

Assignment 12: Solutions

1. (a)

Therapy	Time	Death/Transplant	$n(t)$	$\hat{S}(T)$
	...			
Penicillamine	799	Yes	139	.873
Penicillamine	824	Yes	138	.867
Penicillamine	839	No	137	.867
Penicillamine	877	Yes	136	.860
Penicillamine	901	Yes	135	.854
Penicillamine	904	Yes	134	.848
	...			

(b)

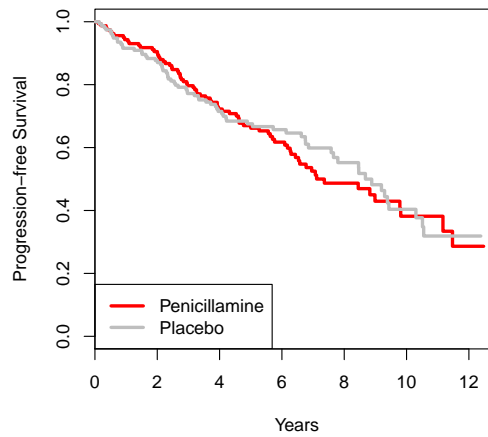
	Death/Transplant	
	Yes	No
Penicillamine	0	136
Placebo	1	127

(c) Answers for (i) and (ii) can be obtained via:

```
Data <- read.delim("http://myweb.uiowa.edu/pbreheny/data/cirrhosis.txt")
require(survival)
S <- with(Data, Surv(Time,Status!=0))
Group <- Data$Group
survdif(S~Group)
fit <- survfit(S~Group)
plot(fit,mark.time=FALSE, col=c("red","gray"), lwd=3,
      xlab="Years", ylab="Progression-free Survival")
legend("bottomleft",levels(Group), lwd=3, col=c("red","gray"))
```

(i) The Log-Rank test yields  $p = 0.73$ .

(ii)



- (iii) Yes, both the analysis above and the literature review indicate that there is no difference in survival for patients on penicillamine and those on placebo.
- (d) (i) Approximately 65% for both.  
(ii) About 7 years for the penicillamine group and 8.5 years for the placebo group.
- (e) (i) wider, because more subjects have been censored by 9 years as compared to 1 year.
- (f) (iii) narrower, because fewer patients will have been censored before the 25th percentile than the 50th percentile (the median).