The CDC Role in the 2003 Monkeypox Outbreak

The findings and conclusions in this presentation are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention

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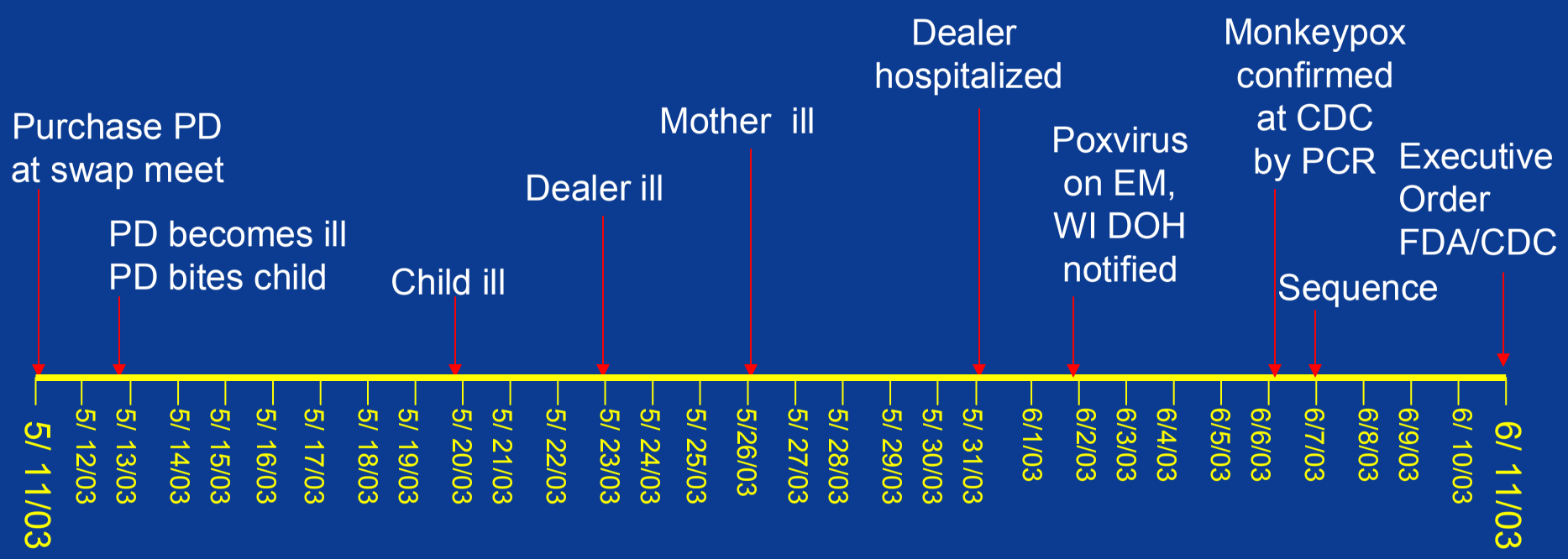

- **CDC confirmed orthopoxvirus by PCR June 6, 2003.**
- **Sequencing results showed virus was West African monkeypox clade of monkeypox.**
- **CDC and FDA issued a joint emergency order prohibiting importation and trade and of PDs and African rodents.**

CDC Role: Human Case Surveillance

- By June 6, 2006, cases were being reported to CDC from WI, IL, IN
- CDC Role: Coordinate information from affected states
- National Case Definition, case count
- Laboratory confirmation of human cases
- Medical management of cases, contacts
- Dissemination of Information:
  - Health Alert Notices
  - Epi-X
  - MMWR articles
  - Daily conference calls with impacted states

CDC Role: Animal Case Surveillance

- Partnerships with states, FDA, USDA, FWS
- Coordination of multi-state animal traceback activities
- Dissemination of information
  - MMWR articles
  - Web-based information
  - Regular conference calls with veterinary resources in affected states
- Limited capability for testing of animals
  - Prioritized confirmation of initial animal infections, types of species affected

Activation of the CDC E.O.C.

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U. S. Department of Health and Human Services

Press Release

June 7, 2003
Contact: CDC Media Relations
404-639-3286

Public Health Investigation Uncovers First Outbreak of Human Monkeypox Infection in Western Hemisphere

Public health officials from the Centers for Disease Control and Prevention (CDC) and the states of Wisconsin, Illinois and Indiana have reported the first outbreak of human infections with a monkeypox-like virus to be documented in the Western Hemisphere. Thus far, 19 cases have been reported: 17 in Wisconsin, one in Northern Illinois, and one in Northern Indiana. All patients who have become ill reported direct or close contact with ill prairie dogs.

CDC is advising physicians, veterinarians, and the public to report instances of rash illness associated with exposure to prairie dogs, Gambian rats and other animals to local and state public health authorities. CDC also has issued interim recommendations for infection control calling for health care personnel attending hospitalized patients to follow standard precautions for guarding against airborne or contact illness. Veterinarians examining or treating sick rodents, rabbits and such exotic pets as prairie dogs and Gambian rats are advised to use personal protective equipment, including gloves, surgical mask or N-95 respirator, and gowns.

The prairie dogs were sold by a Milwaukee animal distributor in May to two pet shops in the Milwaukee area and during a pet "swap meet" (pets for sale or exchange) in northern Wisconsin. The Milwaukee animal distributor obtained prairie dogs and a Gambian giant rat that was ill at the time from a northern Illinois animal distributor. Investigations are underway to trace the source of animals and the subsequent distribution of animals from the Illinois distributor. Preliminary information suggests that animals from this distributor may have been sold in several other states.

http://www.cdc.gov/od/oc/media/pressrel/r030607.htm

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Basics

- What You Should Know About Monkeypox | *en español* (Jun 12, 2003)
- Questions & Answers (Jun 19, 2003)
- What Pet Owners Should Know (Jun 19, 2003)
- What Pet Shop Owners Should Know (Jun 19, 2003)
- Smallpox Vaccine and Monkeypox (Jun 18, 2003)

Information for Specific Groups

Clinicians

Pet Owners, Pet Shops, & Animal Handlers

Public Health Lawyers

Veterinarians

Specific Topics

Case Definition: Human | Animal

Related Links

Infection Control & Exposure Management

Treatment

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MMWR & Other Reference Materials

Find your state or local health department

CDC Hotlines

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Clinician:
English 877-554-4625
sign up for the clinician registry

NEWS & HIGHLIGHTS

Case Count

What's New

What Owners of Pet Shops Should Know (Jun 19, 2003)

Animal Case Definition (Jun 19, 2003)

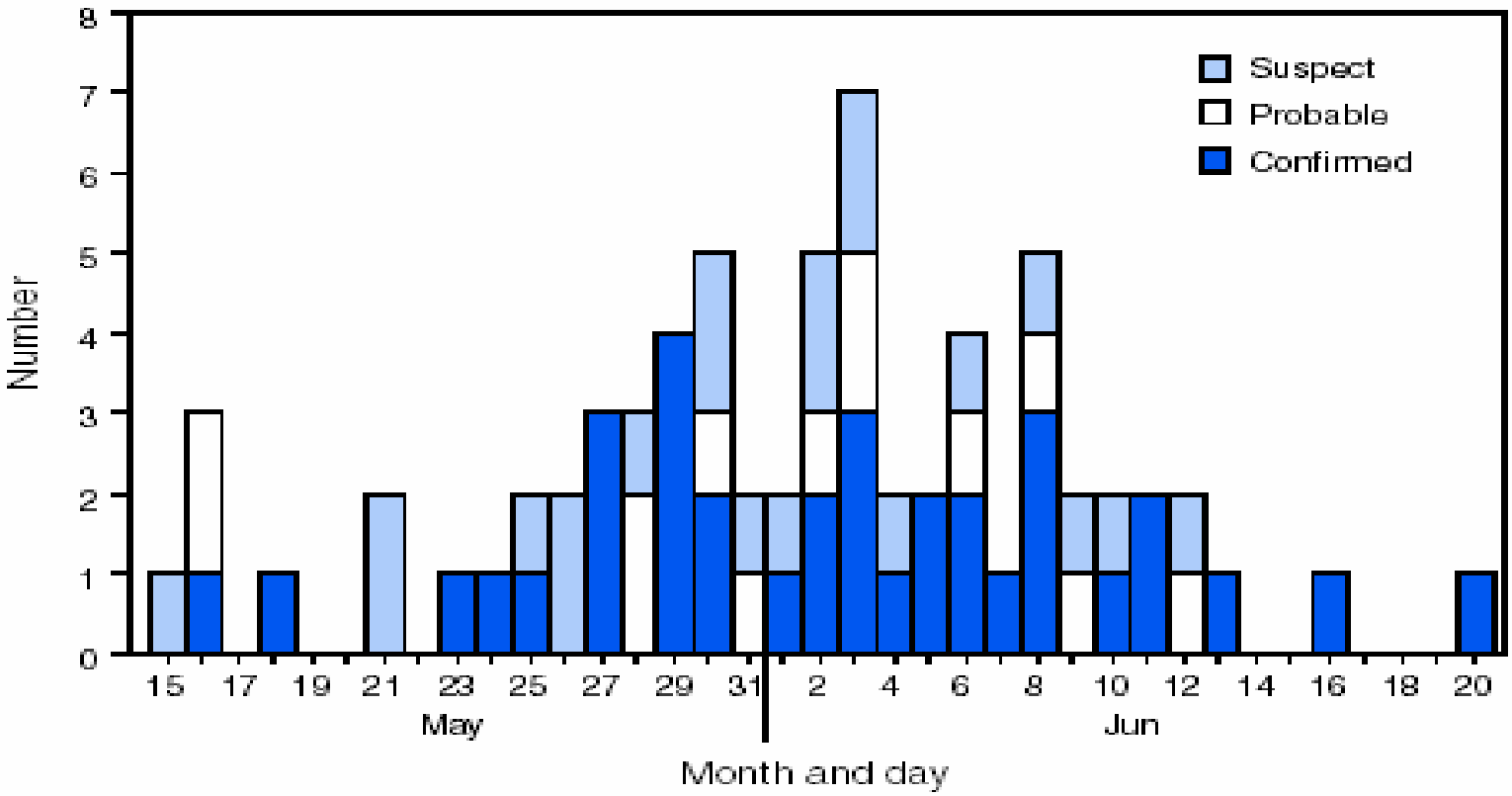
Telebriefing: Update on Monkeypox (Jun 19, 2003)

Update: Multistate Outbreak of Monkeypox - Illinois, Indiana, Kansas, Missouri, Ohio, & Wisconsin, 2003 (Jun 19, 2003)

MMWR: Multistate Outbreak of Monkeypox - Illinois, Indiana, & Wisconsin, 2003 (Jun 12, 2003)

http://www.cdc.gov/ncidod/monkeypox/index.htm

FIGURE 1. Number of monkeypox cases*, by date of illness onset — Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003†



* N = 69 of 71 cases with known date of illness onset.
† As of July 8, 2003.

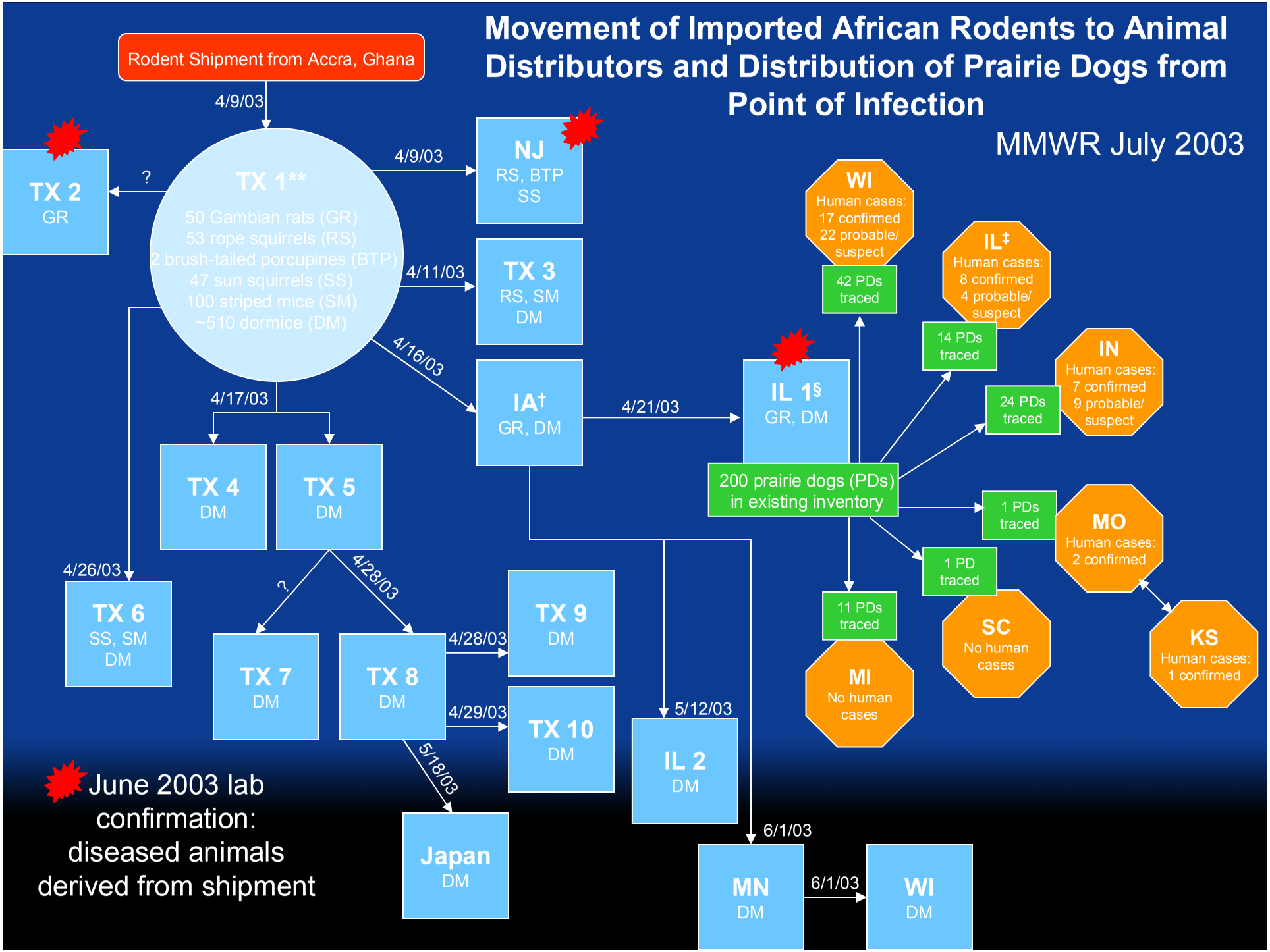
Animal Tracebacks

- Tracebacks conducted by states, CDC helped coordinate information and create a national picture.
- Tracebacks
  - Distribution of infected animals
  - Source of virus
- Limitations:
  - Incomplete invoice and sales records
  - Trade at Swap Meets
  - Exposure without ownership

Not all animals or exposures were traceable

Movement of Imported African Rodents to Animal Distributors and Distribution of Prairie Dogs from Point of Infection

MMWR July 2003



Gambian Giant (Pouched) Rat

Gambian giant-pouched rat (*C. gambianus*)

courtesy Lincoln Park Zoo

courtesy triadrescue.org

Rope Squirrel

Dormouse

Control Measures: CDC/FDA Emergency Order

- 6/11/03: CDC/FDA Joint Emergency Order banning the importation, sale, and transport of PDs and implicated African rodents
  - CDC authority: importation of African rodents
  - FDA authority: Interstate movement/trade of PDs and 6 genera of rodents
  - Also resulted in prohibition of bushmeat and improperly treated hunting trophies

- Interim Final Rule: November 4, 2003

Control Measures: Recommendations for Animal Quarantine / Euthanasia

- **Infected Premises**
  - All PDs should be euthanized
  - All mammals should be quarantined for 6 weeks *

- **Premises Receiving Rodents from the 4/9/03 Shipment**
  - All rodents from the shipment should be euthanized
  - All PDs on the premise at the same time as a rodent from the shipment should be euthanized
  - All mammals should be quarantined for 6 weeks *

- Alternatively, quarantine could be lifted and trade resumed immediately if all mammals on the premise are euthanized and the premise is cleaned/disinfected prior to restocking. ***Actual implementation of recommendations varied by state.***

Monkeypox: Call to Action

- November 4, 2003: Interim Final Rule
- HHS Working Group in 2004 (Council on Public Health Preparedness)
  - Recommended IFR be maintained
- 2003 CDC White Paper describing risks associated with owning wild animals as pets
- CDC Decision Memo on next steps recommended expanding the animal importation ban to cover more species

Continued Concerns: The Exotic Pet Trade

- Monkeypox outbreak highlighted the regulatory inadequacies for the pet trade
- Who covers the pet trade?
  - USDA – livestock; pet store facilities
  - FWS – dangerous, endangered species
  - HHS – human health threat (incl. animals)
    - CDC – importation
    - FDA –interstate movement

Concerns about Wild Animal Importation for Commerce

- High volume, rapid turn-over
- Most animals are wild-caught, not captive-raised
- No screening prior to shipment
- No holding or testing required on entry
- Opportunity for widespread exposure of public
- High mortality rates (30%-50%) common

Exotic Emerging Zoonoses

- Ebola – primates, reservoir unknown
- Nipah – bats
- West Nile – birds, mosquitoes
- SARS – masked palm civets, bats
- Avian Influenza – poultry, wild birds
- Monkeypox – rodents, primates

2001, Pam & Brett Whitesell

EM, Marburg virus, CDC gallery

CDC Regulatory Authority for Importation of Exotic Animals and Animal Products

42 CFR 71 (Foreign Quarantine)

- 71.53 – Nonhuman primates
- 71.54 – Etiologic agents, hosts, and vectors
  - Bats
  - Nonhuman primate trophies
- 71.56 – African rodents (IFR)
- 71.32(b) – Persons, carriers, things
  - 2004 emergency order restricting civets
  - emergency orders restricting birds

Live Animal Importation - 2005

- 87,991 mammals
  - 29 species of rodents
- 259,000 birds
- 1.3 million reptiles
- 5.1 million amphibians
- 203 million fish

U.S. Fish & Wildlife Service Data

Current Regulations Are Not Sufficient to Prevent Introduction of Zoonotic Diseases

- Too narrow in focus (certain species or countries)
- Overlook animals of high potential risk
- *Example*: Risks from Arenaviruses
  - Junin, Machupo, and Guanarito viruses cause severe or fatal hemorrhagic fever in humans
  - Transmitted by rodents from South America
  - Currently no restrictions on South American rodents

Conclusions

- We are highly vulnerable to imported zoonotic diseases
- Our regulations do not sufficiently mitigate the risk of zoonotic disease introduction
  - We need to consider broader restrictions on categories of animals that pose a health threat (e.g., rodents)
  - We need to consider a requirement for health certificates or animal identification to assist with inspections and investigations

Requests to Strengthen Federal Importation Regulations

- Council of State and Territorial Epidemiologists (CSTE) and National Association of State Public Health Veterinarians (NASPHV)
  - 2003 Position Statement
  - 2005 Position Statement
  - Letters to CDC
- American Veterinary Medical Association (AVMA)

Summary

- CDC is preparing an Advance Notice of Proposed Rulemaking (ANPRM) to garner comments on additional issues to consider in proposed rule

- CDC has shared information with stakeholders:
  - Federal Partner teleconference: January 17, 2006
  - Partner Meeting: May 17-18, 2006
  - Public Meeting: May 18, 2006

For More Information

www.cdc.gov/ncidod/dq/animal

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