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DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

Notice of Temporary Suspension of Dogs Entering the United States from Egypt

AGENCY: Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS).

ACTION: Notice.

SUMMARY: The Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services (HHS) announces that, effective immediately, it is temporarily suspending the importation of dogs from Egypt. This includes dogs originating in Egypt that are imported from third-party countries if the dogs have been present in those countries for less than six months. CDC is taking this action in response to an increase of imported cases of rabies in dogs from Egypt. This action is needed to prevent the reintroduction of canine rabies virus variant (CRVV), which has been eliminated from the United States. This suspension will remain in place until appropriate

veterinary controls have been established in Egypt to prevent the export of rabid dogs. CDC will coordinate with other federal agencies and entities as necessary to implement this action.

DATES: This notice is applicable [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT: For information regarding this notice contact: Ashley A. Altenburger, J.D., Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, 1600 Clifton Road N.E., MS-H16-4, Atlanta, GA 30329.

For information regarding CDC operations related to this notice contact: Kendra Stauffer, D.V.M., Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, 1600 Clifton Road N.E., MS-V-18-2, Atlanta, GA 30329. Either person may also be reached by telephone 404-498-1600 or email CDCAAnimalImports@cdc.gov.

SUPPLEMENTARY INFORMATION

I. Background

Rabies, one of the deadliest zoonotic diseases, accounts for an estimated 59,000 human deaths globally each year¹--which equates to one human death every 9 minutes. The virus can infect any mammal, and once clinical signs appear, the disease is usually fatal². In September 2007, at the Inaugural World Rabies Day Symposium, HHS/CDC declared the United States to be free of canine rabies virus variant (CRVV). However, this rabies virus variant remains a serious public health threat in many other countries where laboratory and epidemiologic surveillance for CRVV is not as strong as in the United States. Many other countries also do not maintain a robust rabies vaccination program for dogs. Preventing the entry of animals infected with CRVV into the United States is a public health priority. Globally, CRVV is responsible for 98% of the estimated 59,000 human rabies deaths worldwide each year (WHO, 2004 [Page 116]).

On January 29, 2019, a shipment of 26 dogs was imported from Egypt to the United States through Canada by a Kansas-based rescue organization. All 26 dogs were placed

1 Hampson K, Coudeville L, Lembo T, et al. Estimating the global burden of endemic canine rabies. PLoS Negl Trop Dis 2015;9:e0003709.

2 Fooks AR, Banyard AC, Horton DL, Johnson N, McElhinney LM, Jackson AC. Current status of rabies and prospects for elimination. Lancet 2014;384:1389-99.

into foster care or adopted in the Kansas City metro area of Kansas and Missouri. On February 25, 2019, one of the imported dogs, after biting a veterinary technician and exhibiting signs of illness, tested positive for rabies. Testing performed at CDC revealed that the rabid dog was infected with CRVV. Molecular characterization of the rabies virus also determined that it was most similar to a clade (group of organisms with a common ancestor) found in Egypt. This laboratory testing confirms that the dog was infected in Egypt prior to arrival in the United States.

Official notification of this event was made to the appropriate Egyptian ministry officials through the World Health Organization (WHO) International Health Regulation (IHR) rabies national focal point, the World Organization for Animal Health (OIE) delegate to Egypt, and through the CDC country office in Egypt. OIE develops guidance for importation requirements of animals, control of rabies in animals, and oversees an OIE member country's self-declaration of rabies-free status. It can revoke a country's self-declaration of rabies-free status and make notifications to OIE member countries if it is concerned about a threat to animal health.

This incident is the most recent example of cases of rabies in dogs imported from Egypt that have occurred in

the last four years. On May 30, 2015, a shipment of 8 dogs and 27 cats arrived at John F. Kennedy (JFK) International Airport in New York City from Cairo, Egypt. The animals were distributed in New Jersey, Pennsylvania, Maryland, and Virginia to several animal rescue groups and one permanent adoptive home. On May 31, 2015, four dogs from the shipment were further distributed to three foster homes in Virginia that were connected with a Virginia-based rescue group.

On June 3, 2015, an adult female stray dog imported by an animal rescue group as part of this shipment became ill. The dog had been imported with an unhealed fracture of the left forelimb and 4 days after arriving at a foster home in Virginia developed clinical signs consistent with rabies. Because of concern about rabies, a veterinarian euthanized the dog on June 5, 2015, and submitted brain tissue for rabies testing. On June 8, 2015, the Virginia Department of General Services Division of Consolidated Laboratory Services confirmed rabies infection by laboratory testing. A tissue sample was sent to CDC for further testing (i.e., molecular characterization), which can help determine where the rabies virus originated. Testing performed at CDC revealed that the rabid dog was infected with CRVV, and molecular characterization of the rabies virus determined

that it was most similar to a clade found in Egypt.³ This laboratory testing confirms that the dog was infected in Egypt prior to arrival in the United States.

On December 20, 2017, a shipment of four dogs exported by a U.S.-based animal rescue group in Cairo, Egypt arrived at JFK. Two transporters and one owner retrieved the dogs, with planned distribution to foster homes and permanent owners in Connecticut, Maryland, and Virginia. A fifth dog on the flight was temporarily housed in New Jersey and West Virginia before reaching its destination in Washington State. This dog was traveling with a separate handler and was not part of the shipment, but shared the cargo hold with other animals.

On December 21, 2017, one of the four dogs exhibited hyperesthesia (increased sensitivity to stimuli) and paresis (muscle weakness) upon assessment at a Connecticut veterinary clinic. The dog bit a veterinary technician during a blood draw procedure and died shortly thereafter. On December 26, 2017, the Connecticut Department of Public Health Laboratory confirmed rabies virus infection by laboratory testing. On December 28, 2017, testing performed

3 Sinclair JR, Wallace RM, Gruszynski K, et al. Rabies in a dog imported from Egypt with a falsified rabies vaccination certificate—Virginia, 2015. MMWR Morb Mortal Wkly Rep 2015;64:1359–62.

at CDC revealed that the rabid dog was infected with CRVV and molecular characterization of the rabies virus determined that it was most similar to a clade found in Egypt. This laboratory testing confirms that the dog was infected in Egypt prior to arrival in the United States.

Staff members with the state health department interviewed dog caretakers, volunteers, and employees associated with the involved rescue groups and veterinary hospital staff members for potential exposure to rabid dogs in all three cases. Post-exposure prophylaxis was recommended and administered to those individuals considered exposed. No human rabies cases nor dog-to-dog transmission cases resulted due to prompt diagnosis and public health interventions.

II. Public Health Rationale

A person usually becomes infected with rabies through the bite of a rabid animal. Once a person is bitten by a rabid animal, the virus enters the wound and travels through the nerves to the spinal cord and brain. It is also possible, but quite rare, for a person to become infected through infectious material from a rabid animal, such as saliva, contacting a person's eyes, nose, mouth, or a wound. The incubation period for rabies is generally

between 3-12 weeks, and during this time, the person may show no signs of illness. Once symptoms appear, the person typically dies within 1-2 weeks because rabies is almost 100% fatal in humans that are not treated before the onset of clinical signs. No treatment has been found to be routinely effective after clinical signs of disease begin. Investigations into potential exposures from the import of a rabid dog can be long, difficult and expensive⁴.

The United States was declared CRVV free in 2007. The importation of just one dog infected with CRVV risks the re-introduction of the virus into the United States. CRVV has been highly successful at adapting to new host species, particularly wildlife. Importation of even one CRVV-infected dog could result in transmission to humans, transmission to other dogs, transmission to wildlife, and of particular concern, could result in sustained transmission in a susceptible animal population, thereby threatening our entire rabies public health infrastructure. While CDC estimates that each year 100,000 dogs are imported from various high-risk CRVV countries, since 2015,

4 Hercules Y, Bryant NJ, Wallace RM, et al. Rabies in a Dog Imported from Egypt – Connecticut, 2017. MMWR Morb Mortal Wkly Rep 2018;67:1388-1391. DOI: <http://dx.doi.org/10.15585/mmwr.mm6750a3>.

three rabid dogs have been imported into the United States, and all were from Egypt.

To date, CDC efforts to work with Egyptian officials have proven unsuccessful at identifying root causes of these importation events and at identifying satisfactory solutions to reduce the risk of exportation of CRVV from Egypt. Egyptian officials failed to respond to requests for information pertaining to actions taken to prevent further export of rabies-infected dogs. In order to protect the public from rabies risk when the paperwork used to import a rabies-infected dog is suspected or confirmed to be fraudulent, good public health practice warrants appropriate follow-up that entails investigation of the responsible veterinarian or organization and possible revocation of license if fraud is proven. Egyptian officials have thus far not provided information as to whether this type of investigation and response have occurred. Similarly, in instances of suspected vaccination failures, appropriate follow-up by Egyptian officials to protect public health should include investigation of vaccine quality, the distribution chain, cold-chain maintenance, and inoculation methods. Egyptian officials, contrary to International Health Regulations and responsibilities, have thus far not provided information as

to whether an investigation into the quality and management of animal rabies vaccine stocks was performed.

On March 6, 2019, CDC notified the World Health Organization (WHO) of a possible Public Health Emergency of International Concern (PHEIC) under the International Health Regulations. In order to notify an event as a PHEIC, CDC must assess the public health impact to be serious. CDC assesses these importations to be serious because rabies has a high potential to cause an epidemic, there is indication of treatment failure, and the importations represent a significant public health risk even if very few human cases are identified.

The worst-case outcomes for an importation of a rabid dog would include 1) transmission of CRVV to an unaware person because rabies is usually fatal once persons become symptomatic or 2) unrecognized spread to other wildlife species with subsequent, and possibly sustained, transmission in the United States.

The cost of re-introduction of CRVV could be especially high if CRVV spreads to other species of U.S. wildlife. A reintroduction of CRVV into the United States would require costly efforts over a number of years to eliminate the virus. A previous campaign to eliminate domestic dog-coyote rabies virus variant jointly with gray

fox (Texas fox) rabies virus variant in Texas over the period from 1995 through 2003 cost an undiscounted \$34 million^{5,6} or \$52 million in 2019 U.S. dollars. The costs to contain any reintroduction of CRVV would depend on how much time passed before the reintroduction was realized, the wildlife species in which CRVV was transmitted, and the geographic area over which reintroduction occurs. The above estimate is limited to the cost of rabies vaccination programs for targeted wildlife and does not include the costs to administer post-exposure prophylaxis to any persons exposed after the reintroduction has been identified.

Even under the best-case scenario in which a dog with CRVV is imported, but quickly identified, costs would be incurred for the public health response to provide post exposure prophylaxis for exposed persons and monitor exposed animals. The HHS/CDC Poxvirus and Rabies Branch

5 TJ Sidwa et al. (2005) Evaluation of oral rabies vaccination programs for control of rabies epizootics in coyotes and gray foxes: 1995-2003. *Journal of the American Veterinary Medicine Association*; 227(5):785-92.

6 R.T. Sterner et al. (2009) Tactics and Economics of Wildlife Oral Rabies Vaccination, Canada and the United States. *Emerging Infectious Diseases*; 15(8):

estimates that each importation could require an intensive public health response comprising of 800 staff-hours.⁷

In addition, HHS/CDC estimates that each rabid dog importation event would result in approximately 15.5 human exposures. [⁸][⁹][¹⁰][¹¹] Each human exposure would be expected to require post-exposure prophylaxis to ensure that people do not develop rabies, which is usually fatal once symptoms appear. Rabies post-exposure prophylaxis includes one dose of rabies immune globulin plus four doses of rabies vaccine. The total cost including office visits was estimated at about \$8,500 per exposed individual, although actual costs would depend on where a person receives post exposure prophylaxis.

An imported dog with CRVV may also expose other animals. HHS/CDC's Poxvirus and Rabies Branch estimates that approximately 29.6 animals^{[11],[12],[13],[14]} would be

⁷ Personal communication: Ryan M Wallace and Jesse D Blanton U.S. Centers for Disease Control and Prevention, Poxvirus and Rabies Branch; February 23, 2018

⁸ Sinclair JR, Wallace RM, Gruszynski K, Freeman MB, Campbell C, et al. Rabies in a Dog Imported with Falsified Rabies Vaccination Certificate—Virginia, 2015. *MMWR Morb Mort Wkly Rep* 2015; 64 (49): 1359-62.

⁹ Castrodale L, Walker V, Baldwin J, Hofmann J, Hanlon C. Rabies in a puppy imported from India to the USA, March 2007. *Zoonoses Public Health* 2008;55:427-30.

¹⁰ CDC. Rabies in a Dog Imported from Iraq— New Jersey, June 2008. *MMWR Morb Mort Wkly Rep* 2008; 57(39):1076-1078.

¹¹ CDC. An Imported Case of Rabies in an Immunized Dog. *MMWR Morb Mort Wkly Rep* 1987; 36(7): 94-96.

[¹¹] Sinclair JR, Wallace RM, Gruszynski K, Freeman MB, Campbell C, et al. Rabies in a Dog Imported with Falsified Rabies Vaccination

exposed for each imported dog with CRVV and that the average cost per exposed animal would be \$1,000.^[15]

The total cost per event (Table 1) including public health response, human exposures, and animal exposures is estimated at slightly less than \$214,000. Lower bound and upper bound estimates were calculated by multiplying by 80% and 120% since the public health response time, persons and animals exposed may vary considerably for any given importation of a dog with CRVV. The estimated range in costs is from \$171,000 to \$257,000.

Table 1. Estimated public health response, human post-exposure prophylaxis and animal exposure costs estimated per importation of a dog with canine rabies virus variant (CRVV), assuming no transmission to U.S. humans or animals					
Public health response cost					
Number of hours per importation	Public health department	Overhead cost estimate	Cost per importation (A × B ×	Lower bound (-20%)	Upper bound (+20%)

Certificate- Virginia, 2015. MMWR Morb Mort Wkly Rep 2015; 64 (49): 1359-62.

^[12] Castrodale L, Walker V, Baldwin J, Hofmann J, Hanlon C. Rabies in a puppy imported from India to the USA, March 2007. Zoonoses Public Health 2008;55:427-30.

^[13] CDC. Rabies in a Dog Imported from Iraq- New Jersey, June 2008. MMWR Morb Mort Wkly Rep 2008; 57(39):1076-1078.

^[14] CDC. An Imported Case of Rabies in an Immunized Dog. MMWR Morb Mort Wkly Rep 1987; 36(7): 94-96.

^[15] Personal communication: Ryan M Wallace and Jesse D Blanton U.S. Centers for Disease Control and Prevention, Poxvirus and Rabies Branch; February 23, 2018

(A) ^a	employee hourly cost (B) ^b	(C)	(100%+C)		
800	\$32.21	100% of wage rate	\$51,536	\$41,229	\$61,843
Human post-exposure prophylaxis cost					
Number of exposed people (D) ^a	Average cost for post-exposure prophylaxis per person (E) ^c		Cost per importation (D x E)	Lower bound (-20%)	Upper bound (+20%)
15.6		\$8,508	\$132,727	\$106,182	\$159,272
Number of exposed animals per importation (F) ^a	Average cost per exposed animal (G) ^a		Cost per importation (F x G)	Lower bound (-20%)	Upper bound (+20%)
29.6		\$1,000	\$29,570	\$23,656	\$35,484
Total cost per importation					
Total cost per importation event			\$213,833	\$171,066	\$256,599
^a Personal communication: Ryan M Wallace and Jesse D Blanton U.S.					

Centers for Disease Control and Prevention, Poxvirus and Rabies Branch; February 23, 2018

^b Bureau of Labor Statistics, May 2017 National Occupational Employment and Wage Estimates United States, Occupation codes 29-1131, 19-1041, 29-1141, 29-2061, 43-0000.

^c Rabies immune globulin and vaccine Red Book Online [database online]. Greenwood Village, CO: Truven Health Analytics.

<http://www.micromedexsolutions.com/>. Accessed June 25, 2018.

Centers for Medicare and Medicaid Services. 2017 Medicare Physician Fee Schedule. <http://www.cms.gov/apps/physician-fee-schedule/overview.aspx>. Accessed June 25, 2018.

P Dhankhar, SA. Vaidya, DB Fishbien, MI Meltzer (2008) Cost effectiveness of rabies post-exposure prophylaxis in the United States. Vaccine 26: 4251-4255.

SM Kreindel, M McGuill, M Meltzer, C Rupprecht, A DeMaria Jr. (1998) The cost of rabies postexposure prophylaxis: one state's experience. Public Health Rep 113:247-51.

IV. Authority and Operations

Under 42 CFR § 71.51, HHS/CDC requires each imported dog from a country with a high risk of CRVV to appear healthy and be accompanied by a valid rabies vaccination certificate indicating that the animal has been vaccinated against rabies prior to entry into the United States. The

exception to this requirement is for dogs imported for scientific research purposes when rabies vaccination would interfere with the purpose of the research. Additionally, under 42 CFR 71.63, the CDC Director may temporarily suspend the entry of animals, articles, or things from designated foreign countries and places into the United States when the Director has determined there exists in a foreign country a communicable disease that would threaten the public health of the United States and the entry of imports from that country would increase the risk that the communicable disease may be introduced. Under 42 CFR 71.51(e), the CDC Director may also exclude dogs coming into the United States from areas determined to have high rates of rabies.

CDC has identified countries and political units that are considered high risk for importing CRVV into the United States. Egypt has been identified as one such country.¹² . Therefore, under 42 CFR § 71.51, any dogs coming from Egypt must be accompanied by valid rabies vaccine certificates to enter the United States. All of the dogs in the January 29, 2019 shipment entered with what appeared to be valid rabies

¹² Factors that warrant placing a country on the list include documented presence of CRVV (publications or reports), inadequate or a lack of evidence of active control measures (mass dog vaccination), and consultation with regional rabies experts (typically OIE or WHO/PAHO regional representatives).

certificates, suggesting a systemic failure of the rabies vaccination system in Egypt.

In light of these repeated rabid dog importations, CDC has determined that until appropriate veterinary controls are in place in Egypt, a rabies vaccination certificate is not sufficient to protect U.S. public health against rabid dogs being imported from Egypt. For this reason, under 42 CFR 71.63 and 42 CFR 71.51(e), CDC is exercising its authority to temporarily suspend entry of imported dogs from Egypt, including dogs from Egypt that are imported by way of third-party countries if the dogs have been present in the third-party country for less than six months. Six months is the upper range of the incubation period for rabies in dogs. Thus, vaccinated dogs that have been present in a third-party country for more than six months may be safely imported into the United States, assuming all other CDC requirements are met. CDC will continue this suspension until appropriate veterinary safeguards to prevent the importation of canine rabies from Egypt have been established. CDC will also review this suspension on a periodic basis to ensure that it does not remain in place longer than is necessary to protect U.S. public health.

V. Advance Written Approval

The provisions of this notice do not apply if advance written approval from the CDC has been obtained to import a dog from Egypt, including a dog from Egypt that is being imported from a third-party country. Such approvals will be granted on a limited and case-by-case basis and at CDC's discretion.

Individuals seeking to import a dog from Egypt must submit the Application for a Permit to Import a Dog Inadequately Immunized Against Rabies, which is currently approved under OMB Control Number 0920-0134 Foreign Quarantine Regulations (exp. 03/31/2022).

To request the advance written approval of the CDC, you must send an email to the Director, Division of Global Migration and Quarantine, at cdcanimalimports@cdc.gov, requesting an application. Once you receive instructions and the permit application, your request must be submitted at least 10 business days before the date on which you intend the dog to enter the United States. A request cannot be made at the port of entry upon arrival into the United States. As required by the permit application, your request must present sufficient, reliable evidence conclusively demonstrating that the dog you wish to import is immune from rabies. Such evidence includes a valid rabies vaccination certificate that was issued in the United

States or official government documents demonstrating the reliability of the vaccine, vaccine provider, and conditions under which the vaccine was stored. The evidence you present must also demonstrate the authenticity of the documents relied upon. Your written request must further explain how you intend to establish, for example, through identifying markers, microchip, or tattoo, that the dog being imported is the same dog identified in the official government documents you provided to the CDC. If the official government documents are not written in English, then they must be accompanied by English language translations of the official government documents, the authenticity of which has been attested to by a person licensed by the government to perform acts in legal affairs.

CDC will respond to your request in writing and may impose additional conditions in granting the approval. You must present CDC's written response and approval upon entry into the United States. If your request for advance approval is denied, CDC's written denial will constitute final agency action.

VI. Terms of this Notice

Pursuant to 42 CFR 71.63 and 42 CFR 71.51(e), HHS/CDC hereby suspends, until further notice, the importation of any dog from Egypt, including dogs from Egypt that are imported from third-party countries if the dogs have been present in those countries for less than six months. This notice will become effective on [INSERT DATE OF PUBLICATION], and will be remain in place subject to periodic review by the CDC until appropriate safeguards to prevent importation of CRVV from Egypt have been established.

Dated: May 6, 2019.

Sandra Cashman,
Executive Secretary,
Centers for Disease Control and Prevention.

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