

Feature



ONE HEALTH

One Health and emergency preparedness

Emergencies such as hurricanes, floods and nuclear disasters do not just affect people and the environment; they also affect domestic animals. In this latest article in *Veterinary Record's* One Health series, Kendra Stauffer and Lisa Conti discuss how One Health considerations are being incorporated into emergency preparedness planning in the USA

IN the United States, perhaps the first formal recognition of the need for animal emergency services came during World War I, with the invitation from the US Army for the development of the American Red Star Animal Relief Program, which was largely set up to provide care for service animals (AMEDD 2009). Some 90 years later, with the cultural shift towards perceiving animals as family members, the lack of provisions for pets during incidents like Hurricane Katrina resulted in human health and safety being placed in jeopardy. Following the response to Katrina in 2005, and addressing the benefits of a One Health approach to preparedness, the federal Pets Evacuation and Transportation Standards (PETS) Act of 2006 was passed (CRS 2006, GovTrack 2006). This Act directs the Federal Emergency Management Agency (FEMA) to ensure that state/local emergency plans take into account the needs of individuals with pets and service animals during an emergency or major disaster (FEMA 2007).

Hurricane Katrina was not the first natural disaster to involve animals, but it was unique in that it was the first large-scale disaster in the United States that was covered 24/7 by the media, and many

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A dog makes its way through debris in New Orleans in the aftermath of hurricane Katrina. The storm, which hit in August 2005, had a devastating impact on both people and their animals

different outlets devoted significant news time to animal stories. One only needs to type 'hurricane Katrina animal stories' into a search engine to view the thousands of

'As animals have increasingly moved into family homes and are often treated as 'members of the family', animals will need to be taken into account at all levels of emergency management planning, response, mitigation and recovery'

stories of stranded animals, and their rescue and reunification with owners. Attention was also drawn to the lack of a coordinated

federal response that took into account the human-animal bond. This meant that some people were not getting into rescue boats if it meant leaving their beloved pet behind.

The Fukushima Daiichi nuclear power plant accident in Japan in March 2011 was another natural disaster that had implications for One Health. More than 80 per cent of the land that was involved in the incident was used for agricultural products or was forests and grasslands. In May 2011, a committee was convened to discuss the animal issues resulting from the incident. Recommendations were made for the evacuation, evaluation, decontamination, monitoring and sheltering of companion animals and livestock, as well as recommendations for wildlife evaluation and monitoring (Nuclear Accidents and the Impact on Animals Committee 2011).

It was clear that the Japanese Government was faced with a challenge when considering how best to respond to companion and food animals involved in the Fukushima incident. There are science-based recommendations for the decontamination of people following radiological events (CDC 2014a), but the only published peer-reviewed article for animal decontamination describes elements needed for a floodwater exposure protocol (Stjepan and others 2008).

Data on the monitoring and long-term evaluation of exposure to radiation from the Fukushima incident are available for responders in emergency shelters for people, but data on companion animals and livestock are not included in the publications, if indeed they are available

(Nakanishi and Keitaro 2013, Takahashi 2014).

In the years since the Fukushima incident, the US Government has also devoted time and effort to bolstering its emergency response capabilities to a nuclear accident (URNRC 2014, World Nuclear Association 2014).

Multiple US agencies with statutory authority to respond to people and animals in an emergency situation routinely exercise plans to set up reception centres for evacuees from likely contamination zones. There has also been a multidisciplinary effort to establish best practices for



Photo: Laura Bevan

Florida State Animal Response Coalition volunteers at a disaster simulation event decontaminate a dog at a radiological plume exposure simulation in Lee County, Florida, in 2014

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animal decontamination, sheltering and reunification through the National Alliance of State Animal and Agricultural Emergency Programs (NASAAEP 2014).

'Pet-friendly' shelter operations (whether under one roof or in co-located facilities) and integrated transportation (that is, animals and people in the same vehicle), continue to develop using a One Health approach.

One Health issues that can arise when people and animals are in close contact are zoonotic disease transmission, potential for trauma (bites, scratches) and concerns surrounding animal allergens (Reinero and others 2010). These concerns and prevention practices need to be balanced with the logistics and resource challenges associated with such emergencies.

Establishing rescuers' credentials

Also during the past decade, an effort has been made by government and non-governmental agencies in the USA to

develop a credentialing process for animal emergency response by the formation of working groups (FEMA 2014a). This credentialing process was intended to mirror that of the National Wildfire Coordinating Group (NWCG) incident qualification card, commonly called a red card. The NWCG sets minimum training, experience and physical fitness standards for wildland fire positions, and the red card is an accepted interagency certification that a person is qualified to do the required job when arriving at an emergency incident (NWCG 2014). This credentialing concept creates a high level of interoperability between agencies, and facilitates working together on large-scale or long duration incidents. Working groups were formed to formulate a similar system for animal emergency responders and draft documents were created, but in the past year, the working groups have been disbanded and FEMA is currently reviewing their reformation and goals.

The lack of a nationally accepted credentialing process for animal emergency responders means that animal response teams tasked with animal-related missions in emergencies, such as those sent in following Superstorm Sandy in 2012, are sent in under a FEMA mission, but may have different training, experience and medical clearances to perform similar functions.

Exercises

Florida is very active in emergency preparedness and conducts workshops and exercises several times a year, which are collaborations between many governmental and non-governmental agencies.

A recent workshop used the Incident Command System (ICS) (FEMA 2014b) to set up a temporary emergency pet shelter and decontaminate animals that were contaminated by floodwaters in a hurricane scenario. This was the third such event that Florida State Agriculture Response Team has conducted in the past few years. The animals were triaged, processed through intake, decontaminated, examined and then sheltered. Fourteen federal, state and

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local agencies, as well as non-governmental agencies, participated, and there were a total of 103 participants. The animals used in the workshop were adoption-ready dogs from a local animal control facility.

During the planning of the workshop, and without any national credentialing system in place for animal emergency responders, the planning team determined the following prerequisites for all participants: three ICS training courses (for example, ICS 100, 200 and 700) (FEMA 2014c), medical clearance from their doctor or occupational health office for the position they would be filling, and all responders had to have current tetanus vaccination and a valid pre-exposure rabies immunisation or acceptable titre if they were to handle animals.

The determination on required vaccinations was made in consultation with the Florida Department of Health and the national Centers for Disease Control

Situation in Florida

Between August 2004 and October 2005, several major hurricanes hit Florida. Because of the need to respond to animal-related issues, through the Florida Department of Agriculture and Consumer Services (FDACS) and the University of Florida College of Veterinary Medicine, the state has developed and collaborated on the formation of trained teams and coalitions in Florida. The Florida State Agriculture Response Team (SART) was established by the FDACS and is a multiagency coordination group with 30 partner groups. Florida SART supports an effective and coordinated incident response for the animal and agricultural sectors in Florida (Florida SART 2014). This group has responded to many types of event including hurricanes and other natural disasters, animal disease events and animal welfare and hoarding cases.

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and Prevention (CDC) immunisation recommendations for disaster responders. The Rabies Prevention and Control in Florida 2014 Guide recommends rabies pre-exposure vaccine for high-risk groups, including veterinarians, veterinary students and animal control officers. In addition, people involved in disaster animal response should also consider being preimmunised based on expected frequency of animal contact. People who are at frequent risk should have their rabies antibody titres determined every two years. The CDC recommends tetanus (vaccinated every 10 years) and hepatitis A and B immunisations for disaster responders (CDC 2014b).

In the workshop, responders did not have access to human bodily fluids or actual floodwater, but did have significant exposure to animals. Therefore, the recommendation of a valid tetanus and rabies immunisation status was made. Although rabies cases

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continue to decline in Florida, it is estimated that at least 60,000 Florida residents and visitors (especially children) are bitten each year by some type of domestic or wild animal. Dogs are the major source of animal bites in Florida, followed by cats, rodents, raccoons, bats and other species (Florida Health 2014).

Regarding tetanus vaccination status, 28 of the 103 responders had unknown status, two had tetanus vaccinations but over 10 years previously, and 73 had a current tetanus vaccination. For rabies, 53 of the 103 responders had an unknown vaccination status or were never vaccinated, 36 were vaccinated at some point but had not had their antibody titres checked in the past two years, and 14 had been immunised in the

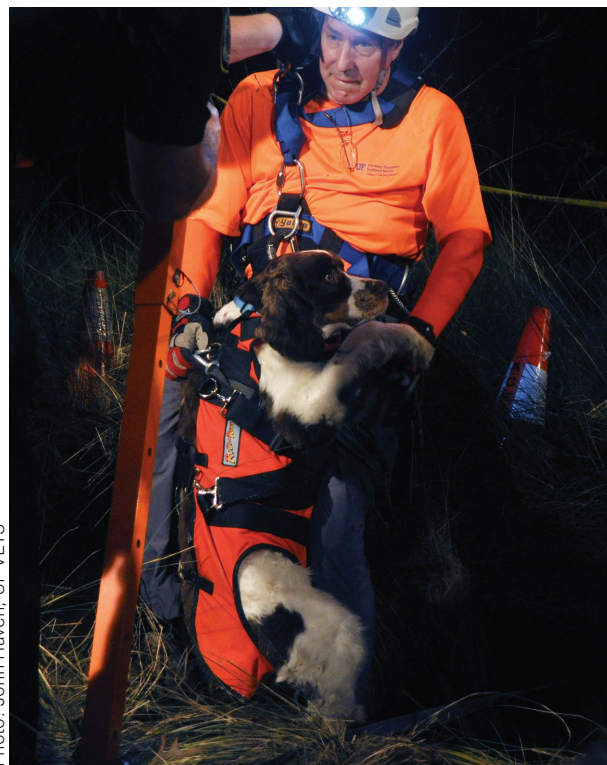


Photo: John Haven, UF VETS

Members of the Florida Veterinary Emergency Treatment Service team from the University of Florida rescue a dog that fell into a sinkhole

past two years or had a current antibody titre.

The assumption before the workshop was that those who routinely had exposure to animals in their daily jobs would be the most likely to be current on their rabies immunisation, but this was not the case. Animal control officers and shelter staff were the least likely to have up-to-date rabies immunisations and federally employed responders were the most likely to be current on immunisations. The cost of the three-series pre-exposure vaccination for rabies has been speculated to be the reason for low immunisation rates with decreasing state and local budgets (Shlim 2013).

Integrating emergency management and One Health

Paul Gibbs, in a previous article in *Veterinary Record's* series on One Health (Gibbs 2014), referred to the stakeholders typically involved in One Health, that is, agencies/

ministries of health, agriculture and environment, and academic institutions. One agency that is rarely included in One Health working groups or committees in the USA is the national or state emergency management agency. However, Florida and Texas, because of their history of natural disasters and animal disease events, have incorporated their state emergency management agencies into their One Health preparedness planning and response activities (Deotte and Solis 2010).

In Florida, the Department of Agriculture and Consumer Services conducts a zoonotic disease outbreak scenario-based exercise biannually at the State Emergency Operations Center (SEOC). Examples of two in recent years have been Rift Valley fever and screw-worm exercises. State emergency management staff are incorporated into the command and general staff, and the exercise relies heavily on the expertise of the SEOC staff for logistical and geographic information system support. Public health experts (from both the human and animal arenas) typically hold positions in the operations and planning sections.

Efforts to incorporate emergency preparedness and One Health are not limited to the US. In 2008, the World Health Organization published 'Zoonotic Diseases: A Guide to Establishing Collaboration between Animal and Human Health Sectors at the Country Level' (WHO 2008). This guidance assisted in the establishment of the Mongolian Intersectoral Coordination Committee on Zoonoses in February 2010 (Batsukh and others 2013). As Batsukh and others



Photo: David Chioo

Volunteers at an animal supply donation site sort and repackage supplies for distribution to those in need in New York following Superstorm Sandy in 2012

noted, the aim of the committee was 'to have strong human and animal health sectors, together with emergency response and national inspection agencies working in partnership toward the attainment of a healthier community'. The committee, from its inception, included members from the Mongolian National Emergency Management Agency (NEMA). NEMA provides logistical and supply support and actively participates in the annual intersectoral simulation exercises. The lessons learned during these exercises are then used to update and revise the coordinated response guidelines.

Moving forward

The first and most important objective in an incident is to ensure the safety of the responder, and this should include the responder not only having the required training but also being physically and medically cleared for the position. In the USA, agencies with statutory authority should continue their quest for credentialing for animal emergency responders and coordinate with national/ministerial and state departments of health on recommendations. Collaboration with the non-governmental animal response coalitions is necessary, as these groups provide the bulk of the responders during an animal-related incident. In addition, strategies on how to increase the compliance on immunisations required for animal emergency responders is desperately needed. Balancing limited resources during the planning and execution stages of emergency management is encouraged so that the human and the animal issues and concerns are addressed. As animals have increasingly moved into family homes and are often

treated as 'members of the family', animals will need to be taken into account at all levels of emergency management planning, response, mitigation and recovery.

References

- AMEDD (2009) Development of the Army Veterinary Service 1916-1940. <http://history.amedd.army.mil/booksdocs/wwii/vetservice/wwii/chapter2.htm>. Accessed September 16, 2014
- BATSUKH, Z., TSOLMON, B., OTGONBAATAR, D., UNDRAA, B., DOLGORKHAND, A. & ARIUNTUYA, O. (2013) One Health in Mongolia. *Current Topics in Microbiology and Immunology* **366**, 123-137
- CDC (2014a) Emergency Preparedness and Response: Information for Professionals. <http://emergency.cdc.gov/radiation/professionals.asp>. Accessed August 9, 2014
- CDC (2014b) Immunization Recommendations for Disaster Responders. www.bt.cdc.gov/disasters/disease/responderimmun.asp. Accessed May 9, 2014
- CRS (2006) Federal Emergency Management Policy Changes After Hurricane Katrina: A Summary of Statutory Provisions. www.training.fema.gov/EMIWeb/edu/docs/Federal%20EM%20Policy%20Changes%20After%20Katrina.pdf. Accessed May 9, 2014
- DEOTTE, R. E. & SOLIS D. J. (2010) Emergency Response In Disasters Involving Livestock. What Happens Before You Dispose Of The Carcasses? Lessons Learned. International Symposium on Air Quality and Manure Management for Agriculture Conference Proceedings, Dallas, September 13-16, 2010
- FEMA (2007) Eligible costs related to pet evacuations and sheltering/. www.fema.gov/pdf/government/grant/pa/9523_19.pdf. Accessed May 9, 2014
- FEMA (2014a) Credentialing Process for Animal Emergency Response. www.fema.gov/resource-management. Accessed May 9, 2014
- FEMA (2014b) Federal Emergency Management Agency National Incident Management System Independent Study Program. <http://training.fema.gov/IS/NIMS.aspx>. Accessed May 9, 2014
- FEMA (2014c) ICS Training Courses. <http://training.fema.gov/EMIWeb/is/ICSResource/TrainingMaterials.htm>. Accessed September 12, 2014
- FLORIDA HEALTH (2014) Rabies Prevention and Control in Florida 2014 Guide. www.floridahealth.gov/diseases-and-conditions/rabies. Accessed May 9, 2014
- FLORIDA SART (2014) Florida SART State Agricultural Response Team. www.flsart.org. Accessed September 16, 2014
- FUKUSHIMA PREFECTURE (2014) Fukushima agriculture products monitoring website. www.new-fukushima.jp/monitoring/en. Accessed May 9, 2014
- GIBBS, E. P. J. (2014) The evolution of One Health: a decade of progress and challenges for the future. *Veterinary Record* **174**, 85-91
- GOVTRACK (2006) Pets Evacuation and Transportation Standards Act of 2006. www.govtrack.us/congress/bills/109/hr3858. Accessed May 9, 2014
- NAKANISHI, T. & KEITARO, T. (2013) Agricultural Implications of the Fukushima Nuclear Accident. Springer
- NASAAEP (2014) National Alliance of State Animal and Agricultural Emergency Programs. <http://nasaalp.org>. Accessed May 9, 2014
- NWCG (2014) National Wildfire Coordinating Group Incident Qualification Card. www.nwccg.gov. Accessed May 9, 2014
- NUCLEAR ACCIDENTS AND THE IMPACT ON ANIMALS COMMITTEE (2011) Recommendations 5 May 2011. www.ifaw.org/sites/default/files/IFAW-nuclear-accidents-impact-animals-decontamination-2014.pdf. Accessed August 9, 2014
- REINERO, C. N., MITCHELL C. S. & RABINOWITZ, P. M. (2010) Allergic conditions. In Human-Animal Medicine: Clinical Approaches to Zoonoses, Toxicants and Other Shared Health Risks. Elsevier, pp 43-49
- SHLIM, D. R. (2013) Perspectives: Intradermal Rabies Preexposure Immunization. www.ncc.cdc.gov/travel/yellowbook/2014/chapter-3-infectious-diseases-related-to-travel/perspectives-intradermal-rabies-preexposure-immunization. Accessed September 12, 2014
- STJEPAN, S., BELANGER, M. P. & WITTNICH, C. (2008) A method for decontamination of animals involved in floodwater disasters. *Journal of the American Veterinary Medical Association* **232**, 364-370
- TAKAHASHI, S. (2014) Radiation Monitoring and Dose Estimation of the Fukushima Nuclear Accident. Springer
- URNRC (2014) Fukushima Lessons: Updating Earthquake Hazards at U.S. Nuclear Plants. <http://public-blog.nrc.gov/2014/04/04/fukushima-lessons-updating-earthquake-hazards-at-u-s-nuclear-plants>. Accessed August 9, 2014
- WHO (2008) Zoonotic diseases: a guide to establishing collaboration between animal and human health sectors at the country level. www.wpro.who.int/publications/docs/Zoonoses02.pdf. Accessed September 12, 2014
- WORLD NUCLEAR ASSOCIATION (2014) Safety of Nuclear Power Reactors. www.world-nuclear.org/info/Safety-and-Security/Safety-of-Plants/Safety-of-Nuclear-Power-Reactors. Accessed August 9, 2014

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