



EQUIPLAS® INDICATIONS

Below is an article written by Plasvacc's Chief Scientific Officer. It is a summary of the wide ranging indications in which veterinarians in all of Equiplas®' world-wide markets have been enjoying great success, whenever they use this product. This document deals with the benefits obtained whenever Plasvacc's equine plasma products are used – Equiplas®, Equiplas® R and Equiplas® E.

Equiplas® is plasma collected from donor horses that have been hyperimmunised with a killed vaccine made with a rough-coat mutant strain of *Escherichia coli*. The antibodies expressed in these horses' plasma have been found to be extremely beneficial when transfused to horses of all ages suffering from endotoxaemia. Every batch of this product contains a measured, minimum level of antibodies to this *E coli* strain. It is well recognized in the scientific literature that antibodies to *E coli* assist in fighting sepsis and promote clearance of gram negative bacterial infection in a wide range of medical and surgical situations in many species of animals - including humans. Each batch also has a measured and guaranteed minimum level of Gamma Globulins of at least 22g/L. Equiplas®' primary claim is for the treatment of FPT.

Equiplas® R is plasma collected from donor horses that have been hyperimmunised with a special killed vaccine made with a pathogenic strain of *Rhodococcus equi*, the bacteria causing "Rattles" in foals. This product is used as an aid in the prevention of Rattles, resulting in fewer cases of infection that are less serious than might otherwise be experienced. Every batch of this product contains a measured, minimum level of antibodies to the gene on the *R equi* cell wall that is associated with virulence of this species of bacteria – known as VapA. Equiplas® R is also approved for the treatment of Failure of Passive Transfer (FPT).

1. FAILURE OF PASSIVE TRANSFER

Equiplas® is the treatment of choice in cases of FPT, when the foal is too old to benefit from oral colostrum supplementation (>18 hours old). If there is a complete absence of passively-derived antibodies, two bags may be required for the foal's blood GG level to rise above the desired 8g/L level. It is still important to test the foal's blood GG levels the day after a plasma transfusion. If GG levels have not increased to predictable levels it may mean that the foal has ongoing consumption of GG due to a sub-clinical infection. In these cases, further investigation is required (WCC, differential and Fibrinogen). The incidence of FPT has been closely linked to the incidence of sepsis in foals, so the importance of minimising FPT incidence cannot be overstated.

2. DIARRHOEAS

From mild cases of foal heat scours to acute diarrhoea, it must be remembered that there are a number of processes happening here – inflammation of the intestinal villi causing bleeding and protein loss, infection of these bleeding sites with gut bacteria, and translocation of endotoxins from the intestinal lumen through these sites of damage into the blood stream, causing the condition known as Sepsis. Equiplas® treats all four pathological changes listed in the previous sentence, and is therefore essential treatment in such cases.

3. JOINT ILL, UMBILICAL INFECTIONS, AND SEPSIS

Fighting infection consumes antibodies. Therefore supplementation of these foals with Equiplas® makes sense while they are also receiving primary antibiotic and other therapy.

4. INSURANCE

The insistence by insurance companies that a neonatal foal must have a minimum of 8g/L Gamma Globulins in its blood stream means that an Equiplas® transfusion will often be indicated so that these foals can be accepted for mortality insurance.

5. PREVENTION OF "RATTLES"

One litre of Equiplas® R in the first 24 hours and another at 3-4 weeks has been found to reduce both the incidence of Rattles as well as the severity of the cases that occur. Three weeks is recommended between transfusions if the disease is endemic on your property. Some vets also transfuse older foals, whose mothers are "walk ins" for breeding on other properties where the disease may be endemic.

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6. INTRAUTERINE INFUSION POST-SERVICE

In a 509 Thoroughbred mare breeding trial conducted over 2005-06 at Oakey, Queensland, it was found that the conception rates obtained when Equiplas® was used in the post-service uterine infusion were at least equivalent to those obtained when homologous plasma was used. Plasma was used with antibiotics to a total volume of 90mL, used 12-36 hours post-breeding. There is a heavy gram-negative bias in the vaccines used on our Equiplas® donors, which suits well the bacterial flora found in the infected uterus.

7. ENDOTOXAEMIA

Colitis is the most common manifestation of endotoxaemia in the horse, but it can happen with any serious diarrhoea. Basically there is translocation of live or dead *E coli* or fragments thereof across the intestinal wall and into the blood stream. Such horses are depressed, even neurological, have brick red gum colour often with a "shock line" in the gums around the teeth, as well as profuse, watery and foetid diarrhoea. These horses can die quickly. Equiplas® has been found to reverse the signs of endotoxaemia, and it may not take a lot of plasma to do this. Obviously all the usual treatments are needed including non-steroidal anti-inflammatories, intensive isotonic IV fluids, but quantities of Equiplas® as small as 500mL may assist in reversing these signs. However if there is ongoing incursion of endotoxins into the circulation, further top-up doses may be needed. The dose is titrated to effect. The signs can be observed to be improving while the Equiplas® is being transfused. It is wise to discuss placing a limit on Equiplas® usage with your client, in order to balance giving the horse its best chance with placing a defined limit on the bill. Quantities as low as 6 bags are practical and often curative. Obviously Equiplas® will not assist if the endotoxaemia is caused by a section of dead bowel and will never replace surgery in such cases. This product is also similarly beneficial in septic foals.

8. COLIC

We have all seen those occasional cases of Spasmodic Colic that have continued for too long after the usual therapy of Flunixin and paraffin oil have been administered. If a cessation of peristalsis is involved, once again there may be translocation of endotoxins across the intestinal wall, and once again, some vets have found that a small dose of Equiplas® is beneficial in these cases – 500 to 1,000mL.

9. COLIC SURGERY

In cases of colic surgery where it would be reasonable to anticipate some spillage of intestinal contents and/or post-operative paralytic Ileus, endotoxaemia may be a complicating factor. Equiplas® has once again been found to be helpful here.

10. CORNEAL ULCERS

Using first principles, the natural "anti-protease" properties of plasma in general, as well as serum, means that Equiplas® would be a suitable and natural therapeutic addition in cases of acute corneal ulcers, also in those that are indolent and have just been debrided. The collagenase secreted by bacteria that cause corneal ulcers is another protease enzyme. Conventional concurrent therapy would still be needed. The use of plasma however may improve treatment outcomes.

11. OCCULT BLEEDING

By definition, Equiplas® contains equine clotting factors, and its use in cases where occult bleeding is involved may also be beneficial.

12. NEONATAL ISOERYTHROLYSIS IN FOALS

Equiplas® is essential treatment for foals that are born from mares which have had a foal with Neonatal Isoerythrolysis, or are predicted to do so. Standard treatment now consists of muzzling the foal so that it cannot suckle its mother, feeding the foal a commercial milk replacer for the first 24 hours, transfuse the foal with 2 bags of Equiplas®, and test the foal to ensure that its GG reaches 8g/L. Finally, all colostrum is milked from the mare and discarded, until the milk looks like milk and has lost its creamy colour (usually takes three "milking" efforts).