

Homeworks are due in Wednesday lecture and will be returned the following week in the discussion section.

At the top of your homework, write the number, day, and time of the discussion section in which you are enrolled. Also include the number, day, and time of the section that you will be attending (if it is different).

1. Textbook: 2.79 (pg 69) Use R; the data are available at the following.

[http://www.biostat.wisc.edu/%7Ekbroman/teaching/stat371/data\\_2-79.txt](http://www.biostat.wisc.edu/%7Ekbroman/teaching/stat371/data_2-79.txt)

You can load it into R by typing

```
dat <- scan("http://www.biostat.wisc.edu/%7Ekbroman/teaching/stat371/data_2-79.txt")
```

2. Textbook: 8.1 (pg 316)
3. Textbook: 8.20 (pg 333)
4. In the U.S. in 1990, there were 2.1 million deaths from all causes, compared to 1.7 million in 1960—nearly a 25% increase. True or false, and explain: the data show that the public's health got worse over the period 1960–1990.
5. The following table shows data from the 1954 NFIP study of the Salk vaccine.

Group	Size	Rate
Grade 2 (vaccine)	225,000	25
Grades 1 and 3 (control)	725,000	54
Grade 2 (no consent)	125,000	44

(Rates are per 100,000)

To show that the vaccine works, someone wants to compare the frequency  $44/100,000$  of grade 2 children not receiving the vaccine with the frequency  $25/100,000$  of grade 2 children who received the vaccine. What's wrong with this idea?

6. Cervical cancer is more common among women who have been exposed to the herpes virus, according to many observational studies. Is it fair to conclude that the virus causes cervical cancer?
7. The Public Health Service studied the effects of smoking on health, in a large sample of representative households. For men and for women in each age group, those who had never smoked were on average somewhat healthier than the current smokers, but the current smokers were on average much healthier than those who had recently stopped smoking. The lesson seems to be that you shouldn't start smoking, but once you've started, don't stop. Comment briefly.