When do we have enough evidence to intervene in cancer patients?

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Outline of Presentation

- Who are we concerned about?
- What are their needs, concerns and goals?
- Health promotion and disease prevention is an important goal for cancer survivors
- How much evidence do we need to act?

Who are we concerned about?

Who are the Cancer Survivors?

- More than 1 in 3 Americans will be diagnosed with cancer in their lifetime
- 12 million Americans have a personal history of cancer; nearly 4% of US population
- More than 25 million people are survivors world wide
- The number of cancer survivors will increase sharply during the next 25 yrs with aging of the population

Aging & the Cancer Epidemic

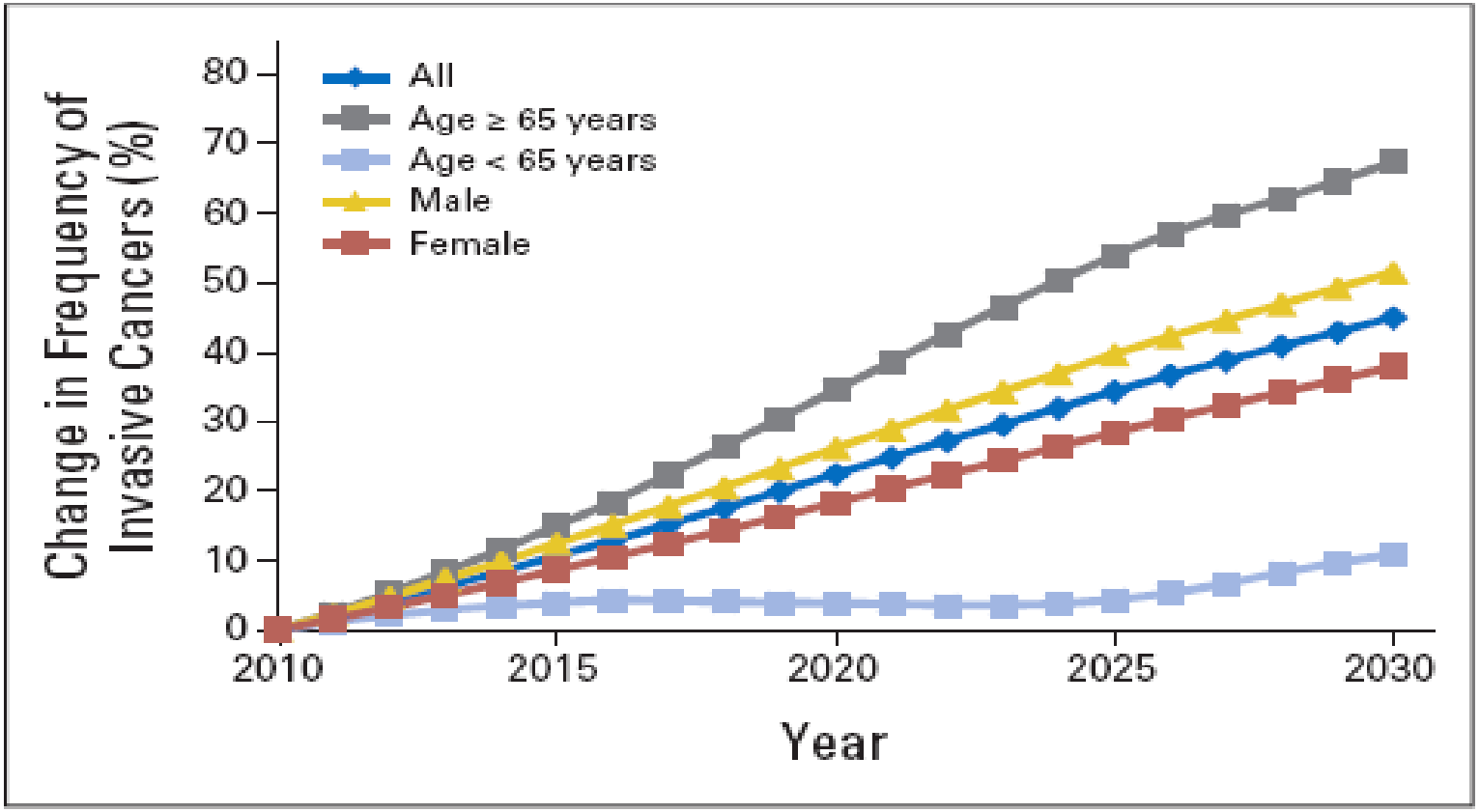


Fig 1. Projected change in frequency of invasive cancers in the United States by age and sex. Nonmelanoma skin cancers were excluded from projections. Data adapted.[7]

Pal & Hurria, JCO, 2010

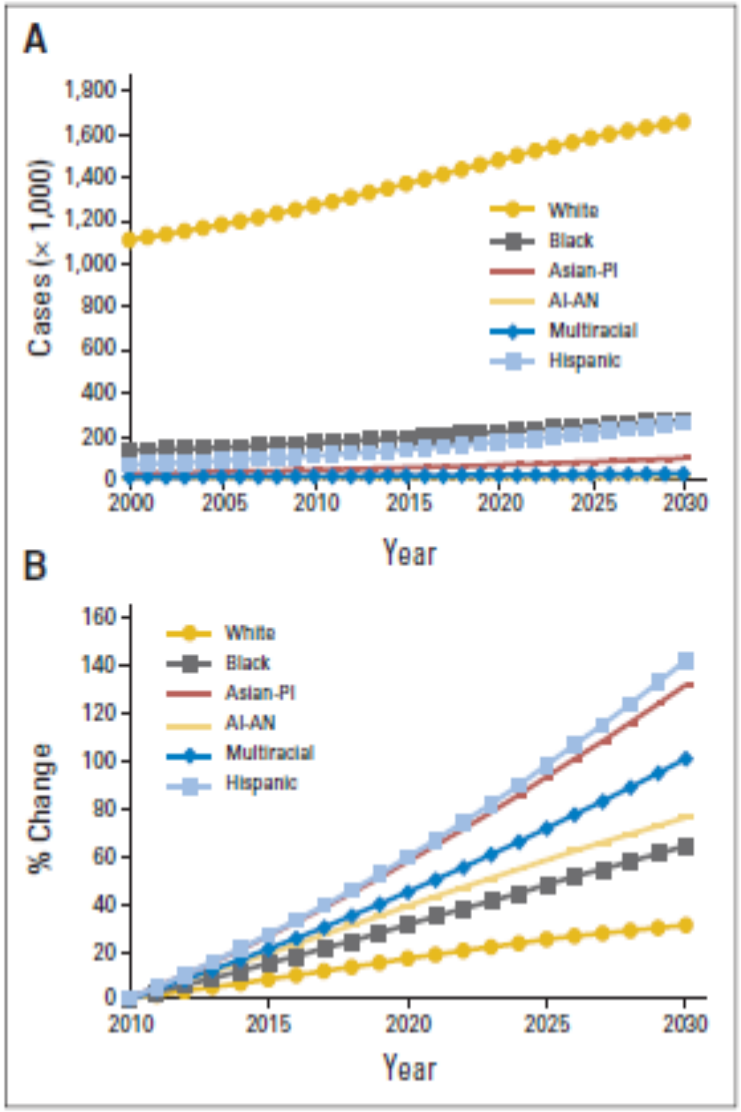


Fig 5. Projected cases of all invasive cancers in the United States by race and origin. (*) Nonmelanoma skin cancers were excluded from projections. The Hispanic origin group contains individuals of any race. The race groups white, black, Asian/Pacific Islander (PI), American Indian (AI)/Alaska Native (AN), and multiracial contain only non-Hispanic individuals.

- From 2010-30, total US cancer incidence will increase from 1.6 to 2.3 million
- Increase is driven by the aging of the population (67% increase from older adults vs. 11% in younger adults)
- A 99% increase is anticipated for minorities, compared with 33% for whites
- Percentage of all cancers diagnosed in minorities will increase from 21% to 28%

Smith et al, JCO, 2009

Cancer Survivor Facts

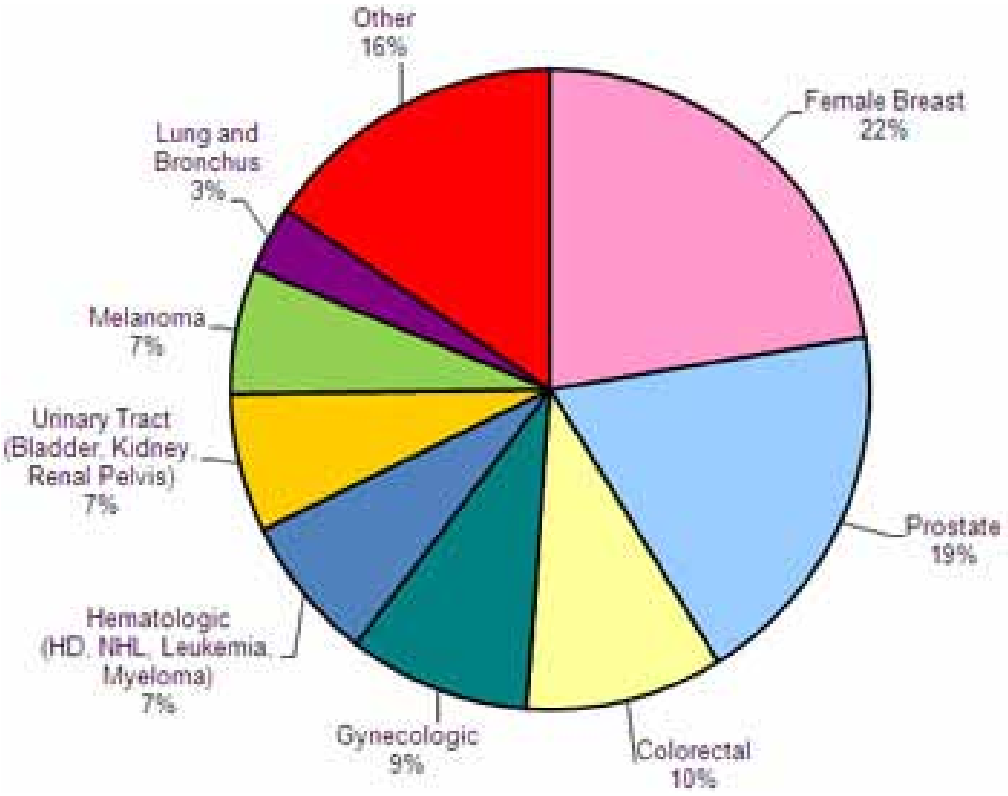
- ü 60% of survivors are currently over the age 65 years.
- ü Breast, Prostate, and Colorectal, are the 3 most prevalent cancer sites.
- ü Approximately 14% of the 12 million estimated cancer survivors were diagnosed over 20 years ago.
- ü The current average age of male and female cancer survivors is 69 and 64 respectively.

Trends in Five-year Relative Survival (%)* Rates, US, 1975-2003

Site	1975-1977	1984-1986	1996-2003
All sites	50	54	66
Breast (female)	75	79	**89**
Colon	51	59	65
Leukemia	35	42	50
Lung and bronchus	13	13	16
Melanoma	82	87	**92**
Non-Hodgkin lymphoma	48	53	**64**
Ovary	37	40	45
Pancreas	2	3	5
Prostate	69	76	**99**
Rectum	49	57	66
Urinary bladder	74	78	**81**

***5-year relative survival rates based on follow up of patients through 2004.**
Source: Surveillance, Epidemiology, and End Results Program, 1975-2004, Division of Cancer Control and Population Sciences, National Cancer Institute, 2007.

Survivors by Cancer
Invasive /1st Primary Cases Only
(N = 11.1 million)



SEER Nov 2007

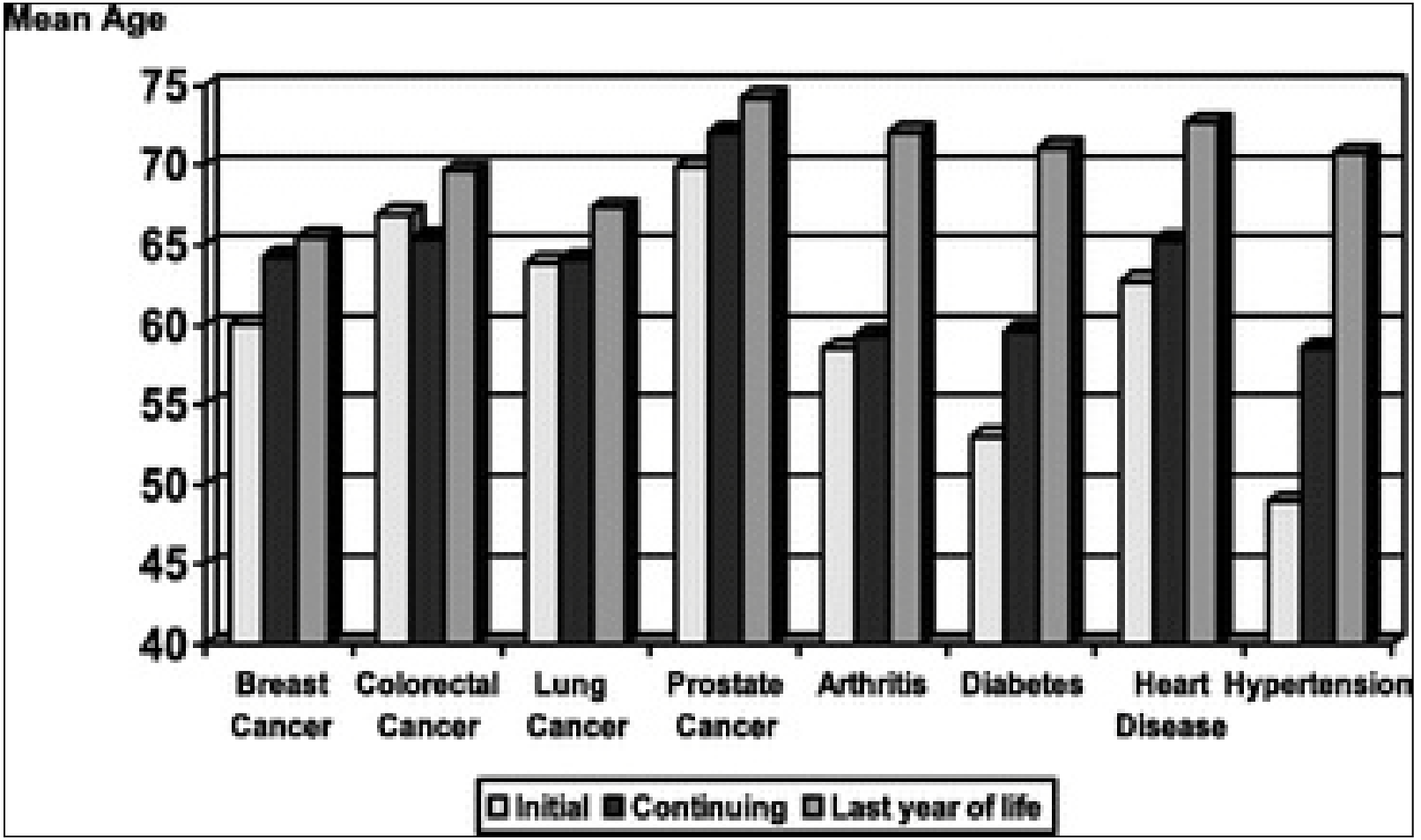
Burden of Cancer: Targets for Prevention

- 1.5 million new cancer diagnoses each year
- 12 million cancer survivors
- 15% of new cancer diagnoses are in cancer survivors
- ***Cancer survivors are a high risk population and should be the target of cancer prevention activities!***

What is the impact of comorbid conditions on survival after cancer?

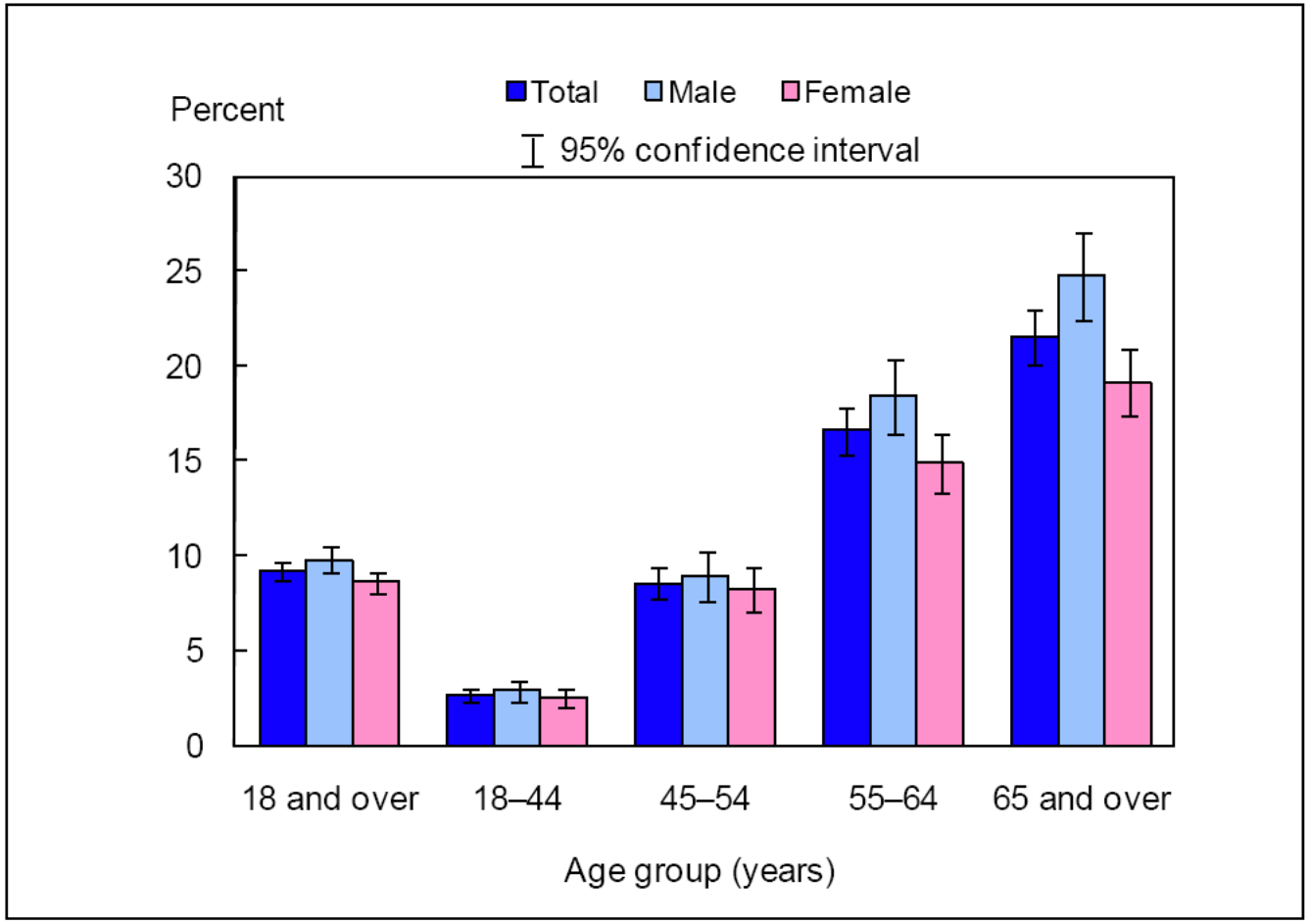
Examining the Interaction of Age, Comorbidity, and Cancer

Mean Age by Phase of Care for Cancer and Comorbid Conditions



Yabroff, Med Care, 2007 using NHIS Data

Figure 14.2. Prevalence of diagnosed diabetes among adults aged 18 years and over, by age group and sex: United States, 2010



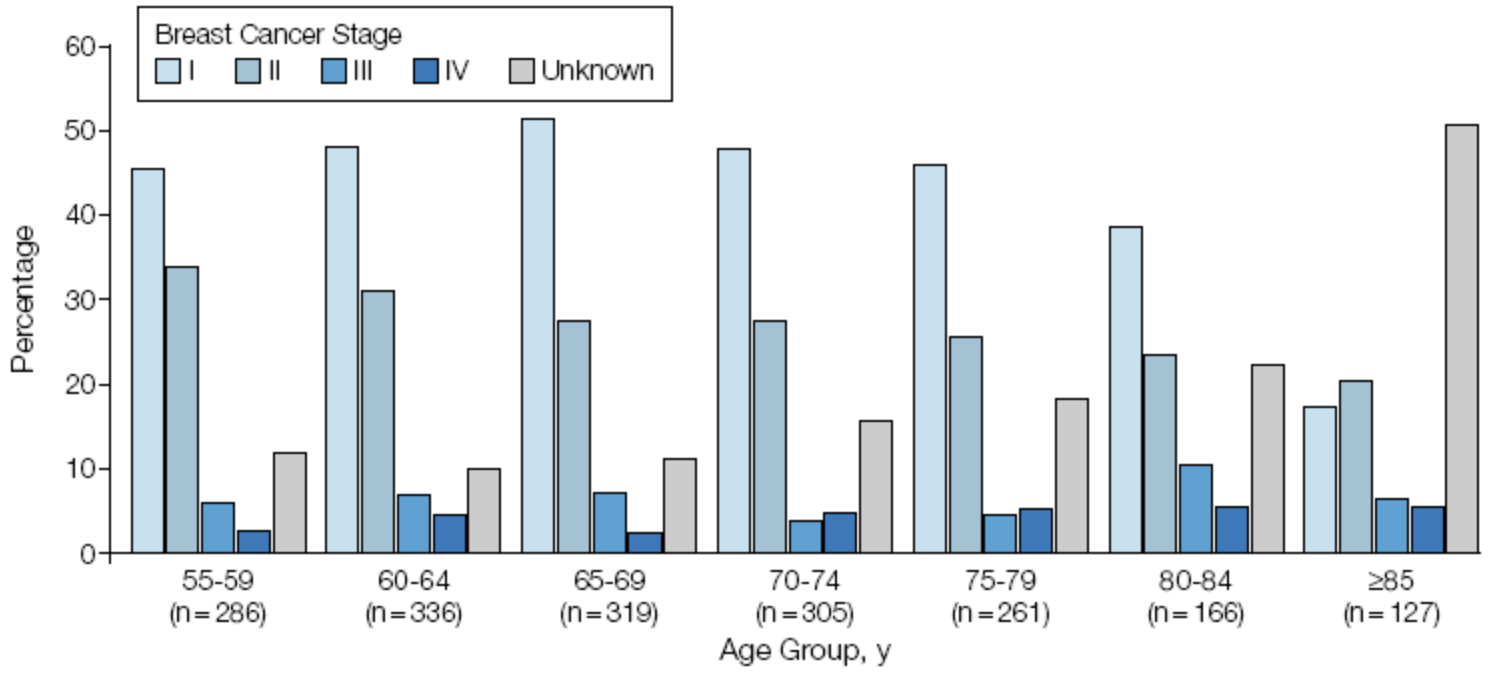
NOTES: Prevalence of diagnosed diabetes is based on self-report of ever having been diagnosed with diabetes by a doctor or other health professional. Persons reporting "borderline" diabetes status and women reporting diabetes only during pregnancy were not coded as having diabetes in the analyses. The analyses excluded 17 persons (0.1%) with unknown diabetes status.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2010, Sample Adult Core component. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Effect of Age and Comorbidity in Postmenopausal Breast Cancer Patients Aged 55 Years and Older

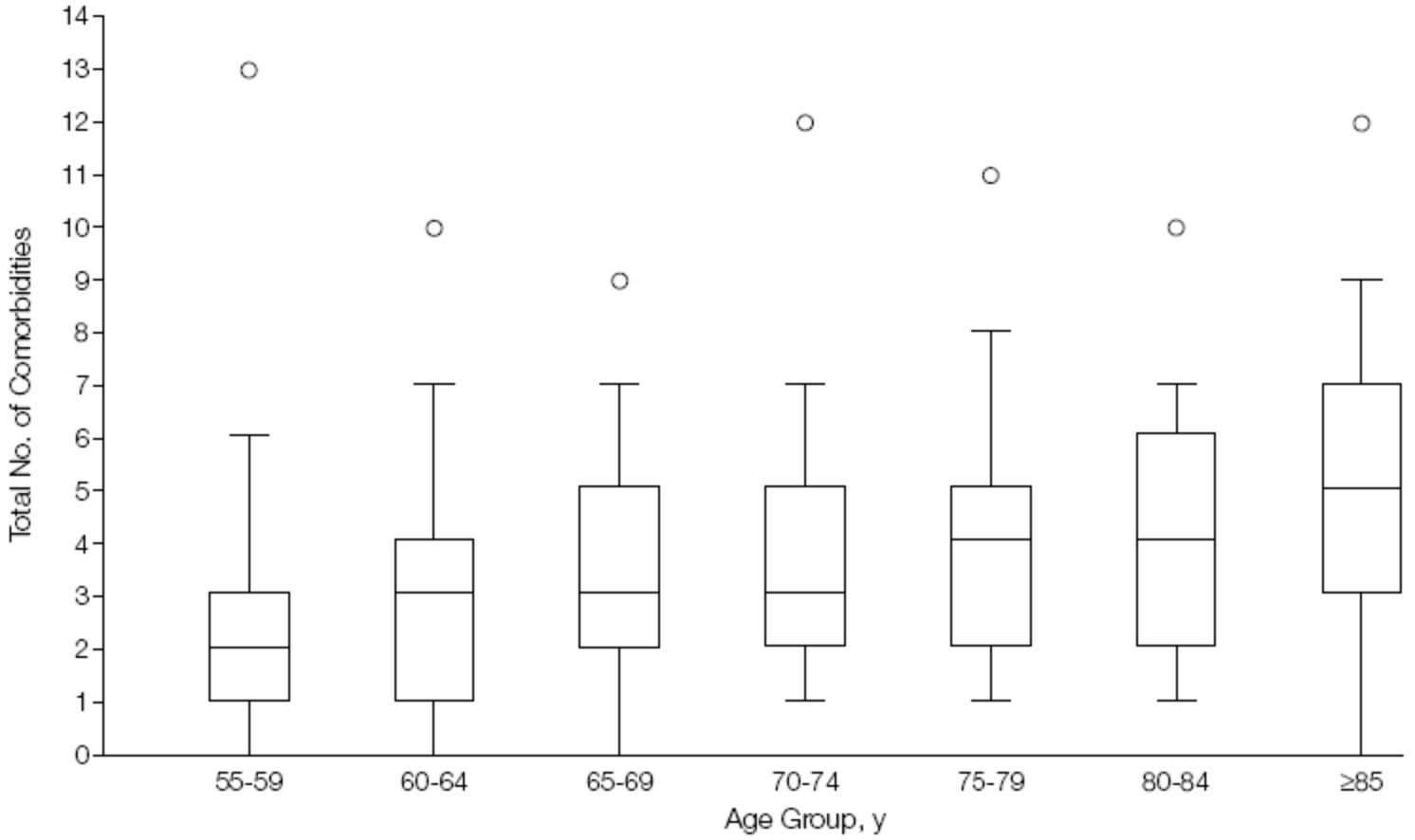
R. Yancik, et al. JAMA, 2001

Figure 1. Stage Distribution of Cancer by Age



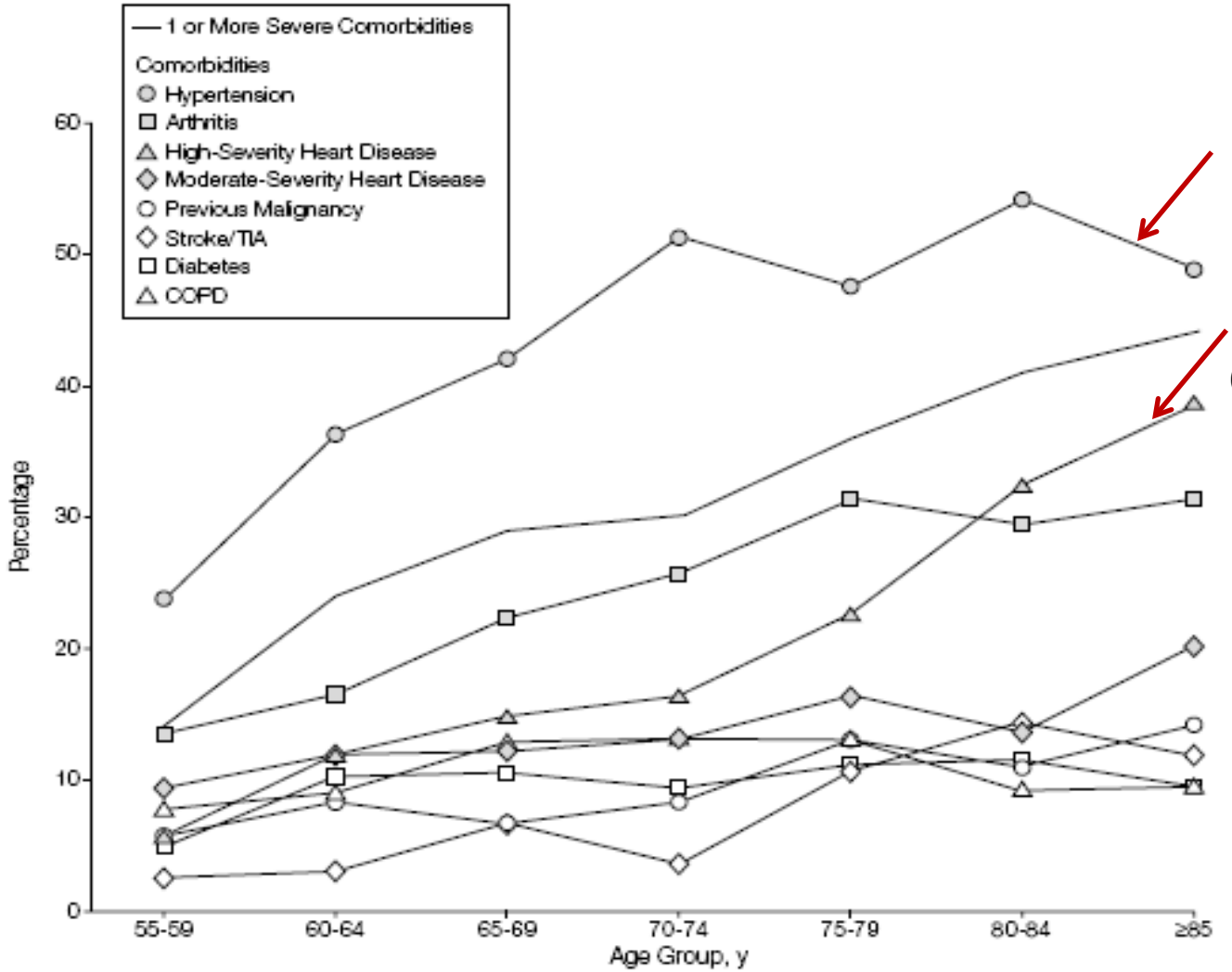
Comorbid Conditions & Breast Ca

Figure 3. Distribution of Total Number of Comorbidities by Age



R. Yancik, et al. JAMA, 2001

Figure 4. Prevalence and Age Trends by Selected Comorbidities



HTN

Heart disease

TIA indicates transient ischemic attack; COPD, chronic obstructive pulmonary disease. All trends were significant at the $P<.05$ level except for diabetes and COPD.

R. Yancik, et al. JAMA, 2001

Table 3. Cause of Death According to Age Group*

	Age, y				
	55-64	65-74	75-84	≥85	Total
Breast cancer	48 (75.0)	33 (58.9)	38 (44.7)	16 (27.6)	135 (51.3)
Other cancer	4 (6.2)	6 (10.7)	9 (10.6)	3 (5.2)	22 (8.4)
Heart disease	4 (6.2)	4 (7.1)	18 (21.2)	19 (32.8)	45 (17.1)
Cerebrovascular disease	0	1 (1.8)	4 (4.7)	8 (13.8)	13 (4.9)
Digestive system	1 (1.6)	1 (1.8)	3 (3.5)	4 (6.9)	9 (3.4)
Alzheimer disease/dementia	1 (1.6)	0	4 (4.7)	2 (3.4)	7 (2.7)
Pneumonia	0	0	2 (2.4)	3 (5.2)	5 (1.9)
COPD/other respiratory	1 (1.6)	2 (3.6)	1 (1.2)	1 (1.7)	5 (1.9)
Other	5 (7.8)	4 (7.1)	2 (2.4)	2 (3.4)	13 (4.9)
Unknown	0	5 (8.9)	4 (4.7)	0	9 (3.4)
Total No. of Deaths	64	56	85	58	263
Total No. of Patients	622	624	427	127	1800

*COPD indicates chronic obstructive pulmonary disease. Data are presented as No. (%) unless otherwise indicated.

About half of all deaths are due to causes other than breast cancer!

R. Yancik, et al. JAMA, 2001

The Influence of Comorbidities on Overall Survival Among Older Women Diagnosed With Breast Cancer

Jennifer L. Patnaik, Tim Byers, Carolyn DiGuiseppi, Thomas D. Denberg, Dana Dabelea

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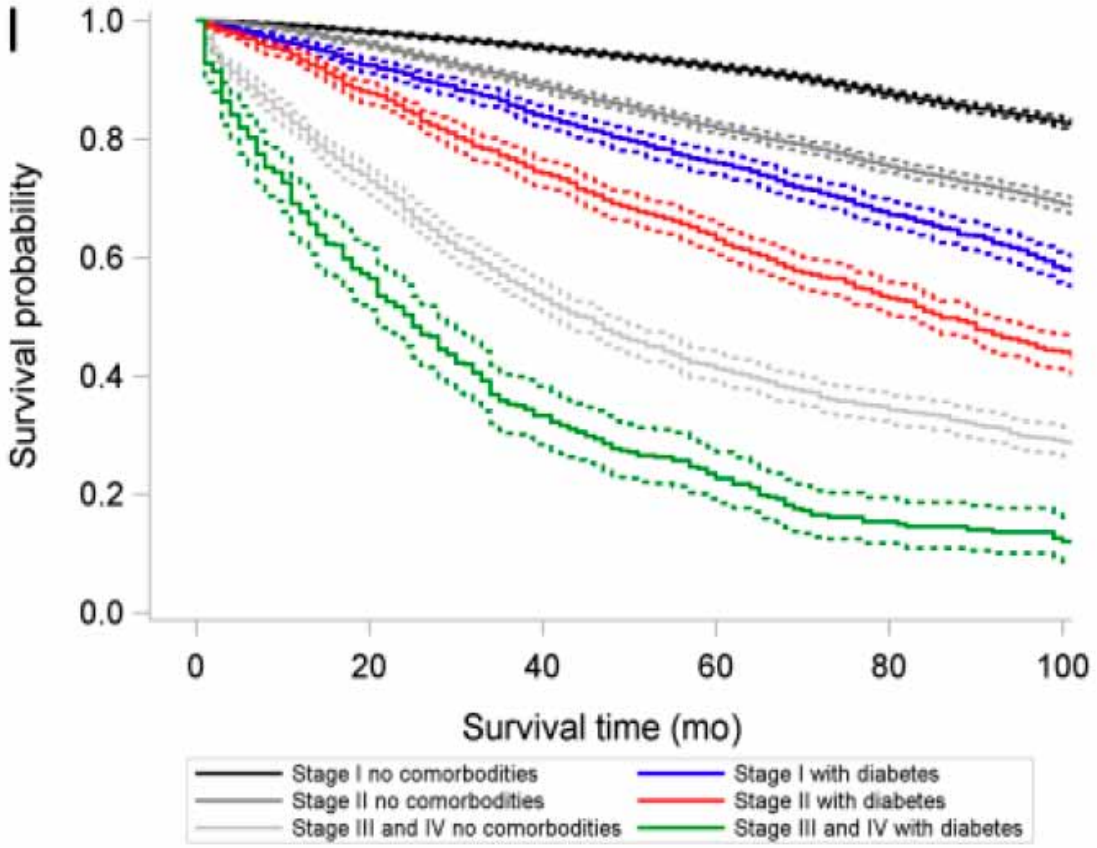
J Natl Cancer Inst. 2011 Jul 20;103(14):1101-11. Epub 2011 Jun 30



Deleterious effect of diabetes on breast cancer survival by stage

Patnaik et al. Breast Cancer Research 2011, 13:R64
http://breast-cancer-research.com/content/13/3/R64

Breast Cancer RESEARCH

RESEARCH ARTICLE Open Access

Cardiovascular disease competes with breast cancer as the leading cause of death for older females diagnosed with breast cancer: a retrospective cohort study

Jennifer L Patnaik[1*], Tim Byers[1], Carolyn DiGuiseppi[1], Dana Dabelea[1] and Thomas D Denberg[2]

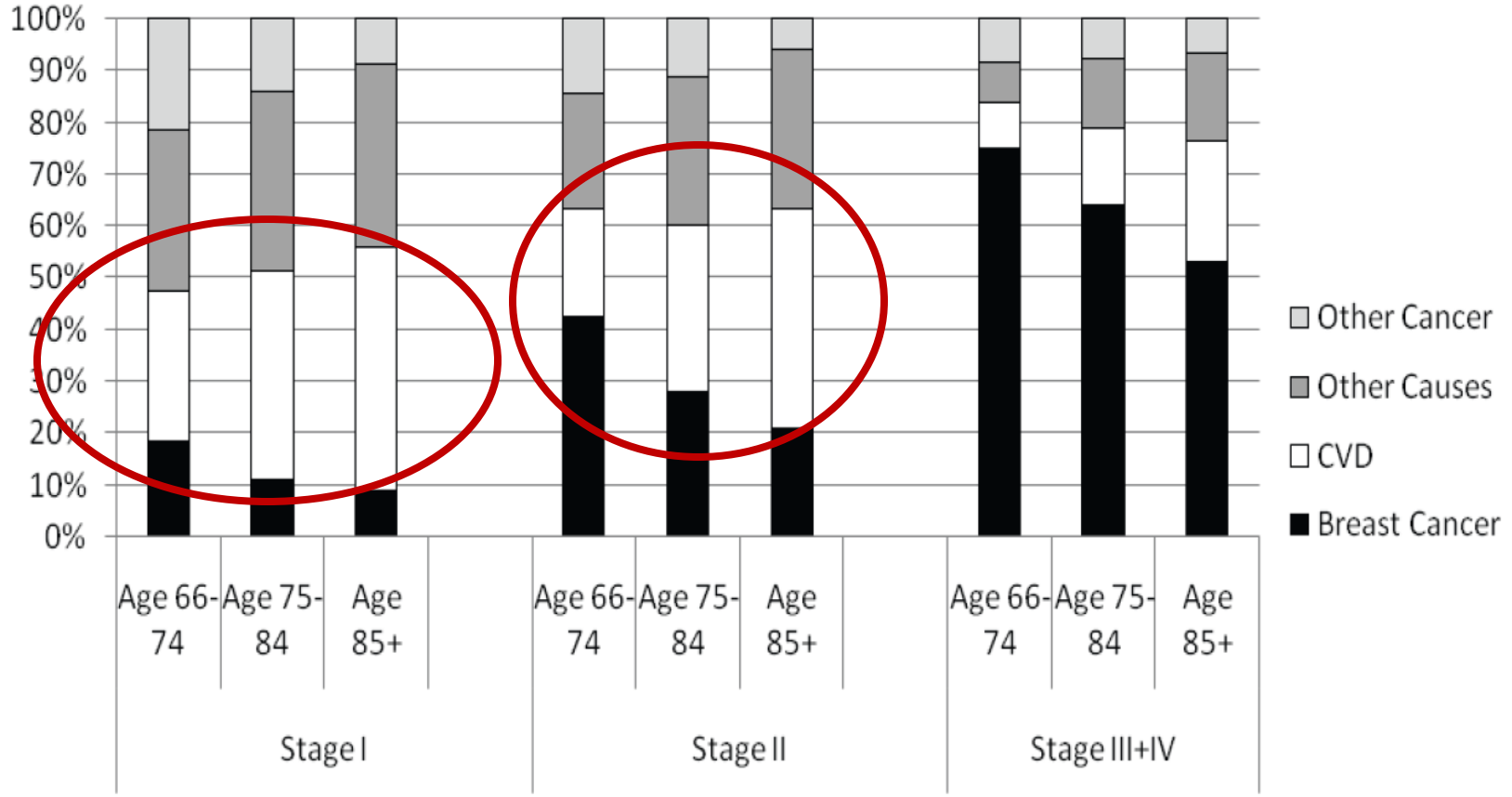
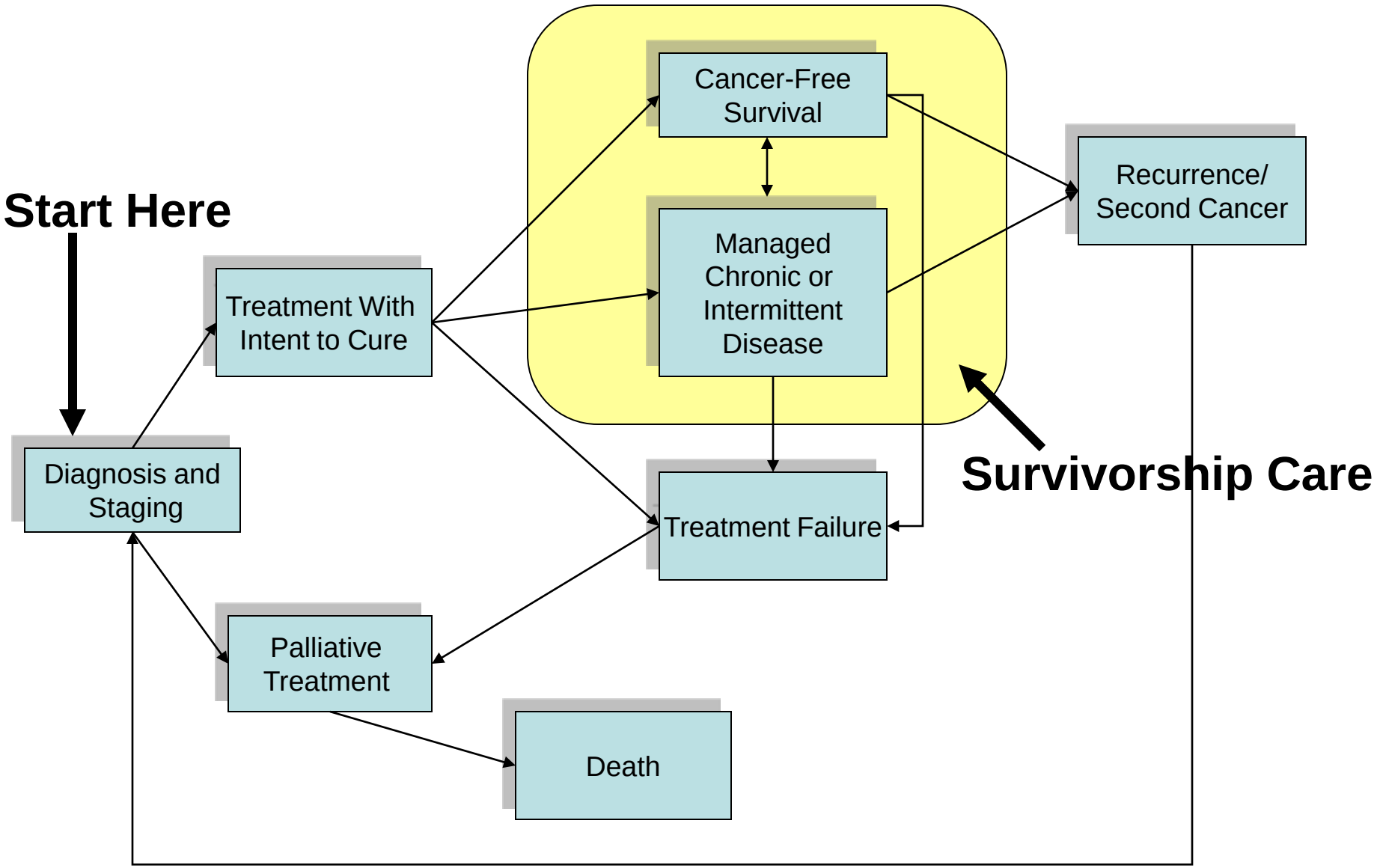


Figure 1 Proportional distribution of leading causes of death among breast cancer patients ages 66 years and older by age at diagnosis and by stage of disease from 1 January 1992 through 31 December 2000. CVD: cardiovascular disease.

What are the needs, concerns and goals of cancer survivors?

- Strong focus on prevention of recurrence
- Prevention of second cancers
- Maintenance of physical function and prevention of disability/loss of independence
- Reduction in morbidity from cancer treatment related complications
- **Control or prevention of comorbid conditions associated with obesity, e.g. hypertension, diabetes, heart disease**

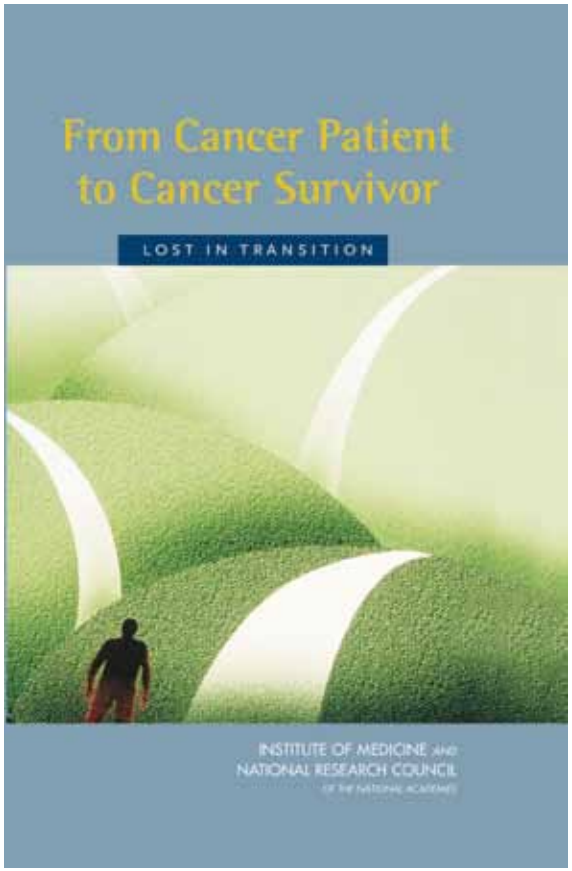
Cancer Care Trajectory



IOM, 2005

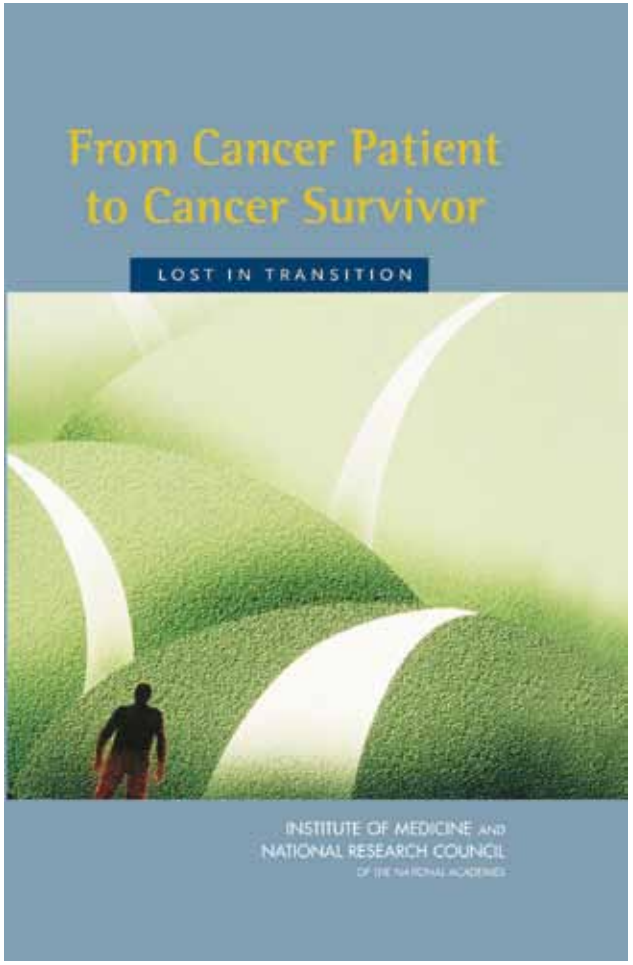
IOM Findings: Survivorship Care

- Survivorship care is a neglected phase of the cancer care trajectory
- Cancer recurrence, second cancers, and treatment late effects concern survivors
- Few guidelines on follow-up care
- Providers lack education and training



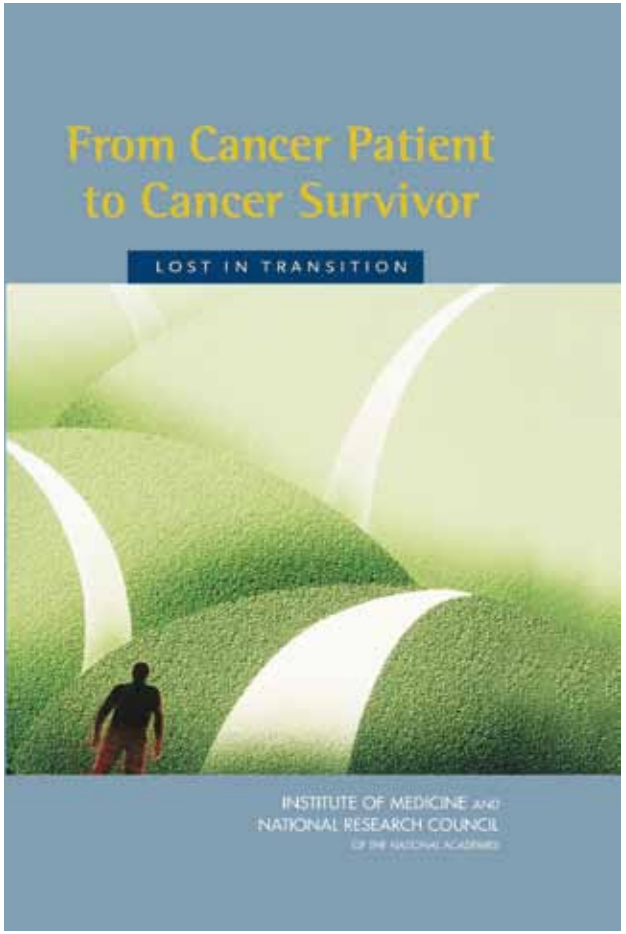
IOM Findings: Survivorship Care

- Survivors may:
  - be unaware of risk
  - have no plan for follow-up
- Opportunities to intervene may be missed
- Cancer care is often not coordinated
- Models of survivorship care not tested



IOM Findings: Quality Survivorship Care

- Chronic care model applies
- Essential care components
  - Prevention
  - Surveillance
  - Intervention
  - Coordination



Prevention

- Systematic ongoing follow-up required for screening
  - Goal: early detection and early intervention for potentially serious late-onset complications e.g., cataracts, osteoporosis, cardiac disease
  - Chemoprevention when available
  - Life style modification to prevent second cancers

Health Promotion Interventions

- Health promotion counseling
  - Goal: promote risk reduction for health problems that occur secondary to cancer treatments (esp. for childhood cancer survivors)
  - Avoid weight gain
  - Increase physical activity
  - Avoidance of exposures that are harmful
  - Decrease risk of other chronic diseases, e.g. diabetes, heart disease

Cancer Prevention Opportunities in Patients and Survivors

- Behavioral and lifestyle interventions that can improve treatment outcomes—response, QOL, and reduction in comorbid conditions!
  - Smoking cessation in aerodigestive cancer patients
  - Physical training for lymphedema prevention
  - Weight gain prevention and physical activity
- Prevention of second cancers
  - Exposure based concerns from radiation & chemotherapy
  - Exacerbation of risk by behavioral & lifestyle factors
  - Hereditary cancer syndromes

How much evidence do we need to act?

- Taking advantage of a teachable moment:
  - Cancer survivors want to do whatever they can to maximize their health and recovery
  - Prevention of weight gain usually requires increased ***physical activity***, which in itself has health benefits
  - Obesity and weight gain are associated with risks for incident cancers—prevention is relevant

Is there a downside?

- Recommendations must be presented with caveats related to cancer survival benefits
- Health benefits of maintenance of normal weight in an aging population are not controversial…….
- ***Shouldn't we be making same recommendations to cancer survivors?***

Conclusions

- While waiting for stronger evidence from ongoing studies in cancer patients, it seems reasonable to recommend ***prevention of weight gain and/or weight loss*** in those who are overweight or obese
- At a minimum, prevention of comorbid conditions associated with obesity should be an important goal in cancer survivors