Repro

Newsletter Vol. 6

GOOD BYE 2018

Broadview
REPRODUCTIVE SERVICES

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Happy New Year

Welcome!

Dr. Daniel Kelleher has joined the Reproduction Department and has completed training with Minitube USA (formerly MOFA), is PennHip certified, USDA accredited and is a member of the Society for Theriogenology. Within reproduction, Dr. Kelleher is especially interested in male infertility. He takes satisfaction working with all breeds but specifically the protection breeds.

Dr. Kelleher grew up in Beverly Massachusetts as one of six children. His passion for animals stems from his childhood and first dog, "Slick"- a Belgian Shepherd. He attended the University of New Hampshire receiving his BS in Animal Science.He went on to obtain his doctorate in veterinary medicine from Michigan State University.

Besides reproductive medicine, Dr. Kelleher also enjoys dentistry, surgery and treating our exotic patients. He is Fear Free certified. Regardless of species, he continually aims to provide every patient with a comfortable stress-free visit.

Dr. Kelleher enjoys spending his spare time outdoors with his family including two dogs, two cats and six chickens. He is an avid fly fisherman, skier, and hiker.

Luteinizing Hormone

Dr. Daniel Kelleher

I'm excited to report that I just returned from Wisconsin where I completed training in semen freezing, breeding management, and insemination techniques including TCI and the Mavic catheter. The most important tip that I learned was that appropriate timing improves conception rates three out of four times. Proper planning can also improve litter sizes. We recommend timing the estrus cycle to best suit your breeding plan for optimal results.

You might already be familiar with vaginal cytology, vaginoscopy, and even serum progesterone. These are tools used in timing of the estrus cycle that routinely help us determine when the LH surge occurred. The LH surge is so critical because it precedes ovulation by 48-72 hours. Knowing these dates allows us to calculate the whelping date and plan diagnostics during pregnancy to assess the litter. The LH test is a tool that we can use with the aforementioned diagnostics to more precisely determine when the surge occurred, and therefore when ovulation is most likely to occur. In sum, if you've been successful we may be able to do even better.

Here's how the LH test would be applied. At the breeding soundness exam vaginal cytology and vaginoscopy are used to assess physical changes due to hormonal influence. Serial serum progesterone results allow us to approximate the LH surge within about 48 hours. It is well established that ovulation typically occurs 48-72hrs after the LH surge in the healthy bitch but normal individual variation can be as wide as 9-96hrs. So LH testing, when used in conjunction with progesterone testing, allows us to narrow down the LH surge to a 12-hour window. This is especially important if you plan to breed with frozen semen such as from a deceased sire or from a stud with limited access. For many studs, semen quality may be poorer after a freeze. Even in the best scenarios frozen semen only lasts about 12 hours in the female reproductive tract. Therefore it's critical to time the estrus cycle to get the semen into the uterus when the eggs are mature and accessible. Failure to do so may result in a miss or a suboptimal litter size.

How do we perform LH testing?

To reiterate, LH testing is a tool that is best used in conjunction with progesterone testing. It is not a replacement test. Progesterone testing generally requires blood sampling every other day to estimate an LH rise and is continued generally until ovulation. LH testing requires blood samples to be drawn on days in between progesterone sampling. In other words, we recommend drawing blood every day until the LH surge has been identified and then following progesterone until ovulation. This generally means we have 1-3 samples dedicated to run the LH test. Here's an example:

WEEK 1

MONDAY

Fluffy arrives to see Dr. Kelleher as she's showing signs of heat. A vaginal cytology is taken and vaginoscopy performed. Progesterone timing is initiated with the first blood draw and a sample is frozen for potential LH testing. Results of the progesterone are above baseline.

TUESDAY

Fluffy returns and a blood sample is drawn for LH testing. This sample is frozen.

WEDNESDAY

Fluffy returns for her second progesterone. The result is not quite a surge number. A sample of that blood is frozen for potential LH testing.

THURSDAY

Fluffy is back for the second LH blood sample, which is also frozen.

FRIDAY

We draw the third progesterone and the result indicates a post-LH surge value. Sensibly, it would seem that the **LH surge occurred sometime after Wednesday and before Friday**. We perform the LH test from the Wednesday, Thursday and Friday samples that we froze, with that we estimate that the surge occurred on Thursday. 48-72 hours later brings us to ovulation on Saturday/Sunday.

SUNDAY

OVULATION

WEEK 2

Fluffy's owners plan to breed her with frozen semen banked from the 1995 AKC champion. Given the value of the breeding, we want to optimize the time when we inseminate Fluffy. We recommend breeding by TCI on Wednesday and Thursday (5 and 6 days post LH surge) or with a surgical on Thursday (day 6) to ensure that the semen is there when the eggs are mature and ready.

To summarize progesterone testing, we use it to estimate when the LH surge will occur and follow progesterone levels out to ensure ovulation has occurred and that the bitch has high enough levels to support healthy pregnancy. Progesterone testing is important as we do encounter variations between individual dogs and interruptions in the estrus cycle such as split heats.

Please see the charted breeding plan below.

	MON	TUE	WED	THU	FRI	SAT	SUN
WEEK 1	Vaginal Cytology Vaginoscopy Progesterone #1 above baseline Sample frozen for LH #1	LH Sample #2 Frozen	Progesterone #2 > than Progesterone #1 LH Sample #3 Frozen (RUN)	LH Blood Sample #4 Frozen (RUN) LH SURGE	Progesterone #3 - Post Surge LH Sample #5 (RUN) (Day 1)	(Day 2)	OVULATION Progesterone #4 (Day 3)
WEEK 2	(Day 4)	(Day 5)	(Day 6)	Discretionary Progesterone testing Confirm Pregnancy Levels			
	Confirm Progesterone Rise Pre-breeding	TCI #1	TCI #2 or Surgical				

As always, the Reproductive Team at Broadview Animal Hospital is happy to consult and help develop the right diagnostic plan to help make your breeding plans as successful as possible.

USE OF ULTRASOUND IN CANINE REPRODUCTIVE SERVICES

DR. HEATHER BERRY

Ultrasound is an extremely useful tool with numerous applications in veterinary medicine. We often perform ultrasound examinations to further refine what is seen on radiographs. Cases of vomiting or decreased appetite due to foreign objects or tumors, for example, can be assessed. We can examine the liver, kidneys, pancreas, spleen and adrenal glands for lesions. Cases of trauma or clotting problems can be scanned for abdominal fluid or internal bleeding. The heart can be examined for valve lesions, cardiomyopathy and tumors.

In our Reproductive Services Department, ultrasound is utilized daily. We recommend an ultrasound 25-30 days after breeding for pregnancy diagnosis. At this time, the uterus and ovaries are examined to determine if any problems are present, such as abortion or ovarian cysts. This period is also the bitch's highest risk of pyometra, a potentially life-threatening infection of the uterus. Ultrasound can detect fluid and inflammation in the uterus before it can be palpated or seen on an X-Ray. Medical or surgical management can therefore be started earlier before the bitch is seriously ill.

Infertility investigations also benefit from an ultrasound examination. The testicles can be ultrasounded if there is a problem detected on physical examination or if semen analysis has decreased in quality. The prostate can be evaluated for cysts, abscesses, tumors, inflammation (prostatitis) and enlargement (benign prostatic hypertrophy). An infertile bitch's reproductive tract can be evaluated. If her anatomy appears normal, we can search for other causes.

Ultrasound is extremely helpful in dystocia cases and prior to planned Caesarian sections, especially if a specific due date is not known. In cases of dystocia, ultrasound is an efficient way to know if viable pups are still present. Fetal heart rates should be around 200 beats per minute (bpm). A fetal heart rate of less than 180 bpm indicates fetal stress and an emergency C-Section is warranted. Fetal kidney development and intestinal motility are late gestation markers, present after

day 61 or 62 on ultrasound examination. Fetal lung maturation, however, happens in the last 48 hours before whelping and can not be evaluated. Our Reproductive Services Team will work together with breeders to develop the best plan for them and their dogs. Ultrasound provides a useful piece of the puzzle, added to the dog's history, physical exam findings and blood test results, that can help us develop a successful breeding program.

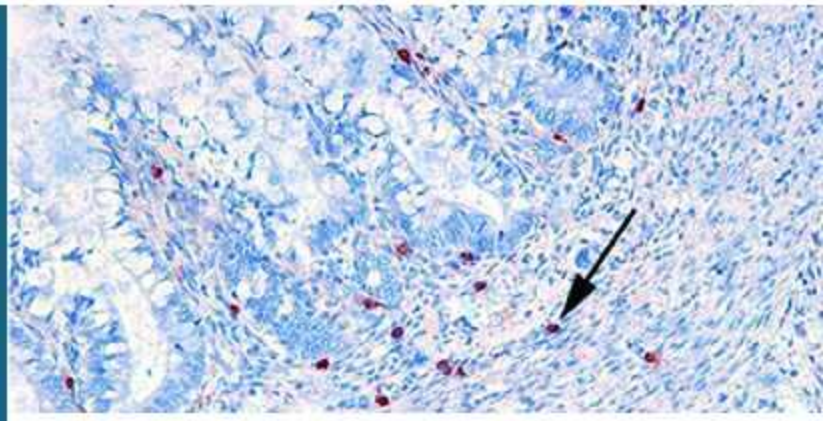
Infectious Disease & Its Impact on Breeding Animals and Their Human Companions

Dr. Sara LePine

Infectious diseases routinely cause illness and decrease fertility in our small animal companions. These diseases can cause suffering and even death in breeding animals and their offspring, as well as add financial burden to a breeding program. Caused by viruses, bacteria, or fungi, infectious diseases can be transmitted in different ways, including through respiratory secretions, urine, fecal matter, semen, vaginal discharge, and placentas/ birthing fluids. Dog breeders should especially be aware of common canine infectious diseases and how to avoid them so as to ensure healthy animals and breeding programs. Given that some canine infectious diseases are zoonotic (meaning that they can be spread to people), it is also important to protect against health risks for dog owners. Broadview Reproductive Services offers routine disease screening for our breeding studs and bitches.

BRUCELLOSIS

Brucellosis is one infectious disease that we recommend testing all breeding animals for at least every 6 months. Caused by a bacterium called Brucella canis, the infection may or may not lead to clinical signs in dogs. Clinical signs may include dry hair coat, lethargy, abnormal scrotal size, infertility, and abortions. This bacterium can be spread across mucous membranes and can be transmitted through ingestion, inhalation, and venereally. Male dogs shed organisms in their urine and semen. Female dogs shed organisms through vaginal secretions, placentas, and aborted material.

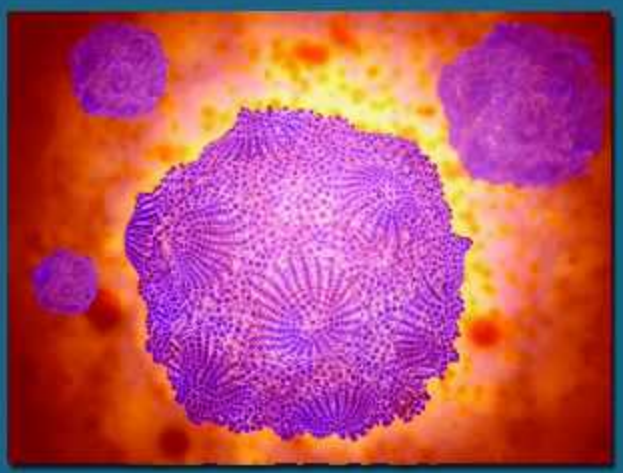


Just think about how many dogs sniff another dog's urine! Additionally, humans can be exposed through handling urine, semen, aborted material, birth fluids, or placentas. Gloves should always be used when handling these materials. Brucellosis will survive in chilled semen shipment, so any stud should be tested so he doesn't expose you or your bitch.

HERPESEVIRUS

Herpesvirus infection is nearly ubiquitous in the dog population. Most dogs are exposed to herpesviruses and most adult dogs do not get ill, or show only mild upper respiratory symptoms. However, Herpesvirus, like brucellosis, can cause resorption of embryos, late stage abortion of the fetuses, still birth, or early neonatal losses. Transmission is through direct contact with genital or respiratory secretions or in utero. While adult dogs usually have mild respiratory signs, clinical signs can be severe in young puppies less than 3 weeks of age (with an extremely high fatality rate of >95%) and may lead to loss of interest in nursing, failure to thrive, respiratory and gastrointestinal signs, among others. Puppies usually get sick from herpesvirus if the bitch has never been infected and gets exposed in the last 3 weeks of pregnancy or the bitch or puppies are exposed during the first 3 weeks of life. For this reason, we recommend that all breeding bitches and their puppies be isolated from all other dogs, including your own dogs that may be traveling for work, show, breeding, or grooming for the last 3 weeks of pregnancy and the first 6 weeks of nursing.

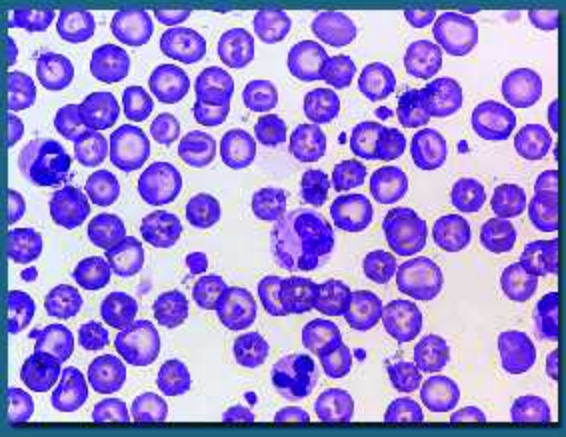
Parvovirus is a virus that causes severe vomiting and diarrhea in puppies and sometimes young unvaccinated dogs. This virus causes damage to the gastrointestinal tissues and can reduce the puppy's white blood cell count, making them vulnerable to secondary infection. Dogs infected with this virus are at risk of dying from dehydration, blood and protein loss, and sepsis (the body's extreme response to infection). Parvovirus is a very stable virus and can live in the environment for up to 2 years. It is spread by oronasal exposure to contaminated feces or soil on which other dogs have defecated. Fomites (objects that can carry infection, like clothes, shoes, or furniture) also play a role in transmission. Puppies, once over 6 weeks, should only be socialized with vaccinated, healthy dogs. Young puppies should be kept in a clean environment where other dogs are not permitted, and people who care for puppies should have clean clothes and shoes and practice good hygiene. The canine parvovirus vaccine is critical for prevention of parvovirus infection and is considered a "core" vaccine by the American Animal Hospital Association (AAHA).

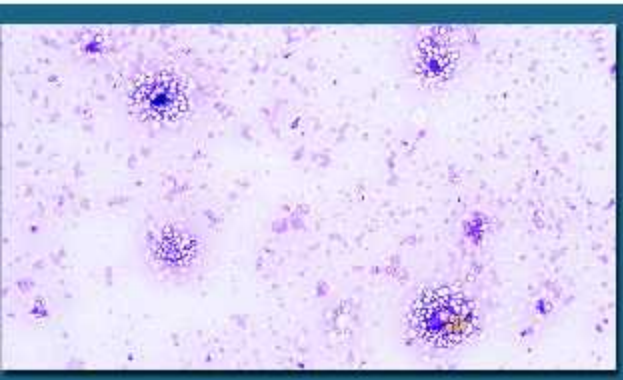


PARVOVIRUS

DISTEMPER

Canine Distemper Virus is spread by close contact and as an aerosol from respiratory secretions. It can cause coughing and sneezing, conjunctivitis and other changes to the eyes, skin disease, vomiting, diarrhea, and even neurological signs such as seizures. While the severity of disease associated with canine distemper virus varies depending on each dog's immune system and viral strain, the disease is fatal in up to 50% of cases. Like with parvovirus, vaccination and good hygiene is the cornerstone of prevention.





CANINE INFECTIOUS RESPIRATORY DISEASE COMPLEX

Canine Infectious Respiratory Disease Complex (CIRDC), commonly known as "kennel cough", is a collection of various viruses and bacteria that can cause varying degrees of respiratory illness in dogs, from mild upper respiratory signs to fatal pneumonias. The most common causative organisms include Mycoplasma species, Bordetella, Parainfluenza, Canine Influenza, and Canine Adenovirus, among others. These viruses and bacteria can be transmitted by sick dogs or asymptomatic carrier animals. Spread is through respiratory secretions from close contact (nose touching), aerosols in shared air spaces, and on fomites such as toys, food, and water bowls and human hands. Reducing coinfection (secondary infections) is very important in order to reduce the severity of disease. Kennel cough vaccination provides protection against some causes of the disease, but does not guarantee against developing disease. Vaccinated dogs that get kennel cough usually have milder signs than unvaccinated dogs. Vaccinating bitches before breeding provides some protection through transfer of antibodies in the mother's colostrum.

In general, good hygiene and isolating your young puppies and breeding bitches from other dogs is an essential part of disease prevention. Pregnant bitches and puppies should be kept away from other dogs and communal spaces where other dogs may urinate or defecate. Clothing and shoes should be changed between handling other dogs and your breeding stock and puppies. Hand washing between handling different animal groups and wearing gloves when touching sick animals or when handling urine, feces, semen, or birth materials will help prevent spreading potential sources of infection between dogs as well as zoonotic infection to yourself and other people.

Please contact us at Broadview Reproductive Services for more information on how to keep your breeding dogs and puppies safe. As always, we look forward to helping you improve your breeding program.

THANK you

Biannual Breeders Spooktacular October 20th, 2018

Thank You for Attending. We look Forward to Seeing You at Our Next Ones !

October 28th, All Breed Eye Heart & Repro Clinic

We Love What We Do and Love Working with Our Valued Breeders.

Thank You Thank You Thank You Thank

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