

Aging Trends & Comprehensive Geriatric Assessment

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Professor

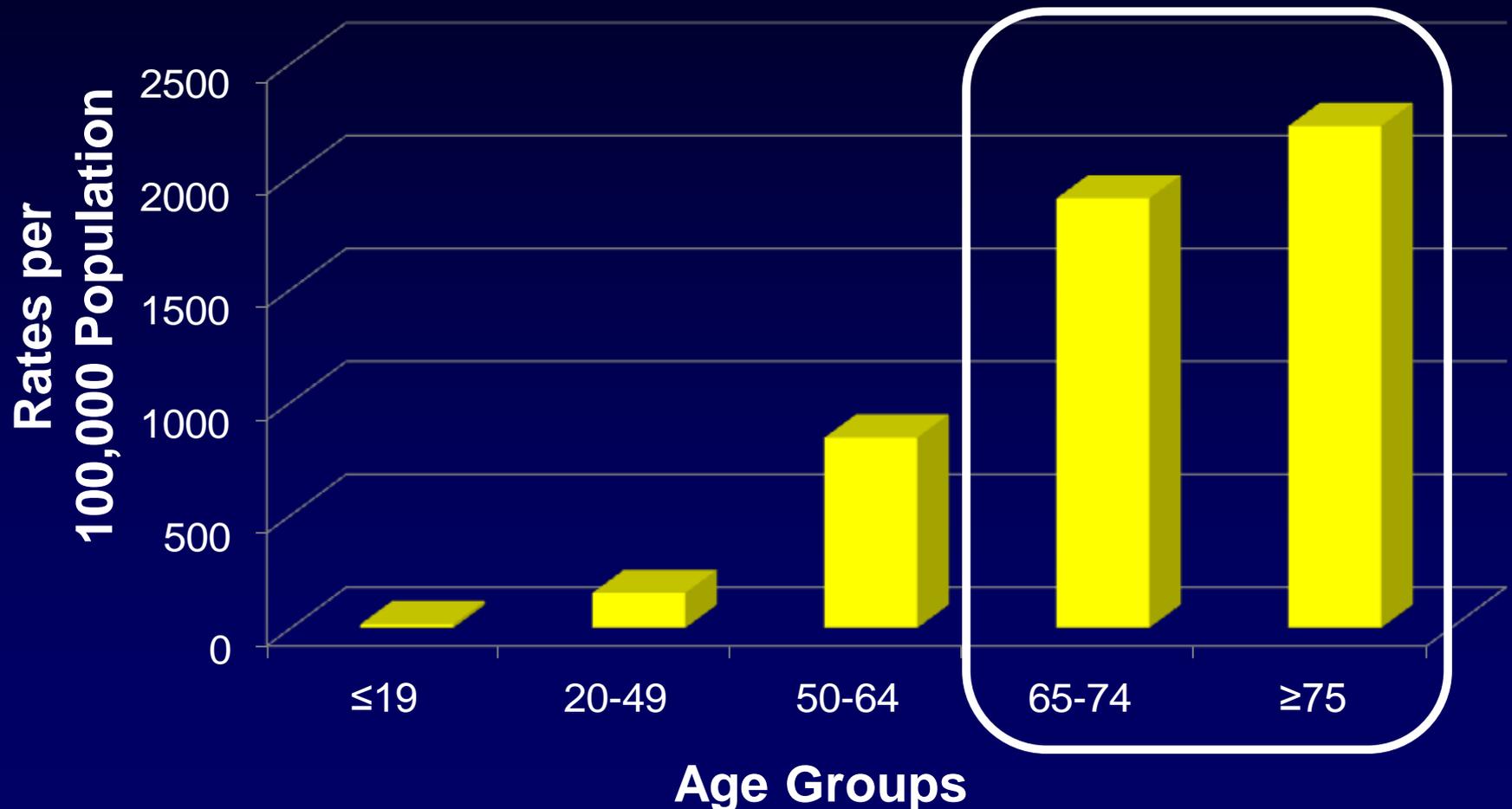
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NIH Award 1R25CA183723-01A1

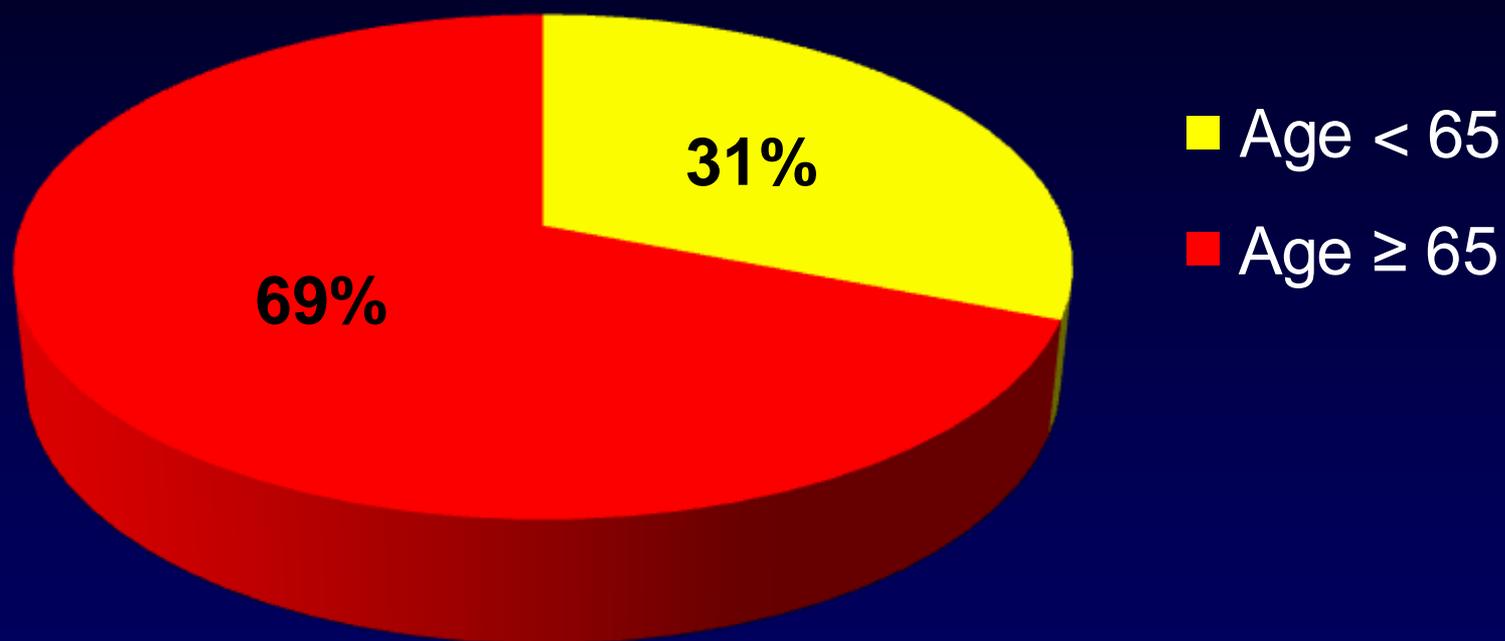


Cancer is a Disease Associated with Aging

60% of cancer occurs in people \geq age 65

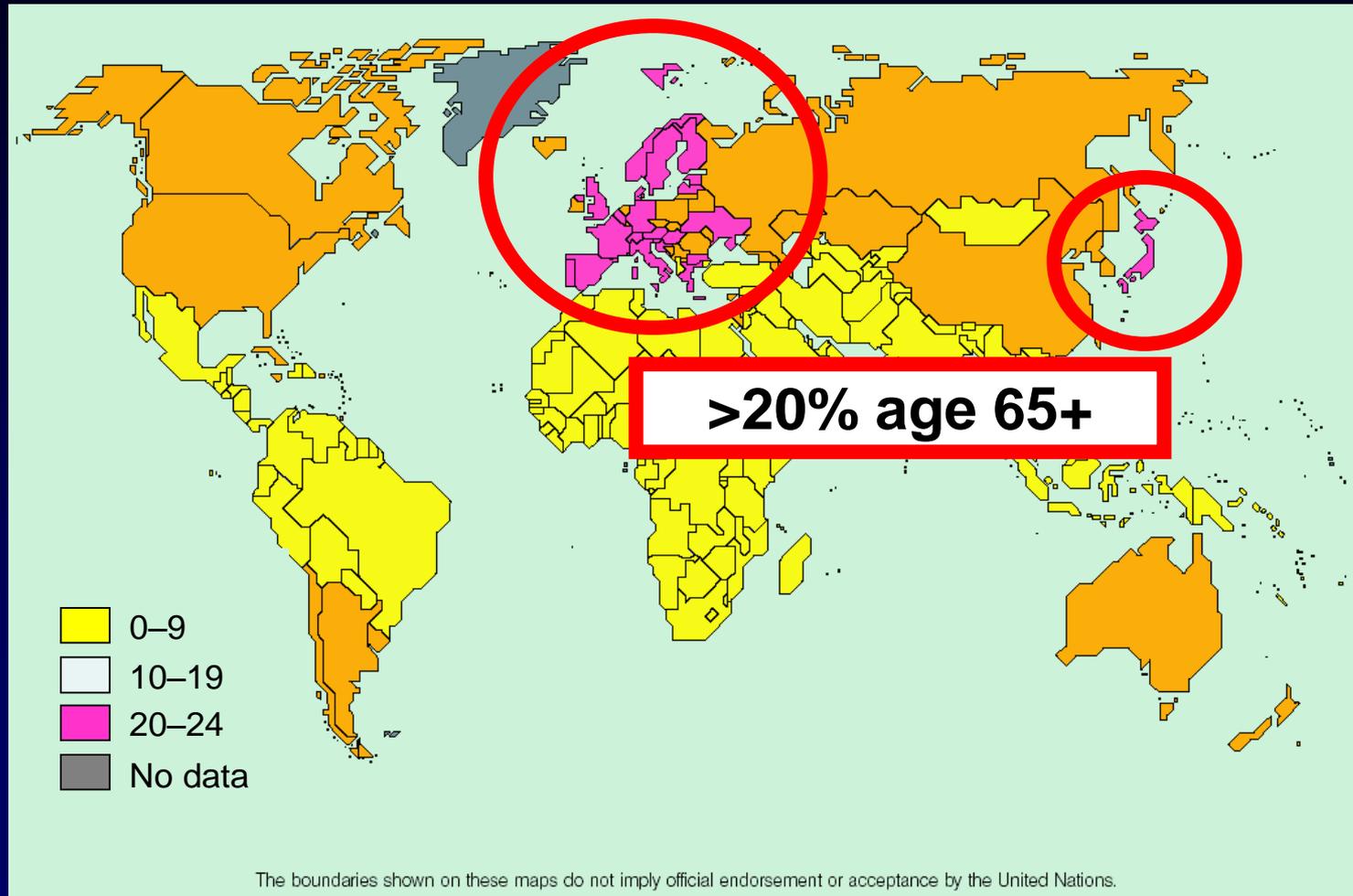


The Majority of Deaths from Cancer Occur in Individuals Age 65+

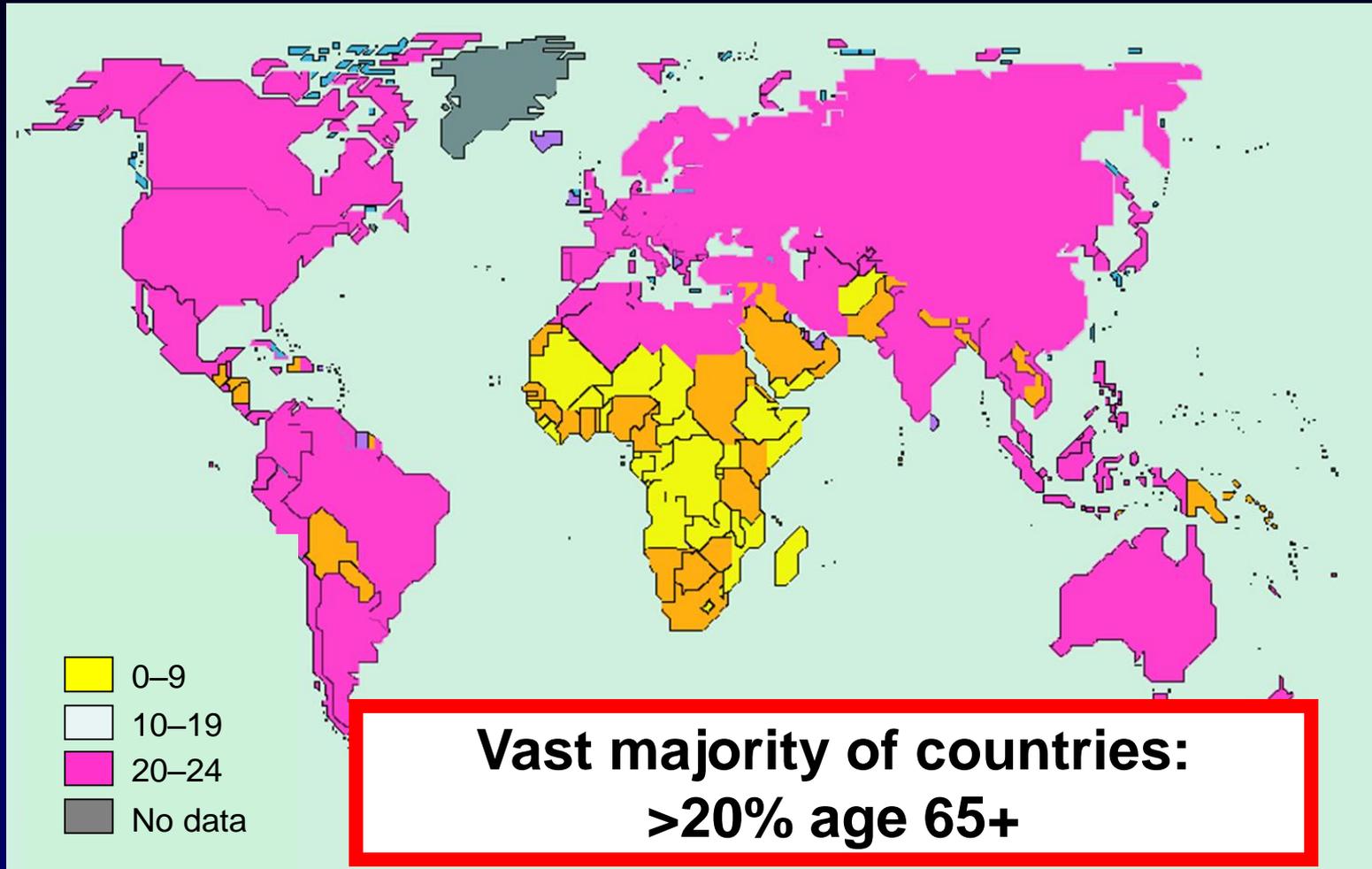


69% of Cancer Deaths Occur in Individuals Age \geq 65

The World-Wide Population is Aging 2002



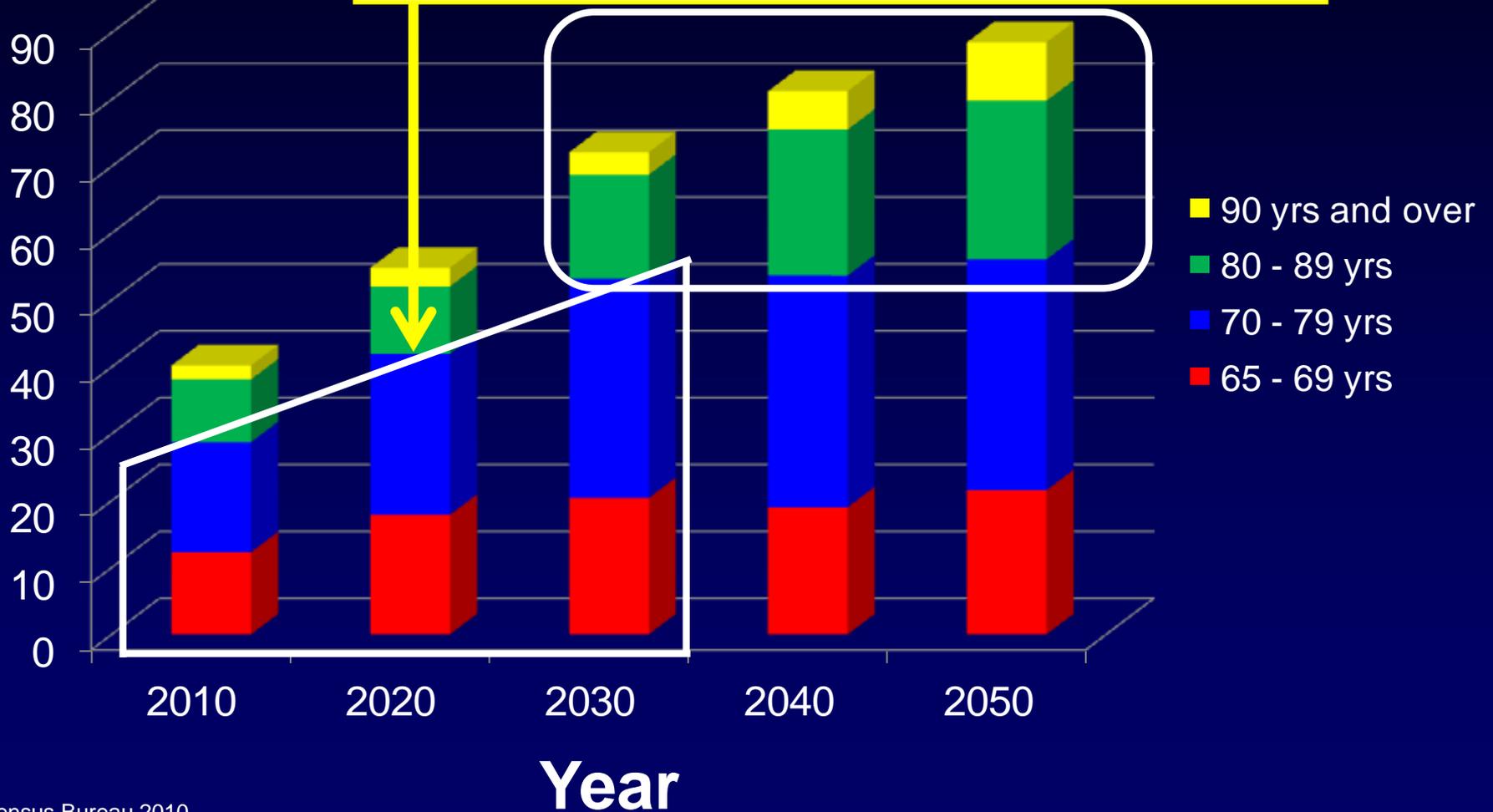
The World-Wide Population is Aging 2050



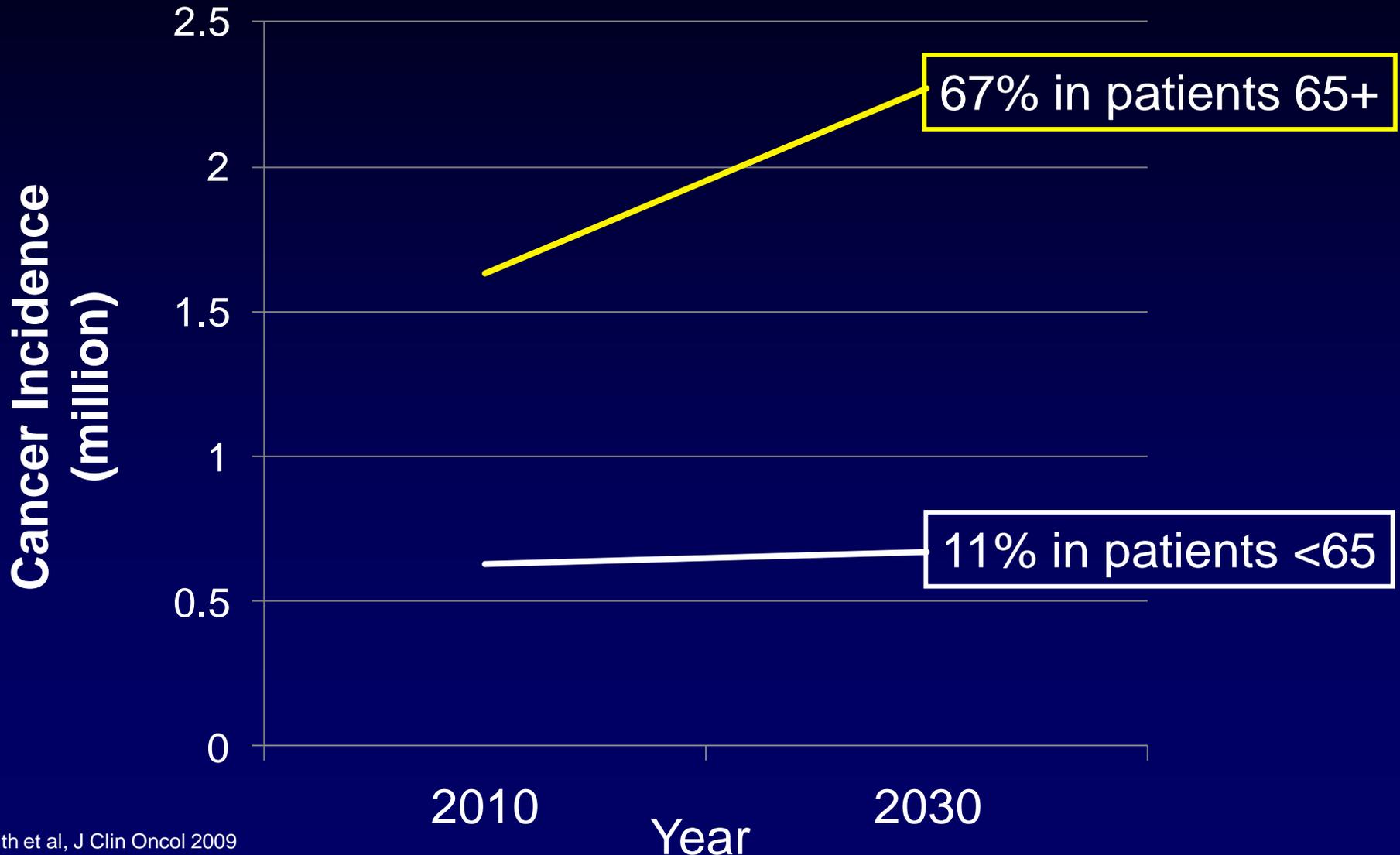
US Population Age ≥ 65 (millions)

2010-2020: Largest growth in the 65-69 age group

Shift in 2030: Largest growth in the 80+ age groups



Projected Rise in Cancer Incidence from 2010 to 2030



The Population is Aging

The Number of Older Adults With
Cancer is on the Rise



Are we prepared?

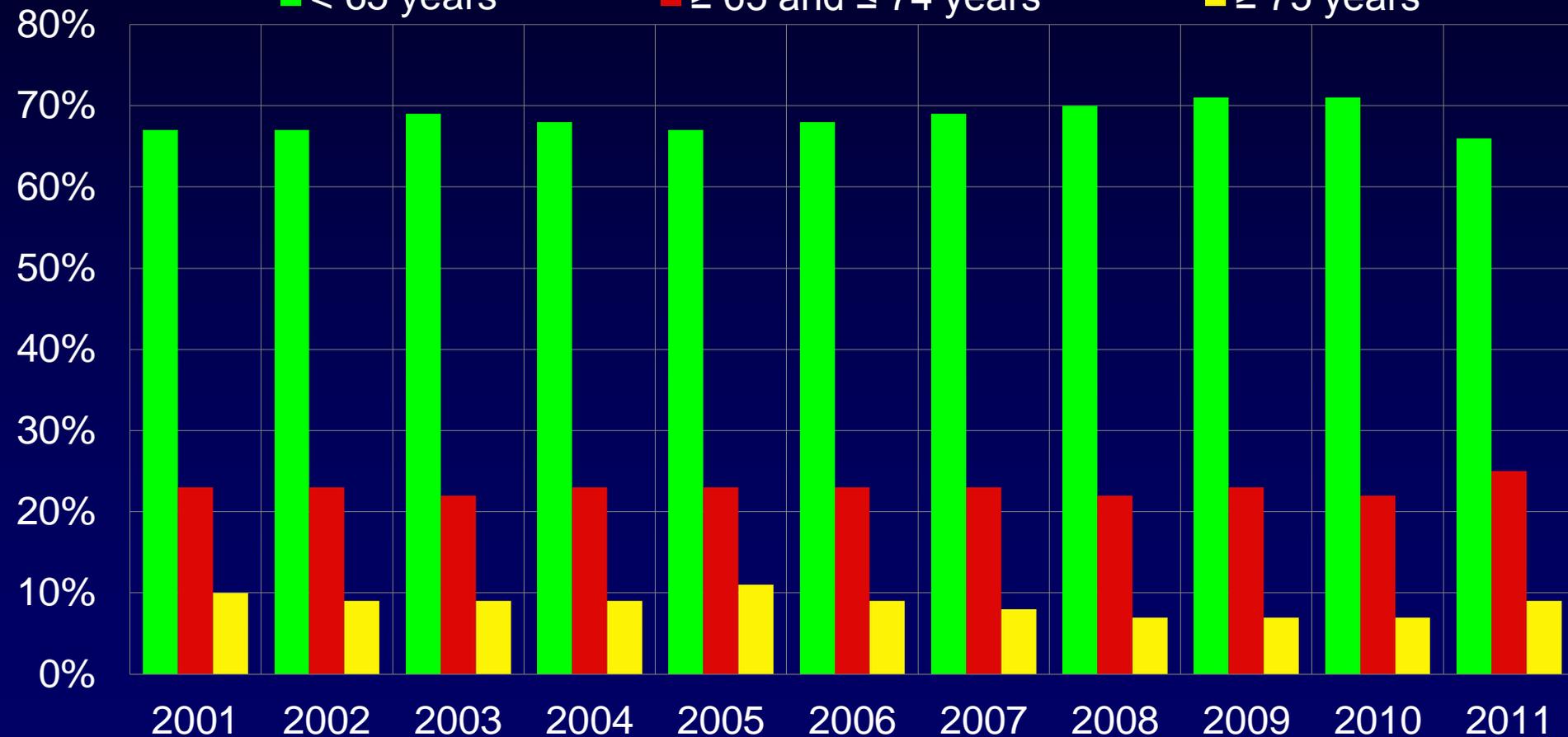
No Change in Overall Age Distribution in NCI Trials

Age Distribution in Phase 2 and Phase 3 NCI Cooperative Group Clinical Treatment Trial

■ < 65 years

■ ≥ 65 and ≤ 74 years

■ ≥ 75 years



Age 80 with High Risk Breast Cancer: What treatment will you recommend?



The Extra Challenge: The Ultimately Efficient Clinic

- Vitals Taken
- Patient in Gown
- Sitting on Exam Table



What is old?

65



Understanding the Grey

Factors other than chronological age that predict morbidity & mortality in older adults

- Functional status
- Comorbid medical conditions
- Cognition
- Nutritional status
- Psychological state
- Social support
- Medications (polypharmacy)

Geriatric
Assessment

Geriatric Assessment: Functional Status Activities of Daily Living (ADLs)

Basic self-care skills

Dressing

Bathing

Toileting

Transfer

Continence

Eating

Assistance with ADLs

Predictive of:

- Prolonged hospital stay
- Worsening of function in the hospital
- Greater home care use
- Nursing home placement
- Death

Functional dependence associated with ↓ survival:

Assistance in ≥ 1 ADLs: average life expectancy of < 3 yrs

Geriatric Assessment: Functional Status

Instrumental Activities of Daily Living

Higher order function

Required to maintain independence in the community

Shopping

Housekeeping

Transportation

Laundry

Telephone

Finances

Medications

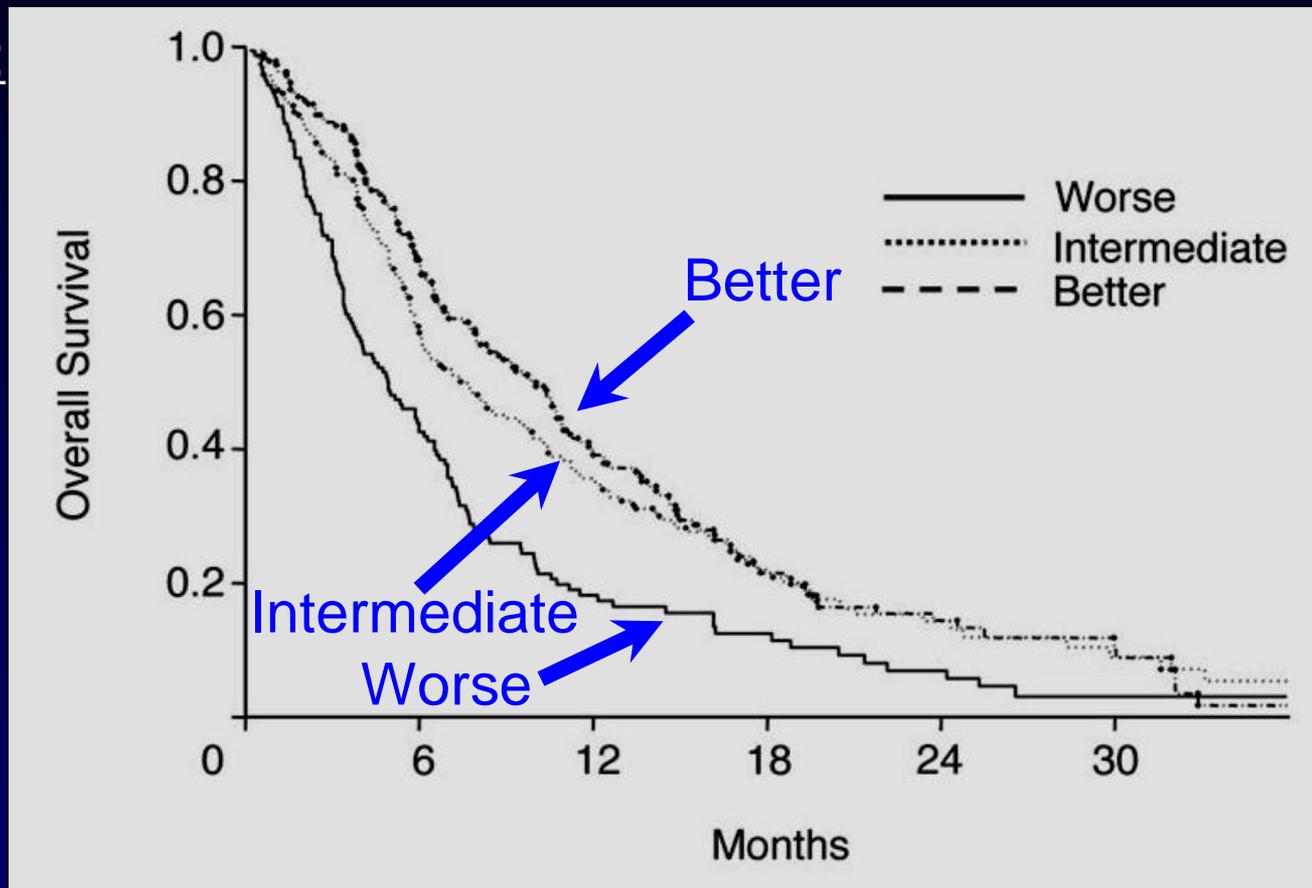
Assistance in IADLs

- Understanding need for assistance with IADLs is critical for cancer treatment planning:
 - Transportation
 - Medications
- Predicts survival in older patients with NSCLC

Assistance with IADLs → Worse Survival in Patients with Lung Cancer

Categories of IADLs:

- Better:
Score of 100%
- Intermediate:
Score of 51-99%
- Worse:
Score of 0-50%



Poorer Functional Status → Risk of Mortality and Institutionalization

- Longitudinal Study on Aging
- 7527 Participants
- Age 70 years and older
- Measures of Functional Status:
 - Activities of Daily Living
 - Instrumental Activities of Daily Living
- Nursing Home Placement and Mortality

Need for Functional Assistance → Future Institutionalization & Mortality

Follow- Up (1990)

	Odds Ratio	
	Risk of Institutionalization (95% CI)	Risk of Mortality (95% CI)
Baseline: Functional Status (1984)		
IADL Assistance	6.7 (4.6, 9.6)	6.6 (5.1, 8.6)
ADL Assistance (Moderate)	9.8 (6.8, 14.0)	8.6 (6.6, 11.0)
ADL Assistance (Severe)	17.0 (9.1, 32.0)	30.0 (18.0, 45.0)

Geriatric Assessment: Comorbidity

Definition:

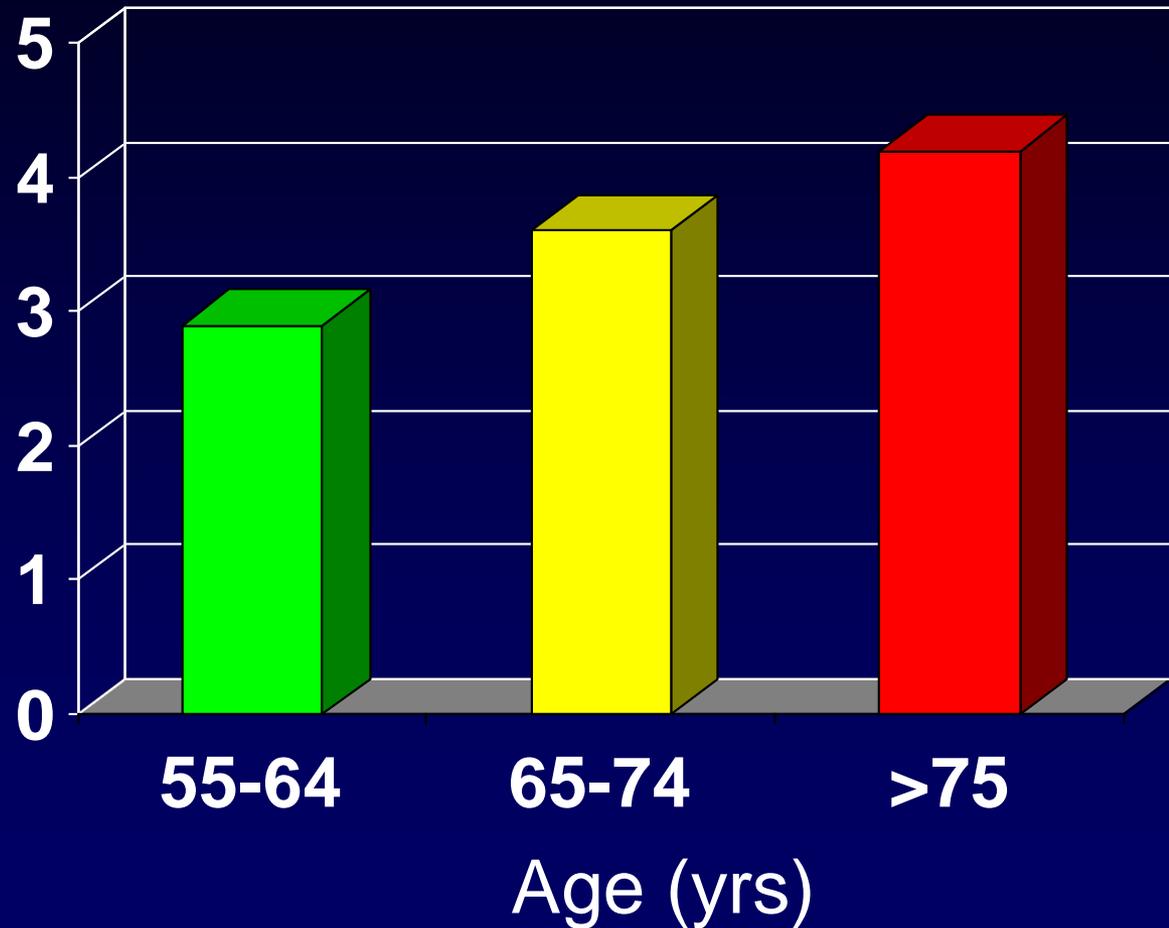
Concurrent, independent health condition which may be a predictor of survival and resource requirements

Questions:

- 1) Is the patient going to die from cancer or another medical problem?
- 2) Will another medical problem limit the ability to tolerate chemotherapy?

Comorbidity Increases with Age

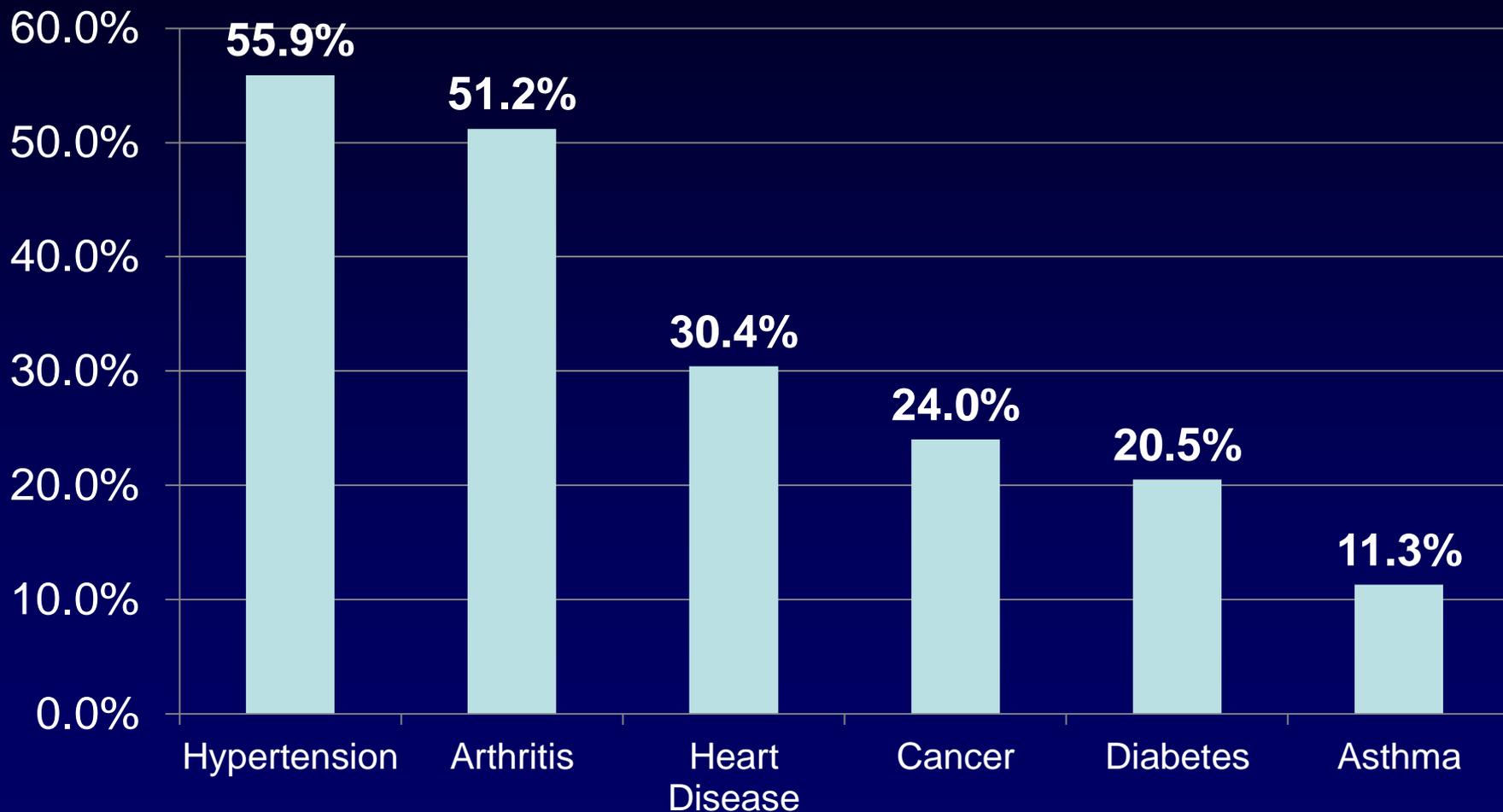
Number of
Comorbidity



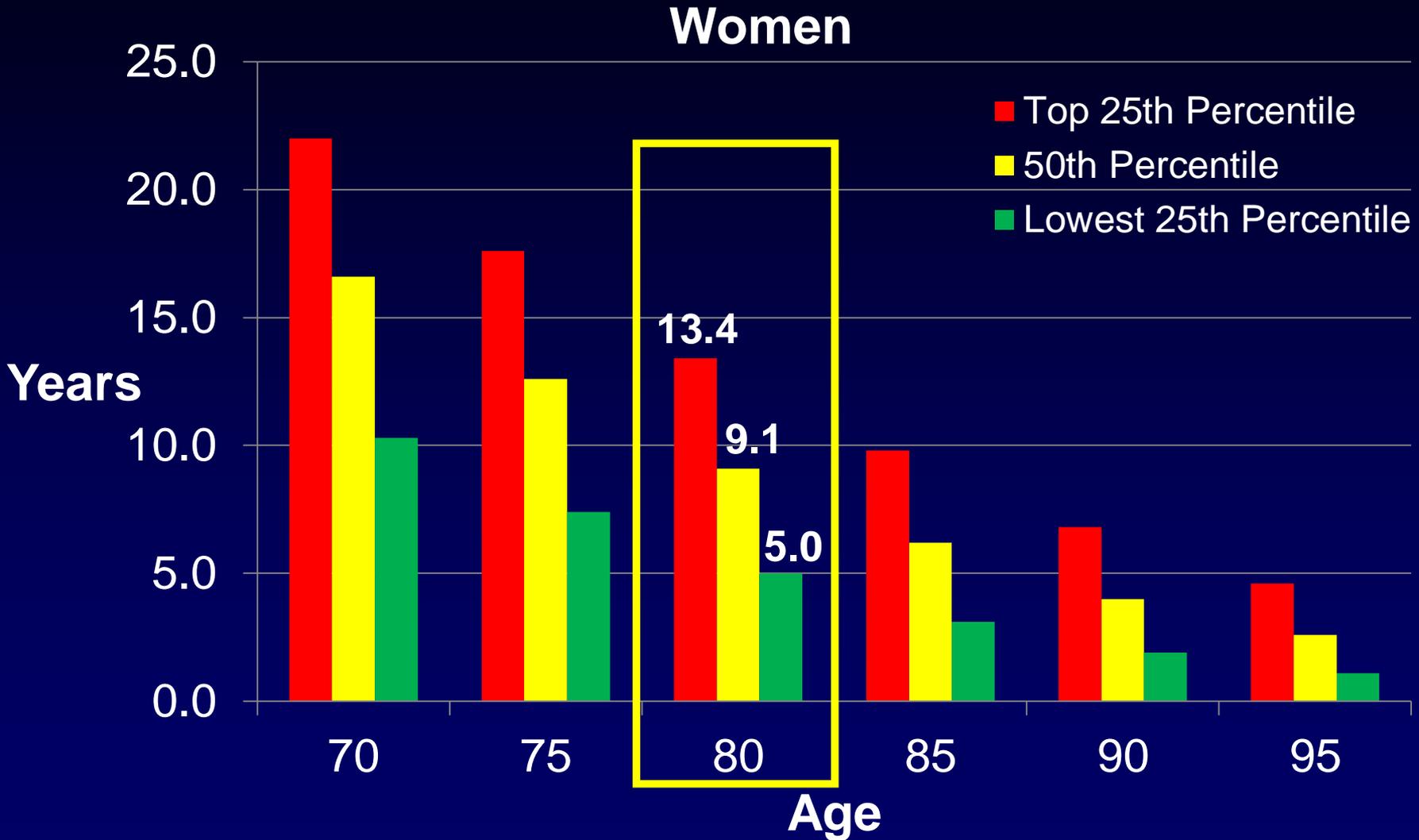
Chronic Health Conditions

People age 65 and over

Chronic Conditions in Older Adults



Life Expectancy



Geriatric Assessment: Nutrition

Definition:

Involuntary weight loss $>5\%$ body weight over 6 months

Older patient at risk:

- Decreased total caloric intake
- Progressive impairment in sense of taste or smell
- Difficulty chewing
- Difficulty with availability or preparation of meals

Geriatric Assessment: Nutrition

Body Mass Index (BMI)

$$\text{BMI} = \frac{\text{Weight}}{(\text{Height})^2}$$

BMI < 22kg/m²:

predictor of subsequent mortality from all causes

Cognitive Function in Older Patients: Implications for Cancer Therapy

Evaluate cognition and social support before starting:

- Ability to follow complex directions
- Ability to take medications on schedule
- Ability to recognize toxicity and seek help
- Family member to help

Does the Patient Have Decision Making Capacity?

Four Components to Assessing Capacity

1. Understands the relevant information
2. Appreciate their situation
3. Uses reason to make a decision
4. Communicates their choice

Geriatric Assessment: Psychosocial Evaluation

Older patients may cope better:

- Fewer competing demands
- Different health expectations
- More experience with coping with stress

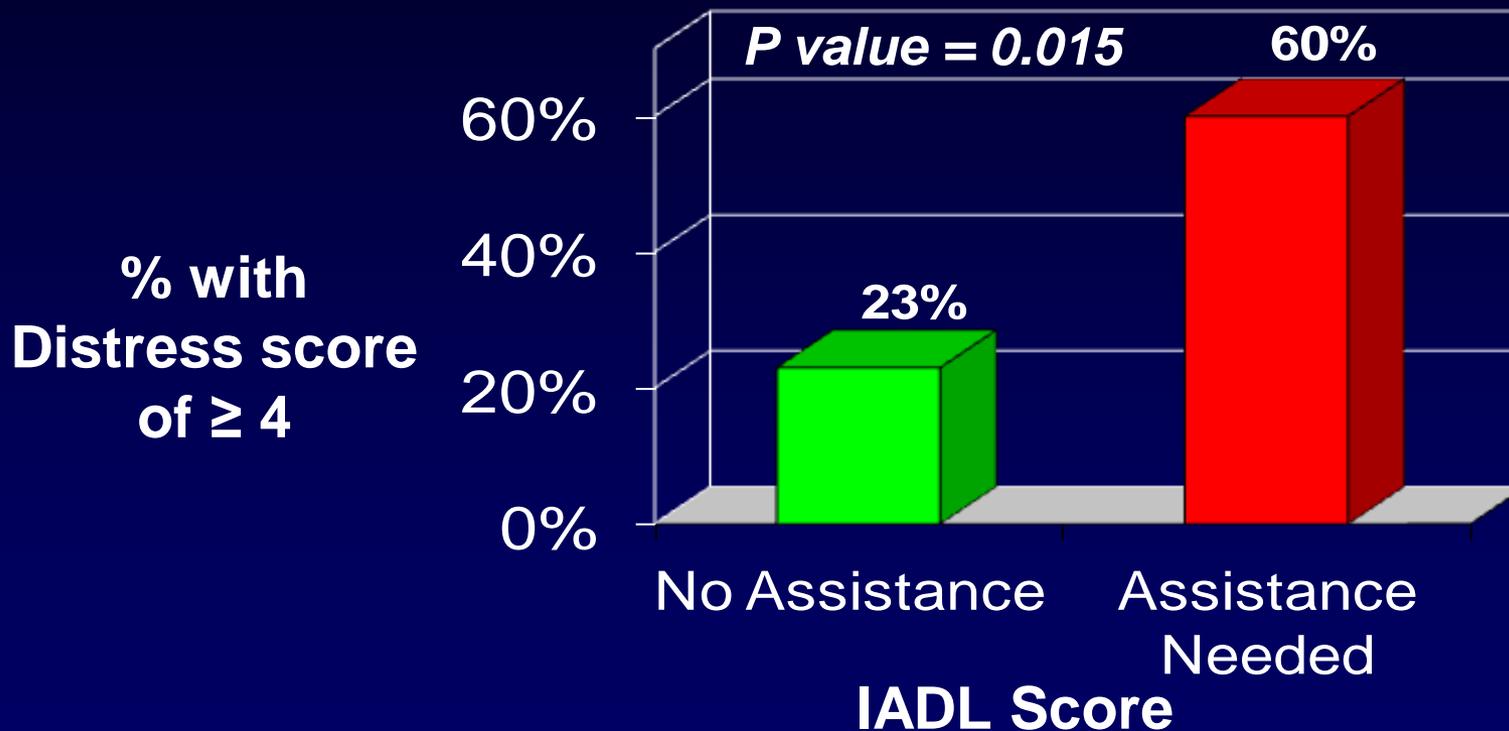
Geriatric Assessment: Psychosocial Evaluation

Correlation between social support & psychological state



Loss of Physical Function Predicts Distress in Older Adults with Cancer

- 250 older adults with cancer completed a geriatric assessment

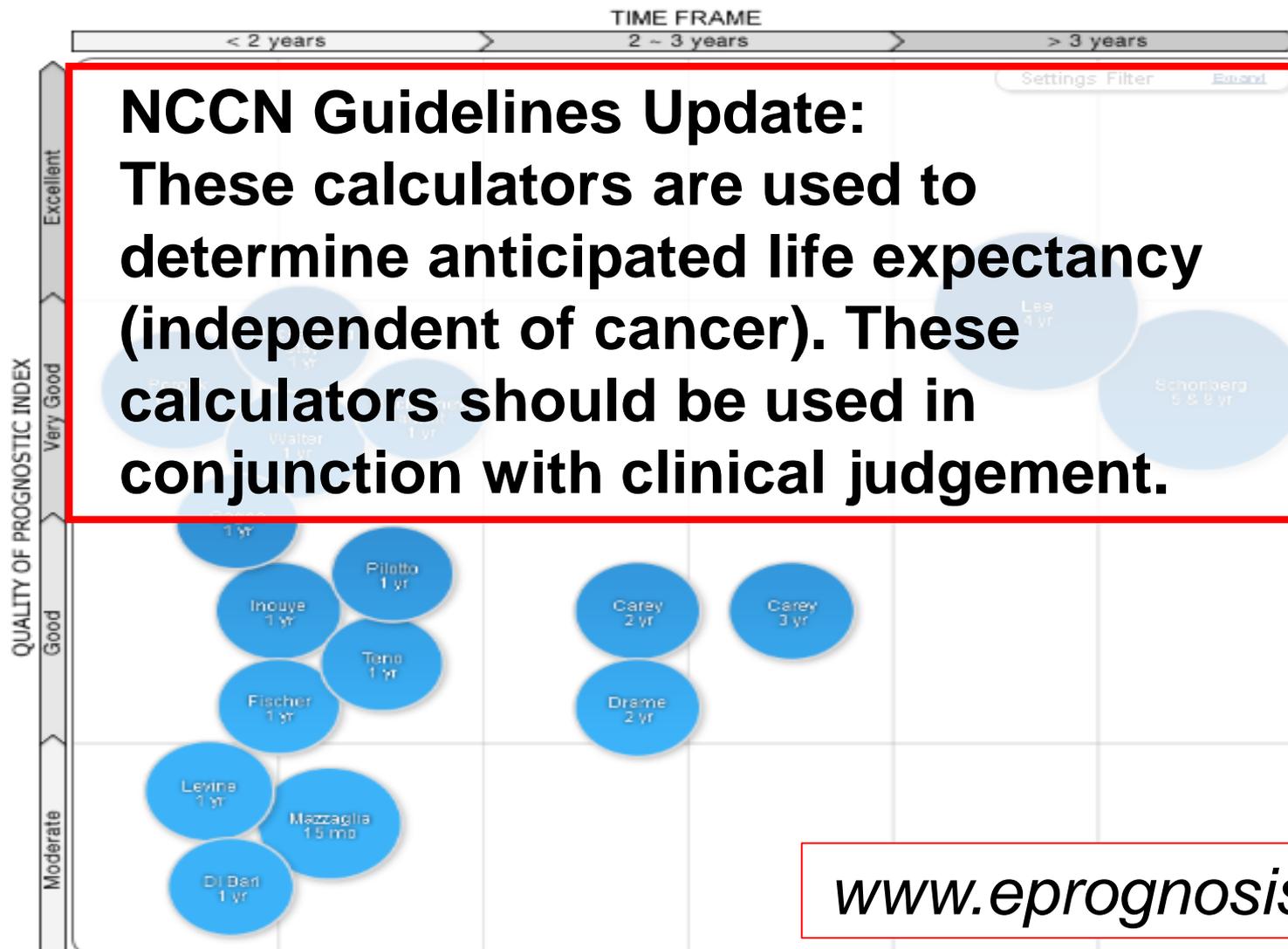


Greatest predictor of distress is impaired physical function

Prognostic Index for Mortality

Mortality →	1-yr (Walter)	4-yr (Lee)	90 day & 2-yr (Inouye)
Function	X	X	X
Comorbidity	X	X	
Cognition			X
Depression			X
Age		X	
Sex	X	X	
Labs (Cr, Alb)	X		

Each bubble represents a prognosis calculator. Click on a bubble to view the calculator.



Incorporating Geriatric Assessment into Oncology Care

Developing a Geriatric Assessment for Oncologists

- **Functional Status:**

- Activities of Daily Living (subscale of MOS Physical Health)
- Instrumental Activities of Daily Living (subscale of the OARS)
- Karnofsky Performance Rating Scale
- Timed Up & Go
- Number of Falls in Last 6 Months

- **Comorbidity:** Physical Health Section (subscale of the OARS)

- **Cognition:** Blessed Orientation-Memory-Concentration Test

- **Psychological:** Hospital Anxiety and Depression Scale

- **Social Functioning:** MOS Social Activity Limitations Measure

- **Social Support:**

- MOS Social Support Survey: Emotional and Tangible Subscales
- Seeman and Berkman Social Ties

- **Nutrition:**

- Body Mass Index
- % Unintentional Weight Loss in the Last 6 Months

- Validity

- Reliability

- Length

- Time to complete

- Ability to self-administer

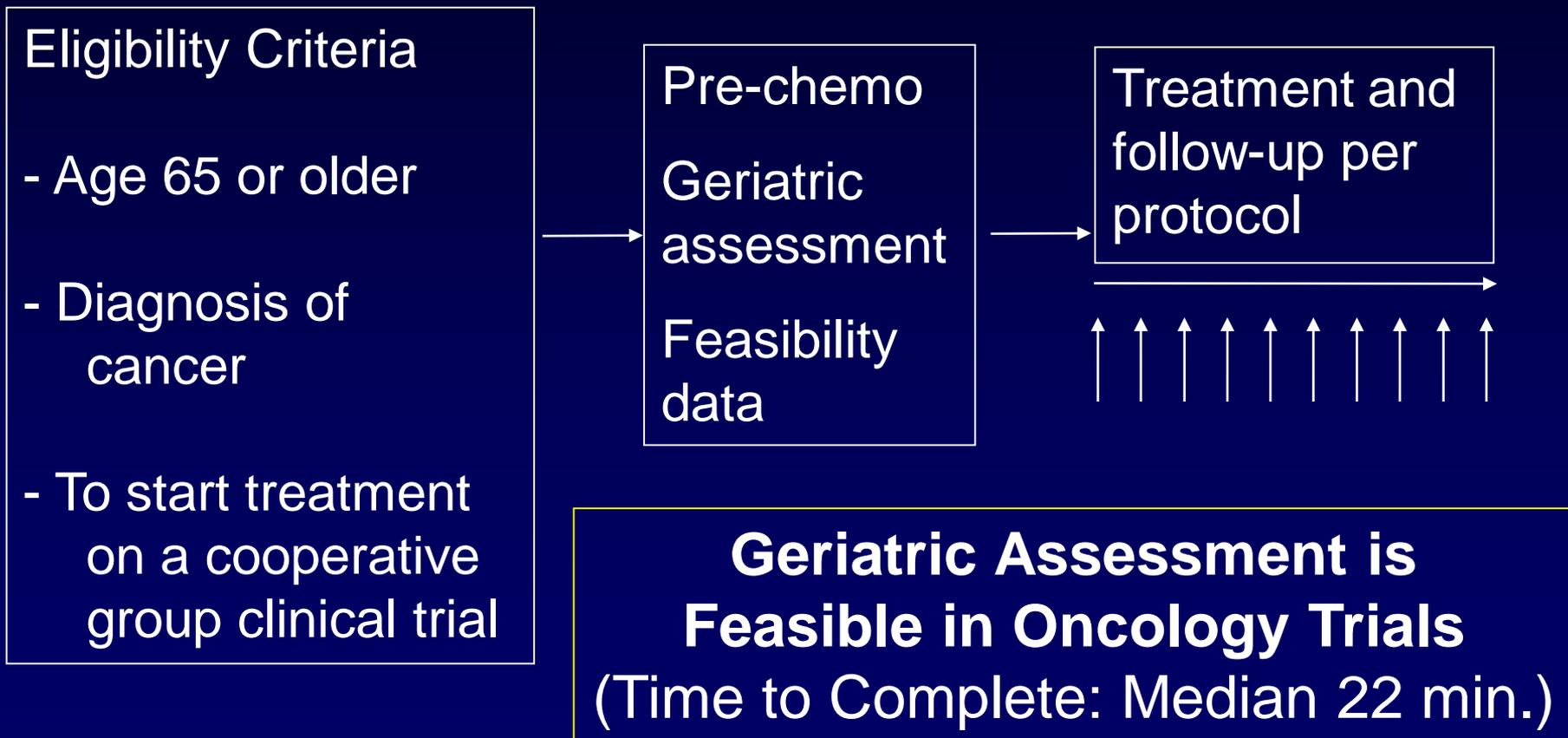
- Multidisciplinary input

- Alliance Cancer in Elderly Committee

Geriatric Assessment is Feasible

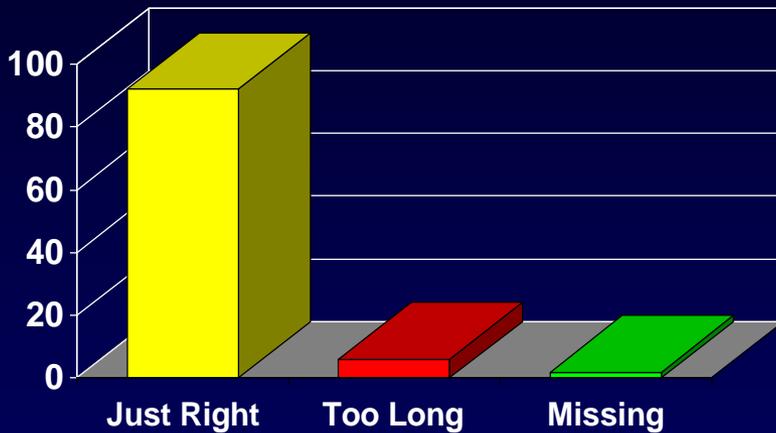
CALGB 360401 (PI: Hurria)

Primarily self-administered (Paper/Pencil)

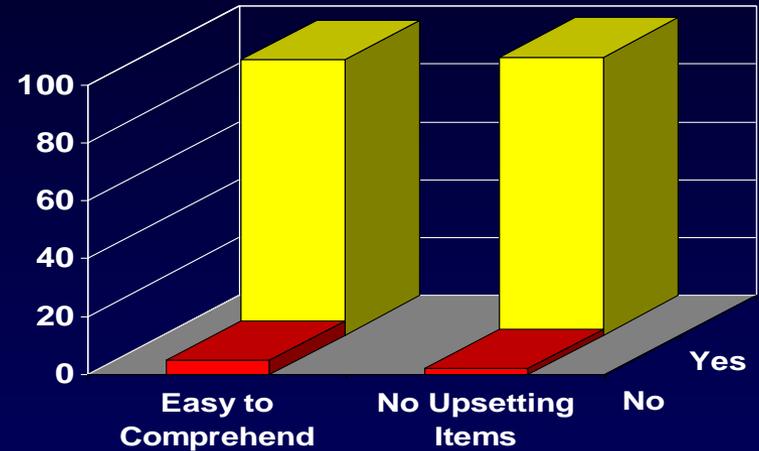


Geriatric Assessment Questions are Acceptable to Patients

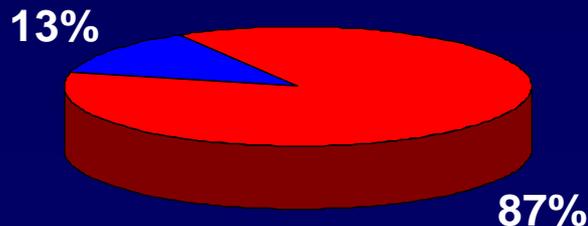
92% Length is "Just Right"



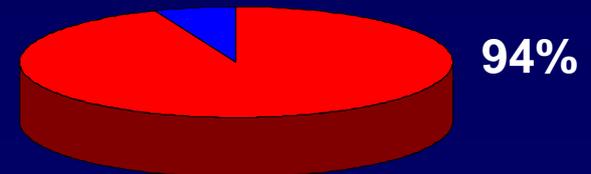
95% Easy to comprehend
96% Not upsetting



87% Completed patient questionnaire w/o assistance



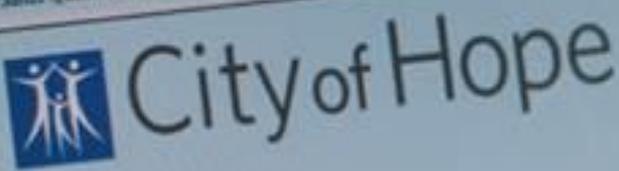
94% Completed healthcare provider portion



Development of a Touchscreen Geriatric Assessment

COH IRB#08147 (PI: Hurria)





Can the patient go shopping for groceries or clothes (assuming subject has transportation)...



without help (taking care of all shopping needs on his/her own, assuming the patient had transportation)



with some help (needs someone to go with the patient on all shopping trips)



is he/she completely unable to do any shopping



Prefer not to answer



Do not know

Can the patient prepare his/her own meals...



without help (can't cook and...



with some help (can prepare some things...



is he/she completely unable to prepare any meals



Prefer not to answer



Do not know

GERIATRIC ASSESSMENT TOOLS

Geriatric Assessment Tool

A geriatric assessment is utilized to capture information about a patient's medical history as well as functional, cognitive, and psychosocial status, which can then be used by treating physicians to identify the most vulnerable patients (for example, those at high risk for chemotherapy toxicity). However, these assessments have not been routinely used in oncology practice because of the time and resources required for their administration. A geriatric assessment tool (that can be completed primarily by patients) was developed for incorporation into oncology clinical trials and routine care settings.^{1,2} The domains that are assessed include functional status, comorbidities, medications, nutritional status, cognitive function, and psychosocial status.

Please click on the below for more information regarding the geriatric assessment tool:

¹[Hurria et al. Cancer 2005](#)

²[Hurria et al. JCO 2011](#)

[Geriatric Assessment \(Patient\) - English](#)

[Evaluación Geriátrica \(Paciente\) - Español](#)

[老人評估 \(患者\) - 中文](#)

[Geriatric Assessment \(Healthcare Team\) - English](#)

The Chemo-Toxicity Calculator

The Chemo-Toxicity Calculator is a pre-chemotherapy assessment that captures sociodemographics, tumor/treatment variables, laboratory test results (hemoglobin, creatinine clearance), and geriatric assessment variables (function, comorbidity, cognition, psychological state, social activity/support, and nutritional status). The Chemo-Toxicity Calculator is based on the results of a study which enrolled 500 patients across seven participating institutions, in order to identify factors that predict risk of severe chemotherapy-related side effects in older adults with cancer ([Hurria et al. JCO 2011](#)). The results from this study were identified by the American Society of Clinical Oncology's as one of the Clinical Cancer Advances in 2012. Having this predictive model that incorporates geriatric and oncologic correlates of vulnerability to chemotherapy toxicity in older adults could help both the healthcare provider and the patient weigh the benefits and risks of chemotherapy treatment. Our ultimate goal is to utilize this Chemo-Toxicity Calculator in clinical practice, where it can be used as a part of shared decision-making.

[Chemo Toxicity Calculator](#)

Benefits of Geriatric Assessment in Older Patients with Cancer

- Uncover problems not detected by routine H&P
- Predict toxicity to cancer treatment
- Predict survival of older patients with cancer
- Leads to targeted interventions

Hurria et al. JCO 2011

Maione et al. JCO 2005

Repetto et al. JCO 2002

Poon et al. JCO 2011

Rao et al. J Gerontol A Biol Sci 2005

Extermann et al. Cancer 2012

Thank you!

