### CONFIRMATION STATUS OF HELMINTHIASIS IN LOW RISK AREAS IN CENTRAL THAILAND

<u>Ampas Wisetmora</u><sup>\*1,2</sup>, Duangduen Krailas<sup>2</sup>, Choosak Nithikethkul<sup>3</sup>, Wanchai Phatihattakorn<sup>4</sup>, Opart Karnkawinpong<sup>1</sup>, Thitima Wongsaroj<sup>1</sup> and Pongrama Ramasoota<sup>4</sup>

<sup>1</sup>Bureau of General Communicable Diseases, Department of Disease Control, Ministry of Public Health, Nonthaburi 11000, Thailand.
<sup>2</sup>Department of Biology, Faculty of Science, Silpakorn University, Nakhon Pathom, Maung, Nakhon Pathom 73000, Thailand.
<sup>3</sup>Faculty of Medicine, Mahasarakham University, Mahasarakham 44150, Thailand
<sup>4</sup>Faculty of Tropical Medicine, Mahidol University, 420/6 Rachawithi road, Rachawithi, Bangkok 10400, Thailand.
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### **HELMINTHIASIS**

- Helminthiasis is infestation with one or more intestinal parasitic worms.
- Infected people excrete helminth eggs in their faeces, which then contaminate the soil in areas with inadequate sanitation. Other people can then be infected by ingesting eggs or larvae in contaminated food, or through penetration of the skin by infective larvae in the soil (hookworms).
- Infestation can cause morbidity, and sometimes death, by compromising nutritional status, affecting cognitive processes, inducing tissue reactions.

### What is Soil transmitted Helminths (STH)?

- They are human parasites that can live inside host (human or animal), feed off living host, recovering nourishment, nutrient absorbtion or killing host.
- Causing weakness and disease.
- Live inside the digestive tract are called intestinal parasite.
- Worm is parasite that lives in the intestines of Vertebrated.

### **Transmission and Disease Characteristics**

STH infection is caused by four major nematode species:

- 1. Ancylostoma duodenale and Necator americanus (hookworms)
- 2. Ascaris lumbricoides (roundworm)
- 3. Trichuris trichiura (whipworm)
- 4. Strongiloides stercoralis

Infection is prevalent in areas with over-population and inadequate sanitation in tropical and subtropical countries, where the climate supports the survival of the parasite eggs or larvae in the warm and moist soil.

### HOOKWORM



# Trichuris sp.





# Strongyloides sp.







### **Liver Fluke**

(Opisthorchis viverrini)





# **Opisthorchis viverrini**

Opisthorchiasis caused by Opisthorchis viverrini remains a major public health problem in many parts of Southeast Asia, including Thailand, Lao PDR, Vietnam and Cambodia. Liver fluke infection as the major risk factor in cholangiocarcinoma, cancer of the bile ducts. The liver fluke infection is induced by eating raw or uncooked fish products that is the tradition and popular in the northeastern and northern region, particularly in rural areas, of Thailand.



#### Prevalence rate of Helminthiasis in Thailand by region and year



# **Objectives**

 To confirm and identify risk factors for soil transmitted helminthiasis infections in low risk areas and to investigate the prevalence of helminthiasis in the central part of Thailand.

### **Material and Methods**

Study area was carried out in 25 provinces Central part of Thailand (Region 1, 2, 3, 4)



## **Material and Methods**

- Standard technique for research were used to perform the stool examinations by the formalin ether concentration technique.
- A quantitative evaluation to determine the intensity of infections was performed using Modified Kato Katz Technique of positive eggs per slide. Descriptive statistics (Percentage, Mean and Standard Deviation) were used in this study.

It is important to note the intensity of infections in low risk areas. The study was conducted to identify the prevalence of helminthes. A total of 3,235 Thai people (1,198 male and 2,037 female) were examined. The infection rate was 5.7% (185/3,235) with 3.2% (103/3,235) experiencing a light hookworm infection 9858.99±3943.87 MEPG (Mean egg per grams) and 1.3% (43/3,235) experiencing a light infection 99.39±148.23 (Mean egg per grams) of *Opisthorchis viverrinis* infection.





The highest infection of soil transmitted helminthes (STH) were in Nonthaburi province at 15.4% (2/13) followed by Phetburi province at 12 % (10/83). The highest infections of trematodes (FBT) were in Sakaew province at 6.1% (8/133) and Ang Thong province at 6.0%(3/50). This study reveals a helminthes infection rate of 5.7 % among Thai people who live in the municipality (urban) and rural areas of twenty-five Thai Provinces, Males and those with low incomes were significantly related to higher infections.

















These are some of the most attractive areas of Thailand for tourists. Male gender and low income levels were factors which related to higher rates of infection. Students from low income families and younger students exhibited slightly higher rates of infection. The study indicated that differences in sex had no statistically significant difference in the incidence of infection among the students.

The relationship between levels of infection and clinical signs can be investigated in further studies. However our study indicates that crucial factors in the control of helminthiasis in the central part of Thailand are the following: good sanitation, adequate hygiene and clean environmental conditions. Improvement of these factors should provide a safer environment with regard to helminthiasis for local Thai residents, resident foreigners and tourists.

# CONCLUSIONS

 The results of study, Confirm that low prevalence in research field and beneficial for agricultural tourism promoting in Central region of Thailand

