

# BOTSWANA

## I.) BACKGROUND INFORMATION

Botswana covers 581,730 sq km and shares its borders with South Africa, Namibia, Zambia and Zimbabwe. Botswana's population is estimated to be around 2.1 million (July 2013), with about 61 percent living in urban areas (2010). Due to its diamond mining industry its total GDP per capita (PPP) amounts to 16,800 USD, making it a middle income country. However, 30.3 percent of the population lived below the poverty line in 2003. With a subsequently high income inequality (GINI index of 63 in 1993) it is ranked according to the Human Development Index of 2013 in 119th place.<sup>i ii</sup>

In Southern 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). Human infections are mostly due to the canine biotype of RABV.<sup>iii</sup>

Rabies is a notifiable disease in Botswana and is commonly known as Molafo. A national case definition is provided, which includes suspected, probable and confirmed rabies cases. However, human rabies surveillance in Botswana is currently not operating effectively, since there is no coordination between the veterinary, health and wildlife departments. Furthermore, human rabies surveillance is not integrated into any other national disease surveillance system. The National Veterinary Laboratory in Gaborone is responsible for the laboratory confirmation of rabies in humans and animals via the fluorescent antibody test (FAT) and mouse inoculation test (MIT), which receives the brain samples together with a case history and a symptomatic description.<sup>iv v</sup>

## II.) HUMAN RABIES EPIDEMIOLOGY

Rabies in humans in Botswana is mostly diagnosed on clinical signs only, since the only laboratory that is capable of laboratory testing for rabies infection is the National Veterinary Laboratory. Three human rabies cases have been laboratory confirmed in the last 20 years. In 2009 there was one case<sup>vi</sup> and two in 1999<sup>vii viii</sup>. In the years 1992 to 1997 a total of 5,159 suspected human rabies exposures were reported<sup>ix</sup>. However, according to the media, health facilities all over the districts recorded an increase of suspected rabies exposure in humans in the last years, with 1,440 in 2010 and 1,794 cases in 2011<sup>x</sup>, though this may be the result of better awareness of the disease. It is not known how many rabies exposures and cases occur which do not present to medical facilities.

## III.) RABIES VECTORS

On average less than 200 cases of rabies are diagnosed in domestic and wild animals in Botswana annually, with the majority of cases recorded in the eastern part of the country. The most common animals are cattle, goats and dogs. Among wildlife it is by far the jackal. In recent years there has been a shift from more numbers of infected dogs being reported than of rabid cattle and goats.<sup>xi</sup>

Rabies seems to increase from May till September, which is concurrent with the movement and breeding time of the jackal. Furthermore, in winter livestock has to travel long distances for grazing and contact with wild carnivores is thus increased.<sup>xii</sup>

According to the data submitted to SEARG, in 2012 a total of 71 cases of animal rabies were laboratory confirmed, of which 50 were dogs, 21 other domestic animals and 0 wildlife. In 2011, there were a total of 49, with 32 dogs found positive, 15 other domestic animals and 2 wildlife.<sup>xiii</sup> Data submitted to the OIE for 2011 is slightly different with 31 positive cases of rabies in dogs.<sup>xiv</sup>

#### IV.) RABIES BIOLOGICS AVAILABILITY

Rabies post-exposure prophylaxis is available. In 2010, 13,860 doses of cell culture vaccines were imported, in 2011 13,741 doses and in 2012 11,237 doses. For the animal side it was 200,000 doses each year.<sup>xv</sup>

#### V.) OTHER

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- <sup>i</sup> CIA (2013). The World Factbook: Botswana. <https://www.cia.gov/library/publications/the-world-factbook/geos/bc.html#top>
- <sup>ii</sup> UNDP (2013). The Rise of the South: Human Progress in a Diverse World. Human Development Report 2013. New York: UNDP. <http://www.undp.org/content/dam/undp/library/corporate/HDR/2013GlobalHDR/English/HDR2013%20Report%20English.pdf> [accessed 1.6.2013]
- <sup>iii</sup> Rupprecht CE, J Barret, D Briggs, F Cliquet, AR Fooks, B Lumlerdacha, 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> Moagabo KT; KB Monyame, EK Baipoledi, M Letshwenyo, N Matpitse and JMK Hyera (2009). A retrospective longitudinal study of animal and human rabies in Botswana 1989-2006. *Onderstepoort Journal of Veterinary Research*, 76:399-207.
- <sup>v</sup> SEARG (2013). Botswana country report, 2010-2012. <http://searg.info/doku.php?id=aboutrabies:rabiesepidemiology:2013reportbotswana> [accessed 1.6.2013]
- <sup>vi</sup> SEARG (2011). Botswana country report. <http://searg.info/fichiers/articles/2011022022d.pdf> [accessed 1.6.2013]
- <sup>vii</sup> SEARG (2001). Proceedings of the Southern and Eastern African Rabies Group/ World Health Organization Meeting in Lilongwe, Malawi; 18-22 June 2001. <http://searg.info/fichiers/articles/2001L.PDF> [accessed 1.6.2013]
- <sup>viii</sup> Moagabo KT; KB Monyame, EK Baipoledi, M Letshwenyo, N Matpitse and JMK Hyera (2009). A retrospective longitudinal study of animal and human rabies in Botswana 1989-2006. *Onderstepoort Journal of Veterinary Research*, 76:399-207.
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- <sup>x</sup> Sunday Standard. 3.10.2012. [http://www.sundaystandard.info/print\\_article.php?NewsID=15186](http://www.sundaystandard.info/print_article.php?NewsID=15186) [accessed 1.6.2013]
- <sup>xi</sup> All data submitted to SEARG from 1992 till 2013 support this. See: <http://www.searg.info/doku.php?id=meetings> [accessed 1.6.2013], as well does data from the OIE World Animal Health Information System: [http://www.oie.int/wahis\\_2/public/wahid.php/](http://www.oie.int/wahis_2/public/wahid.php/) [accessed 1.6.2013]
- <sup>xii</sup> Sehularo K (1995). Rabies in Botswana. Presented at the SEARG meeting in Harare, Zimbabwe. <http://searg.info/fichiers/articles/1995051053L.PDF> [accessed 1.6.2013]
- <sup>xiii</sup> SEARG (2013). Botswana country report, 2010-2012. <http://searg.info/doku.php?id=aboutrabies:rabiesepidemiology:2013reportbotswana> [accessed 1.6.2013]
- <sup>xiv</sup> OIE World Animal Health Information System. Botswana, 2011. [http://www.oie.int/wahis\\_2/public/wahid.php/Reviewreport/semestrial/review?year=2011&semester=0&wild=0&country=BWA&this\\_country\\_code=BWA&detailed=1](http://www.oie.int/wahis_2/public/wahid.php/Reviewreport/semestrial/review?year=2011&semester=0&wild=0&country=BWA&this_country_code=BWA&detailed=1) [accessed 1.6.2013]
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