Approximately 1400 sheep on the range suffered variable degrees of burns. A coordinated effort of triage and individual treatment or humane euthanasia was performed by the UC Davis Veterinary Emergency Response Team.
Methods: Animals: Two sheep ranches with 1100 (ranch A) and 300 (ranch b) adult sheep of different breeds, ranging in age from 1-6 years of age. Initial owner evaluation: Both ranchers considered humane destruction of all sheep showing evidence of burned discoloration, estimated to be over 95% of 1400 sheep. Ranch B attempted shooting comprised sheep but stopped and requested aid from UC Davis as did ranch A. Veterinary initial evaluation and communications: Several burned sheep were visible from the roadway. Many sheep were standing with limited movement and some were recumbent. Triage was performed by bringing food and water sources to the sheep and those not eating and drinking were evaluated first. Gunshot euthanasia following AVMA guidelines based on veterinary determination of hopeless prognosis was used. Veterinary team members ($N = 25$) coordinated treatments, communications with public health, animal control, and press media, carcass disposal, volunteer management, and acquisition of office of emergency services resources.
Treatment: Topical treatment of eyes and skin burns with silver sulfadiazine ointment, administration of systemic antibiotics (LA 200), pain relief (flunixine meglumine), wound debridement, and cesarean section of late term terminal sheep were performed.
Results: Over 500 sheep were euthanized by gunshot and the remainder (approximately 900) recovered lasting from 1-42 days. Progression of burn injury to skin, udder, face, and hoofs persisted for 42 days.
Conclusion: A coordinated veterinary response provided humane care and triage of this mass casualty animal emergency.
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(A324) Emergency Management Preparedness and Response Planning in the US: Aphis Foreign Animal Disease Preparedness and Response Plan (FAD PREP)

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Background: Preparing for and responding to foreign animal diseases are critical missions to safeguard any nation's animal health and food supply. A specific challenge of foreign animal disease preparedness and response is the ability to rapidly incorporate and scale-up veterinary functions and countermeasures into emergency management operations during a disease outbreak. The United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services has established a Foreign Animal Disease Preparedness and Response Plan (FAD PReP) which provides a framework for FAD preparedness and response. The FAD PReP goal is to integrate, synchronize, and de-conflict preparedness and response capabilities, as much as possible, before an outbreak by providing goals, guidelines, strategies, and procedures that are clear, comprehensive, easily readable, easily updated, and that comply with the National Incident Management System (NIMS). An overview of FAD PReP will be presented.
Body: The APHIS FAD PReP incorporates and synchronizes the principles of the National Response Framework (NRF), the National Incident Management System (NIMS), and the National Animal Health Emergency Management System (NAHEMS). The FAD PReP contains general plans and disease specific plans that include incident goals, guidelines, strategies, procedures and timelines for local, State, Tribal and Federal responders. The FAD PReP helps raise awareness of the required veterinary functions and countermeasures, helps identify gaps or shortcomings in current response preparedness and planning, and helps to provide a framework to the States, Tribes, and Industry sectors in developing their individual response plans for specific diseases such as HPAI and FMD. The FAD PReP will also identify resources and personnel for potential zoonotic disease outbreaks and large-scale outbreaks, define stakeholder expectations for successful and timely outcomes, identify and resolve issues that may become competing interests during an outbreak and provide a systems approach to preparedness issues that need additional time, attention and collaboration.
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(A325) Educational and Technical Considerations of Veterinary Personnel Involved in Animal Welfare during Disasters

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Training and education of healthcare and government workers has long been accepted as integral to disaster preparedness, although, up until recently, veterinarians and veterinary paraprofessionals have not participated in such practices. It is well documented that when disasters occur, there are dramatic increases in the occurrence and spread of zoonotic diseases, significant contamination of food, water and soil, and reductions in food supply for both humans and animals. These effects reflect the interdependence of humans, animals and their environment, and the importance of managing animal health and welfare after such disasters. Currently, animal welfare emergency management (AWEM) is neither evidence-based nor standardized. Most veterinary schools do not include AWEM in their curriculum, even though AWEM is an essential part of the veterinary professions obligations to both animals and humans. With this gap identified, research was undertaken to derive educational competencies and objectives in criteria-based preparedness and responses that were relevant to veterinarians and veterinary paraprofessionals involved in AWEM. The results have been used to inform the development of Animal Emergency Response training for inclusion in both veterinary and veterinary paraprofessional curriculums. A systematic evidence-based consensus building method was used to derive the educational competences and objectives. This included the following steps: (1) review of peer-reviewed literature on relevant content areas and educational theory; (2)a review of existing competences and training objectives within other sectors involved in disaster management; (3) a survey of international

experts and responders which produced qualitative and (4) quantative results development of competencies and testable objectives. The qualitative results showed that veterinarians and veterinary paraprofessionals require core competencies in all three groups and the four basic components of disaster management: mitigation, preparedness, response/emergency relief and recovery. A curriculum should cover all animals, companion, production and wild.
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(A326) The Military Veterinarian's Role in Stabilization and Reconstruction Operations

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Stabilization and reconstruction operations in failed or failing states require a bottom-up approach, focusing on the population as the strategic center of gravity. This bottom-up approach must address the population's basic needs as defined by Dr. Abraham Maslow's "Hierarchy of Needs" and provide a long-term means of self-sufficiency, rather than creating an "aid dependent economy". Focusing stabilization and reconstruction operations on agricultural and agricultural related projects provides relief from donor dependency, stimulates economic growth, and thwarts the power of spoilers. Military veterinary personnel are uniquely qualified to design and implement agricultural stabilization and reconstruction programs in conjunction with the host-state ministries and agencies across the full range of military operations. Early, sustained engagement by military veterinarians stimulates agricultural productivity, improves animal and human health, directly supports the population's hierarchy of needs on all levels, and accelerates stabilization operations by reducing the population's susceptibility to spoilers.
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(A327) The Importance and Benefit of Disease and Injury Surveillance within Relief Operations

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Disease and injuries are expected consequences of disasters, either as direct result of the initial disaster or due to a collapse of the pre-existing public health infrastructure. While relief efforts are primarily directed at treating existing and preventing further disease and injury among victims of the disasters, it is also important to remain aware of the health impact on individuals and organizations providing assistance. The potential immune naïveness of relief workers may predispose them to contracting diseases which are normally not a concern for the local population. If significant numbers of relief workers are affected this can severely impact an organizations ability to provide assistance and may lead to a worsening of the situation. Even a simple surveillance program can provide early warning of potential problems in order to timely implement control measures which will prevent further illness and minimize mission impact.
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(A328) Food and Water Risk Assessments during Disaster Operations

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Although the exact burden of foodborne disease is unknown, diarrheal diseases kill approximately 2.2 million people annually. Even in developed countries foodborne illness is estimated to affect over 20% of the population annually. During natural disasters existing food safety and security measures may be damaged and mission priorities during emergencies may prevent inspection agencies from conducting normal inspections and enforcing government regulations. This breakdown in the food safety infrastructure may lead to increases in foodborne diseases within the local population and relief workers. The risk in this latter group is possibly magnified by their immunologic naïveness to local pathogens and an outbreak among relief workers can severely impact support operations, interfere with the aid delivery, and may result in the loss of life. In addition to natural disease transmission, there is the potential for terrorist organizations to target relief workers through deliberate contamination of the food and water supplies. Consequently, relief agencies should consider both food safety and security during disaster operations. A Food and Water Risk Assessment (FWRA) is a tool for identifying potential high risk food items and practices in local food sources and facilities and examines the overall food operation, the food facilities and equipment, water potability, cleaning and sanitation, pest control, employee health and sanitation, food security, and the source of the food items. The FWRA identifies risk items and provides mitigative control measures designed to reduce the residual risk to acceptable levels and minimize potential disruption of mission operations. Although the ultimate goal is protecting the health of the relief workers, the FWRA can also be used as a tool to improve the food safety practices of local food facilities and suppliers which will in turn help to reduce the incidence of foodborne disease among the local population during the disaster relief operations and beyond.
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(A330) Training Agricultural Emergency Responders

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Training Agricultural Emergency Responders by Paula L. Cowen, D.V.M., Director, Professional Development Staff, Veterinary Services, Animal Plant Health Inspection Service, United States Department of Agriculture

Abstract: Background Emergency Response is a critical component of our Animal Agriculture infrastructure. The ability to deploy trained personnel to handle any kind of emergency is key to quickly containing any disaster and mitigating the effects. This training is provided by a number of federal agencies, universities as well as at the state and local level.

Body: Several training strategies are employed by a number of different entities. Training is available on-line, in the classroom, with wet labs using live animals, through exercises and case