



RABID BYTES

The newsletter of The Global Alliance for Rabies Control

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EDITORIAL



On July 1st 2014, Dr Deborah Briggs stepped down after 7 years as Executive Director of GARC, but will remain an integral part of the GARC board. Professor Louis Nel of the University of Pretoria, South Africa, is GARC's new Executive Director, and here he shares his vision for the organization going forward:

Since its inception in 2007, GARC has proven its relevance through innovative contributions towards the ultimate vision of a world free of dog rabies. GARC strived to fulfill a niche role, complementary to the roles and mandates of other players in the global human and animal health communities. I believe that this effort has been much appreciated, and contributed to stronger bonds and resolve among the key players in the global rabies community. This includes the tripartite of intergovernmental agencies (FAO, OIE and WHO) and associated rabies collaborating centres and rabies reference laboratories, as well as

the pharmaceutical industry, academic institutions and a wide network of animal welfare organizations.

GARC is not about individuals, but it would be remiss of me not to highlight the crucial founding role that Dr. Debbie Briggs played in the success of GARC. Her vision, dedication, persuasive optimism and unfailing belief in the objectives and potential impact of GARC were crucial to its success. Her legacy will remain an integral gauge to the path and the values of the organization in the years ahead.

It is worth emphasizing that rabies is a neglected disease. Despite basic solutions for the disease (methodology, biologics) being known and available, there has been a lack of progress in dog rabies control in vast areas of the world and those responsible have failed to respond appropriately. I would argue that the largest hurdle to the elimination of dog and human rabies lies in lack of political priority and will. Stepping into the role of Executive Director of GARC, it is now my job to ensure that we maintain and enhance the strategic role of GARC towards a rabies-free world. To do so, I believe that we need to recognize and focus on our specific areas of strength, namely the creation of universal awareness of the neglect of rabies and the potential for elimination of the disease through effective advocacy and communication mechanisms, and supporting professional networks of the highest calibre.

It is no coincidence that the universally celebrated annual World Rabies Day (WRD) has been such a phenomenal success. The concept of WRD was much needed and allows parties on all levels, from individuals to global intergovernmental bodies, an opportunity to focus on rabies advocacy and communication initiatives. It will be our challenge to continue to grow and invigorate WRD and its global impact.

The establishment of the Partners for Rabies Prevention (PRP) was also an important early step in the growth of GARC. Such unifying structure was needed, as is shown by the harmonious productivity of the group. From this body of global rabies authorities, the first rabies blueprint was created during 2009-2010, to help local authorities to create and implement effective rabies control initiatives. We need to revise these blueprints as dynamic tools that recognize and address the realities of the challenges and requirements of effective rabies interventions at ground level.

On the educational level, I am excited about new GARC instruments such as the Rabies Educator Certificate (REC). This online training course is in its final stages of testing and is certain to become a powerful educational, and advocacy tool. My experience has been that there is overwhelming interest in this concept. Advanced levels of the REC and supporting educational and training initiatives are planned for the future.

GARC has recognized that demonstration or pilot programmes are essential as catalysts for national and global approaches to improved dog rabies control and human rabies prevention. In this regard, global partnering to address the neglect of dog rabies in the developing world has resulted in several projects with the core objective of demonstrating human rabies prevention through dog rabies control and eventual elimination. Additionally, data from such demonstration programmes can answer questions about the health economics of rabies in terms of the cost of disease and the cost of control. This is critical to making the case for rabies control to policy makers and donors, and deserving of our every effort.

I reiterate that the largest hurdle to the elimination of dog and human rabies lies in a lack of political priority and failure to adequately address dog rabies as a classical zoonosis. However, many of us have sensed a gradual change in this attitude over the past few years as we continue to unite as a global rabies community in our resolve to make the conjoint case for dog rabies elimination and human rabies prevention. I find this trend hugely encouraging and look forward to continued progress in the fight against rabies.

Louis Nel, Executive Director of GARC.

NEWS FROM GARC AND WRD

Thankyou Debbie

Over the last seven years, Debbie Briggs has been synonymous with GARC for many in the rabies field. Her leadership has enabled a small organization to have international influence.

With a background in both human and animal rabies prevention and diagnosis, she had been a principal investigator on clinical trials, served on the WHO Expert Committee for rabies, and run a large rabies diagnostic laboratory, amongst other positions. Approaching retirement in 2006, she decided to make this experience benefit those who needed it most.



Realizing the hopelessness that the most afflicted communities face without help to prevent rabies, Debbie reached out to the world's other leading rabies experts to join her and use their knowledge and experience to help change the situation. Starting with the premise that communities can help themselves if given the right information and tools, GARC has transformed the field of rabies prevention by raising awareness of this neglected disease and developing tools for communities to take ownership of and improve their own rabies prevention programs.

GARC's novel initiatives developed under Debbie's leadership showed enormous vision: the Partners for Rabies Prevention group; the World Rabies Day campaign; the pilot projects in Philippines and now Indonesia, and the Rabies Blueprint, and, above all, building a rabies community and giving it a voice. These projects were built by uniting everyone with a role to play in rabies control – from individuals in their village to international health organizations. Her passion and ability to engage players at all of these different levels have been critical to GARC's success.

Her work with GARC has been recognized by a Louis Pasteur Oratory Award and a Lifetime Achievement Award from the Association for the Prevention and Control of Rabies in India. She was made a Purpose Prize Fellow in 2012, and in 2013 she led GARC to win at the UK Charity Awards in the category of Healthcare and Medical Research.

However, those working most directly with Debbie know that she is not one to sit admiring her trophies on a shelf. We learned from her in depth rabies knowledge and her experience in the field, but also found out how much the personal stories motivated her – of village women in India empowered to help their communities, of the tragedy of losing a child to rabies. Whilst she is quoting GARC's successes in statistics, she is thinking of each individual person in those numbers, empowered to save their life or that of others through access to information about rabies. For many, many people in the rabies field, Debbie has been a valuable colleague, a strong advocate for rabies control and above all a friend.

As her coworkers in GARC, we thank Debbie for her immense commitment to GARC over the last seven years, we allow her a little time off for relaxation and to pursue her other interests and talents, but we also look forward to continuing to work with her as she remains an integral part of GARC, serving on the board of directors.

Thankyou Debbie.

Can you help?

We're looking for volunteers from all over the world to help with our campaign for World Rabies Day 2014.

All you need is a computer, an internet connection and some spare time. - And the urge to make a positive difference.

Your efforts together with others from around the globe will make this the biggest World Rabies Day yet.

If you'd like to find out more, please email Liz today.



September 28 is World Rabies Day!

Preventing rabies and saving lives is a constant job but every September 28 we in the rabies community reach out to each other and the world in general for World Rabies Day.

As I write this, September 28 is 80 days away - and counting - so it's time to tell you some of what we have planned. The theme this year is #TogetherAgainstRabies. Grammar pedants may be horrified that there are no spaces between the words, but if you're familiar with social networks, you'll recognise that the theme doubles up as a hashtag.

Why use a hashtag? One of our jobs as an organisation is to amplify your call for rabies prevention. Social media is an ideal way to do this. Even if you don't use these networks, the chances are you will know people who do and by using #TogetherAgainstRabies as it's written here you reinforce its social media presence, helping the rabies prevention message reach more people, to vaccinate more dogs and save more lives.

The theme #TogetherAgainstRabies reflects the One Health principle that the health and wellbeing of people and animals are interdependent. Vaccinating animals against the virus protects people too and, in some cases, safeguards livelihoods. This year, World Rabies Day is about that mutual benefit. #TogetherAgainstRabies we're all healthier - it's a win-win situation.

In the background, we've been busy updating our organizer packs, including more advice on how to organise an event and mobilize the media. For those of you working with the authorities to prevent rabies, we're creating guidelines to help you with your efforts - we'll be sending out an update when these are ready, along with other exciting ways to reach more people.

And finally, World Rabies Day is all about individuals, like you, who are prepared to play their part to stop the suffering rabies causes. We already have events registered - please get involved too.

There is a list of ideas on our website [here](#) but these are only a guide. As long as your event has the aim of preventing rabies it will qualify as a World Rabies Day event.

Registering your event has the very important effect of adding momentum to World Rabies Day and inspiring others. Your event, whatever you choose to do, however big or small it is, really does matter. Please register your event [here](#) and it will show as a pin on our map [here](#).

Here we go 2014 – let's make this the best World Rabies Day yet!

If you have questions or comments about World Rabies Day, please do get in touch with Liz [here](#).

GARC and OIE formally collaborate

In May 2014, GARC signed an agreement with the World Animal Health Organisation (OIE) with a view to encouraging collaboration between the two organizations on issues of common interest.

This formalizes an ongoing working relationship between GARC and OIE, particularly on global human canine-mediated rabies elimination and the development of regional rabies control and elimination strategies, including dog vaccination campaigns and demographic control of dog populations.

"Most human deaths from rabies are caused by bites from infected dogs. The only way to break the cycle of transmission of rabies between dogs and humans is to vaccinate dogs and control stray dog populations. At least 70% of dogs should be vaccinated; this would achieve close to zero deaths from rabies for people in contact with dogs," said Bernard Vallat, Director General of the OIE.

The two organizations will promote national rabies surveillance systems, including transparency/notification, and rabies control or elimination strategies in line with OIE standards and the "Blueprint for Rabies Prevention and Control" and advocate for more involvement of national and local authorities in rabies control, in particular by veterinary services. As part of the agreement, communication strategies on World Rabies Day will be coordinated.

Executive director of GARC, Louis Nel reiterated the value of the agreement, "The formal collaboration builds upon our excellent ongoing working relationship with the OIE. We are looking forwards to further strengthening and deepening our relationship with the OIE and veterinary services across the world."



Moving Forward with the GARC-CARE Project in Nias Island, Indonesia

With a common goal to expand rabies-free areas and address the growing threat of rabies in the country, the national government leaders of Indonesia together with the Global Alliance for Rabies Control (GARC) formally launched the Rabies Mass Vaccination Campaign in Gunungsitoli, Nias Island, North Sumatra, Indonesia last 16 June 2014.



And elementary school children took part in a drawing competition with the theme “Love and Keep our Dogs Well and be a Responsible Owner”.

“The successful implementation of mass rabies vaccination will save the community from rabies and is expected to become the base activity in order to achieve a rabies-free Nias Island”, said Dr. Pudjiatmoko, of DGLAHS Director for Animal Health, highlighting the project’s significance in the community.

He also encouraged the vaccinators, local leaders, and the different sectors to actively participate in implementing the program.

Meanwhile, GARC Country Representative, Dr. Luningning Villa spoke of the importance of collaborating with the various stakeholders for a successful island-wide dog vaccination campaign, “GARC is closely coordinating with the national and provincial government and we envision that with the cadres of volunteers, we will be able to vaccinate at least 70% of the dogs in the island”.

Dr. Villa added that implementing the project in Nias will be a huge undertaking but a rabies-free Nias Island can be achieved with the full support of the community.

Prior to the launch, 193 volunteer vaccinators attended a series of training sessions across the island. The volunteers, who come from different backgrounds (e.g. farmers, extension workers, animal health workers, pastors), learnt about rabies and the concepts of herd immunity as well as the application of ‘cold chain’.

They were also given basic training on vaccination, dog handling, and dog catching. The target is to vaccinate at least 70% of the total dog population in an area within a month.

In addition to being part of the vaccination team, volunteers are also expected to conduct post vaccination survey, IEC (Information, Education, and Communication) campaigns in communities and schools, and implement rapid response actions on dog bite cases.

The team has already started the IEC campaigns in elementary schools. At least 4,629 students from 41 schools in three districts (West Nias, Nias, and Gunungsitoli) took part in the IEC lectures conducted from June 12 to 21, 2014 which covered topics on signs and symptoms of rabies in animals, responsible pet ownership, and animal bite management, among others.

Nias Island is the largest of the islands in the western coast of Sumatra, Indonesia with a population of more than 750,000 and an estimated dog population of 50,000. It was previously a ‘rabies-free’ island until a reported outbreak in February 2010 which claimed 26 lives by the end of 2010. In September 2013, a Memorandum of Agreement between GARC and the national government was officially signed signifying GARC’s commitment to support the Rabies Prevention and Eradication Program of Nias.

Along with the GARC Team, around 350 people participated in the launching. Key leaders of the Directorate for Animal Health, Directorate General of Livestock and Animal Health Services (DGLAHS), Mayor of Gunungsitoli City, representatives from the Provincial Livestock and Animal Health Services Offices of North Sumatra Province and from the Health Office of Indonesia and North Sumatra Province attended the activity. Community leaders from each district in Nias Island including the Heads of Police, among others also graced the event.

During the launch volunteer vaccinators from the five districts collected vaccination kits and the Ministry of Health provided them with pre-exposure vaccines for their own protection.

The Office Internationale des Epizooties (OIE) provided 50,000 doses of rabies vaccines for animals.



Global Rabies Elimination – Making the Case

Forty-two participants from 15 different countries traveled to Wolfsberg, Switzerland for the seventh annual Partners for Rabies Prevention (PRP) meeting, held April 1-3, 2014. The PRP is an informal group convened by GARC that includes all major international stakeholders involved in rabies prevention and control, including representatives from WHO, FAO, OIE, PAHO, the WHO/OIE rabies collaborating centers, regional rabies networks, rabies endemic countries, non-governmental organizations, manufacturers of rabies biologics, research scientists and major donors.

This meeting, entitled “Global Rabies Elimination – Making the Case” reviewed compelling evidence to support a global effort towards canine rabies elimination and discussed how the international rabies community can support countries in their efforts towards canine rabies elimination.

Recent health economic analyses demonstrate the huge economic burden of rabies on endemic countries, and there is clear evidence that investment in mass dog vaccination campaigns reduces both deaths in humans and the impact on livelihoods such as livestock losses. Canine rabies elimination can realize future economic benefits of reduced social burden, lower post exposure prophylaxis (PEP) expenditure, and lost income associated with rabies exposures. The group discussed innovative funding mechanisms and how they could be adapted for rabies to engage more donors, and acknowledged the critical role of vaccine banks in supporting countries’ control efforts. Led by the tripartite group (FAO/OIE/WHO) and GARC, the participants contributed to a draft Investment Case, aimed at drawing in future resources and donors to support global canine rabies elimination.

Given that appropriate tools to control and eliminate canine rabies have existed for several decades, the lack of progress towards this goal is unfortunate and paradoxical. The most significant challenges that countries face in implementing rabies control were identified as: ineffective national surveillance systems, inadequate logistic support for mass dog vaccination programs, a lack of clear national plans and strategies for rabies control, low awareness about and access to effective human PEP, a lack of appropriate information regarding rabies control for all the relevant audiences, low political will at the national level and a lack of one health capacity in general.

A number of ways that the international community can help to support countries were identified. Clear messaging and advocacy on the importance of mass dog vaccination campaigns and intersectoral collaboration will help these to be achieved. The promotion and replication of best practices that have been proven effective will demonstrate the feasibility of rabies control in different settings across the world. Education and training workshops with an emphasis on a one health approach and strong intersectoral collaboration will promote an integrated approach to disease management. Access to appropriate tools will enable countries to make best use of all available information and guidance, assess the impact of financial investment in rabies control for their specific situation and advocate for it, and to self-assess their progress towards rabies elimination. Several specific tools will be refined or developed by the GARC and the PRP over the coming months. The value of the PRP’s free online Blueprint for Canine Rabies Control was re-established, and a comprehensive review and expansion of the blueprint is now underway. There was recognition that a move towards health policy aspects of rabies control requires the engagement of new partners, and rabies needs to be promoted within the wider field of disease management and public health.

There is consensus on how canine rabies can be eliminated and global momentum towards this objective is growing. The work of this PRP meeting will help strengthen the case for future investments by countries, international donors, and new partners. The tripartite group is committed to moving rabies up the international health agenda, and every member of the global rabies community has a role to play. The PRP participants invite all stakeholders in rabies control to unite their efforts and act now to promote the global elimination of canine rabies as a feasible objective, necessary for the global public good.

Summarised by Louise Taylor, GARC’s PRP coordinator. The full minutes of the meeting will shortly be available on [GARC’s PRP Webpage](#).



What the Provincial Veterinarians say

The Philippines has set itself the target of eliminating rabies by 2020. GARC has been working alongside the government and other agencies to support this goal of a sustainably rabies-free Philippines. Our partners include the Provincial Veterinary Offices.

Dr. Loida Valenzuela became Provincial Veterinarian for Ilocos Norte in 1996. And since then she has been actively implementing their anti-rabies campaign: A woman on a mission: to protect the people and animals of her province from rabies. Over the years she's faced challenges including limited vaccine resources but Doc. Loida, as she is affectionately known, hasn't allowed this to deter her. Instead, as a positive and persuasive communicator, she actively spreads the anti-rabies message to everyone she meets - from the officials in government to people gathered in the streets of the barangays (villages) of Ilocos Norte.

Gradually, more rabies advocates have emerged and municipalities are allotting some resources for dog vaccines.

"Converting people into anti-rabies advocates is a very rewarding part of my job," says Doc. Loida. "There's a big increase in the number of people having their animals vaccinated as they understand more about the disease."

"There are still human mortalities from rabies every year. We want to eliminate that completely."

[Watch this clip](#) of Dr. Loida at work in Ilocos Norte, Philippines

The mountains of Sorsogon present particular challenges to rabies prevention efforts. Reaching isolated communities to vaccinate dogs is challenging enough but, on top of that, insurgency in the area means that teams are sometimes warned away by rebel groups or even caught in their crossfire.

"We take it as just part of our job" says Provincial Veterinarian, Doctor Enrique Espiritu, or Doc Iking as he is known locally. "And while it is sometimes a challenge for us, it is also fulfilling to deliver services to these areas."

And he's doing a great job. At the end of December 2013, 64% of all the dogs in the area had been vaccinated against rabies and that number that is rising all the time. Herd immunity begins at 70%.

"We cannot work alone in rabies prevention. To get results we need different sectors working together. We have to reach out" says Doc Iking.

GARC's support meant Doc Iking's 12-man team could train and mobilize 1,251 volunteer dog vaccinators from village health workers, agricultural and fishery workers and members of the local youth council. This massive increase in manpower makes vaccinating the dogs of Sorsogon's isolated communities much more realistic.

Meanwhile, Marikina City, on the island of Luzon in the Philippines a highly urbanized area has achieved one of the lowest rabies infection rates in the country. Marikeños are renowned as disciplined people and Dr. Manuel Carlos is no exception.

"The challenge for [us] now lies in protecting our borders from surrounding areas that may have unvaccinated dogs. We're working with GARC to raise awareness of the disease and to share best practice with neighboring areas."

"Marikina has achieved its success because of strong political will. The anti-rabies law served as our backbone and guide for the program."

"The capability to prevent the suffering rabies causes is there but for long-term prevention takes more than dog vaccination. Everyone has to a part to play. Policy makes society's responsibilities clear and provides structure for things like dog and cat vaccination, rabies education in schools, and procedures to help keep disease at bay in times of disaster and calamity."

"My best advice to others who want to strengthen their rabies program is to enforce the law. If your local government has not yet adopted the anti-rabies law, then you need to lobby your policy makers."

GARC is working with policy makers around the world to help them understand the benefits of and the steps to reduce rabies. You can read more about our work [here](#).



Progress towards Rabies Being a Notifiable Disease in the State of Karnataka, India
 - An APCRI /GARC initiative

An announcement at the 16th National Conference of Association of Prevention and Control of Rabies in India (APCRICON 2014) held on 5-6 July in Mysore demonstrated for the first time a political willingness to make rabies a notifiable disease in India.

Prior to inaugurating the Annual Conference of APCRI, the State Health and Family Welfare Minister U.T. Khader had a meeting with Dr.S.Abdul Rahman, President of APCRI and Country Head GARC, India, Dr. Mahendra, Chairman Organising Committee of APCRICON 2014, and Dr.Pushpa Sarkar, Director of Mandya Institute of Medical Sciences, wherein the importance of making Rabies a notifiable disease was stressed by Dr.Abdul Rahman.

During his inaugural address, the Minister made a commitment by saying “Rabies, like the malaria and polio diseases, must be made a notified disease by the Central Government in order to adopt preventive measures against rabies, which is highly infectious and severe, affecting domestic animals, wildlife conservation, public health and livestock economies”

A notified (or notifiable) disease is any disease that is required by law to be reported to government authorities. If rabies is declared as a notified disease, then it attracts various provisions of the notified disease regulation act which enlists various responsibilities on the part of the individual doctors, health workers and the community medicine people, specific authorities can be held responsible for an outbreak, and there will be more awareness about it. Surveillance data can be collected and analysed, resulting in a more accurate evaluation of the rabies burden in an area. This can then inform decisions on rabies control efforts that can save human lives.



Health Minister U.T. Khader is seen inaugurating APCRICON 2014. From left: Dr. Abdul Rahman, Dr. Pushpa Sarkar, Minister U.T. Khader, Dr. B.J. Mahendra, Dr. M.K. Sudarshan (Founder President of APCRI) and Dr. M. Vinay (Organising Secretary).
 Photo: Star of Mysore

The minister said he intends to declare rabies as a “notified disease” in Karnataka State (in the South of India) and urge the union government to follow suit across India.

He also called for prevention rather than cure and more awareness in schools on the risks of rabies. “Most of the people, especially the children’s exposure to dog bites happen in the areas where they have no awareness about the severity of the dog bites and their fatality” he said, adding that awareness among the parents and people to protect their children from unwarranted dog bites will play a great role in reducing the incidents of rabies in the country.

“In case of the occurrence of such diseases, we blame the animals. But we humans are to be blamed because we need to keep our environment clean and healthy” he pointed out and highlighted that citizens, animal lovers and NGOs need to take a pro-active role in rabies control instead of holding government responsible for everything. Minister Khader said that India can be rabies free if all join hands and work together. “It is a preventable disease. Conferences like this should come out with suggestions and recommendations on eradicating rabies,” he stated.

GARC previously initiated a project on rabies being a notifiable disease in India by writing to all members of the Indian Parliament .Though there was a sympathetic response, the then Union Minister of Health had replied that rabies was a reportable disease (which does not have legal enforcement). Efforts were on at every rabies forum to pursue the goal and this is the first time that a commitment has been given by a Health Minister of any state in India.

APCRI and GARC India will follow this up with the Government of Karnataka through Minister Khader and if it is made notifiable in Karnataka then it will be easy to cite the example and make it notifiable in other states as well as get a central directive.

Contributed by Dr S. Abdul Rahman, President of APCRI and Country Head GARC, India, partly based on media report in the [Star of Mysore](#) and the [Times of India](#) newspapers.

NEWS FROM THE COMMUNITY

Investigating the Origins and Control of Rabies Outbreaks in Indonesia

Canine rabies has had a varied and somewhat unpredictable presence in Indonesia. The remote eastern province of Maluku was historically free of rabies until 2003 when the first outbreak occurred in the provincial capital of Ambon Island. Despite government efforts (dog vaccination, some culling and public education) rabies is now considered endemic in Ambon. Nevertheless, further outbreaks between 2010 and 2012 in more isolated south-western Maluku were unanticipated and concerning. As an anthropologist with expertise in the Maluku region I visited rabies-affected locations in the province in 2013 to investigate dog-keeping and dog-movement as context for understanding recent outbreaks of the disease.



Map of Indonesia, showing the islands of Maluku Province (coloured green) The arrow points to Ambon Island. Source: Wikipedia

Information obtained through community-based interviews with current and former dog-owners suggested that the main movement of dogs in Maluku is into Ambon. This is driven by comparatively high demand and high prices for the animals, linked to the consumption of dog-meat. Dog-meat is not a critical component of local diets, but consuming dog-meat (alongside pork) forms a key symbol of Christian identity. In Ambon, dog-meat has developed a particularly strong association with specific religious celebrations, especially baptism and confirmation.

That association has boosted demand in a period when dog-numbers are reportedly decreasing. One significant cause is a decline in hunting, which forms a major traditional rationale for keeping multiple dogs. In Ambon, dog numbers have been further reduced by local culling in response to the 2003 rabies outbreak and by continuing reluctance to keep dogs due to concerns about financial liability and social tensions in the event of accidental dog-bites. Bite victims routinely seek post-exposure rabies vaccinations, even when the offending dog has itself been vaccinated. Strong social norms hold the animal's owner responsible for the expense, which is costly in local terms. As a result of such factors, dog prices in Ambon have reached an all-time high.

Another noted trend is that the proportion of dogs being kept solely as pets is on the increase, particularly among educated, salaried professionals – a fashion that appears to be spreading to more remote areas. The number of professionals in Maluku has been bolstered by national support for regional autonomy, leading to new administrative centres emerging in previously remote corners of Maluku. The new centres are keen to develop port facilities to link local populations with regular shipping routes (the main form of inter-island transportation) carrying goods and passengers. So Maluku is experiencing growing mobility and growing numbers of dogs as pets not used for consumption. Together, these dynamics increase the potential for dogs to move in unpredictable directions. Small dogs and puppies in particular are carried surreptitiously on major passenger ships that prohibit livestock. Two of the three recent rabies outbreaks in previously unaffected island groups in south-western Maluku (Tanimbar and Babar) have been linked to pet dogs carried on regular passenger ships from rabies-affected areas (respectively, from Ambon and from post-outbreak Tanimbar).



A passenger ship docks at a wharf in southwest Maluku. Photo: Phillip Winn

Unfortunately, enforcing official restrictions on the movement of dogs through remote local harbours in Maluku faces a range of difficulties that likely render such measures unfeasible in practical terms. Dog vaccination programs also face practical impediments. Increasing community awareness of rabies among Maluku communities will be critical for future disease prevention both in affected and currently rabies-free localities.

There are opportunities to achieve this. I encountered many ordinary Malukans who demonstrated knowledge of the signs of a rabies-affected dog and wound-cleansing measures for dog-bites, often as a result of government education efforts. As yet, basic understandings of disease transmission and progression appear far less developed, even within affected communities, feeding myth and misunderstanding. But dog-owners in Maluku express ready interest in accurate information. And while owners of hunting dogs and animals intended for consumption sometimes raised concerns about rumoured impacts of rabies vaccine, owners of pet dogs appeared generally receptive to the idea.

Contributed by Dr Phillip Winn, ANU College of Asia & the Pacific, The Australian National University. (phillip.winn@anu.edu.au or pwinn.anthropology@gmail.com). Formal publications on this work are being prepared.

The Lancet Broadens Rabies Awareness with In-depth Report

A comprehensive review article detailing new advances in rabies research was recently published online in the prestigious medical journal, *The Lancet*, significantly boosting the profile of rabies research and on-going efforts to eliminate this deadly zoonotic disease. The review article titled “Current status of rabies and prospects for elimination” by Anthony Fooks et al. summarizes and updates much of the available information on rabies – from treatment options to advances in new diagnostic devices – and draws attention to two primary directions for focusing disease elimination efforts: Firstly, the authors call for a re-invigorated campaign to increase dog vaccinations and humane dog population management in rabies-endemic areas as the first priority to prevent further outbreaks, especially in countries with under-resourced public health infrastructures. And secondly, citing the high prevalence of pediatric cases in countries where rabies is highly endemic, the authors call for the development of a rabies vaccine that could be included as part of the routine vaccination schedule for young children. Additionally, the authors highlight misunderstandings caused by social and cultural taboos and the consequent under-reporting of rabies cases as probable reasons for a decline funding and policy attention on this incurable disease over recent years.

The review article, summarises 131 articles into an informative, timely review, providing a refresher course on the most-recent findings and bases a majority of the text on citations from the past decade. The article will likely serve as a resource for the rabies research community over the next few years because of its comprehensive summary of recent developments in rabies research and recommendations for further elimination efforts. The article is currently only available through paid subscription; however, it would be ideal if the journal expanded publication to the open-access format of *The Lancet's* Global Health Series, allowing research centers in developing countries easier access to the material.

The authors do call for further research, especially in immunology, distilling the next essential research and policy steps for the rabies community and pointing out underdeveloped topics that need further attention. For example, Fooks, et al. continue to call for a deeper exploration of the molecular mechanisms involved in disease pathogenesis, noting that it is not well-understood how the rabies virus avoids immune detection in the periphery. In addition, the authors seek the development of a single-dose vaccine to ease the adoption of rabies vaccination in high risk areas into current pediatric schedules more cost-effectively, and note that further immunological research evaluating memory and recall responses must be completed to extend long-term antibody reactivity for more effective vaccine lifetimes. The authors also mention new approaches in rabies biologics development, such as the development of recombinant DNA vaccines and of new, more cost-effective biologicals to potentially replace human rabies immunoglobulin during post-exposure prophylaxis. Because confirmation of infection is based primarily on post-mortem tests, further work on straightforward diagnostics that can confirm the presence of the rabies virus during early stages of the disease progression would provide more flexibility for treatment options and disease surveillance.

Whilst many of these research areas could simplify and expand rabies control options, it is important to remember that the tools for preventing human rabies deaths and eliminating canine rabies already exist. However, publication of this information in a prominent journal will draw new attention to rabies research efforts, and policy-makers may be able to capitalize on the high profile of this review article to attract more support for the One Health vision to rabies management. The article finishes by pointing out that the canine rabies elimination is a strategy supported by the WHO, OIE and FAO, and appropriate tools are being developed to help guide and support governments through the necessary processes to achieve this for all those at risk of rabies.

Contributed by Laura Baker, a technical writer who volunteers for GARC. The Lancet article can be accessed [here](#)

Little Doctors Teach their Peers about Rabies

Bangladesh has started to implement the concept of ‘Little Doctors’ for child to child (cTc) health education, with over 1.5 million Little Doctors now reaching more than 25 million students in over 100,000 primary schools. Little Doctors are students ages 8 to 10 who undertake health education and other health related activities including health check ups and administration of drugs against intestinal worms. Starting in 2011 on a limited scale, it is now gradually being scaled up to cover the whole country, and recently information on rabies control and prevention has been included in the program. It is a multisectoral initiative lead by Communicable Disease Control (CDC) with Primary Education, Health Education Bureau, Social Welfare Department, FHI 360 (Family Health International), USAID, Save the Children, BRAC (a Bangladeshi NGO) and other partners.

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Concept of Little Doctors:

Children can play important role in child to child education on hygiene, healthy life style, the prevention of diseases and promotion of health. Through the “Little Doctors” other students will learn about health related matters and in the process of delivering education the “Little Doctors” themselves will strengthen their understanding and practice on those. If even small portion of 25 million children or the Little Doctors adopt a healthy lifestyle and practice it throughout their lives, that will have huge positive impact in future health of the nation.



Prof Be-Nazir Ahmed (back right in the cap) with a group of little doctors

Formation and Functioning of ‘Little Doctor’:

Following guidelines, three students are selected as a Team of Little Doctors in January of each year for each section or class. The teams hold a health education session for the assigned class twice a month with educational material (Flipchart, Festoon & Leaflet), covering personal hygiene, sanitation, nutrition, rabies and dengue. Other activities include Health Check –Ups and administration of drugs for de-worming. The trained teacher and Assistant Health Inspector (AHI) supervise and monitor the activity and guide them necessarily.

During de-worming week, the little doctors provide information regarding worm infestation and the prevention of infestation and coordinate, document and administer drugs during de-worming week. They report accounts of drug administration and any side-effects to the teacher, and they also motivate absentees and out of school children to take the de-worming drug. From January 2014, Little Doctors have started to perform twice yearly Health Check Ups of their fellow students, including recording height, weight and examining eye sight.

The information on Rabies tells the students what to do following a dog bite, including wash the wound with soap and water for 15 minutes and seek vaccination against rabies which is available at the district hospital.

The ‘Little Doctor’ program will create a huge number (> 16,50,000) little doctors each year, and build a leadership mentality and help to sustain the knowledge longer in their lives. It will promote the practice of de-worming in childrens’ lives as well as among their family members, and engage in other health related as well as other social activities, such as rabies prevention.

The concept of ‘Little Doctors’ is great fun for the student and they like it. The stake holders have been demonstrating great interest and the concept now has a great footing here in Bangladesh. If it can be implemented successfully it promises to have a positive health impact of the huge number of health compromised children of the country.

Contributed by Prof. Be-Nazir Ahmed, Public health and Emerging Infectious Specialist and Director, Disease Control, Bangladesh

Recent Research Highlights

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

Epidemiology and control:

[The changing landscape of rabies epidemiology and control.](#) Recent understanding of rabies epidemiology helps to counteract misperceptions that hamper rabies control in Africa. Elimination of canine rabies in Africa is feasible, even in wildlife-rich areas, through mass vaccination of domestic dogs and without the need for indiscriminate culling.

[Rabies and rabies virus in wildlife in mainland China, 1990-2013.](#) Wildlife associated rabies has increased in recent years in China. Phylogenetic analysis showed that RABVs in the bat, Chinese ferret badger, and raccoon dog were distinct from local dog-originated RABVs, and suggest that wildlife reservoirs have been maintained through the ages.

[Eliminating rabies in Tanzania? Local understandings and responses to mass dog vaccination in Kilombero and Ulanga districts.](#) Community based interviews and surveys analysed the reasons for and problems affecting compliance in dog vaccination programmes. Top-down interventions need to more explicitly engage with project organisation, capacity and community participation.

[Canine Rabies in Australia: A Review of Preparedness and Research Needs.](#) The imminent risk of rabies breaching Australian borders makes understanding domestic and wild dog population dynamics important. Disease spread models to guide cost-effective surveillance, preventive strategy development and disease management protocols are urgently needed.

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[Knowledge, attitudes, and practices regarding rabies in Filipinos following implementation of the Bohol Rabies Prevention and Elimination Programme](#). The majority of households had heard of rabies (94%), however, only 18% knew to report a suspected rabid dog to the authorities. Having known someone with rabies had the greatest effect on knowledge scores (associated with higher practices scores) and employment had the greatest effect on attitudes scores.

[Rabies in Europe: what are the risks?](#) Rabies remains a serious endemic disease in animal populations in many European countries. The recurrence of rabies in some countries and importation of infected pets highlights the fragility of rabies-free country status and the need for continuous surveillance, but elimination of rabies in Europe is achievable.

[One health: past successes and future challenges in three African contexts](#). Three case studies (one on rabies) examine the international One Health dialogue and its practical implementation in Africa. There is no 'one size fits all' approach to achieving the intersectoral collaboration, significant resource mobilisation and political co-operation required to realise a One Health approach and individual country requirements cannot be underestimated, dismissed or prescribed in a top down manner.

Bat Rabies:

[Vampire bat rabies: ecology, epidemiology and control](#). This review considers why the vampire bat is such an efficient vector for rabies, the current status of vampire-transmitted rabies and the future prospects for spread by this virus and its control.

[Vampire bats and rabies: toward an ecological solution to a public health problem](#). New and creative approaches are needed to address the problem of vampire bat-transmitted rabies in Amazonia. A focus on ecological interventions and novel vaccine delivery methods may provide breakthroughs.

[Economic evaluation of vampire bat \(*Desmodus rotundus*\) rabies prevention in Mexico](#). Vampire bat rabies causes significant impacts within its endemic range in Mexico. We found that livestock vaccination is efficient, with benefits being over six times higher than costs. However, bat control is not cost effective

PEP:

[Feasibility of sustainable provision of intradermal post exposure prophylaxis against rabies at primary care level -evidence from rural Haryana](#). This study demonstrated a cost-effective and sustainable model of provision of PEP against rabies at the primary care level. Intradermal provision address the unmet need of animal bite management in the community and reduces out of pocket patient expenses.

Dog ecology:

[Participatory methods for the assessment of the ownership status of free-roaming dogs in Bali, Indonesia, for disease control and animal welfare](#). Participatory Rural Appraisal was implemented to obtain consensus on the food sources of free-roaming dogs. Results concluded that free-roaming dog populations were sustained only because of direct human support.

Advocacy:

[Neglected Zoonotic Diseases-The Long and Winding Road to Advocacy](#). The resolutions from all 66 World Health Assembly meetings were examined for a specific focus on eight NZDs. The 2013 adoption of Resolution WHA66.12 targeting all 17 NTDs marks a change in approach by the WHA, which will increase momentum to control NTDs. However, major NZDs remain outside this recent resolution.

Immunology:

[A rapid one-step immunochromatographic test strip for rabies detection using canine serum samples](#). This test strip for detecting rabies antibody in canine serum can be read by eye and showed high specificity and sensitivity. It allows safe and quick detection for surveillance of the immunization status of potential targets in rabies-endemic regions.

Upcoming Conferences

WSAVA 2014, the 39th World Small Animal Veterinary Association Congress, will be held in Cape Town, South Africa on 16-19 September 2014. See their [website](#) for more details.

The 25th Rabies In the America (RITA) conference is due to be held in Mexico in October, and the website is now ready at www.cc-eventos.com.mx/rita/2014/

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 and typesetting is by Pete Else. If you have news items or information about rabies please contact Louise at louise.taylor@rabiesalliance.org. For further information on the Alliance's work see www.rabiesalliance.org.