1. The following appeared as part of an article in a trade magazine:

“During a recent trial period in which government inspections at selected meat-processing plants were more frequent, the number of bacteria in samples of processed chicken decreased by 50 percent on average from the previous year’s level. If the government were to institute more frequent inspections, the incidence of stomach and intestinal infections throughout the country could thus be cut in half. In the meantime, consumers of Excel Meats should be safe from infection because Excel’s main processing plant has shown more improvement in eliminating bacterial contamination than any other plant cited in the government report.”

Discuss how well reasoned . . . etc.

15:43 starts

Survey: gov inspections at selected meat-processing plants were more frequent

Survey findings: no. of bacteria in samples of processed chicken decreased by 50% on avg from the previous yr level

Claim: if gov more frequent inspections -> incidence of stomach and intestinal infections cut in half

Claim 2: consumers of Excel Meats should be safe from infection because Excel’s main processing plant more improvement in eliminating bacterial contamination than any other in gov report

Q: how well reasoned?

15:47 finish readings

Faults

1. Only chicken not all meat
2. Bacteria in processed meat is not the only reason causing the stomach and intestinal infections
3. No. of bacteria by 50% is not in direct proportion to the ratio of infections? How can cut by half
4. Excel Meat’s main, how abt the others plants of excel meats.

Categorize faults into terms (Sample bias, pool bias, Criterion bias, Assertive bias, causal reversal bias)

Writing:

The author makes two arguments based on the findings during a period in which government inspections at selected meat-processing plants were more frequent. The first argument claims that if the government were to institutes more frequent inspection, the incidence of stomach and intestinal infections could be cut in half. To support the claim, the author points out a finding that the number of bacteria in samples of processed chicken decreased by 50 percent on average from the previous year’s level. The second argument claims that consumers of Excel Meat’s should be safe from infection as Excel’s main plant shown better more improvement in eliminating bacterial contamination than any other plant cited in the government report.

While it has some merits at first glance, the conclusion relies on assumptions for which there is no clear evidence and pool bias for which there is wrong representation as in general.

Firstly, both arguments rely on an assumption that the presence or larger number of bacteria in processed meat is the only and direct cause of stomach and intestinal infections but this assumption is not addressed in the article. This assumption is groundless as no evidence is provided to illustrate the relationship between the bacteria level in processed meat and infections. The assumption can be flawed that, for instance, even with a high number of bacteria in the processed meat, if the food is properly cooked, all bacteria will be killed and the processed meat can become safe to eat.

Secondly, there are sample bias in both arguments using a small sample to represent the population as whole in general. The author cites a finding on samples of processed chicken to draw conclusion on all processed meat and a finding on Excel’s main plant to conclude its food bacterial control of all Excel’s meat are overrepresentation.

Thirdly, for the first argument, it fails to build any math correlation between the bacteria level to the rate of stomach of intestinal infections.

Finally, the use of an average to project a 50% decrease can be wrong even if the math correlation is on a 1 to 1 ratio because the distribution of such a decrease of the sample may not be evenly distributed. For instance, there can be half of them with extremely large number of decrease and half of them with no decrease in bacteria in the samples, which contribute to a 50% decrease on average. Thus at any given can of processed meat in the sample, 50% chance is that there can be no change in the bacteria level and thus the same chance of getting an infection according to the author’s assumption.

In light of the above, the arguments are based on flawed assumptions and overrepresentation, and it can be considerably strengthened if the aforementioned concerns are addressed.