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# Stop the bugs at the gate

A deworming drug programme needs to be included in the health screening of migrant workers, say researchers whose study found that a majority of newly arrived foreign workers are infected with intestinal parasites.

By LOH FOON FONG

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ALMOST two-thirds of migrant workers screened in a study are found to be infected with intestinal parasites, including one alien species not detected here before, a research has found.

This finding shows that a mass-drug administration needs to be carried out on newly arrived foreign workers, says the group of researchers at Universiti Malaya (UM) who carried out the study.

According to its principal investigator, UM parasitologist associate professor Dr Nursheena Mohd Zain, the study, which was done on 388 migrant workers within a year of their arrival from September 2014 to August 2015 in Kuantan and the Klang Valley, found that 62.9% of them were positive for at least one parasite species.

"They were found to have round worms, hook worms, whipworms and/or tape worms. One of the workers even had all four parasite species.

"Most of these people are asymptomatic unless it is bad," she tells *Sunday Star*.

In the study "Migrant Workers in Malaysia: Current Implications of Sociodemographic and Environmental Characteristics in the Transmission of Intestinal Parasitic Infections" published in the Public Library of Science in November last year, it says migrant workers made up more than 30% of the total Malaysian workforce and there is a strong correlation between high incidence of migrant workers and outbreaks of disease.

The study was presented to the relevant ministries and local authorities in the "Evidence-based policy making to enhance public health outcomes: Re-engineer networking for scientists" conference recently.

The workers participating in the cross-sectional study of intestinal parasitic infections among migrant workers in Malaysia came from five sectors – manufacturing, construction, plantation, domestic and food services – and they were mostly recruited from Indonesia, Nepal, Bangladesh, India and Myanmar.

A total of four nematode (roundworm) species – *Ascaris lumbricoides*, *Trichuris trichiura*, *Enterobius vermicularis* and *Ancylostoma duodenale*; one cestode (tape-worm) – *Hymenolepis nana*; and three protozoan species – *Entamoeba histolytica/dispar*, *Giardia sp.* and *Cryptosporidium spp.*, were identified in the workers.

High prevalence of infections with *A. lumbricoides* (43.3%) was recorded, followed by hookworms (13.1%), *E. histolytica/dispar* (11.6%), *Giardia sp.* (10.8%), *T. trichura*

(9.5%), *Cryptosporidium spp.* (3.1%), *H. nana* (1.8%) and *E. vermicularis* (0.5%).

Those infected with *A. lumbricoides* may be asymptomatic or suffer from bloating and stomach ache, and if serious enough, the worms will be defecated. For children, if severe enough, they could suffer from malnutrition.

It was estimated that more than two million documented foreign workers – from some 15 countries – worked in Malaysia in 2014. There are also many undocumented workers.

Documented workers have to undergo medical screening before entering Malaysia and one month after entry, as well as annual check-ups until the third year.

Currently, compulsory medical screening prior to entering the workforce are carried out for communicable diseases such as HIV/AIDS, malaria, tuberculosis (TB), leprosy and sexually transmitted diseases (STDs), and non-communicable diseases. However, they are not screened for parasitic infections such as intestinal parasitic infection and toxoplasmosis.

Dr Nursheena says the infections found in migrant workers in the study were significantly influenced by the length of stay in Malaysia.

"Those who had arrived for less than one year in Malaysia, had a higher level of infection compared with those who had stayed longer in the country, which indicates that they brought in the infections from their home countries."

She adds that up to 84% of migrant workers from Nepal and 83% from India were infected with intestinal parasites, with the ascarid nematode *A. lumbricoides* occurring in 72.8% of the Nepalese and 68.1% of the Indian population.

Workers with an employment history of less than a year or those who newly arrived in Malaysia were most likely to show high levels of infection as prevalence of workers infected with *A. lumbricoides* was reduced from 58.2% to 35.4% following a year's residence, she notes.

## One alien species and another multi-drug resistant

The study also recorded an alien species of hookworm, the *Ancylostoma duodenale*, for the first time in Malaysia from Nepalese and Indonesian workers, says Dr Nursheena.

"The *Ancylostoma duodenal* species has not been reported before in Malaysia. We have hook worms, but not the duodenale."

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She says this points to the link between the arrival of migrant workers without proper screening and the introduction of novel parasites into our population.

In the research, 51 samples (81%) found positive for hookworm infections (soil-transmitted helminths parasites), had *Necator americanus* while 16% out of 42 specimens had *Ancylostoma spp.* and 2.4% had a mixed infection of both worm species.

Dr Nursheena says hook worms can cause people to become anaemic, suffer intestinal obstructions and stomach ache.

“If workers are unwell, they are less productive and go on sick leave.

“They can end up spreading the infection to others if they are not hygienic.”

Dr Nursheena points out that besides parasites, four non-typhoidal Salmonella (NTS) strains were also detected from nine migrant food handlers (2.8%) with indication of transmission to other food handlers, posing a public health risk through food contamination.

“This salmonella is multi-drug resistant,” she says, adding that stool samples showed NTS from asymptomatic migrant workers who mostly have cards showing they had jabs for salmonella.

While the health of foreign workers needs to be taken care, they also need to be educated about food safety and good food handling practices as another study involving 383 respondents showed that their overall mean score when tested on food safety knowledge (20 questions) was 31.1%, indicating a generally poor knowledge on food safety.

The study “Evaluation of basic knowledge on food safety and food handling practices amongst migrant food handlers in Peninsular Malaysia”, published in the *Journal of Food*

*Control* 2016, also showed that they got a mean score of 69.8% for food-handling practices.

However, the mean score on food cleanliness and hygiene was 74.2%, higher compared to the mean score knowledge on symptoms of food-borne illness (18.1%), and knowledge on food-borne pathogens (1.1%).

More specifically, the respondent’s knowledge on ‘food cleanliness and hygiene’ was fair, but poor on ‘symptoms of food-borne illness’ and ‘food-borne pathogens.’

The study, carried out from Oct 2014 to May 2015, screened foreign workers in three major cities – Selangor, Ipoh and Kuala Terengganu.

Poor participation in food training programmes, low educational level and language barriers were key factors that have been identified for the poor knowledge, it said.

### Deworming and education needed

Health authorities need to consider mass drug administration for all newly-arrive foreign workers as recommended by the World Health Organisation (WHO) (2001) especially for countries that import low-skilled workers, says Dr Nursheena.

“It’s a simple and affordable treatment. All

they have to do is take deworming tablets,” she says.

She notes that if the prevalence of infection for helminth is more than 50%, the recommended dose is twice a year for anti-helminth.

The treatment not only increases productivity of workers, but it also prevents infection from spreading to other workers and families, she says, highlighting that Qatar has implemented the move since 2010.

Dr Nursheena believes that the treatment should be coupled with health awareness programmes among workers such as increasing the importance of personal hygiene and sanitation, disease transmission and healthy behaviours in controlling parasitic infections.

“We need to educate migrant workers,” she stresses.

Meanwhile, the poor food safety findings calls for better improvements in food training programmes that would improve knowledge acquisition and develop good practice.

“Several recommendations include compulsory basic Malay or English language classes prior to attendance at food training programmes to ensure better understanding of the content of food training modules with emphasis on symptoms of food-borne illnesses and food-borne pathogens,” the study concluded.

Crucially, regular health inspections of food handlers and closure of food premises that fail to comply should be enforced by the regulatory bodies if the health and safety guidelines are not fully adhered, it said.

The study cautions general interpretation of the overall results and recommends that future studies should include a larger randomised sample size across the country.

### Health Ministry should decide

A spokesman from the Home Ministry says the ministry would support whatever policy that would benefit the country, but the decision would be made by the Health Ministry.

Deputy health director-general Datuk Dr Lokman Hakim Sulaiman believes strongly that employers should provide the treatment for their employees.

“The risk is mainly to themselves because I believe they do not defecate in the bushes nowadays, so they do not contaminate the soil,

“Moreover, people do not walk barefoot (so they do not risk getting infected with hookworms),” he says.

For other worms, risk to others through water and food is low.

“It is their own health that is more at risk, and if any, that is easily treated,” he adds.

Dr Nursheena thinks the scientific findings will help the Health Ministry and supporting agencies to enhance their systems to monitor, prevent and combat non-communicable diseases in our population.

“This study points to the need to have a broader nationwide survey that will help us develop more effective tools for targeting

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and mitigating risk factors based on geography, industry and demographics.

“New mechanisms for collaboration between the multiple agencies can be developed to enhance the effectiveness of our public health system,” she says.



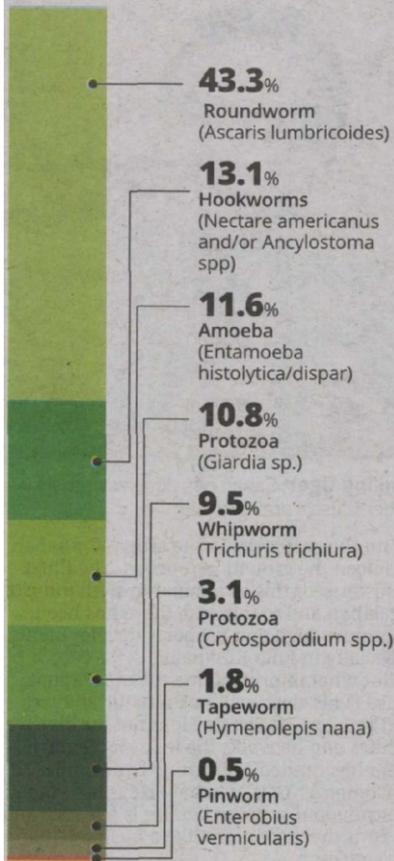
**Shocking find:** Dr Nursheena said a study by UM researchers found that 62.9% of participants were infected with intestinal parasites.



**Roundworm:** An *Ascaris lumbricoides* egg under a microscope.

### Prevalence of parasitic infections among foreign workers

(based on 388 foreign workers in Malaysia from Sept 2014 to Aug 2015).



(Note: Each foreign worker can be infected with more than one worm)  
Source: Universiti Malaya