Old Age Mortality and New Census Population Estimates

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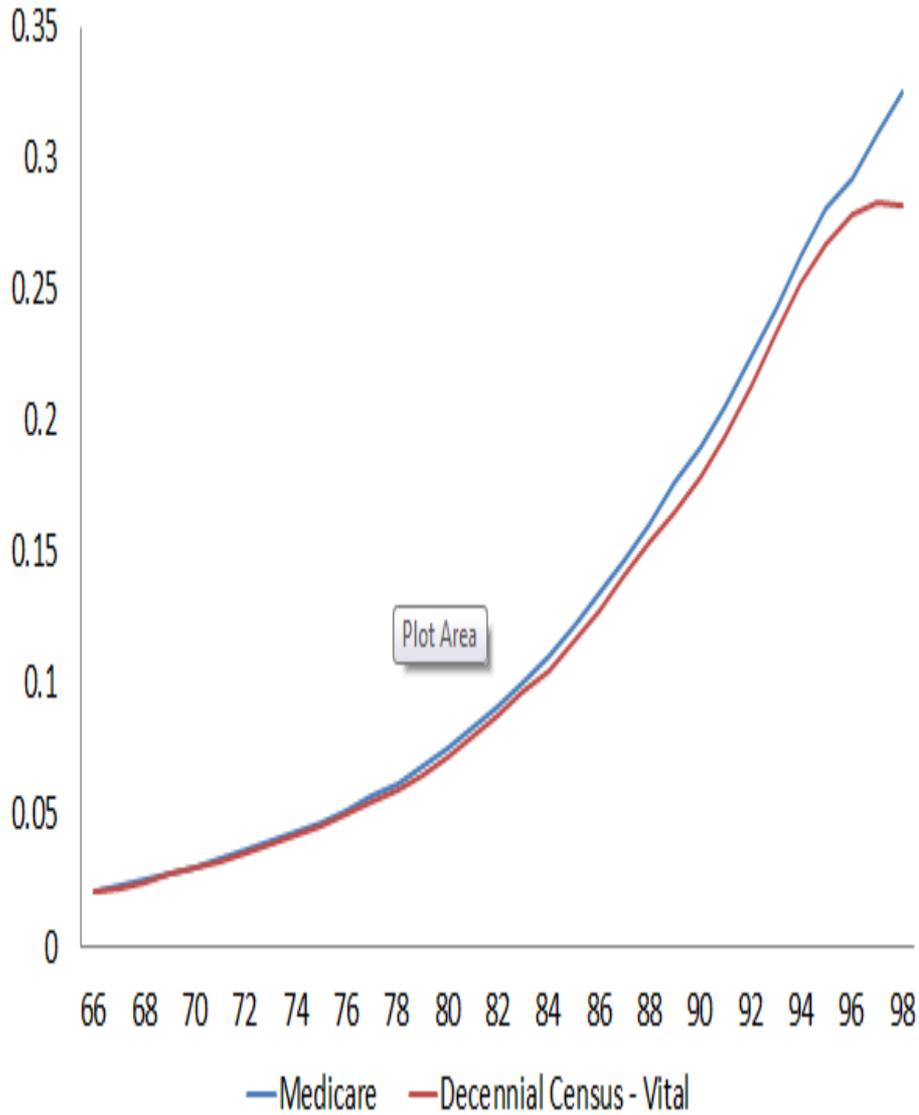
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- Historically, NCHS has used Medicare data to supplement vital statistics data at the oldest ages for its estimation of the US Life Tables

- Medicare data are more accurate because proof of age is required for enrollment in the Medicare program

- Census data (denominator for vital statistics) consists of self-reported age
  - For ages 85 and older, these data have been affected by age-misreporting, particularly age overstatement which inflates the denominator of the death rates at the oldest ages and therefore leading to underestimates of mortality at the oldest ages
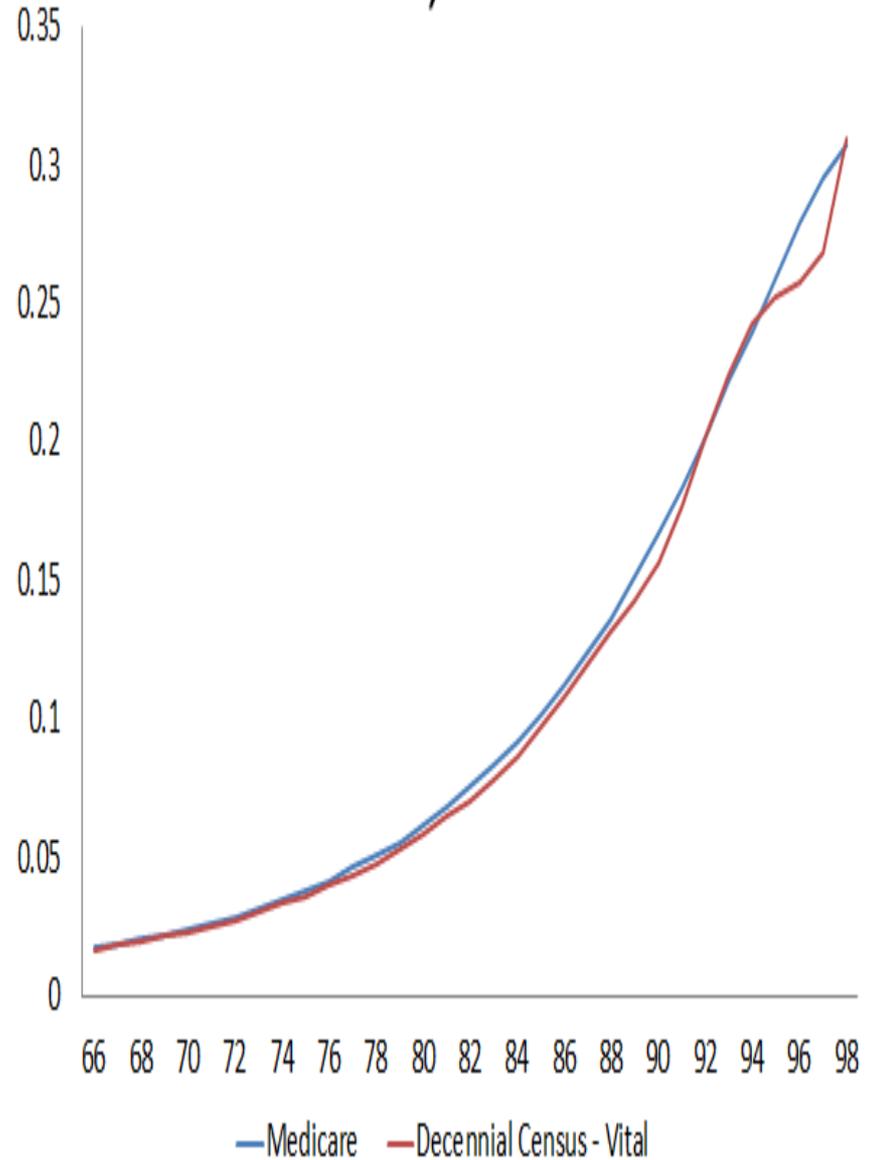
- Age misreporting has been attributed to the lack of birth registration among the very old
  - Persons without birth records are more likely to misstate or misreport their age
- Over time, there is the expectation that age misreporting will decline as fewer people will lack birth records
  - The US birth registration area increased from 10 States in 1915 to the entire US in 1933, progressively as post 1933 birth cohorts reach the oldest ages, reporting is expected to improve
  - The hope is that in the not too distant future we will not need to rely on Medicare data

- What did the decade of the 2000s look like with respect to old-age mortality estimates based on vital statistics compared to Medicare data?
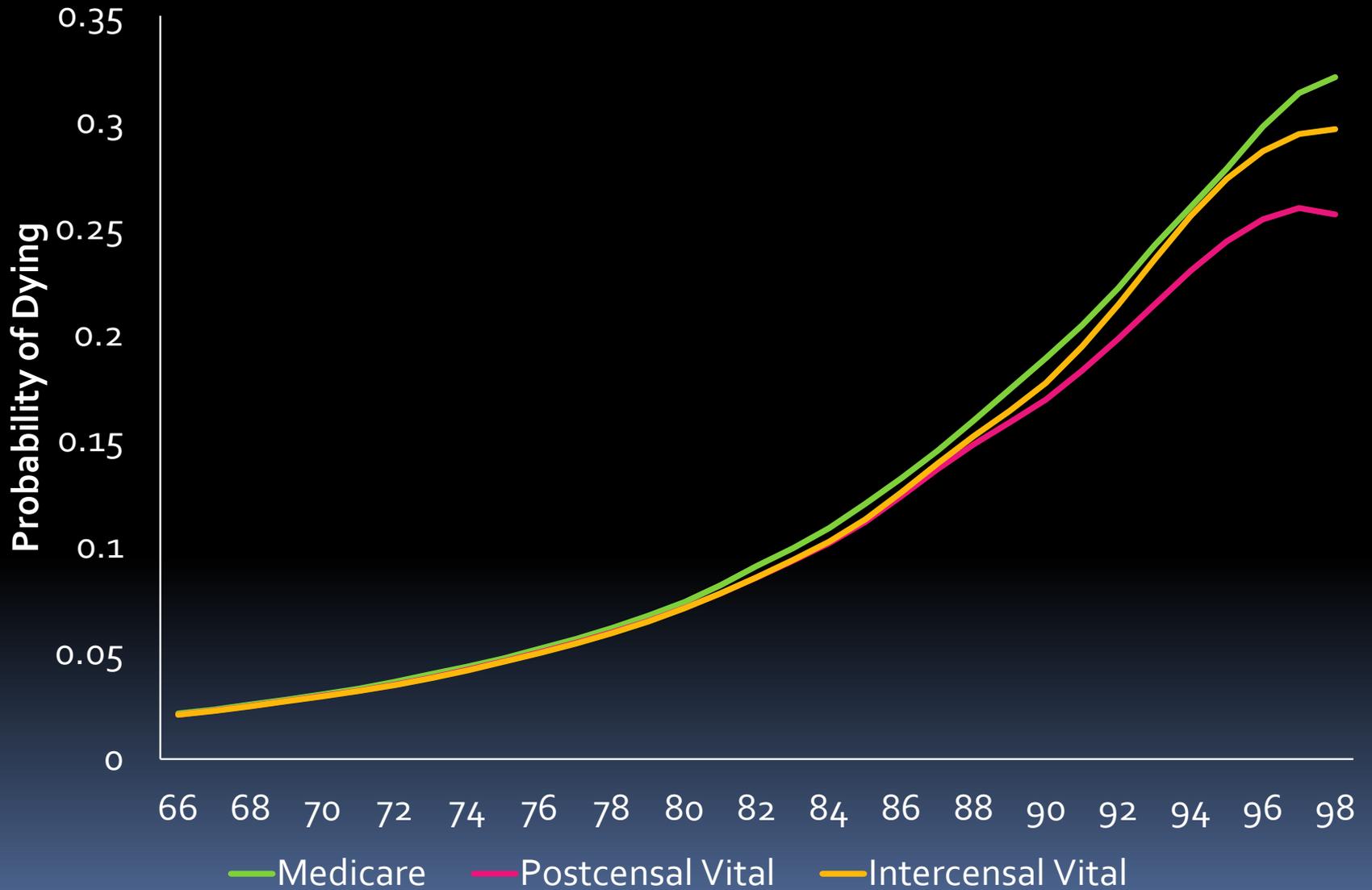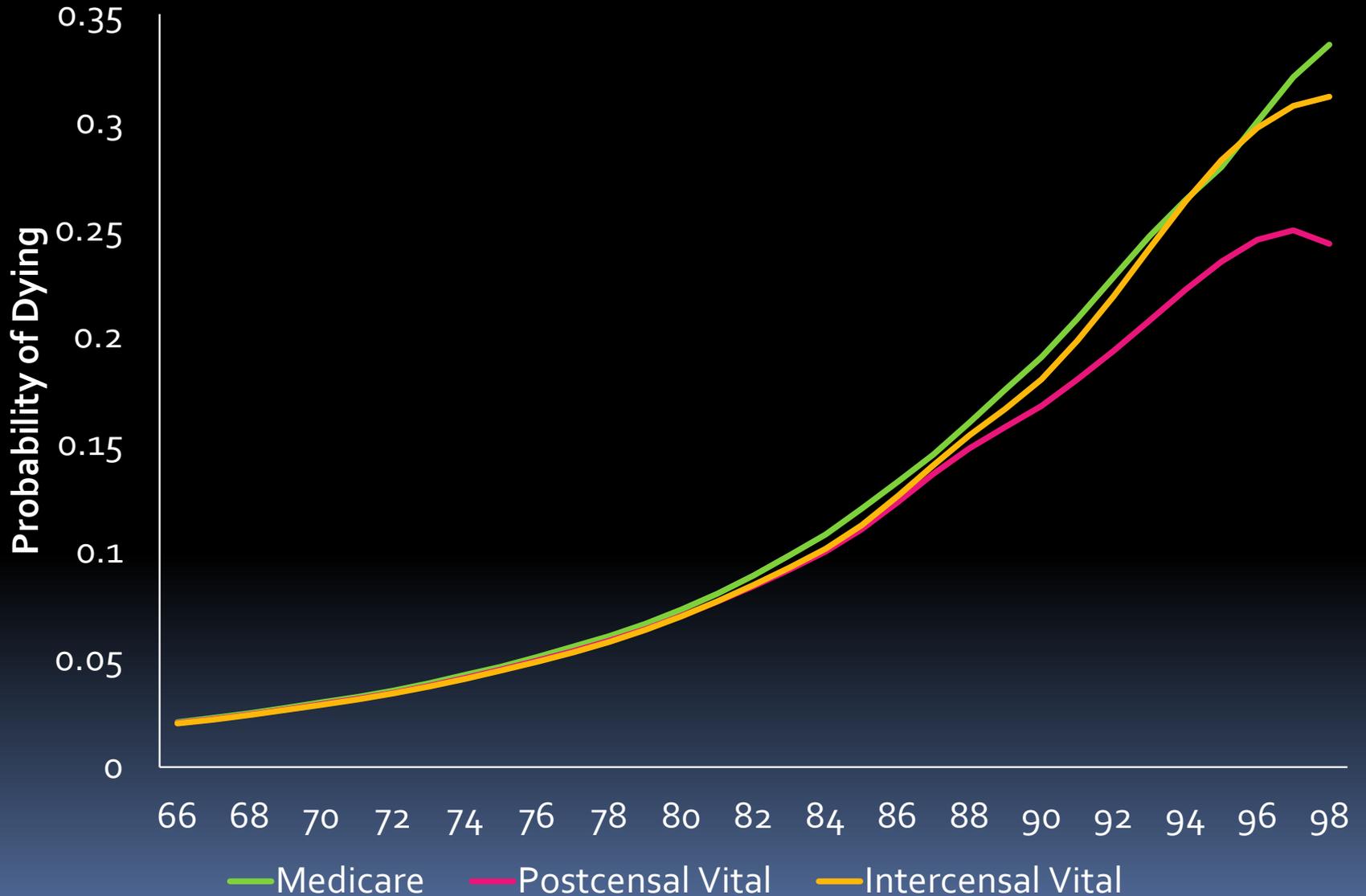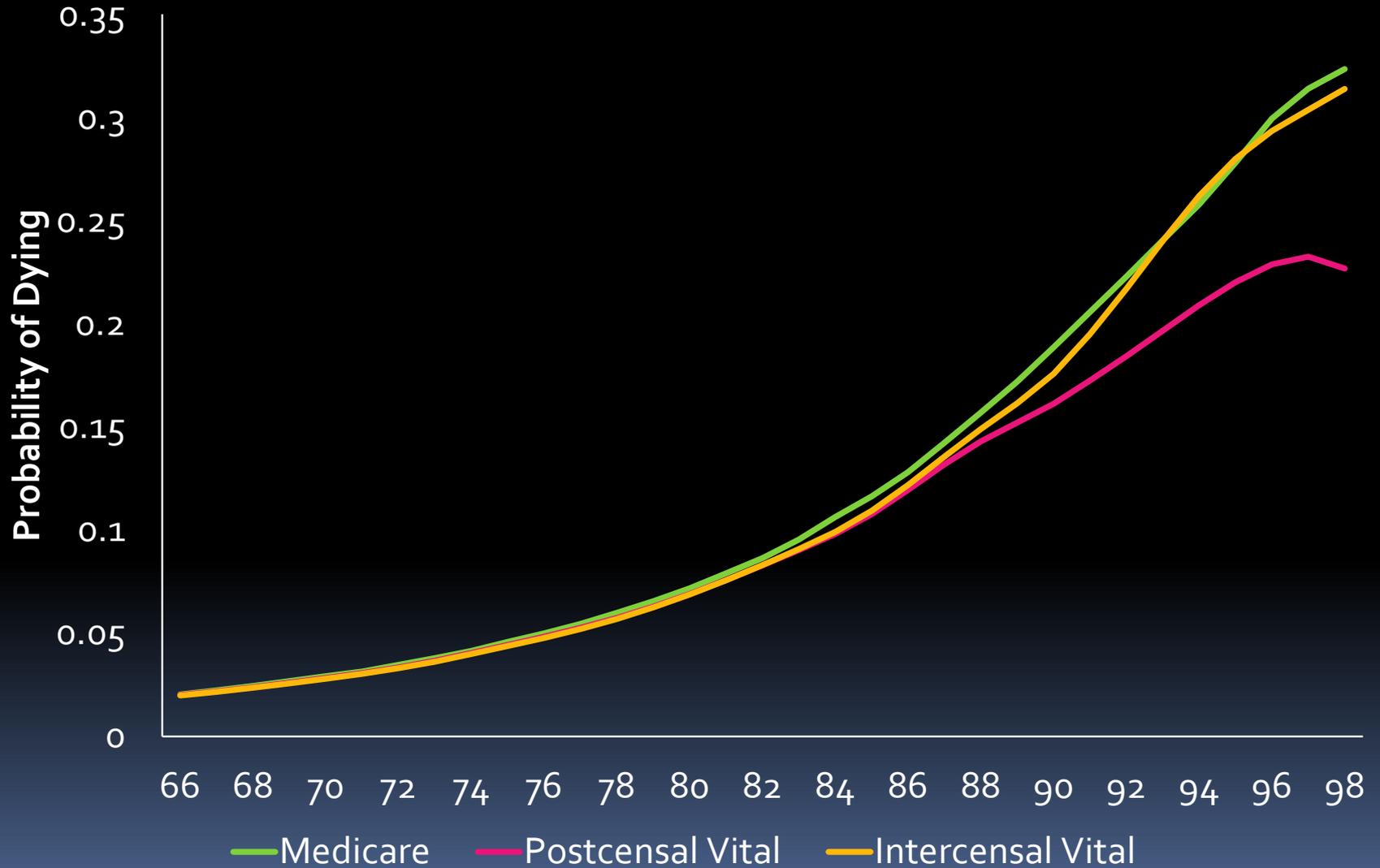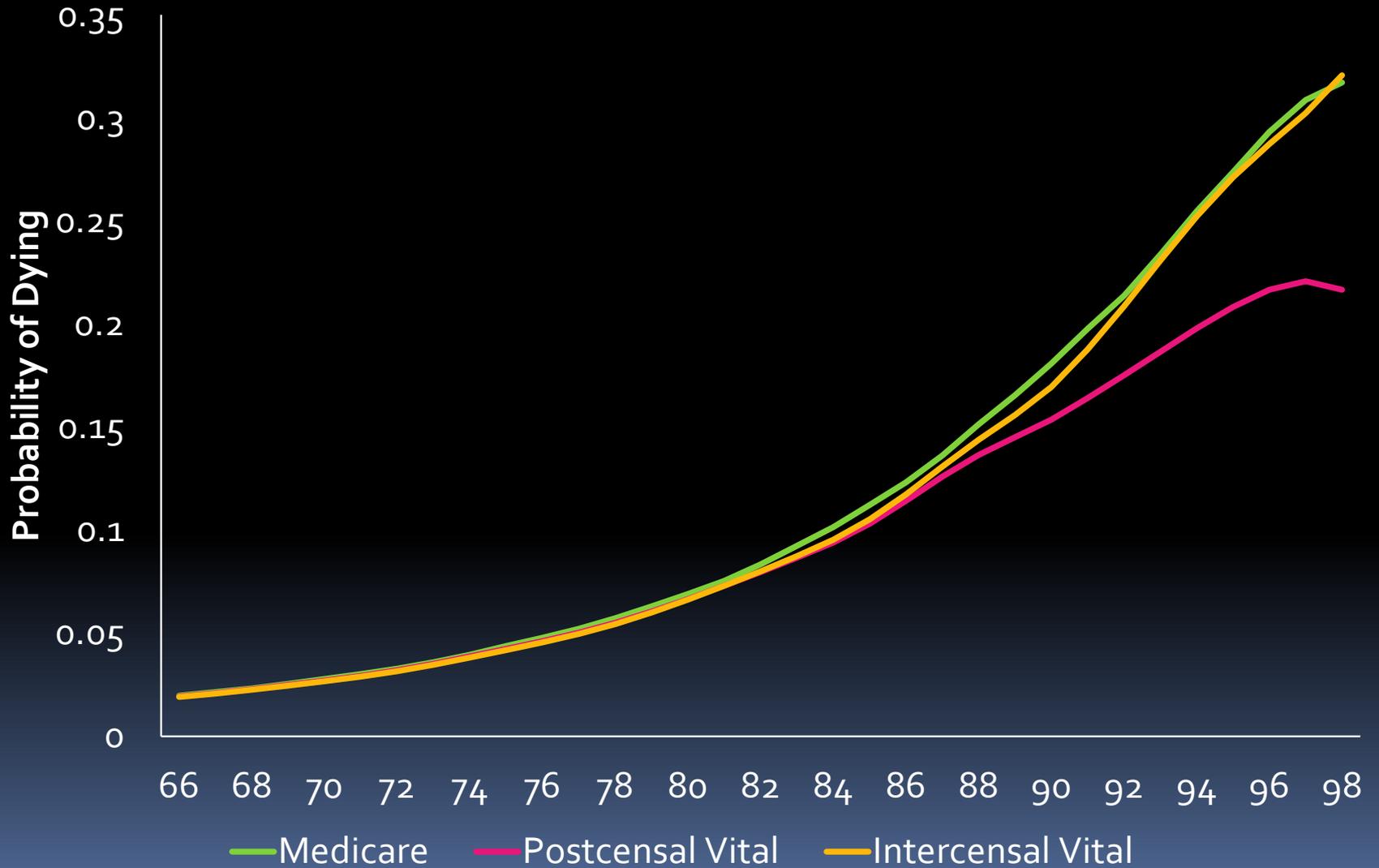
Male, 2000

Male, 2010

Medicare — Decennial Census - Vital

Male, 2001

Male, 2002

A line chart titled "Male, 2002" with y-axis labeled "Probability of Dying" ranging from 0 to 0.35, and x-axis ranging from 66 to 98. Three lines are plotted: Medicare (green), Postcensal Vital (pink), and Intercensal Vital (orange).
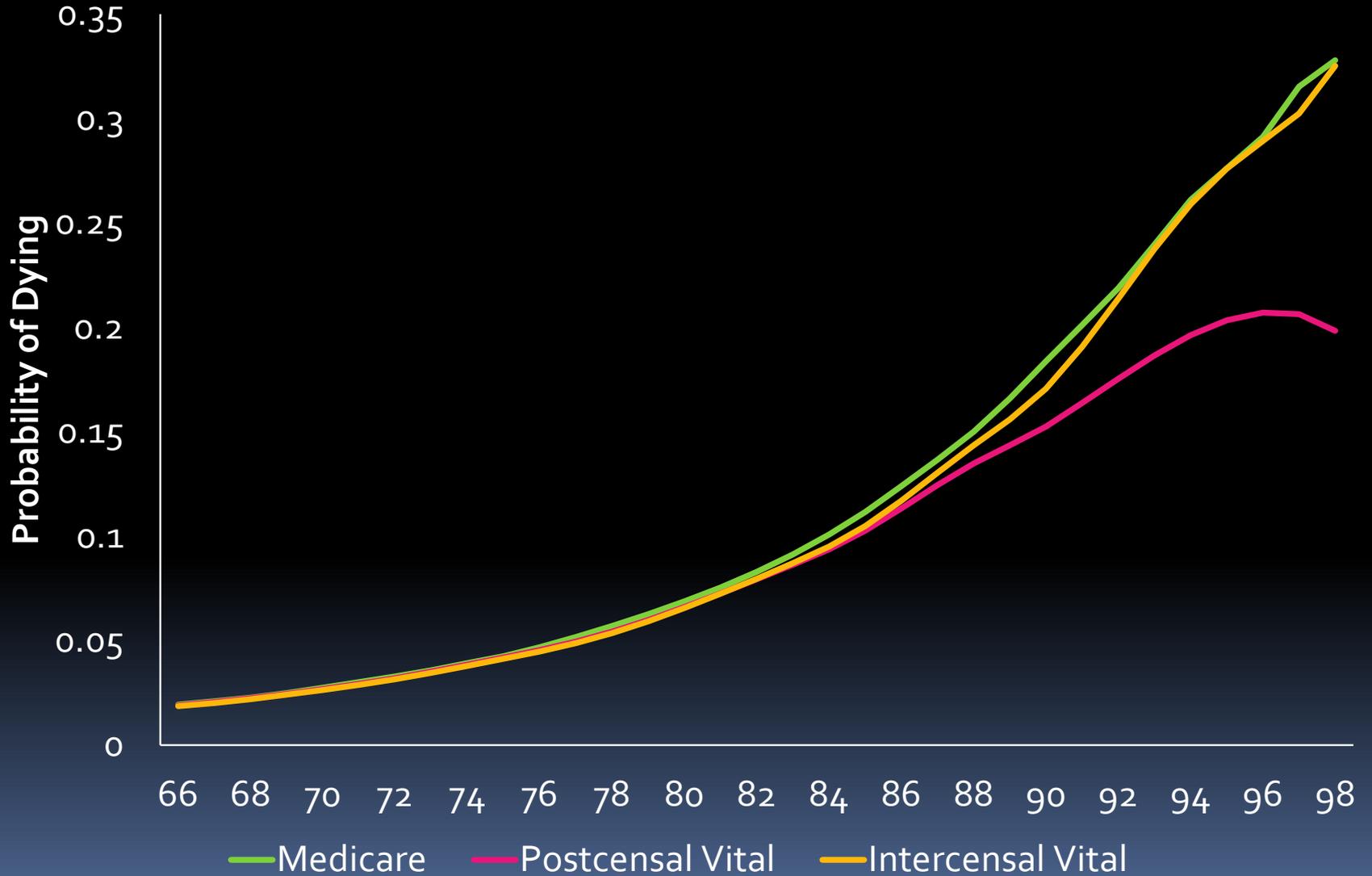
Male, 2003

Male, 2004

Male, 2005

Male, 2006

Male, 2007

Probability of Dying vs Age (66–98)

Legend: Medicare, Postcensal Vital, Intercensal Vital
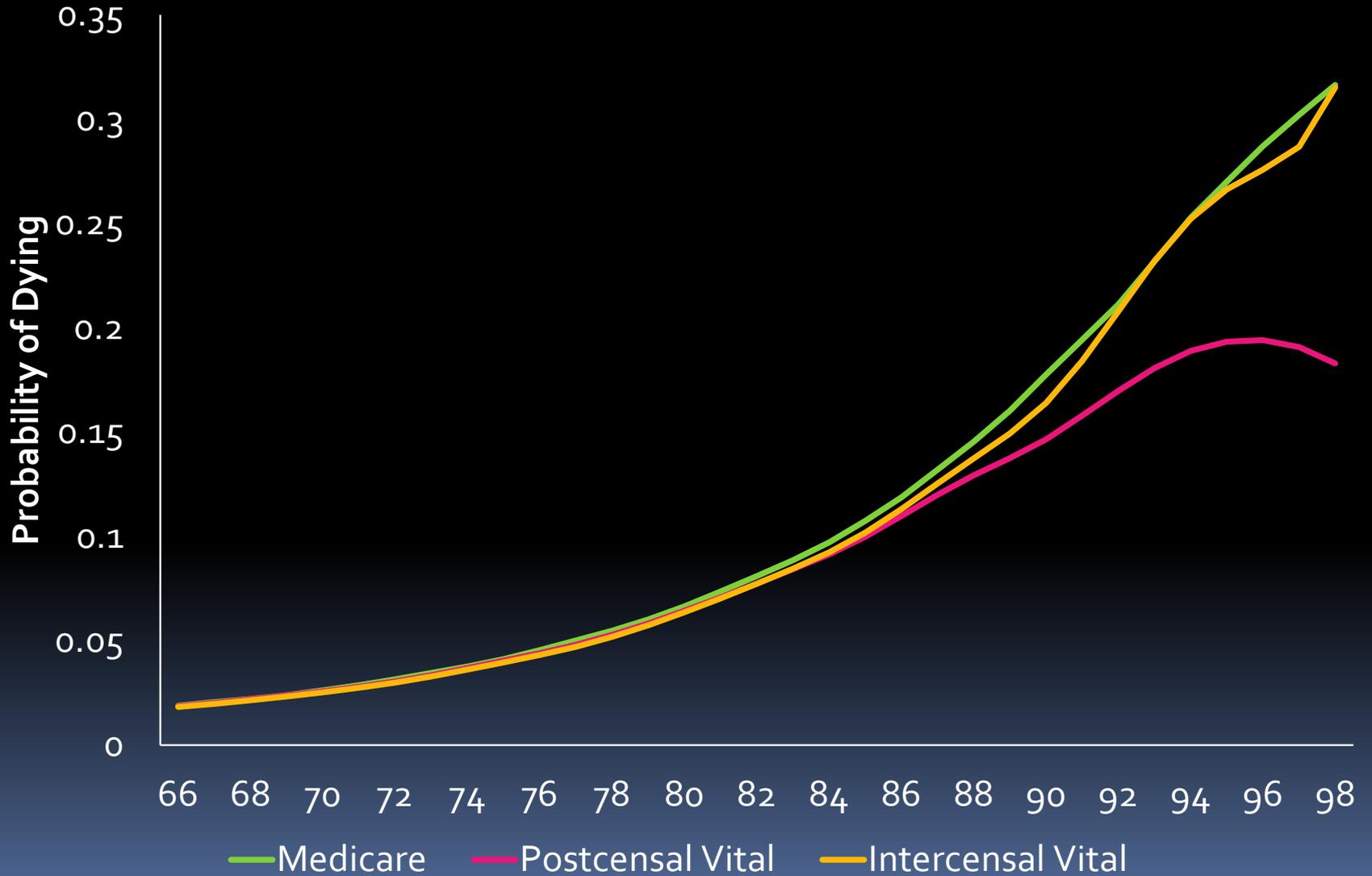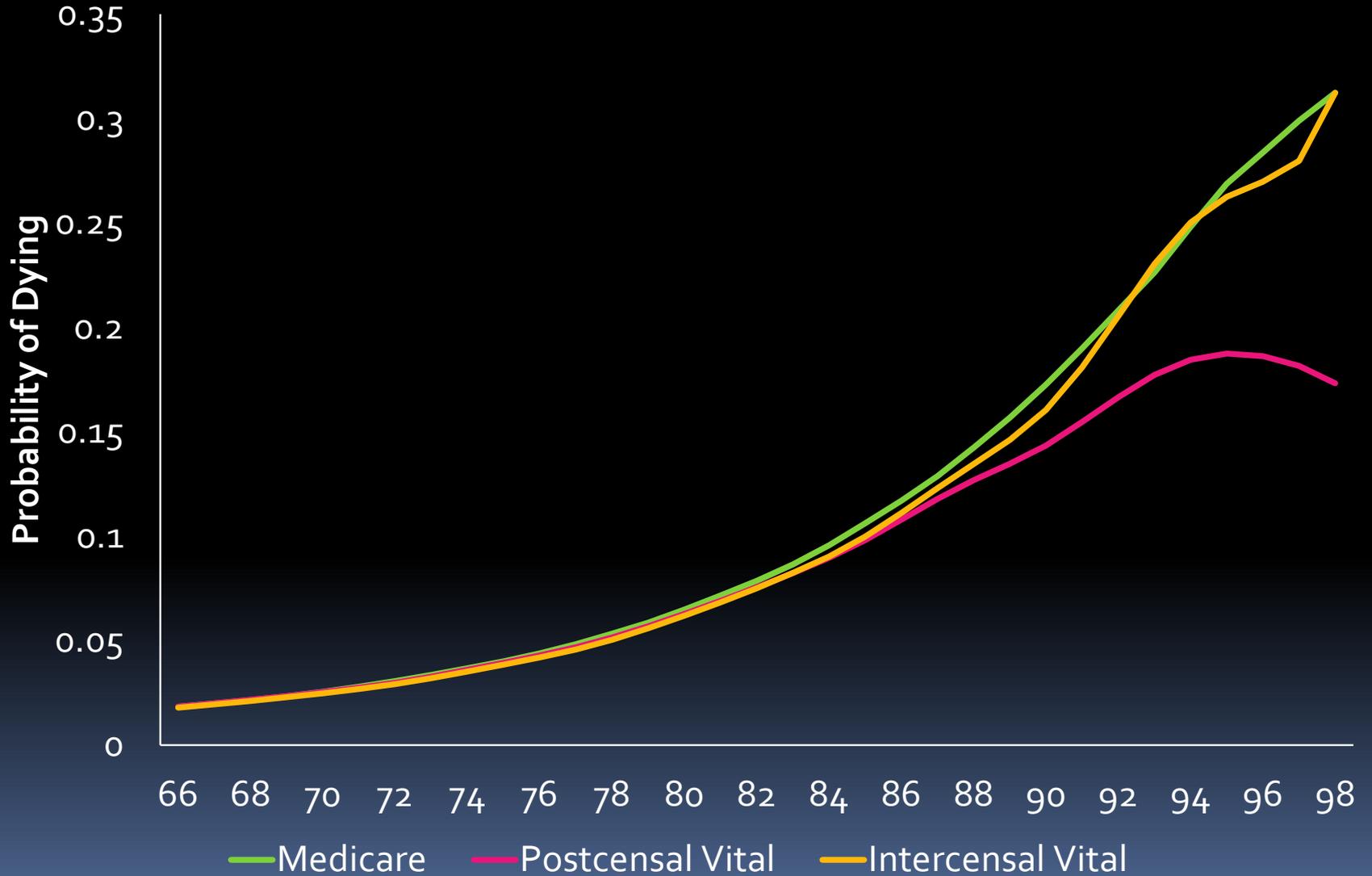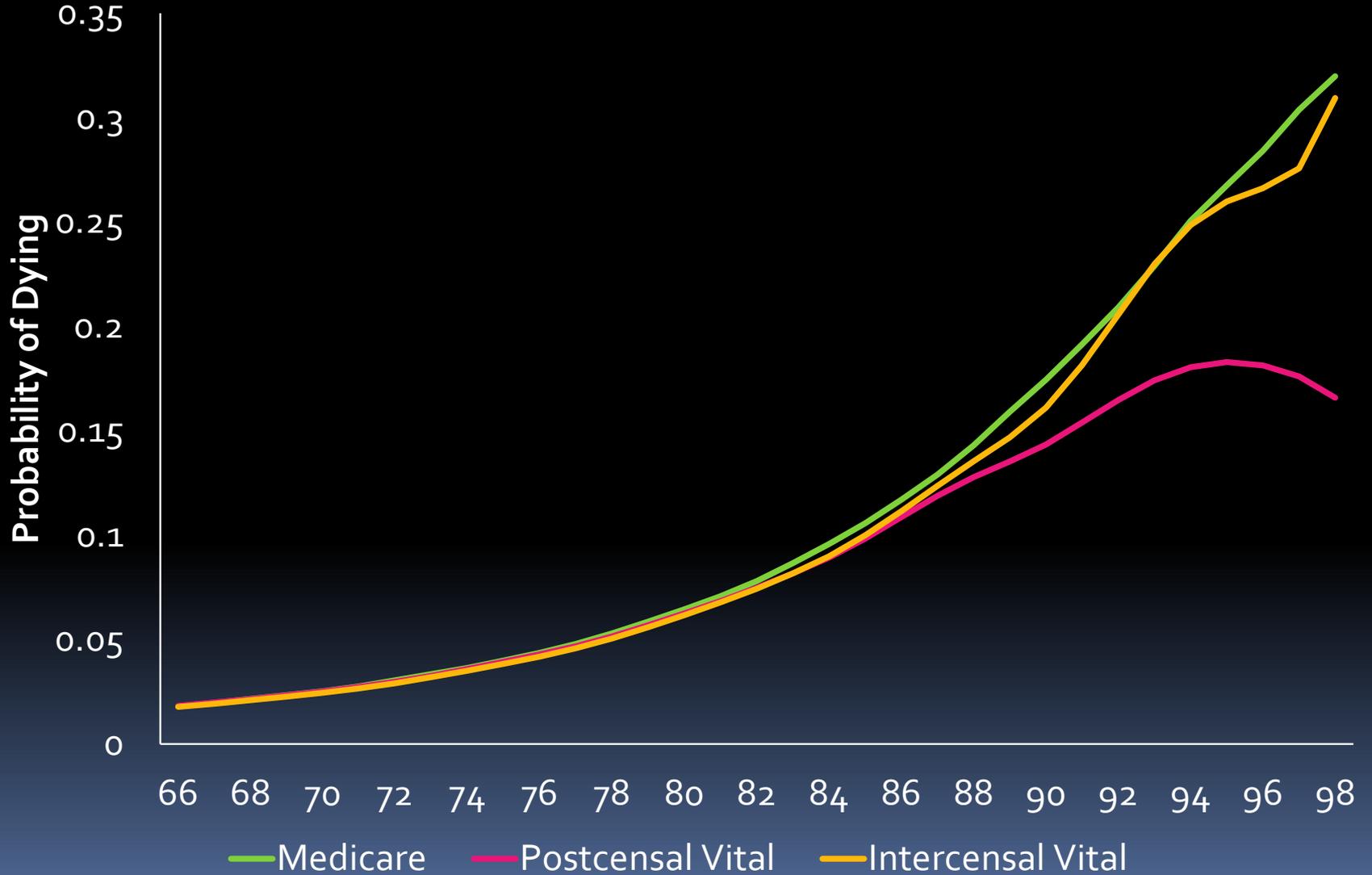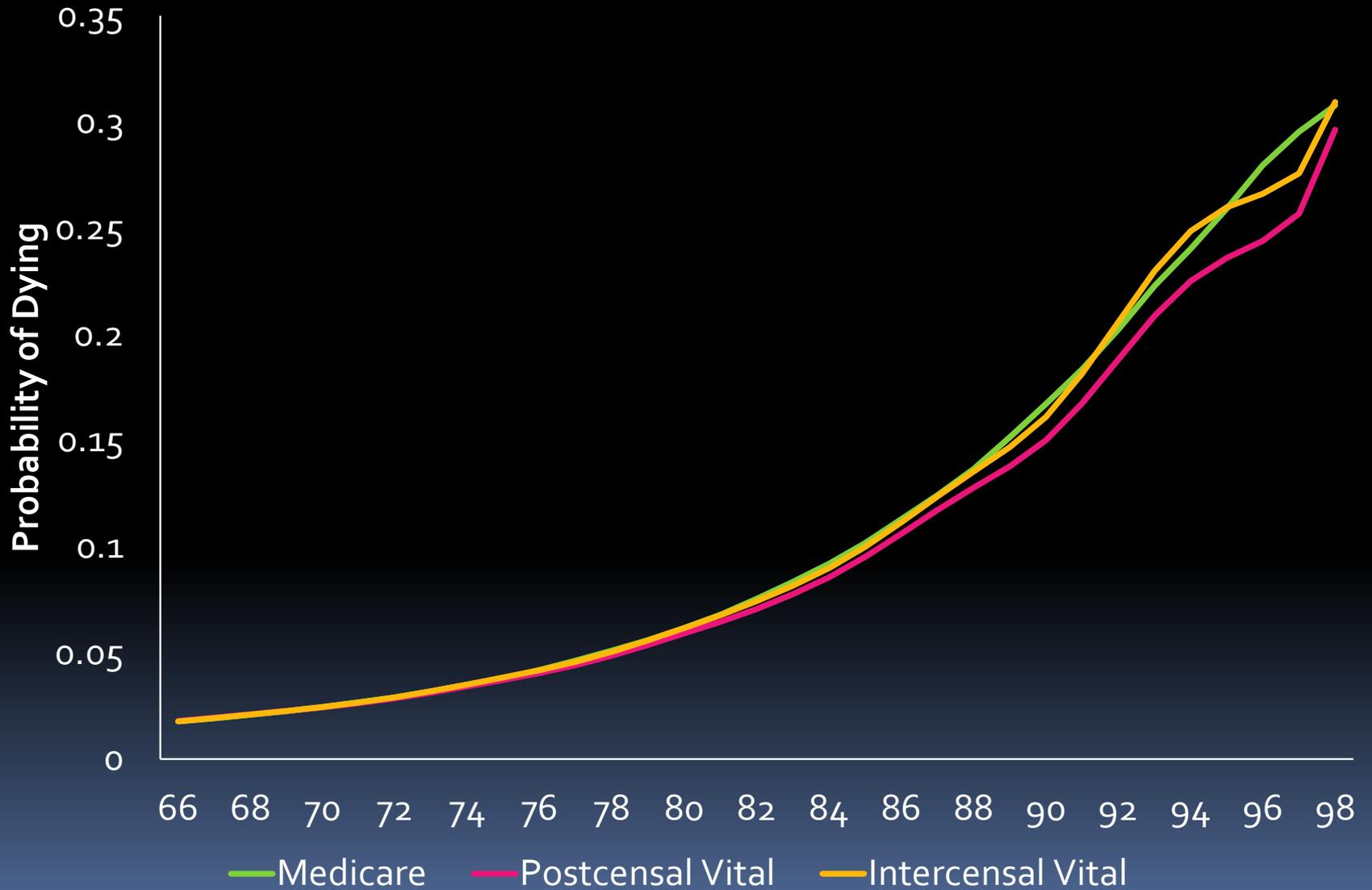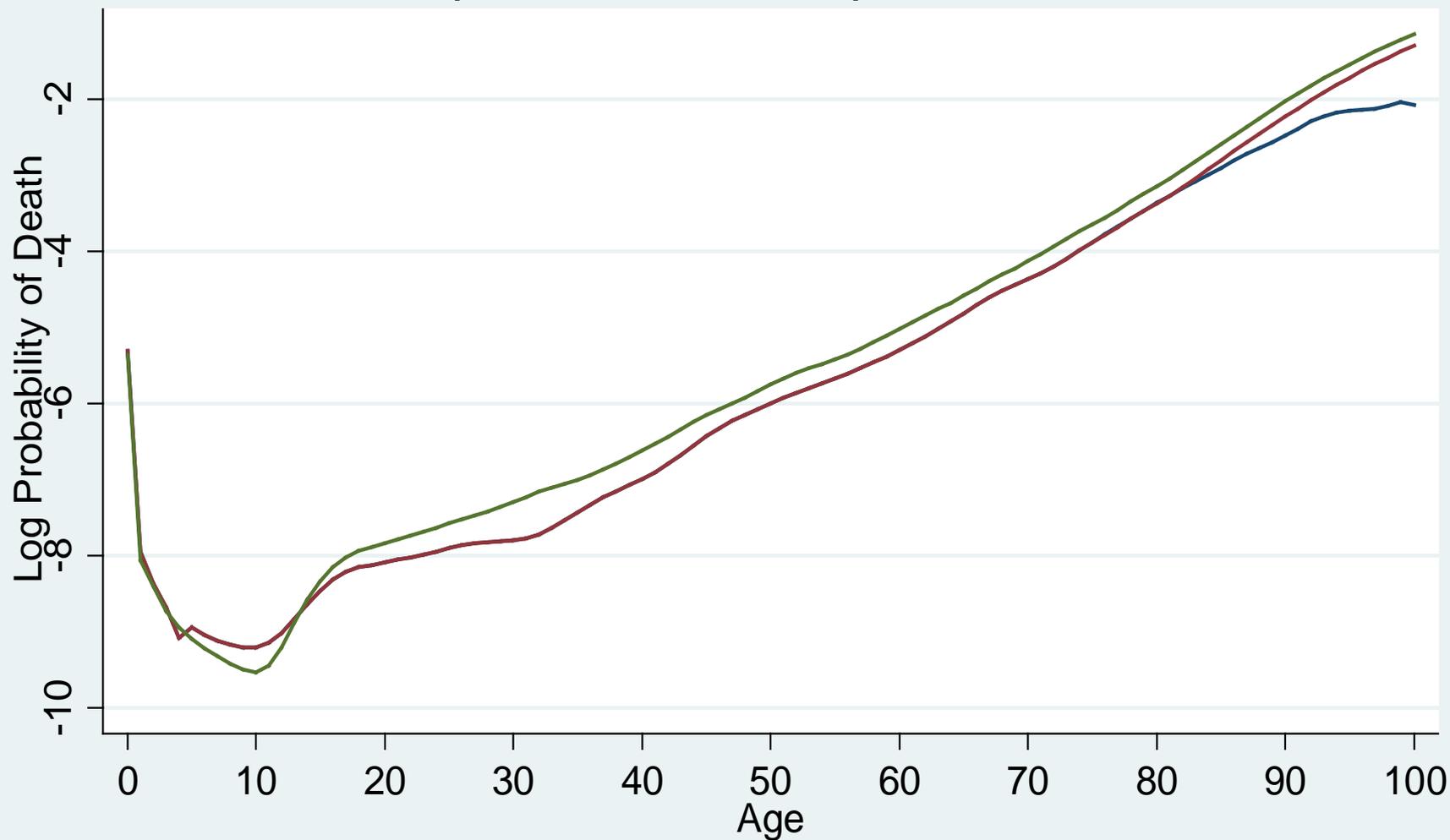
Male, 2008

Male, 2009

Preliminary Conclusions

- The censal estimates, both 2000 and 2010 are pretty close to the Medicare estimates, although there is noticeable improvement between the two periods

- It is what happens during the intercensal period that is interesting
  - The postcensal estimates worsen over time
  - Why?

- The intercensal estimates bring the rates back in line with the censal counts
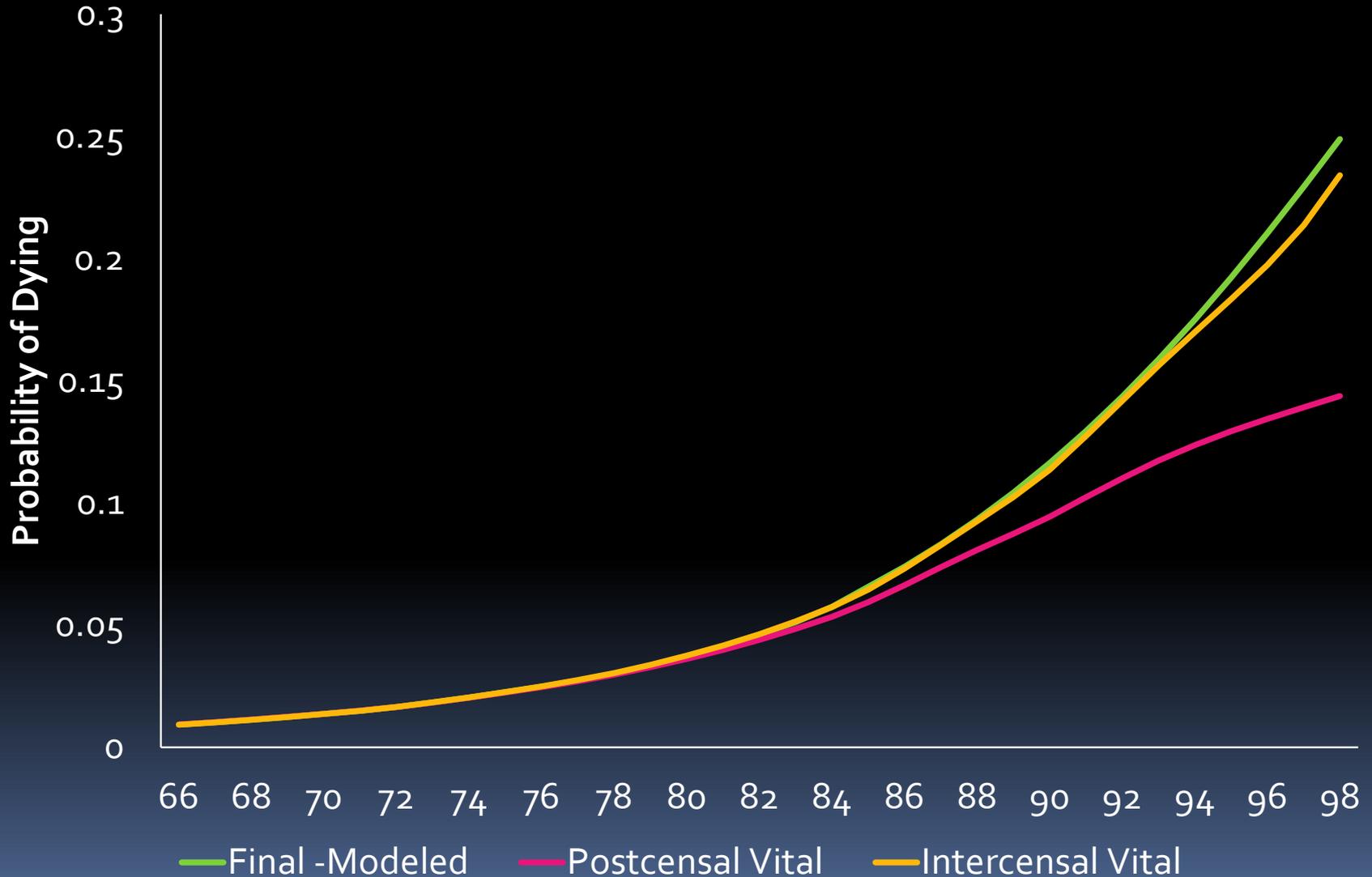
The Hispanic Population and Census Population Estimates

- What about estimates for a population for which we do not have reliable Medicare data?
  - Due to Medicare's racial/ethnic classification system , we do not have old age estimates for the Hispanic population
  - As a result, we use statistical modeling techniques to estimate old age mortality for this population in the production of US life tables
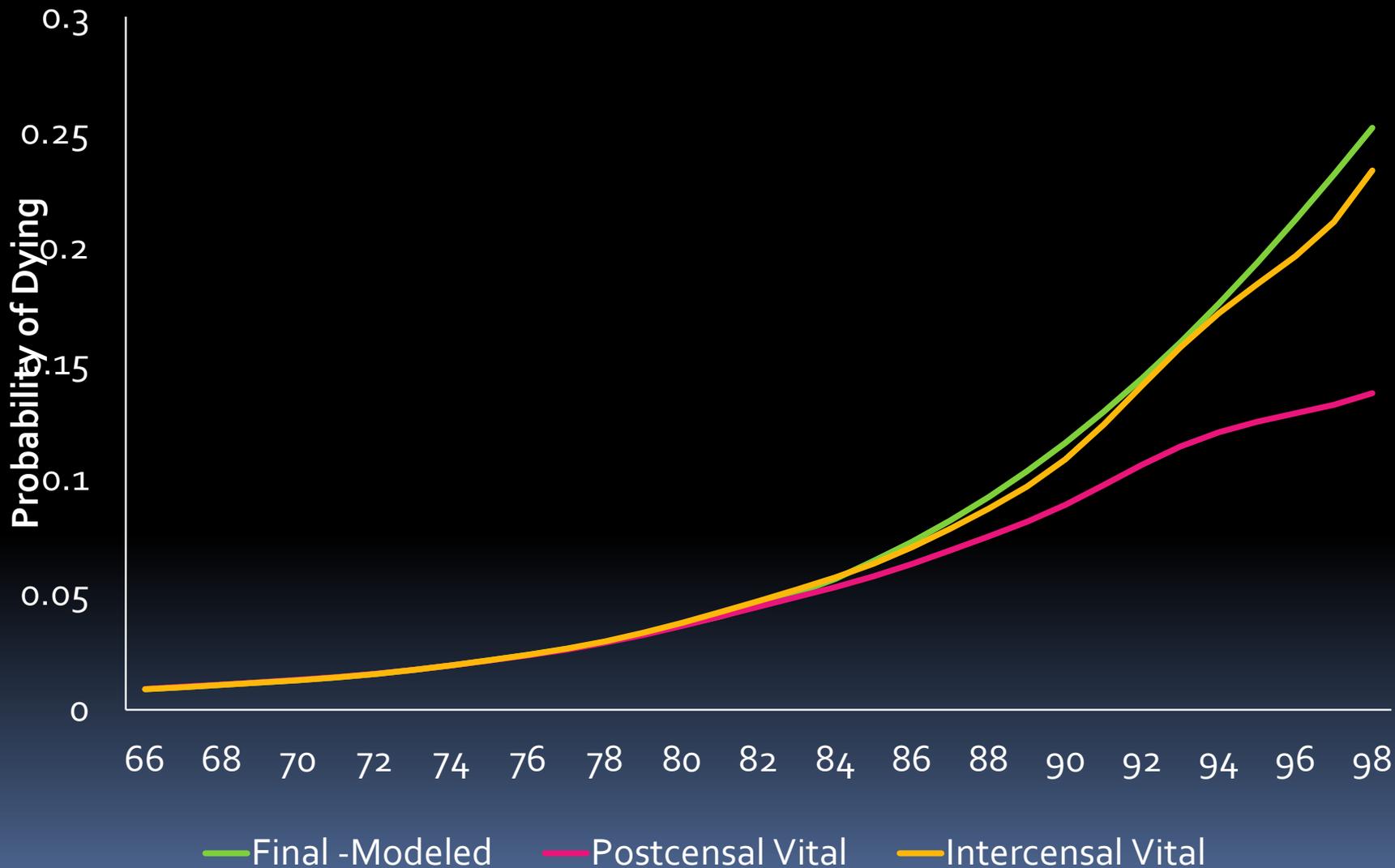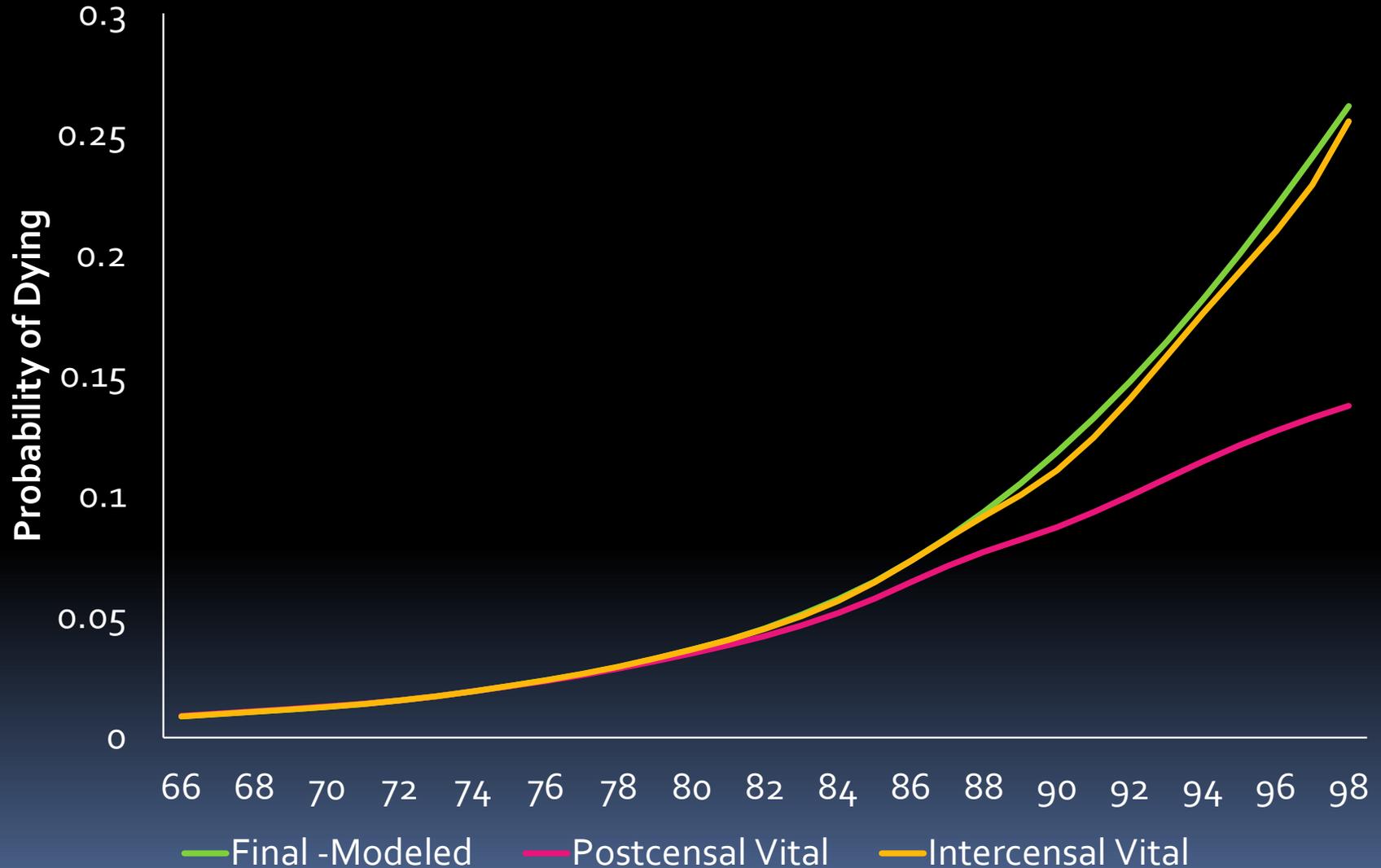
Hispanic Female Population 2009

Hispanic female, 2006

Hispanic female, 2007

Probability of Dying

Final -Modeled — Postcensal Vital — Intercensal Vital

Hispanic female, 2008

Probability of Dying

0.3
0.25
0.2
0.15
0.1
0.05
0

66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98

—Final -Modeled —Postcensal Vital —Intercensal Vital
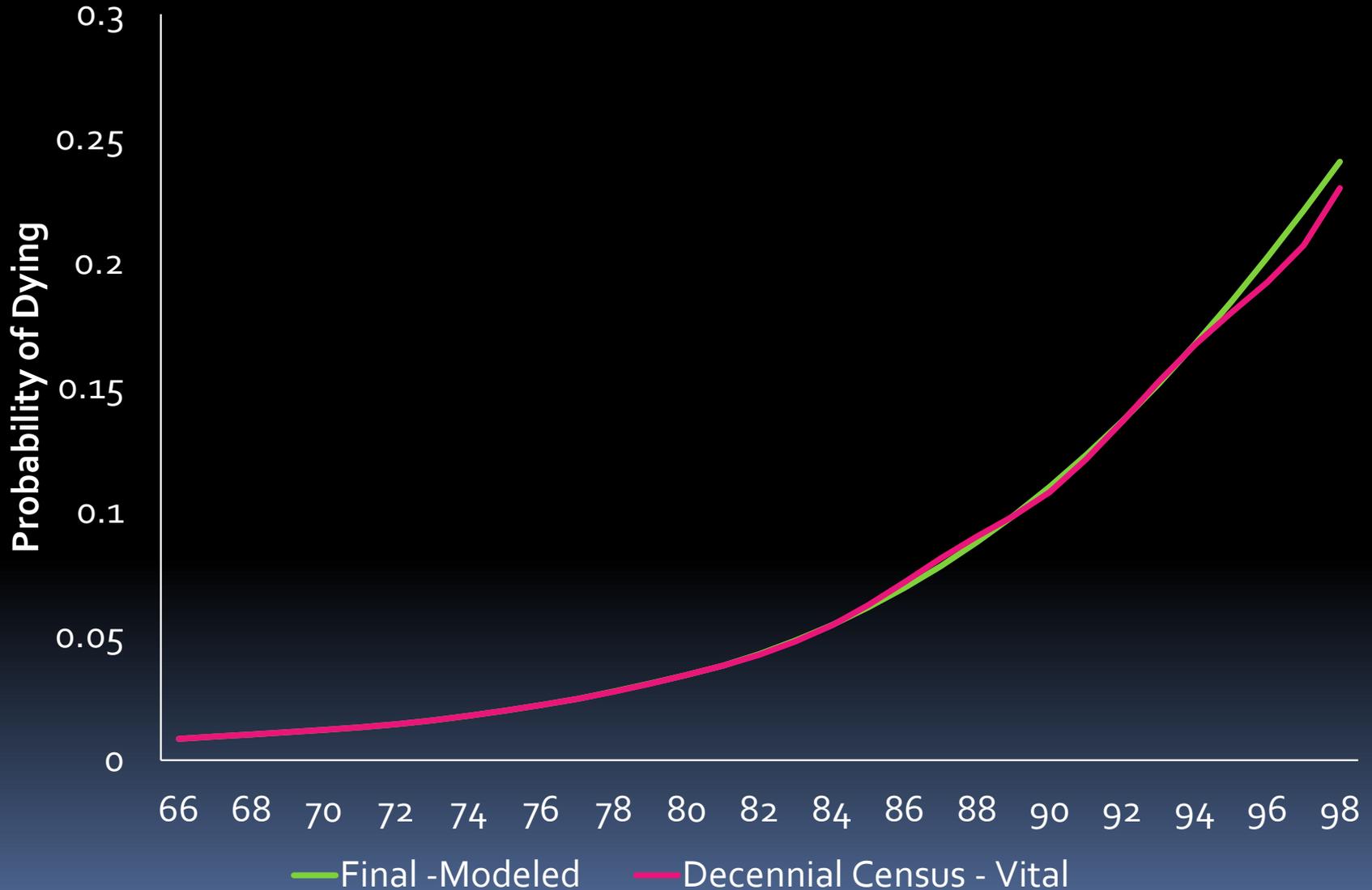
Hispanic female, 2009
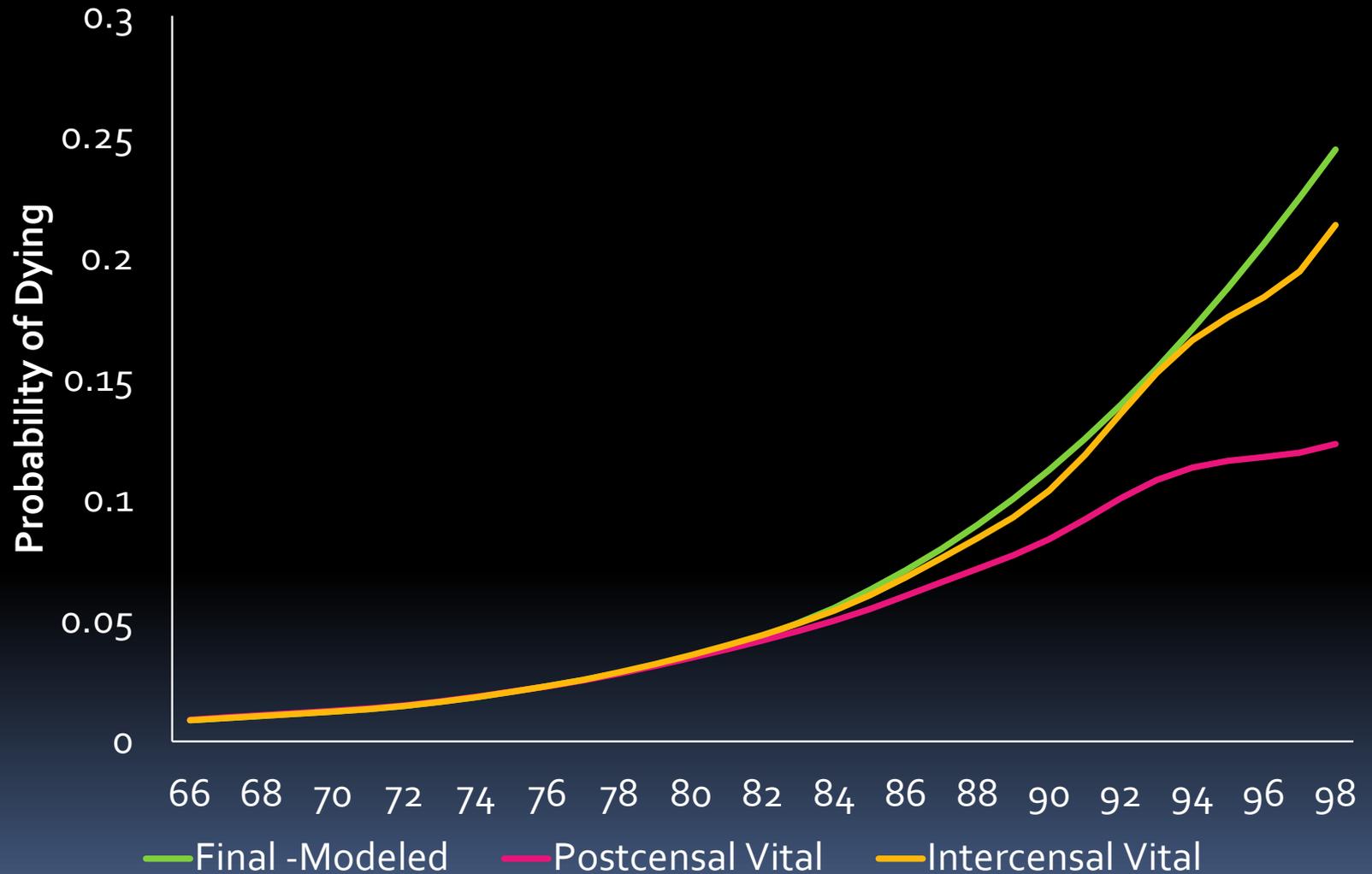
Hispanic female, 2010

Preliminary Conclusions

- 2010 based vital statistics estimates for the Hispanic population ages 80 and older are significantly improved from those based on the 2000 Census

- They are very close in absolute value, shape and form to estimates based on statistical models. These results validate the methodology used to estimate old age mortality for this population

- However, it remains to be seen what the postcensal estimates will look like as the current decade progresses

Overall Conclusions

- Vital statistics old age mortality estimates based on the 2010 Census population count suggest there was improvement over time in age reporting as expected

- However, further evaluation of postcensal estimates is required to establish definitively that reliance on Medicare data will diminish

  - Will the same pattern observed in the 2000-based postcensal estimates be observed for the 2010-based postcensal estimates?

  - What is the cause of this pattern?