

Ch11.04.A. Epidural analgesia and C-section rates (adapted from a problem by Susan Lee).

In problem 9.6 we showed a figure from a natural experiment that occurred when the US Department of Defense began to offer epidural anesthesia during labor.

The observed proportions of Cesarean deliveries were 14.4% of 507 deliveries before and 12.1% of 581 deliveries after the policy change. Although not provided by the authors, this is an absolute risk reduction (ARR) of 2.35%, with a 95% CI (for the risk *reduction*) of (-1.7% to 6.4%). For each of the following statements about this risk reduction and 95% CI, **read the statement carefully**, indicate whether it is true or false **and explain**.

- a. The ARR does not appear to be statistically significant at the $\alpha = 0.05$ level.
- b. The 95% CI means that if we could repeat this study many times, we would expect the observed risk difference to fall in this interval about 95% of the time.
- c. The range of changes in C-section rates consistent with this study is between a 1.7% decrease and a 6.4% increase after the policy was implemented.
- d. The observed effect of **labor epidural analgesia** on the proportion of women receiving C-sections in this study was a 2.35% decrease (95% CI from a 6.4% decrease to a 1.7% increase).

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