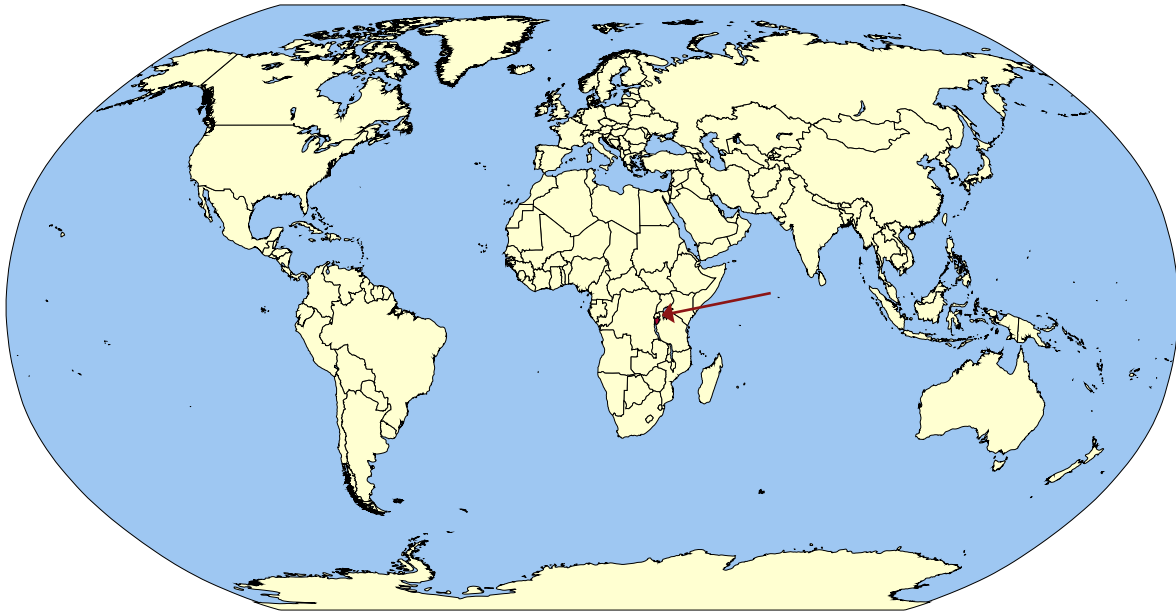


Burundi



The History of Schistosomiasis in Burundi

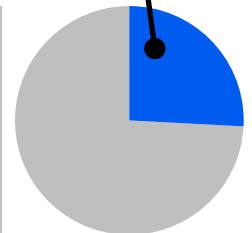
The first reports of *Schistosoma mansoni* in Burundi emerged in 1935, when the disease was found infecting people at Lake Tanganyika near the capital Bujumpura [1]. In the 1950's a land reclamation program orchestrated by colonial authorities brought influxes of nearly 50,000 people from the highlands to the Rusizi plain, an area formerly unoccupied by indigenous populations due to disease and heat. Over the following decades, schistosomiasis, along with other diseases, increased dramatically in response to population growth and land-use change. By the late 1960's Burundi established a local campaign against malaria and schistosomiasis. The campaign, "Mission d'Assainissement de la Plaine de la Rusizi (MAPR)," focused on chemical control of mosquito malaria vectors and schistosomiasis intermediate host snails using DDT and Bayluscide, respectively [2].

Schistosomiasis in Burundi [6]

2,791,644 people required schistosomiasis treatment in 2014

26% of the population estimated to be infected with schistosomiasis

After 1990, Burundi's control program redirected its strategy from active campaigns (testing high risk communities) to passive campaigns integrated with local health services



Overview of Burundi [10]

- » Population in 2015: 10,742,276
- » Official Language: Kirundi
- » Capital: Bujumpura
- » Presidential Republic
- » Percentage of Population with Access to Improved Drinking Water in 2015: 75.9%
- » Percentage of Population with Access to Improved Sanitation in 2015: 48%

Treatment and Control and Schistosomiasis

The early control strategies in the 1980's included focal snail control using molluscicides, but it appears that snail control efforts were largely abandoned after they were initially deemed ineffective and disappointing due to rapid re-colonization of focally treated sites. In light of this, effort instead focused on engineering schemes related to irrigation and agriculture that reduce snail habitat [3]. The extent to which any engineering efforts were actually applied is unclear, since the task was decentralized and relied on farmers themselves to carry out [3].

In 1993, a civil war erupted in Burundi and control activities slowed for many years. Not until 2007 did disease control resume, when the Legatum Foundation committed funding for a new national Neglected Tropical Disease (NTD) control program in Burundi and Rwanda. Funding was channeled through the for-profit consulting firm Geneva Global and totaled \$8.8 million meant to be spent on preventive chemotherapy for several diseases including schistosomiasis [4, 5]. Focal delivery of praziquantel through health services and mobile teams began in 2007. After scaling up the programs for wide-spread MDA, the World Health Organization (WHO) reports national coverage of 63%, 43% and 74% in 2010, 2011, and 2012 respectively [6]. While the Schistosomiasis Control Initiative and other donors continued to provide support for the NTD control program when the Legatum Foundation funding ended after 2011, WHO statistics show no praziquantel treatments delivered by mass drug administration in 2013 [5][6].

Sanitation and Education

During the 1980's a private latrine program was instituted in the Rusizi plains area, in which 4400 slabs were provided to about 25% of the inhabitants [3]. It was not funded as part of the schistosomiasis control program, but rather as part of the government's planned irrigation expansion. The effects of the latrine subsidy program on schistosomiasis were not assessed, but the improvement in well-being for those communities that received latrines was clear [3].

Health education became part of the 1982-1991 focal control program's strategy for select groups, in the form of leaflets and a 25-minute video delivered to health patients and school children, but it is uncertain how effective these efforts were. Engels et al. 1993 observed that education programs are ineffective as long as there are no alternatives to traditional water contact behaviors [3].

Looking Ahead

The most recent statistics suggest a 3.4% prevalence of schistosomiasis countrywide in Burundi, a substantial stride forward from an estimated 13.3% prevalence sustained through the 1980's and 1990's [8]. In a recent mapping effort for schistosomiasis in all of Sub-Saharan Africa, Burundi was considered a country in the "low" category for schistosomiasis risk [8]. With the cessation of external funding from the Legatum Foundation and a history of high reinfection following previous control programs [3, 9], the long term impact of schistosomiasis disease reduction in Burundi as a result of the recent MDA-based control program is unclear.

References

1. Gryseels, B., The epidemiology of schistosomiasis in Burundi and its consequences for control. *Trans R Soc Trop Med Hyg*, 1991. 85(5): p. 626-33.
2. Gryseels, B., L. Nkulikyinka, and D. Engels, Repeated community-based chemotherapy for the control of *Schistosoma mansoni*: effect of screening and selective treatment on prevalences and intensities of infection. *Am J Trop Med Hyg*, 1991b. 45(4): p. 509-17.
3. Engels, D., J. Ndoricimpa, and B. Gryseels, Schistosomiasis *mansoni* in Burundi: progress in its control since 1985. *Bull World Health Organ*, 1993. 71(2): p. 207-14.
4. Hotez, P.J., et al., Control of neglected tropical diseases. *N Engl J Med*, 2007. 357(10): p. 1018-27.
5. Ndayishimiye, O., et al., Control of neglected tropical diseases in Burundi: partnerships, achievements, challenges, and lessons learned after four years of programme implementation. *PLoS Negl Trop Dis*, 2014. 8(5): p. e2684.
6. WHO. PCT databank. http://www.who.int/neglected_diseases/preventive_chemotherapy/databank/en/. June 3 2014].
7. IAMAT, World Schistosomiasis Risk Chart, 2012.
8. Lai, Y.S., et al., Spatial distribution of schistosomiasis and treatment needs in sub-Saharan Africa: a systematic review and geostatistical analysis. *Lancet Infect Dis*, 2015. 15(8): p. 927-40.
9. Clements, A., et al., A comparative study of the spatial distribution of schistosomiasis in Mali in 1984-1989 and 2004-2006. *PLoS Neglected Tropical Diseases*, 2009. 3(5).
10. Burundi: The World Factbook. 2013-14 [cited 2015; Available from: <https://http://www.cia.gov/library/publications/the-world-factbook/index.html>.