LOCATIM®

Oral antibody concentrate to aid in the control of neonatal calf diarrhoea



Forte Healthcare

Neonatal calf diarrhoea

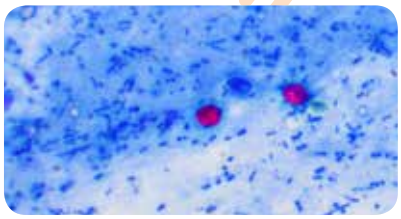
A disease complex involving different pathogens with the main ones being *E.coli*, rotavirus, coronavirus and cryptosporidium. It is a very important condition, responsible for approx. 50% of all calf deaths in the pre-weaning period, with between 2 and 4% of the calf crop in the UK& IE lost annually to scour.[1,2,3]



ENTEROTOXIGENIC E. COLI



ROTAVIRUS & CORONAVIRUS

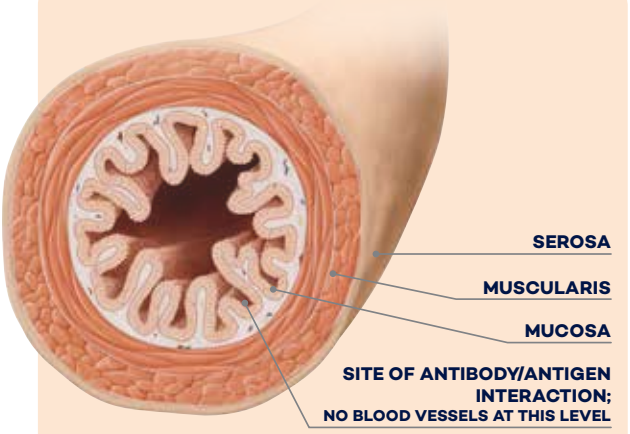


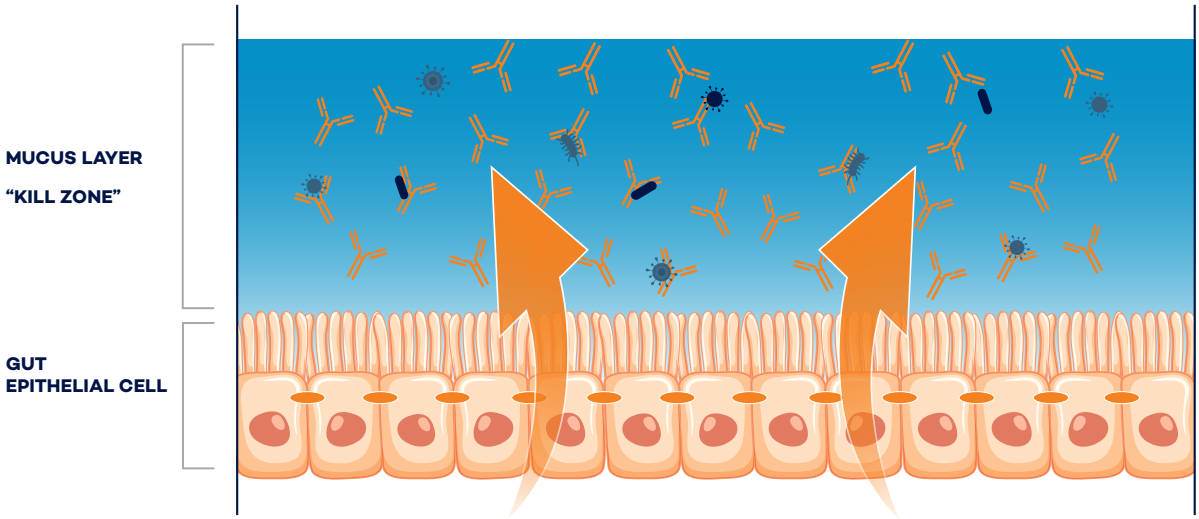
CRYPTOSPORIDIUM

How does the calf defend itself against NCD?

NCD pathogens are transmitted by the faeco-oral route. They attack the enterocytes in the gut and do not penetrate beyond the gut epithelium, therefore antibodies in the blood will never encounter NCD pathogens in the circulatory system.

The immune response to NCD pathogens occurs in the antibody rich mucus layer adjacent to the gut epithelium known as the "Kill Zone".[4,5]





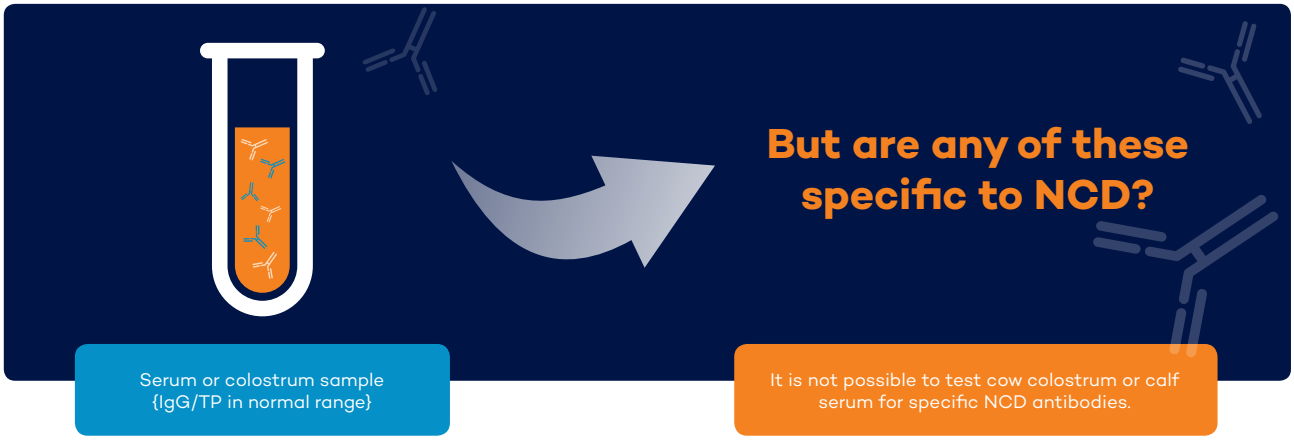
Ingested colostral antibodies will initially populate the mucus layer as well as being absorbed into the bloodstream. As the antibodies in the Kill Zone are depleted, a steady stream of antibodies is secreted from the villus capillaries back into the Kill Zone.[4]

2 – 4g of IgG is secreted in this way back into the intestinal mucus every day. It is this localised mucosal effect that protects the calf against NCD pathogens in the first two weeks of life.

Colostral Antibodies

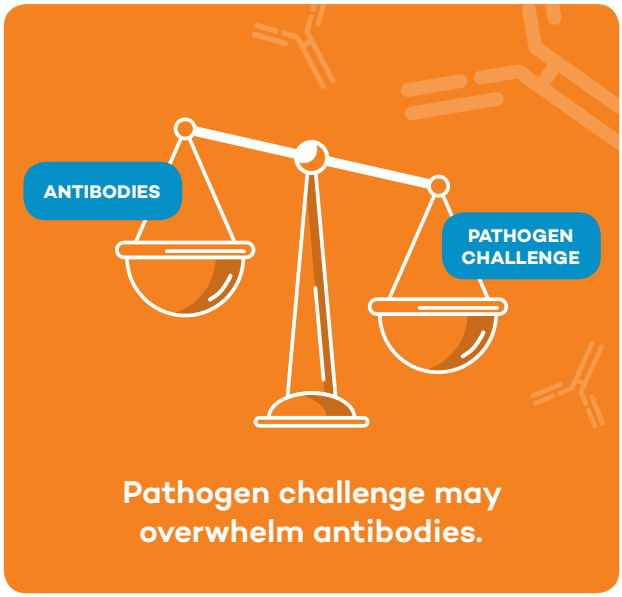


In order for the calf to be protected against NCD there must be sufficient antibodies targeting the NCD pathogens present amongst the wide range of colostral antibodies produced by its dam. Unfortunately there is no simple way to test whether colostrum (or indeed calf serum) contains enough NCD antibodies to protect against clinical disease. Current colostrum or calf serum tests only give estimations of **total** IgG.



NCD outbreaks

If a farm has an NCD outbreak then the pathogen challenge outweighs the antibody response. This can happen in both vaccinated and unvaccinated herds. Vaccination is an excellent management tool which aims to increase the fraction of the cow's IgG profile which is specific for NCD pathogens. Even in some vaccinated herds NCD may still cause losses however, as no vaccination programme provides 100% protection.

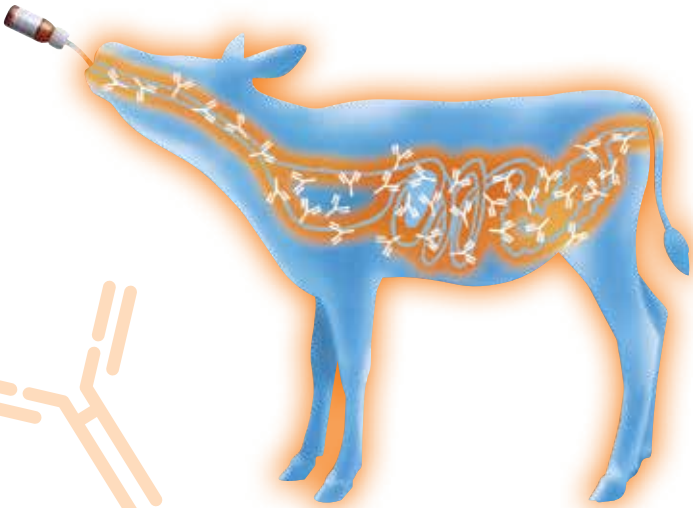


An outbreak of NCD indicates a lack of specific antibodies.
If a farm has an outbreak of NCD then actions are needed:

1. **Farm needs to look at all management and biosecurity aspects from Dry Cow to 1 week post-calving**
2. **Implement vaccine regime for non-vaccinated herds**
3. **Investigate potential reasons for sub-optimal vaccine response**
4. **Locatim: only POM available to help in face of NCD outbreak**

LOCATIM®

Locatim gives newborn calves sufficient high-quality, specific NCD antibodies to prevent severe disease & death until management changes and/or a new vaccination regime bear results.
Locatim contains guaranteed titres of specific antibodies against the pathogens which cause neonatal diarrhoea.



Concentrated Bovine Lactoserum

Contains specific antibodies against NCD pathogens

POM-VPS (UK); POM (IE)

Dose: One 60ml bottle per calf, given orally.

Administer as soon as possible after birth before colostrum

Non-antimicrobial

Each batch tested to ensure protective titre of antibodies against NCD

Sterility ensures efficacy

High concentration for rapid absorption[6]

When to use LOCATIM®:

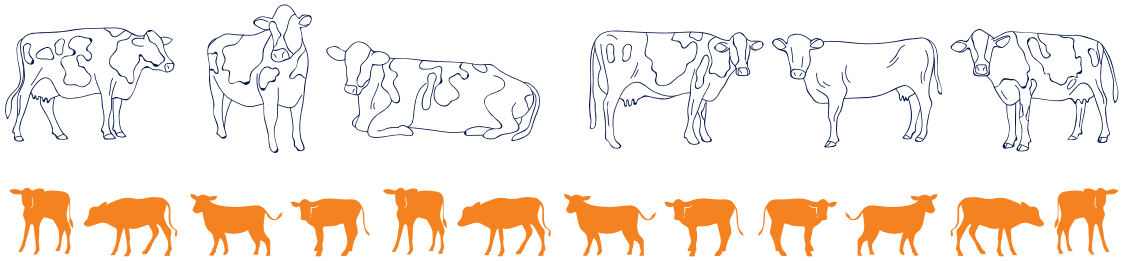
1. Unvaccinated herds in the face of an outbreak.
2. Vaccinated herds where vaccinal protection has been incomplete, e.g. increased pathogen challenge.
3. Individual calf where colostrum intake likely to be poor e.g. dam has sustained a calving injury, dam insufficient colostrum production.
4. Valuable pedigree calves to supplement natural colostrum as a precaution against failure of passive transfer.



Locatim Efficacy Study[7]

Nussbaum et al. 2022

Protocol



Calves from 489 unvaccinated cows across 35 herds.

246 calves got Locatim

243 calves got placebo

All then got normal colostrum regime

Results

65 cases of significant scour (13%)
Lab diagnostics showed typical pathogen profile

Locatim Group

21 cases of scour

No deaths



Placebo Group

44 cases of scour

4 deaths



2.6 higher risk of all neonatal calf diarrhoea in placebo group

Giving **LOCATIM**® as soon as possible after birth delivers a guaranteed titre of protective antibodies against NCD, supplemental to what the calf gains from its normal colostrum feed. This has been shown to reduce both the incidence and severity of diarrhoea in neonatal calves.

LOCATIM® is the only POM available to help protect calves in the face of an outbreak of NCD. It can be used until the causes of the NCD outbreak can be addressed e.g. calving pressure eases, vaccine regime comes through.

LOCATIM® may also be used to provide additional protection against NCD at any time, in an individual calf.

References

1. Brickell, J. S., McGowan, M. M., Pfeiffer, D.U., Wathes, D.C. (2009) Mortality in Holstein- Friesian calves and replacement heifers in relation to body weight and IGF-I concentration on 19 farms in England. Animal, 3. pp. 1175–1182
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4. Besser, T.E., Gay, C. C., McGuire, T. C., Evermann, J. F. (1988) Passive immunity to bovine rotavirus infection associated with transfer of serum antibody into the intestinal lumen. Journal of Virology, 62 (7), pp. 2238-2242
5. Chase, C., Kaushik, R. (2019) Mucosal Immune System of Cattle. Veterinary clinics of North America: Food Animal Practice, 35 (3), pp. 431-451.
6. Stott, G.H., Fellah,A. (1983) Colostral immunoglobulin absorption linearly related to concentration for calves. Journal of Dairy Science, 66 (6), pp. 1319-1328
7. Nussbaum O et al. (2022) Efficacy of the oral administration of specific immunoglobulins against E.coli, rota- and coronavirus for the prevention of neonatal calf diarrhoea in dairy herds. In: World Buiatrics Congress 2022 abstracts. Madrid, Spain 4th-8th September 2022. pp204-5.

LOCATIM contains Bovine concentrated lactoserum containing specific immunoglobulin G antibodies against E. coli F5 (K99) adhesion ≥2.8* log /ml. **Pharmaceutical form:** oral solution. **Indications for use:** Reduction of mortality caused by enterotoxicosis associated with E. coli F5 (K99) adhesin during the first days of life as a supplement to colostrum from the dam. **Amounts to be administered and administration route:** Oral administration of 60 ml as soon as possible, preferably given within the first 4 hours, but not later than 12 hours after birth. The product should be administered neat or diluted in milk or in milk replacer within the first 12 hours of the calf's life, preferably, as soon as it is receptive. **Contraindications:** None. **Adverse reactions (frequency and seriousness):** None known. **Withdrawal period(s):** Zero days. **Legal categories:** IE: POM UK: POM-VPS. Further information available in the SPC or from Forte Healthcare Ltd.

Distributed by: Forte Healthcare Ltd, Block 3, Unit 9, CityNorth Business Campus, Stamullen, Co. Meath, K32 D990, Ireland.

Tel: 01 8417666 (IE) 01292 800013 (UK) **Web:** www.fortehealthcare.com
Email: enquiries@fortehealthcare.com **Technical Enquiries:** vets@fortehealthcare.com

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