

*Using Race/Ethnic Comparisons to Explore Breast
Cancer Incidence and Breast Cancer
Mortality Rate Trends in California, 1988-2007*

Presented by

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Problem/Dilemma

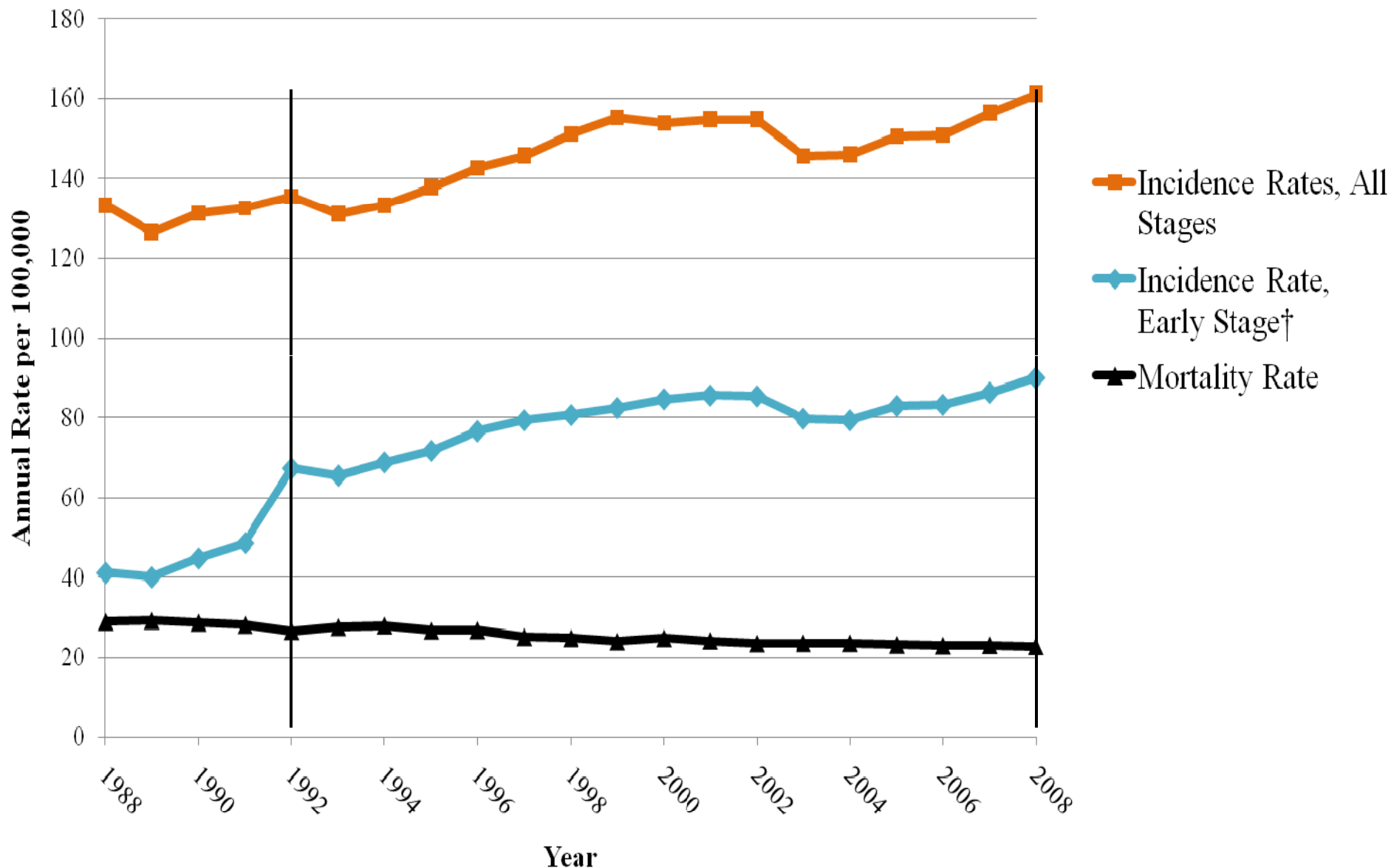
It is common to credit early detection of breast cancer for the decline in age-adjusted risk of death for breast cancer.

“The decrease in breast cancer death rates represents progress due to earlier detection”” *ACS Cancer Facts & Figures 2010*

Yet, the decline in mortality rates appears to be substantially less than the rise in early stage incidence rates.

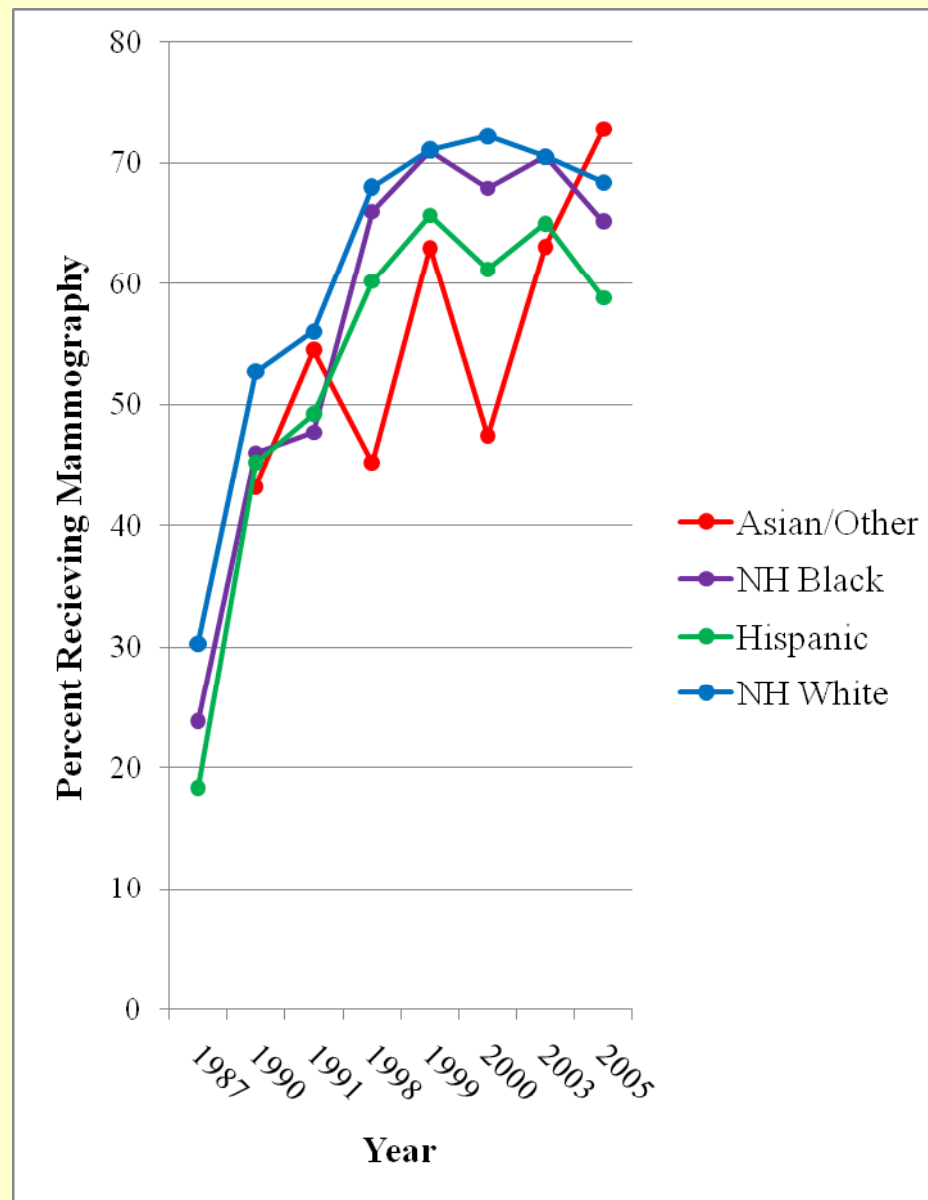
Annual age-adjusted breast cancer rates for California females, 1988-2008.

Data from the California Cancer Registry



†Early stage includes *in situ* carcinomas and AJCC Stage I cases

Age-adjusted percent of women 40+ reporting mammography during past 2 years by race/ethnicity.



SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.

Success:

We defined short term success as an increase in the annual proportion of breast cancer cases diagnosed at early stage (increased % early stage).

We defined long term success as a decline in the annual ratio of fatal to all breast cancer cases. **This is a surrogate measure of the past proportion of new breast cancer cases that succumb to breast during current years.**

Research Questions:

Question 1: Are there significant differences in trends for the annual proportion of early stage breast cancer in the four major race/ethnic groups in California, 1992-2008?

Question 2: Does the change in the annual proportion of early stage breast cancer correspond with the change in the annual ratio of fatal to new breast cancer in each of the four major race/ethnic groups in California, 1992-2008?

Question 3: Does correspondence between annual proportions of early stage breast cancer and the annual ratios of fatal to new breast cancer provide insight into future breast cancer mortality trends in California?

Methods:

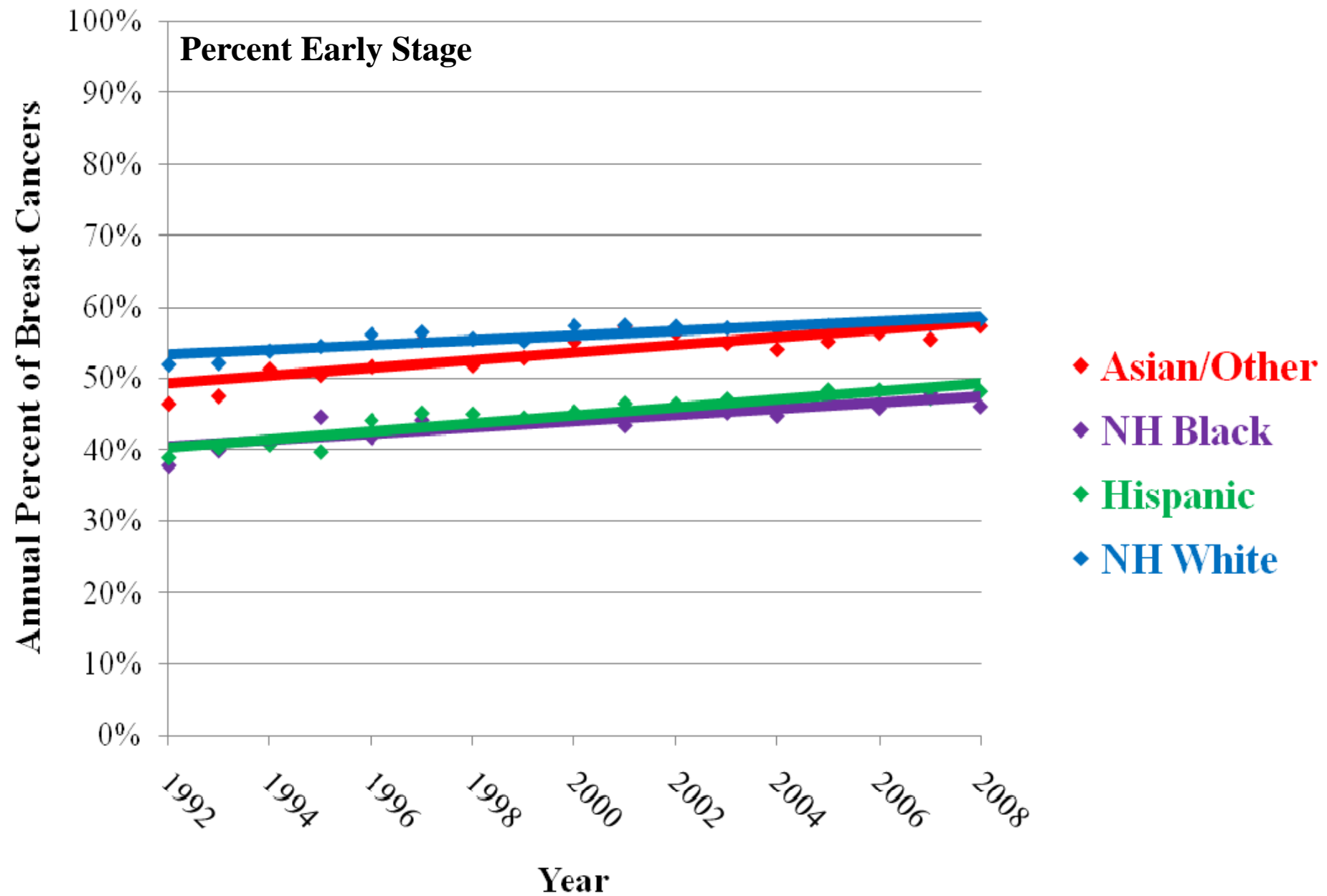
Using statewide California data for 1992-2008:

We computed the trend in annual proportions (%) of breast cancer cases that were early stage (*in situ* & stage I) for each of the four major race/ethnic groups in California.

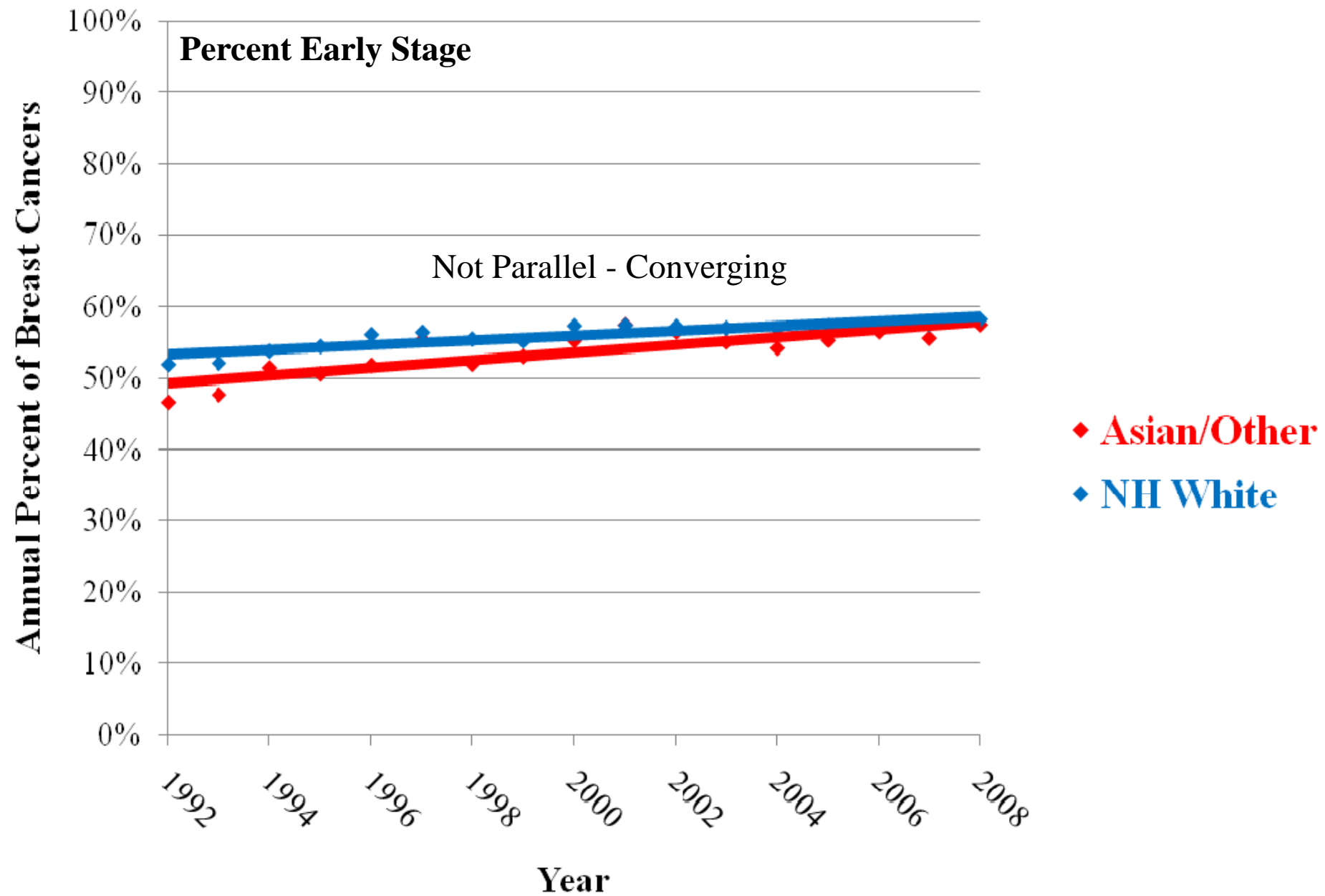
We computed race/ethnic-specific trends in annual ratios of breast cancer deaths to new cases (% Fatal)

We used tests of parallelism to evaluate correspondence of linear trends computed in parts 1 and 2.

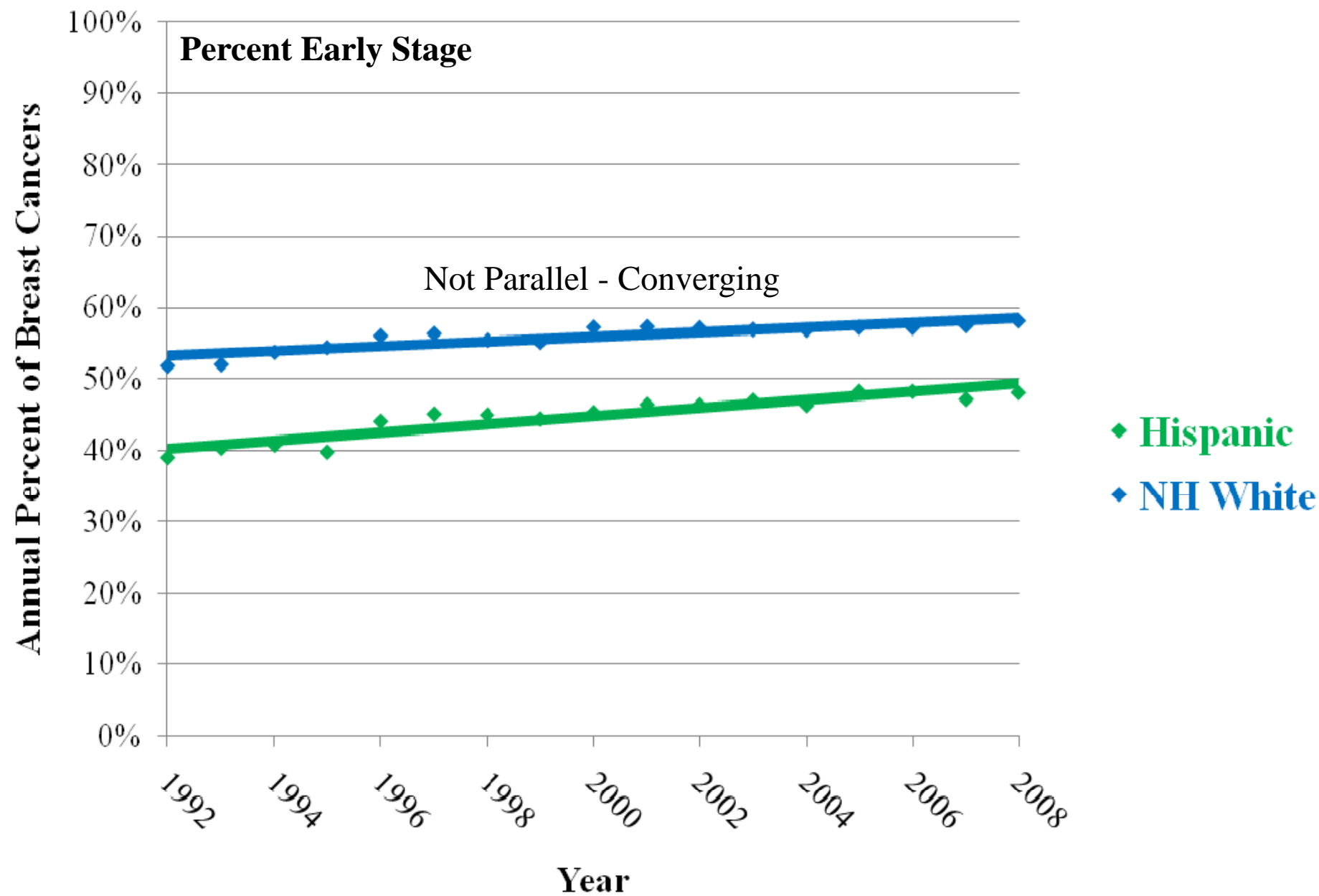
Annual Breast Cancers, 1992-2008



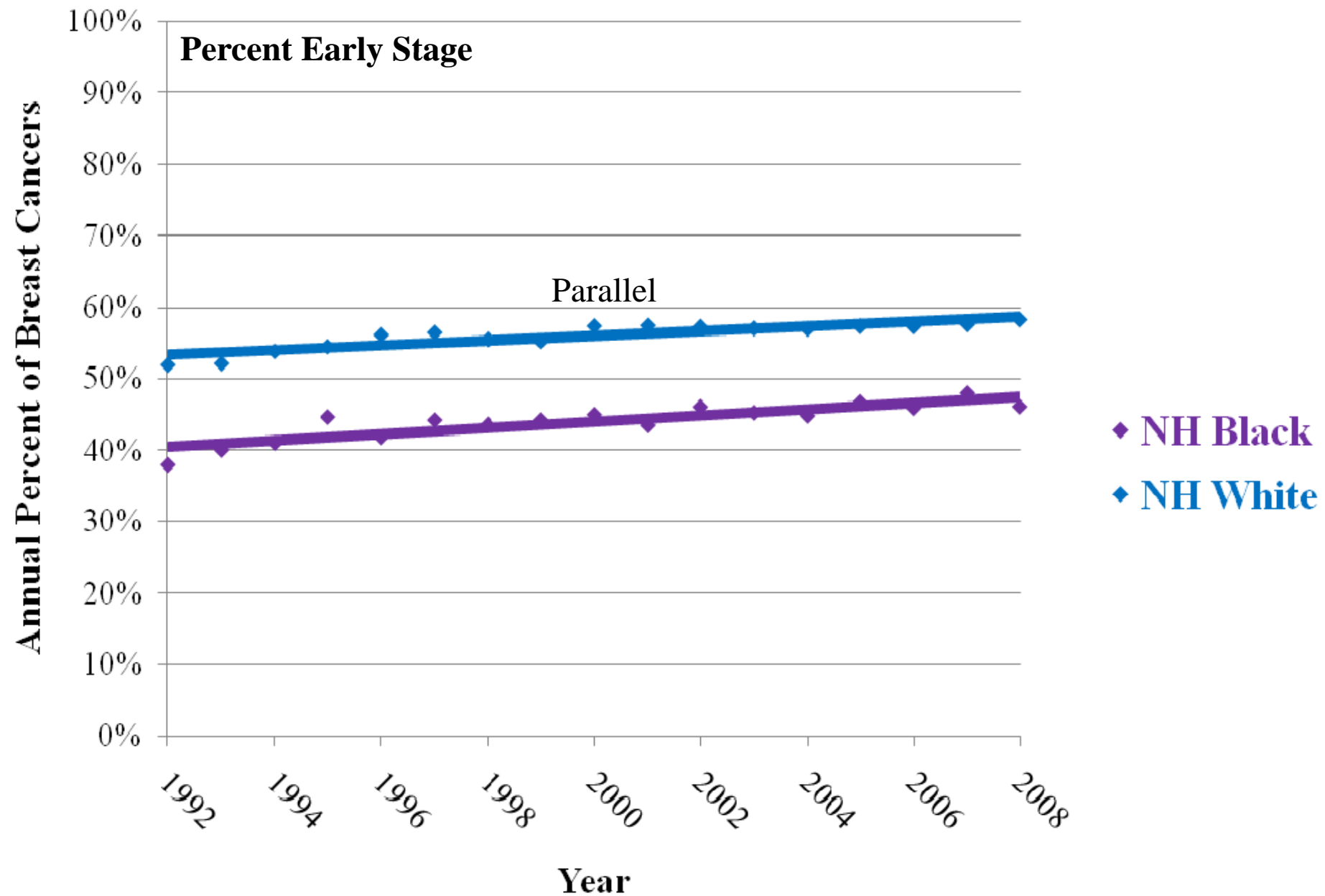
Annual Breast Cancers, 1992-2008



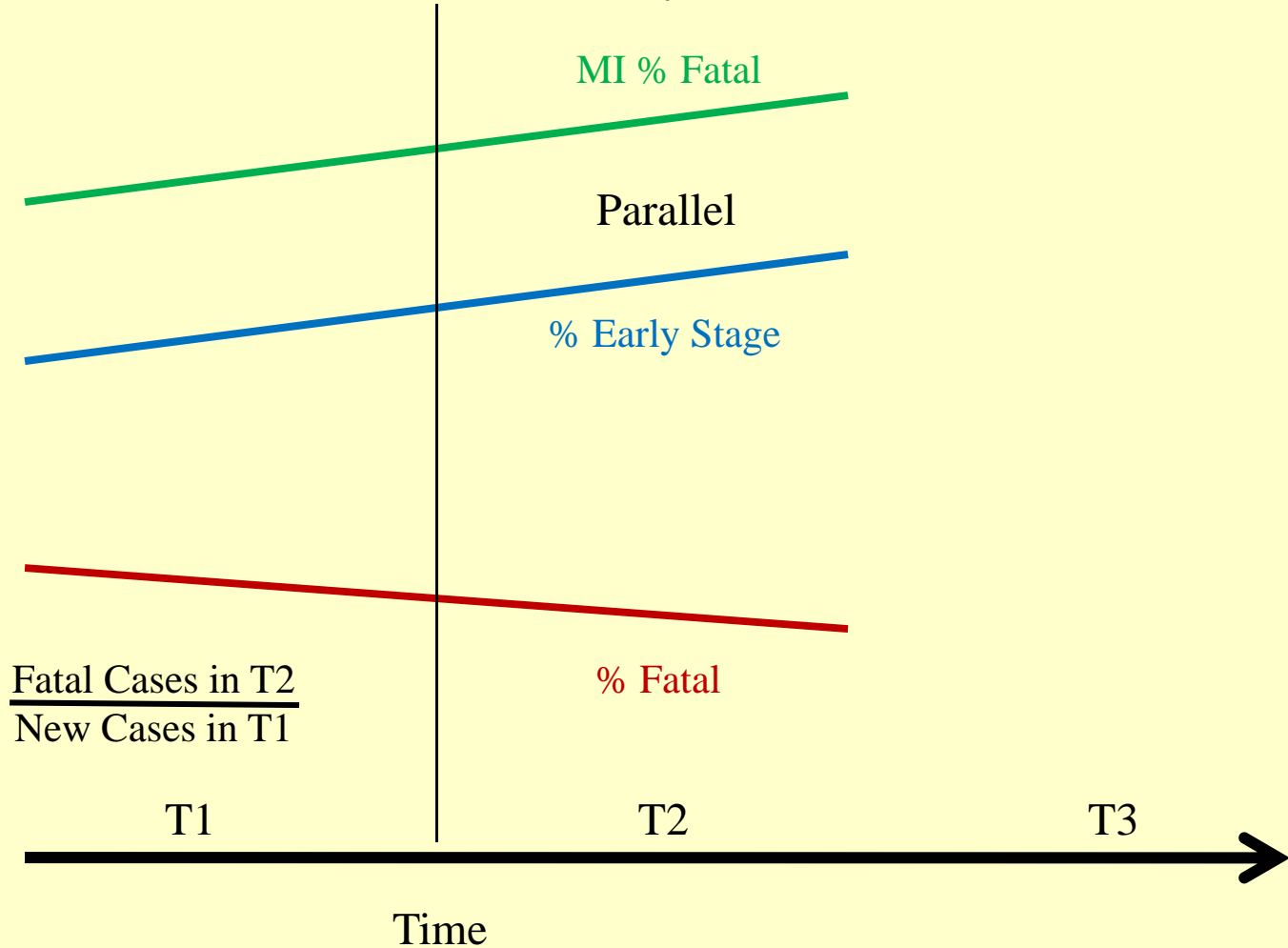
Annual Breast Cancers, 1992-2008



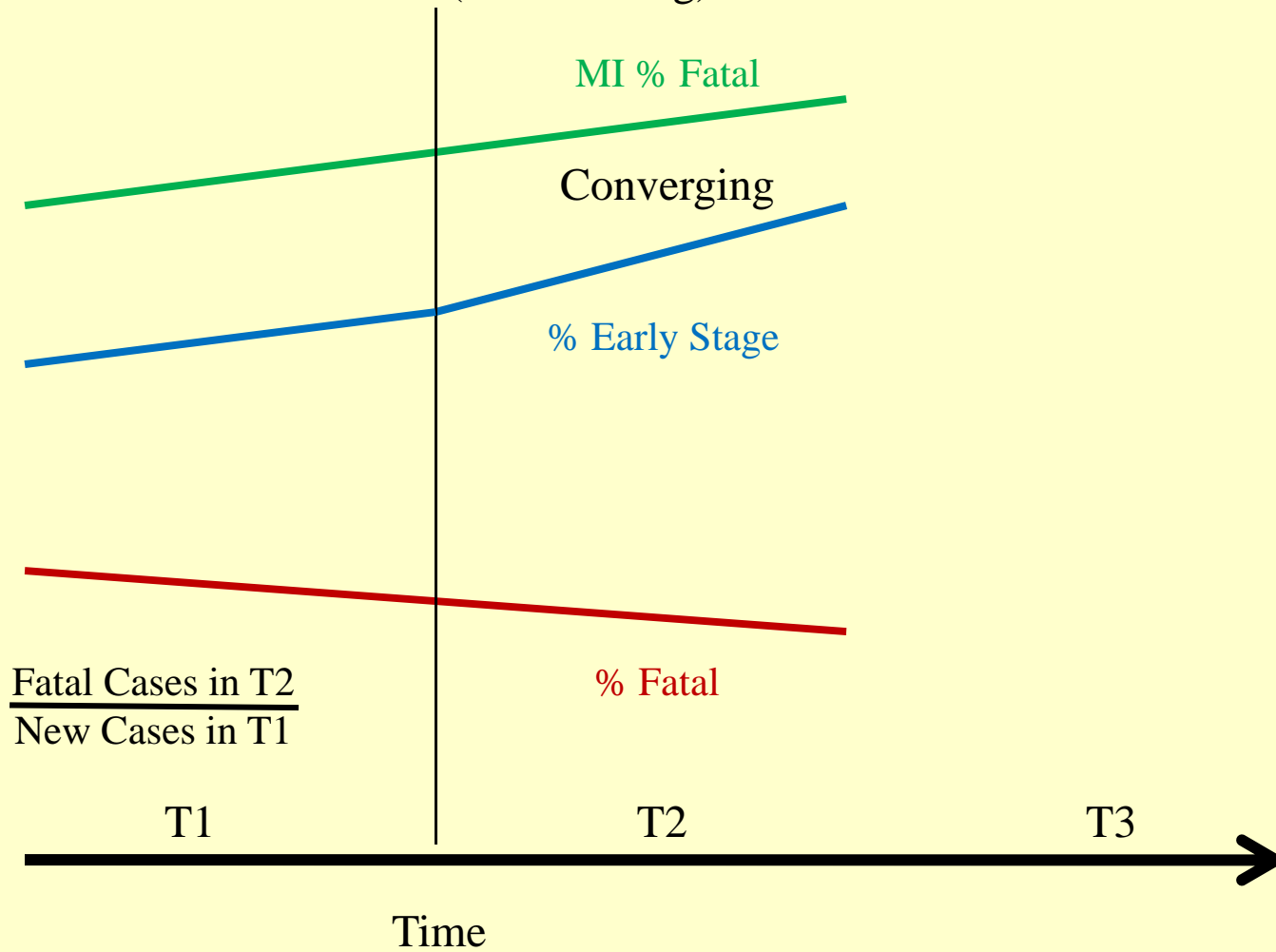
Annual Breast Cancers, 1992-2008



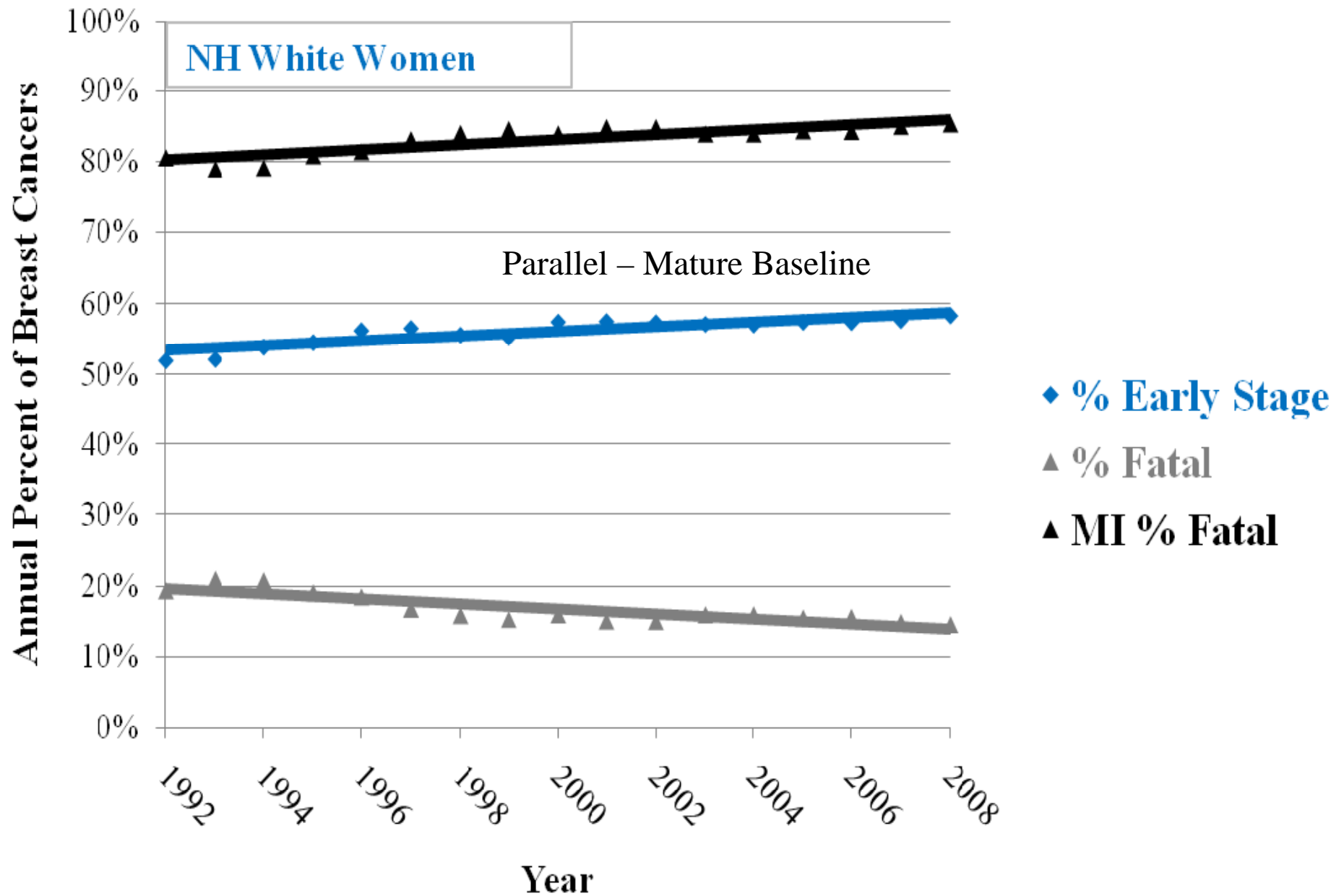
Baseline Increase in % Early Stage Breast Cancer
(Constant Velocity)



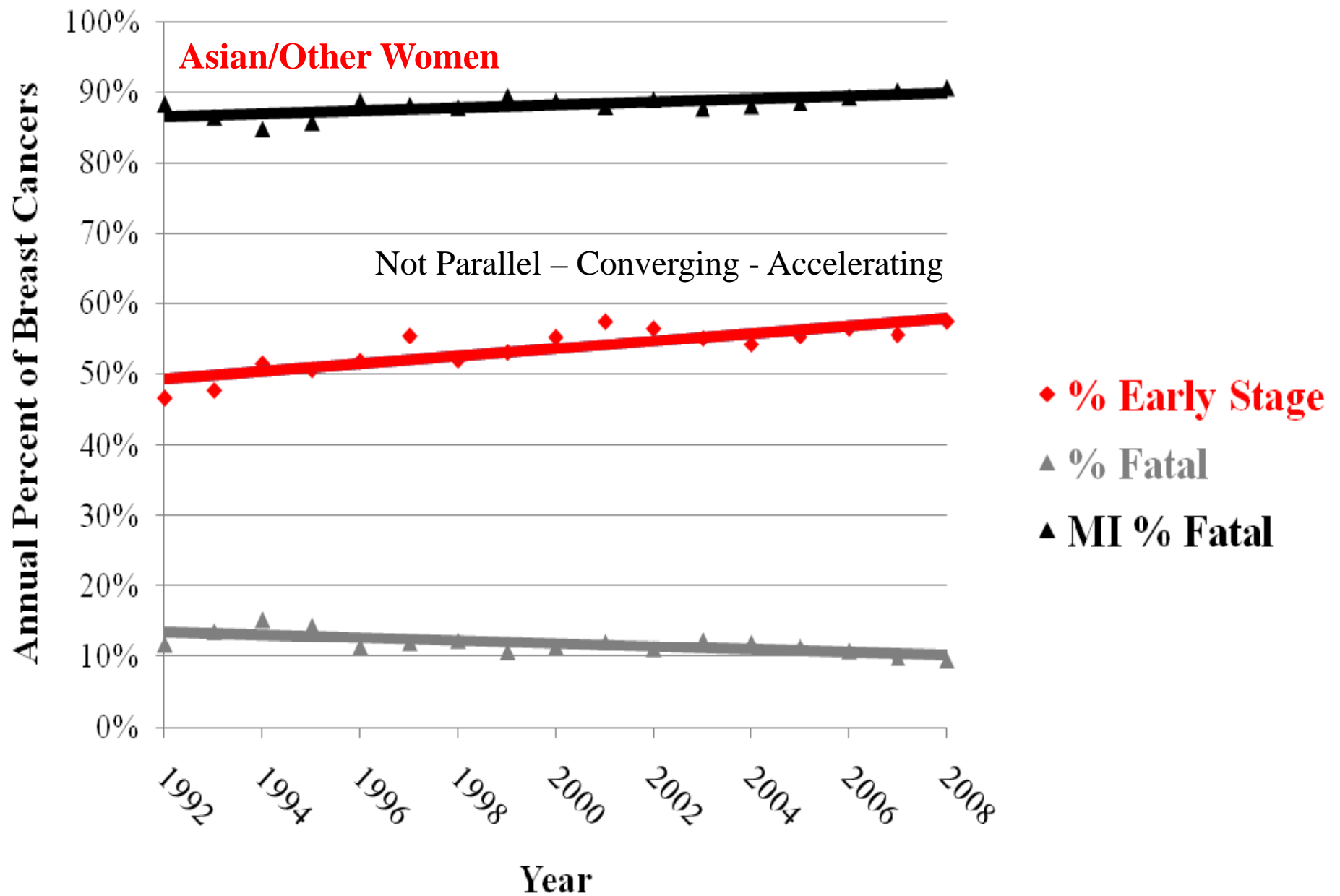
Accelerating Increase in % Early Stage Breast Cancer (Accelerating)



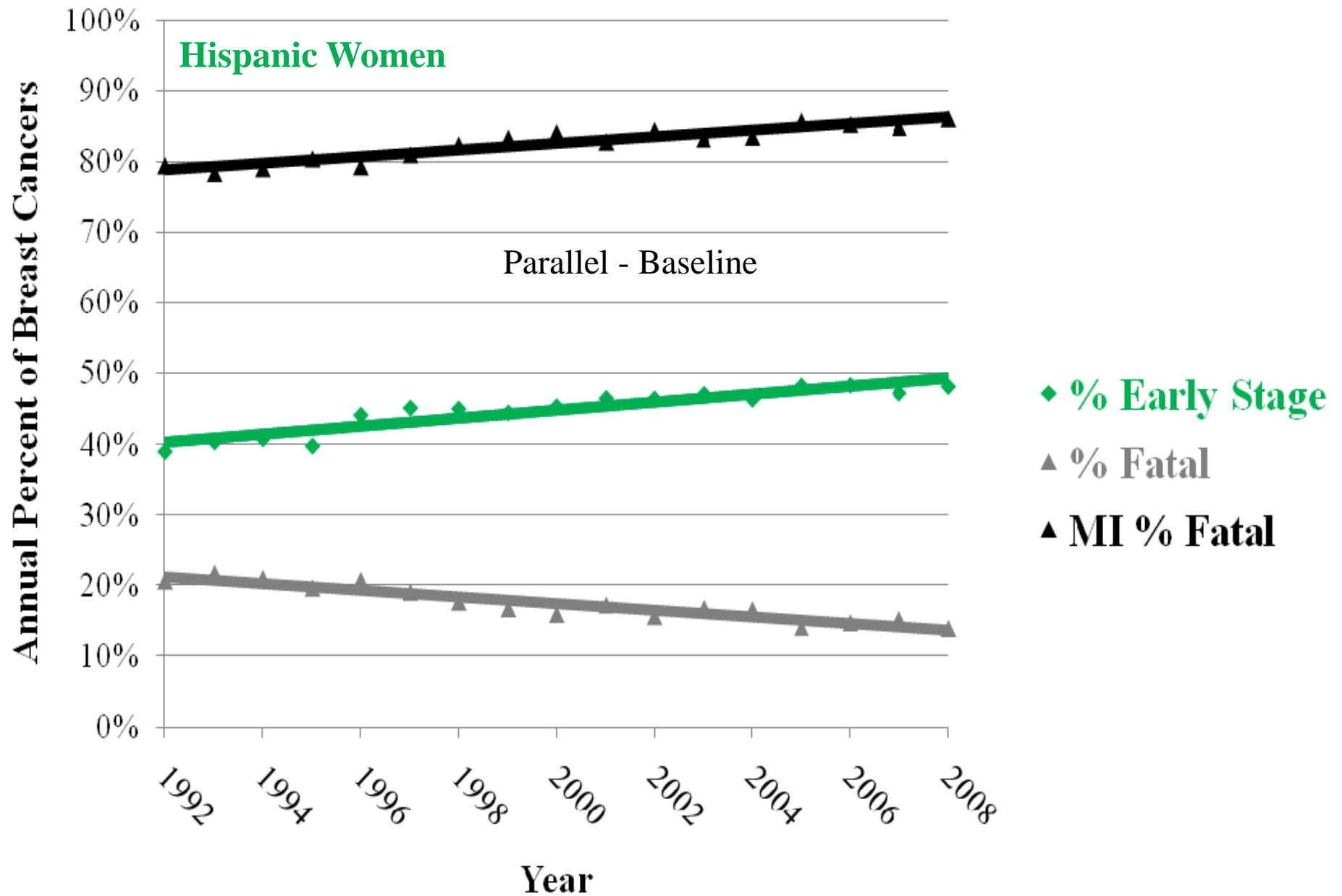
Annual Breast Cancers, 1992-2008



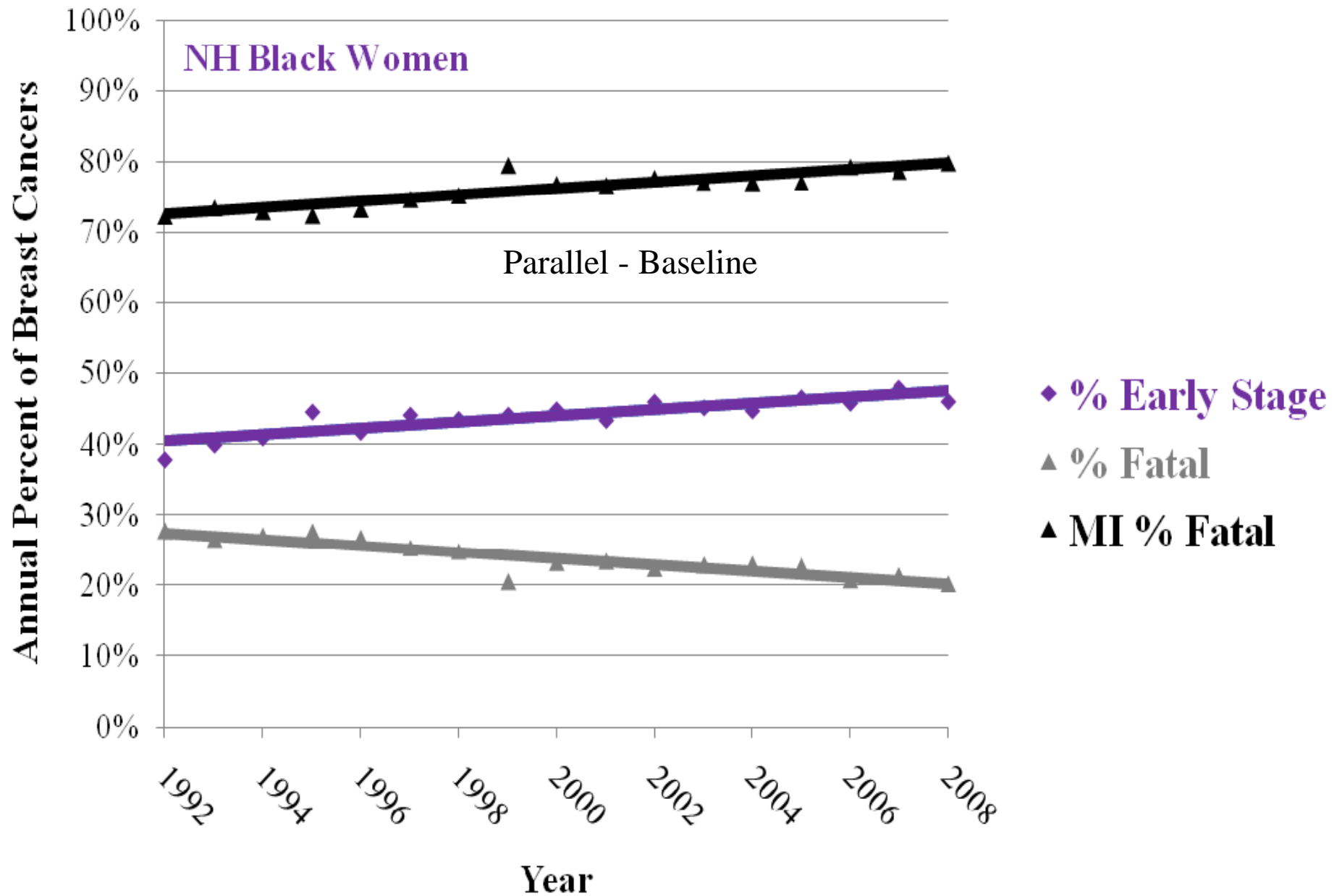
Annual Breast Cancers, 1992-2008



Annual Breast Cancers, 1992-2008



Annual Breast Cancers, 1992-2008



Conclusion/Discussion:

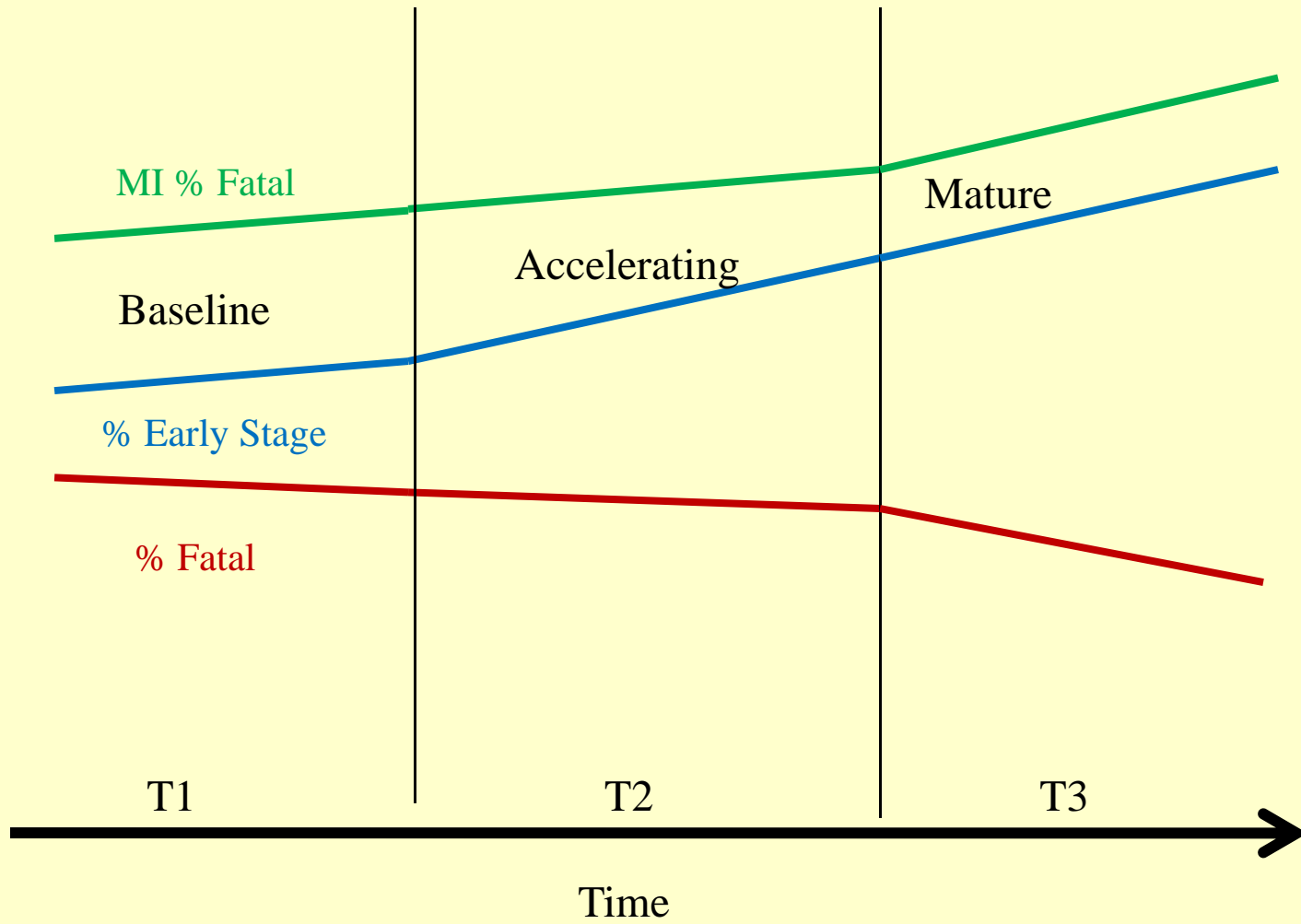
Q1: NH White California women exhibit higher proportions of early stage breast cancer, followed closely by Asian/Other women and more distantly by Hispanic and NH Black women.

Slopes in trends for annual proportions of early stage breast cancer differ markedly from the slope measured for NH White women for Asian/Other, but not for Hispanic or NH Black women.

Q2: Increasing trends for annual proportions of early stage breast cancer correspond with declines in annual ratios of fatal to new breast cancer among NH Black and Hispanic women (baseline), and for NH White (mature baseline) California women, 1992-2008.

Q3. Asian/Other women show an accelerating slope in the proportion of early stage breast cancer that we anticipate will translate into acceleration in the declining annual ratio of fatal to all new breast cancer among Asian/Other women.

Patterns in % Early Stage Breast Cancer (Baseline, Accelerating, and Mature)



Limitations:

Our findings use ecologic measures that are cross-sectional and do not include follow-up of individual women from diagnosis of CIS to invasive breast cancer to death.

Evaluation of parallelism between two lines is substantially based on the assumption that the trends compared are linear.

Our findings presume that the ratio of annual breast cancer deaths to new cases provides a reasonable surrogate measure of the proportion of new cases that result in breast cancer deaths during subsequent years.

Our findings do not adjust for age or other potential confounding factors.

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Thank you!