Mathematics in the Real World: An Epidemiologist Video Transcript

Traci Bethea:
I believe that everyone's health matters. As a national community, or a state community, or a local community, what we really want is, the best health possible for everyone. It's important to know what the outcomes are related to the decisions that we're making as individuals and as a population. Is it diet? Is it, you know, the air that you're exposed to? Is it the community that you live in? What is it that we can do, that we can identify, that can help everyone be healthier? My name is Traci. I'm a post-doctoral associate in cancer epidemiology with the Black Women's Health Study at Slone Epidemiology Center at Boston University.

In the field of epidemiology, you need a multidisciplinary toolbox. It's very important to use literacy skills -- reading, writing, speaking, and listening -- to explain patterns and data. Black women are a very understudied population and a very overburdened population for a number of health outcomes.

Yvette Cozier:
So gingivitis is not... It's not gum disease. It's inflammation, irritation...

Bethea:
I do some research on neighborhood socioeconomic status and Yvette does research on racism and discrimination.

Cozier:
That's what I was thinking of...

Bethea:
By working with the Black Women's Health Study, we are bringing attention to the research, which we do by giving people numbers.

And then, like, is bone loss clear...

Cozier:
It is the largest follow-up study of African-American women in the United States ever conducted. It's hard to prevent things that you don't understand why they

happen, and understanding and controlling disease is important. This discipline called epidemiology is deciphering and finding patterns of disease and trying to explain them.

Bethea:
It's very important to be able to read documents and really synthesize information and be able to pull out questions that are answered and questions that are left unanswered. And being able to translate that information so someone who doesn't have all the background that I have can know something more about public health.

Because I did fix that, and then we ran all the tables.

Yvette and I were looking at a manuscript.

This is the 12th draft, and I've added an abstract since the last draft.

What you want is for someone to read the abstract and have an idea of what you've done very clearly so they know whether or not they want to read the entire paper.

So I added the numbers of total deaths, cancer deaths, cardiovascular deaths...

Once we've published that research, that research is available for someone to use it as evidence when they're putting together a policy brief, or evidence when they're going to a town hall and saying that we need changes in our neighborhood. When I'm doing an analysis, I'm trying to decide, what do these numbers mean? So with the data that I have available, all of my numbers, do I see a difference that means something mathematically? Is this something that we should be concerned about from a public health standpoint?

So there was previous literature that suggested that there was a relationship between obesity and a lung cancer, but because we didn't know what to expect in our population, which are black women, we definitely had to go through all those steps to make sure that our data is valid.

We did a study looking at body mass index, waist circumference, and waist-hip ratio in relation to lung cancer in the Black Women's Health Study, and it was our first analysis of lung cancer, which was really exciting. You really need to understand the kind of data you're looking at -- you know, really the types of numbers you're looking at, what they represent, what sort of analytic models you'd use for those types of data. And then, if you use a model, what does that number really mean? And what does it tell you? And then as I start getting some

numbers, we meet and get some feedback. You know, what do we see happening? What are the important patterns?

Cozier:
We're going to be talking about the Black Women's Health Study supplemental dental survey. We want to talk today about formatting that questionnaire.

Bethea:
We meet and talk about the questions that we're asking, the way we're asking them, the responses that are available, because we want to do the best job possible to make sure that when we ask a question, what they're genuinely answering is what we're picking up in our data.

Cozier:
So these are the quality-of-life questions. So during the past three months, how often have you experienced the following difficulties because of problems with your teeth, mouth, or dentures?

Bethea:
There are some questions where we want to be very careful that we're not stigmatizing people. It's important to think about, if I am not the researcher and I read this, what would it say to me?

Do you think they would take issue with us replacing "disagree" with "not at all"?

Cozier:
We'd have to decide if we want to make that type of change and if...

Bethea:
When you're dealing with a population that has been understudied or a population that has been overburdened, I think you have to take time and make sure that, okay, this questionnaire has been validated. Who was it validated on? What was that population? Could that population have looked at these questions differently?

My way of advocating is doing the studies that I think that are important and that are interesting, and getting the numbers out there to say that the community feels that there's a problem, we can show you that there is a problem. And one of the things that people really respond to is data. This research, we believe, is going to improve health for black women, women, health for everyone, you know. When one group comes up, everybody comes up together.