Why Doctors Need Stat 100 by Jacqueline Capron Buschbach

There is a crisis in American medicine. Our doctors are statistically illiterate. Fortunately, there is hope for you Illini Pre-Meds: Statistics 100.

I’m a graduate of Integrative Biology and current student at Case Western Reserve University School of Dental Medicine. My husband was an MCB major and is now a student at Case Western Reserve University School of Medicine. We owe so much to the University of Illinois for preparing us for professional school by molding us into critical thinkers. One course in particular threw rote memorization out the window and instead emphasized basic patterns of thinking that will stay with us till the day we die, and that is Statistics 100.

I can think of three specific instances when Statistics 100 has come to the rescue and I’m not even a licensed dentist yet.

The first instance was at my dental school interview at CWRU. My interviewer noted that I had taken Stat 100 and later became the Head TA for the course. In my mind, I prepared to rattle off the lists of statistical tests I could perform, from ANOVA to Z. Instead, he asked me for my best tips to decipher between good studies and bad ones. It was a grand-slam question for any Stat 100 student! He kept me 40 minutes after the formal interview had ended to continue our conversation about how a statistical illiteracy is not only damaging to the profession, but actually dangerous for patients.

The second instance was a year later in my Epidemiology course. The professor opened the lecture with a three simple facts: The probability that a woman has breast cancer, the probability of a woman with breast cancer having a positive test result, and the probability of a woman without breast cancer having a positive test result. Despite thousands of women being screened for breast cancer each year, a disturbing number of physicians are unable to convey to an individual patient the statistical meaning behind their positive test result. The correct answer is buried behind a few tempting incorrect ones, and many patients are given terrifyingly wrong numbers. Yet I know 1,200 Stat 100 students who could quickly come to the correct conclusion and then explain it to a patient. Epidemiology was a breeze, thanks to Stat 100.

The third instance is what helped me earn my research position this summer in the Pediatrics Department. The attending dentist candidly asked if I could assist with experimental design, performing basic statistical tests, and interpreting the results. He ended the interview by asking me to explain what statistical significance meant. I didn’t rattle off a text book definition, but rather relied on the Stat 100 basics, the principles that stick with you long after procedural details have leaked out of your brain.

If you are planning to apply to medical or dental school, my best piece of advice is to take Stat 100. Forget rote memorization and formulas that can be performed with the click of a button. Those will be long gone from your mind by your first day of professional school. Numbers can be highly misleading, and the world needs more people who can discern between good science and good headlines. Medical and dental schools recognize that we need doctors trained as critical thinkers, not human calculators. So, future docs, if you want to develop the skill sets to recognize trends, interpret significance, and translate test results to patients, make space in your schedule at enroll in Stat 100.