

Special article

World Rabies Day outreach to Asia: empowering people through education

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In its first two years of implementation, (2007 and 2008), the World Rabies Day initiative has proven to be an extremely effective focal point around which to increase global educational awareness about how to prevent rabies. World Rabies Day has been endorsed by a multinational group of global stakeholders including international health organizations, national governments, educational institutions, NGOs and industry, as well as those individuals living at daily risk of exposure. In 2007, 75% of all reported participants in World Rabies Day activities came from Asian countries. In 2008, 22 Asian countries participated in World Rabies Day activities and the number of animals reported to be vaccinated in association with World Rabies Day reached nearly 617,000 in Asia alone. Personal accounts from individual event coordinators demonstrated the dimensions of the growing campaign throughout Asia. The manuscript will provide a review of outreach conducted to the continent of Asia for the first two World Rabies Day initiatives.

Keywords: Awareness, communication, education, rabies prevention, World Rabies Day.

The threat of rabies is global. The disease knows no boundaries and increasing educational awareness on all levels of society about how to prevent rabies is one of the first strategies we need to put into action if we are to win the war against this dreadful disease. It is a tragic reality that most human rabies deaths occur because the exposed person did not receive the correct World Health Organization (WHO) recommended protocol for rabies prevention in a timely manner. Prompt wound washing, administration of rabies immune globulin and rabies vaccine are clearly the cornerstones of preventing human rabies once an exposure has taken place, and yet all too

often the people living at most risk of exposure do not understand the need to perform these activities to save their own life, or the life of one of their family members, after a bite occurs [1].

Rabies has one of the highest case fatality rate of any disease currently known to man and yet it is virtually 100% preventable using the rabies vaccines and biologicals currently available [1, 2]. WHO estimates that more than 3.3 billion people located in more than 100 countries across the world live at daily risk of exposure to this deadly disease [3]. Over 99% of all human infections occur as a result of bite wounds inflicted by rabid dogs, and more than 10 million people receive post-exposure prophylaxis (PEP) every year due to the fact that they were exposed to a potentially rabid animal [3]. Even though the prompt washing of infected wounds and utilization of modern rabies biological will prevent mortality, over 55,000 people (the majority of whom are children) still succumb to rabies every year. These victims could have been

The annual day of action for rabies prevention takes place on September 28th 2009. There are so many different ways you can take part, so please give your support and help make rabies history. www.worldrabiesday.org

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saved through the appropriate use of PEP as recommended by WHO [1, 3].

Finally, even though canine rabies (which is present in almost every country in Africa and Asia) is the main cause of almost all human rabies deaths, this disease could be eliminated in the dog population through effective vaccination programs [4, 5]. An excellent example of how canine vaccination programs can work comes from the experiences in Latin America where the implementation of such programs has reduced the incidence of human rabies. There are also successful ongoing canine vaccination projects in India that have resulted in a reduction of human rabies cases [6]. Competing public health and funding priorities are barriers for replicating the same level of success on a global scale in countries with different cultural norms and expectation levels [4, 7]. In African and Asian countries, for example, where canine rabies remains highly endemic, many people continue to be unaware of the most effective methods of preventing human rabies infection and subsequent death (through timely vaccination of dogs, by avoiding high risk activities that result in animal bites and by seeking prompt PEP when a bite does occur). Animal bites are all too often not reported, and too many people are unaware of the 'best practices' for post exposure prophylaxis that can and do save lives.

In 2007, the World Rabies Day initiative was launched with the initial goal of enlisting the participation of 55,000 people around the world, the same number of people estimated to die from rabies each year, to take action around one day as a means to increase rabies awareness [5,8,9]. This paper will describe educational outreach initiatives by Alliance for Rabies Control and its various partners in the continent of Asia.

Materials and methods

Numerous international partners have teamed up with the Alliance for Rabies Control towards providing comprehensive outreach and education in Asia. The partners include the World Health Organization (WHO) and their regional and country offices, World Organization for Animal Health (Office International des Epizooties (OIE)), US Centers for Disease Control and Prevention, the World Society for the Protection of Animals, the Commonwealth Veterinary Association, Ministries of Health, and numerous other professional organizations throughout the world. A

World Rabies Day logo was developed that could be easily translated into different languages for clear recognition and could be freely downloaded by partners and individuals wishing to organize events around this global initiative. Outreach efforts have been captured through the various partner organizations. Information reported back to the Alliance for Rabies Control and World Rabies Day initiative has been captured through an on-line feedback form and informal communication with the World Rabies Day team for evaluation purposes. A country was counted as taking part in World Rabies Day if it met one of the following criteria: 1) held one or more World Rabies Day events, 2) had press or media coverage in association with World Rabies Day, or 3) is home to a major World Rabies Day partner organization. Web usage data was tracked utilizing Google Analytics.

Results

Evaluation metrics

World Rabies Day throughout the continent of Asia was observed through a multitude of activities including the organization of educational conferences, seminars, vaccination clinics, runs and walks, parades, and educational initiatives for children. In 2007, approximately 312,232 people in 20 Asian countries took action on World Rabies Day by planning and conducting educational activities (Bahrain, Kingdom of), Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Iran, Israel, Jordan, Laos, Nepal, Pakistan, Philippines, Russia, Sri Lanka, Syria, Thailand, Turkey, and Vietnam). This represented 75% of the overall global total. Over 40 events were reported to the World Rabies Day website and it is estimated that nearly 450,000 people living at risk were educated through these activities and over 17,000 animals were vaccinated in association with World Rabies Day efforts. In 2008, 22 Asian countries participated in World Rabies Day reporting 38 events to the World Rabies Day website (Bahrain, Bangladesh, China, Cyprus, India, Indonesia, Iran, Japan, Jordan, Kenya, Korea, Laos, Nepal, Pakistan, Philippines, Russia, Saudi Arabia, Sri Lanka, Syria, Taiwan, Thailand, and Vietnam). The number of animals vaccinated in association with World Rabies Day greatly increased to nearly 617,000 animals. Additionally, descriptions of events through personal accounts from individual event coordinators demonstrated the expansion of the campaign throughout Asia.

Individual accounts

Participation in World Rabies Day activities included agencies such as local/state/national governments, non-governmental organizations and private industry, and local community activists. They helped to consolidate partnerships at all levels. There are numerous “local heroes” who made World Rabies Day efforts a success in their country. For the purpose of this manuscript, we have chosen to highlight three efforts from each year (see **Table 1**).

China. In 2007, several smaller individual World Rabies Day events were held across China, which expanded into national efforts in 2008. From August 2008 to October 2008, the Chinese Preventive Medicine Association and Chinese Center for Disease Control and Prevention jointly launched a national contest on rabies related knowledge throughout 23

provinces in China. This national effort was a tremendous success and greatly increased the presence of World Rabies Day messages and activities throughout the country.

India. In 2007, Garg SR from the Department of Veterinary Public Health collaborated with the Commonwealth Veterinary Association for a weeklong awareness and educational initiative that educated 100,000 people. This activity was repeated in 2008 to educate an additional 100,000 people.

Sri Lanka. From September 3-8, 2007, Harischandra PAL from Ministry of Healthcare and Nutrition, collaborated with animal welfare organizations and the WHO Colombo Office to involve 300,000 people throughout Sri Lanka in observance of World Rabies Day.

Table 1. Examples of “Local Heroes” who have taken action towards rabies prevention and control efforts in their country.

Year	Country	Organization	Individual	Description of activity
2007	India	Department of Veterinary Public Health, College of Veterinary Sciences, C.C.S. Haryana Agricultural University	Garg SR	Partnered with the Commonwealth Veterinary Association for a weeklong awareness and educational initiative that educated 100,000 people. (Repeated in 2008.)
	Sri Lanka	Ministry of Healthcare and Nutrition	Harischandra PAL	Partnered with animal welfare organizations and the WHO Colombo Office on September 3-8, 2007 to involve 300,000 people throughout Sri Lanka in observance of World Rabies Day.
	Philippines	Office of the City Veterinarian, Zamboanga City	Arriola MD	Partnered with the Departments of Agriculture, Health, Education, Interior and Local Government Offices to celebrate World Rabies Day and vaccinate 5,000 dogs.
2008	China	Chinese Preventive Medicine Association and Chinese Center for Disease Control and Prevention	Numerous Individuals	From August '08-October '08 the Chinese Preventive Medicine Association and Chinese Center for Disease Control and Prevention together launched a national contest on rabies related knowledge throughout 23 provinces in China.
	Taiwan	National Taiwan University	FeiCY	Held a national contest and mass vaccination clinic resulting in the vaccination of 539,667 dogs in recent two years; the initiative will run for four years total (2007-2010). Taiwan is now initiating a national competition on rabies vaccination rates and promoting awareness among local governments in Taiwan.
	Nepal	National Zoonoses and Food Hygiene Research Centre	Joshi DD	Coordinated events with numerous agencies throughout Nepal over a week long World Rabies Day celebration and formed the Alliance for Rabies Control Nepal Group (ARCNG) to lead future World Rabies Day activities in Nepal.

Taiwan. In 2008, Fei CY from National Taiwan University held a national contest and mass vaccination clinic resulting in the vaccination of 539,677 dogs; the initiative will run for four years total (2007-2010). Taiwan is now initiating a national competition on rabies vaccination rates and promoting awareness among local governments.

Philippines. There are numerous ongoing creative outreach activities in the Philippines towards rabies prevention and control. In 2007, over 400 pet owners joined the event in Naga City. Activities included a poster contest participated in by elementary and high school students, a fun dog walk with 60 canine participants, dog vaccinations, grooming and neutering/spaying. Two hundred twenty dogs were vaccinated, 98 dewormed, 79 were groomed, and 15 spayed/neutered (see **Fig. 1**) Also in 2007, Dr. Mario Arriola, Office of the City Veterinarian, Zamboanga City, collaborated with the Departments of Agriculture, Health, Education, Interior, and Local Government Offices to celebrate World Rabies Day and vaccinate 5,000 dogs.

Nepal. In 2007 and 2008, Joshi DD from National Zoonoses and Food Hygiene Research Centre, coordinated World Rabies Day events within Nepal.

In 2008, these events spanned into a week long celebration and resulted in the formation of the Alliance for Rabies Control Nepal Group (ARCNG) to lead future World Rabies Day activities.

The Website

Since the World Rabies Day website (www.worldrabiesday.org) was launched in April 2007. There have been 20,267 visits from five different Asian sub continent regions (**Fig. 2**). Southern Asia, an area enzootic for canine rabies, represents the majority of the visits to the website (36%). The number of visitors to the website and the increasing number of activities associated with World Rabies Day indicates that there is growing support to provide educational awareness to those living at risk of contracting the disease.

The World Rabies Day logo has been translated into over 30 languages, 11 languages specifically for Asian countries including: Chinese, Hindi, Khmer, Korean, Japanese, Marathai, Sinhala, Tamil, Thai, Urdu, and Vietnamese (**Fig. 3**). The logo continues to be translated into additional languages as requested, in an effort to encourage rabies prevention messages and activities globally.



Fig. 1 World Rabies Day event in Naga City, Philippines (Photo credit: Dr Rona P. Bernales).



Fig. 2 Map of Asian continent. This continent sent 20,267 visits via 5 sub-continent region.



Fig. 3 Example of World Rabies Day logos for Asia.

Discussion

Asia continues to report the highest incidence of human rabies fatalities, the greatest majority of which occur as a result of bites inflicted by rabid dogs [5]. Unfortunately, most Asian countries do not have active national canine vaccination programs capable of reaching at least 70% of the dog population, the coverage recommended by WHO to eventually halt the circulation of the rabies virus in the primary vector species. Additionally, when a dog bite does occur, the

choice of having the dog tested for the presence of rabies virus in lieu of beginning PEP is all too often not an option because rabies diagnostic laboratory facilities are unavailable. In most regions throughout Asia, the dog population continues to increase unchecked and the incidence of dog bites is high enough to warrant serious concern, especially in children who do not fully comprehend safe and proper behavior around dogs to avoid being bitten [10, 11].

Implementing regional canine rabies vaccination programs, along with finding a feasible solution to reduce the dog population is the definitive solution to eliminating the burden of human rabies throughout Asia. However, solving these two problems will require a major financial commitment from governments. Until this occurs, rabies will continue to pose a threat to humans throughout Asia, particularly to the lives of children.

One immediate and realistic solution to this dilemma is to engage and encourage local communities to take an active role in increasing the educational awareness about how to avoid dog bites, and what to do in case a bite does occur [11]. The individual stories associated with the World Rabies Day initiative are too numerous to mention. They all speak of local champions who made a personal decision to get involved in the process of educating their local communities and ultimately improving the lives of those living in their own neighborhoods and countries. The difference a single person can make can be illustrated by the examples highlighted within this paper. Educational awareness aimed at behavior change strategies can have an immediate impact on the incidence of human rabies throughout Asia. World Rabies Day is providing a platform by which to increase local, national, and regional interest in supporting the implementation of dog vaccination programs, educating children in public schools about responsible pet ownership, and providing outreach to rural areas where most deaths occur.

Conclusions

The success of World Rabies Day speaks for itself. The multitude of events and activities that have been conducted in recognition of World Rabies Day during the last two years have clearly provided a means by which to distribute reliable life-saving information to millions of people who are now aware of how to protect themselves against rabies. Furthermore, governments and policy makers are beginning to listen. In 2009, World Rabies Day is predicted to be bigger than ever, and we invite everyone to take advantage of this unique opportunity to get involved, spread the message about how to prevent rabies, and perhaps ultimately be responsible for saving someone's life from one of the most deadly diseases known to humankind.

Author contributions

Peter Costa: Coordinated World Rabies Day outreach to Asia and globally, conducted data analysis for the paper, provided individual accounts, and edited text.

Deborah J Briggs: Executive Director and educator for Alliance for Rabies Control wrote major portion of the paper and edited text.

Abbigail Tumpey: Wrote campaign plan for World Rabies Day, wrote text for paper, conducted data analysis, formatted and edited.

Robert Dedmon: conceived the paper for Asian readers, conducted some of the education programs in the USA, and edited the final version of the paper prior to submission.

Jane Coutts: Serves as strategic coordinator for Alliance for Rabies Control's global outreach, wrote and edited text of paper.

References

1. WHO Expert Consultation on rabies. World Health Organ Tech Rep Ser. 2005; 931:1-88.
2. Wilde, H, Khawplod P, Khamoltham T, Hemachudha T, Tepsumethanon V, Lumerdacha B, et al. Rabies control in South and Southeast Asia. *Vaccine*. 2005; 23:2284-9.
3. Rabies vaccines WHO Position Paper. *Weekly epidemiological record*. 2007; 82:425-36.
4. Schneider MC, Belotto A, Ade MP, Hendrickx S, Leanes LF, Rodrigues MJ, et al. Current status of human rabies transmitted by dogs in Latin America. *Cad Sa de Publica* (online). 2007;23(9):2049-2063. http://www.scielo.org/scielo.php?script=sci_arttext&pid=S0102-311X2007000900013&lng=en&nrm=iso
5. Knobel, DL, Cleaveland S, Coleman PG, Fèvre EM, Meltzer MI, Miranda ME, et al. Re-evaluating the burden of rabies in Africa and Asia. *Bull World Health Organ*. 2005; 83:360-8.
6. Reece JF. Rabies in India: an ABC approach to combating the disease in street dogs. *Vet Rec*. 2007; 161:292-3.
7. Rupprecht CE, Barrett J, Briggs D, Cliquet F, Fooks AR, Lumlerdacha B, et al. Can rabies be eradicated? *Dev Biol*. 2008; 131:95-121.
8. Dedmon R. World Rabies Day (September 28, 2008) - The second official global initiative to increase awareness, improve preventative efforts, and reduce mortality from this uniformly fatal disease. *Asian Biomed*. 2008; 2:1-3.

9. Dodet B, Goswami A, Gunasekera A, de Guzman F, Jamali S, Montalban C, et al. Rabies awareness in eight Asian countries. *Vaccine*. 2008; 26:6344-8.
10. Sudarshan MK, Mahendra BJ, Madhusudana SN, Ashwoath Narayana DH, Rahman A, Rao NS, et al. An epidemiological study of animal bites in India: results of a WHO sponsored national multi-centric rabies survey. *J Commun Dis*. 2006; 38:32-9.
11. Hampson K, Dobson A, Kaare M, Dushoff J, Magoto M, Sindoya E, et al. Rabies exposures, post-exposure prophylaxis and deaths in a region of endemic canine rabies. *PLoS Negl Trop Dis*. 2008; 2:e339.