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Dear Sarah,

Per your request, I reviewed a five-part video of dehorning procedures that were performed on Holstein calves that was collected by PeTA. The calves in the video were physically restrained by the head and horns were removed with a cautery dehorning tool. It did not appear that pain mitigation was provided to the calves. You indicated that the calves were approximately 12 weeks of age, I agree with that age based on the size of the calves. In my professional opinion, the horn removal procedure depicted in the video I reviewed was flatly unacceptable. The calves should have been disbudded much earlier in life and a minimum of a cornual nerve block should have been applied to prevent the acute pain of the procedure. My responses to your specific questions can be found below. If clarification is needed, please contact me at your convenience.

**Answers to questions:**

*In your professional opinion, did these calves experience pain or suffering during the disbudding?*

**In my professional opinion, the calves that were observed in this video experienced pain and suffering during the procedure. My assessment was based on the behavior of the calves after the hot iron contacted their heads. Upon initial restraint, they did not show the same degree of vigor in their body movements and pulling against the restraint as they did upon contact of the hot iron tool. This behavior is indicative of the presence of acute pain.**

*Would the calves have experienced physical pain and suffering following the disbudding and, if so, for approximately how many hours or days?*

**Yes, the calves in the video experienced pain and suffering as a result of the dehorning/disbudding procedure. The exact length of time that pain and suffering would have been experienced is difficult to determine with certainty because pain becomes increasingly difficult to quantify as it begins to subside. However, scientific literature regarding pain response following disbudding and dehorning has indicated that quantifiable pain following the procedure can last for three or more hours.**

*Are the worker's claims that the hot iron "cut[s]" and deadens a disbudded calf's nerve true?*

**The worker's claims that the hot iron "cut[s]" and deadens a disbudded calf's nerve is not completely true. The literature we have on this subject has typically indicated that the area immediately surrounding the horn bud becomes inflamed and more sensitive to touch following the disbudding procedure. The behavior of calves that have been disbudded**

without the use of anesthetic indicates that the pain does not become appreciably reduced during the time that the hot iron is in contact with the horn or horn bud. The primary nerve that carries afferent signals (sensory signals such as pain that are carried to the brain) in the region of the horn is the cornual nerve. It is not cut or damaged during disbudding or dehorning.

*Are 12-week-old calves' horn buds likely attached to the skull, and if so, would such attachment add to any pain the calves experienced and/or increase the risk of infection?*

At 12 weeks of age, the horn bud has fused with the calf's skull. The method of dehorning appears to impact the risk of infection. Physical horn amputation methods that break the horn from the skull, often removing part of the skull, present a greater risk of post-procedure infection than using cautery dehorning. The risk of infection with cautery dehorning at this age is dependent on the depth of the burn caused by the tool. If the wound is excessively deep, the sinus below the horn can become exposed and facilitate infection. However, the use of any dehorning procedure on calves at 12 weeks of age without pain control will cause substantial acute and chronic pain.

*Is the disbudding of calves at this age, without anesthetics like lidocaine and without post-procedure pain relief such as meloxicam or ketoprofen, accepted veterinary practice?*

The recommended time of disbudding and use of pain mitigation appears to be shifting toward earlier disbudding and more pain control use in recent years. However, the most recent National Animal Health Monitoring System (NAHMS) report for Dairy published in 2014 – indicated that hot iron disbudding was used on heifer calves at an average of 7.1 weeks of age. The same report noted that pain control was used on 30% of dairy farms that used hot iron disbudding/dehorning for their heifer calves. In the U.S., disbudding/dehorning of calves at 12 weeks of age without pain mitigation is not an accepted veterinary practice. The American Veterinary Medical Association (AVMA) specifies that pain mitigation should be used for disbudding and dehorning in their policy at the following web link: <https://www.avma.org/KB/Policies/Pages/Castration-and-Dehorning-of-Cattle.aspx>.

**End of answers to questions.**

Respectfully,



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