

In-Hospital Cardiac Arrest During Nights and Weekends,” by Peberdy et al., *Journal of the American Medical Association*, Vol. 299, No. 7). We want to use a 0.01 significance level to test the claim that the survival rates are the same for day and night.

- a. Test the claim using a hypothesis test.
- b. Test the claim by constructing an appropriate confidence interval.
- c. Based on the results, does it appear that for in-hospital patients who suffer cardiac arrest, the survival rate is the same for day and night?

11. Is Echinacea Effective for Colds? Rhino viruses typically cause common colds. In a test of the effectiveness of echinacea, 40 of the 45 subjects treated with echinacea developed rhinovirus infections. In a placebo group, 88 of the 103 subjects developed rhinovirus infections (based on data from “An Evaluation of Echinacea Angustifolia in Experimental Rhinovirus Infections,” by Turner, et al., *New England Journal of Medicine*, Vol. 353, No. 4). We want to use a 0.05 significance level to test the claim that echinacea has an effect on rhinovirus infections.

- a. Test the claim using a hypothesis test.
- b. Test the claim by constructing an appropriate confidence interval.
- c. Based on the results, does echinacea appear to have any effect on the infection rate?

12. Bednets to Reduce Malaria In a randomized controlled trial in Kenya, insecticide-treated bednets were tested as a way to reduce malaria. Among 343 infants using bednets, 15 developed malaria. Among 294 infants not using bednets, 27 developed malaria (based on data from “Sustainability of Reductions in Malaria Transmission and Infant Mortality in Western Kenya with Use of Insecticide-Treated Bednets,” by Lindblade, et al., *Journal of the American Medical Association*, Vol. 291, No. 21). We want to use a 0.01 significance level to test the claim that the incidence of malaria is lower for infants using bednets.

- a. Test the claim using a hypothesis test.
- b. Test the claim by constructing an appropriate confidence interval.
- c. Based on the results, do the bednets appear to be effective?

13. Tennis Challenges Since the Hawk-Eye instant replay system for tennis was introduced at the U.S. Open in 2006, men challenged 1412 referee calls, with the result that 421 of the calls were overturned. Women challenged 759 referee calls, and 220 of the calls were overturned. We want to use a 0.05 significance level to test the claim that men and women have equal success in challenging calls.

- a. Test the claim using a hypothesis test.
- b. Test the claim by constructing an appropriate confidence interval.
- c. Based on the results, does it appear that men and women have equal success in challenging calls?

14. Police Gunfire In a study of police gunfire reports during a recent year, it was found that among 540 shots fired by New York City police, 182 hit their targets; and among 283 shots fired by Los Angeles police, 77 hit their targets (based on data from the *New York Times*). We want to use a 0.05 significance level to test the claim that New York City police and Los Angeles police have the same proportion of hits.

- a. Test the claim using a hypothesis test.
- b. Test the claim by constructing an appropriate confidence interval.

continued