**BS852 Homework 8**

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B. The following questions refer to the same data set used in Homework 5, contained in file lungca. Survival time up to 90 days, the dependent variable, is the next column(X9) in the data set. Use the status at the end of 90 days (Y) as the censoring variable, with censoring being a value of 0, and variables X1, X2, …, X8 as the independent variables to answer the following questions.

1. Use PROC LIFETEST to obtain plots of the survival distribution for each treatment group. Does treatment appear to affect survival? (If you are familiar with the logrank test, interpret it.) Program as follows:

PROC LIFETEST PLOTS = (S,LLS);

TIME DTHSUR\*STATUS(0);

STRATA TREAT;

where DTHSUR is your label for X9, STATUS is Y, and TREAT is X1.

**Solution:** Firstly I import the file lungca into SAS and name the data set Lungca.

The SAS input to obtain plots of the survival distribution for each treatment group is,

*proc lifetest data= Lungca plots = (s,lls);*

*time X9\*Y(0);*

*strata X1;*

*run;*

I get lots of results which I attach in next page. Based on the results, I conduct hypothesis test to know if treatment appear to affect survival.

X1, treat: 1 if in test treatment, 0 if standard treatment

X9, dthsur: dependent variable

Y, status: status at the end of 90 days, censoring variable

H0: no association between treatment and survival status;

H1: there is an association between treatment and survival status.

Standard treatment group: Mean survival time = 57.6812, standard error = 3.6741.

Test treatment group: Mean survival time = 56.3529, standard error = 4.0150.

Chi-square statistic for Log-Rank test = 2.8013 (df = 1), p-value = 0.0942.

This analysis suggests that there is not a significant association between treatment and survival status. Males who are in test treatment do not have shorter survival compared to Males with standard treatment. The difference in disease free survival is not statistically significant (chi-square=2.8013, df=1, p-value = 0.0942>0.05).