

Controlling spread of diseases

AWARENESS: UPM researcher aims to educate children on the dangers of zoonotic diseases

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THE rising number of mosquito-borne Zika virus cases in neighbouring Singapore has left Malaysians worrying about a possible outbreak. And cases of leptospirosis continuing to capture news headlines is raising concerns, especially when it comes to carrying outdoor activities in waterfall areas.

These two diseases are examples of zoonotic diseases which can be transmitted from animals to humans, or vice versa. Zoonotic diseases can be caused by viruses, bacteria, parasites, and fungi.

While zoonotic diseases are categorised as common and have always been around, factors like climate change, deforestation and adaptation capability of the carrier to evolve, contribute to making the diseases even more widespread.

According to Universiti Putra Malaysia (UPM) Faculty of Veterinary Medicine senior lecturer Dr Mohd Mokrish Md Amjat, zoonotic diseases can be better controlled if there is awareness among the public on ways to do so. And he aims to do just that: create awareness of zoonotic diseases, particularly, among school-going students.

Mohd Mokrish was recently named one of the six recipients of the 2016 Young Scientists Awards by the International Coordinating Council of the Man and the Biosphere (MAB) Programme of UNESCO that entails a grant of up to US\$5,000 each for research in the areas ecosystems, natural resources and biodiversity. He plans to use the fund on a research that he hopes will give better insight into the interaction between the environment and human beings.

The biochemist is set to be embark on a study on Assessment of Zoonotic Disease Awareness Among Primary and Secondary School Students in Malaysia this month.

Targeting to cover 200 students, the study will involve several sessions of a two-day programme with 40 students per session that are aimed at educating and inculcating awareness on zoonotic diseases. A full report of the findings will be sent to the MAB Programme by September next year.

"The idea is to start at a young age and they, perhaps, can edu-



Dr Mohd Mokrish Md Amjat at UPM's Museum of Animal Anatomy, one of the venues for his upcoming research activities.



Dr Latiffah Hassan

cate their parents on animal-borne diseases. You might be surprised that parents are not often mindful of hygiene. It has been observed after visiting petting zoos, families would proceed to eat without washing their hands, making them susceptible to diseases. It is a matter of awareness — it's not trying to scare people," he said.

In the case of waterfalls, it is the irresponsible disposal of food waste by visitors that is an issue. "People often bring food during recreational

activities at waterfalls or along rivers. Food waste not properly disposed of would attract rats. Their urine may contain the *Mycobacterium leprae* bacteria that causes leptospirosis. Apart from that, there needs to be a biological control of rats. It is not a simple problem — it needs professionals of multiple expertise to provide a solution," he continued.

And the need for multiple expertise is the core of how Mohd Mokrish's research will be carried out via a collaboration with the Malaysia One Health University Network (MyOHUN) — a platform on which academicians, professionals, scientists and communities across sectors work together to respond to new and emerging diseases.

"When I submitted my research proposal, there was a requirement for collaborators. Mine are two colleagues from the School of Veterinary Medicine and one from Faculty of Modern Languages & Communication," said Mohd Mokrish.

Elaborating further, he said the two-day programme involving school students comprised two phases: the first, a visit by his team along with undergraduate volunteers from MyOHUN to carry out an assessment of the school students' understanding of zoonotic diseases and activities based on four types of modules.

"We'll have a module to introduce zoonotic diseases — what diseases animals and humans share, and what is a pathogen. We'll be using clay and Play-Doh to create models of the respective pathogen for familiarisation purposes. The other modules are being adapted from an outreach programme conducted by the Michigan State University in the US to suit our environment."

On the second day, the students will be taken to UPM's Edu-Park and Dairy Farm to witness the cow milking process.

"They would also be coming to the faculty and lab to play zoonotic diseases scientists where they would actually be given samples on dishes and look through microscopes. I want them to be excited about and want to study science. If you don't see, you cannot be excited," said Mohd Mokrish.

MyOHUN coordinator Assoc Prof Dr Latiffah Hassan who is also the head of the faculty's Veterinary Laboratory Diagnostics said the research is preliminary for a possible outreach programme under the platform.

"If the study findings show there is a need, we'll design an education and awareness programme under MyOHUN for schools around Selangor and beyond — as a long-term activity," she said.

DR MOHD MOKRISH MD AJAT

QUALIFICATION

PhD Biochemistry (2015) — Utrecht University, The Netherlands, Master of Science - Nanobiotechnology (2006) — Universiti Putra Malaysia, Bachelor of Science (Honours) - Biochemistry (2003) — Universiti Putra Malaysia

FIELD OF EXPERTISE

Biochemistry, Molecular Biology

RESEARCH INTEREST

Lipidomics, HPLC-MS (High-performance liquid chromatography-mass spectrometry (HPLC-MS), Nanobiotechnology