



DrugEpi News

Fall 2005

Exploring Drug Abuse through the Science of Epidemiology

Greetings,

During the 2004-2005 school year we held our first Epidemiology Education Partnership (EEP) course. During the EEP, ten science teachers and fifty - two of their students, from six high schools in northern New Jersey, took a Montclair State University undergraduate course entitled, *The Science of Public Health: Epidemiology*.

At the conclusion of the course, one of the students, Arush Singh, a senior at Cedar Grove High School, sent us the following, unsolicited e-mail.

With Arush's permission, we share his unedited thoughts with those of you who are interested in epidemiology education, science education, and education in general.

Thanks for your interest.

Mark Kaelin and Wendy Huebner

Hello Dr. Kaelin,

It is Arush from your Epidemiology class. I am e-mailing you my thoughts on what I have learned. First I'd like to present once again what I wrote previously about Epi:

I now understand much more completely the concept of descriptive epidemiology as it applies to people on a broad scale. The simple activity of the "DZ" signs representing sick people in a classroom can be easily extrapolated to a statewide or even nationwide level. The plain fact is that certain people get sick while others do not, and descriptive epidemiology helps to pinpoint the specific reasons for this occurrence. By looking at distribution in terms of person, place, and time, a comprehensive profile of the afflicted people can be developed and then used to help combat the further spread of the disease. Similarly, a profile can be developed of those who smoke cigarettes, marijuana, or other 'harder' drugs with the use of a simple survey. Once the profiles are completed, epidemiologists can determine which specific groups of people are at a higher or lesser risk to begin or continue using drugs. We also mentioned AIDS in our classes, and we were shown the exponential growth of the virus precisely at the time when people did not fully understand it. Even today we do not *fully* understand the virus, but we have a much better grasp on it than in previous years. Thus, with the ongoing help of descriptive epidemiology, we have slowed the new incidents of AIDS cases and are slowly curtailing the number of deaths due to the

virus. Hence, above all, I have learned that descriptive epidemiology is an invaluable tool in understanding and effectively combating the multitude of health-related conditions impacting our society today.

Since that time, I have also learned many practical aspects about how a disease can interact with a population. I believe the most relevant observation I have made is that an association does not mean causation. Time and time again in the news new 'linked' or 'associated with' phrases are cropping up; I can now better understand these studies as (1) being inherently flawed and (2) not meaning anything if not compared to something else. Besides the typical 'other' causes of an association, such as confounding, bias, and reverse time order, a specific relative risk must be included in the study for it to hold any weight. This new insight will help me to approach these studies in a critical and pensive manner without losing sight of the big picture. Also, I now know that the implementation of 'fixes' to the obvious problems are not so simple. Many social, political, governmental, and ethical considerations must be taken into account before an effective remedy can be put into place, not even to mention cost! I have learned that an epidemiologist's purpose is crucial in solving these vast and often complex problems. I am sure that sometimes implementation of a fix can be more cumbersome than actually procuring the vaccine. If one has a vaccine, how are they going to distribute it to 50 million people while avoiding as many of the aforementioned roadblocks as possible? An epidemiologist's role is crucial in just this type of current problem – the distribution of polio vaccine to millions in overpopulated Indonesia. Ultimately from this class I have gained a broader insight into the minutiae of exactly what makes this science so simple and yet so complex, and thus fascinating.



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*Arush has begun pre-med
studies at Drexel University*

Exploring Drug Abuse through the Science of Epidemiology

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