



Lessons learnt from a One Health response to rabies control in Bali, Indonesia

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BACKGROUND / INTRODUCTION

Rabies is endemic in several parts of Indonesia, with 24 of the country's 33 provinces reporting rabies. Bali had until recently been rabies free until the disease was first confirmed in humans on 23 November 2008 and in a dog on 28 November 2008. The first cases of rabies in Bali were diagnosed in humans suggesting that the disease had initially gone undetected in the animal population. The virus subsequently spread rapidly throughout the island; by June 2010 all 9 districts of Bali Province were infected. This posed a threat to the people living in Bali and the tourists that flock to the island every year. Bali attracts about 40% of the total tourism income for Indonesia so that a rabies epidemic has greater potential to dramatically affect local and national income. Following two years of implementing a mixed strategy of vaccination and dog culling, the government transitioned to a strategy based on mass dog vaccination in late 2010. Two mass vaccination campaigns have been completed and a third campaign is nearing completion. The first campaign was completed with external donor funding and implemented by a local NGO. The Government of Indonesia then assumed implementation responsibility for the second and subsequent campaigns. The Government of Indonesia and FAO have worked together to mobilise resources and develop a comprehensive programme of support for rabies control in Bali and Indonesia.

As Bali had been rabies free, there was a general low level of awareness and knowledge on management and control of the disease, posing a challenge to local government animal and public health services. There was an urgent need to raise public awareness and rapidly detect the disease hence a large scale education campaign had to be launched as well as implementing a surveillance and rapid response mechanism so that control measures could be put in place once disease was detected.

OBJECTIVES AND OUTPUTS

The objectives of the Bali rabies control programme were to control rabies using a One Health approach targeting control in dogs and case management in humans through collaborative, cross-sectoral and multidisciplinary mechanisms progressing towards eventual elimination of the disease. National and provincial animal health services, with technical support from FAO, worked closely together to develop a revised strategic plan, better manage national and international partners involved with rabies control in Bali, and facilitate control programme components on vaccination, surveillance, diagnosis, rapid response, community awareness and mobilization, training, monitoring and evaluation, and resource mobilization. A practical One Health approach was used to implement integrated bite case management at the sub-district and district level by Participatory Disease Surveillance and Response (PDSR) animal health staff and public health District Surveillance Officers (DSO) resulting in more sensitive surveillance, more effective case tracing and disease control management. The outputs of the rabies control programme were:

1. An effective programme coordination and facilitation mechanism with Government agencies and other national and international partner organizations.
2. Increased capacity of animal health staff to better manage and implement rabies control.
3. Heightened community awareness on how to recognise and respond to the threat of rabies.
4. Improved surveillance, response and control mechanisms through appropriate data collection and sound epidemiological analysis.
5. Improved case management through cross-sectoral rapid response and integrated bite case management.
6. Improved mass dog rabies vaccination campaigns achieving 70% coverage of the dog population.
7. A revised national rabies control and eradication strategy.

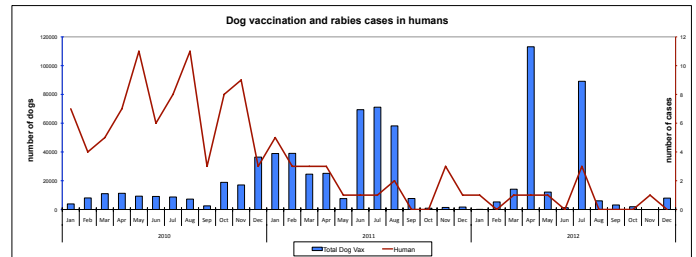
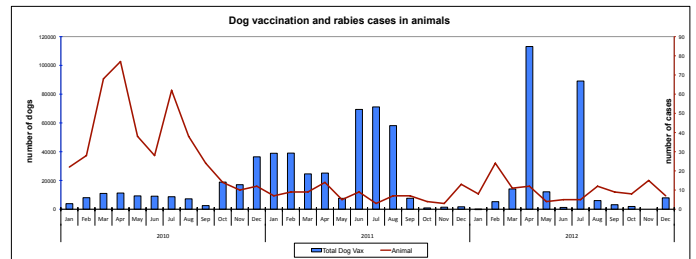
METHODOLOGY

A One Health approach to rabies control entails addressing viral circulation in dogs as the primary means of bringing the disease under control and reducing human cases. In order to achieve control of rabies in humans, the rabies control strategy on which the Bali programme is based focuses on vaccinating dogs, verifying coverage, and maintaining coverage between campaigns. Dogs are vaccinated using single dose long-lasting vaccine, with an emphasis on outside dogs and puppies. All dogs except growing puppies are marked with a long-lasting collar. Campaign coverage at the sub-village or village level is then verified with a post-vaccination survey shortly after completion of vaccination by counting outside dogs with and without collars. If coverage is below 70%, additional vaccination is performed. Following completion of each island-wide campaign, the rate of decrease in vaccination coverage can be slowed by reducing population turnover via 1) sterilization and garbage management to reduce birth rate; 2) providing better care and support to vaccinated dogs to prolong their lives; and 3) avoiding culling of vaccinated dogs. Vaccination coverage can also be supplemented between campaigns by ongoing vaccination of outside dogs and puppies by specially trained vaccination teams and vaccination of all dogs, including puppies, under the care of private veterinarians.

In addition to the dog vaccination programme, an integrated bite case management (IBCM) system was developed between human and veterinary health counterparts to improve both the sensitivity of animal surveillance and the clinical management of human bite cases. IBCM builds on the veterinary Participatory Disease Surveillance and Response (PDSR) and the human health District Surveillance Officer (DSO) programmes which were developed for avian influenza control. To initiate the IBCM programme, a joint MOA-MOH coordination meeting was held to develop and agree on the general concept and work plan. The protocol was then developed for communication between the human health centre where the human bite case presents and the veterinary rapid response team in the same district, with SMS messaging used to expedite and simplify communication. A joint 2-day training of animal and human health staff was then conducted using participatory training techniques to help build trust between animal and human health colleagues. Following training, mentoring visits were conducted by government Master Trainers to observe programme implementation and provide immediate feedback and technical support.

Through IBCM, all human bite cases presenting at a human health facility are immediately reported to the veterinary counterpart in order to conduct an investigation of the biting animal. If the animal shows signs of rabies, it is euthanized and sent to the laboratory for FAT testing. Healthy dogs are observed for 10 days to confirm that they were not infected with rabies at the time of the bite. If the biting animal is deemed healthy and free of rabies, the referring human health facility will cease post-exposure vaccination of the bitten human.

RESULTS / MAJOR FINDINGS



CONCLUSIONS / LESSON LEARNT / POLICY RECOMMENDATIONS

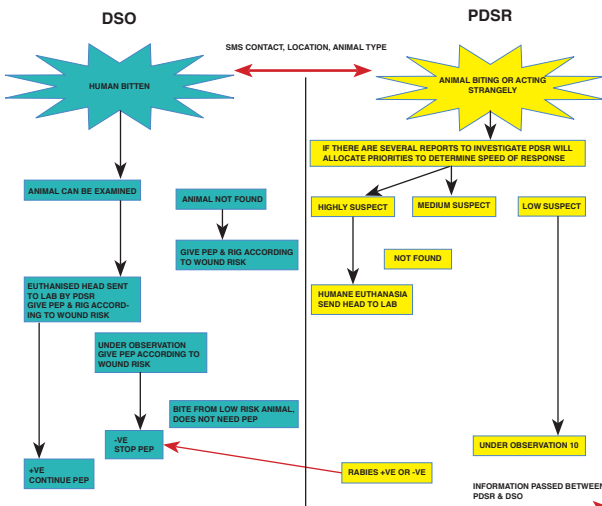
- Significant reductions in both human (72%) and dog rabies cases (77%) were seen in 2011 compared to 2010; with the increase in surveillance sensitivity from December 2011 until the present, the number of positive dog cases increased and have remained steady in 2012. Since initiating mass dog vaccination, human cases have decreased by 90%.
- More sensitive animal rabies surveillance and reporting resulted from implementation of the joint cross-sectoral IBCM system due to more effective and timely exchange of information between the two sectors; following IBCM training, submission of rabies-suspect samples increased four-fold.
- More effective rabies case tracing and human case management resulting in a reduction in the use of unnecessary post-exposure vaccine for humans who were bitten by healthy animals.
- One Health approaches bring significant benefits to disease control programmes once both sectors coordinate during strategy planning, joint training modules are developed and applied, and local level support is forthcoming for the initiative.
- Once the two sectors come together, the focus on the common goals can override sectoral concerns and synergy develops between the sectors.
- The Indonesian Ministry of Health and Ministry of Agriculture should capitalize on the successes of the rabies control programme and IBCM system in order to explore opportunities to implement similar One Health initiatives for other zoonotic diseases.



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