Why New Thinking is Needed for Older Patients:

How Demographic Imperatives will force the Redesign of Acute Care Service Delivery

Samir K. Sinha MD, DPhil, FRCPC
Director of Geriatrics
Mount Sinai and the University Health Network Hospitals

HSPRN Forum
29 March 2011

Presentation Objectives

- Provide the context that highlights the disconnects that currently exist.
- Demonstrate how current care delivery paradigms are problematic and require an elder friendly approach.
- Introduce the Acute Care for Elders (ACE) Strategy as a care model that can deliver better patient and system outcomes.

Shifting Mortality Patterns

Causes of Death	Rank in 1900	Rank in 2005				
	All Ages	All Ages	65+	65-75	75-85	85+
Heart Disease	4	1	1	2	1	1
Cancer	8	2	2	1	2	2
Stroke	5	3	3	4	4	3
Chronic Lung Diseases	9	4	4	3	3	5
Alzheimer's Dementia	10	7	5	10	5	4
Diabetes	-	6	7	5	6	7
Influenza/Pneumonia	1	8	6	8	7	6
Nephritis	6	9	8	7	8	8
Accidents	7	5	9	6	9	9
Septicaemia	2	10	10	9	10	10
Diarrhea and Enteritis	3	-	-	-	-	-

Data for 1900 from Lindor and Grove, 1947; Data for 2005 from National Vital Statistics Report, Vol 56, No. 10, April 24, 2008.

Ageing and Hospital Utilization in Central Toronto LHIN, 2005

	Number	Age <65	Seniors 65 +	% Seniors 75+
2005 Population	**1,142,469**	87%	**13%**	**49%**
Emergency Room Visits	**321,044**	79%	**21%**	**62%**
Acute Hospitalizations	**78,025**	63%	**37%**	**64%**
w/ Alternate Level of Care Days	4,263	17%	**83%**	**76%**
w/ Circulatory Diseases	10,361	32%	**68%**	**65%**
w/ Respiratory Diseases	5,928	43%	**57%**	**73%**
w/ Cancer	6,743	53%	47%	**54%**
w/ Injuries	5,809	58%	42%	**71%**
w/ Mental Health	6,161	87%	13%	**59%**
Inpatient Rehabilitation	**3,368**	25%	**75%**	**66%**

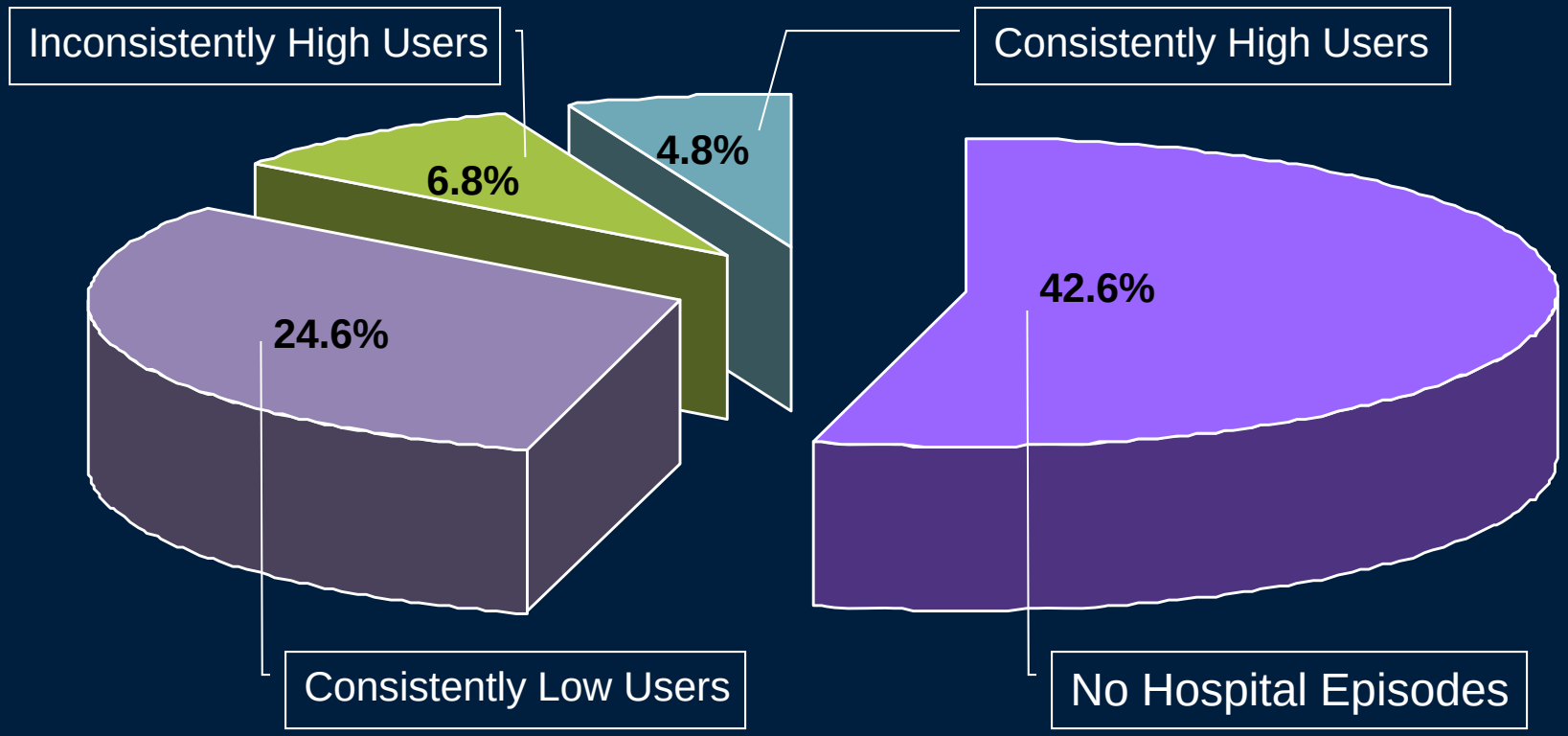
Toronto Central LHIN, 2006

Ontario Inpatient Hospitalizations, 2007

Age	Discharges	Total LOS Days	ALOS
Population Total	945,089	6,075,270	6.4
Population 65+	370,039 (39%)	3,516,006 (58%)	9.8
65-69	6.9%	7.9%	7.3
70-74	7.7%	9.8%	8.2
75-79	8.5%	12.5%	9.4
80-84	7.9%	13%	10.5
85-89	5.3%	9.4%	11.4
90+	2.8%	5.3%	12.2

Canadian Institutes for Health Information (CIHI), 2007

Ageing and Hospital Utilization in the 70+

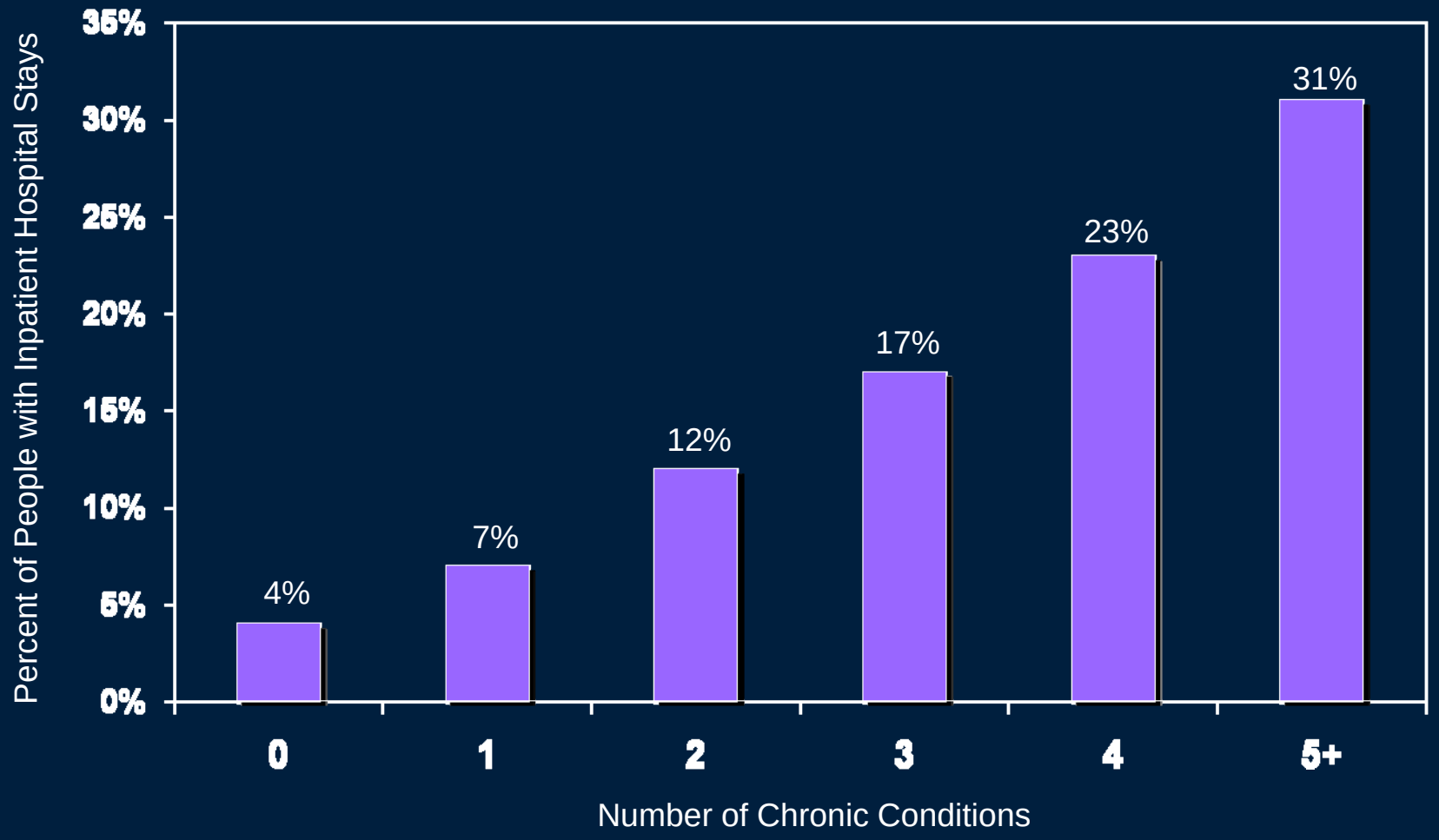


- Only a *small* proportion of older adults are consistently extensive users of hospital services *(Wolinsky, 1995)*

What Defines our Highest Users?

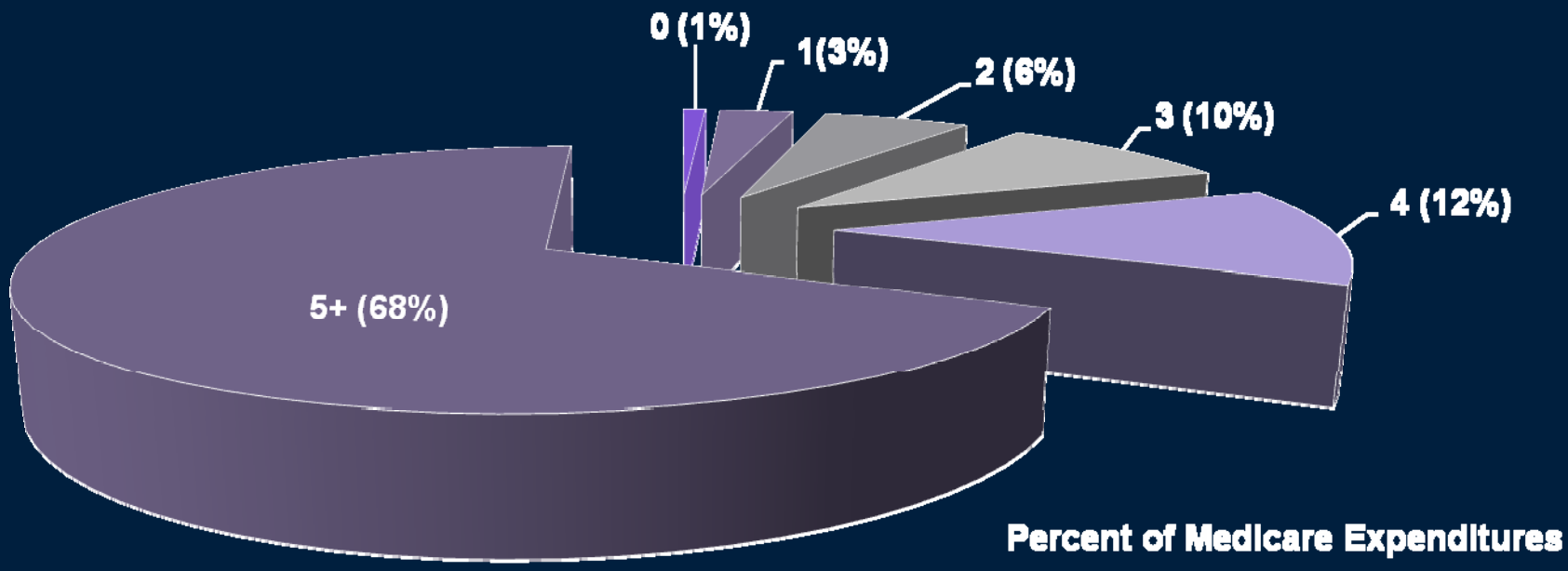
- Polymorbidity
- Functional Impairments
- Social Frailty

Chronic Disease and Hospitalization



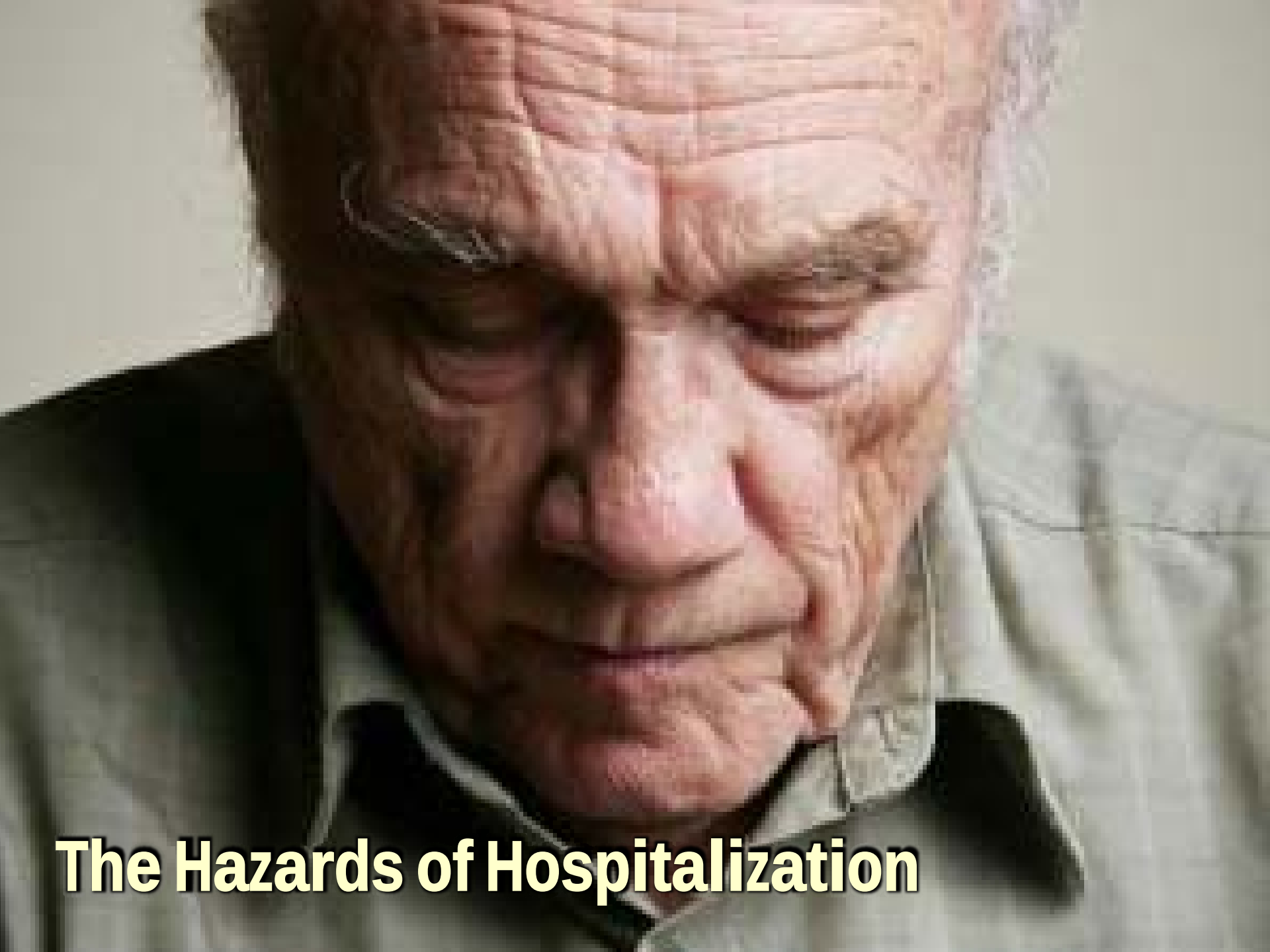
Medical Expenditure Panel Survey, 2001

The Cost of Chronic Diseases



80% of Medicare spending goes towards the 20% of its users with **4** or more Chronic Conditions.

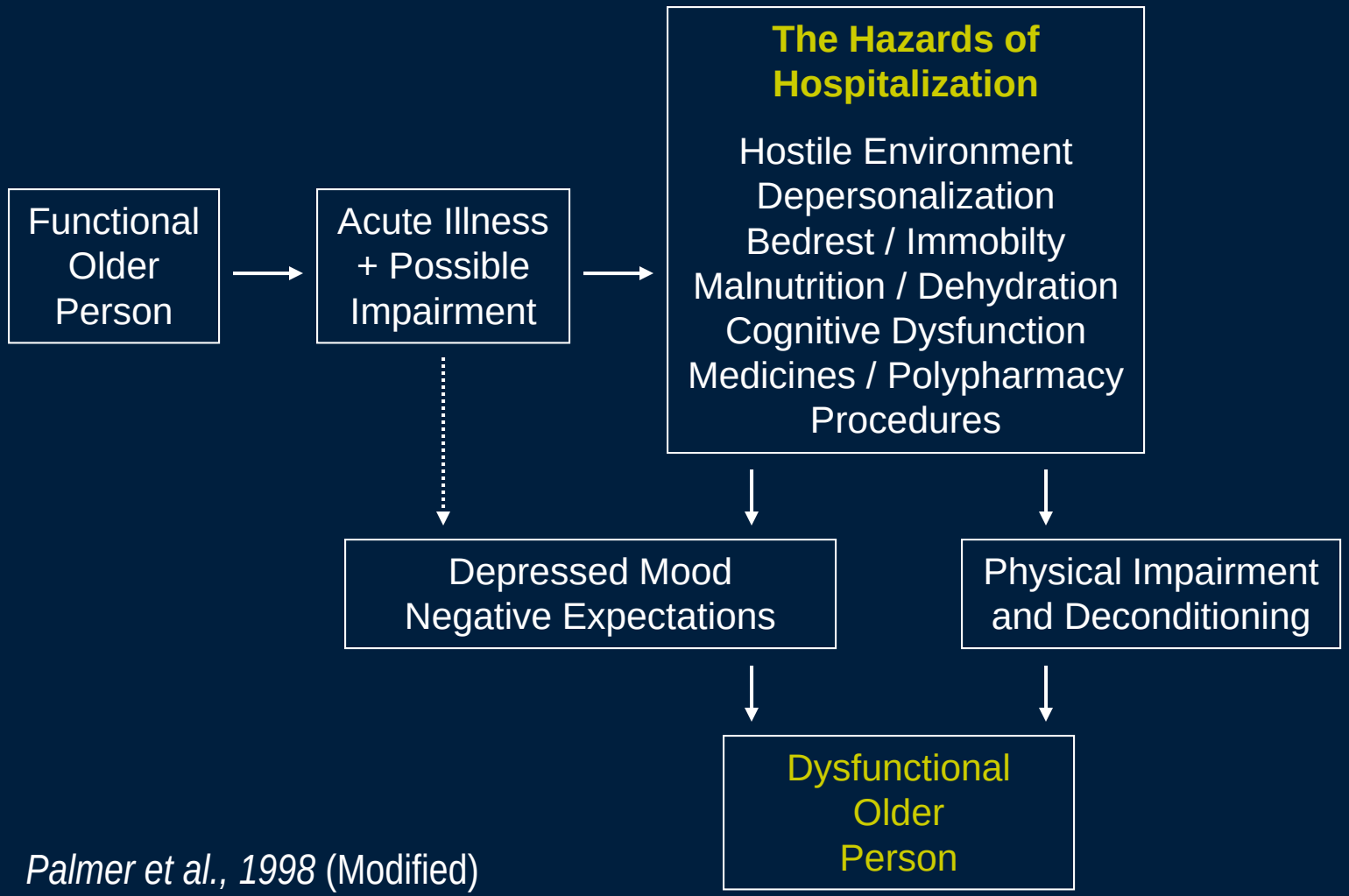
Medicare Standard Analytic File, 2001


The Hazards of Hospitalization

The Hazards of Hospitalization

- Older people are particularly vulnerable to the risks of iatrogenic illness and functional decline.
- The pathogenesis of functional and cognitive decline is *complex* and involves an interaction amongst:
  - the ageing process
  - polymorbidity and acute illnesses
  - the hospitalization process

Conceptualizing Functional Decline



Palmer et al., 1998 (Modified)

The Hazards of Hospitalization

THE COST OF FUNCTIONAL DECLINE *(Palmer, 1995)*

- The loss of independent functioning during hospitalization has been associated with:
  - Prolonged lengths of hospital stay
  - Increased recidivism
  - A greater risk of institutionalization
  - Higher mortality rates

The Dilemma

- The way in which acute hospital services are currently resourced, organised and delivered, often disadvantages older adults with chronic health problems. *(Thorne, 1993)*


Developing an Elder Friendly approach

Acute Care for Elders (ACE) Strategy

- An Elder Friendly approach redesigns or establishes new sustainable approaches that seek to enhance and improve upon current service models.
- Requires a shift in traditional thinking that currently underpins the administration and culture of most traditional care organizations.
- Is not adverse to identifying risk factors and needs and in intervening early to maintain independence.

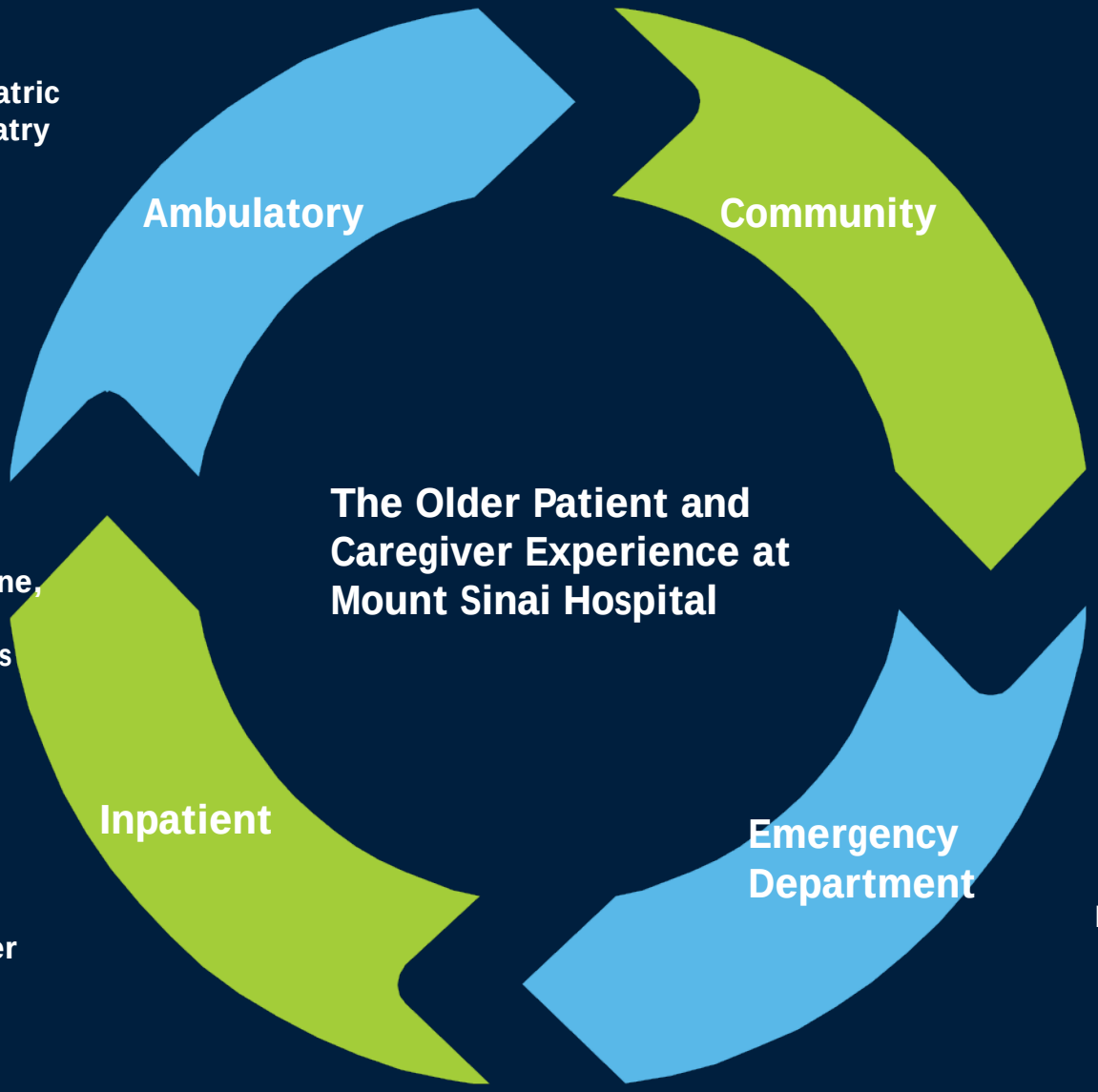
The Elder Friendly Hospital™ Model

- These dimensions work together to minimize functional decline, promote safety, and mitigate adverse social and medical outcomes.

Geriatrics at Mount Sinai

- In 2010, Mount Sinai became the *first* academic health sciences centre in Canada to make Geriatrics a core strategic priority.
- Our ACE Strategy is being operationalized through the implementation of a comprehensive and integrated strategic delivery model that utilizes an interprofessional team-based approach to patient care.
- Our Strength relies on the partnership of our Geriatric Medicine, Geriatric Psychiatry, Primary Care and Palliative Medicine programs.

The **Mount Sinai** Geriatrics Continuum



- Outpatient Geriatric Medicine, Psychiatry and Palliative Services
- "Centre for Integrated Care"

- Home Based Geriatric Primary/Specialty Care Program
- Temmy Latner Home Based Palliative Care Program
- CCAC – ICCP Pilot Site
- Reitman Centre
- Seniors Wellness
- Community and Staff Education Programs

- Geriatric Medicine, Psychiatry and Palliative Services
- Orthogeriatrics Program
- ICU Geriatrics Program
- ACE Unit
- MAUVE Volunteer Program

- ISAR Screening
- GEM Nurses
- ED Geriatric Mental Health Program

Evidence in Action

The Setting, The Problem

- St. Paul's Hospital is a 500 Bed Hospital in Vancouver
- 39 Bed Acute Geriatrics Unit with a focus on frail elders.
- Using the VCH database – we identified the five problems that associated with prolonged lengths of stay:
  - Functional Mobility
  - Delirium
  - Medication Use
  - Urinary Indwelling Catheter Use
  - Nutrition and Hydration
- ALOS/ELOS = 1.35 in 2006 from AGU Admissions

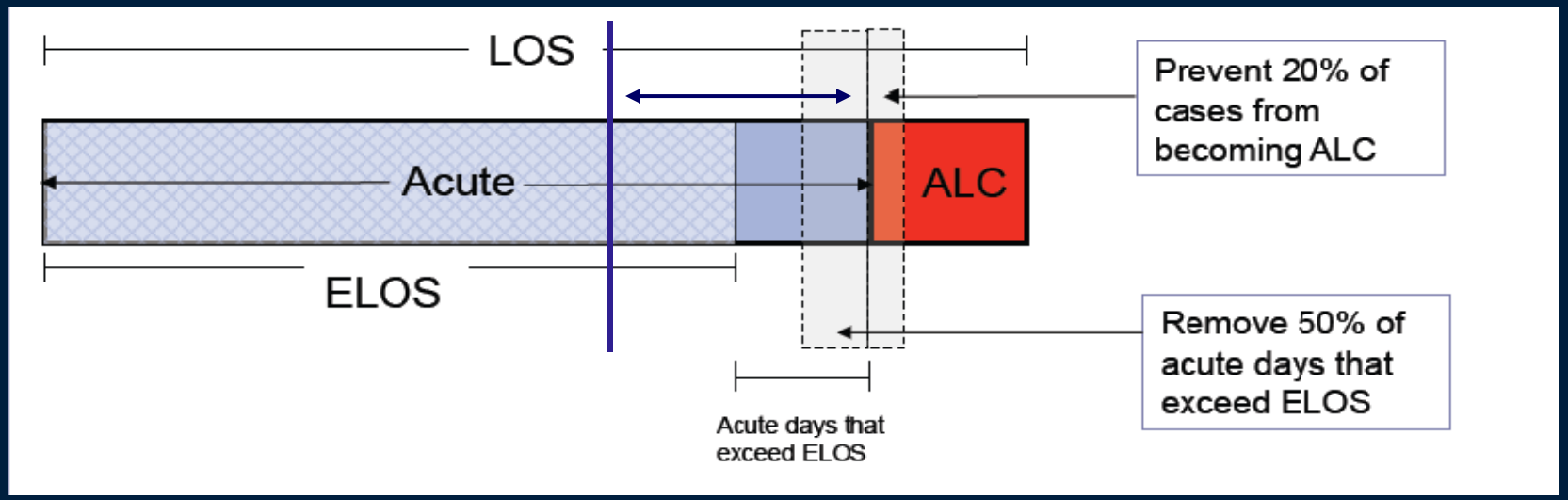
The Vancouver Interprofessional Practice (VIP) Statements Initiative

- Evidence-Informed Practice Statements targeting five key areas for care improvement:
  - Functional Mobility
  - Delirium
  - Medication Use
  - Urinary Indwelling Catheter Use
  - Nutrition and Hydration
- Aim was to improve care quality, reduce functional decline and decrease overall lengths of stay

What at Happens at St. Paul's?

VIP STATEMENTS INITIATIVE *(Sinha et al. 2009)*

- Sustained ALOS:ELOS reduction of 39%! (1.35 to 0.83) @ 30 M



Includes:
Age 70+ VCH residents only
CMGs grouped by guideline
Excludes:
COPD (CMG 139) & Stroke

Reduction of acute days by 12,300 per year!


Drawing Conclusions

Concluding Thoughts

- Whereas hospitalization offers older patients potential benefits it also exposes them serious risks.
- Elder Friendly care strategies, although poorly disseminated, have been developed that can deliver economic and social benefits.
- Creating an Elder Friendly Hospital requires a ***shift*** in traditional thinking.
- Implementing the ACE Strategy will allow us to remain leaders in the delivery of complex medical care.

Questions?

Samir K. Sinha MD, DPhil, FRCPC
Director of Geriatrics
Mount Sinai and the University Health Network Hospitals

416-586-4800 x7859
ssinha@mtsinai.on.ca


The Conundrum of Chronic Care

Table 1. Relevance of Clinical Practice Guidelines for the Treatment of Older Patients With Diabetes Mellitus, Hypertension, Osteoarthritis, Osteoporosis, and Chronic Obstructive Pulmonary Disease (COPD)

	Chronic Disease Addressed by Guideline				
	Diabetes Mellitus[19-32]	Hypertension[39]	Osteoarthritis[33-36]	Osteoporosis[40]	COPD[37,38]
Guideline addressed treatment for type of patient?	Older: yes Multiple comorbidities: yes Both: yes	Older: yes Multiple comorbidities: no Both: no	Older: yes Multiple comorbidities: yes Both: yes†	Older: no Multiple comorbidities: no Both: no	Older: no Multiple comorbidities: no Both: no
Quality of evidence discussed for type of patient?	Older: yes Multiple comorbidities: yes Quality of evidence poor, requires extrapolation for nutrition recommendations	Older: yes Multiple comorbidities: no Quality of evidence good for treating hypertension in older patients	Older: no Multiple comorbidities: no	Older: no Multiple comorbidities: no	Older: no Multiple comorbidities: no
Specific recommendations for patients with 1 comorbid condition?	Yes Diseases: hypercholesterolemia, hypertension, congestive heart failure, chronic kidney disease, cardiovascular disease, peripheral vascular disease, benign prostatic hypertrophy	Yes Diseases: coronary artery disease, diabetes mellitus, metabolic syndrome, sleep apnea, chronic kidney disease, gout, left ventricular hypertrophy, erectile dysfunction, peripheral vascular disease, congestive heart failure, stroke, dementia,* renal transplantation, renal artery stenosis, urinary outflow obstruction	Yes Diseases/drugs: anticoagulants, glucocorticoids, peptic ulcer disease, chronic kidney disease, hypertension, congestive heart failure	No	No
Specific recommendations for patients with several comorbid conditions?	Yes	No	No	No	No
Time needed to treat to benefit from treatment in the context of life expectancy discussed?	Yes	No	No	No	No

*Limited to the possible effects of antihypertensive treatment on preventing cognitive decline, not management of hypertensive patients with mild cognitive impairment or dementia.
†Limited to patients at highest risk of gastrointestinal tract bleeding with certain therapies.

Boyd, C. M. et al. JAMA 2005;294:716-724.

Table 3. Treatment Regimen Based on Clinical Practice Guidelines for a Hypothetical 79-Year-Old Woman With Hypertension, Diabetes Mellitus, Osteoporosis, Osteoarthritis, and COPD*

Time	Medications†	Other
7:00 AM	Ipratropium metered dose inhaler 70 mg/wk of alendronate	Check feet Sit upright for 30 min on day when alendronate is taken Check blood sugar
8:00 AM	500 mg of calcium and 200 IU of vitamin D 12.5 mg of hydrochlorothiazide 40 mg of lisinopril 10 mg of glyburide 81 mg of aspirin 850 mg of metformin 250 mg of naproxen 20 mg of omeprazole	Eat breakfast 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
12:00 PM		Eat lunch 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
1:00 PM	Ipratropium metered dose inhaler 500 mg of calcium and 200 IU of vitamin D	
7:00 PM	Ipratropium metered dose inhaler 850 mg of metformin 500 mg of calcium and 200 IU of vitamin D 40 mg of lovastatin 250 mg of naproxen	Eat dinner 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
11:00 PM	Ipratropium metered dose inhaler	
As needed	Albuterol metered dose inhaler	

Abbreviations: ADA, American Diabetes Association; COPD, chronic obstructive pulmonary disease; DASH, Dietary Approaches to Stop Hypertension.

*Clinical practice guidelines used: (1) Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure VII.[39] (2) ADA[19-32]; glycemic control is recommended; however, specific medicines are not described. (3) American College of Rheumatology[33-36]; recent evidence about the safety and appropriateness of cyclooxygenase inhibitors, particularly in individuals with comorbid cardiovascular disease, led us to omit them from the list of medication options, although they are discussed in the reviewed clinical practice guidelines. (4) National Osteoporosis Foundation[40]; this regimen assumes dietary intake of 200 IU of vitamin D. (5) National Heart, Lung, and Blood Institute and World Health Organization.[37,38]

†Taken orally unless otherwise indicated. The medication complexity score of the regimen for this hypothetical woman is 14, with 19 doses of medications per day, assuming 2 as needed doses of albuterol metered dose inhaler plus 70 mg/wk of alendronate.

‡DASH and ADA dietary guidelines may be synthesized, but the help of a registered dietitian is specifically recommended. Eat foods containing carbohydrate from whole grains, fruits, vegetables, and low-fat milk. Avoid protein intake of more than 20% of total daily energy; lower protein intake to about 10% of daily calories if overt nephropathy is present. Limit intake of saturated fat (<10% of total daily energy) and dietary cholesterol (<200-300 mg). Limit intake of *trans*unsaturated fatty acids. Eat 2 to 3 servings of fish per week. Intake of polyunsaturated fat should be about 10% of total daily energy.

This patient would have to…

Take 12 Medications in 19 separate doses over 5 times each day.

Follow 14 non-pharmacological recommendations - some which contradict each other.

How congruent are these plans with our patient's goals and preferences?

How often do we even ask?

Boyd, C. M. et al. JAMA 2005;294:716-724.