



# Chronic Disease, Frailty and Disability Understanding the Heterogeneity Of Older Persons

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# Acknowledgements

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- ◆ Canadian Initiative on Frailty and Aging
- ◆ 2<sup>nd</sup> International working meeting (Montreal March 2006)
  - Building on 1<sup>st</sup> International meeting (Lausanne 2003) and AGS/NIA meeting (Baltimore 2004)
  - Organizing Committee: H Bergman, C Wolfson, L Ferrucci, J Guralnik, D Hogan
  - Participants
    - » geriatric medicine, epidemiology, public health, biostatistics, biology, neurology, oncology and sociology
    - » Canada, USA, Switzerland, Israel, Italy, Mexico, Netherlands, Germany, Japan, UK, Spain, France, Singapore
- ◆ Solidage (McGill/UdeM)-CIHR funded research team on frailty and aging
  - Frele; International Database Inquiry on Frailty (FrDATA study)
  - SIPA project
- ◆ McGill Oncology and Aging Research and Training Program
- ◆ Clair Commission

# Health care systems and the challenge of aging

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- ◆ ↑ old, old-old
  - ◆ ↑ life expectancy
    - In developing countries: sanitation, nutrition, living conditions, education, infectious disease control, med care
  - ◆ ↑ chronic diseases
    - In developing countries: ↑ life expectancy, changes in nutrition, physical activity, ↑ tobacco, med care
  - ◆ ↑ chronic diseases + ↑ life expectancy
- =

Aging with ↑ disability

# Health care systems and the challenge of aging

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- ◆ Potential for promotion/prevention promoting healthy aging and in at least delaying onset of frailty and disability
  - Interaction: health/functional status/social status and support
  - Importance of chronic disease and impact on quality of life and progression to disability
- ◆ ↑ complex interventions (technology/medication) in increasingly older persons
- ◆ Health care systems poorly adapted to the management of chronic disease, frailty and dependency; complexity of treating chronic diseases and frail older persons
- ◆ Expectations/knowledge/Involvement of patients and family









# Frailty: A Working Approach

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- ◆ A physiologic syndrome characterised by decreased reserve and resistance to stressors, resulting from cumulative decline across multiple physiologic systems, and causing vulnerability to adverse outcomes

Fried et al. J Gerontol: Med Sci 2001

- ◆ Adverse outcomes: disability, morbidity, falls, hospitalisation, institutionalisation, death
- ◆ a syndrome encountered in older persons with diverse predisposing, precipitating, enabling and reinforcing factors-life course approach

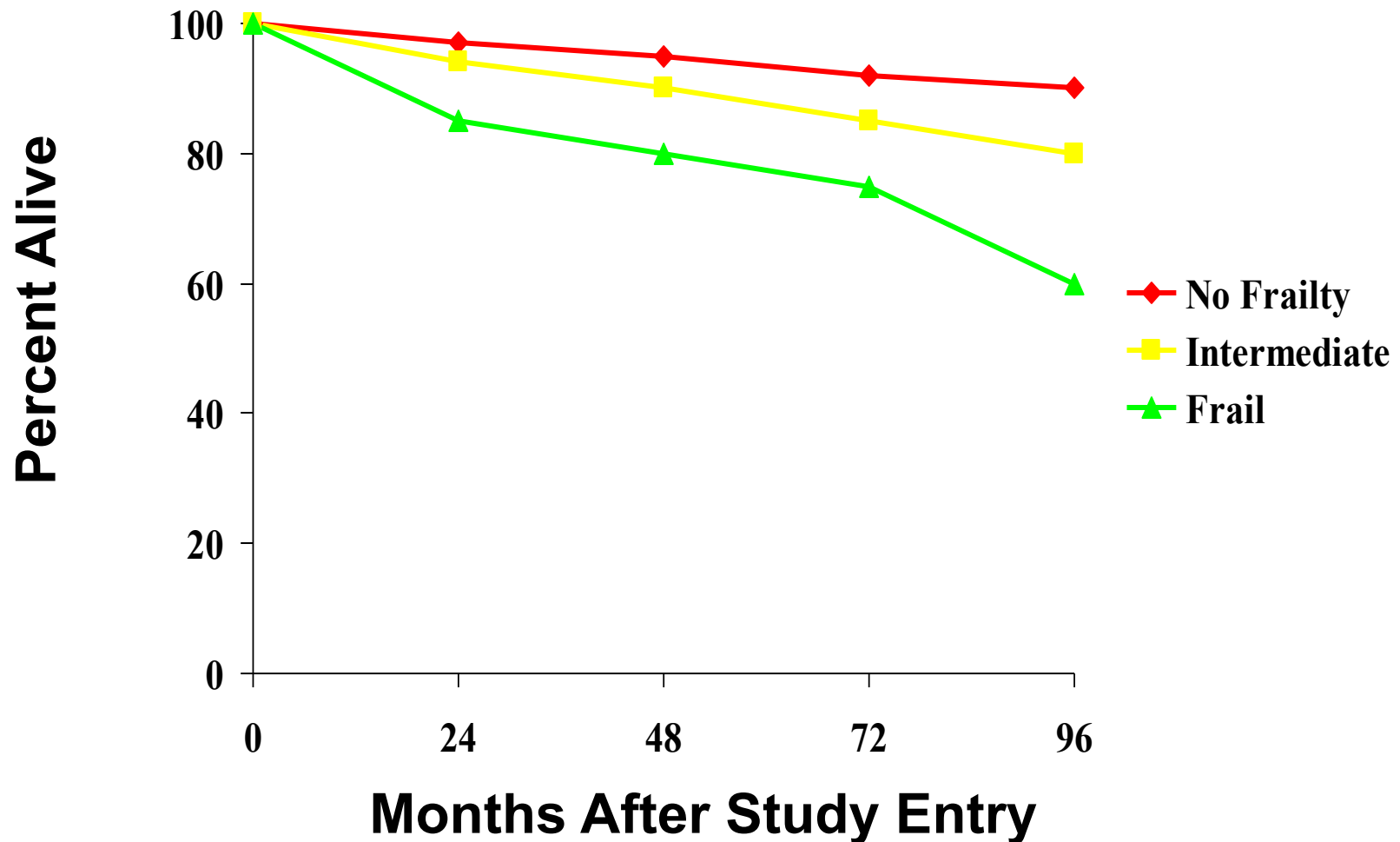
H. Bergman, L. Ferrucci, J. Guralnik et al: Frailty, an Emerging Research and Clinical Paradigm: Issues and Controversies. Journal of Gerontology: Medical Sciences. 2007; Vol. 62A, No. 7, 731–737



# Survival According to Frailty Status

## Cardiovascular Health Study

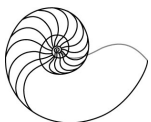
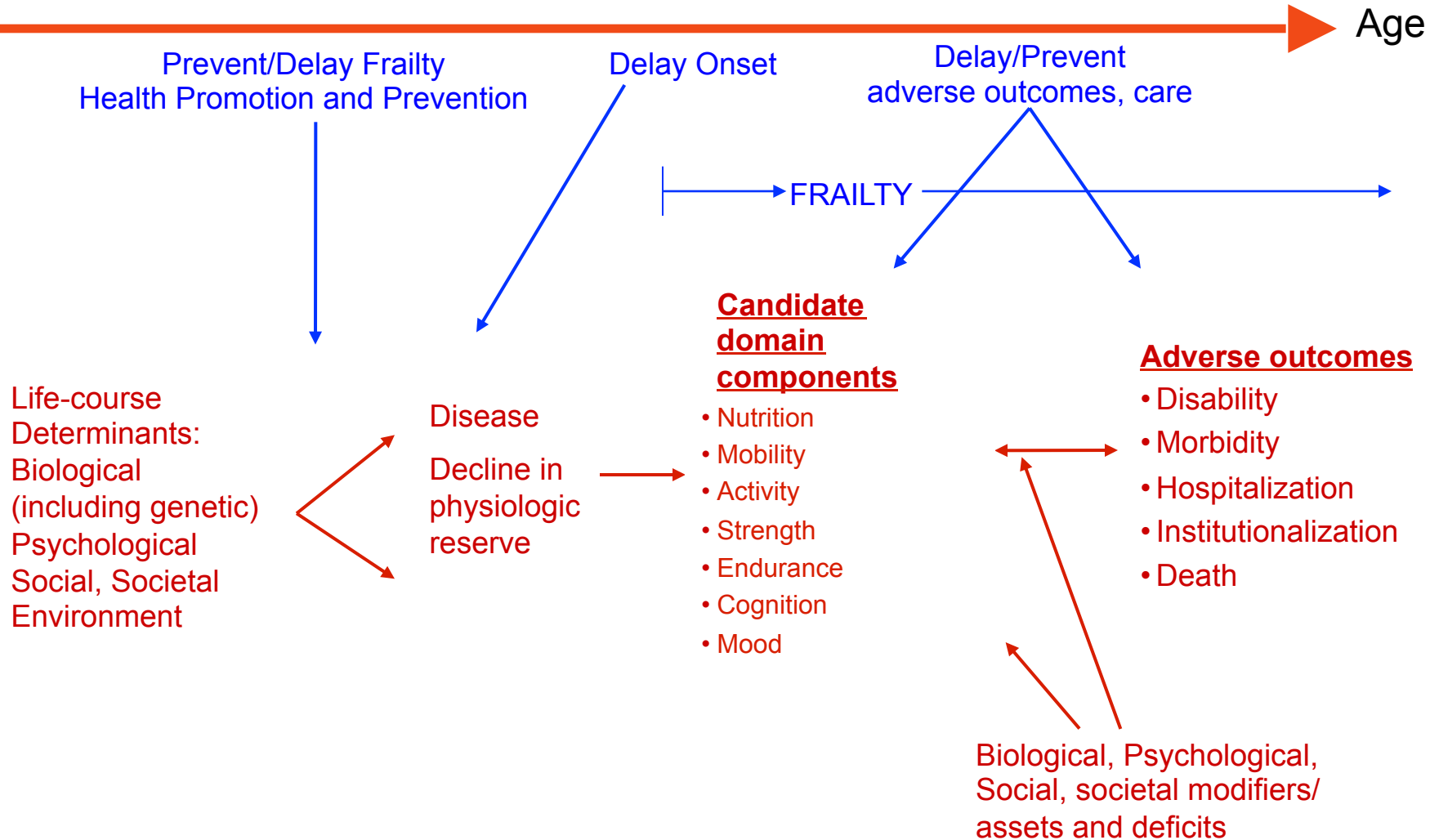
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Fried et al, J. Gerontology Med Sci, 2001

# Frailty: a Complex Syndrome of Increased Vulnerability

## A possible working framework



# The Potential Down Side of a Frailty Syndrome: Missing the Trees for the Forest

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- ◆ Lack of attention when only one component is present and definition of syndrome not met
- ◆ Persons with diseases/conditions that mimic frailty may be erroneously considered as frail
- ◆ Simple measure for vulnerability may be adequate
  - Gait velocity, grip strength
- ◆ Inappropriate use of diagnosis of frailty can
  - Alter self-concept; change others' perceptions; affect decision making inappropriately
- ◆ Non specific impact of aging, chronic disease and other risk factors

# Potential Relevance of the Frailty Syndrome

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- ◆ Improves our understanding of the aging process and ability to characterise the heterogeneity of older persons
- ◆ At population and clinical level: characterises health and functional status beyond disability and co morbidity
- ◆ Identifies a subset of vulnerable older adults at high risk of *adverse outcomes*
  - Why some, at a given age, are vulnerable; others not
  - Varying degree of vulnerability with same chronic disease or disability
  - older persons who are functionally independent with apparently normal cognitive function may be overlooked even if they have identifiable frailty markers and are highly vulnerable for adverse health outcomes and increased utilisation of health services

H. Bergman, L. Ferrucci, J. Guralnik et al: Frailty, an Emerging Research and Clinical Paradigm: Issues and Controversies. Journal of Gerontology: Medical Sciences. 2007; Vol. 62A, No. 7, 731–737

# Implementation in a coherent system: challenges to explore Evaluation of characteristics and needs

Evaluation in order to target and tailor interventions

- ◆ Limits of present approach based on IADL/ADL and chronic diseases
- ◆ Utilisation of vulnerability /frailty markers to detect vulnerability in independent older persons



# Potential Relevance of the Frailty Syndrome

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- ◆ Potential for modification, at least in early stages
  - Frailty and disability are dynamic states
  - opportunities for health promotion, prevention

Gill TM et al: N Engl J Med 2002

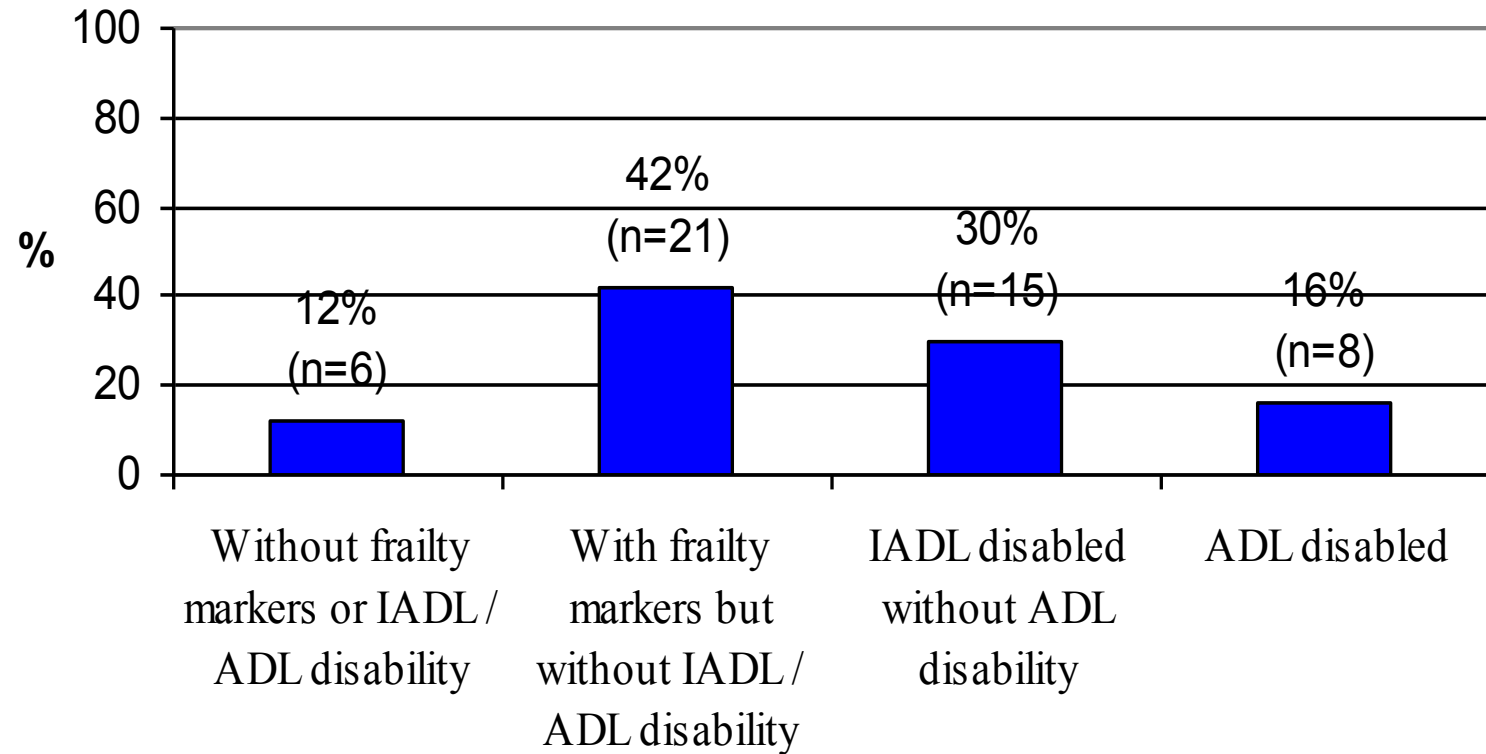
- ◆ Targeting risk in non disabled older persons with chronic disease
  - Understand health/functional characteristics
  - “Predict”/expect/plan outcomes and complications
  - Tailor intervention

Cacciatore et al. Eur J Clin Invest 2005

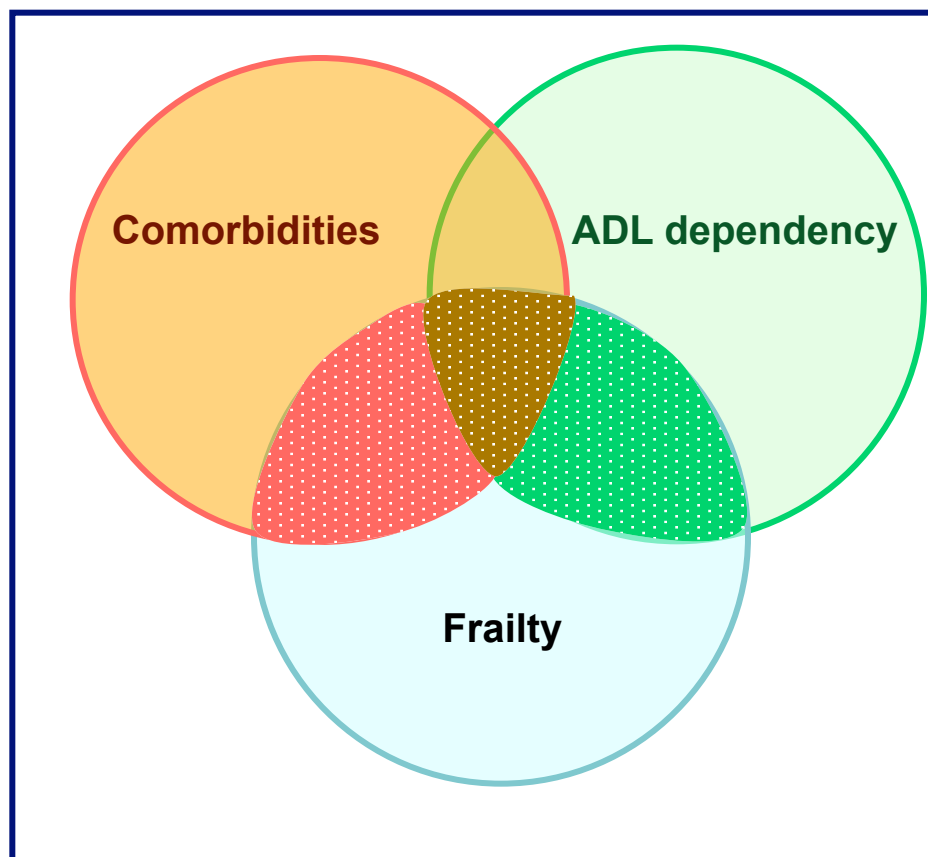
Ferrucci et al. Reviews in Oncology/Hematology 2003

# Health and functional status of cancer patients, aged 70 years and older referred for chemotherapy- preliminary findings

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Retornaz F, Monette J, Monette M, Sourial N, Wan-Chow-Wah D, Puts M, Small D, Caplan S, Batist G, Bergman H. Usefulness of frailty markers in the assessment of the health and functional status in older cancer patient referred for chemotherapy *Journal of Gerontology; Medical Sciences* (In Press)



# Further Research Opportunities

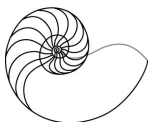
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## ◆ Key questions

- Do/how the candidate components cluster?
- is the risk for adverse outcomes of the clustered components greater than the risk from the individual components?
- underlying biological pathway?
- role of psychosocial factors?
- interventions?

## ◆ Approach

- Interdisciplinary collaborative networks; : biology, clinical, population health, social sciences, health services research



# Further Research Methodologies

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- ◆ Design of novel longitudinal studies with a priori hypotheses
  - Frele, NUAGE, ESA, CLSA
  - In other developed and developing countries eg Mexico, Seychelles
- ◆ Systematic review-Canadian Initiative on Frailty and Aging
- ◆ Secondary analyses: International Longitudinal Data Base Inquiry on Frailty (FrData study): comparable approach to 10 international data base
- ◆ Clinical research: natural “experiments: impact of surgery, chemotherapy
- ◆ Biology; Animal models
- ◆ Clinical trials

