

The Impact of Refugee Camps at Thai-Myanmar Border on the Health of Thai People

Apichart Mekmasin

Department of Disease Control

Abstract Myanmar refugees reside in nine camps along Thai-Myanmar border which are located in Ratchaburi Province, Kanchanaburi Province, Tak Province and Mae Hong Son Province. These refugees may be carrier and transmit diseases to Thai people especially those who live in the above four host provinces.

This quantitative study compared the communicable diseases in three groups, those in refugee camps, the above four host provinces and the rest of the provinces and revealed morbidity relationship between the camps and the host provinces. It was done by selecting two diseases from each of food and water-borne diseases, vector-borne diseases and contact-caused diseases, namely acute diarrhea, dysentery, malaria, dengue hemorrhagic fever, tuberculosis and sexually transmitted infections respectively from 2002-2006.

The study revealed that the refugee camps had a very high morbidity rate of all the six diseases. The uppermost was 200 times higher than those of the host provinces. However there was no relationship between them which meant that the morbidity of the refugee camps had no effect on that of the host provinces.

There were only three diseases that the host provinces had higher morbidity rate than the rest of the provinces, namely malaria which was 11 times higher but acute diarrhea and dysentery were only a little higher which could be caused by other factors rather than the Myanmar refugees.

It was concluded that there was no evidence from epidemiological surveillance report to indicate that the Myanmar refugees in the camps had a negative impact on the health of Thai people especially those who lived along Thai-Myanmar border from 2002 to 2006.

Key words: refugee camps, Thai-Myanmar border, communicable diseases

Introduction

Although Thailand was not a signatory of the 1951 Convention and the 1967 Protocol relating to the status of refugee, the Thai Government has closely

cooperated with UNHCR in solving the problems relating to displaced persons by screening and allowing approximately 140,000 Myanmar refugees to live in nine camps along the western border of Thailand.⁽¹⁻²⁾

There used to be ten camps located in four provinces, i.e. Ratchaburi (Ban Tham Hin), Kanchanaburi (Ban Ton Yang), Tak (Ban Mae La, Ban Umpiem and Ban Nupo), Mae Hong Son (Ban Pang Kwai-Pang Tractor, Ban Mai Nai Soi, Ban Mae Surin, Ban Mae Kongka-Sala and Ban Mae La Ma Luang). Ban Mae Kongka-Sala camp was later moved to Ban Mae La-Oo in Mae Hong Son Province. Some camps in Mae Hong Son Province were also merged, for example, Ban Mai Nai Soi camp was moved and merged with Ban Pang Kwai-Pang Tractor camp. Therefore, there are now nine camps along Thailand-Myanmar border.⁽³⁻⁵⁾ Many NGOs have provided various forms of assistance to these refugees, for example, one of them (TBBC) providing shelter and food, twelve (ADRA, COERR, ICS, IRC, JRS, NCA, RTP, SVA, TOPS, WEAVE, WE/C, ZOA) providing educational assistance and nine (AMI, ARC, COERR, HI, IRC, MI, MSF, RF, SOL) providing medical and health assistance including sanitation and environmental health.⁽⁶⁾ Serious cases are referred to hospitals for further treatment.⁽⁷⁾ Allowances are designated for registered refugees who have been screened and approved by Provincial Admissions Board, chaired by Provincial Governor, at the time of arrival. Some are still unregistered and stay with their relatives in the camps. These people may be carriers and transmit diseases to Thai citizens in various provinces especially those provinces where the camps are located (host provinces).

The vast economic and social difference between Thailand and the neighbouring countries was the main factor motivating the population of these countries to migrate to Thailand. In 2004, the number of migrants from neighbouring countries living in Mae Hong Son and Tak provinces totalled 40 percent of the population of each province.⁽⁸⁾ This could also affect the health of Thai people living in these provinces.

The objectives of this study were:

1. To find the relationship of the occurrence

of communicable diseases between the camps and the host provinces.

2. To find the difference of the morbidity rates among the camps, the host provinces and the rest of the provinces (other provinces).

Methodology

1. This quantitative study was conducted by comparing the occurrence of communicable diseases in three population groups : the population of the nine camps on Thailand-Myanmar border; the four host provinces which were Mae Hong Son, Tak, Kanchanaburi and Ratchaburi; and the rest 72 provinces (the other provinces) of Thailand. Six diseases were selected for this study, acute diarrhea and dysentery (food and water-borne diseases); malaria and dengue hemorrhagic fever (vector-borne diseases); tuberculosis and sexually transmitted infections (contact-caused diseases) from 2002 to 2006.

2. Calculation of the morbidity rate per 100,000 population of each disease in each population group was carried out by collecting demographic data and morbidity of these groups. Data were collected from annual epidemiological surveillance reports from 2002 to 2006, prepared by Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health.^(3-5, 9-10)

3. Data were analyzed by using non-parametric statistics with the significant confidence level (α) at 0.05.

- 3.1 The relationship of morbidity rates between the camps and the host provinces was established by using Spearman's Rank Correlation which is a method to find relationship of two variables on ordinal scale.

- 3.2 The difference of morbidity rates among the camps, the host provinces and the other provinces was found by using Kruskal-Wallis Rank Sum Test to find out whether the median values of the three groups

were the same. The analyzed data must at least be measurable on ordinal scale and there must be continuous distribution.

3.3 The difference of morbidity rates between the host provinces and the other provinces was found by using Mann-Whitney U Test to find out whether the median values of these two independent groups of population were the same.

Results

The Myanmar population who had fled the country either from fighting or any other reasons, had migrated and lived in the various camps located on the western border of Thailand in four host provinces,⁽¹⁰⁾ for example, Ratchaburi Province (Ban Tham Hin: 9,908 persons), Kanchanaburi Province (Ban Ton Yang: 4,233 persons), Tak Province (Ban Mae La: 42,741 persons; Ban Umpiem: 18,592 persons; and Ban Nupo: 13,909 persons), Mae Hong Son Province (Ban Pang Kwai-Pang Tractor: 18,974 persons; Ban Mae Surin: 3,557 persons; Ban Mae La-oo: 15,807 persons, and Ban Mae La Ma Luang: 14,401 persons). These camps were located on the Thailand-Myanmar border, in mountainous and wooded areas about 30-90 km from the centre of the located districts. Almost half of the population were children aged under 17 years old. The number of males came close to that of females.⁽¹¹⁾

During 2002-2006, the morbidity rates per 100,000 population of the camps were as follows:- acute diarrhea: 21,073-27,740, dysentery: 7,665-9,527, malaria: 5,420-8,945, dengue hemorrhagic fever: 265-1,623, tuberculosis: 64-109, sexually transmitted infections: 497-1,404 (Fig. 1-6). These morbidity rates were higher than those of the host provinces. Acute diarrhea was 7 times higher, dysentery was 60-80 times higher, malaria was 13-32 times higher, dengue hemorrhagic fever was 1-14 times higher, tuberculosis was 0.1-1.5 times higher and sexually transmitted infec-

tions were 35-200 times higher. However, the morbidity rates of acute diarrhea and sexually transmitted infections in the camps had declined since 2003. Statistical testing using Spearman's Rank Correlation method showed that there was no significant relationship of morbidity rates of these six diseases between the camps and the host provinces during 2002-2006 ($p > 0.05$) (Fig. 7-12). Statistical testing using Kruskal-Wallis Rank Sum Test showed significant differences of morbidity rates of these six diseases among the 3 groups, i.e. the camps, the host provinces and the other provinces during 2002-2006 ($p < 0.01$) (Fig.13-18).

The morbidity rates of these diseases of the camps were higher than those of the other provinces where there were no refugee camps. Acute diarrhea was 10-17 times higher, dysentery was 200 - 300 times higher, malaria was 216-391 times higher, dengue hemorrhagic fever was 0.6-21 times higher, tuberculosis was 0.07-1.2 times higher and sexually transmitted infections were 18-53 times higher. The morbidity rates of some diseases of the host provinces were also higher than those of the other provinces, for example, acute diarrhea was 20-32 percent higher; dysentery was 200-300 percent higher; malaria was 11-14 times higher. However, the morbidity rates of sexually transmitted infections of the other provinces were 85-270 percent higher than those of the host provinces during 2002-2006. Tuberculosis of the other provinces was also higher than host provinces by 3-40 percent from 2003 onwards whereas dengue hemorrhagic fever had no definite direction (Fig. 13-18).

Comparing the morbidity rates of the host provinces with the other provinces by using Mann-Whitney U Test, it was found that acute diarrhea, dysentery, malaria, and sexually transmitted infections were statistically different significantly ($p < 0.01$) but there were no significant differences for dengue hemorrhagic fever and tuberculosis.

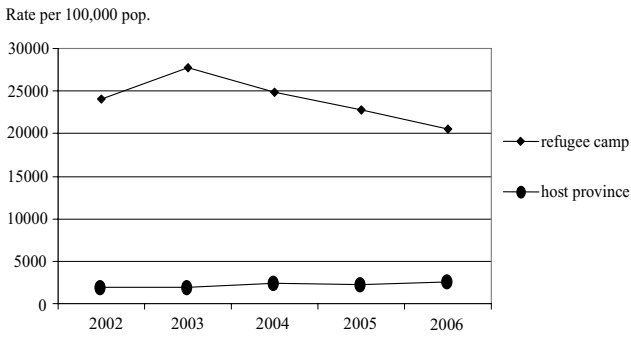


Figure 1 Morbidity rates of acute diarrhea (2002 - 2006)

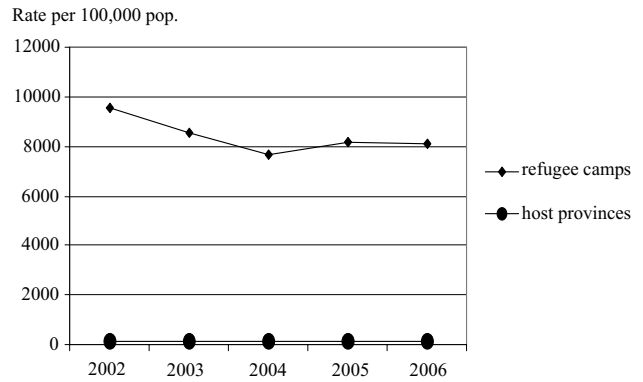


Figure 2 Morbidity rates of dysentery (2002 - 2006)

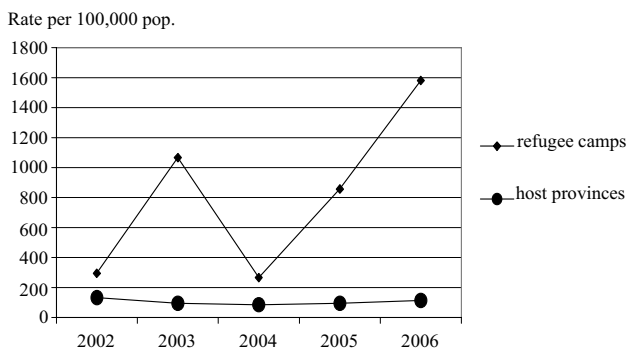


Figure 3 Morbidity rates of malaria (2002 - 2006)

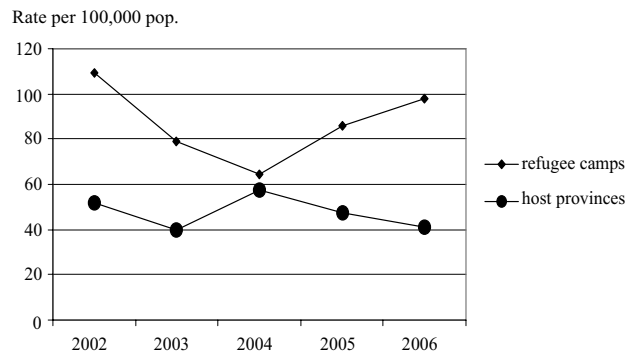


Figure 4 Morbidity rates of dengue hemorrhagic fever (2002 - 2006)

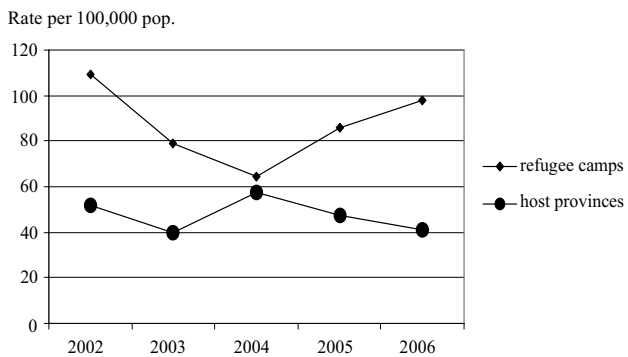


Figure 5 Morbidity rates of tuberculosis (2002 - 2006)

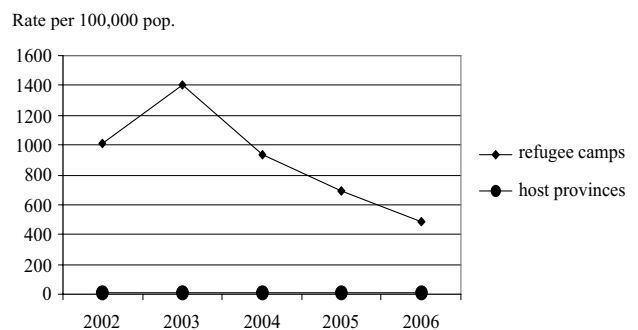


Figure 6 Morbidity rates of sexually transmitted infection (2002 - 2006)

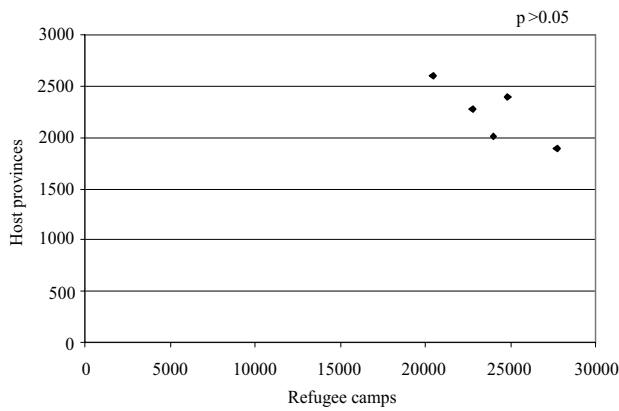


Figure 7 Scatter plot of morbidity rates of acute diarrhea per 100,000 (2002 - 2006)

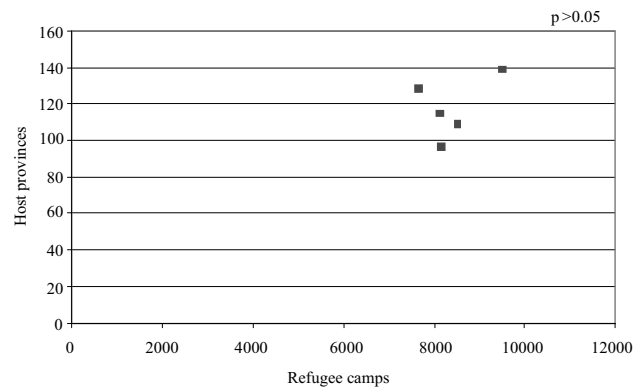


Figure 8 Scatter plot of morbidity rates of dysentery per 100,000 (2002 - 2006)

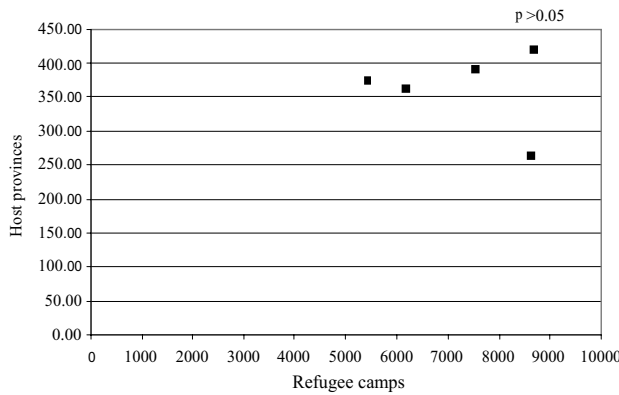


Figure 9 Scatter plot of morbidity rates of malaria per 100,000 (2002 - 2006)

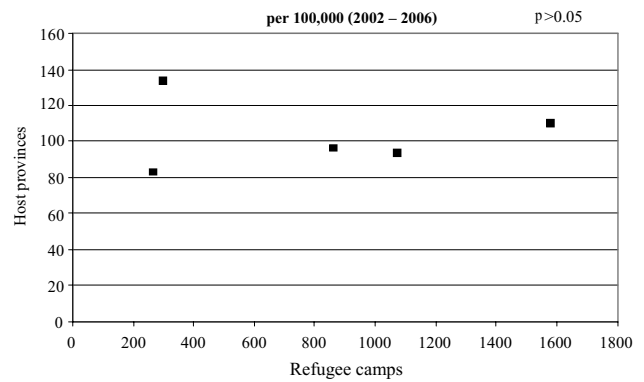


Figure 10 Scatter plot of morbidity rates of dengue hemorrhagic fever per 100,000 (2002 - 2006)

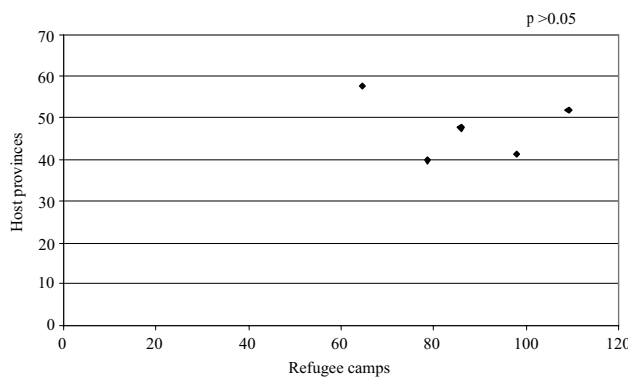


Figure 11 Scatter plot of morbidity rates of tuberculosis per 100,000 (2002 - 2006)

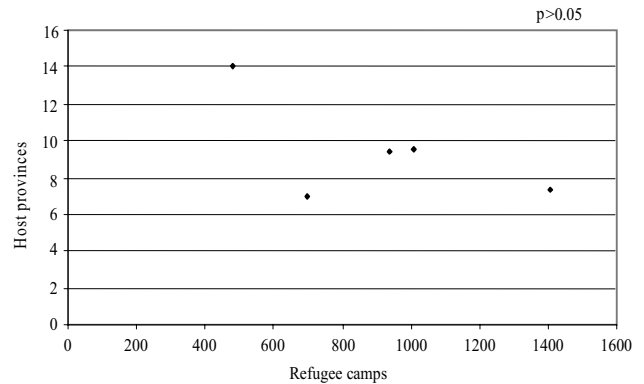


Figure 12 Scatter plot of morbidity rates of sexually transmitted infection per 100,000 (2002 - 2006)

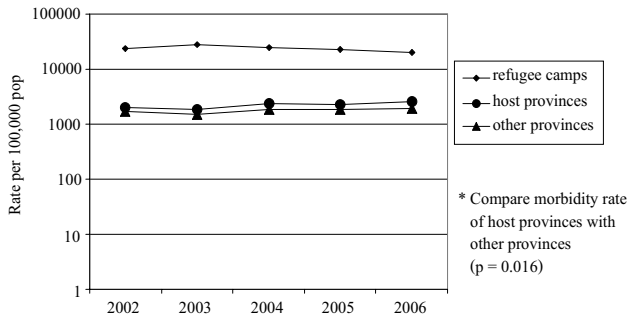


Figure 13 Morbidity rates of acute diarrhea (2002 - 2006)

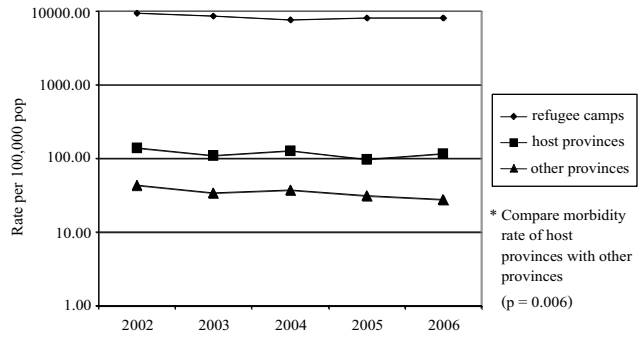


Figure 14 Morbidity rates of dysentery (2002 - 2006)

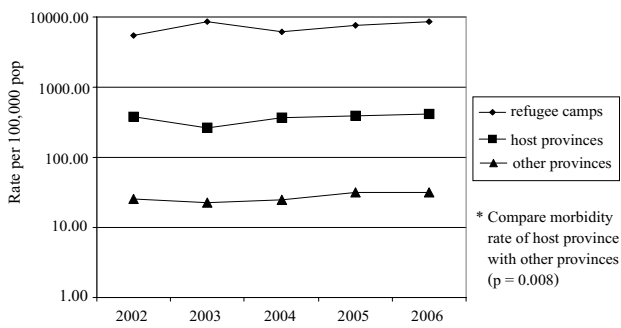


Figure 15 Morbidity rates of malaria (2002 - 2006)

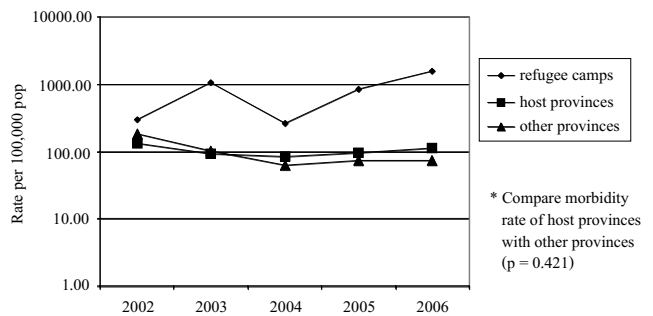


Figure 16 Morbidity rates of dengue hemorrhagic fever (2002 - 2006)

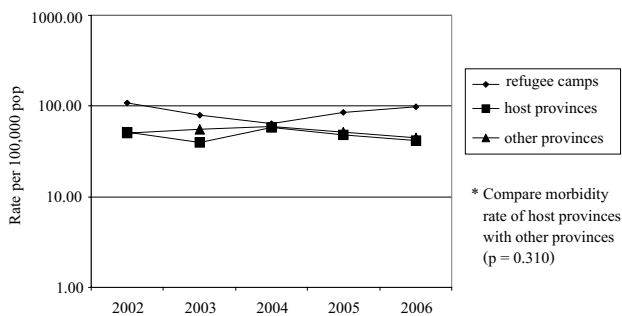


Figure 17 Morbidity rates of tuberculosis (2002 - 2006)

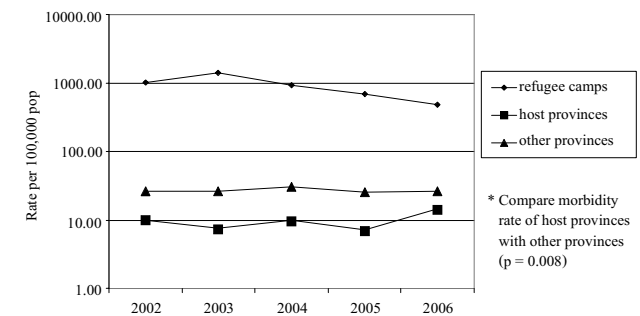


Figure 18 Morbidity rates of sexually transmitted infection (2002 - 2006)

Discussion

During 2002-2006, the morbidity rates of communicable diseases per 100,000 population of the camps were as follows: the two highest ranking diseases were food and water-borne diseases, followed by two vector-borne diseases, while the lowest ranking diseases were the sexually transmitted infections and tuberculosis. The high morbidity rates of food and water-borne diseases especially in children were due to unhygienic conditions, there were contaminations of food and the environment, such as ice.⁽¹²⁾ Because malaria was endemic in these areas, there were high reports of malarial cases. These refugees lived in crowded communities. The population density was over 8,000 persons per square kilometer, and in some areas it was even higher than 40,000 persons per square kilometer.⁽¹¹⁾ So diseases, such as tuberculosis, could therefore spread easily. High morbidity rates of sexually transmitted infections were due to lack of condom use with commercial sex workers. This result corresponded with the high morbidity rates found along the Myanmar border adjacent to Thailand, for example, malaria was found more than 14 cases per 1,000 population in 2006 and 1.5 percent of the Myanmar population contacted tuberculosis each year.⁽¹³⁾ However acute diarrhea and sexually transmitted infections tended to decline since 2003. The morbidity rates of these camps were higher than those of the host provinces. The following statistics were shown in numerical order: sexually transmitted infections were 35-200 times higher, followed by dysentery which was 60-80 times higher, and malaria. As for the morbidity rates of the other three diseases: dengue hemorrhagic fever, acute diarrhea and tuberculosis, there were not much differences. However, no significant relationship of the morbidity rates between camps and host provinces was found. It could, therefore, be concluded that the increase or decrease of morbidity rates of the camps did not affect the morbidity

rates of the host provinces during the same period. In other words, disease control measures in the camp might be fairly effective. The government authorities also had screening process for the acceptance of Myanmar refugees. These refugees had to observe the rules and regulations of the camps and were not allowed to leave their camps to work or attend to any business in any province.

The study conducted on the morbidity rates of the three groups of population during 2002 - 2006 showed that there was a statistical difference but it was not possible to carry out a test to find out the difference between each matched pair. This was due to the limitation of non-parametric statistics used in comparing the data of three or more groups of population because Type I error would be more than 0.05. However, it was evident from the result obtained that the morbidity rates of the camps were higher than the other provinces which were not the location of the camps.

The host provinces showed higher morbidity rates of malaria, dysentery and acute diarrhea than those of the other provinces, for example, malaria was 11 times higher, dysentery was 2 times higher but acute diarrhea was only 20 percent higher. However, the morbidity rates of sexually transmitted infections and tuberculosis were lower. There was no definite direction for dengue hemorrhagic fever. It could, therefore, be concluded that the transmission of the latter three diseases was probably not related to the camps.

The high morbidity rates of malaria and food and water-borne diseases of the host provinces corresponded with the high morbidity of migrants of these provinces. In 2003, 43.8 percent, 35.2 percent and 1.2 percent of migrant workers in Tak Province were affected by malaria, acute diarrhea and dysentery respectively. In the same year, these diseases were also high in migrant workers/population in Mae Hong Son Province, Kanchanaburi Province and Ratchaburi Province.⁽⁸⁾ These migrants consisted of many nation-

alities. In 2003, a health survey among migrant population in a community in Tak Province showed that 83.6 percent of these migrants were Myanmar, the rest consisted of other nationalities.⁽⁸⁾ These migrants could be carriers and transmit diseases to Thai people in these provinces, such as food and water-borne diseases. The cholera outbreak in the five districts on the western border of Tak Province and in the camps in 2007 showed that it was related to the cholera outbreak in Myawaddy District of Myanmar situated opposite to these border districts. Most cases were migrant workers, not refugees. It was suspected that they contacted the diseases while in Myanmar and later transmitted to their neighbours in Thailand. The disease was then spread to Thai population.⁽¹⁴⁾ The cholera outbreak in Ranong Province in 2007 was also originated from Myanmar migrant workers.⁽¹⁵⁾ Because the bordering provinces were mountainous and wooded areas, they were breeding grounds for anopheles mosquitoes. The data of the Bureau of Vector-Borne Diseases, Department of Disease Control, revealed that 23 percent of the population in the host provinces lived in areas where there was malarial transmission throughout the year or during certain seasons.⁽¹⁶⁾ Therefore there were substantial reports of malarial cases.

With regard to dengue hemorrhagic fever, there was no definite direction or tendency since there were many factors contributing to disease occurrence. These factors consisted of mosquitoes, the dengue virus and the population's susceptibility to the virus and each factor differed from area to area and from time to time.⁽¹⁷⁾ Border and Cross-Border Population TB Program, supported by Principal Recipient Administrative Office, the Global Fund to fight AIDS, TB and Malaria, Department of Disease Control, implementing DOTS strategy in 40 sites along bordering districts covering 1 million Thai and 120,000 non - Thai migrant population⁽¹⁸⁾ had contributed to a decrease of tuberculosis in the host provinces. However, there

was no significant difference of dengue hemorrhagic fever and tuberculosis between the host provinces and the other provinces. Low morbidity rates of sexually transmitted infections of the host provinces could be due to inconsistencies or incompleteness of the reports through the years.⁽¹⁹⁾ This corresponded to the evaluation of sexually transmitted infections in Thailand, in 2006 which revealed that only 24.44 percent of the reports were complete.⁽²⁰⁾

Conclusion and Recommendations

Although, it was found that the morbidity rates of the Myanmar refugees living in the camps in the four bordering provinces of Thailand were high, certain disease was 200 times higher than those of the host provinces, and might not directly account for the problems of communicable diseases in the host provinces. Moreover, the morbidity rate of the only disease of the host provinces which was clearly higher than the other provinces was malaria, which was 11 times higher. For acute diarrhea and dysentery, the morbidity rates were only slightly higher which could be due either to the environment or the migrant workers/population living in these provinces. However it could not be clearly indicated that this was not related to the refugees living in the camps. An in-depth study on the behaviour and the living conditions of the Myanmar refugees in the camps including a study on the impact of the camps' on the Thai population's health in the bordering districts where the camps are located will help produce a clearer picture. However, based on the current data from epidemiological surveillance report, there was no evidence showing that the problem of communicable diseases of the Myanmar refugees in the camps had created a negative impact on the health of Thai people, especially on the people living in the bordering provinces during 2002-2006.

Acknowledgement

The author wishes to express sincere thanks to Dr. Sophon Iamsiritavorn and Khun Sarika Pattanasin of the Bureau of Epidemiology, Dr. Varalak

Tangkanakul of the Bureau of General Communicable Diseases, Department of Disease Control, Ministry of Public Health for their advice in conducting this study.

Abbreviations

ADRA	Adventist Development & Relief Agency	NCA	Norwegian Church Aid
AMI	Aide Medical International	RF	Ruammit Foundation
ARC	American Refugee Committee	RTP	Right To play
COERR	Catholic Office for Emergency Relief & Refugees	SOL	Solidarites
HI	Handicap International	SVA	Shanti Volunteer Association
ICS-ASIA	International Child Support- Asia	TBBC	Thailand Burma Border Consortium
IRC	International Rescue Committee	TOPS	Taipei Overseas Peace Service
JRS	Jesuit Refugee service	WEAVE	Women's Education for Advancement & Empowerment
MI	Malteser International	WE/C	World Education/ Consortium
MSF-F	Medicins Sans Frontiers-France	ZOA	ZOA Refugee Care Netherlands

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บทคัดย่อ **ผลกระทบของศูนย์อพยพชายแดนไทย-พม่าต่อสุขภาพของคนไทย**

อภิชาติ เมฆมาสิน

กรมควบคุมโรค กระทรวงสาธารณสุข

วารสารวิชาการสาธารณสุข 2551; 17:SV1244-53.

ผู้วิจัยชาวพม่าพักอาศัยอยู่ในศูนย์อพยพชายแดนไทย-พม่า 9 แห่ง ซึ่งกระจายอยู่ใน 4 จังหวัด ได้แก่ จังหวัดราชบุรี จังหวัดกาญจนบุรี จังหวัดตากและจังหวัดแม่ฮ่องสอน ผู้วิจัยชาวพม่าเหล่านี้อาจเป็นพาหะนำโรคติดต่อมาสู่คนไทยในจังหวัดต่าง ๆ โดยเฉพาะอย่างยิ่งในจังหวัดที่ตั้งศูนย์อพยพ การศึกษาเชิงปริมาณนี้เปรียบเทียบความแตกต่างของอัตราป่วยของโรคติดต่อใน 3 กลุ่ม ได้แก่ กลุ่มศูนย์อพยพ กลุ่มจังหวัดที่เป็นที่ตั้งศูนย์ฯ และกลุ่มจังหวัดอื่น ๆ ที่เหลือทั้งหมด 72 จังหวัด รวมทั้งหาความสัมพันธ์ระหว่างโรคติดต่อในศูนย์อพยพกับโรคติดต่อในจังหวัดที่เป็นที่ตั้งศูนย์ฯ โดยคัดเลือกโรคติดต่อทางอาหารและน้ำ โรคติดต่อทางอากาศ และโรคติดต่อทางสัมผัส อย่างละ 2 โรค ได้แก่ โรคอุจจาระร่วง โรคบิด โรคมาลาเรีย โรคไข้เลือดออก วันโรค และโรคติดต่อทางเพศสัมพันธ์ตามลำดับ ระหว่างปี 2545-2549 ผลการศึกษาพบว่าอัตราป่วยของโรคติดต่อในศูนย์อพยพสูงมาก บางโรคสูงมากกว่าจังหวัดที่เป็นที่ตั้งศูนย์ฯ 200 เท่า อย่างไรก็ตาม ไม่พบความสัมพันธ์ของอัตราป่วยของโรคติดต่อเหล่านี้ระหว่างศูนย์อพยพกับจังหวัดที่เป็นที่ตั้งศูนย์ฯ แสดงว่าอัตราป่วยที่เพิ่มขึ้นหรือลดลงในศูนย์อพยพไม่ได้ส่งผลให้อัตราป่วยของจังหวัดที่เป็นที่ตั้งศูนย์ฯ เพิ่มขึ้นหรือลดลง อัตราป่วยของโรคติดต่อในศูนย์อพยพก็สูงกว่าอัตราป่วยในจังหวัดอื่น ๆ ที่ไม่ได้เป็นที่ตั้งศูนย์ฯ เช่นเดียวกัน อัตราป่วยของโรคติดต่อในจังหวัดที่เป็นที่ตั้งศูนย์ฯ สูงกว่าจังหวัดอื่น ๆ ชัดเจนเพียงโรคเดียว ได้แก่ โรคมาลาเรียที่อัตราป่วยสูงกว่าถึง 11 เท่า ส่วนโรคอุจจาระร่วง และโรคบิด สูงกว่าเล็กน้อย แต่กลุ่มโรคติดต่อทางสัมผัสรวมทั้งโรคไข้เลือดออกที่นำโดยยุงไม่ได้สูงกว่า จึงอาจกล่าวได้ว่าจากข้อมูลการเฝ้าระวังโรคในเวลานี้ยังไม่พบหลักฐานว่าปัญหาโรคติดต่อของผู้วิจัยชาวพม่าในศูนย์อพยพก่อให้เกิดผลกระทบ ทางลบต่อสุขภาพของคนไทย โดยเฉพาะอย่างยิ่งที่อาศัยอยู่ในจังหวัดชายแดนในช่วงเวลาระหว่างปี 2545-2549

คำสำคัญ: ศูนย์อพยพ, ชายแดนไทย-พม่า, โรคติดต่อ