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THE REALITY OF NEGLECTED DISEASES IN ANGOLA

Adam Baptista Cassoma Chimuanji
Universidade Federal do Piauí, PhD student at PPGenf Teresina – Piauí
http://lattes.cnpq.br/6104270866530561

Idalina Pereirinha
Jean Piaget ''Universidade de Angola", Faculty of Health Sciences/ Nursing Coordination Viana – Luanda
http://lattes.cnpq.br/0627872273759593

Daniela Reis Joaquim de Freitas
Universidade Federal do Piauí, Department of Microbiology and Parasitology Teresina – Piauí
http://lattes.cnpq.br/2308356617035380

Abstract: **Introduction**: Neglected diseases (NTDs) are a diverse group of preventable and treatable infectious and endemic diseases that affect 1.5 million people in 149 countries. African, Asian and Latin American populations are the most affected, taking into account the conditions of poverty experienced by them, the lack of access to basic sanitation and the close contact they maintain with different vectors, domestic animals, and livestock cultures, being that 40% live in Africa. Together, these diseases cause between 500,000 and 1 million deaths annually. Among other neglected diseases in Angola, the main ones mapped and considered endemic are: onchocerciasis, lymphatic filariasis, schistosomiasis and trypanosomiasis. Objective: To analyze the reality of neglected diseases in Angola. Methodology: This is a narrative literature review study, essentially focused on resolutions and decrees, which address the related theme, published by the Angolan government and partners. Partial results: The country has been presenting progress in the coverage of people with needs for mass NTD treatment, based on percentage rates ranging from 1 to 50%. Conclusion: In Angola, the scope of coverage for the reduction of schistosomiasis is due to the implementation of preventive chemotherapy. The country still has the challenge of continuing to work to simultaneously improve the rates of lymphatic filariasis and soil-transmitted helminths, starting treatment with albendazole in areas recognized as endemic, requiring financial allocation as one of the assumptions for the materialization of the policy disease reduction. eliminate the vector and diseases in the population to avoid the chain of transmission.
Keywords: Neglected diseases. Policies. Health.

INTRODUCTION

Angola is considered a young country, since it only acquired its independence in 1975, until then it was a Portuguese colony. Despite being a country with many natural resources, 70% of the population lives on less than two dollars a day, total life expectancy and infant mortality are among the worst in the world, there is still very high economic inequality, most of the wealth of the country is concentrated in a small part of the population, the rest of the population lives in precarious conditions, it is considered by the United Nations, one of the least developed countries.

All these factors make Angola one of the African countries most affected by neglected tropical diseases, which is why we studied this issue.

GOALS

General:

Analyze the reality of Neglected Tropical Diseases in Angola

Specifics:

1. Describe the policies adopted by the Angolan government to eliminate the disease;
2. Characterize the most common neglected tropical diseases in Angola;
3. Identify the result of the policies implemented in the face of the problem;

ANGOLA

Angola is a young country that gained independence in 1975, the year in which a civil war broke out that lasted until 2002. It is currently in the process of national rehabilitation, recovery and economic development. It is currently developing a set of measures to combat poverty, hunger and reduce social inequalities. There is a great challenge in rebuilding economic, educational and health infrastructure. It is a member of the Southern African Countries Development

Society (SADC).(FINAL REPORT CPLP ANGOLA 2017).

GEOGRAPHIC LOCATION

Angola is a country located on the southwest coast of Africa. It has an area of 1,246,700 Km2 and borders the Republic of Congo and the Democratic Republic of Congo (to the north), the Republic of Zambia to the east, the Republic of Namibia to the south, and the Atlantic Ocean to the west. Its administrative division comprises 18 provinces.

Figure 1. Angola – Location in Africa and Provinces.

Source: Angola Press Agency, 2015.

ANGOLAN POPULATION

According to the Definitive Results of the 2014 Census, dated May 16, show that the resident population in Angola was 25 789 024 inhabitants, of which 12 499 041 were male (48% of the total resident population) and 13 289 983 female (52% of the total resident population), with a natural growth rate of 2.7%. Total life expectancy in Angola is 60.2 years. For men, life expectancy is 57.5 years while for women it is 63 years. (NTD STRATEGIC PLAN 2017 – 2021/ NEGLIGENT TROPICAL DISEASES).

Around 72% of the population of Angola are concentrated in 7 provinces of the country, with the province of Luanda being the most populous, home to around 30% of the total national population, followed by Huila, Benguela and Huambo with around 27% of the population, followed by Cuanza Sul, Uíge and Bié with representation of 15% of the total population. The remaining provinces complete the 28%, and are characterized by being provinces with a large territory and dispersed population, this is due to the civil war in which people fled from the most affected areas to the calmest ones.

HEALTH INDICATORS

ESSENTIAL DATA ON HEALTH IN ANGOLA

CHILD'S HEALTH

Children fed exclusively with milk in the first six months of life (%) (IIMS 2015-2016)	38%
Diphtheria Tetanus toxoid and Pertussis (DTP3) Vaccine Coverage in 1-year-olds (%) (2016)	31%
Prevalence of malnutrition in children under 5 years old (IIMS 2015-2016)	38%

DEMOGRAPHIC AND SOCIO-ECONOMIC STATISTICS

Total population (2017 projection/2014 census. INE	29,784,192
% of population under the age of 15 (2016)	47.2%
% Population aged over 60 years (2014 Census)	39%
% of population living below the poverty line	47.6%
International from US$1.90 per day (IDR INE 2019)	
Schooling rate in adults >= 15 years (%) 2014 Census, INE	65.6%
Human Development Index (2019), UNDP	149
Tuberculosis incidence per 100,000 inhabitants (IIMS 2015-2016)	204
Malaria incidence per population (IIMS 2015-2016)	159
Incidence of Hepatitis B per 100,000 inhabitants (IIMS 2015-2016)	11

HEALTH SYSTEM

Total public health expenditure as a % of gross domestic product (2017) WHO	1.3%
Health expenditure per capita (USD), 2017 WHO	114
% of Direct Expenses (Out pocket) of WHO health expenditure	34.1%

Proportion of the State budget allocated to Health (2017) WHO	5.4%
Number of doctors per 10,000 inhabitants (2019 WHO)	2.3
Nurses and midwives 10,000 inhabitants (2019) WHO	16.5

MORTALITY AND GLOBAL HEALTH STATISTICS

Neonatal mortality rate (per 100 live births (IIMMS 2015-2016)	24
Under-five mortality rate (probability of dying within 5 years of life per 100 live births) (IIMS 2015-2016)	68
In-hospital maternal mortality rate (per 100,000 live births) (IIMS 2015-2016)	239
Births attended by qualified health personnel (%) (IIMS 2015-2016 (DHS 2015-2016)	49.6%

Source: WHO-Angola/Biannual Report 2018-2019

FERTILITY RATE IN ANGOLA

The fertility rate in Angola is 5.7 children per woman. Of great importance for NTDs, the proportion of the population most exposed to the risk of contracting NTDs (children aged 0-14 years) is 47.3%. Also relevant to the fight against NTDs, the labor market concentrates around 40.0% of the population aged 15 or over, with primary sector activities concentrating 44.2% (Agriculture, animal production, hunting, forestry and fishing). Work in the primary sector exposes adults to the vectors that transmit neglected tropical diseases. (HEALTH INDICATORS, 2014 CENSUS DATA, POPULATION COVERAGE AND HOUSING SURVEY, PUBLICATION IN MARCH 2016).

ACCESS TO WATER SUITABLE FOR DRINKING

Access to safe drinking water covers 44.0% of households, leaving more than 50% of the population without safe drinking water. Access to adequate sanitation covers 60.0% of households in urban areas and 25.9% in rural areas. Most families (70%) dump garbage outdoors, creating spaces for the creation of vectors and the transmission of diseases.

Similar is access to a source of water suitable for drinking, with 57% of households having access in urban areas, and only 22.4% in rural areas. The level of frequency with which families use appropriate treatment of drinking water is 36.1% (or 51.4% in urban areas and 13% in rural areas). (HEALTH INDICATORS, 2014 CENSUS DATA, POPULATION COVERAGE AND HOUSING SURVEY, PUBLICATION IN MARCH 2016).

EDUCATION

In terms of education, the proportion of the population aged 6-17 years attending school is 81.5%. with a significant difference between urban areas (88.6%) and rural areas (69%). (HEALTH INDICATORS, DATA FROM THE 2014 CENSUS, POPULATION COVERAGE AND HOUSING SURVEY, PUBLICATION IN MARCH 2016).

NEGLECTED TROPICAL DISEASES (NTDS)

They are a diverse group of preventable and treatable infectious and endemic diseases that affect 1.5 billion people in 149 countries. These diseases mainly affect populations in Africa, Asia and Latin America who live in poverty, without access to basic sanitation and who are in close contact with different vectors, domestic animals and livestock crops, of which 40% live or are in Africa. Together, these diseases cause between 500,000 and 1 million deaths annually (WHO, 2020).

These diseases are a concern for public health in Angola, among them there is a group of 17 neglected tropical diseases, some of which are amenable to preventive chemotherapy and others that resort to intensive case management. Those that are subject to preventive chemotherapy and that occur in Angola are the following:

Lymphatic Filariasis, Onchocerciasis, Loase, Schistosomiasis, Geohelminthosis and Trachoma. Those that resort to intensive case handling and that occur in Angola are the following: Leprosy, Tryponosamia, Guinea worm, Leishmaniasis, and Rabies.

neglected tropical diseases,according to Katonde (2018-2019, p.17):

> sThese are diseases that cause progressive social death due to disability and/or stigma. As diseases are prevalent in Africa (40%), we have a duty to diagnose and identify them in all locations on the continent (Africa) and particularly in Angola, making their control, elimination and eradication one of our health priorities.

For the control, elimination and eradication of NTDs, Angola has WHO support in the implementation of declarations and/or initiatives to combat NTDs, based on five strategies: 1) preventive chemotherapy; 2) intensive case handling; 3) fight against vectors and against intermediate hosts; 4) guarantee of risk-free water for health, sanitation and hygiene, and 5) veterinary public health at the human-animal interface.

NATIONAL HEALTH SYSTEM AND SERVICE

From independence until 1992, for historical reasons, Angola established a National Health System, based on the principles of universality and equity through free Primary Health Care. With the approval of the Basic Law of the National Health System (SNS), Law 21-B/92, in 1992, the Angolan State no longer has exclusivity in the provision of health services and allows private initiative in health and co-payment users' financial impact on health costs. The national health service (LAW No. 21-B/92, OF AUGUST 28) comprises three levels of care: Central level, with strategic political character and national technical regulations, level where the Section for Neglected Tropical Diseases is located; Provincial level, with normative and technical dependence on the central and administrative level of the Provincial Government, where the program for the control of Tropical and Neglected Diseases of a technical and operational nature is inserted; Municipal level, with direct technical and operational dependence on the Provincial Health Directorate (DPS) and the Municipal Administrative Department, within this scope are the Sanitary Units that are subordinated to the Municipal Administration, whose mission is to provide integrated health care, including the control of tropical and neglected diseases.

The SNS healthcare provision network is made up of a total of 2,356 health units (Hospitals, Mother and Child Centres; Health Centers and Health Posts) with universal access. Coverage of health services in urban areas is 63% in contrast to access within a 5 km radius in rural areas of 27%.

DTNS ASSIGNABLE TO PREVENTIVE CHEMOTHERAPY IN ANGOLA

Figure 1: Lymphatic Filariasis

Source: Angola and neglected tropical diseases, 2016

Lymphatic filariasis is caused by the nematode Wucheria bancrofti; parasite responsible for lymphatic filariasis in Africa. The main vector of the disease in Africa is

the mosquito of the genus Anopheles, but the disease can be transmitted by mosquitoes of the genus Aedes, Cullex and Mansonia. It is transmitted from person to person through mosquito bites. Exposure begins in childhood, but the signs can take many years to manifest.

It affects an estimated population of 12 billion people worldwide, of which 40 million have clinical manifestations, a third of which live in Africa.

The map shown in Figure 2 indicates the municipalities mapped and those where positive results were recorded by the FTS test, in a total of 22, while the map in Figure 3 indicates the two municipalities so far confirmed as endemic by the Wb123 test, namely Uíge and Songo in Uige Province.

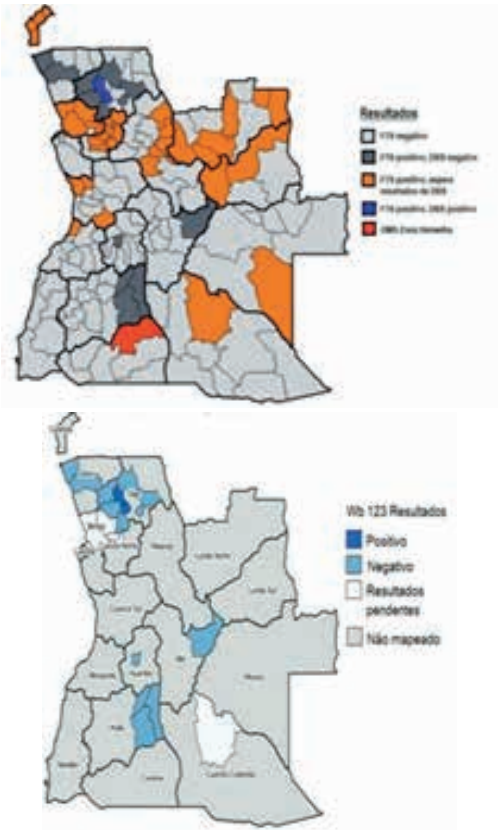

Figure 2 Municipalities mapped Figure 3 Municipalities considered endemic

Source:NTDs Strategic Plan 2017 - 2021

Onchocerciasis, also called River Blindness, is caused by the nematode Oncocerca volvulus, which is transmitted from person to person by the so-called "black fly", belonging to the genus Simulium, which is the intermediate host of the parasite. The fly's habitat is rivers and streams with a fast course of water. Onchocerciasis affects the skin, eyes, and lymphatic tissue. Man is the only known reservoir of the disease.

Figure 4: Onchocerciasis

Source:https://ssd.co.ao/oncocercose/

Taking into account the recent paradigm shift for Onchocerciasis from control to elimination, between July and December 2015, 177 villages were selected for additional mapping, using the skin biopsy technique to search for Onchocerca volvolus microfilariae, but only 76 were mapped. The integration of the results of the two mapping exercises (REMO and skin biopsy), indicate that Onchocerciasis is endemic in 12 provinces of the country.

Figure 5 presents an integrated analysis of the results of onchocerciasis mapping by two techniques, namely REMO and skin biopsy.

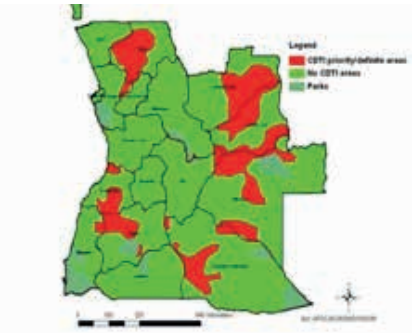

Figure: 5 Mapping of Onchocerciasis

Source:NTDs Strategic Plan 2017 - 2021

Loiasis is a filarial nematode infection caused by Loa loa. Symptoms are localized angioedema (Calabar edemas) in the skin and subconjunctival migration of adult worms. Diagnosis is made by detecting microfilariae in peripheral blood or by observing worm migration through the eye.

Loiasis is limited to the rainforest region of western and central Africa. Humans are the only known natural reservoir of this parasite.

The levels of microfilaraemia detected do not represent a risk for the occurrence of Severe Adverse Events (SAEs) after treatment with ivermectin, with the highest density of microfilariae per microliter being detected in the municipality of Quitexe (6,820 Mf/ul), when the risk of EAS happens in individuals with density above 20,000 Mf/ul. Despite the low densities detected, this fact does not preclude the need to establish a pharmacovigilance system to detect any adverse event that may exceptionally occur after the massive administration of ivermetine.

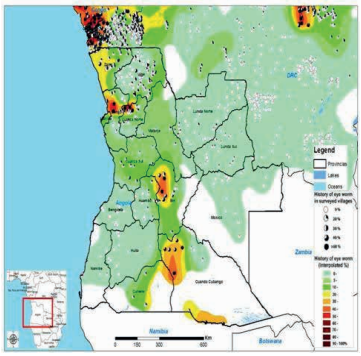

Figure 6 Loiasis. Figure 7 Situation of Loiase in Angola

Source: NTDs Strategic Plan 2017 - 2021

Soil Transmitted Helminthiasis (STH) and Schistosomiasis occur in vast areas of Angola, according to routine data from the Ministry of Health. The highest risk areas are: Huambo, Uíge and Zaire.

In 2005, UNICEF, WHO, WFP, MINE and MINSA carried out a survey in which the country was divided into 6 homogeneous ecological zones (See figure 9 below), and in each one they selected 4-5 schools as the survey site.

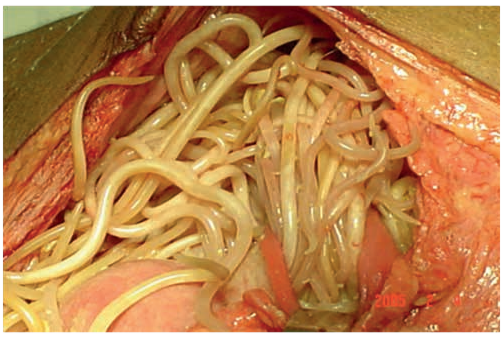

Figure 8 Soil-Transmitted Helminthiasis and Schistosomiasis

Source:https://www.sanarmed.com/anti-helminticos

The survey results in schools in each ecological zone were later extrapolated to the provinces located in that zone. The investigation of intestinal parasites and Schistosoma mansoni was carried out using the Kato Katz technique and the investigation of Schistosoma haematobium by the investigation of microhaematuria with a Hemastix reagent strip.

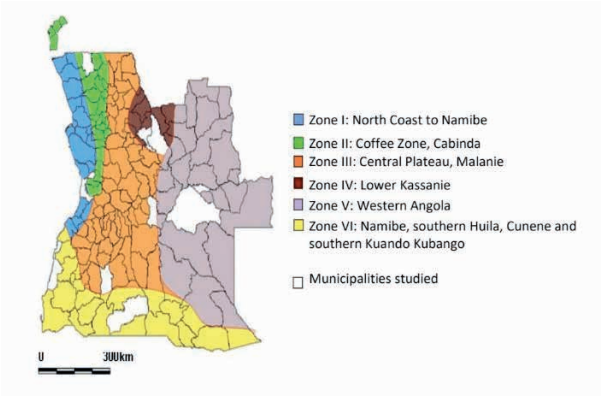

Figure 9 Results of the survey in schools in each ecological zone in Angola

Source:NTDs Strategic Plan 2017 - 2021

Schistosomiasis, also known as bilharzia, is a disease caused by parasitic worms that live in certain types of freshwater snails. The infectious form of the parasite, known as cercariae, arises from the snail, contaminating the water. A person becomes infected when the skin comes into contact with contaminated fresh water. Most human infections are caused by Schistosoma mansoni, S. hematobium or S. japonicum. Schistosomiasis is a disease characteristic of the poorest classes that causes chronic health problems.

Figure 10 Schistosomiasis

Source:https://espen.afro.who.int/diseases/schistosomiasis

Trachoma is a blinding disease caused by specific strains of the bacteria Chlamydia trachomatis. The infection is transmitted from eye to eye by the transfer of infected eye and nasal secretions, transmitted by flies, fingers and fomites, such as sheets, clothes or towels. Conjunctival infection by C. trachomatis is associated with inflammatory changes of the conjunctiva known as "active trachoma".

Figure 11 Trachoma

Source: https://www.msdmanuals.com/en/professional/dist%C3%BArbios-oftalmol%C3%B3gicos/doen%C3%A7as-da-conjunctiva-e-sclera/trachoma

Repeated episodes of active trachoma can result in eyelid scarring, which in some individuals leads to trichiasis. In this condition, one or more eyelashes are pulled inward to touch the eye. This is extremely painful and, if left untreated, can lead to corneal clouding, visual impairment and irreversible blindness. It is endemic in Angola (WHO, 2022)

CURRENT STATUS OF DTNS MAPPING

The national mapping of NTDs in Angola began in 2002 with the mapping of Onchocerciasis using the REMO methodology, with support from the African Program for Onchocerciasis Control (APOC), a process that lasted until 2011.

In 2015, with support from the WHO-AFRO NTD mapping project, a mapping exercise of lymphatic filariasis, STH and schistosomiasis was initiated. In 2015, APOC started a mapping process to refine the delineation of onchocerciasis endemic areas using the skin biopsy technique. This refinement arises

from the need to better define the areas of endemicity in the perspective of changing the control paradigm for the elimination of onchocerciasis.(NTD STRATEGIC PLAN 2017 – 2021/ NEGLECTED TROPICAL DISEASES).

The NTD Control Program implements its activities in the control of Onchocerciasis through the massive administration of ivermectin, through eight operational TIDC projects in nine endemic provinces of the country identified following the REMO surveys carried out in 2002 and 2011 by APOC. However, regularity and coverage have been affected by lack of resources, especially the closure of the APOC programme. Exceptions are made to the provinces of Uíge and Cuando Cubango, which receive support from other implementing partners.

Deworming activities for school-age children are carried out through Albendazole and Praziquantel administration campaigns in primary schools, within the scope of controlling geohelminthiasis and schistosomiasis. These activities are regular in the provinces where it has implementation partners and are implemented based on WHO advice for the endemicity of each municipality, namely Bié, Huambo, Kuanza Sul, Cuando Cubango, Uíge and Zaire. In other provinces, implementation has been more affected by reduced provincial budgets.

So far, preventive chemotherapy (PC) for NTDs in Angola is only used for onchocerciasis, Schistosomiasis and Soil-Transmitted Helminthiasis. As Trachoma has not yet been mapped, it is not the target of QP, although there is concrete evidence of its occurrence in several provinces of the country.

Schistosomiasis and soil-transmitted helminthiases are the other NTDs that benefited from massive treatment, however in a non-systematic way and without reaching national coverage.

CONCLUSION

In Angola, the reach of coverage for the reduction of schistosomiasis is due to the implementation of preventive chemotherapy. The country still has the challenge of continuing to work to simultaneously improve the rates of lymphatic filariasis and soil-transmitted helminths, starting treatment with albendazole in areas recognized as endemic, requiring financial allocation as one of the assumptions for the materialization of the policy disease reduction. The big challenge is eliminate the vector and diseases in the population to avoid the chain of transmission.

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