



THE QUEEN'S  
ANNIVERSARY PRIZES

FOR HIGHER AND FURTHER EDUCATION

2008

# Neglected Tropical Diseases NTDs

# SCI

Schistosomiasis  
Control Initiative

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London

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# The big three in Sub-Saharan Africa malaria, HIV/AIDS and TB

Condition	Cases in Africa	Proportion of Global Burden in Africa
<b>Malaria</b>		
Cases	300 million	90%
Deaths	1 million	90%
<b>HIV/AIDS</b>		
Cases	26 million	>65%
Deaths	2 million	70%
<b>TB</b>		
Cases	2 million	30%
Deaths	0.5 million	30%

# These are the acute diseases – the killers

There are a group of chronic or

“Neglected” Tropical Diseases

which affect 10 times as many people as HIV/AIDS and more than the malaria cases – and they disfigure, maim and slowly kill

# The Neglected Tropical Diseases

## *A growing Core Group of 15 – MDA for 7*

### ➤ Protozoan Infections

- Human African Trypanosomiasis (HAT)
- Chagas Disease
- Leishmaniasis

### ➤ Bacterial Infections

- Buruli Ulcer
- Leprosy
- **Trachoma**

### ➤ Helminth Infections

- **Ascariasis**
- **Hookworm Infection**
- **Trichuriasis**
- **Schistosomiasis**
- **Lymphatic Filariasis**
- **Onchocerciasis**
- Dracunculiasis
- Cysticercosis

+ **Podocnionosis**

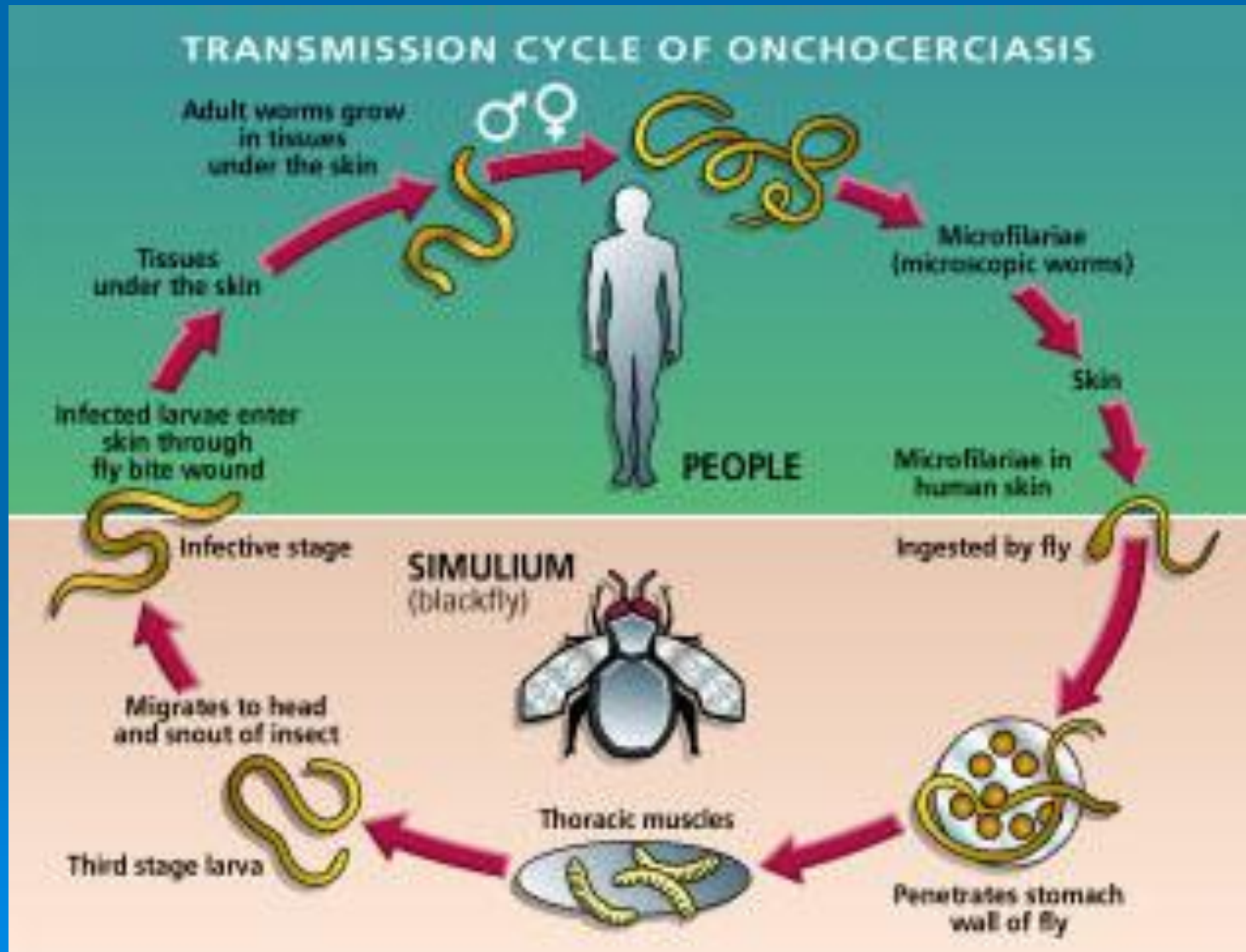


# Onchocerciasis River blindness



**Affects 18 million people in Africa**

# The Onchocerciasis Life Cycle



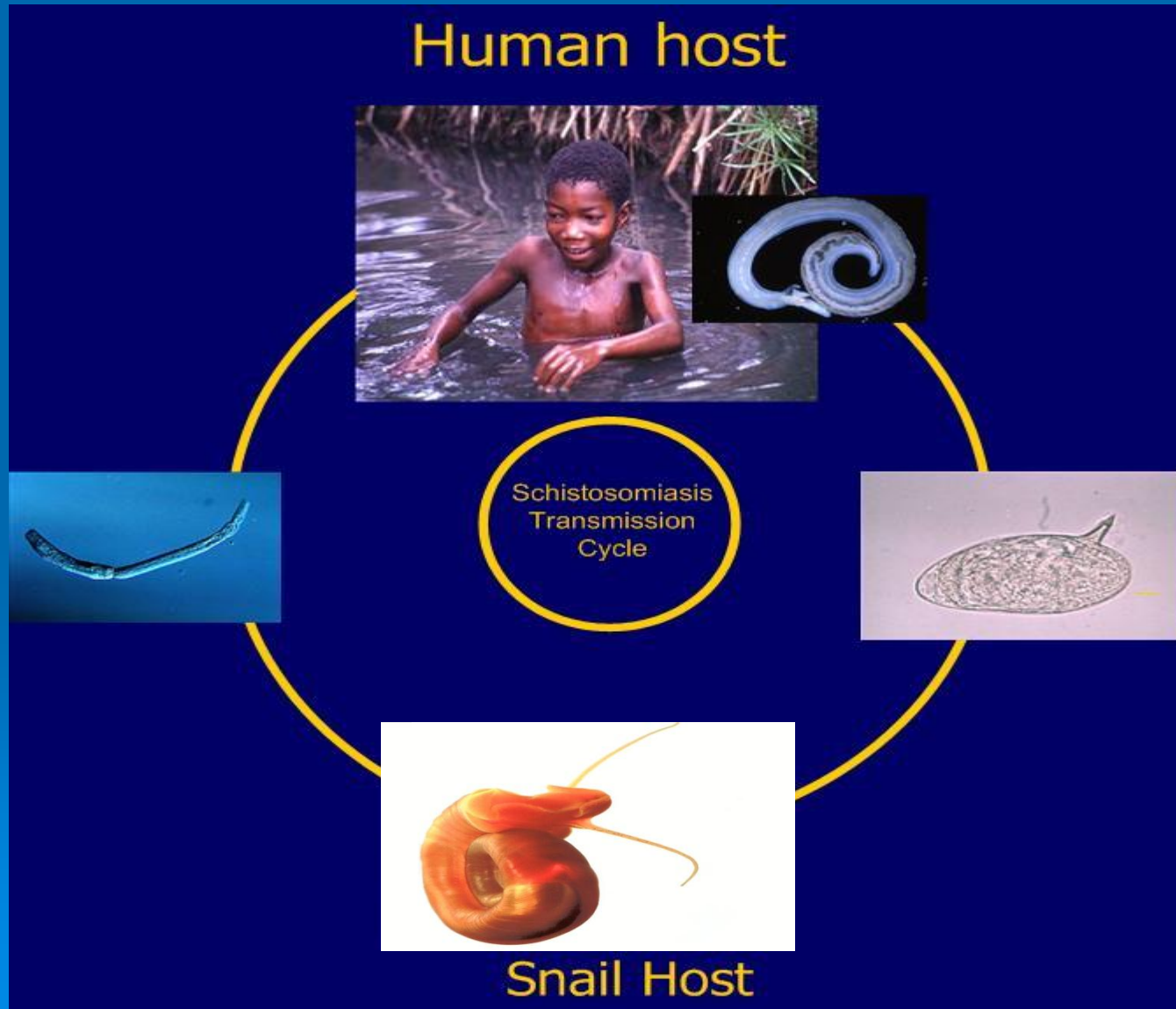


# Schistosomiasis (Bilharzia)



200 million people infected in Africa

# Schistosomiasis life cycle

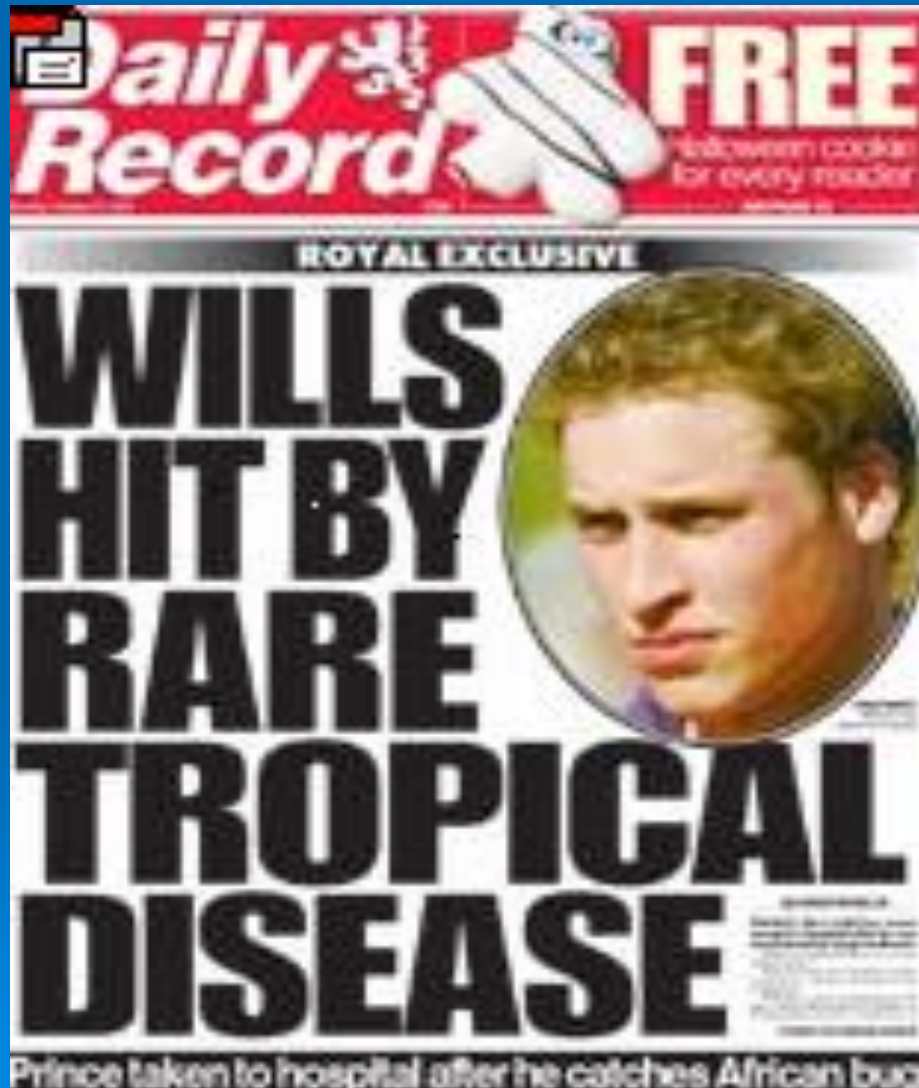


# Urine – *S. Haematobium* infection

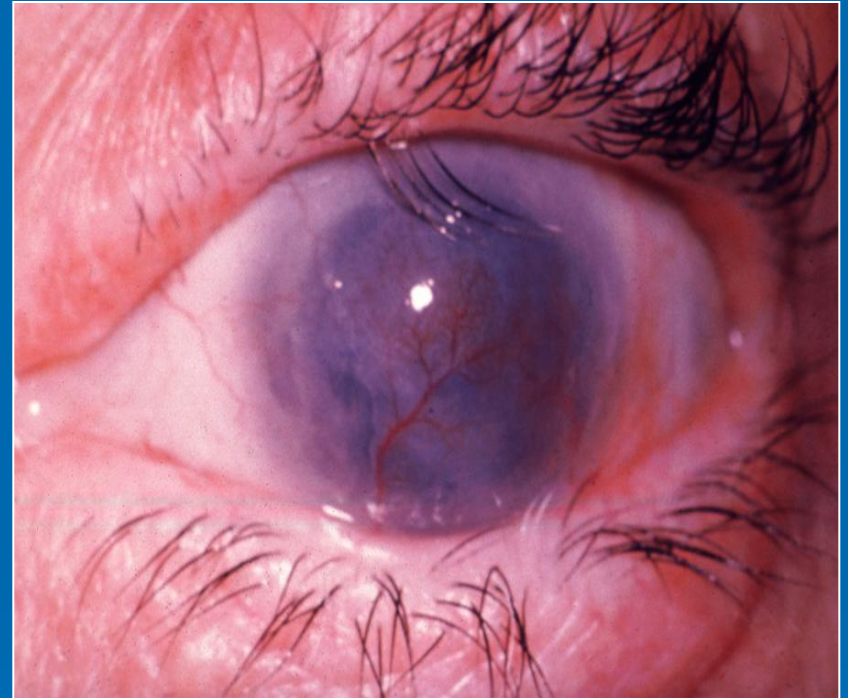




Not only the poor !!



# Trachoma



**33 million people infected in Africa  
100 million worldwide**

# Lymphatic filariasis Elephantiasis



**40 million infected in Africa  
Over 100 million worldwide  
600 million at risk**



This man's hydrocele started 6 years ago – the operation costs \$100 – and the queue in Niger alone is over 8,000 men waiting for the treatment



# Post operation – a smily face

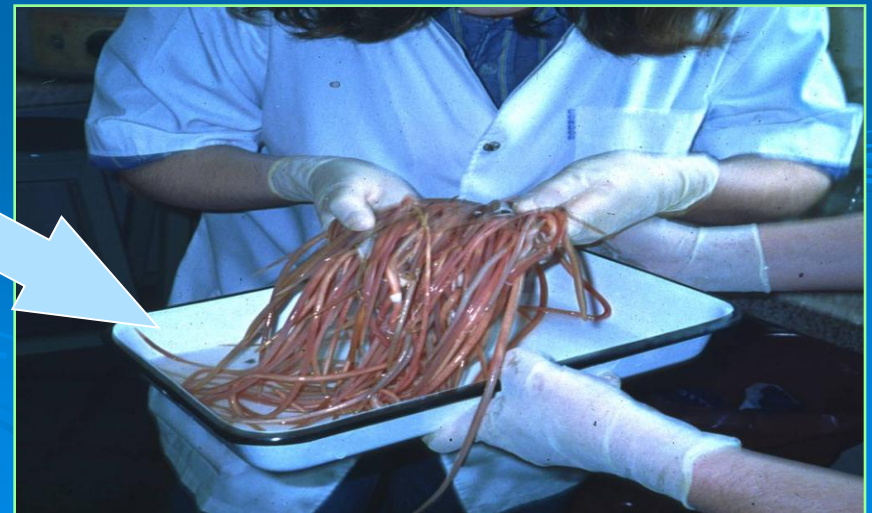




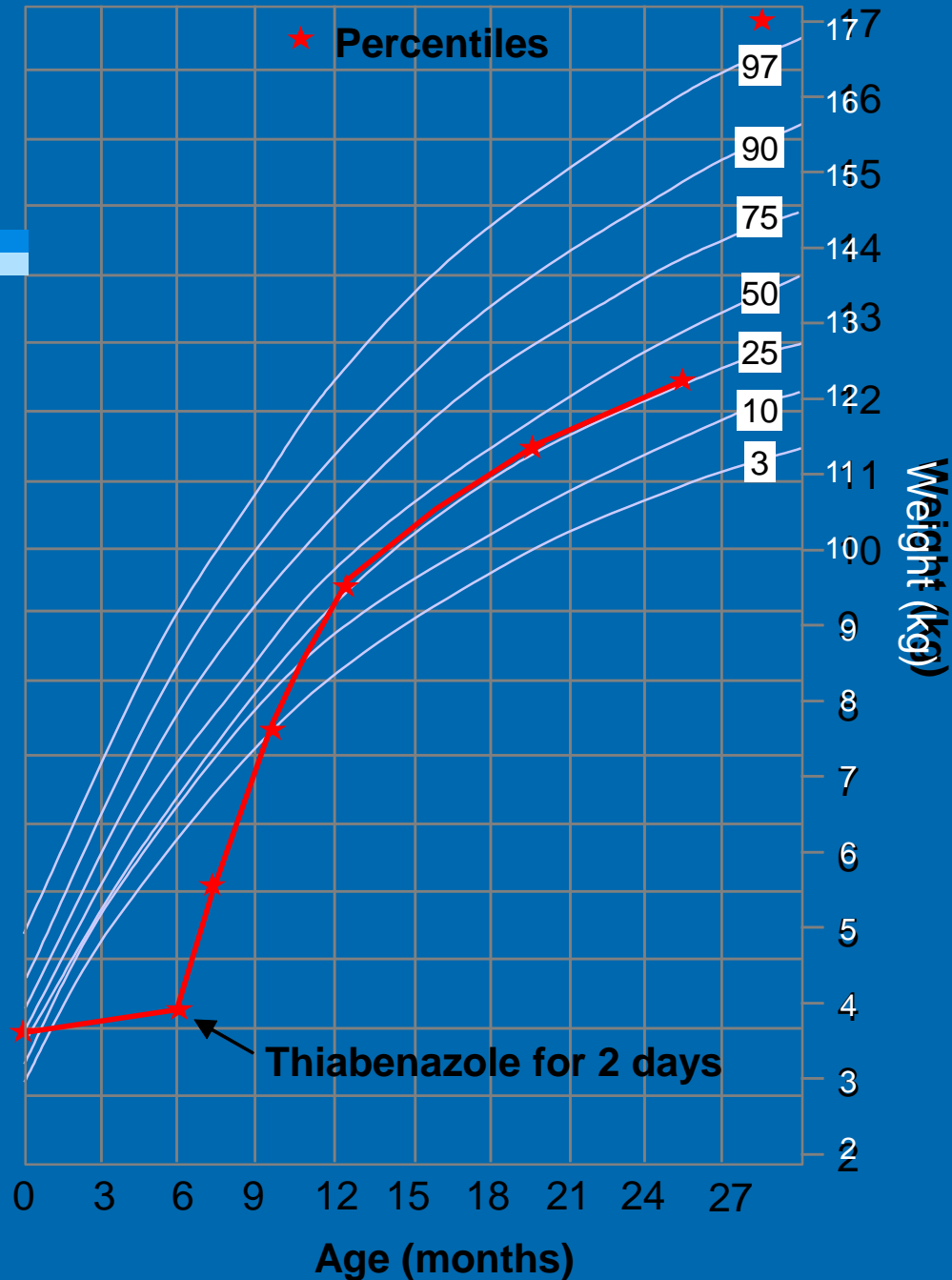
# Soil Transmitted Helminth Infections “Worms”

Ascariasis, Tric

Lets treat this girl  
with **ONE TABLET** of  
albendazole at a cost  
of just 2 US cents or  
1 penny



# STHs Lead to Stunting and Decreased School Performance in Children



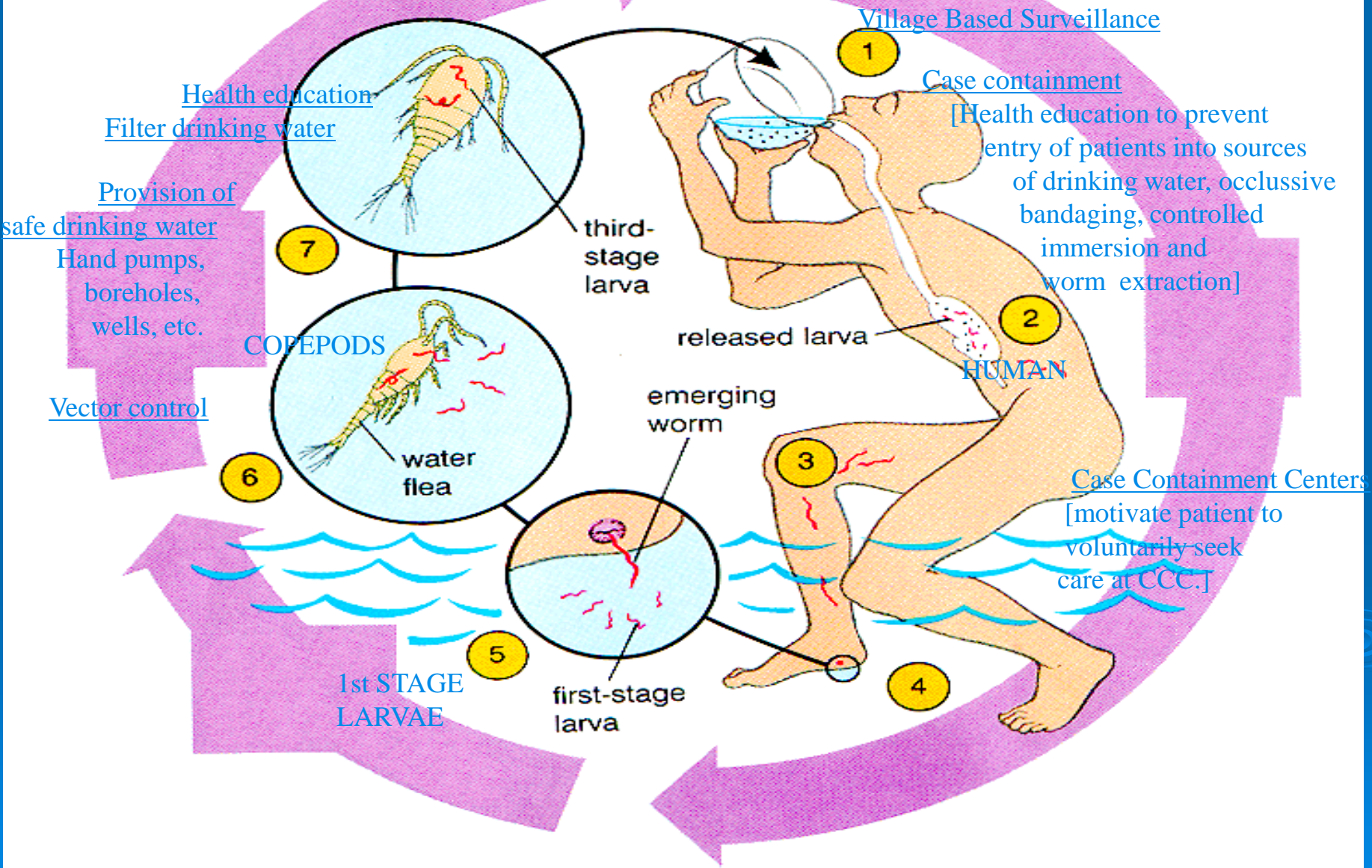


# Treating school children is easy through school health programmes





# CONTROL MEASURES AGAINST DRACUNCULIASIS AT VARIOUS POINTS OF INTERVENTION



# Guinea Worm

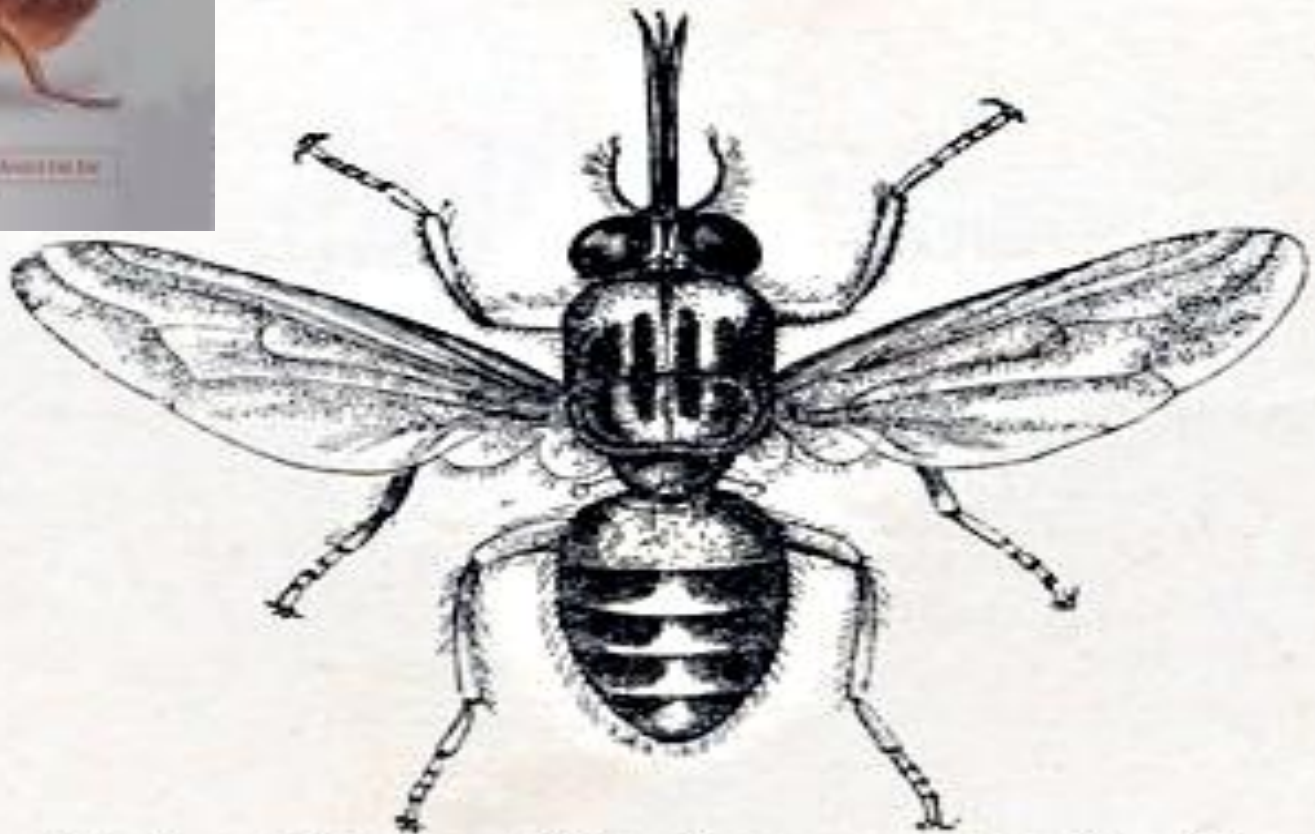
- 30 years ago approximately 2 million people suffered from Guinea Worm
- Today only about 1,000 cases globally and most of them are in Southern Sudan
- Water and sanitation, case management and health education have led to this reduction (Credit to WHO and the Carter Centre)

# Guinea worm in Ghana





# Tsetse fly – sleeping sickness



Tsetsefliege (*Glossina morsitans*). 3/1.  
(Art. *Tsetsefliege*.)



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# Chaga's Disease

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- Same organism as sleeping sickness but confined to South America where it causes heart problems
- Transmitted by the so called “kissing bug” a triatoma bed bug, it really is a disease of poverty
- Recently cases have been imported into Europe and transmitted by blood donors

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# The sandfly and dermal leishmaniasis





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# Leprosy

## Every country now has less than 1 in 10,000 cases

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- Six years ago it was six countries to go, but Brazil was the last one to get to the “magic figure” of less than 1 in 10,000
- That is a long way from elimination, and why was this the target ?

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# Mass Drug Administration

Many governments now have NTD control programmes  
Almost a billion receive treatment every year against:

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- Schistosomiasis (SCI)
  - Onchocerciasis (APOC + NGOs)
  - Lymphatic filariasis (GAELF, CNTD Liverpool)
  - Trachoma (ITI and Sightsavers)
  - Soil transmitted helminths
    - Ascaris, trichuris and hookworm (DtW, CWW, PCD, SCI)
- And RTI and FHI as USAID contractors

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# Thanks entirely to the pharmaceutical industry contribution to global health



Merck & Co Inc – have reconfirmed their 1986 commitment to donate Mectizan for as long as needed for both onchocerciasis and filariasis in Africa



GlaxoSmithKline – have already donated almost 2 billion tablets of albendazole for lymphatic filariasis and will continue until elimination is achieved

In October 2010 GSK committed an additional 400 million tablets a year for to deworm school aged children in Africa (now 1 billion each year)



Johnson & Johnson – has for several years donated up to 50 million tablets mebendazole per year for intestinal worms – from 2012 this will be increased to 200 million tablets per year



Pfizer – originally committed to provide 120 million doses of azithromycin for trachoma  
In 2009 alone they donated 50 million – in 2011 that number reached 70 million



Novartis is continuing their commitment to MDT for leprosy

EISAI

In October 2010, EISAI committed to provide 2 billion tablets of DEC for LF which is used with albendazole outside of Africa



In 2007 E. Merck committed to 20 million tablets/year  
This will increase to 250 million tabs/yr from 2016



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# The NTD world has changed dramatically

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Added to the pharmaceutical donations:

- Funding from DFID and USAID
- The World Bank supporting Yemen
- CIFF support for Kenya and Guinea worm (and soon to be Ethiopia)
- The ENDFUND initiative collecting funding from HNWI individuals and funding Mali, Liberia, Rwanda and others
- Continued Gates funding (DOLF, SCORE)

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# More initiatives in 2012

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- January 30<sup>th</sup> 2012 Meeting in London the magnetic effect of Bill Gates brought together many donors and pharma
- They signed up to the “London Declaration”
- Countries signed up to a WHA resolution calling for “elimination” of schistosomiasis by 2020
- Massively increased funding announced by DFID £50 m -> £240 m

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## Changing targets

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Schistosomiasis  
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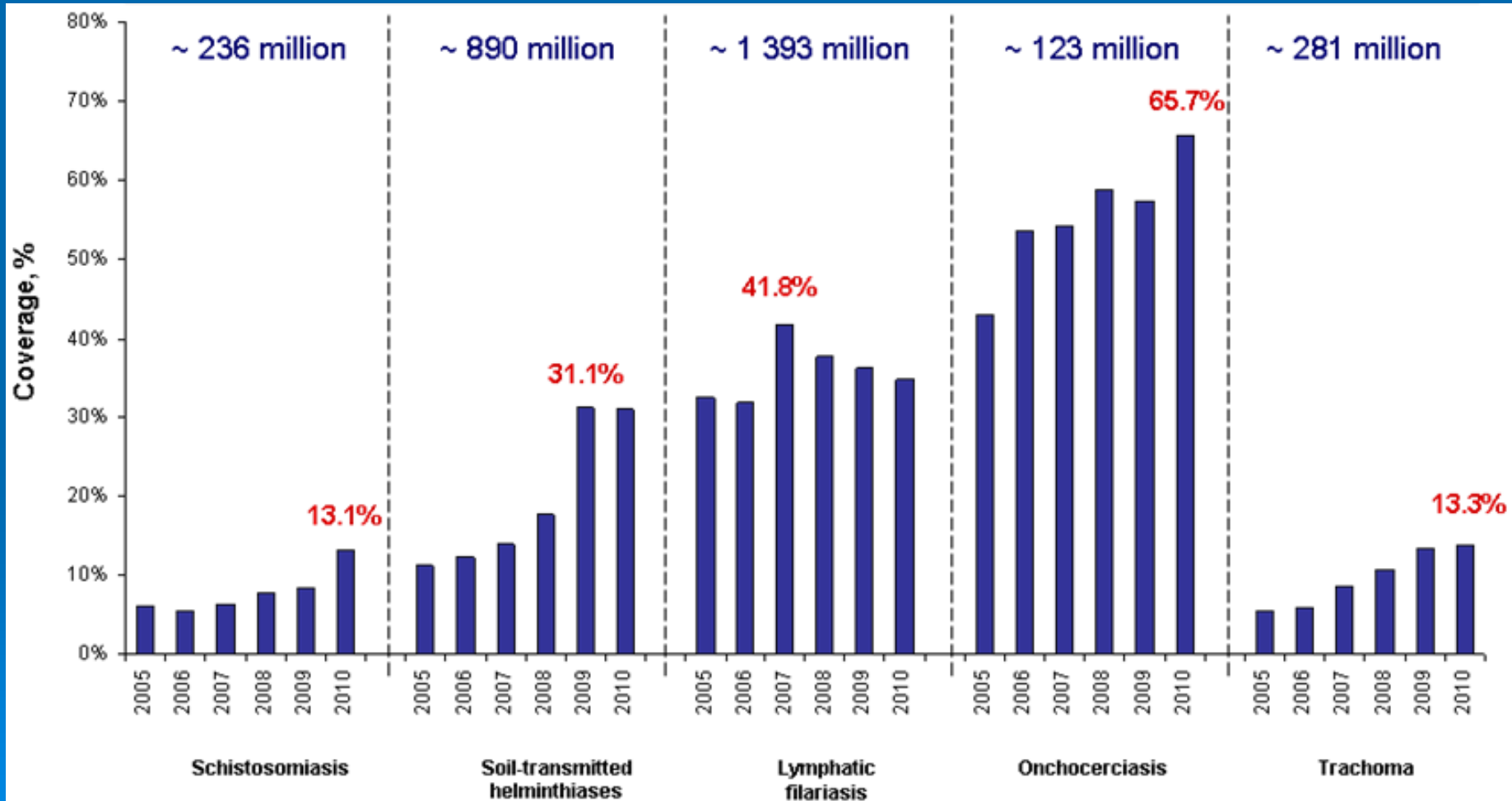
- 2020 elimination target for
  - Onchocerciasis
  - Trachoma
  - LF
  - Schistosomiasis (in certain countries)

We need to exploit the link between  
Schistosomiasis and HIV

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# Global coverage of preventive chemotherapy 2005–2010

## Population requiring Preventative Chemotherapy

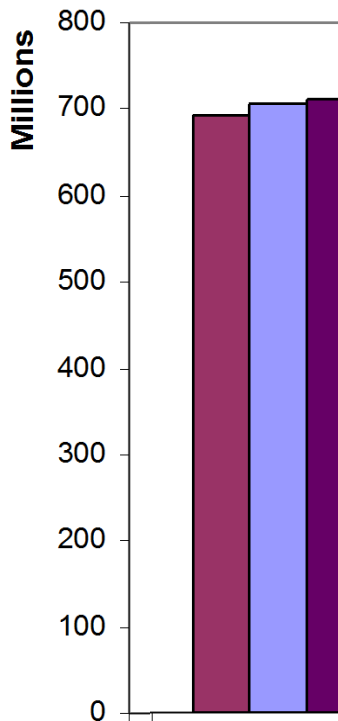


# Global coverage of preventive chemotherapy 2005–2010

## Population requiring Preventative Chemotherapy

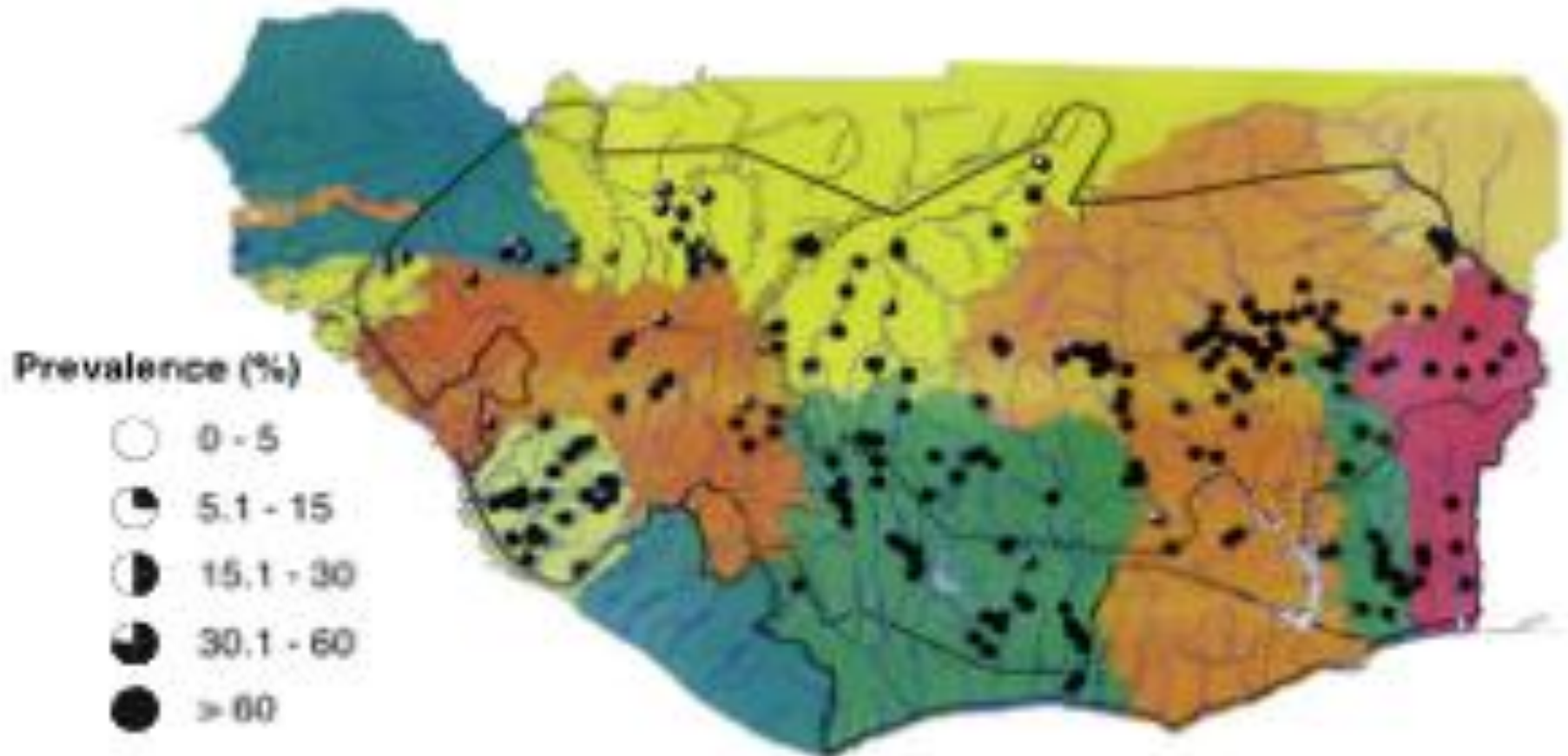
Number of people received PC for at least one disease  
Millions

GLOBAL



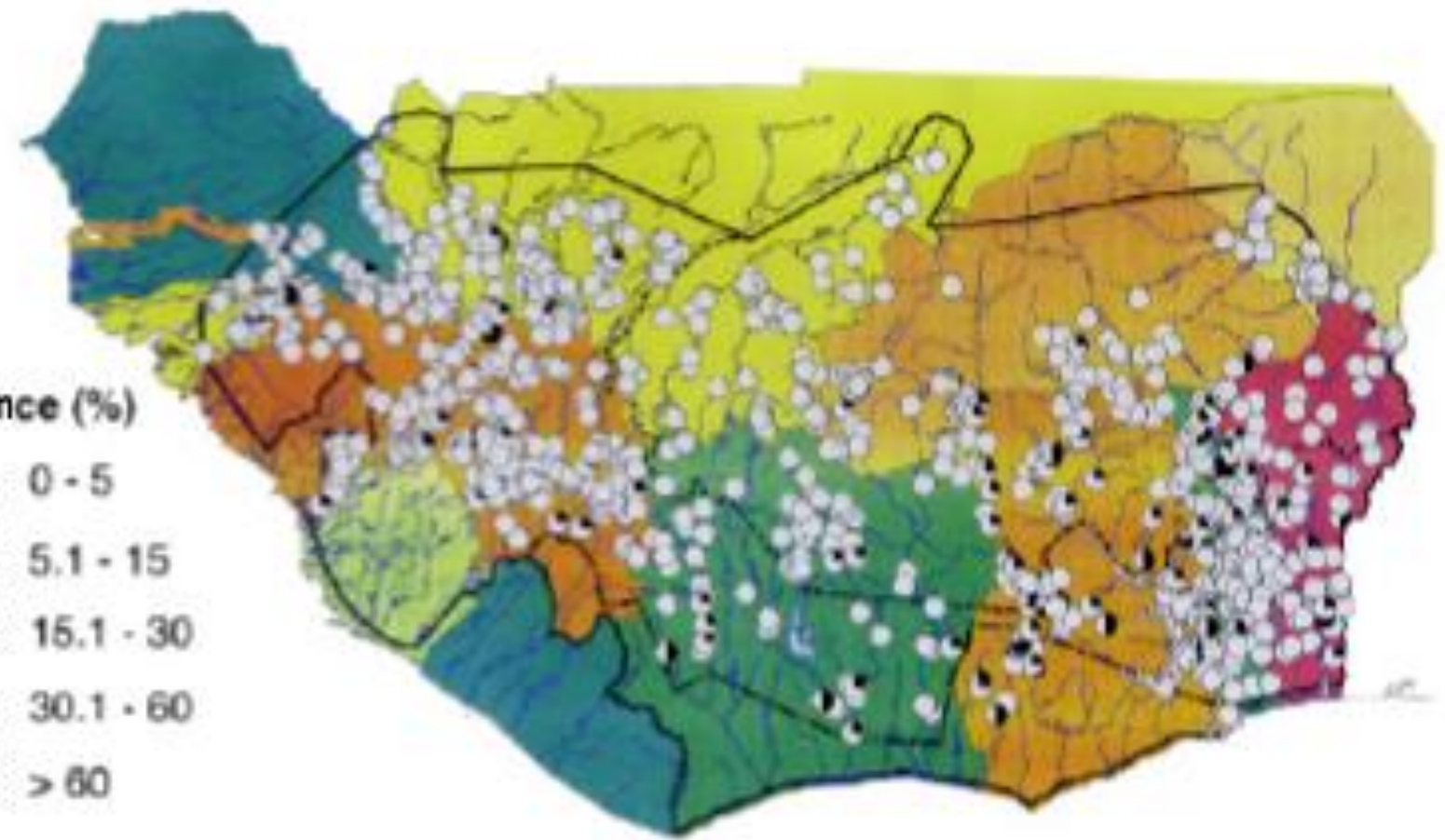
Year	N. Countries reported	N. individuals received PC package at least for one disease (except trachoma)
2008	76	694,342,368
2009	77	705,084,461
2010	77	710,227,143

# The miracle of Mectizan



Onchocerciasis Prevalence 1974

Prevalence (%)



Onchocerciasis Prevalence 2002





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# And for SCI in particular

# SCI

Schistosomiasis  
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- Long term Gates and RTI support
- Legatum support for Burundi and Rwanda
- Partnering World Bank in Yemen
- SCORE (Gates funded)
- ZEST in Zanzibar
- DFID support for 8 countries
- Cote D'Ivoire, Liberia, Malawi, Mozambique, Niger, Tanzania, Uganda, Zambia

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## In the last two years

- UK Coalition established
- Private donor support for Burundi
- ENDFUND support for Rwanda
- Praziquantel from World Vision
- Recognition from Givewell/GWWC leads to donations allowing new initiatives in Senegal - Ethiopia – Zimbabwe – DRC
- The ENDFUND looking at Liberia
- USAID/RTI collaboration

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# WHO's TARGET

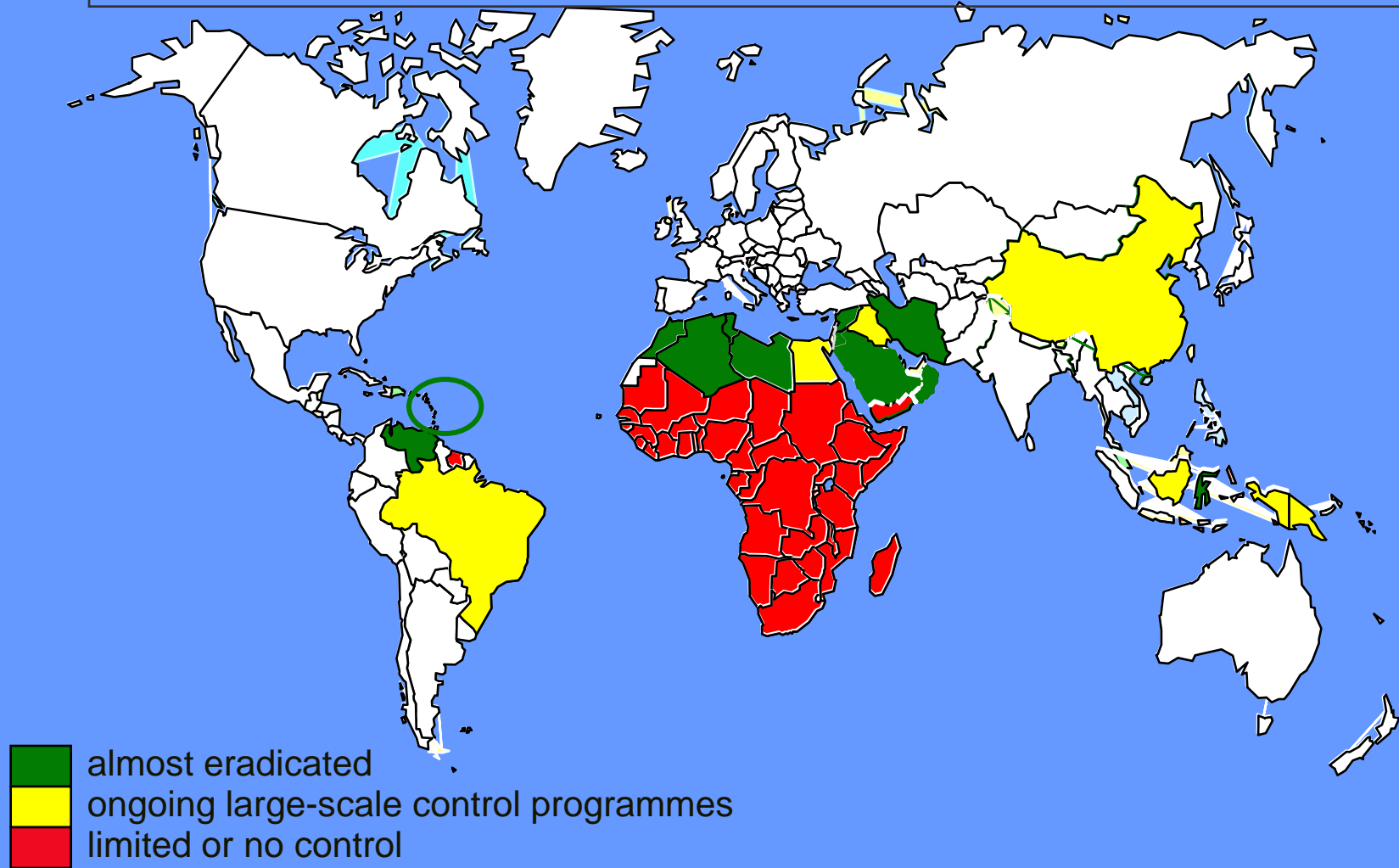
Regular treatment to at least 75% of all school-age children at risk of morbidity for schistosomiasis and soil-transmitted helminth infections

by  
2010

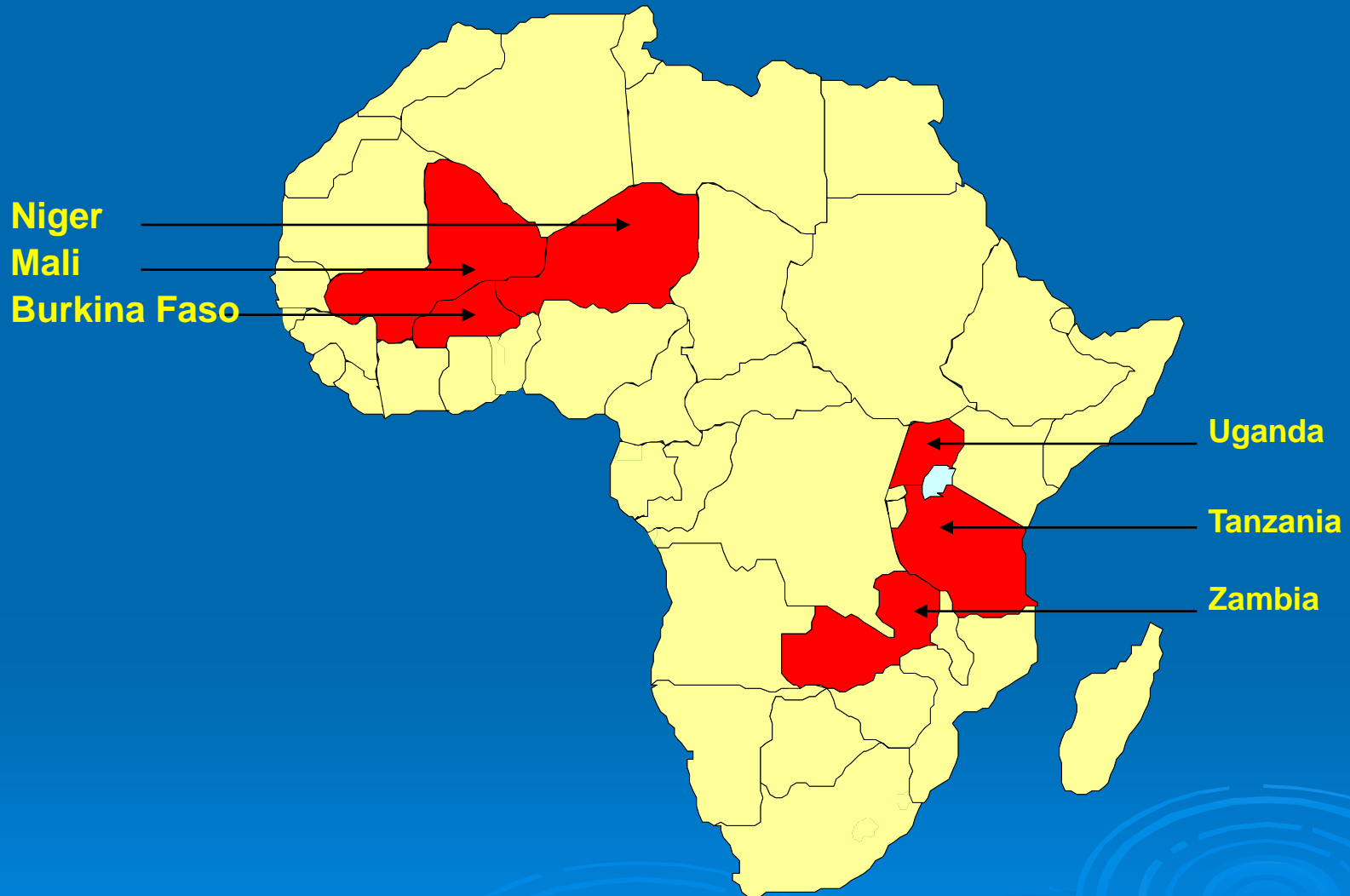
(World Health Assembly 2001)



But in 2002 no one in Africa was controlling schistosomiasis



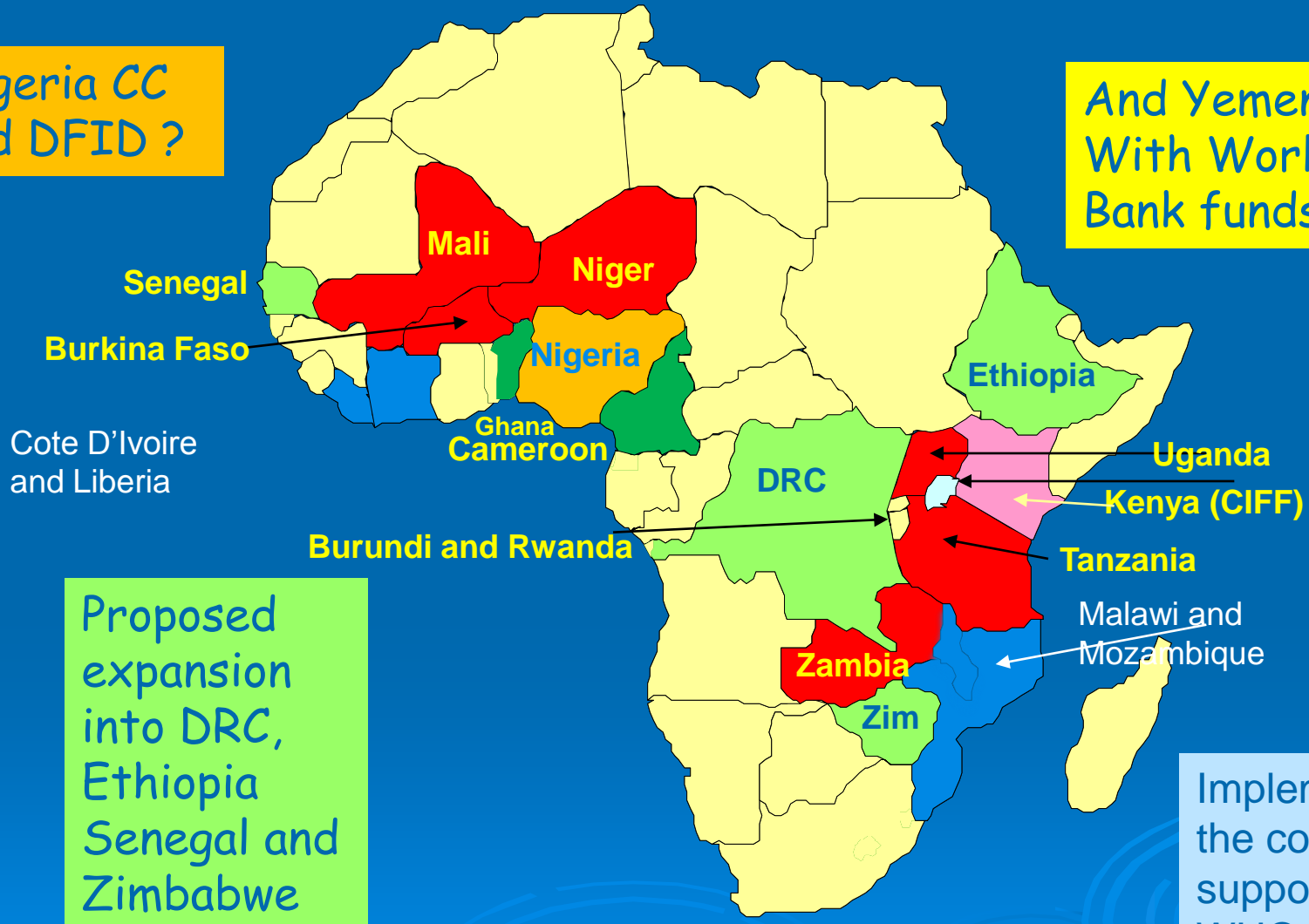
## The six countries selected for SCI support in 2003



# NTD coverage 2003 - 2016

Nigeria CC  
and DFID ?

And Yemen  
With World  
Bank funds



Proposed  
expansion  
into DRC,  
Ethiopia  
Senegal and  
Zimbabwe

With financial support from the Gates Foundation  
USAID/NTD, Geneva Global and DFID, UK

Implemented by  
the countries  
supported by  
WHO, USAID  
grantees, NGO's,  
SCI and CNTD



# The SCI premises

If children are treated for schistosomiasis several times during their school age years they will not suffer serious complications in later life.

If children are regularly de-wormed they will have a better nutritional status, and be better able to attend school and perform in class

Regular treatment will improve the quality of life and create a demand for treatment leading to sustainable control

# First of all Advocacy

putting schistosomiasis and NTD on the health agenda

then base line data collection

- Prevalence
- Intensity of infection
- Anaemia levels
- Heights and weights
- Ultrasound examination of liver and bladder

# Recommended Drug Doses

## Single dose per child

Albendazole	400 mg
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Mebendazole	500 mg
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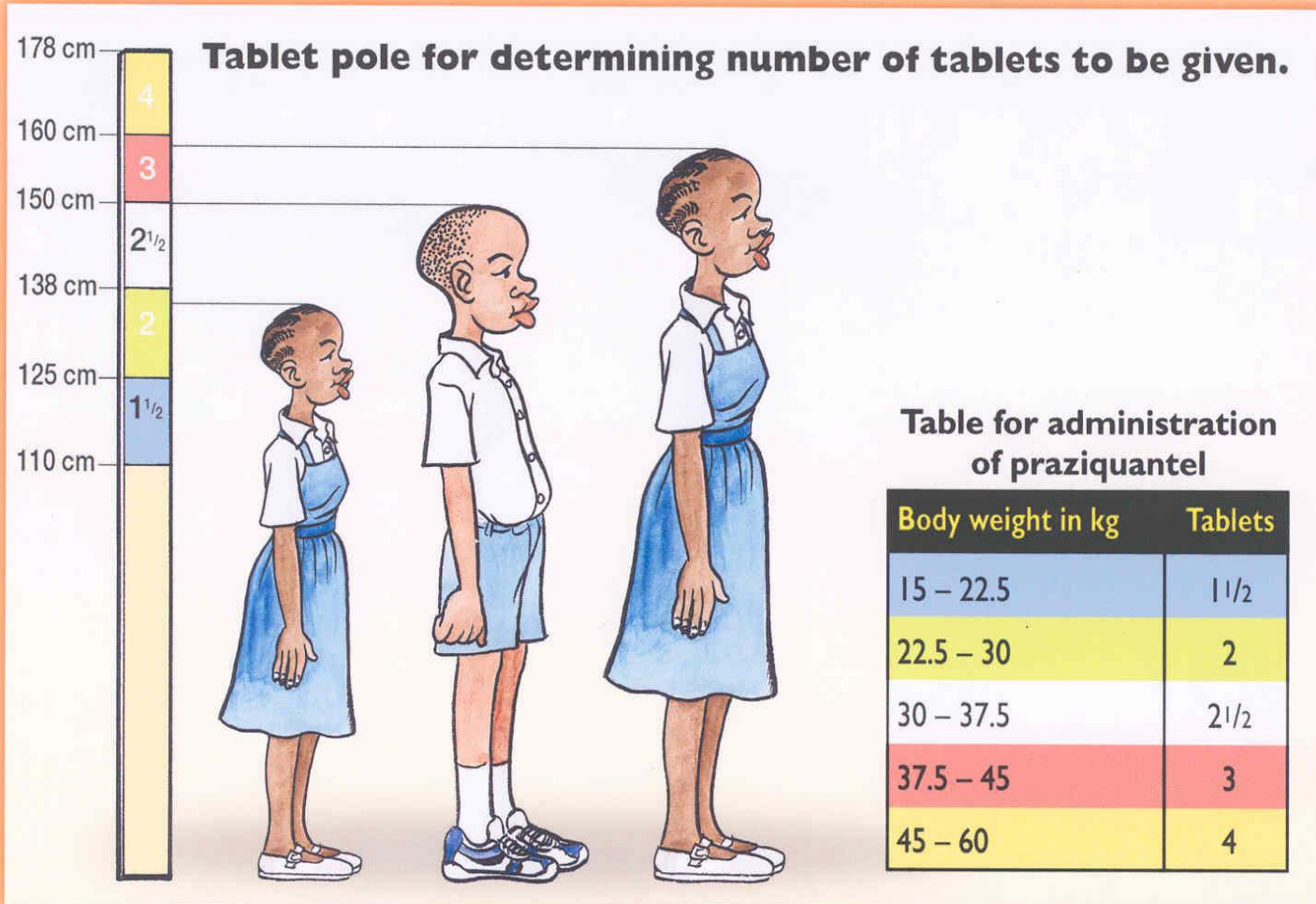
Praziquantel (for schistosomiasis)	40 mg/kg
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Advantage

Single Tablet

Dose pole  
available

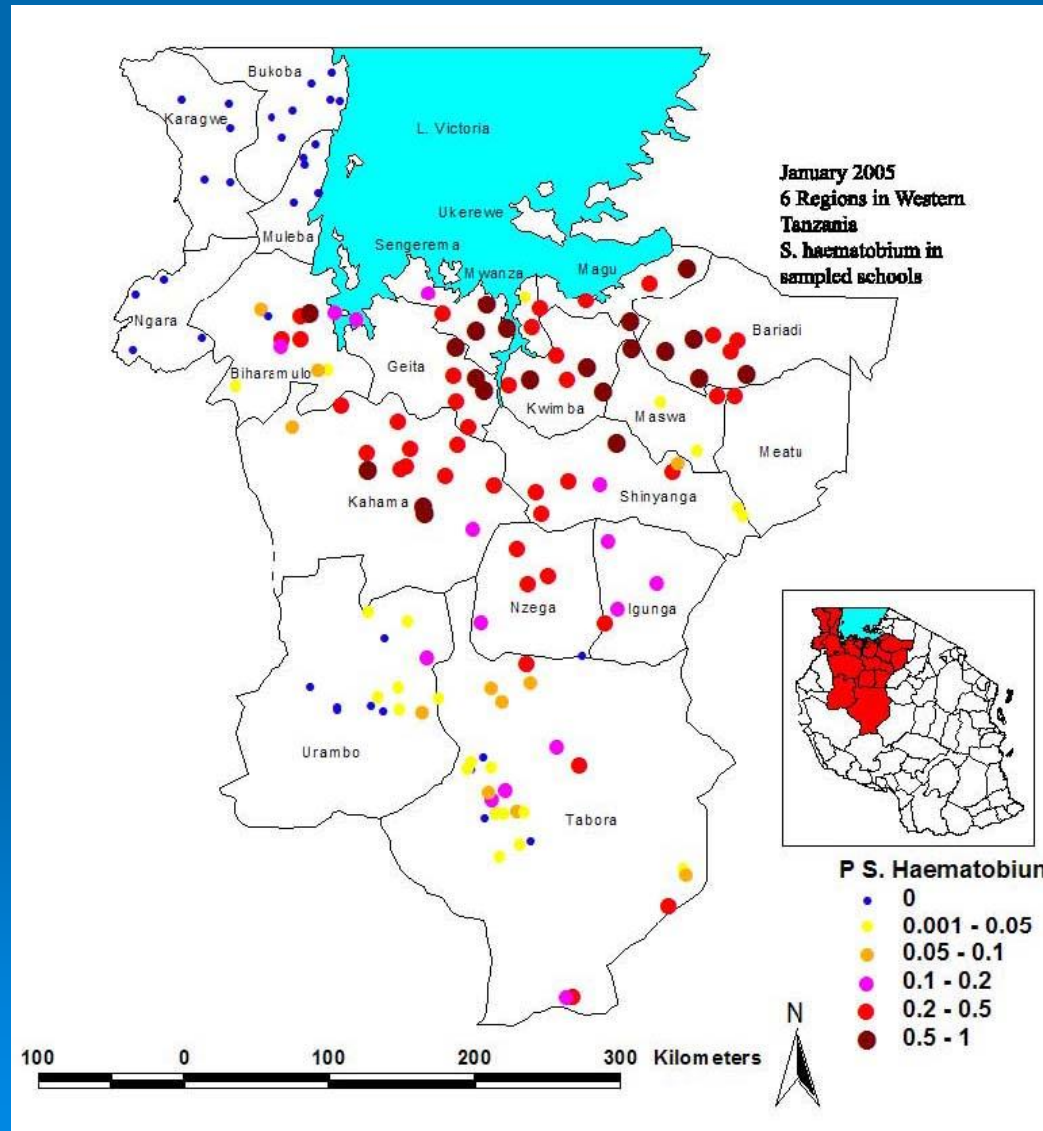
# The Dose Pole instead of weighing the children





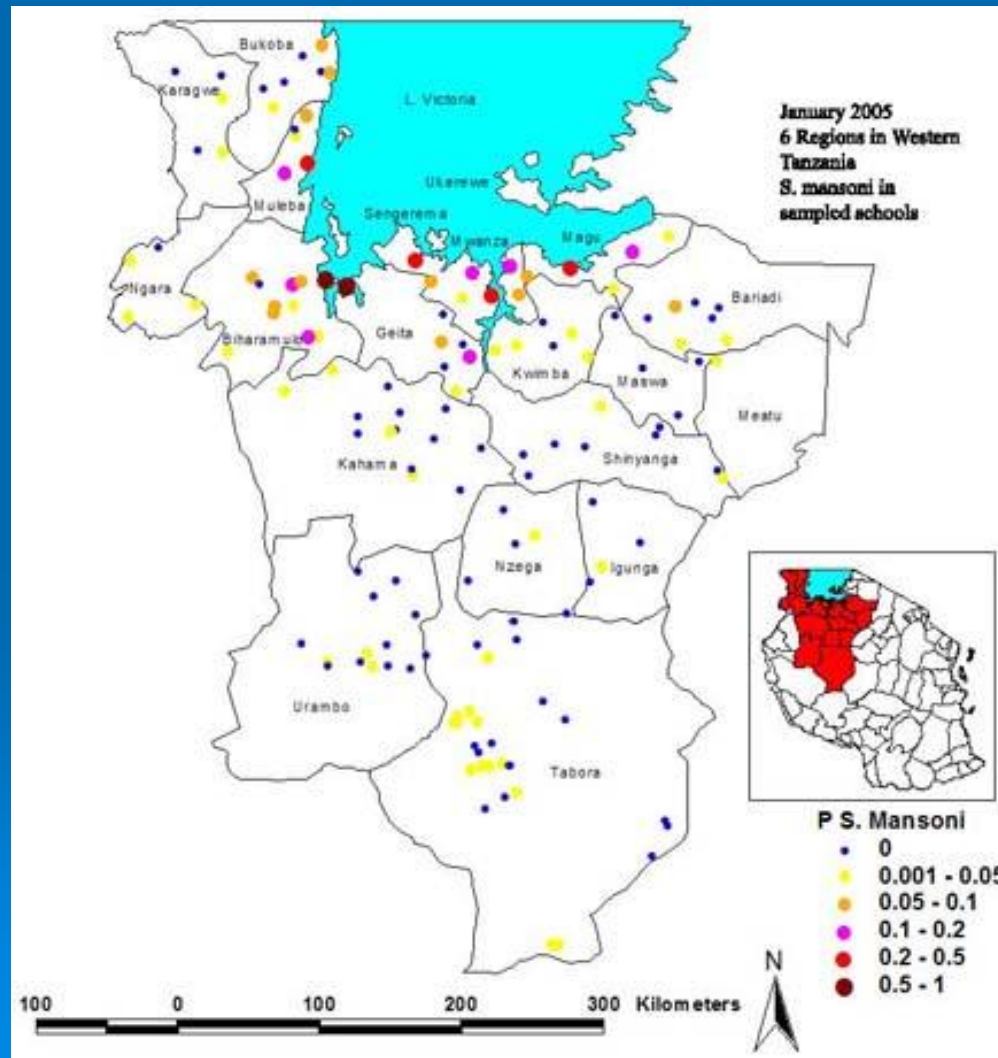
# Tanzania – 6 Western Regions

## *S. haematobium* prevalence in sampled schools



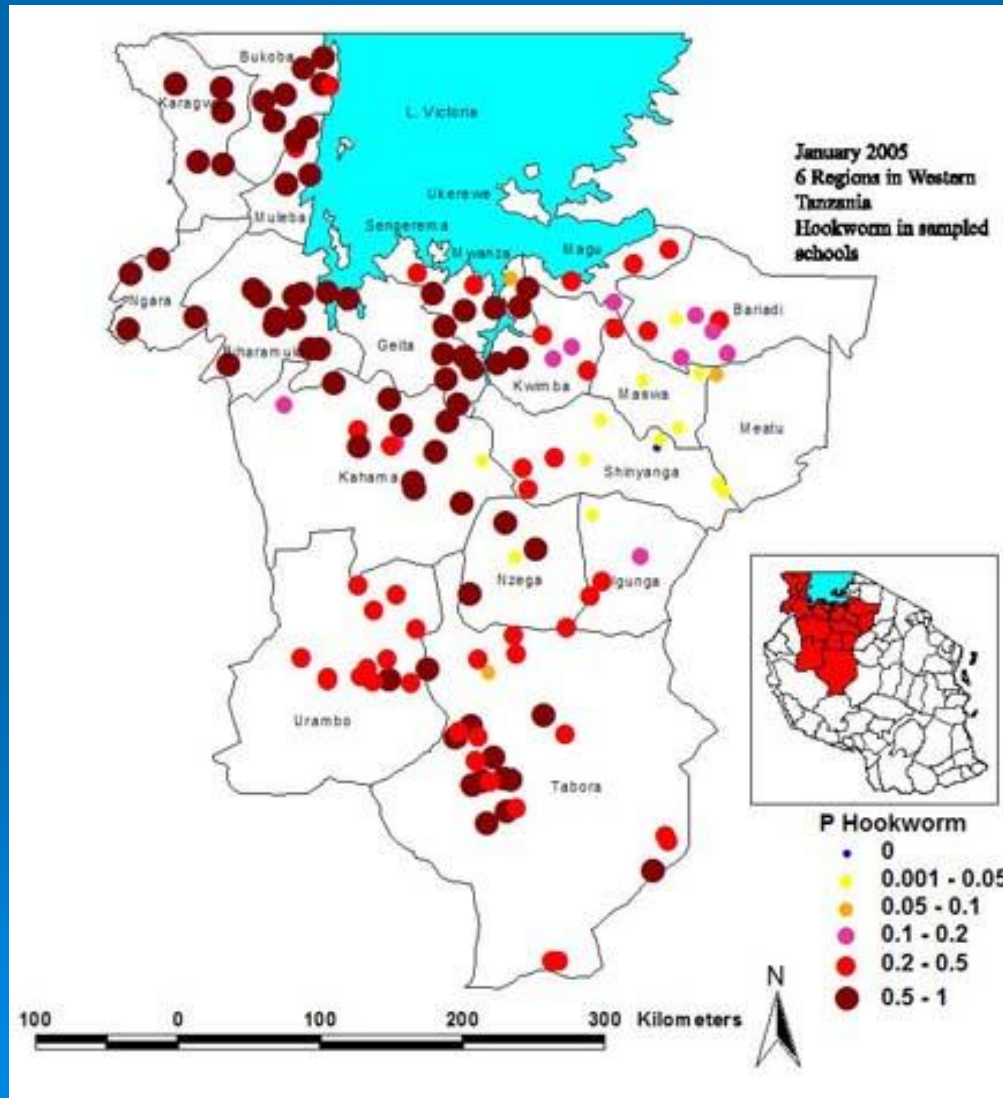
# Tanzania – 6 Western Regions

## *S. mansoni* prevalence in sampled schools



# Tanzania – 6 Western Regions

## Hookworm prevalence in sampled schools



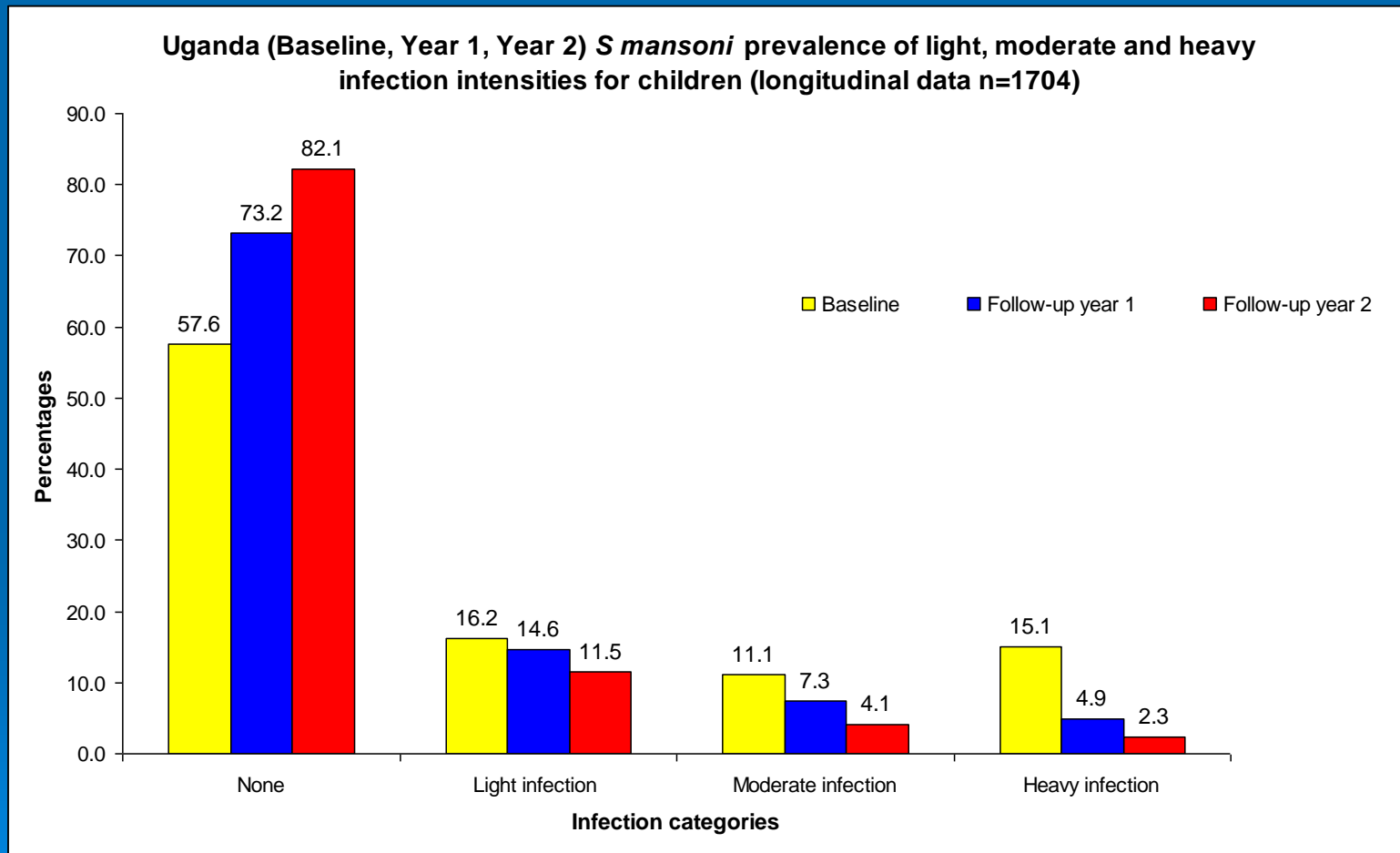


# On mainland Tanzania the Prime Minister and Minister of Health launched the programme

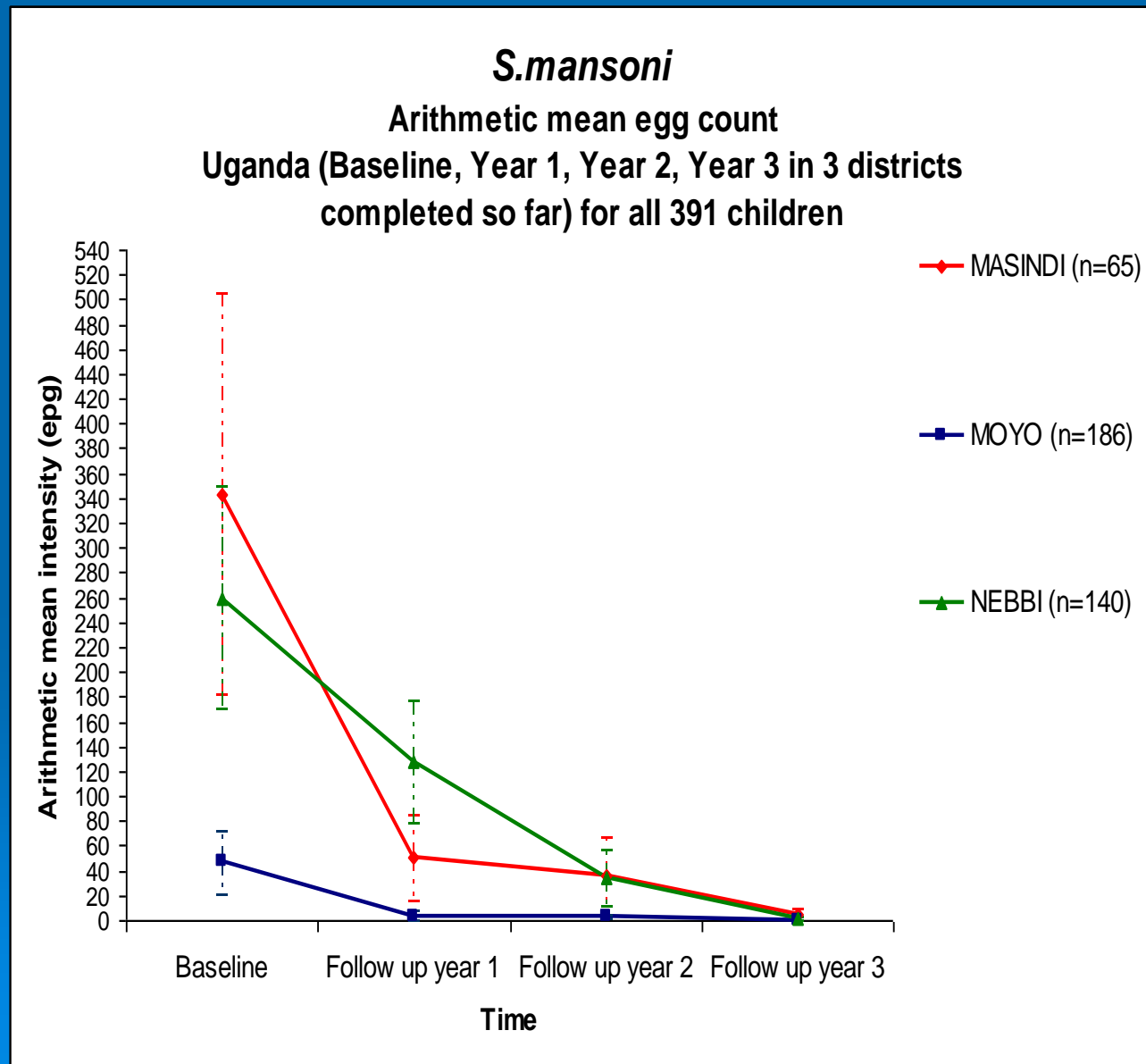




# In Uganda after 2 years – a reduction in *S. mansoni* intensity of infection

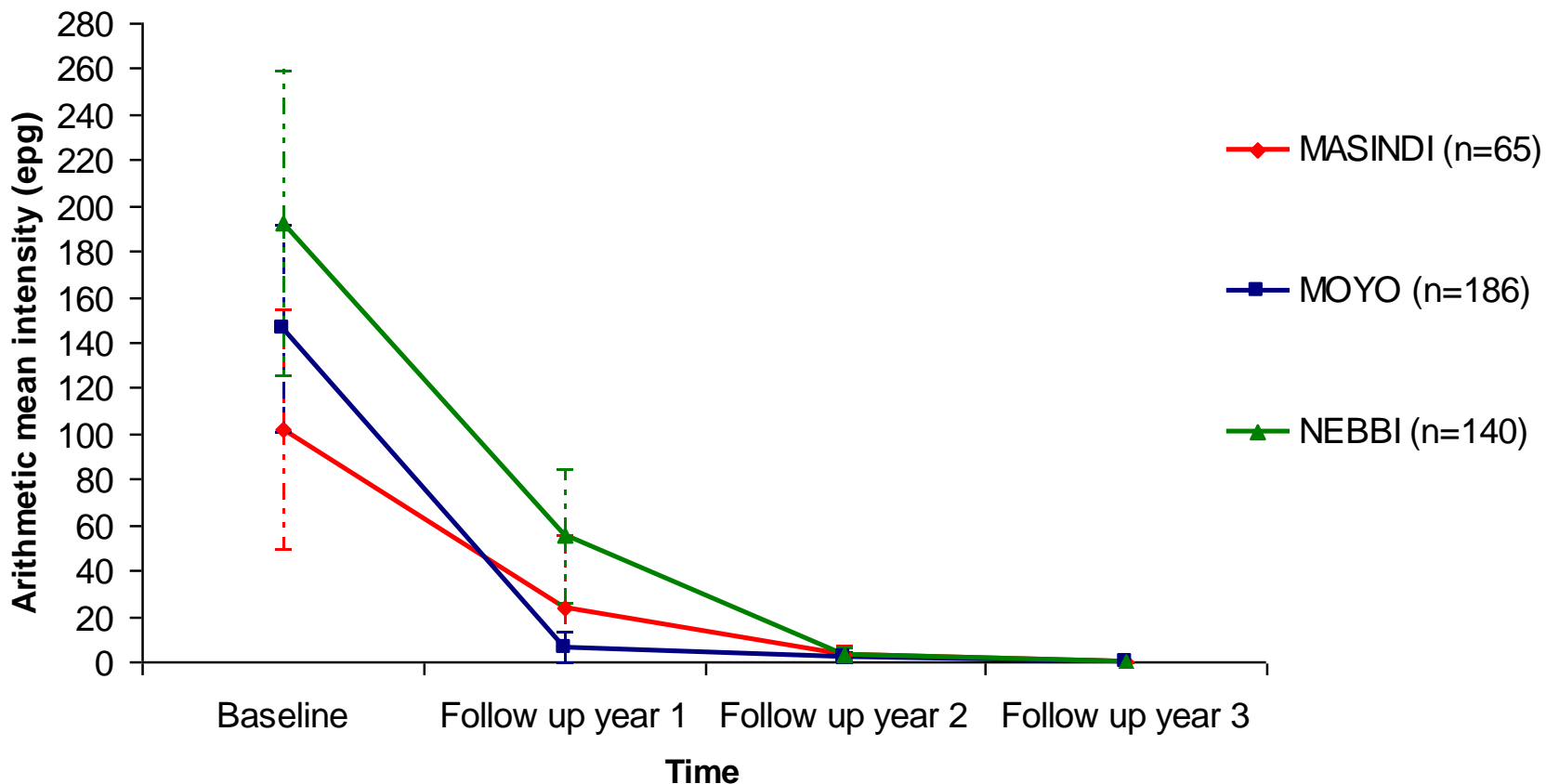


# Uganda – the third year continued the good work



# In Uganda - three rounds of treatment has reduced the hookworm egg counts to zero

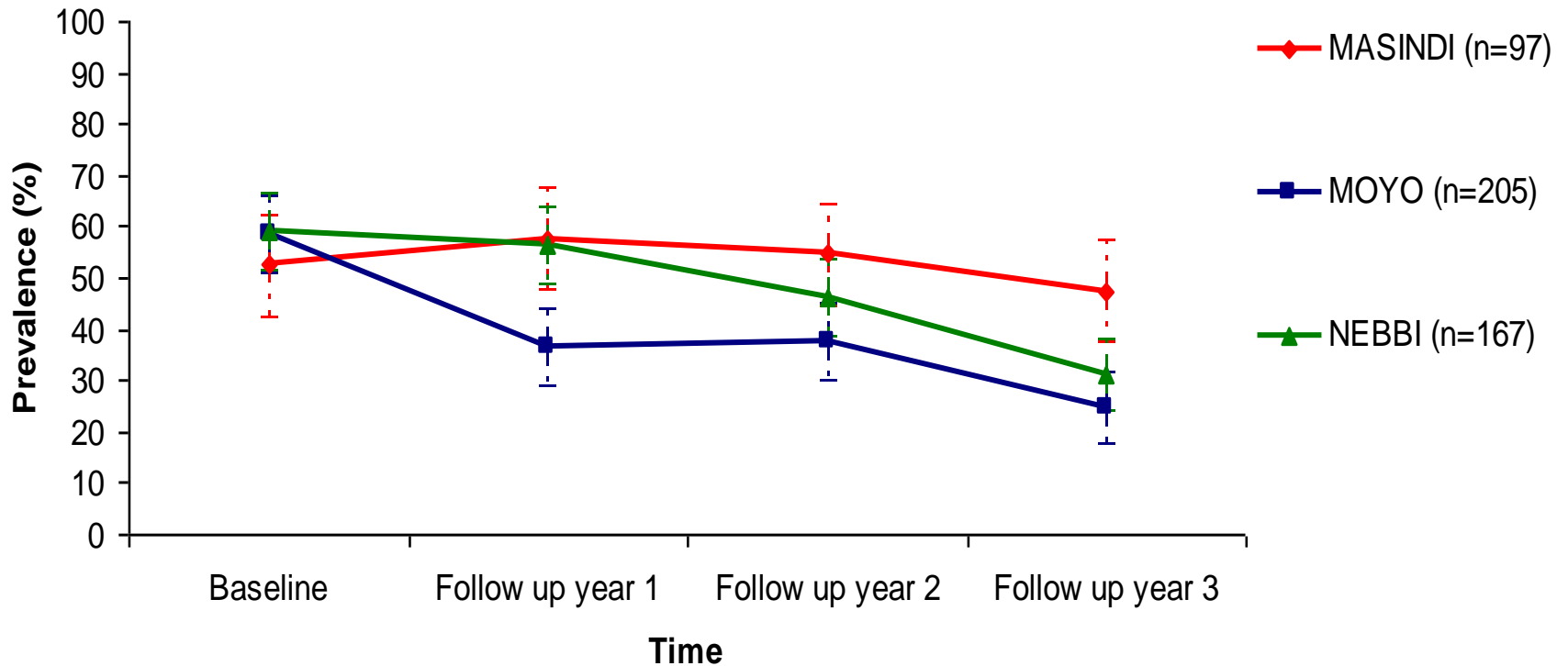
Uganda (Baseline, Year 1, Year 2, Year 3, in 3 districts completed so far) Arithmetic mean intensity for hookworm for all 391 children (negatives & positives)



# Uganda - third round results on anaemia

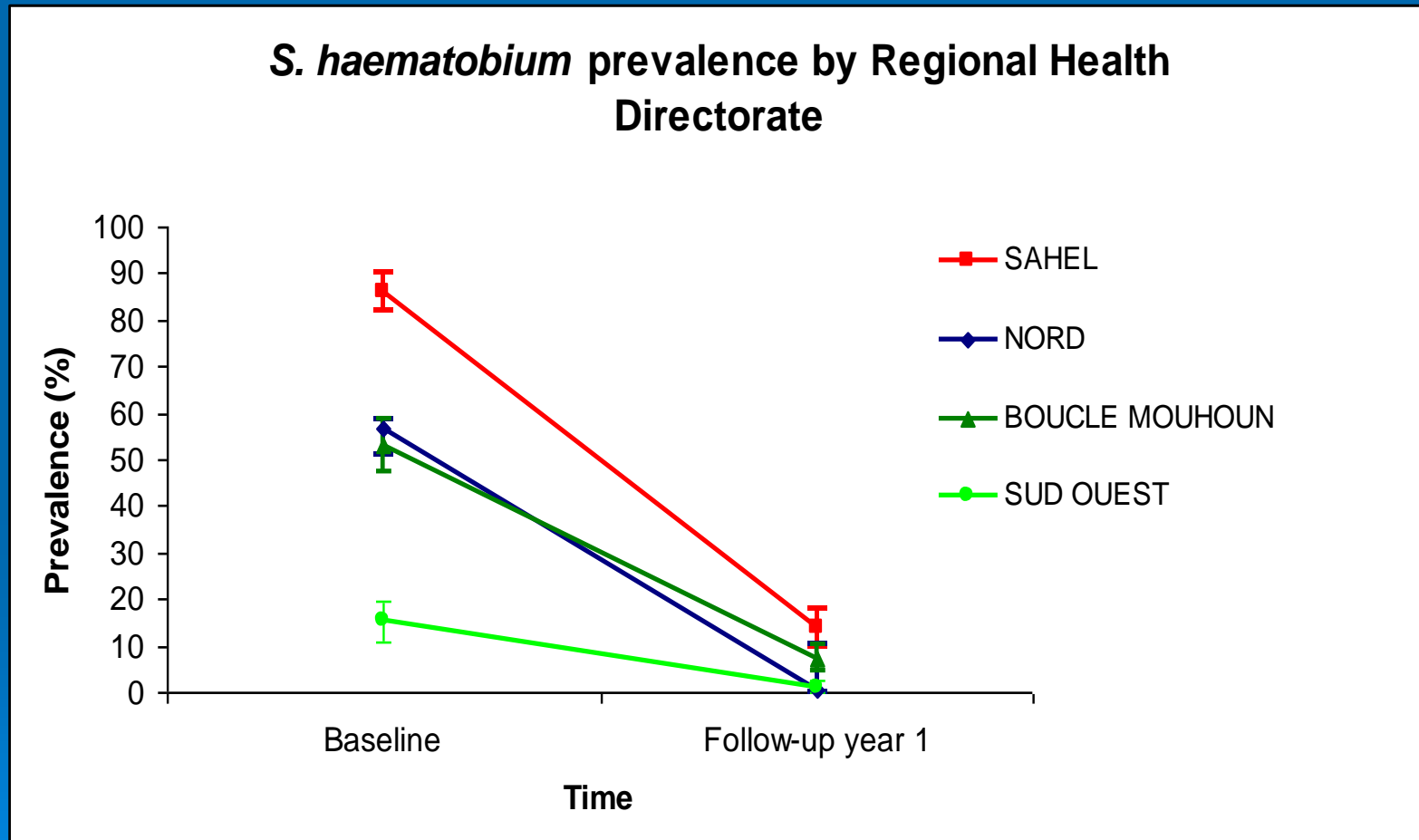
## Anaemia prevalence

Uganda (Baseline, Year 1, Year 2, Year 3 in 3 districts completed so far) for 469 children successfully followed up



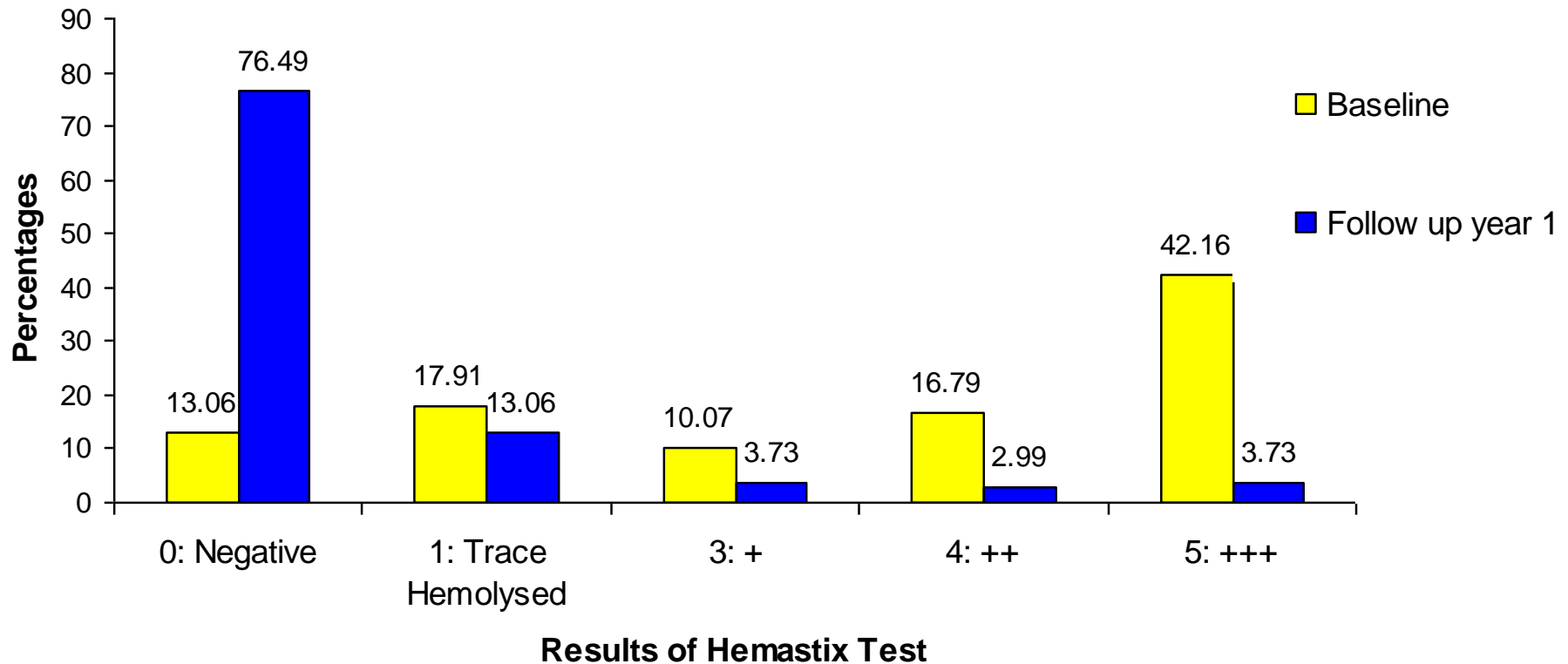


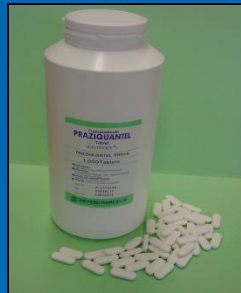
# Burkina Faso *S. haematobium* prevalence reduction was dramatic after just one treatment



# Burkina Faso blood in urine dramatically reduced after one treatment – Dreba du Sahel

**Burkina Faso (Baseline, Year 1) Percentages of children with different results in Hemastix test in Dreba du Sahel**





## Impact/Benefit

- LF transmission
- Oncho transmission and morbidity
- Deworming and morbidity
- Hookworm anaemia
- Skin diseases
- Schistosomiasis morbidity
- Trachoma prevalence/ incidence
- Growth
- Nutrition
- School attendance
- Malaria fever
- Malaria morbidity
- Anaemia
- ITN distribution
- Vitamin A



## International Agencies





Launched in 2006  
USAID Neglected Tropical Diseases  
Cooperative Agreement  
Initially \$100 million,  
and in 2010 a new 5 year commitment  
of \$450 million “ENVISION”



# The British Government



£50 million over 5 years for NTD control announced in 2008

£200 million new 4 year commitment in January 2012

# The British Government



£25 million for Schistosomiasis

£22 million for LF

£20 million for Guinea worm

£30 million for trachoma

To be announced

Support for NTD control in 2 countries

Funds for control of 2 new NTDs

# Other donors

- The END FUND
- Legatum
- The World Bank
- Global Network for NTD control
- [www.givingwhatwecan.org](http://www.givingwhatwecan.org)
- [www.givewell.org](http://www.givewell.org)



# Lets move away from the Big Three

.....and attack the big four

- HIV/AIDS
- Malaria
- TB
- .... And Neglected Tropical Diseases





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## To achieve elimination

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- Improved education and coverage especially in “difficult countries”
- Water and sanitation
- Reduction in poverty
- Socio-economic development

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# Today's message

Neglected Tropical Diseases contribute over 20% of the morbidity in Africa, they are disabling and disfiguring and destroy the quality of life for many millions.

People infected with these NTD's are more likely to be infected with, and suffer from, the big three diseases of malaria, HIV/AIDS and TB

Treatment is simple, effective and inexpensive

All the research results we have suggest we should proceed

**This is a public health**

**“best buy”**

**Are you convinced ??**

The background of the slide is a solid blue color. In the lower half, there are several faint, concentric circular ripples that resemble water droplets hitting a surface, creating a subtle decorative pattern.

Thank you

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