Part 1: Dr. Claudia Thompson: NIEHS's Global Work on Indoor Air Pollution

[music] Anne Johnson: This is Global Environmental Health Chat, the podcast that explores environmental health issues that transcend national boundaries. I'm your host Anne Johnson, and this podcast is produced by the National Institute of Environmental Health Sciences.

For many people in developed countries like the United States, burning a wood fire seems romantic. [fire crackling sound] You might think of telling stories around a campfire or cozying up to a crackling fireplace on a cold night.

But for the 3 billion people worldwide who burn wood, coal, or dung for their everyday cooking and heating, these solid-fuel fires are anything but romantic. Where there's fire, there's smoke, and when you're around that smoke all the time, there are serious health consequences.

The first guest in our two-part series on cookstoves and indoor air pollution is Dr. Claudia Thompson. She serves as branch chief for the population health branch in the Division of Extramural Research and Training here at NIEHS.

Burning solid fuels in open fires and simple stoves is estimated to cause over 4 million preventable deaths each year. Claudia explains why the smoke from these fires is so harmful.

Claudia Thompson: There are a number of health effects that are associated, including respiratory illnesses, pneumonia in children, asthma, cardiovascular disease, other respiratory diseases in adults; there may be effects on neurodevelopment, cancer later in life. And many of our most vulnerable populations—women and children—are disproportionately affected.

Anne Johnson: Researchers around the world are working to understand these effects and develop new technologies that can improve fuel efficiency and reduce emissions at the household level. NIEHS has invested in this work.

Claudia Thompson: Our extramural community have naturally gravitated toward looking at this issue, from the standpoint of understanding the exposures, to looking at what components may be critical in affecting health. And so we're very supportive of looking at both the improved cookstoves as well as cleaner fuels.

Anne Johnson: There are many ways to improve upon basic cooking fires with cookstove technologies that help fuels burn more efficiently and reduce emissions. We'll explain some of these in our next podcast. But unfortunately, when researchers have tried to introduce new, improved cookstoves to communities in the field, the results have often fallen short of expectations.

Claudia Thompson: It's becoming more clear that the well-controlled laboratory studies don't always translate to what happens when they actually are used by communities. So, it's a really complicated issue that involves economics, marketing, behaviors; clearly there are cultural differences and what might work in one community may not work the same in another. And it really points to that need of

involvement of communities in discussion from the very beginning, to be part of that research and to be part of the solution.

Anne Johnson: There's been some debate about where exactly improved cookstoves fit into that solution. Claudia said the results of ongoing studies could help illuminate a way forward.

Claudia Thompson: We're still waiting for information to come in, and I think it's important to use all available information for decision making and to take that best available information to determine the best course forward. There's been a lot of discussion on moving from looking at improved cookstoves to moving towards improved fuels, such as electrification. But in many communities and countries, attaining that is very far down the road. So I feel it's still very important to understand what improvements can be made using cookstoves that can burn more efficiently or use different types of fuels to reduce emissions. In addition, moving to more efficient cookstoves has other secondary benefits. For example, if the fuels are burning more efficiently, it means that the woman may spend less time cooking and preparing fires. It's a way of reducing emissions but it also allows her to do other things. We understand that the gathering of wood and being out in the field—there's risk for injury, there's risk for violence against women. And so reducing the amount of time having to do some of these other activities provides other benefits.

Anne Johnson: NIEHS was designated as a World Health Organization Collaborating Center in 2013—a status that could open new opportunities for progress in this area.

Claudia Thompson: The issues of household air pollution and cookstoves is one of the thematic areas that the Collaborating Center is tackling. And I think there's great opportunities through the Collaborating Center to bring groups together, think about implementation science and networking, and understanding what could be best practices to hopefully come up with some solutions or intermediate steps that we could take that would improve health.

Anne Johnson: We've got podcasts about the Collaborating Center and lots more information about cookstoves at our website: niehs.nih.gov/podcasts. Thanks to our guest, Dr. Claudia Thompson. In our next podcast, we'll take a closer look at the technology and challenges behind improved cookstoves.

You've been listening to Global Environmental Health Chat, brought to you by the Global Environmental Health program of the National Institute of Environmental Health Sciences. [music]