

RABIES

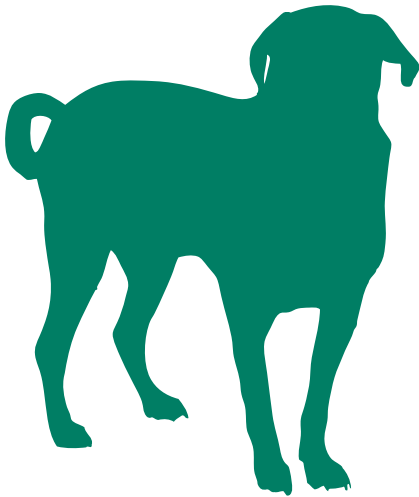


RATIONALE FOR INVESTING IN THE GLOBAL ELIMINATION OF DOG-MEDIATED HUMAN RABIES

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**FREEDOM
FROM DOG-MEDIATED
HUMAN RABIES IS A
GLOBAL PUBLIC
GOOD.**



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Why investment is needed: key rationale

FREEDOM FROM DOG-MEDIATED HUMAN RABIES IS A GLOBAL PUBLIC GOOD.

Rationale 1: Rabies is a major public health problem that disproportionately burdens poor rural communities

Dog-mediated rabies kills tens of thousands of people every year, many of whom are children (WHO, 2012). The vast majority (99%) of human deaths occur in Africa and Asia where dog rabies is poorly controlled and disproportionately affects poor rural communities where access to appropriate post-exposure prophylaxis (PEP) is limited or non-existent (Knobel DL et al., 2005; WHO, 2013a; Hampson K et al., 2015; Sambo M et al., 2013).

Rationale 2: Rabies is preventable yet continues to kill

Human rabies is a 100% vaccine-preventable disease yet continues to kill. While deaths can be averted by PEP, this intervention alone will never eliminate the disease and costs will only escalate over time (Kasempimolporn S, Jitapunkul S, Sitprija V, 2008; Zinsstag J et al., 2009).

Rationale 3: Dog-mediated human rabies can be eliminated by vaccinating dogs

Rabies is preventable at its source by vaccinating dogs. Elimination of human rabies deaths is achievable by eliminating rabies in dogs through mass dog vaccination campaigns, supported by improved access to PEP (WHO, 2013a). The decline in human rabies deaths closely mirrors the decline in dog rabies cases, and has been shown throughout Latin America and in rabies elimination demonstration projects in Africa and Asia.

Rationale 4: Rabies elimination is feasible

Global elimination of dog-mediated rabies is feasible. Throughout the world, most domestic dogs are accessible for mass vaccination campaigns (Lembo et al., 2010; Davlin S, VonVille H, 2012). Practical guidance is available online and adaptable for different contexts through a stepwise approach framework (FAO, 2012) and training packages (Lembo et al., 2012; GARC, 2015a; GARC, 2015b). While human health services need to take a key role in avoiding rabies deaths, the role of veterinary services is critical in eliminating canine rabies at its source. Control of rabies is an effective showcase for 'One Health'¹ in action requiring effective collaboration between the human and animal health sectors (WHO, 2015a; Lankester F et al., 2014; Bank W, 2012).

¹ Addressing health risks at the interface of humans, animals and the environment that they share through cross-sectoral and multidisciplinary collaboration.

Rationale 1: Rabies is a major public health problem that disproportionately burdens poor rural communities

FOR THE FIRST TIME EVER, COMPREHENSIVE ESTIMATES ARE AVAILABLE ON THE GLOBAL BURDEN AND FINANCIAL COSTS OF RABIES. COSTS TO THE BITE VICTIM ASSOCIATED WITH POST-EXPOSURE TREATMENT ARE VERY HIGH, OFTEN EQUIVALENT TO SEVERAL MONTHS OF LIVING EXPENSES.

Dog-mediated human rabies disproportionately affects poor rural communities, and particularly children (WHO, 2012; Knobel DL et al., 2005; WHO, 2013a; Hampson K et al., 2015). Most human rabies deaths occur in poor rural communities of Asia and Africa where canine rabies remains uncontrolled, and access to life-saving post-exposure prophylaxis (PEP) is limited or non-existent (Hampson K et al.,

2015). Even where PEP is available, animal bite victims from low socioeconomic groups in rural areas commonly experience delays in seeking and receiving PEP at health facilities, which can result in fatal outcomes (Sambo M et al., 2013; Hampson K et al., 2008).

Costs due to livestock losses. Livestock deaths to canine rabies are still poorly quantified but are likely an important loss to impoverished livestock-dependent communities, particularly in Africa (Hampson K et al., 2015).

Rabies PEP imposes a heavy economic burden on bite victims and on the already stretched public health budgets of national governments. The global costs of PEP for prevention of canine-mediated rabies are high, with US\$ 1.7 billion spent annually on direct PEP costs and a further US\$ 1.4 billion incurred through indirect patient costs (travel and lost income) (Hampson K et al., 2015). Costs to the bite victim for receiving a full course of PEP can be substantial, often equivalent to several months of living expenses (Knobel DL et al., 2005). PEP use is highest in Asia, with 27 million courses of PEP administered each year at an annual cost of US\$ 1.3 billion (Hampson K et al., 2015).

Rationale 2: Rabies is preventable yet continues to kill

INVESTMENT IN ELIMINATING RABIES AT ITS SOURCE IS THE MOST COST-EFFECTIVE AND EQUITABLE APPROACH TO HUMAN RABIES PREVENTION.

The toll of rabies is high. The World Health Organization (WHO) estimates 35 000 annual rabies deaths globally for 2000–2012 (WHO, 2015b) and a recent estimate amounts to 59 000 annual deaths (Hampson K et al., 2015). The Global Burden of Disease Study estimated that rabies killed 23 500 humans in 2013 (Naghavi M et al., 2015).

Human rabies prevention should not rely only on PEP. While PEP is effective at preventing human rabies deaths, the approach is costly and can only protect individuals who have prompt access to health facilities with appropriate PEP provision. Even with

Vaccination of dogs against rabies is highly effective in preventing human rabies deaths. (Zinsstag J et al., 2009; Fitzpatrick MC et al., 2014). Vaccination of dogs reduces human exposure to rabies. In countries where canine rabies is endemic, the number of human rabies deaths closely mirrors the number of dog rabies cases. Dog rabies cases decline directly in line with increasing levels of dog vaccination coverage (WHO/Bill & Melinda Gates Foundation, 2014a; Vigilato M et al., 2013).

Costs and cost-effectiveness of dog vaccination. While costs vary across different settings and with different delivery models, the potential economic benefits of dog vaccination are far-reaching (Shwiff S, Hampson K, Anderson A, 2013). For example, in Latin America, significant declines in dog-mediated human rabies have resulted from investing 20% of the total costs of prevention into mass dog vaccination at a cost of US\$ 0.11 per person (Hampson K et al., 2015). In Asia, PEP costs are high. Little is invested in dog vaccination and the incidence of human rabies deaths is much higher than in Latin America (Hamp-

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