Malaria vaccine underway

History of Malaria worldwide

eadly fevers - probably malaria - have been ded since the nning of the written d (6000-5500 B.C.) ferences can be found in Vedic writings of 1600 . in India and by pocrates some 2500 rs ago.

uinine, a toxic plant aloid made from the k of the Cinchona tree in uth America, was used reat malaria more than years ago.

uit missionaries in h America learned of anti-malarial properties he bark of the Cinchona and had introduced it Europe by the 1630s into India by 1657.

1927, J. Wagner von ogg was awarded the l Prize in Medicine for rk in treating syphilis alaria. Patients ulated with a type to produce would literally e temperature-yphilis bacteria. four cycles of patient was quinine for a cure for the

laria therapy for ng monkey and an parasites continued the mid-1950s when it replaced by antibiotic motherapy.

e Dutch bought chona seeds from sh trader, Charles er, who brought them Peru. They blished Cinchona plantations in Java (Indonesia) in the mid 1800s and soon had a virtual monopoly on quinine.

When the Japanese captured Java during the Second World War, quinine, except for some old stocks became unavailable. The need for a new synthetic antimalarial became a priority at that time.

In 1880, the first true sighting of the malaria parasite was made in Algeria by a French Army physician, Charles-Louis-Alphonse Laveran, while viewing blood slides under a microscope. The medical community rejected Laveran's discovery and it was not until 1886 that Italian scientists, the leaders in the field, accepted his discovery at the time.

In 1882 the mosquito transmission hypothesis - guilt by association - was first made.

The December 18, 1897 issue of the *British Medical Journal* reported that Dr. Ronald Ross discovered malaria cysts in the stomach wall of *anopheline* mosquitoes that fed on a malaria patient.

Children are always the major victims of malaria (file photo).

By July 1898, malaria transmission through the mosquito was established. At that time, Italian scientist Giovanni Batista Grassi traced the course of the parasite through the mosquito, and proved that human malarias were transmitted by species of *Anopheles*.

Experiments in India in 1932, showed that the monkey malaria, *Plasmodium knowlesi*, which produced no clinical signs of malaria in Indian rhesus monkeys, was fatal to Malayan irus monkeys and produced a 24-hour fever cycle in humans that terminated in self cure.

Unlike botanical quinine, chloroquine is a synthetically manufactured product that belongs to a class of compounds known as 4-amino quinolines, first developed in 1934 by a German pharmaceutical company.

The first 4-amino quinoline was called Resochin. A slight modification a few years later produced Sontochin. In 1943, the Americans acquired Sontochin when Tunis was liberated from the Germans. Its composition was again changed slightly and it was renamed Chloroquine.

1950 saw the launch of a pilot project for the control of malaria by spraying with DDT.

WHO initiated strategies for the global eradication of malaria in the mid-1950s.

In the 1960s, chloroquine resistant strains of *Plasmodium falciparum* had arisen; the result of over usage and probably under dosage. At the time, there was no drug to treat chloroquine-resistant malaria except the ancient antimalarial, quinine.

By 1966, it had been shown that 10 species of *Plasmodium*, naturally present in monkeys and apes, were capable of infecting humans. Often an infection in one species that produces no clinical signs of malaria can cause severe illness and death when transferred, thro inoculation, to another.

Quinine has now bee completely synthesize synthetic analogue wa called mefloquine.

A "new" antimalarial drug called Qinghaos is derived from the sw wormwood (Qinghao) (genus *Artemisia*). It been used in China fo more than two thousa years to treat fevers associated with malar The drug has been sh to be effective in the treatment of the most deadly forms of *falcip* malaria and has been effective against strain *Plasmodium falciparu* that are solidly resista chloroquine.

In 1967, WHO realize that the global eradica of malaria was impos for a variety of reasons the focus shifted to co of the deadly disease. 1972, the Global Eradication of Malaria Programme was form declared dead.

In 1987, Dr. Manuel E Patarroyo, a biochemi from Colombia, devel the first synthetic vacc against the *Plasmodi falciparum* parasite. T vaccine is still being developed and has no proven to reduce deat Africa. In 1992, Dr. Patarroyo donated the vaccine to the World H Organization.

Desowitz, Robert S. Malaria Capers (More Tales of Parasites an People, Research and Reality). W.W. Norton Company, New York,

100,000 children die of malaria in Uganda

y Jennifer Bakyawa

alf a century ago, malaria was unheard of in southwestern Kabale and temperatures were the swamps not med and the land use ns were different. no longer the case Land is used for lopment projects; the ps have been ted with crops like es, giving the ito parasite ally the *anopheles* e species ambient rature and water on areas for ication. situation may have d changing in the s but we started g the effect in the late ," says Dr. Nathan yita of the Ministry of h.

ce, people in these that originally were posed to the ites as children, d getting severely ill. a epidemics were d in 1990, 1991, 1994, 1996, 1998 current rife which health officials are trying to stop.

According to Bakyayita, people will continue getting attacks of malaria, which could be severe because they are not used to the disease. With more attacks however, they are building immunity, he says.

A paper on general information from the ministry about malaria prevention and control states that typical symptoms of severe or complicated malaria include; change of behaviour, altered consciousness, convulsions, low blood sugar concentration (hypoglycaemia) and high concentration of acid in the blood (acidos).

There is also acute renal failure, severe anaemia, shock and haemoglobin is the urine and the waste is very dark in colour (haemoglobinuria).

Others are palms, eyes, etc are yellow in colour (jaundice) bleeding tendency, prostration, axially temperature above 39.5 degrees centigrades (hyperpyrexia) and more than 5% of the red blood cells have parasites (hyperparasitaemia).

Apart from people in very cold areas, pregnant women, children and foreigners who have never been exposed to malaria are susceptible to suffering from complicated malaria.

The ministry estimates that between 70,000 and 100,000 children less than five years in Uganda die of malaria annually. Figures for other children and adults are not yet available.

The good news is that the majority of people in Uganda have suffered from uncomplicated malaria, hence making it endemic in the country.

Uncomplicated malaria is characterised by fever, headache, and backache, joint pains and stages where the patient feels cold at one stage, hot at another and sweats too.

Bakyayita says for uncomplicated malaria, it is advised that chloroquine is used as the first line drug in areas where it's resistance is still low.

Sulfadoxine/ pyremethamine (fancidar) is given to the patient in case chloroquine does not work. Quinine should come as a reserve drug.

Dr. Frederick Kato, a Senior Medical Officer in the ministry says the World Health Organisation issued guidelines that in areas where malaria parasites are resistant to chloroquine, both chloroquine and fansidar are given as the first line drug.

Kato says that with every 100 people suffering from malaria, 30 of them are resistant to chloroquine.

"It is usually town dwellers than rural people who are more resistant to chloroquine," he adds.

According to Kato, rural people use between Shs 2,000 and Shs 2,500 for treatment of uncomplicated malaria as opposed to urban dwellers who spend between Shs 4,000 to Shs 4,500 on the disease.

Several Ugandans are fearful about anti malaria drugs manufactured from India and Pakistan, believing that they are not effective in treating the fever.

However, Kato says, not all drugs should be labeled ineffective, because it depends on the manufacturer.

He adds that drug manufacturers prefer Asian countries than North America or Europe because of the cheap costs.

"Most drugs that enter the country are first approved by the National Drug Authority. Besides, periodically, samples of drugs are taken off the shelves and tested for its content," he says

But Bakyayita is quick t that there could be ineffic drugs because of the po security at the frontiers.

Boarders or no boarde Government is determine determined to fight malar Last financial year, it allo Shs 70m towards the m control programme. For 2000/2001 fiscal year, 5 540m was budgeted fo fight.

This is in additio donors like W UNICEF, DFID International Develop Agency, European U USAID who help in t

Sometimes the don channel the funds th ministry or they can independent progra says Kato.

Others give the m Government Orga churches.

This may appear is inadequate.

At a 4th meeting Partners for Roll B it was discove countries in Sub Africa use six d capita on treatm instead of $12 t per capita.