EPIDEMIOLOGICAL SURVEILLANCE AND HEALTH SERVICES IN INTERNATIONAL PORTS IN THE WESTERN PACIFIC REGION

A review of traditional quarantine procedures is undertaken periodically with a view to revising the International Health Regulations and also the Vaccination Certificate Requirements for International Travel and Health Advice to Travellers.

In recent years, it has become apparent that the international spread of disease, representing an extension of quarantine interests, is increasing. However, this constitutes a largely avoidable risk for countries of the Western Pacific Region.

Attention has already been paid to vector and pest control at airports in some countries of the Western Pacific Region but the need for the provision of standards and coordination of national measures in this specialized field has become pressing.

It is planned that these special considerations will form the subject of a workshop to be organized in 1983.

The Regional Committee may wish to comment on quarantine measures in force in the Region and on the role of national authorities in future action.
1. INTRODUCTION

Various developments in recent years have resulted in the need to reappraise current requirements for epidemiological surveillance. Such developments include:

- the eradication of smallpox;
- the recognition of "new" lethal virus diseases localized in Africa, the containment of which presents a prime quarantine problem;
- the identification of many previously anonymous agents not necessarily quarantinable in the historic sense; and
- quicker forms of international transport.

Despite the fact that, through the development and use of effective vaccines and the introduction of other control measures, smallpox has been eradicated and there has been a marked decrease in mortality from other diseases, the spread of influenza, malaria, dengue fever, haemorrhagic fever with renal syndrome, cholera, shigellosis, salmonellosis, and other infections presents a significant threat. In 1980, for example, Australia reported 625 cases and Singapore 195 cases of imported malaria. In 1981, sixteen cases of cholera reported in Japan had arrived from endemic areas.

The remarkable growth of mass international travel, facilitated by the development of rapid means of transport, has increased the risk of intercountry and interregional transfer of disease.

The means of transport itself and the services provided may be agents in the international spread of disease; the aircraft, for example, constitutes a giant insect trap at each port of call, especially at night, and the food and water taken on at various airports may prove an effective vehicle for the spread of infection. Indeed, both of these contingencies occur and constitute a risk requiring constant vigilance.

2. INTERNATIONAL SPREAD OF INFECTION

Eventualities in relation to the spread of infection, long predicted, have been realized in the last decade or so, illustrating a number of areas of concern, and involving the various means of international transport, particularly intercontinental travel by ship and by aircraft. For example, passengers have travelled during the incubation periods of diseases such as cholera and shigellosis, have become infective and have often, although not inevitably, developed symptoms at varying periods after arrival in another country. Case contact spread has been frequently recorded following the arrival of such infected travellers.
Passengers have also acquired infections of major public health importance during flight. Typhoid, cholera, dysentery and other bowel infections have been spread usually by food taken on en route but also, in some cases, as a result of inadequate facilities for food handling and storage. Influenza and other respiratory infections and their intercountry transfer are a very real risk in aircraft where air recirculation is necessary.

Increases in vector numbers have also occurred, with the transfer of a virus from one country resulting in the establishment of an amplifying reservoir of infection in various hosts and in the occurrence of large epidemics in a totally susceptible population in another country. This was exemplified recently when Ross River virus was transferred by air traffic from Australia to Fiji and subsequently to other islands in the South Pacific.

All means of transport, whether aircraft, ship or land vehicle, have been responsible for the inadvertent transport of a variety of insects and rodents, both of which are potential vectors, to regions not previously affected. For example, the routine spraying of all aircraft arriving in Australia with insecticide has revealed a large number and variety of insects, including many vectors, which have been involuntary and inconspicuous passengers.

A type of spread similar to that observed in the case of Ross River virus can also occur through the transfer of animals with zoonotic infections. Haemorrhagic fever with renal syndrome is an example, with domestic and field rodents and laboratory animals as the vehicles. In the past, an analogous transfer of zoonoses no doubt occurred, with the export of domesticated animals, such as cattle, from the old to the new world; Brucella was probably one of these. There is a constant and very real threat in relation to the transfer of rabies virus.

In addition to zoonotic infections capable of involving humans, certain animal viruses that are not uniformly distributed in all continents, for example foot and mouth disease, would have disastrous effects if introduced to new areas, as has happened in Europe. Financially, the effects would be extremely serious; the ecological impact through the native fauna could be devastating; and the indirect impact on the well-being of humans would be very considerable. The air transport of infective agents in clothing, following farm visits and animal handling, has been observed, resulting notably in the introduction of foot and mouth disease to Canada from Europe.

Special care needs to be given to the disposal of food and meat residue, including the remains of passengers' meals and, in particular, discarded frozen meat, which could be a source of various infections from another country. Incineration of this type of material is the only satisfactory solution.

Nosocomial spread is an area of special concern. Laboratory infections, occurring as a result of investigating the overseas traveller with fever, are not infrequent. Clinical nosocomial sequelae have sometimes proved severe, have the potential for further dissemination, and can result in high mortality.
3. CATEGORIES OF CONCERN

The following categories emerge from this brief survey of infective episodes and potential sources of infection:

(1) diseases which call for strict containment and specific measures in relation to modes of transmission and protection of staff. Such measures must include immunization and the provision of appropriate facilities for investigation and management. The diseases involved include yellow fever; Lassa, Marburg and Ebola fevers; and, in the animal field, foot and mouth disease and others;

(2) infectious diseases regarded as serious potential public health problems, which, though controllable, require constant vigilance; for example, cholera, dengue fever, and haemorrhagic fever with renal syndrome;

(3) ubiquitous, less infectious, diseases, such as a variety of bowel infections, which may reflect poor hygiene on board the aircraft, ship or train, or at in-transit ports, indicating a breakdown of acceptable standards of food handling or sanitation. Organisms whose presence is common are Shigella and Salmonella strains. Influenza and other respiratory virus infections, though members of this category, are spread by droplet infection, which is enhanced by recirculation of air within an aircraft. They have so far defied methods of control.

4. FUTURE ACTION

In principle, the above-mentioned infections concern the national health services as a whole, not only the port health and quarantine services. Some major considerations in relation to control requirements are listed in Annex 1. From an international standpoint, prevention of the spread of disease from one country to another should also concern the agencies involved in transport, trade and tourism.

Unfortunately, communicable diseases are often prevalent in areas where epidemiological skills are lacking and the health services are weak. Countries therefore need to strengthen their national health services in general and their port health and quarantine services in particular. To that end, and in order to minimize the danger of spread of communicable diseases of public health importance, WHO is cooperating in strengthening national epidemiological services and surveillance systems as well as in enhancing community awareness, to achieve more effective disease control. This is being done through the improvement of disease reporting systems, more efficient collection and exchange of epidemiological information, and health education activities, as well as the organization of training programmes in such areas as epidemiology, vector control and sanitation.
Undoubtedly, considerable effort still needs to be exerted to achieve the desired changes and, to that end, and also to remind Member States of their responsibilities with regard to the danger of the international spread of disease, an intercountry workshop on epidemiological surveillance and health services at international ports is planned for 1983.
ANNEX I

MAJOR CONSIDERATIONS IN RELATION TO QUARANTINE

It is essential that national health authorities should be involved and should cooperate with other departments in dealing with questions of quarantine and control of the spread of infection.

The following aspects of the problem require consideration:

(1) **Airports**

- The necessity to have appropriate facilities for:
  - (a) sanitation: for example, an adequate number of toilets;
  - (b) catering: food preparation and handling, staff supervision and screening, adequate refrigeration facilities for passengers and staff, which take into consideration the possibility that a number of large aircraft could arrive simultaneously;
  - (c) potable water;
  - (d) incineration of aircraft and airport waste.

(2) **Vector and rodent control at airports and in surrounding areas**

(3) **Aircraft**

- (a) food preparation and handling;
- (b) sanitation; an adequate number of toilets;
- (c) water supply;
- (d) airconditioning systems;
- (e) disinsection.

(4) **Seaports and railway and motor transport terminals**

   The considerations which apply are similar to those for airports, except that at seaports and on ships, emphasis should be placed on rodent control, to prevent zoonotic infections such as haemorrhagic fever with renal syndrome and plague.

(5) **Passengers**

- (a) screening of passengers and follow up of those with infectious diseases;
- (b) immunization;
- (c) consideration of human rights, in relation to the screening to which incoming passengers are subjected.
(6) Animal products and problems

(a) adherence to veterinary public health measures;

(b) conditions for admission of animals and semen to countries at risk.

(7) Health education programmes: should be established for the personnel of transport organizations and tourist agencies.

(8) Outbreaks of disease appear to be inevitable, however rarely:

(a) provision should be made for the routine handling of patients and containment of the disease;

(b) occurrence of a disease acquired overseas occasionally becomes apparent during travel but, more frequently, attention is drawn to a travel-acquired infection through the development of symptoms some days later. A card, issued routinely in some countries to incoming travellers, draws the attention of the treating doctor, in case of infection, to the fact that the patient has travelled recently;

(c) high security facilities are required for the investigation and management of suspected cases or contacts of diseases requiring strict containment;

(d) health departments should keep practising physicians fully informed of the facilities available and the procedures to be adopted in the case of outbreaks.