

WPSA advice on chemical castration

WPSA does not currently use chemical castration (e.g. Esterisol™ or Neutersol®; see annex A for explanation of mode of action), in any of its projects, because we are yet to establish a cost-benefit analysis in favour of its use, however we also do not advise against using these products. The advice below is based on our assessment of the use of these products by other people and organisations. Our aim in issuing this advice is to help member societies (NGOs that have joined the WPSA member society network) that have decided they would like to use these products do so with maximum benefit to their work and the animals they intervene upon and to minimise any potential negative impact on animal welfare. We felt it was necessary to provide advice on this subject following the recent announcement of the EsterilSol Small Grants Program (ESGP) aimed at helping non-U.S. NGOs use this product (<http://www.acc-d.org/ESGP>).

- Ensure a very good level of training for all staff in applying these products from an experienced practitioner as most side effects are due to mistakes made during application. Application is not difficult but it must be done consciously with careful adherence to the technique. Ark Sciences (manufacturers of Esterisol) have a body of experts available to provide training in application.
- Follow the manufactures instructions, including with regards to suitable ages ranges (over 3 months for Esterisol™)
- Provide sedation for all dogs prior to application, we know that this is not essential under the manufacturer's guidelines but we feel it is suitable to go beyond the manufacturers instructions in this area as this will help with ensuring good application and therefore less side-effects, so its worth the extra cost to reduce the risk.
- Provide anti-inflammatories to all dogs injected with Esterisol. Again this is not essential under the manufacturer's guidelines, but reducing inflammation will alleviate discomfort and chewing/licking of the area which could be responsible for progressing any low-level side effects.
- Ensure the dog can be closely observed over the next 10 days and any side-effects are highlighted and dealt with quickly – make sure the owner knows who to call in case of problems. It is also advisable to call owners within 72 hours to proactively check on the condition of the dog, asking about signs of pain or irritation. The earlier such signs can be dealt with by providing additional anti-inflammatories the further the risk of serious side-effects will be reduced.
- Because of the requirement for observation for 10 days this should only be used on owned dogs that can be watched for the next 10 days and not unowned stray dogs
- Ensure you have someone with sufficient experience and capacity ready and able on staff to perform scrotal ablation (scrotal removal) if serious ulceration of the skin occurs. This is likely to require debridation to remove necrotic tissue. Early

¹ All WPSA advice is subject to updates as more information, research and field experience is collated – please contact WPSA for more/updated information (www.wspa-international.org)

intervention after an ulcer appears will reduce the amount of tissue that has to be removed, hence the need for careful follow-up.

- Do a structured follow-up of a percentage of the dogs, preferably including a pain scoring system, so you can assess the incidence of side-effects proactively – do not solely rely on owners calling you if there is a problem as a reliable form of data collection for assessing the incidence of side effects.
- Do not assume that castrating male dogs equals population control – it doesn't – consider this as one of the tools to use as part of your comprehensive programme that also involves spaying females, providing education on responsible dog ownership and acquisition of dogs, improving legislation and enforcement, registration and identification of dogs, basic veterinary care for parasite and disease control including rabies.

Annex A – Notes on the action of intratesticular, intraepididymal and intra-vas-deferens injections

(Includes Neutersol®; Abbott Laboratories and Esterisol™; Ark Sciences)

More commonly known as chemical castration, this method causes permanent infertility in males treated at a young age by inducing azoospermia (no measurable level of sperm in the semen). The method requires injection directly into the testicles (two injections; one in each testicle), which creates some discomfort and requires the animal to be appropriately restrained. Sedation may or may not be used for dogs and anaesthesia used for cats, although this is suggested by the manufacturer to facilitate handling rather than to mask any discomfort from the procedure. The manufacturer claims that administration of these injections is not painful.

Neutersol®, a cytotoxic substance registered for use in the USA is a zinc gluconate solution neutralised by arginine. When injected directly into the testicle Neutersol® causes atrophy of the testes and prostate gland resulting in permanent sterilisation. In the USA, it is currently approved for use in dogs aged between 3 and 10 months although it can be used in older animals. Manufacture and marketing of this product in the USA no longer occurs, the reasons for discontinuing manufacture are not known, but presumed to be based on economics as opposed to any problems in use. In Thailand this is being trialled in adult animals without prior sedation. Although Neutersol® can be injected without sedation, the dog must be held firmly on its back to enable accurate delivery and it would be useful to facilitate restraint by sedation. The procedure requires a degree of skill: if injected outside the testicle (during insertion or withdrawal) the substance can be highly irritating and lead to ulceration of the tissues.

Neutersol® application, although associated with a 41–52% reduction in testosterone levels (post dose), might not alter sexually dimorphic behaviour in treated animals. Roaming, marking, aggression and mounting, for example, might still be displayed. In clinical trials researchers reported Neutersol® to be 99.6% effective when administered according to the manufacturer's instructions. Adverse reactions observed during clinical trials include swelling of the testes, scrotal pain when palpated (6.3%), anorexia (4.1%), diarrhoea (2%) and lethargy (2.2%). Severe scrotal ulceration was found in 4% of dogs, 2% of which required surgical intervention including scrotal ablation and removal of the

affected necrotic tissue – a more complicated surgical procedure in comparison to routine castration surgery.

Esterisol™ is a very similar product to Neutersol®, approved for use in Mexico. Studies with this product have shown a similar type of side-effect but lower rates at 0.5-1.3%. This is apparently down to refining the application technique. The cost of Esterisol is 4 USD per application which is comparable to surgical costs.