

Strategy to eradicate and prevent Strangles (STEPS)



Voluntary code in the event of a strangles outbreak

Strangles is one of the most commonly diagnosed contagious equine diseases world-wide. Some horses can outwardly show no signs yet still carry the infection and spread it to other horses. Currently these carrier horses can be very difficult to identify.

Unfortunately amongst some horse owners there is still a stigma about admitting their horse has strangles, which frequently hinders both quick diagnosis and effective control of the spread of the disease.

Research is currently underway with the aim of further improving the diagnosis of and vaccination against strangles. However, maintaining good biosecurity using isolation and strict hygiene procedures to prevent the introduction and spread of the disease and early diagnosis will

always remain essential to preventing strangles. Although these measures can be time consuming and inconvenient; especially in the middle of the competition season, they are essential if we are to reduce the incidence of strangles.

The aims of this Code are to:

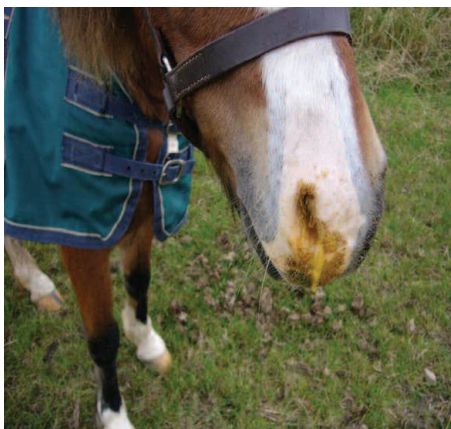
- promote an increased awareness of strangles and to emphasise the importance of early diagnosis and control;
- promote increased openness and communication within the equine community about strangles and any suspected outbreaks;
- provide a simple set of steps to be taken where strangles is suspected or confirmed.

Strangles is caused by infection with the bacterium *Streptococcus equi*.

Signs include:

- fever
- loss of appetite
- depression
- marked 'snotty' nasal discharge (this is the most common sign)
- lymph node swelling and abscesses predominantly of the head and neck
- Remember that not all horses will show all (or any) of these signs

S. equi infection can be transmitted both directly via close contact with an infected horse or indirectly through shared housing, water and feed buckets, shared tack and equipment; and contact with shared personnel such as groom, instructor, farrier, veterinary surgeon or more unexpected sources such as a pet dog.



Mucopurulent nasal discharge typical of strangles

There are some simple steps that we can take at all times to help reduce the risk:

1. When you are away from home, take your own buckets, water and feed and do not allow other horses to share the buckets. Keep your horses away from nose to nose contact with other horses. If you handle another horse then wash your hands before handling your horse again. Disinfect your boots and outer clothing after each show.
2. At home get into the good practice of having separate grooming kits, numnahs, rugs, tack and buckets for each horse.
3. Anyone who moves between yards should implement simple hygiene measures such as washing their hands, disinfecting their boots and, if possible, changing outer clothing between yards.
4. All new horses should undergo a three week period of isolation after entry into the premises. This should provide sufficient time for clinical signs to develop and be recognised before mixing with resident horses. Use of the strangles blood test during isolation can identify previously infected and potentially infectious horses in a quick and non-invasive manner. Ideally samples should be taken on arrival and at the end of the three week isolation period to check for seroconversion (for instance, rising antibody levels indicating an immune response after exposure to *S. equi*).
5. Keep written records of all the horses that enter and leave your premises.

Even if you take all the necessary precautions, there is still a chance a horse may become infected with *S. equi*, especially as some horses



Abscessed lymph nodes at the base of the head

can be outwardly healthy carriers of the infection and go on to infect other horses without showing obvious clinical signs themselves.

Knowing what to do if you suspect strangles is essential so that appropriate action can be taken without delay.

This code encourages all yards to think about what they would do if they suspect a horse has strangles and to have an agreed procedure ready to be implemented. This Code can form the basis of that procedure

If you suspect strangles, take the following steps immediately:



Muco-purulent nasal discharge typical of strangles

1. Isolate the horse and any other horses that have had direct, particularly nose-to-nose contact with it. Also isolate those which have/may have had indirect contact with the suspect case (such as through sharing of water and/or feed buckets, tack, handlers, and so on). Isolation should be away from other horses in the yard with which they have not had such contact. Do not allow other animals to enter the stable where the infected horse was kept or have access to its feed or water container.
2. Call your veterinary surgeon and discuss with the appropriate management, sampling and laboratory strategies to investigate whether infection with *S. equi* is the likely cause of the clinical signs. It may be beneficial to take more than one sample from more than one horse or on more than one occasion from the same horse to confirm or exclude the suspicion of strangles. Depending on the type and timing of sampling of cases, *S. equi* can sometimes be difficult to confirm and your vet will be able to advise you further.
3. If the diagnosis is confirmed you should then agree detailed isolation and handling procedures with your veterinary surgeon and implement these measures as speedily and effectively as possible.
4. All horses should remain on the premises to protect neighbouring yards and other equine communities.
5. If possible, create three colour-coded groups:
RED - presumed infected horses that have shown clinical signs consistent with strangles (note - that not all strangles cases show all clinical signs and some may have less severe signs than others);
AMBER - horses that have had direct or indirect contact with the infected horses in the **RED** group and as such are believed to have been at risk of exposure to *S. equi* but have not themselves shown clinical signs;
GREEN - horses that remained detached from those in **RED** and **AMBER** groups without known direct or indirect contact and which did not demonstrate clinical signs.
6. Colour code buckets and other equipment to ensure that mixing between groups does not occur and wherever possible use dedicated staff for each colour-coded group. If separate staff are not an option staff should always move from the lowest risk to highest risk groups such as **GREEN** to **AMBER** to **RED** groups in that order and not back again.
7. No horses should be allowed in, or out, of the yard at this time. All horses in the yard should remain under the care of the attending veterinary surgeon(s), and the highest possible

standards of hygiene should be implemented and maintained.

8. Contact owners of the affected horse and owners of all other horses in the yard and explain the position to them. They will much rather hear it from you now than learn later when their animal may have also contracted the disease.
9. Keep a very close eye on all other horses in the yard. Young, old and immunocompromised horses (for instance those with a history of other disease problems) are most susceptible to infection and should be monitored closely. The temperature of all horses should be taken daily and any horse showing an increase in temperature should be isolated (moved to RED group) and seen by your veterinary surgeon.
10. Where possible, in multi-owner yards, one veterinary practice or the owner/manager of the yard should take the lead and co-ordinate all the veterinary procedures in the yard even though they may not be responsible for carrying them all out.
11. Establish and agree communication procedures among all veterinarians, owners and riders of every horse in the yard and keep lines of communication open throughout the outbreak.
12. Notify any neighbouring premises with horses that you have a suspected case of strangles and suggest they monitor their horses and seek veterinary advice.
13. No presumed clinically affected horse in the RED group in the yard should be released from isolation or removed from veterinary supervision until three consecutive negative nasopharyngeal swabs or washes have been taken over a two-week period. Nasal swabs could be used, but may be less effective for the isolation of *S. equi* being shed from the guttural pouches. Alternatively endoscopically guided guttural pouch lavage may be a preferred method of sampling. Samples should be tested for the bacterium by both culture and PCR (Polymerase Chain Reaction) to maximise test sensitivity. The yard should not open

to normal activities until after all horses are confirmed to be uninfected. Animals still testing positive for *S. equi* will be required to remain in isolation until they are shown to have gone negative, which may require treatment appropriate for persistent infection such as of the guttural pouches.



Chondroid removed from a guttural pouch with transendoscopic basket forceps

14. Screening of horses in the AMBER and GREEN group using the strangles blood test should be performed to identify other horses that were exposed before or during the outbreak that could be carriers of strangles, which if left untreated could trigger subsequent outbreaks. Animals testing positive by the blood test should be placed in isolation and investigated by nasopharyngeal swabbing and/or guttural pouch endoscopy to establish if they are positive for *S. equi*. Any carriers identified in this way will be required to remain in isolation until they are shown to be negative, this may require treatment appropriate for persistent infection such as of the guttural pouches.
15. Carriers can usually be successfully treated by removal of chondroids (dried pus from abscesses that have drained into the guttural pouch) via guttural pouch endoscopy and a course of antibiotics. A subsequent guttural pouch wash (tested by culture and PCR) can then confirm infection-free status.

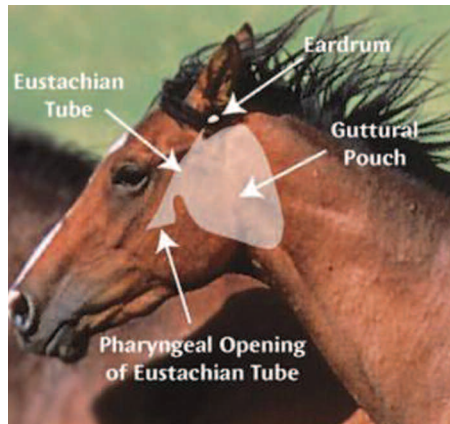
Guidance on isolation and hygiene

Since strict hygiene procedures are essential to minimise the spread of infection it is good practice to draw up a list of the hygiene rules to be adhered to by everyone connected to the yard. Give a copy of the rules to all owners/riders of the horses in the yard and pin up a copy of the list in the yard where it can be clearly seen. Colour coding (RED, AMBER and GREEN) isolation areas, equipment and clothing can greatly assist biosecurity compliance.

It is a good idea to make rules on correct general biosecurity available before there are any cases of strangles as good biosecurity can reduce the likelihood of getting the infection in the first place.

These notes provide general guidance on isolation procedures. Where any of these steps are not possible a suitable alternative should be agreed with your veterinary surgeon.

- The principal aim of isolation is to prevent contact between the isolated horses - those suspected or confirmed of having strangles - and the other horses in the yard. Ideally the isolation facility should be in a separate building or a separate field at least 10m but preferably 25m away from any other horses (additional fencing can be used to create a 10m/25m sterile zone if necessary). If this is not possible then even simple steps like boarding up any grills between stables, fitting door grills so that horses cannot touch other horses over the door, and similar measures will help to contain infection, although this is less than ideal.
- A separate water supply must be available for the isolated horses. This should be-



The guttural pouch is a diverticulum in the eustachian tube which runs between the middle ear and the back of the throat

- cleaned on a regular basis (ideally daily with thorough rinsing to remove detergent) and any mucopurulent nasal discharge removed to minimise the infectious dose given to in contact horses. This will reduce the severity of clinical signs and increase the speed of recovery.
- Separate equipment and utensils used for feeding, watering, grooming and cleansing must be used for horses in isolation and should be colour coded RED (see section on colour coding). These must not be removed or used on other horses unless they are first thoroughly cleaned and then decontaminated with an approved disinfectant.
 - As few people as possible should come into contact with the isolated horses and appropriate measures. Communication with owners and notices at the entrance to the premises should be used to enforce this.

This includes pet dogs and cats living at or visiting the yard.

- Preferably attendants of the isolated horses should have no contact with any other horses during the isolation period. Where other contact is unavoidable, it should be kept to a minimum and only after thorough washing and disinfection of hands and a change or thorough disinfection of clothing including boots and impervious outer clothing. If staff cannot avoid handling both infected and uninfected animals then, in addition to the disinfection and clothing changes mentioned, they should attend to uninfected animals first (GREEN) and only then deal with the exposed horses (AMBER) before finally attending to infected animals (RED), ideally as their last task on the yard.
- Used bedding, uneaten food and water must be disposed of carefully. Bedding and uneaten food should be carefully disposed of (such as on a muck heap >30 metres away from grazing/exercise areas) and



Abscessed lymph node discharging infected pus

water should be discharged to the sewer or septic tank to avoid cross contamination.

- Protective clothing (such as disposable boiler suits, separate boots and disposable gloves) must be available at the entrance to the isolation facility and must be disposed of properly by being double-bagged and

taped shut. The outside of the bag should be disinfected before disposal.

- After use, all movable equipment and utensils for feeding, grooming and cleansing within the isolation facility must be disinfected using a disinfectant approved by Defra for general purpose under the Diseases of Animals (Disinfectants) Order 1978. A list of these is provided on the Defra website: (http://disinfectants.defra.gov.uk/Default.aspx?Location=None&module=Approval-sList_Sl). After the isolation area is vacated it must be cleaned and washed down with an approved disinfectant.

Guidance on vaccination

A live attenuated vaccine is now available in the UK to aid in the management and prevention of strangles. It can be used in horses from four months of age and is administered by sub-mucosal injection into the upper lip.

A primary course of two vaccines, four weeks apart, is required with re-vaccination boosters every three-six months. The duration of immunity is three months so the booster interval should be determined on a strangles risk assessment. Veterinary advice should be sought to determine if the use of the vaccine is appropriate and how often booster vaccinations are given. If a six month re-vaccination regime is advised, a prompt booster will be required if an outbreak occurs more than three months since the last vaccination.

In situations where vaccination is deemed to be useful it is important that all horses on the yard are vaccinated. This will help to develop herd immunity and lower the infectious challenge.

It is important to note that the vaccine is a tool in strangles management and is not a replacement for good stable management and biosecurity.



This leaflet is sponsored by Intervet/Schering-Plough Animal Health, manufacturers of Equilis StrepE

These revised guidelines benefitted from discussions that took place at the 'Getting to Grips with Strangles' meeting, 27-28 May 2010, Ulfunda Slott, Stockholm, Sweden, which was sponsored by Intervacc AB, Pfizer Animal Health and Intervet Schering-Plough Animal Health.

For more information please contact:

1. Your veterinary surgeon
2. www.strangles.org
3. www.strangles.info
4. www.equine-strangles.co.uk
5. www.beva.org.uk
6. www.bhsscotland.org
7. www.worldhorsewelfare.org
8. www.bhs.org.uk

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Cover images, clockwise, from top, left: Administering the vaccine; endoscopically guided guttural pouch lavage; nasal swab showing length of swab required