



Original article

Federal travel restrictions to prevent disease transmission in the United States: An analysis of requested travel restrictions

M. Robynne Jungerman^{a,1}, Laura A. Vonnahme^{a,b,*}, Faith Washburn^{a,2}, Francisco Alvarado-Ramy^{a,b,2}^a Quarantine and Border Health Services, Division of Global Migration and Quarantine, US Centers for Disease Control and Prevention, Atlanta, GA, United States^b United States Public Health Service, Washington, DC, United States

ARTICLE INFO

Article history:

Received 25 January 2017

Received in revised form

19 June 2017

Accepted 21 June 2017

Available online 23 June 2017

Keywords:

Travel

Restrictions

Tuberculosis

ABSTRACT

Background: Individuals with certain communicable diseases may pose risks to the health of the traveling public; there has been documented transmission on commercial aircraft of tuberculosis (TB), measles, and severe acute respiratory syndrome (SARS). Federal public health travel restrictions (PHTR) prevent commercial air or international travel of persons with communicable diseases that pose a public health threat.

Methods: We described demographics and clinical characteristics of all cases considered for PHTR because of suspected or confirmed communicable disease from May 22, 2007, to December 31, 2015.

Results: We reviewed 682 requests for PHTR; 414 (61%) actions were completed to place 396 individuals on PHTR. The majority (>99%) had suspected (n = 27) or confirmed (n = 367) infectious pulmonary TB; 58 (16%) had multidrug-resistant-TB. There were 128 (85%) interceptions that prevented the initiation or continuation of travel. PHTR were removed for 310 (78%) individuals after attaining noninfectious status and 86 (22%) remained on PHTR at the end of the analysis period.

Conclusions: PHTR effectively prevent exposure during commercial air travel to persons with potentially infectious diseases. In addition, they are effective tools available to public health agencies to prevent commercial travel of individuals with certain communicable diseases and possibly reconnect them with public health authorities.

Published by Elsevier Ltd.

1. Background

Although the overall likelihood appears low, there is documented evidence of transmission on commercial aircraft of communicable diseases such as tuberculosis (TB), measles, and severe acute respiratory syndrome (SARS) [1–6], posing a risk to

the health of the traveling public. The public health Do Not Board (DNB) list and Public Health Border Lookout (PHLO) record are mechanisms to prevent travel by an individual who is infectious with a communicable disease that poses a threat to public health and whose travel plans are under United States (U.S.) authorities.

The DNB list was developed in 2007 to prevent people who are infectious or likely infectious with a communicable disease that poses a public health threat from boarding commercial flights that have departures within, to, or from the U.S [7]. A PHLO is issued to complement the DNB, alerting the Department of Homeland Security (DHS) when a person who has been placed on these lists tries to enter the U.S. at any port of entry (seaport, airport, land border). These federal public health travel restrictions are managed by the Centers for Disease Control and Prevention (CDC) and implemented by DHS and its component agencies. Whenever a person is added to or removed from the DNB list, their record is added to or removed from the PHLO concurrently. A state or local health department

* Corresponding author. Quarantine and Border Health Services Branch, Division of Global Migration and Quarantine, US Centers for Disease Control and Prevention, 701 5th Ave., Rm 1630, Seattle WA 98104, United States.

E-mail addresses: Guk8@cdc.gov (M.R. Jungerman), kdy1@cdc.gov (L.A. Vonnahme), Wlz5@cdc.gov (F. Washburn), Fba8@cdc.gov (F. Alvarado-Ramy).

¹ Quarantine and Border Health Services Branch, Division of Global Migration and Quarantine, US Centers for Disease Control and Prevention, 12379 Sunrise Valley Dr. Ste C, Reston, VA, USA, 20191.

² Quarantine and Border Health Services Branch, Division of Global Migration and Quarantine, US Centers for Disease Control and Prevention, 1825 Century Center Blvd NE, Atlanta, GA, USA, 30345.

typically initiates requests for travel restrictions; however, other agencies such as the U.S. Department of State or foreign public health authorities may also request travel restrictions.

In March 2015, CDC refined the criteria it considers when placing a person on federal travel restrictions [8]. Under the revised criteria, the individual must be known or believed to be infectious with, or exposed to, a communicable disease that would pose a public health threat should the individual travel, and additionally must meet at least one of the following three criteria: 1) be unable to be located, be unaware of diagnosis, be aware but noncompliant with public health requests, or have shown potential for noncompliance; 2) be at risk of traveling on a commercial flight or of traveling internationally by any means; or 3) need to be placed on the DNB list and issued a PHLO for effective response to an outbreak of a communicable disease or enforcement of a public health order [7]. The impetus for revising the criteria was to allow the DNB and PHLO to support a communicable disease outbreak. Revisions expanded the first criterion to allow travel restrictions to be considered for individuals with a known or believed *exposure* to a communicable, versus solely being confirmed or likely infectious with a communicable disease. An additional criterion was added allowing for placement on travel restrictions as part of a response to an outbreak of a communicable disease or a public health order for individuals who met the exposure criterion. The final revision was that individuals did not need to meet all listed criteria for placement, but rather meet the first criterion pertaining to known infectiousness or exposure *plus only one* of the other three criteria [8]. The sole criterion for removal from federal travel restrictions did not change: proof that the person is noninfectious or no longer at risk of becoming infectious, typically evidenced by laboratory documentation, lapse of the known period of infectiousness, or lapse of the incubation period without development of symptoms [8].

CDC confers with the requesting agency to gather information relevant to determining if the individual meets the criteria for placement on travel restrictions. Depending on the communicable disease of interest, CDC determines if the individual is infectious based on available clinical and laboratory data. For individuals with TB, CDC uses a detailed algorithm, developed by TB experts, to determine if an individual is infectious. If an individual is determined to meet criteria for placement and the requesting agency concurs with placement on travel restrictions, CDC coordinates actions for placement with DHS. Travel restrictions can be applied to any individual regardless of citizenship or country location.

To date, federal public health travel restrictions have been used primarily for TB, but they may be considered for other communicable diseases that pose a serious public health threat during travel, such as viral hemorrhagic fevers or measles [7,8].

2. Methods

The objectives of our analysis were to describe the cohort of individuals placed under travel restrictions since inception and demonstrate the effectiveness of travel restrictions in preventing commercial air travel of individuals with communicable disease who are identified by health agencies and meet criteria for placement. For all individuals for whom travel restrictions are requested, CDC maintains case records in its Quarantine Activity Reporting System (QARS), a secure, restricted-access database [9]. Demographic and clinical information is obtained from the requesting agency, typically local and state health departments, as well as evidence that the addition and removal criteria are met, dates and times of significant events leading to addition or removal of federal travel restrictions, and outcomes following removal. We reviewed de-identified case data for all individuals considered for or placed

on travel restrictions because of a suspected or confirmed communicable disease from May 22, 2007, to December 31, 2015; individuals considered for or placed on travel restriction related to an exposure to a communicable disease were not included in this analysis. CDC determined that this analysis did not meet the definition of research and was not subject to review by the CDC Institutional Review Board.

We summarized the number of requests for consideration of travel restrictions, the states, countries or agencies that made the request, and whether the request resulted in addition to the DNB and PHLO. Poisson regression was used to determine if the number of consultations for travel restrictions has significantly increased over time. Individuals could have multiple requests for consideration of travel restrictions and multiple DNB/PHLO actions.

For all individuals placed on travel restrictions, we examined demographics including country of citizenship, sex, age, and location at time of DNB and PHLO placement (i.e., within or outside the U.S.). We dichotomized status of individuals as either 1) U.S. citizens or U.S. lawful permanent residents (LPR) or 2) foreign nationals, i.e., individuals who held immigrant or non-immigrant visas, were visiting from a visa-waiver country, were undocumented, or had an unknown status.

We described the communicable diseases for which individuals were added to the DNB list and issued a PHLO. For those with suspected or confirmed TB, we described the final diagnosis based on laboratory confirmation of disease and categorized drug resistance as: 1) confirmed multidrug-resistant TB (MDR TB), defined as TB resistant to at least isoniazid and rifampin; 2) confirmed extensively drug-resistant TB (XDR TB), defined as TB resistant to isoniazid and rifampin plus any fluoroquinolone and at least one of the three injectable second-line drugs [10]; or 3) confirmed non-XDR TB or non-MDR TB, which included mono-resistance to isoniazid or rifampin. Since removal from the DNB and PHLO for individuals with TB requires follow-up and treatment until noninfectious, we calculated the time each person spent on the list, which reflected the amount of time before becoming noninfectious and subsequent removal from travel restriction status.

DHS notifies CDC when individuals listed on the DNB and PHLO try to travel; subsequently, individuals are often intercepted prior to or during travel. We examined interception events and dichotomized events as an individual attempting to obtain a boarding pass for a commercial flight departing within, to, or from the U.S. or as an interception occurring at a U.S. land border port of entry. We examined whether clinical follow up and referral to treatment were initiated after individuals on the DNB list and accompanying PHLO were intercepted before air travel or at a port of entry.

We also compared DNB/PHLO processing times before and after 2011, when CDC and DHS leveraged a secure, Web-based information-sharing platform managed by DHS [11], for sharing information including DNB/PHLO actions.

All analyses were performed in SAS version 9.3, and we assessed significance at $p < 0.05$.

3. Results

During the analysis period, state health departments, U.S. federal agencies and foreign ministries of health made 682 requests for federal public health travel restrictions. A total of 46 state health departments, as well as the health departments for the District of Columbia, Guam, Puerto Rico, made 621 (91%) of all requests for federal public health travel restrictions; the California and Texas state health departments made the most requests: 168 and 73, respectively. U.S. federal agencies only accounted for three (0.5%) placement requests, with one initiated by CDC and two by the U.S. Department of State. Nine foreign ministries of health made 58

Download English Version:

<https://daneshyari.com/en/article/5670571>

Download Persian Version:

<https://daneshyari.com/article/5670571>

[Daneshyari.com](https://daneshyari.com)