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Using farm techniques for agricultural species

Most people considered Dr. John Ballantine to be a seasoned swine veterinarian, set in his ways and not afraid to speak his mind. Some people called him crusty. Others weren't so kind. But one thing people did agree on: he knew pig medicine and surgery. So, it wasn't surprising that Conquer Pharmaceuticals hired Ballantine as the consulting swine veterinarian at its new midwestern research facility.

Ballantine was given copies of the Animal Welfare Act regulations¹ and the *Guide for the Care and Use of Laboratory Animals*² (the *Guide*), even though Conquer did not have an NIH Assurance. Much to the surprise of some people, he read pertinent sections of the guidelines and seemed to understand how research animal care can differ from farm animal care. All went well until Ballantine needed to castrate piglets for an IACUC-approved study. Rather than follow the IACUC protocol by providing a local anesthetic to the 2-week-old piglets before the castration procedure, Ballantine castrated them as he

had done on farms: he used a scalpel blade to cut the scrotum and then pulled out the testicles. When the farm manager learned what had happened, he immediately notified the IACUC and asked Ballantine why he had not followed the protocol.

"What protocol?" said Ballantine. "Was that from a meeting I missed? "You told me the piglets had to be castrated when they were 2 weeks old, so I castrated them. You didn't tell me they were part of some study. If you wanted me to use an anesthetic you should have said so. Anyway, that *Guide* book you gave me says that castration is a routine minor surgical procedure that usually doesn't cause much pain² and I agree with that. So why would I inject into the scrotum and cause more pain to the animal?"

The IACUC met to discuss the incident and subsequently notified the USDA, although the vote to do so was not unanimous. One member, who raised pigs on his own farm, referenced the position statement of the Association for Assessment and Accreditation of Laboratory Animal

Care International (AAALAC), which states that the IACUC, the principal investigator and the veterinarian should use a performance approach to determine whether agricultural or research standards should apply to a study (<http://www.aaalac.org/accreditation/positionstatements.cfm#ag>). This member believed that Ballantine had used the correct standard. The IACUC was aware of the AAALAC position statement and the passage from the *Guide* that Ballantine had quoted, but most committee members interpreted these statements differently, understanding that the approved protocol had not been followed and that this was a reportable incident.

How do you interpret the AAALAC and *Guide* statements? Do you think Ballantine's typical farm method of castration was humane?

1. Animal Welfare Act Regulations. 9 CFR, Chapter 1, Subchapter A, Parts 1-3.
2. Institute for Laboratory Animal Research. *Guide for the Care and Use of Laboratory Animals* 8th edn. (National Academies Press, Washington, DC, 2011).

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RESPONSE

Lack of training

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The IACUC at Conquer's midwestern research facility followed due diligence by discussing an incident during a convened meeting of the IACUC, further considering published statements relating to the procedure. It is unclear whether the committee discussed the humaneness of castration of 2-week-old piglets without administering a local anesthetic or whether such a discussion contributed to the committee's determination that the incident was a reportable issue of non-compliance.

The *Guide for the Care and Use of Agricultural Animals in Research and Teaching*¹ states, "Castration causes clear signs of pain and discomfort for pigs...

therefore, castration should be performed as early as possible and preferably between 1 and 14 days of age. After 14 days of age, local anesthetic or a combination of local and general anesthetic should be administered." The *Guide for the Care and Use of Laboratory Animals*² states, "Minor survival surgery... causes little or no physical impairment; this category includes... routine agricultural animal procedures such as castration...".

Do these reference materials support use of the procedure followed by Ballantine? Yes. But Ballantine should have carried out the castration procedure as approved by the IACUC. The position statement of the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC; <http://www.aaalac.org/accreditation/positionstatements.cfm#ag>) states that a performance approach should be used to determine whether agricultural or research standards should

apply to a study, but this determination must be made in advance, not at the time of the procedure, and cannot override the protocol approved by the IACUC.

AAALAC charges the IACUC with determining appropriate standards for agricultural animals on the basis of the study requirements and the proposed species and with documenting the basis for this determination. In this case, the protocol could have implemented standard production practice for castration of the 2-week-old piglets so as not to add to their stress by injecting a local anesthetic, but it was not written this way.

It is noted in the scenario that Ballantine seemed to understand how research animal procedures can differ from farm animal procedures. He should have asked the farm manager what the piglets were to be used for before castrating them. He then should have contacted the IACUC office and asked