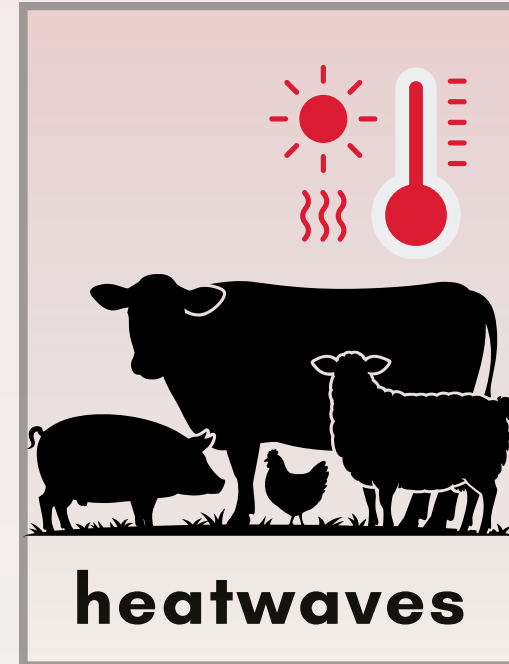
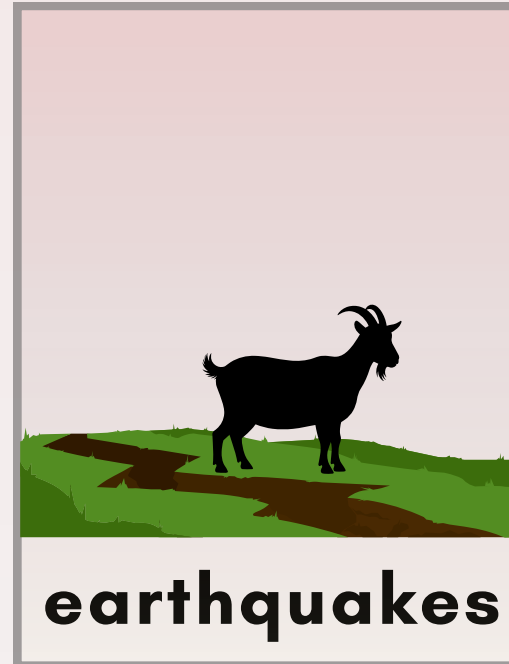




ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS

Keeping Animals Healthy in an Emergency

A guide to promote responsible antibiotic use during natural and man-made disasters.



Preparedness saves lives and preserves the power of antibiotics



ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

PLAN AHEAD



Antibiotic stewardship in emergency preparedness starts with **prevention**. Taking steps with protocols developed by a veterinarian before the emergency happens **reduces infection rates** and **inappropriate antibiotic use**.

Prevent Infections

Good stewardship starts before disease does. Focus on **preventing disease** through **vaccination** and **management practices** that maximize animal health.

Protect Water, Feed, and Supplies

Consistent nutrition and a clean environment promote good health. Have a plan to **provide clean water, sanitation,** and **hygiene** during emergencies.

Support Accurate Diagnosis

Anticipate and gather inventory to **ensure diagnostic tools are available** to guide precise, need-based antibiotic use during emergencies.

Train Responders

Equipping emergency crews with **stewardship knowledge** promotes responsible use during emergency events and **prevents antibiotic resistance**.



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preserves the power of
antibiotics**



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Keeping Animals Healthy in an Emergency

CLEAN WATER



In an emergency, water can be contaminated with toxic chemicals, parasites, and fecal organisms that cause disease. **Avoid letting livestock drink contaminated water** to prevent illness and unnecessary antibiotic use.

Water Storage

Elevated bulk water storage can be a temporary source of larger volumes of potable water for livestock during emergencies when normal water sources are unsafe for drinking.

During a boil water advisory...

Livestock need clean water to avoid waterborne illness, but boiling the amount they need is not practical. To **decontaminate water**, add 2 gallons of unscented bleach to 100 gallons of water and let stand for 30 minutes (more bleach is not better and can cause illness in animals). This treatment is only for water contaminated with bacteria or viruses. **Water contaminated with toxic chemicals should be avoided** to prevent illness. <https://tinyurl.com/3xvs8ch3>

For information about water quality, follow the guidance of local health officials



**Clean water keeps animals healthy
to reduce antibiotic use**



ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

SUPPLY CHAIN DISRUPTIONS



Supply chain disruptions, including shortages of essential veterinary drugs, hinder the ability of producers and veterinarians to **maintain animal health**. Supply shortages can lead to inappropriate antibiotic selection that increases the risk of antimicrobial resistance.

Know What is Available

Transportation may be compromised and processing plants may also shut down. This can result in delays with delivery of feed, vaccines, and medications. Build strong relationships with suppliers and co-ops. Maintain contact to **get early warnings about delays, shortages, and alternatives**.

Strategic Stockpile

Proactively manage your inventory by maintaining a supply buffer of up to **30 days for critical items** like medications, feed, and supplements to **avoid gaps in care**. **Be prepared to adjust** rations or switch feed types if preferred products become unavailable.

Plan for Veterinary Access

Work with your veterinarian to create contingency plans in case services or medications are delayed or limited.



**Good inventory preparation
prevents inappropriate
antibiotic use**



ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

READY TO EVACUATE



Evacuation of animals primarily relies on owner preparedness as evacuation centers lack capability and capacity for large-scale evacuations of livestock. **Collaborating with local government and producer organizations to create a farm disaster plan** can decrease stress, promote stewardship, and improve animal outcomes.

Where to go?

Knowing the location and setup of available evacuation centers and having a **plan of how to transport animals quickly** helps to reduce stress, injury, and disease.

Veterinary Access

During an evacuation, your regular veterinarian may not be available. **Identify an alternative veterinarian** to facilitate uninterrupted medical care and assist with appropriate antibiotic use.

Keeping Track

Together with **good record keeping, proper animal identification** is essential for **tracking antibiotic treatments and withdrawal times** to prevent residues. Using a digital, cloud-based program may help keep records available during emergencies when paper records or a hard drive may be inaccessible or destroyed.



**Have a plan to promote
judicious antibiotic use**



ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

BIOSECURITY



Biosecurity plans can protect vulnerable populations during emergencies. **Identify and safeguard animals most at risk** of infections to reduce antibiotic use and resistance before an emergency occurs.

Restrict Movement

Limit animal movement between farms and crowding when possible. Relocating and overcrowding animals can lead to stress and illness.

When Animals are Displaced

Livestock from multiple herds may be housed at an evacuation facility. **Keeping animals from different farms separate**, with farm-specific PPE, promotes antibiotic stewardship by decreasing disease spread.

DO NOT
ENTER

Limit Visitors

Media coverage during an emergency, and well-meaning volunteers can cause disease spread between animal groups. **Limit livestock access** to people necessary for animal care.

When They Come Home

When the emergency has resolved, be sure to **quarantine animals returning to the herd** to prevent introduction of disease.



**Good biosecurity promotes
judicious antibiotic use**



ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

WILDFIRES



Wildfires pose serious risks to both domestic and wild animals, including injury, smoke inhalation, displacement, and loss of habitat. **Emergency preparedness ensures animals have access to shelter, food, water, and veterinary care** during and after a fire. Planning ahead helps protect animal health and can lead to decreased antibiotic use.

Prevent Respiratory Disease

Limit animal handling and any non-urgent processing to reduce exertion and keep respiratory rate normal to prevent smoke-related illness.



Loss of pastures can cause sudden diet changes that create digestive problems. **Using antibiotics is normally inappropriate in diarrhea** caused by feed change.

Injuries When Antibiotics May be Considered

Burns on the face or large areas of the body can be life threatening and need medical attention. **Burn injuries** also necessitate treatment to alleviate pain. **Smoke inhalation** can cause acute respiratory distress or pneumonia. **Antibiotics should be used as directed by a veterinarian.**



Being fire ready prevents unnecessary antibiotic use



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Keeping Animals Healthy in an Emergency

EARTHQUAKES



In just a few minutes, a major earthquake can create hazards, injuries, and displacement while causing damage to structures. By **being earthquake ready**, it is possible to manage the aftermath with reduced antibiotic use.

Secure Shelter

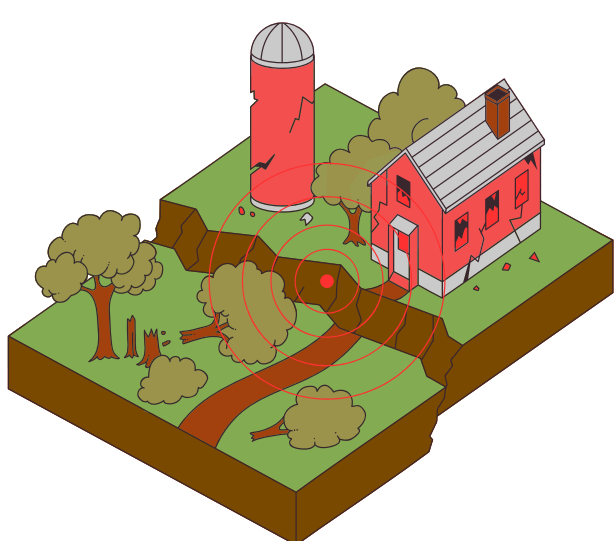
Earthquakes can make animal housing uninhabitable and damage perimeter fencing. **Being mindful of biosecurity protocols** can prevent the introduction of new disease.

What Is Broken?

Animals may sustain injuries from hazards created by structural damage. Prevent injuries by **locating new dangers** and, when possible, **moving animals to a safer location**.

Earthquakes: Not Just One Emergency

Damage to infrastructure such as **power lines, water mains, and sewage systems** can cause safety concerns similar to wildfires and floods that present additional considerations for antibiotic stewardship.



**Earthquake preparedness
prevents unnecessary
antibiotic use**

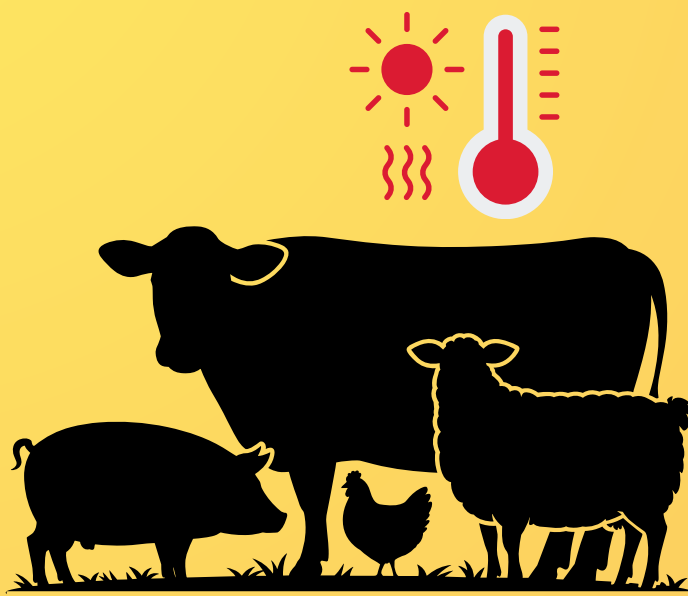


ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

HEATWAVES



Heatwaves can have deadly consequences. With **foresight and preventive action**, these outcomes can be avoided to save lives and reduce the unnecessary use of antibiotics.

Bugs are more than an annoyance

When the temperature rises, there are more pests like mosquitos and flies. Promote animal health with **good ectoparasite control** to **reduce flystrike and vector borne disease**.

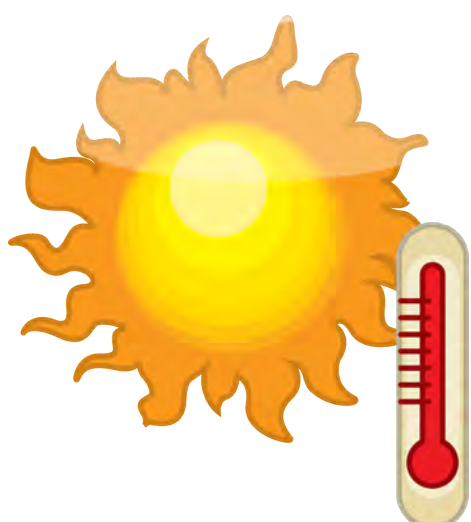


WAIT

Antibiotic use is often **not indicated in the treatment of heat-related diseases** such as dehydration and heat stroke.

Don't Touch!

Surfaces may be hot enough to result in burns, especially surfaces exposed to direct sunlight. **Avoiding contact** can prevent injuries that necessitate antibiotic use.



Beat the heat and avoid unnecessary antibiotic use



ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

FLOODS



Floods are not only a drowning hazard, but they also hold hidden dangers that can cause disease and injury to animals. **Awareness of potential hazards within the water** can protect animal health and promote antibiotic stewardship.



Don't Drink That! Floodwater is unsafe

to drink and can contaminate drinking water sources such as wells, ponds, and streams. Avoid disease by using clean water sources.

Pests Also Bring Disease

Contact with animals and insects that carry diseases can increase during floods. **Keep livestock properly vaccinated** to prevent health problems.

Just Keep Out

Flood waters carry debris and hide objects that cause wounds. By **steering clear**, you can prevent injuries and reduce antibiotic use.



When Waters Recede

Mud also contains the pathogens and debris found in flood waters. Prevent dermatitis, cellulitis, and foot rot by **cleaning mud off** of animals and keeping livestock on dry ground.



**Preparedness and caution
prevent unnecessary antibiotic
use during flood events**

ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

RESOURCES
Page 1



Farm/Ranch Multihazard Emergency Plan Guide

A comprehensive resource in emergency preparedness with detailed information, templates, and checklists to perform a risk analysis and create a farm disaster plan.

https://www.cdffa.ca.gov/AHFSS/Animal_Health/eprs/docs/Farm_Ranch_Emergency_Plan_Guide.pdf



Local Resources

City and county response plans vary. The county agricultural commissioner or local animal control can help if assistance is needed in accessing veterinary care during emergencies.

<https://www.cdph.ca.gov/pages/localhealthservicesandoffices.aspx>



CDFA CARES (California Animal Response Emergency System)

Coordinates statewide planning and response for animal care during disasters; supports sheltering, evacuation, and recovery

https://www.cdffa.ca.gov/AHFSS/Animal_Health/eprs/cares/



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ANTIBIOTIC STEWARDSHIP IN EMERGENCY PREPAREDNESS



Keeping Animals Healthy in an Emergency

RESOURCES
Page 2



Cal OES Animal Preparedness Information

Provides information and links to useful websites to assist with emergency preparedness and recovery

<https://www.caloes.ca.gov/office-of-the-director/operations/planning-preparedness-prevention/planning-preparedness/animal-preparedness/>



AVMA Large Animals and Livestock in Disaster

Information for livestock owners to prepare for evacuation and recover from emergencies

<https://www.avma.org/resources-tools/pet-owners/emergency-care/large-animals-and-livestock-disasters>



CVET (California Veterinary Emergency Team - UC Davis)

Deploys to disasters to provide veterinary care for livestock and companion animals in the field.

<https://cvet.vetmed.ucdavis.edu/>



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