Concerns Regarding the Importation of Vectors of Human and Animal Disease into the United States

Tracy DuVernoy, DVM, MPH
May 7, 2019
Agenda

- Zoonoses and disease transmission pathways
- Causal organisms of human and animal disease
- Introduction of vectors
- Import process
- Additional regulatory considerations
- Case examples
- Summary
- Additional information
Bioagents and Patterns of Disease Spread

Source -
• Natural
• Introduced

Bioagents with high host plasticity

Animal-animal spillover of pathogens
Animal-human spillover of pathogens
Amplification by human-to-human transmission

366,132 pathogens

Vector-borne

HPAI, H1N1, EBOv, MERS, FMD, CSF, RVF, Nipah, etc.

75% Zoonotic

SARS, MERS, EBOv, Lassa, CHKv, Zika, H5N1, H1N1 etc.

U.S. Customs and Border Protection

Field Operations
Biological Threats

- Causal organisms of animal and human disease
  - 538 sp. bacteria/Rickettsia
  - 320,000 viruses
  - 307 sp. fungi
  - 45,000 sp. Protozoa
  - 287 sp. helminths

Photos shown with permission
Examples of disease vectors

• Animal body fluids, tissues, body parts, blood / blood products, and feces
• Bacterial, viral, and fungal isolates; prions and toxins
• Diagnostic or clinical samples (patient samples that will be tested for specific etiologic agents)
• Genomic material (DNA, RNA, genomic vectors)
• Hosts or vectors (flies, mosquitoes, snails, ticks, etc.)
• Vaccines / drugs / reagents / test kits
• Live animals: bats, nonhuman primates, all other live animals
Pathways of Introduction

- Cargo (air, rail, sea, truck, Express Cargo Consignment [ECC])
- Mail (U.S. Postal Service)
- Passenger (air, sea)
- Land border (vehicle, pedestrian, animal movement)
Import Process

CBP Form 6059B – Customs Declaration

- All travelers entering the United States are required to declare all agricultural and biological products they may be carrying
  - The declaration must cover all items carried in checked baggage, carry-on luggage, anything on their person, or in a vehicle
  - When in doubt, declare
The Agriculture Inspection Process

Primary Inspection
- Passenger deplanes and proceeds to passport control
- Passenger claims baggage
- CBP officer reviews customs documents and interviews passenger
- CBP agriculture K-9 team searches baggage area
- Determine whether passenger could be carrying prohibited agricultural item
- Baggage is screened

Secondary Inspection
- Interview with agriculture specialist
- Passenger is given an opportunity to surrender agriculture items
- Does passenger questioning or baggage X-ray show possible prohibited agriculture item?
- Passenger baggage is hand searched
- Agriculture specialist finds prohibited agriculture item?
- Select prohibited item
- Agriculture Specialist may impose fine
- Passenger and baggage released
- Passenger exits the airport

Source: CBP with CBP update
*Prohibited items are destroyed according to government regulations. Unknown detected pests are sent to an APHIS identifier.
Organisms / Vectors of disease importation

• Other Federal Agency oversight

• Regulations also include transportation and transfer
  • Public Health Service Act: 42 CFR Part 71.54, Import regulations for infectious biological agents, infectious substances and vectors
    • Some biological agents and toxins can only be imported using an official commercial carrier – cannot be carried in the cabin of a passenger plane
  • Department of Transportation: 49 CFR Parts 171 – 178, Hazardous Materials Regulations
    • If animal or animal product to be transported contains a poisonous, radioactive or infectious material
  • United States Postal Service: 39 CFR Part 111, Mailability of etiologic agents
  • International Air Transport Association (IATA), Dangerous Goods Regulations
Additional considerations when importing vectors of human / animal disease

- Biosafety and biosecurity
- Container or crates used are also subject to regulatory oversight / requirements
  - Bedding and feed not permitted entry into U.S.
- Carrier and intermediate (secondary) handlers may also have specific requirements for transporting commodity
- State requirements
  - Regulate the entry of animals into their own state
  - Some species are prohibited
Case 1. Ticks

- Passenger from Ukraine arrived at Houston Intercontinental Airport in September 2018
- Live wild-caught ticks (*Ornithodoros* spp.) declared to CBP Officer; accompanied by a VS permit
  - Destination: University
- Referred to Agriculture Secondary
- No CDC permit
- Entry denied and ultimately destroyed
Case 2. Research slides

• Passenger A arrived from Canada into Toronto Pearson International airport, Preclearance
  • NEXUS member and cleared the primary inspection through the NEXUS lane
  • Marked ‘no’ to all agriculture questions

• Passenger A’s colleague was interviewed by a CBP Agriculture Specialist and commented that Passenger A was carrying tissue samples

• Passenger A was returned to agriculture secondary from outbound gate
  • Now declared slides containing mouse brain tissue for research
  • Non-compliant Export Declaration letter provided
Summary

• Many different documents and approvals may be required to import vectors of human or animal disease into the U.S.

• Onus is on the importer to ensure compliance with all international, federal and state regulations

• Focused planning is critical well before shipment or transportation internationally
  • To ensure compliance, contact each Agency with regulatory oversight for their respective requirements

• Contact the CBP port of entry for specific requirements
**Additional information**

- CBP Information Center – Importing biological materials into the United States: 
  [https://help.cbp.gov/app/answers/detail/a_id/3681/kw/biological](https://help.cbp.gov/app/answers/detail/a_id/3681/kw/biological)

---

**Importing biological materials into the United States**

**What you need to know before importing Biological Materials into the United States.**

Federal, international, and state laws strictly regulate shipping, transport, and import of biological materials. Federal and international regulations pertaining to the shipment of dangerous goods or hazardous materials may also apply to biological materials. Import of biological materials must be clearly marked, labeled, packaged and/or placarded in accordance with the requirements of all international, Federal and state agencies.

**Biological materials** are categorized, permitted, and regulated according to a variety of factors. Factors to consider include the source of the biological material; method of production or synthesis; packaging (bulk or final dosage form); terminal use in humans, animals, or research; state of infectiousness; potential as a vector of human, animal, or plant disease; and status as an endangered species (if applicable).

Examples of biological materials include (but are not limited to):
Questions?

Tracy DuVernoy, DVM, MPH
tracy.s.duvernoy@cbp.dhs.gov
202-344-3967
or
APTLABTC@cbp.dhs.gov