

Web appendix 3

Appendix Table 1: Total heart disease and female breast cancer-specific mortality relationships (United States birth cohorts 1915-1924, 1925-1934, 1935-1944), by sex

| Model | | Men (THD) | | Women (THD) | | Women (Breast Cancer) | |
|---------------------------------|-----------------------|-----------------|-------------------------|----------------|-------------------------|-----------------------|-------------------------|
| | | β , p | Deviance, Δ AIC* | β , p | Deviance, Δ AIC* | β , p | Deviance, Δ AIC* |
| Linear | Overall slope | 24.6, p<0.001 | Ref | 13.7, p<0.001 | Ref | 2.5, p<0.001 | Ref |
| Log-linear | Overall slope | 6.3% p<0.001 | -64, -64 | 9.0%, p<0.001 | -120, -120 | 4.2%, p<0.001 | +17, +17 |
| Linear with spline (45 yr) | Slope <45 yr | -2.8 p=0.56 | -21, -19 | -4.9, p=0.22 | -17, -15 | 2.0, p<0.001 | -2, 0 |
| | Δ slope >45 yr | 52.8, p<0.001 | | 37.2, p<0.001 | | 0.7 p=0.14 | |
| Log-linear with spline 45 years | Slope <45 yr | 18.9%, p<0.001 | -103, -101 | 11.9%, p<0.001 | -126, -124 | 18.8%, p<0.001 | -5, -3 |
| | Δ slope >45yr | -10.9%, p<0.001 | | -2.6%, p=0.028 | | -13.5%, p<0.001 | |

W: women; M: men, Linear model: slopes represent increase in deaths per 100000 per year of age; log-linear model: slopes represent percent increase in death rate/year of age, * Lower, i.e., more negative, deviance, defined as $\log_e(\text{likelihood}_{\text{reference}}^2/\text{likelihood}_{\text{model}}^2)$ indicates better model fit. The difference in AIC, the Akaike Information Criterion penalizes the deviance metric for the addition of extra parameters in the interest of model parsimony. A reduction of ≥ 4 logarithmic units in the AIC is considered a significant improvement, while a reduction of ≥ 10 logarithmic units is considered a highly significant improvement in model fit. (Modified from Burnham KP, Anderson DR. *Multimodel Inference: Understanding AIC and BIC in Model Selection. Sociological Methods and Research* 2004;33(2):261-304.) Spline models included the variable “age-spline” was equal to 0 if mid-decadal age was <50 (i.e., younger than the 45-54 year-old cohort, i.e., age<45), and equal to the mid-decadal age for older ages.