



Frailty Measures in Studies of Aging and Immunity

Janet E. McElhaney, MD

Advanced Medical Research Institute of Canada
Sudbury, ON



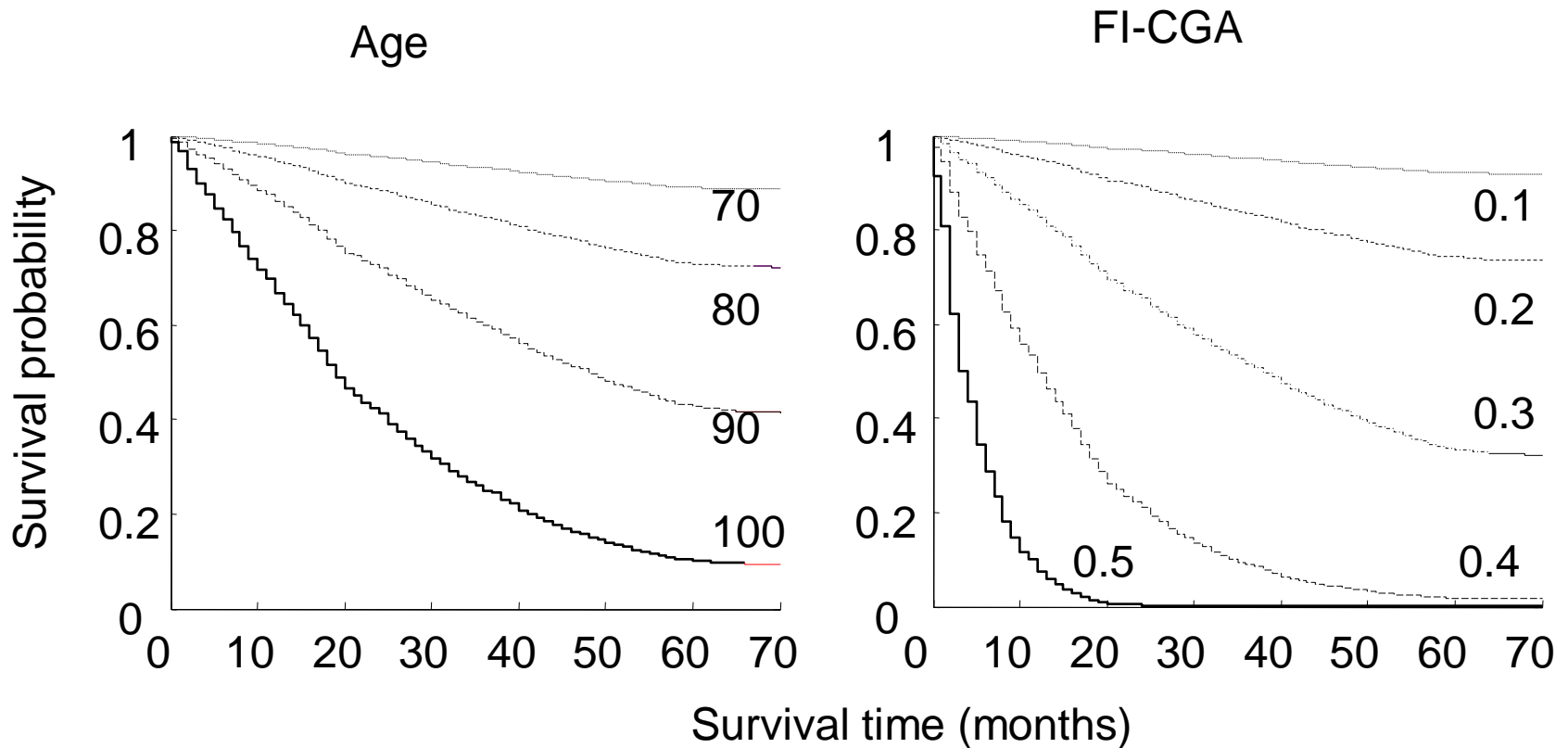
Fried Frailty Criteria (5-item)

- unintentional weight loss
- exhaustion
- muscle weakness
- slowness while walking
- low levels of activity

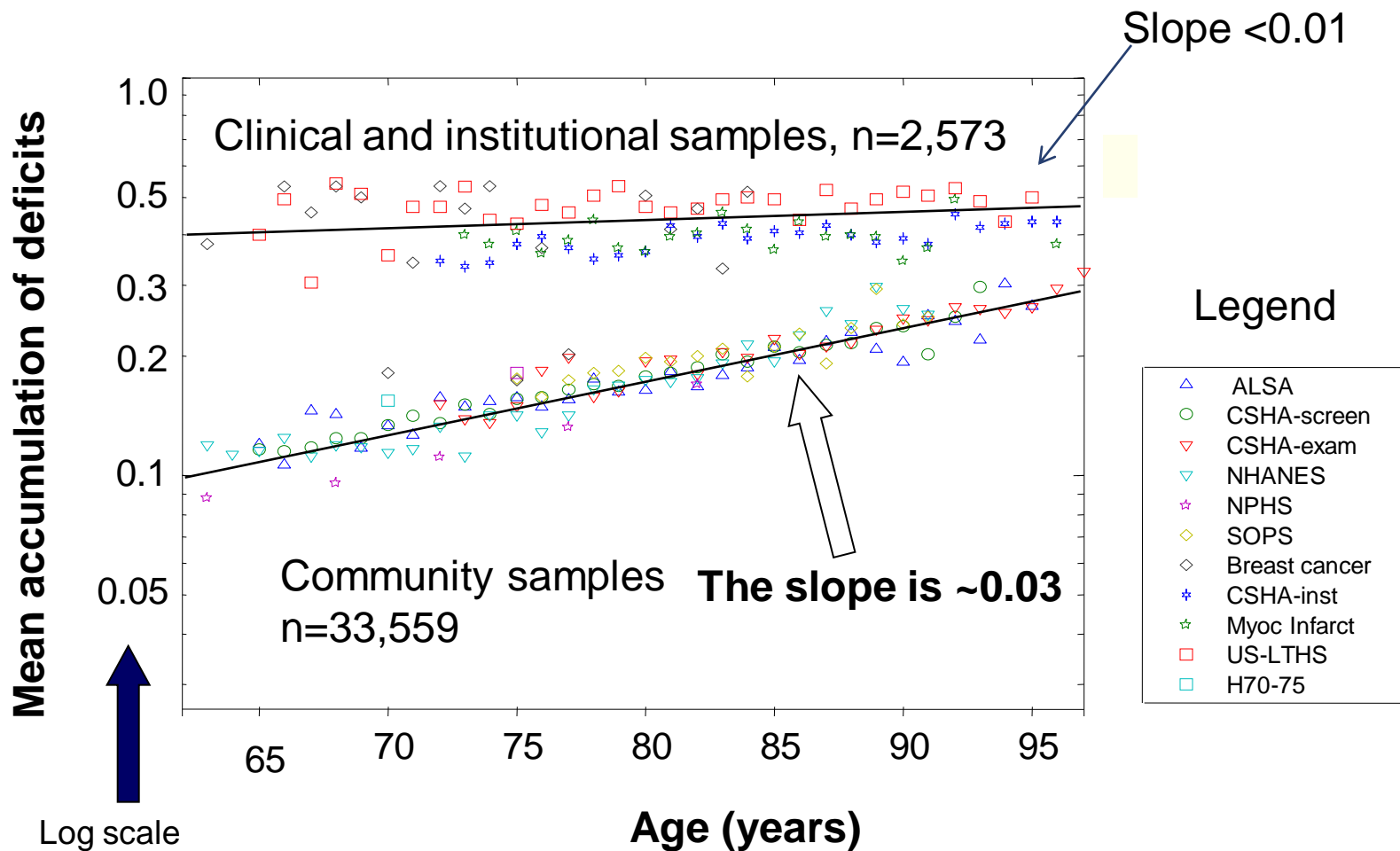
Rockwood Frailty Index (40-item)

- demographics/social
- cognition/emotion/motivation/
- communication – speech, vision, hearing
- nutrition/sleep/elimination
- mobility/balance/falls
- ADL/IADL
- medical problems/medications

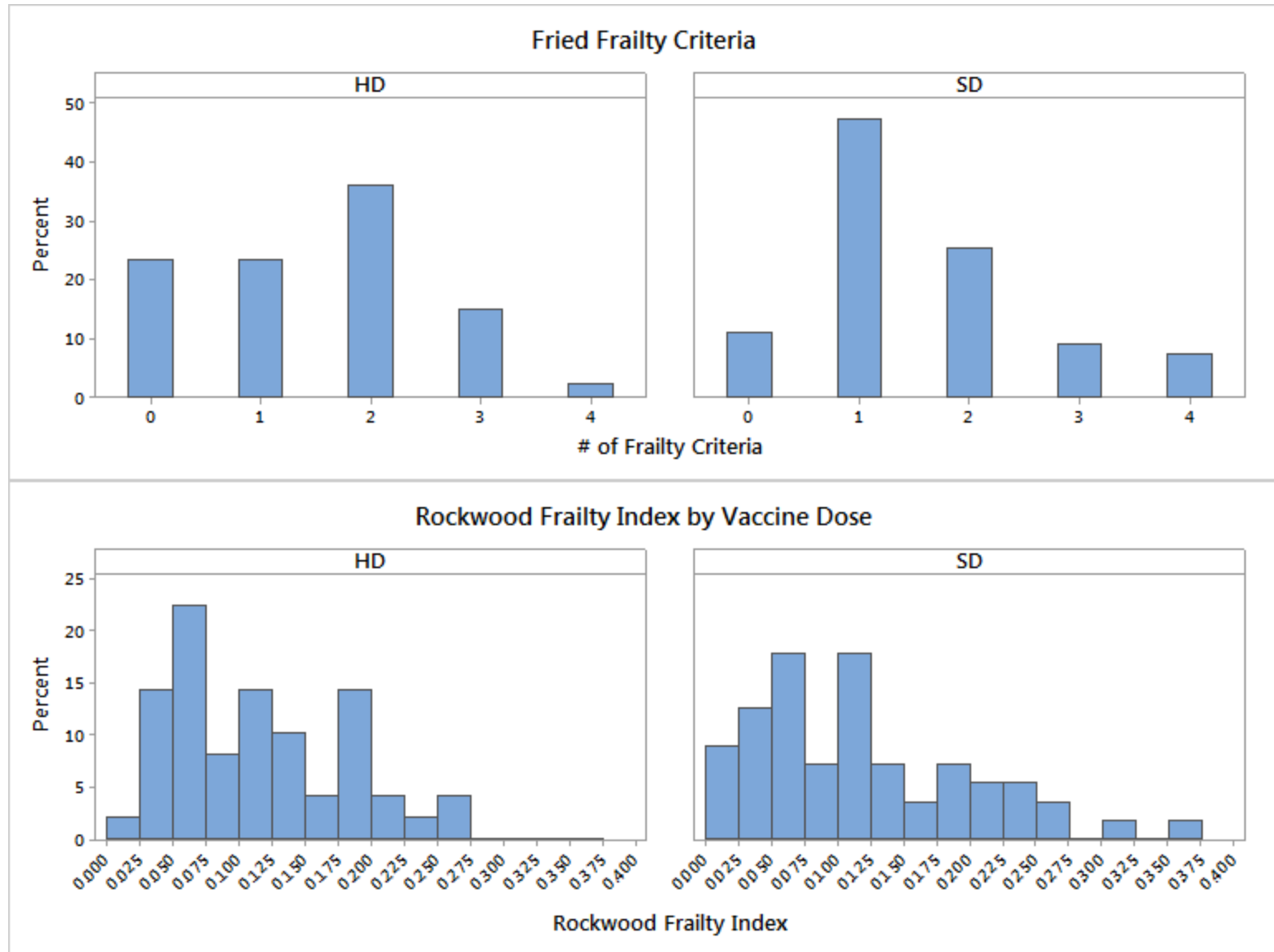
A frailty index based on a Comprehensive Geriatric Assessment better stratifies 70-month survival than does age



Deficits accumulate characteristically, both *between* groups (community vs. institution/ clinical) and *within* groups*



Frailty status among subjects randomized to HD or SD vaccine



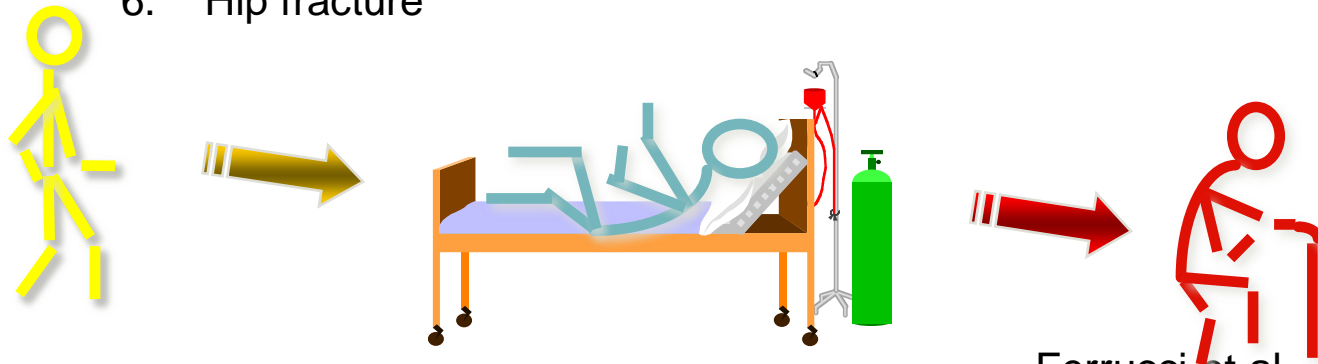
HD vs. SD, $p=0.8$

Vaccine Preventable Disability

Catastrophic disability

- Defined as a loss of independence in ≥ 3 ADL
- 72% who experience catastrophic disability have been hospitalized
- Leading causes of catastrophic disability
 1. Strokes
 2. CHF
 3. Pneumonia and influenza
 4. Ischemic heart disease
 5. Cancer
 6. Hip fracture

PCIRN SOS:
Frailty, Influenza Vaccination and
Hospitalization due to Influenza.



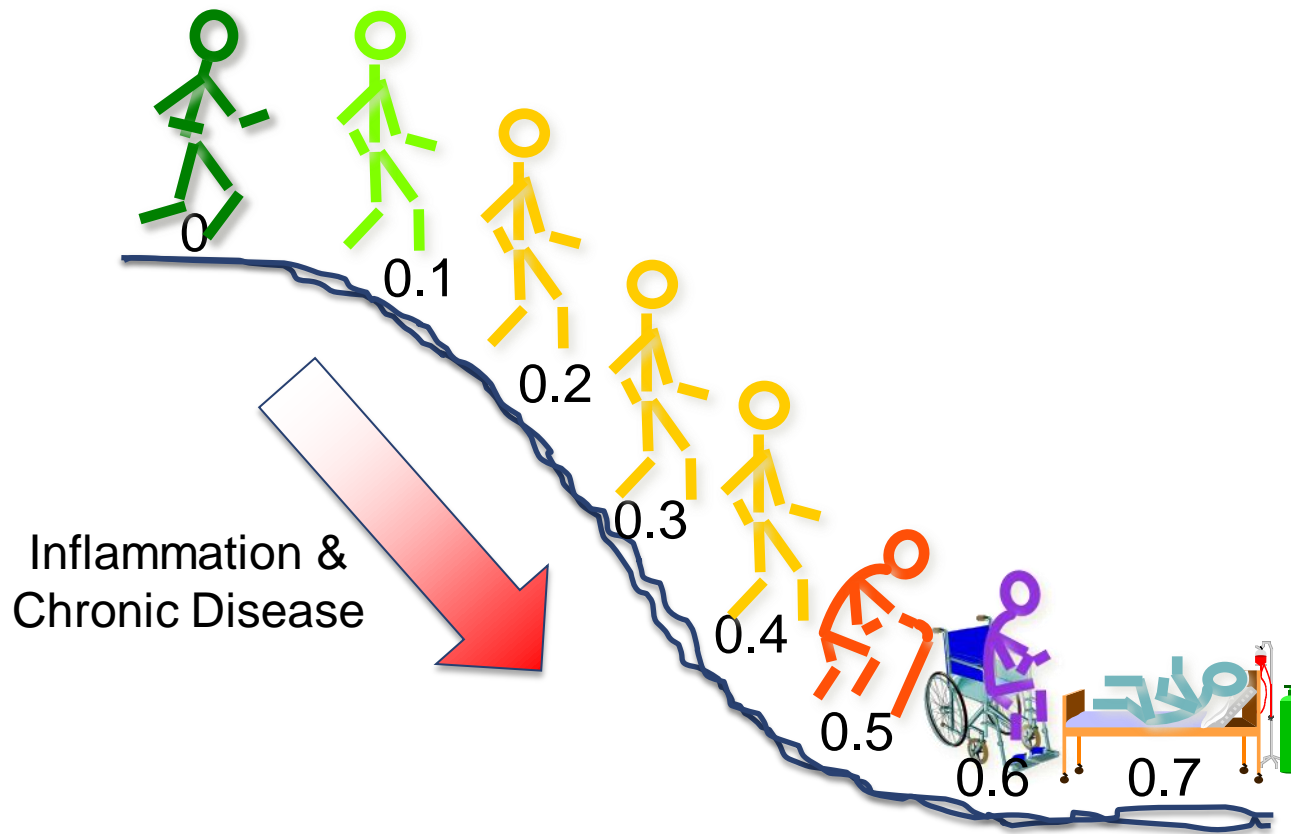
Ferrucci et al. *JAMA* 277:728, 1997
Barker et al. *Arch Int Med* 158:645, 1998
Falsey et al. *N Engl J Med.* 2005;352:1749

Influenza and Pneumonia: Predictors of Hospitalization and Death

*Hospitalization
due to influenza
and pneumonia,
and death to any
cause*

Age, years	Score	
<70	0	Age
70-74	14	
75-79	28	
80-89	42	
≥90	56	
Male	9	OP Visits
Outpatient visits in previous year		
0	0	
1-6	11	
7-12	22	Hospitalization
≥13	33	
Previous hospitalization for pneumonia or influenza	63	Pulmonary
Comorbidity		
Pulmonary disease	18	Dementia/Stroke
Heart disease	6	
Renal disease/transplant	12	Cancer
Dementia or stroke	22	
Nonhematological and hematological cancer	48	

Effects of and Susceptibility to Infectious Diseases with Aging



Adding Life to Years

