**Supplemental Digital Content 6. Testing Proportional Hazards Assumption**

We justify the proportional hazard assumption in two ways. First, we plot the weighted Schoenfeld residuals against time. The relatively straight line in the plot indicates the proportional hazards assumption is valid. To see that quintile-based analysis is correct, we look at the log hazard, or equivalently the log of the negative log of survival time, stratified by the 5 quintiles of the PBS. Nonparallel or crossing curves indicate that the proportional hazards assumption is not valid. For very small values of time with few observations, the curves cross. However, as log time increases to reasonable values the curves become parallel and do not cross each other. (Figure 3)



**Caption**: Schoenfeld residuals plotted against time. A straight line indicates that the coefficients fit with Cox regression do not change with time.

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**Caption**: A plot log Hazard, equivalent to log of negative log of Survival time, against time. Parallel lines indicate the proportional hazards assumption is justified.