Leveraging One Health Collaborations to Enhance Investigation Capacity

December 12, 2019

The webinar will begin at 2:00 PM ET.
Speaker Introductions

- Heather Venkat, DVM, MPH, DACVPM, Arizona State Public Health Veterinarian, Arizona Department of Health Services

- Matt Maurer, MPH, REHS, Epidemiologist, Coconino County Health and Human Services
• This webinar is being recorded and the recording will be shared along with slides

• Submit questions through the Q&A Box at any time. We will discuss questions at the end of all presentations

• If you need technical assistance, please use the Q&A box
Leveraging One Health Collaborations to Enhance Investigation Capacity

Dec 12, 2019

Heather Venkat, DVM, MPH, DACVPM
CDC Career Epidemiology Field Officer
Acting Arizona State Public Health Veterinarian
6 out of 10 infectious diseases in humans are spread from animals.
Globally, 75% of emerging diseases are of zoonotic origin.
The One Health Concept
Develop Relationships
Outline Partner Roles
Consistent & Open Communication

One Health

Coordinating
Communicating
Collaborating

People who protect human, animal, and environmental health, and other partners

To achieve the best health outcomes for people, animals, plants, and our environment
**One Health Systems Mapping and Analysis Resource Toolkit (OH-SMART)**

- Interactive process that fosters working **across organizational and disciplinary lines** when preparing or responding to disease outbreaks.

- Our One Health Toolkit is an example of OH-SMART process.

Why Make a Toolkit?

• Create a concrete resource for local partners.

• Provide communication and collaboration strategies.

• Strengthen partnerships and enhance capacity.
Arizona One Health Toolkit
Survey
Survey Methods

• Survey A was an online mixed-methods survey to local health jurisdictions to assess communication and collaborative efforts with OH partners.

• Survey B contained five open-ended questions for state and federal partners to ascertain their role in OH activities.

• We developed the OH toolkit based on both survey results, literature reviews, and adapting OH-SMART processes.
Zoonotic Diseases Investigated Among Local/Tribal Health Departments

- Rabies: 39%
- Q Fever: 10%
- Plague: 9%
- Leptospirosis: 9%
- Hantavirus: 11%
- Chagas: 5%
- Brucellosis: 11%
- Tularemia: 6%
Assessing Communication & Collaboration

Knowledge is Power
Evaluated knowledge level of general mission & roles in zoonotic disease investigations for One Health Partners.

VARIETY of existing One Health collaborations in place:
- ZOHU Call
- Arizona Animal Disease Round Table
- RMSF Round Up FBI/AG/Game & Fish/Health Collaborative
- Office of Border Health One Health Community Clean-Up Coalition
- CDC
- University of Arizona

Greater awareness of agency roles resulted in more communication & collaboration between health departments & partner agencies.

All respondents felt MORE communication & collaboration from all agencies would be beneficial.
Who do health departments work with?

Health Departments work with
Arizona Game & Fish,
Arizona Department of Agriculture, Animal Control Agencies,
Indian Health Service & veterinary clinics to investigate zoonotic diseases

Other organizations health departments collaborate with include neighboring county & state health departments, housing authorities, tribal organizations, animal rescues, wildlife biologists, research facilities, universities, & vector control agencies.
Available Resources

55% indicated their jurisdiction had **protocols** outlining when to contact partner agencies during zoonotic disease investigations & situations.

39% said partner **contact information was available** to employees, including new employees.

**Using ADHS Investigation Manuals?**

65% knew the manuals were available & 30% of respondents have previously used ADHS manuals.

Most referenced manuals: **Rabies, RMSF, & Arbovirus.**

**At least 75%** of respondents are **comfortable investigating zoonotic diseases**, know available resources, & know who to contact during zoonotic disease investigations or situations.
Recommendations For Success

**Develop Relationships**
Seek Opportunities to Connect with One Health Partners at Local, State, & Federal Levels.

**Form & Outline Collaborations**
Outlining Partner Roles in Responses Increases Better Outcomes.

**Foster Communication**
Consistent, Reciprocal, & Open Communication is Needed for Successful Collaborations.
• Background
• Arizona One Health Partners
• Examples of Collaborations (Plague, Q Fever, Rabies)
• One Health Partners Contact Info
• Survey Summary
The Toolkit has been posted online in the Vector Home Page

<table>
<thead>
<tr>
<th>Arizona Department of Agriculture</th>
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<tbody>
<tr>
<td>Arizona Game and Fish Department (AzGFD)</td>
</tr>
<tr>
<td>Arizona Veterinary Medical Association (AzVMA)</td>
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<tr>
<td>Arizona Veterinary Diagnostic Laboratory (AzVDL)</td>
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<tr>
<td>ADHS</td>
</tr>
<tr>
<td>Counties, tribes, animal control, universities, non-profits, hospitals</td>
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<tr>
<td>US Department of Agr., Animal and Plant Health Inspection Service (USDA APHIS)</td>
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<tr>
<td>Wildlife Services and National Veterinary Services Laboratories</td>
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<tr>
<td>United States Fish and Wildlife Service (USFWS)</td>
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<td>National Park Service (NPS)</td>
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<td>CDC</td>
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Mission Statement:

“To support and promote Arizona agriculture in a way that encourages farming, ranching and agribusiness, protects the well-being of people, plants, animals and the environment while safeguarding commerce, consumers and natural resources.”
Office of the State Veterinarian

We protect the public from contagious and infectious disease in:

- Livestock (cattle, goats, horses, pigs, sheep),
- Poultry,
- Commercially raised fish,
- Meat, milk and eggs.
Office of the State Veterinarian

- Sampling of livestock
- Tracking animal movements
- Identifying farms
- Testing food products
- Can contact animal producers and farmers

Dr. Peter Mundschenk (DVM, State Vet)

Ex: Peter reports to us WNV positive horses.
Mission Statement:

“To conserve Arizona’s diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.”
Game Species

https://www.azgfd.com/hunting/species/

**Small Game Species**
- Band-tailed Pigeon
- Blue Grouse
- Chukar
- Cottontail Rabbit
- Dove Hunt Information
- Dove Hunting for Beginners
- Dove Season
- Dove Species
- More >>

**Band-tailed Pigeon**

**Cottontail Rabbit**

**Quail**

**Big Game Species**
- Antelope
- Bighorn Sheep
- Bison
- Black Bear
- Black Bear Hunting
- Elk
- Javelina
- Mountain Lion
- More >>
  - Mountain Lion Hunting
  - Mule Deer
  - Turkey
  - White-tailed Deer

**Pronghorn**

**Big Horn Sheep**

**Javelina**

**Mnt Lion**
Nongame species:
Wildlife that is neither hunted nor fished in a traditional sense.
Arizona Game and Fish Dept.

- Investigates wildlife mortality events and wildlife attacks on people.
- Collects data on zoonotic diseases within wildlife populations.
- Education and outreach to hunters and the public on wildlife conservation and disease prevention.

Ex: Anne reports to us WNV positive wild birds.

Dr. Anne Justice-Allen (DVM, Department Veterinarian)
Arizona Veterinary Medical Association (AzVMA)  [https://azvma.org/](https://azvma.org/)

Professional association for veterinary professional in Arizona.

- Education and resources for vets/student.
- Help to find a vet for pet owners.
- Provides animal disease alerts.
- Community outreach.

Act as a liaison with the American Veterinary Medical Association who plays a role in alerting individuals about zoonotic disease outbreaks, pet product recalls, and human-animal policy issues.
Arizona Veterinary Diagnostic Lab (AzVDL)  
[https://azvdl.arizona.edu/](https://azvdl.arizona.edu/)

- It is part of the College of Agriculture and Life Sciences at The University of Arizona.
- Provide **diagnostic support** to veterinarians and private individuals for all species of animals.
- Covers wild animals, exotic zoo animals, pet animals, horses, and food producing animals.
- Information is shared with
  - the State Veterinarian,
  - ADHS, and
  - United States Department of Agriculture Veterinary Services.
US Dept of Agriculture
Animal and Plant Health Inspection Service
(USDA APHIS) [https://www.aphis.usda.gov]

Animal and Plant Health Inspection Service

**WHO WE ARE**
- **8,379** employees total*
- **$1.4B** budget
- **6** operational programs
- **7** labs and research hubs

**MISSION**
To protect the health and value of America’s agricultural and natural resources

**OUR FOCUS**
- Plant health
- Animal health
- Wildlife damage management
- Animal welfare
- Global trade
- Biotechnology
US Dept of Agriculture
Animal and Plant Health Inspection Service
(USDA APHIS) https://www.aphis.usda.gov

- Tracks *wildlife* and feral animal disease that can affect human health (avian Influenza, plague, tularemia, feral swine diseases, tick borne diseases, and rabies).
- In Arizona contribute to *rabies surveillance* data in Arizona by testing deceased wildlife throughout the state.
- This service is used when the deceased wild animal has had *no potential exposure/human contact or contact with domestic pets or livestock*.

**Note:**
AZ Dept of Agriculture does not cover wildlife
US Dept of Agriculture does.

David L. Bergman
State Director
Lolita Van Pelt
Rabies Biologist

Ex: Lola reports to us rabies positive wildlife.
National Veterinary Services Laboratories (NVSL)

in Ames, Iowa and Orient Point (Plum Island), New York.

They work closely with both the Arizona State Veterinarian and Arizona Dept. of Agriculture for animal and food product testing.
US Fish and Wildlife Service (FWS)

https://www.fws.gov/

- It is dedicated to conserve, protect and enhance fish, wildlife, plants and their habitats.

- Works with wildlife partners such as USDA and National Park Services.

- The equivalent of AZ Game and Fish at the national level.
National Park Services

- Work to conserve **natural and historic** monuments, **landscapes**, and areas.
- This includes the wildlife and scenery within **NPS jurisdiction**.
- Able to distribute information regarding potential wildlife disease concerns, provide assistance in trapping, sampling animals, and mapping on sites under their jurisdiction.

Ex: We are working with Danielle on a suspect zoonotic case who was hunting at the Grand Canyon.
22 National Parks in AZ

https://www.nps.gov/state/az/index.htm
CDC - One Health Office (OHO)

https://www.cdc.gov/onehealth

- Part of the National Center for Emerging and Zoonotic Infectious Diseases (NCEZID).
- Cross-cutting through the entire agency.
Examples of domestic activities:

- Zoonoses Education Coalition (ZEC) to promote messages on pets and zoonoses.
- Works closely with the National Association of State Public Health Veterinarians.
- CDC has worked with the CSTE and USDA to promote a One Health collaboration through the Influenza and Zoonoses Education Among Youth in Agriculture.
- ZOHU Calls/Webinars.
<table>
<thead>
<tr>
<th>Organization</th>
<th>Responsibilities</th>
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<tbody>
<tr>
<td>Arizona Department of Agriculture</td>
<td>Livestock, poultry</td>
</tr>
<tr>
<td>Arizona Game and Fish Department (AzGFD)</td>
<td>Game animals and other wildlife</td>
</tr>
<tr>
<td>Arizona Veterinary Medical Association (AzVMA)</td>
<td>Outreach to vets</td>
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<tr>
<td>Arizona Veterinary Diagnostic Laboratory (AzVDL)</td>
<td>Diagnostic-all species</td>
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<tr>
<td>ADHS</td>
<td>Human exposures to zoonotic diseases</td>
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<td>Counties, tribes, animal control, universities, non-profits, hospitals</td>
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<tr>
<td>US Department of Agr., Animal and Plant Health Inspection Service (USDA APHIS)</td>
<td></td>
</tr>
<tr>
<td>Wildlife Services and National Veterinary Services Laboratories</td>
<td>Wildlife rabies</td>
</tr>
<tr>
<td>United States Fish and Wildlife Service (USFWS)</td>
<td>Wildlife &amp; conservation</td>
</tr>
<tr>
<td>National Park Service (NPS)</td>
<td>Animals and landscapes within NPS areas</td>
</tr>
<tr>
<td>CDC</td>
<td>One health issues across the agency</td>
</tr>
</tbody>
</table>
COUNTY HEALTH DEPARTMENT CONTACT INFORMATION - MAIN OFFICE

<table>
<thead>
<tr>
<th>Apache County – 928-337-4364</th>
<th>Cochise County – 520-432-9400</th>
<th>Coconino County – 928-679-7272</th>
</tr>
</thead>
<tbody>
<tr>
<td>La Paz County – 928-669-1100</td>
<td>Maricopa County – 602-506-6767</td>
<td>Mohave County – 928-753-0714</td>
</tr>
<tr>
<td>Navajo County – 928-524-4750</td>
<td>Pima County – 520-724-7770</td>
<td>Pinal County – 520-866-7325</td>
</tr>
<tr>
<td>Santa Cruz County – 520-375-7900</td>
<td>Yavapai County – 928-771-3134</td>
<td>Yuma County – 928-317-4550</td>
</tr>
</tbody>
</table>

RESOURCES FOR ZOONOTIC DISEASE INVESTIGATIONS

The Arizona Department of Health Services offers a variety of zoonotic investigation manuals to aid county and tribal health departments in investigating disease cases. See here for a listing of investigation manuals and resources. Reporting rules for healthcare providers, laboratories, local health agencies, facilities, and veterinarians are listed here.

<table>
<thead>
<tr>
<th>Anthrax</th>
<th>Brucellosis</th>
<th>Chagas</th>
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<tbody>
<tr>
<td>Hantavirus &amp; Quick Tips</td>
<td>Leptospirosis</td>
<td>Plague</td>
</tr>
<tr>
<td>Rabies &amp; Quick Tips</td>
<td>Tularemia &amp; Quick Tips</td>
<td>Lyme</td>
</tr>
<tr>
<td>Q Fever</td>
<td>Rocky Mountain Spotted Fever</td>
<td>Yellow Fever</td>
</tr>
<tr>
<td>Zika</td>
<td>Relapsing Fever</td>
<td>Scabies</td>
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<tr>
<td>West Nile Virus &amp; St Louis</td>
<td>Malaria</td>
<td>Ehrlichiosis</td>
</tr>
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## Existing One Health Collaborations

<table>
<thead>
<tr>
<th>Collaboration</th>
<th>Frequency of Communication</th>
<th>Contact Person (if available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona Animal Disease Round Table Teleconference</td>
<td>Monthly</td>
<td>Lolita Van Pelt</td>
</tr>
<tr>
<td>Arizona Arboviral Workgroup</td>
<td>Monthly</td>
<td>Irene Ruberto</td>
</tr>
<tr>
<td>Zoonotic Diseases &amp; One Health (call/webinar)</td>
<td>Monthly</td>
<td>CDC One Health Office <a href="mailto:ZOHUCall@cdc.gov">ZOHUCall@cdc.gov</a></td>
</tr>
<tr>
<td>ESC (call/in person meetings)</td>
<td>Monthly</td>
<td>Xandy Peterson</td>
</tr>
<tr>
<td>FBI/AG/Game &amp; Fish/ Public Health Collaborative</td>
<td>Quarterly</td>
<td>Dr. Peter Mundschenk DVM</td>
</tr>
</tbody>
</table>
**INITIATING RABIES POST EXPOSURE PROPHYLAXIS: HUMAN EXPOSURE TO WILDLIFE OR EXOTIC ANIMAL**

Exposure has occurred *
(i.e. animal bite, etc.)

- Rodents & Rabbits
  - Rabies risk is low in Arizona except for unusual circumstances
  - DO NOT INITIATE PEP

- Bat, Skunk, Coyote, Bobcat, Javelina & other Wild Carnivores
  - Animal available for testing
  - Call Animal Control or Arizona Game & Fish to submit animal head for testing at Arizona State Public Health Laboratory

  - Negative for Rabies
  - Positive for Rabies
    - Initiate PEP

- Monkeys or Exotic Mammals
  - Depending on animal, other diseases may be more urgent concern than rabies; contact Arizona Department of Health Services

*Note: Presence of bats within closed spaces where people are is considered an exposure; most people who are bitten by bats are not aware or the bite is so small that there are no marks visible (example: the 'bat in the bedroom scenario': if someone wakes up to find a bat in their bedroom, that is considered an exposure until proven otherwise)

Reptiles, amphibians, birds, & fish are NOT susceptible to natural rabies infection

*Exposure is defined as any bite, scratch, or other incident in which saliva, brain or spinal cord tissue, or cerebral spinal fluid of a potentially rabid animal enters an open, fresh wound, or comes in contact with mucous membranes by entering the eye, mouth or nose*

Please refer to the ADHS Manual for Rabies Control and Bite Management for more information regarding rabies and rabies situations
AZ One Health Gaps

• Time and manpower issues

• Companion animal diseases can sometimes fall through the cracks

• Sharing resources and educational materials

• Others?
Available here: azhealth.gov/ideducational materials
We Can Lead the Way in One Health

One Health In Action: A Success Story

In the southwestern U.S. and Mexico, brown dog ticks can carry a germ that causes Rocky Mountain spotted fever in people and dogs.

In Arizona, free-roaming dogs were spreading infected ticks. Many people got sick and some died from Rocky Mountain spotted fever.

Public health and animal health officials used long-lasting tick collars on dogs, regular pesticide applications around homes, community education, and provided free spay and neuter clinics for dogs.

After only 4 months, 99% of dogs were tick-free in the community. The number of people who had Rocky Mountain spotted fever went down in the community.
Questions?

- E-mail: vbzd@azdhs.gov
- Phone: 602-364-3676
Coconino County and the ADHS One Health Toolkit

Matthew Maurer, MPH
Epidemiologist
Coconino County Health and Human Services
12/12/19
Location of Coconino County
Location of Coconino County
Zoonotic Diseases in Coconino County
Coconino County Plague Positive Environmental Sites

Number of Positive Sites

- 2010: 0
- 2011: 1
- 2012: 2
- 2013: 3
- 2014: 2
- 2015: 1
- 2016: 5
- 2017: 4
- 2018: 3
- 2019: 2

(Number of Positive Sites)
FIGURE 1. COMMUNICATION & COLLABORATION AT WORK: PLAGUE

Local Provider:
- Symptomatic person
- Notify health department

Local Health Department:
- Starts investigation
- Coordinates testing at ASPHL for both human & animal tissues if applicable

ADHS:
- Notifies partners
- Maintain database and resources regarding case activities

ASPHL:
- Test samples from individual & animal tissues
- Report test results

Arizona Game & Fish:
- Field surveillance for wildlife mortality events & fleas
- Distribute educational materials regarding wildlife risk

NPS or USFW:
- Distribute information safety recommendations for animals & pet owners

AzVMA:
- Provide education to veterinary community

Exposed people receive treatment and/or prophylaxis
- Notify people potentially exposed

Stars indicate points of notification to partners.
Coconino County Confirmed Rabies in Wild/Feral Animals 2015-2019

<table>
<thead>
<tr>
<th>Year</th>
<th>Foxes</th>
<th>Bats</th>
<th>Coyote</th>
<th>Raccoon</th>
<th>Javelina</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2016</td>
<td>2</td>
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<td>2017</td>
<td>3</td>
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<tr>
<td>2018</td>
<td>28</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2019</td>
<td>9</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</tbody>
</table>

- 2018: 28 Foxes, 4 Bats, 1 Coyote, 1 Raccoon, 1 Javelina
- 2019: 9 Foxes, 9 Skunks, 1 Coyote, 1 Javelina

- 2015-2019 (YTD 12/5): 35 cases
- 2019 (YTD 12/5): 26 cases
Rabies Flow Chart from the ADHS One Health Toolkit
Emerging Infection – Onchocerca lupi
One Health Partnerships
Questions?

- Email: mmaurer@coconino.az.gov
- Phone: 928-679-7332
Discussion

Please enter your questions or comments in to the Q&A box
Thank you for joining today’s webinar!

Contact us with questions

Email: infectiousdiseases@naccho.org