Estimation of Gamma Distributed Frailty Effects

Abstract: Techniques for analyzing survival data typically assume survival times for individuals are independent. While this may be practical under controlled experimental situations, this assumption is likely invalid when analyzing groups of individuals who share a common characteristic or risk. For example, survival times of individuals within families may be dependent based on a common genetic makeup. This paper introduces the concept of a frailty model where the frailty is an addition of an unobservable random effect to the survival model, and presents two methods for estimation for a gamma distributed frailty.