

Chapter 2, Review problem 7:

- (a) This was an **Observational study** because the women in the study chose to use or not use oral contraceptives, so they placed themselves in the treatment group (used oral contraceptive) and control group (did not use oral contraceptives).
- (b) They did this to **control for** possible confounding variables.
- (c) Women using the pill were likely to be *more sexually active* on average than women who were not using the pill. As we now know, cervical cancer is largely caused by the sexually transmitted human papillomavirus. More sexual activity means higher chance of HPV contagion and higher likelihood of cervical cancer.
- (d) No. See (c).

Chapter 2, Review problem 11:

- (a) Reading the prison spokesman's comparison very carefully indicates that the treatment group in the spokesman's statement is the group of inmates who *completed* bootcamp. It follows that the control group consists of all the inmates who either didn't participate in the bootcamp at all or those who started the bootcamp but did not complete it.
- (b) This is an observational study — the inmates who completed the bootcamp *chose to do so*.
- (c) **False.** This is an observational study and therefore we need to be on the lookout for confounding variables. In this case, the question we should ask ourselves is:

Are inmates who volunteer for bootcamp and choose to stay for the duration of the program different from the other inmates in any other way that might affect their recidivism rate?

One possible important difference is the *motivation of the inmates not to return to prison*. It is possible that the inmates who completed the bootcamp were the most motivated not to return to prison, and would have stayed out of trouble upon their release anyway, with or without participating in the program. This confounding variable, means that we can't be sure that the bootcamp is the reason the recidivism rate in the treatment group was lower. (To be clear: the data presented in this problem don't prove that the program is not working either. We just can't say definitively that it is, so the answer to the question is 'false'.)