WVDL Quarterly Newsletter - Summer, 2017

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Wisconsin Veterinary Diagnostic Laboratory
UNIVERSITY OF WISCONSIN-MADISON

# Newsletter - Summer 2017

## Message From The Director

**Friends and Colleagues,**

**We hope all is well with you as summer is finally upon us. We are pleased to share news from our Madison and Barron laboratories and invite you to contact us at any time with questions.**

**Our annual Summer Bull Stud and Bovine Genetics Export meeting is set for Thursday, July 13th. This meeting is free of charge and is a collaborative effort of WVDL, USDA-APHIS, The Wisconsin Department of Agriculture, Trade and Consumer Protection, and our Clients to facilitate regulatory testing needs and trouble shoot emerging issues in the industry. Please contact us if you are interested in attending.**

**On October 1st, 2017 WVDL will be increasing prices for diagnostic testing for the first time since 2013. For the majority of tests, we will be implementing a 4% increase. Not all tests are affected and shipping prices will remain unchanged. Specifics will be sent in a separate communication from WVDL and repeated prior to the change this Fall.**

**Best wishes and enjoy your summer,**

**Phil Bochsler, DVM, PhD, DACVP**
**Director, Wisconsin Veterinary Diagnostic Laboratory**

## Salmonellosis Risk Increases With Rising Temps

***Situational Awareness about Multidrug Resistant (MDR) Salmonella Heidelberg***

The WVDL continues to work with other state and federal entities to understand and contain the transmission of MDR *Salmonella* serotype Heidelberg. There are no reported human cases in Wisconsin this year, but 11 new sites and 2 previous sites have confirmed infections from MDR *Salmonella* ser. Heidelberg. Currently, we have seen twice as many MDR *Salmonella* ser. Heidelberg cases than this time last year. All isolates have been analyzed at the Wisconsin State Laboratory of Hygiene (WSLH), which have confirmed two variants of the MDR *Salmonella* ser. Heidelberg. The most prominent variant causes high morbidity and currently is the only strain seen in Wisconsin. A second variant has little to no mortality associated with it. However, both strains are zoonotic and multidrug resistant. *Additionally, we have isolated the high morbidity strain from goats.* Please use the following links for more information about MDR *Salmonella* ser. Heidelberg related to both human and animal infections.

- Biosecurity Resources: https://datcp.wi.gov/Pages/Programs_Services/BasicBiosecurity.aspx
- *Salmonella* Biosecurity: https://datcp.wi.gov/Documents/BiosecuritySalmonellaCattle.pdf
- Staying Healthy While Working on a Farm: https://www.dhs.wisconsin.gov/publications/p01711.pdf
- Wash Hands After Animal Contact: https://www.dhs.wisconsin.gov/publications/p01699.pdf
- Article in Diary Herd Management: http://www.dairyherd.com/magazine/salmonella-infections-turn-deadly

## Cleaning & Disinfection Protocol *Post Confirmation of Salmonellosis*

Proper Cleaning and Disinfection Post Confirmation of Salmonellosis

It is important that livestock trailers, maternity and calf pens and other areas suspect of being contaminated with *Salmonella* be properly cleaned before the disinfectant is applied. If these areas are not properly cleaned, the disinfection step is much less effective at killing pathogens. High-pressure washing should not be used because of the risk of cross-contamination of the environment and aerosalization of contaminated material, which can cause human and animal infection. Importantly, livestock owners and managers should understand that while high-pressure washers do remove gross soils such as dried fecal material it does not consistently remove bacterial biofilms. Biofilm removal is an essential and vital component of proper cleaning. The following is a simple cleaning and disinfection protocol that is widely used in livestock operations in the United States.

1. **Remove all the bedding material -** After the bedding material has been removed, a barn broom should be used to sweep up the remaining feed, dust and organic debris.

2. **Soak with water -** Thoroughly wet the area with water using a garden hose. The water should be applied from high to low starting at the highest point in the area and ending at the lowest point such as a floor drain.

3. **Alkaline foam cleaning-** Apply an alkaline (pH 11-12) foaming detergent (such as Total Alkaline Presoak™, Triton Chemical, Lakeville, MN) to the area using either a hand-held airless foamer (such as Lafferty Compact Model 25 Airless Foamer, Lafferty® Equipment Manufacturing Inc., Little Rock, AR). Start at the lowest point of the area to be cleaned and finish at the highest point. Apply the alkaline foaming detergent evenly to all the surfaces. Using plastic, pH indicator strips (such as Hydrion®, Micro Essential Laboratory, Brooklyn, NY) verify the pH of the alkaline, foaming detergent is correct.

4. **Soak ≥ 10-15 minutes -** Do not allow the foaming, alkaline detergent to dry.

5. **Rinse-** Rinse thoroughly with water using a garden hose going from the highest point to the lowest point of the area being cleaned.

6. **Acid foam cleaning-** Apply an acid (pH 3-4) foaming detergent (such as Surface Brite™, Triton Chemical, Lakeville, MN) to the calf pen or livestock trailer using either a hand-held airless foamer (such as Lafferty Compact Model 50 Airless Foamer, Lafferty® Equipment Manufacturing Inc., Little Rock, AR) or an air driven foamer. Start at the lowest point of the area to be cleaned and finish at the highest point. Apply the acid foaming detergent evenly to all the surfaces. Using plastic, pH indicator strips verify the pH of the acid, foaming detergent is correct.

7. **Soak ≥ 10-15 minutes-** Do not allow the foaming, acid detergent to dry.

8. **Rinse-** Rinse thoroughly with water using a garden dose going from the highest point to the lowest point of the area being cleaned.

9. **Dry-** Allow the now clean area to completely dry out before disinfectant is applied.

10. **Disinfection-** Twelve to 24 hours prior to use, disinfect the area with a 250 ppm solution of chlorine dioxide going from the highest point to the lowest point of the area to be disinfected. There should be 5-10 minutes of contact time. A hand held sprayer with Viton® seals or an airless foam applicator can be used to apply the chlorine dioxide. It is obligatory that the working concentration of chlorine dioxide be verified with plastic test strips (such as Insta-Test®, high range chlorine dioxide, La Motte, Chestertown, MD). When using chlorine dioxide at concentrations of ≥ 200 ppm, operators should wear protective eyewear and an R95 approved particulate respirator mask that is carbon lined (grey color). The masks can be obtained in the paint section of any local hardware store.

11. **Confirmation of cleaning and disinfection-** Environmental testing can be performed post-cleaning and disinfection to assure the area is free of *Salmonella* using PCR and/or culture.

For more information about *Salmonella* testing options, turnaround time, and environmental testing protocols and kits please contact the WVDL at (608) 262-5432 or Salmonella@wvdl.wisc.edu and use our website at wvdl.wisc.edu.

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Weybridge Transport Medium should be shipped and stored around 4° C and post inoculation should be stored at room temperature and shipped immediately to the WVDL. Samples not received within 48 hours post collection will be rejected.

## Microbiology

### Increase in contamination during *Campylobacter fetus* subspecies *venerealis* Culture Investigation

In the summer of 2016, the WVDL noticed an increase in contamination with normal flora bacterial species in Weybridge Transport Medium samples, which are used in the culture of *Campylobacter fetus* subspecies *venerealis*. The WVDL investigated the contamination with clients and found that some clients were either inadvertently introducing contamination, not storing Weybridge Transport Medium at recommended temperatures pre- and post-sample collection, or not sending samples in by the required 48-hour post-collection time limit.

Although Weybridge Transport Medium contains many inhibitory compounds to eliminate normal flora and promote the growth of *C. fetus*, some normal flora, and fungi, are resistant and will overgrow in the Weybridge particularly if the media is not stored correctly at any time. This overgrowth might be exacerbated when the media overheats, which can inactivate the antibiotics. Weybridge Transport Medium should be shipped and stored around 4 $^{o}$C and post inoculation should be stored at room temperature and shipped immediately to the WVDL. Samples not received within 48 hours post-collection will be rejected. Overgrowth of normal flora bacteria could inhibit *C. fetus* from growing or obscure its growth on the Skirrows media.

With summer closely approaching, the WVDL is asking clients to closely monitor their collection practices to assure that the Weybridge Transport Medium has not been exposed to excessive temperatures or direct sunlight and additional reagents such as saline are properly sterilized. Additionally, when planning collection, try to ship on days where there is not excessive temperatures (>85 $^{o}$F) and if shipment is necessary add ice packs to a secondary container that allow for cooler air in the shipment container, but the ice packs must not come in contact with the samples therefore a barrier is necessary.

For nine months, the WVDL also tracked the temperatures of the Weybridge Transport Media from the time it was shipped, through sample collection and inoculation, and shipment back to the WVDL using temperature monitoring devices. We have completed this investigation and noted that no temperature limits excesses were observed. This included winter weather shipments of which near room temperature needs to be maintained. We thank the clients who worked with us during this investigation to determine if shipping or client storage was the source of temperature excesses and we determined it was not.

Lastly, the WVDL has increase quality control for Weybridge Transport Media and determined that the quality has remained consistent over time. We performed several additional positive and negative controls and confirmed that quality is maintained over the duration of the media until expiration and was not the source of contaminants observed in the summer of 2016.

All the above measures were used to investigate why the WVDL observed an increase in contamination of Weybridge Transport Media. Our investigation revealed that contamination most likely occurs during the collection process including the use of contaminated reagents. Please call the WVDL with any questions regarding Weybridge Transport Medium and testing for *Campylobacter fetus* subspecies *venerealis*. It is our goal to provide the best diagnostic testing for *Campylobacter fetus* subspecies *venerealis* in the least amount of time.

### Testing Fee Changes Scheduled for July 1st, 2017

Due to increasing costs of reagents we will increase the following test fees:

1. Brucellosis complement fixation (CF) fee increases from $2.70 to $4.00 per test.
2. Johne's Disease (MAP) CF fee increases from $5.00 per test to $7.00 per test.
3. Leptospirosis MAT agglutination (LeptoMAT 5/6) fee increases from $9.50 to $13.50 per test.

### Update on Johne's Direct PCR Test on Fecal Pools

The Johne's direct real-time PCR test confirms the presence of *Mycobacterium avium* subspecies *paratuberculosis* (MAP). This test can be run on either individual samples or pooled samples. Pooled samples are sent in individually and pooled at WVDL (up to 5 samples may be pooled). Screening pools can significantly reduce testing costs without compromising test sensitivity. In the past, pools yielding a positive result were tested individually only after verbal confirmation from the submitter. To provide results in a timelier manner, positive pools will automatically be tested individually by Johne's direct real-time PCR. Pools that test as inconclusive will be repeated and the client contacted to discuss further testing options. Please note the cost for Johne's testing by direct PCR for pools of 5 are being charged $30 per pool and individual sample testing are being charged $28 each. Please contact the Bacterial Molecular Section with any questions.

### Johne's Disease Serology Testing Schedule Changes

The Johnes ELISA test is intended as a herd test to determine prevalence of Johne's disease. The assay is less useful when used to determine the disease status of individual animals. The official animal identification is required on sample tubes and submission forms. This assay is currently approved for use for bovine, ovine and caprine samples. The Johnes IDEXX ELISA testing schedule is being changed from being run daily to being run Tuesday, Thursday and Friday for bovine serum samples. The ThermoFisher Prionics PARACHEK 2 ELISA is run on Wednesdays, or more frequently as determined by sample volume, for ovine and caprine serum and bovine milk samples. A suspect false positive bovine serum sample can be run on the PARACHEK 2 ELISA upon request.

The Johnes complement fixation (CF) test is primarily used to meet export requirements and is not recommended as a routine diagnostic test. The official animal identification is required on sample tubes and submission forms for this assay. Positive results are confirmed at the National Veterinary Services Laboratories (NVSL). The Johnes CF testing schedule is being changed from being run on Tuesdays to being run on Wednesdays with results the same day. Please contact the Bacterial Serology Section with any questions on either of these assays.

### *Tritrichomonas foetus* PCR Schedule Change

WVDL will now be testing InPouch TF samples on Tuesdays instead of Mondays. Samples MUST arrive at the lab for testing by the prior Friday. Results will be available Wednesday morning.

### Quantification of *Salmonella enterica* subspecies *enterica* Serotypes/Serogroups Identified at the WVDL in 2015

*Salmonella enterica* subspecies *enterica* contains greater than 2,500 different serotypes, also called serovars. Each serotype is identified at the WVDL using various sera that bind and agglutinate if a particular molecular pattern is present on the surface of the *Salmonella* bacteria in question. These agglutination reactions are run and positive reactions are used to first group (Group A, B, C1, C2, D, E1, and G) the *Salmonella* isolate and then serotype it to identify a specific serotype name, such as *Salmonella* ser. Dublin is in Group D1. At the WVDL, not all *Salmonella* are serotyped fully as to save money for our clients. Often for bovine cases, only one isolate from an animal or sample will be fully serotyped and the other *Salmonella* isolates will be grouped. As long as the grouping is the same as the group the serotype belongs

to, then no further serotyping is performed. Therefore in the table below, more serogroups have been identified than serotypes as a single case may have 5 *Salmonella* grouped, but only one *Salmonella* serotyped. As an example, a group of 10 feces submitted for *Salmonella* culture might obtain 5 *Salmonella* isolates from 5 of the 10 animals, where only one will be serotyped and the other four will be grouped (e.g. *Salmonella* Dublin identified and four *Salmonella* grouped to D1). The WVDL deals with a variety of *Salmonella* serotypes obtained from various species and samples types. Table 1 demonstrates the variety that the WVDL identified in 2015.

**Table 1: All *Salmonella enterica* subspecies *enterica* serotypes/serogroups identified in 2015.**

| 2015 *Salmonella* serotypes isolated | All Species | Bovine | Avian | Equine | Other[1] |
|---|---|---|---|---|---|
| **Total *Salmonella* isolated** | 1097 | 827 | 253 | 11 | 6 |
| **Group B*** | 87 | 27 | 60 | | |
| *SALMONELLA* AGONA | 23 | 9 | 12 | 1 | 1 |
| *SALMONELLA* DERBY | 1 | | 1 | | |
| *SALMONELLA* SCHWARZENGRUND | 10 | 7 | 3 | | |
| *SALMONELLA* TYPHIMURIUM | 43 | 23 | 16 | 2 | 2 |
| *SALMONELLA* 4,[5],12:i:- (PROBABLE MONOPHASIC TYPHIMURIUM)[2] | 43 | 11 | 32 | | |
| *SALMONELLA* HEIDELBERG | 7 | 7 | | | |
| *SALMONELLA* BRANDENBURG | 1 | 1 | | | |
| *SALMONELLA* GLOUCESTER | 1 | 1 | | | |
| **Totals** | **216** | **86** | **124** | **3** | **3** |
| **Group C1*** | 37 | 24 | 13 | | |
| *SALMONELLA* INFANTIS | 15 | 4 | 11 | | |
| *SALMONELLA* TENNESSEE | 5 | 3 | 2 | | |
| *SALMONELLA* BRAENDERUP | 2 | | | 2 | |
| *SALMONELLA* OTHMARSCHEN | 4 | 3 | | | 1 |
| *SALMONELLA* LIVINGSTONE | 1 | 1 | | | |
| *SALMONELLA* MONTEVIDEO | 57 | 57 | | | |
| *SALMONELLA* THOMPSON | 2 | 2 | | | |
| *SALMONELLA* NORWICH | 1 | 1 | | | |
| *SALMONELLA* MBANDAKA | 1 | 1 | | | |
| **Totals** | **125** | **96** | **26** | **2** | **1** |
| **Group C2*** | 37 | 35 | 2 | | |
| *SALMONELLA* KENTUCKY | 12 | 10 | 2 | | |
| *SALMONELLA* NEWPORT[3] | 84 | 79 | 1 | 2 | 2 |
| *SALMONELLA* LITCHFIELD | 1 | 1 | | | |
| *SALMONELLA* MUENCHEN | 1 | 1 | | | |
| *SALMONELLA* MANHATTAN | 1 | 1 | | | |
| **Totals** | **136** | **127** | **5** | **2** | **2** |
| **Group D*** | 114 | 110 | 4 | | |
| *SALMONELLA* OUAKAM | 4 | | 4 | | |
| *SALMONELLA* PANAMA | 1 | 1 | | | |
| *SALMONELLA* DUBLIN | 107 | 107 | | | |
| *SALMONELLA* ENTERITIDIS | 1 | 1 | | | |
| **Totals** | **225** | **219** | **4** | **2** | |
| **Group E*** | 48 | 12 | 36 | | |
| *SALMONELLA* MELEAGRIDIS | 17 | 16 | 1 | | |
| *SALMONELLA* MUENSTER | 6 | 5 | 1 | | |
| *SALMONELLA* SENFTENBERG | 34 | 1 | 33 | | |
| *SALMONELLA* UGANDA | 4 | 2 | 2 | | |
| *SALMONELLA* GIVE | 17 | 15 | | 2 | |
| *SALMONELLA* LONDON | 4 | 4 | | | |
| *SALMONELLA* ANATUM | 6 | 6 | | | |
| *SALMONELLA* ORION | 3 | 3 | | | |
| *SALMONELLA* KOUKA | 1 | 1 | | | |
| **Totals** | **140** | **65** | **73** | **2** | |
| **Group G*** | 3 | | 3 | | |
| *SALMONELLA* CUBANA | 3 | | 3 | | |
| *SALMONELLA* IDIKAN | 1 | 1 | | | |
| **Totals** | **7** | **1** | **6** | | |
| **Group I*** | | | | | |
| *SALMONELLA* BARRANQUILLA | 1 | 1 | | | |
| **Totals** | **1** | **1** | | | |
| **Group K*** | 55 | 53 | 2 | | |
| *SALMONELLA* CERRO | 182 | 179 | 3 | | |
| **Totals** | **237** | **232** | **5** | | |
| **Group O*** | 5 | | 5 | | |
| *SALMONELLA* ALACHUA | 5 | | 5 | | |
| **Totals** | **10** | | **10** | | |

* Refers to *Salmonella* that were grouped but not serotyped

[1]Other includes Canine, Porcine, Caprine, and Feline

[2] *Salmonella* 4,[5],12:i:- is believed to be the monophasic variant of *Salmonella* ser. Typhimurium. *Monophasic Salmonella* ser. Typhimurium cannot be confirmed at the WVDL due to a lack of sera needed to perform confirmation.

[3] *Salmonella* Bardo was grouped with *Salmonella* Newport

Recently, the WVDL published an article in the Journal of Dairy Science titled "Antimicrobial resistance patterns of bovine *Salmonella enterica* isolates submitted to the Wisconsin Veterinary Diagnostic Laboratory: 2006-2015', which was given the Editor's Choice Award. The abstract is below and the publication focuses on *Salmonella enterica* isolated from 2006 to 2015 that had antimicrobial susceptibility testing (AST) performed on them. This publication examined antimicrobial resistance over the 10 year period studied. We presented here the antimicrobial susceptibility changes for all *Salmonella enterica* serotypes, but the publication breaks down antimicrobial susceptibility for the top five serotypes isolated at the WVDL. The most important finding is that antimicrobial resistance for all *Salmonella enterica* investigated in this publication remained stable during the study time. However, it is important to note that some serotypes such as Dublin, Newport and Heidelberg are multidrug resistant and although resistance might not be increasing in these serotypes, they are still dangerous due to their multidrug resistance and zoonotic capability. More information about this publication can be found at:
https://www.ncbi.nlm.nih.gov/pubmed/28012630

***Abstract:***

Salmonellosis on the dairy continues to have a significant impact on animal health and productivity and in the United States. Additionally, *Salmonella enterica* subspecies *enterica* causes an estimated 1.2 million cases of human illness annually. Contributing to the morbidity and mortality in both human and domestic animal species is emergence of antimicrobial resistance by *Salmonella* species and increased incidence of multidrug resistant isolates. This study describes serotype distribution and the antimicrobial resistance patterns for various *Salmonella* serotypes isolated from bovine samples submitted to the Wisconsin Veterinary Diagnostic Laboratory (WVDL) over the past 10 years. *Salmonella* serotyping and antimicrobial susceptibility testing (AST) data was obtained from the laboratory information management system (LIMS) at the WVDL. Data from accessions were limited to bovine samples submitted to the WVDL between January 2006 and June 2015 and those that had both a definitive serotype and complete results for AST. A total of 4,976 isolates were identified. *Salmonella enterica* ser. Dublin is the most prevalent serotype identified amongst bovine samples submitted to the WVDL, accounting for a total of 1,153 isolates (23% of total isolates) over the study period. Along with Dublin, *Salmonella enterica* ser. Cerro (795, 16%), Newport (720, 14%), Montevideo (421, 8%), Kentucky (419, 8%) and Typhimurium (202, 4%) comprise the top six most commonly isolated serotypes during that time. Overall, resistance of bovine *Salmonella* isolates in the study population has remained stable; although, decreases in resistance were noted for gentamicin, neomycin and trimethoprim sulfamethoxazole, during the study period. All isolates remained susceptible to enrofloxacin. These data show that antimicrobial susceptibility for bovine *Salmonella* has changed in the population served by WVDL in the past 10 years. This information is important for understanding *Salmonella* disease ecology in Wisconsin. Our findings are also relevant for animal and public health by improving informed antimicrobial use, new drug development and regulation of their use in food animals.

**Table. 2**. Number and percent of bovine *Salmonella enterica* isolates, by serotype, tested for antimicrobial susceptibility by the Wisconsin Veterinary Diagnostic Laboratory, 2006-2015. Samples included feces submitted for routine diagnostics and tissues harvested for necropsy. Isolates were included if they were both fully serotyped and had complete AST results.

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| ***Serotype*** | | | | | | | | | | | |
| **Dublin** | 158 | 205 | 162 | 94 | 147 | 105 | 104 | 77 | 67 | 34 | 1,153 |
| | 21% | 26% | 23% | 23% | 35% | 33% | 29% | 14% | 15% | 15% | 23% |
| **Cerro** | 2 | 40 | 89 | 94 | 83 | 75 | 69 | 130 | 126 | 87 | 795 |
| | 0% | 5% | 12% | 23% | 20% | 23% | 19% | 24% | 29% | 37% | 16% |
| **Newport** | 137 | 85 | 66 | 40 | 47 | 52 | 43 | 123 | 89 | 38 | 720 |
| | 18% | 11% | 9% | 10% | 11% | 16% | 12% | 23% | 20% | 16% | 14% |
| **Kentucky** | 88 | 129 | 86 | 32 | 19 | 12 | 13 | 19 | 17 | 6 | 421 |
| | 12% | 16% | 12% | 8% | 4% | 4% | 4% | 4% | 4% | 3% | 8% |
| **Montevideo** | 63 | 44 | 60 | 35 | 36 | 21 | 35 | 54 | 41 | 30 | 419 |
| | 8% | 6% | 8% | 8% | 8% | 7% | 10% | 10% | 9% | 13% | 8% |
| **Typhimurium** | 36 | 32 | 20 | 13 | 11 | 10 | 17 | 32 | 27 | 4 | 202 |
| | 5% | 4% | 3% | 3% | 3% | 3% | 5% | 6% | 6% | 2% | 4% |
| **Meleagridis** | 40 | 47 | 18 | 14 | 12 | 2 | 6 | 21 | 14 | 6 | 180 |
| | 5% | 6% | 3% | 3% | 3% | 1% | 2% | 4% | 3% | 3% | 4% |
| **Agona** | 14 | 23 | 56 | 17 | 10 | 10 | 4 | 5 | 1 | 4 | 144 |
| | 2% | 3% | 8% | 4% | 2% | 3% | 1% | 1% | 0% | 2% | 3% |
| **Muenster** | 39 | 26 | 31 | 10 | 5 | 7 | 5 | 10 | 4 | 3 | 140 |
| | 5% | 3% | 4% | 2% | 1% | 2% | 1% | 2% | 1% | 1% | 3% |
| **Anatum** | 38 | 27 | 23 | 3 | 6 | 1 | 9 | 13 | 11 | 2 | 133 |
| | 5% | 3% | 3% | 1% | 1% | 0% | 3% | 2% | 3% | 1% | 3% |
| **Give** | 18 | 10 | 18 | 12 | 16 | 9 | 5 | 13 | 5 | 4 | 110 |
| | 2% | 1% | 3% | 3% | 4% | 3% | 1% | 2% | 1% | 2% | 2% |
| **Other** | 127 | 115 | 85 | 49 | 32 | 17 | 48 | 38 | 33 | 15 | 559 |
| | 17% | 15% | 12% | 12% | 8% | 5% | 13% | 7% | 8% | 6% | 11% |
| | | | | | | | | | | | |
| **All Serotypes** | **760** | **783** | **714** | **413** | **424** | **321** | **358** | **535** | **435** | **233** | **4,976** |

Click here for more info

## Staff Spotlight: Dan Barr
## Pathology Sciences Supervisor & Safety Manager

**1. How long have you worked at WVDL?**

I started at WVDL as a Limited Term Employee in November of 2002 trimming fixed lymph node and obex samples for Chronic Wasting Disease (CWD) testing for the Wisconsin Department of Natural Resources (WI DNR). That year (2002) was the first full hunting season after CWD was discovered in Wisconsin. We tested over 45,000 samples with Immunohistochemistry in about 6 months. We have since added testing for Scrapie and Bovine Spongiform Encephalopathy (BSE) for the national disease monitoring programs for the United States Department of Agriculture (USDA) and CWD testing of both wild and captive cervids from over 20 other states. I will be celebrating my 15th year at WVDL this fall.

**2. What do you like about your position?**

I really enjoy working with all of the great colleagues at WVDL. I find it rewarding to establish and maintain positive working relationships to fulfill the mission of WVDL. The most gratifying aspect of my position as the Pathology Sciences Supervisor is maintaining a high degree of trust with everyone in our group and ensuring that I give them the resources they need to succeed. I also enjoy working with clients and my counterparts from other diagnostic labs around the country.

**3. Do you have any hobbies or interesting facts about yourself?**

I am an avid outdoorsman and especially like hunting white-tailed deer with bow and arrow. I also enjoy hunting many other animals with both gun and bow. In the spring and fall I collect wild mushrooms and perform wildlife habitat improvement projects. My wife Kristin and I have been married for 13 years and we are raising 4 children (Jackson 10, Myra 8, Arlo 3 and Maggie 6 months) in the small town of Dodgeville. Kristin's mom and step dad operate a 270-acre farm that produces beef cattle and crops. I enjoy all of the jobs that need to get done on the farm.

## Client Services

We are looking forward to summer in the Client Services Section at WVDL. We have several new faces in the Madison Client Services section including Sonia Petty, who has joined us full time after completing several wildlife biology research projects around North America. We also have several new student employees including Cynthia Papantonatos, Chloe Tirabasso and Payton Pritzl. We are also in the process of recruiting a new supervisor for the Barron Laboratory and are excited to support our clients and colleagues in Northwest Wisconsin.

The annual WVDL Summer Bovine Genetics Export Meeting will be held at the Madison Laboratory on Thursday, July 13th from 9-3pm. This meeting is free to attend and focuses on regulatory testing for international export of bovine genetics. Please contact us with questions or if you would like to attend. If you can't make the trip to Madison, we would be happy to host the discussion on a webinar.

We are currently preparing to expand our sample receiving laboratory in Madison to better serve our clients with large testing needs such as semi-annual, CWD, and other herd testing. With larger accessions, we have electronic spreadsheet submissions available and encourage submitters to contact us before shipment of samples to facilitate testing and decrease turnaround time. Depending on the client needs we can ship racks, tubes, and other testing supplies overnight to the farm or veterinary clinic. We can also accept submission forms electronically before receipt of the samples to get a head-start on data entry – we refer to this as "pre-accessioning."

Dr. Don Sockett has been busy working with Dr. Nicole Aulik (Microbiology) and a multidisciplinary team from Wisconsin Public Health, Department of Agriculture, Trade and Consumer Protection, and the Centers for Disease Control to respond to the emergence of a multidrug resistant strain of *Salmonella* Heidelberg. Watch for presentations around the Midwest, AABP, and AAVLD national meetings.

## Virology

### Virology and Molecular Diagnostics

Influenza A dominated our work priorities this quarter. We finished helping control the avian lineage H7N2 outbreak in cats in February then in early March we started with another outbreak response. Low pathogenic avian influenza H5N2 was discovered on a turkey farm in Northwest Wisconsin. This H5N2 strain closely aligned with North American strains found in wild birds and is different from the highly pathogenic strain that circulated in 2015. USDA, DATCP, WVDL and the producer worked closely to monitor the virus to ensure it did not spread to other farms. The virus can no longer be detected in the flock. Surrounding states that were hit hard in 2015 imposed some restrictions on movement of poultry products which affected many of our clients. Our section offered same-day testing to clear product for movement as long as these restrictions remained in place.

**EHD Updates:** Epizootic hemorrhagic disease virus (EHD) is a pathogen that circulates in deer in Wisconsin and can be transmitted to cattle. EHD 1, 2 and 6 are the serotypes found in the US. WVDL offers serology and real-time PCR for EHD. The PCR detects all 3 types of EHD. The agar gel immunodiffusion assay (AGID) serologic assay will detect all serotypes. EHD serum neutralization (SN) will identify a specific serotype and is currently available for serotypes 1 and 2. Development of SN for type 6 is in progress.

**Syndromic Panels Available:** Virology offers molecular diagnostic syndromic panels for avian, canine and feline species for a number of pathogens in addition to testing for influenza in these species. Clients are referred to the website to choose panels that may help when presented with clinical signs.

The influenza work with canine and low pathogenic avian influenza has resulted in recent publications:


1. Watson CE, C Bell, **K Toohey-Kurth**. 2017.H3N2 Canine Influenza Virus Infection in a Dog Vet Pathol 54(3):527-530.
2. Newbury SP, **Cigel F**, Killian ML,Leutenegger CM, Seguin A, Crossley B, Brennen, R, Suarez DL, Torchetti M, **Toohey-Kurth K**. 2017. First detection of avian lineage H7N2 in *Felis catus*. Genome Announc. https://doi.org/10.1128/genomeA.00457-17.


**Next generation sequence** techniques have allowed us to rapidly sequence influenza strains in collaboration with NVSL partners. Microbiologists at WVDL will be developing and establishing the methods here over the next few months as part of a recent grant initiative funded as part of the Accelerator program at WARF in collaboration with the famed virus hunter, Tony Goldberg (Vilas Distinguished Professor of Epidemiology, SVM). Ongoing research with Tony Goldberg has resulted in a recent publication describing the viruses found in fetal bovine sera.


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