



## Wisconsin Veterinary Diagnostic Laboratory

UNIVERSITY OF WISCONSIN-MADISON

# Spring 2019 Newsletter

## Director's Report

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Spring looks like it might finally be starting to make an appearance in Wisconsin. We have certainly seen our typical seasonal uptick in diagnostic testing already and have several new tests to highlight in this newsletter. Our Equine Colitis Panel is available daily for fresh feces. We are also excited to announce new testing for liquid calf feeds to help manage dietary-related calf scours. Details and testing best practices can be found on our website or by calling the laboratory.

We would like to remind our clients that we no longer provide testing for vitamins and trace minerals. The specialized equipment was at the end of its lifespan and opted to stop working permanently. Due to the high cost of replacement equipment, we decided to refer all testing for vitamins and trace minerals to

Michigan State University because it is more cost effective for clients and the WVDL. This may add 1-2 days for turnaround time. We apologize for any inconvenience to our clients.

We are in the planning stages for our annual Summer Bovine Genetics Export Meeting. This is a free meeting and covers diagnostic testing development, strategies, and news from DATCP/USDA Export Services that are specifically geared to veterinarians and companies that export bovine genetics around the world. If you are interested in attending, please contact us to get on our email invitee list.

We have certainly been busy with spring meetings at the Professional Dairy Workers of Wisconsin and upcoming at the Dairy Calf and Heifer Conference, stop by and say hello if you are planning on attending.

On Wisconsin!

**Keith Poulsen**  
Director

## AAVLD Accreditation Update

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The most recent WVDL AAVLD Accreditation site visit was completed November 2018. We are pleased to report that the WVDL was awarded full/all species accreditation through December 2023. Current AAVLD accreditation certificates for both the Barron and Madison labs are shown below and are also available on our website <https://www.wvdl.wisc.edu>. For information regarding AAVLD accreditation, please visit

<https://aavld.memberclicks.net/accreditation-explained>.



## Client Services

### UPS Shipping Program Web Interface Launching April 8, 2019

This self-service, web-based interface (screenshot featured below) will allow you to order UPS shipping labels and have them emailed to you immediately. We will add the charges to your account, and they will appear on your invoice. With reduced turnaround time, free pickups, and low shipping costs—\$7.00 for Ground and \$14.00 for Next Day Air—our UPS partnership allows us to offer the most affordable and efficient shipping method.

### Blood Collection Tube Program

We are now offering blood collection tubes for purchase. The tubes are made from virtually unbreakable PET plastic (Polyethylene terephthalate). This will prevent samples from breaking in transit. These tubes are also the preferred method for robotics and automation. We are offering discounted bulk rates:

VACUETTE K3 EDTA Blood Collection Tube 9ml

\$0.15 per tube

Pack of 50 / \$7.50

Case of 1200 / \$180.00

VACUETTE Serum Clot Activator Tubes 9ml

\$0.20 per tube

Pack of 50 / \$10.00

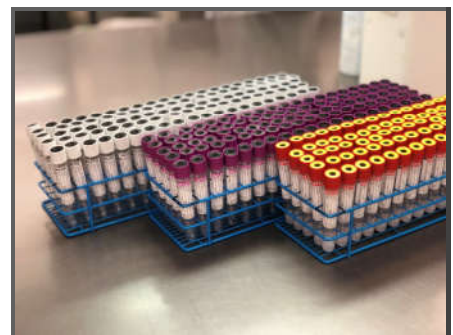
Case of 1200 / \$240.00

VACUETTE No Additive Tubes 9ml (for ear notches)

\$0.12 per tube

Pack of 50 / \$10.00

Case of 1200 / \$144.00



You can order these tubes on our website: [WVDL Blood Collection Tube Order Form](#)

**New Team Members** - We are very excited to announce three new additions to our Sample Receiving team!

Alex Aviles  
Elvira Roussel  
Danielle French

## Microbiology

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### Update on Antimicrobial Sensitivity Testing

The WVDL updated its antimicrobial sensitivity testing software, which provides interpretations for minimum inhibitor concentrations (MIC). MIC is the concentration at which a bacterial isolate no longer grows in the presence of a specific concentration of an antimicrobial agent. These MICs are interpreted using the Clinical and Laboratory Standards Institute (CLSI) guidelines, which uses the MIC to produce an interpretation such as susceptible (S), resistant (R) or intermediate (I). The CLSI guidelines are based on a combination of factors including the host species, the tissue type that was used for culture and the bacterium isolated from that host's tissue. At times, there is no interpretation available for that bacterium isolated from that specific host's tissue. Additionally, a no interpretation (N) result may be given when an antimicrobial agent listed is **not approved** for use in all classes of animals (for example, fluoroquinolones in dairy heifers greater than 20 months of age.)

With the software update, you might notice some changes in the interpretations (S, R or I). In particular, there may be times when an MIC is reported that demonstrates sensitivity to that particular antimicrobial agent. However, the interpretation may list that antimicrobial agent as resistant (R), contradicting the MIC results. This can occur due to a variety of reasons including inherent/intrinsic/innate antimicrobial drug resistance or due to the fact some microorganisms may appear active in vitro, but are not effective clinically and therefore should not be reported as sensitive. Thus, when a bacterial isolate has known intrinsic resistance to an antimicrobial agent, it will be reported as resistant regardless of the diagnostic testing result. The interpretation will be listed as resistant despite the in vitro MIC value. Examples of this are as follows:

- *Citrobacter* species are intrinsically resistant to ampicillin. A small percentage (1-3%) may appear susceptible, but will be reported as resistant.
- *Listeria* species are resistant to cephalosporins.
- *Clostridium* species are resistant to aminoglycosides.
- *Pseudomonas aeruginosa* is resistant to  $\beta$ -lactams (except carbapenems and a few third- and fourth-generation cephalosporins), tetracyclines, trimethoprim, trimethoprim-sulfamethoxazole and chloramphenicol.

Other bacterial species may appear active against a particular antimicrobial drug class in vitro, but are not effective clinically and will be reported as resistant despite MIC:

- *Salmonella* species are intrinsically resistant to first- and second-generation cephalosporins, cephamycins, and aminoglycosides.
- Oxacillin-resistant *Staphylococcus* species are resistant to penicillins,  $\beta$ -lactam combination agents, antistaphylococcal cepheims (except for cephalosporins with anti-MRSA activity) and carbapenems.
- *Enterococcus* species are resistant to aminoglycosides (except high concentrations), cephalosporins, clindamycin and trimethoprim-sulfamethoxazole.

It is important to remember that antimicrobial susceptibility reports are not a treatment recommendation. Veterinarians assume responsibility for antimicrobial therapy they initiate including choice of appropriate antimicrobial agents, dose selection, and education of clients about withholding times for meat and milk. When considering what antimicrobial agent to select, the CLSI guidelines recommend considering:

- Clinical efficacy
- Resistance prevalence- both acquired and intrinsic
- Minimizing emergence of resistance
- Antimicrobial agent cost
- Applicable local rules and regulations
- Considerations for good clinical practice
- Current consensus recommendations for first-choice and alternative antimicrobial agents.

The WVDL assumes no responsibility for the use of the information contained in antimicrobial susceptibility reports. Please see our website for further information or call and speak with a veterinarian on staff.

### 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. We recommend submitting samples in the order of the age of the animal, so they are pooled by age, which is more cost effective as negative pools are more likely. To provide results in a timelier manner, positive and inconclusive pools will automatically be tested individually by Johne's direct real-time PCR. Please contact the Bacterial Molecular Section with any questions.

### Avian Influenza (AI) AGID testing schedule change

The Barron WVDL will be adopting a new testing schedule for our AI AGID testing. Beginning April 15, we will no longer be setting up AI AGID tests on the same day as submitted, but instead will be setting up those samples the following morning. For example, all samples received on a Monday will be held and run Tuesday morning, with results reported on Wednesday before noon. By making this change to the testing schedule, we are maximizing productivity and are now able to provide results five days a week. This creates a more efficient system for our staff allowing us to save on reagents and supplies in order to keep costs low for our clients. If you have any questions, please contact the Barron laboratory.

### Quantification of *Salmonella enterica* subspecies *enterica* Serotypes/Serogroups

The WVDL would like to keep our clients aware of the serotypes and serogroups identified at the WVDL in 2018. *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* bacterium in question. These agglutination reactions are run and positive reactions are used to first group (Group A, B, C1, C2, D1, E1, and G) the *Salmonella* isolate and then serotype it to identify a specific serotype name such as *Salmonella* ser. Heidelberg is in the Group B along with *Salmonella* ser. Typhimurium.

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 serogrouped. As long as the other *Salmonella* isolates serogroup (e.g. serogroup B for *Salmonella* ser. Heidelberg) to the same serogroup as the fully serotyped *Salmonella* within the same accession, then those *Salmonella* are only serogrouped not serotyped. Therefore in the table below, more serogroups have been identified than serotypes as a single case may have many *Salmonella* serogrouped, but only one *Salmonella* isolate that was serotyped. As an example, a group of 10 feces submitted for *Salmonella* culture might obtained 5 *Salmonella* isolates (5 of the 10 animals had *Salmonella* isolated), where only one will be serotyped and the other four will be serogrouped (e.g. 1 serotype reported and 4 serogroups reported). 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 2018.

The WVDL identified a total of 2,143 *Salmonella* isolates in 2018. The table below does not include isolates that could not be full serotyped by ourselves or the National Veterinary Services Laboratories (NVSL) and does not include monophasic *Salmonella* except for 1,4,[5],12:i:-. Of those isolates 58% were bovine, 40% were avian, 1% were equine and 1% were canine, porcine, caprine, and feline of origin. Fifty-two serotypes were identified from nine serogroups.

**Table 1: All *Salmonella enterica* subspecies *enterica* serotypes/serogroups identified in 2018**

2018 <i>Salmonella</i> Serotypes Isolated	All Species	Bovine	Avian	Equine	Other <sup>1</sup>
	2143	1248	853	20	22
SALMONELLA ARIZONAE/DIARIZONAE	1	0	0	0	1
<b>Group B*</b>	185	96	88	1	0
SALMONELLA AGONA	40	25	15	0	0
SALMONELLA SCHWARZENGRUND	6	6	0	0	0
SALMONELLA TYPHIMURIUM	79	48	27	3	1
SALMONELLA MONOPHASIC <sup>2</sup> TYPHIMURIUM	18	16	0	1	1
SALMONELLA HEIDELBERG	30	28 <sup>3</sup>	0	0	2
SALMONELLA BRANDENBURG	2	2	0	0	0
SALMONELLA BREDENEY	2	0	2	0	0
SALMONELLA READING	20	0	20	0	0
SALMONELLA SAINTPAUL	1	0	1	0	0
<b>Total</b>	<b>383</b>	<b>221</b>	<b>153</b>	<b>5</b>	<b>4</b>
<b>Group C1*</b>	72	46	23	2	1
SALMONELLA INFANTIS	6	5	1	0	0
SALMONELLA TENNESSEE	2	2	0	0	0
SALMONELLA BRAENDERUP	2	1	0	0	1
SALMONELLA OTHMARSCHEN	3	3	0	0	0
SALMONELLA MONTEVIDEO	93	88	2	2	1
SALMONELLA THOMPSON	2	1	0	1	0
SALMONELLA HARTFORD	1	0	0	0	1
SALMONELLA ORANIENBURG	1	1	0	0	0
SALMONELLA OHIO	1	0	1	0	0
SALMONELLA RISSEN	3	1	2	0	0
SALMONELLA MBANDAKA	29	13	15	0	1
<b>Total</b>	<b>215</b>	<b>161</b>	<b>44</b>	<b>5</b>	<b>5</b>
<b>Group C2*</b>	218	49	167	2	0
SALMONELLA KENTUCKY	156	7	149	0	0
SALMONELLA NEWPORT	45	42	0	3	0
SALMONELLA MUENCHEN	14	11	3	0	0
SALMONELLA BOVIS MORBIFICANS	1	1	0	0	0
SALMONELLA HADAR	7	0	7	0	0
SALMONELLA ALBANY	9	0	9	0	0
SALMONELLA MANHATTAN	4	4	0	0	0
<b>Total</b>	<b>454</b>	<b>114</b>	<b>335</b>	<b>5</b>	<b>0</b>
<b>Group D*</b>	282	269	13	0	0
SALMONELLA INDIA	1	1	0	0	0
SALMONELLA PANAMA	10	6	4	0	0

SALMONELLA JAVIANA	3	1	0	2	0
SALMONELLA BERTA	1	0	0	1	0
SALMONELLA ENTERITIDIS	10	0	9	0	1
<b>Total</b>	<b>475</b>	<b>444</b>	<b>26</b>	<b>3</b>	<b>2</b>
<b>Group E*</b>	193	50	142	1	0
SALMONELLA MELEAGRIDIS	16	16	0	0	0
SALMONELLA MUENSTER	8	5	3	0	0
SALMONELLA SENFTENBERG	52	8	44	0	0
SALMONELLA UGANDA	54	2	52	0	0
SALMONELLA GIVE	32	25	1	0	6
SALMONELLA ANATUM	51	23	26	1	1
SALMONELLA ORION	2	1	1	0	0
SALMONELLA LEXINGTON	1	1	0	0	0
SALMONELLA KOUKA	1	1	0	0	0
SALMONELLA LIVERPOOL	16	1	14	0	1
SALMONELLA ADABRAKA	1	1	0	0	0
<b>Total</b>	<b>427</b>	<b>134</b>	<b>283</b>	<b>2</b>	<b>8</b>
<b>Group G*</b>	8	3	5	0	0
SALMONELLA CUBANA	4	0	4	0	0
SALMONELLA PUTTEN	1	1	0	0	0
SALMONELLA HAVANA	1	0	1	0	0
SALMONELLA WORTHINGTON	3	3	0	0	0
<b>Total</b>	<b>17</b>	<b>7</b>	<b>10</b>	<b>0</b>	<b>0</b>
<b>Group K*</b>	46	46	0	0	0
SALMONELLA CERRO	120	118	0	0	2
<b>Total</b>	<b>166</b>	<b>164</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>Group H*</b>	1	1	0	0	0
SALMONELLA BOUSSO	1	1	0	0	0
<b>Total</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Group O*</b>	0	0	0	0	0
SALMONELLA ALACHUA	3	1	2	0	0
<b>Total</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>

\*Refers to *Salmonella* that was grouped but not serotyped.

<sup>1</sup>Other Includes Canine, Porcine, Caprine, and Feline.

<sup>2</sup> *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.

<sup>3</sup>All bovine *Salmonella* ser. Heidelberg were MDR and a part of an outbreak investigation.

## Pathology Sciences

**All Mineral and Trace Nutrient Testing Referred to Michigan State** -- The Chemistry and Toxicology testing section at the WVDL Madison laboratory will refer all mineral and trace nutrient testing to Michigan State University's Veterinary Diagnostic Laboratory. This action is in response to an equipment failure and subsequent decision to not replace this equipment. Approximately 500 tests per year at WVDL will be affected by this change.

Starting April 1st, 2019, all mineral and trace nutrient testing will be referred to MSU. Michigan State's published turnaround time is 5 business days for this testing. Clients will be charged the published testing fees located on the MSU website in addition to the \$20 referral fee routinely charged for out-sourced testing services.

We apologize for any inconveniences this may cause our clients and invite feedback at any time. If you have any questions regarding this issue please contact the WVDL and ask to speak with a staff member in our Chem/Tox Lab

## Barron

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### First Annual Poultry Conference

Cameron, Wis. will be the site of the First Annual Poultry Conference on May 29, 2019 from 8 a.m. - 4 p.m.. Commercial poultry workers, backyard producers and Public Health Departments in Wisconsin and Minnesota are invited to participate in the conference and exercise. The morning focus will be on addressing disease prevention and biosecurity (with Veterinarian Credits and Veterinary Technician Credits available). The afternoon will offer an interactive multi-agency emergency response tabletop exercise. Registration and fee information follows. Space is limited so please register by May 1.

#### Registration Fee - \$15 (includes lunch and handouts)

Barron County Health Department will be managing the funds. *Only cash or check will be accepted as payment* (no credit or debit cards). Checks should be made out to: Barron County DHHS.

Four CEU's have been applied for and accepted for Veterinarians and Veterinary Technicians.

**Registration** - Call [715-637-3151](tel:715-637-3151) or email: [jill.fries@wvdl.wisc.edu](mailto:jill.fries@wvdl.wisc.edu). Send checks to: WVDL, Attn: Jill Fries, 1521 E. Guy Avenue, Barron, WI 54812

### Key Note Speakers

Dr. Daniel Shaw -- Bio-Security and Backyard Flock Owners

Dr. Myron Kebus -- NPIP 14-Point Biosecurity Audit

Dr. Holly Taylor -- Poultry Necropsy 101

Dr. Darlene Konkle -- Disease Outbreak and Management Response

Ms. Rebecca Slater, MEP, CEM, MCP -- Avian Influenza Event Tabletop Exercise Facilitator

### EIA Testing in Full Swing at the Barron Laboratory

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EIA testing is performed at the Barron Laboratory and does not have an accession fee associated with testing. For questions about digital submissions, please contact us.

When does your horse need an EIA test? How long are they good for? See [www.datcp.wi.gov](http://www.datcp.wi.gov) for all requirements for equine movement, show, and performance. When in doubt, contact your veterinarian for a certificate of veterinary inspection or the show/ride organizers for participation requirements.

## Team Green

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Last year, the WVDL decided to 'Adopt a Highway'. As part of the Wisconsin Department of Transportation's efforts to keep Wisconsin highways clean, the 'Adopt a Highway' program was started in support of Wisconsin's anti-litter campaign. Groups throughout Wisconsin can volunteer to 'adopt' a two-mile stretch of highway to keep clean during the months of April - October. WVDL's Team Green proudly takes care of a two-mile stretch of Highway 51 near DeForest, Wis.



Participation in this program is extremely rewarding. We not only have a lot of fun and get some great exercise, but you would be amazed at what you find alongside the road.

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[www.wvdl.wisc.edu](http://www.wvdl.wisc.edu)

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