

# **Analysis of the Health Statement of Inbound International Passengers**

## **Introduction**

Christopher Columbus, in 1492, in an attempt to locate a small island in the Indian Ocean and hoping to open up a safe sea route between Europe and Asia, accidentally discovered two continents not listed on the map, North and South Americas <sup>(1)</sup> Though the discovery of the new continents was a remarkable achievement, it was, to the indigenous and population of that time, a public health catastrophe. American Indians died of the thousands by diseases thus far unknown to them, such as smallpox and the plague. brought in by the alien ships; the European took with them back to Europe the disease of vice, syphilis. Syphilis was later brought by Portuguese merchants to China in the early 16th century via Canton. This history is also a history of the transmission of diseases around the world. With more frequent and rapid international travel today, by jet planes and modern cruisers, pathogens and vectors can traverse international boundaries in a matter of a few hours.

Enormous efforts in disease control made by the people and the government in the past decades have long eradicated from Taiwan the once prevalent infectious diseases such as cholera, plague, malaria, and various parasitic diseases. However, with increase on large in international trade and tourism, and increase in the number of migrant workers, these infectious diseases are re-emerging. In the period between 1990 and 1995 for instance, five imported cases of cholera were reported <sup>(2)</sup> Again, in the period between 1996 and 1998,

134 cases of malaria were reported <sup>(3)</sup>, all imported. Fortunately, with adequate control measures, these diseases did not develop into epidemics. The importance of quarantine control at ports should not be overlooked.

## **Materials and Method**

### **1. Implementation of the Health Statement System**

The plague outbreaks in India in September 1994 and the many incidents of Japanese tourists infected with cholera in Indonesia between January and March 1995 caused serious concerns of the public and the media over the possibilities of these infectious diseases being brought into Taiwan by international passengers. The former National Quarantine Service of the Department developed, following the quarantine measures of the aviation system of Japan (health statement by passengers coming from disease-infected areas), a set of measures requiring passengers coming from disease-infected areas to fill out a health declaration to report on their health conditions <sup>(4)</sup>. Passengers indicating any symptoms would be followed-up for the early detection of any imported diseases to prevent and control the transmission of any internationally- quarantinable diseases or notifiable communicable diseases in Taiwan. The number of inbound passengers was large, the collection of the health declaration involved many aspects of the administrative routines. For manpower allocation in the collection of the health declaration, and to minimize inconveniences of passengers, in considering the sizes of passengers from different areas, the international transmission of infectious diseases, and the needs for disease surveillance, it was decided that the requirement of passengers for health declaration would be implemented with flexibility and in stages. Beginning 1 April 1995, all passengers arriving on direct flights from Bali, Jakarta, and Surabaya of Indonesia, Pukket Island of Thailand, Vietnam, the Philippines, Rangoon of Myanmar, Hong Kong, Malaysia, Cambodia were required to fill out a health declaration upon arrival. Since the establishment of the Center for Disease Control of the Department

## 2.Data Collection

### 1)Areas and Countries:

- (1)since 1 April 1995, all passengers from Bali of Indonesia;
- (2)since 1 May 1995, all passengers from Pukket Island of Thailand;
- (3)since 1 June 1995, all passengers from Vietnam;
- (4)since 1 September 1995, all passengers from Jakarta of Indonesia because of the typhoid outbreak in Bitung of Indonesia on 3 August;
- (5)since 16 October 1995, all passengers from Surabaya of Indonesia;
- (6)since 21 May 1996, all passengers from Malaysia;
- (7)since 27 June 1996, all passengers from the Philippines; for improvement in disease conditions, Malaysia was removed from the list;
- (8)on 12 September 1996, to prevent the importation by dengue fever, Malaysia was again placed on the list; when the disease abated, Malaysia was removed from the list on 4 March 1998;
- (9)since 7 July 1998, all passengers from Rangoon of Myanmar;
- (10) Hong Kong was placed on the list on 1 January 1998 due to chicken flu (H5N1) infection; later removed from the list on 1 February 1998;
- (11)on 18 March 1998, all passengers from Bangkok of Thailand; removed from the list on 1 May 1998;
- (12) on 27 March 1998, all passengers from Hong Kong due to a cholera epidemic; removed from the list on 11 April 1998;
- (13) since 29 April 1998, all passengers from Malaysia due to a cholera epidemic;
- (14) since 30 April 1998, all passengers from Cambodia.

2) Data for the period between April 1995 and June 1999 were collected for analysis.

### 3 .Contents of Survey

Survey items included personal background information, areas or countries visited before arrival, and symptoms at time of arrival (Figure 1).

### 4.Methods

- 1 )Distribution of the health statement: The “Health Declaration” was developed and produced by the then National Quarantine Service (now Center for Disease Control) for distribution to the CKS International Airport and the Kaohsiung International Airport. Copies of the Declaration were distributed to inbound passengers by airline companies.

- 2) Collection of the health statement: Passengers arriving from areas or countries for which the health declaration was required, were given on board of aircraft before disembarkation copies of the statement by air stewardesses. Copies were collected by quarantine officers at customs.
- 3) Management of Suspected Cases: Passengers seriously ill and indicating on the health statement one of the four symptoms, vomiting, diarrhea, swelling of lymph gland, and periodic chills and fever, will be surveyed with a questionnaire, following the regulations on the quarantine of patients with imported infectious disease or suspected infectious disease. Specimens are collected for laboratory testing, and if necessary, patients are referred to hospitals for care. Information is then submitted to Division of Quarantine and Division of Surveillance of the National Quarantine Service (now Division of Quarantine and Division of Surveillance of the Center for Disease Control). The Disease Surveillance Center and local health authorities are informed and asked for the follow-up surveillance of the cases.

### Results

A total of 3,483,824 copies of the Health Declaration were collected in the period between April 1995 and June 1999. Of them, 12,751, or 0.3% of the total, had indications of one of the four symptoms (Table 1). Of the specimens collected for laboratory testing, pathogens were isolated in 110 cases.

- 1 .By infectious diseases, 36 cases were infected with the notifiable and reportable diseases (21 cases of bacillary dysentery, one case of paratyphoid, 13 cases of dengue fever, and one case of malaria); and 74 cases of other infectious diseases (37 cases of *Vibrio parahaemolyticus* infection, two of pathogenic *E. coli* infection, four of enterotoxigenic *E. coli* infection, seven of non-toxigenic *Vibrio cholerae* infection, nine *Salmonella* infections, four *Staphylococcus aureus* infections, one *Vibrio minnicus* infection, and ten *Plesiomonus shigelloid* infections) (Table 3).

## Discussion

1. Survey findings showed that passengers to Thailand, Indonesia, Vietnam, the Philippines, and Malaysia were likely to develop infections of the gastrointestinal tracts, though their pathogenic agents were different. Of the 21 bacillary dysentery infections, ten came from Indonesia, six from Vietnam, and three from Thailand. Of the 37 *Vibrio parahaemolyticus* infections, 19 came from Thailand, and ten from Indonesia. More passengers coming from Indonesia had infections of the gastro-intestinal pathogenic agents. Of the 13 dengue fever cases, four came from the Philippines, four from Indonesia, and three from Thailand. Of the five countries visited, from findings of the laboratory testing of specimens, more cases were found in passengers from Indonesia and Thailand. No significant clustering of the time of onset was noted (Table 2).
2. The current practice of international quarantine though does not encourage sentinel quarantine, findings of the present survey show that timely detection of diseases upon arrival and the follow-up control measures thereafter are effective in the control of diseases. The Health Statement is also educational in that passengers are alerted to the importance of health care on international travelling.
3. Although no internationally-quarantinable diseases (cholera, plague, and yellow fever) and hemorrhagic diseases of high infection and fatality were detected in the present survey, 21 cases of bacillary dysentery, 13 cases of dengue fever, one case of paratyphoid, one case of malaria, and 74 cases of other diseases of the gastro-intestinal tracts (such as *Vibrio parahaemolyticus* and *Salmonella* infections) were detected. Bacillary dysentery is a water-borne infectious disease, and many outbreaks have occurred in some

areas of Taiwan without public water supply or in communities relying on underground water for drinking. Dengue fever is transmitted by the Aedes mosquitoes, and Aedes mosquitoes are all around the island. Dengue fever has been a serious public health problem of Taiwan. International travelers are likely to be infected not only with infectious diseases of the gastro-intestinal tract but also vector-borne infectious diseases. Past records show that every year there are many imported cases of dengue fever. Diarrhea caused by gastro-enteric pathogens seems to be the most common infection of international passengers. Precautions should be taken.

### Conclusion

1. Diseases are everywhere internationally. If not alert enough, people are likely to be infected. Information on immunization and healthcare on international travelling is available to the public at the Center for Disease Control and its branch bureaus, and also on the web site. Through health education in advance and surveillance upon entry, infectious diseases brought in by international passengers can be fairly well controlled.
2. Hotels should be of good sanitary conditions. Foods and drinks of unknown health sources should be avoided. Upon arrival, passengers should report to airline staff or health officers any physical discomfort for follow-up and prevention of diseases.

**Prepared by:** Yu JJ<sup>1</sup>, Xu JQ<sup>1</sup>, Huang QH<sup>1</sup>, Ke LZ<sup>1</sup>, Huang ZJ<sup>1</sup>, Lin WF<sup>2</sup>, Feng TL<sup>3</sup>

1. Division of Quarantine, Center for Disease Control, DOH
2. Division of Surveillance, Center for Disease Control, DOH
3. Division of Immunization, Center for Disease Control, DOH

### References:

1. Lequenne, Michel (translated into Chinese by Ku CC). Columbus,

Table 1. Health Declaration of Inbound International Passengers,  
1995-1999

Year Number	1995 Apr-Dec	1996	1997	1998	Till Jun 1999	Total
Collected	248,989	636,513	982,470	1,121,717	86,601	3,483,824
With symptoms	1,223	4,280	2,731	2,972	287	12,751
% with symptoms	0.49	0.67	0.28	0.26	0.33	0.37

Figure 1. Health Declaration



Table 2. Pathogenic Agents Detected from Health Declaration by Month

Year Month	Dengue Fever	Bacillary Dysentery	Paratyphoid	Malaria	Vibrio parahaemolyticus	Salmonella	Enterotoxic E. coli
84 4							
5					1		
6		1					
7		1			1		
8		1			1		
9					1	1	
10					1		
11					1		
12							
85 1		4					
2	1				3	1	1
3	1				1		
4					2	2	5
5					1		
6		1			2		
7	1				5		
8	1						
9		1					
10		1			1		
11						1	
12		2			1		
86 1	1						
2	2				1		
3		2				1	
4						1	
5					1		
6							
7					1	2	
8							
9							
10							
11	1				2		
12							
87 1	1	1		1	1		
2		1					
3							
4	1						
5							
6		1			2		
7					1		
8	3	2			2		
9		1			1		
10			1				
11							
12							
88 1							
2		1					
3					1		
4							
5					1		
6					1		
Total	13	21	1	1	37	9	6

Table 2. Pathogenic Agents Detected from Health Declaration by Month (Continued)

YearMonth	Non-toxicogenic Vibrio cholerae	Staphylococcus aureus	Vibrio mimicus	Plesiomonas shigelloid	Total
84 4					0
5					1
6					1
7					2
8					2
9					2
10					1
11	1				2
12					0
85 1					4
2			1		7
3				1	3
4				1	10
5					1
6	1				4
7					6
8		1			2
9					1
10	2			2	6
11					1
12		1			4
86 1					1
2				3	6
3	1				4
4				2	3
5					1
6	1			1	2
7					0
8					3
9					0
10					0
11					3
12					0
87 1					4
2					1
3					0
4					1
5					0
6					3
7					1
8					7
9					2
10					1
11					0
12					1
88 1					0
2					1
3					1
4		1			1
5		1			2
6					1
Total	7	4	1	10	110

Table 3. Laboratory Testing of Specimens

Diseases	Year		1995 (Apr-Dec)			1996			1997		
	Total	Country Visited	No.	Total	Country Visited	No.	Total	Country Visited	No.		
Dengue Fever	0			4	Indonesia	1	4	Indonesia	1		
					Vietnam	1		Philippines	2		
					Philippines	2		Myanmar	1		
Bacillary Dysentery	3		Vietnam	3	9	Indonesia	7	2	Indonesia	1	
						Thailand	1		Thailand	1	
						Vietnam	1				
Paratyphoid	0			0			0	Indonesia			
Malaria	0			0			0				
Vibrio parahaemolyticus	6		Indonesia	2	16	Indonesia	4	5	Indonesia	1	
			Thailand	4		Thailand	8		Thailand	3	
						Vietnam	2		Philippines	1	
						Malaysia	2				
Salmonella	1		Indonesia	4	4	Indonesia	3	4	Indonesia	1	
						Vietnam	1		Vietnam	1	
									Malaysia	2	
Enterotoxigenic E. coli	0			6	Indonesia	5	0				
					Thailand	1					
Non-toxigenic Vibrio cholerae	1		Indonesia	1	3	Indonesia	3	2	Thailand	1	
									Vietnam	1	
Staphylococcus aureus	0			2		Indonesia	2	0			
Vibrio minnicus	0			1		Indonesia	1	0			
Plesiomonus shigelloid	0			4	Indonesia	2	6	Indonesia	5		
					Thailand	1		Philippines	1		
					Malaysia	1					

Table 3. Laboratory Testing of Specimens (Continued)

Diseases	Year	1998		1999 (Jan-Jun)		
	Total	Country Visited	No.	Total	Country Visited	No.
Dengue Fever	5	Indonesia	2	0		
		Thailand	3			
Bacillary Dysentery	6	Indonesia	2	1	Malaysia	1
		Thailand	1			
		Vietnam	2			
		Philippines	1			
Paratyphoid	1	Indonesia	1	0		
Malaria	1	Ivory Coast	1	0		
Vibrio parahaemolyticus	7	Indonesia	1	3	Indonesia	2
		Thailand	3		Thailand	1
		Vietnam	1			
		Philippines	2			
Salmonella	0			0		
Enterotoxigenic E. coli	0			0		
Non-toxigenic Vibrio cholerae	1	Indonesia	1	0		
Staphylococcus aureus	0			2	Thailand	1
					Philippines	1
Vibrio minnicus	0			0		
Fleximonas shigelloid	0			0		