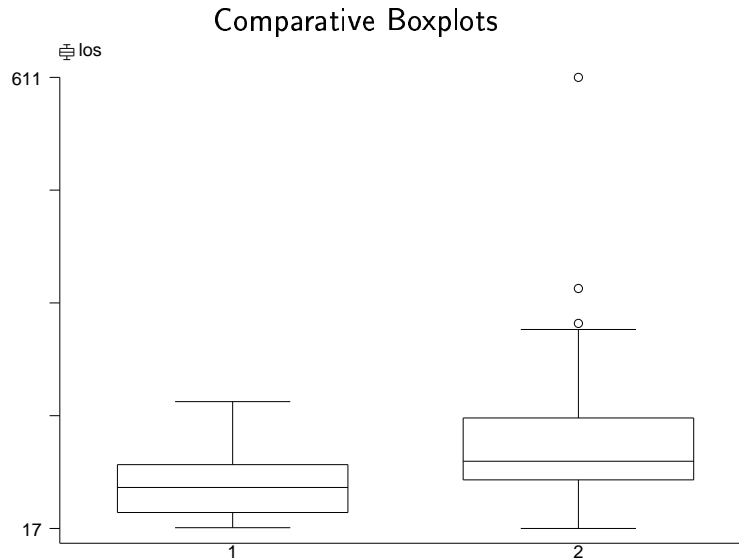


# Unequal Variances

## Length of Stay Comparison for Two Hospitals



```
. sdtest los, by(hosp)
```

Variance ratio test

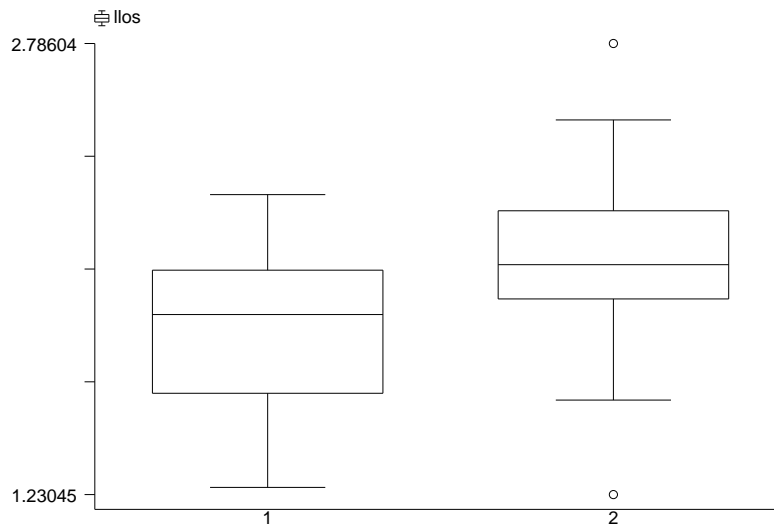
Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
1	25	80.44	9.600708	48.00354	60.62511 100.2549
2	24	146.9167	26.47455	129.6983	92.14988 201.6834
combined	49	113	14.52645	101.6852	83.79261 142.2074

Ho: sd(1) = sd(2)

F(24,23) observed = F\_obs = 0.137  
 F(24,23) lower tail = F\_L = F\_obs = 0.137  
 F(24,23) upper tail = F\_U = 1/F\_obs = 7.300

Ha: sd(1) < sd(2)      Ha: sd(1) ~ = sd(2)      Ha: sd(1) > sd(2)  
 P < F\_obs = 0.0000      P < F\_L + P > F\_U = 0.0000      P > F\_obs = 1.0000

Skewness suggests transforming by logarithms ....



```
. sdtest llos, by(hosp)
```

Variance ratio test

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
1	25	1.819726	.0587387	.2936933	1.698495	1.940957
2	24	2.037784	.0705291	.3455209	1.891884	2.183685
combined	49	1.92653	.0479079	.335355	1.830205	2.022855

Ho: sd(1) = sd(2)  
 F(24,23) observed = F\_obs = 0.723  
 F(24,23) lower tail = F\_L = F\_obs = 0.723  
 F(24,23) upper tail = F\_U = 1/F\_obs = 1.384  
 Ha: sd(1) < sd(2)      Ha: sd(1) ~ = sd(2)      Ha: sd(1) > sd(2)  
 P < F\_obs = 0.2173      P < F\_L + P > F\_U = 0.4368      P > F\_obs = 0.7827

```
. ttest llos, by(hosp)
```

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
1	25	1.819726	.0587387	.2936933	1.698495	1.940957
2	24	2.037784	.0705291	.3455209	1.891884	2.183685
combined	49	1.92653	.0479079	.335355	1.830205	2.022855
diff		-.2180584	.0914779		-.4020882	-.0340287

Degrees of freedom: 47

Ho: mean(1) - mean(2) = diff = 0  
 Ha: diff < 0      Ha: diff ~ = 0      Ha: diff > 0  
 t = -2.3837      t = -2.3837      t = -2.3837  
 P < t = 0.0106      P > |t| = 0.0212      P > t = 0.9894