Sickening Fossil Fuels - Are they Silently Killing You? Transcript

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Fossil Fuel Pollution and Health

As long as we burn fossil fuels as a major source of our energy and our vehicles and we're all getting exposed to very similar kinds of, you know, at lower levels, not as toxic, but we're all getting exposed and it accumulates and we're exposed to it.

all day long, all year long, our entire lives, the way our society is built around fossil fuels. And this is shortening the lifespan of Americans by years.

So it really is, I think, a very clear cut. weigh an extreme case of showing the benefits of reducing fossil fuels in our air to our health and to everyone's health.

And so the faster we can transition away from fossil fuels, the healthier our population will be. Hey, everyone, this is Jonathan Marks from GoToHealth.

Welcome back. Wonderful to see you today. We're reporting today on a new study by NYU Langone Health, Researchers there have found that the shutdown of a significant fossil fuel pollution source near Pittsburgh, Pennsylvania has resulted in immediate improvements in respiratory health.

Researchers tracked the air pollution health effects on residents near the Shenango plant in Pittsburgh before and after its closure in 2016. Results showed that within the first few weeks after the plant's closure in January 2016, respiratory-related emergency visits decreased by about 20%.

NYU Study on the Shenango Plant Closure

In the first month of the closure, pediatric asthma visits declined by 41% and continued to fall by 4% each month through the end of the study period.

These findings indicate that the reductions in fossil fuel-related air pollution are linked to both short- and long-term lung health benefits. Our show today is brought to you by the American Thoracic Society.

You can learn more at thoracic.org. The Society continues to advocate for patients and families by pushing for environmental protections. In addition to visiting the website, you can also learn more on the ATS Breathe Easy podcast.

We're talking today with Professor Dr. George Thurston, who's the Director of the Program in Exposure Assessment and Human Health Effects at the Department of Environmental Medicine at the NYU School of Medicine.

He's a leading scholar on the human health effects of air pollution. His research has focused on health effects of air pollution in New York City as well in other cities across the nation and around the world.

And before we get to Dr. Thurston, we're building a community of people who care about living well, aging better, and showing up for their health every day.

If that's you, please give us a five-star rating on Apple Podcasts or Spotify or YouTube or wherever you're listening to us. This will help others find us and help us keep growing.

Welcome to the show, Dr. Thurston. How are you today? Fine. That's great to be here with you. Good. So July 21st, 2025, you published a new study, NYU Langone Health research about the shutdown of a significant fossil fuel pollution source near Pittsburgh, Pennsylvania, that greatly increased the health of people when it got shut

down.

Can you tell us about the study and what it showed? Well, the study was sort of an opportunistic study in that it's something that happened and then we were able to look at the effect of that change.

And that was the closure of a Shenango coal coking plant, which is really in the Ohio River on an island right in the midst of Pittsburgh. So there's lots of communities that live all around there.

So in our study, what we did was to go back and look at the three years before the closure and then the three years after, and then see if the health impacts in the community, such as emergency department visits, hospital admissions, if those adverse events were reduced from lowering the pollution.

And so we had to request, we uploaded all the air pollution data in the area and we also requested, and that took a while, the health accounts in the surrounding zip codes around the plant.

And first of all, tell us, what is a coal coking plant? What does that do, do you know?

How Coal Coking Plants Pollute

Yes, in order to make steel, you need carbon. So carbon steel is much stronger than just iron. But it's got to be very pure. So this coal coking plant takes regular coal, a certain grade of coal, actually, but then pyrolizes it, heats it up.

It doesn't burn it. It heats it up and pyrolizes it, which is a process that basically squeezes out all the impurities. And then what's left is pure carbon.

And the concern about this is where does all those impurities go? You know, these toxic metals and organics and they go into the air. the ambient air.

And then they're breathed by the residents, especially nearby. And so that's really the problem. So as you know, they had operations before, so we were able to see the air pollution levels before the closure.

And then we saw after the closure, the levels dropped immediately, especially sulfur dioxide and related pollutants, particulate matter particles also went down.

And then we we're able to look and see if at the same time period, we saw a reduction in this paper looking at emergency department visits, pediatric children's asthma emergency department visits dropped dramatically immediately after the closure.

And then the interesting thing, I mean, that was alone very interesting. And it was so large, talking like a 40% reduction in the community. from children's emergency department visits for asthma.

But then it kept going down. We followed it for three years and the emergency department visits kept going down, which really indicated a healthier community that was, as they had more time without that pollution exposure.

And one possibility that we're hypothesizing, we don't have the prevalence numbers, but it may be that fewer children were getting asthma. There are studies out there that have shown that children who live in higher pollution areas tend to get asthma at a higher rate, especially traffic and fossil fuel pollution.

And in this case, we were able to look at the same spot and not comparing one versus another, where there are sometimes confounding factors.

Past Air Pollution Studies in New York

People who live along highways have different socioeconomic status than other places. Here we have the same population, and the rate of emergency department visits just kept going steadily down about 3% per month for the

next few years.

I don't know what you know about this, but don't these coking plants have the ability to capture these metals and these toxins before they go into the atmosphere?

Is there no technology that enables this today? This is a very old plant and I don't think that they probably financially wanted to be putting a lot of emission controls, but I believe that there probably are technologies they could reduce, capture some of those pollutants and reduce the amount that go into the air.

And this is a continuing problem at plants where they're still operating. The Clareton plant also in Pittsburgh is still operating and not too far away.

This has been an area of study for you. Can you tell us about some of the other studies you've conducted? I think you did a study in New York City studying pollution.

I've done a number of them over the years. We did a study of children with asthma, something called the backpack study, where the kids We gave them backpacks with rollers on it and put little air samplers and followed them.

And it was children with asthma. And again, what we found was that the children who got exposed to more diesel pollution specifically, this is in the urban area, and we had different markers for different kinds of pollution.

And the diesel particles seem to be most associated with having more wheeze and other symptoms, cough, wheeze. and so on, recorded from day to day. We were able to go into the school every day, the nurse's office, and then record their symptoms on a daily basis.

And they carry these personal monitors around with them for a month. And we did it at about a half a dozen schools. So that was in the around 2000, we did that study, looked at hospital admissions and found that on high ozone days, then there were more respiratory hospital admissions in New York City on those high days.

So that was more, you know, again, an acute study from day to day looking at counts in the whole population of New York City. And we did one not long ago looking at the wildfire pollution.

And we've been studying that and looking into it. And what we found with that wildfire pollution was that the number of asthma emergency department visits went up.

And in the days following, we saw an increase. However, when we looked at cardiovascular effects, we didn't see a big increase, which some had thought there would be.

But wood burning is very different from fossil fuel particles.

Wildfire Smoke vs Fossil Fuel Particles

And fossil fuel particles have a lot more toxic things that go systemically and cause oxidative stress, transition metals that just plain old wood doesn't have in it.

And so the effects are different. It seems primarily the wood burning is effects are in the lung and much less systemically throughout the body. the way fossil fuel particles are which we find like traffic particles in New York City causing cardiovascular hospital admissions and actually in this closure of this plant we saw a similar drop not as large as the children's pediatric.

We saw a precipitous drop and then a slow decline in cardiovascular disease emergency department visits as well. We put that in a previous paper. We kind of looked at a lot of comparisons with this Shenango study to see, to make sure that it wasn't just an aberration that was true in multiple places and just happened to coincide in time with the plant closure.

Fascinating. I just got a great education from you. Thank you. I didn't realize the distinctions between coal burning and traffic exhaust and wood burning.

So they have different effects. These particles are all different. It's like having children, you know, they're all different. They share a lot of characteristics, but they're all unique.

And these particles, they're all particles, but their compositions are quite different. I've been studying particles for like half a century almost. And they're very different depending on where they come from.

And their toxicity varies with that. So you just can't look, the law is set up so they just weigh the particles and more is worse than less. It's sort of generally true, but when you start looking at the particles and their character, you realize some sources cause pollution that's worse than other sources.

Got it. You mentioned before both asthma and cardiovascular issues. I understand what asthma is, but can you be more specific about the cardiovascular issues that are created with pollutants?

Yeah, we're really talking about heart and lung. I mean, cardiovascular is primarily looking at heart attacks and hospital visits for heart problems. And so that's what we were looking at counts similarly to the pediatric we published earlier, showing that the number of people going to the hospital who lived in these communities right around the plant, fewer of them were going to the hospital for heart problems.

Wow. Wow. Okay. Good. Now what happens with this research? Does it just kind of go into the ethers like these particulates or does something happen in terms of governmental policy or pollution policies?

What happens with when this kind of research is published?

Cardiovascular Effects and Policy Impact

Well, in the past, what has happened is that the government will look at those results and then consider that when they're setting the next time they look at the standards, they'll consider those studies.

So the Clean Air Act, as it was written in the early 1970s, made it so that every five years EPA has to go in and reassess the air quality standards and see if they're still the evidence is that they're still protecting health properly and sufficiently.

Not completely because I think as long as there's pollution out there it's going to cause adverse effects in some people. So there really is no threshold below which there are no effects.

they look at the evidence and say, are we still seeing effects at those levels? And the answer so far has always been, yes, we still do. We've made a lot of progress, but we have more to do.

And then usually they'll make the standard more restrictive, and then we'll have to clean up cars and things more to try and meet them. There have been occasions where they've had new studies come out And then what the EPA said was, well, the evidence for effects that we saw in an earlier study didn't hold up.

And then they've actually relaxed the standards on occasion. They did it once during the Carter administration. But then more studies came out and they said, oh, OK, now we have confirmation from third and fourth places that actually these effects are there.

we did a study of children in New Jersey at a camp. That was like the first study I did in the early 1980s. And all the pollution levels during the camp were below, were within the legal limits.

And yet we would see the children were having reduced ability to breathe their lung function, the ability to blow air out was reduced. And so, and the thing was, The standard was set up as a one-hour maximum, but the problem is that children get exposed to it all day long.

So then the EPA said, hmm, okay, let's do some experiments where we expose people to eight hours. And they did the experiments where they had college students exercise bicycles in a chamber.

And what they found was, oh, we were right. The levels below the standard can actually cause adverse effects if over a long time. So they change the standard from one hour maximum to an eight hour.

average and a lot of that came from you know our epidemiology. We did a study and we found those results and then they were confirmed and so they revised the standards.

So that's usually the way things work in our government in the past. What question haven't I asked that I should have or what message would you like to leave with people today?

I think that this is a study that people shouldn't say oh well I'm really concerned about those people around the plant And it's really too bad. I'm glad that they got relief from the pollution, but this doesn't have anything to do with me because I don't live near a plant.

Well, in fact, it does have import well beyond this group. They're really the canaries in the coal mine. As it were, because they're just getting much higher exposures to something we're all exposed to as long as we burn fossil fuels as a major source of our energy and our vehicles.

And we're all getting exposed to very similar kinds of, you know, at lower levels, not as toxic, but we're all getting exposed and it accumulate and we're exposed to it.

all day long, all year long, our entire lives, the way our society is built around fossil fuels. And this is shortening the lifespan of Americans by years.

Why This Research Matters for Everyone

So it really is, I think, a very clear-cut way, in an extreme case, of showing the benefits of reducing fossil fuels in our air to our health. and to everyone's health.

And so the faster we can transition away from fossil fuels, the healthier our population will be. Good. Thank you so much for coming on the show today to share the results of this new study and all the work you've done over decades.

Thanks so much. We've been talking with Professor Dr. George Thurston. He's the Director of the Program in Exposure Assessment and Human Health Effects at the Department of Environmental Medicine at the NYU School of Medicine, and he's a leading scholar on the health effects on humans of air pollutions.

Doctor, thanks so much for being with us. It's been very educational, and I will get this word out as broadly as possible so that we can help everybody.

Well, thank you for doing that, because I think as a researcher, you do the research, you spend years doing it, and you just don't want to sit on a shelf.

You want people to find out about it. And I thank you for the work that you do and sharing that knowledge to the public. Great. So we're taking it off the shelf.

Thank you everybody for listening. Before we go, just a quick reminder. If you like what you've heard, please leave us a five star review on Apple or Spotify or YouTube or wherever you're hearing this.

It helps this content remain free and helps reach the right ears. Thanks again for being with us. This is Jonathan Marks with go to health. And as we say at the end of every show, go to health.

Take care. See you again next time. Bye. Thank you for tuning in today to Go To Health. You are one of almost

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