National Program for Rabies Control and Eventual Elimination in the Philippines: Achieving High-level Commitment

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Context / Background

Rabies is a zoonotic disease that continues to be a significant cause of human and animal deaths in many parts of the world. It is widely recognized that the global number of human deaths officially reported are greatly underestimated and reliable data indicating the true incidence of human rabies are scarce or non-existent in many countries. That fact contributes to rabies often being considered insignificant by policy-makers, and ultimately results in little motivation to implement disease control measures. Additionally, it is the poorest of the population that is most at risk of exposure and death from rabies and this segment of society is often overlooked.

Dog rabies is endemic in the Philippines. The country ranks among the top ten countries worldwide for human rabies deaths. According to the annual human rabies and animal bite victims report from the Department of Health, more than 150,000 animal bites and over 250 human rabies cases have been reported annually. The domestic dog is responsible for more than 98% of these cases, reported from all regions of the country.

It is only through control and prevention of rabies infection in the animal reservoir that long-term control and elimination of the rabies problem is possible. The prevention, control and eventual elimination of rabies in the Philippines, will contribute to reducing the burden of infectious diseases particularly for the poor and marginalized who cannot afford vaccination. The benefits of animal rabies elimination would largely arise from the abolition of expenses associated with rabies prevention in humans.

Rabies is one of the few communicable diseases that can possibly be eliminated by currently available tools for veterinary and public health interventions. The burden of rabies is primarily on human health but the disease control has to be focused on the animal source. It has been recognized to easily cause disease flare-ups as soon as control measures weaken, and even re-emergence in previously rabies–free areas. In the implementation of zoonotic disease prevention and control measures, authorities agree that effective multidisciplinary collaboration is a key to success. However, the organizational silos between responsible government agencies and expertise for planning, organizing and managing such collaborations are lacking.

Veterinary public health, also referred to more recently as One Health or EcoHealth is essentially multi-sectoral, multidisciplinary and multi-faceted. Rabies is a classic example of a zoonotic disease that can effectively be dealt with through an integrated approach such as this.

In a developing country as the Philippines, health systems or operations research or are encouraged, and a significant portion of the rabies researches conducted at RITM fall in this category. Communicable disease research is seen as an important and genuine approach to improving national health policies.

For what & for whom

In the Philippines, the efforts, resources and attention given to controlling the disease in humans and dogs were far too low to prevent human deaths and eliminate the disease in dogs. The dearth of national disease burden data led to underestimating the health implications of rabies. This misled many high ranking decision-makers in public health and animal health to perceive rabies as an unimportant disease of humans resulting from a bite of an uneconomically important animal, and therefore falls between the cracks.

Rabies is often neglected when health and agriculture agenda and budgets are set. The Philippines like many other developing countries has limited resources to invest in its control because it falls below other communicable disease priorities like malaria, TB and acute diarrheal and respiratory infections. Economic studies prove that the burden falls on the poor and underserved segment of our population. It has many characteristics though of a disease which could have significant and relatively rapid impact. It is vaccine-preventable in both human and animals affecting very vulnerable populations, the poor and the young (mostly affecting 5-15 year-olds). The cost of prophylactic vaccination after a potentially rabid dog bite is so prohibitive and unaffordable that many of the human cases occur because they are not able to receive appropriate treatment. There continued to be an urgent need for adequate vaccine supplies to increase accessibility to correct treatment. The most cost-effective strategy for preventing human rabies therefore is by eliminating animal rabies through vaccination.

Our rabies research program intended to raise the profile of rabies as a significant public health burden in the Philippines. Because of the multi-faceted nature of this disease, our rabies research program contributed to bringing together human and animal epidemiologic data to show burden of disease. In the research hospital these data were used in appropriate clinical management of dog bite cases and other animal rabies exposures. The research program generated scientific data and pilot-scale solutions for supporting national program planning and management, education and awareness on disease burden (bites and rabies cases), cost-effective approaches (such as economical reduced dose treatment regimen options in humans, and elimination of disease at-source), clinical and laboratory-based studies (antibody conversions in animals and humans with modern vaccines and other biologics), resources allocation, capacity building, leadership and institutional strengthening. The laboratory, clinical and community operational research data provided useful veterinary and public health data for the National Rabies Prevention and Control Program implementation.

The problem of rabies affects many levels of society. Our rabies research program therefore, not only focused on generating epidemiologic, laboratory, clinical and operational research data but also targeted the underserved sectors, legislators the local and national

governments to provide useful veterinary and public health data for more comprehensive National Rabies Prevention and Control Program.

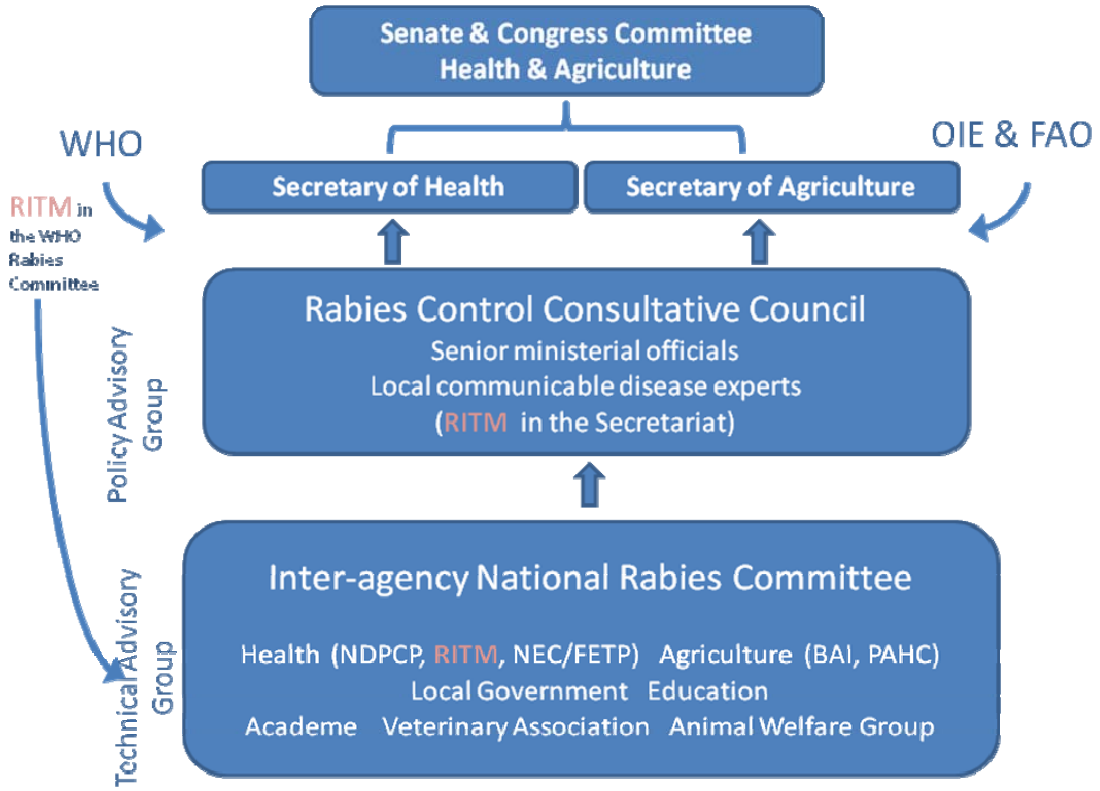
What part of the policy system was targeted and what research was relevant (or used)

The Inter-agency National Rabies Committee (NRC) was established in 1990 as a venue for discussion and development of relevant policies for the control and prevention of rabies humans and animals. This committee constituted the technical advisory group for both the Departments of Health and Agriculture. It became the venue for coordination, information exchange and crafting of national guidelines and recommendation for the different components of disease surveillance, control and prevention. Issues like combining efforts and resources between health and agriculture were also tackled here. This part of the policy system was primarily targeted.

The main stakeholders in this committee were the program implementers that included the National Center for Disease Prevention and Control (NCDPC) and the National Epidemiology Center (NEC) of the Department of Health, and Bureau of Animal Industry (BAI) and the Philippine Animal Health Center (PAHC) of the Department of Agriculture. The NRC also included the Department of Interior and Local Government representing the local government (provincial, city, municipal) disease control program implementers, Department of Education, representatives from the professional medical and veterinary organizations, and groups with special interest such as animal welfare.

Above it was the Rabies Control Consultative Council (RCCC) composed of senior ministerial officers and senior local communicable disease experts from private and academic sectors. This acted as the policy advisory group that bridged the technocrats to the decision makers and legislators in the Cabinet.

The other important influence to the national policies and guidelines were the National Academy of Science and Technology, Philippine Society for Microbiology and Infectious Diseases and the international organizations such as the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO) and the International des Epizooties (OIE) or World Animal Health Organization. As a rule, national policies and guidelines consistently followed the global guidelines, recommendations and expert committee reports of these organizations.



In retrospect, the policies developed in the 70's like an institutional rational model because of the way the health and agriculture sectors operated to protect their institutional interest, and their limited financial and human resources.

More recently, a more plural approach provided a better tool to progressively understand the policy and problem streams. Recognizing that the public health burden of rabies comes only from the neglect of the disease control in animals, a small cadre of professionals including my RITM research team moved out a single discipline. We understood the need and added value for integration and acted as advocates to extend to people engaged in policy making and legislation. In this manner, the problem stream, policy stream and politics stream converged.

Through the years, RITM undertook a range of different studies to identify the issues to develop and implement a body of research in different disciplines, and shared the findings to the scientific community so as to eventually be in a position to form documents that could be dealt with within the policy system.

Epidemiology of disease - Disease burden information for human and animals that were generated from the RITM hospital rabies registry were incorporated into the national communicable diseases database. These showed that rabies is a significant public health problem not only because of the human deaths but also because of the morbidities from potentially rabid dog bites that require post-exposure vaccination and other clinical management procedures.

The laboratory-based research contributed to the improvement of the national standards for diagnostic services, provided referral services, testing for quality control of vaccines testing for antibody conversions vaccinated patients and animals and training courses to assist in expanding better laboratory diagnostic services nationwide.

Clinical research - Cost-effective approaches showing the value of the laboratory diagnosis of the biting animal and the clinical studies on feasibility of economical options to treatment using low-dose intradermal regimens to improve management of patients bitten by potentially rabid animals and made post-exposure vaccination more accessible and affordable to people who need it.

Operations research and cost-effectiveness studies demonstrated disease control measures that are doable at the community level. RITM did pilot-scale comprehensive dog vaccination and control that ensured sufficient vaccination coverage. The scheme of investing on animal rabies control to eventually eliminate human cases was demonstrated in rural, peri-urban and urban communities and within the means of the local government's limited resources. Estimation of the direct and indirect costs of dog rabies elimination (e.g. per dog) were useful information generated for resource allocation. Our earlier economic studies compared the benefits and costs of eliminating animal and human rabies in the Philippines. The costs associated with elimination of animal rabies would be recouped 4.1-11.0 years after the initiation of a one-year elimination campaign. A sensitivity analysis showed that an elimination programme would be economically beneficial in all but the most extreme cases.

Who and how

In 1981, the Research Institute for Tropical Medicine (RITM) was established as the research arm of the Department of Health (DOH) for infectious and tropical diseases. The primary function of RITM is to undertake research in the prevention, diagnosis and treatment of tropical diseases of national public health importance. To be of utmost relevance to the national health policy and strategy, the research efforts are directed towards the development of efficient strategies for the control of infectious and tropical diseases. It is also tasked to manage infectious diseases relating to public health emergencies such as SARS and now the A/H1N1 influenza.

I and my husband joined RITM when the Veterinary Research Department (VRD) in RITM was established in 1985. He was head of the department and was responsible for research, service and training in the field of laboratory animal medicine, veterinary public health and zoonoses. This was the only veterinary public health unit in the DOH at that time.

In 1990, both of us led the establishment of the RITM Rabies Research Program together with the Clinical Research Department. I was the first Team Leader and I held that post until 2005. Our research activities focused on producing data relevant for the National Rabies Prevention and Control Program (NRPCP). We were active members of the Interagency National Rabies Control Committee from the time it was established in 1990.

Our team undertook a range of different studies in different disciplines. For improving disease surveillance and epidemiologic research, we partnered with the DOH's National Epidemiology Center and the DA's animal surveillance unit. The rabies diagnostic laboratory was VRD's responsibility. We generated laboratory-based surveillance data through our diagnostic services for our out patients bringing in specimens of dogs that had bitten them. We run the only laboratory in the country that assayed human samples. Our study on rabies risk dog bites and epidemiologic factors that affect decisions to initiate treatment was cited in the WHO Guide for Correct Technique of Rabies Postexposure Intradermal Immunization (WHO/EMC/Zoo.96.6).

For the clinical research, VRD collaborated with the RITM hospital staff. Together we actively collected clinical and epidemiologic data from patients seeking post-exposure treatment through a rabies registry. The formulation and revision of hospital guidelines for post-exposure treatment of patients were based on data gathered from this. We collaborated with international rabies vaccine manufacturers on several clinical studies to show the feasibility of economical options to treatment using reduced dose intradermal regimens and more affordable quality vaccines. This improved the management of dog/cat bite patients and enabled us to stretch our limited vaccine supplies for more patients. The ID regimen was first adopted as policy by the RITM Hospital in 1993. This was eventually introduced to other government hospitals through a 1997 DOH Administrative Order referred to as the National Guidelines for Clinical Management of Rabies and Rabies Exposure. This document was revised recently to incorporate recent clinical developments and newer vaccines in the market.

While post-exposure treatment for dog/cat bite victims remains a mainstay of the control program, the National Rabies Control Program Manager of the DOH together with RITM and the local government health officer in the study area initiated a study to look toward the feasibility of providing preventive therapy (i.e., pre-exposure immunization) to those at risk including young children below 5 years. Initial findings showed that it could also be a cost-effective measure for children living in high dog rabies endemic areas.

A number of community-based operations research was implemented in cooperation with local governments and their health and agriculture officers. In 1993-94, VRD received a grant from the US Child Survival Program to pilot the community elimination of dog rabies and maintenance of rabies free areas to contribute to the protection and promotion of child health. This project provided evidence for the operational costs, benefits and cost-effectiveness of animal rabies control to protect public health. These included province-wide and city-wide activities in rural, urban and peri-urban models and demonstrated the feasibility of eventual elimination of rabies in the country.

RITM is represented in the DOH Management Committee led by the Secretary of Health. RITM proactively promotes its research outputs through such meetings and in various forums such as in its regional training programs and annual reports. Surveillance and research outcomes were shared with relevant stakeholders through:

- regular meetings with the Health and Agriculture central office executives
- active participation in the Interagency National Rabies Committee and being part of the Secretariat of the Rabies Control Consultative Council
- co-authorship of the Philippine Animal Rabies Compendium and National Manual of Operations for Rabies that was disseminated to local government program implementers in 1997. These documents incorporated a number of information that stemmed from RITM research findings
- being resource persons in the National Academy of Science and Technology convened a national round table discussion for rabies in 1998

RITM actively sought international collaboration and joint funding with agencies such as the USCDC, Japan National Institute of Infectious Diseases and the Institute Pasteur Paris, and published a number of papers in local and international peer-reviewed journals and made presentations at scientific meetings and professional conferences. Through these the WHO responsible officer for zoonoses recognized RITM's work and we were constantly invited to WHO Asian Rabies Steering Committee and WHO Rabies Expert Committee meetings between1993 to 2005.

Outcomes

In the last 8-10 years, national policy decisions to embark on a more aggressive program were evident in the allocation of more resources for human vaccines plus operations costs of delivering and making it more accessible to the poorer urban and rural areas. More than 400 animal bite treatment centers were established all over the country. These centers are all applying the economical ID regimen. The DOH also now procures animal rabies vaccines to augment the national supply from the DA. Because of the highly credible research and experience with the rabies program, the mandate of the responsible DOH and DA expanded to cover other zoonotic diseases including the new and emerging ones (e.g. avian and swine influenza, Ebola-Reston virus).

From Disease Control to Elimination

The Philippine Department of Health has embarked on a flagship program called Defining the Road Map for Reforms: FOURmula ONE for Health (F1). This is the implementation framework for health sector reforms in the Philippines for 2005-2010. It is designed to implement critical health interventions as a single package, backed by effective management infrastructure and financing arrangements and providing a road map from the national down to the local levels. Aligned with F1, the DOH has identified a Disease-Free Zones Initiative, with the objective of reducing the public health threat of rabies alongside enhanced health promotion and surveillance. The initiative aims to eliminate diseases such as Leprosy, Schistosomiasis, Filariasis, Rabies and Malaria. In the National Objectives for Health, the DOH has set the goal of a Rabies-Free Philippines by 2020 based on the standard for

Rabies-Free Zones set by the World Health Organization and the World Organization for Animal Health.

In February 2007, during the Thirteenth Congress of the Republic of the Philippines, the Republic Act No. 9482 known as the Anti-Rabies Act of 2007, was enacted to provide for the Control and Elimination of Human and Animal Rabies. It included mass vaccination of dogs; establishment of a central database; impounding, field control and disposition of unregistered, stray and unvaccinated dogs; responsible dog ownership practice; an information and education campaign; provision of pre-exposure treatment to high risk personnel and post-exposure treatment to animal bite victims. Under this new law, pre-exposure prophylaxis for schoolchildren aged five to fourteen in high risk areas is mandated. Sustained government investments are being made. The one hundred million pesos (US$ 2.5M) necessary to implement the provisions of this Act was initially charged against the appropriations of the DOH, DA, DILG and DepEd under the General Appropriations Act. For the local governments, the requirements are taken from their Internal Revenue Allotment and other local funds.

From National to Global

The clinical research on modified economical intradermal post-exposure rabies vaccination for dog bite patients together with similar studies conducted in Thailand and Sri Lanka, provided the earliest evidence for the regimen's efficacy and cost effectiveness. These studies contributed to the WHO global guidelines for human rabies prevention through vaccination. Our studies have been cited in the WHO Guide for rabies post-exposure treatment published in 1997.

In 2001, I chaired the 1st WHO Interregional Consultation on Strategies for the Control and Elimination of Rabies in Asia. This meeting laid down the impetus for many Asian countries to promote and pursue the elimination of canine rabies to eventually eliminate the disease in humans. Asian countries were urged to develop comprehensive national plans with improved access to modern human vaccines and application of new economical post-exposure treatments, better disease surveillance and processing of data at the national, regional and global levels, intersectoral collaborative efforts for dog rabies control and plans to expand public and health care worker awareness regarding rabies control and prevention.

In 2003, I was involved in a working group convened by WHO to re-evaluate and quantify the public health and economic burden of endemic canine rabies in Africa and Asia. This work published in the WHO Bulletin in May 2005 estimated that human mortality from endemic canine rabies was 55,000 per year and that the estimated annual cost of rabies is USD 583.5 million. Patient-borne cost of rabies account for more than half of this. It concluded that rabies remains an important yet neglected disease in Asia and Africa. These figures are now cited by many developing countries and international aid agencies as justification to invest on eliminating canine rabies.

In 2008, through the screening and review process of the WHO and the Global Alliance for Rabies Control, the Philippines became one of 3 country recipients of a Bill and Melinda

Gates Foundation first-ever funding support for piloting a rabies elimination campaign in either a province or region. The other two recipients are Tanzania and South Africa.

Intersectoral cooperation of medical and veterinary services, community involvement and participation are required for targeted response and control in animal reservoirs. The work on rabies in the Philippines showed the value of integration and beginnings of a One Health approach to the management of zoonoses. We have yet to build systematic capacities for integration and implementation among public health and veterinary practitioners and institutionalize the One Health system approach.