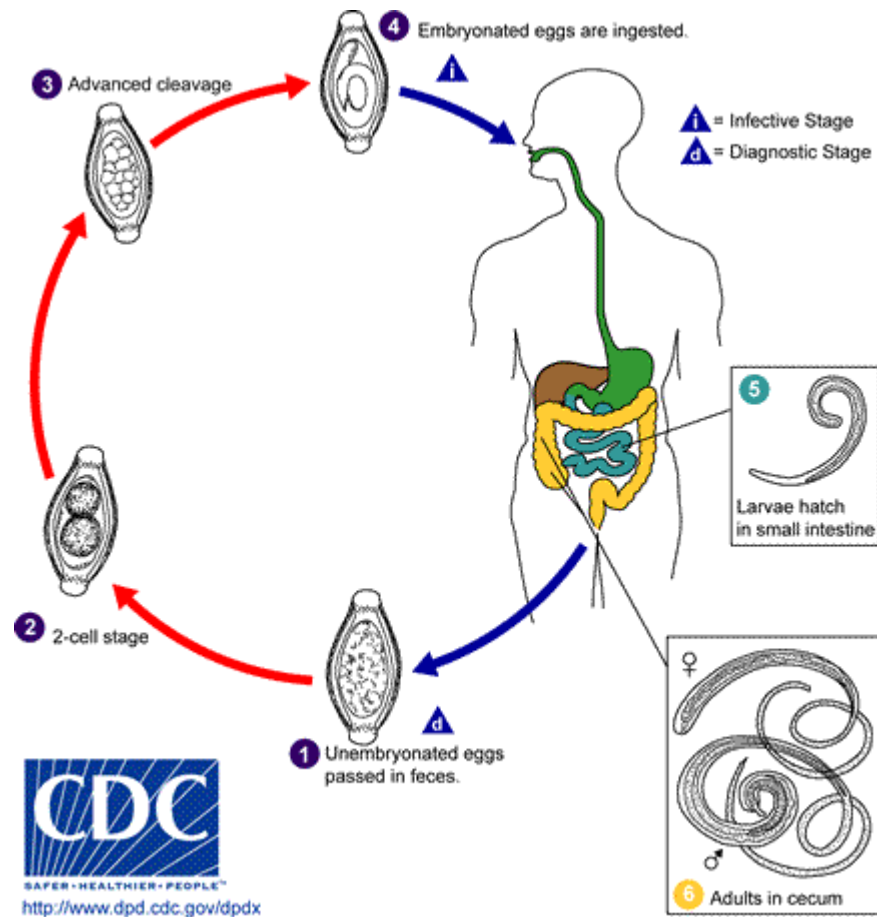
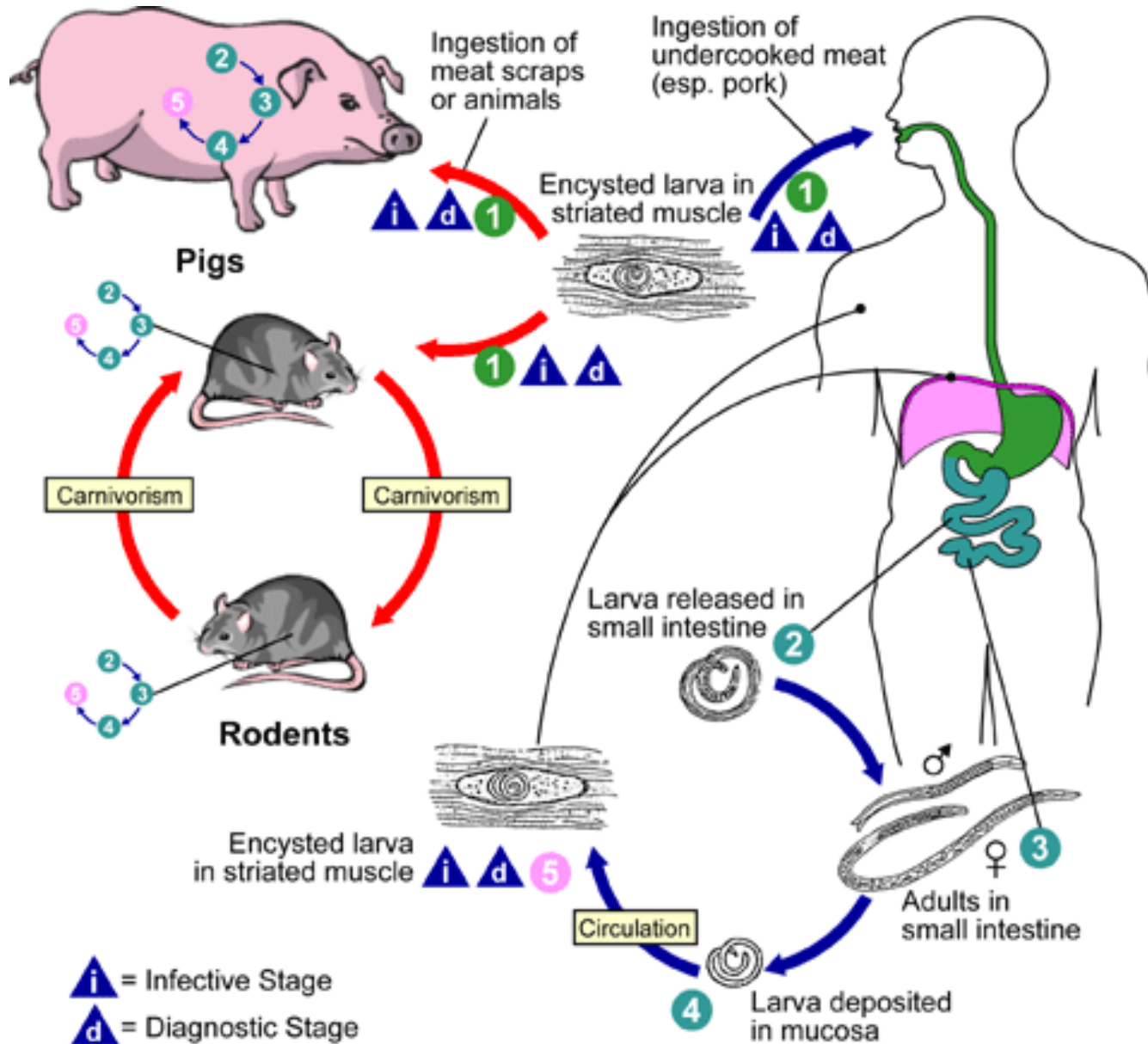


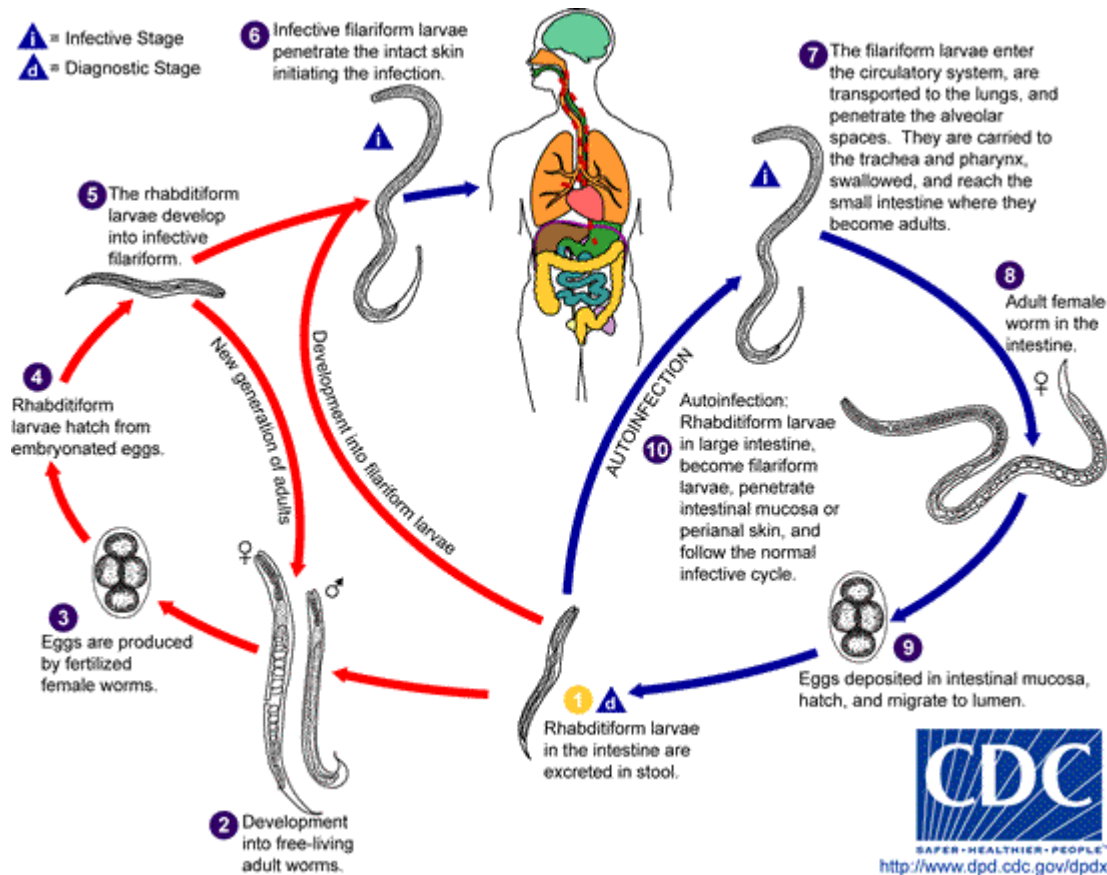
# Life cycle – *T. trichiura*



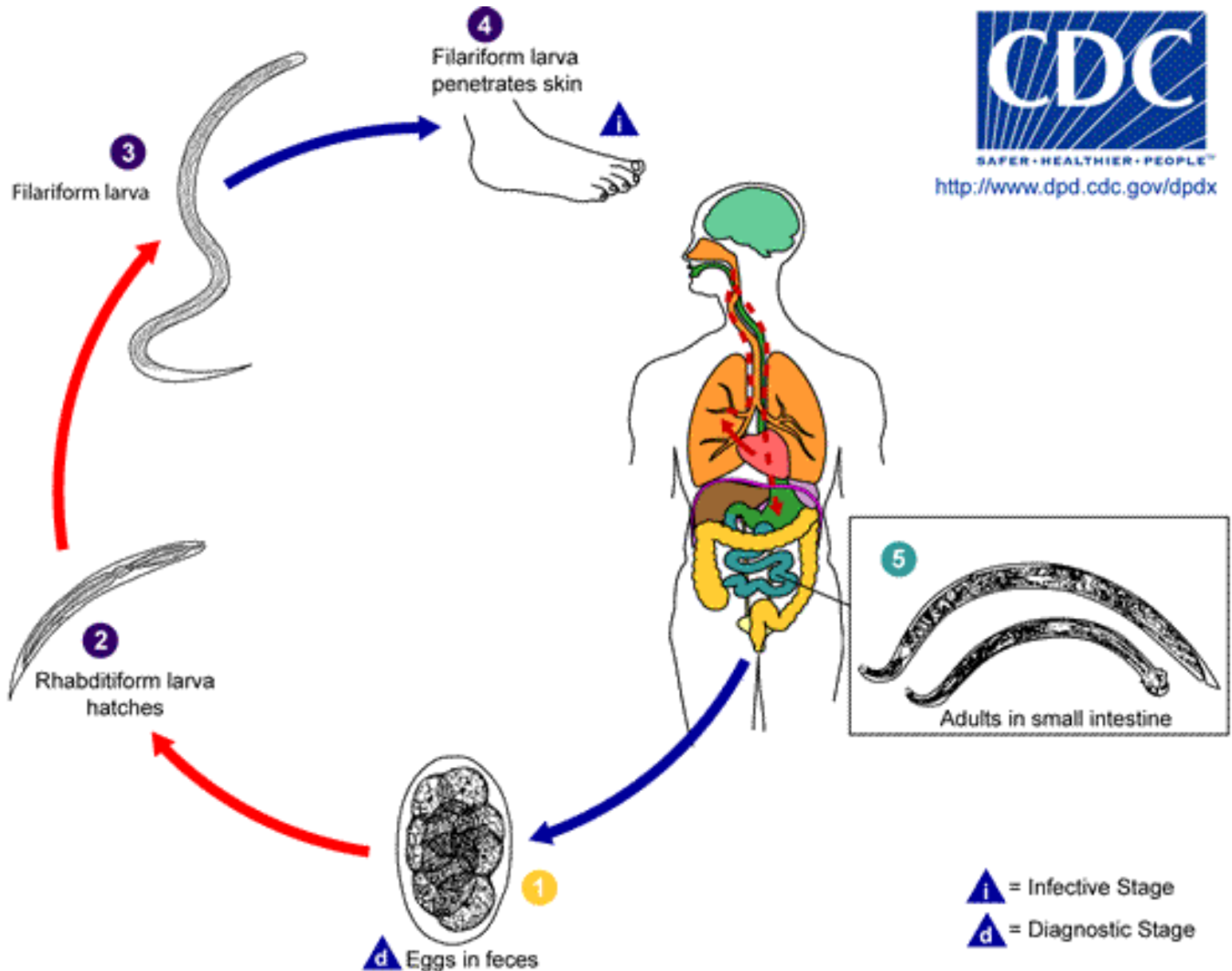
# Life cycle – *T. spiralis*



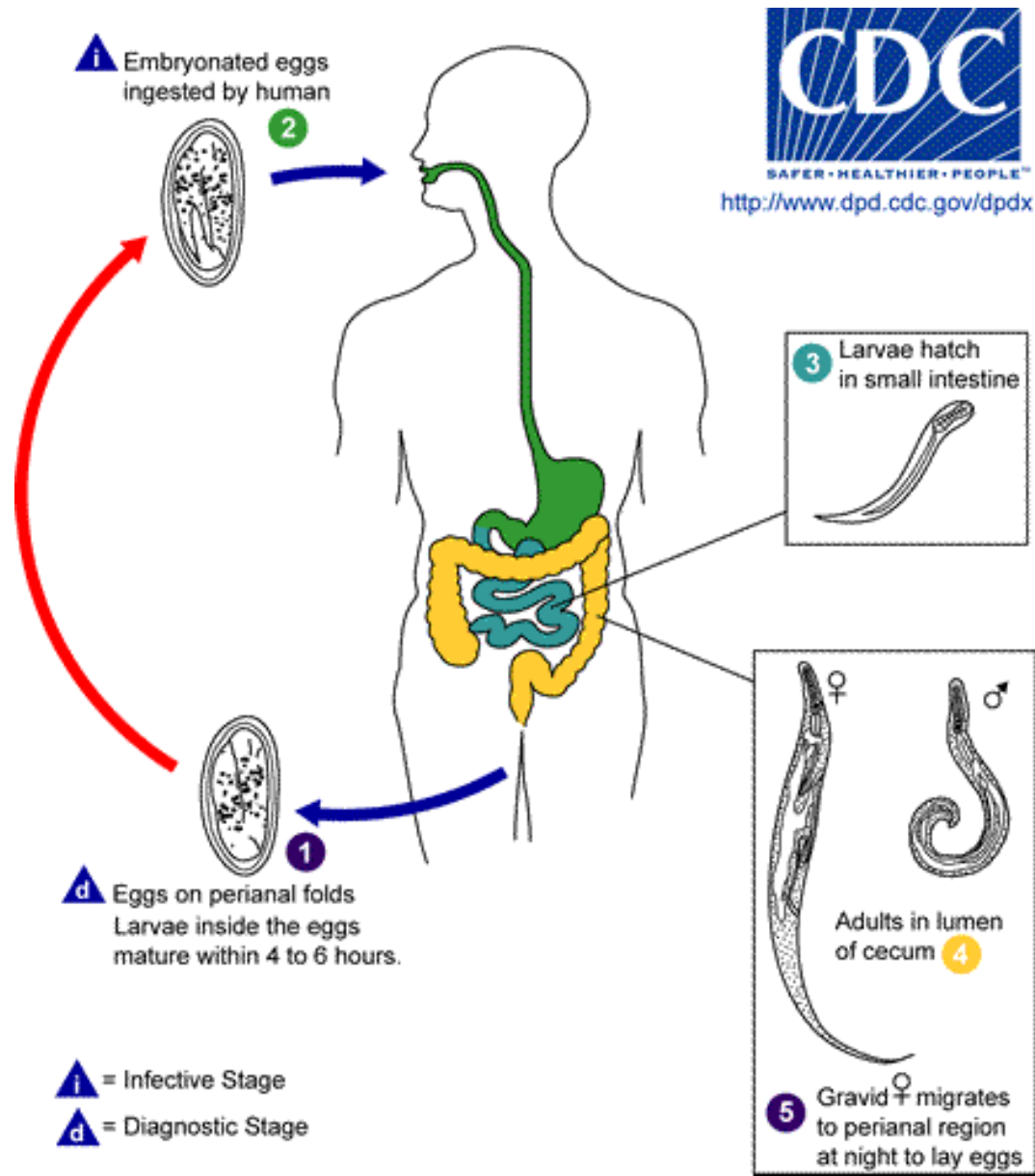
# Life cycle – *S. stercoralis*



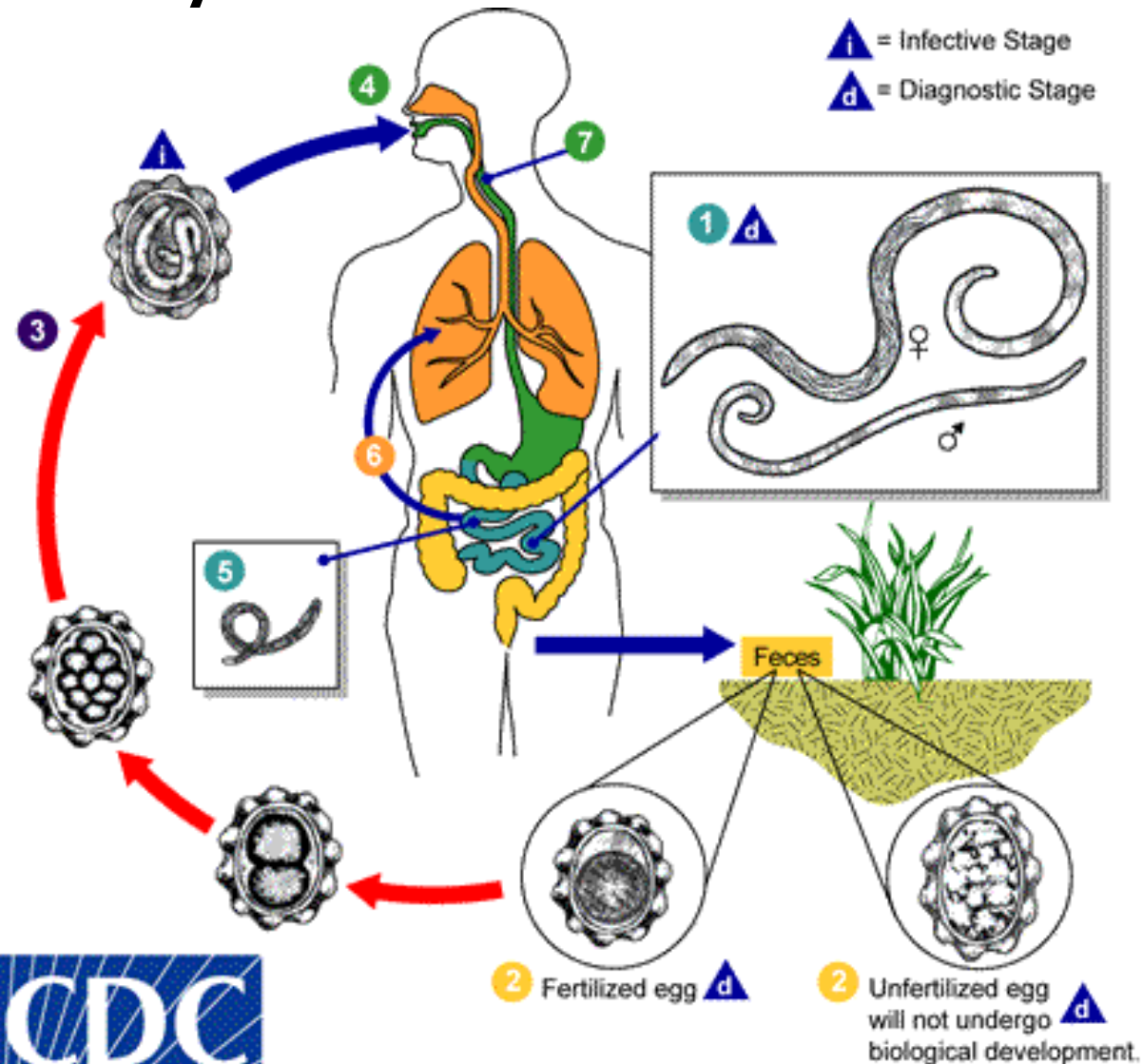
# Life cycle – *A. duodenale*



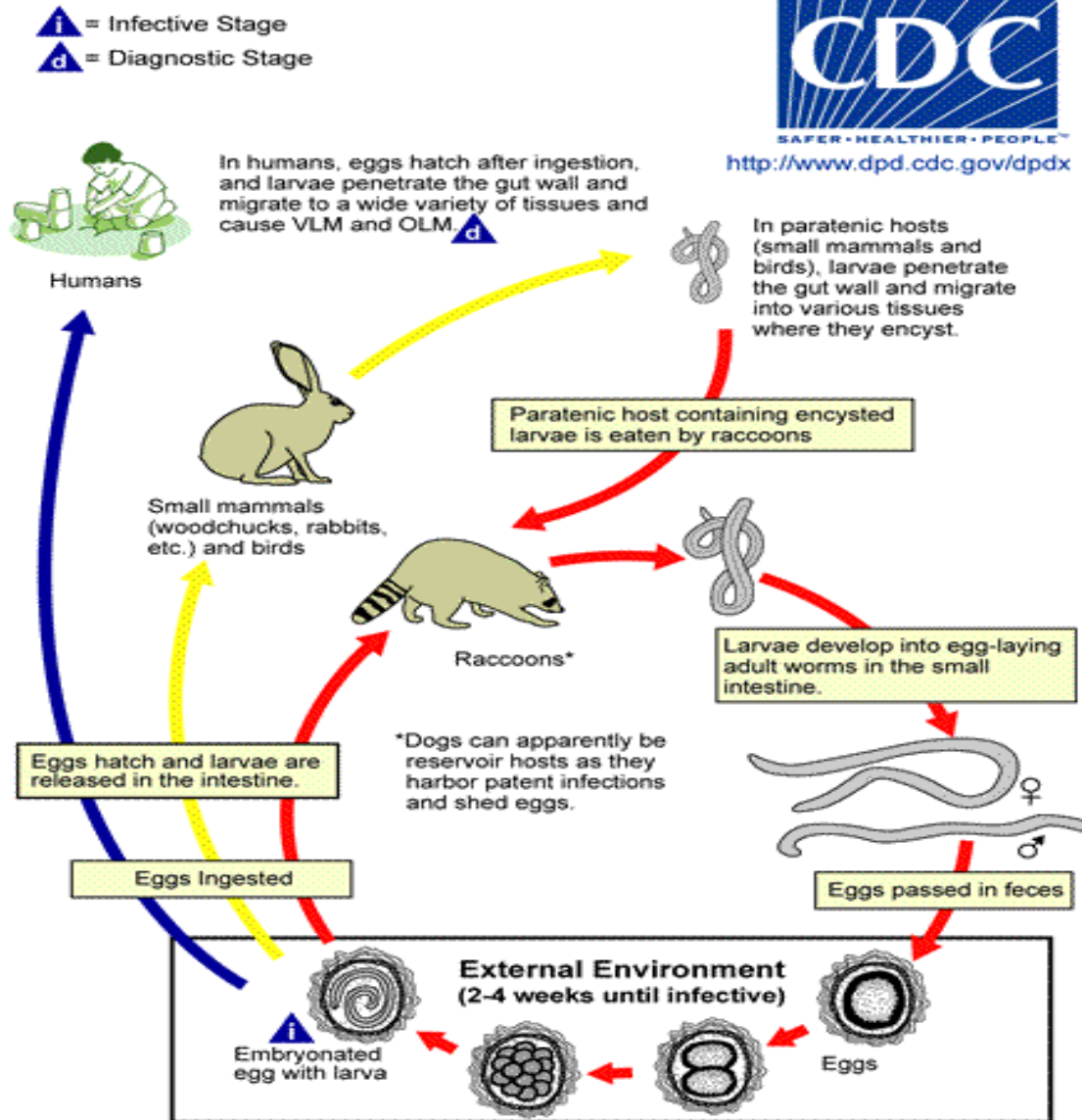
# Life cycle – *E. vermicularis*



# Life cycle – *A. lumbricoides*



# Life cycle – *B. procyonis*

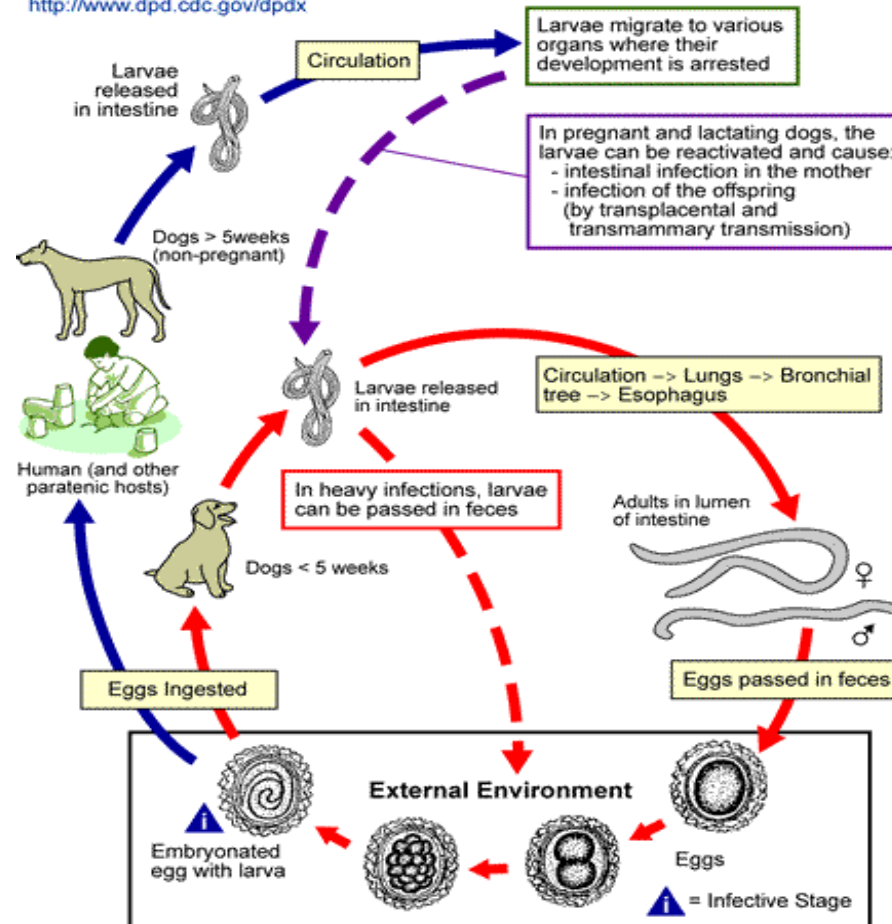




# Life cycle - Toxocara

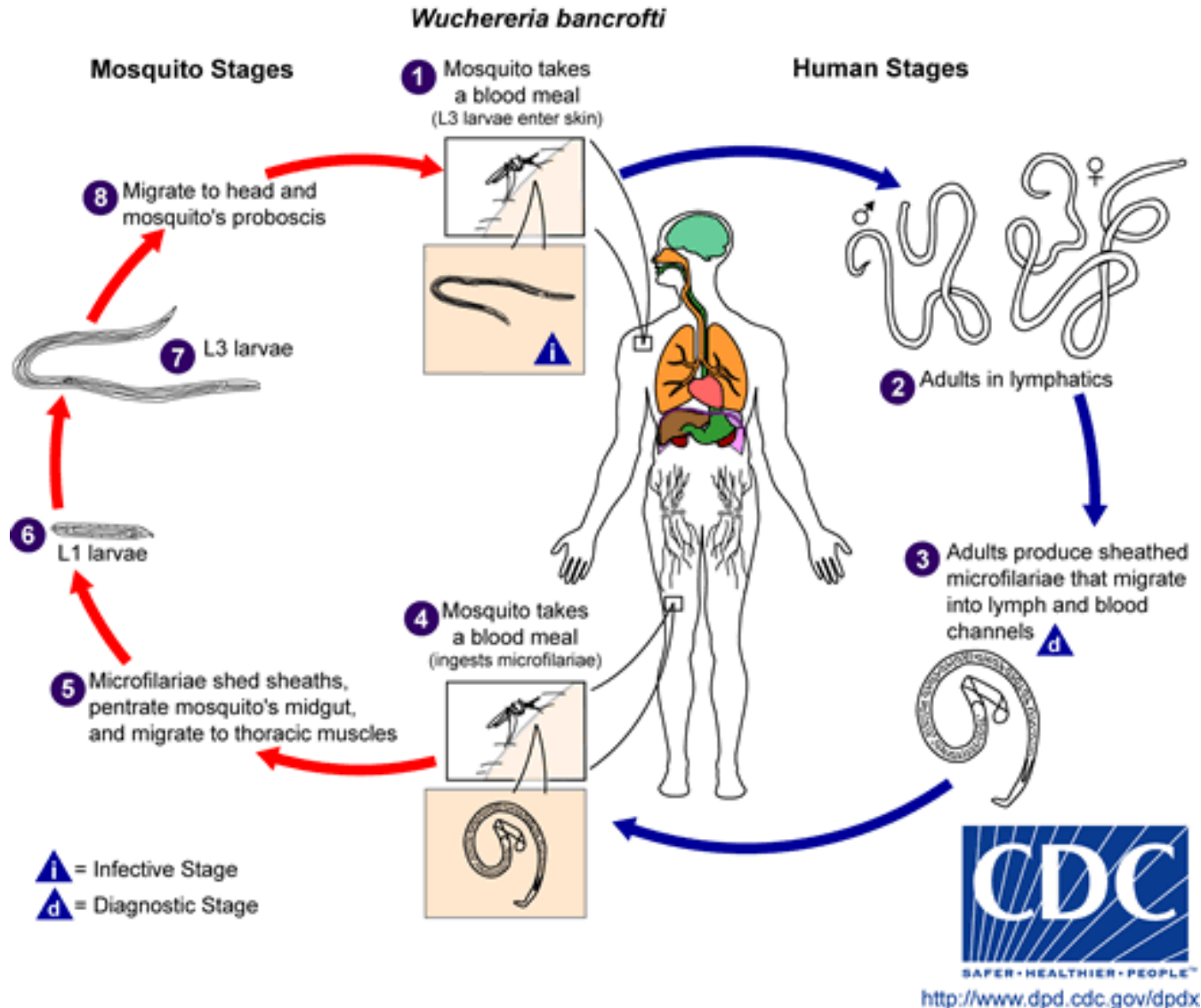


<http://www.dpd.cdc.gov/dpdx>

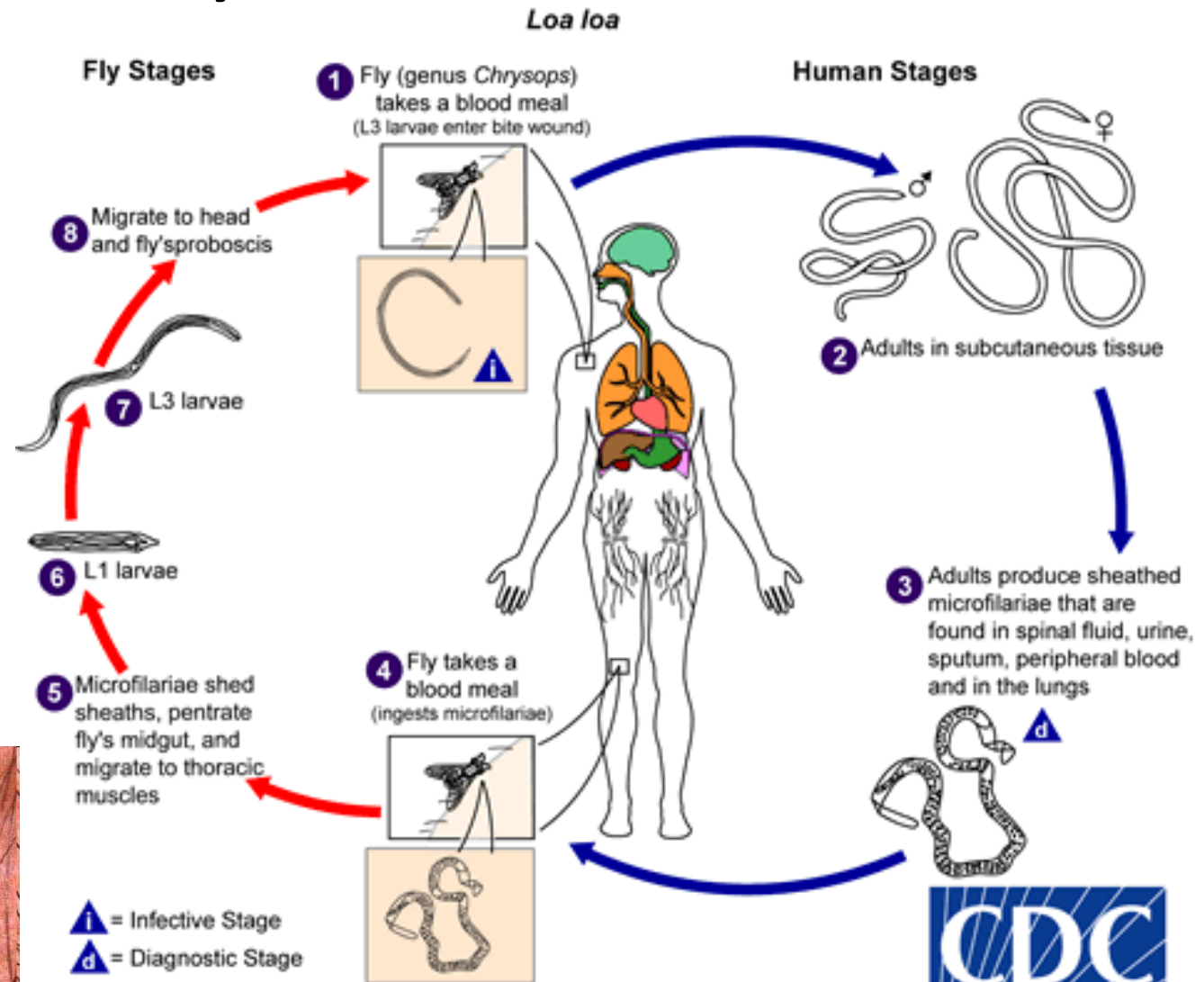




# Life cycle – *W. bancrofti*



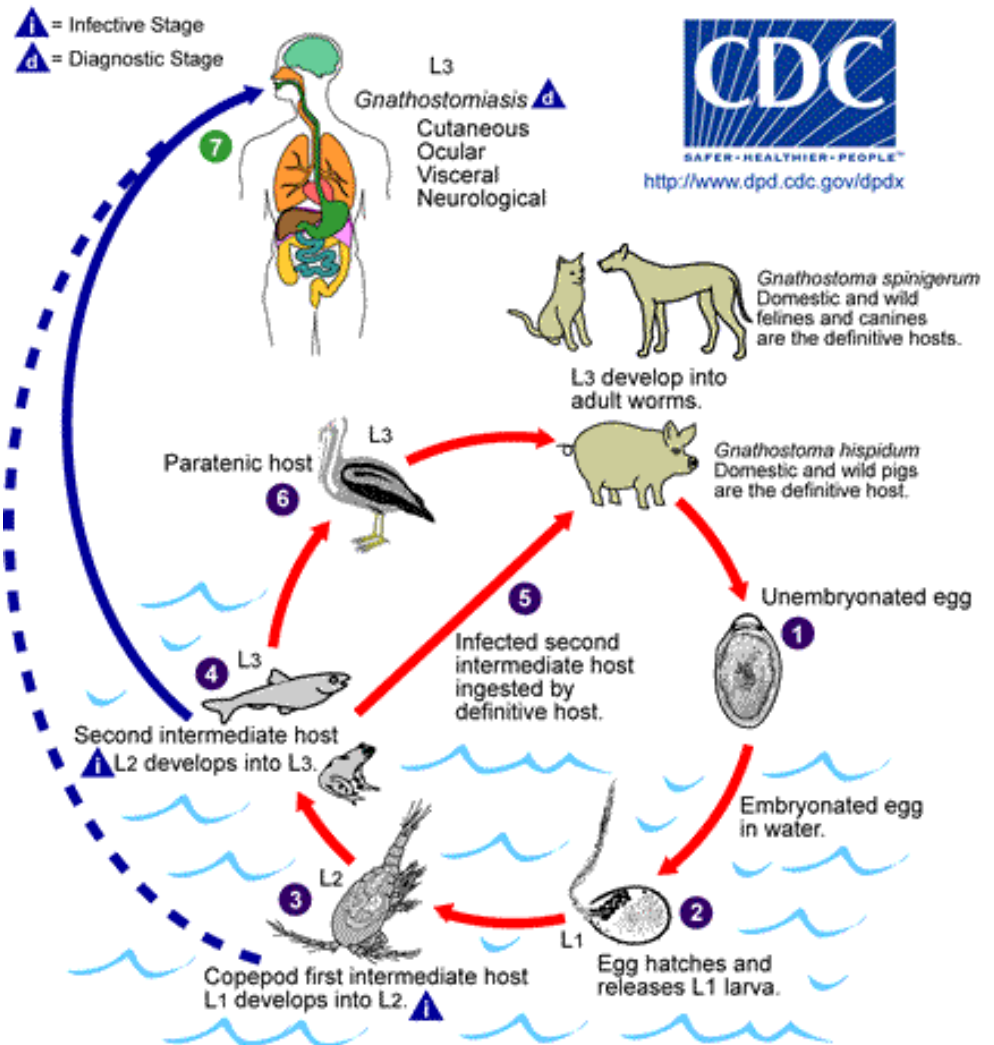
# Life cycle – *Loa loa*



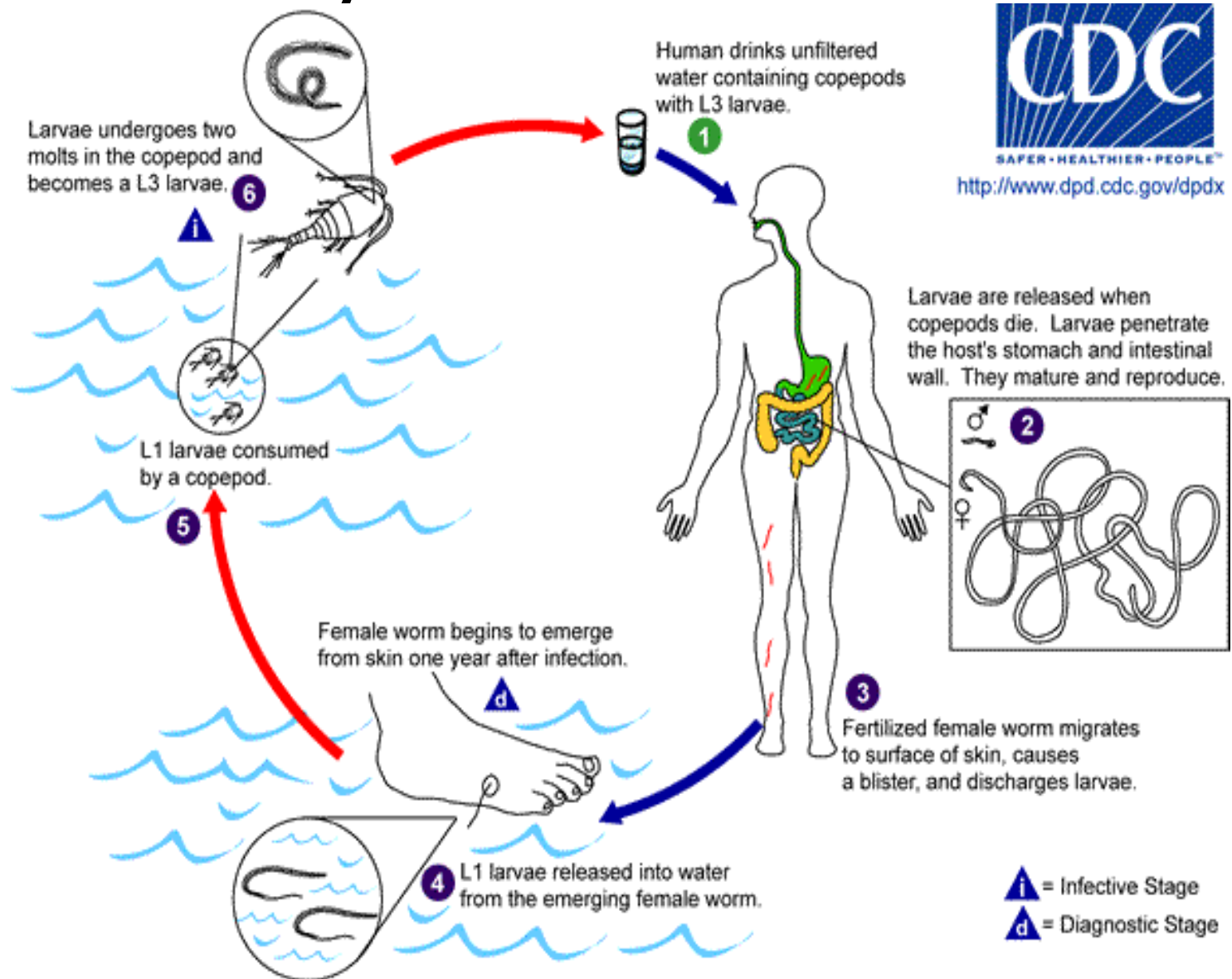
Fly *Chrysops* – vector of *Loa loa*



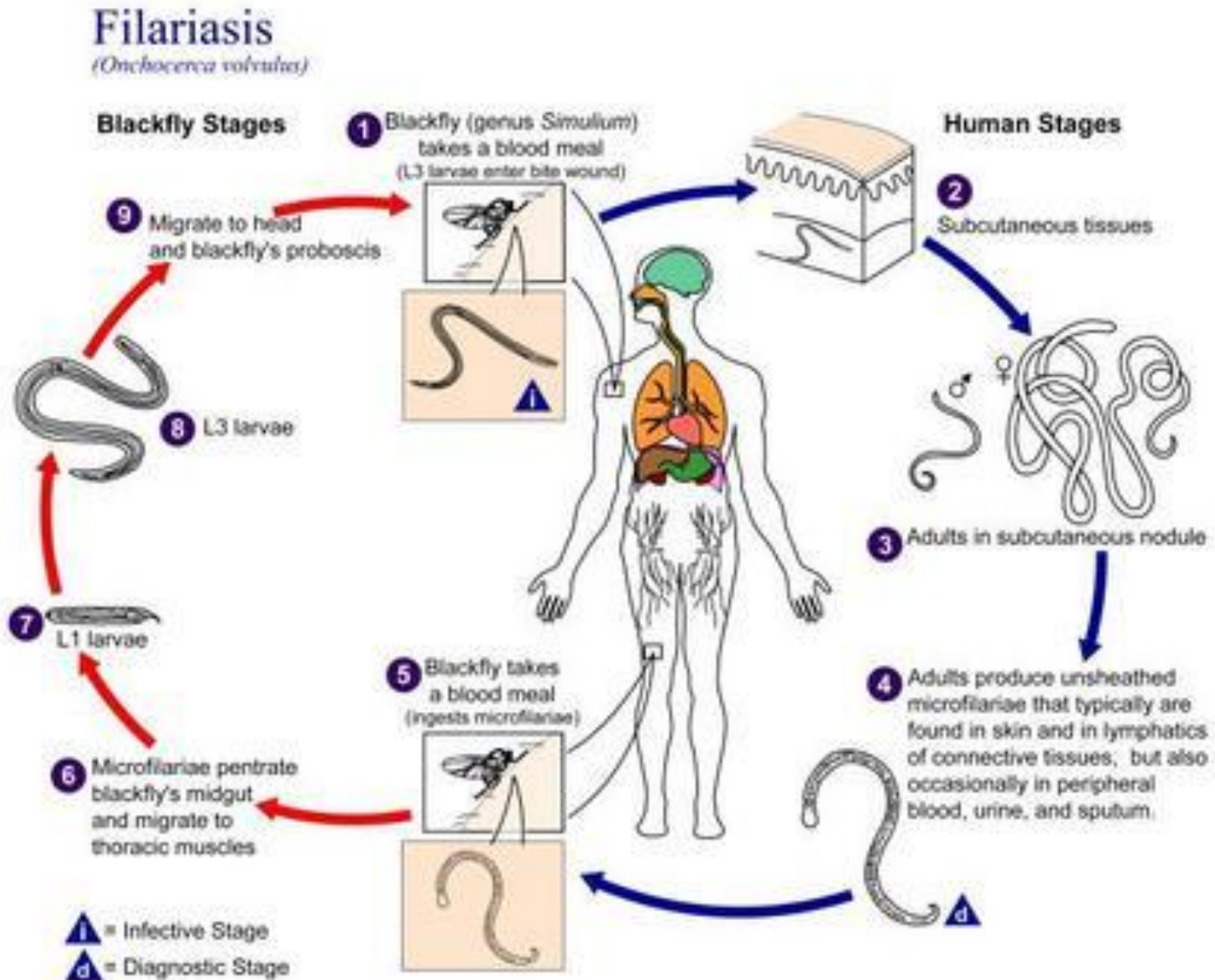
# Life cycle of *Gnathostoma spinigerum*



# Life cycle *D. medinensis*



# Life cycle *Onchocerca volvulus*



*Sarcoptes scabiei*

*Pediculus humanus*

Head lice

*Pthirus pubis*

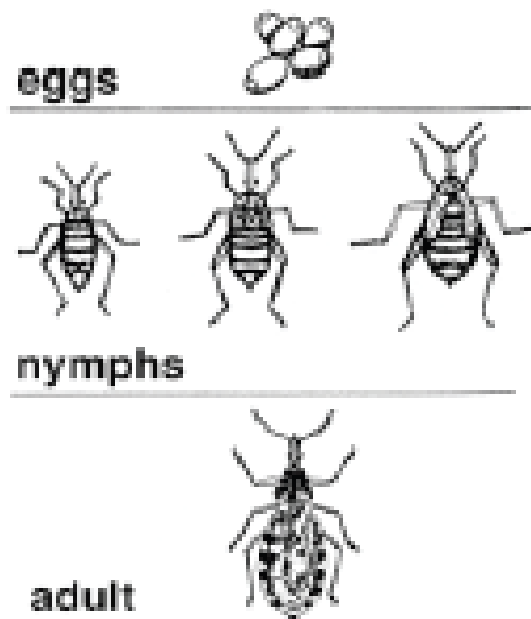


# Pathogens transmitted by *Pediculus humanus*

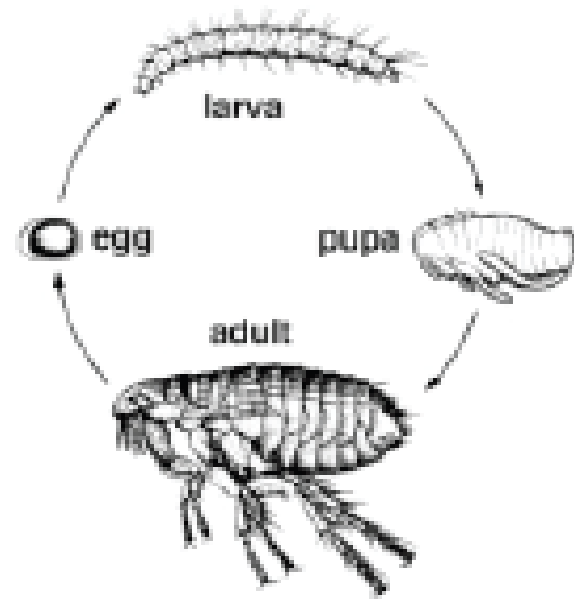
- *Rickettia prowazekii* – cause typhus
- *Rickettia quintana* – cause trench fever
- *Borellia recurrentis* – cause some type of typhus

*Demodex folliculorum, D. brevis*

# Insect development- hemi- and holometabol



hemimetabol, e.g. bugs



holometabol, e.g. fleas

# Pathogens transmitted by *Simulium erythrocephalum*

- *Francisella tularensis*
- *Bacillus anthracis*
- Microfilariae - *Onchocerca vulvulus*

# Pathogens and parasite transmitted by *Musca domestica*

- *Typhus abdominalis*
- *Salmonella paratyphi*
- *Shigella sonnei*
- *Mycobacterium tuberculosis*
- *Vibrio cholerae*
- *Ecantomoeba histolytica*
- Protozoa cysts
- Intestinal worms eggs

# Pathogens transmitted by *Stomoxys calcitrans*

- *Francisella tularensis*
- *Mycobacterium leprae*
- *Bacillus anthracis*
- Virus of Heine-Medin disease

# *Calliphora vicina* as mechanical vector of

- Taeniosis
- Ascariosis
- Protozoa



# Pathogens transmitted by flea:

- *Yersinia pestis*
- *Rickettsia mooseri*
- *Francisella tularensis*
- *Brucella spp.*
- *Bacillus anthracis*
- *Mycobacterium leprae*
- *Streptococcus pneumoniae*

# Parasite transmitted by human flea

- *Dipylidium caninum*
- *Hymenolepis nana*

# Pathogens transmitted by rat flea:

- *Yersinia pestis*
- *Rickettsia typhi*
- *Rickettsia rickettsii*
- *Francisella tularensis*
- *Burkholderia mallei*
- *Bacillus anthracis*
- Rickettsial Diseases
- *Hymenolepis diminuta*

*Tunga penetrans* –  
sand flea

*Ixodes ricinus*

# Pathogens transmitted by tick

- *Tick-borne encephalitis virus (TBE)*
- *Borrelia burgdorferi*
- *Francisella tularensis*
- *Coxiella burnetii*
- *Ehrlichia spp.*
- *Babesia microti, B. divergens*
- *Listeria monocytogenes*
- *Salmonella enteritidis*

# *Dermanyssus gallinae* – red mite

- Cosmopolitan
- Lives in the nests of birds in poultry houses, aviaries



# Pathogens transmitted by *Argas reflexus*

- Tick-borne encephalitis virus (TBE)
- West Nile virus
- *Borrelia burgdorferi*
- *Coxiella burnetii*
- *Aegyptionella pullorum*
- *Salmonella enteritidis*

# Pathogens transmitted by *Blatella germanica*

- *Hepatitis viruses*
- *Mycobacterium tuberculosis*
- *Staphylococcus aureus*
- *Typhus bacillus*

# Parasite transmitted by *Blatella germanica*

- Protozoa cysts and worms eggs

# Parasites transmitted by bugs

- *Trypanosoma cruzi*

# Pathogens transmitted by sandfly

- *Pappataci virus*

## Parasite transmitted by sandfly

- *Leishmania tropica*
- *Leishmania donovani*

# *Glossina palpalis* – tse-tse fly

- Parasite transmitted by tse-tse fly
  - trypanosomes

# *Anopheles macullipenis*

- Parasite transmitted by anopheles
  - *Plasmodium*

# *Culicoides pullicaris*

- Pathogens and parasite transmitted by *Culicoides pullicaris*
  - *Tularemia bacilli*
  - *Mansonella ozzardi*
  - *Onchocerca* sp