Embryo Transfer and Pregnancy Diagnosis in Iowa

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“Providing a vision and voice through continuing education, publication, legislative and social activities to enhance the veterinary profession, improve animal well-being, and defend public health.”
THE ART & SCIENCE OF ANIMAL CARE

Veterinarians are properly trained and qualified to diagnose pregnancy and diseases of the reproductive tract. They are licensed and regulated by the Iowa Board of Veterinary Medicine. Veterinarians have an extensive scientific background, education, and training that allows these doctors to deal with an unexpected medical event. While veterinarians can train a non-veterinarian for the routine repetitive procedure, when an unexpected event occurs you need the veterinarian with thorough training to address the problem. Veterinarians bring the art and science to medical procedures every day. They are properly trained for this.

“We can train a technician to perform the routine bone surgery, but do you want that technician to do your surgery? Or do you want the doctor who is trained not only for the routine surgery; but to handle the unexpected event?”

THE DRUGS

The process of embryo transfer is a technical and complex process that requires the manipulation of the animal’s reproductive cycle and physical invasion of the female reproductive organs. The drugs used for these procedures have the potential to be dangerous to the animals and humans. They are designed to manipulate the female estrous cycle and are extremely potent. Used incorrectly they can render an animal sterile. They can be absorbed through the skin and linings of the eye and nose, given orally, or injected. There are documented cases of misuse of these drugs by humans. Young people risk their health and their future by abusing these drugs to increase their muscle development and to cause abortion of unwanted pregnancies.

The drugs used are labeled “For the use by or on the order of a licensed veterinarian” and their use is controlled by the FDA. Only veterinarians have been trained to handle and protect the drugs.

They are also the only profession in the production and distribution channels; thus allowing veterinarians to be alerted to potential problems and changes in recommendations for use.
PUBLIC HEALTH

Veterinarians are part of the Iowa Veterinary Rapid Response Team designed to respond to animal agriculture emergencies. Veterinarians are the first line of defense and can identify and respond to potential threats.

Veterinarians are vital to protecting the public health. Nearly 70% of new and emerging diseases are contagious to humans. Veterinarians need to be on the farm to monitor for the presence of disease, especially foreign animal or emerging disease. This protects public health and the nation’s food supply.

Veterinarians provide a first line of defense against the very real threats of animal agriculture bioterrorism and/or human epidemics such as anthrax, brucellosis, tuberculosis, E. coli, salmonella, and many more diseases that can affect humans and threaten our national security.

ANIMAL WELFARE

Animal welfare has a major influence in how animals are raised and treated. Using a skilled veterinarian to provide animal care provides the best welfare for the animals involved. The concern for animal welfare is a major influence in the animal agriculture industry today.

Efforts to remove a veterinarian from the equation, takes the position that an animal is just an animal that doesn’t need a standard of care. Veterinarians’ patients can’t speak for themselves. They are dependent upon human caretakers and caregivers to protect their interests. The concept of requiring trained, licensed individuals to treat animals ensures that there is a standard of care for animals. This is a primary tenant of animal welfare.

“Veterinarians are a vital part of compassionate care of animals.”
EMBRYO TRANSFER

Embryo transfer is used by purebred breeders to improve genetics. This is not an emergency procedure and veterinarians are properly trained, qualified, and duly licensed to perform embryo transfer. A veterinarian is also sufficiently insured and regulated, so that the client has protection and recourse should a problem arise.

Donor cow
- Donor cow entrance exam
- Inject prostaglandins \(<\text{PGF}_2\)>
- Inject gonadotropins \(<\text{GnRH}\>
- Inject follicle stimulating hormone \(<\text{FSH}\>
- Donor cow is bred via artificial insemination

Recipient cow
- Recipient cow entrance exam
- Injection of \(\text{PGF}_2\)
- Injection of \(\text{GnRH}\)
- Epidural anesthesia with lidocaine
- Injection of sedatives
- Banamine given intravenously

Infuse specially formulated fluid into the donor cow’s uterus

Embryos
- Injection of sedatives
- Epidural anesthesia with lidocaine
- Recover & filter the fluid to harvest the 7 day old embryo

7 day old embryo – 1/200th of an inch
- Embryo graded
- Embryo washed & placed in specialized medium
- Embryo frozen, implanted or prepared for sale or export (which requires a veterinary certification of inspection)

Monitor and assist in calving process
Assure the health of the calves

Gestation – 9 months

End Result – Healthy Calves

First pregnancy test as early as 27 days

Recipient cow receives transplanted embryo

“The Iowa Board of Veterinary Medicine promotes the public health, safety, and welfare by safeguarding the people of this state against incompetent, dishonest, and unprincipled practitioners of veterinary medicine.”
THE NUMBERS

- IVMA represents over 85% of veterinarians in Iowa, with over 1500 members
- The ISU College of Veterinary Medicine (CVM) has received over $100 million in the last 5 years from the Legislature. This funding has been used to modernize the CVM and properly train veterinarians to perform these procedures
- The CVM offers a specialized course in embryo transfer 10 times each year
- Approximately 35-40 students, as well as 4-8 practicing veterinarians take this course
- There are 4000-5000 donor cows collected in Iowa each year and 15,000-20,000 embryos are transferred annually
- A veterinarian can easily collect embryos from 500 donors and can transfer 1500-2000 embryos annually
- IVMA has identified 43 veterinarians in Iowa that can provide embryo collection and transfer services
- IVMA has identified 111 veterinarians that provide pregnancy diagnosis via ultrasound

CONCLUSION: There is not a shortage of veterinarians in Iowa to provide these services