

Firearm safety as a veterinary practitioner

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Abstract

Firearm safety is crucial in large animal veterinary medicine, particularly when using firearms and captive bolts for the humane euthanasia of livestock. Although these tools are endorsed by organizations like the AVMA and AABP, their use is often underrepresented in veterinary training, leading to potential safety risks. Essential safety principles, such as proper handling, maintenance, and storage must be prioritized to prevent accidents. Veterinary practitioners must be well-versed in these protocols to ensure both their safety and the effective use of these tools. Proper training and adherence to firearm safety rules are critical for minimizing risks and achieving humane outcomes in welfare and human safety.

Key words: firearm, safety, livestock, cattle

Importance of firearm safety

The perception of firearms varies depending on an individual's background. Firearms may be seen as weapons, sporting instruments, hunting tools, or versatile implements for different tasks. The context and the operator's intention largely shape their use. For decades, numerous organizations and advocacy groups have promoted the importance of firearm safety through programs like the Hunter Safety Education Program. These groups, operating at local, state and national levels, have influenced how hundreds of thousands of people view, handle, store and care for firearms. While these programs primarily target sporting enthusiasts, the principles they teach are highly relevant not only to hunters and target shooters, but also to veterinary practitioners working with food animal livestock.

In veterinary medicine, the use of firearms and captive bolts for the euthanasia of livestock is common.^{1,2} When used correctly, both the American Veterinary Medical Association (AVMA) and the American Association of Bovine Practitioners (AABP) endorse these methods as humane means of euthanizing cattle.^{3,4} However, despite their importance, firearms and captive bolts are often underrepresented in veterinary education, usually discussed only in the context of animal euthanasia for welfare purposes. Like any tool, understanding the proper function, operation, and safety measures surrounding firearms is crucial for the user. For veterinarians, these devices serve not only as professional tools, but also as essential resources for livestock producers. Veterinarians are frequently responsible for training producers and on-farm workers in the correct protocols necessary for animal welfare. Unfortunately, firearms and captive bolts are sometimes overlooked or misused due to veterinarians' lack of confidence, experience or knowledge, as well as insufficient training or noncompliance among on-farm workers.

Firearms, by design, discharge projectiles at whatever they are aimed at, requiring human action to point and pull the trigger. Over the past 40 years, there have been numerous reports of accidental injuries and fatalities involving firearms and captive bolts, often resulting in tragic consequences such as the amputation of fingers or limbs, loss of eyesight, or even death.^{5,6}

Many of these incidents could likely have been avoided if basic firearm safety protocols had been followed. Proper safety education is essential to preventing these unnecessary accidents and ensuring both human and animal welfare.

Rules of firearm safety

There is a widely agreed-upon set of safety rules that many programs endorse when it comes to firearms. Although the wording may vary across different organizations, these rules boil down to four fundamental principles that should always be followed when handling a firearm or captive bolt. These principles can be summarized with four keywords: Treat, Keep, Never and Know. 1) Treat: Treat every firearm as if it is loaded, even when certain it is not; 2) Keep: Keep all fingers off the trigger until ready to fire; 3) Never: Never point the muzzle at anything you are not willing to destroy, even for a moment; and 4) Know: Know your target, what's beyond it, and what is to the side of it, ensuring that you are certain of your intended target. In some circles, a fifth fundamental rule is also emphasized: "Guns are not toys." While there are "toy guns", real firearms and captive bolts should never be treated as such. They must be handled with the respect, caution, and seriousness their intended purpose – or even an unintended consequence – demands.

Responsibilities

Safe firearm handling is the sole responsibility of the operator. If a veterinary practitioner chooses to use a firearm or captive bolt for euthanasia, they must ensure that the tool is handled with care and in a safe manner at all times. This includes confirming that the type, model and caliber of the firearm and ammunition are appropriate for the task at hand.² Additionally, veterinarians are accountable for the consequences of mishandling the tool or selecting an inappropriate firearm, along with any implications that may arise from such errors.

Veterinarians who incorporate firearms into their practice also bear the responsibility of properly securing and storing them to prevent unauthorized access. Just as controlled drugs used in practice must be locked away when not in use, firearms must also be stored securely, out of sight, and inaccessible to others. Furthermore, the operator is responsible for the upkeep of the firearm or captive bolt, ensuring that it is regularly cleaned, maintained and correctly assembled.

Most firearms and captive bolts come with user manuals that provide detailed, step-by-step instructions for disassembly, maintenance and reassembly. If there is any uncertainty, the operator must refer to the manual or seek professional assistance to ensure safe operation. When cleaning a firearm or captive bolt, always adhere to rule #1 Treat – ensure the tool is unloaded. Many avoidable accidents occur due to the mistaken belief that a firearm is unloaded during cleaning. Always use the correct cleaning supplies, and if in doubt, consult a professional or refer to the instruction manual. Importantly, do not use WD-40 for cleaning or lubricating a firearm. Using a high-quality lubricant is essential for the proper function and

longevity of firearms and captive bolts. There are many reliable brands available, with REM Oil being a trusted option that won't damage the firearm.

Continued fundamentals

When handling a firearm or captive bolt, the four fundamental safety rules must always be followed. However, additional considerations are equally important for safe and effective use. One key factor is the operator's stance—ensuring solid footing, balance and proper positioning. A secure, controlled grip on the handle (if present, as some captive bolts do not have a “pistol grip”) is essential. The grip should be neither too tight (which can lead to excessive tension) nor too loose (which could result in dropping or losing control of the tool). Hand placement is also critical, ensuring that fingers are clear of the hammer, slide, or other moving parts of the firearm to prevent injury.

Proper target alignment and sight picture are fundamental. Operators must have a clear view of the intended target. For veterinary applications, such as euthanasia, it is important to consult the AABP Guidelines for Humane Euthanasia of Cattle, which provides detailed instructions on identifying anatomical structures, landmarks and the correct sight picture for euthanasia by firearm.

One commonly overlooked fundamental is breath control. Opinions on its importance may vary; for example, some military members argue that breath control is less significant than maintaining consistent sights on the target. They suggest that breath control is secondary to trigger timing. However, the natural rise and fall of the chest during breathing can cause the extended arms holding a firearm to move vertically, even slightly. While this may seem minor, if the operator does not control their breath at the moment the trigger is pulled, there is a high chance that the muzzle will move, affecting the trajectory of the bullet or bolt. Even a few millimeters of movement can mean the difference between hitting the brainstem and striking the sinus. To minimize this, it's recommended that the shooter align their natural breathing pattern with their aim, holding the sights steady on the target before pulling the trigger. Additionally, the trigger should be squeezed smoothly and firmly, not jerked or abruptly pulled, as this will help ensure proper shot placement.

Tools for the job

Research has been conducted into the appropriate firearm and caliber combinations for the euthanasia of cattle, with ongoing studies for different ages and species.² When selecting a firearm, it is important to choose the “best tool” for the job, rather than what appears “cool” or seems appealing. The goal should be achieving a humane death. Firearms, like a hammer or a pack of sutures, come in various sizes, brands and types, each designed for specific purposes. Using one that is too small or too large may be inappropriate for the procedure.

Additionally, the type of ammunition is crucial for ensuring both success and safety.² Different bullets serve different purposes: hollow points are designed to maximize soft tissue damage, while solid bullets cause blunt-force trauma and penetrate more deeply. To extend the hammer analogy, striking a nail with a hammer applies “blunt-force trauma”. Hollow-point bullets are unsuitable for penetrating bone, especially the skull, to reach the brainstem. While they may be suitable for personal protection or target shooting, they have no place in a veterinarian's toolbox for the euthanasia of livestock.

Personal preference also plays a role in the selection of firearms or captive bolts, just as it does with other tools. Some veterinary practitioners may prefer captive bolts, rifles, shotguns, or pistols. Regarding pistols and captive bolts, some argue that they are easier to secure in a lock box in a veterinary truck or clinic. Like most tools, each option has its pros and cons.

Revolvers are generally easier to clean, have fewer parts, perform well in dirty conditions, do not leave “brass” (bullet casings) on the farm (similar to captive bolts), and often accommodate a variety of bullet calibers. On the other hand, semi-automatic pistols typically hold more bullets than revolvers. However, they have more moving parts (springs), require more parts to clean, are more prone to malfunction in dirty conditions, offer less flexibility in ammo choices (for a single firearm), and tend to leave bullet casings behind on the farm (unless collected).

Importance to a veterinary practitioner

For large animal veterinarians, firearms and captive bolts serve as essential tools in their practice, particularly when dealing with welfare procedures and humane euthanasia.^{3,4} Just like other instruments in the veterinarian's toolbox, the proper selection, use, and maintenance of these devices are critical to ensuring the safety and effectiveness of their application. However, the use of firearms and captive bolts demands an even greater level of discipline, awareness, and responsibility, given the potential risks they pose not only to the practitioner but also to those nearby.

Beyond their own use, veterinarians often take on the added responsibility of educating producers and on-farm workers on how to properly and safely utilize these powerful tools in everyday situations. Ensuring that safety protocols are consistently followed, veterinarians play a crucial role in promoting the welfare of animals and minimizing the risk of accidents or harm. Thus, a deep understanding of the associated safety rules surrounding firearms and captive bolts is essential to maintaining both personal and public safety, while ensuring humane animal care.

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