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United States Notifications of Travelers from Ebola-Affected Countries

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Abstract

The International Health Regulations (IHR), an international law under the auspices of the World Health Organization (WHO), mandates that countries notify other countries of “travelers under

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public health observation.” Between November 10, 2014, and July 12, 2015, the US Centers for Disease Control and Prevention (CDC) made 2,374 notifications to the National IHR Focal Points in 114 foreign countries of travelers who were monitored by US health departments because they had been to an Ebola-affected country in West Africa. Given that countries have preidentified focal points as points of contacts for sharing of public health information, notifications could be made by CDC to a trusted public health recipient in another country within 24 hours of receipt of the traveler’s information from a US health department. The majority of US health departments used this process, offered by CDC, to notify other countries of travelers intending to leave the United States while being monitored in their jurisdiction.

Keywords

International Health Regulations; International travelers; Ebola virus disease

The 2014–15 Ebola outbreak in West Africa is the largest Ebola virus disease (EVD) outbreak ever recorded. Historically, approximately 150 travelers arrive daily in the United States from Guinea, Liberia, and Sierra Leone, the 3 countries most heavily affected by the 2014 Ebola outbreak. To provide these travelers with information about EVD, assess their specific exposure risk and potential signs and symptoms of EVD, and enable domestic public health monitoring of travelers for up to 21 days post-departure from the affected countries,¹ in October 2014, the United States implemented enhanced risk assessment and management at points of entry for travelers arriving from Ebola-affected countries. This included people without a specific risk exposure other than having been in a country with widespread transmission.² Accordingly, all travelers arriving from an Ebola-affected country were monitored daily by health departments with jurisdiction over the traveler’s location. Daily monitoring generally consisted of temperature measurement and symptom reporting to the respective health department.

Upon entry into the United States and further assessment by receiving health departments, travelers from Ebola-affected countries were categorized in 1 of 3 exposure risk categories: high-risk, some-risk, and low-but-not-zero-risk. Per guidance from the Centers for Disease Control and Prevention (CDC), asymptomatic travelers in the “low-but-not-zero-risk” category were permitted to travel domestically or internationally while being monitored, as they were not ill or infectious or at risk of imminently becoming ill or infectious. Based on the respective health department’s discretion, and in consultation with CDC, asymptomatic travelers in the “some-risk” category were also permitted to travel.³ The programs for screening and tracking travelers have been described in more detail elsewhere.^{4,5}

To enable uninterrupted monitoring, travelers were asked to provide information about travel plans during the monitoring period. CDC, together with state and local health departments, devised a process for domestic and international notifications. To enable ongoing monitoring per US policy during domestic travel, the health departments that were responsible for the daily monitoring of the traveler until departure from their jurisdiction shared the traveler’s contact information directly with the receiving health department. For international travel, CDC offered to notify the country of final destination for travelers leaving the United States

during the 21-day monitoring period; specifically, CDC informed a country's National IHR Focal Point. National IHR Focal Points are points of contact designated by each of the 196 countries that are states parties to the International Health Regulations (IHR) and should always be accessible for IHR-related information exchange with WHO and other national focal points. CDC obtained the contact information for national focal points from the WHO secure website for IHR, having received permission from the US national focal point at the Department of Health and Human Services to share public health information directly with other countries' National IHR Focal Points. The IHR, an international law under the auspices of WHO, fosters rapid and transparent exchange of public health information and, specifically, requires countries to inform other countries of travelers under public health observation who are arriving in their jurisdiction.⁶

Here we report on the process and implementation of the international notifications by CDC to other countries receiving travelers under monitoring for EVD during the week of November 10, 2014, through the week of July 6, 2015. This timeframe begins on the date when the first international notification was made using a standardized format and extends to the date when the last person, arriving from Liberia, completed the post-departure monitoring period in the United States following the first WHO declaration of Liberia being Ebola-free. During this time-frame, there were 20,893 travelers who arrived in the United States within 21 days post-departure from an Ebola-affected country; between 1,331 and 2,719 travelers were under post-departure monitoring by US health departments during any given week.

Process for International Notifications

On November 13, 2014, CDC sent an informational letter via its secure web-based communication system, the Epidemic Information Exchange (Epi-X),⁷ to key contacts at state and local health departments. The letter described the process for sending international travel notifications for travelers under monitoring in their jurisdictions who intended to depart the United States during the 21-day monitoring period. It provided information on the purpose of sharing travelers' information with the country of final destination; requested information from the traveler included intended destination, dates of travel, personal identifying information, the date of last exposure, and the end of the monitoring period, as well as contact information for the US health department with current jurisdiction for the traveler. Information was to be sent by email, in password-protected portable document format (PDF), to a CDC functional mailbox. Health departments were further asked to encourage travelers to reach out to the destination country, or its embassy, to understand potential travel restrictions. Updates on the international notification process were sent to health departments on December 18, 2014, and February 3, 2015.

Within 24 hours of receiving a request for an international travel notification, CDC emailed a password-protected PDF to the National IHR Focal Point of the country of intended final destination. The information shared included the traveler's name, age, gender, exposure risk category, the point in the 21-day monitoring period on the anticipated date of departure, and the calculated last date of monitoring based on the last day of presence in an Ebola-affected country, if this information was available from the health department. Information on actual

flight itineraries was not collected from the travelers. If a traveler went to a protectorate or territory of a foreign country, the national focal point for that country was notified. Further, Mexico and Canada, as the 2 US neighbors with frequent travel and regular exchange of information, including attempts to harmonize public health responses, requested additional points of contact be notified to enable continuity of monitoring. Acknowledgment of receipt of the information was not requested by CDC from any of the National IHR Focal Points.

International travel notifications were also made for travelers who transited through the United States from one of the Ebola-affected countries to a third country. Because those travelers never entered a US public health jurisdiction, information was sent directly to CDC's functional mailbox for international travel notifications by the data management team responsible for processing information received from travelers during the entry screening process at the US point of entry.

Implementation of International Notifications

CDC made its first notification to another country's National IHR Focal Point on November 14, 2014. Between November 14, 2014, and July 12, 2015, CDC issued 2,374 notifications from 42 different US public health jurisdictions to National IHR Focal Points in 114 countries. During the same 8 months, US public health departments listed 2,711 travelers as having left the United States during the monitoring period. Notifications by US public health jurisdictions for travelers under monitoring ranged from 1 notification each submitted by 3 jurisdictions to 688 notifications submitted by New York City. Notifications to other countries' national focal points ranged from 1 notification each sent to 25 countries to 574 notifications sent to Liberia (see Figure 1). Liberia, Guinea, and Sierra Leone accounted for almost half (49%) of all notifications sent, while 23% of notifications were made to National IHR Focal Point in Canada, France, the United Kingdom, and Switzerland. A total of 89 notifications to 26 National IHR Focal Points (including 34 to Canada) were made for travelers in transit through the United States after they underwent screening and risk assessment at the port of entry. In 4 instances, notifications were made to the Netherlands and the United Kingdom for a Caribbean island under their authority. Requests for notifications from or to US territories to other US public health jurisdictions were not included in our data.

The number of notifications to CDC by a US public health jurisdiction of travelers intending to leave the United States was proportionate to the number of travelers who arrived in, or were monitored by, that jurisdiction, and was offset by 1 to 2 weeks after their arrival in that jurisdiction. Proportionate to the number of travelers under monitoring in any given week, more notifications were made the weeks of December 29, 2014, and January 5, 2015 (5.8% of all travelers under monitoring), the week of April 20, 2015 (7.2%), and the week of July 6, 2015 (8.1%) (see Figure 2); the dates approximate the winter, spring, and summer holidays in the United States.

Based on information provided to CDC as part of the notification request from health departments, all notifications were for travelers in the "low-but-not-zero-risk" category. The last day of screening by a US public health department on the date of anticipated departure

was available for 2,121 (89%) of the 2,374 notifications; the date when the 21-day monitoring period would end was available for 2,241 (94%) notifications. Both dates were available for 2,036 (85%) notifications. Accordingly, the calculated range for the remaining days of the 21-day monitoring period after anticipated departure from the United States was 0 to 21 days, with a median of 11 days, and with 7 days left for 27% of travelers. The majority of notification requests from public health jurisdictions (1,660 [74%] of 2,241 for which this information was available) did not specify a plan for monitoring after the traveler left the United States; 467 (20%) planned to turn the monitoring over to the receiving country, 89 (4%) planned to continue monitoring themselves, and 25 (1%) recommended self-monitoring without requesting follow-up with the health department.

Of the 2,374 notifications sent, CDC received approximately 281 (12%) responses from 41 countries; 216 (76%) responses were acknowledgment receipts, including 167 (59.4%) from Canada. Responses received also included requests for information on flight numbers and local destination by 18 countries; there were also 26 requests for additional information about the type of exposure to Ebola, the country of exposure, and other aspects of exposures, and 7 requests for missing passwords or attachments or for assistance in opening the password-protected file. One national focal point was unable to receive the attachment through the country's firewall, and it was subsequently, per request, sent to a different email address. Nine National IHR Focal Points replied with their plans for continued monitoring, 2 reported that they were not able to locate the traveler in the country of arrival, and 2 responded to the notification with a request to advise the traveler not to travel, as they would not be allowed to enter. On at least one occasion, the National IHR Focal Point was concerned that the traveler had arrived prior to the notification and requested that this not recur. In 7 instances, CDC became aware that the National IHR Focal Point and their ministries of health had refused entry to a traveler to their country upon arrival or imposed quarantine per their response protocols; CDC and other US government and international public health agencies, including the WHO, worked with the respective countries to facilitate a resolution for these travelers.

Discussion

Notifications to other countries of travelers arriving in their jurisdiction who have potentially been exposed to an infectious disease are standard practice in the global public health community, and, if the traveler is under public health observation and allowed to travel, such notifications are mandated under the IHR. International notifications were given for up to 8% of people under monitoring for EVD in the United States in a given week. In previous contact investigations of travelers possibly exposed to an infectious disease on an international flight, we have seen that up to 25% of these travelers leave the United States again within 1 to 2 weeks of arrival (Susan Lippold, personal communication). The proportion of travelers from Ebola-affected countries for whom international notifications were made because of their departure during the 21-day monitoring period is well within this range. Several other countries, most notably Canada and the United Kingdom, deployed the same practice of alerting CDC of travelers to the United States who were under monitoring in that country. We also had an explicit agreement with Canada and Mexico for rapid information exchange and harmonized risk assessments and monitoring practices.

Travelers frequently alerted the health department of travel plans just shortly before planned travel (eg, during the last direct monitoring encounter). This might be because travelers for whom international notifications were made were unrestricted in domestic or international travel, per CDC guidance, and the obligation of the traveler to the health department with jurisdiction over the 21-day monitoring period was to assure ongoing monitoring while in the respective public health jurisdiction. Because of a potential time lag and the time zone differences between notification of CDC by health departments of a departing traveler and then onward notification to the country of destination, some international travel notifications were received by the destination country after the traveler had already arrived at their final destination. This was particularly true for those travelers who only transited through the United States. Regardless of the final destination, processing time for the screening information at the port of entry to generate the international notification was necessary. Several countries would have preferred to receive at least several days' advance notice.

More specific information on travel itineraries and exposure details was requested by some National IHR Focal Points. Because the monitoring program was a domestic program and those travelers were unrestricted in their movement, there was concern that that level of inquiry was not warranted and could not have been legally enforced. However, CDC stressed to the health departments and travelers the importance of contacting the embassy or ministry of health of the receiving country prior to travel to learn what movement restrictions to expect on arrival. We also checked information regularly compiled by WHO on health measures that might "significantly interfere with international traffic" and that were in addition to health measures recommended by WHO in response to the Ebola outbreak⁸ in order to be able to convey this to health departments who were in contact with the travelers. Additionally, the notification to countries included contact information for the US public health department that had last performed monitoring for the traveler so that additional information could be requested. It also included a request to countries to inform us of potential restrictions on travelers. Anecdotally, we learned that several travelers were able to adjust their travel plans based on the information received.

We did not compare personal identifiers of those leaving from a given public health jurisdiction with those under monitoring in that jurisdiction; however, we think there is sufficient information to suggest that appropriate international notifications were made for most travelers under monitoring. First, when comparing the number of travelers reported as leaving the United States during the monitoring period by health departments with the number of international notifications made, we calculate that CDC made notifications for 89% of travelers. Second, exceedingly few travelers (range 0.03%-1.4%, median 0.4%) were lost to follow up in the United States during the 21-day monitoring period.⁹ Third, 41 of 60 health departments that ever had a traveler under monitoring informed CDC of travelers leaving the United States during the monitoring period. Fourth, although notification through CDC was voluntary, the first request to CDC for an international notification was made within a day of the informational letter posted to health departments on Epi-X.

We did not formally assess the acceptability and ease of implementation of the international notification process. However, anecdotally, we learned of concerns by a limited number of health departments early in the implementation phase of the program; for example, there

were concerns about notifying countries with more restrictive quarantine policies, as well as for travelers the health department intended to continue to monitor following their departure from the United States. Some health departments had different legal requirements for sharing the requested information in order to assure the protection of the traveler's privacy. In such cases, information could be shared by phone or secure fax. At CDC, design and implementation of the process was part of the ongoing response efforts; the actual notification and information exchange with national focal points was estimated to having been 1 person's full-time effort.

We also did not formally follow up with countries about their perception and acceptance of the US notifications. However, we learned informally that several travelers encountered difficulty entering their destination country. Specifically, we became aware of 7 instances in which travelers were quarantined or restricted from entering the country. Efforts to mitigate this interruption to a traveler's plans were sometimes successful, working in close collaboration with WHO and the respective ministry of health to further explain the "low-but-not-zero" risk level of such travelers.

Given the novelty of the entry screening risk assessment, coupled with the post-arrival monitoring program for travelers from an Ebola-affected country, CDC quickly implemented an international notification process commensurate with the exposure risk of the travelers and their right to privacy. This was accomplished within the context of changing policies for border measures in receiving countries and an obligation under Article 30 of the IHR to share information on "persons under observation" leaving our jurisdiction. Overall, the first 8 months of this process, which included the peak of the Ebola epidemic, provide a good example of the close collaboration needed from the local to the international public health level when responding to potential threats to public health.

CDC rapidly implemented a process by which state and local health departments could share traveler information with CDC of notifications of other countries about the pending arrival of travelers under monitoring for EVD. This process has been used successfully by the US public health jurisdictions and CDC more than 2,000 times during an 8-month period, which demonstrates the ability of the public health system to creatively address the ever-increasing challenges of global health security. The designation of the National IHR Focal Points, mandated to states parties by the IHR, was essential for these informal notifications. Implementing this voluntary but systematic process for making international notifications of travelers under public health observation during a global public health crisis allowed the United States to fulfill its IHR obligations and is the only means by which a receiving country can protect its citizens against the introduction of an infectious disease within its own parameters of risk tolerance and public health infrastructure.

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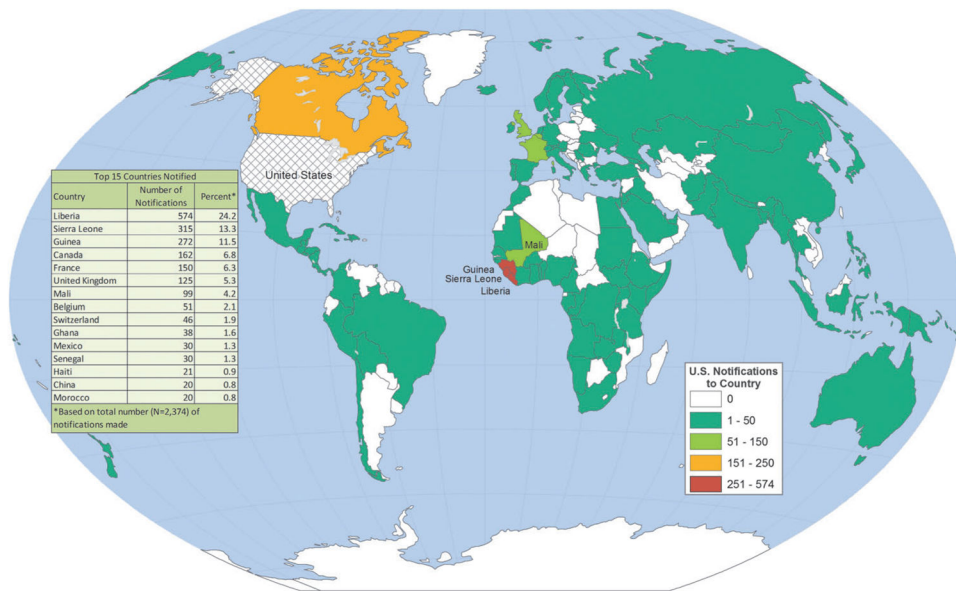


Figure 1. International Notifications for Persons Intending to Leave the United States During 21-Day Monitoring for Ebola

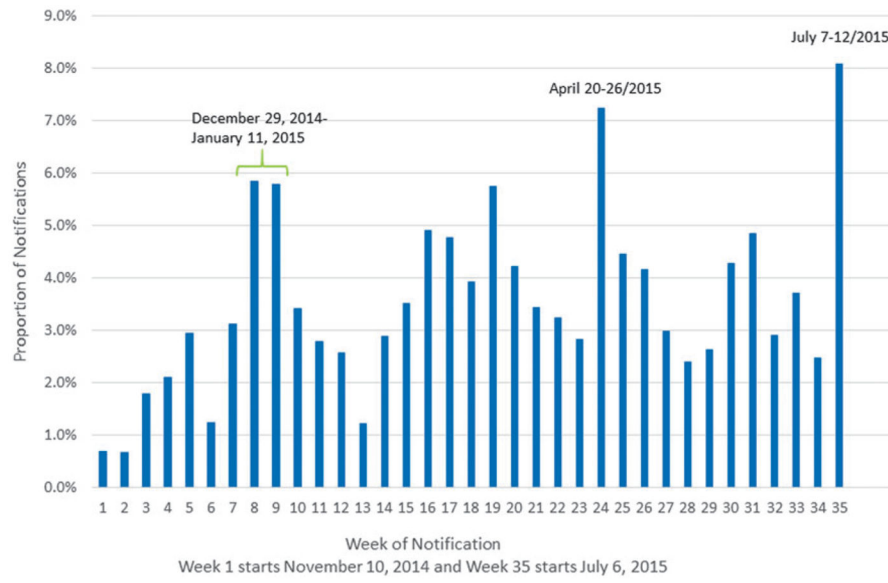


Figure 2. Proportion of Number of International Notifications Over Number of Persons Under 21-Day Monitoring for Ebola by Monitoring Week, November 10, 2014–July 12, 2015