

# How to correctly perform log-rank tests in a study population of 15 observations and less than 10 events?

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## Briefly Explain Your Question (max. 100 words)

We have collected a cohort of 15 patients diagnosed with a rare bone tumor, among which 10 low grade and 5 high grade, to estimate their survival using as outcomes tumor relapse (6 events) and mortality (4 events).

Following general advice, we performed log-rank test to compare the Kaplan-Meier curves of the two grade groups using nonparametric bootstrap with 1000 replications (Stata 15.1, bootstrap command). Is nonparametric bootstrap the appropriate tool for our analysis, given the presence of censoring in the data and the extremely limited sample size?

## Scientific field(s) of the author(s)

Medical statistics, Anatomic Pathology

## Relevance to conference theme (max. 50 words)

Although log-rank test is a tool widely used in medical statistics, literature regarding specifically the adaptations for very small sample size seems lacking. The increasing need to analyze the outcomes of very specific, and thus rare, types of tumor urge spreading knowledge about this issue.

## Keywords (max. 3)

Log-rank test, bootstrap, rare tumors