

# STEM SESSION TRANSCRIPT

SEPTEMBER, EPIDEMIOLOGY

## *Karen Lancour*

Hello, my name is Karen Lancour. I am the Science Olympiad National Rules Committee Chair for Biology and Life Science and a 37-year veteran of Science Olympiad. I am here to welcome you to MY SO. It is September and is officially MY SO Epidemiology Month.

I would like to introduce to you two very special guests, who will share with you their personal and professional experiences in this marvelous world of Epidemiology. First of all is Dr. Ralph Cordell, the National Event Supervisor for Disease Detectives.

## *Dr. Ralph Cordell*

I've always been fascinated by living things. My background is in the Life Sciences. I have a bachelor's degree and a master's degree in zoology and Ph. D in Epi. I minored in micro for my master's and Ph.D degrees and worked as a Virologist and Epidemiologist at the local, state, and federal levels for more than 40 years. I've been involved with many of the public health challenges in my lifetime including the current COVID response.

My connection with the Science Olympiad started when I helped run Disease Detectives as a trial event in Chicago back in 1999. Since that time, I've helped with all but one of the national events for Division B and C and have worked every national tournament. The one event I did not write was during the 2009 Flu Pandemic; however, I drove to Augusta to help with the scoring for that event.

One thing that I find so great about Epi is that it is intellectually challenging and requires me to use information and tools from a diverse field of subject areas in a team focused environment. Good epidemiologists bring knowledge and experience in life sciences and biostatistics along with Epi methods to the table and can identify factors and conditions that may influence results. It also teaches critical thinking and quantitative reasoning in a very applied context. We are constantly looking for alternate explanations for observations and almost never take things at face value. Epidemiology identifies causes or risk factors for various health conditions and tries to eliminate them or reduce their impact. It is a science basis for public health. I should also point out that Epidemiologists understand the impact on population growth, and public health also includes family planning environmental health as one of its branches.

Although Epi got its start in infectious diseases. Epi methods have been used to address virtually every significant public health problem in the last century. The same concepts that you will be learning this month were used to eradicate smallpox, address HIV/AIDS, opioids, vaping, domestic violence and now COVID-19. Epidemiologists work in industry and academia as well as local state federal and international agencies and non-governmental organizations the fact that public health is one of the fastest growing undergrad majors suggest that competition may be tough but there are a lot more Epi's than NFL quarterbacks and somebody has to do these jobs. There will always be openings for the best, and mediocre may want to look elsewhere. With an undergraduate or master's degree, one can go into research epidemiology as an assistant in academic, government or industrial positions. Individuals at this level are in great demand at local and state

health departments where they would work as applied or field Epidemiologist. As the demand for teaching Epi at the high school level is growing, someone with this educational background and a few years of experience would be an outstanding find for any school district. With a doctoral degree or an MD, DVM and MPH, one has the same career choices. But in a somewhat higher entry level, one gains experience and builds a reputation then choices become wider and better paying if one does not go into public health.

The experience in critical thinking and data collection analysis and interpretation one gains from studying Epidemiology will help in just about every aspect of life. The epidemiologists I know come from a variety of backgrounds. Some are physicians. Some are veterinarians. Many have graduate degrees in Epidemiology or public health, but I think that most have a real passion to make the world a better place and to provide service for other people. Other than that, we're fairly normal. One of my colleagues is a competitive rock climber and Iron Man competitor. Another builds motorcycles. I fish, hunt, and play guitar and banjo. A lot of my colleagues have participated in sports in high school and got an interest in fitness and overall health that way. I tell people that some of my most important lessons that I use at work I learned on the playground.

## ***Karen Lancour***

Thank you, Ralph. Next, we have Emily Briskin, a Disease Detectives national champion. She is a Science Olympiad alum from Centerville High School in Ohio and went to the White House Science Fair, the very first one with President Barack Obama, to represent Science Olympiad. She is a Yale graduate and has worked in Nigeria with Doctors Without Borders.

## ***Emily Briskin***

Thank you so much Karen. Yes, as you said I was on the Centerville high school Science Olympiad team from 2009 to 2011, and while I was on the team, we had the honor of winning the national competition two times. When I was in Science Olympiad, some of my favorite events were Forensics, Experimental Design, Picture This, Micro Mission, and of course Disease Detectives. And something that I loved about Science Olympiad was that it gave me a chance to learn about and explore all different types of science and try out different events. Even, you know, in a pretty low stake's way. If there was something that I tried out and I figured it wasn't for me I could move on to the next thing which I loved. And in addition to learning about science during my time in Science Olympiad, I made some of my absolute best friends in my whole life and some of my friends from my Science Olympiad team are still my good friends to this day.

So after I graduated from high school, having been exposed to Epidemiology through Science Olympiad, I knew it was something I was really interested in pursuing, and this was because I was able to learn so much about Biology and Epidemiology, and I saw that Epidemiology was really a type of Science that you cannot pursue without also interacting with and understanding human beings. So since I was really interested in people and different cultures and also really interested in science during my time at Yale, I chose to pursue a double major in Molecular Biology and also French language and literature, and from there I went on to get my master's in public health with a focus in Epidemiology. So I found that Epidemiology was really an awesome opportunity for me to sort of fuse my different passions. And throughout all of my time in school at Yale, Science Olympiad was actually a huge help to me and made a lot of my classes in college easier for me and because I'd been in Science Olympiad, I was able to sort of skip through some of the more intro-level classes and take more advanced classes which was a great benefit for me.

So, after graduating I worked for a little while with the US government as an Epidemiologist. I spent a year then after that working in Uganda in East Africa on malaria control. And now I work as an Epidemiologist for Doctors Without Borders here in Nigeria. And if you're not familiar with Doctors Without Borders, it's a humanitarian medical organization, so that pretty much means that we provide care to people in need regardless of their background, regardless of their religion, their political affiliation or whatever. It may be whoever's in the most need we try to provide care to them.



So here in Nigeria, working with Doctors Without Borders as an Epidemiologist, I've had the opportunity to help with the response to two different outbreaks of measles. So as an Epidemiologist that means looking a lot at the data and seeing when there's a spike trying to catch that spike early and then seeing in that spike where the case is coming from, what age group are they, are we sure that they're measles cases and then trying to target doses of vaccine to the areas where we knew there were measles cases and vulnerable people so that we could prevent the measles from spreading further, and then after we vaccinated those people. I was able to assist with tracking to see that the outbreak had gone away, and also here in Nigeria with Doctors Without Borders I'm supporting the COVID response and tracking how COVID is spreading in our areas, and I've also designed and am supporting the study of how malaria drugs can be used to help prevent the spread of malaria.

So, there are few ways, some that are expected and some that are maybe less expected, about how my time in Science Olympiad actually prepared me for my career as an international field Epidemiologist working with Doctors Without Borders. So, one way that is pretty obvious is that I learned a ton about Epidemiology during my time in Science Olympiad. Another thing I learned in Science Olympiad that is relevant here is what it's like to wake up really, really early before the sun is up and get to work with your teammates and I also likewise learned what it is like to stay up really late when you're really tired and work on really tough problems that just have to get solved. I learned a lot about living and working with teammates here in Nigeria. I actually live in a house with about 15 other people who are my teammates and we work together. And something else I learned during my time in Science Olympiad was how to play sand volleyball with your teammates and how to play card games and board games like Settlers of Catan which are also very popular here with my team with Doctors Without Borders.

So, I would encourage all of you who are watching to get involved with Science Olympiad whether with its MY SO at home or Science Olympiad team. Learn about science. Try out Epidemiology. And the skills you learn in Science Olympiad will be much more than science. They will be life skills and teamwork skills that you will use for the whole rest of your life.

## ***Karen Lancour***

Thank you, Emily. I appreciate you taking the time to talk about your study of Epidemiology and how it has led you to such an interesting life. Now I invite each of you to use the activities available to you from the national website to explore epidemiology and use the activities to become a disease detective and at the end do the session that allows you to evaluate how much you have learned. And I also remind you that each month MYSO will provide a new adventure in a different area of science for you to explore, and it will go throughout this entire school year. So I hope that you will take advantage of each month's activities and learn all the different areas of science and become as excited about one of these areas as what Emily has and maybe even find an adventure that you can make a lifetime career.