



RABID BYTES

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The newsletter of The Global Alliance for Rabies Control

EDITORIAL

Hello and welcome! You're one of over 7000 people around the world who are signed up to our newsletter. You might be anywhere from Australia to Zimbabwe but wherever you are, you are an important member of a global community working to prevent rabies. It is people like you who make a difference.

In this newsletter, we bring news from Uganda, Gabon, Bangladesh, the Philippines and London which all show collaborative effort to be the foundation of their success.

In Uganda, Daktari, an Andorran NGO have been working on a collaborative project which aims to bring veterinary support to people living in and near wildlife protected areas.

GARC's Lea Knopf recently took part in an intersectoral meeting on strengthening rabies control in Gabon. She saw how significant progress can be made in a short time, by just gathering all agencies around one table.

The last three year's immense progress in Bangladesh originated in collaboration between government, international agencies and non-profit partners.

In the Philippines, we're delighted to announce the winners of The One Health Challenge and their fantastic community based rabies prevention projects.

And in London, researchers from the Boyd Orr Centre for Population and Ecosystem Health at the University of Glasgow got to meet the Queen and talk to her about their work and rabies as a global problem.

Talking about global, we are now less than six months away from World Rabies Day 2014 and plans are already underway. Today I can tell you this year's theme is "Together Against Rabies".

We have chosen this theme for two reasons, the first is to prevent rabies we need to reach out to each other and work together.

The second is because fear of rabies divides its victims – pitching people against dogs. Whether you are an animal lover or not, rabies is an exemplar case of One Health, where improving animal healthcare protects people, benefiting all. This theme expresses the One Health principle.



If you are interested in organizing an event this year, you will soon be able to download an individual organizer's pack from the [World Rabies Day webpage](#).

We're also in the process of developing a pack aimed at governments and organisations. Please remember to check our twitter and Facebook feeds for announcements of when this is ready.

And as always, we love to hear from you. Please do get in touch if you have comments, suggestions, or stories, via Liz.Davidson@rabiesalliance.org.

By Liz Davidson. Liz has been working in our communications team for 3 years and has recently become responsible for GARC's Global Community Engagement.

NEWS FROM GARC AND WRD

Gabon Moves Forward

The Republic of Gabon is dedicated enhancing its rabies prevention and control activities. In mid-February 2014 the government, in collaboration with FAO and others, hosted in its capital city Libreville a national workshop entitled "Rabies prevention and control: How to improve collaboration between key stakeholders?".

Gabon is one of the countries participating in the large-scale [IDENTIFY](#) project (financed by USAID) and also a member of the West and Central African [RESOLAB](#) sub-network on rabies. In line with the capacity building component of IDENTIFY, the Gabonese central veterinary laboratory benefitted from a training by experts from the FAO collaborating centre on rabies in diagnostic laboratory techniques, the week preceding the workshop. As Gabon had no rabies diagnostic capacity until then, it wished to establish laboratory-based confirmation of rabies. This is a major step in moving towards rabies prevention in this country, where rabies is suspected, but its presence is solely based on clinical suspicions in humans or animals, without any official notification to national or international authorities.

Continued on page 2...

GARC Supports the Philippines Province of Cebu in Intensifying its Rabies Advocacy Program



Map of Cebu, Philippines highlighting the location of Mactan Island. From Image created and copyright (2004) by seav. Released under the GNU FDL.

The Global Alliance for Rabies Control (GARC) has teamed up with the provincial government of Cebu (Philippines) led by the Provincial Veterinary Office (PVO) and the Provincial Information Office (PIO) to conduct a Media Advocacy Workshop on Rabies Awareness and Prevention. The workshop, which will take place on 22 April 2014 at the Provincial Capitol Social Hall, Cebu City, aims to strengthen the provincial rabies prevention and elimination program.

To give the participants a full understanding of the regional and provincial rabies situation, both for the canine and human rabies cases, representatives from the Department of Agriculture-Regional Field Unit (DA-RFU) VII, Department of Health (DOH) Region VII, and Provincial Health Office (PHO) will also be present along with Department of Agriculture-Bureau of Animal Industry (DA-BAI) Director, Dr. Rubina Cresencio.

Meanwhile, Prof. Sherwin Joseph Felicidadario from the University of the Philippines Los Baños-College of Development Communication will also be on hand to speak about the role of communicators and the importance of effectively communicating health messages to the public.

GARC considers media practitioners and information officers in the province as vital partners in supporting the national rabies elimination program. Their role as 'gatekeepers' of information is especially important in processing technical information into mainstream knowledge presented in the media. This is the fifth in a series of Media Advocacy Workshops conducted by GARC as part of its Advocacy, Communication, and Education (ACE) campaign. The workshop aims to inform and empower media practitioners and information officers in the province on the important concepts of rabies prevention and elimination and responsible pet ownership.

Article contributed by Dane Medina, GARC Communications Officer (Asia).

...**Gabon** continued from page 1.

The availability of quality laboratory diagnosis is considered an essential pillar in rabies prevention and control. But it is no secret either that new opportunities, such as suddenly available laboratory capacity, can also trigger new challenges.



How can we ensure that rabies-suspect samples will reach the laboratory and appropriate follow up action can be taken to protect people and animals from the identified threat of rabies? Which existing infrastructures, institutions and national fora can be built out or linked for collaboration to improve awareness and control of rabies? Which are the most effective joint-activities and communication channels between physicians, veterinarians and the affected communities in Gabon, be it at local or at central level? What is missing, and how can we bridge the gaps?

To find answers to questions like these, the workshop dedicated ample time to in-depth discussions, practical exercises and planning between the various actors around rabies control in Gabon. The workshop successfully teamed

national representatives of the Ministries of Public Health, Agriculture, Education and Research, Social Affairs, further representatives of municipalities, private pharmacists and veterinarians, consumer protection associations, specialists in communication. Representatives of international organisations (FAO, WHO, UNICEF), as well as GARC, shared information and experiences from an international and regional point of view.

It was amazing to observe what can be achieved in only two days by bringing everybody together to one table. Some national activists even listened and spoke to each other for the first time! Supported by the international specialists, the participants could identify strengths and weaknesses of the current situation in Gabon. They worked together towards tangible objectives for the short and mid-term perspective of rabies control – with everybody on board this time.

All the participants left the workshop with an invigorated will and capacity to tackle rabies in Gabon. Once more an example of how enhancing collaboration between sectors and administrative levels, involving new partners and analysing existing and required capacity can make a difference. Certainly Gabon's road forward is still bumpy, but the path towards sustainable rabies control has definitely been smoothed considerably. We congratulate Gabon and wish them a safe journey!

By Lea Knopf who participated in the workshop on behalf of GARC. There is a summary of the workshop (in French) available [here](#).

Early Years Intervention for Pre-School Children

On Friday, February 28, the mornings' activities for the pre-school children at Barangay Kanluran Day Care Center in Sta. Rosa City, Laguna, Philippines, had the theme of rabies prevention.

While the children were coloring, playing games and listening to stories, their parents had the chance to talk with and ask questions to City Veterinarian, Dr. Joseph Milko Bustamante and City Health Office Rabies Control Officer, Dr. Catherine Haynes.

Si Bantay at Ako, MagkaibigangTotoo (My Dog and I: Buddies for Life) is a package of rabies and dog-bite prevention activities for early years children. It is a pilot initiative in development for GARC's education model on Early Childhood Intervention.

The aim is to make the very serious message of rabies prevention accessible to those most vulnerable to it. Children are more at risk of rabies than any other group and it is never too early for them to understand how to approach and treat animals safely – that they need to

- be cautious around unknown animals,
- report all dog bites and scratches – however small – to an adult, and
- have a basic awareness of the importance of vaccinating dogs.



Si Bantay at Ako, MagkaibigangTotoo was also held for children at Alfonso Homes II and Sinalhan I Day Care Centers. And a modified version for slightly older children was held at Barangay Labas Elementary School.

A total of 89 children and 90 of their parents took part in the pilot activity, carried out by GARC and its partners from the City Veterinary Office (CVO), City Health Office (CHO), City Social Welfare and Development (CSWD) and the City Division of the Department of Education (DepEd).

When it was time to go home, the children left with dog masks and coloring books. We hope they enjoyed the day – they seemed to! – and we certainly did.

Thank you to our partners, and to Barangay Labas Elementary School and Barangay Kanluran, Alfonso Homes II and Sinalhan I Day Care Centers for hosting us, and of course to the children who were so much fun.

Pilot Testing on Rabies Online Course Underway

In countries where rabies cases are high, limited knowledge on how to prevent rabies is a contributing factor. Misconceptions and wrong messages on rabies prevention put people at risk and most victims are children 15 years old and younger.

The Global Alliance for Rabies Control (GARC) with support from Crucell is currently developing the Rabies Educator Certificate (REC) Program to help address the knowledge gap.

REC is an online course with modules on understanding rabies virus and how it spreads, and is prevented. It also has a module on communicating rabies information in the communities and instructional resources on community activities.

The free online course will be open to individuals who are interested to learn about rabies.

Primarily, it aims to inform current and potential community educators who may be teachers, social workers, local human and animal health workers, or students.

The course aims for people to understand the threat of rabies and take steps to protect themselves, their family and their community.

The course is being piloted in selected countries in Asia and Africa before being launched and made available publicly.

Announcing The One Health Challenge Winners

Last year we held a competition for medical and veterinary students living in the Philippines.

One Health is a worldwide strategy built on the interconnectedness of human and animal wellbeing. It calls on different sectors to work together towards a common goal. The One Health Challenge aimed to stimulate collaboration between the human and animal health sectors in rabies education, prevention and control. The brief was to form an inter-sectoral team and design and conduct a community-based rabies prevention activity.

Today, we are delighted to announce the three winning entries. Please join us in congratulating them and celebrating their efforts and success.

Michael Angelo Filoteo, is studying to be a doctor at Ateneo de Zamboanga University. His team included Mr. Joe fry S. Guillermo, Mrs Avelia Asuncion, Hon Rosalie Jawaril, Dr. Michael Van L. Site.

This team took a particularly comprehensive approach including

- health education to both adults and school children;
- establishing local ordinances to support national anti-rabies legislation;
- making sure the vaccination team received pre-exposure prophylaxis for their protection;
- encouraging local dog register their dogs and providing free dog collars; and, vaccinating 72.5% of the local dog population.

The legal component follows the suggestion of the World Health Organization that national policies are enforced in local communities.

You can read more about this entry on their Facebook page [here](#).



Alyana Zen Rodriguez, a student at Dela Salle Araneta University, led and organized a team that included Dr. Theodoro Rosales, Dr. Thea Gladys Salvador, and Dr. Christopher Ian Fortuno and Ms. Mirachael Basco.

Together they coordinated with the local government to secure vaccines and then worked to deliver them to 875 local cats and dogs.

A fantastic achievement - this protects both the animals and the people living around them by preventing transmission of the fatal virus.

You can read more about this entry on their tumblr page [here](#) and their Facebook page [here](#)

Enrique Manalang, is studying medicine at the University of the Philippines. His team included Anthony Geronimo Cordero, Ceferino A. Lustre II, Jose Paolo Albaño, and Ramius Agustin Miguel Dizon.

Their project was called Wapak Rabis – literally ‘Slap Rabies’ – and focused on providing accurate public information about the disease including

- essential facts of transmission;
- first aid care of wounds;
- the location of health centers capable of providing post-exposure prophylaxis; and,
- the value of responsible pet ownership and proactive healthcare plans.

Children took part in story telling and draw and share activities and went home with coloring books. Adults took part in interactive discussions to drawing on the collective experience of the audience to dispel myths and reinforce facts.

You can read more about this entry on their webpage [here](#).



Overall, we were delighted by the quality of the entries and by their respective achievements.

We look forward to presenting them with their prizes on Friday March 28 at The University of the Philippines.

In the meantime, please visit their websites and Facebook pages and like and share the work they have done... We hope it will inspire you and others. Together we can beat rabies.

Rabies One Health Symposium held in Laguna, Philippines

In time for the conclusion of the National Rabies Awareness Month, the Rabies One Health Symposium was held last March 28, 2014 at the University of the Philippines Los Baños (UPLB), Los Baños, Laguna. With the theme “Working Together for a Rabies-free Laguna,” the activity focused on engaging various stakeholders on how to work hand-in-hand to eliminate rabies in the province.

Municipal/City Health Officers, City Veterinarians, and Municipal/City Agriculture Officers from the Province of Laguna, as well as representatives from the Department of Education and UPLB attended the symposium. The participants worked on identifying the challenges and solutions for rabies elimination in their respective districts.

One of the significant outputs of the workshop is participants’ commitment which was signified by the ceremonial signing of a Pledge of Commitment on their support to strengthen the Provincial Rabies Elimination Program and achieve a rabies-free Laguna.

Speakers at the symposium shared rabies case histories in the province and prevention measures.

Key resource speakers CHD4-A Rabies Coordinator Ms. Shiela B. Berbano, Department of Agriculture Bureau of Animal Industry (DA-BAI) -Animal Health Division Chief Dr.Emelinda I. Lopez, DA-BAI, Acting Director Dr.Rubina O. Cresencia, Laguna Provincial Veterinarian Dr. Mary Grace M. Bustamante, and Laguna Provincial Health Officer Dr. Judy A. Rondilla.

UPLB Chancellor Dr. Rex Victor O. Cruz graced the event by giving the welcoming remarks.

GARC Country Representative Dr.Ma.Luningning E. Villa emphasized that One Health is to bring all stakeholders to work together in rabies elimination; banking on sharing the strengths of each sector towards the goal of being rabies-free.

Furthermore, winners of the One Health Challenge 2013 were awarded. Their community activities to support rabies elimination were shared in the program.

The One Health Challenge 2013 was a competition held by GARC to promote collaboration between human and animal health sectors in rabies elimination.

The three winners are groups from Ateneo de Zamboanga University-School of Medicine, Municipality of Diplahan, ZamboangaSibugay; Mu Sigma Phi Fraternity of the University of Philippines Manila-College of Medicine; and SAVER/LADY SAVER of the De La Salle Araneta University.

These groups conducted activities that embodied and promoted rabies awareness and prevention through One Health in their respective communities. The winners received cash prizes and plaques of recognition.

Contributed by Eunice Mendoza, GARC Community Education Officer.

NEWS FROM THE COMMUNITY

An opportunity to talk to the Queen about rabies

On February 27th, rabies researchers were amongst a group from Boyd Orr Centre for Population and Ecosystem Health at the University of Glasgow, accepting a Queen’s Anniversary Prize for Higher and Further Education at Buckingham Palace in London.

The award recognizes the centre’s scientific excellence and the global impact of its work on infectious diseases. Their translational research aims to benefit the health and livelihoods of agricultural communities and wildlife conservation in developing countries. It acknowledged the importance of the One Health approach to disease control, and international collaborative efforts. The centre’s work covers several infectious diseases, but their work on rabies was given special mention.

The rabies research, involving Katie Hampson, Tiziana Lembo, Sunny Townsend, Sarah Cleaveland and Dan Haydon, has addressed several aspects of rabies epidemiology in Africa and Asia relevant to the control of the disease. The research conducted over many years by this group constitutes a large part of the evidence that the Global Alliance for Rabies Control and others use to advocate for the elimination of canine rabies.

The award ceremony itself took place in the plush ballroom of Buckingham Palace, with the Queen and the Duke of Edinburgh personally greeting representatives from each institution receiving an award. The Queen then spoke individually to the researchers in the long, thin Picture Gallery. Dr Sunny Townsend (pictured) waited patiently (and a little nervously!) at the far end of the Gallery and eventually was able to speak to her Majesty briefly about the problem of rabies in the developing world, and how it affected the relationship between people and their dogs. Sadly there was no time to ask if the Queen’s corgis travelled with her and were vaccinated against rabies!

Written by Louise Taylor, with contributions from Sarah Cleaveland and Sunny Townsend.



Her Majesty the Queen speaking to Dr. Sunny Townsend about rabies at Buckingham Palace

Mass Dog Vaccination in Bangladesh: The silent revolution towards rabies elimination

An unprecedented task, mass dog vaccination (MDV) found its footing in Bangladesh during November 2011 through a pilot project in Cox’s Bazaar, a district municipality. Neither the Livestock department nor any other organization had any experience of MDV in Bangladesh, where >80% of the dogs are stray.

Three coincidences catalyzed the MDV piloting; the initiation of a rabies elimination program by Bangladesh, an allocation of funds from WHO for rabies control activity and the first visit of WSPA to Bangladesh. Following successful piloting in Cox’s Bazaar, MDV was subsequently done in another municipality (urban location) and a subdistrict (rural location) in one southern district (Satkhira) of the country in April, 2012. MDV was then scaled up to cover the municipalities of four divisions out of 7 of the country. Within two months (September-October, 2012) most of the district municipalities of the four divisions were covered by MDV.

The MDV campaign of Bangladesh during 2011-12 augmented a paradigm shift from control to elimination of rabies as the national strategy of Bangladesh. From inexperience, we gathered experience. From cruel dog catchers (who used to catch dogs for killing) our dog catchers (most of them were cleaners of municipalities) became expert and friendly catchers and in around 60% of cases, they can catch dogs with simply their hands. The cattle and poultry field staff vaccinated thousand dogs to become expert dog vaccinators. Starting from ‘no funds’ we could mobilize sufficient funds for a MDV campaign over the last 3 years. We now have a national strategy, functional committees, a strong team, funds and logistics to move forward.



Through the experience of MDV in 58 metropolitan cities and municipalities, we now believe we can complete MDV throughout the country and are implementing measures towards elimination rather than control. There is not much media coverage or reporting on the MDV of Bangladesh; neither locally nor internationally, but it has been a silent revolution towards rabies elimination in the country.



The MDV campaign of Bangladesh bears some unique characteristics. It is done within a very short time span in each of the sites, requiring just 3 days for the main campaign. Capacity building was done in each of the sites to facilitate the campaigns and support MDV in the adjoining region. General people like cleaners were trained and used successfully for catching dogs. Dog catchers gaining experience were mobilized to other cities to train new catchers and thereby we have now more than a thousand expert dog catchers in the country.

The cost-effectiveness of the MDV is another unique feature with the average cost per dog around 1 USD. The cost could be reduced through local adoption of international methods and appropriate technology. The leadership of the ministry of health in MDV is an unprecedented initiative to facilitate rabies elimination, and may be regarded as an example for other countries to follow. Too often, neither livestock nor health ministries are willing to conduct MDV, the prime component for achieving rabies elimination and thereby letting the rabies transmission to sustain for centuries.

There has been true one health approach involving multisectors in the MDV program of Bangladesh. Along with health, livestock, local government and education sectors, WHO, FAO, OIE, WSPA, HSI, RIAF, all contributed in different ways to the MDV program. We are expecting contribution of other organizations like GARC in the effort of Bangladesh to achieve elimination of this thousand years old havoc.

Bangladesh is now at a crucial stage of their rabies elimination program. It has traversed quite a distance within a short time, but has to cover a long distance yet to reach the goal. There is political commitment, allocation of funds within the health ministry and good experience gathered so far. Logical support from concerned organization can lead the country towards a successful end and create an example for other countries to follow.

Contributed by Prof. Be-Nazir Ahmed, Director Disease Control, MHFW, Bangladesh and Chairperson, RIAF, Bangladesh.

International collaboration protects dogs, people and wildlife against rabies

Daktari is an Andorran NGO for veterinary cooperation in East Africa. It was founded by Dr. Jesús Muro (Veterinary Officer from Andorra Government), Professor Ignasi Marco (Faculty of Veterinary Medicine, Autonomous University of Barcelona) and Dr. Vicky Ticó (Veterinarian from Andorra) in 2013. Its work includes the veterinary cooperation activities started in 2010 funded by the Andorran Government (Andorra Cooperació), with the collaboration of the veterinary authorities and Makerere University in Uganda.

The project aims to bring veterinary support to rural communities living in and around areas protected for wildlife, but also to promote other complementary projects with the shared objectives

of biodiversity conservation, animal welfare and public health.



In the Mgahinga Area of Western Uganda. Photos: Daktari

transmitting information about the date and place on which the activities will be carried out, to rural communities through radio announcements. One of the objectives of the project is dog vaccination against rabies, in an effort to control the disease in dogs, humans (especially children) and wildlife, such as lions, jackals and hyenas.

This year a total of 445 dogs were vaccinated, 84 dogs around the Mgahinga Area (Kisoro District) and 361 in Queen Elizabeth Conservation Area (Kasese and Katerere Districts). All dogs received a single rabies vaccine dose (donated by Prosan Lleida, Spain), were orally dewormed with Albendazol 10% and subcutaneously with ivermectine. In addition, a dose of Albendazol or Milbeciline was given to the owners for the dog to be treated after one month. Dogs were collared with a vinyl collar, with a specific code and an Official certificate was also given to the owners. Also, sterilization of dogs was offered on a voluntary basis. A mobile field surgical theater was used and veterinary students were trained, in order to improve their capacity. A total of 60 animals (males and females) were sterilized.

At the same time, a proportion of dogs were sampled for whole blood, sera, fecal samples and ectoparasites to look further into viral and parasitological diseases.

After 5 years of veterinary cooperation, no new cases of rabies have been reported in the Mgahinga Area. However, in Queen Elizabeth Conservation Area, rabies is still reported in animals and humans. The project is appreciated by local communities and governmental and non-governmental organizations, and we plan to expand the project to nearby areas in Rwanda and the Democratic Republic of Congo. In the near future, an Education Project will be implemented for schools in Mgahinga and Queen Elizabeth Areas, including basic principles of animal husbandry, main animal diseases, including zoonosis, and wildlife conservation, with visits to the protected areas, to emphasize the extraordinary biodiversity richness of this area.

Submitted by Dr. Jesus Muro, DVM, MSc, Veterinary Officer from Andorra Government and President of Daktari, and Dr. Ignasi Marco, DVM, PhD, Faculty of Veterinary Medicine, Autonomous University of Barcelona.



Mass Dog Vaccination is cost effective for Africa

A multi-institutional research study headed by Meagan C. Fitzpatrick at the Yale School for Public Health has shown for the first time that repeated annual dog vaccination campaigns in rural Africa are cost-effective.

The incidence of rabies is highest in African rural areas due to the lack of access to PEP, limited education about rabies, and, typically, no control of the disease in dog populations. Under these circumstances, and with frequent reintroductions of virus, annual canine vaccination strategies are needed, but concerns about their cost and sustainability are major barriers to their implementation.

A mathematical model of rabies transmission including dog and wildlife hosts was developed to analyse the epidemiological effects, human health benefits, economic costs and cost-effectiveness of dog vaccination at rates varying from 0 – 95%.

Epidemiological data for two different regions in Tanzania; Serengeti (endemic rabies in a agro-pastoralist setting) and Ngorongoro (epidemic rabies in a pastoral setting) were put into the model, and the results reflected observed dog and human rabies rates before any mass vaccination occurred. Based on local data, each rabid dog was assumed to bite on average 0.51 people, and the resultant years of lives lost and costs of PEP resulting from each rabid dog could then be calculated. The costs of dog vaccination campaigns were also based on local data.

The costs (in \$) and benefits (in life years saved) of annual vaccination of different percentages of the dogs (coverage rates) from 0 to 95% over a 10 year period were then compared. Vaccination coverage rates that resulted in more lives lost and at a higher cost than other coverage rates were excluded and for the remainder, the incremental cost-effectiveness of providing vaccinations to increase the coverage rate to the next level was calculated.

Following the WHO Commission on Macroeconomic and Health Recommendations, 'cost-effective' and 'very cost effective' strategies were defined as those that cost less than three times the national per capita GDP (\$4290 for Tanzania) and less than the national per capita GDP (\$1430 for Tanzania) respectively for each year of life saved. Under these criteria, annual dog vaccination campaigns were found to be very cost effective in both districts, compared to a no vaccination strategy. For the Serengeti region, vaccination coverage rates of up to 70% were very cost effective and up to 85% were cost effective. For the Ngorongoro region, coverage rates of 20- 30% were very cost effective and those of 35-50% were cost effective. Herd immunity rates necessary to eventually eliminate rabies was found to be around 10% for Ngorongoro and 30% for Serengeti.

Given that the model is likely to be applicable across a wide variety of settings across Africa, the authors recommended immediate canine vaccination campaigns in East Africa. Annual vaccination will curtail the transmission of rabies to human populations and a significant reduction in human deaths from the disease. Where PEP is hard to access, protecting people by vaccinating dogs is imperative, but canine vaccination was found to be cost-effective even if access to PEP is improved. Under all assumptions of willingness to pay for vaccination, annual vaccination strategies were still the optimal way to prevent human deaths.

*Summarized by Laura Baker and Louise Taylor from the Paper "[Cost-effectiveness of canine vaccination to prevent human rabies in rural Tanzania](#)" by Fitzpatrick et al, *Ann Intern Med.* 2014 Jan 21;160(2):91-100.*

Recent Research Papers

Here we aim to list recent research papers most relevant to GARC's mission.

Surveillance

[Human rabies surveillance and control in China, 2005-2012](#). From 2005-2012, 19,221 cases were reported across 30 provinces, primarily in rural SE China where low rates of PEP occur. Nevertheless, regulation of PEP quality, together with improved management and vaccination of domesticated animals, has improved prevention and control of rabies.

[Global Positioning System: a new tool for measurement of animal bites in a rural area near Bangalore, South India](#). GPS technology was found a useful new tool in accurate spatial mapping of animal bite cases.

[Phylogeographic analysis of rabies viruses in the Philippines](#). The Philippine rabies strains were introduced from China, and subsequently evolved within the Philippines, without further introduction of rabies viruses from any other country. Island-to-island migrations were observed, but the seas are a significant geographical barrier for viral dispersal.

[Disease control through fertility control: Secondary benefits of animal birth control in Indian street dogs](#). 240 sexually intact street dogs were surveyed. Dogs in cities with an ABC programs had with significantly higher overall body condition scores, lower prevalence of open wounds likely caused by fighting, and some (but not all) parasite infestations and diseases.

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...Research Papers continued from page 8.

Economics of rabies control

[Cost-effectiveness of rabies post exposure prophylaxis in Iran](#). The cost-effectiveness ratio for PEP was estimated to be 233.43 USD/DALY, with PEP being a cost-effective intervention from the government's perspective. In 2011 4,509.82 DALYs were prevented in southern Iran by the PEP program.

[Cost-effectiveness of canine vaccination to prevent human rabies in rural Tanzania](#). For two districts of rural Tanzania: Ngorongoro and Serengeti, canine vaccination coverage of 0-95% was modelled and costed. Annual canine vaccination campaigns were very cost-effective in both districts compared with no canine vaccination.

[Costs analysis of a population level rabies control programme in Tamil Nadu, India](#). The study determined costs to the state government of implementing different interventions for controlling rabies among the entire human and animal populations of Tamil Nadu. Rabies control in Tamil Nadu seems a costly and policy makers in similar settings should consider the long-term financial sustainability before embarking upon a state or nation-wide rabies control programme.

[Economic evaluation of vampire bat \(*Desmodus rotundus*\) rabies prevention in Mexico](#). Livestock vaccination was found to be efficient in mitigating the impacts of vampire bat rabies, with benefits being over six times higher than costs. However, bat control is inefficient because benefits are very unlikely to exceed costs

PEP

[Intradermal vaccination for rabies prophylaxis: conceptualization, evolution, present status and future](#). ID vaccination is safe and immunogenic. New short duration regimens to reduce costs and increase patient compliance, and non-invasive devices for ID vaccine delivery are being evaluated. Given the success of ID rabies vaccination in Asia, its implementation in Africa should be encouraged.

[Assessing safety and immunogenicity of post-exposure prophylaxis following interchangeability of rabies vaccines in humans](#). Follow-up of 90 patients showed that rabies PEP was safe and immunogenic despite changes in the route of administration and brand/type of rabies vaccine.

Advocacy

[Fighting rabies in Eastern Europe, the Middle East and Central Asia - experts call for a regional initiative for rabies elimination](#). MEEREB members reviewed the current rabies situation, both globally and in their respective countries, and called for a regional initiative for rabies elimination in Eastern Europe and the Middle East.

Awareness

[Rabies menace and control - An insight into knowledge, attitude and practices](#). All study participants in an urban slum area of India had knowledge of rabies transmission by dog bite, but only 40% were aware that the disease was fatal. 55.5% of participants were aware about the role of vaccine in preventing rabies.

[Cross sectional survey of human-bat interaction in Australia: public health implications](#). Bat exposures most frequently occurred with sick or injured bats, which have the highest risk of ABLV. Potentially high risk practices were commonly reported amongst those encountering sick bats, despite public health warnings.

Upcoming Conferences

The second International Conference on Animal Health Surveillance (ICAHS2) will be held in La Havana, Cuba, May 7-9, 2014. The theme is "Surveillance Against the Odds". See their website www.animalhealthsurveillance.org

The 25th Rabies In the America (RITA) conference is due to be held in Mexico in October, further details will be posted when available.

The 5th International Meeting on Emerging Diseases and Surveillance (IMED 2014) is scheduled for October 31 - November 3, 2014 in Vienna, Austria, organized by ISID and ProMED. See <http://imed.isid.org>

The editor of the Alliance newsletter is Louise Taylor. If you have news items or information of interest to those working to defeat rabies, please contact her at louise.taylor@rabiesalliance.org. For further information on the Alliance's work see www.rabiesalliance.org