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OPINION ARTICLE

An ASV Critique: The 2024 WSAVA Guidelines for the Control Of Reproduction in Dogs and Cats

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The 2024 *WSAVA Guidelines for the Control of Reproduction in Dogs and Cats*[1] [the Guidelines] endeavors to be a comprehensive overview of academic articles related to reproduction and reproductive control in dogs and cats. This lengthy document is offered as a review article, commentary, and surgical instruction manual aimed at providing guidance to veterinarians worldwide on reproduction control techniques and decision-making.

World Small Animal Veterinary Association (WSAVA) is an association of member associations, which aims 'to advance the health and welfare of companion animals and advocate on behalf of companion animal veterinarians globally'. Among key areas of focus, it is to create 'standardization guidelines' for companion animal practice, and through an educated, committed, and collaborative global veterinary community. The Association of Shelter Veterinarians, a professional organization representing shelter, spay-neuter, and community animal practitioners, joined WSAVA as a new member association just after these guidelines were created. There are no theriogenology associations currently listed as WSAVA members.

We (the Association of Shelter Veterinarians [ASV]) were eager to have a standards of care document for small animal reproduction control that could be applied worldwide, and it is clear that the authors of these guidelines have impressive credentials and spent considerable time and effort putting the document together. However, we (and others[a]) soon became concerned about many aspects of this document, including a specialty care bias, a lack of critical reading of the scientific literature, the use of unsupportive citations, the promotion of untested and high-cost practices, a controversial blanket recommendation not to spay large dogs, a bias against low-income owners, and a lack of emphasis on health concerns associated with reproduction and overpopulation.

Authorship and representation

While the authors of the WSAVA Guidelines for the Control of Reproduction in Dogs and Cats [the authors] endeavored to be representative by including contributors from several continents, all but one author (the surgical specialist) is residency-trained or board-certified in theriogenology. All but one author (a theriogenology specialist) works in academia. Among the authors, there is a lack of representation from general practice or first-opinion small animal veterinarians, and veterinarians working in the animal welfare industry, including those working in shelters or in dog and cat population management in developing countries. In fact, these guidelines include several statements that encourage veterinarians to actively work against management policies of sheltering and animal welfare organizations. Finally, the document essentially ignores the experiences of the subgroup of veterinary surgeons with expertise in high-quality high-volume spay-neuter (HQHVSN) techniques.

There are significant differences in practice goals, problems encountered, and client resources between a specialist whose job is to promote and problem-solve reproduction, a small animal general practitioner concerned with guiding individual pet guardians in making personalized pet healthcare decisions, and an animal welfare or sheltering practitioner, whose concerns are promoting the well-being of

a. https://mcvma.org/wp-content/uploads/2024/11/FINAL-Response-to-WSAVAs-Guidelines-for-the-Control-of-Reproduction-in-Dogs-and-Cats.docx.pdf Accessed 25 January 2025.

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animals in the community as a whole, veterinary care equity, and addressing the animal intersection of One Health.

The ASV and veterinarians working in animal welfare also have our biases, but we believe that any guidelines addressing fertility control for dogs and cats that do not fairly and comprehensively represent *all* of these perspectives is – especially for a document intended to guide practices worldwide – incomplete.

Literature search versus critical review

Evidence-based documents are essential for providing clinical guidance for standard practices in medical care. Studies and research allow us to cut through the bias of personal experience and professional lore. We appreciated the number of resources the authors accessed and used to create their review. In addition to sharing available articles, however, those providing guidance must interpret scientific studies in light of their limitations. We found, frequently, that the authors did not do so. Furthermore, the findings of the cited literature did not always support the authors' claims.

For example, the authors base several major recommendations on a series of observational studies from tertiary care hospitals,[2–7] ignoring the bias inherent in the limited case selection of referral institutions (which do not represent the majority of pets worldwide, especially pets that are not pedigreed and whose owners seek care at community and general practice hospitals) and failing to critique these studies' methodology and unsupported claims. Instead, the authors make recommendations favoring uncommon and difficult techniques with very little evidentiary support or animal outcomes in dogs (see Hormone-Sparing Techniques).

The authors condemn common techniques such as the use of the spay hook, pediatric surgery, and, inconsistently, small incisions, despite significant published literature supporting the safety and efficacy of such techniques.[8–15] While the authors acknowledge that pediatric spay-neuter may be acceptable in animal shelters and stray populations, they reject pediatric surgery as generally inappropriate and unsafe, despite decades of experience and research attesting to its safety.[9–11,13,14] The sources used to support claimed disadvantages are mis-cited or misrepresented. For example, outcomes of novice veterinary students' procedures are used to extrapolate complication rates for experienced practitioners (Guidelines pages 26 and 102).

The authors omit from their literature search many well-documented techniques and successes of HQHVSN practice and its supporting body of evidence. Likely because it is not top of mind for the authors, research looking at small animal overpopulation as a major animal welfare and public health concern – and its contribution to zoonotic (e.g. rabies) and infectious animal disease (e.g. canine distemper, parvovirus, and panleukopenia) transmission worldwide – is barely addressed. Serious and common health concerns of intact female dogs, such as a 20% chance of pyometra, a 13% chance of mammary cancer, or a 4% chance of dystocia, go unmentioned – risks much higher in some breeds.[16,17] While several very large general practice data-set studies that associated longer life spans with conventional spaying and neutering are mentioned, the authors dismiss their findings without explanation.

Performing scoping reviews[18] or Problem Intervention Comparison Outcome (PICO) analysis[19,20] of recommendation questions can help guidelines authors avoid bias. Guideline-creation standards, including GRADE (used by the World Health Organization) and Delphi analysis, assist with clinical recommendation analysis. Peer-review and industry-review can help catch errors of commission or omission. Finally, checklists used to evaluate guidelines documents, such as AGREE, can be used by authors or reviewers to ensure best practices are being followed.[21] We suggest that WASVA guidelines authors, editors, and publishers strongly consider employing these approaches for any future revisions.

Access and equity

The ASV is concerned that many recommendations in this document have the potential to be harmful, particularly if taken out of context. If followed, many recommendations put the most basic and reliable reproductive control methods out of the reach of the average dog and cat.

Of around 700 million dogs in the world, the World Organization for Animal Health (WOAH) estimates 75% are free-roaming, without an 'owner' of record.[22] Worldwide access to small animal veterinary care is strongly associated with income and gross domestic product. An increasing number of animal owners/caretakers cannot afford the cost of surgery at full-service veterinary clinics in the US.[23] The authors briefly mention issues of availability and accessibility of procedures in sections 1 and 6 but strongly favor procedures (e.g. laparoscopic surgery or hormone-sparing hysterectomy with annual mammary and ovarian ultrasonography) that are well beyond the reach of the average veterinarian and pet owner. Indeed, only owners able or willing to follow the author's recommendations that are deemed 'responsible'.

The authors also do not seem aware of the close relationship between animal shelters and veterinarians (page 6), ignoring the fast-growing veterinary specialty of Shelter Medicine Practice and the integral role that veterinarians play in animal sheltering and community medicine. Shelter veterinarians, often in leadership roles, see the health of millions of animals at shelters and sanctuaries across the world. Many are increasingly engaged in outreach to enhance access to veterinary care for underserved community pets and families in their region.

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The inexperienced surgeon as a straw man

Throughout the document, the authors justify their preferred surgical techniques by describing dire consequences when surgeries are performed by inexperienced or unprepared surgeons or on unhealthy patients.

All surgical procedures are dangerous or prone to complications when performed inexpertly or by an untrained individual, or when performed upon an unhealthy or compromised patient with a 'bad constitution' (page 102).

Clearly, stump pyometra can be a result of ovarian remnant syndrome after OHE when uterine body stump is retained,[27,28] and in some circumstances, unhealthy puppies and kittens might make poor surgical candidates.[10,29] However, these arguments are not relevant to the appropriateness of correctly performed OHE techniques or of pediatric surgery in healthy pets.

Shelter specialists and animal welfare veterinarians are uncommonly aware of current literature regarding sterilization of companion animals and critically evaluate the quality of the research and its applicability to the populations they serve. Moreover, a growing literature evaluating low-cost procedures and increasing access to publishable research[b] is helping to promote accessible evidence-based practices that help underserved animals and their communities. Peer-reviewed, evidence-based guidelines for spay-neuter practice, published by the ASV, have been widely available for 17 years.[8,24]

From this perspective and body of knowledge, we include below an in-depth analysis of the evidence used to support the WSAVA guidelines authors' recommendations and discussion of HQHVSN techniques and rationale, to more completely and objectively inform readers of this document.

Surgical techniques

'The Spay'

In the WSAVA Guidelines, the authors distinguish between ovariectomy (OE), standard ovariohysterectomy, also known as subtotal ovariohysterectomy (SOHE), and a theoretical but rarely performed total ovariohysterectomy (OHE). Of the typically performed OE and SOHE, the authors recommend OE because, it is 'quicker, uses a smaller incision and is associated with less potential complications', (section 1, page 5) citing a study that did not report or evaluate incision lengths and found no difference in complication rates between OE and SOHE.[25] While we do not favor one or the other, in practice, many HQHVSN veterinarians find that incision length does not vary much between OE and SOHE. SOHE is often faster because fewer ligatures are required (two pedicles and two uterine horns versus two pedicles and one uterine body).

The authors caution against SOHE because it exposes the patient to uterine stump pathology if an ovarian remnant is present; however, the risks with OE are identical (page 5). Both SOHE and OE can only result in stump pyometra when hormonally active ovarian tissue is ectopic or retained – a rare complication.

Confusingly, complete hysterectomy (hormone-sparing sterilization surgery) without ovary removal is then recommended more highly than OE and SOHE. This procedure can result in pyometra if any uterine tissue remains in the presence of ongoing ovarian hormone production. The authors cite Meija et al. to support their recommendation, who reported a 50% failure rate of proper ligament ligation to exclude all uterine tissue.[26]

Incision length and keyhole techniques

In their description of the ventral midline OE or SOHE procedure in dogs, the authors recommend an incision one-third (page 9) to two-thirds (page 12) the distance between umbilicus and pubis. For total OHE, the recommended incision length is the entire distance between umbilcus and pubis (page 16), along with the help of a surgical assistant. Feline OE and SOHE are treated equivalently in the text, with the suggested incision length one third of the distance between umbilicus and pubis (page 31). 'The incision should not be longer than needed but should always allow adequate exposure to safely perform the procedure' (page 9), the authors explain.

We strongly agree with this sentiment. Longer incisions, which increase closure time and the total length of the surgical procedure, also increase the likelihood of surgical or anesthetic complications.[30,31] More suture materials required to close the incision means more foreign materials remaining in the body, and a higher cost to the clinic and/or owner. While students learning to spay and veterinarians who perform spay rarely likely benefit from larger incisions, our experience with HQHVSN techniques[8,32,33] shows that 'adequate exposure' is routinely achieved with

b. https://jsmcah.org/index.php/jasv/about Accessed 25 January 2025.

much shorter incisions.[34–36] In cats, for example, 1.1–2.4 cm incisions are common in HQHVSN practices.[34,35] These shorter incision lengths (called keyhole incisions) allow exteriorization of both ovaries and uterus when appropriately placed, providing ready access to the structures of interest for a solo experienced HQHVSN practitioner to safely[37] and quickly perform an OE or SOHE.

We respectfully disagree with the guidelines authors' unsupported claim that 'the great majority of complications are directly or indirectly caused by inadequate exposure, so keyhole abdominal incisions should be avoided' (page 26). Furthermore, none of the sources cited for its claim that keyhole incisions are more likely to result in ovarian remnants (page 28) studied incision length or surgical visibility. For example, DeNardo[38] experimentally sutured portions of ovary to the mesentery of spayed cats demonstrating their potential for revascularization. Kustritz and Rudolph[39] described one intriguing case of an estrogen-secreting teratoma at the ovarian pedicle of a cat with no details of the original surgery. Miller[40] studied pathology specimens submitted to a diagnostic laboratory and had no details of the original surgical approach. McEntee's cited textbook chapter discusses ovarian cysts,[41] and Wallace's textbook chapter[42] (not original research) examined predisposing factors.

Contradictorily, the authors appreciate short incisions when they advocate for laparoscopic techniques, citing small incisions and shortened surgery times. We were pleased to see that the authors acknowledge that 'the only factors which have been consistently associated with infection rate in clean or clean-contaminated surgical procedures in veterinary patients are surgery and anaesthesia time' (page 59).

Pedicle and uterine techniques

Throughout section 2.1, the authors introduce expensive technological alternatives to traditional lower-tech scalpel-and-suture methods. Electroincision (page 9), vascular clips, self-locking ties, electrosurgical devices, ultrasonic waves, and vessel-sealing devices (page 11) are advertised as speed- and efficacy-enhancing technologies for open spay surgeries. The authors neglect to mention that in the studies they cite,[43] the 'fast techniques' are substantially slower than basic techniques used in HQHVSN.[8] Reliance and insistence on high-tech techniques increase the cost of surgery substantially.

We were pleased to see that the authors included the HQHVSN technique of ovarian pedicle autoligation in this text (page 32).

During feline SOHE, it is unclear why the authors advocate placing the uterine body ligation as far caudal to the bifurcation as practical (page 33), since regardless of ligature positioning, some amount of uterine tissue remains. There is no evidence that a more distal ligature is harmful in SOHE[49]; indeed, OE leaves most/all of the horn and is accepted widely.

Laparoscopy

Laparoscopic spays are described extensively with no reference to cost of procedure or necessary equipment (e.g. laparoscope, insufflator, light source, screens, multi-tilt tables, larger surgery rooms, additional time and personnel, and more). While some of the studies cited reported a shorter surgical time for laparoscopic OE or SOHE compared to open laparotomy,[44] HQHVSN's minimally invasive techniques are not included in the comparisons. A study comparing open versus laparoscopic SOHE for dogs with pyometra demonstrated that while laparoscopic incisions were smaller, time to access the abdomen and perform the ligations contributed to a longer laparoscopic surgical duration. The need for a surgical assistant in laparoscopy contributed to increased cost.[45] Neither the additional anesthesia time required for laparoscopic instrumentation of the patient, nor the significant instrument preparation time between surgeries is discussed in the guidelines or cited articles.

Pregnancy

The authors describe two techniques for surgical sterilization during pregnancy (pages 22–26) but only as part of the delivery of live offspring. No commentary is made on procedures in which SOHE includes the termination of pregnancy. Terminal SOHE of pregnant small animals is routine in street dog population management, HQHVSN and shelter veterinary practice, and general practice. It is so common in feline trap-neuter-return programs that seasonal prevalence of pregnancy may exceed 50% of female cats.[46] Given the intended comprehensive nature of this document, we believe that some mention of technical and humane considerations during spay-termination procedures would be appropriate.

Estrus

The authors make the assertion that in dogs, elective surgical sterilization should be avoided during estrus (page 27) because blood supply and tissue turgor are increased. This means that pedicle and uterine ligatures may become more difficult to secure. While the increased vascularity and tissue turgor may increase the risk of complications among inexperienced surgeons (page 27), decades of clinical experience have demonstrated that experienced veterinarians safely perform SOHE and OE during estrus for the vast majority of dogs and cats. Close attention to ligation technique is critical, no matter the phase of reproduction.

During the 2 months following estrus, the authors warn that elevated serum progesterone levels could lead to

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lactation if spay is performed, so it should also be avoided (page 27). While pseudocyesis and induction of lactation are possible,[47] signs of pseudopregnancy are generally covert or mild after OE of dogs during the luteal phase[48] and lactation following spay is rare and easily manageable in our clinical experience. If these guidelines are followed, sterilization surgeries in dogs could only occur during one third to one half of the year (assuming 2–3 cycles per year), significantly decreasing surgical accessibility.

Pediatric sterilization avoids all reproductive cycle timing concerns.

'The Neuter'

Descriptions of routine canine and feline castration procedures (sections 2.1.3 and 2.1.4) are largely consistent with our experience in HQHVSN and shelter practice. For animals in our care, however, scrotal ablation is a cosmetic choice and not routinely necessary or desirable, even in giant breed dogs (page 37).

Cryptorchid castration

We respectfully disagree with the authors' contention in this section that the use of a small incision and a spay hook[50] during abdominal cryptorchidectomy should be avoided. They correctly point out a concern of potential inadvertent prostatectomy or urethrotomy (page 40–41) for this procedure: the supporting case reports regarding this complication used both long- and short-incision techniques.[51–53]

In the HQHVSN practice, surgeons experienced with spay hook use in spays favor this technique, which involves locating the cryptorchid testicle or vas deferens through an incision approximately the size of the cryptorchid testicle in a manner similar to locating the uterine horn. Incisional approaches are flexible and include caudal abdominal paramedian, peripreputial skin incision with linea abdominal entry, or pre-preputial midline incision. Familiarity with caudal abdominal anatomy and the gross appearance of the vas deferens and testicle allow surgeons to avoid potentially devastating complications. Force should never be used during retraction of tissues with resistance or tension. The testicle is fully exteriorized when located, and all ligatures and transections in this technique occur extracorporeally. Intracorporeal dissection and ligation, which was used in cases where prostatic or urethral damage occurred (and is also used in laparoscopic cryptorchidectomy), is not required or advocated for.[51]

Hormone-preserving sterilization

Dogs

Hormone-preserving sterilizations are controversial and uncommonly practiced. These challenging and exotic techniques are gaining popularity, originating from a desire to avoid recently hypothesized health concerns associated with a lack of reproductive hormones, particularly in large purebred Northern European and North American dogs.

Hysterectomy

In this section, the authors imply that the health outcomes in hysterectomized dogs will be identical to those of intact dogs. They acknowledge the lack of evidence: '*The long-term side-effects of hysterectomy in dogs are not well researched…At present there is insufficient evidence to ascertain that gonad-sparing surgery provides the same benefits to the animal as does remaining entirely intact as the exact relationship between the reproductive organs and other body systems has not yet been comprehensively investigated*' (page 115). However, this paucity of information or experience does not seem to check their support.

In order to achieve an acceptable technique, the authors recommend open hysterectomy with an umbilicus-to-pubis incision (page 46), requiring a longer surgical duration, greater expense for the client, as well as a more painful recovery for the patient. A surgical assistant is recommended in order to help remove all uterine tissues, required during hormone-sparing hysterectomy to prevent uterine remnant pyometra. The authors' supporting citation is a study in which uterine glandular tissue was found in 50% of samples of proper ligament ligation sites.[26] This finding suggests that it may be difficult or impossible to eliminate the possibility of pyometra for these dogs.

In spite of its potentially high rate of complication, the authors do not address the possibility of future intervention for hysterectomized dogs, either in the case of hormone-related illness (e.g. pyometra, ovarian tumors, mammary tumors, etc.) or owner regret.[54] OE post-hysterectomy would be complicated, requiring either a laparoscopic approach (expensive, not commonly available) or a second exploratory laparotomy akin to ovarian remnant syndrome surgery, in which the abdominal wound is large enough to admit the surgeon's or assistant's whole hand.

The authors also mention unilateral OE at the time of hysterectomy, postulating potential decrease of ovarian pathology. While this procedure has neither been studied in the literature nor performed routinely, it likely carries no greater risk than leaving two ovaries. For an owner seeking a second OE in the future, however, the surgeon may be unaware whether one or two ovaries remain and which one may be absent.

Finally, for hysterectomized dogs, the recommendation for annual ovarian and mammary ultrasounds (page 45) adds additional barriers of expense, access, and difficulty.

Cats

Owing to fighting and roaming behavior, vocalizations, and urine marking typical of unaltered cats, the authors acknowledge that there is little demand for sterilization with gonadal hormone preservation in cats (page 51, 54). Similarly, feral colonies near human habitations are poorly suited to a hormone-preserving approach, as vocalizations and odor are common reasons for nuisance complaints.

In spite of this, the authors appear to advocate (pages 51, 54, 116) for the questionable method of feral cat colony control using both hysterectomy and vasectomy, citing an untested theoretical model.[55]

This approach has been rejected by the International Companion Animal Management Coalition in their Humane cat population management guidance due to animal welfare and disease transmission concerns.[56] The results of using hysterectomy for feral cat colony management in Brazil have been reported in several publications[57–59]: while cat population was reduced after this intervention, the already high prevalence of Feline Immunodeficiency Virus (FIV) and Feline Leukemia Virus (FeLV) in the colony was increased in the first 2 years (FIV from 55 to 75% and FeLV from 2.6 to 39%).[58]

Alarmingly increased rates of retroviral infection, along with the considerably increased cost and surgery times for hormone-preserving sterilizations, and nuisance factors such as vocalization, fighting, and urine marking have led most veterinarians and colony caretakers in the animal welfare field to consider this approach unsupportable.

Section 3

Both the ASV and the authors of this document support continued research into nonsurgical methods of sterilization.[60] We appreciate the authors' inclusion of Section 3 in this document. Nonsurgical sterilization, if safe and effective, could drastically change the animal overpopulation management landscape and has the potential to significantly improve animal welfare and decrease infectious and zoonotic disease transmissions.

Sections 4 and 5

Sections 4 and 5 present a literature review of the benefits and detriments of gonadectomy in dogs and cats. This review reveals the limitations of existing research that has been largely restricted to purebred dogs and/or those entering referral facilities. Few studies have reliably examined the impact of age at gonadectomy on health and longevity parameters. Only a few factual points stand out from this section.

Epiphyseal fractures

In text and tables, the authors describe the occurrence of epiphyseal fractures (slipped capital femoral epiphysis or SCFE) in gonadectomized cats as 'frequent' (page 98, page 110). However, their citations are case series and retrospective studies, which make no attempt to determine population frequency. Young, overweight neutered male cats are most likely to experience these fractures, but clinical experience suggests this is a rare to infrequent occurrence that could potentially be mitigated with client education regarding the impact of obesity.

Prospective studies of prepubertal gonadectomy do not support the contention that SCFE is a frequent occurrence. No instances occurred among 417 prepubertally gonadectomized cats in long-term follow-up.[61] Similarly, other studies of prepubertally altered cats noted no difference in fractures or other musculoskeletal problems between prepubertally altered cats and those undergoing 'traditional-age' surgery at 6 months or older.[9,14]

Pediatric spay-neuter

Throughout these guidelines, the authors strongly recommend against pediatric gonadectomy. The reasons given primarily include infection and fragility of body tissues: *'When puppies are gonadectomised at the age of 6 to 16 weeks (juvenile, paediatric or early spay-neuter), they are predisposed for infections after the operation, if they have a bad constitution and insufficient immunisation (Cardwell, 1993; Howe, 1997; Howe et al. 2000, 2001). During the operation, juvenile puppies are at higher risk for injuries than pre- or postpubertal animals, because the tissue is very fragile'* (Page 102).

Unfortunately, the articles cited to support the authors' claims are outdated or not topical. The first is a non-peer-reviewed letter to the editor (1993) written by a general practitioner describing his observations of sick puppies and kittens from his local animal shelter, and his opinion is that animal shelters cannot realistically achieve safe anesthetic and monitoring practices.[62] Of the three controlled peer-reviewed studies, the first actually shows a significantly *lower* complication rate among the youngest group of cats and dogs.[10] The remaining two studies showed no differences in outcomes that could be attributed to age at gonadectomy over time.[9,11] Howe did show an increase in parvovirus diagnosis in puppies in the study compared to older dogs, but there was no comparison group of unneutered puppies from this high-risk adoption agency, making it impossible to attribute the illness to anesthesia or surgery.[11]

The fragility of juvenile puppies is presented as an obstacle to safe surgery but should instead be seen as a call for gentle and minimally traumatic techniques. Lower rates of complications seen in pediatric spay and neuter refute outdated assumptions.[10] Furthermore, these guidelines do not mention the fragility and slippery tissue in overweight adult dogs, in which greasy pedicles disintegrate, and safe and secure ligatures are

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challenging, resulting longer surgical times and higher costs.

We strongly object to the claim on page 115: '*that paediatric gonadectomy is not recommended in neither males or females because of detrimental health effects (see Chapter 5) and should be limited for instances where no other alternatives are well accepted'*. Overwhelmingly, modern pediatric anesthesia and surgeries have been shown to be safe and effective and have low rates of surgical complications.[9–11,13,63] Pediatric procedures are fast, reliable, and less expensive, and by definition, they can avoid complications of unexpected pyometra, pregnancy, or estrus cycling. These techniques enjoy significant buy-in from shelter, HQHVSN, and community veterinarians around the world. Research seeking precise mechanisms and even causal links regarding the effects of gonadectomy on animal health is limited; very few studies have reliably examined the impact of age at gonadectomy on health and longevity parameters.

Section 6

In this last section, the authors finally mention the cat and dog overpopulation is a societal challenge, and the potential effect of spay-neuter is to decrease shelter intake when discussing the potential value of Trap-Neuter-Return (TNR). We wholeheartedly agree that '*sustainable pet population control requires trust, accountability and access to low-cost veterinary care in communities of low socioeconomic status*' (page 111). However, these guidelines recommend against HQHVSN techniques in Section 2, and the recommended protocols would be far too costly and time intensive to support pet population control for communities in need.

The ASV agrees with the authors' skepticism regarding mandatory spay-neuter laws (page 114) and supports their contention that such laws can be counterproductive and disproportionately affect low-income owners.

However, we do not support the authors' concept or promotion of the Responsible Pet Owner (page 112). A paternalistic, culturally, and socioeconomically biased concept that assumes easy access to money, transport, education, and time, the authors 'responsible' owner maintains fertility control, seeks regular veterinary visits and preventive care, trains and socializes their pet, and makes a lifelong commitment. According to the authors, this paradigm can be achieved by education of prospective pet owners (and children) to promote awareness and empathy. In this discussion, the authors do not mention challenges of accessibility and affordability of veterinary care and training, the many ways of caring for cats and dogs in other cultural systems, or the socioeconomic or linguistic barriers to pet retention or forms of pet acquisition.[64,65] Their use of the term 'responsible' to describe these 'good' owners implies that any other pet owner is, by definition, irresponsible.

These beliefs are particularly problematic when it becomes the veterinary service provider's duty to make the value-laden judgment about a person's worthiness: '*For client-owned dogs and cats it is important to ascertain if the client is a responsible pet owner (RPO)'* (page 115). Ideally, an RPO can afford expensive specialty surgery (hysterectomy or vasectomy) or has the financial and physical resources to manage the reproductive capacity of their pet and engages in regular health screening activities and veterinary visits, including monthly mammary exams or testicular exams, and annual ovarian and mammary ultrasounds. If they cannot perform such activities, gonadectomy is the fallback option for the irresponsible, anyone who cannot afford, cannot access, or cannot commit the time and attention needed to achieve these 'responsible' behaviors. We object to the implied conclusion that gonadectomy is a substandard procedure that responsible people should not choose.

Conclusion

In summary, we appreciate the passion that the authors put into preparing this document, but we are concerned about the potential impact of reproductive guidelines that do not include the perspectives of the great variety of practitioners and programs doing this work daily that may be impacted. The field of knowledge in theriogenology, veterinary endocrinology, and spectrum of care is rapidly advancing, and we are eager to learn new ways of tackling population control as they emerge. Many of the recommendations made in this document are not supported by the available evidence and do not warrant a paradigm shift away from standard (or pediatric) OHE as a general recommendation for female dogs or any companion animal.

We strongly urge WSAVA to support proven, evidence-based dog and cat reproductive control techniques, including HQHVSN and trap-neuter-return, as these are vital to animal population management and human and animal well-being. Millions of dogs and cats belong to shelters and low-income owners, and several hundred millions are not 'owned' in a Western sense but coexist as valued members of our communities; veterinarians working with these animal populations deserve WSAVA's support.

The ASV respects the right of animal owners or caretakers to make their own decisions for their pets, regardless of their economic circumstances. As part of this, we believe that it is essential for veterinarians to disclose anticipated financial burden and potential health risks of those decisions. Economic euthanasia, otherwise treatable conditions, such as pyometra, which affects up to 20% of female dogs, remains a serious concern.

We recognize that each of our perspectives is greatly impacted our place in the world and indeed by the area

of practice in which we find ourselves and hope to see the inclusion of a greater spectrum of viewpoints and approaches. We welcome continuing discussion and collaboration on these complicated and nuanced topics.

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