Case Study 1: Statistical Thinking in Health Care

Due Week 4 and worth 150 points

Read the following case study.

Ben Davis had just completed an intensive course in Statistical Thinking for Business Improvement, which was offered to all employees of a large health maintenance organization. There was no time to celebrate, however, because he was already under a lot of pressure. Ben works as a pharmacist's assistant in the HMO's pharmacy, and his manager, Juan de Pacotilla, was about to be fired. Juan's dismissal appeared to be imminent due to numerous complaints and even a few lawsuits over inaccurate prescriptions. Juan now was asking Ben for his assistance in trying to resolve the problem, preferably yesterday!

"Ben, I really need your help! If I can't show some major improvement or at least a solid plan by next month, I'm history."

"I'll be glad to help, Juan, but what can I do? I'm just a pharmacist's assistant."

"I don't care what your job title is; I think you're just the person who can get this done. I realize I've been too far removed from day-to-day operations in the pharmacy, but you work there every day. You're in a much better position to find out how to fix the problem. Just tell me what to do, and I'll do it."

"But what about the statistical consultant you hired to analyze the data on inaccurate prescriptions?"

"Ben, to be honest, I'm really disappointed with that guy. He has spent two weeks trying to come up with a new modeling approach to predict weekly inaccurate prescriptions. I tried to explain to him that I don't want to predict the mistakes, I want to eliminate them! I don't think I got through, however, because he said we need a month of additional data to verify the model, and then he can apply a new method he just read about in a journal to identify 'change points in the time series,' whatever that means. But get this, he will only identify the change points and send me a list; he says it's my job to figure out what they mean and how to respond. I don't know much about statistics—the only thing I remember from my course in college is that it was the worst course I ever took—but I'm becoming convinced that it actually doesn't have much to offer in solving real problems. You've just gone through this statistical thinking course, though, so maybe you can see something I can't. To me, statistical thinking sounds like an oxymoron. I realize it's a long shot, but I was hoping you could use this as the project you need to officially complete the course."

"I see your point, Juan. I felt the same way, too. This course was interesting, though, because it didn't focus on crunching numbers. I have some ideas about how we can approach making improvements in prescription accuracy, and I think this would be a great project. We may not be able to solve it ourselves, however. As you know, there is a lot of finger-pointing going on; the pharmacists blame sloppy handwriting and incomplete instructions from doctors for the problem; doctors blame pharmacy assistants like me who actually do most of the computer entry of the prescriptions, claiming that we are incompetent; and the assistants tend to blame the pharmacists for assuming too much about our knowledge of medical terminology, brand names, known drug interactions, and so on."

"It sounds like there's no hope, Ben!"

"I wouldn't say that at all, Juan. It's just that there may be no quick fix we can do by ourselves in the pharmacy. Let me explain how I'm thinking about this and how I would propose attacking the problem using what I just learned in the statistical thinking course."

Source: G. C. Britz, D. W. Emerling, L. B. Hare, R. W. Hoerl, & J. E. Shade. "How to Teach Others to Apply Statistical Thinking." *Quality Progress* (June 1997): 67–80.