

# ONCHOCERCIASIS

## INTRODUCTION

Onchocerciasis, also known as river blindness, infects 37 million people living near the rivers and fast-moving streams of Africa. A small number of cases have also been reported in Yemen and the Americas. Onchocerciasis is the world's fourth leading cause of preventable blindness. 500,000 of those infected with onchocerciasis are severely visually impaired, and another 270,000 have been rendered permanently blind from the disease.

River blindness is transmitted by infected Simulium black flies living near bodies of water in Africa. Infected flies carry a larvae form of the filarial parasitic worm *Onchocerca volvulus* from person to person. Larvae enter the skin at the black fly bite site and form nodules in the subcutaneous tissue where they mature. Adult females release millions of microscopic larvae – called microfilariae – into the surrounding tissue. The larvae move throughout the body and, when they die, contribute to a variety of health conditions including skin rashes and depigmentation ("leopard skin"), debilitating itching, and skin nodules. Visual impairment and blindness can also occur.

Ninety-nine percent of all river blindness cases are found in Africa. In the 1970s, the disease was so widespread in some African river communities that up to half of all adults were blinded, and many fled the fertile river valleys. The socio-economic impact of this migration was so severe that it prompted the creation of the successful Onchocerciasis Control Programme in 1975, which helped bring down disease rates and return economic stability to African river communities. In 1995, the African Programme for Onchocerciasis Control (APOC) was formed with the goal of completely eliminating the disease as a major public health concern.

## DISEASE OVERVIEW

### Risks

- People living near the rivers of fast-moving streams of Africa
- Proximity to Simulium black fly breeding grounds

### Symptoms

- Debilitating skin rashes and lesions
- Itching and depigmentation of the skin
- Serious visual impairment and blindness

## Transmission

Infected black flies spread worm larvae through bites on the skin. The larvae enter the body at the bite site, form subcutaneous nodules under the skin, and mature into adult worms. Female worms release millions of small larvae into the body which eventually die and lead to severe skin rashes and depigmentation, visual impairment and blindness, and severe and disfiguring skin nodules.

## Treatment

- Vector control and education campaigns
- Treated with a biannual dose of ivermectin (Mectizan)
  - Donated by Merck & Co through the Mectizan Donation Program
- Currently no vaccine exists for onchocerciasis

## DISEASE BURDEN

### Prevalence

- 99 percent of all cases found near fast-moving rivers and streams in Africa
- Some documented cases in Yemen and some Latin American nations

### Disease Impact

- More than 500,000 documented cases of severe visual impairment
- 270,000 reported cases of permanent blindness

## EFFORTS AT CONTROL

Treatment with ivermectin, coupled with the spraying of black fly breeding sites with environmentally safe insecticides has been found to be the most effective method of control for onchocerciasis. The African Programme for Onchocerciasis Control (APOC), created in 1995, has reduced the incidence of river blindness by 73% since its inception. The foundation of APOC's approach is community-directed treatment with ivermectin (CDTI), designed to empower local communities to distribute the drug quickly and without interference from government or bureaucratic entities. 127,000 communities have participated in the CDTI program, 500,000 community drug distributors have been trained to date, and 46.8 million people are currently receiving treatment for the disease. Distribution of the drug through local channels has been an effective means of significantly reducing disease burden in affected areas participating in the program.

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## FACTS AT A GLANCE

- Almost exclusively found near the rivers and fast-moving streams of Africa
- Community-driven distribution of the drug ivermectin has significantly reduced disease burden
- Environmentally-safe insecticides have helped curb the spread of the disease by black flies, its only means of transmission