

A Narrative Review of Non-Technical Skills in Human and Veterinary Surgery

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Background

- In the past 30 years, as surgeons improved their technical skills surgical errors remained
- Non-technical skills like communication, leadership, and teamwork were recognized as important contributors to surgical errors
- Research in non-technical skills is expansive in human surgery but lacking in veterinary surgery

Methods

- A narrative review was the most appropriate option to provide a comprehensive overview of two vastly different bodies of research in interdisciplinary fields.
- For veterinary research, Pub Med and Web of Science were searched for the terms “non-technical skills”, “veterinary”, and “surgery” yielding just over 500 results.
- For human surgical research, several systematic reviews were used to initiate a literature review and identify themes where “non-technical skills” was used

Results

Importance of Non-Technical Skills

In human and veterinary medicine, non-technical skills are recognized as valuable attributes and are weighed in decisions from residency matching to hiring practices. Skills like leadership and communication have tied to patient safety and have been well-studied in human surgery, but are lacking in the veterinary world.

Measuring Non-Technical Skills

Much of the research in humans focuses on how to best measure a surgeon’s non-technical skills. This work is based on frameworks for anesthesiologists (ANTS) and airline pilots (NOTECHS). NOTSS (Non-Technical Skills for surgeons) was established as a validated tool to assess surgeons for:

- Situational Awareness
- Decision Making
- Communication and Teamwork
- Leadership

No veterinary specific framework exists but could be established based on NOTSS.



Teaching Non-Technical Skills

Teaching non-technical skills has been a topic of research in almost every subspecialty of human surgery, and many different methods have been identified. The most studied include:

High Fidelity Simulation

- Utilizing a simulated or real operating room to recreate scenarios and teachable moments for non-technical skills.
- This creates the most realistic environment and can be used to teach technical and non-technical skills but is expensive to utilize.
- Examples in research include developing communication skills while performing simulated cataract surgery or nephrectomy

Low Fidelity Simulation

- Uses a much less realistic environment than high fidelity, but some research indicates can still create a valuable immersive experience for learning.
- “Distributed simulation” uses a blow-up igloo to simulate an OR and can be used to evaluate technical and non-technical skills. One example used this method to teach TURPs and the NOTECHS skills framework.

Veterinary Simulation

- No simulations were found to specifically teach non-technical skills in vet med, but one article describing a post-arrest debriefing tool was based on a similar model developed for human medicine.
- Participants reported that communication skills were the most important takeaway from the debriefing.

Conclusions

- Non-technical skills have an important role in improving patient safety and have been well studied in human literature.
- Well established frameworks exist for the measurement and teaching of NTS that could be easily translated for use in veterinary surgery and general veterinary practice.
- More research is needed in veterinary surgery to quantify the impact of non-technical skills on patient safety.

Implications

- Future research could include implementing existing frameworks in veterinary surgery
- Incorporating quality-of-life scoring or client resource awareness could be important in creating a veterinary specific framework for evaluating non-technical skills for surgeons.
- Interdisciplinary research is important and will continue to benefit human and veterinary medicine

Disclosures

- The authors have no conflicts of interest to disclose