Biostat 518 HW 01

1. I don’t know how to verify this with the dataset, because there was no recorded time of enrollment, but I would assume that 4 years is the time-frame for which we have information on all participants. The maximum follow-up time was 8 years, so there are some people for whom we know more, but in order to make use of more data points we’ve chosen to look only at time of death up to 4 years.
2. Table 1: There were 67 missing observations for CRP. Descriptive statistics are categorized by risk of heart disease.

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk of heart disease** | **Low risk (<1mg/L CRP)** | **Avg. risk (1-3 mg/L CRP)** | **High risk (<3 mg/L CRP)** |
| Subjects(n) | 1969 | 1789 | 1175 |
| Male(%) | 44.8 | 42.2 | 37.0 |
| Age (yrs)\*  | 73, 5.71, 65-98  | 72.5, 5.37, 65-100 | 72.7, 5.58, 65-93 |
| BMI\* | 25.14, 3.84, 14.7-43.2 | 27.15, 4.56, 15.1-53.2 | 28.45, 5.46, 15.3-58.8 |
| Smoker(%) | 9.3 | 12.6 | 16.4 |
| Chol. (mg/dL)\* | 210.31, 38.03, 73-407 | 213.96, 39.67, 78-354 | 210.5, 40.39, 97-430 |
| Prev. CVD (%) | 18.9 | 23.5 | 28.8 |
| Death w/in 8 yrs(%) | 18.3 | 22.3 | 29.7 |

\*avg, std dev, range

1. Mean Blood C reactive protein levels (mg/L) differed significantly between participants who died within four years of enrolling in our study vs. those who survived more than four years. We estimate a mean difference between groups of 1.95 mg/L, with a 95% confidence interval of 1.21mg/L to 2.70mg/L, p<.0001.
2. Mean Blood C reactive protein levels (mg/L) differed significantly between participants who died within four years of enrolling in our study vs. those who survived more than four years. We estimate a geometric mean difference between groups of 6.89 mg/L, with a 95% confidence interval of 3.28mg/L to 14.47, p<.0001. Note: values of 0 were recoded as .5. UGGGHHHH HOW TO INTERPRET?
3. There was a significant difference between the proportion of people with low CRP who died within the 4-year study time, and deaths within the high CRP group. (8.01% vs. 15.57% respectively). Our chi-squared value was 57.89, with p<.001.
4. The odds of death were significantly higher (p<.001) for the group with high CRP with an estimated odds ratio of 2.12 (95% confidence interval of 1.74-2.57).
5. The instantaneous risk of death is 2.048 times higher for people with high CRP levels than those with low (p<.0001, 95%CI 1.70-2.46).
6. I would have chosen to report the odds ratio, as I think it is the easiest to interpret and make sense of. The vagueness of a unit of time makes me dislike the hazard ratio, and the difference in probability is also somewhat abstract, but hearing that the odds of death being twice as high with high CRP levels would make me want to do something to lower my CRP levels.