

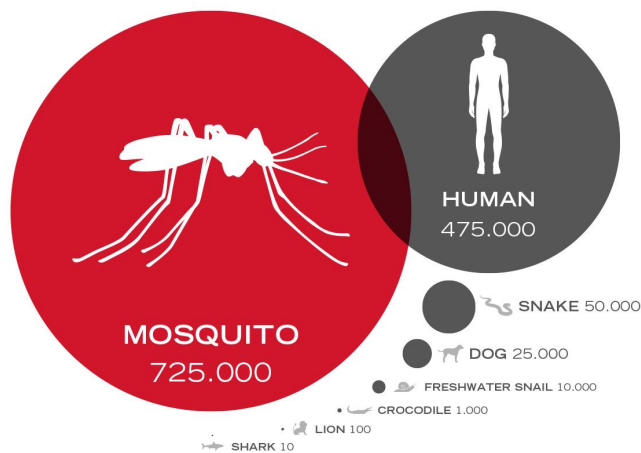
# About Malaria

## Why focus on Malaria?

Malaria is an infectious disease spread by the bite of the world's deadliest animal: the mosquito. Once it enters the human body, the parasite lodges itself in the liver where it multiplies, and bursts into the blood stream where it begins infecting red blood cells. People who get malaria get high fevers, shaking chills, and flu-like illness. Left untreated, malaria can be fatal – and it significantly burdens global health systems in growing regions.

### THE DEADLIEST ANIMAL IN THE WORLD

Number of people killed by animals per year



### Half the world is at risk

Malaria parasites infect 200 million people and kill 400,000 every year. The disease is typically found in tropical and sub-tropical countries in Asia, sub-Saharan Africa, and the Americas. Even in Europe and North America, thousands of cases are diagnosed from infected travelers returning home.

## **The deadliest malaria strain is developing resistance to our most effective drug**

Resistance to a widely used treatment, artemisinin, in the *Plasmodium falciparum* strain has been detected in Southeast Asia. The reason? Artemisinin has been used in Southeast Asia for decades longer than most of the world—giving the parasite more time to adapt. Widespread use of counterfeit drugs, coupled with improper dosages of the drug has sped up resistance.

## **Researchers depend on microscopy to track drug-resistance cases**

The majority of cases are diagnosed using rapid diagnostic tests (RDTs)—a diagnostic device similar to a home pregnancy test. While RDTs are quick and easy to use, microscopy can identify the malaria species and overall parasite count. For that reason, it is critical to monitoring drug effectiveness.

However, analysis of a blood smear using microscopy requires a skilled lab technician to look at up to 100 different fields of view over 20 minutes to make a diagnosis.

## **Malaria is one of the hardest diseases to identify on a microscope slide**

There are very few highly skilled malaria microscopists in the world who can do it accurately. At very low infection levels, a microscopist must be able to find a single parasite in 100,000 red blood cells, the equivalent of finding marbles in a standard football pitch, in 20 minutes. Fatigue combined with large numbers of slides and unfamiliarity with the parasite results in misdiagnoses and limits researchers' ability to compare results across geographies.