

Examples of low-cost simulator models as a teaching instrument for veterinary nurse course

Abstract

Evidence-based practice is an important aspect of veterinary nursing allowing nurses to make informed decisions and provide a better standard of care to patients and owners (Evidence-Based Practice in Veterinary Nursing), which associated with practice-based it's ideal to identify problems and areas for improvements in the quality of veterinary care (Batt-Williams & Wade, 2022).

Under ideal conditions students would be able to practice all basic and advanced techniques in real context with clinical cases in which these procedures would be necessary. Everyone now that is not always possible often the time required to learn the technique is not compatible with clinical practice, the animal welfare, and the highest veterinary care.

The use of simulator use in veterinary education has increased significantly in recent years allowing consistent practical teaching without reliance on clinical cases, promoting the secure and practice techniques repeatedly without need for live animal use (Braid, 2022) and enhancing learn experiences in a controlled setting.

The commercial models and simulators are largely available and are a good investment for teaching, although they are expensive. The cost makes difficult to have all the models for all the techniques, or the number disponible its insufficient for practice in largest groups off students.

With this in mind, it is important to look for alternatives to practice some skills and instigate students to train these techniques, resorting to the reuse of very cheap and easily accessible materials.

Different examples of less expensive and simple solutions are presented to train suture, blood collection and catheter placement, eco guided cystocentesis, artificial insemination in small ruminants, and dystocia in small ruminants.

Suture training

This model is the most used and best known, made of a sponge wrapped and glued with a resistant fabric. This tissue can be replaced with cohesive ligature that slightly mimics the resistance caused by the skin to the entrance of the needle. Students must suture the wounds previously made.

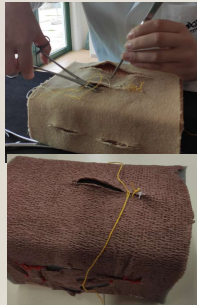


Figure 1 and 2. Model for suturing, The sponge covered whit textile and elastic adhesive bandage.

Blood collection and catheter placement

Catheter placement and blood sample collection is an everyday routine in the veterinary nurse practice. This model uses materials available in clinics and hospitals. This model may be used to practice during free time in clinics and hospitals. Blood can be replaced by water or any coloring solution like povidone-iodine.



Figure 3. Handcraft and commercial models of the cephalic vein.

Eco guided cystocentesis

Some students and professionals have difficulty to coordinated different movements involving both hand, mainly aspiration movement.

This model is made of a nitrile glove filled with water + povidone-iodine. The urinary crystal can be replaced by chalk and the neoplastic mass by berries. The glove fingers are tied together and put inside another glove with ultrasound gel.

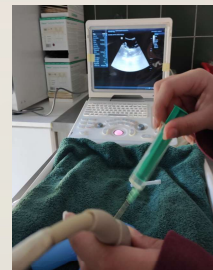


Figure 4. Students using this model for Eco guided cystocentesis.

Artificial insemination

This model was assembled with towels of different sizes and colors. The small towel mimics the cervix and the glove fingers mimics the external Os. The large towel placed around the small towel mimics the vaginal canal. Vagina entrance tension is simulated by an elastic bandage.

The student insert the speculum in the model and use an artificial insemination gun to train artificial insemination.



Figure 5 and 6. Model inside. Insemination forceps inserted in the model.

Dystocia and Normal

This model is probably the most elaborated of all other models presented. It is made of "papier mâché", newspapers and glue placed in layers over a balloon to simulate the uterus and the birth canal. Stuffed animals are used as fetuses. This model allows students to realize the small inner space available to maneuver the fetuses.

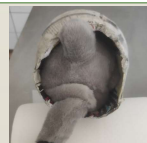


Figure 6 and 7. Different fetus presentations during birth.

Observations and Conclusion

These models allows students to develop hand coordination and fine/gross motor skills. They also contact with specific material (needles, catheter, ultrasound, forceps, insemination gun, insemination straw) and practice a larger rage of technics.

Some model's can be replicated at home allowing students to keep training outside the internship/school. Continuous practice of these technics improves future veterinary nurses confidence.

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