



Medical academy named after
S.I Georgievsky of Vamadzky CFU

Department of medical biology

“Tse tse fly”

Student name

Maneesh diwakar

Group number –193-A

Scientific Leader
Svetlana Smirnova



Tsetse Fly

- *Glossina* sp. (tsetse fly),
- the vector of African trypanosomiasis
- both males and females can serve as vectors



Vector (tse tse fly)

Kingdom

Animalia

Phylum

Arthropoda

Class

Insecta

Order

Diptera

Family

Glossinidae

Genus

Glossina

Tsetse Flies

- 23 different species
- Most are slightly larger than houseflies
- Wings fold over body
- Live in wooded areas
- Males and females feed on blood of vertebrates
- Bite during day
- Painful bite
- Attracted to dark clothing
- Vector for Human African trypanosomiasis (AKA sleeping sickness) and animal trypanosomiasis (AKA *Nagana in cattle*)
- Tsetse flies have limited development in certain areas of Africa, preserving the land's natural ecosystem
- Many control methods tried with varying degrees of success: Slaughter of wild animal hosts, clearing of land, pesticides, trapping, sterilization of male tsetse

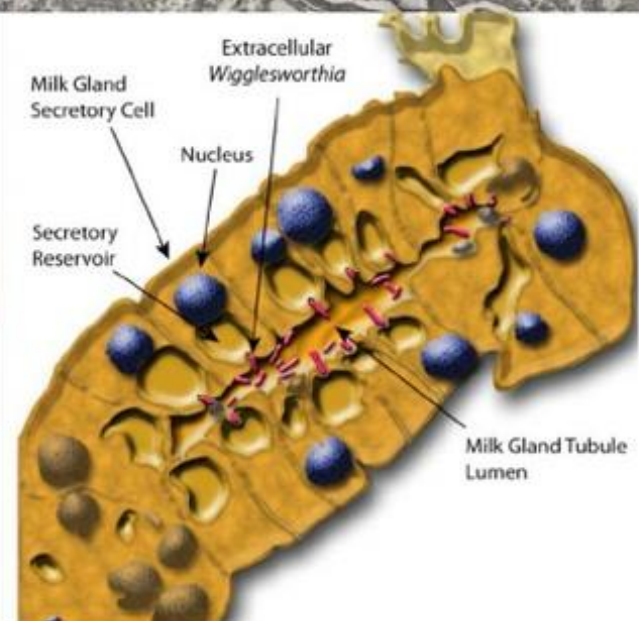
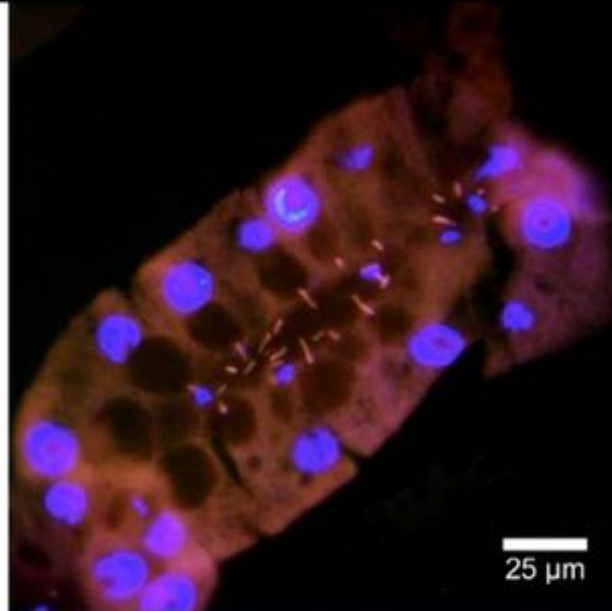
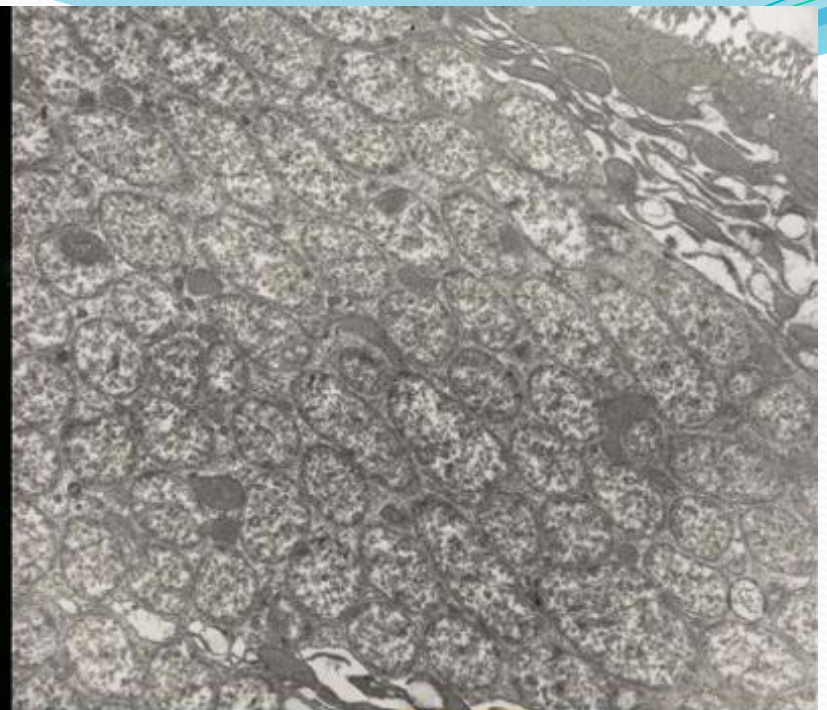
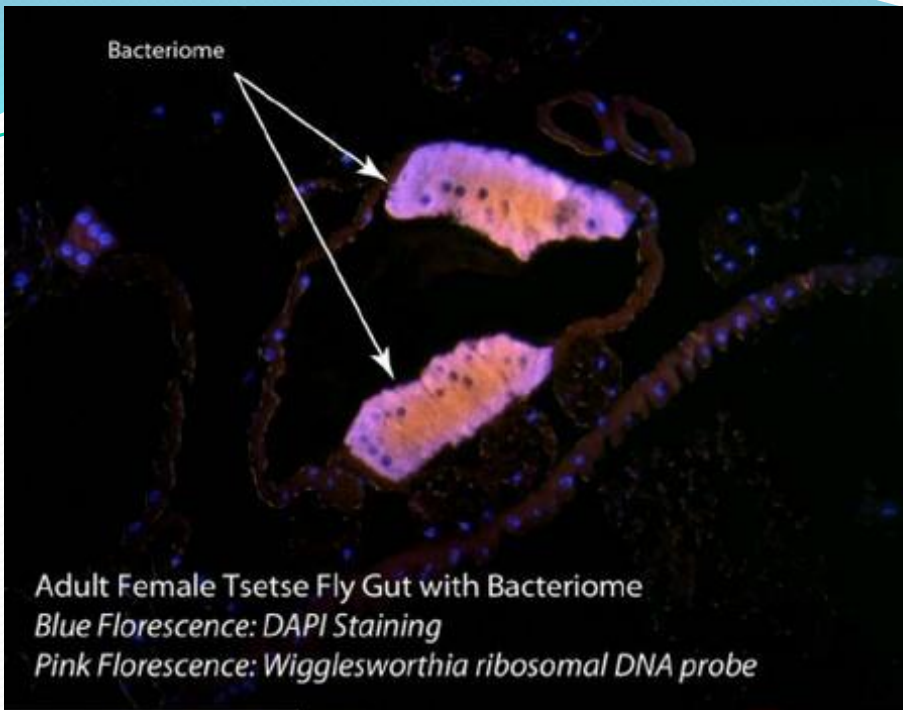


<http://www.britannica.com/list/4/9/9-tsetse-fly>



Treated with insecticide, this hanging black & blue cloth is meant to trap *tsetse* flies

<http://www.nomadicpinoy.com/2013/01/sere-ngeti-day-2.html>





Fly belt. An area of about 10 million square kilometers—including one-fifth of Ethiopia—is home to dozens of species of tsetse flies.



Visual Systems:

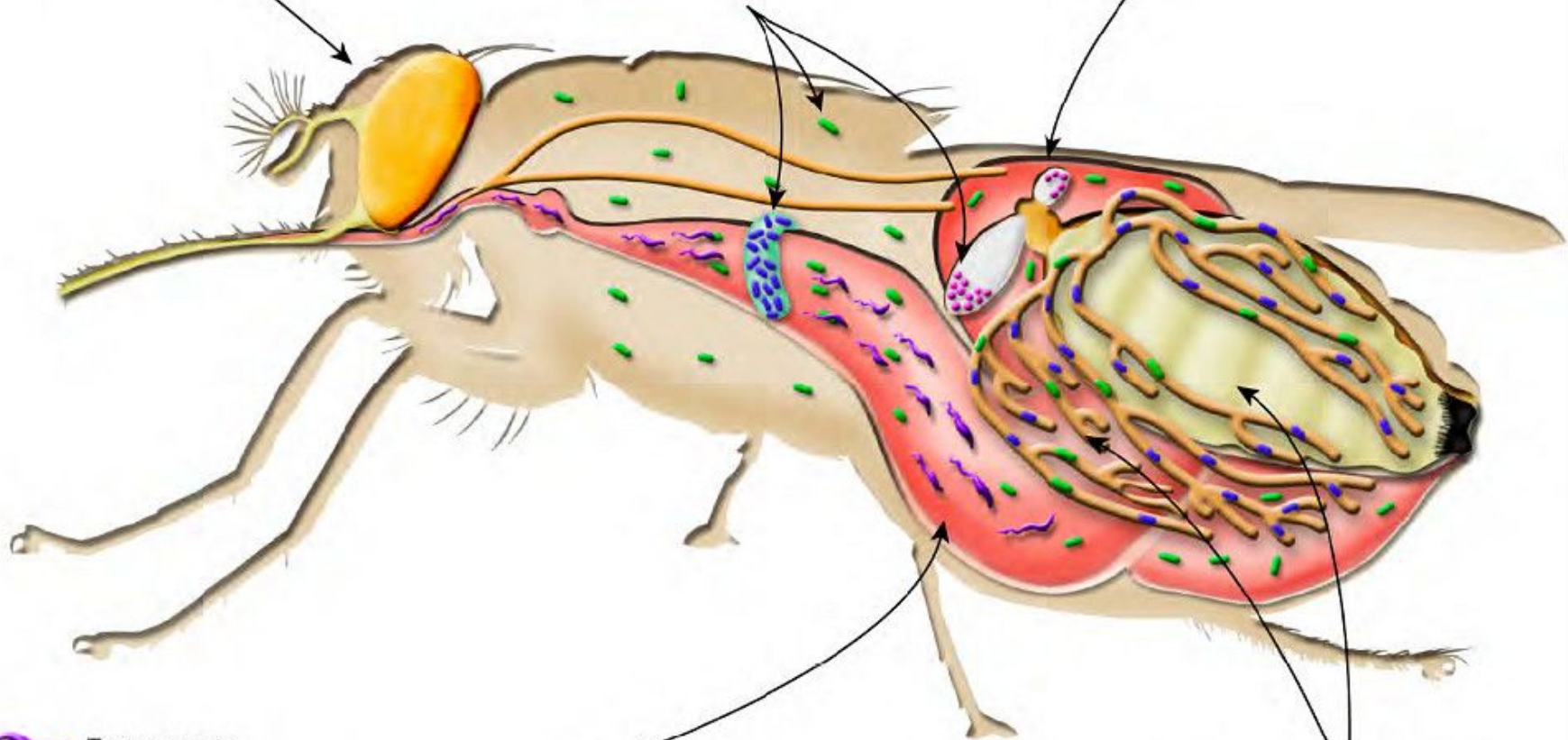
Visually oriented host and mate seeking


Symbiosis: Flies carry 3 symbiotic bacteria:

Obligate *Wigglesworthia* (required for immune function and female fertility), parasitic *Wolbachia* and commensal *Sodalis*

Oogenesis:


Reduced ovarian capacity



 *Trypanosoma*

 *Wigglesworthia*

 *Sodalis*

 *Wolbachia*

Diet:

Male and female tsetse subsist exclusively on vertebrate blood and acquire trypanosome infections from infected vertebrate hosts.

Intruterine Larval Development:

Females produce one offspring per reproductive cycle. Larvae are held in the females uterus for their entire development. Females nourish larvae with nutritional secretions from a modified accessory gland (milk gland).

How to Avoid

African Sleeping Sickness

Bring a mosquito net.



Wear neutral colors to avoid attracting the flies



Always carry an insect repellent.



Wear long-sleeved, medium-weight clothes.



tripsavvy



Tsetse flies transmit African sleeping sickness.

Family: Glossinidae (Tsetse-flies)

- Restricted to sub-Saharan Africa.
- **Vector:**
- **Parasite:**
- **Reservoir:**



4th Plague: The Flies

- 5 possible types of flies:



House fly



Black fly



Horse fly



Stable fly



Tsetse fly

- Housefly not very destructive.
- Black flies do not breed rapidly and don't swarm.
- Horseflies do not breed rapidly.
- Tsetse fly lives mainly in tropical regions with high rainfall.
- Stable Fly, *Stomoxys calcitrans*:
 - Has a painful bite that punctures the skin
 - Leaves an open wound that can become infected
 - They swarm and breed rapidly.

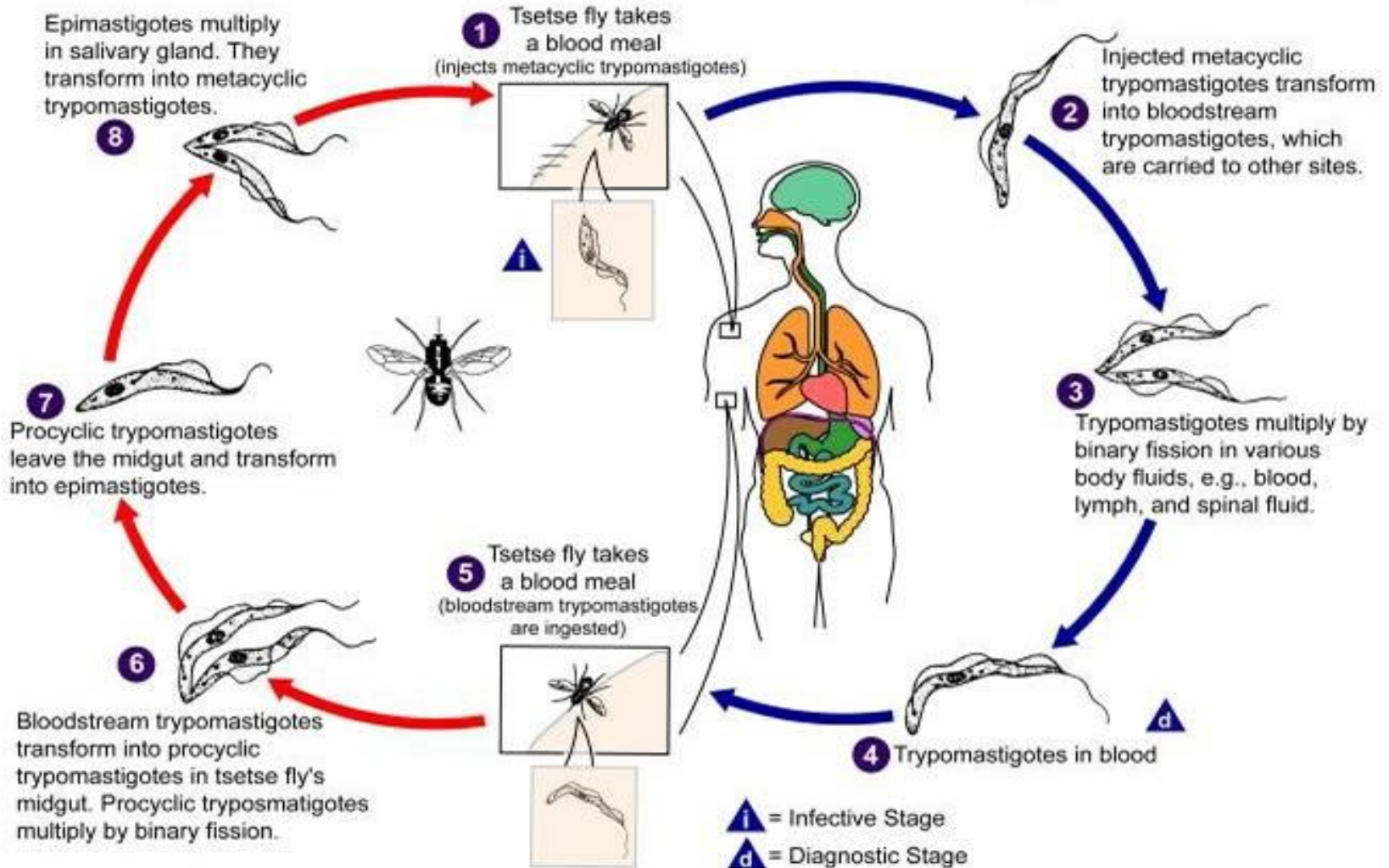
Sleeping Sickness, African (African trypanosomiasis)

(*Trypanosoma brucei gambiense*)

(*Trypanosoma brucei rhodesiense*)

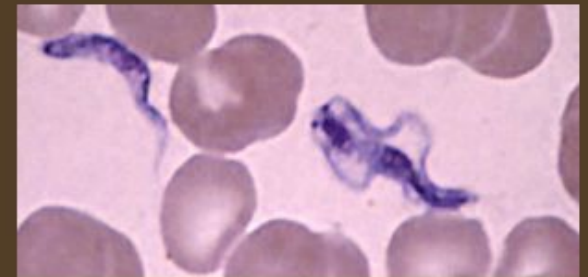
Tsetse fly Stages

Human Stages



Tsetse Fly

- Found in Sub-Saharan Africa, and only common to Africa.
- Found in vegetation by rivers and lakes, in gallery-forests and in vast stretches of wooded savannah. Mostly tropical areas.
- Many regions where tsetse flies are found, but the Sleeping Sickness is not.
- It can bite through clothing, and the bite is very painful.
- The fly becomes infected with the disease by biting animals or humans who are already infected with the disease.
- The fly is attracted to dust and bright and dark colors.
- When bitten, a red sore will be produced on the skin. The sore is known as a chancre.



- The tsetse fly becomes infected with this bacteria. (Trypanosoma Brucei)

HUMAN AFRICAN TRYPANOSOMIASIS (SLEEPING SICKNESS)

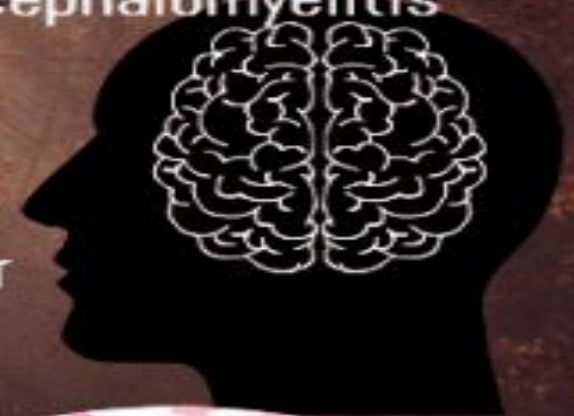
Gambian Trypanosomiasis -
Trypanosoma Brucei Gambiense

Glossina - Tsetse Fly



Meningoencephalomyelitis

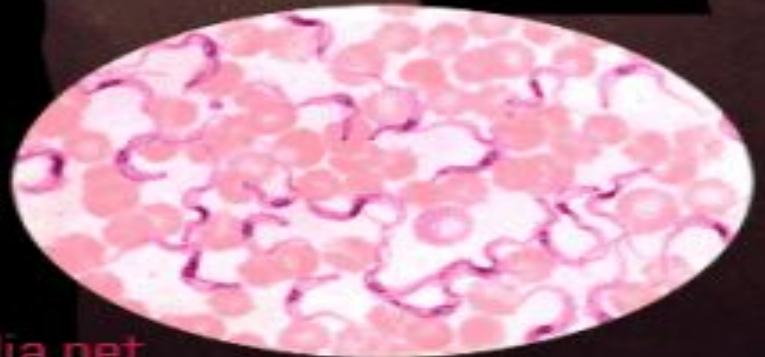
Rhodesian Trypanosomiasis -
Trypanosoma Brucei Rhodesiense

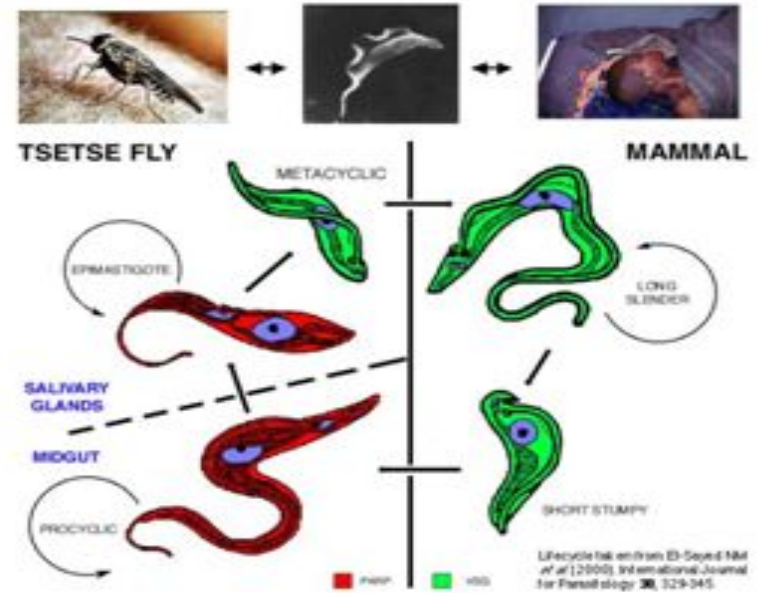


Human- Main reservoir

Ulcerated Nodule or
Trypanosomal Chancre;
Regional Lymphadenitis

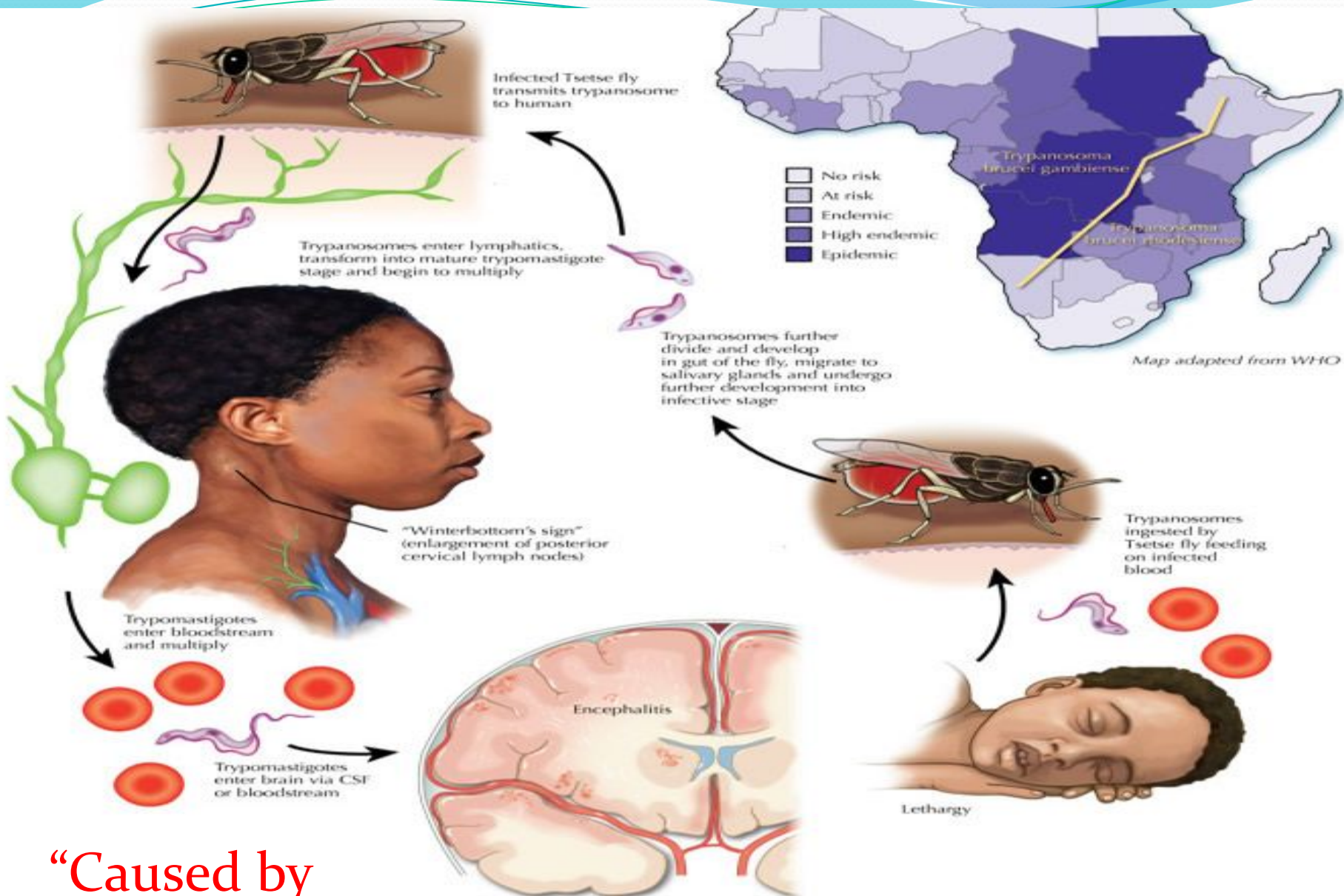
Trypanosomes
in the blood





“Trypanosomiasis,
human African
(sleeping
sickness)”





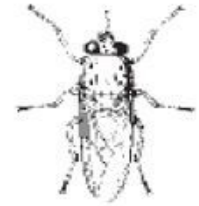
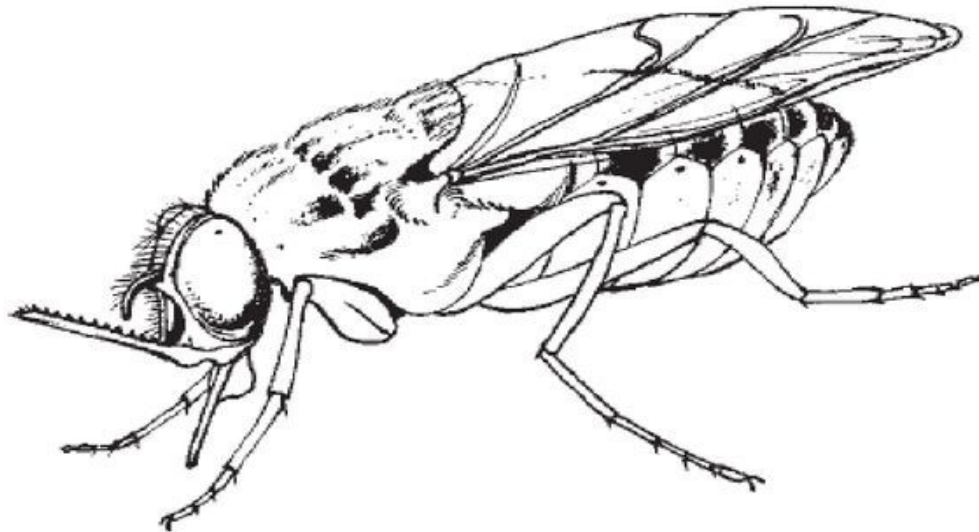
“Caused by tse tse fly”

Control Methods Available Vz Limitation

- **Methods for controlling tsetse flies among others, they includes;**
 - ***the use of insecticides spraying***
 - ***clearing bushes,***
 - ***Slaughter of wild animals,***
 - ***Trapping and***
 - ***the use of Sterile Insect Technique***



Tse tse fly:



actual
size

Tsetse- transmitted trypanosome infections of Animal and Human occur across large of 8.7 million km²(tropical and sub-tropical) sub-Saharan Africa and are major cause of ill- health and death.

- In Animal diseases is known as (AAT) or nagana.
- In human diseases in known as (HAT)or. Sleeping sickness



Treatment/ Prevention

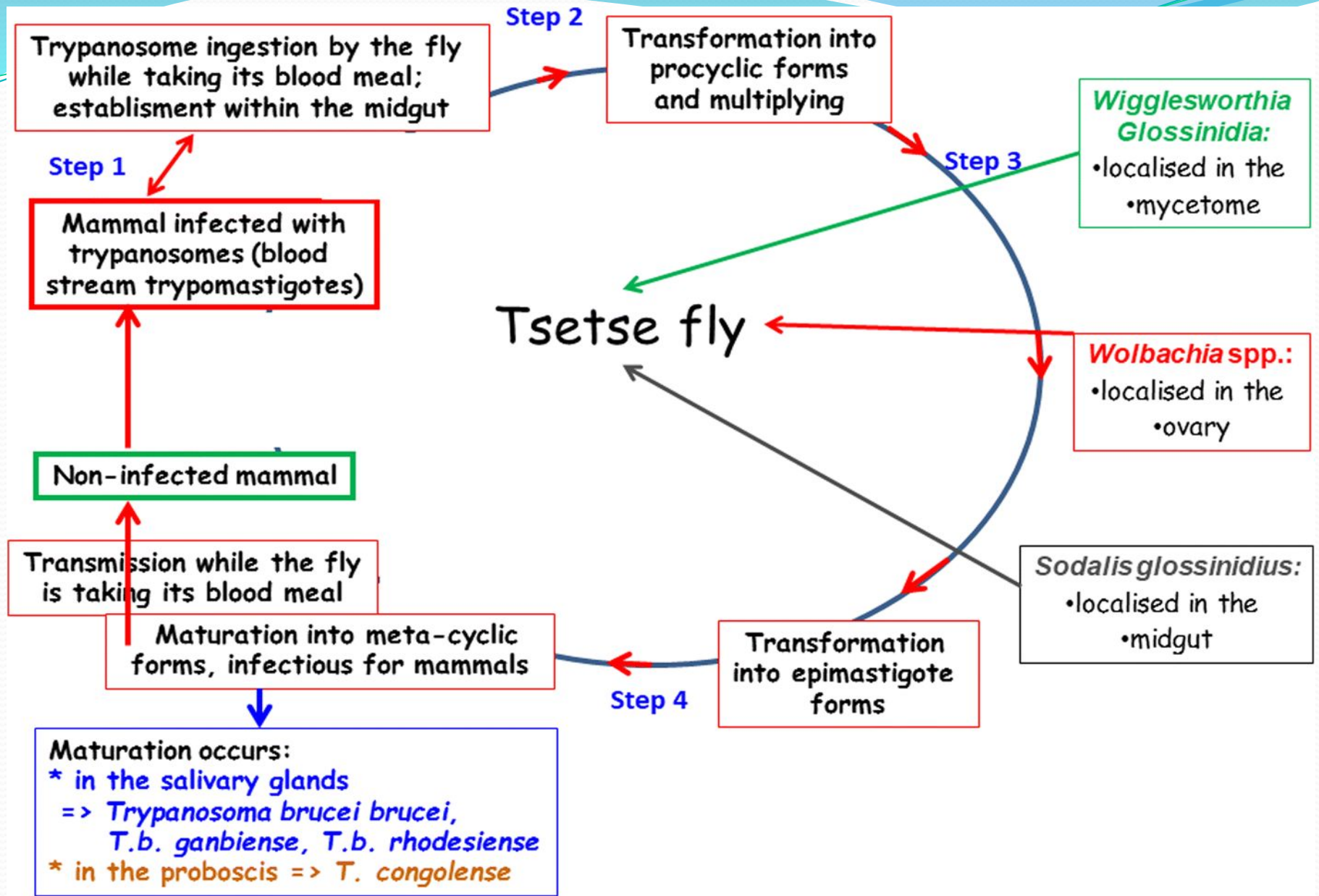
o Drugs that can be used:

- o Arsobal
- o Sumarmin for less toxicity

o Preventive Measures:

- o Bush clearing of tsetse fly breeding sites
- o Wear protective clothing
- o Bed netting
- o Insect repellents





*Thank you so
Much ...*

DEAR MA'AM

**DONE BY..
MANISH DIWAKAR**