

## TESTING GONACON FOR FEMALE DOGS IN NEPAL: PRELIMINARY RESULTS

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A single administration of the immunocontraceptive vaccine GonaCon, developed by the National Wildlife Research Center, has been shown to provide long term suppression of reproductive hormones and function in rodents, deer, pigs, horses, goats, cats and bison with little or nil side effects. In the US, GonaCon has regulatory approval as a contraceptive for use in white-tailed deer, wild and feral horses and burros. This talk will describe a field trial in the Nepalese town of Sauraha, where Gonaccon was used to vaccinate free roaming owned dogs. Interest in non-surgical birth control for dogs was expressed by the government veterinary school and by a Nepalese NGO; thus permissions were obtained to carry out a study.

The study started in late February 2013 when 40 adult female dogs were injected with the immunocontraceptive Gonaccon and with the rabies vaccine Biocan, and 20 control females were administered the rabies vaccine only. Owner and community outreach and education were conducted prior to starting the trial. Owners were interviewed to collect data on dog's age, reproductive history and litter size, previous rabies vaccination, reasons for owning a dog, source of dog and rabies awareness.

The results of the study suggested that there is widespread public support for non-surgical sterilisation of dogs as many more dog owners, besides those whose dogs took part to the study, asked for chemical contraception for their dogs. Free-roaming owned or community-owned dogs were generally healthy, with an average age of 3.7 ( $\pm$  2.63 SD) years old. Out of 60 dogs, 70% had litters in the previous 12 months, with a mean litter size of 4.5 ( $\pm$  1.51 SD) pups per litter. Births occurred between September and February, with a peak in November. In total, 71% were never vaccinated against rabies, 15 % were vaccinated in the last 12 months, 9% in the last 5 years and 5% were unknown.

Post-vaccination monitoring was carried out by visiting the dogs at least twice per week and occasionally by interviewing owners if the dog was not available. Within 5 weeks from treatment, we observed severe injection site reactions (sterile abscesses) in 79% of the GonaCon-treated dogs, and temporary limping or swelling in all other treated dogs. We believe the injection-site reactions were due to the erroneous amount of *Mycobacterium avium* that was included in the adjuvant due to an administrative mistake by the supplier. The amount used was the same as found in the EPA-registered product, but higher than intended for use in dogs. Abscesses were treated by local veterinarians in situ or in kennels and are gradually resolving.

The antibody titers to the vaccine and the reproductive output of treated and control dogs will be assessed by regular sampling and observation of dogs for  $\geq$  1 year. The results clearly indicated that the formulation of GonaCon used during this initial trial is not recommended for dogs due to the severe injection site reactions. A supplementary pilot trial has started using a dog-specific formulation of

GonaCon, named GonaCon-Canine in its present pre-regulatory approval phase, which has been shown not to induce severe injection site reactions. GonaCon-Canine has a reduced *M. avium* concentration as compared to Gonacon. The talk will share some of the lessons learned from a field trial and discuss the implications of the current study for future applications in Nepal.