



**Spectrum**

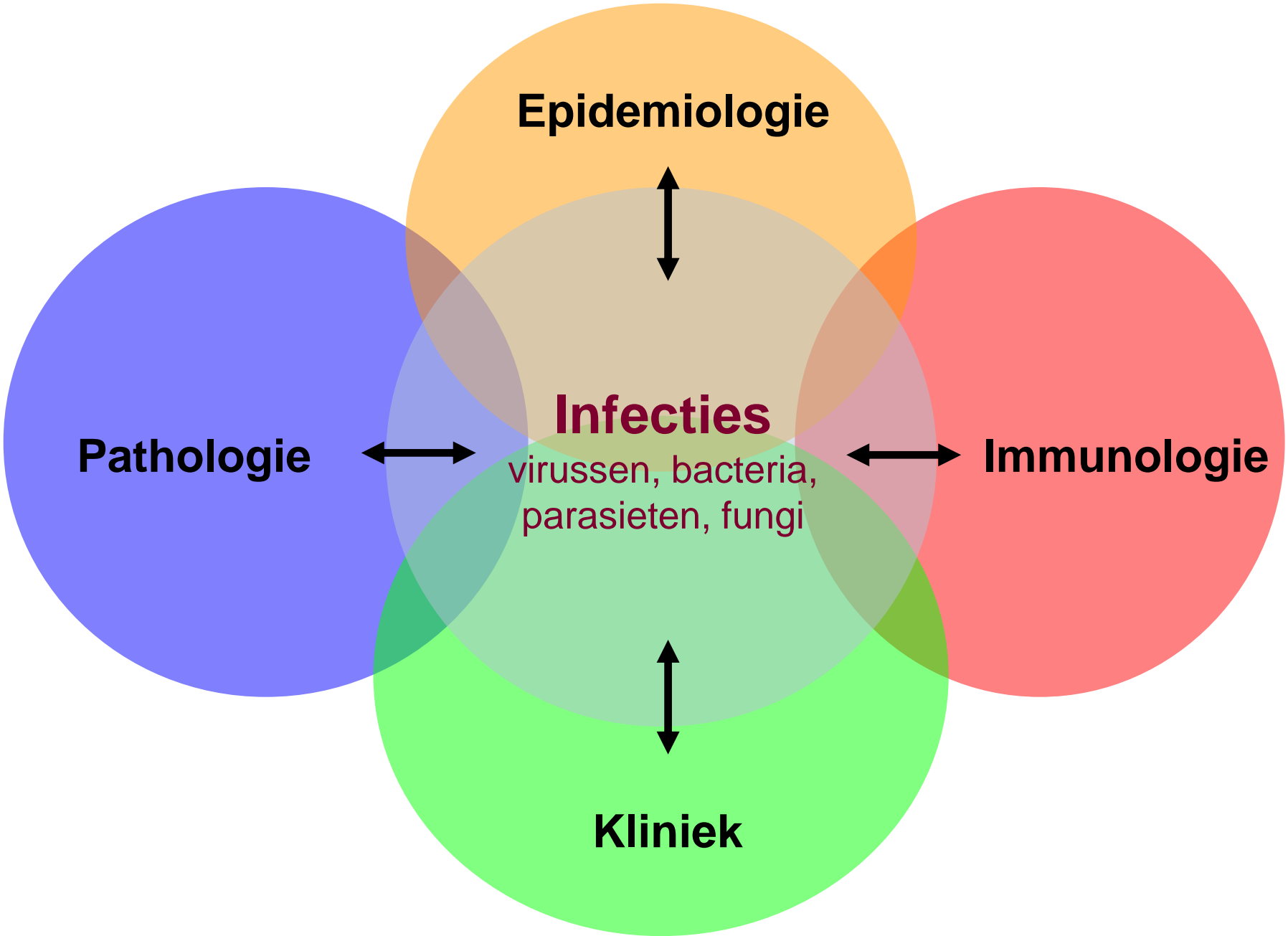


# Parasieten

*een ver-van-ons-bed probleem?*

**Prof. Louis Maes**

**28 APR 2022**

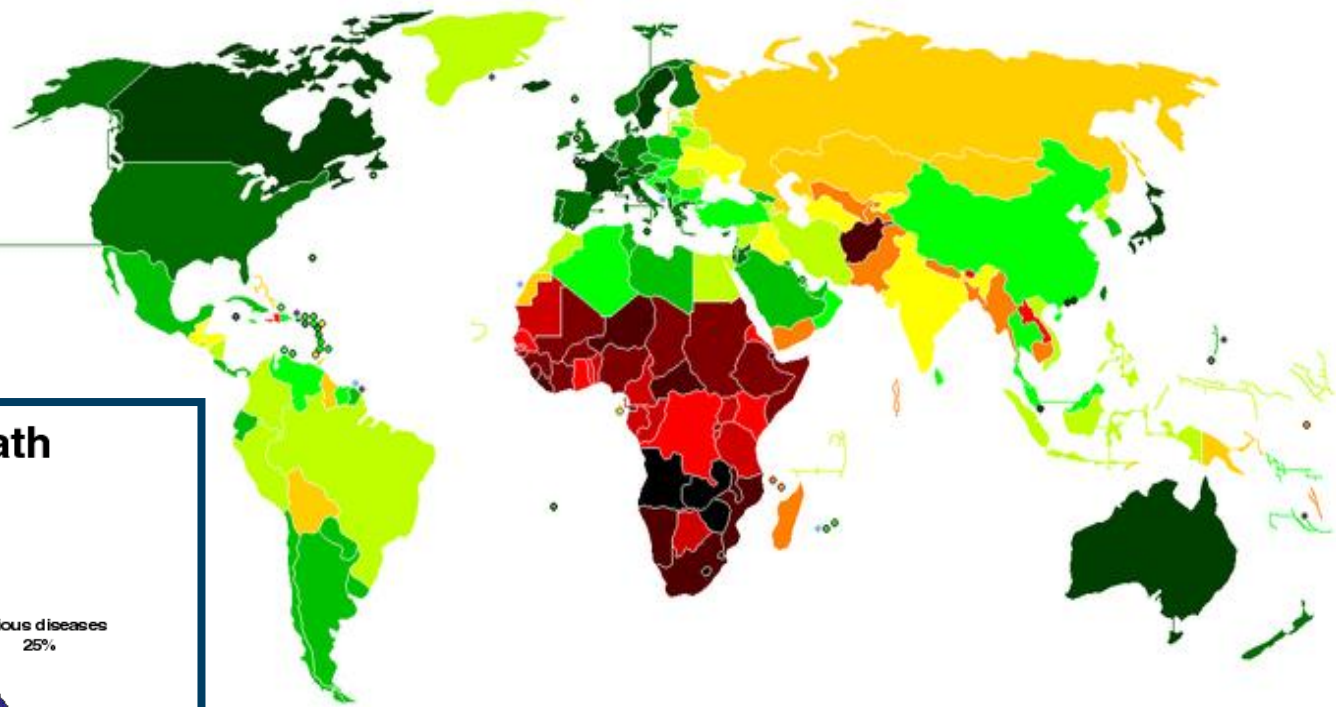


# Global health situation

CIA World Factbook 2007 Est.  
Life expectancy (years)

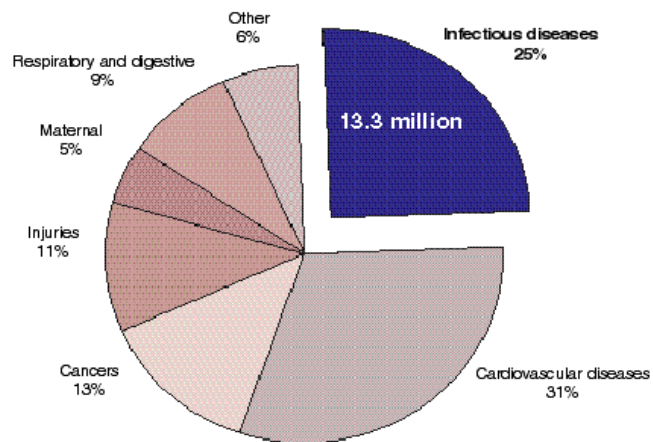
over 80	60 - 65
77.5 - 80	55 - 60
75 - 77.5	50 - 55
72.5 - 75	45 - 50
70 - 72.5	40 - 45
67.5 - 70	under 40
65 - 67.5	not available

○/● Dependent territory  
\* UN-WFP-2006 data



## Leading causes of death

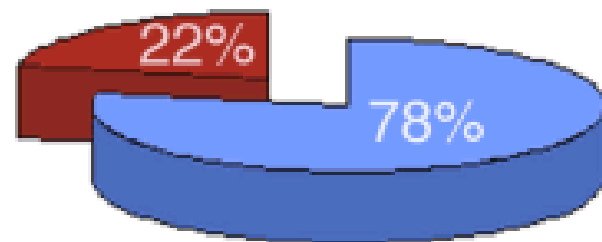
53.9 million from all causes, worldwide, 1998



Note: Cancers, cardiovascular and respiratory/digestive deaths can also be caused by infections and raise the percentage of deaths due to infectious diseases even more.

Source: WHO, 1999

Developed Countries



Developing Countries

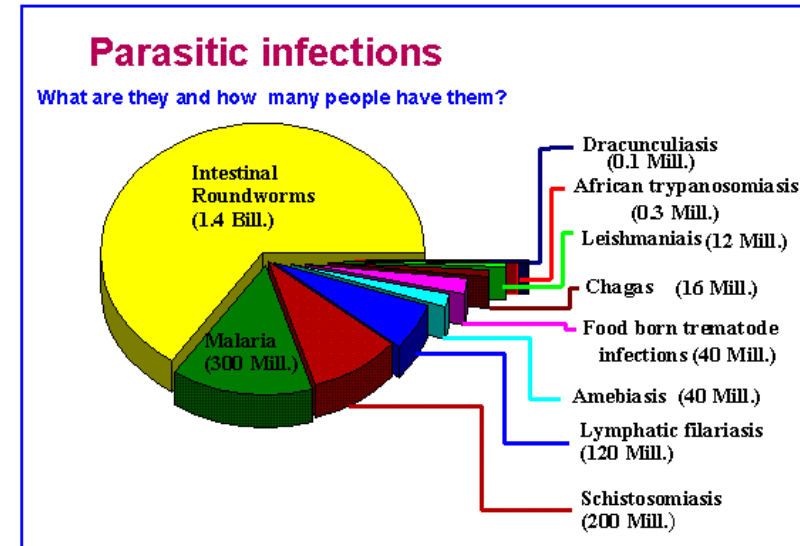
Global Burden of Disease Project, 1998

# Prevalence of parasitic diseases

- Particularly in tropics en subtropics !!!!
- In developing countries !!!!

Infection	Worldwide prevalence (millions infected)	Deaths (x1000)
Toxoplasmosis	1000-2000	0
Ascariasis	1000	20-60
Hookworm disease	800-900	50-90
Amebiasis	200-400	40-100
Schistosomiasis	200-300	200
Malaria	200-300	2000
Filariasis	250	nd
Giardiasis	200	0
Enterobiasis	60-100	0
Strongyloidiasis	50-80	0
Trypanosomiasis	15-20	100
Leishmaniasis	1-2	80

- Poor living conditions & hygiene
- Inadequate disease control and treatment
- Malnourishment
- Poor health education
- Regional or ethnic (dietary) habits
- Climate conditions
- Immunosuppression (HIV) and opportunistic infections



# Mechanismen van infectie

## Passief

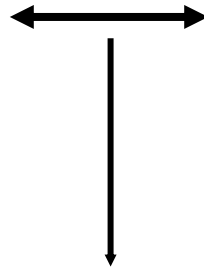
- via voeding – drinkwater (cysten, eieren)
- door direct contact (vb. sommige protozoa)

## Actief

- via vectoren (bijtend of zuigend)
- speciale ontwikkelingsvormen (larven)
- verticale transmissie (zelden)

# Schadelijke effecten

- Species
- Infectiedruk
- Orgaan/weefsel localisatie
- Stadium



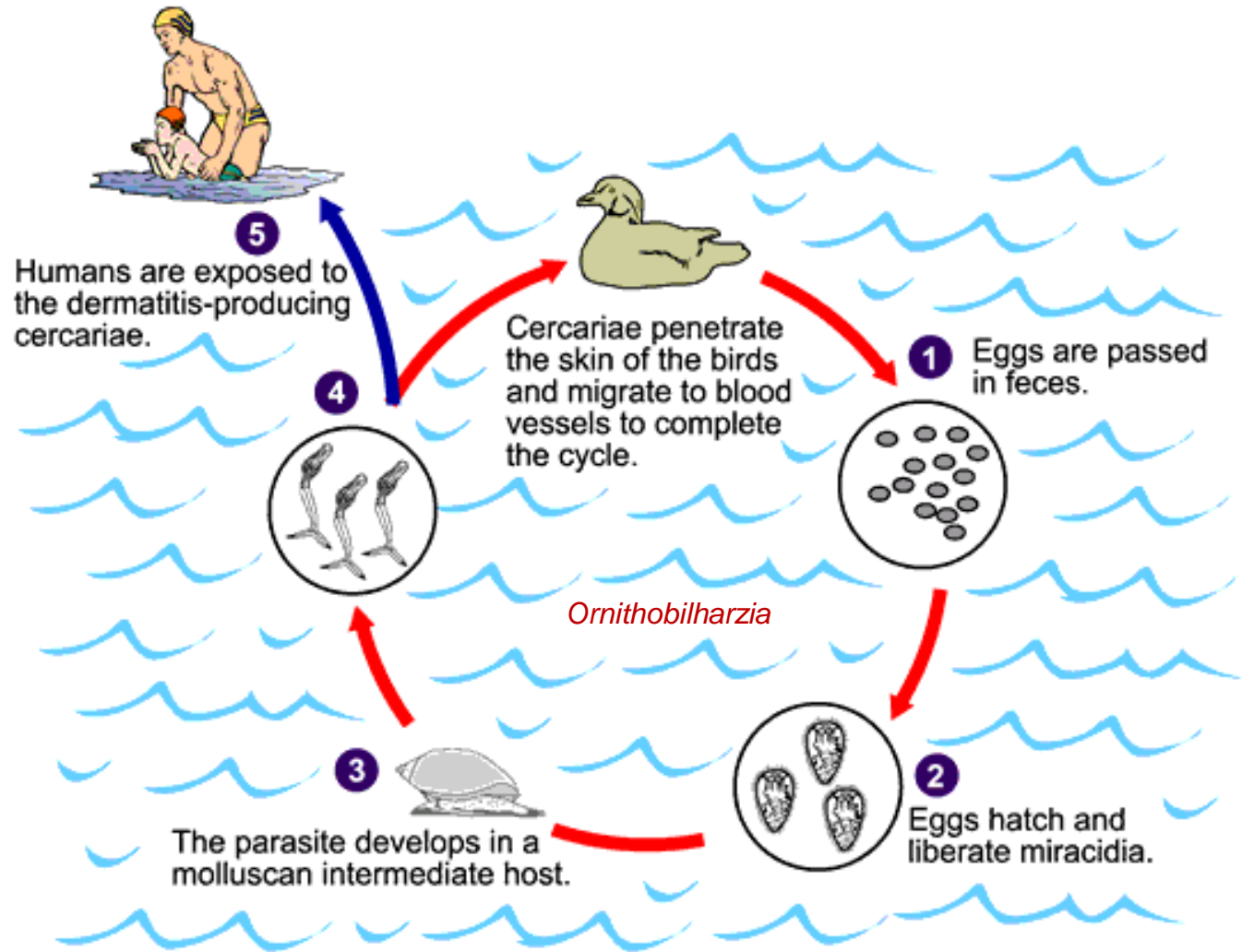
- Leeftijd
- Voedingstoestand
- Immunotoestand
- Fysiologische toestand

1. Wasting (*direct, indirect*)
2. Superinfecties
3. Vorming van toxische producten
4. Immunosuppressie
5. Allergie en overgevoeligheid
6. Mechanische schade (*druk, obstructie, migratie*)
7. Irritatie (huid, organen)

# Parasieten infecties bij de mens

<b>Platwormen</b>	Trematodes (zuigwormen) Cestodes (lintwormen)	zwemmers eczeem runderlintworm
<b>Rondwormen</b>	Nematoda (ronde wormen)	spoelworm <u>aarsworm</u>
<b>Arthropoden</b>	Arachnida (spinachtigen) Insecta (insecten)	<u>teken</u> , schurft <u>luizen</u>
<b>Protozoa</b>	Flagellaten Niet-flagellaten → Ciliaten	{ amoeben keratitis <u>toxoplasma</u> malaria

# Zwemmers eczeem: urticaria, papulaire dermatitis



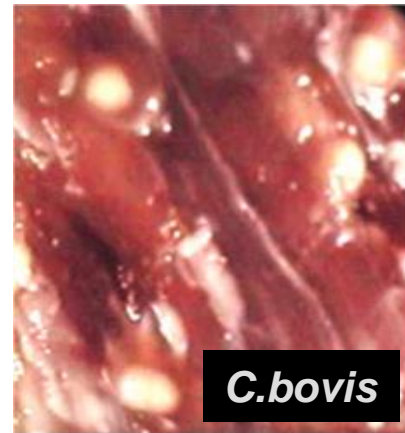


# Taenia saginata

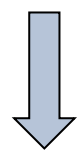
# Taenia solium

“runderlintworm”

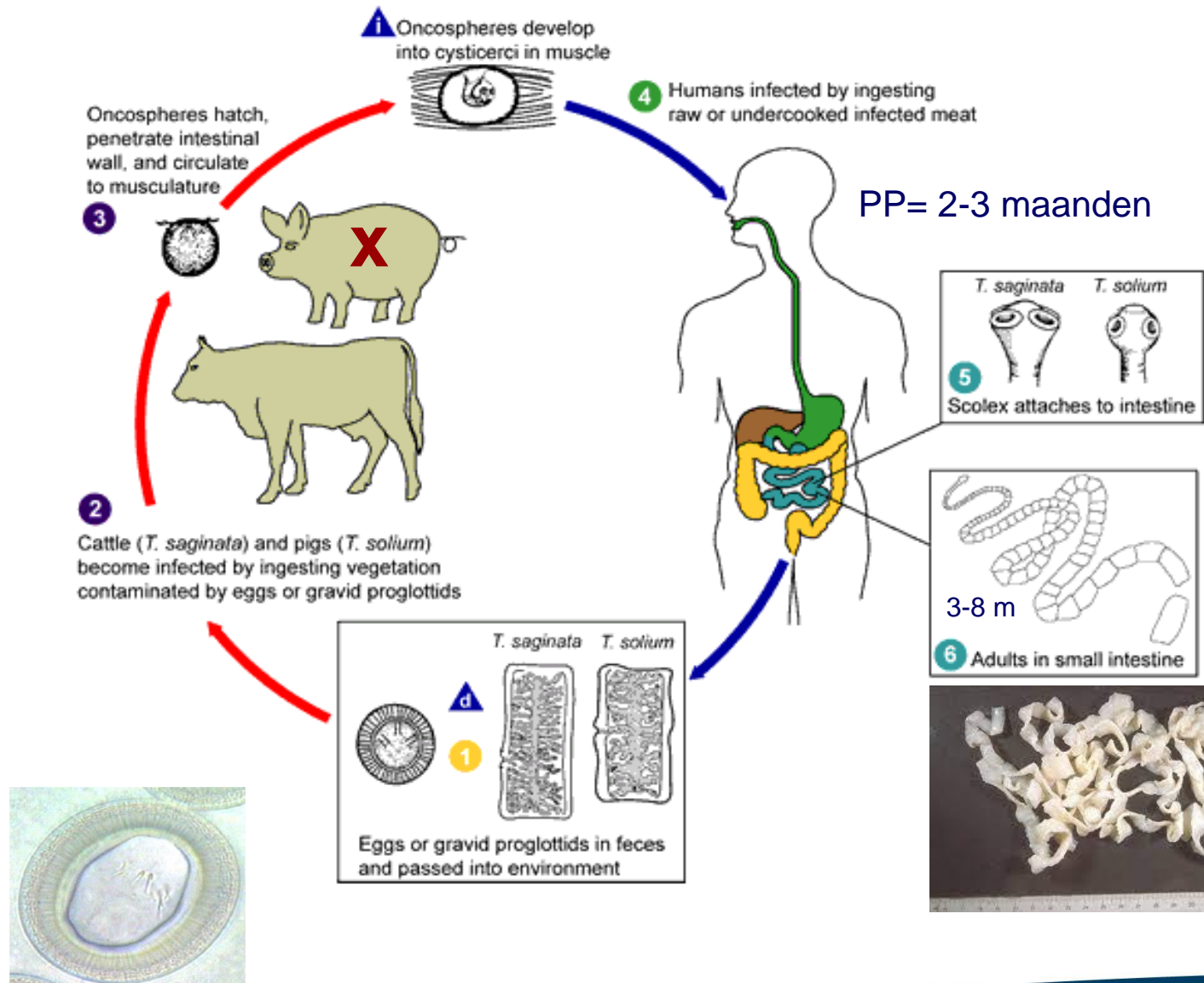
“varkenslintworm”



C.bovis

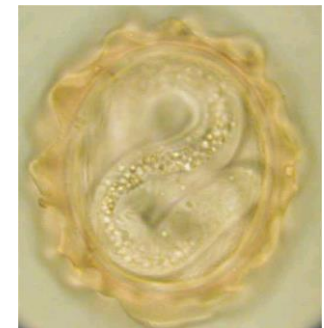
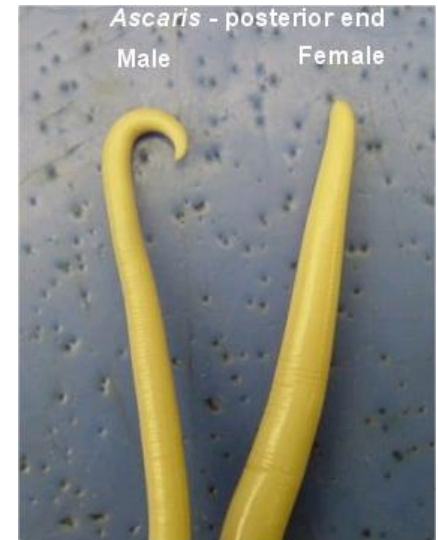
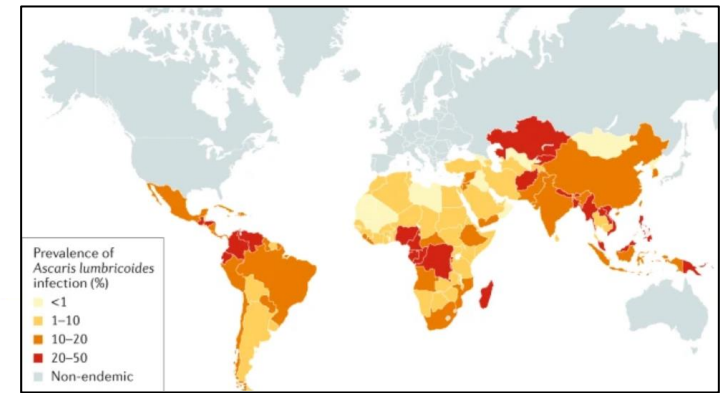
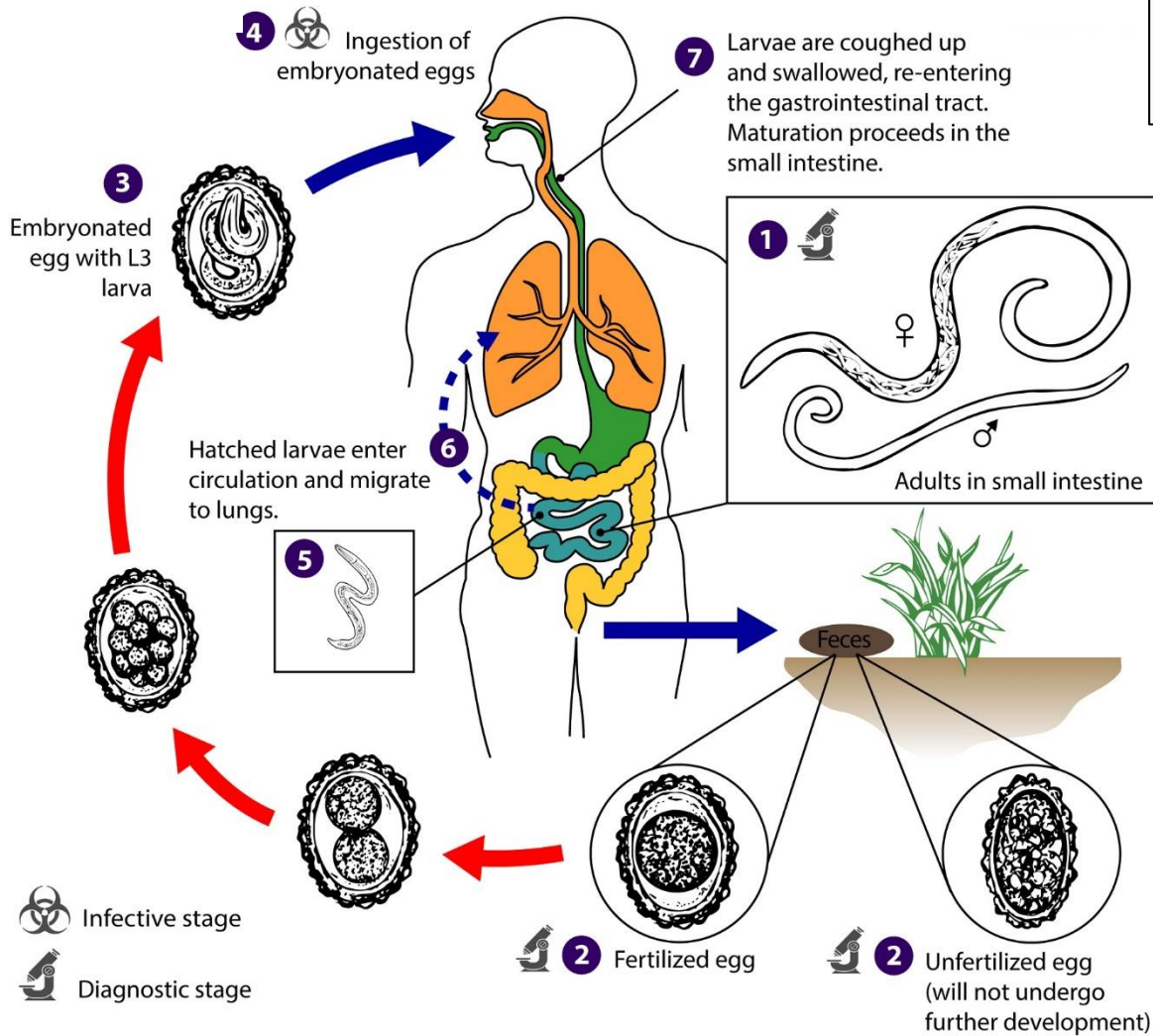


wettelijk  
verplichte  
inspectie in  
het slachthuis!

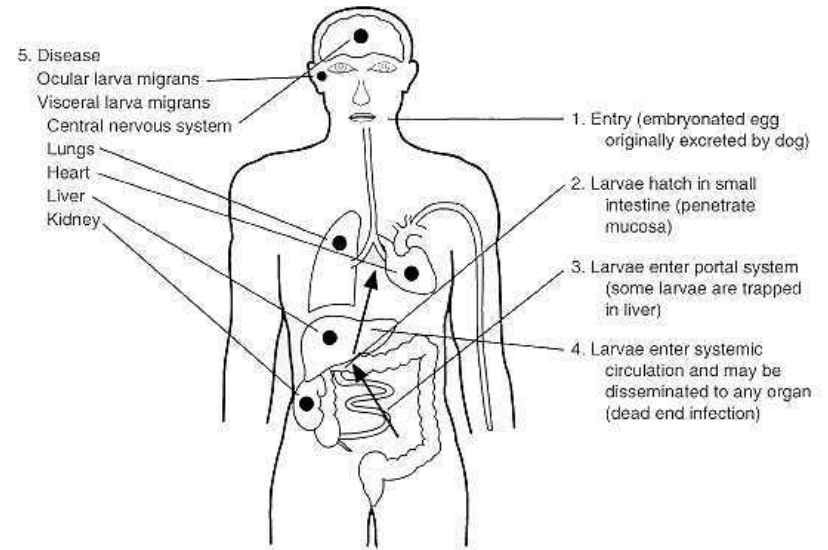
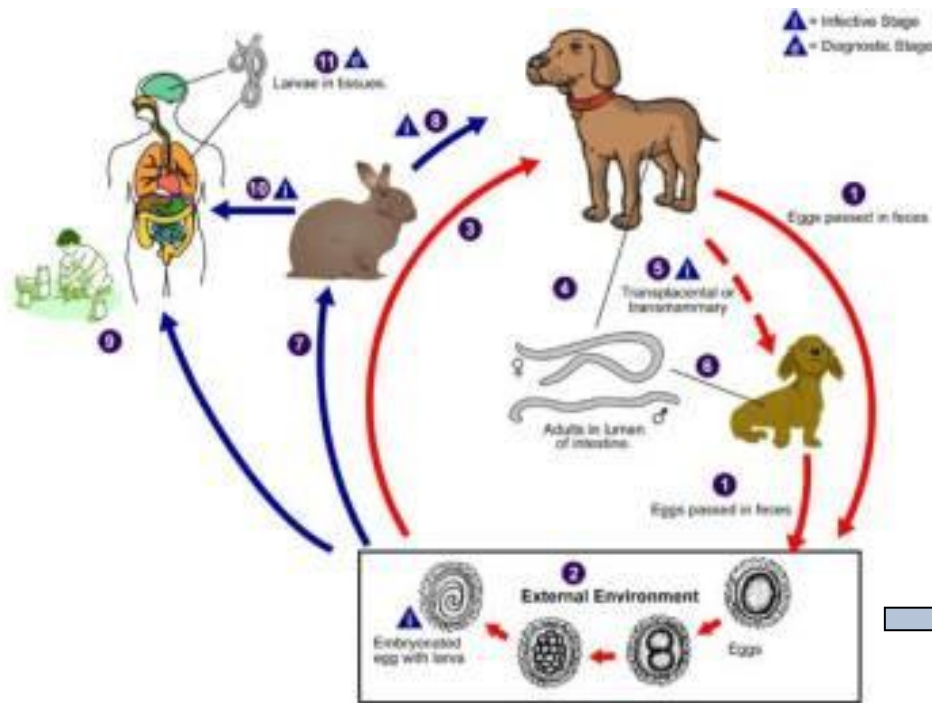


# Ascaris lumbricoides

## Ascaris lumbricoides



# Zoonosis: Larva migrans door hondenspoelworm (*Toxocara canis*)

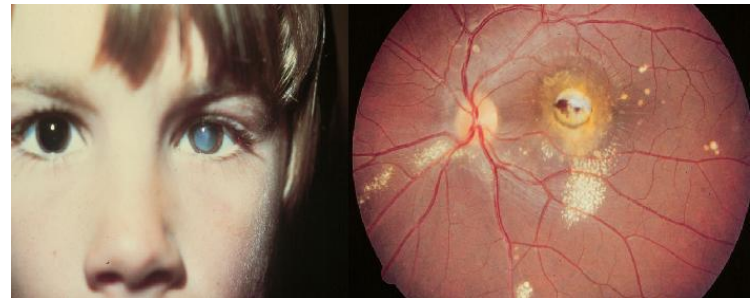


**hond regelmatig ontwormen !!!**

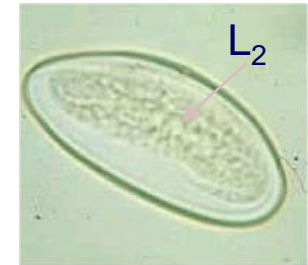
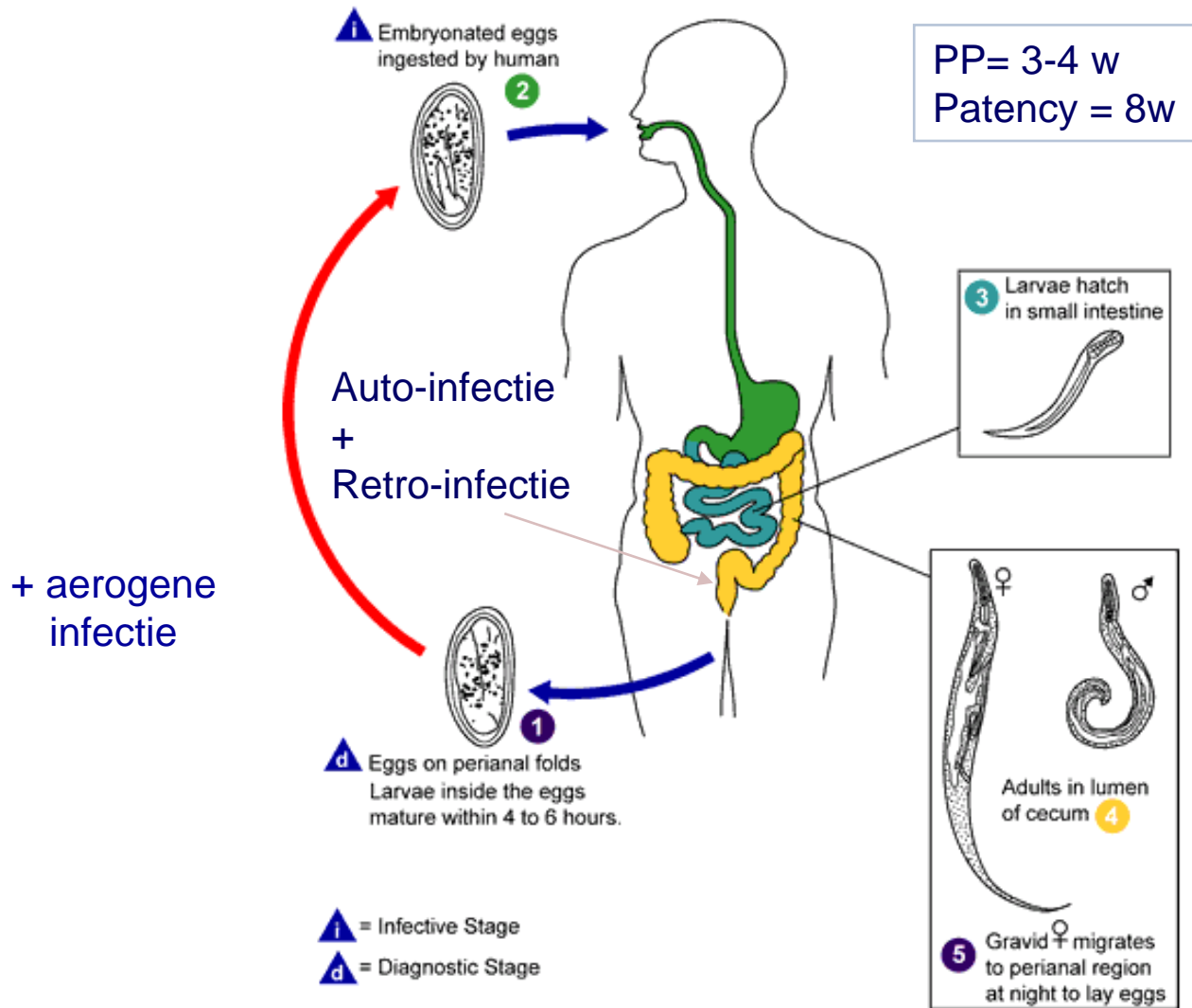
Viscerale Larva Migrans (VLM)



Oculaire Larva Migrans (OLM)



# Aarsworm: *Enterobius vermicularis*



# Teken morfologie



*Ixodes Ricinus*  
(schapenteek)  
(3 gastheren)



**Lyme**  
TBE

# Teken Levenscyclus

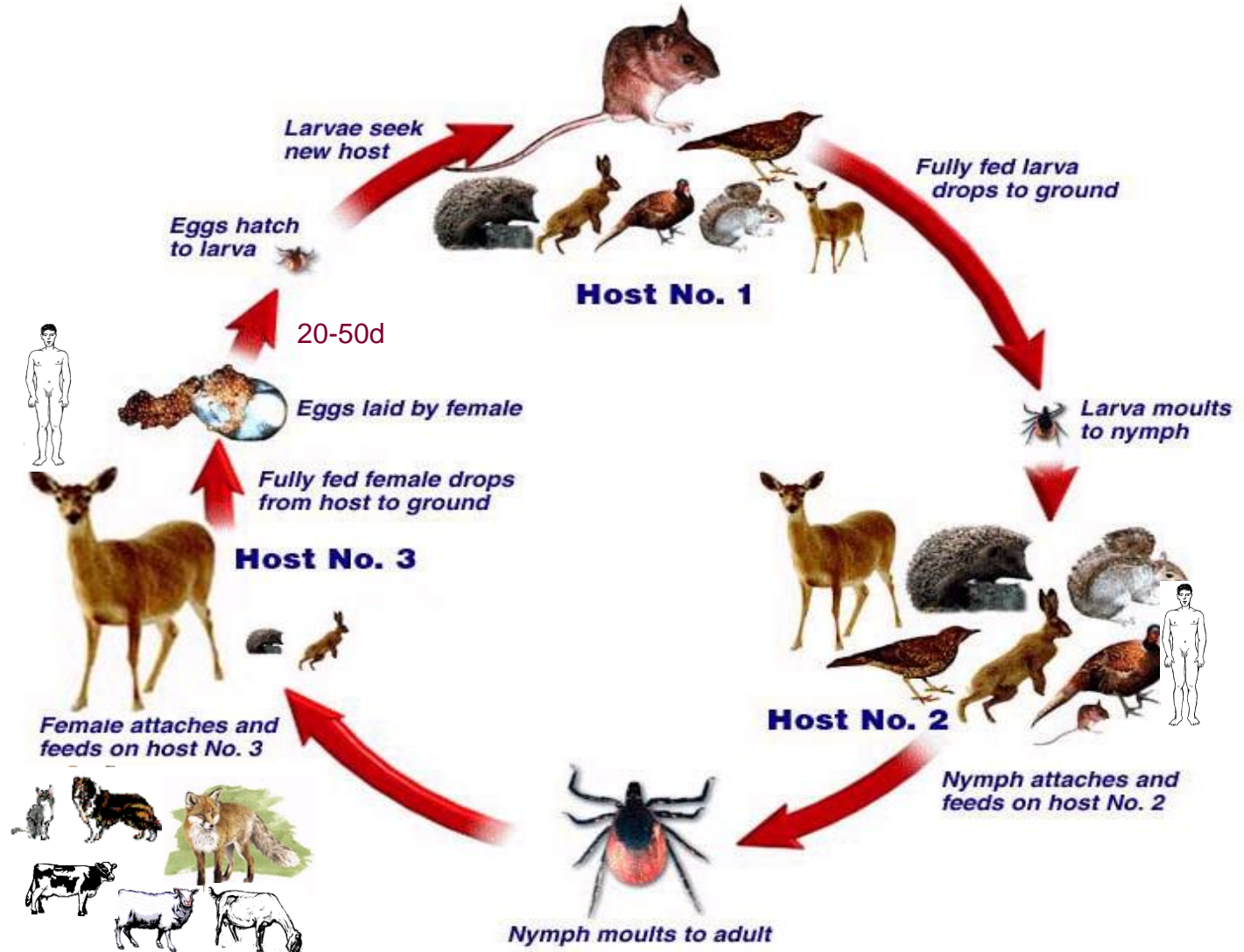
Larva feeds on host No. 1

tropen  
1 jaar

subtropen  
2 jaar

temperate  
3 jaar

‘spring  
feeders’



# Lyme disease

Oorzaak	<b><i>Borrelia burgdorferi</i></b> (spirocheet)
Reservoir	knaagdieren, wild
Vector	ticks ( <i>Ixodes spp.</i> ) – <b>infectie pas na 2 dagen !!!</b>

## Symptomen

1. **erythema migrans** [binnen 1-2w] + griepachtige verschijnselen
2. **arthritis (pijnlijke knie)** [na enkele maanden]
3. **zenuwstoornissen (meningitis, verlammingen)** [na maanden of jaren]
4. **Hartproblemen** (ritmestoornis) [enkele weken]

## Diagnose = moeilijk

anamnese !!!! (tekenbeet, zomermaanden)

Erythema migrans specifiek (afwezig in 25% van de gevallen)

serologie: ELISA (na enkele weken)

## Behandeling = antibiotica therapie ged. 2-4 weken

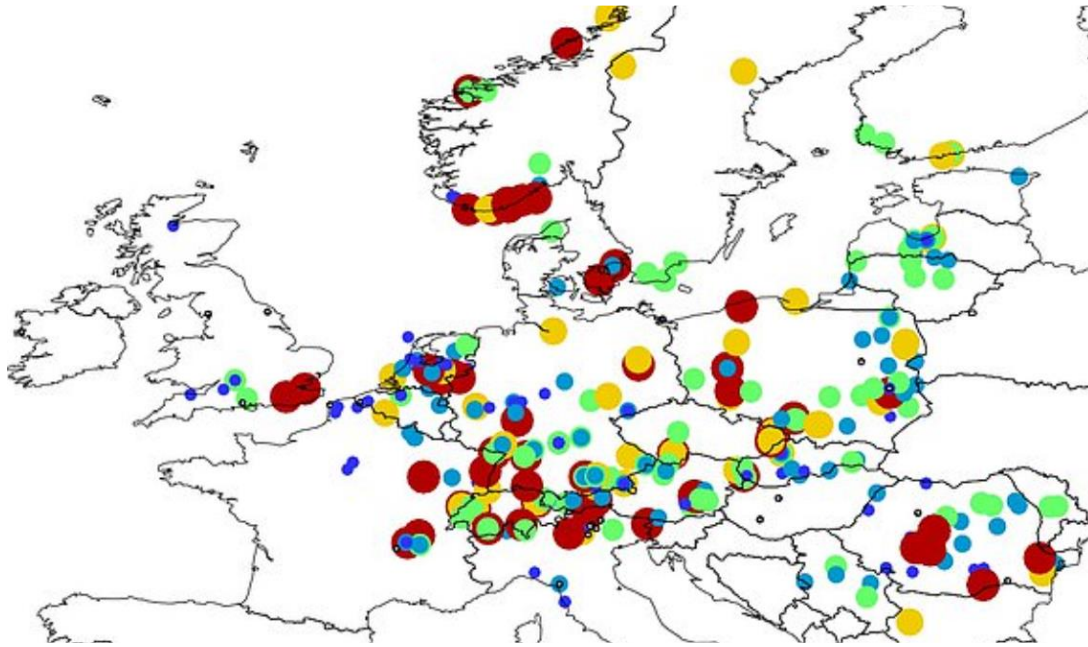
IV: penicillin, ceftriaxone

PO: doxycyclin, amoxicillin, (cefuroxime)(macrolides)

## Preventie = verwijderen van de teek (<2d)

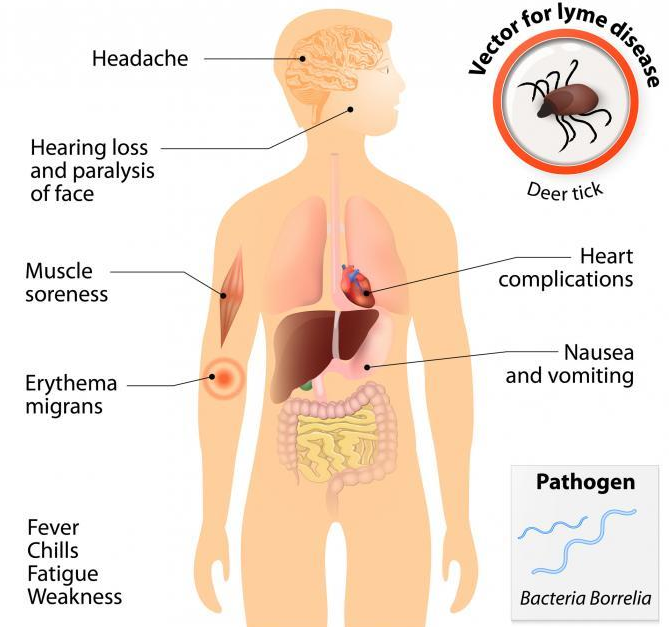
+ opvolging van bijtwonde gedurende 30d

# Verspreiding van Lyme disease

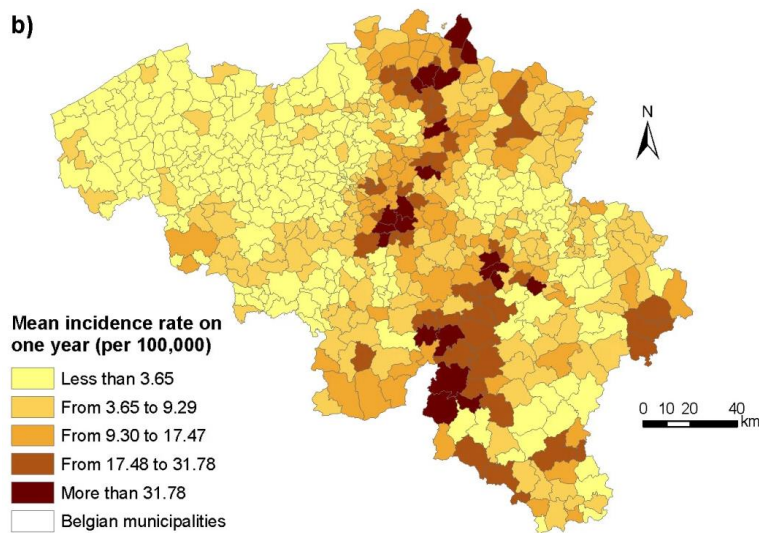


Erythema migrans

## Lyme disease symptoms

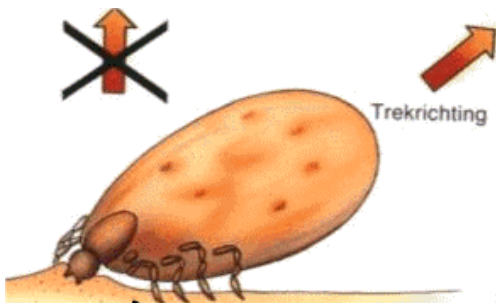
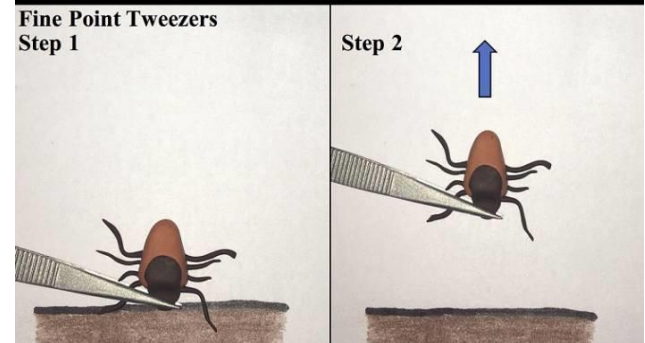
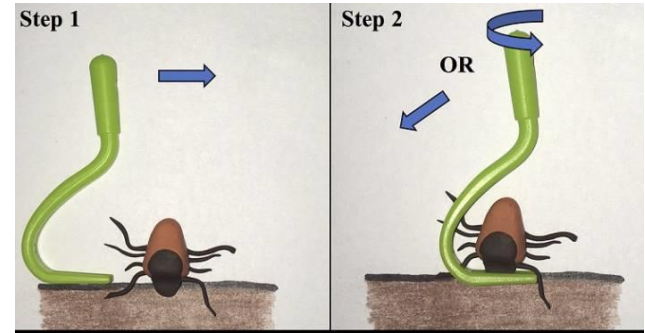
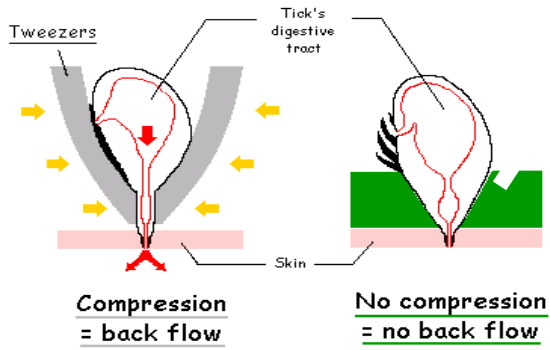
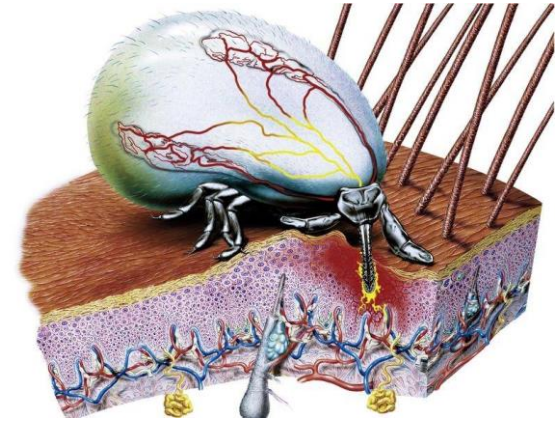
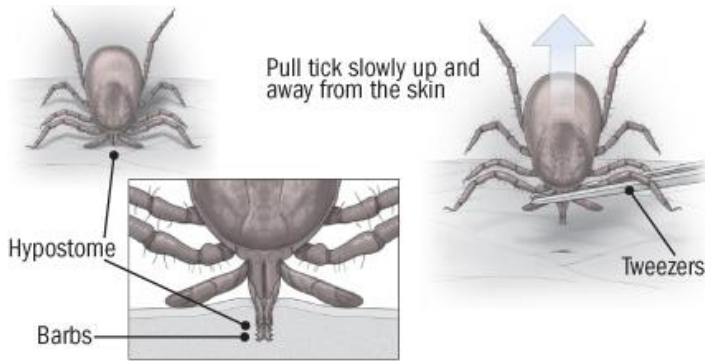


b)

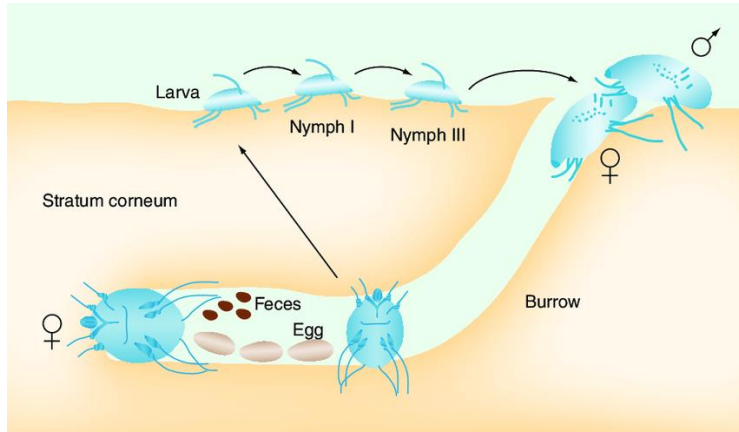




# Verwijderen van teek



# Schurft: *Scabies scabei*



**Schurft duikt op in Antwerpse studentenwijk, apotheker verwonderd: "Nog nooit meegemaakt"**



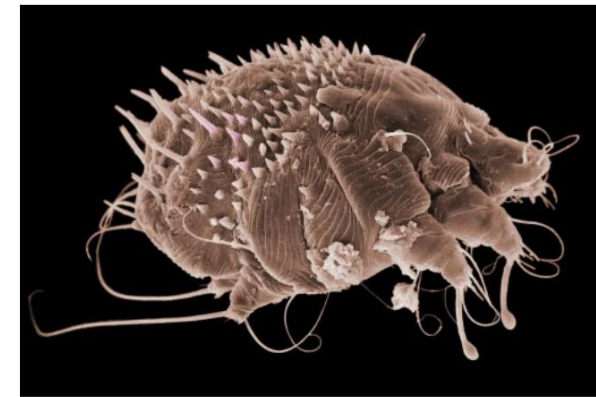
**Symptomen:** ongeveer 2-6 w na besmetting:

- heftige jeuk, vooral 's nachts;
- schilferende gangetjes die op je huid te zien zijn;
- blaasjes of pukkeltjes op de huid.

Letsels aan de polsen of tussen de vingers en tenen, maar ook in de oksels, liezen, voeten, tepels, penis en enkels.



Topische behandeling



Een schurftmijt. Bijzonder resistent, maar gelukkig niet gevaarlijk. — © Isopix

**Het kwam nog nauwelijks voor, maar schurft is helemaal terug én aan een opmars bezig in Vlaanderen**

De ziekte die nauwelijks nog voorkwam – en enorm doet krabben – is aan een opmars bezig. "We merken in heel Vlaanderen een significante stijging."

# Luizen: *Pediculus humanus* (*capitis*, *corporis*)



Head Louse

*Pediculus humanus capitis*



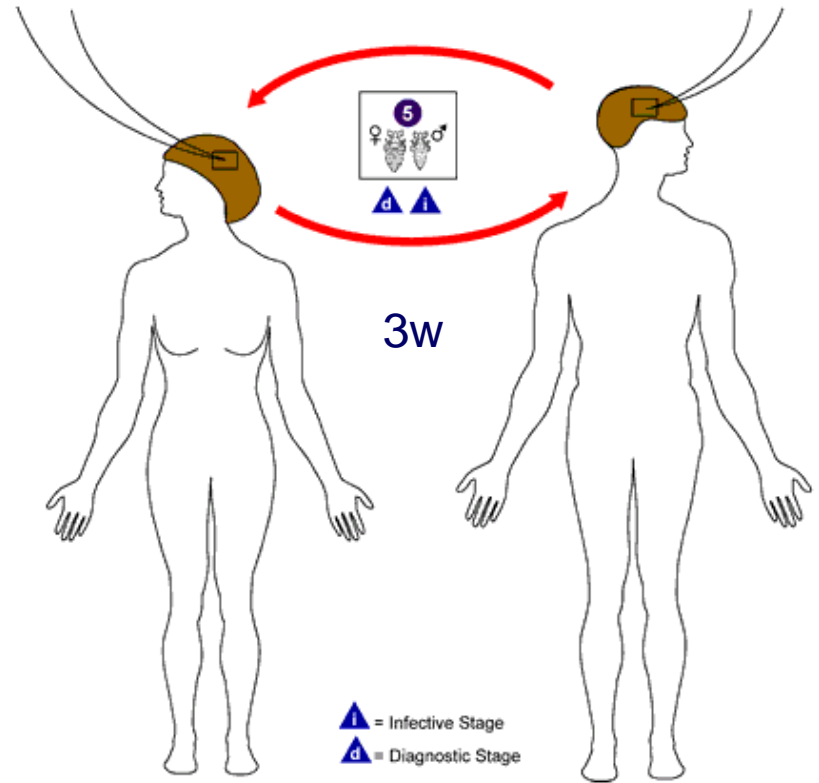
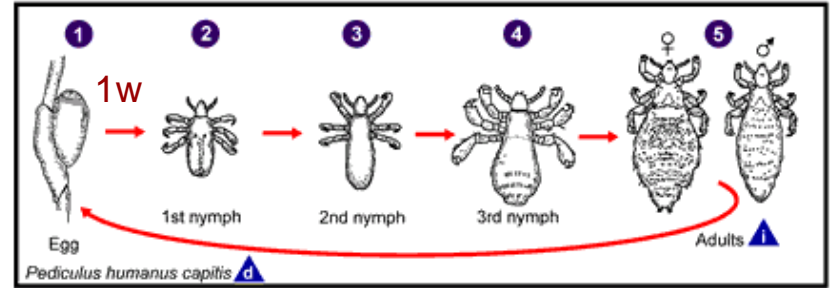
Body (Clothing) Louse

*Pediculus humanus humanus*

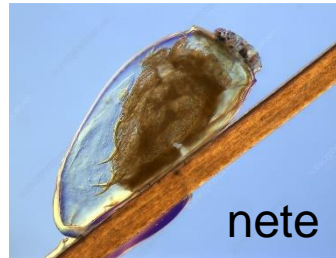


Pubic Louse

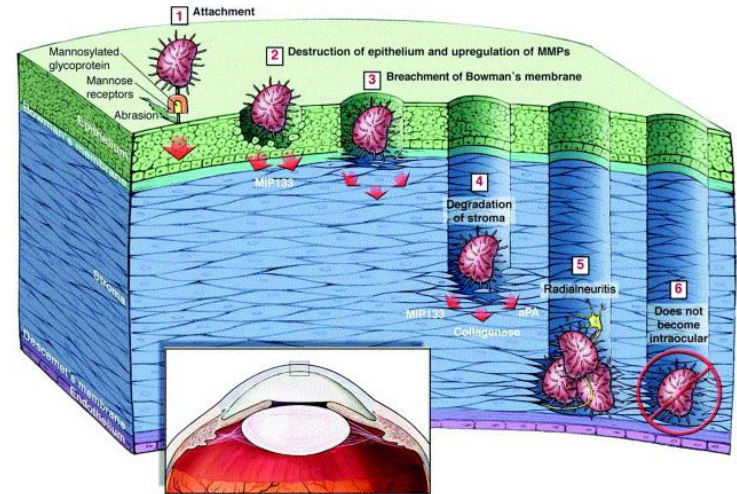
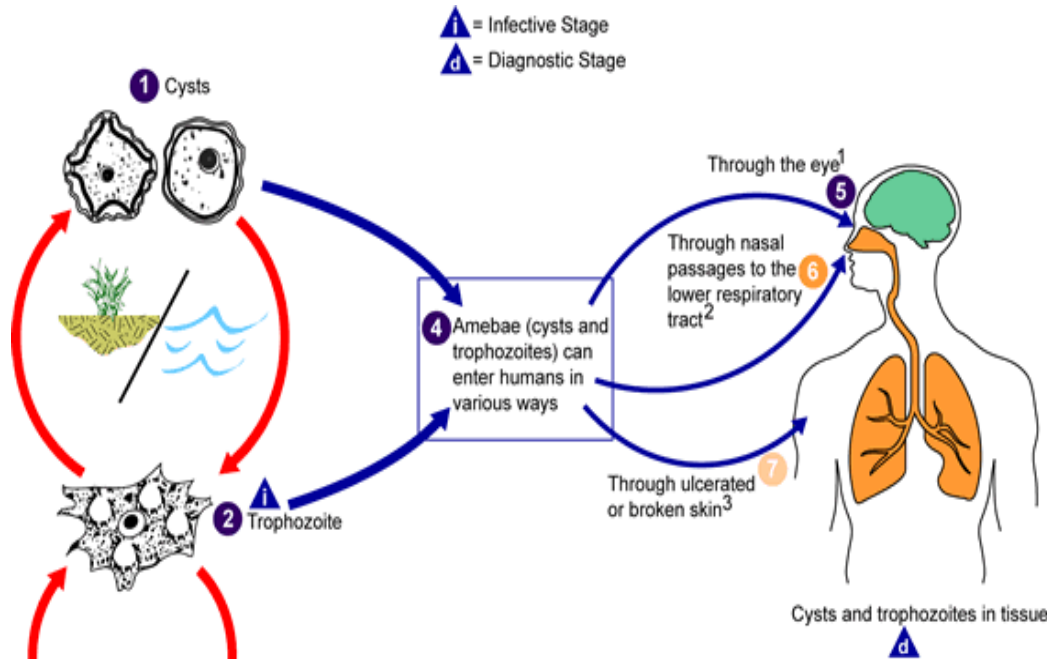
*Pthirus pubis*



Behandeling: luizenschampoo



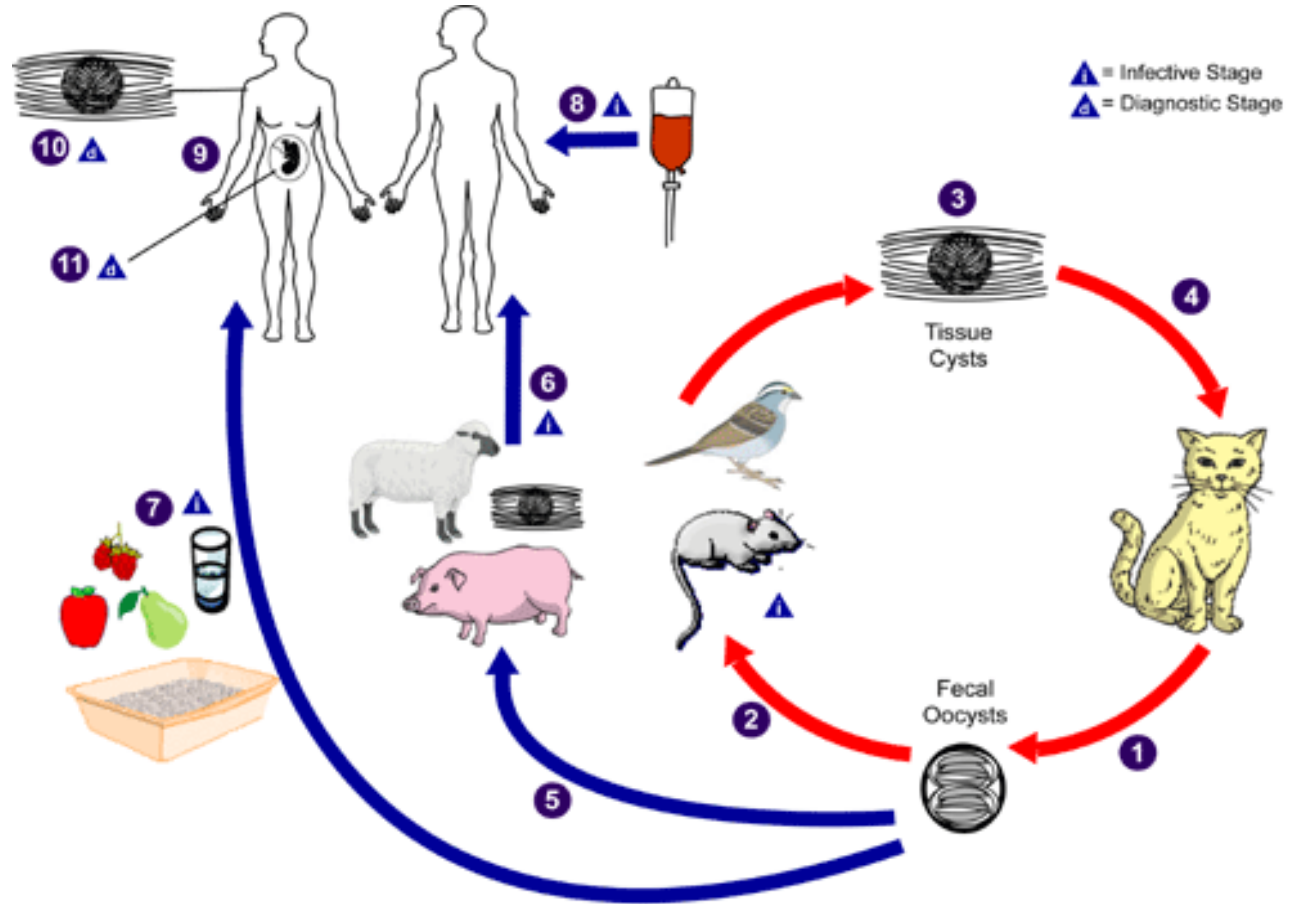
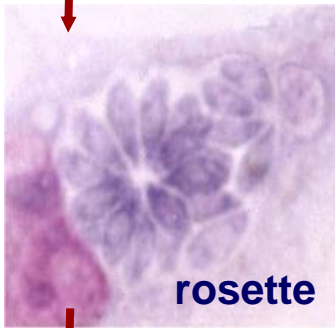
# Protozoa: vrijlevende amoeben



*Acanthamoeba* keratitis

# Protozoa: Toxoplasmosis (*Toxoplasma gondii*)

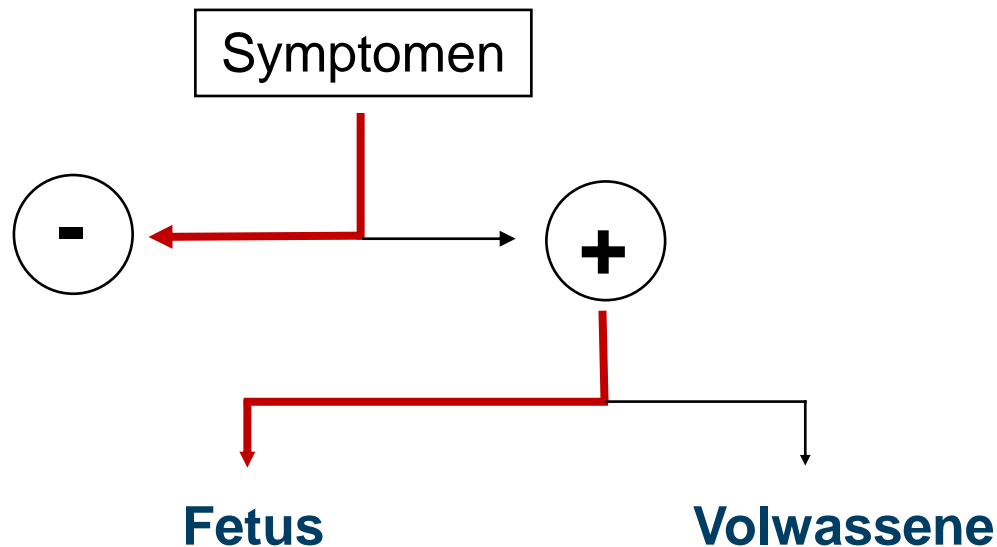
weefselstadia



# Toxoplasma ziektebeeld

**Voorkomen** wereldwijd (13% van de wereldbevolking besmet)

**Pathologie** door vermeerdering van tachyzoiten in 'gevoelige' weefsels  
(*erger bij immunosuppressie*)



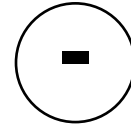
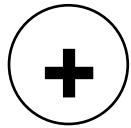
- I Resorptie / abortus
- II Vruchtmisvormingen
- III Chorioretinitis / blindheid  
Mentale achterstand

- Koorts, spierpijn
- Lymfeklierzwellling
- Myocarditis / encephalitis



# Toxoplasma preventie en controle

## Immuunstatus zwangere vrouw

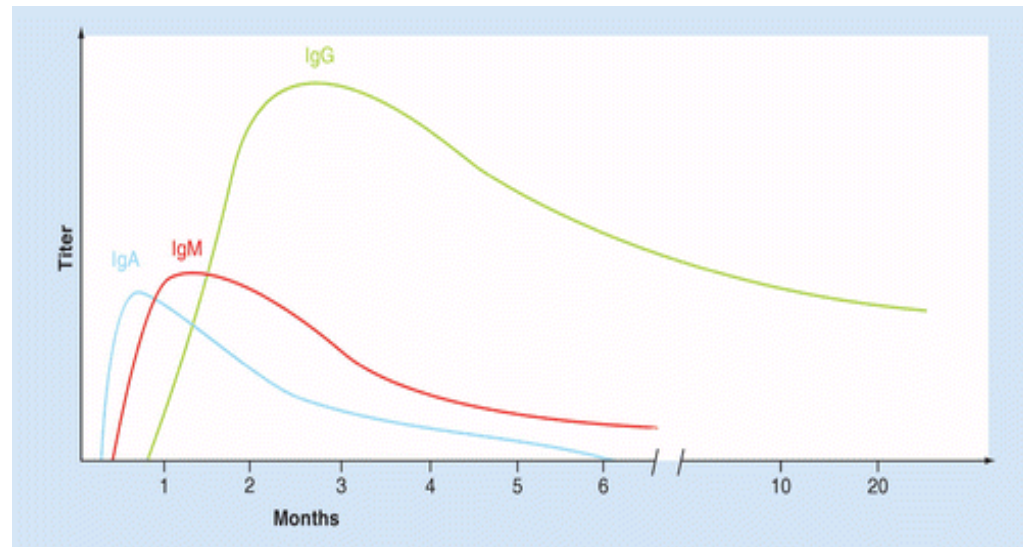


Geen probleem

Monitoring van infectie  
→ serologie IgM/IgG

### Eetgewoonten

- geen 'rood' vlees
- diepvries vlees



### Prevalentie

- leeftijdsgebonden: totaal: 80% - 20-30j: 50%
- tijdens zwangerschap: 5-10%, transmissie: 30-40%

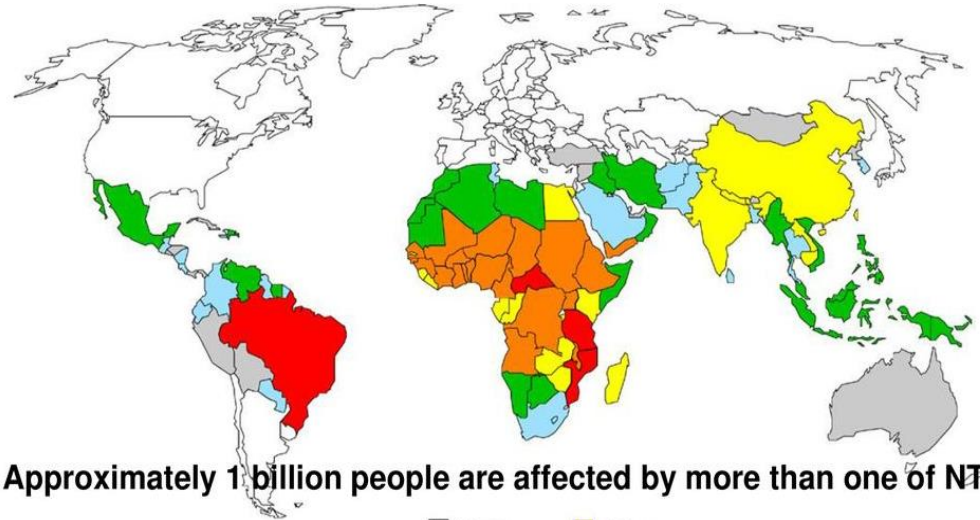
# Enkele reflecties !!!



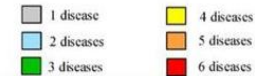
World Health Organization

**DNDi**

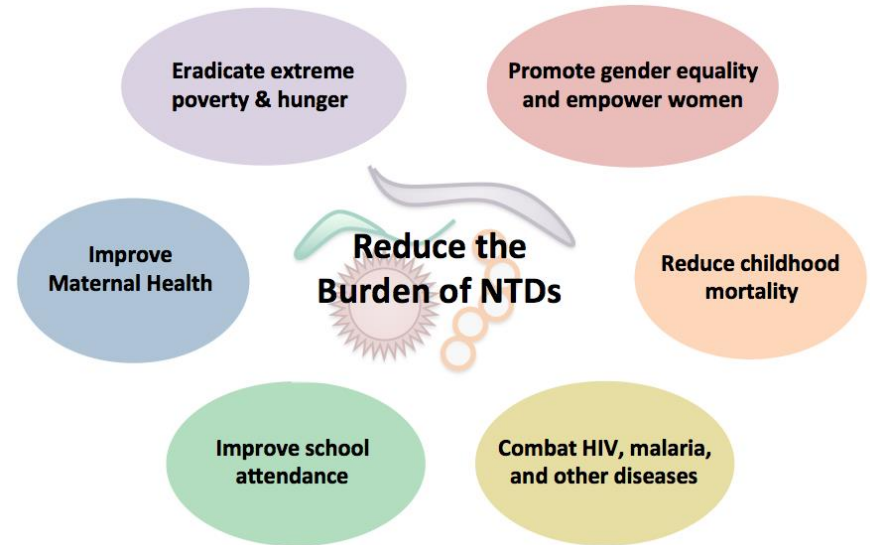
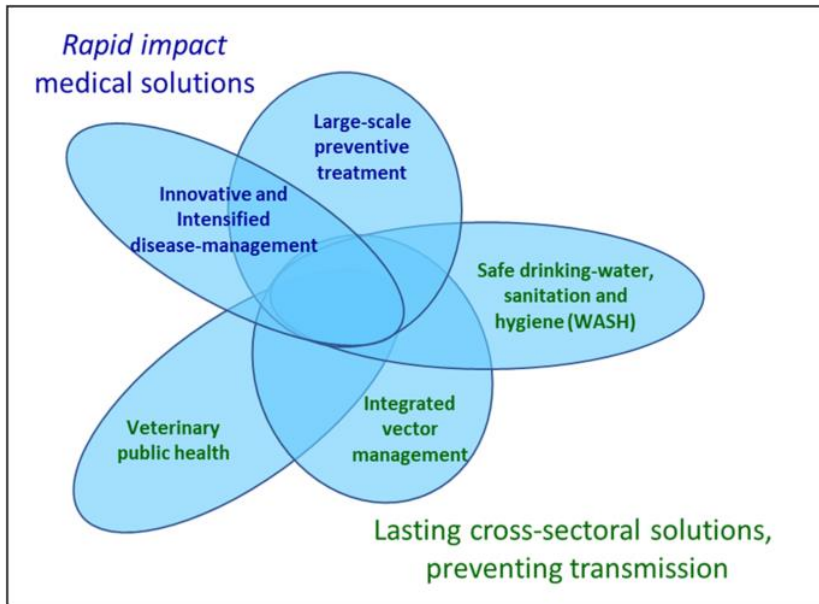
Drugs for Neglected Diseases *initiative*



Approximately 1 billion people are affected by more than one of NTDs



NTD: Neglected Tropical Disease





# De LMPH onderzoeksgroep

<https://www.uantwerpen.be/en/research-groups/lmph/>

