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IDAHO DEPARTMENT OF
HEALTH & WELFARE

2013 Rabies Overview

Lisa Smith

Idaho Bureau of Laboratories (IBL) is the only clinical lab in the state of Idaho that performs rabies testing. Brain tissue is the preferred specimen because rabies virus is present in nervous tissue, not blood like other viruses.¹ Rabies is detected by performing a Direct Fluorescent Antibody (DFA) stain on the brain tissue of an implicated animal. When rabies virus is detected by the DFA test, it is visualized as fluorescent green pin-point areas where rabies antigen is located in the brain tissue smear.

IBL receives the majority of rabies samples in the summer and fall. Rabies testing is a partnership among IBL, public health districts, veterinarians, state epidemiologists, the Idaho Departments of Agriculture and Fish and

Game, and the general public. Testing is essential when there is an exposure or possible exposure to a human from an animal suspected to be infected with rabies, as untreated rabies infections are almost always fatal.

When an individual has been exposed to a rabid animal, the post-exposure prophylaxis (PEP) includes a series of 4 rabies vaccines and a rabies immune globulin injection over a 14 day period. If the animal tests negative for rabies after PEP has begun, the vaccine series and immune globulin can be discontinued. From 2010 to 2013, rabies testing in cases with a human exposure has eliminated or reduced the use of PEP for over 1,100 individuals. This represents a significant savings

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Rare Bat to Idaho Tested for Rabies

Kari Getz

In September, Idaho Bureau of Laboratories (IBL) received a bat that was recognized as an unusual species to Idaho. The most notable feature was a tail that was not entirely encompassed by the flight membrane; this “mouse-like” tail protruded beyond the membrane



Figure 1. The Brazilian free-tailed bat features a tail that is not entirely encompassed by the flight membrane.

(Figure 1). Another interesting characteristic of this bat are the long hairs on its toes, which help it to judge flight speed and turbulence. IBL staff consulted with bat identification experts at the Idaho Department of Fish and Game (IDFG) Wildlife Health Laboratory who identified the

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Clinical Forum
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2013/2014 Influenza Season Update

Lisa Smith

As a World Health Organization (WHO) Collaborating Laboratory, Idaho Bureau of Laboratories (IBL) participates in a global influenza surveillance program. The testing data generated by IBL and other public health laboratories impacts all facets of influenza surveillance from identifying the viruses circulating in Idaho, to informing vaccine strain selection, supporting vaccine efficacy studies, supplying isolates for antigenic characterization, and the timely detection of antiviral resistance. IBL typically receives several hundred samples per year and works in cooperation with state and local epidemiologists to monitor influenza activity year-round.

A:H3 and 50 2009 A:H1N1. Specimens have been received from 13 counties (not all specimens received included this information).

Under normal circumstances, IBL will screen samples by PCR for Influenza A and B then subtype if Influenza A RNA is detected. If no Influenza nucleic acid is detected for Influenza A and B, then a viral culture will be typically be performed. If growth is detected in the viral culture, then subsequent testing for Adenovirus, RSV and Parainfluenza virus 1, 2 or 3 will be performed.

IBL is again requesting provider participation in this program. Please send specimens from patients who have been tested using a rapid flu test (regardless of test result) or unscreened samples for surveillance testing at IBL. Respiratory samples may be sent in Viral Transport Media provided by IBL free of charge. Refer to the website (www.statelab.idaho.gov) to order influenza virus kits and to access the *Influenza (seasonal and novel) Test Request Form*. The *Online Order Request Form* is located on the home page (Figure 1), and the test request form can be accessed on the Clinical Microbiology page (Figure 2). Additionally, IBL will provide a FedEx account number to ship samples to IBL for testing upon request.

IBL would like to thank providers for their contribution to influenza surveillance in Idaho. For questions, please contact Lisa Smith at smithl2@dhw.idaho.gov or 208-334-2235 extension 228.

Bureau Guide

The Sampling and Submission Guide is currently under revision. Please call 208-334-2235 for more information.

Fees Effective July 1, 2012

IBL Supply Request

- Online ordering
- Print and fax order form

IBL Web Portal Access

- Web portal

IBL Amended Information

- Amended Information for Submitted Samples form

Figure 1. Influenza virus kits can be ordered from the IBL website free of charge.

Submission Forms and Information

IBL maintains strict guidelines regarding receipt and processing of samples. Clinical microbiology samples are accepted only from physicians, health clinics, and district health departments.

Before submitting a sample, it is highly recommended that you consult the Bureau's *Sampling and Submission Guide*. There you will find a complete list of tests that are performed at IBL as well as information on sample collection, storage, handling procedures, and rejection criteria. Samples must be received in appropriate packaging.

Samples must be accompanied by the proper submission form for the test requested. Links to sample submission forms can be found below. These forms may be printed and used for submission. If the form you need is not listed here or if you are unsure of the form you need, please call 208-334-2235.

- Bacteriology Test Request Form
- B. pertussis Test Request Form
 - B. pertussis Collection Instructions
- Clostridium botulinum Toxin (see LRN-B page)
- Enteric Disease Test Request Form
- Molecular Strain Typing Test Request Form
- Parasitology Test Request Form
- Shiga toxin-producing E. coli Test Request Form
- Supply Request Form
- Tuberculosis Test Request Form
 - Patient Directions for Sputum Collection, English
 - Patient Directions for Sputum Collection, Spanish
 - Submitting TB Sputum Samples to State Lab, for providers
- National Jewish Form
- Virology/Serology
 - Virology/Serology Test Request Form
 - Influenza (seasonal and novel) Test Request Form
 - Rabies Test Request Form
 - New HIV Testing Algorithm
 - West Nile Virus Interpretation of Test Results
 - Syphilis Interpretation Guidelines

Figure 2. The Influenza Test Request Form can be found on the IBL website's Clinical Microbiology page.

Last season (2012/2013) the flu test volume was high in Idaho and the circulating subtypes mirrored those at the national level. The most commonly identified subtypes in the 2012-13 season were Influenza A H3, Influenza A 2009 H1N1, and Influenza B. Interestingly, Influenza A was predominant early in the season and B became more abundant in the second half of the season. For this season, as of December 19, 2013,

there have been 70 specimens (some of them known to be positive on rapid flu tests) tested at IBL with 51 positives: one

2013 Rabies Overview

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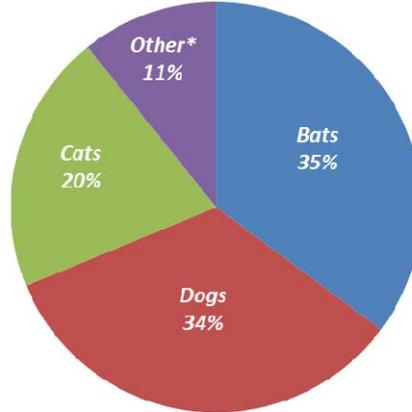
in rabies vaccine and immune globulin costs.

Although many different types of animals have been tested for rabies from 2010 through 2013, only bats have been positive for rabies. As part of our testing process, IBL identifies the genus and species of positive bats, if possible. Recently, the most common rabid bats have been Silver Haired, Little Brown, and Big Brown bats. Last year we received a Spotted Bat, which we don't see many of (only 1 in the last 4 years) and more recently we identified a Brazilian Free-tailed bat, also called a Mexican Free-tailed bat (see accompanying article). It is rare for that species of bat to be found this far north.

The following rabies testing stats in the table below have been compiled to include data for calendar years 2010 through 2013. There have been more positive bats this year than in the previous 3 years. It is unknown if the increase is due to an actual increase in rabies in the bat population or a more cognizant public and medical professionals recognizing the importance of testing any bats that come into contact with humans or animals.

If you suspect a rabies exposure, you may attempt to collect the bat if it can be done safely

Animals Received for Rabies Testing by Type from 2010 to 2013



* Other includes boar, bobcat, cow, coyote, deer, donkey, ferret, fox, goat, gopher, hamster, horse, kinkajou, llama, marmot, mink, mole, mouse, muskrat, pine marten, porcupine, rabbit, raccoon, rat, rock chuck, sheep, skunk, squirrel, sugar glider, vole, weasel and wolf.

Figure 1. 35% of animals tested for rabies from 2010 to 2013 were bats. Other mammals tested include dogs (34% of total animals), cats (20%), and other wild and domestic animals (11%, see chart for more information). Terrestrial (non-bat) rabies in Idaho is rare and is usually found to be a bat strain of rabies infecting a terrestrial species. IBL has not reported positive rabies on a terrestrial animal since before 2005.

or contact your local public health district to arrange for collection and testing. For other animals, local animal control officials should be contacted. Proper sample collection must not destroy the brain tissue of the animal or it will not be suitable for testing. IBL thanks its Idaho partners for their contribution to this essential and lifesaving testing.

References

Centers for Disease Control and Prevention (2011). *Rabies Direct Fluorescent Antibody Test*. Retrieved October 9, 2013, from http://www.cdc.gov/rabies/diagnosis/direct_fluorescent_antibody.html

Rabies Testing at IBL, 2010-2013

Year	Total Received for Testing	Positives	Bats	Human Exposure, Negative for Rabies	Total Injections Avoided
2010	449	11	131	351	1755
2011	361	8	100	294	1470
2012	387	23	147	280	1400
2013	433	27	197	279	1395
Total	1630	69	575	1204	6020

Sentinel Lab Messages Drills

Wendy Loumeau

**Intermediate Stop Time 1:
50% lab response**

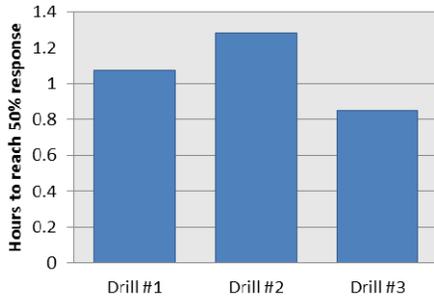


Figure 1. The *Intermediate Stop Time 1* (time it took for at least 50% of sentinel laboratories to acknowledge receipt of the message) ranged from 51 minutes to 77 minutes.

**Intermediate Stop Time 2:
90% lab response**

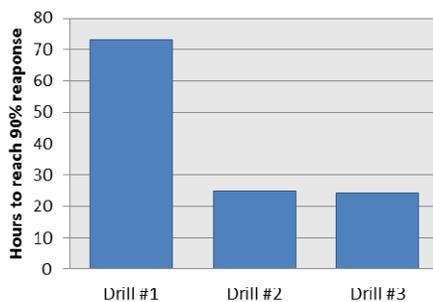


Figure 2. The *Intermediate Stop Time 2* (time it took for at least 90% of sentinel laboratories to acknowledge receipt of the message) ranged from about 24 hours to 73 hours.

Stop Time: 100% lab response

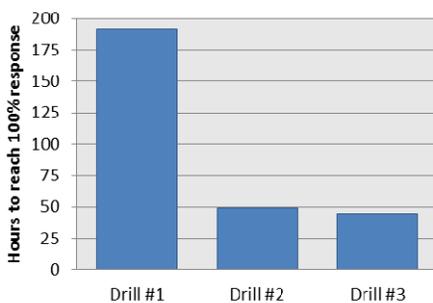


Figure 3. The *Stop Time* (time the last sentinel laboratory acknowledged receipt of the message) ranged from about 2 to 8 days.

The Centers for Disease Control and Prevention (CDC) Public Health Emergency Preparedness (PHEP) cooperative agreement requires a PHEP-funded Laboratory Response Network-Biological Threat (LRN-B) reference laboratory to test rapid communications with sentinel laboratories. This performance measure drill must be evaluated at least once per fiscal year (July 1 – June 30) by Idaho Bureau of Laboratories (IBL) to meet funding requirements.

The intent of this drill is to ensure that PHEP-funded LRN laboratories and sentinel laboratories are able to rapidly communicate important information with one another. This enhances the ability to recognize and respond to potential public health emergencies in a timely manner. For example, this message system was used in 2012 to communicate the CDC and Food and Drug Administration multi-state investigation of fungal meningitis among patients who received an epidural steroid injection. IBL communicates messages to the Idaho Sentinel Laboratory Network (ISLN) primarily by e-mail but will send messages via fax by request.

The sentinel lab messages drill is measured by the *Start Time* (date and time the LRN-B laboratory sends an urgent message to the first sentinel clinical laboratory), *Intermediate Stop Time 1* (date and time at least 50% of sentinel clinical laboratories acknowledged receipt of the message), *Intermediate Stop Time 2* (date and time at least 90% of sentinel clinical laboratories acknowledged receipt of the message), and *Stop Time* (date and time the last sentinel clinical laboratory acknowledged receipt of the message).

IBL has completed three drills between 2012 and 2013 (see Figures 1-3 for results). The drills occurred over time in the order of #1, #2, and #3. These drills have provided IBL with valuable feedback on improving communication with ISLN laboratories. As a result, a few changes have been made to the procedure for sending urgent messages to sentinel laboratories. For example, if a sentinel laboratory has not acknowledged receipt of an urgent message within 24 hours, the same message will be sent using an alternate mode of communication (e.g., fax). If a sentinel laboratory has not acknowledged receipt of the message within 48 hours, IBL will contact that laboratory to ensure the message was received and identify barriers to receiving and responding to the message.

IBL appreciates the participation and prompt response of ISLN laboratories when conducting these drills and welcomes your feedback to improve this process; contact Wendy Loumeau at loumeauw@dhw.idaho.gov. We look forward to improving these stop times even more this fiscal year!

Rare Bat to Idaho

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bat as a Mexican free-tailed bat, also known as a Brazilian free-tailed bat.

Although the largest populations of these bats are found in Mexico and Texas, some colonies reside in Southern Oregon, Utah, California and Nevada. IDFG staff stated that this is only the second time this species of bat has been recorded in Idaho. Although it could have hitched a ride on a truck, it may have migrated this far, as it has physical features that have adapted it very well to long distance flight. This bat can fly up to 47 mph in open spaces and consumes 200-600 insects per night, with its preference being a moth that is particularly harmful to agricultural crops. Congress Bridge in Austin, Texas is a well-known home to 1.5 million Brazilian free-tailed bats, and they are observed flying from under the bridge each evening during the months

of March to November (Figure 2).

The bat was submitted to IBL for rabies testing after flying inside a public building. It was captured and euthanized with ether prior to submission to IBL. The bat tested negative for rabies, so IDFG plans to turn it over to a museum for display.



Figure 2. Brazilian free-tailed bats may be observed flying from Congress Bridge in Austin, Texas at dusk.

References

Image from Potrowl, P. (2008). *Emergence of the bats of the Congress Avenue Bridge in Austin, Texas at dusk.* [photograph]. Retrieved from http://en.wikipedia.org/wiki/File:Austin_-_bats_watching_3.jpg

Word Scramble

answers on page 6

1. BTA

2. SEARIB

3. YTUPESB

4. NAEFNUZIL

5. AOXYPLISRHP

6. SNETENLI ABL

13. ARNTLVIAI TIERENASSC

14. MICNEXA ERFE LAIDTE TBA

15. OBRINCLLTAAOG LORTBYRAOA

7. IUENSALELRCV

8. SEEPRERSNAPD

9. MATUNCIOICONM

10. RSSNGOCE GDBIER

11. TIZARROCNACAEHIT

12. LGCBLAOOII AETRTH

To be added
or removed
from the
Clinical Forum
email list:

statelab@dhw.idaho.gov

Solution to Word Scramble

1. BAT
2. RABIES
3. SUBTYPE
4. INFLUENZA
5. PROPHYLAXIS
6. SENTINEL LAB
7. SURVEILLANCE
8. PREPAREDNESS
9. COMMUNICATION
10. CONGRESS BRIDGE
11. CHARACTERIZATION
12. BIOLOGICAL THREAT
13. ANTIVIRAL RESISTANCE
14. MEXICAN FREE-TAILED BAT
15. COLLABORATING LABORATORY

Upcoming Teleconferences

January 21, 2014; 11:00 am Mountain Time
 “The Continuing Threat of H5N1, H7N9 Influenza and MERS CoV”

January 28, 2014; 11:00 am Mountain Time
 “Verification/Validation of Non-FDA Approved Tests”

February 13, 2014; 11:00 am Mountain Time
 “CLIA Competency Assessment”

February 18, 2014; 11:00 am Mountain Time
 “Impact of MALDI-TOF and Antibiotic Stewardship on Patient Care”

March 4, 2014; 11:00 am Mountain Time
 “Case Presentations in Infectious Diseases and Microbiology”

March 6, 2014; 11:00 am Mountain Time
 “Quality Indicators for Preanalytic & Postanalytic Lab Processes”

Contact Wendy Loumeau at loumeauw@dhw.idaho.gov to access archived programs.

HAPPY HOLIDAYS FROM THE IBL MICROBIOLOGY AND EMERGENCY PREPAREDNESS SECTIONS



Back row: Christopher Ball, Wendy Loumeau, Vonnita Barton

Middle row: Dan Rousselle, Michael Stevenson, Robert Voermans, Steve Gregoire, Justin Grant

Front row: Amanda Bruesch, Kari Getz, Ashley Machado, Ashley McCartney, Lisa Smith, Cara Rubel, Rachel Beukelman