

MOROCCO

I.) BACKGROUND INFORMATION

Morocco covers 446,500 sq. km and shares its borders with Algeria and Western Sahara. Morocco's population is estimated at around 32.5 million (2012), with about 57 percent living in urban areas (2011). Its GDP per capita (PPP) amounts to 5,500 USD. However, 15 percent of the population lived below the poverty line in 2007. With a high income inequality it is ranked according to the Human Development Index of 2013 in 130th place, amongst the countries with medium human development.^{i ii}

Rabies is endemic in Morocco, with all provinces being affected, except the southern desert region. The most common lyssavirus present is Genotype 1 (Rabies virus, RABV), with human infections being mostly due to the canine biotype.ⁱⁱⁱ

Rabies has been a notifiable disease in Morocco for more than 10 years. A national case definition for human rabies is given, which includes suspect, probable and confirmed cases. Human rabies surveillance is integrated in the national disease surveillance system.^{iv}

II.) HUMAN RABIES EPIDEMIOLOGY

Human rabies cases are sometimes laboratory confirmed, but mostly diagnosed on clinical grounds only. On average, 22 human fatalities associated with rabies occur annually since 1986^v. According to the OIE World Animal Health Information System in 2011 Morocco reported 18 cases of rabies in humans, and 19 cases in 2012^{vi}. A recent global burden of rabies study estimates that around 50 people die from rabies every year^{vii}.

III.) RABIES VECTORS

The main vector for rabies in Morocco is the domestic dog. In 2000, the dog population was estimated at around 1.6 million, with 10 percent of the population being stray dogs^{viii}.

According to the OIE World Animal Health Information System, in 2011, Morocco reported 64 cases of rabies in dogs, with 62,851 dogs routinely vaccinated. In the following year, 2012, 91 dogs died from rabies, while 114,790 animals were routinely vaccinated. 44 dog rabies cases were confirmed in the first half of 2013.

Nonetheless, a significant number of livestock, especially cattle, die from rabies every year. In 2011, 187 cases were reported, 255 cases in 2012, and 133 in 2013.^{ix}

Rabies in wildlife is present in Morocco, with 2 cases reported in 2011, and 1 case in 2012 (species unknown). Since the 1980s rabies in jackals, foxes, and wild boars have been reported in the eastern and southern regions of the country^x.

IV.) RABIES BIOLOGICS AVAILABILITY

PEP treatment is entirely funded by the government and is available at 120 PEP centres all over the country^{xi}.

ⁱ CIA (2013). The World Factbook: Morocco. <https://www.cia.gov/library/publications/the-world-factbook/geos/mo.html> [accessed 24.04.2014]

ⁱⁱ UNDP (2013). The Rise of the South: Human Progress in a Diverse World. Human Development Report 2013. New York: UNDP. http://hdr.undp.org/sites/default/files/reports/14/hdr2013_en_complete.pdf [accessed 24.04.2014]

ⁱⁱⁱ El Harrak (2011). Epidemiological Factors and Control of Rabies in North Africa. Presentation given at the OIE Global Conference on Rabies Control, Incheon; Republic of Korea; 7-9 September 2011. http://www.oie.int/eng/A_RABIES/presentations_ rage/S1-6%20CaseReport%20NorthAfrica_DrEl-Harrak.pdf [accessed 23.04.2014]

^{iv} Taylor LH, L Knopf and Partners for Rabies Prevention (in prep). Surveillance of Human Rabies by National Authorities - A Global Survey.

^v El Harrak M (2008). Epidemiological Situation of Rabies in Morocco and Control Strategy. Presentation delivered to Rabmed Control, Sadat City, 19 April 2008. <http://www.rabmedcontrol.org/Communication/SadatCity-19April07/Rabies%20in%20Morocco.pdf> [accessed 23.04.2014]

^{vi} OIE World Animal Health Information System. Morocco. http://www.oie.int/wahis_2/public/wahid.php/Countryinformation/reporting/reporthistory [accessed 23.04.2014]

^{vii} Hampson K and Partners for Rabies Prevention (in prep). Estimating the global burden of endemic canine rabies.

^{viii} El Harrak M (2008). Epidemiological Situation of Rabies in Morocco and Control Strategy. Presentation delivered to Rabmed Control, Sadat City, 19 April 2008. <http://www.rabmedcontrol.org/Communication/SadatCity-19April07/Rabies%20in%20Morocco.pdf> [accessed 23.04.2014]

^{ix} El Harrak (2011). Epidemiological Factors and Control of Rabies in North Africa. Presentation given at the OIE Global Conference on Rabies Control, Incheon; Republic of Korea; 7-9 September 2011. http://www.oie.int/eng/A_RABIES/presentations_ rage/S1-6%20CaseReport%20NorthAfrica_DrEl-Harrak.pdf [accessed 23.04.2014]

^x Matter H, J Blancou, A Benelmouffok, S HAmmani and N Fassi-Fehri (2004). Chapter 14: Rabies in North Africa and Malta; in AA King AR Fook M Aubert and AI Wandeler (eds.). *Historical Perspective of Rabies in Europe and the Mediterranean Basin*. p. 196. Paris: OIE. http://foxrabiesblueprint.org/IMG/pdf/pdf_106_king_et_al_2004.pdf [23.04.2014]

^{xi} El Harrak M (2008). Epidemiological Situation of Rabies in Morocco and Control Strategy. Presentation delivered to Rabmed Control, Sadat City, 19 April 2008. <http://www.rabmedcontrol.org/Communication/SadatCity-19April07/Rabies%20in%20Morocco.pdf> [accessed 23.04.2014]