

# NEWS FLASH: REPORT ON HAEMATOLOGY SMEARS

Mr Acantho Cyte reports: We are happy to bring you the following update. Since our article, "Red cells have feelings too" in the August Synapse, we have done a survey and found the following.

- We are being treated with a lot more care and the quality of our smears have improved.
- More of our smears seem to be dried before being placed into those small, dark, humid slide holders.
- Not many, if any, were exposed to formalin.
- We are proud to say that many of us are being recognised as individuals and more and more of our slides are labelled with our names.

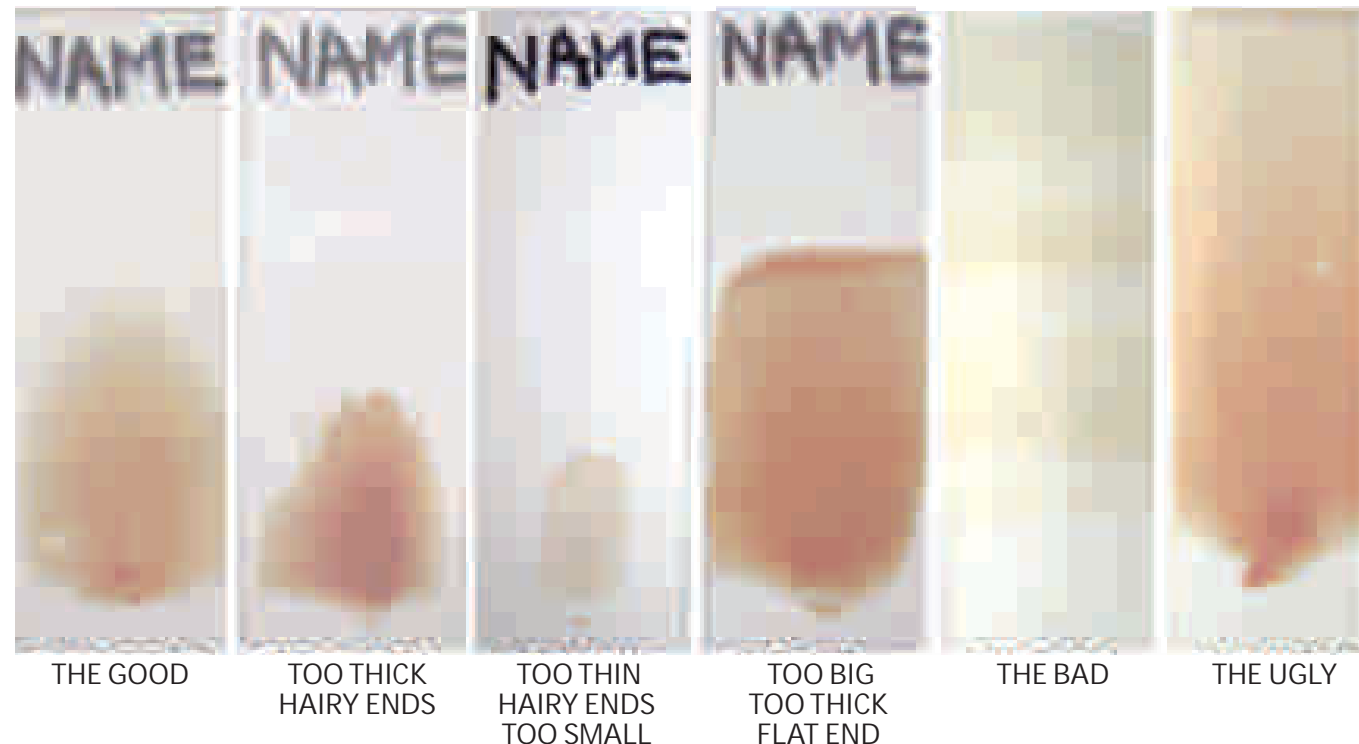
We had an overwhelming response to our quest for more smears. Ms. Lympho Blast had the following to say: At the lab we are receiving smears for 64% of dog cases submitted and 65% of cat cases submitted. That is an excellent effort! However, we would like to aim even higher. We've set the target for 80%, and we'll report back at a later stage.

Sadly, our cow, sheep and horse friends are lagging behind in the race. We're only seeing smears submitted for 19% of our farm animal cases. This excludes project cattle and fresh race horse samples (and there is no need to send smears for these animals as they are generally super fresh). Cow samples that will not arrive on the same day, DEFINITELY need a smear. It is fine to make a smear once you are back at the clinic.

A late input from Mr Nucleoli Plasma: Please ensure that if you are sending samples from the South Island or have continuing trouble with couriers, that you make a fresh

## THE GOOD, THE BAD AND THE UGLY!!

Below is an example of a good blood smear and some not-so-good blood smears. Note the good blood smear has an even, smooth, rounded "tail" or end. This rounded end or tail is where we do most of the differential counting.



smear. We occasionally get samples that have gone on a Contiki tour around the country and only arrive at the lab 2 days later.

Kiwi red and white cells have just put forward the following important point: When a blood is sent from a kiwi or from any bird for analysis, please submit a fresh smear.

A quick tip on how to make a blood smear.

1. Place a drop of blood at the end of the slide.
  - o Not too small as the smear will be too thin and there will be no white cells to count.
  - o Not too big or you will either go all the way off the slide or end up with a big blob of blood and a very short smear. Again all our white cells will suffer, as they will be stuck in the blob of blood and a differential will be hard to do.
2. When pulling back your spreader into the blood, wait a moment for the blood to spread sideways. As soon as it has almost reached the end of the spreader, push forward at a 45° angle
3. Experiment with the speed. A good smear should look as shown below. Most of the differential gets done in the feathered edge.
4. Label the slide with the animal's name

Thank you for your support and for the improved quality of blood smears. If you need a copy of our previous article from the August Synapse, please contact us at the Hamilton Haematology Department and we can fax or email you a copy. Look out for our next report!!

Ray, Yolande and Desma  
Haematology Dept, Hamilton

## MERRY CHRISTMAS



It's hard to believe that another year is almost over!! 2007 has been an exciting time of growth for NZVP. Whether you have been using NZVP services for a few weeks, months or a few years, we would like to thank you for your support and helping 2007 to be another successful year for NZVP.

Business for the laboratory has grown considerably in 2007 and we have responded to this growth by increasing the staff numbers in Chemistry, Haematology and Microbiology, Administration Support and Specimen Reception; as well as investing in additional laboratory analysers.

There have also been some changes in the management structure. Cathy (Evans) Lang moved into the role of General Management for the Laboratory in June and Anna Cross now has the dual role of Quality Assurance in addition to the Palmerston North Laboratory Management. The Accounts Department has been consolidated and centralised in the Hamilton Laboratory, and Linda Alston, Business Support Coordinator joined the team in October.

2008 brings more excitement with the Hamilton Laboratory relocating into the Pathlab Laboratory in the Anglesea Clinic block in Thackeray Street. The move will take place late February 2008 giving the business more space for growth and improved conditions.

We would like to thank our clients for their continued support throughout the year and we look forward to working with you all again in 2008. From our team at NZVP, we wish you and your families a very happy Christmas and prosperous New Year.

### Christmas and New Year Laboratory Hours

Monday 24th December: 7.30am – 5.30pm	Monday 31st December: 7.30am – 5.30pm
Tuesday 25th December: CLOSED	Tuesday 1st January: CLOSED
Wednesday 26th December: CLOSED	Wednesday 2nd January: CLOSED
Thursday 27th December: 7.30am – 5.30pm	Thursday 3rd January: 7.30am – 5.30pm
Friday 28th December: 7.30am – 5.30pm	Friday 4th January: 7.30am – 5.30pm
Saturday 29th December: 8.00am – 11.30am	Saturday 5th January: 8.00am – 11.30am
Sunday 30th December: CLOSED	Sunday 6th January: CLOSED

Normal laboratory hours will resume from Monday 7th January 2008. Please note there can be an extended turnaround time of 3-4 working days on Histology cases due to processing histology over the statutory holiday period. Normal histology turnaround times will resume from Thursday 3rd January 2008.

## CHANGES TO SYNAPSE

A recent survey sent out in the Companion and Production Animal Synapse issues returned some excellent feedback and ideas for our Synapse newsletter. The majority of survey respondents indicated a preference for a combined companion and production animal newsletter. We also thought that this was a good idea! This issue is the first combined animal Synapse newsletter. The ideas you forwarded for article topics have been circulated around the pathologists and technical staff, so look out for some of those articles in the coming issues.

The Synapse will be published every two months and is available in a hard copy format and/or in PDF electronic format.

### IN THIS ISSUE ...

- TSE Up-date from MAF Biosecurity
- Interest cases: Johne's Disease in Deer, Cows "Suddenly Off Milk"; Haemophilia in Jack Russell Terriers
- Update from Haematology Survey - The Good, The Bad and The Ugly.
- Progesterone assays
- Changes to B12 reference ranges

### COMING UP IN FEBRUARY'S ISSUE ...

- Assessing Serum Chloride Concentration in Companion Animals
- Equine Herpesvirus: What test should I use?
- Tips for packaging and sending samples
- Meet the Pathologists: Who works for NZVP and at which lab
- And much more!!

## TSE UPDATE FROM MAF BIOSECURITY

MAF's TSE surveillance incentive programme is designed to provide another level of assurance to overseas markets about our freedom from TSE diseases. The three main programmes within this are BSE, CWD and scrapie. As many of you will be aware, in May of this year, the World Animal Health Organisation confirmed New Zealand as a negligible BSE risk country. As a consequence of this there is a reduced surveillance requirement on New Zealand to test cattle brains. There is currently no similar requirement to meet specific levels of testing for sheep, goats and deer. An EU audit approximately 12 months ago identified that New Zealand authorities needed to keep better records which demonstrate the progressive nature of the clinical cases provided for BSE surveillance. To achieve this MAF require a completed laboratory submission form to be submitted, along with histology results and TSE submission form. Only a small proportion of laboratory submission forms have any relevant history provided. This makes it hard for laboratory and MAF staff to interpret the results. We, therefore, request that you complete the clinical history component of the laboratory submission form.

From time to time we report back to practitioners that we were unable to rule out TSEs because the sample was unsuitable. The reasons are varied and include autolysis and brain damaged during euthanasia or removal. For the brain to be autolysed, the carcass must have been in poor condition – we admire your determination, but wonder about the clinical signs observed. Damage during euthanasia may be something you have control over as hopefully you are observing the animal first. Damage during brain removal can be minimised by adopting a suitable technique. For those who are a bit rusty, we refer you to the the brain removal CD available on request from MAF (TSEsurveillance@maf.govt.nz). Sample numbers for the BSE and CWD programmes are running at about 1/3 and 2/3 respectively of the numbers from the same time last year. Samples for the scrapie programme are few and clustered to a small number of practices. If you genuinely suspect a TSE, you should contact MAF on 0800 809 966

Lachlan McIntyre  
Senior Adviser - Surveillance Group (Animals)  
MAF Biosecurity New Zealand

## COWS “SUDDENLY OFF MILK”

In several recent cases involving adult dairy cattle the common history was “suddenly off milk”. One cow was also reported to have suffered rapid weight loss and one of the remaining two was described as “not doing well”. Haematology revealed anaemia in all with haematocrits ranging from 0.18 – 0.23 L/L (reference range 0.26 – 0.48 L/L). Nucleation and “stippling” of erythrocytes was seen in all smears. The other consistent feature, evident on biochemistry, was that of marked hypomagnesaemia. Concentrations ranged from 0.19 – 0.28mmol/L (reference range 0.49 – 1.15 mmol/L). These findings confirmed chronic hypomagnesaemia as the cause of production loss. Chronic hypomagnesaemia, also referred to as “Taranaki anaemia”, affects erythrocyte maturation. The incorporation of iron into haemoglobin is compromised resulting in the characteristic anaemia with “stippling” and nucleation of erythrocytes.

*References:*  
*Young BJ. Siderocytosis associated with hypomagnesaemia in cattle. New Zealand Veterinary Journal 30(10), 164, 1982*  
*Hicks JD and Pauli JV. Chronic udder oedema: Clinical aspects of the syndrome and its connection with hypomagnesaemia and anaemia. New Zealand Veterinary Journal 24(10), 225-228, 1976*

## JOHNES DISEASE IN YOUNG WAPITI CROSS DEER

Twelve of 300 ten-month-old Wapiti cross deer died over a period of three weeks following weight loss but with no evidence of scouring. Worm burdens, although moderate, were not considered likely to be the cause of the losses. Post mortem examination revealed small intestinal thickening and mesenteric lymphadenopathy. Subsequent histology confirmed granulomatous enteritis and lymphadenitis with the presence of numerous acid-fast organisms. Of particular concern is the relative immaturity of these deer in association with the manifestation of Johnes disease in an “outbreak” form.

*Reference:*  
*Mackintosh CG, de Lisle GW, Collins DM, Griffin JFT. Mycobacterial diseases of deer. New Zealand Veterinary Journal 52 (4), 163-174, 2004.*

*With thanks to Ray Castle, The Vet Club, Rotorua for this case.*

## HAEMOPHILIA IN JACK RUSSELL TERRIERS

About 4 years ago a family of Jack Russell's were identified which were haemophiliacs. Dr Neil Marshall was involved with the cases and had the samples analysed at Cornell University. They were able to identify the genetic defect in Factor VIII. A sample from a young Jack Russell which developed a large haematoma after being microchipped was recently sent to us. His PT was normal which ruled out rat bait toxicity and platelet numbers were OK. His APTT was mildly increased at 23 seconds (normal is 12 – 17 seconds). This is the same picture we saw in the previous cases so I am very suspicious of haemophilia. Whether this is a new mutation or there are still dogs around from the previous matings we are not sure but it is something to be aware of.

*Thanks to Ann Sutherland & Tina Orsler, Eastland Veterinary Services.*

Jenni Donald

## PROGESTERONE ASSAYS IN DOGS

There is always lots of discussion about the different assays available for measuring canine progesterone and which is best. Traditionally the radioimmunoassay (RIA) method was used and many of the original publications used this technology. This has largely been replaced now by chemiluminescent immunoassays done on the Immulite analyser.

A recent publication<sup>1</sup> looked at some aspects of sample handling and progesterone assays. The initial comparative studies by Kutzler et al.<sup>2</sup> in 2003 reported a very small difference between RIA and the Immulite assays. In Volkmann's more recent work, progesterone values on the RIA were about 1.5 x greater than the value on the Immulite – ie a 5 on the RIA was about 3.5 on the Immulite and 10 on the RIA was about 7.5 on the Immulite. The authors suggest that the LH surge probably occurs 1 day (sometimes 2 days) before progesterone reaches 1.5-2.2 ng/ml on the Immulite assay. This finding needs to be taken in the context that each Immulite analyser is slightly different and hormone assays are not as exact as other chemistry tests regardless of the analyser used. The interassay variation for this type of test is about 10% ie a value of 1.0 means 0.9 – 1.1, and a value of 16 means it could be 14.4 or 17.6. As always with hormone assays, the results do need to be interpreted together with other information (clinical signs, vaginal smear result etc).

The second finding on this paper is that refrigeration of the red top tube during the first 2 hours after sample collection significantly decreased the progesterone level. On average there

was about a 30% decrease. Once the sample has clotted there is no effect of refrigerating the sample. Therefore samples which cannot be centrifuged soon after collection should be held at room temp for at least 2 hours to allow the clot to form.

Please Note: A recent manufacturer upgrade in the analyser software reduced the maximum reporting of serum progesterone concentration from 40ng/ml to 20ng/ml. This is to ensure the greatest precision, accuracy and linearity of the assay and of the results generated. If you have any questions regarding this assay, please do not hesitate to contact the laboratory.

*References:*  
*1 Volkmann D.H. (2006) The effects of storage time and temperature and anticoagulant on laboratory measurements of canine blood progesterone concentrations. Theriogenology 66 1583-1586*  
*2 Kutzler et al., (2003) Accuracy of canine parturition date prediction from the initial rise in preovulatory progesterone concentration. Theriogenology 60 1187-1196*

*Thanks to Dr Fiona Hollinshead, GlenBred: Advanced Small Animal Reproduction, Matamata Veterinary Services, for her input to this article.*

Jenni Donald

## B12 REFERENCE RANGES

A recent manufacturer upgrade in the analyser software has increased the minimum reporting of Vitamin B12 concentration from <50pmol/L to <110pmol/L. This is to ensure the greatest precision, accuracy and linearity of the assay and of the results generated. If you have any questions regarding this assay, please do not hesitate to contact the laboratory.