Risk of death from sedation/anaesthesia in UK dogs

Introduction
General anaesthesia and sedation are common veterinary procedures, but can carry risks of adverse events in dogs. Several studies have investigated the risk of death or adverse events related to anaesthesia in dogs, and the wider implications this can have for owners. This study aimed to provide a reliable evidence base on the risk of death related to anaesthesia in UK dogs, across all ages and sizes, and for both neuter and non-neuter surgery. The study also aimed to understand the risks associated with neutering. This study aimed to provide a reliable evidence base on the risk of death related to sedation/anaesthesia in UK dogs, across all ages and sizes, and for both neuter and non-neuter surgery. The study also aimed to understand the risks associated with neutering.

Methods
One probability-based primary veterinary database was accessed for this study, RVC VetCompass. This database contains anonymised, routine clinical records from a large number of UK veterinary practices. Ascertainment of deaths was based on a combination of the date of death and the date of the preceding sedation/anaesthetic event, and thus represents a minimum estimate. A wide range of information was captured, including age, gender, ASA score, and dog breed.

Results
Overall, 89,852 dogs had neuter surgery, of which 5 deaths from anaesthesia were identified, resulting in a relative risk of 10 per 10,000 dogs (0.10%).

Neuter surgery

- 157,318 dogs had sedation/anaesthesia-related events in the study period.
- 159 deaths from 157,318 sedation/anaesthesia events (0.10%)
- 14 per 10,000 dogs died related to sedation/anaesthesia in the first 2 weeks

Conclusions
These results help inform conversations with owners about anaesthetic risk for young dogs undergoing neuter surgery. Dogs that were older, had undergone urgent procedures, were of certain breeds, or had longer skulls, had increased risk of death related to sedation/anaesthesia.

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Deaths related to sedation/anaesthesia

All procedures

| Risk | Number of dogs | Number of deaths | Relative risk
|------|---------------|----------------|-------------------|
| Within 48 hours | 157,318 | 159 | 10 per 10,000 dogs (0.10%)
| Within 2 weeks | 157,318 | 14 | 14 per 10,000 dogs (0.09%)

Breed and age

- Certain breeds, including West Highland White Terrier, had increased risk for anaesthesia-related death.
- Older age was associated with increased risk of anaesthesia-related death.
- Dogs that were older, had undergone urgent procedures, were of certain breeds, or had longer skulls, had increased risk of death related to sedation/anaesthesia.

Urgent procedure

- Urgent procedures which result in substantial worry for owners. Owners may be particularly concerned about anaesthetic risk for young dogs undergoing neuter surgery.

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Image credits
- Frontline
- RVC VetCompass
- ASA American Society of Anesthesiologists