

NATIONAL SIGNIFICANT DISEASE INVESTIGATIONS PROGRAM

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The National Significant Disease Investigation (NSDI) Program aims to boost Australia's capacity for the early detection of emerging and emergency animal diseases by recruiting greater participation of veterinary practitioners in disease investigations. The program is managed by Animal Health Australia (AHA) and funded from livestock industry and government subscriptions. Since commencement in June 2009 it has supported investigation of approximately 350 cases across Australia annually.

Veterinary practitioners play a key role in general surveillance in Australia, providing expertise for evaluating, clinically investigating and reporting outbreaks of significant disease in animals. However, full investigations are often limited by competing priorities and commercial realities such as the low economic value of individual animals relative to the cost of veterinary services.

The target outcomes for the NSDI Program are:

- A strengthened general surveillance network characterised by more frequent contact and collaboration between private veterinary practitioners and government officers;
- An increase in the number of thorough livestock and wildlife disease investigations conducted by private veterinarians in each jurisdiction.

INTRODUCTION

Australia is fortunate to be free of most of the serious diseases that affect animals in other parts of the world. This favours our trade and market access, farm productivity, public health, and wildlife biodiversity.

The risk of disease arising from wildlife continues to be at the forefront of both agricultural and human health agencies as a range of emergency diseases have feral and / or native wildlife as part of their ecology. For example, outbreaks of highly pathogenic avian influenza (HPAI) have been seen to cause enormous economic and / or human health impacts both in Australia and overseas, with a number of outbreaks directly affecting wild bird species (Feare, 2010; Breed et al., 2010; Newman et al., 2010). Diseases originating from wildlife have also been identified as the major source of emerging zoonotic diseases (Jones et al 2008; Woolhouse and Gowtage-Sequeria 2005). Additional global examples of emergency animal diseases with wildlife reservoirs include Foot and Mouth Disease, West Nile Virus, Nipah Virus and Japanese Encephalitis Virus. Australian examples include Australian

Bat Lyssavirus, Hendra Virus, Menangle Virus, various forms of chlamydiosis, and mycobacteriosis.

Disease in wildlife can be an early indicator of changes in the environment. For example, in 2006 at Esperance in WA, lead intoxication was found to have caused a mass mortality of birds (wattle birds, honeyeaters and miners) and led to action from both human health and environment authorities.

Diseases of direct significance to wildlife populations also continue to be recognized, however much is still to be understood about the impact of these on conservation and biodiversity. Examples include the global decline of amphibian species due to chytridiomycosis and the recent impact of white nose syndrome on bat populations across North America. However, emerging diseases often go unnoticed for some considerable period of time, for example chytridiomycosis took 19 years to be identified.

WHAT CAN BE DONE

Ongoing general surveillance is important to maintain Australia's favourable animal health status and for the early detection of animal disease emergencies. The value of general surveillance has been demonstrated in the early detection of outbreaks of emergency diseases in Australia including Menangle virus in a NSW piggery in 1997; sporadic Hendra virus in Qld horses since 1994, and sporadic anthrax in NSW and Victoria. The value of general surveillance in wildlife has been demonstrated by the detection of devil facial tumour disease in 1996 and Salmonella ST160 in Tasmanian sparrows in 2009. The Australian governments and the Australian Wildlife Health Network (AWHN) are constantly on alert for emerging and emergency diseases in wildlife.

Note: General surveillance is based on a network of people and organisations that detect, investigate and diagnose morbidity and mortality events. General surveillance is often opportunistic in nature, can generate a broad picture of the disease situation within a region, and has the potential to raise alerts to emergency disease events.

SUBSIDIES FOR VETERINARIANS WHO INVESTIGATE SIGNIFICANT DISEASE INCIDENTS IN LIVESTOCK OR WILDLIFE

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Investigation subsidies and eligible veterinary practitioners

The NSDI Program subsidises veterinary practitioners who investigate and report on outbreaks of significant disease incidents in livestock and wildlife. Subsidies of \$320 (remote location investigations) and \$220 (local investigations) are available for an initial field and clinical investigation, and also for a follow-up investigation (maximum subsidy \$640). Larger payments are available in some states. In return, the practitioner must provide a case report of the investigation to their state/territory department of primary industries. The NSDI Program also subsidises the department cost of laboratory analyses.

Eligible veterinary practitioners are registered, non-government veterinarians who are engaged in clinical veterinary medicine, including all veterinary practitioners in university clinics, zoos and wildlife

parks.

What are significant disease incidents?

A significant disease incident includes the following characteristics:

1. An unusual or atypical manifestation of disease: high morbidity, mortality and/or rate of spread;
2. An initial investigation fails to establish a diagnosis, including when veterinary treatment does not produce the expected response;
3. There are alarming findings indicating that trade, public health, production or biodiversity impacts may threaten the viability of a farm, industry or region or biodiversity conservation; however **excluding incidents where there is a genuine suspicion of an Emergency Animal Disease.**

BENEFITS OF THE PROGRAM

Summary case data (including presenting symptoms), animal numbers and the response taken, are collated centrally in the National Animal Health Information System. This data enables analysis of disease trends and assists the promotion of general surveillance capacity in Australia, as it shows the activity of veterinary practitioners over space and time.

In addition, the program has increased the capacity for the early detection of emergency and emerging disease. The benefits are already being identified across Australia with some jurisdictions indicating that the program has strengthened the 'general surveillance network'. Specifically, there has been more frequent contact and collaboration between private veterinary practitioners and government officers in disease investigations, closer cooperation during investigations and improved two-way communication, particularly with government veterinary laboratories.

THE NSDI PROGRAM FOR WILDLIFE

In May 2010, the scope of the NSDI program was expanded to include wildlife disease events and include veterinary practitioners of wildlife parks. AWHN has been assisting AHA to increase awareness and actively promote the NSDI program for wildlife among eligible veterinary practitioners, with the aim of ensuring that the inclusion of wildlife into the NSDI program is successful. Wildlife disease investigations have already been funded in the first year that funds have been made available, and there has been considerable interest in the program from veterinarians working with wildlife.

STEPS

- The veterinary practitioner becomes aware of a case that fits the criteria of a 'significant' incident;
- The veterinary practitioner contacts their government department of primary industries to confirm the availability of an investigation subsidy and arrangement for laboratory testing;
- Diagnostic specimens for laboratory testing are submitted to the animal health laboratory as directed by their department of primary industries;

- The veterinary practitioner reports full investigation details, including their assessment and any laboratory reports, to the department of primary industries using the form as requested by the department or using the ROADE form available for download: Record of Animal Disease Event (ROADE) form, available at: <http://www.animalhealthaustralia.com.au/wp-content/uploads/2011/03/Record-of-Animal-Disease-Event-ROADE-form.doc>
- Payments are made to the veterinary practitioner at the discretion of their department of primary industries (note that veterinary practitioner billing of clients is entirely independent of this program).
- Note that incorporation of wildlife into the NSDI is available in Victoria, Tasmania, Queensland, Northern Territory, NSW and SA. Other arrangements are in place for investigation of wildlife disease events in WA. Veterinarians should contact the WA Wildlife Coordinator for details: <http://www.wildlifehealth.org.au/AWHN/ProgramsProjects/Programs.aspx?id=9>

FOR FURTHER INFORMATION

Please contact one of the following:

- Your local district veterinary officer;
- Your state NSDI program coordinator www.animalhealthaustralia.com.au/programs/disease-surveillance/national-significant-disease-investigation-program/ ;
- Australian Wildlife Health Network coordinator: www.wildlifehealth.org.au; or
- Animal Health Australia: (02) 6232 5522, aha@animalhealthaustralia.com.au

REFERENCES

- Breed AC, Harris K, Hesterberg U, Gould G, Londt BZ, Brown IH and Cook AJ. 2010. Surveillance for Avian Influenza in Wild Birds in the European Union in 2007. *Avian Diseases* 54, 399-404.
- Feare CJ. 2010. Role of wild birds in the spread of highly pathogenic Avian influenza Virus H5N1 and implications for global surveillance. *Avian Diseases* 54, 201-212.
- Jones KE, Patel NG, Levy M A, Storeygard A, Balk D, Gittleman JL and Daszak P. 2008. Global trends in emerging infectious diseases. *Nature* 451, 990-994.
- Newman SH, Siembieda J, Kock R, McCracken T, Khomenko S, and Mundkur T. 2010. FAO EMPRES Wildlife Unit Fact Sheet: Wildlife and H5N1 HPAI Virus - Current Knowledge. Animal Production and Health Division, Food and Agriculture Organization of the United Nations (available at <http://www.fao.org/avianflu/en/wildlife/index.html>).
- Woolhouse MEJ and Gowtage-Sequeria S. 2005. Host Range and Emerging and Reemerging Pathogens. *Emerging Infectious Diseases* 11, 1842-1847.