How do I avoid haemolysis getting in the way of important results?

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Artefactual haemolysis can really be a nuisance when it comes to interpreting results. There is nothing worse than painstakingly drawing a sample from a pet belonging to the most obnoxious client on your books, only to receive a clinical pathologist's comment suggesting that it will be difficult to interpret the significance of the tests you requested because the sample was grossly haemolysed!

Like most problems in veterinary medicine, haemolysis is multifactorial. There are measures that vets and nurses alike can take to ensure that the blood makes its way from patient to pathologist in tip top condition!

- Avoid lipaemia - wherever possible use a fasted sample!
- Choose the right needle gauge (preferably 21G in dogs, 23G in cats). Using a narrower needle increases physical cell damage during collection.
- Use topical anaesthetic cream on the skin of those needle- shy or hyperaesthetic patients to avoid them jumping around on the end of the needle!
- Take care not to aspirate any alcohol from the prepared skin as you enter and exit the vein as this can chemically damage the cells.
- Perform a slick venepuncture, avoiding movement in and out of the vein.
- Avoid excessive suction on the syringe - Don't rush!

  It can be very difficult to resist pulling back harder on the syringe if the animal is uncooperative or the vein is difficult to find. Minimize pressure on yourself and allow as much time as reasonably possible. Ask the client and receptionists to negotiate booking a time slot appropriate to the needs of the individual case concerned (ie if you know the dog is a horror to sample - make life easier for yourself!) ... and what may seem intuitive to a vet/nurse may not be obvious to receptionists and owners.

- Avoid occluding the vein for extended periods.
- Never squirt the sample into the tube through the needle or at high velocity.
- Do not shake the sample - mix thoroughly via gentle inversion of the tube.
- Avoid prolonged storage of the sample.
- Balance the centrifuge - an unbalanced centrifuge will not only damage the machine, but the cells too!
- Spin the sample once only (2500- 3500 rpm for 5 minutes dependent on individual centrifuge recommendations) and separate any serum from cells as soon as possible.
- Avoid high temperatures that may thermally damage the cells.

- Consider why you are sampling - the potential disease process itself may be predisposing to increased cell fragility.

Most of the time we are sampling animals that are already unwell, be it for diagnosis or monitoring of their condition. Certain conditions, for example critical probable DKA in cats, may be more susceptible to having fragile red blood cells due to potential oxidative damage/hypophosphataemia. In these cases you can minimize any further iatrogenic haemolysis just through subtle changes in your technique.