

Water and Disease and Disease Vectors

*Recorded by Sarah DeMartino
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Speaker: Thank you for tuning into Penn State Brandywine's Waterbytes! Our next topic is on water, disease, and disease vectors. Here to provide some insight into this issue is Doctor Victor Eckter, a scientist who specializes in water, disease, and disease vectors, and journalist Jamie Penn, who is going to talk to us about water, disease, and the world. It's a pleasure to have you both with us today!

Dr. Eckter: I am glad to be joining you.

Jamie Penn: As am I!

Speaker: Now, Mr. Penn, if you don't mind waiting, we'll start with Doctor Eckter.

Penn: Sure thing!

Speaker: Doctor, could you talk a little bit about the that work you do?

D.E.: Certainly! My job is to look at the ways in which water and disease interact, to determine how and why it may be negatively impacting people and the environment. In my studies, I've found that illness is sometimes caused either by people or disease vectors.

Speaker: And what are disease vectors?

Dr E: They are harmful organisms which live in water. The most common examples are mosquitoes, parasitic worms, and snails.

Speaker: And they carry diseases, correct?

Dr. E: Some of them do, yes. Mosquitoes are known for carrying West Nile and Malaria. Other vectors act more like parasites and take hosts, like the guinea worm. The guinea worm breeds in polluted water. Its eggs hatch inside the host, and the larvae make their way through the skin and form sores all over the host's body.

Penn: (sarcasm) That's lovely!

Speaker: So, to backtrack a little bit, can you talk a bit about the kind of contaminants you study, Doctor?

D. E: Well, I mostly focus on hygiene, or lack thereof. Let me explain; one of the main reasons why water becomes polluted is because of poor sanitation. Poor sanitation comes from people either touching the water and transmitting bacteria, or from waste materials entering water sources. For example, building a latrine by one's well would introduce harmful bacteria into drinking water. Simple habits like washing one's hands frequently can do a lot to reduce water-borne diseases, such as cholera. You see, water related diseases don't just kill people, they put people into poverty. In third world countries, these diseases play a large part in whether or not somebody is rich or poor and determine just how long somebody might live.

Speaker: But why might people not always practice healthy habits and pollute water if it lands them in poverty and could ultimately kill them?

Penn: I believe that's a question for me!

Speaker: Go right ahead Mr. Penn!

Penn: Okay, so, take a place like...Ghana for example. Ghana's battling a massive outbreak of cholera, and sadly these outbreaks aren't rare. Ghana gets hit with a wave of cholera just about every year. This time around though, it's been declared an epidemic and the situation is much worse than has been in recent years. Over 4000 people have been infected, and about 70 have died so far. Part of the issue is that people don't know where to put their waste, so it's not disposed of properly, and then they don't practice proper hygiene. Ghana's biggest problem is education and trying to raise awareness of clean habits. People don't know how to practice proper sanitation.

Speaker: So would you say that's one of the reasons why diseases like cholera occur? From a lack of education?

Penn: Absolutely! People don't know to wash their hands after using the toilet or to shower regularly. What we think is common knowledge in the U.S. isn't necessarily the case in other countries.

Speaker: Speaking of the U.S., what kinds of water issues do we face here?

Penn: West Nile virus, as far as sicknesses go, that is.

D E: And that is spread by mosquitoes!

Penn: Indeed, it's found mostly in California, North Dakota, and Colorado, with around 300 cases reported in each state in 2007. The real concern regarding West Nile virus are people infected over the age of 50.

D. E: West Nile can be a nasty neurological disease, and can even cause death.

Penn: On the other hand, malaria, another mosquito transmitted disease, is said to have been wiped out in the U.S. back in 1951. So we don't have to worry about that.

Speaker: And that is all the time we have today. I would like to thank our two speakers, Jamie Penn and Doctor Eckter for joining me today...Note that all characters in this pod cast are fictional and do not represent real people.

References:

A history of malaria in the united states. (n.d.). Retrieved, April 9th, 2011 from http://www.malariapolicycenter.org/index.php/resources/a_history_of_malaria_in_the_united_states

Black, M, & King, J. (2009). *The atlas of water.* Berkeley and Los Angeles, California: University of California Press.

Ghana: fighting cholera requires comprehensive approach. (2011, April 4). Retrieved, April 9th, 2011 from <http://allafrica.com/stories/201104050607.html>

Huhn, G, Sejvar, J, Montgomery, S, & Dworkin, M. (2003). West nile virus in the united states: an update on an emerging infectious disease. *American academy of family physicians*, 68(4), Retrieved from <http://www.aafp.org/afp/2003/0815/p653.pdf>, Pp. 653-660

Kokutse, F. (2011, April 5). *Ghana hit by cholera epidemic.* Retrieved, April 9th, 2011 from <http://www.africareview.com/News/Ghana+hit+by+cholera+epidemic/-/979180/1139180/-/u3wxqt/-/>