

## **SOUTH AFRICA**

### **I.) BACKGROUND INFORMATION**

South Africa is estimated to have a total population of 50 133 000, with about 62 percent living in urban areas. In 2011, South Africa was ranked 123rd on the Human Development Index<sup>i</sup>, with a gross national income per capita of 10,360 USD (2009)<sup>ii</sup>. Despite being considered a medium income country, South Africa's income inequality is the second worst in the world.<sup>i</sup>

In South Africa, 4 genotypes of the lyssavirus, which cause rabies, are endemic. The most common is Genotype 1 (Rabies virus, RABV). Others are Genotype 2 (Lagos bat virus, LBV), Genotype 3 (Mokola virus, MOKV) and Genotype 4 (Duvenhage virus, DUVV)<sup>ii</sup>. Human infections are mostly due to RABV, though DUVV has been associated with at least two human rabies cases in South Africa<sup>iii</sup>.

Rabies is a notifiable disease in South Africa, according to Regulation 328 of the Health Act from 1977. Incidents of human exposure to infection, frank cases and deaths from rabies are notified by the physician to the provincial Department of Health. A detailed history of the exposure, information to the inflicting animal (where possible), type of bite, PreEP treatment, presentation of the case and treatment is recorded. All case data are electronically stored in a national database. Throughout the country specimens collected for the diagnosis of rabies in humans are sent to the National Institute for Virology in Johannesburg. Though, in theory a reporting system is in place, rabies cases are most likely underreported, especially when they occur in rural areas, where dog rabies control and elimination has proven difficult.<sup>iv v</sup>

### **II.) HUMAN RABIES EPIDEMIOLOGY**

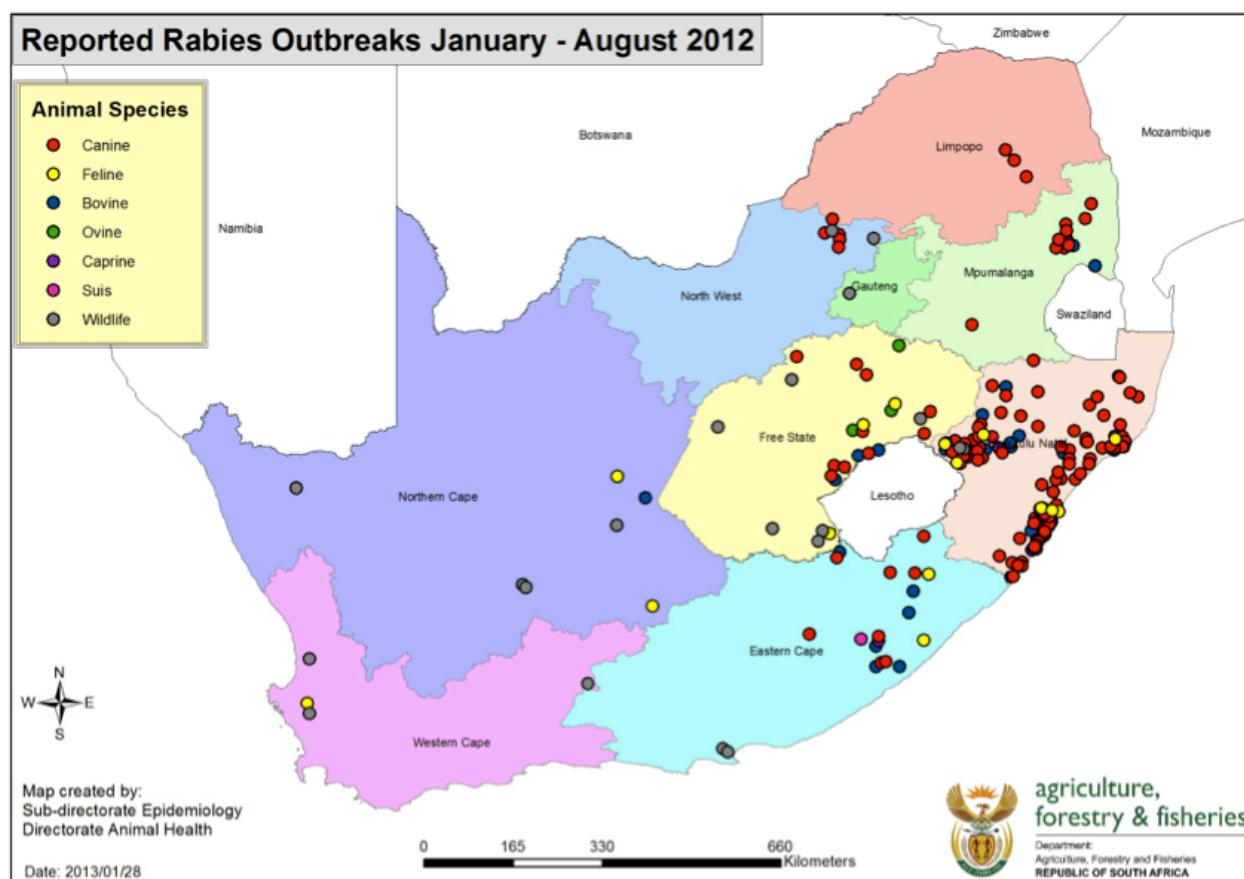
Human rabies cases are annually laboratory confirmed in South Africa. In the past years, the majority of confirmed human rabies cases have occurred in the provinces of KwaZulu-Natal, Eastern Cape, and Limpopo, mainly amongst children under the age of 10, and to 92 percent due to rabid dog bites. Consequently, people, especially children, living in those provinces, where dog rabies is wide spread, are most at risk of contracting the disease. This accounts for about half of the total population of South Africa.<sup>vi</sup>

In 2012 there were 12 laboratory confirmed human rabies cases, which is double that reported the previous year (6 cases). 3 of the 12 cases were reported in KwaZulu-Natal, which celebrated 2011 as the first year without reported human rabies case in over 20 years. Additionally to the 12 cases, 2 cases were reported that were confirmed on clinical grounds only.<sup>vii</sup>

### **III.) RABIES VECTORS <sup>viii</sup>**

At least 600 to 700 cases of rabies are diagnosed in domestic and wild animals in South Africa annually. Mostly dogs, but also cattle and the yellow mongoose account for approximately 85 percent of all confirmed cases. Additionally, the black backed jackal and the bat eared fox are vectors of the disease.

In 2012 a total of 834 cases of animal rabies were laboratory confirmed, of which 508 were dogs, 212 other domestic animals and 114 wildlife. This is a steep increase from what has been reported in 2011, with a total of 503 cases, 331 dogs, 105 other domestic animals and 67 in wildlife. Figure 1 maps the animal cases reported during January to August 2012. The map reflects the occurrence of animal rabies in South Africa in the past years, mostly located in the east of the country.



**Figure 1:** Reported animal rabies outbreaks, January - August 2012<sup>ix</sup>

There is no reliable data available on the number of people bitten by dogs every year. However, a survey conducted by Hergert and Nel (2013)<sup>x</sup> in 1992 households in KwaZulu-Natal found that nearly 13 percent of households had a member bitten by a dog within the year prior to the survey.

With a dog population of 9 million and about 2 million cats, the annual vaccination coverage is reported to never exceed 1.5 million pets. However, estimates indicate that at least 2.5 million dogs should be vaccinated annually.

#### IV.) RABIES BIOLOGICS AVAILABILITY

Human anti-rabies immunoglobulin (RIG) is prepared and sold by the National Bioproducts Institute in Pinetown, KwaZulu-Natal. The human rabies vaccine in use is currently supplied on tender by the pharmaceutical company Rhône Poulenc Rorer. Human rabies vaccines are supposed to be available throughout the country<sup>xi</sup>, however a nationwide telephonic survey in 2002 showed that less than half of those sites that responded had both RIG and vaccines available<sup>xii</sup>.

## V.) OTHER

The current dog rabies epidemic that is persisting in parts of South Africa since 1987 is believed to have originated from dog endemic regions in southern Mozambique.<sup>xiii</sup>

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<sup>i</sup> UNDP (2013). Human Development Index data. <http://hdstats.undp.org/en/tables/> [accessed 1.6.2013]

<sup>ii</sup> Gummow B, YAA Roefs and G de Klerk (2010). Rabies in South Africa between 1993 and 2005 – what has been achieved? *Journal of the South African Veterinary Association*; 81(1):16–21.

<sup>iii</sup> Rupprecht CE, J Barret, D Briggs, F Cliquet, AR Fooks, B Lumlertdacha, FX Meslin, T Muller, L Nel, C Schneider, N Tordo and A Wandeler (2008). Can rabies be eradicated? *Emerg Infect Dis*; 13(1):25-7.

<sup>iv</sup> Department of Health (1997). *Guidelines for the medical management of rabies in South Africa*. [http://www.nbi-kzn.org.za/download/rabies\\_guide.pdf](http://www.nbi-kzn.org.za/download/rabies_guide.pdf) ]

<sup>v</sup> Bishop GC, DN Durrheim, PE Kloock, JD Godlonton, J Bingham, R Speare and the Rabies Advisory Group 2000 (2000). *Rabies: Guide for the medical, veterinary and allied professions. 2nd edition*. Pretoria: Department of Agriculture, Forestry & Fisheries; Republic of South Africa.

<sup>vi</sup> Lancet Laboratories (2012). *Rabies Update. September 2012*. [http://www.intercare.co.za/downloads/Rabies\\_virus\\_facts.pdf](http://www.intercare.co.za/downloads/Rabies_virus_facts.pdf) [accessed 1.6.2013]

<sup>vii</sup> SEARG country report for South Africa, period 2010-2012. <http://www.searg.info/doku.php?id=aboutrabies:rabiesepidemiology:2013reportsouthafrica> [accessed 1.6.2013]

<sup>viii</sup> All data here, if not indicated otherwise, is based on the SEARG country report for South Africa, period 2010-2012. <http://www.searg.info/doku.php?id=aboutrabies:rabiesepidemiology:2013reportsouthafrica> [accessed 1.6.2013]

<sup>ix</sup> <http://www.searg.info/lib/exe/fetch.php?media=aboutrabies:rabiesepidemiology:2013southafrica3.png> [accessed 1.6.2013]

<sup>x</sup> Hergert M and LH Nel (2013). Dog Bite Histories and Response to Incidents in Canine Rabies-Enzootic KwaZulu-Natal, South Africa. *PLoS Negl Trop Dis* 7(4): e2059.

<sup>xi</sup> see Annexure 3 of [http://www.nbi-kzn.org.za/download/rabies\\_guide.pdf](http://www.nbi-kzn.org.za/download/rabies_guide.pdf)

<sup>xii</sup> Durrheim DN, R Speare and M Petzer (2002). Rabies post-exposure management in South Africa: A telephonic survey used as a rapid tool for operational research. *Tropical Medicine and International Health* 7: 459–61.

<sup>xiii</sup> Bishop GC, DN Durrheim, PE Kloock, JD Godlonton, J Bingham, R Speare and the Rabies Advisory Group 2000 (2000). *Rabies: Guide for the medical, veterinary and allied professions. 2nd edition*. Pretoria: Department of Agriculture, Forestry & Fisheries; Republic of South Africa.