

Horserace Betting Levy Board
Parnell House
25 Wilton Road
London, SW1V 1LW



Tel: 020 7802 3885
Fax: 020 7333 0041
Web: www.hblb.org.uk
Email: equine.grants@hblb.org.uk

Sudden death in racing Thoroughbreds

Catriona Lyle and Bruce McGorum
University of Edinburgh



Study co-authors

Lisa Boden, Francisco Uzal, Tim Parkin, Neil Kennedy, Karen Blissitt, Richard Newton, Anthony Stirk, H. Aida, James Case, Jenny Charles, Ian Gardner, Neil Horadagoda, Kanichi Kusano, Ken Lam, Jerry Pack, Ron Slocombe and Brian Stewart

All collaborating centres, racing authorities, referring veterinary surgeons and pathologists are acknowledged.

What was already known about sudden death?



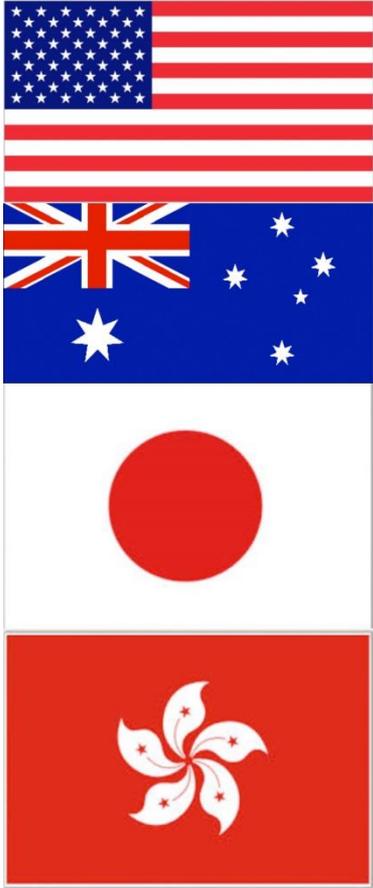
- Sudden death is defined as any fatality in a horse that is closely observed and was previously thought to be healthy.
 - It can occur at rest but is also known to occur during exercise.
 - It affects all equestrian sports and there are well-publicised examples from racing, eventing, show-jumping and hunting.
 - Sudden death is a risk for horse welfare, jockey and rider safety and the public perception of horse racing and other equestrian sports.
 - Sudden death remains poorly understood
 - The prevalence in UK is unknown
 - Risk factors have not been defined
-



Aims of this study

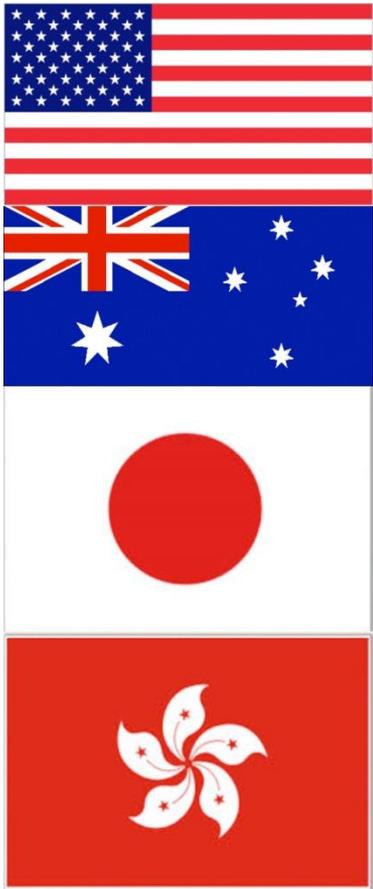
- To collect information on causes of sudden death from racing centres across the world
 - To document the prevalence of sudden death on UK racecourses
 - To determine risk factors for sudden death in the UK
-

International multi-centre study of causes of sudden death



- Data collected from California, Pennsylvania, Victoria, Sydney, Hong Kong and Japan
- Detailed post-mortem reports were available from 286 racehorses

International multi-centre study of causes of sudden death

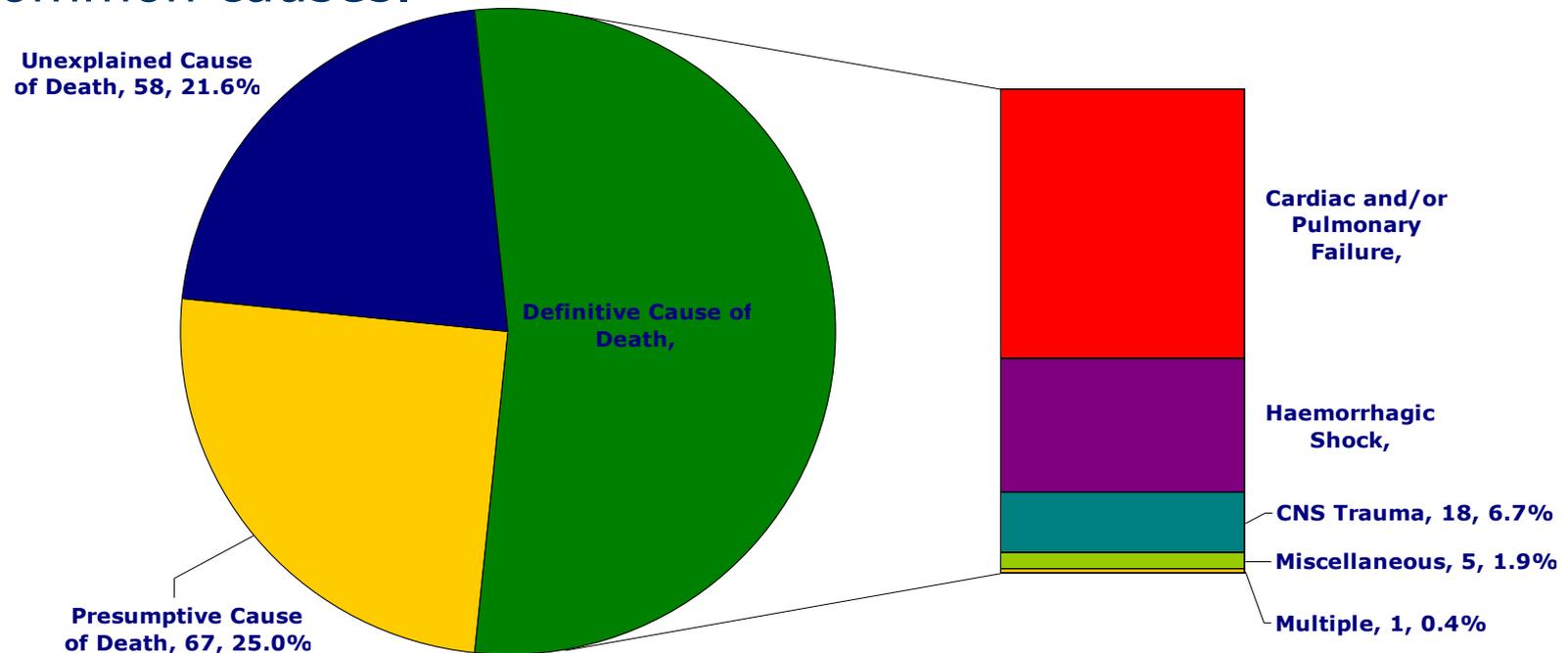


- A definitive cause of death was recorded by the pathologist in 53% (143/268) of cases, a presumptive cause of death was recorded in 25% (67/268) but despite exhaustive investigations the cause of death remained unexplained in 22% (58/268).
- Causes of sudden death and the lesions found in cases of exercise-related sudden death are similar in different racing jurisdictions.

International multi-centre study of causes of sudden death



- Sudden death can be attributed to a variety of causes but diseases of the lungs, blood vessels or heart were the most common causes.



Why is it so difficult to determine the cause of sudden death?



- Pathology found in the lungs and heart may be the cause of death or a result of another process - it can be difficult to determine which came first.



Most racehorse trainers are familiar with bleeding, aka exercise-induced pulmonary haemorrhage, as a cause of poor performance.

In extreme cases, the blood loss can be so rapid and severe that it causes lung failure. The underlying cause of this severe bleeding remains unclear and may be due to a lung problem or secondary to a heart problem. More research is needed to resolve this question.

Why is it so difficult to determine the cause of sudden death?



- Cardiac irregularities are the result of aberrant electrical activity in the heart and there is nothing to find once the heart stops



This ECG was recorded from a horse that became distressed with exercise - it is obvious the cardiac rhythm is very irregular: but when the heart stops, the ECG records a flat line and events leading up to the death remain unknown.



Frequency in the UK

0.3 per 1000 starts
(all races)



25 sudden deaths/year

0.07 per 1000 starts (turf flat)

0.09 per 1000 starts (AWT flat)

0.4 per 1000 starts (NH flat)

0.5 per 1000 starts (hurdles)

1 per 1000 starts (steeplechase)

12% proportional mortality (all)



Risk factors for sudden death



- Horses running in hurdle, steeplechase and National Hunt flat racing were all more at risk for sudden death than those in flat races
 - There were more sudden death cases in the summer, in older horses and those running over longer distances.
 - Horses that had run in other races within the last 60 days were less likely to be affected.
-

What is known about sudden death in other equestrian sports?



- Currently there are no statistics on sudden death in other equestrian sports
 - Age is a risk factor for all forms of cardiac disease in horses
 - Identification of risk factors from racing may help reduce the risk for sudden death for horses
-

What is needed in future?



- An important conclusion from this study is that there is a need to standardise data collection across racing jurisdictions and across sports
 - More research is needed to develop new techniques that will help determine the cause of death which are unexplained using current technique.
-

To find out more about
this study, go to:



- <http://onlinelibrary.wiley.com/doi/10.1111/j.2042-3306.2011.00496.x/abstract>
 - <http://onlinelibrary.wiley.com/doi/10.1111/j.2042-3306.2010.00164.x/abstract>
-