMC

FIGURE 5

Incidence rates for all cancers, by age, Ontario, 2002–2006



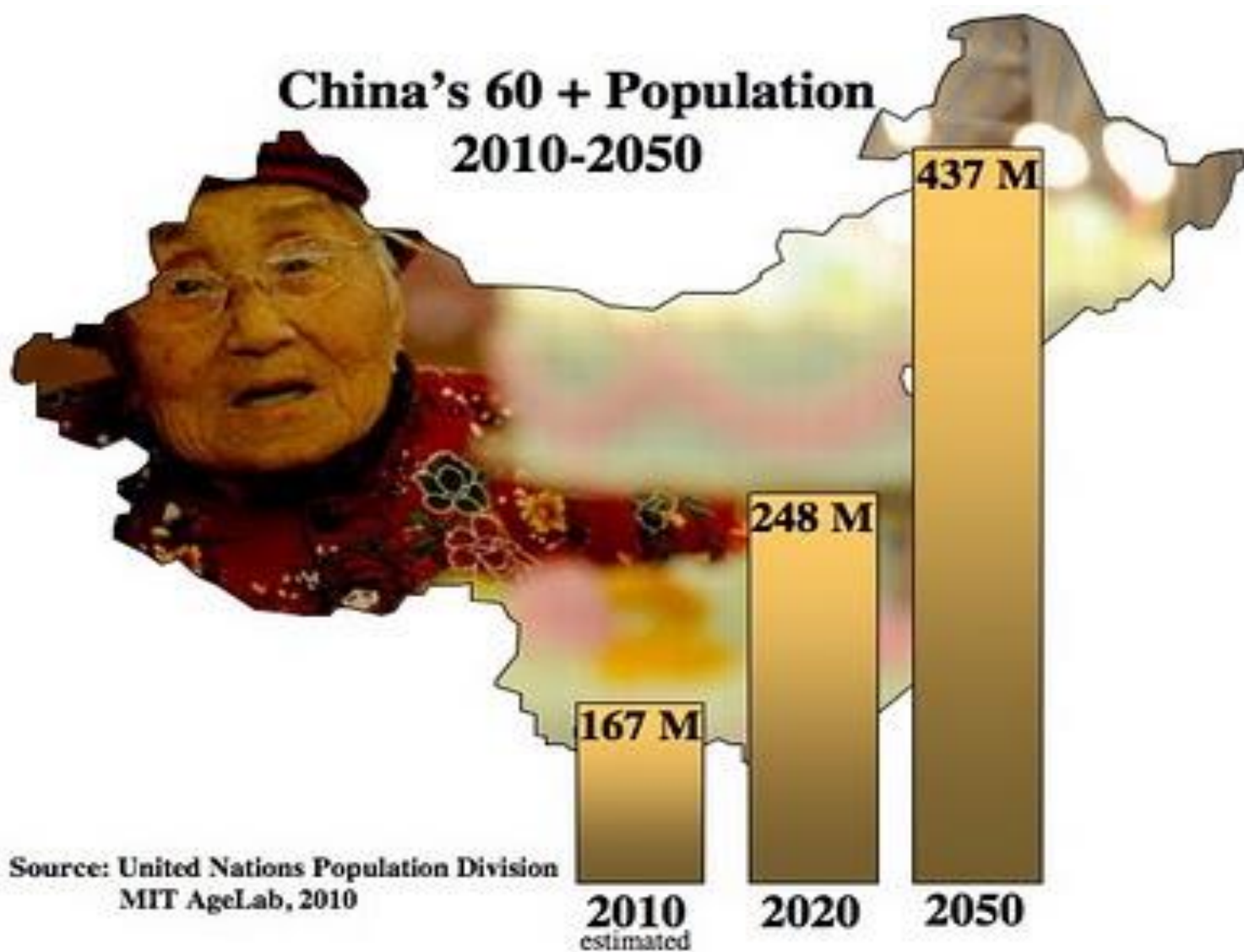
Source: Cancer Care Ontario (Ontario Cancer Registry, 2009)

Disruptive Demographics

Percent of the population age 60 and over, 2000-2025



China's 60 + Population 2010-2050



Source: United Nations Population Division
MIT AgeLab, 2010

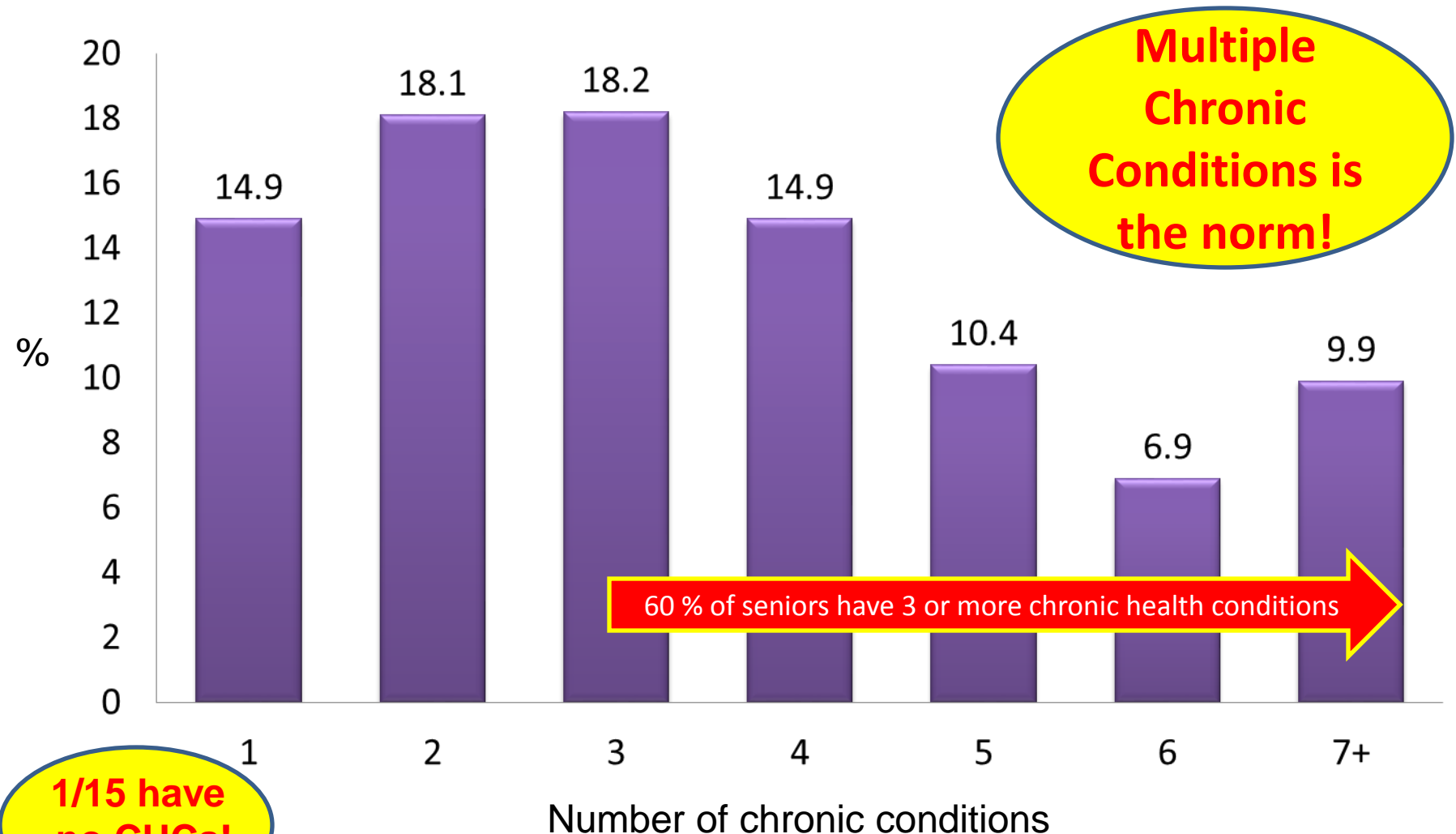
Chronic Health Conditions Denton and Spencer 2010 Canadian Journal on Aging

Table 4:

Percentage of distribution of the population by number of chronic conditions and age group, 2005

Age Group	Number of Chronic Conditions							
	0	1	2	3	4	5	6	7+
- percentage distribution -								
12-29	45.5	27.7	15.0	6.4	3.0	1.3	0.5	0.6
30-49	35.2	28.4	16.6	8.9	5.0	2.7	1.2	1.9
50-64	20.7	24.7	20.3	13.5	8.6	5.0	2.9	4.4
65-79	10.0	18.6	20.3	17.4	13.0	8.8	4.6	7.3
80+	6.7	14.9	18.1	18.2	14.9	10.4	6.9	9.9
All ages	31.3	25.9	17.4	10.4	6.4	3.7	2.0	2.9

Number of chronic health conditions (age 80+)



Barnett et al. Lancet 2012

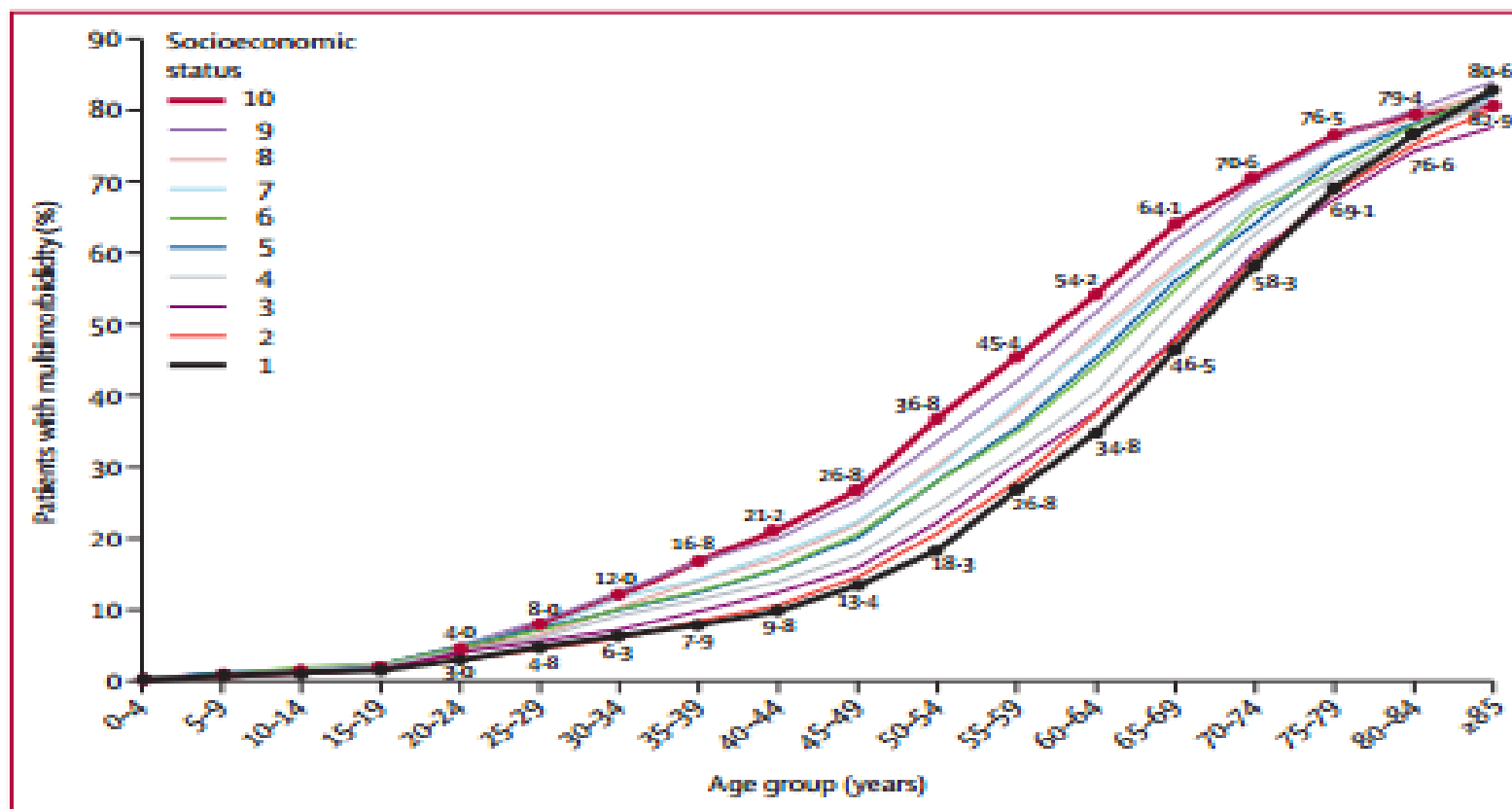
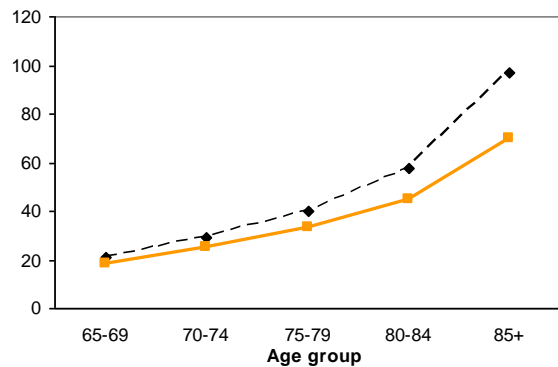


Figure 2: Prevalence of multimorbidity by age and socioeconomic status
On socioeconomic status scale, 1=most affluent and 10=most deprived.

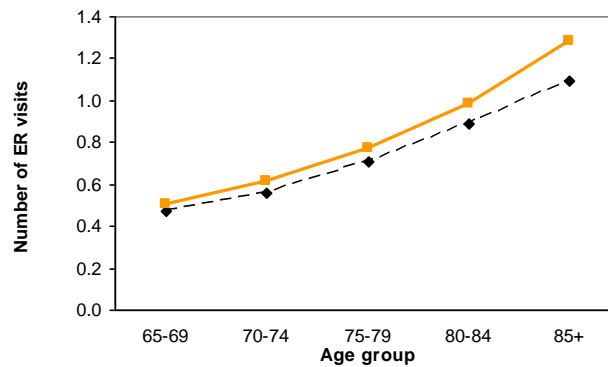
Key Point 1

- *The Lancet*, findings from Karen Barnett and colleagues' study add to the evidence **that patients with multimorbidity are the norm rather than the exception**. Management of patients with several chronic diseases is **now the most important task facing health services** in developed countries, which presents **a fundamental challenge** to the single-disease focus that pervades medicine.

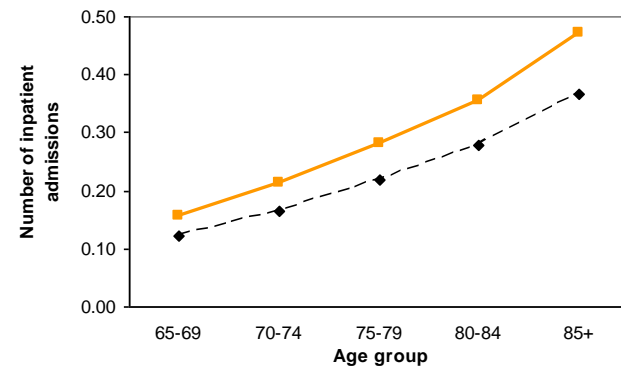
Drug claims



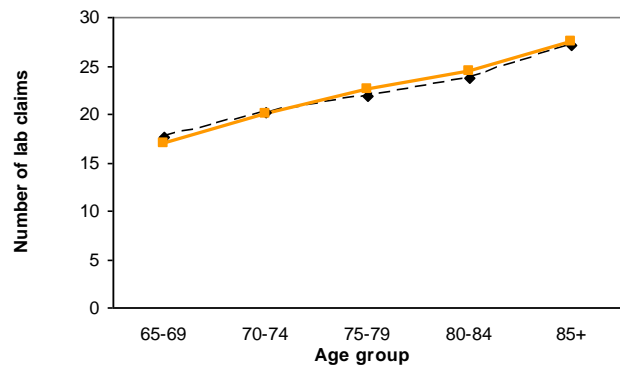
ER visits



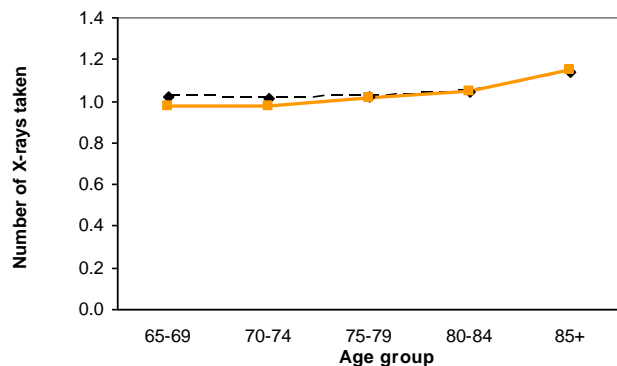
Inpatient admissions



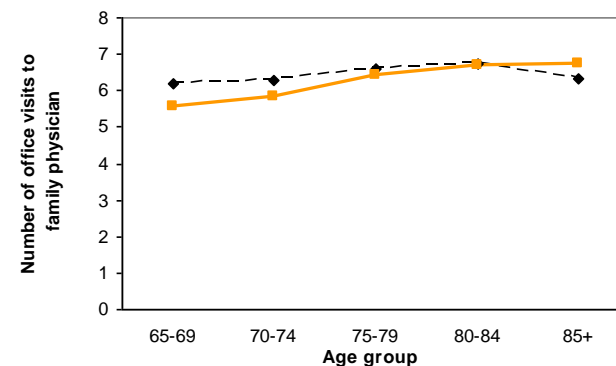
Lab claims



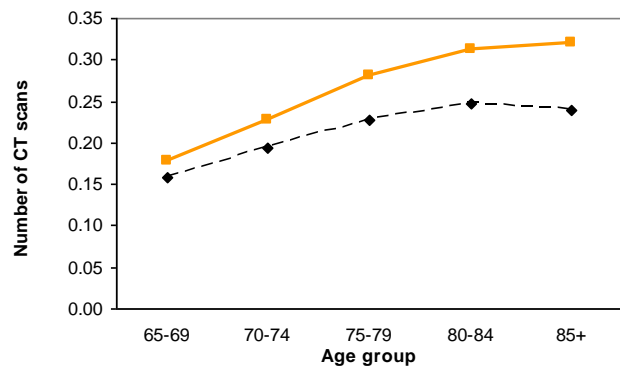
X-rays



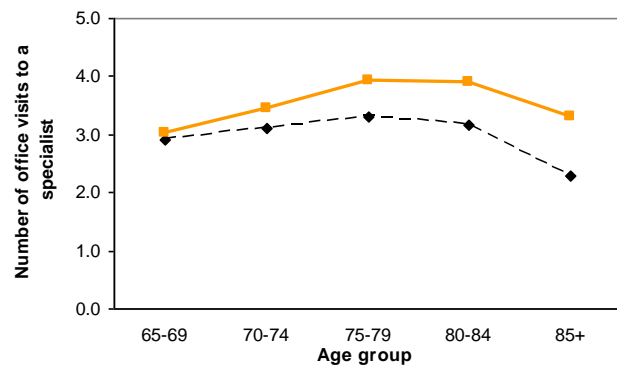
Family physician visits



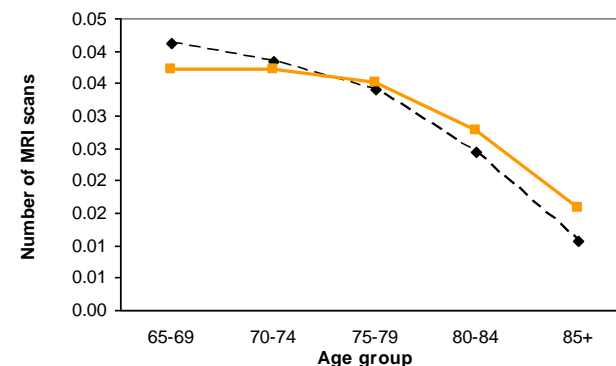
CT scans



Specialist visits



MRI scans

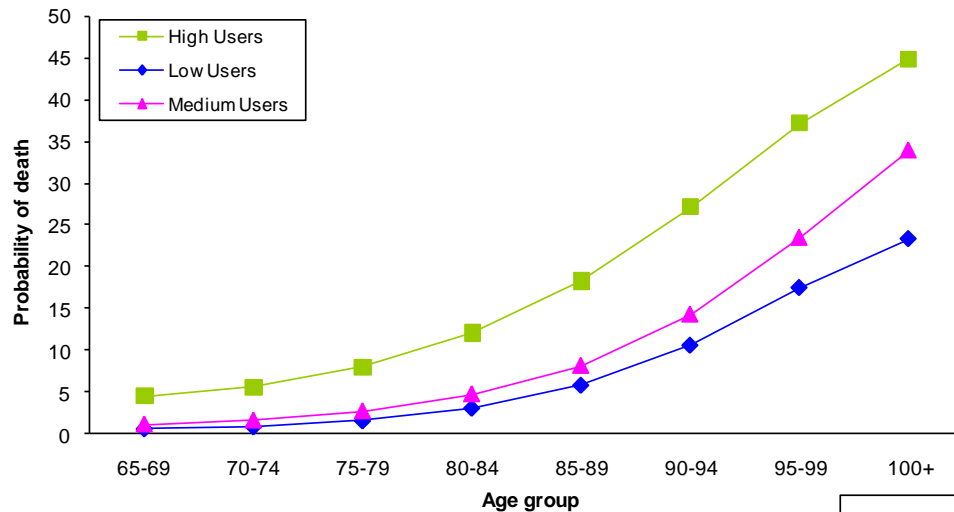


--- Females — Males

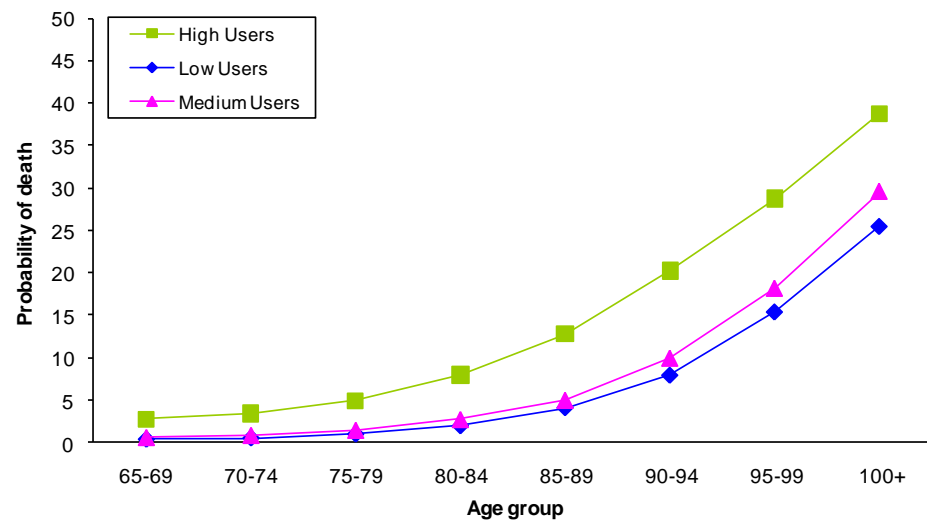
Classification of cut points for low- medium- and high- users

Year	First quartile	Third quartile
1998	20	63
1999	20	63
2000	21	68
2001	22	70
2002	24	73
2003	24	76
2004	25	78
2005	26	80
2006	26	81

Probability of death in the next year among male patients aged 65+ in Ontario, Canada, 1998-2006

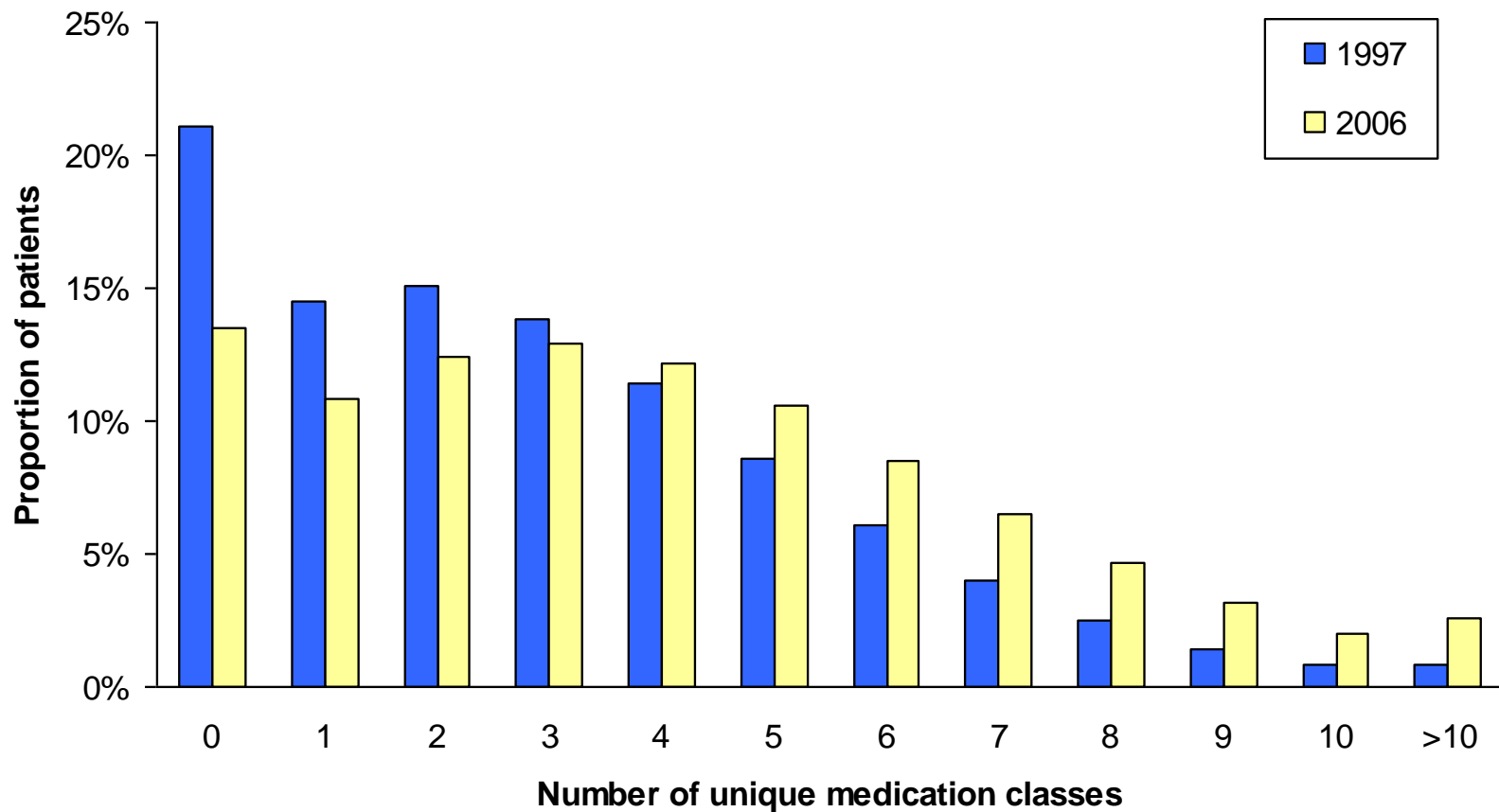


Probability of death in the next year among female patients aged 65+ in Ontario, Canada, 1998-2006



Top	Research article	Highly accessed	Open Access
Abstract	From pharmaco-therapy to pharmaco-prevention: trends in prescribing to older adults in Ontario, Canada, 1997-2006		
Background			
Methods	Jana M Bajcar^{1,2,3,4,5}✉, Li Wang³✉, Rahim Moineddin^{5,6}✉, Jason X Nie^{3,7}✉, C Shawn Tracy^{3,8}✉ and Ross EG Upshur^{3,5,6,8,9}✉		
Results	1 Undergraduate Medical Education, Faculty of Medicine, University of Toronto, Trillium Health Centre, CA Building 3rd Floor, 100 Queensway West, Mississauga, ON L5B 1B8 Canada		
Discussion	2 Department of Pharmacy, Sunnybrook Health Sciences Centre, 2075 Bayview Ave., Room E3-05, Toronto, ON M4N 3M5 Canada		
Conclusions	3 Primary Care Research Unit, Sunnybrook Health Sciences Centre, 2075 Bayview Ave., Room E3-49, Toronto, ON M4N 3M5 Canada		
Competing interests	4 Leslie Dan Faculty of Pharmacy, University of Toronto, 144 College St., Toronto, ON M5S 3M2 Canada		
Authors' contributions	5 Department of Family and Community Medicine, University of Toronto, 263 McCaul St., 5th Floor, Toronto, ON M5T 1W7 Canada		
Acknowledgements	6 Institute for Clinical Evaluative Sciences, 2075 Bayview Ave., Room G1-06, Toronto, ON M4N 3M5 Canada		
References	7 School of Kinesiology and Health Science, York University, 344 Bethune College, Toronto, ON M3J 1P3 Canada		
Pre-publication history	8 University of Toronto Joint Centre for Bioethics, 155 College St., Suite 754, Toronto, ON M5T 1P8 Canada		
	9 Dalla Lana School of Public Health, University of Toronto, 155 College St., 6th Floor, Toronto, ON M5T 3M7 Canada		
	✉ author email ✉ corresponding author email		
	<i>BMC Family Practice</i> 2010, 11 :75 doi:10.1186/1471-2296-11-75		

Frequency distribution of number of unique medication classes for older adults aged 65+ in Ontario, Canada, 1997-2006



Age differences in prescription claims per person for older adults aged 65+ in Ontario, Canada, 1997-2006

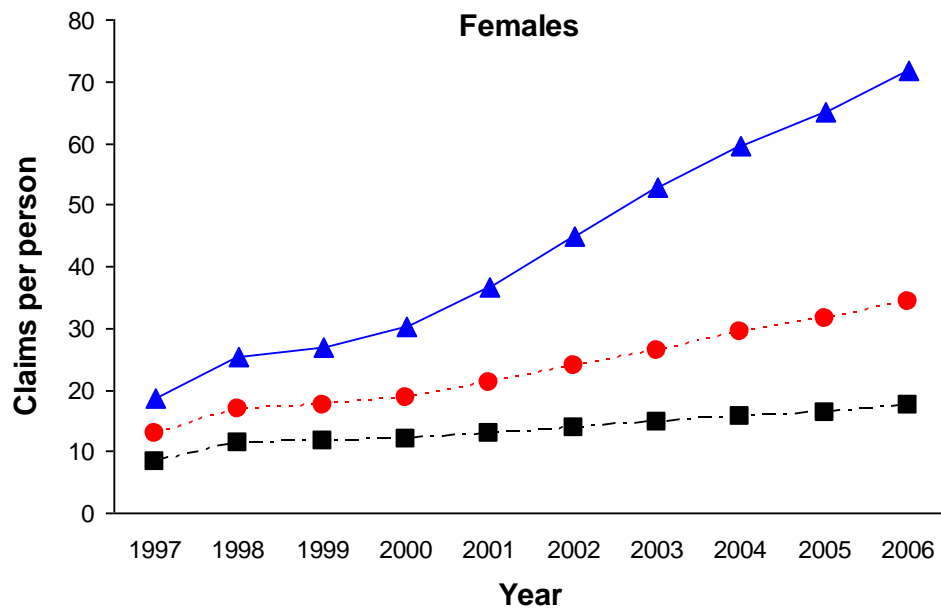
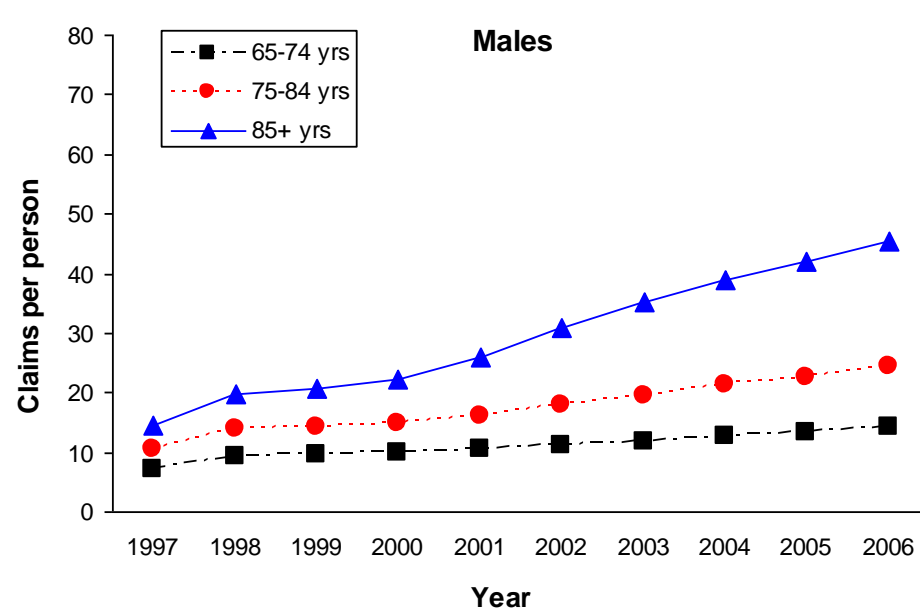
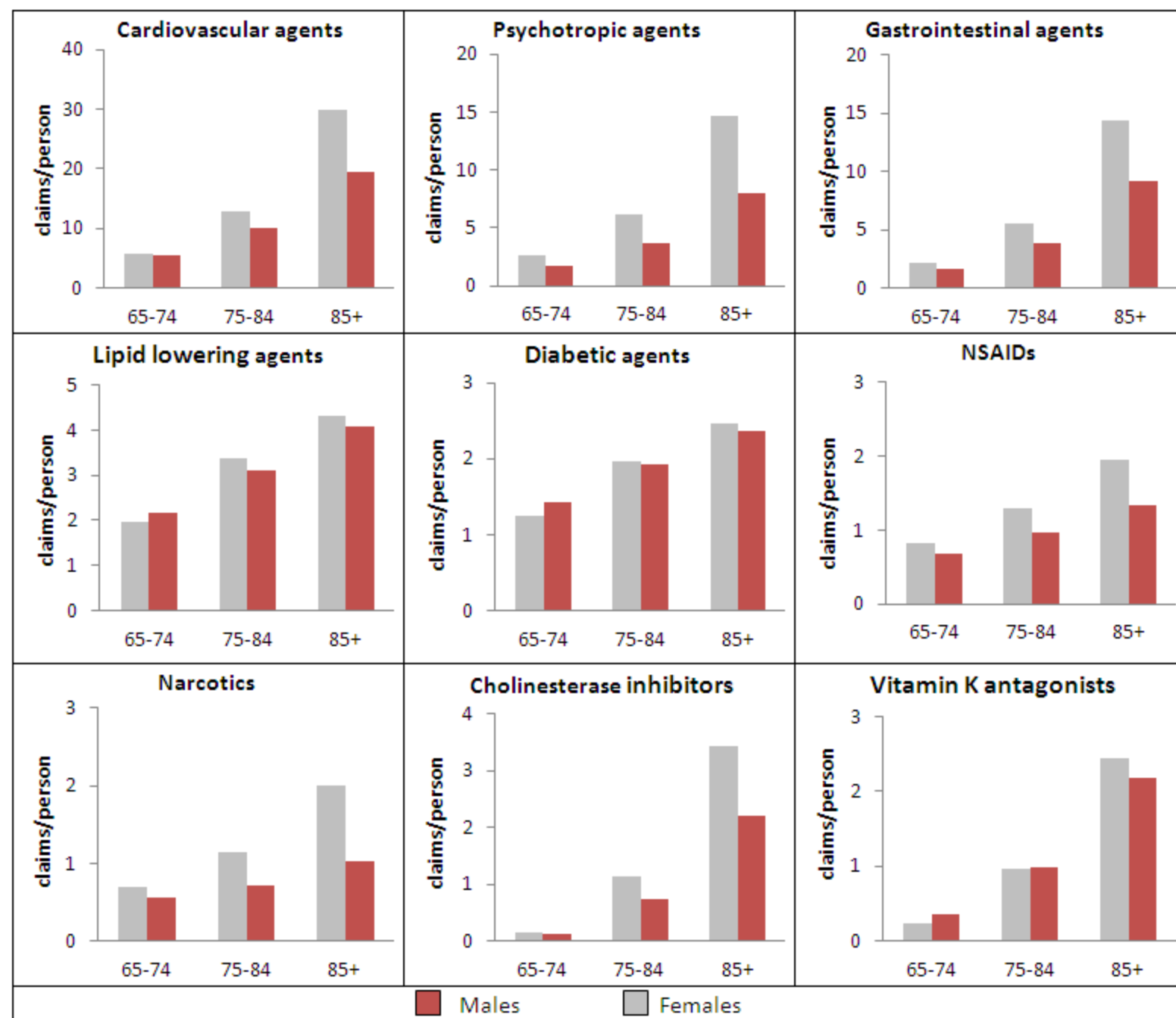


Figure 1: Prescription drug claims per person by age group and sex, Ontario, 2008



Multiple chronic conditions: the care challenge

- Clinical Practice Guidelines (CPGs) have a single disease focus
- CPGs often conflict with each other and between diseases
- Reliance on single disease CPGs for care of patient with multiple co-morbidities = near total medicalization of patient's life

Underrepresentation of individuals 80 years of age and older in chronic disease clinical practice guidelines

Lizebeth Cox Marita Kloseck PhD Richard Crilly MD FRCPC Carol McWilliam PhD Laura Diachun MD FRCPC

Abstract

Objective To determine whether Canadian clinical practice guidelines (CPGs), and the evidence used to create CPGs, include individuals 80 years of age and older.

Design Descriptive analysis of 14 CPGs for 5 dominant chronic conditions (diabetes, hypertension, heart failure, osteoporosis, stroke) and descriptive analysis of all research-based references with human participants in the 14 guidelines.

Main outcome measures To identify recommendations for individuals 65 years of age and older or 80 years of age and older and for those with multiple chronic conditions.

Results Although 12 of 14 guidelines provided specific recommendations for individuals 65 years of age and older, only 5 provided recommendations for frail older individuals (≥ 80 years). A total of 2559 studies were used as evidence to support the recommendations in the 14 CPGs; 2272 studies provided the mean age of participants, of which only 31 (1.4%) reported a mean age of 80 years of age and older.

Conclusion There is very low representation of individuals in advanced old age in CPGs and in the studies upon which these guidelines are based, calling into question the applicability of current chronic disease CPGs to older individuals. The variety of medical and functional issues occurring in the elderly raises the concern of whether or not evidence-based disease-specific CPGs are appropriate for such a diverse population.

EDITOR'S KEY POINTS

- As the population ages, older individuals with chronic diseases are consuming a large portion of health care costs and services; however, clinical practice guidelines (CPGs) developed to manage these conditions are not always applicable to this population, as the studies upon which recommendations are based rarely include older participants.
- Individuals in advanced old age in particular are likely to have multiple chronic conditions; therefore, they might be the recipients of multiple evidence-based recommendations and treatments without consideration of comorbidity, conflicting management strategies, and polypharmacy.

How applicable are clinical practice guidelines to elderly patients with comorbidities?

Donatus R. Mutasingwa MD MPhil PhD CCFP Hong Ge MD MHSc CCFP Ross E.G. Upshur MD MSc CCFP FRCPC

Abstract

Objective To examine the applicability of 10 common clinical practice guidelines (CPGs) to elderly patients with multiple comorbidities.

Design Content analysis of published Canadian CPGs for the following chronic diseases: diabetes, dyslipidemia, dementia, congestive heart failure, depression, osteoporosis, hypertension, gastroesophageal reflux disease, chronic obstructive pulmonary disease, and osteoarthritis.

Main outcome measures Presence or absence of 4 key indicators of applicability of CPGs to elderly patients with multiple comorbidities. These indicators include any mention of older adults or people with comorbidities, time needed to treat to benefit in the context of life expectancy, and barriers to implementation of the CPG.

Results Out of the 10 CPGs reviewed, 7 mentioned treatment of the elderly, 8 mentioned people with comorbidities, 4 indicated the time needed to treat to benefit in the context of life expectancy, 5 discussed barriers to implementation, and 7 discussed the quality of evidence.

Conclusion This study shows that although most CPGs discuss the elderly population, only a handful of them adequately address issues related to elderly patients with comorbidities. In order to make CPGs more patient centred rather than disease driven, guideline developers should include information on elderly patients with comorbidities.

Key Points 2:

- Multi-morbidity and aging is associated with higher utilization rates
- It is not clear that more utilization is associated with better outcomes
- There is a paucity of evidence relevant to the management of older adults in primary care



PATIENTS FIRST

A PROPOSAL TO STRENGTHEN
PATIENT-CENTRED HEALTH CARE
IN ONTARIO

DISCUSSION PAPER
December 17, 2015

Patients First

1. More effective integration of services and greater equity.
2. Timely access to primary care, and seamless links between primary care and other services.
3. More consistent and accessible home and community care.
4. Stronger links between population and public health and other health services.

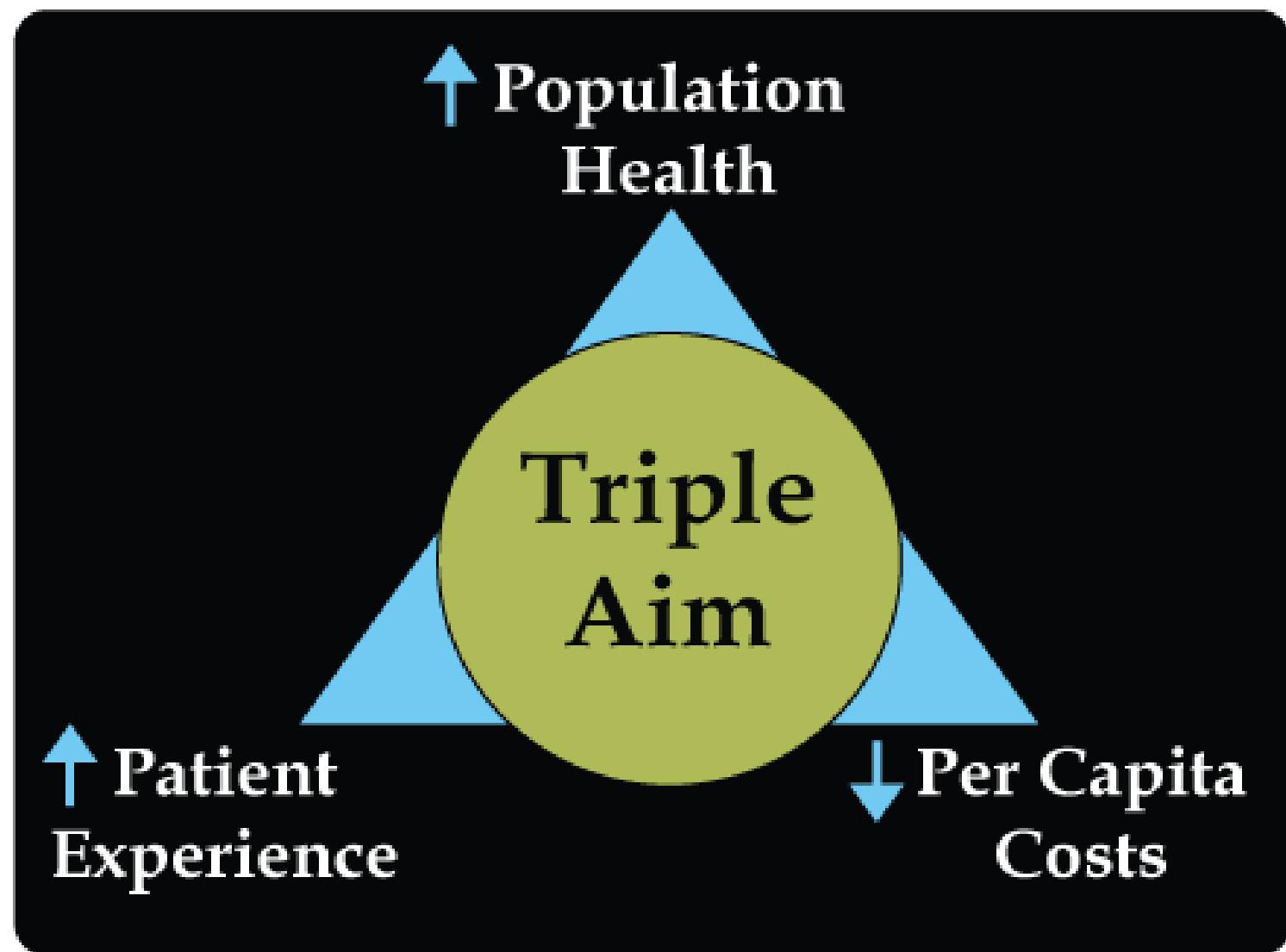


Figure 1. A Model of Population Health

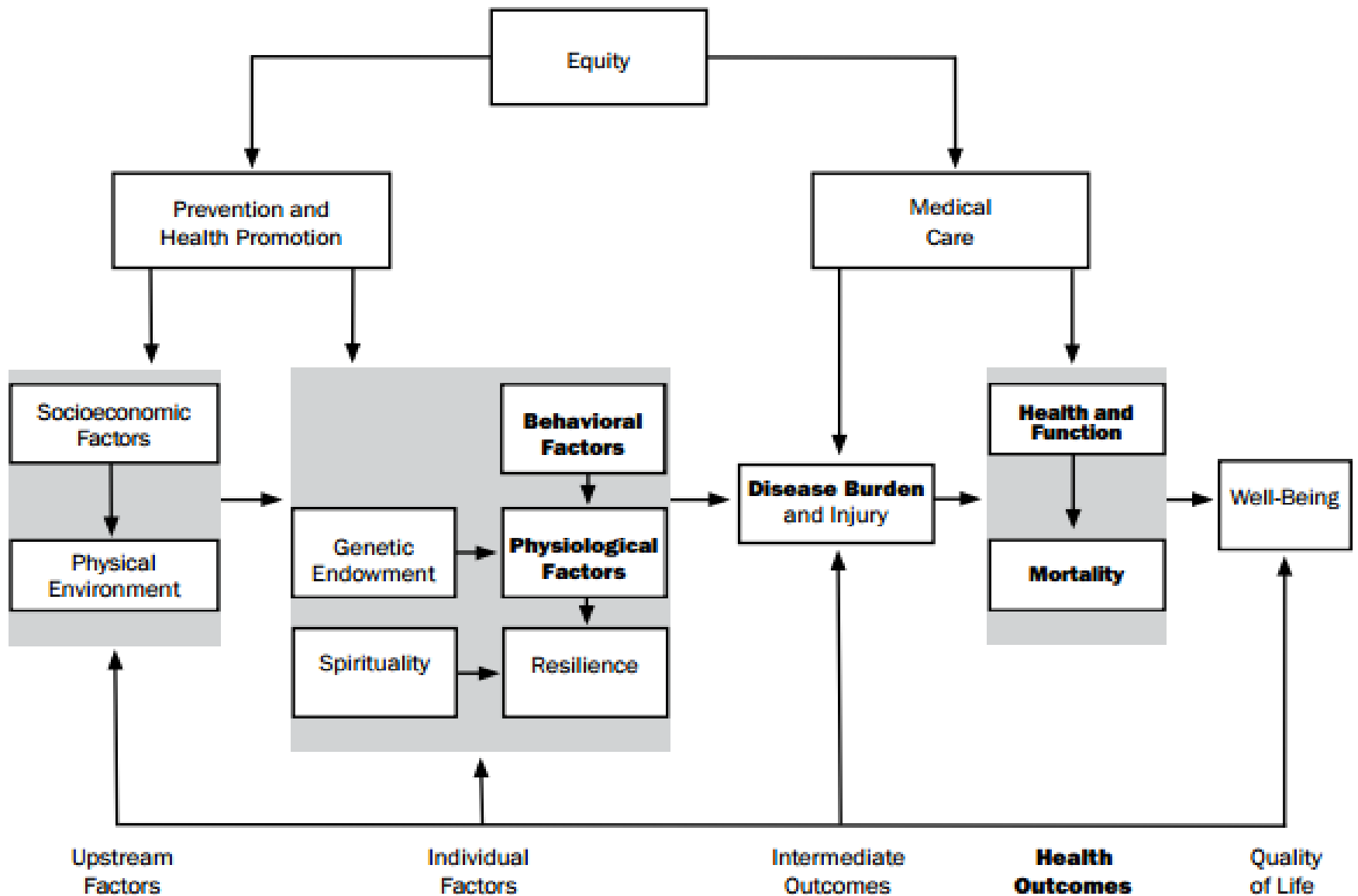


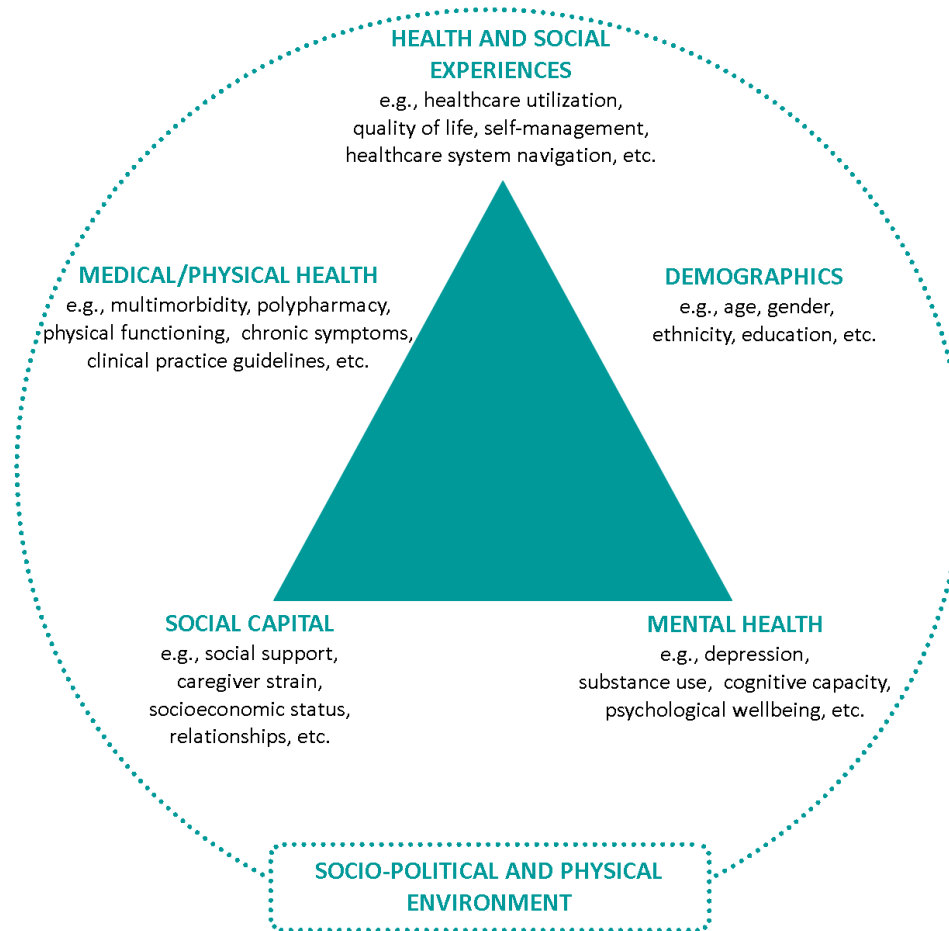
Table 1. Menu of Triple Aim Outcome Measures

Dimension of the IHI Triple Aim	Outcome Measures
Population Health	Health Outcomes: <ul style="list-style-type: none"> • Mortality: Years of potential life lost; life expectancy; standardized mortality ratio • Health and Functional Status: Single-question assessment (e.g., from CDC HRQOL-4) or multi-domain assessment (e.g., VR-12, PROMIS Global-10) • Healthy Life Expectancy (HLE): Combines life expectancy and health status into a single measure, reflecting remaining years of life in good health
	Disease Burden: Incidence (yearly rate of onset, average age of onset) and/or prevalence of major chronic conditions
	Behavioral and Physiological Factors: <ul style="list-style-type: none"> • Behavioral factors include smoking, alcohol consumption, physical activity, and diet • Physiological factors include blood pressure, body mass index (BMI), cholesterol, and blood glucose (Possible measure: A composite health risk assessment [HRA] score)
Experience of Care	Standard questions from patient surveys , for example: <ul style="list-style-type: none"> • Global questions from Consumer Assessment of Healthcare Providers and Systems (CAHPS) or How's Your Health surveys • Likelihood to recommend
	Set of measures based on key dimensions (e.g., Institute of Medicine's six aims for improvement: safe, effective, timely, efficient, equitable, and patient-centered)
Per Capita Cost	Total cost per member of the population per month
	Hospital and emergency department (ED) utilization rate and/or cost

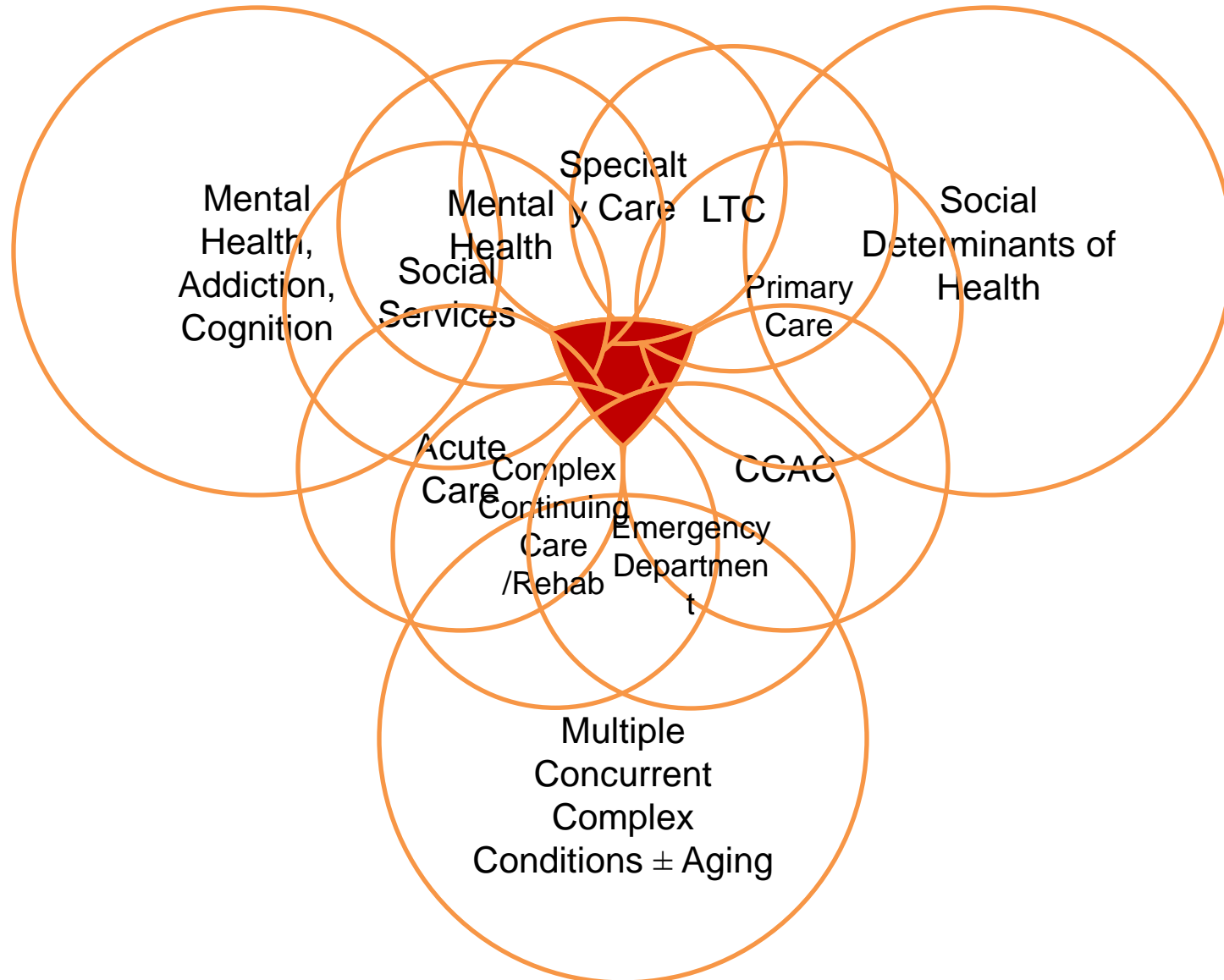
Key Point 3

- The Ontario Health Care system is undergoing a significant transformation
- Population based approaches are being introduced
- Concern for high risk/high utilization populations is a priority

Complexity Framework



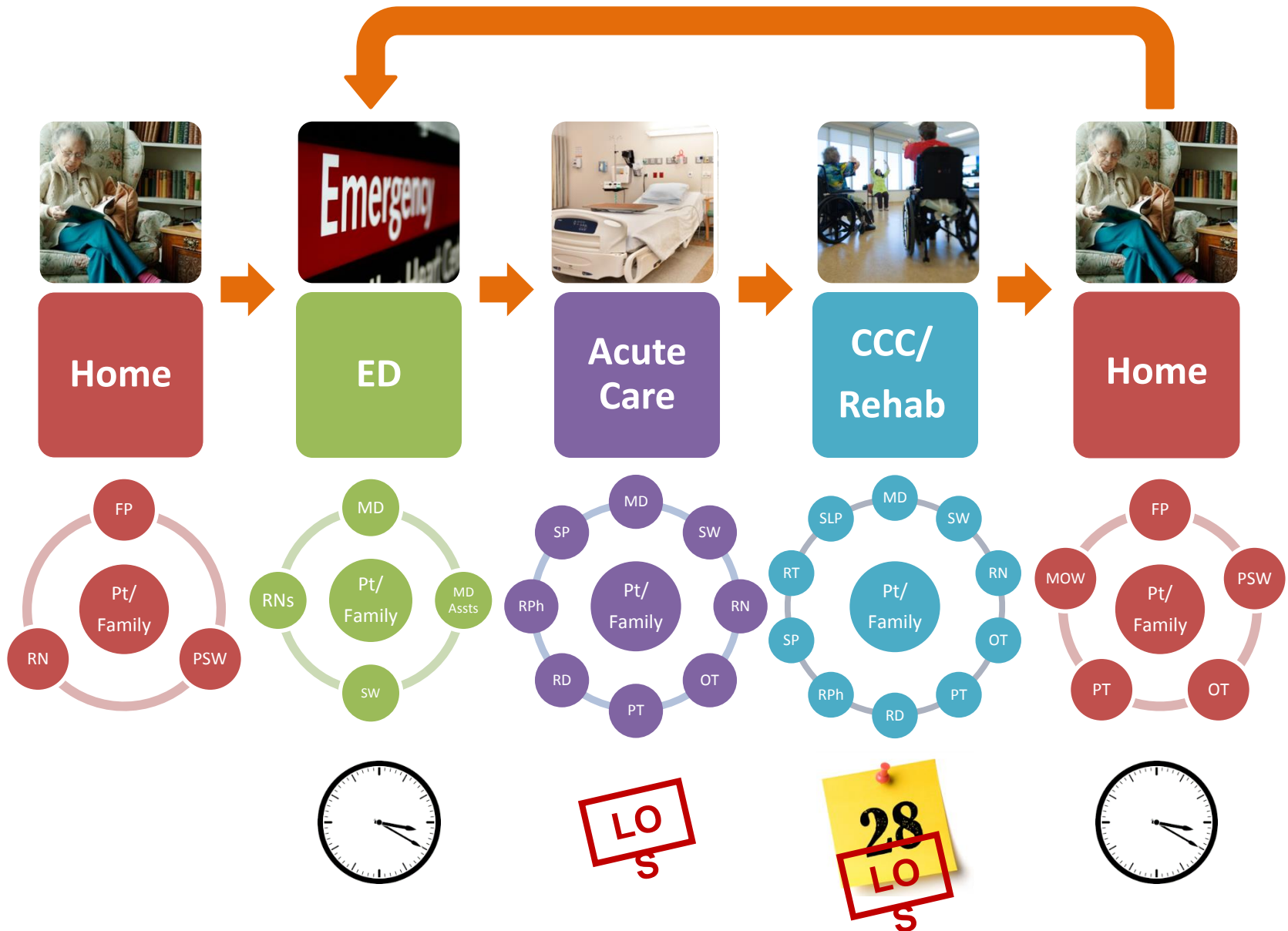
Patient Complexity



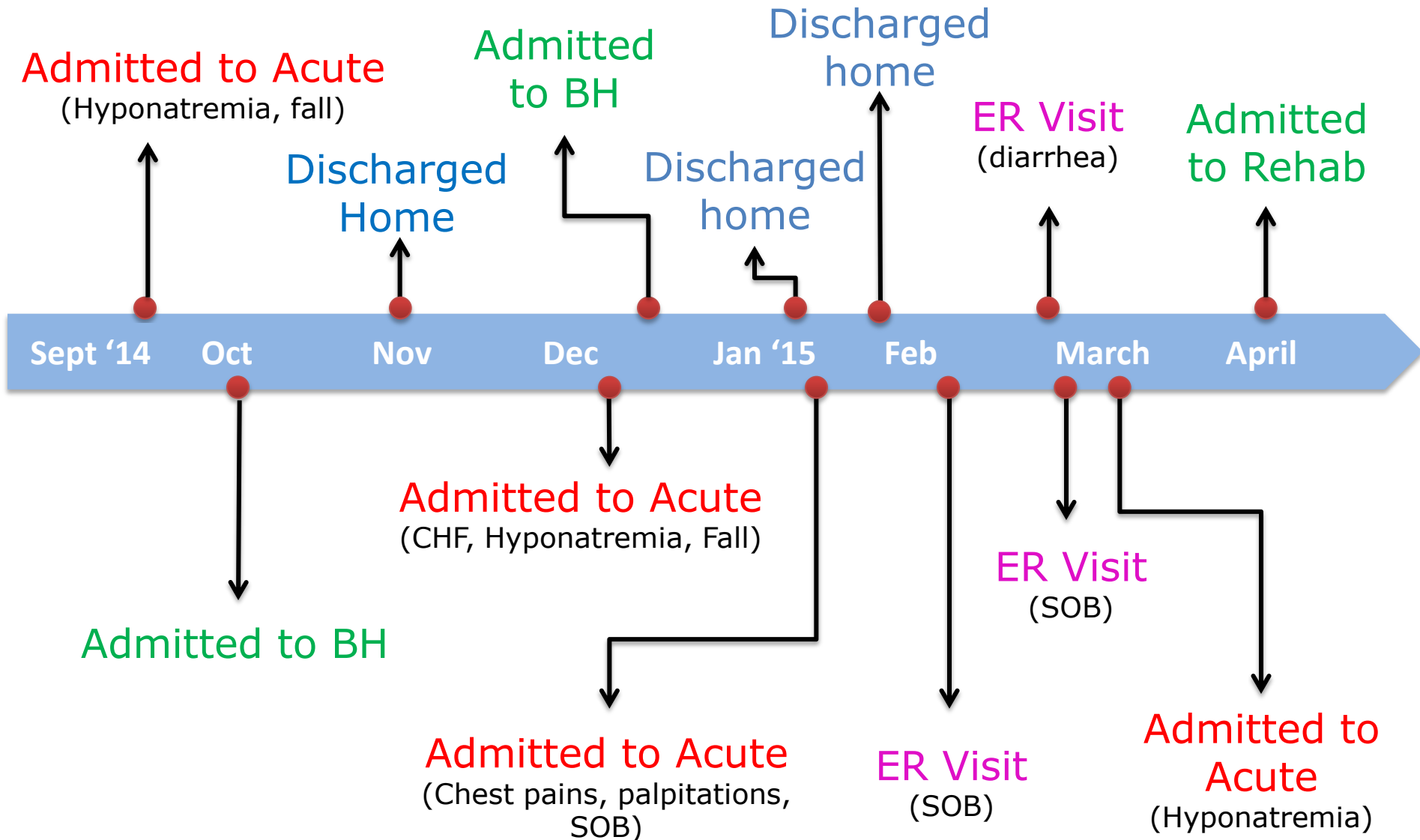
Alignment of Treatment Goals



Patient Journey



One example



Key Point 4

- Patient complexity an increasing reality
- The current system is broken
- The current system poorly serves the needs of older adults particularly those with complex needs

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.



HEALTH MENTAL HEALTH/PSYCHOLOGY

Why Loneliness May Be the Next Big Public-Health Issue

Justin Worland @justinworland | March 18, 2015



Living alone is linked with increased chance of mortality

Loneliness kills. That's the conclusion of a new study by Brigham Young University



THE BLOG

Emerging Crisis for Seniors: It's Probably Not What You Think

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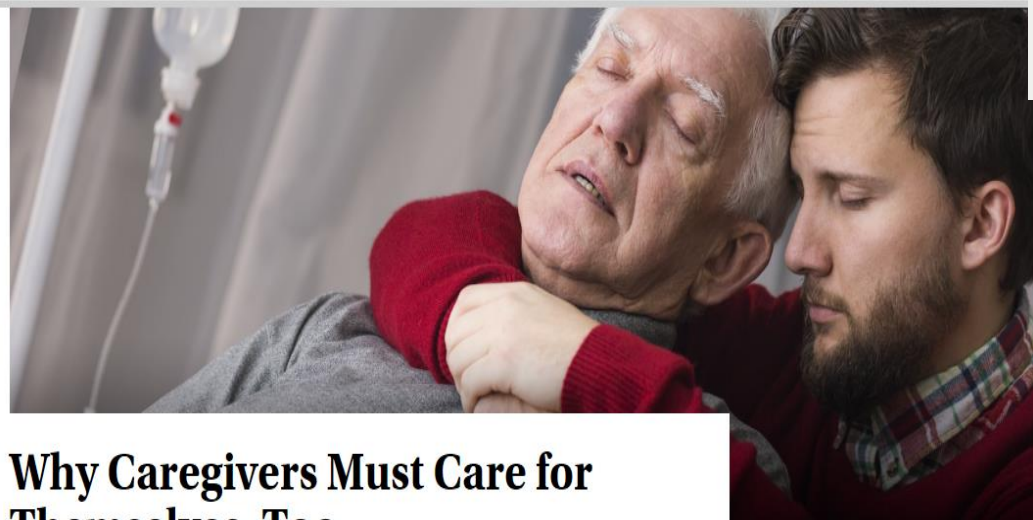
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HealthZette

Health. Explained.



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Emily Millane



Why Caregivers Must Care for Themselves, Too

Projecting the Adequacy of Canadians' Retirement Incomes

Current Prospects and Possible Reform Options

Michael C. Wolfson

Friday April 29th, 2011

Social Relationships and Mortality Risk: A Meta-analytic Review

Julianne Holt-Lunstad^{1*}, Timothy B. Smith^{2,3}, J. Bradley Layton³

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Abstract

Background: The quality and quantity of individuals' social relationships has been linked not only to mental health but also to both morbidity and mortality.

Objectives: This meta-analytic review was conducted to determine the extent to which social relationships influence risk for mortality, which aspects of social relationships are most highly predictive, and which factors may moderate the risk.

Data Extraction: Data were extracted on several participant characteristics, including cause of mortality, initial health status, and pre-existing health conditions, as well as on study characteristics, including length of follow-up and type of assessment of social relationships.

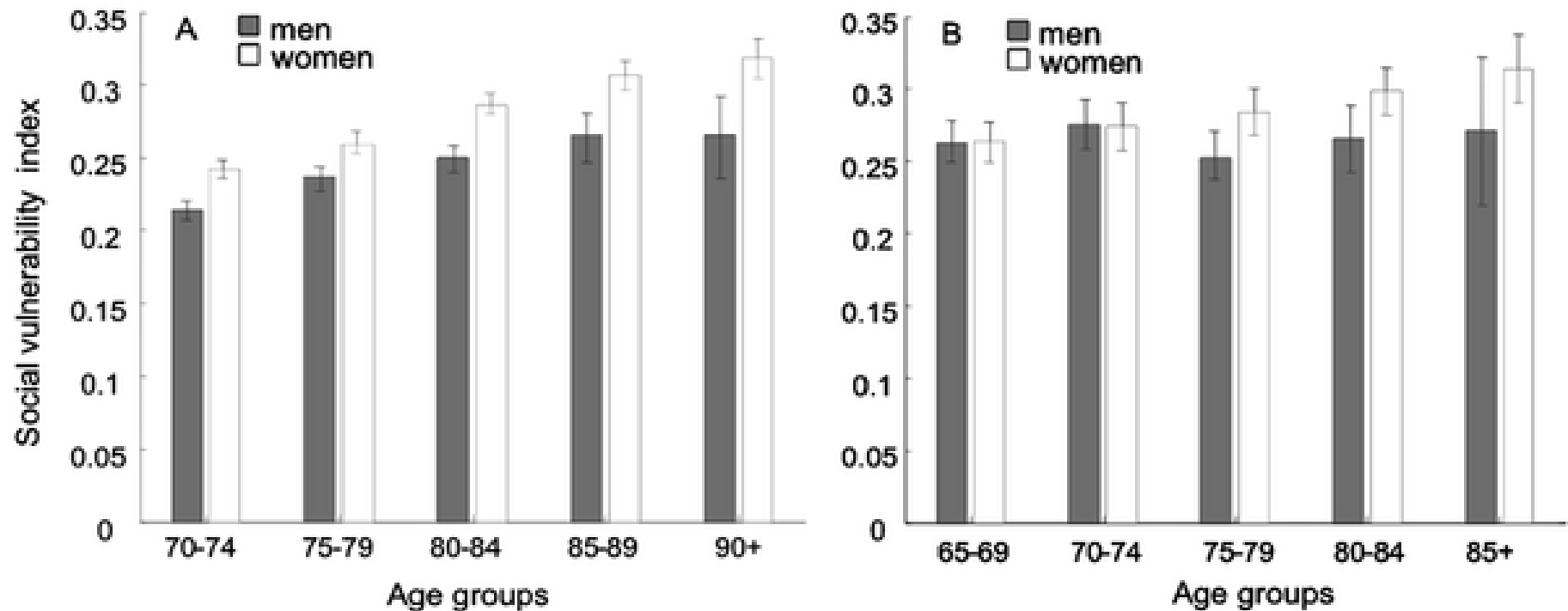
Results: Across 148 studies (308,849 participants), the random effects weighted average effect size was $OR = 1.50$ (95% CI 1.42 to 1.59), indicating a 50% increased likelihood of survival for participants with stronger social relationships. This finding remained consistent across age, sex, initial health status, cause of death, and follow-up period. Significant differences were found across the type of social measurement evaluated ($p < 0.001$); the association was strongest for complex measures of social integration ($OR = 1.91$; 95% CI 1.63 to 2.23) and lowest for binary indicators of residential status (living alone versus with others) ($OR = 1.19$; 95% CI 0.99 to 1.44).

Conclusions: The influence of social relationships on risk for mortality is comparable with well-established risk factors for mortality.

Please see later in the article for the Editors' Summary.

- ...many decades ago high mortality rates were observed among infants in custodial care (i.e., orphanages), even when controlling for pre-existing health conditions and medical treatment. Lack of human contact predicted mortality. The medical profession was stunned to learn that infants would die without social interaction. This single finding, so simplistic in hindsight, was responsible for changes in practice and policy that markedly decreased mortality rates in custodial care settings.
- Contemporary medicine could similarly benefit from acknowledging the data: **Social relationships influence the health outcomes of adults.**

Figure 3. Mean (95% Confidence Interval) social vulnerability in relation to age and sex.



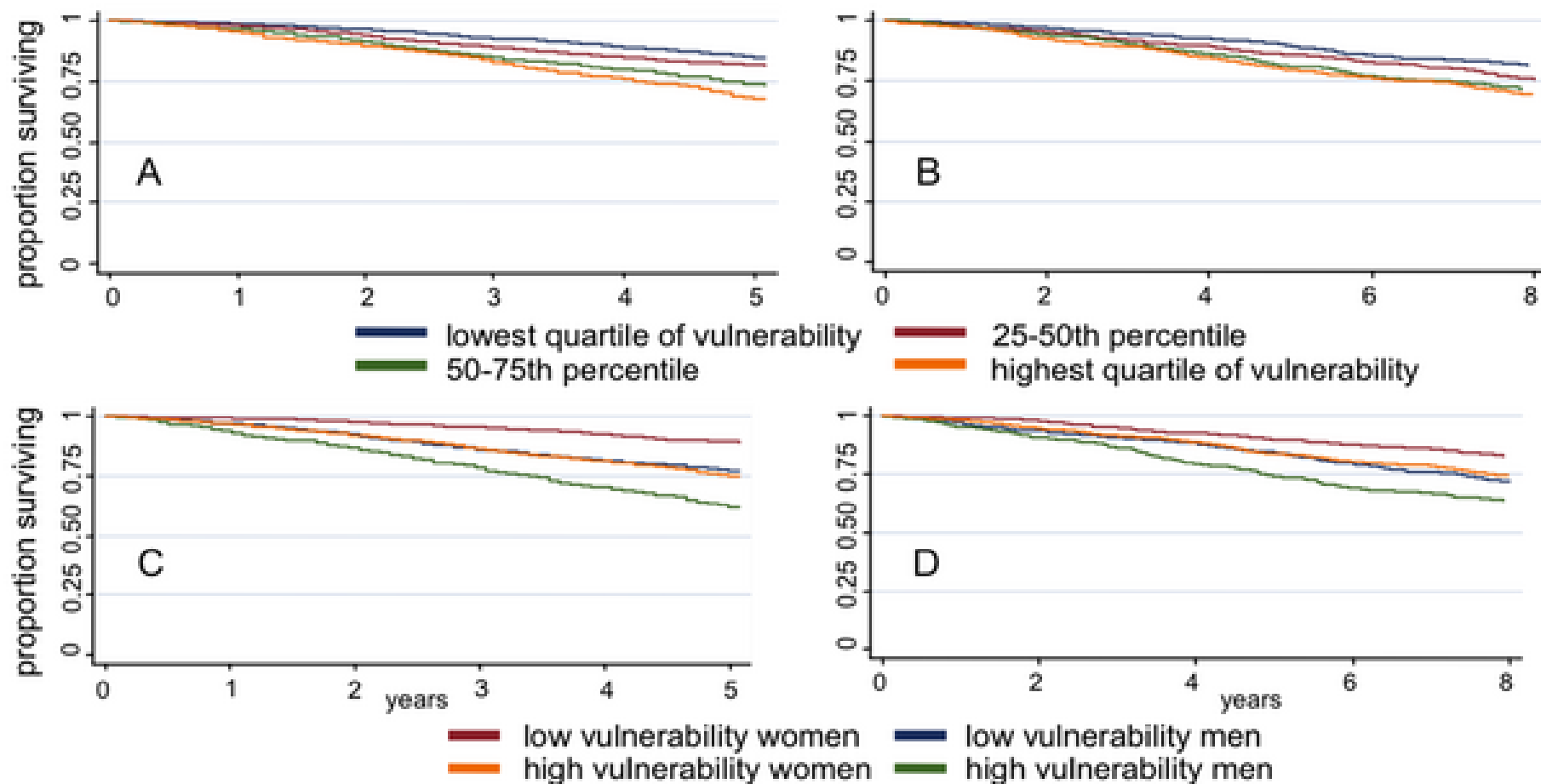
Andrew MK, Mitnitski AB, Rockwood K (2008) Social Vulnerability, Frailty and Mortality in Elderly People. PLoS ONE 3(5): e2232.

doi:10.1371/journal.pone.0002232

<http://journals.plos.org/plosone/article?id=info:doi/10.1371/journal.pone.0002232>

- Social vulnerability increased with age, and women had higher index values than men. Social vulnerability was weakly to moderately correlated with frailty; while the two may be related, they are clearly distinct, particularly since each contributes independently to mortality. Increasing social vulnerability was associated with reduced medium-term survival (5–8 years).

Figure 4. Survival by level of social vulnerability.



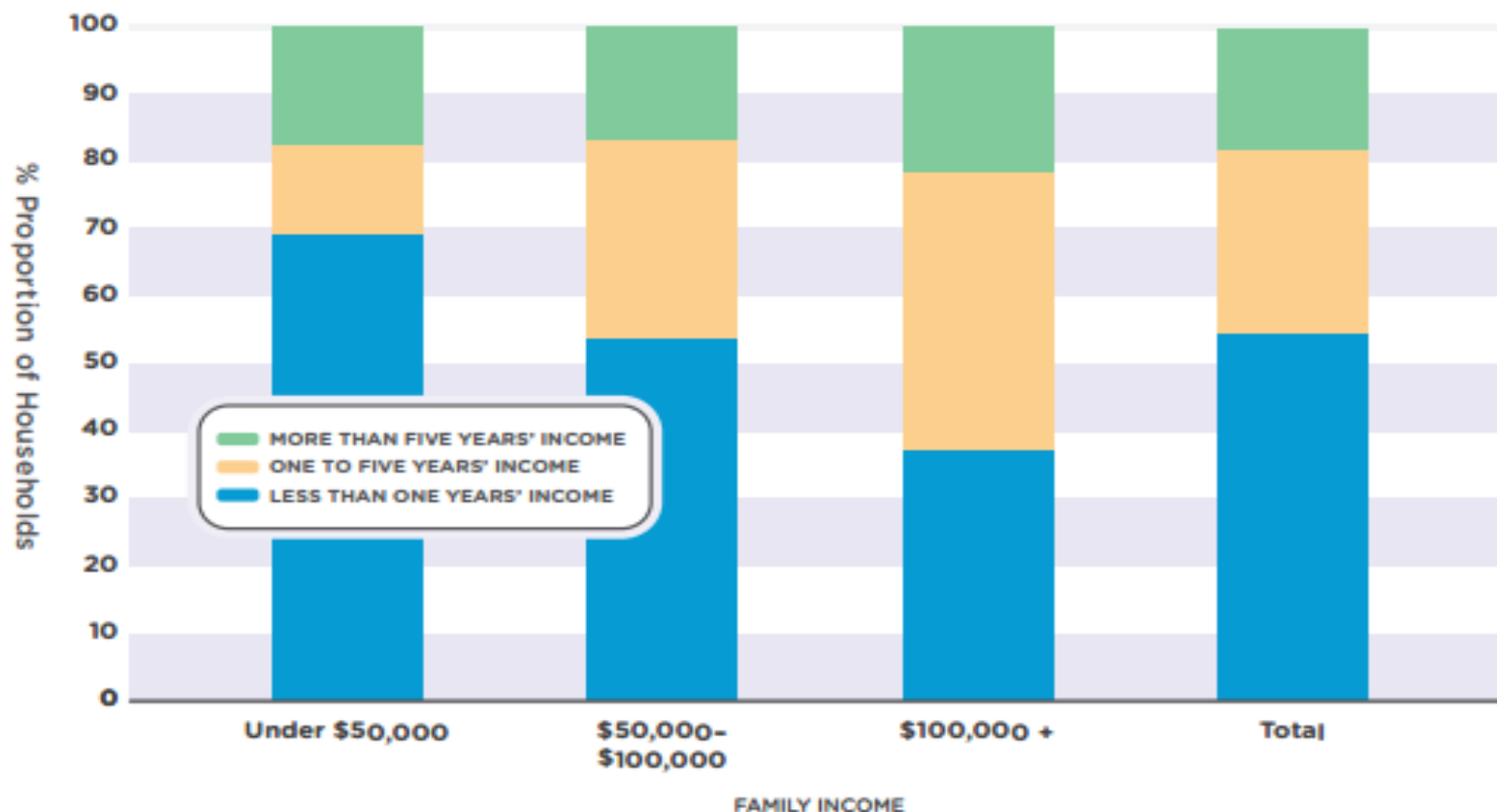
Andrew MK, Mitnitski AB, Rockwood K (2008) Social Vulnerability, Frailty and Mortality in Elderly People. PLoS ONE 3(5): e2232.

doi:10.1371/journal.pone.0002232

<http://journals.plos.org/plosone/article?id=info:doi/10.1371/journal.pone.0002232>

Chart 6

The Retirement Assets Relative to Target Income of Canadian Households Aged 55-64 who have No Pension Assets***, 2012**



** Target income is the difference between 70% of current income and the public guaranteed income.

Public guaranteed income is \$15,00 for individuals and \$25,000 for couples.

*** Less than \$10,000 of pension assets. The table only includes those who need to save privately to achieve 70% replacement.

Source: Special tabulations by Tristat Resources (richard@shillington.ca) using the Survey of Financial security.

Sinott et al.

- Four areas of difficulty specific to the management of multimorbidity emerged from these papers: disorganisation and fragmentation of healthcare; the inadequacy of guidelines and evidence-based medicine; challenges in delivering patient-centred care; and barriers to shared decision-making. A 'line of argument' was drawn which described GPs' sense of isolation in decision-making for multimorbid patients.

Key Point 5

- Frailty a growing reality
- Social vulnerability an independent and often over looked risk factor
- WE ARE ALL VULNERABLE
- Future trends are concerning

Comparative Primary Care

Exhibit 1

Primary Care Doctors From Ten Countries Report On Whether Their Practice Is Well Prepared To Manage Care Of Patients With Complex Needs, 2015

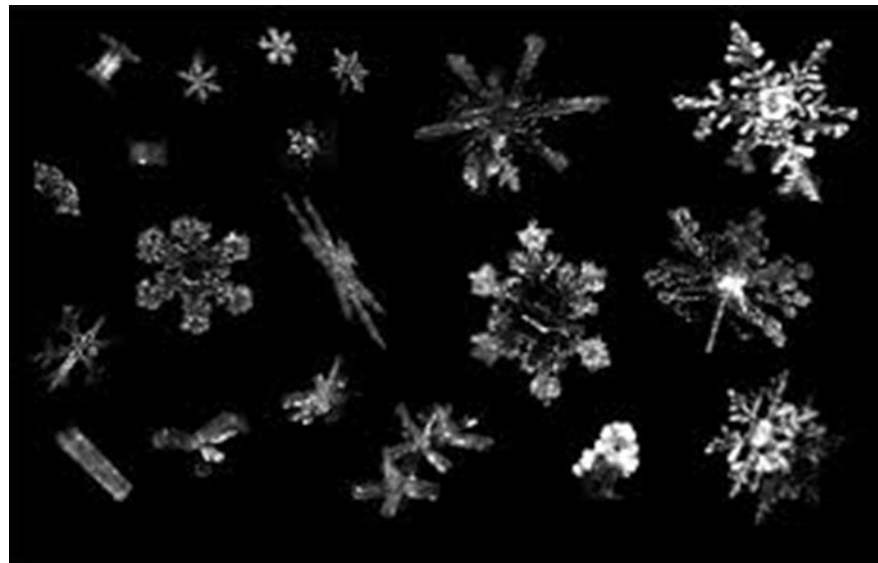
Country	Patients with multiple chronic conditions	Patients needing palliative care	Patients with dementia	Patients needing long-term home care services	Patients needing social services in the community	Patients with severe mental health problems	Patients with substance use-related issues
AUS (n=747)	85%	48%	46%	47%	41	34%	19%
CAN (n = 2,284)	70 (9)	42 (8)	42 (9)	40 (10)	28 (10)	24 (8)	15 (8)
GER (n = 559)	88	58	67	68	71	32	14
NET (n = 618)	88	92	65	80	25	44	16
NZ (n = 503)	81	62	41	54	48	24	20
NOR (n = 864)	86	54	69	78	41	56	36
SWE (n = 2,905)	66	25	57	51	45	14	6
SWIZ (n = 1,065)	80	48	49	64	55	26	25
UK (n = 1,001)	79	81	64	60	44	43	41
US (n = 1,001)	76	41	47	46	32	16	16

NOTE: Canada's rank indicated (#) out of 10 countries.

SOURCE: 2015 Commonwealth Fund International Health Policy Survey of Primary Care Physicians. NOTE Excludes physicians who reported that they "never" see these patients.



The Challenge



Chronicity and complexity

Is what's good for the diseases always good for the patients?

Ross E.G. Upshur MD MSc CCFP FRCPC Shawn Tracy

Mrs Smith is an 83-year-old woman living independently in the community. She has the following active medical problems: congestive heart failure secondary to ischemic heart disease, atrial fibrillation, osteoarthritis, osteoporosis, urinary incontinence, and depression. She is taking 11 prescribed medications on a regular basis. She is seen regularly in the clinic for management of her anticoagulation and multiple chronic conditions.

is useful for epidemiologic purposes; regarded as discrete clinical entities; treatment strategies can be tailored. In fact, disease is reflected in most clinical The language here is of multimorbidity comorbidity.

Viewed from the perspective of the provider or the patient, however, this appears as the number of conditions and symptoms associated with multi

The Problem of Time



The Horton Solution

- Time is the variable we have given up on
- “The approach we are currently endorsing-accepting that we must inevitably lose the fight for time, revealed by providing ever narrower synoptic summaries or “bottom-lines” of increasingly complex evidence-does not address the more fundamental point –namely the need to provide a temporal space to interpret that information.”

Major reforms in approach are needed

- Appropriate evidence
- community-based, integrated, patient-focused vs disease-focused
- patient empowerment for self-directed care
- Inter-professional health care teams
- adequate support systems
- information systems

New ways of thinking

- What are the outcomes?
- How do we measure and reduce informational and temporal complexity?
- How do we envision a system of integrated care across the life course and all transition points?

Caplan, Jennings and Callahan

- Chronic illness is a reminder of the universal frailty and uncertainty of the human condition. The presence of chronic illness in our midst is a moral challenge not simply because it threatens the interests or, as one philosopher has put it, the "normal opportunity range" of those who are chronically ill at any given time, but rather because it forces us to confront the question of how a good society should accommodate the expectable-but always unexpected-misfortunes that occur in everyone's life.

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