

# Developing a Statewide Zoonotic Disease Surveillance System *The Massachusetts Approach*

---

Pat Kludt MPH,  
Fredric Cantor DVM, MPH

MA Department of Public Health  
Division of Epidemiology and Immunization

# Why Does Public Health Care?

---

- Animals can be sentinels for human disease
- Animals can be reservoirs for human disease
- Often unknown background rates of potential zoonotic disease
- Reduce human risk by improving understanding of human exposures
- Existing animal regulatory system outmoded
- Animal ownership trends can increase risk of exposure to new diseases

# Human Surveillance System Tools

## Models for developing animal surveillance system

- Regulatory Foundation
  - 105 CMR 300.000
- Case Definitions
- Case Report Forms
- Reporting Pathway

DEPARTMENT OF HEALTH & HUMAN SERVICES  
Centers for Disease Control and Prevention (CDC)  
Atlanta, Georgia 30333  
Form Approved OMB 0900-0008

### Tick-Borne Rickettsial Disease Case Report

Use the Arboviral Infection Report Form (ARIF) for Arboviral (JUNIOR HANTAVIRUS, ARBOVIRUS (ZIKV), and JUNIOR GRASSHOVER ARBOVIRUS (ZIKV)).

**PATIENT DEMOGRAPHIC INFORMATION**

Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Sex:  Male  Female  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**CLINICAL SIGNS AND SYMPTOMS**

1. State of residence: \_\_\_\_\_ 2. County of residence: \_\_\_\_\_ 3. Zip code: \_\_\_\_\_ 4. Sex:  Male  Female  
5. Date of Birth: \_\_\_\_\_ 6. RACE:  White  American Indian or Alaska Native  Pacific Islander  Not specified  
 Black  Asian  Other

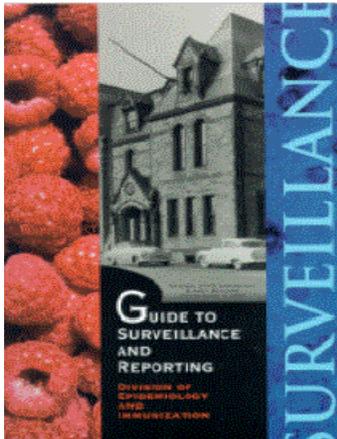
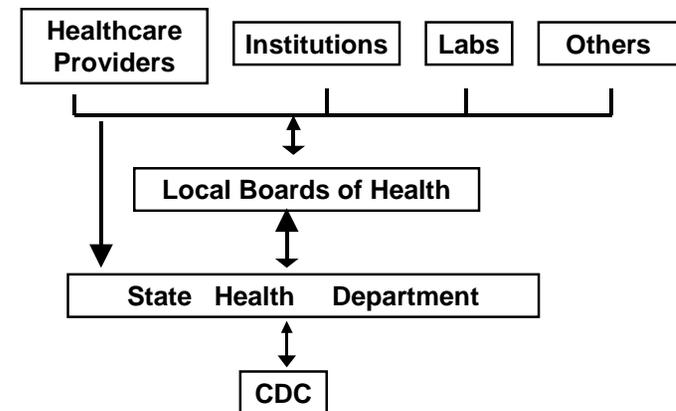
7. ETHNICITY:  Hispanic or Latino  Not Hispanic or Latino

8. INDICATE DISEASE TO BE REPORTED TO:  RASH  FEVER  HEADACHE  EXFOLIATIVE CONJUNCTIVITIS, OR OTHER AGENT

9. Was a clinically compatible illness present?  YES  NO  UNK  
10. Date of Onset of Symptoms: \_\_\_\_\_

11. Was an underlying immunosuppressive condition present?  YES  NO  UNK  
Specify condition(s): \_\_\_\_\_  
12. Specify any life-threatening complications in the clinical course of illness:  Acute respiratory distress syndrome (ARDS)  Meningoencephalitis  
 Encephalitis/encephalopathy (EEO)  Other: \_\_\_\_\_

### Human Disease Reporting Pathway



- Resources
- Training

# Existing Zoonotic Disease Surveillance Systems

---

- **West Nile Virus**
  - Mosquitoes, Birds & Horses
- **Rabies**
  - Suspect animal exposures
- **Tularemia**
  - Domestic Dogs and Cats
  - Pilot project on Martha's Vineyard/Nantucket

# **BT Cooperative Agreement for Emergency Preparedness**

## *Focus Area B: Epidemiology and Surveillance*

---

- **Infectious Disease Response**
  - Syndromic Surveillance
  - Isolation and Quarantine regulations
  - Electronic laboratory reporting
- Vulnerability of food
- Vulnerability of water
- **Animal Surveillance & Education**

# Animal Surveillance and Education (ASE)

---

- Membership:
  - Diverse, multi-agency representation
    - State/local public health, laboratory, animal health, animal control, wildlife agencies
- Objectives
  - Improve animal event reporting and communication of zoonotic events.
  - Ensure epidemiologic response plans and emergency response plans incorporate issues related to highly contagious zoonotic diseases among animals.
  - In coordination with Education & Training Workgroup (Focus Area G), ensure the training of veterinarians, veterinary technicians and animal inspectors in BT topics and response.
- Activities
  - Assess needs, provide ongoing project oversight

# Zoonotic Disease Tabletop

*Tool for Identifying Challenges -- Needs Assessment*

---

- Roles and responsibilities
- Regulations
- Personal protective equipment
- Specimen handling
- Laboratory testing
- Notification/Communication
- Disposal/Disinfection

# Developing a Zoonotic Disease Surveillance Program

---

## Animal Surveillance and Education Subcommittee

Web Reporting &  
Database  
Development

*Agriculture*

Wildlife  
Surveillance,  
Serum Banking  
Sample Collection  
and Testing  
Protocols

*Tufts Vet School*

Protocol &  
Case Definition  
Development,  
Survey of  
Laboratory Practices

*Tufts/Agriculture/  
Wildlife/MDPH*

Tularemia  
Serosurveillance  
*MDPH*

## Statewide Rabies Advisory Committee

Developing a regulatory foundation  
Update Animal Control Regulations:

*Agriculture/Wildlife/MDPH*

# Reporting of Animal Diseases with Zoonotic Potential by Veterinarians

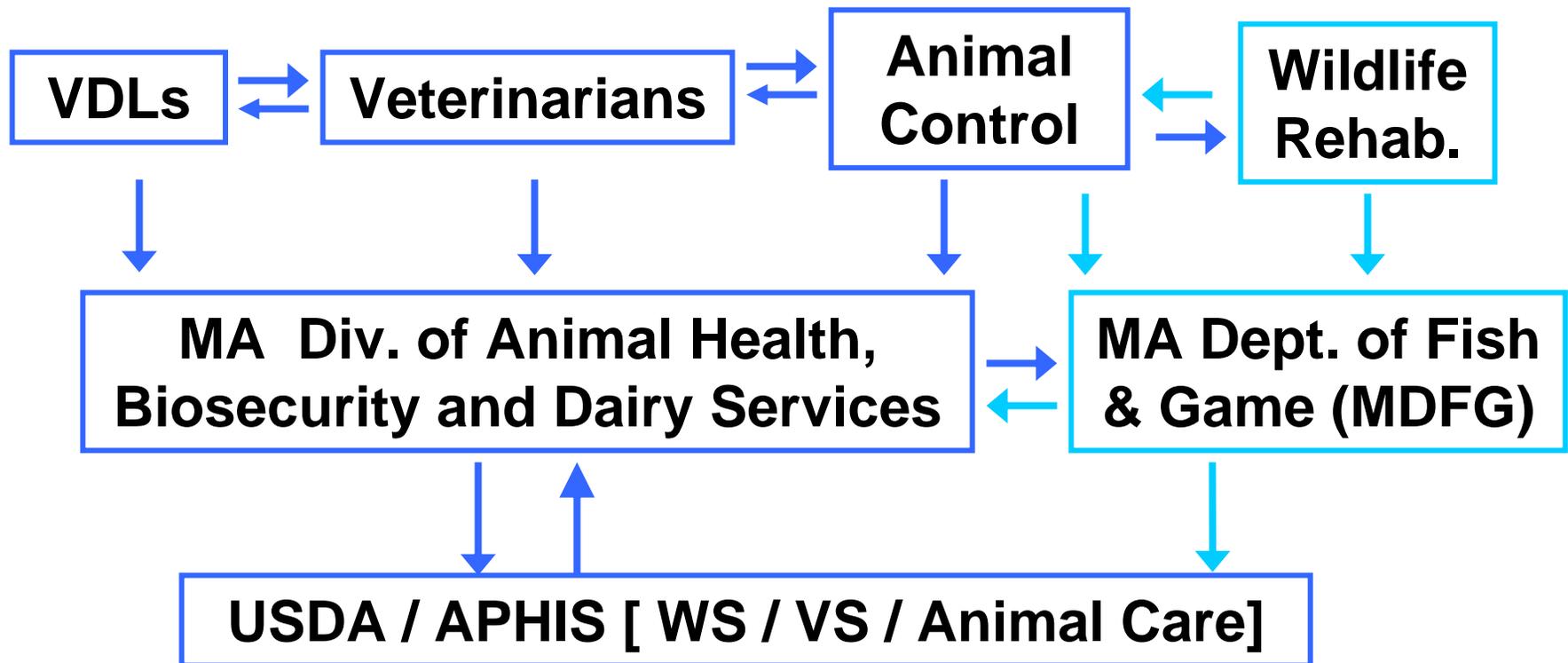
105 CMR 300.140 -- Public Health Regulation

---

...“ As required under M.G.L. c.129, 28 any veterinarian or local board of health with knowledge of an animal disease potentially infectious to humans must report the disease to the Department of Food and Agriculture (DFA), Bureau of Animal Health. DFA will immediately notify the Department of any potential occurrence of such zoonotic disease. **Notwithstanding requirements to report such cases to DFA, veterinarians shall also report to the Department within 24 hours any case of anthrax, plague, West Nile virus infection, or Eastern equine encephalitis virus infection diagnosed in an animal.... “**

# Animal Disease Reporting Pathway

---



# Web Reporting & Database Development

## *Agriculture*

---

- Database development
- Web-based disease reporting
- Response protocol development
  - Reporting Forms
  - SOPs
- Education of veterinarians

mdar MASSACHUSETTS DEPARTMENT OF AGRICULTURAL RESOURCES



Division of Animal Health and Dairy Services

Bureau of Animal Health

Reportable Disease Listing

Animal Health home

- Animal Imports/Exports
Animal Inspectors in Massachusetts Towns
Equine Activities
Pet Shops
Rabies
Reportable Diseases
Legal Resources
Laws
Regulations

This list of reportable animal diseases has been updated (March 2003) to address concerns regarding the potential use of biological agents as weapons that could affect animal and human health, as well as the food supply.

Diseases marked with an asterisk (\*) must also be reported to the Mass. Department of Public Health at 617-983-6800 within 24 hours of suspicion or diagnosis (300 CMR 140).

Reporting Priorities:

- 1. Report immediately by telephone, confirm in writing.
2. Report in writing or by telephone within 24 hours.
3. Report in writing or by telephone within 5 days.

Table with 3 columns: Disease, Species Affected, Priority. Rows include Actinomycosis, African Swine Fever, Anaplasmosis, Anthrax\*, Avian Influenza, Babesiosis.

Disease outbreaks may be reported to the following locations:

Bureau of Animal Health
251 Causeway St., Suite 500
Boston, MA 02114
617-626-1791 or 617-626-1795

- Dr. David Sherman, Chief Veterinary Health Officer
Dr. Lorraine O'Connor, Veterinary Health Officer

USDA-APHIS, Veterinary Services
136 Providence-Worcester Rd., Suite 20
Sutton, MA 01590
508-865-1421 or 1422

Related Links

- Foreign Animal Diseases: "The Gray Book"
Office of International Epizootics

# Animal Health Reporting

Development of a web-based system

**Mass.gov** • mass.gov home • online services • state agencies

**UNDER CONSTRUCTION**

SEARCH MASS.GOV

**mdar** MASSACHUSETTS DEPARTMENT OF AGRICULTURAL RESOURCES

About | Facts | Calendar | Regulations | Bureaus | Publications | Programs | Contact | News | Search | Site Map

**DISEASE REPORTING | ANIMAL HEALTH REPORTING SYSTEM**

**LOGIN**

Username

Password

**LOGIN**

To log in for disease reporting, enter your user name and password and click submit.

If this is your first time here or you do not have a username and password, click below to register.

**REGISTER**



UNDER CONSTRUCTION



# mdar MASSACHUSETTS DEPARTMENT OF AGRICULTURAL RESOURCES

About | Facts | Calendar | Regulations | Bureaus | Publications | Programs | Contact | News | Search | Site Map

## DISEASE REPORTING | ANIMAL HEALTH REPORTING SYSTEM

MAIN

LOGOUT

### DISEASE REPORT

1 DISEASE AND SPECIES:

African Swine Fever  
Pigs

2 CLINICAL SIGNS:

Y N U

- Incoordination
- Convulsions
- Cyanosis of the
- Hemorrhages
- Mucopurulent nasal and/or ocular discharges
- Pneumonia
- Dark or bloody diarrhea
- Cardiac insufficiency
- Death
- Painful swelling of the joints of limbs
- Other

If other, describe:

@ MDAR : Animal Health Reporting System

YOU ARE REPORTING A POSSIBLE PRIORITY 1 DISEASE. THIS DISEASE HAS THE POTENTIAL FOR VERY RAPID SPREAD AND SERIOUS SOCIO-ECONOMIC OR PUBLIC HEALTH CONSEQUENCE. TO ENSURE THAT YOU REACH US IN A TIMELY FASHION, PLEASE CALL 617-626-1795 AND LEAVE A MESSAGE IN ADDITION TO COMPLETING THIS WEB-BASED REPORT

IN A TIMELY FASHION, PLEASE CALL 617-626-1795 AND LEAVE A MESSAGE IN ADDITION TO COMPLETING THIS WEB-BASED REPORT

For each clinical sign given, please indicate Yes, No, or Unknown.

Y = Yes (sign present)

N = No (sign not present)

U = Unknown

SUBMIT

# Wildlife Surveillance & Serum Banking

*Tufts Veterinary School*

---

- Project planning
  - Multi-agency: agriculture, wildlife, public health (epi & lab), veterinary school
- Limited scope
  - 2 disease syndromes: Sudden death, CNS
  - 4 diseases/agents: salmonella, ehrlichia, tularemia, arbovirus
- Protocol development
- Serum banking
- Sampling strategy development
- Necropsy guidelines and protocols

# Protocol & Case Definition Development, Survey Laboratory Practices

*Tufts in coordination with Agriculture/Wildlife/MDPH*

---

- Develop case definitions for zoonotic animal diseases
  - Coordinate with MDPH and Agriculture
  - Assist in development of response protocols
- Develop, conduct and analyze survey of veterinary laboratory utilization practices

# Tularemia Serosurveillance Project

*MDPH / Agriculture*

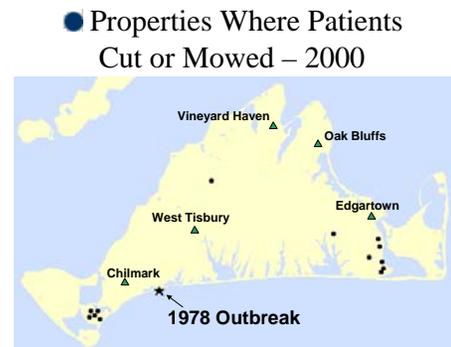
---

- Short term goals
  - Baseline seroprevalence of tularemia in animals
  - Help veterinarians to understand risk to pets from exposure to tularemia
  - Increase pet owner's knowledge and awareness of tularemia and measures to prevent exposures to themselves and their pets
- Long term goals
  - Distribution and extent of tularemia exposures in dogs and cats on Martha's Vineyard and Nantucket
  - Determine heightened areas/periods of tularemia activity
  - Evaluate dogs and cats as a sentinel tool for predicting human disease risk

# Animals as Sentinels for Tularemia

---

- Serosurveillance in dogs and cats indicate human risk for exposure to tularemia on Martha's Vineyard
- Titers correlate with wild animal exposure and tick burden
- Presumptive positives mostly in dogs, especially geriatric population
- Need to sustain veterinary interest
- Communicate results to public/ owners



# Legislative and Regulatory Review

## Rabies Advisory Committee

*Agriculture/Wildlife/MDPH*

---

- Review existing laws and regulations that apply to rabies and animal control
- Suggest changes to these laws and regulations to:
  - Improve efficiency and effectiveness of animal disease response and control
  - Increase flexibility and adaptability of system to address emergent zoonotic diseases in domestic pets, livestock and wildlife

# Zoonotic Disease

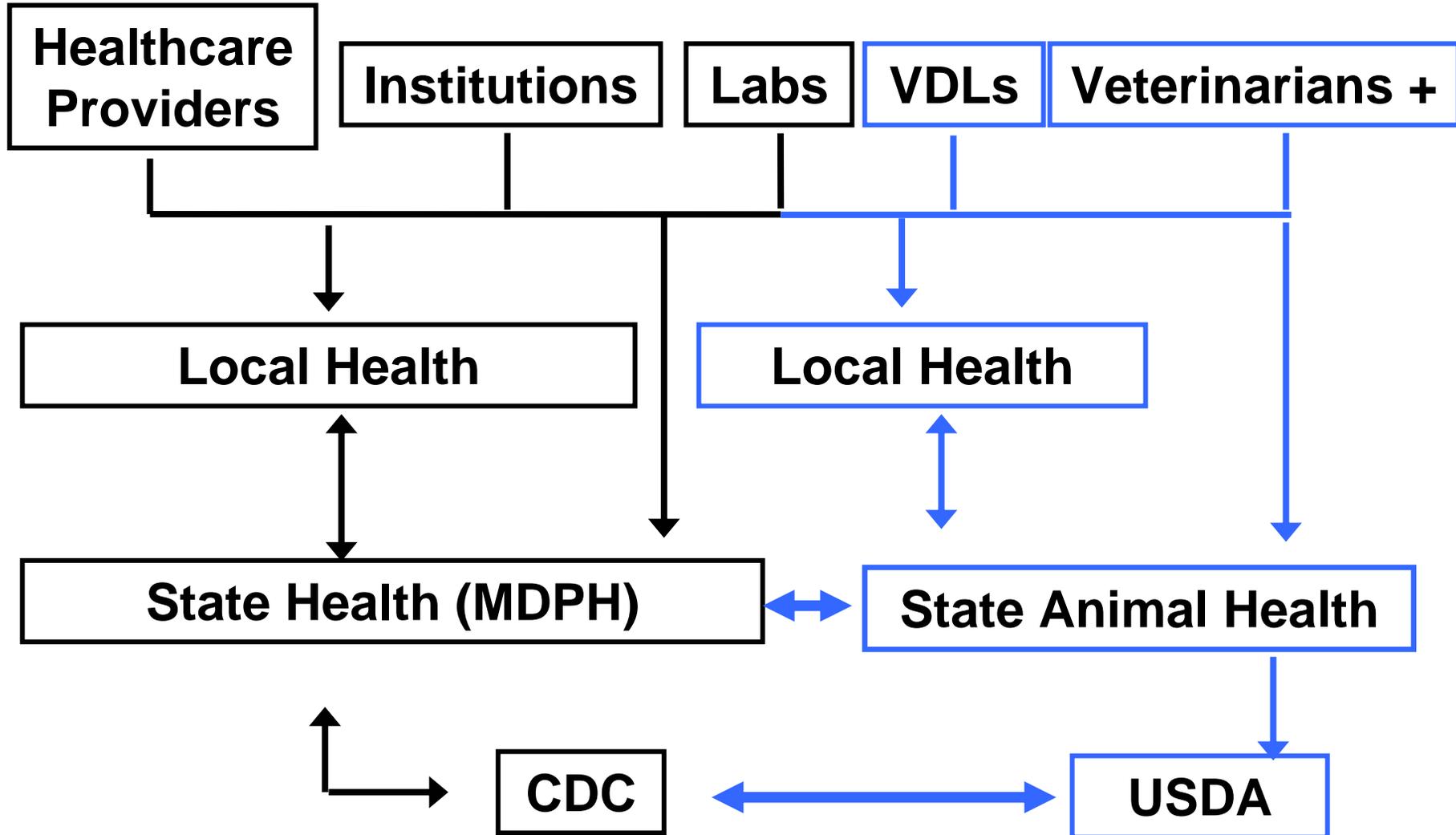
## Surveillance System Essential Components

---

- Communication & collaboration
  - Local/state/federal
- Rapid communication of results
- Rapid assessment of human risk
- Involvement of local health and animal control
- Identification of response and control measures
- Implementation of response and control measures
- Shared policies, procedures and protocols

# Integrated Disease Reporting Pathway

*“A Gold Standard”*



# Summary and Acknowledgements

---

- We have come a long way in our collaborative efforts with our partners in the veterinary community but know we have much more to do
- We would like to thank all our colleagues and collaborators on both the rabies advisory committee and the animal education and surveillance subgroup, in the public health laboratory and finally, our own epidemiologists on our zoonotic team for their continued participation and commitment to these projects