Rabies and Bite reporting for Los Angeles County Animal Control staff

Los Angeles County Department of Public Health
Veterinary Public Health Program
Gaël Lamielle, DVM, MPH, Dipl. ACVPM
There is no commercial support for this presentation

None of the speakers or planners for this presentation have disclosed any financial interests related to the content of the presentation
1. Rabies
   - What it is
   - Data in Los Angeles County

2. Bite reporting
   - Reporting process
   - What Public Health does with reports

3. Quarantine & testing
   - Quarantine procedures
   - Testing for rabies
Zoonotic diseases

• **What are zoonotic diseases (zoonoses)?**
  – Diseases shared between animals and people

• **Any examples?**
  – 60% of infectious diseases of humans came from animals
What is rabies?

• Background
  – Virus
  – Must be inside a person/animal’s cell to survive
  – Present worldwide ➔ ≈ 55 000 dead/year globally
  – Each animal species has own strain (e.g. dog strain, bat strain,...)

• Species affected
  – Humans
  – Domestic animals: dogs, cats, livestock, horses, ferrets, etc...
  – Wildlife: bats, skunks, raccoons, opossums, foxes, etc...

ANY MAMMAL CAN GET RABIES
What are symptoms of rabies?

• **Animals**
  – At 1\textsuperscript{st} can look like *any disease*
  – Progresses to neurologic signs:
    • Lack of coordination, salivation, seizures
    • Abnormal behavior – “dumb” vs “furious” rabies
    • Biting at inanimate objects

• **Humans**
  – Similar to animals
  – Neurologic: difficulty swallowing, seizures, coma, death

• **Once symptoms of rabies occur...**
  – Rapidly progressive
  – 100% fatal in animals and people
How is rabies transmitted?

- **Animal bites**
  - Virus is present in saliva
  - Bite = anytime tooth break the skin
  - Must go **through** the skin to cause disease

- **Human-human transmission**
  - Organ transplant
  - Direct transmission never seen

- **“Exposure” to bat**
  - Bat bites are very small – no marks
  - ANY CONTACT with bats may be an exposure
    - E.g. A bat found inside a home
    - May lead to unnoticed bite
    - More investigation needed

---

- Could you recognize this as a bat bite?
- Would a bite like this one wake you up if you were sleeping?
What happens to the virus after a bite?

1. Bite from a rabid animal
   ↓
2. Virus replicating in muscle
   (days to weeks)
   ↓
3. Virus enters a nerve & travels to brain
   (weeks to months)
   ↓
4. Virus enters brain & symptoms start to appear
   ↓
5. Virus enters saliva & transmission can occur

SYMPTOMS OF RABIES MAY START WEEKS TO YEARS AFTER A BITE
• Once symptoms start, **there is no cure for rabies**

• **BEFORE A BITE – Rabies vaccination**
  – Protects people in case they get bitten by a rabid animal
  – Recommended for people working with animals

• **AFTER A BITE – Post exposure prophylaxis (PEP)**
  – Given right away, **before** symptoms occur
  – Boosts body to fight virus on its own before it enters brain
  – Consists of:
    • Rabies antibodies (RIG) into the bite wound
    • 4-5 vaccine injections at: Day 0, Day 3, Day 7, Day 14
  – Washing wound with soap/water: ↓ numbers of virus in the wound

**PEOPLE EXPOSED TO RABIES MUST BE TREATED IMMEDIATELY**
Getting rabies PEP – As soon as possible!

1. Bite from a rabid animal
   ↓
2. Virus replicating in muscle (days to weeks)
   ↓
3. Virus enters a nerve & travels to brain (weeks to months)
   ↓
4. Virus enters brain & symptoms start to appear
   ↓
5. Virus enters saliva & transmission can occur (animals)
In the past:
- Dog rabies rampant in LA Co. in the 1920’s
- Eradicated because of animal control efforts
  - Dog licensing
  - Mandatory rabies vaccination

Today, local risk of rabies limited to:
- Bats
- Bites from sick (neurologic animals)
- Bites from animals abroad

Currently, LA Co. has no established terrestrial rabies
**Rabies in LA Co. – Geographical factors**

**RABIES positive:** 203 bats; 1 skunk

**RABIES positive:** 38 bats (as of 12/2016)

**FIRST rabid skunk found in LA Co. since 1979:** Lab identifies BAT strain of rabies

Bat transmitted rabies to the skunk

**More 2016 stats:**
- 56% found in private homes
- 31% found INDOORS (6 homes, 1 business)
- 13 people, 10 pets considered exposed
Rabies in LA Co. – Temporal factors

Rabid bats detected in Los Angeles County, 1961-2015

- Last locally-acquired rabies case in...
  - Dogs → 1966 (1978, faulty vaccine)
  - Cats → 1960s
  - Raccoons → 1973
  - Opossum → 1944
  - Skunk strain → 1979
  - Human → 1949
  - Bats → Every year

Big increase in number of rabid bats in past 5 years

Median Number of rabid bats per month, Los Angeles County 2011-2015

- Dogs → 1966 (1978, faulty vaccine)
- Cats → 1960s
- Raccoons → 1973
- Opossum → 1944
- Skunk strain → 1979
- Human → 1949
- Bats → Every year
Rabies in the US

• Different animals can carry rabies in other parts of US
  – Rabies risk from animal bites depends on where bite occurred
  – Animal movements may introduce terrestrial rabies locally

Terrestrial rabies risk in US (CDC)
Bat rabies is present everywhere

LOCAL RABIES RISK MAY CHANGE OVER TIME – STAY VIGILANT
Local rabies risk

Rabbits & rodents (rats, squirrels, mice, etc) can get rabies but they don’t transmit it to people.
What YOU need to know

• Any mammal can get rabies
• Animals/people with clinical rabies will not get better
• Symptoms of rabies may start weeks to years after a bite
• People exposed to rabies must be treated immediately
• Currently, LA County has no established terrestrial rabies
• Local rabies risk may change over time – Stay vigilant!
• Bat rabies is present in LA County & occurs every year
PART 2:

Bite reporting
Bite reporting

• Why we do it
  – Goal: prevent rabies in people and pets
  – California Law

• Who does it
  – Law says: everyone with knowledge of a bite

• How it must be done
  – Must be legible, complete
  – Animal owner info included (if not stray)
  – Bats must have contact information of person who found it
  – Report to Vet Public Health as soon as possible
Bite reporting – 3 ways to do it

• Fax copy of report
  – Fax number: 213-481-2375

• Email copy of report
  – vet@ph.lacounty.gov

• Fill out online report
  – http://publichealth.lacounty.gov/vet/
Reportable vs. Non-reportable

**REPORTABLE**

• Bites to humans, from:
  – Dogs
  – Cats
  – Wildlife
  – Horse
  – Any mammal... (except if listed in next column)

• Bites to pets from:
  – Wildlife

**NOT REPORTABLE**

• Bites to humans, from:
  – Rodents (mice, rats, squirrels,...)
  – Rabbits
  – Non-mammals: birds, snakes, etc

• Bites between domestic animals:
  – Dogs vs dog
  – Cat vs cat
  – Dog vs cat

• Scratches** from animals

*A bite is ANYTIME teeth break the skin

**scratch is from paw ONLY
What VPH does with bite reports

• VPH follows up with EVERY animal bite received
  – Animal Sanitation Inspectors contact each animal owner
  – If necessary, vets contact bite victim about rabies PEP

• Biting dogs/cats must be quarantined
  – Usually → At home
  – Sometimes → Shelter, vet clinic

• Incomplete/illegible bite reports:
  – Increase risk of rabies in bite victims
Let’s fill out a bite report together

• **Scenario 1:** A child riding a bike was bitten by the neighbor’s dog. The neighbor's gate was left open and the dog ran out to bite the victim and then ran right back to his yard.
Let’s fill out a bite report together

• **Step 1:** Choose a form
**Step 2:** Victim information

<table>
<thead>
<tr>
<th><strong>PERSON BITTEN</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Victim name (last and first)</strong></td>
</tr>
<tr>
<td><strong>Victim phone number</strong></td>
</tr>
<tr>
<td><strong>Date bitten</strong></td>
</tr>
<tr>
<td><strong>How bite occurred</strong></td>
</tr>
<tr>
<td><strong>Date Treated</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Type of treatment</strong></td>
</tr>
</tbody>
</table>

**ANIMAL**
**Step 3: Animal information**

<table>
<thead>
<tr>
<th>ANIMAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner Name (last and first)</td>
</tr>
<tr>
<td>Phone Number</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Animal Impounded</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Current Rabies Vaccination?</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Animal licensed?</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Animal Died?</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Specimen prepared and ready for rabies testing?</td>
</tr>
<tr>
<td>Remarks:</td>
</tr>
</tbody>
</table>

**Agency taking report:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Faxed:</th>
<th>Yes</th>
<th>No</th>
<th>Initials</th>
</tr>
</thead>
</table>

*Form (H-1561) agencies 2015*
Let’s fill out a bite report together

- **Scenario 2:** A man wakes up in the morning and finds a bat inside his bedroom. The bat is hanging on the bedroom door and hisses at him when he gets close. The man has 2 indoor-only cats that usually sleep on his bed. This morning the cats don’t look very interested in the bat and there is no evidence of bite mark on them.
Let’s fill out a bite report together

• **Step 1:** Choose a form
Let’s fill out a bite report together

VETERINARY PUBLIC HEALTH-RABIES CONTROL PROGRAM

TEL: (213)-989-7960 or (877) 747-2243 FAX: (213) 481-2375

publichealth.lacounty.gov/vet

BAT SUBMISSION FORM

INSTRUCTION:

- All bats submitted to animal shelters must be reported to the Health Department immediately.
- Please FAX all information to (213) 481-2375
- Fill out as much information as possible.
- DO NOT DECAPITATE specimen
- DO NOT FREEZE specimen.

1. Bat Impound # __________________ Date __________________

Shelter ___________________________ ACO __________________

Phone Number ______________________

2. Name of person who captured bat __________________

3. Name of owner/business where bat was found __________________

4. Address (where found) __________________

5. Phone Number of premise __________________

6. Capture location of bat:

- Home (circle one: INDOORS or OUTDOORS)
- Garage
- Business (circle one: INDOORS or OUTDOORS)
- Public place (circle one: INDOORS or OUTDOORS)
- Other

7. Time of capture or pickup __________________

8. Method used to capture bat __________________

9. State of bat when captured (check one) □ Live □ Dead

10. Did any people or animals have potential physical contact with bat? □ Yes □ No

Explain: __________________

Names: __________________ Addresses: __________________ Phone: __________________

Very important!
How are these reports?

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where did the bite occur?</td>
<td></td>
</tr>
<tr>
<td>How did the bite occur?</td>
<td></td>
</tr>
<tr>
<td>Who is the owner?</td>
<td></td>
</tr>
<tr>
<td>What animal species?</td>
<td></td>
</tr>
</tbody>
</table>

**Person Bitten**

- Victim name (last and first)
- Date of birth
- Address (number, street, city and zip)
- Victim phone number
- Reported by
- Reported phone number
- Date bitten
- Time bitten
- Address where bitten (if no address make sure to put city and zip code)
- Body location bitten
- How bite occurred (explain)
- Date treated: 8/24/15
- Hospitalized: Yes
- Type of treatment: Urgent Care
- Treated by: [Redacted]
- Phone number: [Redacted]
- Antibiotics given:

**Animal**

- Owner Name (last and first)
- Address (number, street city and zip)
- Phone number
- Type of animal
- Description of animal (sex, color)
- Animal implanted: No
- If yes, what shelter
- Remarks

**Facility Taking Report:**

- Date: 9/24/15
- Faxed: Yes
- Initials
How are these bat reports?

This bat was POSITIVE. Who do we contact?

Was this bat alive? Dead?
Was there any exposure to pets/people?
Do we need rush testing?
How reporting bites helps the public

1. **Protects people from rabies**
   - Low rabies risk from local dogs/cats **does not mean no risk**
     - Bats can give rabies to local dogs & cats (see skunk from 2014)
   - High rabies risk from bats
   - Rabies is deadly once symptoms start
   - We have a short window to administer life-saving treatment

2. **Understand bites in LA Co.**
   - Data on who, when, where & how people get bitten
   - Find ways to reduce the numbers of bites
Local bite data – Number of reports

VPH receives and follows up on over 9,000 bites each year...
And it’s going up!

Animal Control contributes to almost half of the bite reports received.

Trend of Animal Bites in Los Angeles County: 2005-14

Table 2 Who Reported Animal Bites in Los Angeles County, 2009

<table>
<thead>
<tr>
<th>Reporting Source</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital/Medical</td>
<td>46%</td>
</tr>
<tr>
<td><strong>Animal Control</strong></td>
<td>45%</td>
</tr>
<tr>
<td>Vet Clinic/Hospital</td>
<td>3%</td>
</tr>
<tr>
<td>Private Party</td>
<td>2%</td>
</tr>
<tr>
<td>School</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
</tr>
</tbody>
</table>
Children ages 5-9 are the most common age group bitten by pets.
PART 3:

Bite quarantines & rabies testing

vet@ph.lacounty.gov
Why are quarantines done?
– 2 scenarios

<table>
<thead>
<tr>
<th>1. Animal bites to humans</th>
<th>2. Pets bitten by wildlife</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure the biting animal did not shed rabies (in saliva) at the time of the bite</td>
<td>Monitor the pet victim of the bite for signs of rabies down the line</td>
</tr>
</tbody>
</table>
Where can quarantines be done?

- Can bite quarantines be done...
  - ...at the pet’s home? **YES**
  - ...at the shelter? **YES**
  - ...at a vet clinic? **YES**

- Is it ok to transfer a quarantine...
  - ...from the pet’s home to a shelter? **YES**
  - ...from a shelter to a vet clinic? **YES** – with VPH approval
  - ...from a shelter to a pet’s home? **NO**

- Transferring a quarantine
  - Bite quarantines CANNOT be transferred from a place of **higher security** to lower security

Shelter (higher security) **→** Home (lower security)
Quiz: When does a quarantine start

• When does a bite quarantine start?
  – When you receive a quarantine notice from VPH  **NO**
  – Immediately after the bite  **YES**
  – On the next business day  **NO**

**Bite quarantine start date**

Quarantines start **IMMEDIATELY** after a bite

Receiving and processing bite reports may take time
Quiz: How long are quarantines?

• Bite quarantines last:
  – 10 days? YES
  – 30 days? YES 
  – 180 days? YES

• Note – Quarantine lengths are expressed as **FULL** days
  – E.g. If a dog bite occurred on 10/08/2015 at 11am → quarantine lasts until 10/19/2015

10/08/2015 does not count as full quarantine day
**PERSON bitten by animal**

- **What is the biting animal’s species?**
  - Dog, cat, ferret
  - Horse, livestock
  - Wildlife

- **Is animal vaccinated?**
  - **NO**
    - 10 days
  - **YES**
    - 30 days

- **Test** (if available)

**PET bitten by animal**

- **What is the biting animal’s species?**
  - Wildlife
  - Domestic animal

- **Is pet vaccinated?**
  - **NO**
    - Wildlife must be tested if available
      - NO QUARANTINE: bites from small rodents (squirrels, mice, rats), or rabbits
      - If negative for rabies = no quarantine needed
    - 180 days
  - **YES**
    - 30 days

**WHAT TO REPORT**

- Not reportable
  - No quarantine

Wildlife must be tested if available

(If negative for rabies = no quarantine needed)
What does VPH do with quarantines

• **Home quarantines**
  – VPH inspectors contact biting animal owner
  – Implement quarantine through phone/mail (low risk)

• **Shelter quarantines**
  – Quarantines may be done at shelter if:
    • Bite occurred at shelter
    • Animal was confiscated by Animal Control
  – VPH visually inspects quarantines at shelter 2x/week
**When quarantine STARTS**

1. Check animal status: **OK**
   - **By:** VPH and/or shelter staff

2. Get Quarantine Notice
   - **By:** VPH

3. Put up Red Sign on animal’s kennel
   - **By:** VPH and/or shelter staff

**When quarantine ENDS**

1. Check animal status: **OK**
   - **By:** VPH and/or shelter staff

2. Get Quarantine Release Notice
   - **By:** VPH

3. Remove Red Sign from animal’s kennel & add sticker
   - **By:** VPH and/or shelter staff
• If any of the following occurs:
  
  – Animal under quarantine is **sick**
  
  – Animal under quarantine is **euthanized/dies**
  
  – Animal under quarantine is **impounded**

Contact VPH as soon as possible

213-989-7060
• What needs to be tested for rabies:

  – *Law*: *any* animal under quarantine that is *euthanized/dies*

  – *Wildlife that bit* a person/pet

  – *Bats* found:
    • In people’s homes
    • Dead/dying on the ground
    • With potential contact to pets & people
    • With abnormal behavior (e.g. out during the day, on the ground,...)
• Tracking down the person bitten by animal is key to protecting them against rabies

• Information needed for follow-up:
  – Name & contact of people exposed to animal
  – Address where animal was found
  – Any exposure to people/pets

• From best to worst:
  – Ideal → Copy of the reporting form attached to specimen
  – Not OK → No or illegible paperwork with specimen, wrong impound form
Untestable animals

- Animals may be untestable if:
  - Not refrigerated
  - Decomposed
  - Lost
  - Not captured

If a rabies specimen cannot be tested – we have to assume it was POSITIVE

Anyone potentially bitten by it will need PEP
Preparing a specimen for rabies

STEP 1  Dogs/cats/wildlife must be decapitated (full bats ok)

STEP 2  Specimen must be placed in absorbent paper and double-bagged
  • No blood should be visible through the bag

STEP 3  Place appropriate paperwork with specimen

STEP 4  Place specimen in VPH fridge (not in freezer)
  • Do not place in other fridges (e.g. where food/vaccines are stored)
  • Check fridge temperature

STEP 5  Call/fax/email VPH for pick up
  • If you notice a specimen in the fridge for a few days, give us a heads up
  • Phone: 213-989-7060, Fax: 213-481-2375
  • Email: vet@ph.lacounty.gov
What do you think of this specimen?

Blood showing!

Not double-bagged!
What do you think of this specimen?

- Not double-bagged!
- No absorbent paper!
- No paperwork/submission/impound form!
What do you think of this specimen?

- Specimen wrapped in absorbent paper
- Specimen double-bagged
- Reporting form is attached
We want your input

- What can we do to improve VPH’s collaboration with animal shelters?
  - What is working?
  - What is not working?
  - Tips for better communication/workflow?

Let us know! Talk to:

- VPH Inspectors
- Gaël Lamielle, Professional Collaboration Veterinarian

213-989-7060; vet@ph.lacounty.gov
Questions?

- Interested in learning more? We can come back and talk about many subjects!
  - Animal diseases around you (parvo, distemper, etc)!
  - West Nile virus in birds!
  - Animal importations!
  - And much more...

- Feel free to contact us with any question!