AAVMC Case Study Proposal

***Brucella suis*: A re-emerging pathogen at the human, livestock, and wildlife interface.**

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1. Components of One Health Framework addressed

- Microbiologic influences on health and disease: Long standing and re-emergent diseases - *Brucella suis*
- Environmental health: External exposures, in this case, swine slaughter and prepping pork for consumption, and the influence of the natural environment (i.e. feral swine) on health of humans, domestic pigs, and the natural and agricultural landscapes
- Human-animal interaction: Animal-centered industries include raising free-range pigs and hunting feral swine for human consumption

2. Student audiences that benefit from the case study include medical, veterinary, and public/global health graduate students. In addition, graduate students in wildlife management and conservation biology would also benefit and contribute unique perspectives that health professions students might overlook, which are important for a successful One Health solution to the proposed problem.

3. Synopsis of case study (250 words or less)

The rapid expansion of feral swine in the US, the increased demand for free-range pork in niche markets, and the non-specific clinical signs of brucellosis, a re-emerging zoonotic disease in the US form the pieces of this simulated, jigsaw case study illustrating disease challenges at the human, livestock, and wildlife interface. *Brucella suis* was eliminated from large, commercial swine operations, but is endemic in certain feral swine populations posing a risk to free-range, domestic pigs and hunters. Ideally, this inter-professional teaching case would involve medical, veterinary, public health, and graduate students in wildlife management/conservation biology to develop the three major components of the puzzle. 1) Human: Recognize the diversity of clinical signs associated with brucellosis, diagnosis, exposure routes, and treatment of a father and son with a small family farm and how best to prevent additional cases. 2) Livestock: Recognize diversity of clinical signs of brucellosis in domestic swine, diagnosis, and management strategies. 3) Wildlife: Management of feral swine, an invasive species that has adverse impacts on the environment including destruction of agricultural crops but also is hunted as non-regulated game; includes surveillance for *Brucella suis*, influenza, pseudorabies, and classical swine fever. This case study can also be developed for problem based learning for respective student populations with summaries of components outside their disciplines. The ultimate goal is for students to discuss and develop effective lines of communication between physicians, veterinarians, public health workers, and wildlife managers to share information early about potential health problems that impact people and animals.