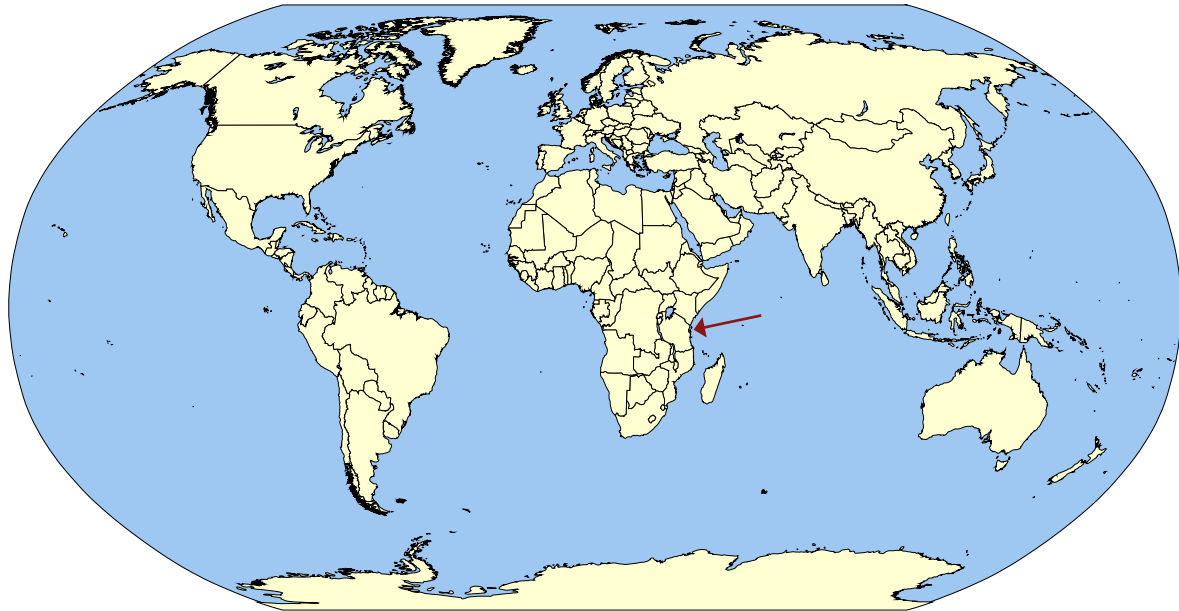


Zanzibar

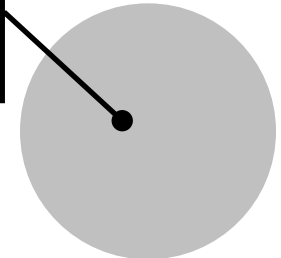


An Overview of Schistosomiasis in Zanzibar

Zanzibar, a semi-autonomous region of the United Republic of Tanzania (Tanzania), has a long and well-documented history of endemic schistosomiasis on the two largest of the islands that make up the Zanzibar archipelago: Unguja and Pemba. Schistosomiasis surveys and control efforts focused on these two large islands, which demonstrated marked reduction of disease prevalence over the last few decades and is currently actively pushing to eliminate schistosomiasis altogether. Because Zanzibar was formally part of Tanzania, much of the region-wide disease prevalence and intensity data is embedded within countrywide data from Tanzania, and is difficult to extrapolate. Since 1986, however, there have been a number well-documented schistosomiasis control programs initiated on the islands in an effort to reduce morbidity through mass drug administration in youth school systems. Schistosomiasis control and ultimate elimination is a priority of the Zanzibar government. In aiming effort towards elimination, the need to incorporate snail control and health education alongside drug administration is well recognized.[1]

Schistosomiasis in Zanzibar

Schistosomiasis **on the path to elimination** due to successful control



Overview of Zanzibar [7]

- » Population in 2004: 1,070,000
- » Official Language: Kiswahili
- » Capital: Zanzibar City
- » Semi-autonomous part of Tanzania
- » 637 total square miles
- » Religion: Muslim
- » Two Islands: Unguja (south) and Pemba (north)

Trends Before Control Efforts

First documentation of urogenital schistosomiasis in Zanzibar dates to 1903, when *Schistosoma haematobium* infection symptoms were noted to be prevalent among men in Zanzibar.[2] As early as 1972, reports emerged regarding a wide distribution of *S. haematobium* on Unguja and Pemba. The endemic region on Unguja is restricted to the northwestern and central areas, but on Pemba Island, the region spans the western, southern, central and northwest parts of the island.[2] The geography of disease transmission on Unguja closely follows the geographical distribution of the intermediate snail host, *Bulinus globosus*. On Pemba Island, both *Bulinus globosus* and *Bulinus nasutus* are important intermediate hosts of *S. haematobium*. [2] There are two distinct transmission seasons of *S. haematobium*. The first is from February to May during the long rainy season and concurrent high transmission. The second is a period of low transmission during the dry season from July to September/October. [2] Ongoing chemical control of snail hosts on both islands using molluscicides has been attempted since at least 1965, but in the last 25 years, morbidity reduction through preventative chemotherapy of school-children has been the primary focus of control initiatives.[3]

Initial Mass Drug Administration (MDA) Programs

The first schistosomiasis control program was established in Pemba in 1986, and infected individuals were treated twice a year with praziquantel. In 1992, this program was extended to Unguja through a national plan of action to control helminth infections by the Ministry of Health and Social welfare in Zanzibar.[3] Mebendazole was added to the drug package on both islands. From 1994 onwards, mebendazole and praziquantel was distributed to schoolchildren through the national plan. [3] From 1999 to 2003, drug administration was irregular, and in 2000-2001 no praziquantel was administered due to problems in securing drugs. [4] This coincides with a period of political upheaval on the islands - in 2001 a contested election on Unguja resulted in a civilian massacre.

MDA Over the Past Decade

From 2004-2006, albendazole and praziquantel was administered to school-aged children on both islands with support of the “Piga vita kichocho” campaign (“kick out schistosomiasis” campaign, established in 2003) on Unguja and the Schistosomiasis Control Initiative (SCI) in Pemba. From 2001-2006, the Global Programme to Eliminate Lymphatic Filariasis administered yearly doses of albendazole and ivermectin to combat LF and soil-transmitted helminthiasis (STH) on both islands through the Ministry of Health and Social Welfare. During the final round of the yearly MDA, praziquantel was incorporated into the study in 2 highly endemic areas for schistosomiasis as a pilot study to assess triple drug co-administration in MDAs. 5,055 individuals over the age of 5 were treated in 2006 as part of the study. Upon review and the conclusion of success, over 700,000 individuals were treated the following year, reaching the whole at-risk population of individuals in areas endemic to all three disease vectors.[4] Zanzibar completed 6 rounds of the annual mass treatment, reaching the whole at-risk population and achieving therapeutic coverage levels >80%. [5] Beginning in 2005 with the support of a UNICEF program, anti-helminthic drug administration was expanded to pre-school age children.[3] Expansion of the program is important, for although school attendance is high (87% on Unguja), non-enrolled school children and pre-school children that do not receive treatment can harbor heavy schistosomiasis infection and contribute significantly to transmission.[5] As a result of consistent control programs, schistosomiasis prevalence considerably. In the early 1980s, both islands had a 50% infection rate, but the current estimate is <3% in adults and <5% in school children for Unguja, and 6% adult and 10% school children for Pemba.[6]

From 1986 to 2015, prevalence rates in Unguja dropped from 50% overall to 3% for adults and 5% for children. In the same amount of time, infection rates in Pemba dropped from 50% overall to 6% for adults and 10% for children.

SCORE and ZEST

The current push to eliminate schistosomiasis is an effort predominately overseen by the Schistosomiasis Consortium for Operational Research and Elimination (SCORE), an international project funded by the Bill and Melinda Gates Foundation implemented in 2008 with the Zanzibar regional goals set in 2011 to (i) eliminate schistosomiasis disease in Unguja in 3 years and interrupt transmission in 5 and (ii) control schistosomiasis in Pemba (prevalence <10%) in three years and eliminate the disease in 5 years.[2] The goal to reduce prevalence in Pemba has reportedly been achieved.[6] SCORE functions under the umbrella of the Zanzibar Elimination of Schistosomiasis Transmission (ZEST) project. Within ZEST, current emphasis is shifting from morbidity control to comparative methods of transmission control and local elimination of urogenital schistosomiasis.[1,2]

Water Resource Improvements on Zanzibar

It must be noted that significant reductions in prevalence may in part be attributed to widespread improvement in sanitation systems and greater access to clean water on both islands.[3] For example, on Unguja island, the percentage of people with access to safe and clean water rose from 11% in 2003 to 97% in 2009 in the north, 29% to 90% in the south and 60% to 96% in the west and urban area.[3] The proportion of households with a toilet increased from 49% to 72% in one year from 2004 to 2005. [3] The socio-ecological context of Zanzibar may also be attributed to the consistently higher prevalence of disease in Pemba, an island with an undulating landscape with creeks and streams close to homes versus a relatively flat and dry Unguja. Importantly, >75% of Pemba residents use natural freshwater for washing and bathing, where <30% of Unguja residents do.[6]

Zanzibar has implemented an excellent schistosomiasis control program in recent years and is on the path to full elimination.

Looking Ahead

A long history of schistosomiasis control campaigns, a strong public health system, and the isolated geography of the islands make the elimination of schistosomiasis an achievable goal in the Zanzibar archipelago. Elimination is a health priority endorsed by the President, and the Ministry of Health is committed to fulfill a National Plan to control disease through preventative chemotherapy accompanied by health education and community mobilization to enhance the impact of chemotherapy. With significant aid from partners such as the WHO and the Schistosomiasis Control Initiative (SCI) who are committed to provide praziquantel and funding for treatment implementation, the outcomes of the National Plan and the various schistosomiasis control plans are highly anticipated.[1] The most recent strategies recognize that reducing morbidity through mass drug administration programs is insufficient to fully eliminate the disease, and attention is being given to transmission control through approaches integrating morbidity control with transmission interruption by incorporating snail control and behavior change interventions into chemotherapy intervention.[1]

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