



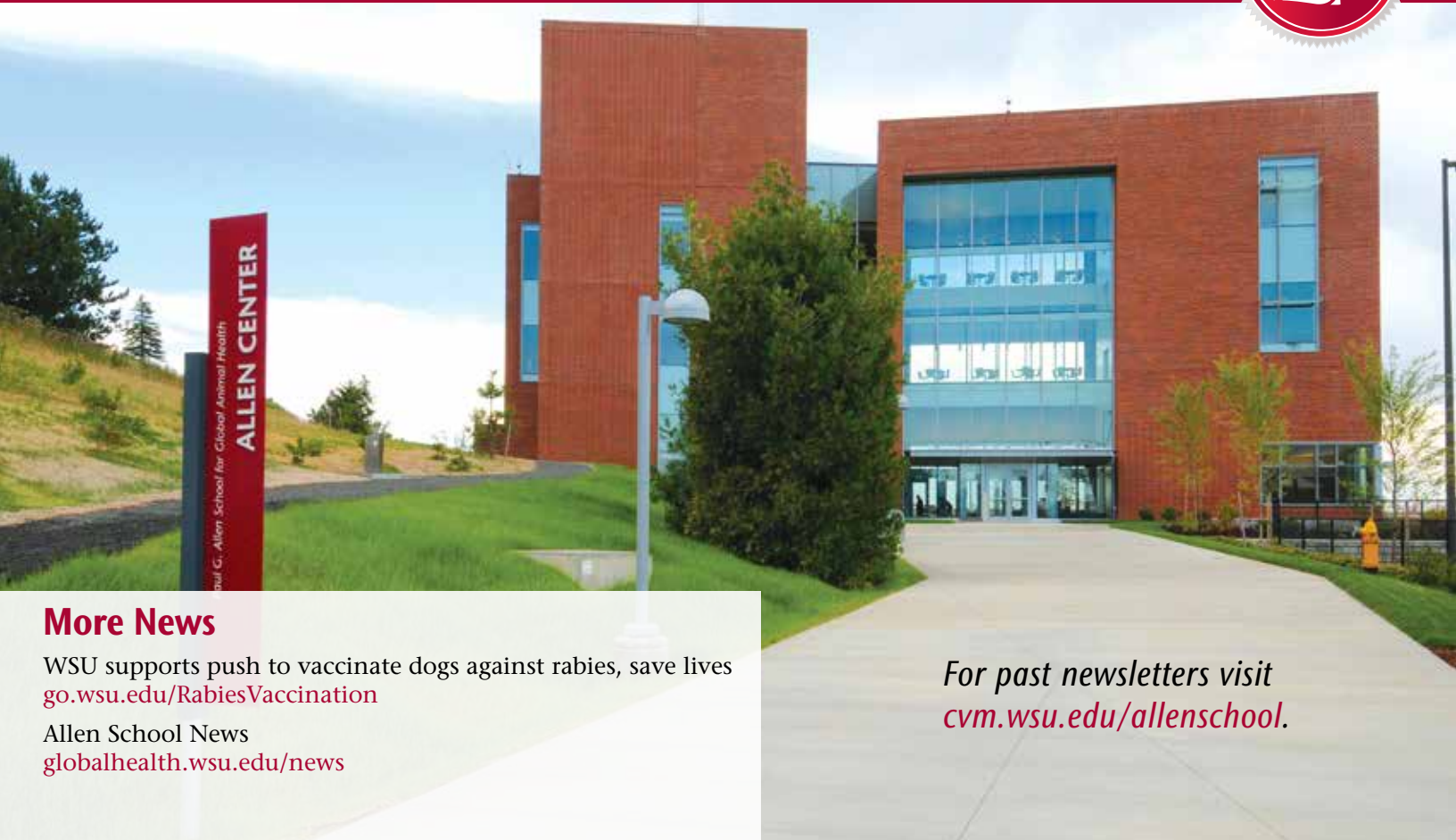
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WINTER 2015–16



More News

WSU supports push to vaccinate dogs against rabies, save lives
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Notes from the Field

“Notes from the Field,” a column in The Global Health Perspective, features personal accounts by Allen School scientists and gives a first-hand glimpse of the work they are doing to help the lives of people and their animals.

Using Education to Reduce the Spread of Disease in Rural Guatemala

by Maria Renéé Ortiz, a researcher with the Allen School and the Universidad del Valle de Guatemala.

Candelaria is a small village on the Pacific coast of Guatemala, wedged between the ocean and a series of canals running through mangrove forests. The community relies on very small scale agriculture and fishing for their livelihoods. Living in close contact on a daily basis with livestock, especially pigs, ducks, and chickens, and with its location along a migratory waterfowl flyway, the area is a “hot spot” for the emergence of new viruses, especially influenza. Together with colleagues at the Center for Health Studies at the Universidad del Valle de Guatemala and the CDC, the Allen School works with the community to increase awareness of zoonotic pathogens and improve community-based surveillance for new diseases. Candelaria, along with the adjoining communities, has implemented

*their community-based surveillance. This system can match up seemingly isolated events, in either animals or humans, with similar events in not only their community, but in neighboring communities as well. Health-related events are reported to the Ministry of Health and Social Assistance and the Ministry of Agriculture, Livestock and Food from a community level. **Maria Renéé Ortiz** is in the community on a daily basis, working primarily with women who are responsible for the household livestock and the most likely to detect changes in disease patterns in either the animals or family members. Ortiz has a master’s degree in development from the Universidad del Valle de Guatemala and will be starting a doctoral program with the Allen School in 2016.*

Dawn in Candelaria, the day breaks; it will be cloudless and very hot. Following a breakfast with the family I am staying with during my community-based research work on zoonotic infectious diseases, I grab my bicycle and take off to visit several village households to evaluate the backyard livestock and invite the women of the village for our monthly meeting. The monthly meeting, an approach termed “participatory epidemiology”, brings the community together to strengthen their understanding of zoonotic disease spread and identify opportunities and constraints to better detect and report these events. On the way to the first house, I note the animals wandering in the village—dogs laying in the sand, pigs noisily demanding feed, and roosters strutting and crowing. Soon after, I have to hit the brakes because a group of ducks are crossing the street. Letting them pass, I continue on and soon arrive at the first household. The woman of the house, “la señora,” is planting corn and invites me to join her. After planting two small plots, she escorts me to the back of the house where I can see her chickens and ducks, which roam free between the house and the nearby canal.

Continues

Message from the WSU Senior Director of Global Health



How does a disease outbreak start? It’s a simple question that doesn’t have a simple answer. Pathogens that cause infectious diseases can remain inactive, safely cocooned in an animal or environmental reservoir, until the conditions are ideal for emergence and rapid spread. Ongoing research in the Allen School illustrates our efforts to find answers to this critical question. The plague is one of the oldest recorded epidemic diseases and was responsible for the Black Death, which reduced Europe’s population by half in the mid-1300s. Today the plague still remains a serious public health threat in endemic regions—those where the disease occurs with some regularity—globally and here in the United States. From April to August 2015, six U.S. states, predominately in the southwest, reported cases of the human plague. Where the responsible pathogen, *Yersinia pestis*, “hides” between outbreaks is unknown. Recent research by Allen School professor Dr. Viveka Vadyvaloo showed that *pestis* can infect amoeba, which are single-cell organisms that can live in the soil. Her findings are critical because plague foci are associated with specific soil types. In this scenario, the plague bacterium remains silently inside the amoeba in rodent burrows and then emerges to infect resident rodents and then humans. Understanding what factors trigger emergence can allow targeted surveillance for future outbreaks before they happen. Targeted surveillance is already being

Message Continues

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We talk about the health of her animals and she tells me that there have not been any recent problems. Afterwards, we discuss the health of her family, and I end by inviting her to the community meeting. Saying goodbye, I am back on my bike and on to the next house, a house with a large entrance that requires me to ring the bell before entering. Of course the dogs begin to bark and soon la señora arrives to greet me and sends the dogs to the street. We go to the back of the house where there is a large pen with dogs, chickens, ducks, and pigs intermixed. She offers me a seat in the hammock, and I invite her to the community meeting. La señora tells me she will try her best to attend but that she has not been feeling well. We finish our conversation and I pedal off to the third household of the day. Here the woman is unable to walk, yet this does not stop her from working and taking care of her animals. While she is not one for joining in, her animals are so essential for her economic and food security that it's worth the effort to learn how to better take care of them. The house has a small kitchen but a large patio that borders the canal. Her husband fishes in the canal every day—there is a large number of fish drying on the ground. Adjacent are two large fenced pens, one with ducks and another with pigs—both are quite dirty, and some chickens have gotten out and are pecking at the drying fish. Just then the phone rings, and I say goodbye and take my leave.



Maria Reneé Ortiz leading a community meeting. Monthly meetings bring the community together to understand how zoonotic diseases spread and identify opportunities to better detect and report these events.

Back on my bike, I stop at a shop and buy a bottle of water. The sun is now scorching hot and I am sweating profusely. Finishing the water, I go to the next house, the last before lunch. As I arrive I observe a large, menacing boar and next to his pen, a rooster and a duck are looking for food scraps. On the other side is a dog nursing her pups and a flock of 30 ducks drinking water. Adjacent is the kitchen and I enter to greet la señora. She offers me a soft drink and a seat on the hammock. We begin talking about the household, and she tells me that recently 10 animals have died. She is worried because others are now looking ill—looking “triste,” or sad in a typical local description. Although she attributes the deaths to the hot weather, she has now isolated the ill animals from those looking ill. Afterwards I invite her to the meeting and she assures me that she will attend.

I pedal back to the house where I stay during my visits in time for lunch. The children of the house are waiting for me when I arrive and we visit for a while. Still sweating, I find a chair and drink some more water. Soon la señora calls me for lunch and we all sit together. After lunch, I wait for the sun to drop a bit—chatting with la señora, helping clear the table, and grabbing a shower—before continuing to visit more households. In each of the households, I invite the women to attend the upcoming meeting. My day ends nicely when teenagers in the community invite me to join them at the beach and fish for dinner.

previously hard hit by Rift. Given the increased risk in an El Niño year, surveillance, diagnosis, and reporting efforts are currently being ramped up. These approaches allow limited resources to be strategically employed where they will be most effective, supporting our mission to improve public health and human opportunity everywhere.

Message Continued

used successfully for Rift Valley fever, a highly fatal viral disease of humans and livestock. Similar to the plague, Rift occurs episodically and is linked to climatic changes that favor its mosquito-borne transmission. Professors Kariuki Njenga and Terry McElwain are lead investigators on a new CDC supported effort to increase surveillance in at-risk areas in Kenya—a country

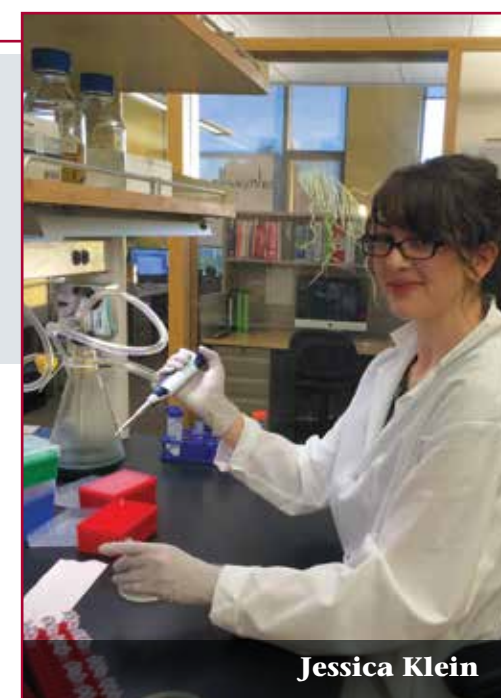
Guy Palmer
Creighton Endowed Chair and
WSU Senior Director of Global Health

**Faculty News**

Anders Omsland, assistant professor, was awarded \$406,543 from the National Institutes of Health to investigate the sexually transmitted *Chlamydia trachomatis* bacterium, a leading cause of preventable blindness in developing countries.



Thumbi Mwangi, clinical assistant professor, and **M.K. Njenga**, research professor, together with colleagues from Centers for Disease Control-Kenya and Kenya's Zoonotic Disease Unit, led a team of about 40 professionals working in the human health and animal health sectors in Kenya to prioritize and rank zoonotic diseases in Kenya. Participants in the September meeting developed a ranked list of 38 zoonotic diseases of importance in Kenya. Results from the meeting will help rational allocation of resources towards surveillance, research, prevention and control.



Jessica Klein

Student and Fellow News

Jessica Klein, a graduate student in Leigh Knodler's lab, was one of four students in the College of Veterinary Medicine to receive a Poncin Fellowship award this year. The \$24,145 scholarship supports students engaged in biomedical research in Washington State.

Emily Mosites has accepted a postdoctoral position in the National Institutes of Health's Infectious Diseases and Microbial Immunology Training Program. She will be working with Drs. Guy Palmer and Thumbi Mwangi on analysis of the impact of nutrition and infectious diseases on childhood growth and health in western Kenya.