

ONE World, ONE Health Rabies

By George W. Beran

Highly successful rabies elimination programs in dogs in tropical countries, especially in developing countries have been carried out in Asia, Latin America and discussed in Africa. Community based, stable dog population vaccination conducted premise to premise has been achieved with strong public participation.

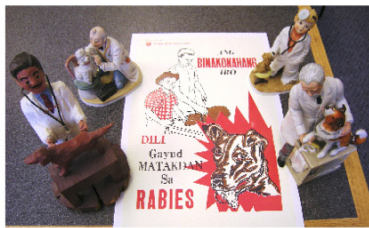
This statement from a Philippine newspaper early in August 2008 by Dr. Angel C. Alcala, former Secretary of the Environment of the Philippines and former President of Silliman University focuses on this program in rabies elimination in the central Philippines, "In this column today, I have singled out the trail blazed by George W. Beran, DVM, PhD at the Silliman Medical Center, Dumaguete City....Here the Laboratory was the first to acquire a fluorescent antibody microscope for identification of rabies virus in the brains of mad dogs. It was able to produce a rabies vaccine for dogs that was used to immunize several thousand dogs to the point of eliminating rabies in Dumaguete, most of Negros Oriental, Siquijor Province, Zamboanga City and parts of Iloilo Province. It was recognized by the Department of Health and had collaborative public health programs with that department".

This effective program in the Philippines served as a model for large, later programs conducted in collaboration with the World Health Organization, in Ecuador, and with Partners of the Americas in Yucatan State, Mexico. In all, over 250,000 dogs were immunized in the rabies programs described in the Power Point Presentation which follows:

Not All Communities Are the Same



Not All Dogs Are the Same



Rabies control centers at community level: not all communities are the same.

This presentation centers on rabies in dogs: not all dogs are the same.

Community assessments are essential to developing effective rabies control.

Diagnostic and Case Records of Rabies in Dogs



In the tropical setting, diversity among communities was clear. Diagnostic and rabies case records were utilized in discerning conditions where rabies had recently occurred.

Four Categories of Dogs



A careful analysis prior to program implementation showed dogs in the following four categories. The first category of dogs is owned and restricted, commonly in houses, fenced yards or on leashes, in upper socio-economic areas.

The second category is owned but not restricted, in warm climates in middle socio-economic areas.

The third and very important category is community dogs which belong to and live within the community, some in middle but most in lower socio-economic areas without natural or created restrictions on dogs.

The fourth and rare category in stable tropical communities is stray dogs which have entered from outside and are not recognized by residents as belong.

Owned & Restricted: 14%



Owned, restricted dogs comprise 14% of the dogs. These dogs frequently live in owners' houses, especially in inclement weather, and or in kennels or in yards enclosed by fences or hedges. These dogs are classified as pet and companion animals, are important as guards of the premises, as hunting companions, as protectors of the children at play, and over 90% are vaccinated or separated from other dogs. They are highly valued by their owners and are maintained within their enclosed premises or are led on leashes within the community. All or nearly all dogs over 5 months of age have been vaccinated by owners' veterinarians. Any unrestricted dogs in the community are captured and impounded by local animal control. Residents could recover their dogs or could buy impounded dogs paying small fees.

Owned but not Restricted: >45%



Owned but not restricted dogs comprise 45% or more of the dogs, primarily in middle class communities. They are provided most of their food by owners, are important as guards, and go with family children to play areas where they protect them in the community. Most are handled only as puppies and about 20% are reported as receiving one or more doses of rabies vaccine in their lifetime. Although unrestricted, 60% of these dogs stay on their owners' premises.

Community Dogs: Up to 40%



Community dogs comprise up to 40% of the dogs. These dogs are very important, living in their own territories which include one or more residences, consuming neighborhood garbage, using community trash as harborage. In these neighborhoods with no fences or demarcated homes, they guard their community residents and protect the children within neighborhoods. Although they have no collars or names, and are not vaccinated, they are recognized as belonging and are desired by community residents, and are not strays.

Stray Dogs: Rare



Stray dogs are rare in stable communities. They would have entered from outside, live independently, and would not be recognized by residents. They may live in packs near large garbage dumps. Community animal control is needed to remove these and suspected rabid dogs.

Removal: Garbage & Harborage



Optimal control of rabies must be based on maximum community stability. Best dog population control was achieved by community garbage removal and clean up of harborage.

Dog Removal Will Be Rare in Population Vaccination



Investigation showed the following procedures ineffective in tropical countries where nearly all dogs are unrestricted. Forceful procedures which are frequently stipulated in dog controls are “to remove and impound all dogs found unrestricted on streets, plazas, markets, school premises unaccompanied by owners, and all dogs without vaccination tags and licenses wherever they might be present”. In tropical countries, these may be applicable only in upper socio-economic areas with owned restricted dogs. There it could be ensured that removal would be uncommon, it could be ensured that these animals would be handled with ethical techniques and owners might actually reclaim their impounded pets, or such pets might be sold.

Controls That Are Neither Needed Nor Effective

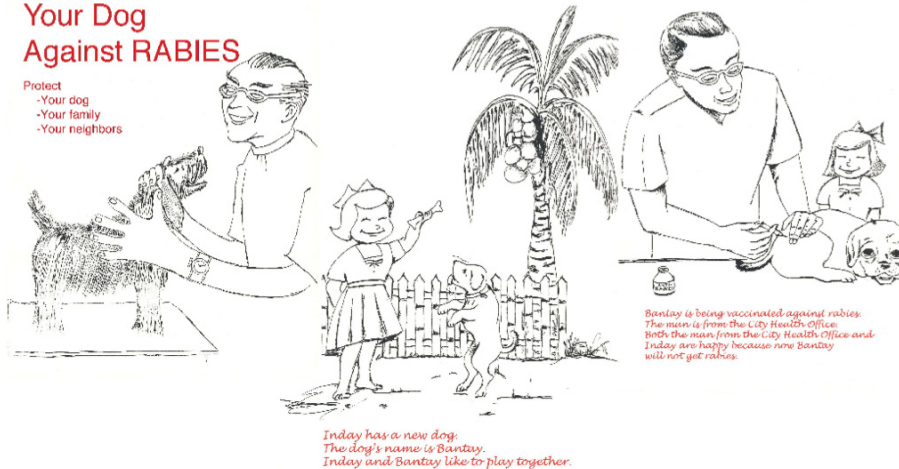


These forceful approaches to obtain population vaccination or restriction do not work in tropical middle or lower socio-economic areas where rabies is most prevalent in the 85% or more of dogs which are unrestricted. In typical largely middle and lower class stable communities focused in this presentation, in which unrestricted dogs in which the dogs do not bear vaccination tags or licenses, where forceful dog removals have been tried, were not desired by residents and were not found to be effective. Adults rebelled and children screamed as dogs were being taken from their neighborhoods. In these communities in which impounding fees were approximately equal to working person's daily wages, essentially no removed dogs were reclaimed. Nearly all captured dogs were poisoned with injections of strychnine. Even worse was the tossing of strychnine baits to dogs at midnight in their neighborhoods. Ethical treatment of dogs really did not occur. The rabies control program quickly moved to alternate procedures.

Education for Rabies Control

VACCINATE
Your Dog
Against RABIES

Protect
-Your dog
-Your family
-Your neighbors



In the afore described programs in the Philippines, Ecuador and Yucatan, Mexico. education preceded vaccination campaigns. The single most effective educational procedure used coloring books about rabies developed by staff and carried home. As illustrated, the images appealed to both children and their parents.

Scheduling Vaccination



Additional education included radio programs, a rabies themed movie for community showing, and local newspapers. Posters were placed in all communities informing residents of the importance of vaccinating all dogs and providing schedules. Vaccinators were recruited in each community among youth services, sanitarians and local health officials. Their preparation included vaccination methods, pre-exposure immunization and assigning them in teams of 2-3 persons. Training for vaccinators included preparing them to speak and promote vaccination.

Population Vaccination One Dog per 4.2 Residents



Population immunization was inaugurated to reach at least 80% of unvaccinated adult and weaned dogs in each community: owned restricted dogs; owned unrestricted dogs; and unowned community dogs. Numbers of dogs averaged one dog per 4.2 residents. (In some communities, over 90% of dogs in each category were reached; in all communities, over 80% of the target dogs.)

Neighborhood Clinics Effective in Some Communities



Depending on community assessments, neighborhood clinics were organized and scheduled, providing free vaccination. Where community veterinarians were available, they participated in vaccinating dogs for their clients and in some communities, joining in the clinics. Collars were provided to them, along with record sheets to provide information on dogs vaccinated. Community vaccination centers or designated community veterinary clinics will be needed on continuing basis for new entrants into communities and for residents whose puppies reach five months of age to provide first time dog vaccination.

Vaccination & Records: 28-36%



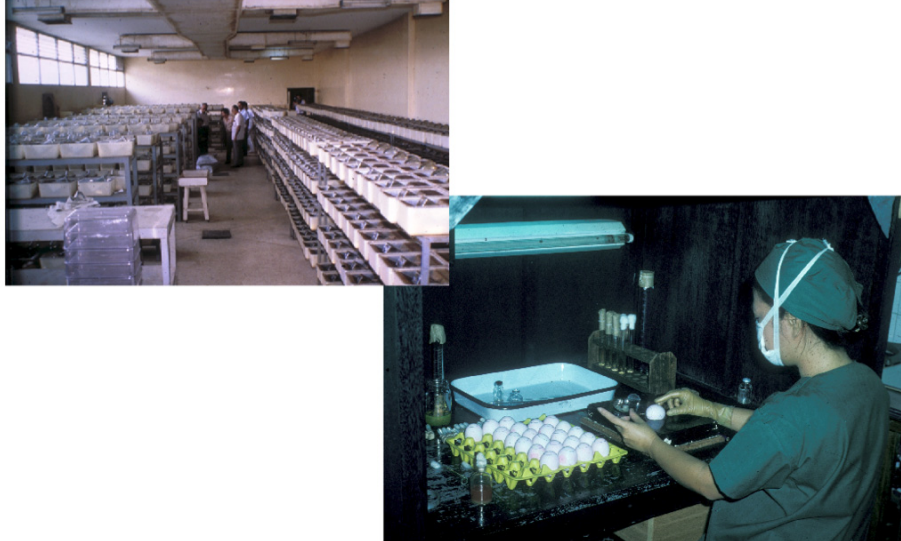
Identifying collars of colored plastic tubing threaded with light wire were provided for each vaccinated dog and records were prepared in the neighborhood clinics. Total responses reached 28-36 % participation by dog owners, especially reaching young weaned dogs.

Training & Equipping for House-to-House Vaccination



Special training was provided to vaccination teams to go house to house, to markets and wherever community dogs might have harborage. Vaccination kits included vials of vaccine kept cool up to 4 hours wrapped in refrigerated banana leaves, sterile syringes and individual needles, a thermos or insulated box and a lasso or noose.

Vaccine for Every Dog



A sufficient supply of vaccine was provided to reach every dog in the community. In the programs presented here, licensed vaccines were locally produced; Fuenzalida suckling mouse brain or chick embryo vaccine. Both were effective in eliminating rabies in dogs.

Vaccinators on their Way



Vaccination areas were mapped out in communities as needed. The local health department trucks transported vaccination teams to local areas where house to house or market vaccinations would be performed. Collars were provided and records were kept.

Vaccinators at the Homes or Market



This vaccinator fills syringes and records vaccinations. He is a bit hesitant to enter this home yard with two dogs present. Soon he gets up his courage to hold a paw-waving cat. Cats were vaccinated at owners' requests; in communities where bats or other wild animals might be reservoirs of rabies, vaccination of cats might be scheduled in the control program.

Reaching >80% of Dogs at their Homes and Communities



Owned dogs were commonly held by residents, vaccinated, collared and recorded. Community dogs which were not held by residents were captured, held, vaccinated and released by vaccinators. Capturing a dog was easiest in the heat of the day. Following holding in a noose, a vaccinated dog would not attack the one holding it. No dogs were removed unless at the insistence of home owners, as this would disrupt the dog population structure.

No Risk of Rabies For Man or Dog



A dog vaccination campaign needs to be repeated in two years. Experience gained through these programs has been that although house to house vaccinations are needed in the first campaign, neighborhood clinics may attract 90% or nearly 90% of the adult and new weaned dogs in the subsequent biennial campaigns. The goal of these vaccination campaigns has been to totally halt transmission of rabies, and to allow the community to enjoy the park or enjoy sitting under the nipa palm tree with no thought of rabies.