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"The Art and Science of Veterinary Medicine"

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Towards the 2012 Olympics  
Chaired by Peter Bowling

15.45–16.10

Organisation of veterinary services for the Equestrian Events of the 2008 Beijing Olympic and Paralympic Games

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The Equestrian Events of the 2008 Beijing Olympic and Paralympic Games were staged in Hong Kong between the 8th and 21st August and the 7th and 11th September respectively. Two hundred and nineteen horses were imported and exported by air for the Olympics and 72 horses for the Paralympics in a total of 57 flights. Horses were required to undertake one week pre-import quarantine in approved premises serving designated hubs globally and remained in isolation from the local horse population for the entire time that they were in Hong Kong. The first horses arrived on 26th July and the last departed on the 5th October 2008.

The main Olympic venue was constructed adjacent to the Hong Kong Jockey Club’s (HKJC) racecourse at Sha Tin, in the New Territories. Permanent stables and associated facilities were constructed with the games in mind. Both permanent and temporary training grounds and the competition arena were built on the compound. All training and the dressage and jumping competitions took place at this venue. A second venue was built at Sheung Shui, about 35 km northwest of Sha Tin, where the cross country competition for Eventing was staged. This facility included temporary stabling, a field clinic and all associated competition requirements. Horses were transported by road to this venue the afternoon before the cross country and returned within 2–8 hours of the end of competition.

Staffing

Veterinary regulation was overseen by an FEI appointed Veterinary Commission, formed of 4 experienced veterinarians. A member of the commission was present for the duration that horses were in Hong Kong. Two veterinarians, appointed as Testing Vets by the FEI, oversaw collection of samples and administration of the equine Medication Control Programme (MCP).

Veterinary clinical services were provided by an international team of 11 veterinary surgeons, all volunteers with experience at Olympic or similar level. These staff acted as Event Treating Veterinarians throughout the Olympics, providing clinical cover on the field of play and whatever support was required by competitors at other times. This team formed immediately before the first horses arrived and disbanded in stages throughout the games. Five veterinarians, 3 from overseas, were recruited for the Paralympics.

At least 2 veterinarians were on duty whenever horses were training and one was present on the venue 24 h a day. The core team was augmented by 5 veterinarians from Mainland China and 7 from the HKJC’s Department of Veterinary Clinical Services at the cross-country competition. In addition, a group of 8 senior students/recent veterinary graduates from the University of Sydney provided general support in the clinic throughout the games.

Two farriers, both recruited from the UK, were supported by farriers from the HKJC to act as Event Farriers.

Veterinary facilities

A purpose-built, permanent veterinary clinic was constructed at the main venue, immediately adjacent to the stables compound. This facility was staffed by Event Treating Veterinarians and made available for use by team and individual veterinarians on an appointment basis. The clinic was equipped with all essential diagnostic and treatment aids and included a pharmacy stocked with a range of veterinary drugs, supplements and other clinical consumables, which were available for purchase by team veterinarians. Surgical facilities at the HKJC’s Equine Hospital were available for the duration of the Games. The Hospital was located approximately 3 km from the main venue and an equine ambulance was on 24 h stand-by to transport a horse to this facility if required. A health protocol was formulated to allow horses admitted for surgery to rejoin the Olympic horse population if required. Clinical pathology services were provided by the Department of Veterinary Clinical Services, HKJC. A courier service was established to transport samples 5 times a day and specimens were routinely analysed and results reported within 5 h.

A purpose-built forge was located adjacent to the veterinary clinic. A large, temporary air-conditioned shoeing bay was provided immediately outside the forge, which proved very popular with visiting farriers.

Two sets of isolation stables were available for holding any horses suspected of suffering from an infectious disease. These were located adjacent to the core venue at Sha Tin and at the HKJC Happy Valley Racecourse, on Hong Kong Island. The former, which were designed for any case considered to be of low infectious potential, were used at both Olympic and Paralympic Games for individual horses considered at risk of developing diarrhea. The facility was extremely useful in permitting isolation to be performed with minimal disruption to the competitor.

A temporary, dedicated MCP sample collection facility was constructed in a quiet but easily accessible location on the core venue. A 24 h courier service was established on demand to transport samples to the HKJC Racing Chemistry Department, which provided analytical services for the FEI. Samples could be in the laboratory within 30 min of collection.

A temporary veterinary clinic was constructed adjacent to the stables compound and close to the finish box at the cross-country venue. The clinic contained four treatment stables, an anaesthetic recovery box and was equipped with computed radiography, ultrasonography, endoscopy and other facilities required for administering emergency care.

The cross-country course, which was 4.5 km in length and included 29 obstacles, was built on a golf course and was compact in design. It was divided into 6 sectors, each of which
contained a headquarters manned by a veterinary team, including an equine ambulance. In addition, there were 3 specialist veterinary "rapid response" teams, equipped with anaesthetic and rescue equipment to provide further support in the event of a serious accident. While considerable effort had been invested upgrading the footing on the course, surrounding areas were liable to become boggy in wet conditions, which are prevalent in Hong Kong in August. Therefore, much thought went into planning emergency access routes and several kilometres of temporary roads were laid for this purpose.

Transport
Peden's Bloodstock coordinated all transport arrangements. Use of 'combi' 747 aircraft (carrying passengers and cargo) enabled grooms and horses to travel on the same flight but required special arrangements on the ground in Hong Kong to optimise horse care. Meticulous planning went into the process of offloading horses, transferring them to lorries and transporting them 25 km to the main venue. Dedicated security, customs and quarantine teams applied special protocols to hasten the process and a police task force cleared the roads and accompanied each convoy. As a consequence, horses were delivered to their stables within 1–2 h of their aircraft landing. A veterinary team, carrying rescue equipment, met each flight and travelled with every convoy.

Climatic conditions
Hong Kong's climate in August is hot (up to 35°C) and humid (80–90%) and complicated by sporadic typhoons and rapidly developing thunderstorms. Indeed, weather became a focus of global concern in advance of the games. In the 2 years leading up to the games the Veterinary Delegate (Professor Leo Jeffcott) worked with the Hong Kong Observatory to develop protocols for monitoring the weather in relation to competition with an emphasis on horse welfare. This work influenced the timing of competition and training periods and was instrumental in decision making during the games. The Hong Kong Observatory established dedicated weather monitoring stations at both the main and cross-country venues, enabling the observatory to provide precise real-time weather data and more accurate, site-specific weather forecasts. These data were made available to all competitors on a dedicated web site and, in more detail, to restricted personnel on a protected site.

The Olympic events were ‘sandwiched’ between typhoons, severe tropical storm Kammuri immediately preceding the start of competition and typhoon Nuri (the worst to affect Hong Kong in 5 years) hitting the territory within hours of the last event. All permanent structures were typhoon-proof and horses were unaffected by the severe winds associated with each storm.

Cooling facilities
In order to assist horses recover in the hot and humid conditions all lorries, stables, the veterinary clinic and isolation facilities were air-conditioned and maintained at 23°C. In addition, an air-conditioned indoor arena was provided to assist with the adaptation process.

Dedicated facilities were provided for cooling horses during training and competition. These include a number of strategically positioned misting tents at the main venue and at the start and finish of the cross-country course. Each misting tent was capable of holding several horses simultaneously and was chilled by rows of misting fans. In addition, an ample supply of chilled water was available in troughs and hose spray units at each tent.

Mobile cooling units, consisting of a 400 l tank of water and ice, pump and hose, mounted on a small vehicle, were on standby at the core venue at all times and at strategic locations around the cross-country course. These were available to provide immediate assistance to a horse in distress in any location to which horses had access, including the field of play.

Outcome
All of the equestrian events were completed successfully with plenty of exciting competition and some wonderful performances. From a veterinary perspective, with a bit of good fortune, we lived up to our dream: Every single horse returned home safely after the games!

Clinical service statistics

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16.10–16.35
The role of the treating vet at the Olympics and Paralympics

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From the veterinary perspective the 2008 Olympic and Paralympic Games held in Hong Kong were a huge success for all 3 equestrian disciplines. The facilities were outstanding and the organisation superb with nothing left to chance. The Hong Kong team should be congratulated for all the hard work put in by the organisers, volunteers and officials, which was handsomely rewarded, when every single horse returned home safely.

Hong Kong (HK) was so good because:

• Well prepared perfectly organised venue - best ever for horses.
• Two competition venues: cross-country and showjumping/dressage.
• 12 outdoor arenas and cooling facilities.
• Air conditioned indoor school and stabling.
• Team of excellent vets from around the world.
• Purpose built vet clinic 24 hour cover.

It is hoped that a similar standard of success can be achieved in the UK in 2012. The role of the treating vet at the Olympics and Paralympics is (as elsewhere) to act as an advocate for the horse - since they cannot speak for themselves we must look after them and look after their welfare in the best way possible.

The International Federation for Equestrian Sports (Fédération Équestre Internationale [FEI]) is the international governing body of equestrian sports. The Olympics and Paralympics are run using their rules, so a key role for the treating vet is to work to these regulations that are designed to protect the horse. Practically, the role of the treating vet included meeting and checking horses on arrival (at airport in HK), monitoring them during their stay, and maintaining 24 h cover in the onsite vet clinic. The horses required care during competition and vets needed to be there ready at all times. FEI vets worked closely with the team vets and quarantine team to formulate the best management plan for individual horses, as required. The final happy duty after competition was the recovery trailers. Examples of the sort of veterinary situations encountered will be used to illustrate this presentation including emergency management of a nonweightbearing eventer and aggressive treatment of shipping fevers (pleuropneumonia) in some Paralympic patients.

There are many factors that have to be considered in the care of the Olympic and Paralympic equine athletes including:

• Transport stress: many of these horses will have travelled extremely long distances to compete, and although some are seasoned travellers, others were less able to cope and required aggressive treatment on arrival to enable them to compete.
• Climate: effective cooling of horses was an important requirement in the hot and humid climate of HK in 2008 as well as in Atlanta in 1996. Typhoons were another issue in China, which hopefully will not be encountered in London, but appropriate management of the horses for the weather conditions for the Games is essential. Up to the minute forecasts were available in HK and proved incredibly helpful.
• Detailed monitoring of each horse was vital, particularly regarding hydration. It was established that testing of urine samples for specific gravity and electrolytes, particularly sodium levels, was useful in defining fluid and electrolyte requirements. Effective rehydration was key in enabling horses to recover after the journey and during competition.
• Quarantine and infectious disease considerations are crucial.
• Injuries and emergency care: The veterinary team in Hong Kong, led by Dr Chris Riggs head of Veterinary Clinical Services, was ready for anything. Much thought and preparation was expended to predict anything that could happen. Equipment on hand on cross-country day included 2 rescue glides, one UC Davis Anderson sling, 2 large animal lifts, Kimzey leg splints, and 8 horse ambulances and 3 recovery trailers.
• Veterinary services needed: In Hong Kong the horses were accommodated in spacious, air-conditioned stables with an adjacent state-of-the-art veterinary clinic and convenient access to the Hong Kong Jockey Club’s full-service equine hospital less than 2 miles away. The evening cross-country course was located about 30 min from the main competition venue at Sha Tin. This was well equipped with a temporary veterinary clinic containing 4 stalls, an exam area, an anaesthetic knock down/recovery box, and i.v. fluid lines, as well as with computed radiography, ultrasonography, and endoscopy available on site; plus, of course, copious cooling facilities.
• Veterinary Team: In total, there were more than 100 vets at the Games, which was more than the total number of horses in each discipline. Every single one had an important role and played it most effectively. It takes that number to be confident of ensuring the safety and welfare of the equine athletes.
• The need for effective equine treatment whilst competing under FEI rules and how to safely stock a pharmacy that can provide potential treatments required for horses from around the world and takes appropriate precautions to ensure safe medication control issues.
• The importance of clinical pathology services to monitor these elite athletes.
• The requirement for efficient communication amongst the vet team.

As well as the key issues of horse welfare, there are also many other critical concerns such as security and the seriousness of the competition that puts a significant pressure on the athletes and those around them. It is vital that there is an effective team in place to make the organisational systems that are carefully planned in advance work well on the day - all concerned require a CAN DO attitude!

Further reading
http://www.fei.org/Media/News_Centre/News/Pages/olympic_summaries_17feb2008.aspx
The role of the team veterinarian at the Olympic Games

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The role of team veterinarian at international equestrian competitions and at Olympic Games in particular, presents a wide variety of challenges to the responsible individual.

The core responsibilities of the team veterinarian are the health, fitness, and welfare of the equine athletes.

This presentation will discuss aspects of the health management programme, nutritional management as well as briefing riders and grooms about the conditions in preparation for the Olympic Equestrian Games in Hong Kong. Measures to ensure adaptation of horses to the different environmental and climatic conditions will be outlined.

Measures to prevent medication errors or misuse of medication will be discussed.

The current status of the FEI veterinary regulations as experienced at the 2008 Olympic Games will be critically reviewed.

NOTES
Managing medication control at an international event

Warwick Vale

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Medication control at horse competitions is a key activity that requires direct veterinary supervision and participation. Responsibility lies with the appointed FEI Testing Veterinarian or Veterinary Delegate.

Medication control is achieved by the application of the relevant rules, policies, and procedures that have been determined by the international governing body of horse sports - the Fédération Équestre Internationale (FEI). These are detailed in the FEI Veterinary Regulations and the FEI Equine Anti-doping and Medication Control Rules. Working in conjunction with the Veterinary Commission and the Event Ground Jury, the Testing Veterinarian conducts a horse sampling programme that is designed to safeguard the welfare of the competing horse(s), ensure fairness of the competition and to promote the values of the sport in respect of ‘drug and medication free competition’.

Three possible methods for selection of horses can be distinguished: obligatory testing (medallists), random testing and spot testing (a specific reason necessitates testing of a horse). The practice of medication control at events has 5 main steps; rider notification, horse stewarding, sampling of the horse, sample security/chain of custody and sample analysis. Assisting FEI stewards are integral to the success of the sampling process. The sampling protocol involves the use of specially designed sampling kits, the collection of both urine and blood is required for full sample analysis. Sample analysis is undertaken by approved forensics laboratories.
Biosecurity and infectious disease control

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Biosecurity is a package of measures designed to achieve 3 aims:
• Prevention of disease entry into a premises.
• Prevention of disease spread within a premises.
• Prevention of disease leaving a premises.

Although the Equestrian Olympic Games is a high profile event conducted under the spotlight of the world’s media, the principles and application of biosecurity measures are exactly the same as those that should be applied to individual horse premises in equine practice. The 2 cornerstones of contagious and infectious disease control are risk assessment and disease surveillance because these allow threats and control measures to be identified.

Key risk assessment questions; What are the threats?
• Which diseases are likely to be a threat? (e.g. OIE List A diseases; diseases endemic and exotic to the countries of origin and to the Hong Kong region; contagious vs. infectious diseases; threat from vector borne infections.)
• From which sources might these diseases occur and how might these diseases enter the facility? (e.g. importation of a competition horse that is incubating disease; recrudescence of a disease in a competition horse after importation; incursion of a disease endemic to HK into the Olympic venue from indigenous horses or wildlife.)
• What are the likely routes of transmission and how can these be minimised? (e.g. direct and indirect transmission, fomites including personnel, equipment, wildlife, insect vectors.)
• What will be the impact of any of these diseases entering the Olympic venue or escape from the venue to neighbouring facilities? (e.g. horse welfare and economic impact on the Games or Hong Kong racing industry).

Key questions for disease surveillance: How much, how often and by whom?
• Extent and type of certification required before travel to the Games?
  • Veterinary declaration of the horse’s movements and certification that it has not visited prohibited countries in the 60 days before competition
• Level of surveillance immediately before export?
  • Length of quarantine period in a biosecure facility under close veterinary supervision? (period of time judged sufficient to detect horses incubating disease based on the incubation periods of diseases identified in the risk assessment)
• Duration, level and frequency of clinical observation and disease testing before export and after arrival?
  • How often and in what detail should clinical assessments be conducted and by whom?
  • Which tests, and for which diseases, should be used to supplement clinical observations?
  • OIE Manual of Diagnostic Tests and Vaccines defines international standards - what is the sensitivity/specificity of the tests being considered and the accreditation status of the laboratories conducting them?

Disease threats for the 2008 Hong Kong Equestrian Olympic Games
Importing over 200 competition horses representing 42 different countries into Hong Kong represented a significant biosecurity risk to both the competition horses themselves and to the resident population of over 1000 Thoroughbreds stabled and trained at the Hong Kong Jockey Club racetrack at Sha Tin. The Olympic Venue was located at the Sha Tin racecourse with the racehorses and competition horses housed in separate facilities at opposite ends of the course. The diseases considered particular threats were relevant OIE List A diseases with some supplementary diseases considered to be of importance to the competition horse population travelling to Hong Kong. The Hong Kong Government’s Agriculture, Fisheries and Conservation Department required every horse to be issued with a Health Certificate before travelling which certified the health status of the horse in relation to the following diseases:
• African horse sickness*
• Epizootic lymphangitis and glanders*
• Equine encephalomyelitis (eastern, western, Venezuelan, Japanese, St Louis, West Nile Virus )*  
• Equine herpesvirus-1*
• Equine infectious anaemia*
• Equine influenza*
• Equine neorickettsiosis (ehrlichiosis/Potomac horse fever)
• Equine babesiosis/theliriosis (piroplasmosis)*
• Equine strangles
• Equine viral arteritis*
• Hendra and Nippa virus*
• Surra (Trypanosoma evansi)*
• Vesicular stomatitis*
* OIE List A disease

Other diseases that were considered a particular risk during and after travel, but were not included in the Health Certificate, were pleuropneumonia and salmonella or clostridial colitis.

Disease surveillance and infection control measures
All horses were subjected to a standardised procedure of surveillance and infection control before travel to Hong Kong and during their stay at the Olympic venue which consisted of a Pre-Export Quarantine (PEQ) period of 7 days followed by a Post Arrival Inspection (PAI) period of 10 days. The aim of PEQ was to reduce the risk of importing disease into the venue. PEQ took place in designated, HK Government-approved facilities on each continent. During PEQ horses were monitored by Government approved veterinary inspectors. Immediately before export the Health Certificate was completed by an approved veterinarian at PEQ with a declaration that the horse had only visited approved countries in the last 60 days, had been free from all diseases listed in the Health Certificate (see above) for the last 30 days and had been examined and certified clinically normal and free from ticks within 24 h of export. Horses were also specifically certified as either not having been in disease affected regions, or having been tested or vaccinated for African horse sickness, equine infectious anaemia, equine influenza, equine babesiosis/theliriosis, West Nile virus, vesicular stomatitis and Japanese encephalitis. Additionally all horses were required to test negative for influenza antigen on a nasal swab sample using a commercial patient-side ELISA for influenza A and B viruses (Espline Flu A,B™, Fujirebio Inc., Japan). The aim of PAI was to reduce the risk of disease spreading within the venue. All horses had rectal
temperatures measured and recorded on health charts twice daily by team grooms. All barns were inspected twice daily by quarantine team staff and all horses with clinical signs that might indicate infectious or contagious disease (pyrexia, nasal discharge, coughing, diarrhoea or skin lesions) were investigated by the biosecurity consultant (J.S.). Espline Flu A,B tests were used as a front-line, horse-side diagnostic test on all horses with pyrexia.

Clinical pathology support was available at the venue and arrangements were in place for Health Certificate-listed diseases at OIE reference labs in the Europe.

Infection control measures
Stabling at the venue was arranged in purpose built, self contained blocks of 50 stables (2 x 25 stable barns with a connecting service area) to limit the opportunity for disease spread. There was no contact with resident/indigenous horses and wildlife was excluded from the venue by a perimeter fence. Geographically separated isolation barns were provided at the edge of venue. All horse feedstuffs shipped into the venue required biosecurity clearance. Personnel access to the stable barns was strictly controlled by badge accreditation through a single entry point protected by disinfectant mats and alcohol hand gel. Alcohol hand gel application was required on entry and exit from each barn.

Outcomes
PEQ: One horse tested positive for Babesia equi on arrival at Aachen but was monitored and allowed to travel to HK because it had falling titres at the end of PEQ. Two further horses were denied permission to travel because of lameness and colic/weight loss. PAI: 19 horses developed pyrexia with or without respiratory signs which tested negative for influenza antigen and resolved with medical management over 24–96 h. Two horses with suspected colitis (pyrexia, signs of colic and neutropaenia) were isolated as a precaution. Two horses had skin lesions (judged noncontagious) and 4 horses developed coughing without pyrexia and were managed for RAO. Overall, there were no occurrences of infectious or contagious disease in PEQ or at the venue and all horses travelled home disease-free and on schedule.

On line resources
UK equine disease control information resources www.defra.gov.uk
UK Codes of Practice for disease control www.hblb.org.uk
OIE Manual of Diagnostic Tests and Vaccines www.oie.int/eng/normes/mmanual