

# Cholera - Has Climate Change Given New Life to an Old Enemy?

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## SUMMARY KEYWORDS

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## SPEAKERS

Amanda McClelland and Maggie Fox

### **Maggie Fox** 00:00

Hello and welcome to One World, One Health with the latest ideas to improve the health of our planet and its people. I'm Maggie Fox. All of us here on planet Earth are facing problems, such as pollution, climate change, and even infectious diseases (old and new). Animal health, human health, plant health, and the climate are all linked. This podcast is brought to you by the One Health Trust with bite-sized insights into ways to help.

People may be sick of COVID and may be arguing about whether the COVID pandemic is even actually over. But there is another ongoing pandemic that often flies under the radar because it's been going on for so long now. It's cholera. The current pandemic of cholera has been going on since 1961. And cases are on the rise again in many parts of the world. It's partly because of COVID, which has stretched health resources globally. It's also partially due to climate change because more frequent and more severe storms can create better conditions for the bacteria that cause cholera.

In this episode, we're chatting with Amanda McClelland, Senior Vice President at Resolve to Save Lives. Amanda helps (to work) countries respond to and prevent pandemics and epidemics. Amanda, thanks so much for joining us.

### **Amanda McClelland** 01:21

Thank you so much for having me.

### **Maggie Fox** 01:23

You work to prevent epidemics. So, the world knows a lot about how to prevent cholera, but it's popping up again everywhere. How can that be?

### **Amanda McClelland** 01:33

You know, it's surprising we think about cholera as one of those old diseases that that we've overcome. You know, back in the days in London, when John Snow first found the water sources in London, (and)

whether they're the cause of cholera. But we have more than 25 countries currently suffering an outbreak at the moment; it really is exploding. And it's a combination of things.

I think, in part, fatigue coming out of COVID (when) health systems were disrupted. Healthcare workers were very focused on COVID and cholera took the opportunity. We're coming into a climate issue with the El Niño coming up this year, and the warmer waters and climate change is definitely driving a lot of the spread. And then we've really had a large number of natural disasters that really drive cholera and a number of conflicts. So, large cyclones in Mozambique, the earthquake in Turkey and northern Syria are among some of those.

**Maggie Fox** 02:25

And can we talk about where some of these recent outbreaks have been? You mentioned Mozambique and Turkey. Where else have we been seeing cholera come back?

**Amanda McClelland** 02:33

So, India is the most recent, just in the last few weeks, but we're experiencing cholera in countries where we might not expect it, (such as) places like South Africa, as well as the Horn of Africa, the borders of Somalia, Ethiopia, Kenya, have been suffering a drought for a number of years now. And now with rain starting in the last few months, we're seeing an explosion of cases.

So, it's spread across a number of regions. But we're really starting to see issues in parts of the Middle East and Northern Syria, the Horn of Africa, and even in southern Eastern Africa.

**Maggie Fox** 03:07

Now, clean water is a first step to preventing cholera spread. Why is it so difficult to manage this issue of clean water?

**Amanda McClelland** 03:16

Yeah, it's one of those difficult questions in terms of we should be able to overcome this issue. Everyone deserves clean water. We have a number of ways to get clean water for people but there's still millions of people around the globe that don't have access to clean water every day. But what's driving a lot of the cholera outbreak is those natural disasters that I mentioned. We've lost access in the earthquakes and the cyclones that contaminated the water.

The drought makes water sources more difficult to access. And so, it's really about what access and water quality are really being impacted by climate change and a number of these large natural disasters.

**Maggie Fox** 03:53

It used to be common wisdom to say you can't say this particular weather disaster is related to climate change. But can we start saying that now that climate change really is making these disasters more common?

**Amanda McClelland** 04:04

I'm not a climate scientist. But the regularity of these large-scale disasters and the consistency along with seasonality. We're expecting El Niño, we know it's a normal phenomenon. We've been through seven years of drought; we knew how to expect it. We know cholera is exacerbated by that cycle. But the warmer water temperatures is really what's impacting cholera. And I think we can directly link that to climate change.

**Maggie Fox 04:29**

And let's talk about that. There's El Niño in the warmer waters. If, first of all, can we kind of break down what El Niño is and remind people what that is?

**Amanda McClelland 04:38**

It's a shift in the climate cycles. So, in Africa where we focus mainly, especially for cholera, we've been through a period of seven, eight years of dry weather and now we're expecting El Niño to bring a lot more rain, increased temperatures, and drive a lot of disease patterns that we know about.

We know we get Rift Valley fever during El Niño; we know we get more cholera during El Niño. So, it's this regular cycle that we see within the weather pattern, but it does change the environment, especially in the Horn of Africa significantly.

**Maggie Fox 05:11**

And the Vibrio family of bacteria that cause cholera likes warmer water.

**Amanda McClelland 05:16**

It does. It grows much more quickly in warmer water. And it doesn't mind saltwater, which is unusual. A little bit of salt in the water is okay for the Vibrio. And so, warmer sea temperatures and warmer temperatures on land, especially for water sources that have been impacted by drought, there's less water perhaps in the dams or the lakes, the water temperature rises, not just because it's hot, but because there's less water inside those water sources. And then Vibrio cholera expands and grows quite well in those conditions.

**Maggie Fox 05:52**

Now, cholera is often spread by people who don't have any symptoms themselves. Can you talk a little bit about how that contributes to the problem?

**Amanda McClelland 06:00**

Yeah, it's a big part of the problem. Only about one in ten people get that severe cholera that we perhaps know, which is that rice-water diarrhea, where it's very obvious when you see clinically. People have a lot of vomiting and a lot of diarrhea. It's very specific. But that only happens to one person in ten. Those other nine people potentially will have milder symptoms and might not even know they have cholera, or no symptoms at all. But those people are still shedding the bacteria in their feces. And so, that means they can still spread it unlike other diseases, where perhaps, you know, you can quarantine or isolate people with the disease.

(In) cholera, to some extent (due to) people knowing COVID, now we've started to learn more about asymptomatic transmission. It's the same in cholera. So, even people that haven't got severe

symptoms are still able to spread the bacteria. And it remains in the environment for a prolonged period of time, which means you can contaminate water sources and spread the disease even if you're not coming into close contact.

**Maggie Fox** 07:00

And let's remind people again how cholera spreads. So it's a systemic infection. And (then) the word is shedding, you shed it in your feces and especially, when you have diarrhea. Let's talk a little bit more about that.

**Amanda McClelland** 07:11

You're absolutely right. It's a systemic disease, and it causes shedding in the bowels. Essentially, it draws the water from inside your bloodstream and the rest of your system into your bowel. And you get massive amounts of liquid feces. So, (you) essentially dehydrate very, very quickly, and (it) also causes vomiting.

So, the thing that makes cholera a little bit different is the absolute volume of diarrhea, and the decrease in electrolytes. So, you can go from being moderately unwell to being at risk of dying very, very quickly, even in a matter of hours.

**Maggie Fox** 07:45

And that's the horrifying thing about cholera. People get sick and they're dead by the end of the day, sometimes.

**Amanda McClelland** 07:51

Yeah, I've been in a number of cholera outbreaks, and it is very challenging to see people going from wildly unwell to essentially being in shock from not having enough fluid. It's very easy to treat, which is also the challenging piece. If you can keep fluids going into people as quick as it's coming out, you can save people's lives. And that means, generally, just IV bags, but for most people, it means drinking what we call oral rehydration solutions. It's like Gatorade without the color. Essentially, it's sugary, salty water.

One of the challenges for the current outbreaks is that we don't have enough supplies and the case fatality rate, the number of people dying with cholera is much higher than we would normally expect during these outbreaks. We're seeing an average of 1.9% case fatality rate where we would normally see about 1 (percent) which is quite high and in parts of Africa, as high as 3%.

So not only do we have a lot more cholera than normal in a lot more countries, but the case fatality rate, the number of people it's killing is much higher than normal as well.

**Maggie Fox** 08:52

And what about antibiotics? It's a bacterial infection. Why not use antibiotics to treat people?

**Amanda McClelland** 08:56

Yeah, it's really a difficult ----- . There's some resistance to antibiotics. The antibiotics do help decrease the amount of shedding that you mentioned, but it doesn't necessarily cure cholera. So, it means that it doesn't stop people spreading the bacteria into the environment.

**Maggie Fox** 09:13

Can vaccines help?

**Amanda McClelland** 09:14

Yes, there is a vaccine. It's been on the market for some time, but we have limited supply globally. And it doesn't help us necessarily stop outbreaks (once they've started) the way that we've perhaps used it in measles and other outbreaks. But it does definitely support protecting communities and stop what we call hotspots.

So, the vaccine is only about 60 to 70% effective. It's not as good as something like the measles vaccine, but when we can give it to enough of the population in a high risk area, we have good evidence now that it stops outbreaks from starting and does help us slow the spread. So, they're an important tool. But clean water, soap, and good hygiene remains the key tool.

**Maggie Fox** 09:57

And my understanding is (that) there's some shortage of the vaccines now. There are three different vaccines but they're not necessarily easily available.

**Amanda McClelland** 10:05

No, the supply chain has been a problem for some time. It's not a vaccine that is highly marketable. And so, we haven't had enough production across the globe. There's been efforts by the global vaccine initiative and WHO to increase the number of manufacturers. But it remains a challenge. And at the moment, we still don't have enough vaccine supply.

**Maggie Fox** 10:28

So, I think what you were saying, very tactfully there, if companies can't make a lot of money selling these vaccines in rich countries, they don't make enough of them to distribute in poorer countries.

**Amanda McClelland** 10:38

It's a generalization. I'm sure that there's other factors for sure. But we do see vaccines that aren't necessarily widely distributed in the West and the North, always challenging in terms of manufacturing. And cholera is one of those vaccines, where the market is very focused on low-income countries, where cholera continues to spread.

**Maggie Fox** 10:59

What can we learn from the cholera response that can help us prepare better to fight other outbreaks?

**Amanda McClelland** 11:07

It's a really good question. And I think from my experience, cholera is the perfect response to build capacity. You need all of the skills in terms of collaborating, good engagement with community, you need behavior change, you need to explain how cholera has spread, basic things like boiling water, or

accessing safe water, using latrines, or washing hands are all things that can stop the outbreak, as well as good epidemiology and following the data. So, if you can get good at cholera outbreaks, it's very transferable to other outbreaks.

And that's one of the concerns at the moment, (as) we're not able to get on top of these outbreaks for a number of different reasons. But it leaves capacity questions in terms of our ability to manage other outbreaks, (such as) why can't we get on top of these outbreaks and (why are the case management, you know) why are so many people dying when the treatment protocol is well-known and fairly simple.

So, it's really important that we use this opportunity to build our capacity back up, make sure that we have enough people trained across the ----- in epidemiology, in their behavior change, communication, (and) case management. Build up that capacity again that's been so depleted post-COVID not just to tackle these cholera outbreaks, but also to make sure that we're better prepared for others.

**Maggie Fox** 12:22

So, what do you recommend that the world do to stop all of these cholera outbreaks from popping up?

**Amanda McClelland** 12:29

So, it needs a multipronged approach. I think (the) WHO has just called for more support, so there's definitely a financing issue. The world is (also) fatigued after COVID. The lack of sustained funding to be able to tackle outbreaks, especially these types of outbreaks that can be isolated in poorer communities is really important.

So we need the right supplies (and) the right level of support for response. We need access to more vaccines, but also more access to supplies. We need to make sure that we're following the data and getting all the way to the end. But we also need better prevention and preparedness. Many of these outbreaks have come on the back of natural disasters because health systems have been damaged because of flooding and challenges in clean and safe water.

So, it really is that holistic approach to making sure that people have access to basic services, even during natural disasters, and restrengthening the health system to be able to detect and respond quickly.

**Maggie Fox** 13:24

So sometimes, it helps to have a plan to fight some of these problems. Does Resolve to Save Lives have like a written plan for dealing with these issues?

**Amanda McClelland** 13:25

Most countries have a specific plan for cholera. But one of the things Resolve to Save Lives has been working on is how to improve the system to be able to detect and respond to cholera, but also to be ready for those other outbreaks.

So, we've been working on a project called the 7-1-7 Project. This is helping countries make sure they're testing their system and they can find every outbreak in seven days, notify that disease in one

day, and start rapid response within seven days. And this has been really important for a disease like cholera that spreads so quickly.

**Maggie Fox** 14:06

Amanda, thank you so much for joining us.

**Amanda McClelland** 14:09

Thank you so much.

**Maggie Fox** 14:11

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