1. Suppose 6 of 15 students in a grade-school class develop influenza, whereas 20% of grade-school students nationwide develop influenza.
   1. Is there evidence of an excessive number of cases in the class? That is, what is the probability of obtaining at least 6 cases in this class if the nationwide rate holds true?

* 1. What is the expected number of students in the class who will develop influenza?

1. Assume the number of episodes per year of otitis media, a common disease of the middle ear in early childhood, follows a Poisson distribution with parameter λ = 1.6 episodes per year.
   1. Find the probability of getting 3 or more episodes of otitis media in the first 2 years of life.

* 1. Find the probability of not getting any episodes of otitis media in the first year of life.

1. Serum cholesterol is an important risk factor for coronary disease. We can show that serum cholesterol is approximately normally distributed, with mean = 219 mg/dL and standard deviation = 50 mg/dL.
   1. If the clinically desirable range for cholesterol is < 200 mg/dL, what proportion of people have clinically desirable levels of cholesterol?

* 1. Some investigators believe that only cholesterol levels over 250 mg/dL indicate a high-enough risk for heart disease to warrant treatment. What proportion of the population does this group represent?

* 1. What proportion of the general population has borderline high-cholesterol levels—that is, > 200 but < 250 mg/dL?

1. A study is conducted to test the hypothesis that people with glaucoma have higher-than-average blood pressure. The study includes 200 people with glaucoma whose mean SBP is 140 mm Hg with a standard deviation of 25 mm Hg.
2. Construct a 95% CI for the true mean SBP among people with glaucoma.

1. If the average SBP for people of comparable age is 130 mm Hg, is there an association between glaucoma and blood pressure?
2. Suppose a clinical trial is conducted to test the efficacy of a new drug, spectinomycin, for treating gonorrhea in females. Forty-six patients are given a 4-g daily dose of the drug and are seen 1 week later, at which time 6 of the patients still have gonorrhea.
3. What is the best point estimate for *p*, the probability of a failure with the drug?
4. What is a 95% CI for *p*?

1. Suppose we know penicillin G at a daily dose of 4.8 megaunits has a 10% failure rate. What can be said in comparing the two drugs?