

Cow Blood Transfusion Tips

September 2013



The big increase in theileriosis cases in the North Island this Spring has resulted in a number of veterinarians attempting blood transfusions. Many of these are reported as being successful and are worth doing from a welfare and treatment aspect. They are also very satisfying for veterinarians and farmer clients.

Special thanks to those who provided the following suggestions which you may find helpful.

From Ashley O'Driscoll, Hauraki Veterinary Services

1. **Recipient cows:** Remember you have nothing to lose. If a cow needs a transfusion, it needs a transfusion. It will die without it (from experience), so it's worth a try, even if you don't always get a positive outcome.
2. PCV <10 (in house) needs a transfusion. Period.
3. PCV between 10 and 15 will benefit from a transfusion (think about how valuable the individual animal is).
4. Cows don't actually look yellow until their PCV <12. Be discerning and run PCVs on anything slightly pale or otherwise sick in an affected herd. Have faith that the astute farmer may actually be better at finding pale animals than you are.
5. **Potential donor cows:** Use the small animal rules: young (4-5 years old) and either dry or 1+ month post calving. Large-ish, BCS 5+. TLC after blood taken (but no specific tx for donor).
6. Do PCVs on potential donors: cows can go as low as PCV 15 before looking sick. You don't want a donor with a low PCV.
7. We have been getting blood from the local home-kill guy. One cow gives you about 20 litres of blood collected straight into buckets with anticoagulant
8. 12 grams of sodium citrate dissolved in 300 mL saline does 5 litres of blood.
9. 5 litres of blood is enough to keep a cow alive (even 3 is). Aim for 5.
10. My suspicion is that stored whole blood with anti-coagulant only lasts 24 hours (that's a rule borrowed from the small animal world). So take blood only as needed. A PCV cow of 8 who is still standing will still be alive tomorrow.
11. An option - do a jugular cut and collect in a bucket. 'Standard' collecting it is just too slow. However giving it with a giving set and a 14g needle takes about 15 minutes.
12. Other drugs: Antimine and Penicillin 30 minutes pre-transfusion. Maybe an iron supplement such as Hemo15.

13. Put aside at least 1.5-2 hours when you do your first transfusion.
14. The need for transfusions will end. When there is an outbreak on a farm, it seems that you get a few terribly sick animals (around 1% of herd), but it quickly becomes less severe.

I'm very happy to answer any questions. Transfusions are great PR (and fun!), but helping the farmer do everything right for the rest of the season, to minimise impact, is the most important thing.

Phone Hauraki Veterinary Services on 07 867 7056 for more information.

From Sarah Briggs – Franklin Vets Te Kauwhata

1. Donor Cow should be large, quiet, empty if possible, or as far away from calving as possible. Use sedation.
2. Take 4-5L from donor cow.
3. Clip, basic prep of jugular.
4. Use 14ga needle or catheter.
5. Infuse 400ml of 3.8% sodium citrate solution into a 4L collection bag (or a bucket if you don't have one) a good formula to use is 38g of sodium citrate into a 1L Hartmanns and that does 2 cows.

NB: I have all of the order numbers for this stock if veterinary clinics wish to obtain this to make ordering items for their blood transfusion kit easier.

6. Recipient cow – We advise transfusion for anything with PCV below 14%.
7. Clip and prep.
8. Can use same needle (disinfected with alcohol) - I like catheters.
9. Attach bag, or extension set from bucket, and infuse!

Once you get quick it takes about an hour.

WARNING: Transfusion reactions. I personally have been the only person in our practice to witness this. It is imperative if you are doing transfusions have both Antimine and Adrenaline (5-10ml) on hand in case of these emergencies. If you would like a rundown of what we experienced please make contact. Most veterinarians should be aware of these reactions.

Phone Franklin Vets Te Kauwhata on 07 826 4838 for more information.

From Dave Rankin, Wanganui Veterinary Services

1. Donor cows: Restrain in head bail and tie head back at cow shoulder height with rope halter - not nose grips.
2. Clip neck (for sterility and so you don't use same donor twice) and prepare site with iodine and local both sides of jugular (not directly over jugular as this makes it harder to identify).
3. Stab incision over jugular with scalpel, insert a 12 gauge 2 inch needle (from Shoof), attach to blood bag which has 16g of Na citrate and about 200mls of .9% saline in it.
4. Block off jugular with thumb and as the bag fills mix blood with anti-coagulant. Once the bag is full, run a small amount out of the line onto ground to prevent blood clotting in line or needle.
5. Recipient cows: Restrain recipient in a similar way. She may well be down so adjust your restraint technique as necessary.
6. Prepare the site as before then squeeze the blood bag to speed up infusion. Apparently some are using garden pressure sprayers? Any comments from those who are doing this are welcome.

My collection and infusion times are between 40 to 60 minutes; about 20mins to collect and 20 to infuse if all goes to plan.

Phone Wanganui Veterinary services on 06 345 5864 for more information.

If you have any comments, suggestions or queries, please make them on the NZVA forums at <http://www.nzva.org.nz/transfusion-tips>

Or contact NZVA by email nzva@vets.org.nz or phone 04 471 0484.

Useful References

1. "Blood transfusions in cattle" Andrew Soldan. In Practice 1999 21:590-595
2. "Diseases of Cattle in Australasia" Parkinson, Vermunt, Malmo. Pub NZVA. pp847-8