



AVHTM Newsletter

Special Events of Interest:

- **IVECCS**
September 6 - 11, 2023
Aurora CO
AVHTM Stream on
Friday, September 8
- **What Is New Regarding Treatment and Prognosis of Feline Aortic Thromboembolism?**
Julien Guillaumin
- **Feline Transfusions: From In-House Donor Collection to Blood Product Administration.**
Amanda Cavanagh
- **Feline Transfusions: From In-House Donor Collection to Blood Product Administration.**
Virginie Wurlod
- **Procoagulant Platelets: How Platelets Die to Resist Antiplatelet Drugs and Promote Coagulation.**
Ronald Li
- **Immunothrombosis In IMHA: Why It Happens and How to Tackle It?**
Avalene Tan
- **Advanced Cell Based Therapies: From Creation to Clinic.**
Anne Hale and Tracy Webb

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Welcome to the Summer AVHTM Newsletter

We have a report about the AVHTM stream at ACVIM from Ann Hohenhaus and our Special Interest Group meeting at ACVIM from Marie Hollowaychuk and also more information about our winning AVHTM ACVIM abstract; congratulations to Kelly Chappell. There is also a call for AVHTM members to help with a Blood Banking Guidelines Consensus Project which would be a fantastic way to progress our discipline, so please do consider getting involved. We hope you enjoy the read and have a lovely summer.



Call for participants to help with a Blood Banking Guidelines Consensus Project

Following on from the success of the AVHTM TRACS guidelines helping us to recognise, treat and minimise the risk of transfusion reactions, Dr. Sarah Musulin is organising a new AVHTM initiative to produce animal blood banking guidelines. Four domains (blood donor considerations, blood donation and collection, transfusion products and component processing, and blood product storage and quality assurance) will be researched and evidence-based guidelines produced. We'd love to have the full breadth of the AVHTM membership's experience and knowledge to help produce guidelines which will aid people and animals all over the world. If you would like to be involved, please register here:

<https://forms.gle/ZzXQdcUkgoWS3Rdx5>

AVHTM SIG at the ACVIM Forum

Marie Holowaychuk, DVM, Dipl. ACVECC

Our annual Special Interest Group (SIG) meeting was held on the evening of June 16th, 2023, at a quaint Italian restaurant across the street from the headquarters hotel for the American College of Veterinary Internal Medicine (ACVIM) Forum. This event served as our Annual General Meeting (AGM) and an opportunity to connect with fellow transfusion medicine and hematology enthusiasts. Dr. Dana LeVine, our current AVHTM President, began the evening with the AGM, sharing updates and information about our organization. Highlights included plans for another set of Consensus Guidelines led by our former President Dr. Sarah Musulin, as well as openings on the Board of Directors to fill outgoing members. Special thanks were given to Rick Johnson, AVHTM's Executive Director, for his tireless efforts behind the scenes of the organization.

After the AVHTM, the mic was turned over to Drs. Marie-Claude Blais (University of Montreal) and Anne Hale (VetStem, Inc.) who led a discussion around challenging crossmatch cases. The first case was of a DAL- recipient dog who was exposed to DAL+ blood and subsequently became crossmatch incompatible to a large pool of donors. The next case was of a dog with similar persistent crossmatch incompatibilities that remains an undetermined cause. The final case of the evening involved a cat with chronic kidney disease and anemia who was also crossmatch incompatible and received a canine blood transfusion as a result. This case ignited a lively discussion about the risks and benefits of xenotransfusion and when it might be indicated. There was a tremendous amount of exchange among the attendees with regards to how crossmatches are performed at their hospitals, the availability of feline blood and feline donors, and how cases with crossmatch incompatibility are handled.

The evening was a superb success, and the food, beverages, and conversation were enjoyed by everyone in attendance. As an attendee and former AVHTM Board Member, I'd like to thank Rick Johnson for organizing the evening, Dr. Dana LeVine for conducting the AGM, and Drs. Anne Hale and Marie-Claude Blais for sharing their interesting cases and perspectives on crossmatch testing. I hope to see you at next year's AVHTM SIG!

Special thanks to Alvedia for sponsoring this year's SIG at the ACVIM Forum and to Wiley for donating *Manual of Veterinary Transfusion Medicine and Blood Banking, 1st Ed*, to Kelly Chappell for receiving the ACVIM AVHTM best trainee abstract award!

Thank you!

Alvedia
Alice Veterinary Diagnostic

Participating in the AVHTM Google Group is a benefit of membership. Members whose memberships have lapsed have a 30-day grace period to renew their membership before they are removed from the group. Be sure to keep your membership active to continue participating in our interactive online discussions!

Click here to



JOIN/RENEW

AVHTM Track at ACVIM 2023

Ann Hohenhaus

AVHTM held its annual continuing education track as part of the ACVIM Forum in Philadelphia. President Dana Levine served as moderator of three sessions on Friday June 16th. These sessions featured Erin Mays on The Future of Transfusion Medicine; Marie-Claude Blais on Crossmatching Controversies and Urs Giger on Hereditary Erythrocyte Disorders. A fourth AVHTM presentation, featuring James Bussel, MD discussing Immune Thrombocytopenia: Lessons from Human Medicine, is available on demand via the ACVIM Form app or at <https://www.acvim.org/acvim-forum/2023-acvim-forum> until October 31, 2023. AVHTM also organized a Special Interest Group dinner at Maggiano's Little Italy where Marie-Claude Blais continued the discussion on crossmatching. I found the evening extremely enjoyable. It was a perfect opportunity to catch up with friends and take a break from the intensity of the ACVIM program.

Dr. Giger's presentation was one of special note. Not only was he a founding member and a previous president of AVHTM, but the content of his lecture spanned his entire distinguished career in hematology and transfusion medicine. Dr. Giger has recently returned home to Switzerland in his retirement and announced this as his last ACVIM presentation. For me, and I suspect many others in the audience, Dr. Giger's swan song ranked this as one of his finest presentations. The handout accompanying the presentation is available to download on the ACVIM app. I am sure all AVHTM member wish Dr. Giger the best in his retirement and we will miss his excellent presentations in the AVHTM continuing education track.

ACVIM AVHTM best trainee abstract: Sample Collection Effect on Canine Fecal Occult Blood Testing and Utility of Hemoglobin Immunochemical Tests

Kelly Chappell DVM

Have you ever wanted to perform a fecal occult blood test on a dog, but they haven't defecated yet? Have you ever wondered if there are better options than the guaiac fecal occult blood test? If you answered yes to either of those questions, then you'll understand why we performed this study.

After completion of veterinary school from Midwestern University, I completed a 1-year small animal rotating internship at The Animal Medical Center and am a current third year small animal internal medicine resident at Iowa State University. When starting my residency, with Dr. Dana LeVine as my mentor, we sat down to discuss residency projects and it was in the discussion that we pondered about fecal occult blood testing. This needed, yet simplistic study stemmed from the question that has been researched extensively in human medicine but not in veterinary medicine; can you use and trust fecal samples via rectal examination for fecal occult blood testing. During discussion about logistics of the study, our second question came about; can we use the fecal immunochemical tests in our cat and dog patients as they do in humans since they have improved sensitivity and specificity.

Our study had two parts. In the first part, we tested two fecal immunochemical tests, Hemosure One Step and OC Light S, in comparison to the guaiac fecal occult blood test Hema-Chek, against varying dilutions of human, canine and feline blood. Unfortunately, both fecal immunochemical tests did not detect canine or feline blood at any dilution. To help assess if sample collection method affected fecal occult blood test results, we prospectively enrolled 308 dogs based on a sample size calculation, either client owned or owned by staff/students, and compared fecal occult blood test results via Hema-Chek with both naturally voided and direct rectal examination fecal samples. We found good association between the samples with 92.5% concordance. We also assessed signalment, diet, medication and select clinicopathologic data association with positive results. Thrombocytopenia (platelet count less than 200,000), of which we had 23 dogs included, was not associated with positive results using both naturally voided and rectally obtained fecal samples, however, we did not have enough dogs with severe thrombocytopenia to fully assess this. On multivariate analysis, we found dogs with GI disease were more likely, and heavier dogs less likely, to test positive. Interestingly, no association was found between diet and fecal occult blood positivity.

ACVIM AVHTM best trainee abstract: Sample Collection Effect on Canine Fecal Occult Blood Testing and Utility of Hemoglobin Immunochemical Tests

With this study, you no longer need to wait for a patient to defecate in order to perform a fecal occult blood test (thrombocytopenia patient jury is still out)! Unfortunately, we learned that human fecal immunochemical tests do not detect canine or feline blood, thus we must continue to use non-specific test methods like the guaiac fecal occult blood test.

Dr. Chappell's study co-authors are Laura Van Vertloo, DVM, MS, DACVIM, Austin Viall, DVM, DACVP, Jennifer Scaccianoce, DVM and Dana LeVine, DVM, PhD, DACVIM



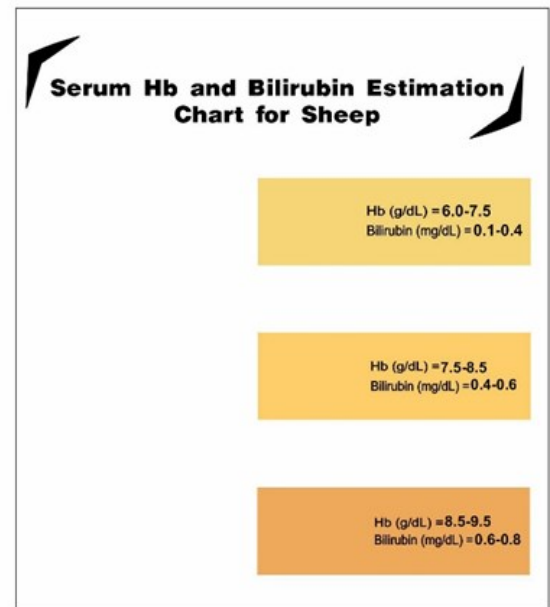
Kelly Chappell DVM

Use of On-field Serum Color Charts as an Aid in Hematological Assessments Prof. Dr. Umer Farooq, Dr. Musadiq Idris, Iram Fatima and Hafsa Sajjad

Department of Physiology, The Islamia University of Bahawalpur- PAKISTAN (physiology@iub.edu.pk)

The physical examination, along with a good history, provides an insight to the health of an animal. However, in order to attain a definitive diagnosis, serum analyses and complete blood count (CBC) are vital and precise tools being used widely at a global scale. The cyanmethemoglobin method and commercially available bilirubin kits are accepted as a gold standard protocols for measuring Hb and serum bilirubin, respectively. Both these protocols require trained personnel, intricate machinery and are expensive. Furthermore, distantly located laboratories and transit of samples from the field to the laboratory make the issue more complicated for livestock farmers who normally rear their livestock far from testing sites. This has led to the devising and validating of various on-field, pen-side point-of-care tests (POCT), color charts/palettes, which may be cheaper, quicker and reliable for estimation of physiological attributes which may provide a prognostic/diagnostic approach to the animal's health.

In human medical sciences, many such color charts have been validated and are being commonly used, such as reference charts for serum chemistry parameters, mobile-based color indicators, Center for Disease Control and Prevention (CDC)-devised reference hemolysis palette, bilirubin color cards and Munsell Skin color charts. However, to the best of the author's knowledge, no such charts/color palettes are used for veterinary practice except for the FAMACHA® chart for detecting anemia through color matching of the mucous membranes of the sheep eyes.



Department of Physiology
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POST-GRADUATE LAB



The values have been validated for adult animals (above 1 year)

Use of On-field Serum Color Charts as an Aid in Hematological Assessments

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Serum color charts/palettes can be helpful in the diagnosis of certain medical conditions. For example, changes in the color and appearance of serum can indicate problems with liver function or kidney function. By using a color chart/palette to compare the color of a patient's serum to a standard range of colors, the physicians can quickly identify potential issues and order further tests if necessary. Additionally, serum color charts used in conjunction with other hematological assessments can help a physician monitor a patient's progress and determine if treatment is effective. They are less-expensive, on-field diagnostic/prognostic tools and training can be provided to the livestock herders to use them at distant locations from the laboratories. However, it's important to note that serum color charts are just one tool in a doctor's diagnostic arsenal and should be used in combination with other tests and assessments for a full picture of a patient's health.

The Department of Physiology at the Islamia University of Bahawalpur, Pakistan is currently working on devising and validating serum/plasma color charts/palettes for diagnostic/prognostic purposes in Cholistan desert livestock. Our preliminary research work on this aspect in the form of a novel on-field serum color chart for estimation of Hb and bilirubin from the serum color of an indigenous sheep breed of Pakistan (Sipli Sheep) is presently under review at a peer-reviewed international journal. We would appreciate any positive critique or guidance regarding this aspect of research and are always open to extended collaborations.

Relevant Articles:

1. Bakar et al., 2017. Jaundice (Hyperbilirubinemia) detection and prediction system using color card technique. In 2017 IEEE 13th International Colloquium on Signal Processing & its Applications (CSPA) (pp. 208-213). IEEE.
2. Ni et al., 2021. A Reference chart for clinical biochemical tests of hemolyzed serum samples. *J. Clin. Lab. Analysis*, 35: 23561.
3. Centre for Disease Control and Prevention, 2019. A Quick-Reference Tool for Hemolysis Status. Accessed from <https://www.cdc.gov/ncezid/dvbd/stories/research-lab-diagnostics/hemolysis-palette.html>.
4. Singh et al., 2022. Development and evaluation of a novel method "bilirubin color card" for screening of treatable jaundice in neonates: prospective comparative diagnostic study. *J. Maternal-Fetal Neonat. Med.*, 1: 1-4.
5. Grace et al., 2007. Comparing FAMACHA® eye color chart and Hemoglobin Color Scale tests for detecting anemia and improving treatment of bovine trypanosomosis in West Africa. *Vet. Parasitol.*, 147: 26-39.
6. McCreath et al., 2016. Use of Munsell color charts to measure skin tone objectively in nursing home residents at risk for pressure ulcer development." *J Adv. Nursing* 72(9): 2077-2085.

Recently Published Articles

- Østergård Jensen S, Christen M, Rondahl V, Holland CT, Jagannathan V, Leeb T, Giger U. **EHP1L1 Frameshift Deletion in English Springer Spaniel Dogs with Dyserythropoietic Anemia and Myopathy Syndrome (DAMS) or Neonatal Losses.** *Genes*. 2022 Aug 26;13(9):1533. <https://doi.org/10.3390/genes13091533>. PMID: 36140701; PMCID: PMC9498568.
- **Transfusion of hyperimmune plasma for protecting foals against *Rhodococcus equi* pneumonia.** Kahn SK, Cohen ND, Bordin AI, Coleman MC, Heird JC, Welsh TH Jr. *Equine Vet J*. 2023 May;55(3):376-388. doi: 10.1111/evj.13858. Epub 2022 Aug 3. PMID: 35834170 Review.
- **Why some canine and feline blood donors do not make the cut: A cohort study.** Descamps M, Humm K. *Vet Rec*. 2023 May 14:e2993. doi: 10.1002/vetr.2993. Online ahead of print. PMID: 37183182
- **Agglutination and hemolytic crossmatching to determine transfusion reaction differences between large and small breed goats.** Kretsch CM, Alonso FH, Buktenica M, Heller MC. *J Vet Intern Med*. 2023 May 25. doi: 10.1111/jvim.16738. Online ahead of print. PMID: 37226646
- **Therapeutics of managing reduced red cell mass associated with chronic kidney disease - Is there a case for earlier intervention?** Elliott J. *J Vet Pharmacol Ther*. 2023 May;46(3):145-157. doi: 10.1111/jvp.13127. Epub 2023 Apr 10. PMID: 37036059 Review.
- **Human intravenous immunoglobulin use for hematological immune-mediated disease in dogs.** Kane BK, Greer RM. *J Am Vet Med Assoc*. 2023 Apr 18;261(7):1004-1010. doi: 10.2460/javma.23.01.0043. Print 2023 Jul 1. PMID: 37072115
- **Coagulation Disorders, Testing, and Treatment in Exotic Animal Critical Care.** Perrin KL. *Vet Clin North Am Exot Anim Pract*. 2023 Jun 13:S1094-9194(23)00024-5. doi: 10.1016/j.cvex.2023.05.006. Online ahead of print. PMID: 37321935 Review.
- **Retrospective evaluation of fresh platelet concentrate administration in dogs: Patient characteristics, outcomes, and transfusion practices in 189 transfusion episodes (2008-2019).** Saint-Pierre LM, Farrell KS, Hopper K, Reagan KL. *J Vet Emerg Crit Care (San Antonio)*. 2023 May-Jun;33(3):360-370. doi: 10.1111/vec.13281. Epub 2023 Feb 17. PMID: 36799875
- **Viability of erythrocytes in canine packed red blood cells stored in CPDA-1 is related to the presence of *Mycoplasma haemocanis*.** Camargo Castillo MA, de Almeida BA, Wissmann D, Moreira RF, Okano FY, Gonzalez FHD, Soares JF, de Faria Valle S. *Comp Immunol Microbiol Infect Dis*. 2023 Jun;97:101982. doi: 10.1016/j.cimid.2023.101982. Epub 2023 Apr 13. PMID: 37120937
- **Successful autologous transfusion from the subcutaneous space in a domestic shorthair cat with suspected anticoagulant rodenticide toxicity.** Nash KJ, Yeo A, Munce K. *JFMS Open Rep*. 2023 May 25;9(1):20551169231172439. doi: 10.1177/20551169231172439. eCollection 2023 Jan-Jun. PMID: 37261037 Free PMC article.
- **Clinical Use of Canine Thawed Refrigerated Plasma: A Historical Case Series.** Chee W, Sharp CR, Boyd CJ. *Animals (Basel)*. 2023 Jun 20;13(12):2040. doi: 10.3390/ani13122040. PMID: 37370550 Free PMC article.
- **Successful blood transfusion in a Holstein cow experiencing hemorrhagic shock under general anesthesia.** Mackintosh ME, Rousseau-Blass F, Pang JM, Pang DSJ. *Can Vet J*. 2023 May;64(5):445-450. PMID: 37138709
- **Cytokine Adsorption as an Adjunctive Treatment for Patients with Immune-Mediated Hemolytic Anemia Receiving Therapeutic Plasma Exchange: A Case Series of 3 Dogs.** Meagher J, Hendricks J, Eatroff A. *Vet Med (Auckl)*. 2023 Jun 1;14:103-110. doi: 10.2147/VMRR.S407139. eCollection 2023. PMID: 37283630 Free PMC article.
- **Letter regarding "Validation of agglutination card kit or simple comparison to gel column method for canine Dal blood typing?"** Giger U, Freeman KP. *J Vet Intern Med*. 2023 Jun 14. <https://doi:10.1111/jvim.16788>. PMID: 37314015
- **Methemoglobinemia, Increased Deformability and Reduced Membrane Stability of Red Blood Cells in a Cat with a CYB5R3 Splice Defect.** Jenni S, Ludwig-Peisker O, Jagannathan V, Lapsina S, Stirn M, Hofmann-Lehmann R, Bogdanov N, Schetle N, Giger U, Leeb T, Bogdanova A. *Cells*. 2023 Mar 24;12(7):991. <https://doi:10.3390/cells12070991>. PMID: 37048064
- **The Indirect Antiglobulin (Coombs') Test Is Specific but Less Sensitive Than the Direct Antiglobulin Test for Detecting Anti-Erythrocytic Autoantibodies and Thereby Immune-Mediated Hemolytic Anemia in Dogs.** Idalan N, Müller E, Giger U. *Vet. Sci*. 2023, 10(7), 415; <https://doi.org/10.3390/vetsci10070415>



We're on the web!

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AVHTM

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AVHTM is an IRS approved 501(c)(3) nonprofit professional association composed of veterinarians, hematologists, academics, veterinary technicians, blood bankers, and interested public who desire to further scientific advances in transfusion medicine and veterinary hematology.

We engage in veterinary research, promote industry standards, develop guidelines for canine and feline blood collection and processing, and publish scientific research in peer-reviewed publications.

Visit us online to learn more about AVHTM!

MEMBERSHIP BENEFITS

As an AVHTM member, you are eligible for the following:

- Reduced IVECCS registration fee (veterinarians save \$100 and technicians save \$25!)
- Access the a "Members Only" section of the AVHTM website, which includes access to:
 - o Other AVHTM profiles
 - o PubMed articles
 - o Forum for posting questions, cases, and research
- Ability to ask and answer questions posted to the AVHTM members-only Google group.

Please feel welcome to share this newsletter with interested colleagues and encourage them to become an AVHTM member!