

2025 VMDL ANNUAL REPORT PART – DIAGNOSTIC PROGRAMS

SUMMARY

In 2025, the VMDL handled about 61,391 accessions and conducted 206,281 diagnostic tests with 3.25% fewer accessions and 0.29% more tests, compared to 2024. Veterinarians, animal owners and researchers from more than 90 plus Missouri counties and independent cities, as well as from 38 states and provinces outside Missouri, continued to rely on the Veterinary Medical Laboratory's (VMDL) diagnostic services.

The VMDL successfully passed all required proficiency tests for the diagnosis of diseases regulated by federal and state authorities. The VMDL also completed additional proficiency tests needed to maintain its laboratory accreditations and certifications — upholding full accreditation from the American Association of Veterinary Laboratory Diagnosticicians (AAVLD), along with its status as a NAHLN Level 1 and FDA Vet-LRN Tier 1 lab. The VMDL retained certifications from the National Poultry Improvement Plan (NPIP) and USDA for equine infectious anemia (EIA) testing. The OHL-Rabies Serology section maintained its Clinical Laboratory Improvement Amendments (CLIA) certification.

To stay connected with its stakeholders, the VMDL shared updates through quarterly newsletters, participated in various seminars, delivered talks at local and regional meetings. The VMDL also maintained a strong presence in national, state and local conferences, meetings and training sessions.

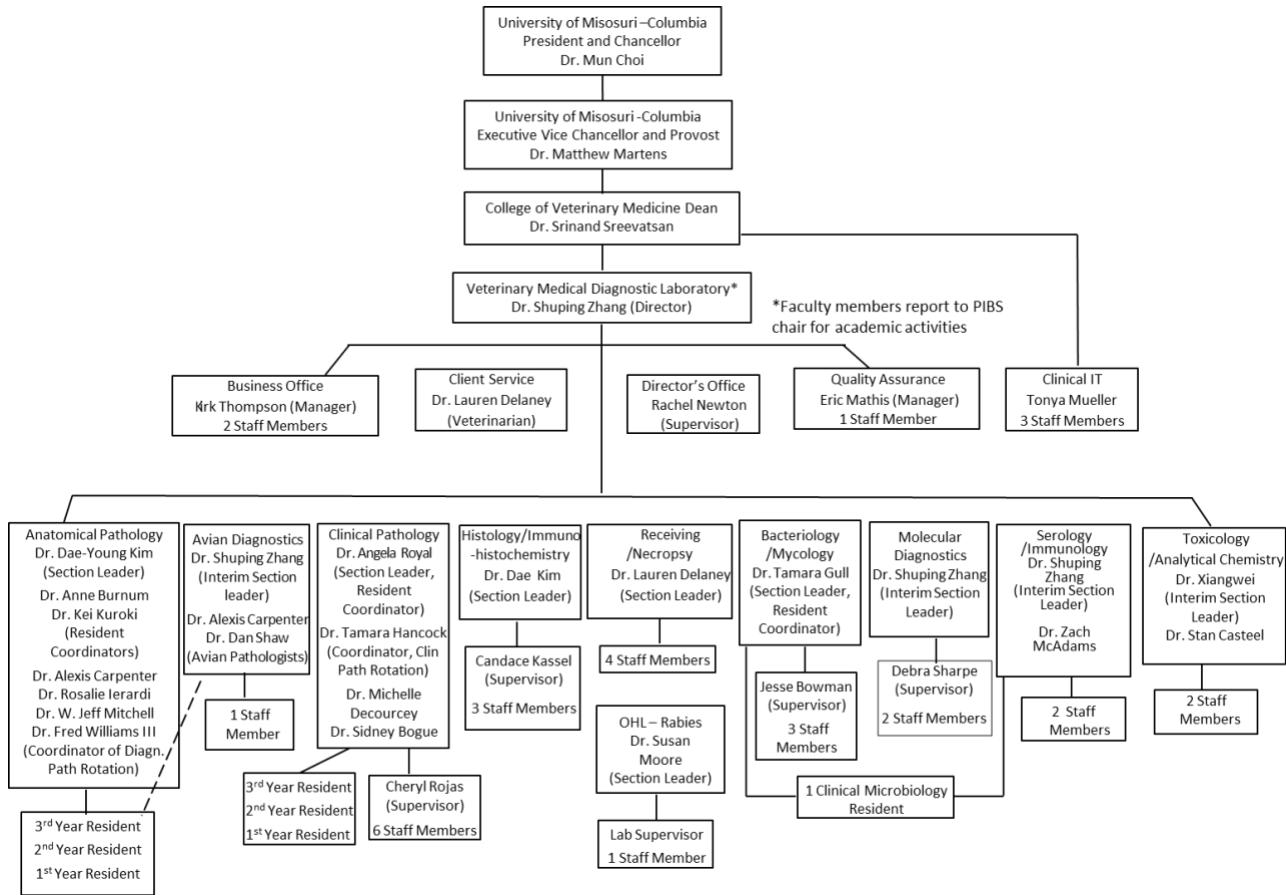
INTRODUCTION

The Veterinary Medical Diagnostic Laboratory (VMDL) is a cornerstone of the College of Veterinary Medicine and serves as one of its two clinical units. It is Missouri's only full-service diagnostic lab for all animal species and the only AAVLD-accredited lab in the state. The VMDL is also a Level 1 lab in the USDA National Animal Health Laboratory Network (NAHLN) and a Tier 1 lab in the FDA Veterinary Laboratory Investigation and Response Network (Vet-LIRN).

In addition to providing timely, relevant and cost-effective diagnostic services, the VMDL supports a strong learning environment for students and fosters excellence in teaching and research.

The 2024 VMDL Annual Report includes two sections: Diagnostic Service Programs and Academic Programs, with data from the past five years to track diagnostic trends and caseload. To track the diagnostic caseload, data for the last five years are presented.

VMDL ORGANIZATIONAL STRUCTURE



EXTERNAL ADVISORY BOARD

Mission Statement

To advise VMDL management on policies, services, strategies, and partnerships with stakeholders.

Advisory Board Membership

The Advisory Board consists of 10 members representing the Missouri Department of Agriculture, USDA, Missouri Department of Conservation, commodity groups, private practice, animal health industry, and the University of Missouri Veterinary Health Center.

Advisory Board Members

Steve Strubberg, DVM, Missouri State Veterinarian
Linda Lackman, DVM, USDA VMO-Emergency Coordinator-MO
Sherri Russell, DVM, Missouri Department of Conservation Science Branch Chief
Clark Fobian, DVM, Sedalia, MO, Past President, AVMA
Bruce Addison, MS, President, Addison Biological Laboratory, Inc.
Tony Martin, DVM, Director of Animal Health Division, MFA, Inc.
Scott Hays, Executive Vice President, Missouri Pork Association
Sydney Thummel, Executive Director, Missouri Beef Industry Council
John Bryan, Vice President, Poultry Federation
John Dodam, DVM, MS, PhD, DACVAA, MU VHC Director, DVMS Chair

VMDL CLIENT OUTREACH PROGRAMS

A Client Care Veterinarian is available for consultation (573-882-6811).

After-hours Sample Drop-Off is available in VMDL Phase I building.

Courier Service is available for convenient transport of samples within the Columbia area.

FedEx Billable Stamps program enables inexpensive next day delivery of samples to the lab.

VetView Portal allows clients to check diagnostic results and charges in real-time. Online Bill Pay is also available to clients.

The VMDL website (<https://vmdl.missouri.edu/>) provides useful content and information, such as Tests and Fees, Submission Forms, How to Submit Samples, Test Results (Online Lab Results and Global VetLink for EIA), VMDL Alert, VMDL Newsletter, VMDL Annual Report, Potential Open Positions, Pathology Externship Opportunities, Residency program descriptions, etc.

The VMDL personnel maintain attendance at district VMA meetings.

VMDL ONE HEALTH – RABIES SEROLOGY

The OHL – Rabies Serology performs two primary assays are the Rapid Fluorescent Focus Inhibition test (RFFIT) and the Fluorescent Antibody Virus Neutralization test (FAVN) to verify rabies vaccination status in humans and animals.

The OHL meets qualification standards of the Clinical Laboratory Improvement Amendments (CLIA) and American Association of Veterinary Laboratory Diagnosticians (AAVLD). The One Health – Rabies Lab is recognized by the USDA to perform rabies serology for the purpose of pet export/travel.

VMDL DIAGNOSTIC SERVICE ACTIVITIES

Table 1. Five-Year VMDL (Main Lab, Clinical Pathology, and OHL-Rabies) Accessions*

Year	Total Accessions (change %)	Main Lab	Main Lab VHC (%)	Clin Path	Clin Path VHC (%)	OHL- Rabies	OHL- Rabies (VHC %)
2021	55,756 (6.78)	29,015	4,340 (17.59)	26,741	26,043 (97.39)	N/A	N/A
2022	58,681 (5.25)	30,691	4,070 (13.26)	27,875	27,409 (98.33)	N/A	N/A
2023	64,942 (10.67)	33,091	4,411 (13.33)	31,678	31,247 (98.64)	173	5 (2.89)
2024	63,456 (-2.29)	32,070	3,942 (12.36)	31,023	30,635 (98.75)	453	4 (0.88)
2025	61,391 (-3.25)	32,909	3,390 (10.31)	27,357	26,864 (98.20)	1,121	5 (0.36)

*A Main Lab or OHL-Rabies accession may include multiple samples for various tests whereas most Clinical Pathology accessions include a single sample. From 2024 to 2025, total accessions decreased 3.25% and VHC accessions decreased 12.5%.

Table 2. Distribution of 2025 Accessions in MO Counties/Independent City

County	#	County	#	County	#	County	#
Boone	2,362	Stoddard	16	Lafayette	6	Madison	2
Not Specified	415	Webster	16	Lewis	6	Maries	2
Saint Charles	113	Marion	15	Phelps	6	Morgan	2
Saint Louis	110	Livingston	13	Platte	6	Perry	2
Moniteau	104	Miller	13	Saline	6	Callaway	1
Greene	74	Polk	13	Sullivan	6	Howard	1
Jackson	71	Montgomery	12	Bollinger	5	Andrew	1
Franklin	54	Butler	11	Buchanan	5	Atchison	1
Cole	48	Oregon	11	Caldwell	5	Audrain	1
Johnson	47	Cass	10	Howell	5	Bates	1
Jefferson	35	Howard	10	Osage	5	Cedar	1
McDonald	26	Texas	10	Shelby	5	Chariton	1
Pettis	25	Lawrence	9	Adair	4	Crawford	1
Christian	24	Newton	9	Clay	4	Douglas	1
Saint Louis City	23	Laclede	8	Macon	4	Grundy	1
Cape Girardeau	22	Lincoln	8	Taney	4	Sainte Genevieve	1
Gasconade	21	Putnam	8	Wright	4	Shannon	1
Callaway	20	Randolph	8	Dent	3	Vernon	1
Jasper	20	Scott	8	Monroe	3	Warren	1
Pulaski	18	Cooper	7	Benton	2	Greene	1
Saint Francois	17	Dunklin	7	Clark	2	Jasper	1
Pike	16	Nodaway	7	Dallas	2	Saint Charles	1
Ray	16	Camden	6	Henry	2	Saint Francois	1

Table 3. Distribution of 2025 Accessions in 38 Non-Missouri States and Provinces

State	#	State	#	State	#	State	#

British											
Oklahoma	91	Virginia	5	Columbia	2	Indiana				1	
Arkansas	88	Puerto Rico	4	Colorado	2	Maryland				1	
Illinois	66	Tennessee	4	Kentucky	2	Massachusetts				1	
Kansas	30	Hawaii	4	Nevada	2	New Jersey				1	
Michigan	25	Arizona	3	Texas	2	South Carolina				1	
Iowa	14	Colorado	3	Washington	2	South Dakota				1	
North Carolina	12	Texas	3	Michigan	1	North Carolina				1	
Nebraska	7	Alabama	2	Florida	1	Wisconsin				1	
California	7	California	2	Georgia	1						
Pennsylvania	6	Washington	2	Indiana	1						

Table 4. Five-Year Testing by Species*

Year	Total	Avian	Bovine	Canine	Caprine /Ovine	Cervid/ Exotic	Equine	Feline	Porcine	Misc/Non Animal	Hum an
2021	166,671	4,228	15,798	70,261	2,474	42,247	9,161	10,666	3,069	8,667	N/A
2022	176,126	10,408	16,153	76,029	2,780	44,619	9,852	11,325	3,898	1,062	N/A
2023	207,026	16,460	16,313	79,776	2,843	58,031	13,196	12,372	7,179	856	N/A
2024	204,427	23,701	15,308	80,333	2,750	36,647	12,942	13,178	7,743	12,822	253
2025	206,281	21,865	19,523	81,000	2,327	30,316	13,187	13,794	10,725	13,059	485

Table 5. Five-Year Testing by Section*

Year	Total (% Change)	Avian Dx.	Ana. Path	Histo/ IHC	Clin Path	Bacti/ Myco	Mol/Vir	Sero. /CWD	Tox/ Chem	OHL
2021	166,571 (+12.89%)	1,586	15,294	44,227	37,151	13,625	8,537	43,364	2,787	0
2022	174,888 (+5.74%)	1,530	13,223	46,319	39,341	13,993	15,239	44,176	1,327	978
2023	207,026 (+17.54%)	3,336	13,368	47,320	52,621	16,050	18,077	47,085	8,929	240
2024	205,677 (-1.26%)	17,395	13,479	47,146	51,696	14,646	10,589	47,539	2,020	1,167
2025	206,281 (+0.29%)	15,632	14,966	53,687	53,593	10,807	12,881	40,709	1,293	2,722

* From 2024 to 2025, the total testing numbers increased 0.29%.

Table 6. Foreign and Emerging Animal Disease and Public Health Surveillance Testing

Test Description	#
African Swine Fever (ASF) PCR	163
<i>Brucella abortus</i> Card Agg	376
<i>Brucella abortus</i> Card Agg & Pseudorabies ELISA	490
<i>Brucella canis</i> Rapid Ab test	318
Chronic Wasting Disease (CWD) ELISA	29,872
Classical Swine Fever (CSF) PCR	112
Contagious Equine Metritis (CEM)	170
Exotic Newcastle Disease	160
Foot and Mouth Disease (FMD) PCR	41
Influenza ELISA	3,846
Influenza PCR	2,232
Rabies serology (Animal and Human)	2,722
<i>Salmonella</i> culture	1,093
<i>Salmonella</i> PCR	255
<i>Theileria orientalis</i> PCR	417
West Nile ELISA	27
West Nile virus PCR	31
Total	44,904

Table 7. External Proficiency (Certification) Tests

Bacteriology/Mycology	Classical Swine Fever Virus rRT-PCR
Contagious Equine Metritis Culture	Foot-and-Mouth Disease Virus rRT-PCR
<i>Listeria</i> and <i>Salmonella</i> in Raw Dog Food	<i>Mycoplasma gallisepticum</i> PCR
<i>Salmonella</i> Group D Culture and Serology	<i>Mycoplasma synoviae</i> PCR
Clinical Pathology	Swine Influenza Virus rRT-PCR
Chemistry-Routine	One Health – Rabies
Hematology	Rapid Fluorescent Focus Inhibition test (RFFIT)
Microscopy	Fluorescent Antibody Virus Neutralization test (FAVN)
Urinalysis	Serology/Immunology
Foreign Animal Disease Data Transmission	Bluetongue ELISA
APMV/vNDV Electronic Messaging	Bovine Leukemia Virus ELISA
ASF Electronic Messaging	Brucellosis Serology
CSF Electronic Messaging	Chronic Wasting Disease ELISA
FMD Electronic Messaging	Equine Infectious Anemia ELISA

IAV-A Electronic Messaging
IAV-S Electronic Messaging
Pseudorabies Electronic Messaging

Molecular Diagnostics

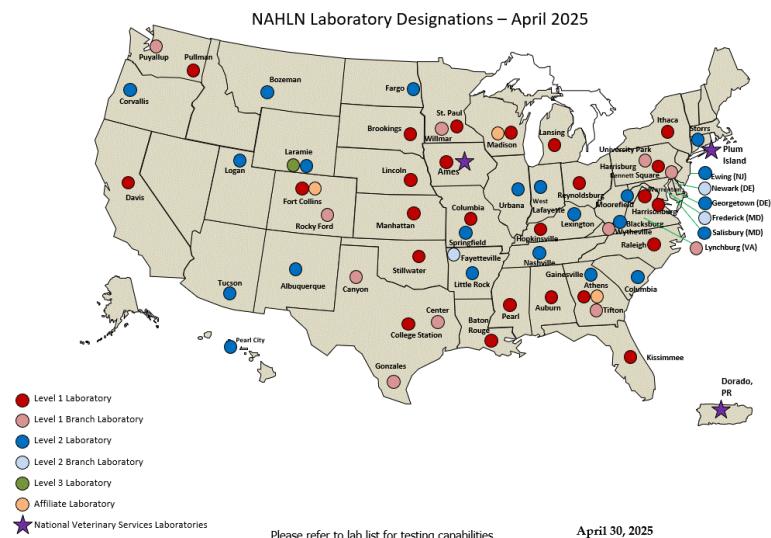
Avian Influenza Virus rRT-PCR
Avian Paramyxovirus -1/END Virus rRT-PCR
African Swine Fever rPCR

Johne's ELISA
Pseudorabies Virus gB & gI ELISA
Toxicology/Analytical Chemistry

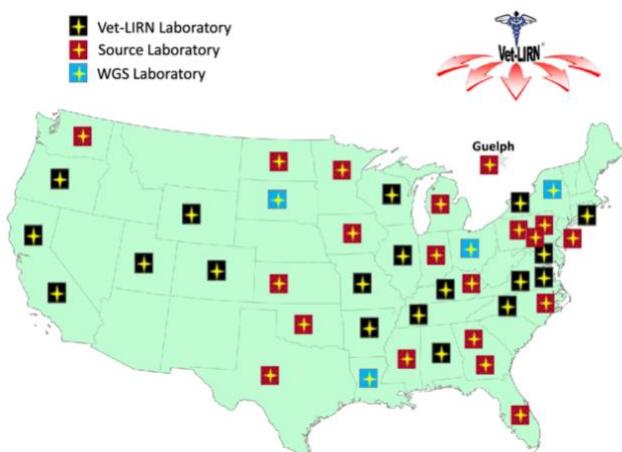
Aflatoxin in Feedstuffs HPLC
Aflatoxin M1 in Tissues HPLC
Copper in Liver ICP
Deoxynivalenol in Feedstuffs HPLC

VMDL PARTICIPATION IN NATIONAL PROGRAMS

1. USDA Antimicrobial Resistance Dashboard
2. USDA EIA Testing Lab
3. USDA National Poultry Improvement Plan (NPIP)
4. Level I Lab of the USDA National Animal Health Laboratory Network (NAHLN)



5. Tier I Lab of FDA Veterinary Laboratory Investigation and Response Network (Vet-LIRN)



ENGAGEMENT & OUTREACH

1. **Bogue S.** Online Rounds supported by ASCVP and ESVCP; Apr. 22nd 2025; Columbia, MO
2. **Delaney L.** Editor. Under the Scope – 2025 Winter MU VMDL Newsletter
3. **Delaney L.** Editor. Under the Scope – 2025 Spring MU VMDL Newsletter
4. **Delaney L.** Editor. Under the Scope – 2025 Summer MU VMDL Newsletter
5. **Delaney L.** Editor. Under the Scope – 2025 Fall MU VMDL Newsletter
6. **Delaney L.** Veterinary Diagnostics for the Dog Breeder. Missouri Pet Breeders Association Meeting, 7 Mar 2025.
7. **Delaney L. Newton R.** VMDL Lab Progress Discussion Panel. Missouri Swine Health Symposium, 23 Jul 2025.
8. **Gull T.** Pradofloxacin in food animals. Missouri Telehealth Network VET-ECHO online CE, 9 Sep 25.
9. **Gull T.** When do you really need susceptibility testing? West Central VMA meeting, 8 Nov 2025.

INTERNATIONAL, NATIONAL, STATE, AND LOCAL SERVICES

1. **DeCoursey M.** Student chapter of the ACVP Faculty Advisor, ASVCP Media and Communications Committee Member, ACVP Late Breaking Abstracts Committee Member, Washington State University Diagnostic Challenge Facilitator.
2. **Delaney L.** West Central Veterinary Medical Association President
3. **Gull T.** ACVPM representative to the NAVLE Item-writing Committee; ACVM Examination Committee (Bacteriology subcommittee); ACVIM Form Writing (Examination) Committee; NATRC Judges' Committee; MU Non-Tenure-track Faculty Committee; Chair, MU CVM Teaching Committee; NATRC Drug Committee Chair; ACVIM/ACVPM Joint Consensus Statement Working Group; USEF Drug Testing Veterinarian; FEI Permitted Treatment Veterinarian; Colonel, U.S. Army Reserve Veterinary Corps; Boone County Large Animal Rescue Team; Missouri Volunteer Veterinary Corps member; Faculty Policy Committee University of Missouri CVM; Faculty advisor, MU SAVMA
4. **Hancock T.** Academic Veterinary Assessment Committee Member, International Council on Veterinary Assessment; Co-chair, ACVP Competency Framework Task Force; Chair, Faculty Policy Committee University of Missouri CVM; Faculty advisor, UMO Chapter of SAVMA; Member, ASVCP Quality and Laboratory Standards Committee
5. **Ierardi RA.** Academy of Veterinary Consultants (AVC), coordinator of the biannual Diagnostic Laboratory Report for the Beef Cattle Health & Well-Being Committee; October 2022-Present.
6. **Kuroki K.** AAVLD Pathology Committee Member; Japanese Group of ACVP (JaGA) Vice President; International Veterinary Pathology Coalition; ACVP Member
7. **Moore S.** WHO Rabies Experts Committee; ACIP Rabies Workgroup; National Institute for Biological Standards and Control (NIBSC) in the UK; USDA National Rabies Management Plan Blue Ribbon Committee for Rabies Serology, American Association of Bioanalysts (ABB) Member
8. **Newton R.** National Animal Health Laboratory Network (NAHLN) IT Committee
9. **Royal A.** ACVP Certifying Exam Board Member; Chair for Clinical Pathology Exam Assembly and

Administration Group

10. **Shen Z.** National Animal Health Laboratory Network (NAHLN) Method and Technical Working Group (MTWG) core committee member
11. **Zhang S.** AAVLD, AAVLD Award Committee, AAVLD Government Relations Committee Member, Strategic Planning Committee Member, Missouri Biosecurity Working Group, Missouri Council on Captive Wild and Exotic Animals.

MAJOR PROFESSIONAL MEETINGS AND TRAININGS

1. AAVLD Accreditation Auditor Training
2. American Association of Veterinary Laboratory Diagnosticians (AAVLD) Annual Meeting
3. American College of Veterinary Pathologists (ACVP) Annual Meeting
4. FDA Veterinary Laboratory Investigation and Response Network (Vet-LIRN) Monthly Conference
5. Missouri Biosecurity Working Group Quarterly Meetings
6. Missouri Captive Wild Animal Health Quarterly Meetings
7. Missouri Veterinary Medical Association (MVMA) Annual Convention and District Meetings
8. National Animal Health Laboratory Network (NAHLN) Preparedness Weekly Conferences
9. National Poultry Improvement Plan (NPIP) Workshop
10. Regional Practitioners Meeting in Columbia, MO
11. Swine Health Symposium & Trade Show in Columbia, MO