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Hidden Dangers of Improper Disposal of Dead Animal Bodies and Bones

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Abstract:

The improper handling of dead animal's bodies and bones is one of the greatest dangers for humans, animals, and the environment. This report considers the possible sources of that danger. Contamination by pathogens: Animal bodies are full of various bacteria that are hazardous for people and other animals, such as E. coli, Salmonella, and anthrax. Bacteria may be alive in body tissues even when the animal has already died, being the source of danger for all those who touches that body.

- **Persistence of Bacteria:** Anthrax spores, in particular, can exist in the soil and bones for dozens of years being capable of contaminating the environment long after the animal has died.
- **Soil and Water Pollution:** Fluids leaking from the corpses contaminate the soil near corpses, which can have a negative impact on drinking water supply of the area.
- **Disease Spread:** Unburied or improperly disposed carcasses are attractive for scavenging animals and pests spreading the diseases as they eat the corpse.
- **Bone Hazards:** Bones have their own threats workers who grind bones of animals to use them as fertilizer inhale dust that makes them ill, and dogs biting at the discarded bones injure themselves or develop intestine occlusions because of the bone's pieces.

This report points out biological hazards and ways of safe disposal of animals. It will require proper education of the public, safety measures at the workplace, and the management of the disposal facilities.

Keywords: Carcass disposal, anthrax, brucellosis, bone grinding, intestine occlusions, groundwater contamination.

Introduction: The Afterlife of Animal Remains

It is often thought that the risk of disease ends when an animal dies. Every dead animal introduces an immediate public health and environmental risk. This happens daily through roadkill, backyard pet

burials, or mass animal deaths on crowded farms. Although animals die frequently, the safe disposal of their remains is largely ignored in public health practice.

Decomposition is at the heart of this issue. From the moment an animal expires, it stops being an enclosed biological entity to become an open source of pollution. The process of decomposition entails the release of very toxic liquid called leachate which contains high levels of pathogens like *E. coli* and *Salmonella*. Agricultural and environmental specialists point out the ability of this liquid to pollute the soil and groundwater systems (Kwon *et al.* 2017). Carelessly discarded carcasses also attract wild scavengers; when these animals feed on unsecured remains, they act as vectors, spreading disease across much wider geographic areas (NSW DPI, 2021).

There is not so good understanding of the threat of bones. It's easy to see a dried skeleton and think it's harmless, but bones are anything but inert. According to the veterinary experts, bones can serve as the long-term reservoirs of dangerous bacteria. The spores of *Bacillus anthracis* are able to remain viable within the bones and soil for decades, causing the occurrence of an outbreak when these old sites are excavated (Mayerhofer-Rochel *et al.*, 2025). It is a severe occupational danger for the employees of the rendering and bone meal factories who are at risk from inhaling infectious dust. At a more domestic level, broken, discarded bones are a common danger to companion animals, often causing severe oral trauma and fatal intestinal blockages to dogs which scavenge them (CCOHS, 2024; Merck Veterinary Manual, 2025b).

Addressing this hazard has grown more pressing over time. As livestock operations become more concentrated, human communities encroach on wildlife habitats, and major disease outbreaks require massive cleanup responses, current waste management systems are finding it difficult to meet the growing demands. This review takes into consideration the whole life cycle of these threats. Through analyzing the biological and environmental risks of rotting carcasses and bones, it brings together all the current scientific approaches to safe disposal of animal corpses in order to prevent potential infections in the future.

Where the Danger Comes From?

A decomposing animal carcass is not a single, static problem it becomes an environment in which numerous harmful pathogens grow and spread. The principal causes are described below.

- **Anthrax (*Bacillus anthracis*):** This is among the most persistent threats. The UK Health Security Agency and the World Organisation for Animal Health (WOAH) report that anthrax bacteria form durable spores capable of surviving in soil, hides, wool, and bone for decades (UK Health Security Agency, 2025; WOAH, 2026).
- **Brucellosis (*Brucella*):** This bacterium spreads through contact with an infected animal's tissue or bodily fluids. The CDC (2026) and Cleveland Clinic (2022) note that infection in humans can become

chronic, leading to painful bone and spinal complications.

- **Toxoplasmosis (*Toxoplasma gondii*):** This is found in the tissues of dead animals, especially cats, and people can become infected if they handle remains without protective gear like gloves.
- **Enteric pathogens (*E. coli*, *Salmonella*, *Leptospira*, *Campylobacter*):** As a carcass decomposes, it releases fluids containing these common bacteria. Several studies (Kwon *et al.*, 2017) suggest that groundwater contamination can cause severe gastrointestinal illness and systemic infection.
- **Wildlife and marine pathogens (*Erysipelothrix*):** Dead wild animals and stranded marine mammals, such as seals or whales, carry their own distinct bacteria. Veterinary research (IJsseldijk *et al.*, 2023) indicates that hunters, wildlife rescue workers, and beachgoers face an elevated risk of skin and systemic infection from contact with these carcasses.

A standout characteristic of *Bacillus anthracis* is the remarkable durability of its spores, capable of surviving for decades in bone or soil. This resilience is why anthrax remains such a persistent danger: if infected carcasses are disturbed or handled improperly, they can cause outbreaks long after the animal has died. An aged, dried skeleton might seem harmless, but that belief is often wrong.

For many years now, factory workers processing either animal skins, wool, or bone have been in danger from a hazard unseen until it is too late. According to veterinary and medical references, (Merck Veterinary Manual, 2025a; Doganay, Metan and Alp, 2010), exposure begins through the grinding up of the bones of the infected animals into bone meal fertilizer. In doing so, anthrax spores are scattered in the form of dust, which is unknowingly inhaled by the workers, leading to a potentially fatal infection of the lungs.

The risk is not confined to the factory itself. Public health monitoring (UK Health Security Agency, 2025; Elvander *et al.*, 2017) has documented cases in which contaminated bone meal was shipped to farms, triggering new anthrax outbreaks among livestock and the people working with them.

Transmission and Exposure Pathways:

Exposure to hazards from improperly disposed carcasses and bones occurs through several overlapping pathways:

- 1) **Direct Handling:** handling or examining a carcass without protective equipment (Aceng *et al.*, 2021).
- 2) **Inhalation:** aerosolized spores released when remains are disturbed or processed (WOAH, 2026).
- 3) **Ingestion:** consumption of contaminated meat, or accidental ingestion by people or animals (Aceng *et al.*, 2021).
- 4) **Environmental Leaching:** decomposition fluids (leachate) seeping into soil and groundwater (Yuan *et al.*, 2013).
- 5) **Scavenger Dispersal:** pests carrying pathogens away from unsecured remains (NSW DPI, 2021).
- 6) **Companion-Animal Ingestion:** pets chewing bones, leading to physical injury (Merck Veterinary Manual, 2025b).

Pathway of Harm: From Death to Downstream Impact

Improperly disposed carcasses and bones progress through a sequence of events that links death to broader environmental consequences (Table 1).

Stage	Event	Consequence
1	Animal dies; remains left unattended or buried shallowly	Decomposition begins; pathogen load remains active
2	Soft-tissue breakdown releases leachate	Soil and air contamination near the site
3	Unsecured remains accessed by scavengers	Pathogen dispersal beyond the site
4	Leachate migrates through the soil profile	Groundwater contamination
5	Bone material persists in soil	Long-term reservoir for spores (e.g., anthrax)

Table 1. Pathway of harm from carcass mortality to downstream environmental impact. Sources: Kwon et al., 2017; NSW DPI, 2021; Yuan et al., 2013; Mayerhofer-Rochel *et al.*, 2025.

Documented Outbreak and Case Evidence:

- Incorrect methods of carcass disposal and bone disposal are not theoretical issues. In field studies done in Arua District, Uganda, there was a cluster of cutaneous anthrax cases among individuals who handled the carcasses of animals that had died abruptly (Aceng et al., 2021). In 2018, an outbreak of disease took place in southwestern Uganda due to people handling carcasses and consuming meat from ill cows. (Musewa *et al.*, 2022).
- Other examples of large-scale disposal practices also highlight the environmental aspect of the issue. The increased levels of nitrogen and pathogens were recorded during the national groundwater surveillance after the emergency burial of some 3.4 million pigs and cattle that took place as a consequence of a foot-and-mouth disease epidemic in South Korea. (Yuan, Snow & Bartelt-Hunt, 2013; Joung *et al.*, 2013).
- A systematic review of wild-boar carcass hygiene identified 43 distinct zoonotic pathogens bacteria, viruses, and parasites capable of transmission to humans through carcass handling, showing that this risk is not limited to livestock or companion species (Tumelty et al., 2023). Carcass-related hazards also affect wildlife responders and coastal communities, as shown by mortality events in marine animals such as harbor porpoises affected by *Erysipelothrix rhusiopathiae* (Ijsseldijk *et al.*, 2023).
- As far as the companion-animal sector is concerned, veterinary case series have found different types of bone including chicken bones and mammalian rib bones as the cause of foreign body obstruction in the oesophagus and gastrointestinal tract in dogs. This problem makes up a significant portion of the total cases and presents increased danger of causing mucosal damage (Cornell University College of

Veterinary Medicine, 2024).

Health Effects Associated with Improper Carcass and Bone Exposure:

Exposure Route	Population at Risk	Documented Health Effects
Direct carcass contact (skin)	Farmers, hunters, herders, abattoir workers	Cutaneous anthrax, cellulitis, wound infection, brucellosis
Inhalation of bone or spore dust	Bone-meal, rendering, and tannery workers	Inhalational anthrax (potentially fatal), respiratory irritation
Ingestion of contaminated meat	Households consuming meat from animals that died of unknown causes	Gastrointestinal anthrax, salmonellosis, brucellosis
Contaminated soil or groundwater	Nearby residents; livestock drinking from affected sources	Waterborne enteric illness; long-term site contamination requiring remediation
Chronic Brucella infection	Occupationally exposed individuals	Osteomyelitis, spondylitis, and other chronic bone or joint complications
Bone ingestion (companion animals)	Pet dogs given bones as treats, or scavenging remains	Oral or oesophageal trauma, intestinal obstruction, peritonitis requiring surgery

Table 2. Health effects associated with improper carcass and bone exposure, by route and population. Sources: Doganay, Metan and Alp, 2010; CDC, 2026; Cleveland Clinic, 2022; CCOHS, 2024; Aceng *et al.*, 2021; Musewa *et al.*, 2022; Merck Veterinary Manual, 2025b; Cornell University College of Veterinary Medicine, 2024.

Recognition and Risk Assessment:

History of exposure is essential for diagnosing the disease, because many diseases related to the carcass share nonspecific early symptoms, which are fever, swelling at certain places, or gastrointestinal troubles. Both the Merck Veterinary Manual and UK Health Security Agency warn that an animal carcass found dead due to unknown reasons must be considered as a possible biohazard, and the animal should not be opened or slaughtered until anthrax and other reportable diseases are excluded (Merck Veterinary Manual, 2025a; UK Health Security Agency, 2025).

Similarly, risk assessment of the environmental impact based on location relative to water sources, permeability of the soil, and depth to groundwater needs to be done prior to choosing burial as a disposal technique. Groundwater monitoring after burial, as is done during outbreaks, serves as a scientific approach for early detection of contamination (Yuan, Snow & Bartelt-Hunt, 2013; Joung *et al.*, 2013).

Prevention and Control:

The best method of reducing any negative impacts that improper handling of animal bodies might have on the environment and on the public is prevention. This is because most diseases are capable of surviving for long periods of time, and the contamination of the environment cannot be reversed once it

happens. (Table 3).

Handling Practices	Disposal Practices	Public Health / Occupational Strategies
Use gloves and protective equipment when moving or examining a carcass	Prefer licensed landfill, rendering, or professional collection over informal burial	Rapid reporting and investigation of unexplained animal deaths
Never cut open a carcass of unknown or sudden cause of death	Bury only in approved sites, at adequate depth, and well away from water sources	Occupational safety protocols and PPE for bone-meal, rendering, and tannery workers
Avoid giving pets cooked or splinter-prone bones; supervise any bone chewing	Consider composting or controlled incineration for outbreak-scale disposal	Groundwater and soil monitoring around burial and disposal sites
Wash hands and disinfect equipment thoroughly after any contact	Secure carcasses to prevent scavenger and vermin access before disposal	Community education on the risks of handling or consuming sick or dead animals
Seek veterinary or medical advice promptly after suspected exposure	Follow national or regional carcass disposal regulations and notifiable-disease protocols	Integrated One Health coordination between veterinary, medical, and environmental authorities

Table 3. Recommended handling, disposal, and public health/occupational strategies. Sources: NSW DPI, 2021; UK Health Security Agency, 2025; WOA, 2026.

Conclusion:

Improper disposal of animal carcasses and bones raises several health and environmental concerns that are associated with the transfer of infectious diseases, exposure of people to the risk of infectious agents, harm to pet animals, and environmental pollution with pathogens. Various pathogens, such as *Bacillus anthracis* and *Brucella* species, may stay viable inside the tissues and bones of an animal's body after its death, whereas the decomposition process may release various pathogens into the environment. Nevertheless, it is possible to prevent all of the aforementioned threats with proper carcass disposal, immediate notification of the authorities regarding unusual mortality cases, carcass disposal techniques, and basic measures in handling animal bones both at home and in the industrial settings. Such measures would help solve numerous cases of illnesses and contamination reported in academic literature. Public education and strict enforcement of the current carcass disposal regulations together with adopting an integrated One Health approach could serve as solutions to the aforementioned public health issue.

References:

- Aceng, F.L., Ario, A.R., Alitubeera, P.H., Neckyon, M.M., Kadobera, D., Sekamatte, M., Okethwangu, D., Bulage, L., Harris, J.R., Nguma, W., Ndumu, D.B., Buule, J., Nyakarahuka, L. and Zhu, B.P.

- (2021). Cutaneous anthrax associated with handling carcasses of animals that died suddenly of unknown cause: Arua District, Uganda, January 2015–August 2017. *PLOS Neglected Tropical Diseases*, 15(8): e0009645. <https://doi.org/10.1371/journal.pntd.0009645>
- Canadian Centre for Occupational Health and Safety (CCOHS) (2024). Anthrax. *OSH Answers Fact Sheets*. Available at: <https://www.ccohs.ca/oshanswers/diseases/anthrax.html>
- Centers for Disease Control and Prevention (CDC) (2026). About Brucellosis. Available at: <https://www.cdc.gov/brucellosis/about/index.html>
- Cleveland Clinic (2022). Brucellosis. Available at: <https://my.clevelandclinic.org/health/diseases/17886-brucellosis>
- Cornell University College of Veterinary Medicine (2024). *Gastrointestinal Foreign Body Obstruction in Dogs*. Riney Canine Health Center. <https://www.vet.cornell.edu/departments-centers-and-institutes/riney-canine-health-center/canine-health-topics/gastrointestinal-foreign-body-obstruction-dogs>
- Doganay, M., Metan, G. and Alp, E. (2010). A review of cutaneous anthrax and its outcome. *Journal of Infection and Public Health*. 3 (3): 98-105.
- Elvander, M., Persson, B. and Sternberg Lewerin, S. (2017). Historical cases of anthrax in Sweden 1916-1961. *Transboundary and Emerging Diseases*. 64 (3): 892-898.
- Ijsseldijk, L.L., Begeman, L., Duim, B., Gröne, A., Kik, M.J.L., Klijnstra, M.D., Lakemeyer, J., Leopold, M.F., Oude Munnink, B.B., ten Doeschate, M., van Schalkwijk, L., Zomer, A., van der Graaf-van Bloois, L. and Broens, E.M. (2023). Harbor porpoise deaths associated with *Erysipelothrix rhusiopathiae*, the Netherlands, 2021. *Emerging Infectious Diseases*, 29(4): 835–838. <https://doi.org/10.3201/eid2904.221698>
- Joung, H.K., Han, S.H., Park, S.J., Jheong, W.H., Ahn, T.S., Lee, J.B., Jeong, Y.S., Jang, K.L., Lee, G.C., Rhee, O.J., Park, J.W. and Paik, S.Y. (2013). Nationwide surveillance for pathogenic microorganisms in groundwater near carcass burials constructed in South Korea in 2010. *International Journal of Environmental Research and Public Health*, 10(12): 7126–7143. <https://doi.org/10.3390/ijerph10127126>
- Kwon, M.J., Yun, S.T., Ham, B., Lee, J.H., Oh, J.S. and Jheong, W.W. (2017). Impacts of leachates from livestock carcass burial and manure heap sites on groundwater geochemistry and microbial community structure. *PLOS One*, 12(8): e0182579. <https://doi.org/10.1371/journal.pone.0182579>
- Mayerhofer-Rochel, M.F., Himmelbauer, F., Reinprecht, P., Herndler, S., Weidinger, H., Hellinger, H.-J., Szostak, M.P., Grass, G. and Ehling-Schulz, M. (2025). Persistence in time: the hunt for *Bacillus anthracis* at a historic tannery site in Austria reveals genetic diversity thought

extinct. Applied and Environmental Microbiology. 91(3):e01732-24. <https://doi.org/10.1128/aem.01732-24>

Merck Veterinary Manual (2025a). Anthrax. *Merck Veterinary Manual*, Generalized Conditions section. Available at: <https://www.merckvetmanual.com>

Merck Veterinary Manual (2025b). Gastrointestinal Obstruction in Small Animals. *Merck Veterinary Manual*, Digestive System section. Available at: <https://www.merckvetmanual.com/digestive-system/surgical-problems-of-the-gastrointestinal-tract-in-small-animals/gastrointestinal-obstruction-in-small-animals>

Musewa, A., Mirembe, B.B., Monje, F., Birungi, D., Nanziri, C., Aceng, F.L., Kabwama, S.N., Kwesiga, B., Ndumu, D.B., Nyakarahuka, L., Buule, J., Cossaboom, C.M., Lowe, D., Kolton, C.B., Marston, C.K., Stoddard, R.A., Hoffmaster, A.R., Ario, A.R. and Zhu, B.P. (2022). Outbreak of cutaneous anthrax associated with handling meat of dead cows in Southwestern Uganda, May 2018. *Tropical Medicine and Health*, 50(1): 1–8. <https://doi.org/10.1186/s41182-022-00445-0>

NSW Department of Primary Industries (2021). Animal carcass disposal. *Primefact*, PUB21/202 (2nd ed.). https://www.dpi.nsw.gov.au/data/assets/pdf_file/0003/1299603/animal-carcass-disposal.pdf

Tumelty, L., Fa, J.E., Coad, L., Friant, S., Mbane, J., Kamogne, C.T., Tata, C.Y. and Ickowitz, A. (2023). A systematic mapping review of links between handling wild meat and zoonotic diseases. *One Health*, 17: 100637. <https://doi.org/10.1016/j.onehlt.2023.100637>

UK Health Security Agency (2025). Anthrax: Assessing Risk of Anthrax on Building Land. GOV.UK. Available at: <https://www.gov.uk/government/publications/anthrax-assessing-risk-of-anthrax-on-building-land/assessing-risk-of-anthrax-on-building-land>

Yuan, Q., Snow, D.D. and Bartelt-Hunt, S.L. (2013). Potential water quality impacts originating from land burial of cattle carcasses. *Science of the Total Environment*, 456–457: 246–253. <https://doi.org/10.1016/j.scitotenv.2013.03.083>

Institutional/Organizational Sources:

World Organisation for Animal Health (WOAH) (2026). Anthrax. Available at: <https://www.woah.org/en/disease/anthrax/>