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Usha Balasubramaniam

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AIR PASSENGER HEALTH AND CONSUMER PROTECTION

USHA BALASUBRAMANIAM*

I. INTRODUCTION

AIR TRANSPORT ENJOYS the distinction of being the prime long-haul, cross continental carrier of passengers and cargo. In the United States alone, approximately eighty-five percent of long-haul public carrier transportation and nearly ninety-five percent of international travel is by air.1 As international travel has become an inevitable feature of modern life, vital health-related concerns have come to the forefront. Today, health issues constitute an important challenge to the aviation industry.

In mid-2003, the Severe Acute Respiratory Syndrome ("SARS") pandemic had a debilitating effect on consumer confidence in the airline industry. According to the New England Journal of Medicine, the SARS outbreak in China killed 774 people in twenty-six countries on five continents and infected more than 8,000 people worldwide.2 Airline passengers who sat closest to each other were most at risk.3 In a major case of airborne SARS transmission, some twenty-two persons out of 119 people on board were infected with SARS from a single, infected copassenger.4 In March and April 2003, the number of air passen-


4 Id.
gers decreased by 0.8 percent year on year.\(^5\) Many airlines, such as KLM, Cathy Pacific, Qantas, and Air India, cut flights bound for the affected provinces of China and Hong Kong.\(^6\) The International Air Transport Association ("IATA") indicated a decrease of 2.4 percent in international passenger traffic in 2003 compared with 2002.\(^7\) This decline was partly attributed to the SARS outbreak.\(^8\)

Earlier, in 1992, the largest cholera outbreak of the twentieth century was reported among the passengers on a flight from Buenos Aires to Los Angeles.\(^9\) According to one expert, Dr. Mark A. Roberts, "[a]s per epidemiological mapping of the recent influenza epidemic, aircraft have been a major factor in the rapid spread of new viral strains."\(^{10}\) Thereby, it has been said that modern jetliners have become "veritable incubator[s] of potential disease[s]."\(^{11}\) In typical economy class air travel, many passengers sit in cramped seats, leading to the rapid spread of many dangerous communicable diseases, such as tuberculosis ("TB"), avian flu, and respiratory infections.\(^{12}\) Most of the pathogens are spread due to poor air circulation: high recirculation air rates and low rates of provision for outside air.

II. CLASSIFICATION OF HEALTH CONDITIONS AFFLICTING AIR PASSENGERS

Air travel can expose passengers to many illnesses and diseases, most of which can be divided into two categories as follows:

1) **Illnesses peculiar to flying**: the spread of communicable diseases like TB; influenza; cholera; deep vein thrombosis ("DVT"); decompression sickness; motion sickness; aller-

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\(^8\) *Id.*


\(^{10}\) *Id.*


\(^{12}\) *Id.*

\(^{13}\) *Id.*
gies caused by the spraying of disinfectants in the aircraft; and

2) *Illnesses accentuated by flying*: eye traumas due to extreme turbulence; neurosis; seizures and heart diseases; other in-flight medical emergencies; ear, nose and throat problems; asthma.

Aviation related health issues have always been the concern of international organizations, governments, national health authorities, airlines, and airports. This article examines the adequacy and efficacy of the various international laws, national laws, regulations, and policy solutions which, together with the Warsaw Convention of 1929 and the Montreal Convention of 1999, have been created to protect the physical health of air passengers.

### III. REGULATIONS FOR PROTECTION OF AIR PASSENGER HEALTH

The non-local nature of communicable diseases has led to the development of international regimes for the prevention, containment, and development of surveillance systems for these diseases. Contrary to popular belief, the focus of general international law on health began around 200 years ago.\(^{14}\) Since the nineteenth century, the spread of communicable diseases has been regulated at the international level.\(^{15}\) Indeed, author Obijiofor Aginam states that "communicable diseases did not come within the normative confines of international law until the mid-nineteenth century. The 'transnationalization' of infectious diseases across geopolitical boundaries during the European cholera epidemics of 1830 and 1847 catalysed the evolution of the earliest multilateral governance of communicable diseases."\(^{16}\) Furthermore, Aginam traces back the development of international regimes concerning communicable diseases to 1851, when France convened its first International Sanitary Convention.\(^{17}\) As a result, today we see many pre-existing regulatory regimes addressing a wide gamut of health issues ranging from general health issues, like the prevention of the spread of communicable diseases, to aviation-specific health


\(^{15}\) *Id.* at 946.

\(^{16}\) *Id.*

\(^{17}\) *Id.*
issues, such as the disinfection of aircraft. The health issues confronted by air passengers have been regulated by many international organizations such as the World Health Organization ("WHO"), the International Civil Aviation Organization ("ICAO"), the IATA, and Airports Council International ("ACI"). Thus, international laws and regulations to protect air passengers' health do exist, but they are amorphous in form. However, the main international organizations listed above are currently working together to create a unified strategy and a standard set of regulations.

The ICAO has created certain Standards and Recommended Practices ("SARPs") regarding the health of air passengers under the mandate provided by Article 44 of the Chicago Convention of 1944 ("Chicago Convention"). The aforesaid article empowers the ICAO to develop and foster the safe, orderly planning and growth of international civil aviation throughout the world. However, health issues affecting air safety have been approached indirectly by the ICAO. The United Kingdom House of Lords Select Committee on Science and Technology on Air Travel and Health of 2000 points out that "[w]hilst it is questionable whether the active promotion of health issues falls within the existing remit of either the ICAO or the JAA, there is some room for manoeuvre insofar as health issues impinge on aviation safety, the main concern of both organisations." However, Article 14 of the Chicago Convention entrusts the contracting States with the responsibility of preventing the spread of communicable diseases such as cholera, smallpox, yellow fever, plague, and typhus by means of air navigation. However, the
scope of the provision sounds ambiguous and has not been modified since its inception in 1944.\textsuperscript{22} Gael Poget states that "the disposition of this provision looks very outdated as smallpox has been eradicated since December 1979 as certified by scientists and confirmed by the vote of the World Health Assembly in 1980."\textsuperscript{23} The provision does provide a lengthy list of communicable diseases and also allows for additions to be made later.\textsuperscript{24} Furthermore, according to its mandate, the ICAO recently dealt with SARS.\textsuperscript{25}

The ICAO is responsible for the establishment and implementation of SARPs under Articles 37 and 38 of the Chicago Convention.\textsuperscript{26} Such standards have been codified in the eighteen Annexes to the Chicago Convention, covering many fields such as personnel licensing, aeronautical charts, facilitation, and environment protection. No separate Annex exists to date covering the health issues of civil aviation, but some of these aspects have been covered as ancillary issues in a few existing Annexes to the Chicago Convention. For example, Parts D and E of Chapter 2 of Annex 9 to the Chicago Convention lay down a broad framework for the disinfection of aircraft.\textsuperscript{27} Moreover, Part E of Chapter 8 of Annex 9 deals with the implementation of International Health Regulations ("IHRs"). Standard 8.12 states that the "Contracting States shall comply with the pertinent provisions of the current edition of the \textit{International Health Regulations} of the World Health Organization . . . for the entry, departure and transit of passengers and their baggage, cargo and other articles."\textsuperscript{28}

\begin{flushright}
\textsuperscript{23} Id.
\textsuperscript{24} Chicago Convention, \textit{supra} note 18, art. 14.
\textsuperscript{26} Chicago Convention, \textit{supra} note 18, arts. 37–38.
\textsuperscript{27} Annex 9 to the Convention on International Civil Aviation, ch. 2, §§ 2.22–2.29 (July 2005), available at http://www.icao.int/eshop/annexes_ust.htm (mainly requiring the contracting States to limit and review their requirement for the disinfection of aircraft cabins and flight decks and to accept those methods that are recommended by the WHO that cause the least injury to the health of the passengers).
\textsuperscript{28} Id. ch. 8, § 8.12.
\end{flushright}
In 2006, the ICAO introduced Working Paper 20, which proposes an amendment to the health-related provisions of Annex 9 of the Chicago Convention. The ICAO Council accepted it without changes. This paper proposed amendments regarding facilities available at airports to deal with public health emergency incidents, the implementation of IHRs, and the development of a National Health Plan to deal with public health emergencies.

Annex 14 on Aerodromes requires an emergency unit to be established that coordinates the emergency response of all existing health agencies such as medical and ambulance services. The ICAO standard on design and airworthiness of aircraft plays an instrumental role in ensuring the safety of passengers and crew. The relationship of such provisions to the health of air passengers is indirect. For example, the provisions relating "to the pressurisation and ventilation of passenger cabins, oxygen supplies, and emergency evacuation of aircraft (which affects a number of seat design and cabin configuration parameters)" have an indirect bearing on air passenger health.

The ICAO has also created an assembly resolution to protect the health of air passengers; however, the ICAO is not a regulatory authority. Instead, it relies on its contracting States to introduce national legislation to implement regulations and resolutions. ICAO Assembly Resolution A29-15 requested that all contracting States progressively ban smoking on board all international flights by July 1, 1996. This resolution was given effect in national law. The United States, through 49 U.S.C. § 41706, and the United Kingdom, through the voluntary initiatives of airlines, have banned on-board smoking.

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30 See id.
31 Annex 14 to the Convention on International Civil Aviation, ch. 9, § 9.1 (July 2004).
33 E-mail from Dr. Tony Evans, Chief of Aviation Medicine, ICAO (Dec. 18, 2006) (on file with author).
Assembly Resolution A35-12 aims at preventing the spread of communicable diseases through air travel: "[T]he protection of the health of passengers and crews on international flights is an integral element of safe air travel and . . . conditions should be in place to ensure its preservation in a timely and cost-effective manner."

Under the mandate of Article 14, it can be seen that the ICAO has played a leading role in preventing the spread of communicable diseases. The most remarkable example is the part played by the ICAO during the outbreak of SARS. At that time, the ICAO convened a meeting in July 2003 that led to the development of eight recommended rules for airports to prevent the spread of SARS. These were subsequently used to prevent the spread of SARS and to assist airports in drawing up a harmonized contingency plan to combat its resurgence.

The ICAO also has a specialized section called the "Aviation Medicine Section" that reviews health issues experienced by air passengers. Dr. Tony Evans, Chief of the Aviation Medicine Section, has identified key protective measures that have been adopted:

1. An airport public health emergency official has been appointed as responsible for the implementation of all SARS protective measures.
2. Warning is given . . . to crew and passengers . . . that no one with symptoms of SARS will be allowed to board any flight.
3. Screening of departing passengers for SARS symptoms is undertaken in accordance with WHO recommendations.
4. Disembarking passengers arriving from affected areas are normally screened by responding to questionnaires, completed during the flight or at the latest, immediately upon disembarkation.
5. All passengers are provided with information about SARS symptoms and the appropriate public health contact numbers if available.
6. Procedures are in place to respond to the arrival of an aircraft with a possible SARS case on board.
7. All airport workers are subject to daily temperature screening at the beginning of their work shift.
8. Workers are reminded by posted information or other means of their obligation not to report to work if they are unwell.

Id.

37 ICAO, Aviation Medicine (MED) Section, Communicable Diseases/Avian Influenza, Severe Acute Respiratory Syndrome (SARS), http://www.icao.int/icao/en/med/AVMedSARS.htm (last visited Aug. 28, 2008). An international airport is considered as having adequate protection against SARS if the following protective measures have been adopted:

1. An airport public health emergency official has been appointed as responsible for the implementation of all SARS protective measures.
2. Warning is given . . . to crew and passengers . . . that no one with symptoms of SARS will be allowed to board any flight.
3. Screening of departing passengers for SARS symptoms is undertaken in accordance with WHO recommendations.
4. Disembarking passengers arriving from affected areas are normally screened by responding to questionnaires, completed during the flight or at the latest, immediately upon disembarkation.
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7. All airport workers are subject to daily temperature screening at the beginning of their work shift.
8. Workers are reminded by posted information or other means of their obligation not to report to work if they are unwell.

Id.

38 ICAO, Aviation Medicine (MED) Section, http://www.icao.int/icao/en/med/ (last visited Aug. 29, 2008). "Aviation medicine is the branch of occupational medicine which encompasses all aspects of the man/machine interface in the aviation environment. It applies not only to flight crew, their fitness, certification and operational environment, but also to passengers, and for example the
Section of the ICAO, stated that the "ICAO works closely with [the] WHO and other international organizations to ensure that a consensus view is developed. Working groups developing guidelines and Standards will usually include representatives of all relevant organizations. Such cooperation is invaluable." 39

Some of the main responsibilities of the Section involve the maintenance and review of the Manual of Civil Aviation Medicine, which relates to the licensing of flight crew and other personnel for use by medical examiners under the provisions of Annex 1 to the Chicago Convention, 40 the development of SARPs, and the publication of guidance material for containing the risk of transmission of communicable diseases by air. 41 The ICAO developed a preparedness plan similar to the SARS plan of 2003 in coordination with the IATA, ACI, and the WHO for contracting States to contain the spread of influenza on its occurrence. 42

The ICAO's Aviation Medicine Section has formulated programs aimed at creating awareness of the medical and health aspects in civil aviation through seminars and lectures. The

-safe carriage of those who are unwell." About Aviation Cardiology, http://www.aviationcardiology.com/cgi-bin/site/page.pl?about (last visited Sept. 8, 2008). The Section is a collaborative effort of the organization with other international organizations such as the WHO, the Aerospace Medical Association, and the International Academy of Aviation and Space Medicine. ICAO, What Is Aviation Medicine?, http://www.icao.int/icao/en/med/desc.htm (last visited Sept. 8, 2008). It also cooperates and coordinates with the Chief Medical Officers of civil aviation authorities around the world and the Medical Directors of various airlines. Id.

39 Evans, supra note 33.
40 ICAO, Manual of Civil Aviation Medicine, at iii, ICAO Doc. 8984-AN/895 (2d ed. 1985).
41 ICAO, Aviation Medicine (MED) Section, supra note 38.
42 ICAO, Aviation Medicine (MED) Section, Communicable Diseases/Avian Influenza, Guidelines for States, http://www.icao.int/icao/en/med/avmedavianinfluenza.htm (last visited Aug. 15, 2008). These guidelines stress the following main aspects: (1) creating contact points at national aviation level at designated airports for preparation, plan formulation, and implementation; (2) sharing expertise between national and regional networks; (3) ensuring a good linkage and better coordination among the various stakeholders in aviation; (4) providing guidance for general prevention based on information provided by the WHO for preventing the spread of communicable diseases; (5) disseminating better information of health risks at trip planning and ticket booking stage (such information can be included in websites associated with health, airlines, travel agents, and the medical association); (6) providing consistent advice from national health authorities to advise passengers on postponement of travel, seeking medical advice on potential risks, or emergence of risks; (7) creating "consistent health requirements for entry, or denial of entry into a State, in accordance with WHO recommendations;" and (8) creating a good communication system. Id.
ICAO has played a pioneering role in the development of “Passenger Locator Cards” to trace passengers after their arrival at a destination. These cards are to be issued by health authorities upon detection of a sick passenger on board.

Health issues have received the attention of the IATA, a trade association which has a wide membership of 230 airlines. The IATA, through guidelines and recommended practices, aims at developing a framework for airlines to deal with passenger health issues in a cost effective manner. The IATA Medical Advisor Activity Report summarizes the role of the IATA in the realm of passenger health by stating: “The issue of passenger health is getting more and more attention. And with [the] ICAO’s intention to bring it to an international level, we remain active in putting forward what [the] IATA and airlines have done already in protecting health and preventing any impractical and costly proposals for the airlines.”

The IATA Medical Manual provides airline operators with expertise for handling health issues in a cost effective and efficient manner. A team of experts called the Medical Advisory Group offers advice to the air industry and stakeholders for handling medical problems related to air travel. This group has been lauded for its formulation of useful guidelines, ranging from general health issues to those which address the issues of the

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44 See id.
49 Int'l Air Transp. Ass'n, Medical Advisory Group, http://www.iata.org/workgroups/medical_advisory_group.htm (last visited Aug. 15, 2008). The group consists of ten members who specialize in aviation medicine and occupational health, and who are appointed by the IATA Director General. Id. The group has been coordinating with other international organizations such as the WHO, the ICAO, and regional airline trade associations on issues of health and medicine in the aviation industry. Id. The group has also been actively involved in the reviewing and updating of “IATA Resolutions and Recommended Practices relating to on-board medical care and health-related issues, as well as the IATA Medical and Inflight Management Manuals.” Id.
prevention of the spread of communicable diseases. The IATA has formulated guidelines for cabin crew, cleaning crew, and passenger/gate agents to deal in a very rational and cost effective manner with the outbreak of communicable diseases.\textsuperscript{50} The guidelines require the cabin crew to act in a definite, planned manner in dealing with a suspected case of communicable disease.\textsuperscript{51}

The IATA also issued various briefings on the issue. For example, in July 2005, it issued an important briefing requiring thermometers to be made available in airline medical kits, as fever is a very common symptom of many communicable diseases.\textsuperscript{52} Three types of common thermometers were approved for use.\textsuperscript{53} This briefing contributes to the early detection of communicable diseases and their prevention. The IATA has also developed a template for air carriers called the \textit{Emergency Response Plan}, which outlines a management strategy to deal with public health emergencies.\textsuperscript{54} It has been monitoring the developments in cabin air quality and has adopted standards that serve both passengers and crew without imposing undue costs on the airline. It has also been involved with partner organizations such as the WHO to improve the accuracy and availability of passenger information because on-board transmission of diseases seldom come to light immediately, thereby making it difficult to locate passengers after the transmission occurs.\textsuperscript{55}

The IATA has formulated recommended practices for the carriage of passengers with infectious diseases in its \textit{Passenger Services Conference Resolutions Manual}.\textsuperscript{56} It operates in the event of an IATA member having “unknowingly and/or unwittingly transported a passenger with an infectious disease.”\textsuperscript{57} These rec-

\textsuperscript{50} See generally \textit{Int’l Air Transp. Ass’n, Medical Manual}, supra note 48.

\textsuperscript{51} See id.

\textsuperscript{52} Memorandum from the Int’l Air Transp. Ass’n on Thermometers for On-Board Medical or First-Aid Kits (July 12, 2005), http://www.iata.org/NR/rdonlyres/6EC905AD-8EBD-4D2E-8D20-769DC35581A1/OnBoardo/thermometer_Medical_Kits.pdf.

\textsuperscript{53} Id.


\textsuperscript{57} Id.
ommended practices require members to dissuade passengers who are suffering from infectious disease from traveling. The IATA has been looking at ways to improve the accuracy and availability of passenger information. It has been working towards further developing a “Passenger Locator Card” (originally developed by the IATA) in collaboration with partner organizations like the WHO and the ICAO. An interim locator card has already been developed.

The WHO, established in 1948, is a United Nations specialized agency that concerns itself with trans-boundary issues of health. The following provisions provide it with the authority to legislate aviation health issues.

The preamble of the WHO Constitution describes its objectives. The Constitution recognizes the “[u]nequal development in different countries in the promotion of health and control of disease, especially communicable disease.” Thus, the WHO has a broad mandate as an organization to regulate general health issues, with some of its functions specifically aimed at airline passenger health. Articles 18(m) and 19 of the Constitu-

58 Id.
59 Thibeault, supra note 43.
60 Id.
62 Id. at 1–2.
63 Id. at 1.
64 Id. at 2–3. Article 2 describes the functions of the Organization:
   (c) to assist Governments, upon request, in strengthening health services;
   (d) to furnish appropriate technical assistance and, in emergencies, necessary aid upon the request or acceptance of Governments;
   ... (g) to stimulate and advance work to eradicate epidemic, endemic and other diseases; ... (k) to propose conventions, agreements and regulations, and make recommendations with respect to international health matters and to perform such duties as may be assigned thereby to the Organization and are consistent with its objective; ... (p) to study and report on, in co-operation with other specialized agencies where necessary, administrative and social techniques affecting public health and medical care from preventive and curative points of view, including hospital services and social security; (q) to provide information, counsel and assistance in the field of health; (r) to assist in developing an informed public opinion among all peoples on matters of health;
tion have provided the World Health Assembly with the broad mandate "to take any other appropriate action to further the objective of the Organization"\(^{65}\) and "to adopt conventions or agreements with respect to any matter within [its] competence."\(^{66}\) Article 21 of the Constitution gives the World Health Assembly the authority to adopt regulations on certain health concerns.\(^{67}\) The Executive Board, whose functions have been codified in Article 28, is the executive body of the World Health Assembly and carries out the duties assigned to it by the World Health Assembly.\(^{68}\)

\(^{(s)}\) to establish and revise as necessary international nomenclatures of diseases, of causes of death and of public health practices;
\(^{(t)}\) to standardize diagnostic procedures as necessary;
\(^{(u)}\) to develop, establish and promote international standards with respect to food, biological, pharmaceutical and similar products;
\(^{(v)}\) generally to take all necessary action to attain the objective of the Organization.

\(\text{Id.}\)\(^{65}\) at 6.

\(\text{Id.}\)\(^{66}\) at 7.

\(\text{Id.}\)\(^{67}\)

The Health Assembly shall have authority to adopt regulations concerning:

(a) sanitary and quarantine requirements and other procedures designed to prevent the international spread of disease;

(b) nomenclatures with respect to diseases, causes of death and public health practices;

(c) standards with respect to diagnostic procedures for international use;

(d) standards with respect to the safety, purity and potency of biological, pharmaceutical and similar products moving in international commerce;

(e) advertising and labelling of biological, pharmaceutical and similar products moving in international commerce.

\(\text{Id.}\)\(^{68}\) at 8–9. Article 28 of the Constitution specifies:

The functions of the [Executive] Board shall be:

(a) to give effect to the decisions and policies of the Health Assembly;

(b) to act as the executive organ of the Health Assembly;

(c) to perform any other functions entrusted to it by the Health Assembly;

(d) to advise the Health Assembly on questions referred to it by that body and on matters assigned to the Organization by conventions, agreements and regulations;

(e) to submit advice or proposals to the Health Assembly on its own initiative;

(f) to prepare the agenda of meetings of the Health Assembly;

(g) to submit to the Health Assembly for consideration and approval a general programme of work covering a specific period;
The WHO primarily legislates IHRs. These are legally binding multilateral instruments that focus on the global surveillance of communicable diseases. A revision of the IHRs, referred to as IHR (2005), was unanimously adopted on May 23, 2005, by the World Health Assembly, and these regulations entered into force in June 2007.

The major changes in the new IHR include the notification by the WHO of all health-related emergencies of international concern and the verification of information of such events when required, the establishment of focal points within the state that could act as a link between the states and the WHO on IHR matters, and the setting up of basic public health capabilities at the primary, intermediate, and national levels, in order to detect, report, and respond to public health risks and potential public health emergencies of international concern. States are required "to provide routine . . . inspections and control activities at designated international airports, ports and ground crossings to prevent the international spread of disease."

These regulations have been criticized on the following grounds:

1) failure of the implementation of these regulations in the global spread of cholera, yellow fever, and the plague.
2) fear of notification of outbreaks to the WHO, which would lead to the imposition of excessive measures, embargo, and other reprisals affecting trade, travel, and the tourism industry;\(^76\)

3) inclusion of only three diseases within their ambit;\(^77\) and

4) lack of surveillance capacity.\(^78\)

The WHO has launched many health programs rightfully regarded as consumer protection initiatives. It launched the Epidemic and Pandemic Alert and Response ("EPR") following the realization that epidemics could "place sudden and intense demands on health systems."\(^79\) The EPR aims at preparing member nations to identify and control the spread of communicable diseases through epidemic preparedness and response in accordance with IHRs.\(^80\)

In January 2005, the WHO developed a booklet entitled *International Travel and Health* enumerating the health risks associated with international travel.\(^81\) In 1998, the WHO devised guidelines for the prevention and control of TB, which were later revised in 2006 and 2008.\(^82\) The guidelines "include specific recommendations for passengers, air crew, physicians, public health authorities and airline companies," and are applicable to all domestic and international airlines worldwide.\(^83\) Based on these guidelines, some industrialized countries screen immigrants, refugees, and asylum seekers for TB.

Furthermore, the WHO has done significant work regarding aircraft disinfection when carriers arrive from countries where insect vectors are known to spread disease.\(^84\) In 1995 and 1997, it made recommendations for regulating the methods used in

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\(^{76}\) See *id*. Obijiofor Aginam states that the cholera outbreak in Peru led to the loss of $700 million in trade and other losses. *Id*. India lost $1.7 billion in trade, travel, and tourism in 1994 due to the plague outbreak. *Id.*

\(^{77}\) *Id.* at 947-48.

\(^{78}\) *Id.*


\(^{80}\) See *id*.


\(^{83}\) *Id.* at xiii.

\(^{84}\) WHO, *INTERNATIONAL TRAVEL AND HEALTH*, supra note 81, at 22.
disinfection of aircrafts.\textsuperscript{85} Disinfection has been recognized as a public health measure regulated by Annex 3 of the current IHR.\textsuperscript{86}

Airports Council International ("ACI") is a major international stakeholder in air transport industry. It aims at maintaining and developing a safe, secure, environmentally compatible, efficient, and prospering air transport system.\textsuperscript{87} It participated in the February 2006 meeting held in Singapore "to draft guidelines for airlines and airports, based on the WHO Global Influenza Preparedness Plan" and provided its members with an update on the same.\textsuperscript{88} It also "worked closely with [the] WHO on the revision of the publication of International Health Regulations."\textsuperscript{89} ACI has drawn up an interim set of recommendations enabling airport authorities to work closely with national health authorities to develop a strategy for dealing with the spread of epidemics such as avian influenza, SARS, and TB.\textsuperscript{90}

In the European Union ("EU"), aviation health issues have been dealt with through a more general approach: "The European Union has a range of legislation on the economic and safety aspects of the Common Air Transport policy, and more limited measures in the field of consumer protection. It does


\begin{enumerate}
\item The blocks away method; \textit{Id.} at 29.
\item Pre-flight spraying, which is similar to the blocks away method, except that aircraft are sprayed on the ground before passengers board. \textit{Id.} at 44. This allows overhead lockers, wardrobes, and toilets to be opened and properly sprayed with an insecticidal aerosol containing permethrin. \textit{Id.} Top-of-descent spraying occurs while passengers are on board, at the top of the aircraft's descent. \textit{Id.} at 46.
\item Residual spraying involving the regular application of a residual insecticide to internal surfaces of aircraft except in food preparation areas, at intervals based on the duration of effectiveness. In addition, spot applications are made to surfaces that are frequently cleaned. \textit{Id.} at 42-43.
\end{enumerate}

\textsuperscript{86} WHO, INTERNATIONAL TRAVEL AND HEALTH, \textit{supra} note 81, at 22.


\textsuperscript{89} \textit{Id.}

\textsuperscript{90} \textit{Id.} at 4.
not have legislation specifically related to passenger health.”

However, the Joint Aviation Authorities ("JAA") is a regulatory body associated with the European Civil Aviation Conference ("ECAC") and it has established technical regulations called Joint Aviation Regulations ("JARs") which harmonize air transport standards among the European States. For example, "JARs are concerned directly with passenger health only in relation to minimum medical first aid provisions but bear indirectly on health and comfort through standards dealing with environmental conditions including ventilation, heating and pressurisation." Some important JARs, which have had a bearing on air passenger health, are modeled on the SARPs of the Chicago Convention. For instance, JAR-FCL3 is based on Annex 1 to the Chicago Convention, dealing with medical requirements of pilot licensing.

JAR-OPS 1 contains requirements and guidance material for on-board medical kits. JAR-OPS 1.055 requires an operator to ensure that "lists containing information on the emergency and survival equipment carried on board" all airplanes "are available for immediate communication to rescue coordination centres." The JAA also requires first aid kits to be carried on all commercial aircraft, and that the number of these kits is determined according to the number of passenger seats. "[T]he contents specified for these kits is quite basic and there is only a requirement to carry an 'extended' medical kit on aircraft with more than 30 passenger seats and where the aircraft will, at some point in its journey, be more than 60 minutes flying time from an aerodrome at which qualified medical assistance could be expected to be available." JAR 25, concerning aircraft envi-

91 SELECT COMM. ON SCI. & TECH., supra note 32, § 3.14.


93 SELECT COMM. ON SCI. & TECH., supra note 32, § 3.13.


96 Id. § 1.055.

97 Id. § 1.745.

ronment, is said to have a bearing on air passenger health as it prescribes standards for "minimum cabin air pressure, maximum levels of carbon monoxide, carbon dioxide and ozone, and minimum ventilation flow rates." 99

The new European Aviation Safety Agency (EASA) is neither an international organization nor an association of national administrations. Unlike the Joint Aviation Authorities (JAA), EASA is an executive body—created by the so-called EASA Regulation—that has taken over several regulatory functions previously exercised by the national civil aviation administrations of European Union (EU) Member States. 100

In 2002, the European Community established the European Aviation Safety Agency ("EASA"), 101 with the object of progressively replacing the JAA. 102 This also constituted a key part of the EU strategy to establish and maintain a high and uniform level of safety in Europe. EASA is the "centrepiece" of the EU's strategy for aviation safety, and its mission is to promote "the highest common standards of safety and environmental protection in civil aviation." 103 As an independent EU body under European law, EASA is accountable to the EU Member States and the EU institutions. 104 A Management Board with representatives from the EU Member States and the European Commission adopts the agency's budget and work program. 105 The aviation industry is actively involved in the agency's work through a number of consultative and advisory committees. 106 There is also an independent Board of Appeal. 107 While na-

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99 Id. at 35.
104 EASA, About EASA, http://www.easa.eu.int/ws_prod/g/g_about_more.php (last visited Sept. 9, 2008).
tional authorities continue to carry out the majority of operational tasks such as certification of individual aircraft or licensing of pilots, EASA develops common safety and environmental rules at the European level.\textsuperscript{108} It monitors the implementation of standards through inspections in EU Member States and provides the necessary technical expertise, training, and research.\textsuperscript{109} EASA is also responsible for type-certification, which is the certification of specific models of aircraft, engines, or parts approved for operation in the European Union.\textsuperscript{110}

Currently, the main EASA tasks include rulemaking, drafting safety legislation, and providing technical advice to the European Commission and to the Member States.\textsuperscript{111} Within the next few years, EASA's responsibilities will be extended to other additional important areas of air safety, such as rules and procedures for civil aviation operations, licensing of crews in the Member States, and certification of non-Member State airlines.\textsuperscript{112} In the long-term, it is also likely that EASA will play a key role in the safety regulation of airports and air traffic management systems.\textsuperscript{113} Since its inception, EASA has developed close working relationships with counterpart organizations across the world including the ICAO, the Federal Aviation Administration ("FAA") in the United States, and the aviation authorities of such countries as Brazil, Canada, China, Israel, and Russia.\textsuperscript{114} Working arrangements between EASA and these organizations are aimed at harmonizing standards and promoting the best practice in aviation safety worldwide.\textsuperscript{115}

As of January 1, 2007, EASA membership included the twenty-seven EU Member States, as well as Iceland, Liechtenstein, Norway, and Switzerland, which are non-EU countries that have adopted EU aviation safety legislation.\textsuperscript{116} The latter is an important step towards a more integrated safety system in Europe and underlines the key role of EASA in this system.

\textsuperscript{108} See EASA, What We Do, \textit{supra} note 103.
\textsuperscript{109} Id.
\textsuperscript{110} Id.
\textsuperscript{111} Id.
\textsuperscript{112} See id.; see also Civil Aviation Authority, Regulations, http://www.caa.co.uk/default.aspx?catid=1404&pageid=90 (last visited Sept. 3, 2008).
\textsuperscript{113} EASA, What We Do, \textit{supra} note 103.
\textsuperscript{115} Id.
The European Civil Aviation Conference ("ECAC") is an important recommendation-making body comprised of forty-four European States. It commenced its work on air passenger health issues in October 2002. In the same year, a Working Group was established called the Working Group on Air Passenger Health Issues ("APHI"). The group "developed a set of recommendations and guidance material" for effectively dealing with the health of air passengers. The most notable work of the group has been the issuing of a manual entitled Manual on Air Passenger Health Issues that codifies the responses to concerns that may arise with respect to individual passenger health. The 35th Assembly of ECAC adopted this work. The manual mentions a few requirements such as the reporting of medical incidents large and small. It pays little attention to the prevention of communicable diseases. However, this shortcoming was rectified in August 2005, when the Directors General of ECAC asked for a coordination of efforts to deal with the spread of communicable diseases. Later, a small ad-hoc group of experts developed initial guidelines to contain the spread of communicable diseases for airlines and at airports within the EU. In June 2006, the Directors General endorsed the ECAC draft of December 2005 that was reviewed and updated by APHI, according to the new guidelines for the Prevention of the Spread of Communicable Diseases by Means of Air Travel developed at the Singapore ICAO high-level workshop.

Suggestions were made regarding the "assessment of the impact of cabin conditions on passengers' health, and also for legislation to improve the information available to passengers to make well-founded choices and to create new rights for passengers."\(^\text{129}\)

### IV. NATIONAL REGULATIONS ON AIR PASSENGER HEALTH

The most prominent national regimes pertaining to air passenger health that served as *de jure* consumer protection regimes have been established in countries such as the United States, the United Kingdom, and Singapore. The regimes pertinent to this research will now be briefly discussed. The United States has made moves towards improving air passenger health. Most of the airlines in the United States offer on-board medical assistance to their air passengers: "Many of the world’s airlines have greatly increased their capacity for providing medical care to passengers inflight by enhancing their onboard emergency medical kits (EMKs)."\(^\text{130}\) In 1998, the Aviation Medical Assistance Act was passed requiring the FAA to ensure that medical assistance be provided by the airlines and at airports.\(^\text{131}\) It also created concurrent, limited federal and state liability regimes for the airlines and individuals offering assistance to passengers.\(^\text{132}\) When an on-board emergency occurs, airline staff can request that an on-board doctor help provide assistance to the patient. When a doctor or airline staff member provides assistance to a passenger in distress, they become vulnerable to legal

\(^{129}\) Id.


\(^{132}\) Id. On June 6, 2000, the FAA issued a decision stating that the agency would not propose a regulation to require automatic external defibrillators at airports. Emergency Medical Equipment, 65 Fed. Reg. 35,971, 35,971 (June 6, 2000). As part of the Aviation Medical Assistance Act of 1998, the FAA was to determine whether such devices should be required at airports. Based on its review, the FAA stated that the majority of medium to large airports "have already taken the necessary steps to provide for the medical capability to address cardiac events at their individual facilities." Id. at 35,973. The FAA also questioned whether it had the authority to require defibrillators at airports. Id. Since this legislation was enacted in 1998, most major commercial carriers have installed defibrillators or are in the process of doing so. Betsy Wade, Defibrillators: Airline Update, N.Y. TIMES, July 30, 2000. According to the FAA, 108 of 130 airports surveyed have defibrillators. Emergency Medical Equipment, 65 Fed. Reg. at 35,973.
liability.\textsuperscript{133} Thereby, the Aviation Medical Assistance Act provides a “Good Samaritan” legal regime absolving the doctor or airline staff member from legal liability unless there is gross negligence or willful misconduct on their part.\textsuperscript{134}

Most airlines today are equipped with air defibrillators, called automatic external defibrillators (“AEDs”), to deal with passengers who develop cardiac arrests on board.\textsuperscript{135} AEDs form one part of the chain for the treatment of cardiac arrest.\textsuperscript{136} They were required to be present on all U.S. air carriers by April 2004.\textsuperscript{137} A growing number of airlines around the world have been carrying AEDs on board to treat passengers who develop cardiac arrest.\textsuperscript{138} In fact, the “American Medical Association demonstrated its support of American Airlines’s decision to equip certain planes with defibrillators by sponsoring the airline’s conference on defibrillation. At the conference, the air carrier stated that ‘sudden cardiac events [are the] most common in-flight event, and are a major cause of medical (aircraft) diversions.’”\textsuperscript{139} However, this inclusion of AEDs in medical kits has come at an unanticipated high price for the airline industry because of the higher standard of care.\textsuperscript{140}

AEDs are considered a medical device that requires the approval of the Food and Drug Administration (“FDA”) for use by airlines.\textsuperscript{141} The performance standards for use of AEDs are subject to the 1976 Medical Device Amendments.\textsuperscript{142} All medical devices have been classified into three categories according to the energy used by the equipment.\textsuperscript{143} The administration of an AED on board is therefore viewed as a similar procedure to the administration of prescribed drugs by a licensed medical profes-

\textsuperscript{133} See Julie A. Buffington, Comment, Airlines, Defibrillators, and Enhanced Medical Kits: Filling a Void or Creating a Duty?, 64 J. AIR. L. & COM. 497, 516 (1999).
\textsuperscript{135} Buffington, supra note 133, at 507-08.
\textsuperscript{136} See id. at 504.
\textsuperscript{137} 14 C.F.R. § 121.803(c)(4) (2008).
\textsuperscript{138} MED. GUIDELINES TASK FORCE, supra note 130, at A3.
\textsuperscript{139} Buffington, supra note 133, at 499.
\textsuperscript{140} Id. at 500.
\textsuperscript{141} Id. at 508.
\textsuperscript{142} Id.
\textsuperscript{143} Id. Class 1 devices are subject to general controls for registration and listing requirements, compliance with good manufacturing practices, records, report requirements, and are susceptible to special remedies for violation. Id. Class 2 and 3 devices are subjected to additional controls. Id. AEDs are classified into the “latter two classes according to the amount of energy they produce.” Id.
The administration of an AED by flight attendants may lead to fatal consequences if not carried out properly. The administration of AEDs requires a notice under section 510(k) of FDA Regulations; if the device is cleared for use, "it is up to the product's end-user to provide for proper staff training." However, there is no complete immunity from liability because, as per the Restatement (Second) of Torts, common carriers have a duty to provide "reasonable" medical care when the need for it becomes apparent. Compliance with the 510(k) provision mentioned above cannot be used as a defense against manufacturers in product liability suits, as is held in Medtronic, Inc. v. Lohr. Furthermore, the court held in this case that "the Medical Device Amendments of 1976 do not preempt all state common law negligence claims against a device manufacturer." Passengers who help airline staff in a time of need are insulated from any claims of negligence under federal or state statutes if they have exercised a reasonable standard of care and are not guilty of gross negligence or willful misconduct. The higher duty of care that was imposed on common carriers under section 314A of the Restatement (Second) of Torts is not applicable to the administration of an AED by a passenger on another distressed passenger. In Gingeleskie v. Westin Hotel Co., it was held that when an ill hotel guest died during transportation that he had requested himself, the hotel was duty bound under section 314A of the Restatement (Second) of Torts to provide aid because of the special relationship. This incident, together with the above legislation, demonstrates that common carriers have a duty to aid all passengers by taking reasonable action if they have reason to know that a particular passenger is ill.

In the past, the FAA has issued many health advisories directed at air passengers or airline staff. For example, the 2001 advisory that dealt with the first aid program of air carriers aimed at training air crew members on first aid programs and protection from blood borne pathogens and other sources of

144 Id. at 511–13.
145 Id. at 511–12.
146 Id. at 513–14.
147 Restatement (Second) of Torts § 314A(1) (1965).
149 Buffington, supra note 133, at 515.
151 Buffington, supra note 133, at 529.
communicable diseases. The FAA provided guidelines to air crew members for using AEDs and enhanced medical kits. The Code of Federal Regulations prescribes specific contents for basic level emergency medical kits and the minimum requirement for cabin air ventilation. The relevant regulation states that "0.55 pounds of fresh air per minute" is necessary for passenger comfort. There are other FAA regulations that dictate design and operational specifications for carbon dioxide, carbon monoxide, ozone, ventilation, and cabin pressure.

The regulation having a significant impact on air passenger health is the banning of smoking on certain domestic and international flights in the United States:

[S]moking is prohibited on all domestic scheduled-service flights except for flights over six hours to or from Alaska or Hawaii. This ban applies to domestic segments of international flights, on both U.S. and foreign airlines (e.g., the Chicago/New York leg of a flight that operates Chicago/New York/London). The ban does not apply to nonstop international flights, even during the time that they are in U.S. airspace (e.g., a Chicago/London flight). The prohibition applies in the passenger cabin and lavatories, but not in the cockpit.

Other government agencies, such as the Center for Disease Control and Prevention ("CDC"), have played a major role in covering air passenger health concerns in its yellow book. The CDC also issues four types of notices to travelers about specific situations: (1) In the News—sporadic cases of disease; (2) Outbreak Notice—disease outbreak in a limited geographic area;

156 Id. § 25.831.
157 Id. § 25.831(a).
(3) Travel Health Precaution—disease outbreak affecting a larger geographic area; and (4) Travel Health Warning—disease outbreak expanding outside the area of initial infection and non-essential travel is not recommended. Furthermore, the CDC publishes guidelines at regular intervals addressing health issues of vital concern to air travel. This relates especially to the passenger-tracking regulation. Another important CDC and WHO guideline exists “on when and how to notify passengers and flight crew” about exposure to infectious diseases aboard a commercial aircraft.

In the United States, forced detention or restriction of movement cannot be legally imposed on grounds of health unless the declaration of a public health emergency is made by either the President or the State Governor. According to the U.S. Department of Transportation (“DOT”):

This is not likely to be declared before numerous cases appear both abroad and probably in the US.... Means of motivating voluntary compliance with ideal—from the public health point of view—screening procedures, by some combination of education and incentives, needs much further study, as do the decision criteria for legalizing enforcement of involuntary screening of uncooperative passengers by Governors’ or presidential declarations of a public health emergency.

The DOT has a strong obligation towards resolving the grievances of air passengers. The airline’s consumer unit is the most appropriate mode for the redressal of grievance at the first level. If the airline fails to respond adequately, passengers can then approach the DOT’s Aviation Consumer Protection Division. Health issues have been considered a chief component of the rights of air passengers. Airlines also have a responsibility towards their passengers to prevent the spread of

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161 Id.
162 See id. for examples of regular notices.
166 Id. at 5.
168 Id.
communicable diseases through the normal course of flying with them. An air carrier has the right to refuse transportation to a person, to require the person to provide a medical certificate stating that the disease at its current stage is not transmittable, or to impose extra conditions on the passenger.

A bill was introduced called the Airline Passenger Fair Treatment Act seeking to enhance the protection offered to airline passengers through an amendment to Title 49 of the U.S. Code. The Act requires "each air carrier holding a certificate of public convenience and necessity under section 41102 shall submit . . . a plan for fair treatment of airline consumers in interstate air transportation." One such stipulation under the Act requires the carrier to submit its "plan for providing food, water, restroom facilities, and access to medical treatment to passengers aboard an aircraft that is on the ground for an extended period . . . without passenger access to the terminal." The Act also seeks to impose a thirty-day time limit for providing a written response to a complaint. These complaints regarding the services of the airline can include violations of passenger health through negligence, commission, or omission.

In the United Kingdom, a considerable amount of research has been directed at health issues pertaining to air transport. In particular, there has been a lot of ongoing research regarding cabin air quality and DVT. Various entities such as the Department of Health ("DH"), the Department of the Environment, Transport and the Regions, and the Civil Aviation Authority have in the past been involved in research and drawing up developments relating to air passenger health. Airline passenger and crew health has been prioritized. This has resulted in the establishment of regulatory precepts with the adoption of the Select Committee Recommendation on air passenger and crew health. This led to the United Kingdom government prioritizing these issues and forming the Aviation Health Working

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170 Id.
172 Id. § 41762(a).
173 Id. § 41762(b)(1)(D).
174 Id. § 41762(b)(2)(A).
175 Dep't for Transp., supra note 20, at 1.
176 Id. at 2.
Group in 2000, an inter-departmental study group that further investigated the health aspects of air travel, including cabin air quality and safety.

According to Alexandra Mangili and Mark Gendreau:

In a detailed study into cabin air quality released in 2004, the group concluded that temperature, humidity, air speed, and concentrations of carbon monoxide, carbon dioxide, and微生物学 flora aboard 14 commercial flights using British Aerospace 146 and Boeing 300 aircraft were similar to other reported studies. The European Cabin Air study coordinated by the Building Research and Consultancy continues to investigate environmental aspects within the passenger cabin. These efforts will probably lead to improved international regulations for the certification, inspection, and maintenance of aircraft environmental control systems.\(^{177}\)

Booklets from the DH, including health advice for travelers released by the Air Transport Users Council, have been found to be other important sources of health information.\(^{178}\)

Many studies have been conducted in the past in the United Kingdom to establish a link between DVT and air travel; they have not been conclusive.\(^{179}\) However, it is hoped that the results of the WRIGHT Study, a major research project undertaken by the WHO and funded by the U.K. government, will provide more conclusive information and result in a significant breakthrough.\(^{180}\) To date though, in many cases in which airlines have been sued regarding DVT, judges have demonstrated inconsistencies in siding with the air passenger.\(^{181}\) This puts

\(^{177}\) Mangili & Gendreau, supra note 164, at 990.

\(^{178}\) DEP’T FOR TRANSP., supra note 20, at 4.


\(^{180}\) See id. at 3.

\(^{181}\) Examples include:

[The] Virgin Atlantic Airlines incident, where a passenger received a settlement worth more than $20,000 (13,000 pounds) for injuries sustained from a London to Los Angeles flight spent crammed into her seat next to another passenger who was too large for just one seat. Or this summer’s $800 award to a passenger aboard JMC Airlines who sued because of the plane’s “intolerable” 29-inch seat pitch.

Jeanie Croasmun, Is Virgin Atlantic the Good Guy, the Bad Guy or Just the Headline of the Week?, ERGONOMICS TODAY, Oct. 23, 2002, http://www.ergoweb.com/news/detail.cfm?id=613. But, in cases like Blansett v. Continental Airlines, Inc. and Witty v. Delta Air Lines, Inc., the courts sided with the airlines, and have ruled that airlines do not have a duty to warn their passengers of the risks of DVT when
DVT on top of the list of anxieties for the airlines: various DVT-afflicted passengers and families, as well as guardians of those affected, have appealed to the government to support a private member bill in the United Kingdom that would make the airlines responsible for illnesses caused by air travel.\textsuperscript{182}

Another major issue afflicting airlines is the risk they run in terms of vulnerability to bioterrorism. The air passenger today is vulnerable to bioattack from terrorists. Hypothetically, a small can of germs and biotoxin, when released on the aircraft, can result in catastrophe. In the past, many international conventions have covered various aspects of bioterrorism. The Biological Toxin and Weapons Convention of 1975 bans the development, production, stockpiling, acquisition, and retention of "[m]icrobial or other biological agents, or toxins . . . of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes."\textsuperscript{183} It also bans "[w]eapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict."\textsuperscript{184} The actual use of biological weapons is prohibited by the 1925 Geneva Protocol.\textsuperscript{185} In order to secure the air traveling public from being vulnerable to attack by bioterrorists, the ICAO's air security instruments may be relevant for air passengers.\textsuperscript{186}

On September 7-8, 2006, the United States Government and the Government of Switzerland co-hosted an informal exercise called the Bioterrorism International Coordination Exercise (called "Black ICE") in Montreux, Switzerland. This two-day tabletop exercise was an opportunity for officials from numerous international organizations to examine the critical cooperation flying with them. See Blansett v. Cont'l Airlines, Inc., 379 F.3d 177, 182 (5th Cir. 2004); Witty v. Delta Air Lines, Inc., 366 F.3d 380, 386 (5th Cir. 2004).


\textsuperscript{183} Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, U.S.-U.K.-Russ., art. 1, Apr. 10, 1972, 26 U.S.T. 583.

\textsuperscript{184} Id.

\textsuperscript{185} Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (Geneva Protocol), June 17, 1925, 26 U.S.T. 571, T.I.A.S. No. 8061.

and coordination issues that would be necessary to respond to an international bioterrorism attack.\textsuperscript{187}

The exercise was aimed at creating awareness among the international community of the threat of a bioterrorism attack.\textsuperscript{188} It outlined the following: the authorities that would be involved in the matter, the complexity of seeking a cross border solution, and the "unique convergence of public health, security, transportation, law enforcement, and humanitarian issues inherent to a bioterrorism threat."\textsuperscript{189}

In the EU, however, a strategy has been drawn up for dealing with a bioterrorism attack. As early as November 2001, the EU Council and Commission developed a program "laying out the measures to be taken to establish a health expert consultation mechanism, strategies on availability and stocks of serums, vaccines and antibiotics and a European network of experts for evaluating managing and communication risks."\textsuperscript{190} The Directorate-General for Health and Consumer Protection was instrumental in "creating a network and a rapid alert system" in 1999 for the early detection and effective control of the spread of communicable diseases.\textsuperscript{191} The United States has relatively well-developed systems for dealing with bio-terrorism attacks. The Department of Homeland Security ("DHS") has devised a national biodefense strategy, described in the \textit{Homeland Security Presidential Directive (HSPD)-10: Biodefense for the 21st Century} that "clearly defines the Department of Homeland Security's (DHS) role and focuses efforts on non-medical countermeasures."\textsuperscript{192} The "[a]ir transportation protection-related activities are in two major areas: (1) protection of airports against biological attacks to include systems designs, concepts of operations and detection systems, and (2) development of advanced detection technologies that have application for protection of individual aircraft, if


\textsuperscript{188} \textit{Id.}

\textsuperscript{189} \textit{Id.}


\textsuperscript{191} \textit{Id.}

\textsuperscript{192} \textit{Hearing on Efforts to Prevent Pandemics by Air Travel: Hearing of the Aviation Subcomm. of the H. Committee on Transp. and Infrastructure, 109th Cong. (2005), available at http://www.agromicron.com/download/Efforts\%20to\%20Prevent\%20Pandemics\%20Air\%20Travel.pdf.}
Thereby, the DHS, Science and Technology Bioterrorism Countermeasures Strategies, and the Commercial Aircraft Protection program "initiated a systems study" for the protection of airports and commercial aircrafts respectively, and for the exploration of "cost-benefit tradeoffs and design of CBRN (chemical, biological, radiological and nuclear) detection systems."  

V. CONCLUSION  

Over the past few years there has been an increased focus on health issues affecting air passengers. However, this awareness has mostly resulted in spiraling litigation costs during pan-
demic peak seasons that often lead to serious revenue losses due to mounting passenger costs, declining passenger traffic flows, and the castigation of air travel as spreading communicable diseases. Inconsistent rulings from the courts have further contributed to difficulties for airlines, which now have health issues to add to other pressing concerns for which they are responsible, such as safety and security of transport services. At the same time, health has been seen as an important component of air passenger rights. In principle, the airlines and airports have an obligation to ensure that they do not cause jeopardy to the health of air passengers who fly with them, or who use the airports. This article aimed to examine the many consumer protection and quasi-consumer protection regimes which now exist alongside the normal recourse to compensation offered by the Warsaw and Montreal Conventions.

Furthermore, it is as important in this article to create awareness about the health risks associated with flying based on full disclosure principles, rather than on the caveat emptor principles of the past. Awareness is key to airline passenger protection. Airlines and airport authorities should provide passengers with an initial forum for recourse, with regard to complaints about violation to their health. They should also attempt to participate in and make contributions to research studies on DVT, cabin air quality, in-flight medical emergencies, and new health issues, etc. Airlines should also record and ensure the compilation of a database on problems relating to air passenger health, and endeavor to follow and implement the regulatory health precepts established by international and national bodies discussed in this article. The implementation of these health regulations, together with the Warsaw and Montreal Conventions, would significantly contribute to air passenger health protection.

In re Deep Vein Thrombosis and Air Travel Group Litig., [2006] 1 A.C. 495, 505–06 (H.L.).