

STAT 302H: Principles of Biostatistics

Homework 1 Solution (due 9/5/07)

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1. Figure 1 suggest that Ms. Gilbert may be guilty because it shows an increase in the deaths during the shifts that she worked from 1990-1995.
 - Ms. Gilbert worked the night shift in the year 1990, correlating to more deaths.
 - She worked the evening shift from 1991-1995, which also showed the increased deaths.
 - The years that she didn't work, there is a decrease in the deaths.
2. Figure 1 just shows the increase in the number of deaths but does not explain the reason of the death. Other explanations are possible. Perhaps, the patients under Ms. Gilbert were more old and with more fatal diseases.
3. The coin toss scenario is used to demonstrate the excess deaths are not due to chance.
 - The coin tossing allows the jury to see that just as it is suspicious to get 10 heads in 10 flips on a fair coin, so it is safe to say that based on the extreme number of deaths at the hospital could not be blamed on chance variation.
4. The Prosecutor's fallacy is the idea that people would draw conclusions that are untrue based on the data at hand.
 - The probability is less than 1 in 100 million to randomly see the extreme deaths.
 - The excess deaths were observed under Ms. Gilbert's shifts.
 - According to these two statement above, it is still incorrect to say there is a less than 1 in 100 million chance that Gilbert is innocent. Further investigation is needed.