

# Bosenberg's SED Data – Revisited

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Recall Bosenberg's Skin-Epidural Distance (SED) data (see Figure 1). In our previous work, we used linear regression to estimate the relationship between body weight and average SED. The goal was to identify a weight-based prediction rule that would better inform the epidural catheterization process. An epidural catheter that does not reach the epidural space may be ineffective. If the needle is inserted beyond the epidural space, then there is a risk of spinal cord injury. Hence, insertion beyond the epidural space carries the greater risk.

In order to address this concern, implement an analytical strategy to identify a weight-based “stopping” rule, i.e., the maximum distance that a catheter/needle should be inserted, given a patient's body weight. Create a reproducible report that explains your rationale, the analytical strategy, and your findings. The Bosenberg SED, and a reproducible document template may be found at the URLs below.

<http://biostat.mc.vanderbilt.edu/wiki/Main/BosenbergSED>

<http://biostat.mc.vanderbilt.edu/wiki/pub/Main/ReproducibleResearchTutorial/Bosenberg1995.csv>

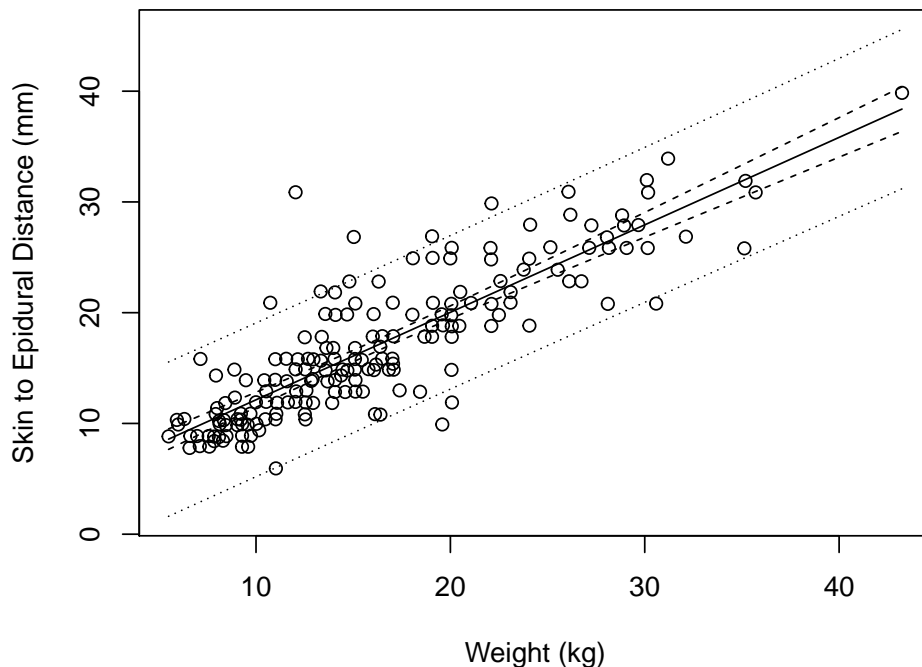


Figure 1: Scatterplot of weight versus skin-to-epidural distance (SED) for 179 subjects. The ordinary least squares fit is overlaid in black. The estimated intercept and slope are 4.24 mm and 0.79 mm/kg, respectively. Dotted lines represent a 95% pointwise prediction band. Dashed lines represent a 95% pointwise confidence band for the fit.