Guide to preventing equine contagious disease

PLAN
PREVENT
PROTECT

Prevent disease,
protect what matters

XL Vets Equine

supported by The Animal Health Trust

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Contents

Welcome to the XLVets Equine

"Guide to preventing equine contagious disease"

Working together with your veterinary surgeon this booklet will allow you as a horse or yard owner to:

Plan - know your risk level and the threats and use them to set up a plan;

Prevent - help to prevent contagious disease;

Protect - help protect the welfare of your own horses and the wider horse population.

Respiratory diseases

Equine influenza

Disease causing agent	equine influenza virus
Incubation period	1-3 days
Transmission	aerosol (airborne droplets) spread, on hands and equipment highly infectious and spreads rapidly cross-species transmission to dogs can occur
Signs you will see	hacking, dry cough, high fever, loss of appetite in vaccinated horses there is reduced viral shedding and therefore reduced risk of transmission to other horses but horses may still show mild signs of disease
Diagnosis	virus is detected from nasopharyngeal swabs (long swab inserted up the nostril to swab the throat and nasal cavity) and rising antibody levels in paired samples (figure1)
Treatment	rest, nursing and anti-inflammatory medicines horses usually recover fully but can be fatal in older horses and young foals long recuperation period required (may be several months)
Prevention	vaccination and good biosecurity practices

Equine Herpesvirus (EHV)

Disease causing agent	equine herpesvirus types 1 and 4 (EHV-1 and EHV-4)
Incubation period	variable - horses become latent carriers and can subsequently shed the virus
Transmission	close contact with an infected animal or contact with fluids following an abortion caused by the virus
Signs you will see	EHV can cause three types of disease: 1. mild respiratory signs with a cough, fever, nasal discharge and poor performance (EHV-1 EHV-4) 2. abortion in pregnant mares typically in later pregnancy, the mare aborts suddenly and without warning (mainly EHV-1 but occasionally EHV-4) 3. rarely a neurological form (EHV-1) is seen with sporadic outbreaks or individual cases of hindquarter paralysis, horses have difficulty walking, passing faeces or urine, or even become unable to stand (these horses may not recover)
Diagnosis	virus detection from nasopharyngeal swabs or aborted material from mare, and rising antibody levels in blood samples (figure 1)
Treatment	rest, nursing, anti-inflammatory medicines and in some cases antiviral medicines most horses recover completely but may need a long recovery period
Prevention	keep brood mares separate from all other horses (especially young horses and those competing) good biosecurity practices and vaccination isolate brood mares and follow the HBLB code of practice for EHV (http://codes.hblb.org.uk)

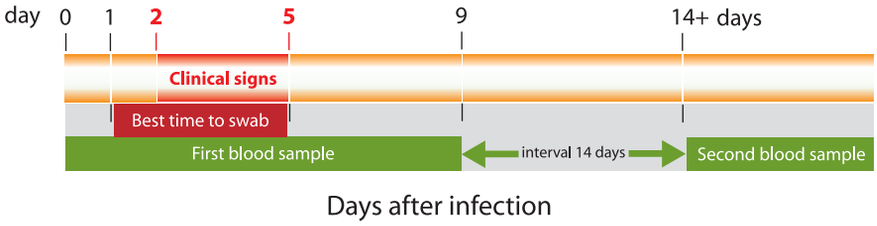


Figure 1

In the diagnosis of infectious respiratory disease early investigation is important; there is a short three day window following the onset of signs when the infectious agent can be identified with a swab. After this time diagnosis can only be made on the basis of paired blood samples taken fourteen days apart.

Common contagious equine diseases in the UK

Strangles

Disease causing agent	bacteria - *Streptococus equi* subspecies *equi*
Incubation period	2-21 days
Transmission	contact with infected discharges between horses and via water troughs and mangers easily spread by contaminated clothing and utensils horses can be silent carriers of the bacteria
Signs you will see	classical signs of fever, loss of appetite, depression, cough, thick nasal discharge (figure 2) and pain, swelling and abscess formation in the lymph nodes under the jaw and in the throat region are most commonly seen in younger horses milder signs of short term fever, dullness, loss of appetite and mild nasal discharge are increasingly common and may be evidence of a previous or ongoing infection some cases can have serious complications, including death: - "bastard" strangles is caused by the spread of bacteria and abscess formation in different areas of the body - *Purpura haemorrhagica* is inflammation of the blood vessels with fluid swelling (oedema) of the limbs, sheath and under the belly and small areas of bleeding or bruising on the mucous membranes of the gums and eyes
Diagnosis	bacterial detection on nasopharyngeal swabs, guttural pouch washes (figure 3) and fluid collected from an abscess blood test for raised or rising antibodies can be difficult and may require multiple tests
Treatment	nursing care and anti-inflammatory medication antibiotic use is controversial and may delay abscess bursting and increase the risk of complications (cases should be individually assessed) hot packs can encourage abscess bursting and drainage; and cleaning and flushing will speed the resolution following recovery, a guttural pouch wash (figure 3) should be performed to confirm resolution of infection; bacteria can be carried silently at this site for months or years
Prevention	strict biosecurity policies including: - quarantine new horses for three weeks prior to entry to the yard - new horses should have a clear blood test in the week preceding entry onto the main yard - routine screening blood tests of horses to identify carriers **when an outbreak is confirmed or strongly suspected:** - close the yard to prevent horses leaving and alert all visitors to the yard - institute the protocol for dealing with an outbreak of infectious disease - unless the source is clear, investigation should be carried out to identify and treat carriers of the bacteria vaccine available in the UK which reduces severity of signs; use may be recommended in some yards following a specific risk assessment refer to HBLB Strangles guidelines in the Codes of Practice (http://codes.hblb.org.uk) and Strategy to eradicate and prevent Strangles (STEPS at http://www.strangles.org/)

Figure 2

Nasal discharge and raised temperature can be signs of infectious respiratory disease.

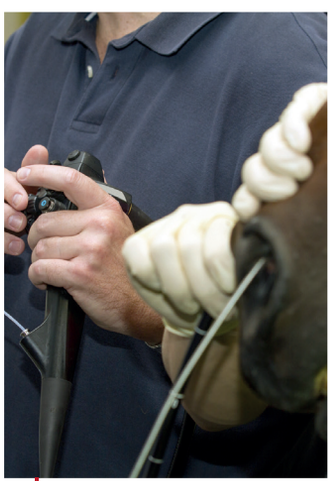


Figure 3

Strangles carriers can be identified by a guttural pouch wash using an endoscope and catheter to flush and collect fluid from the pouches in the throat.

Intestinal disease - Salmonellosis

Disease causing agent	bacteria of the salmonella species
Incubation period	variable, the onset of signs can be precipitated by stress, concurrent disease, compromised immunity or antibiotic therapy horses may be silent carriers of the bacteria
Transmission	contact with environment contaminated by infected faeces (horse's or other species')
Signs you will see	several forms of the disease: - mild form: fever, mild colic pain, dullness, loss of appetite - severe form: as above but with severe, malodorous diarrhoea, marked weight loss - the very acute form is very frequently fatal septicaemia and blood-borne infections (e.g."joint-ill") possible but more likely in foals
Diagnosis	identification of the bacteria in faeces or rectal biopsy - can be difficult, repeated samples may be required
Treatment	antibiotics, intravenous fluids, and supportive therapy
Prevention	good hygiene and biosecurity to prevent the introduction and potential spread of salmonella no vaccine is available **action in an outbreak:** - quick and strict isolation of infected animals - vigorous disinfection of stable, tack, etc. with hospital-grade disinfectant - identification of carriers by repeated faeces testing

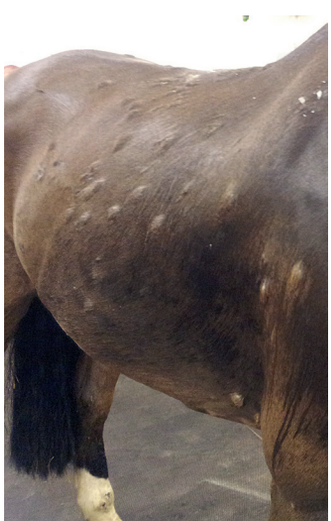
Capable of affecting humans (zoonosis), so extreme care required when handling infected animals and contaminated materials. All confirmed cases will be reported to Environmental Health who may contact you if there is risk to human health

All cases of diarrhoea should be in isolated and investigated as potentially caused by Salmonella bacteria. Extra precautions should be taken as some types can infect humans too.

Skin disease - Ringworm

Disease causing agent	fungus of the ***dermatophyte*** family.
Incubation period	up to 30 days
Transmission	direct contact with infected horse, contaminated tack, brushes, rugs, and contact with fences and buildings used by infected cattle
Signs you will see	areas of hair loss (usually non-itchy) with flaky or scabby skin, may be red and oozing in some cases more frequent on neck, girth and saddle areas
Diagnosis	fungal culture of a hair pluck sample, which can take up to 2 weeks
Treatment	antifungal preparations recommended to reduce risk of spread to other animals
Prevention	good hygiene and the use of separate tack and rugs prompt isolation and treatment of infected animals, tack, stable, fences and horseboxes with antifungal preparations

Risk of transmission to humans so wear gloves and protective clothing when handling the horse



Patchy hair loss and coat changes are seen with ringworm.

Contagious diseases of foals

Foals are born with poorly developed immune systems; because antibodies cannot cross the equine placenta. Early disease protection is reliant on the transfer of antibodies from the mare via the colostrum or first milk. The foal's gut is only able to absorb these antibodies in the first twelve hours of life, which is why it is vital foals suckle vigorously soon after birth. Failure to do so will result in low levels of antibodies known as '**failure of passive transfer**' making them more susceptible to potentially fatal infections in the first few weeks of life. The condition of a sick foal can deteriorate extremely rapidly so it is important that any condition is rapidly investigated and treated by a veterinary surgeon.

The following three diseases are seen specifically in foals and weanlings (particularly those housed on large yards) and do not affect the adult horse.

Rotavirus diarrhoea

Disease causing agent	rotavirus
Age affected	from 3 days to 5 months
Incubation period	3-10 days
Transmission	via ingestion of contaminated faeces or dust highly contagious, high levels of virus in the faeces of infected animals
Signs you will see	diarrhoea, reluctant to suck, depression, fever, collapse younger foals generally show more severe symptoms
Diagnosis	faecal sample to detect virus
Treatment	supportive care and fluid therapy to prevent dehydration
Prevention	pregnant mares can be vaccinated to improve foal immunity via antibodies in colostrum affected foals should be isolated, faeces cleared and the environment disinfected where possible

Rotavirus causes infectious diarrhoea in foals

Rhodococcus pneumonia

Disease causing agent	bacteria *Rhodococcus equi*
Age affected	between 3 and 24 weeks, with 4 months being most common
Incubation period	3-4 weeks
Transmission	ingestion of bacteria from infected faeces and contaminated fields or yards *Rhodococcus equi* can be cultured in the environment of the majority of yards yet disease more prevalent on some yards than others
Signs you will see	failure to thrive pneumonia: fever, lethargy, poor appetite, cough and rapid breathing with nostril flare and increased effort diarrhoea, joint infection and eye problems may also be seen
Diagnosis	detection of abscesses in the lungs and identification of the bacteria in respiratory mucus
Treatment	specific antibiotics given for 3-12 weeks
Prevention	affected foals should be isolated early screening for the bacteria is recommended on farms with known problems reducing stocking levels, removing faeces from paddocks and limiting airborne dust levels may help reduce incidence

A foal undergoing treatment for *Rhodococcus* infection

(photo courtesy of Celia Marr, Rossdales Veterinary Surgeons)

Contagious diseases of foals

Lawsonia: proliferative enteropathy

Disease causing agent	bacteria *Lawsonia intracellularis*
Age affected	3-12 months but usually following weaning
Incubation period	not known
Transmission	ingestion of bacteria from faeces seen in many species including rodents, rabbits, cats and dogs transmission between species is probable by contamination of paddocks, feed and bedding
Signs you will see	lethargy, poor appetite, weight loss, fever, diarrhoea, colic , fluid swelling of the limbs, sheath and under the belly affected foals may not show signs other than a failure to grow and gain weight normally
Diagnosis	identification of thickened loops of intestine on ultrasound scan identification of the bacteria in faeces blood test for antibodies
Treatment	antibiotics and supportive care
Prevention	affected foals should be isolated to reduce environmental contamination good pest control prevent wild/domestic animals access to feed and bedding areas

Disease risks from abroad

With increasing movement of horses worldwide and climate change, diseases which are common in tropical and subtropical countries can be found travelling north; demonstrated by the recent outbreaks of Bluetongue and Schmallenberg disease in the British farm animal population. The threat of a devastating disease like African horse sickness entering the UK and killing a large proportion of the horse population is so real that the government has already put regulations in place for managing a possible outbreak. Horse owners and veterinarians should be vigilant and keep exotic diseases in their mind when dealing with a sick animal or sudden unexplained death. It is imperative that these situations are recognised in the earliest possible stage and appropriate biosecurity measures are put into place to minimise spread.

The following is a very short summary of some of the important diseases that could strike the UK at any time.

African Horse Sickness (AHS)

Disease causing agent	African horse sickness virus
Transmission	midges transfer the virus from infected to non-infected horse
Signs you will see	vary, depending on the form, mostly fatal - respiratory form: fever and severe respiratory problems - cardiac form: fever and generalised swelling (oedema) around the organs - mixed form: any combination of the above - fever form: high temperature and mild symptoms (usually only in donkeys and zebras)
Diagnosis	virus identification on infected tissues at *post mortem*
Treatment	none effective
Prevention	vaccines but not currently licensed in the UK control and avoid midge exposure e.g stabling , fly sheets, insect repellent, avoid stagnant water

A horse suffering from African horse sickness showing fluid swelling in the chest region.

West Nile Virus (WNV)

Disease causing agent	West Nile virus
Transmission	mosquitoes transmit the virus usually from infected wild birds to non-infected horses and/or humans
Signs you will see	fever, depression, neurological signs, e.g. paralysis fatal in 30% of horses with clinical signs
Diagnosis	detection of virus specific antibody on blood or cerebrospinal fluid
Treatment	no specific treatment, only supportive care
Prevention	control and avoid mosquitoes two vaccines are licenced and available in the UK for high risk horses and yards, particularly those travelling to affected parts of the world, including some parts of Europe

West Nile virus can be transmitted to horses via mosquitoes who have fed on infected birds.

Disease risks from abroad

Equine Infectious Anaemia (EIA)

Disease causing agent	equine infectious anaemia virus
Transmission	large horse biting flies from infected to non-infected horses via infected blood products and blood contaminated equipment, including contaminated needles and syringes
Signs you will see	recurring fever, anaemia, fluid retention, weight loss and death
Diagnosis	detection of antibodies to EIA in blood (Coggins test)
Treatment	no treatment effective or allowed - compulsory slaughter and disposal of affected horse
Prevention	insect repellent and mesh to prevent transmission by biting flies ensure responsibly sourced and certified blood products and blood test imported horses no vaccine available

Contaminated needles, syringes and blood products can be involved in the spread of equine infectious anaemia.

Equine Viral Arteritis (EVA)

Disease causing agent	equine arteritis virus
Transmission	during mating or artificial insemination, contact with products from abortion/ foaling, via droplets from the respiratory tract
Signs you will see	abortion, fever, depression, lethargy, stiff movement, runny nose, conjunctivitis, swelling of the lower limbs, sheath, udder, tummy or around the eyes **stallions can become life-long shedders of virus in their semen without clinical signs**
Treatment	no specific treatment, only supportive care
Prevention	establishment of freedom from infection before breeding activities commence by blood test for mares and blood test and vaccination for stallions and teasers

Semen used in artificial insemination can be a potential source of EVA and CEM. It is therefore important to ensure the appropriate health certificates accompany the semen.

Contagious Equine Metritis (CEM)

Disease causing agent	bacteria *Taylorella equigenitalis, Klebsiella pneumoniae* and *Pseudomonas aeruginosa*
Transmission	during mating, infected semen for AI, on hands and instruments
Signs you will see	mares show discharge from the vulva some mares and most stallions do not show signs and become silent carriers
Treatment	antibiotics and antiseptic washes to the affected area swabbing following treatment
Prevention	ensure mares and stallions are free from infection prior to and remain free during breeding activities by swabbing procedures as recommended in HBLB codes of practice (http://codes.hblb.org.uk) strict hygiene when handling breeding mares and stallions, wear gloves, use separate utensils

Yard risk assessment

Name of yard

Name of person responsible for yard biosecurity

Veterinary surgeon completing risk assessment

1. Business of yard

(*Choose which best describes your yard or if multiple businesses the one with the highest risk scrore*).

- ☐ private leisure (1)
- ☐ livery yard (2)
- ☐ riding school (2)
- ☐ private stud (2)
- ☐ competition (3)
- ☐ breaking yard (3)
- ☐ public stud (3)
- ☐ horse dealer (4)

Score:

2. Number of horses on yard

- ☐ 0-7 (0)
- ☐ 8-15 (1)
- ☐ 16-30 (2)
- ☐ > 30 (3)

Score:

3. Management

- ☐ stable groups up to 7 horses (0)
- ☐ stable groups of > 7 horses (1)
- ☐ mixed or changing groups (2)

Score:

4. Horses ages (*tick all that apply*)

- ☐ all adult > 5yo (0)
- ☐ youngstock 1-5yo (1)
- ☐ foals (1)
- ☐ brood mares (1)

Score:

5. Average frequency of new arrivals

- ☐ once a year or less (0)
- ☐ more than once a year and less than once a month (1)
- ☐ more than once a month (2)

Score:

6. Frequency of horses from this yard mixing with horses for training or competition

- ☐ less than once a month (0)
- ☐ once or twice a month (1)
- ☐ weekly (2)

Score:

Veterinary comments

Yard risk assessment

7. Frequency of horses visiting the yard e.g. training

- ☐ never (0)
- ☐ once or twice a month (1)
- ☐ weekly (2)

Score:

8. Contact over fences with horses on neighbouring premises

- ☐ yes (2)
- ☐ no (0)

Score:

9. Do personnel handle horses kept on other premises?

- ☐ yes (1)
- ☐ no (0)

Score:

10. Have you ever had a case of strangles confirmed on your yard?

- ☐ never (0)
- ☐ last 2-3 years (1)
- ☐ last year (2)

Score:

11. How many horses are vaccinated for equine influenza?

- ☐ all (0)
- ☐ some (1)
- ☐ none (2)

Veterinary comments

Your yard risk score

Risk Category

Low risk 1-6 ☐ | Medium risk 7-11 ☐ | High risk > 12 ☐

Areas/practices of highest risk:

Proposed action to be taken:

Setting up a yard biosecurity plan

Biosecurity is a set of management practices that reduces the potential for the introduction or spread of disease causing agents. Setting up a yard plan and maintaining good biosecurity practices will:

- help prevent the introduction and spread of infectious, exotic and notifiable diseases;
- assist in keeping the horses healthy and performing well;
- help prevent unnecessary disruption to equine activities and the operation of an equine business and the considerable associated costs.

Step by step 'APPEAR' guide to setting up a yard plan

Assess	Complete a risk assessment of your yard with your vet to assess your overall risk level and highlight areas of particular risk for your situation.
Produce	Based on the risk assessment and the advice for biosecurity practices for your risk level, with your vet draw up a biosecurity plan with procedures and rules for your yard.
Prepare	Ensure all equipment and facilities are in place to allow all staff and horse owners to easily follow the plan. Set a time goal to complete the preparation.
Educate	Meet with everyone who uses the yard, explain to them the importance of biosecurity and talk to them about the biosecurity plan and their role within the plan. Explain the consequences of not following the plan. Provide a copy of the relevant yard protocols to every employee and horse owner on the yard and display copies of the rules and reminder notices in relevant areas.
Audit	It is vitally important that your plan is followed by everyone all the time. It is therefore important to regularly check that all biosecurity procedures are being completed properly.
Reassess	It is important, in discussion with your vet, to reassess the plan on an annual basis or following the outbreak of disease; in order to highlight any new areas of risk and assess the success of the plan.

Yard biosecurity plan: preventing disease

The prevention of contagious disease involves attention to all of the following areas:
1. adopting good hygiene practices;
2. operating a strict policy for the introduction of new horses on to the yard;
3. the use of vaccination policies.

1. General biosecurity practices:

already in place needs attention not applicable

- horse keepers should have a good knowledge of the signs of infectious disease and know their horse's normal behaviour and temperature and monitor them daily (if safe to do so);
- ensure each horse has separate tack, rugs, grooming equipment and feed buckets;
- use insecticides, summer sheets, fly rugs and masks to protect the horse from biting insects;
- wash hands before and after attending to a horse;
- daily clean feed mangers and water buckets;
- regularly clean grooming kit, feed and water buckets, tack, rugs, stables and vehicles used to transport horses;
- ensure all feed stores are kept clean and tidy, doors are kept shut, windows are covered with fine mesh and feed is stored in vermin proof containers;
- fix leaky taps, keep gutters/drains clear and remove objects that water can pool in;
- dispose of dung away from horses and water courses and keep dry and covered where possible to reduce their attraction as breeding grounds for biting insects;
- park vehicles away from the stables and ensure they are kept in clean condition.

It is important to daily monitor horses for signs of ill health.

Perimeter boundary:

- ensure there is a closed gate at the entrance/exit to the premises to prevent horses and other animals straying onto or off the premises;
- all boundary fences should be secure and where the neighbouring premises houses horses use well- spaced double fences to prevent nose to nose contact over fences.

Yard biosecurity plan: preventing disease

already in place needs attention not applicable

Visitors to the yard:

- ideally there should be only one entrance / exit into your yard, marked as the main entrance;
- parking should be away from horses to help keep disease-carrying organisms from being tracked from car floors or tyres to your horses;
- ask all visitors to wear clean clothes and shoes;
- if you have many visitors, such as a yard tour or open house make a footbath for them to walk through;
- it is recommended to record the date and time and contact details for all visitors onto the yard so they can easily be traced in the event of an outbreak of infectious disease.

Parking and public areas should be well away from the main yard.

Horses travelling to events/shows:

- avoid sharing transport with horses from other yards or with other animals;
- take your own buckets, and water if possible;
- avoid nose to nose contact between horses;
- wash your hands after you handle other horses;
- clean and disinfect your boots and outer clothing after each show;
- be aware of horses at the yard or stables that may have been exposed to disease e.g. at shows or events, and speak to your vet if you have any concerns;
- if horses have stabled away with close contact with other horses it is recommended they should be kept in isolation on return to the yard.

Special precautions must be taken for horses mixing at shows and events.

Yard biosecurity plan: preventing disease

already in place needs attention not applicable

2. Setting up a quarantine/isolation facility:

- limit the amount of shared airspace between quarantined horses and the general population – ideally by placing the isolation stalls in a separate building away from ALL other animals both stabled, turned out and those walking past;
- limit movement of insects, by screening doors and windows and using insecticidal sprays;
- equip the quarantine facility with separate feeding, mucking out and grooming equipment and separate drain for emptying water buckets and separate muck heap for disposing of bedding and uneaten food;
- if possible, your quarantine barn/area should be downwind of your main barn/stables;
- prevent horses putting heads out over doors; especially important with respiratory disease as nasal secretions are often the primary means of spread of disease;
- access should be restricted to only essential personnel and all animals; dogs, cats and horses should be kept away;
- handle the quarantined horses last in the daily routine; i.e. after handling of all other horses is complete (to reduce potential spread of disease);
- keep a log of all people entering the isolation facility.

REMEMBER quarantine is not strictly for sick or new horses, horses that have left the yard for showing or breeding purposes also have the potential to bring home disease.

Ideally the isolation area should be in a separate building.

Horses in isolation should be handled by separate staff or attended to last; protective clothing should worn and left in the isolation area.

Yard biosecurity plan: preventing disease

already in place needs attention not applicable

3. Protocol for new arrivals

The introduction of a new horse to a yard is a very common way to spread unwanted contagious disease. Several diseases can have a silent carrier state or a significant incubation period, meaning an apparently healthy horse could introduce an infection into the yard. The impact of these diseases, such as strangles or equine influenza, can be devastating to a yard. Simple biosecurity measures can be put in place to help reduce the risk to your yard of horses.

Basic biosecurity for new arrivals

- Isolate all new arrivals for a minimum of three weeks, ideally with limited shared airspace and downwind of the main barn (some diseases are airborne).
- Ensure that the horses in the isolation facilities are cared for by separate staff or after the other horses. Hands and boots should be washed before leaving the isolation area.
- All new horses should be up to date with equine influenza vaccines. Horses who have not previously been vaccinated or whose vaccinations have lapsed should have completed the primary vaccination course (first two vaccines) and a further week elapsed prior to moving onto the main yard. Ideally these should be completed prior to moving to the isolation unit.
- A strangles blood test with negative result must have been carried out in the week prior to moving from isolation on to the main yard. Ideally an additional sample should be taken prior to moving into isolation. A positive blood test result will require a guttural pouch wash to detect carriers.
- Ensure each horse has dedicated equipment and tack to prevent the potential spread of infection between horses.

Strict procedures for the isolation and testing of new horses will help prevent the introduction of infectious diseases.

Ensure each horse has dedicated equipment and tack to prevent the potential spread of disease.

Additional biosecurity measures required for studs and yards with horses coming from or travelling internationally

- New arrivals should have a negative swab result for Contagious Equine Metritis (CEM) and negative blood tests for Equine Viral Arteritis (EVA) and Equine Infectious Anaemia (EIA).
- Ensure stallions standing at stud or those used for AI are negative for all three diseases before breeding and check that they remain free of infection by repeated negative swabs and blood samples.
- Exercise strict hygiene measures when handling horses for breeding, i.e. wearing disposable gloves and using disposable equipment.

Yard biosecurity plan: preventing disease

already in place needs attention not applicable

4. Vaccination

Vaccination helps combat infection by stimulating an immune response which may either prevent disease occurring or reduce the severity of disease and the potential spread to other animals. Immunisation is most effective when a high percentage of the population is vaccinated. It is important to note that adoption of vaccination does not mean that other aspects of biosecurity can be ignored.

Equine influenza

It is recommended that all horses are vaccinated for influenza. Vaccination is effective but owing to the changing nature of the influenza virus may not provide complete protection.

The primary vaccination course requires two vaccinations given four to six weeks apart (21-92 days permitted under rules). The third vaccination must be given at an interval of five to six months (150-215 days permitted under rules). Booster vaccinations should be given at intervals of not more than one year (most rules) or in the preceding six months for FEI competitions. Vaccination can begin from 5 months of age.

Tetanus

All horses should be vaccinated against this fatal disease, tetanus is normally incorporated in the primary influenza vaccination course and boosters are given every second year. Vaccination is extremely effective at preventing disease.

Equine herpesvirus

Equine herpesvirus vaccination is recommended especially for breeding establishments. Vaccination does not afford complete protection but vaccinated horses are usually less severely affected and less infectious. Vaccination is most effective when done on a 'whole yard' basis.

For the prevention of respiratory disease two primary vaccinations should be given four to six weeks apart with booster vaccinations given at six month intervals. Foals can be vaccinated from three months of age.

For the prevention of equine herpesvirus abortion brood mares should be vaccinated at five, seven and nine months of pregnancy.

No vaccination is licensed to protect against the neurological form of the disease.

Strangles

Vaccination may be recommended on some yards following specific risk assessment. The vaccine is given via a very small needle into the underside of the upper lip. Vaccination does not afford complete protection, but reduces the severity of disease.

Vaccination involves a primary course of two vaccinations given four weeks apart and booster vaccinations should be given every three to six months depending on risk levels.

'Strangles' vaccination will lead to positive blood tests, which may cause some issues with horse movements onto premises that employ strict preventive biosecurity measures for strangles.

Rotavirus

Vaccination of the pregnant mare is advisable in situations where there is a high foal population and frequent movement of animals on and off studs or a history of infection. The antibodies are then produced in the colostrum, so to get the protection the foal must suckle well within the first six hours. Pregnant mares are vaccinated in the eight, ninth and tenth month of pregnancy.

EVA

Vaccination is recommended in breeding stallions and teasers.

An initial course of two vaccinations is given three to six weeks apart with boosters given at **six monthly** intervals. Vaccinated horses cannot be distinguished from infected horses when tested, so before vaccination horses must be confirmed to be free from disease by blood testing and this result must be recorded in the passport together with all vaccinations.

West Nile virus

There is no evidence of a current UK problem but horses and yards with contact and travel to and from the US and Mediterranean countries would benefit from vaccination. Two vaccines are given three to six weeks apart followed by annual boosters.

Dealing with a disease outbreak

When an contagious disease is suspected; people often hope there is a less serious cause and carry on as normal to avoid any associated panic. If you are unlucky enough to have an infectious disease, ignoring the problem in the early stages will only increase the number of horses affected and prolong the length of time the yard is affected.

If a horse on the yard is displaying any of the following signs the yard owner and vet should be informed immediately:

- fever (high temperature)
- cough
- nasal discharge
- lymph node abscesses
- diarrhoea
- abortion
- lack of coordination

Following a veterinary examination you will be informed of the likelihood of an infectious cause and the necessary action to limit its spread. Diagnostic samples will be taken to investigate the cause or confirm the diagnosis. In some conditions diagnosis may be difficult and a series of tests and multiple samples may be necessary.

The most important aim of quickly controlling an infectious disease outbreak is to limit the spread of the disease from infected animals to healthy individuals.

The following steps should be taken:

- close the yard: no horses should be allowed to leave or new horses to enter the yard and all visiting professionals and tradesmen should be alerted;
- isolate and barrier nurse infected animals;
- separate animals into risk categories and monitoring closely for signs of disease;
- vaccination where appropriate.

Tape and cones can be used to create a temporary isolation area.

Isolation & barrier nursing

- At the first suspicion of infectious disease affected animal/s should be removed from their groups and placed in isolation.
- Unfortunately many yards do not have ideal isolation areas but the closer you can get to the ideal the more effective isolation will be. In its simplest form this can involve putting a grill up at the stable door and using cones and tape to prevent people from walking directly in front of the stable.
- Isolated horses should ideally be cared for by different people to unaffected horses. This reduces the risk of people carrying the infection on their hands, clothes or shoes from sick to healthy horses. Where this is not practical; handle healthy horses first then wear protective clothing, such as gloves, overalls and different footwear or go home and shower and change afterwards before handling other horses.
- Barrier nursing is the care of a patient suffering from infectious disease in isolation using protective clothing and special measures to prevent the spread of disease to others.
- Foot dips at the edge of an isolation area can be useful but it is important to strictly follow instructions regarding dilution and to change regularly as they can become inactivated when dirty and then becoming a breeding ground for bacteria and viruses.
- It is important that all equipment (e.g. buckets, rugs) remains in the isolation area and is not removed. Soiled bedding and uneaten food should be disposed of separately.

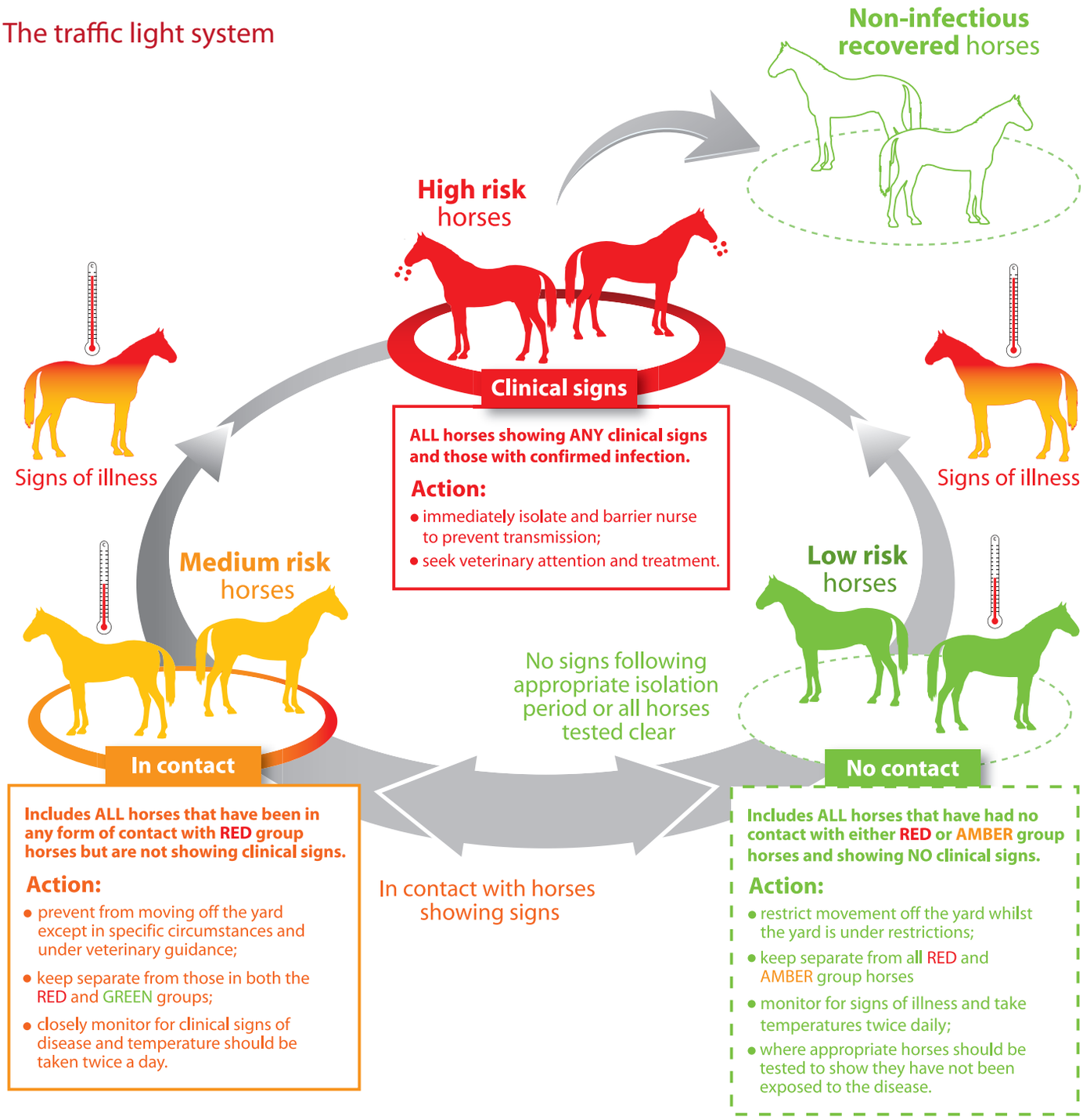
Barrier nursing involves the use of protective clothing and special measures to prevent the spread of infectious disease to others.

Risk categorisation

As soon as individual horses present with clinical signs suspicious of an contagious disease it is important to consider the implications for other horses on the yard; this can be a useful strategy even with simple coughs and colds. Since most illnesses have an incubation period it is not possible to tell just by looking at an animal whether it has been exposed and is incubating the disease. By dividing horses into groups according to their risk of having been exposed it is possible to limit the spread between individuals. The simplest of these systems is the 'Traffic light system': red for high risk horses, amber for medium risk and green for low risk. All equipment should be labelled in these three colours to make it clear which area it must remain in.

Dealing with a disease outbreak

The traffic light system



Vaccination

Vaccination in the face of an outbreak may not be appropriate.

- In an outbreak of influenza administering booster doses to horses vaccinated over six months ago and those that have lapsed helps to reduce the severity of clinical signs and time of viral shedding.
- Strangles vaccinations are of limited use in the face of an outbreak unless the horse has been vaccinated within the last six months.
- Vaccination in the face of an EHV-1 outbreak is controversial but is generally not recommended for horses that may be incubating the virus as there is a theoretical risk of exacerbating neurological signs.

EXCELLENCE IN PRACTICE

XLVets Equine

The members of XLVets have worked hard to create what they see as a model of how practices can work together, sharing the latest ideas and passing on savings and joint expertise to clients

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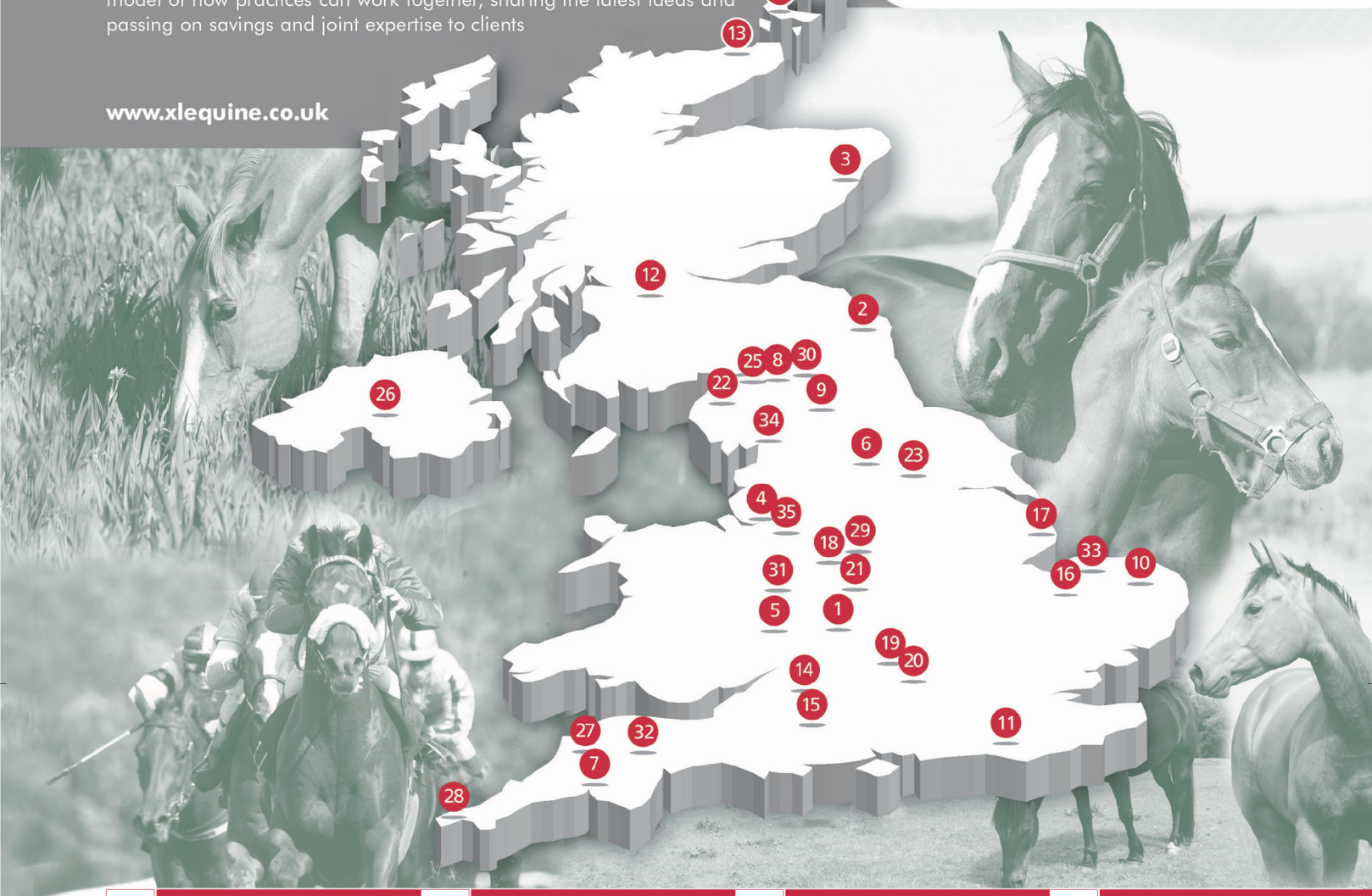

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4	**Ashbrook Equine Hospital** Nr Knutsford, Cheshire Telephone: 01565 723030	13	**Donald S McGregor & Partners** Thurso, Caithness Telephone: 01847 892387	22	**Millcroft Veterinary Group** Cockermouth, Cumbria Telephone: 01900 826666	31	**Severn Edge Veterinary Group** Aston Munslow, Shropshire Telephone: 01584 841080
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