

Frailty From a Geriatrician's and Researcher's Perspective

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Pilot Survey of Geriatricians on Frailty and Clinical Translation



Outline

- Background
- Methods
- Results
- Next steps



Background

- Frailty is a geriatric syndrome that is increasingly discussed in the literature in relation to clinical translation
- However, few surveys of geriatricians have address the clinical readiness of frailty



Methods

- Web-based survey of 20 clinical and clinical-researcher faculty in the Division of Geriatric Medicine & Gerontology at Johns Hopkins
- Response rate: 85% (17/20)

Results

1. Are you familiar with the geriatric syndrome of frailty? (Y/N)

Yes: 100% (17/17)



Results

2. Are you familiar with any of the following frailty assessment tools? You may select more than one. (Multiple choice/open)
 - **Physical Frailty Phenotype (Fried et al): 82% (14/17)**
 - **Deficit Accumulation Frailty Index (Rockwood et al): 47% (8/17)**
 - **FRAIL Scale (Abellan Van Kan et al): 29% (5/17)**
 - **Other: 24% (4/17)***
 - **None: 18% (3/17)**



Results

3. Do you apply the assessment of frailty in your clinical practice? (Y/N, with open follow-up)

Yes: 24% (4/17)

No: 76% (13/17)

Comments:

- One comment that Frailty Phenotype tool is used.
- Another comment that “I use more of a ‘gestalt’”



Results

4. Do you think that the concept of frailty is ready for clinical translation? (Y/N)

Yes: 71% (12/17)

No: 29% (5/17)

Results

5. What do you think is needed in order to incorporate frailty into clinical practice?
(Open-ended)

Identified need	Comments
Definition and clarity and consensus	<ul style="list-style-type: none">• Although I feel like I have a sense of frailty when I see it, I don't know how to specifically define/diagnose it.• Consensus on what it is• Correlating a standard frailty index that everyone agrees on to classify patients and track their outcomes

Results

5. What do you think is needed in order to incorporate frailty into clinical practice? (Open-ended)

Identified need	Selected Comments
Instrument choice	<ul style="list-style-type: none">• Alternative to grip strength measurement• I don't know which tool would be the most appropriate/efficient for me to use in my clinic practice, and• A number of these instruments meet construct validity, but most instrument or frailty definitions have not demonstrated reliability, responsiveness to change, content validity, floor and ceiling effects.• Need to know more about the performance characteristics of the tests that can be used, and then what to do with that information

Results

5. What do you think is needed in order to incorporate frailty into clinical practice? (Open-ended)

Identified need	Selected Comments
Recommendations and treatment options for patients	<ul style="list-style-type: none">• What would we use this for? How would it affect patient outcome, prognosis, etc.• Once a clinician identifies a frail patient, then what? Recommendation for serial frailty screening?• Whether interventions can alter the course of frailty (ex: exercise and nutrition--not more meds). I also am not sure at this point how knowing someone "had frailty" would change the way I care for them.• Clinical trials that report effective strategies to treat frailty or that frailty assessments offer reasonable prognosis- mortality, community dwelling.

Results

5. What do you think is needed in order to incorporate frailty into clinical practice? (Open-ended)

Identified need	Selected Comments
Training and resources for frailty assessment	<ul style="list-style-type: none">• Training in simple assessment tool• How to use; common pitfalls with tools• Resources in clinic to help with formal assessment• If requires staff, must be as easy as getting weight and height and calculating BMI or something simple and self-administered.

Results

5. What do you think is needed in order to incorporate frailty into clinical practice?
(Open-ended)

Identified need	Selected Comments
Health record / billing standardization	<ul style="list-style-type: none">• ICD CODE• Standardized frailty tools available in electronic health record.• Payment for provider assessment of frailty• Consider including frailty assessments in hospital and clinic order sets and have case managers/dc planners track this on all inpatients

Results

5. What do you think is needed in order to incorporate frailty into clinical practice? (Open-ended)

Identified need	Selected Comments
Marketing	<ul style="list-style-type: none">• Better "marketing" of what frailty is and why it's important to the average practitioner and better marketing to patients.• Maybe a frailty app?

Results

5. What do you think is needed in order to incorporate frailty into clinical practice? (Open-ended)

Identified need	Selected Comments
Other	<ul style="list-style-type: none">• Secondary frailty is bread and butter. But someone who has no obvious wasting illness after good search, but who is shrinking, slowing, tired, sedentary without explanation other than old age ... that is worth working on.• It isn't clear what you mean by clinical translation. I said yes because I'd be glad to incorporate frailty in my practice if we were evaluating its usefulness as a tool for targeting a specific intervention, or to see how well it predicts outcomes in the real world (i.e. an observational study), or something else. I don't know how it would change my individual patient-provider conversations (sorry).



Overview

- **Why Frailty Matters**
- **State of the Field**
- **Crucial Role for Subspecialists**
 - **Patients need you to develop new more frailty-specific care guidelines**



The Field of Frailty Is Rapidly Expanding

Publications

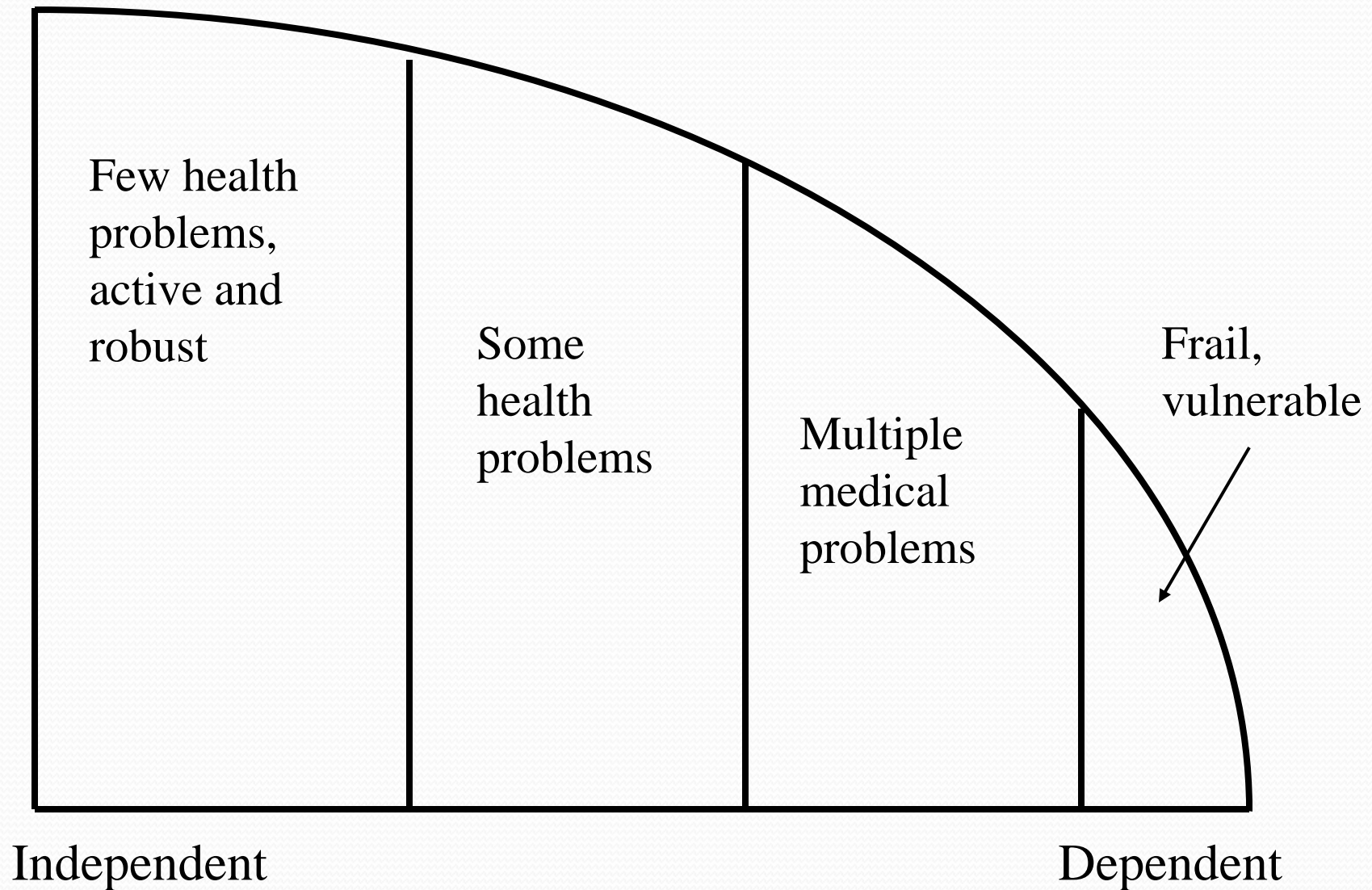
Conceptualization/Definitions

Screening Tools

Biological Understanding

Clinical Utility

Heterogeneity in Health of Older Adults







Frailty Prevalence

- Up to 15% of community dwelling older adults
- Much higher percentage in assisted living communities
- Prevalence increases with age and all will likely meet criteria if live long enough



Chronic Disease and Frailty

- Diabetes Mellitus
- Congestive Heart Failure
- Hypertension
- Peripheral vascular disease

Why Does Frailty Matter? Poor Outcomes

	CHS	WHAS
Incident Fall	1.29 (1.00 – 1.68)	1.18 (0.63, 2.19) (NS)
Worsening Mobility	1.50 (1.23, 1.82)	10.44 (3.51, 31.00)
Worsening ADL Disability	1.98 (1.54 – 2.55)	15.79 (5.83, 42.78)
First Hospitalizations	1.29 (1.09,1.54)	0.67 (0.33, 1.35) (NS)
Death	2.24 (1.51,3.33)	6.03 (3.00, 12.08)

Hazard Ratios Estimated Over 3 Years, covariate adjusted, p>0.01

Fried ,L. P , et al, J Ger Med Sci, 2001

Bandeem-Roche et al, J Ger Med Sci, 2006



Why Does Frailty Matter?

- Frail older adults at highest risk for
 - Falls
 - Disability
 - Comorbid disease states
 - Mortality
 - Delirium
 - Cognitive decline
 - Iatrogenic complications
 - Social withdrawal



Why Does Frailty Matter?

- Understanding frailty will facilitate the development of new treatment paradigms for multiple disciplines
 - Surgical and Medical Sub-specialties
 - Anesthesia
 - Transplantation

New Frailty Initiatives in 2014

- The *International Conference on Frailty and Sarcopenia Research* inaugurated in Barcelona
- IAGG-GARN Network launched Frailty.net for healthcare professionals



Frailty Publications



PubMed Title/Abstract Search for: (((("Frail Elderly"[Mesh]) OR (frail*[tw] AND ("Aged"[Mesh] OR aged[tw] OR aging[tw] OR older adult*[tw] OR older person*[tw] OR elder*[tw] OR senior[tw]))))), searched on 2-17-2015

Conceptualization in the Literature

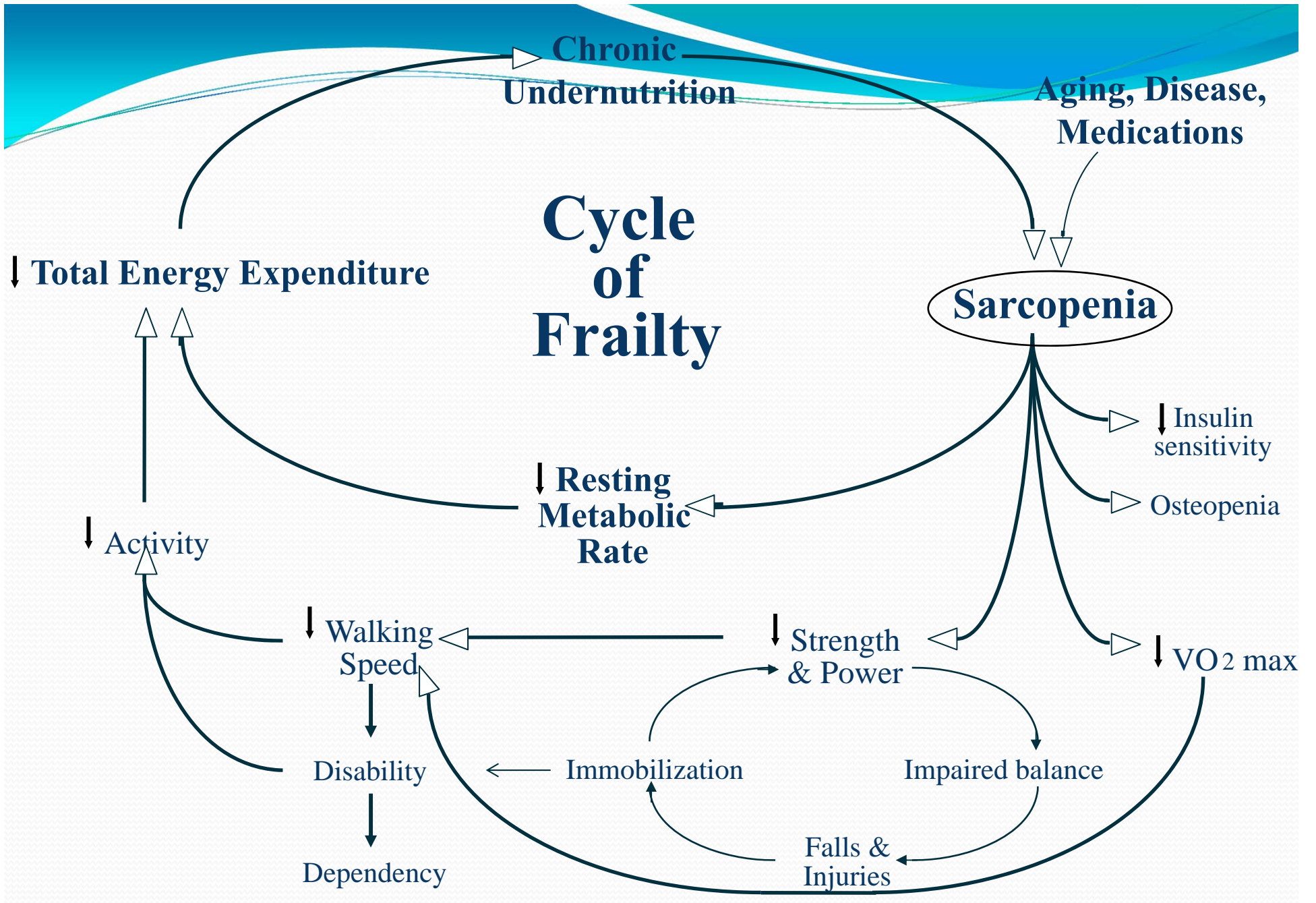
Buchner & Wagner (1992). Vulnerability to Stressors in Preventing frail health. *Clin Geriatr Med*.

Lipsitz & Goldberger (1992). Loss of "complexity" with aging; *JAMA*.

Bortz (1993). Loss of cellular/molecular energetics . *JAGS*.

Fried et al (2001). A biologic syndrome of decreased reserve resulting from cumulative declines across multiple physiologic systems. *J Gerontology*

Rockwood K et al (2007). An age-related accumulation of health deficits. *J Gerontology*



(Fried & Walston, 1998)

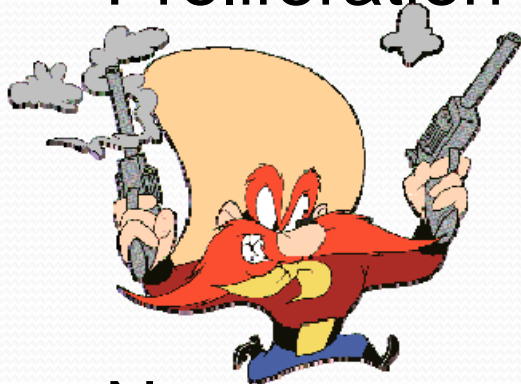


Conceptualization Commonalities

- Age-Related Syndrome of Vulnerability
- Decline in Multiple Physiological Systems
- An age-associated condition that often co-exists with disability and chronic illness but can be independent of these conditions
- Deficit accumulation

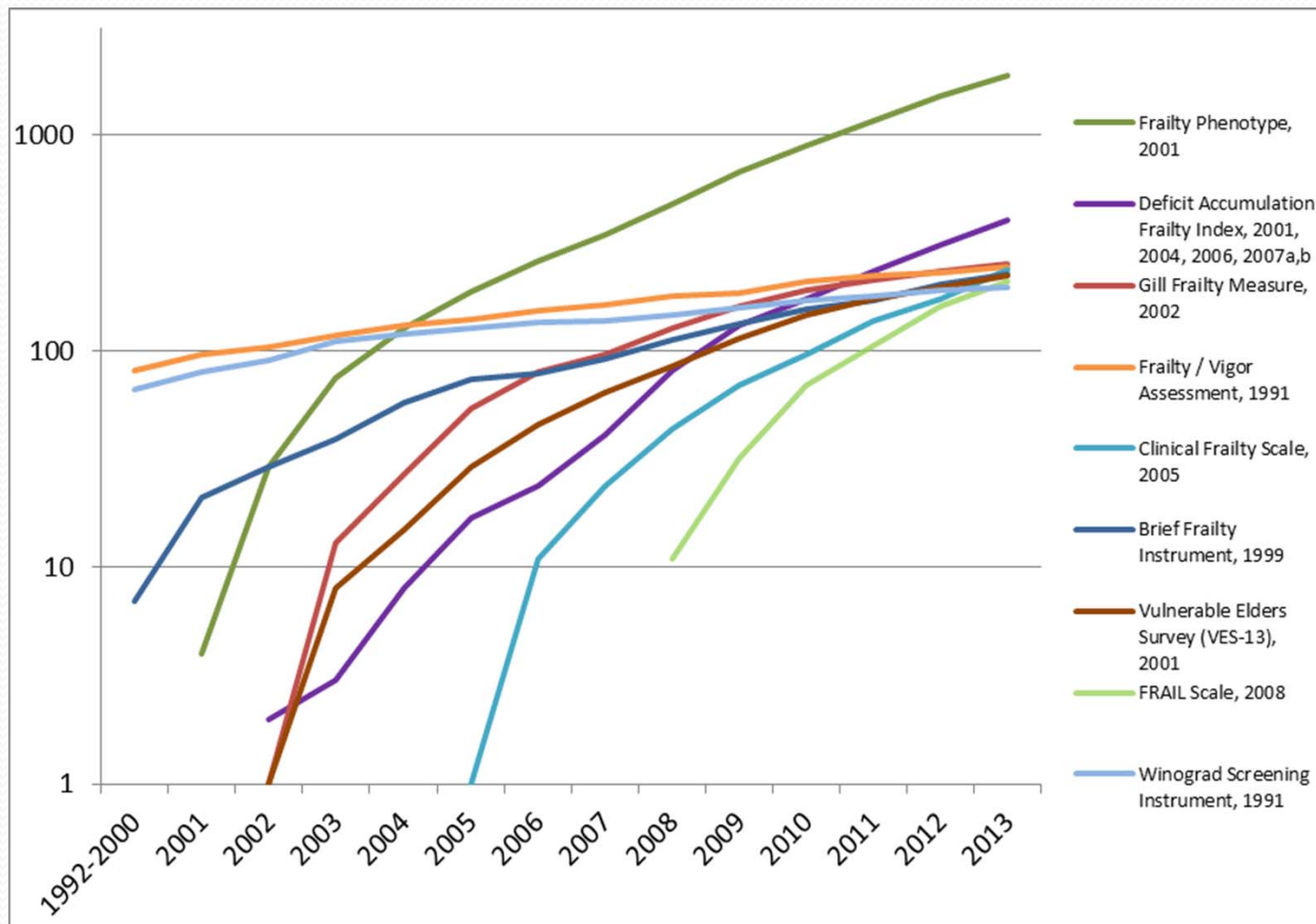
Frailty Tools: Wild West of Geriatrics

- Proliferation of frailty instruments



- No consensus on how to best measure it
- This impedes progress in biological discovery, intervention development, effectiveness assessment, and clinical care

Nine Highly-cited Frailty Instruments



This figure displays the cumulative number of citations (on the Y-Axis) per year (on the X-Axis) for nine highly-cited frailty instruments. The Y-axis is on a logarithmic scale.



Different Tools for Different Uses?

- Are the frailty instruments interchangeable across contexts and purposes?
 - *Can an instrument that is appropriate for predicting the risk of falls be also used to study biological mechanisms underlying frailty?*



2012 Delphi-Method Consensus Development

- Five Focus Groups (geriatricians, non-geriatrician physicians, other health professionals, basic scientists, and social and nongovernmental workers) gathered
- Key literature identified and reviewed, questions developed by this group (n=31)
- Questions broadly circulated (n=121) to topical experts/stakeholders
- Answers synthesized and published after series of consensus gathering meetings by focus group

(Rodriquez-Manas, Journal of Gerontology 2012)



2012 Delphi-Method Consensus Statement

- Frailty Conceptualization: High degree of agreement
 - Frailty is a multidimensional syndrome characterized by decreased reserve and diminished resistance to stressors.
- Frailty Operational definition : Low agreement
- Agreement on the importance of a more comprehensive definition of frailty that should include assessment of physical performance, including gait speed and mobility, nutritional status, mental health, and cognition.
- No consensus on measures to get to that point

(Rodriquez-Manas, Journal of Gerontology 2012)



2012 Delphi-Method Consensus Statement

- The experts established a clear-cut difference between disability and frailty as shown by the percentage of agreement (85%–95%) in the related statements.
- Additional experimental work is needed to identify the specific combination of clinical and laboratory biomarkers for the diagnosis of frailty
- Broad disagreement on specific measures to include.
- “Such studies may well enable us to move beyond a theoretical definition of frailty to a robust consensual operational definition that can be employed in a variety of settings.”

(Rodriquez-Manas, Journal of Gerontology 2012)

International Expert Consensus Effort 2012

- Gathering of 20 international experts from 6 major international aging-groups that reached agreement on four key points related to the assessment of *physical frailty in older adults*:
 - 1) it is an important medical syndrome
 - 2) it can potentially be targeted and treated
 - 3) there are available screening tests
 - 4) all persons 70 years and older with weight loss should be screened

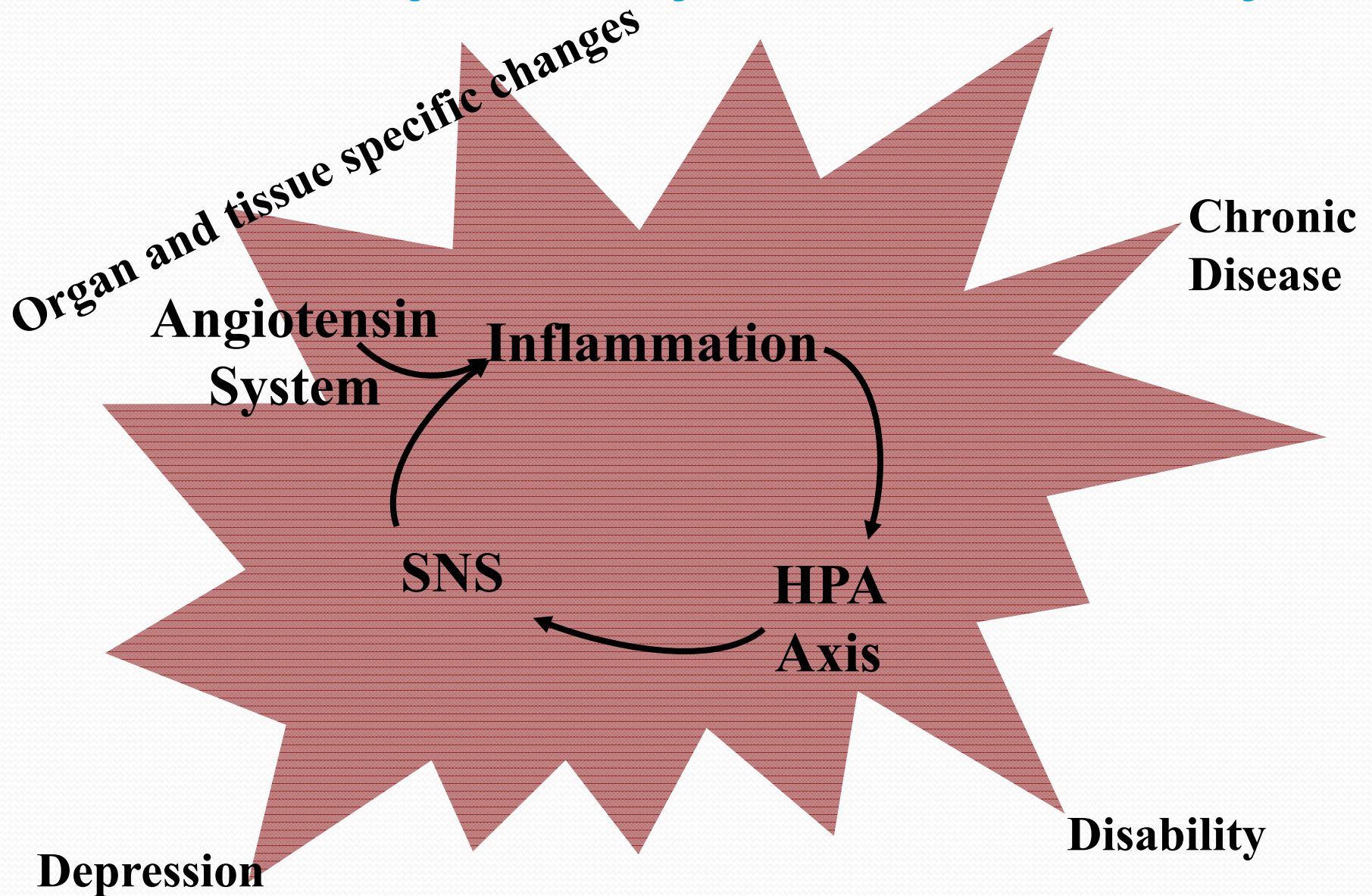
(Morley J et al, J Am Med Dir Association, 2013)



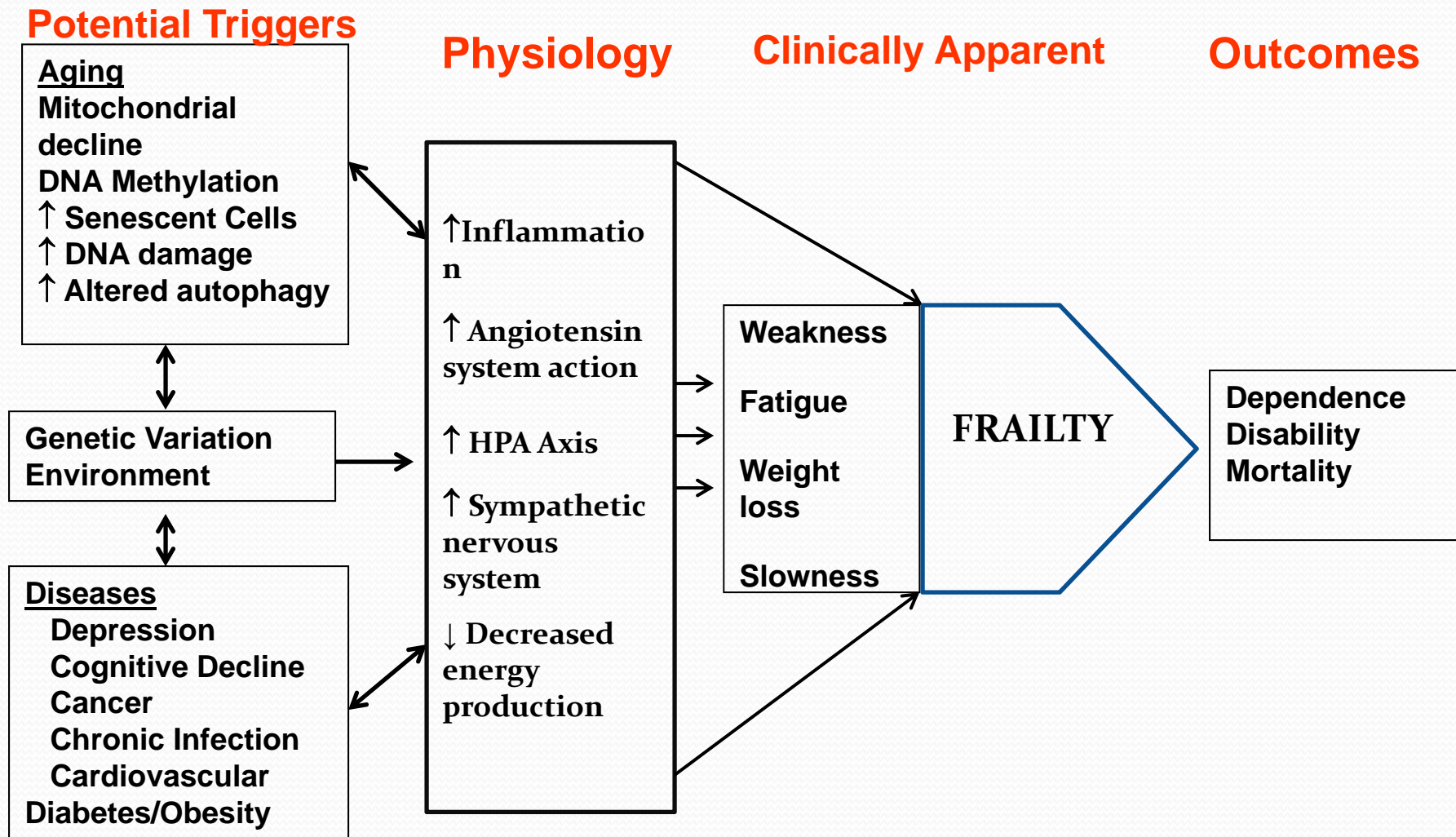
Consensus on Definitions

There is general agreement that operational definitions of frailty should be: multi-dimensional; exclusive of disability and possibly comorbidity; dynamic; predictively valid for adverse outcomes; and feasible
(Hogan 2003; Gobbens, 2010)

Stress Response Systems and Frailty



Model for Adverse Outcomes/Frailty





Frailty Clinical Settings

How are frailty instruments used in clinical specialties?



Risk Assessment in Surgical Patients

- 1000 older general surgery patients at JHH recruited in peri-operative period
- Frailty and other surgical screening measures recorded before surgery
- Subjects followed for 6 months

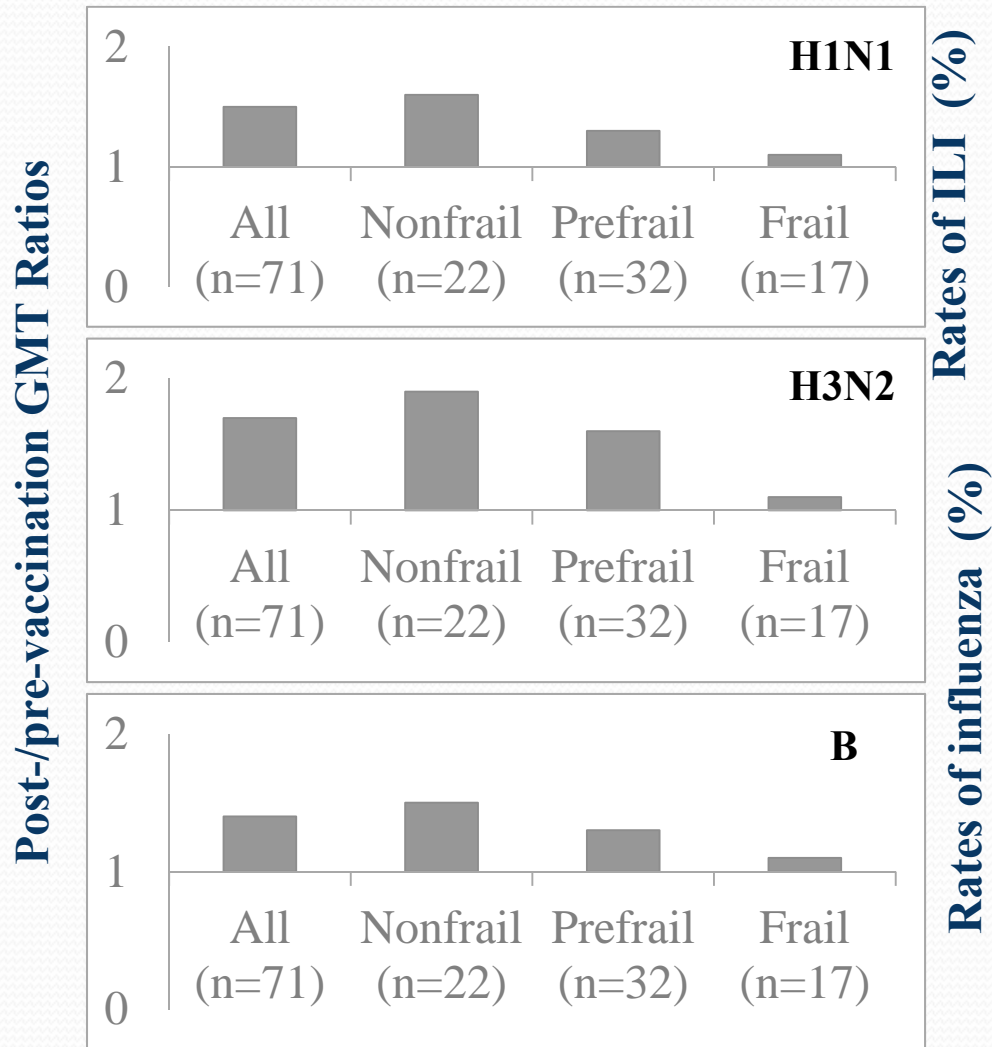
Makary M et al, J Am Coll Surgery, 2010.



Risk Assessment in Surgical Patients

- Frail compared to robust were
 - 20 times more likely to not go directly home
 - 2.5 times more likely to have major post-op complications after adjustment for co-morbidities
- Frailty significantly improved predictive power of all surgical risk assessment tools

Frail Adults Respond Poorly to Flu Vaccine



Yao et al., Vaccine, 2011



Frailty Utility as a Clinical Tool

- Increasingly Used to identify those at highest risk for adverse clinical outcomes in
 - Renal Failure
 - Anesthesia/Preop assessment
 - CV Surgery
 - Transplant Surgery
 - Oncology
 - Trauma Surgery



How Frailty Will Be Used in Next Few Years

- New Clinical Algorithms for decision making
 - Delirium Prevention
 - Anesthesia Regimens
 - CV and Other Surgical approaches
 - Transplantation
 - Transplant Surgery
 - Chemotherapy regimens
 - Influenza vaccination



Goals for Frailty Intervention

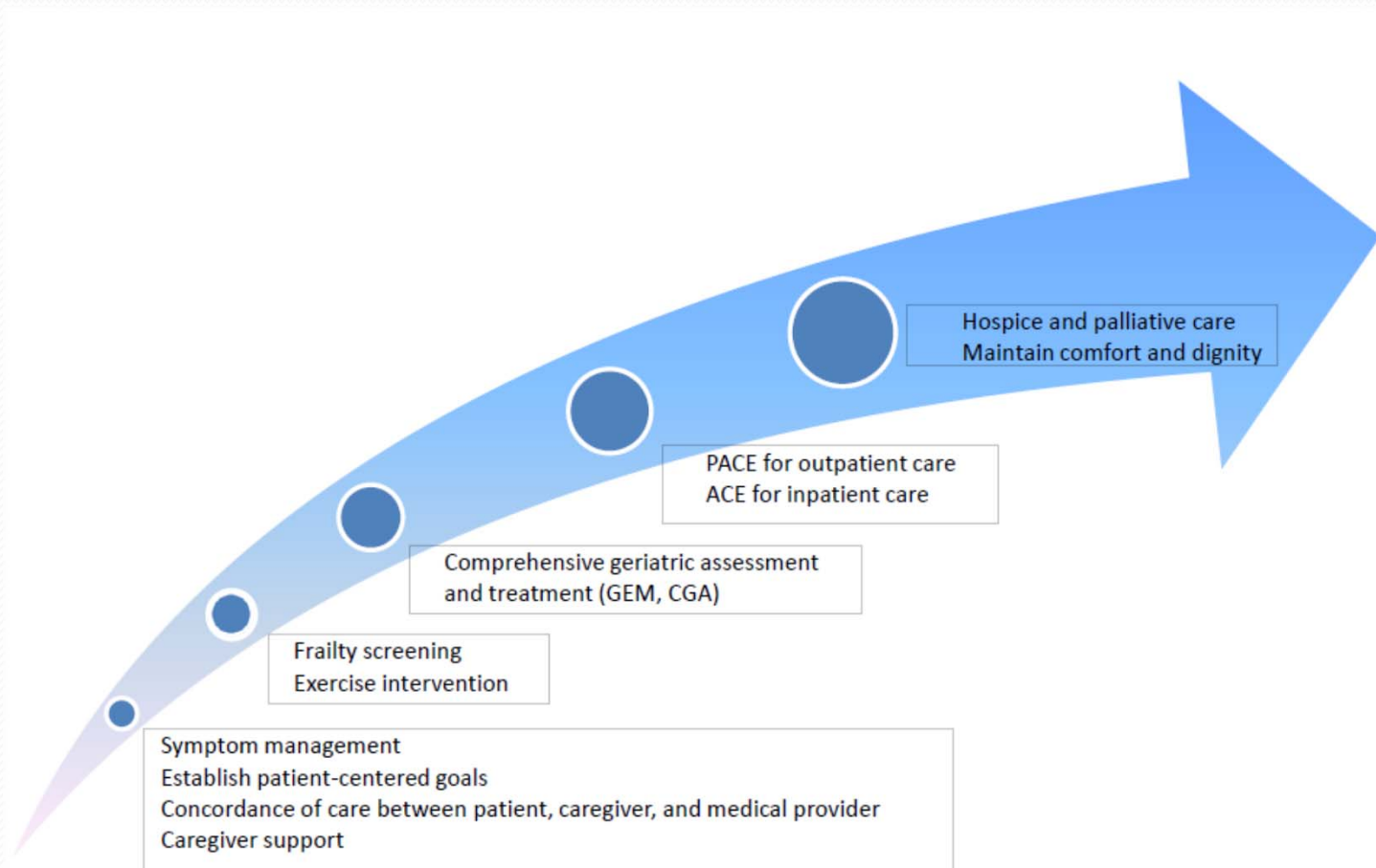
- Improve quality of life
- Prevent worsening chronic disease and functional decline
- Reduce risk for adverse or catastrophic outcomes
- Risk assessment to guide therapeutic options and goal setting



What Works Now?

- Risk assessment before surgery
- Exercise and nutrition
- Comprehensive, team based care programs for inpatients and outpatients
- Palliative care approaches (different than hospice...some times less is better given high risk of adverse outcomes)

Interventions for Frailty





Next Steps in Frailty Research and Integration into Clinical Practice

- Further integration of frailty screening tools into clinical practice
- Integration of biomarkers
- Use tool to identify those at highest risk of poor outcomes
- Alter treatment strategies depending on risk
- Develop new preventive strategies



Next Steps

- Engage Multidisciplinary teams around
 - biological etiologies
 - development of more specific tools with specific biological measures
 - clinical guideline development by subspecialists



Acknowledgments

JOHNS HOPKINS UNIVERSITY

✿ **OLDER AMERICANS** ✿

INDEPENDENCE CENTER

<http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-on-aging-and-health/oaic/>