

Tropical diseases




Nicolette du Plessis
Block 10
28/02/2012



Alice

n 2 weeks after visit:

- Headache
- Myalgia
- Fever with rigors







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What did Alice contract?

Malaria

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Climate beneficial for mozzie AND parasite

Female Anopheles

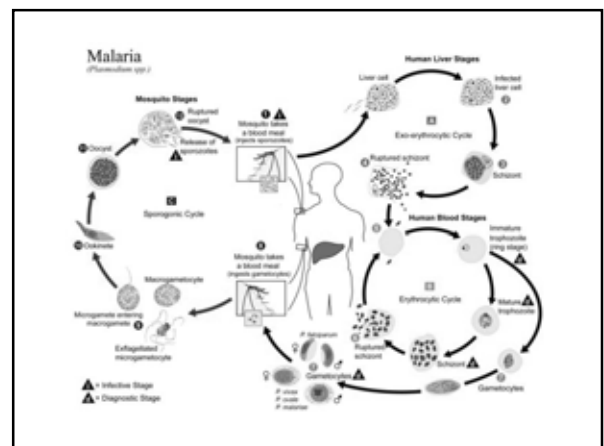
+

Plasmodium parasites

Plasmodium falciparum
Plasmodium vivax
Plasmodium ovale
Plasmodium malariae
(*Plasmodium knowlesi*)



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The patient

8

Another patient ?

Lastborne

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Lastborne

nHistory

- Fever and vomiting
- Diarrhea
- Refusal to feed

nExamine

- Decreased LOC
- Pale
- Jaundice
- Respiratory distress

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n Nurses' observations

- Hypoglycemic
- No urine output

n Laboratory report

- Anemia (Hb < 5g/dl)
- Severe metabolic acidosis
- *P. falciparum* RAT positive
- Smears – parasite count > 5%

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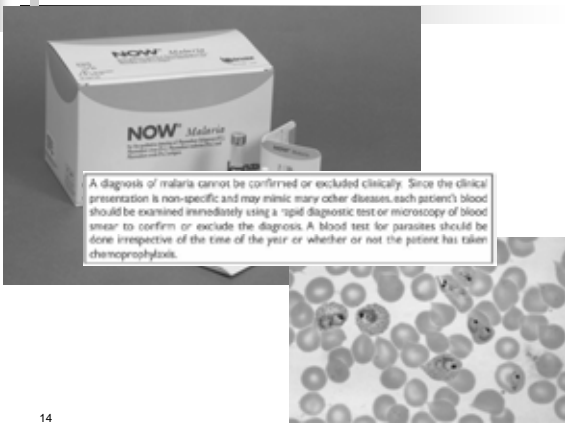
Severe malaria

Danger signs

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<p>Severe malaria: clinical features</p> <ul style="list-style-type: none"> Prostration Impaired consciousness Multiple convulsions Respiratory distress (acidotic breathing) Circulatory collapse Acute respiratory distress syndrome (ARDS) Abnormal bleeding Jaundice Haemoglobinuria 	<p>Severe malaria: biochemical features</p> <ul style="list-style-type: none"> Renal impairment: serum creatinine >265 µmol/l or rapid rising creatinine (>1.5 gmol/dl/day) or urine output <400ml/day (adult) Acidotic plasma: bicarbonate <15 mmol/l or serum lactate >5 mmol/l Respiric impairment: transamases >3 times normal Hypoglycaemia: blood glucose <2.2 mmol/l Hypoxia: PO₂ <8 Kpa in a room air 	<p>Severe malaria: haematological features</p> <ul style="list-style-type: none"> Parasitaemia: ≥4% or ≥1+ Anaemia: haemoglobin < 4g/l or haematocrit < 20% Malaria pigment in >1% neutrophils Schizonts of <i>P.falciparum</i> in peripheral blood smear Evidence of DIC
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<p>Uncomplicated malaria signs and symptoms</p> <ul style="list-style-type: none"> Fever Headache Rigors (Cold and shiver has onset) Myalgia Malaise Diarrhoea Loss of appetite/nausea Diarrhoea, nausea and vomiting Cough Splenomegaly 	<p>Danger signs</p> <ul style="list-style-type: none"> Unable to drink or be rehydrated Repeated vomiting Rapid history of convulsions Lethargy Unable to sit or stand 	<p>High risk groups</p> <ul style="list-style-type: none"> Pregnant (and postpartum) women Infants and young children Elderly patients (>65 years) Splenectomized patients Immunocompromised persons, including patients with HIV/AIDS Non-immune persons
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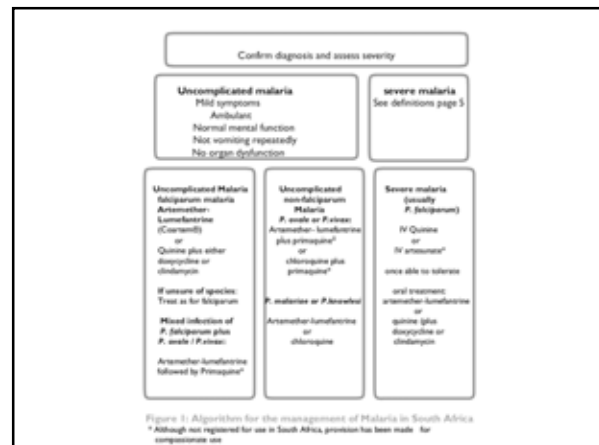
A diagnosis of malaria cannot be confirmed or excluded clinically. Since the clinical presentation is non-specific and may mimic many other diseases, each patient's blood should be examined immediately using a rapid diagnostic test or microscopy of blood smear to confirm or exclude the diagnosis. A blood test for parasites should be done irrespective of the time of the year or whether or not the patient has taken chemoprophylaxis.

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Alice and Lastborne...



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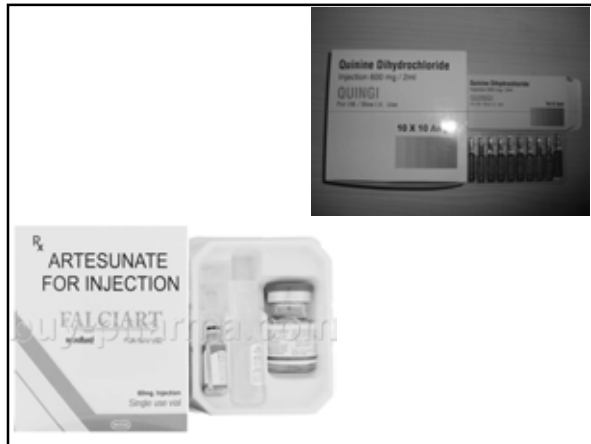



Coartem[®] (artemether/lumefantrine) Tablets 20 mg/120 mg per tablet 24 Tablets NOVARTIS

QUININE SULPHATE TABLETS (IP)

Severe malaria is a medical emergency. Unless *P. falciparum* malaria is promptly diagnosed and treated, the clinical picture may deteriorate rapidly. Treated severe malaria carries a 10 – 40% mortality burden. Patients should be treated in the highest level of care available.

Management of severe malaria comprises 4 main areas: clinical assessment of the patients, specific antimalarial treatment, general management, and management of the complications of severe malaria.



General management of severe malaria in young children:

- Check airway, breathing, circulation (ABC);
- Hypoglycaemia, cerebral malaria, anaemia, and metabolic acidosis are important complications;
- Agitation and respiratory distress (as a result of metabolic acidosis) are ominous signs;
- Children who present with shock and acidosis should be given a bolus (20 ml/kg) of fluid, either colloid (plasma) OR crystalloid (Ringers lactate, or normal saline if this is unavailable);
- Secondary bacterial infections, including septicaemia, are common and broad-spectrum antibiotics e.g. third generation cephalosporins should be given to children with severe malaria;
- Renal failure and acute respiratory distress syndrome are rare in young children;
- Meningitis is important in the differential diagnosis of malaria with a depressed level of consciousness or convulsions;
- Convulsions in children with malaria may be subtle, and could be due to hypoglycaemia, cerebral malaria or pyrexia.

8.3 Malaria and HIV/AIDS

Prompt diagnosis and effective antimalarial treatment should be provided for all uncomplicated malaria cases, especially in HIV-infected patients, given their increased risk of anaemia, severe malaria and malaria-related mortality.

A large number of HIV-infected patients either live in areas where malaria transmission occurs, or travel to these areas. The burden of HIV-malaria co-infection is highest in southern Africa, since this is where HIV prevalence is high, particularly in rural areas and where the malaria burden is mostly in adults due to the unstable malaria transmission precluding their acquiring immunity. Substantial interaction between malaria and HIV/AIDS occurs at many levels:

- Overlap of symptoms of the two diseases, especially fever, may result in HIV-positive patients with malaria presenting late to health facilities and the diagnosis of malaria being missed;
- Although acute malaria causes a temporary increase in replication of HIV and hence in plasma viral load, there is no evidence that malaria has a substantial effect on the clinical progression of HIV infection, HIV transmission or response to antiretroviral treatment;
- HIV-infected individuals who live in areas of stable malaria transmission and are thus expected to be malaria semi-immune, are at increased risk of symptomatic parasitaemia and/or may exhibit higher levels of peripheral parasitaemia than semi-immune adults who are HIV-negative.

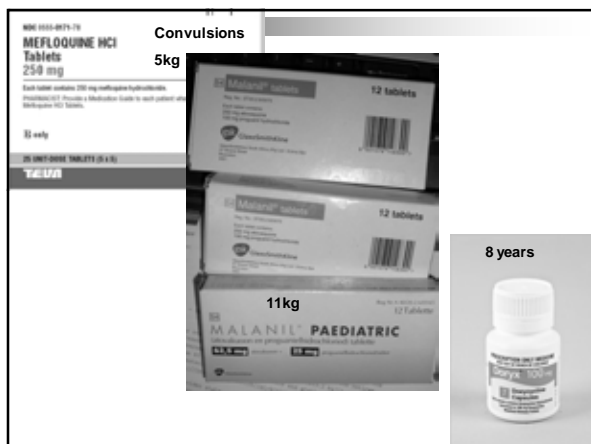
Prevention

The "ABC" of Malaria prevention:

- A: Awareness and assessment of malaria risk
- B: Avoidance of mosquito bites
- C: Compliance with Chemoprophylaxis, when indicated
- D: Early Detection of malaria
- E: Effective treatment

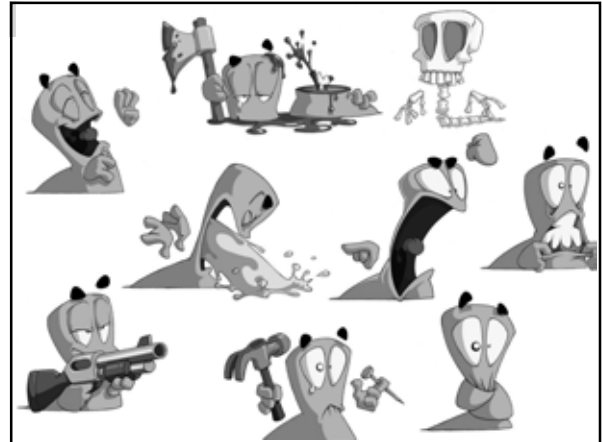
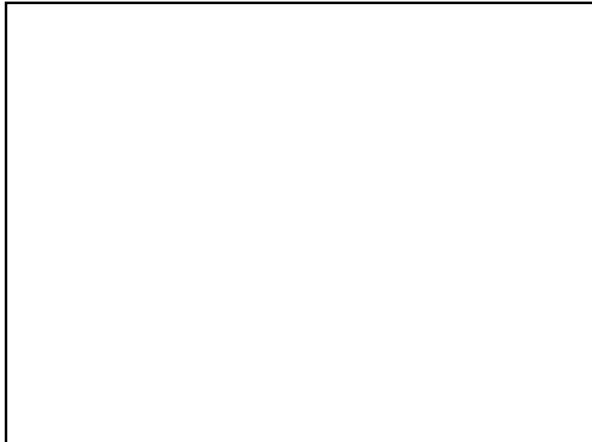
RECOMMENDED PROPHYLACTIC REGIMENS
One of the following regimens is currently recommended for use in South Africa:

- Mefloquine (Weekly): Start at least one week before entering a malaria area; take weekly while there and for FOUR weeks after leaving the malaria area.
- Doxycycline (Daily): Start one day before entering a malaria area; take daily while there and for FOUR weeks after leaving the malaria area.
- Atovaquone - proguanil (Daily): Start one to two days before entering malaria area; take daily while there and for SEVEN days after leaving the area.



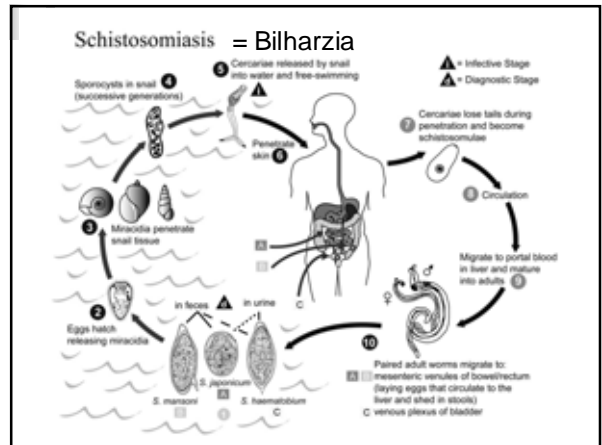
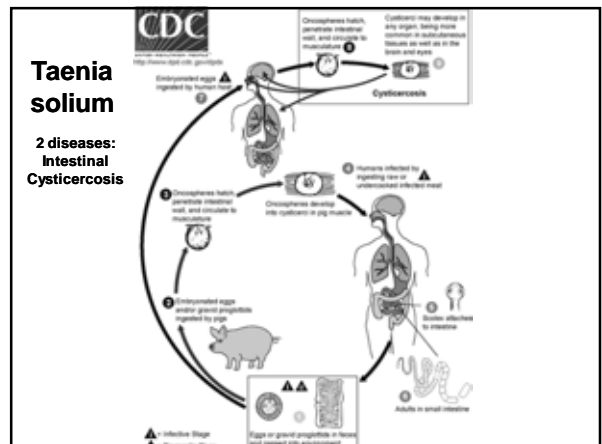
http://www.doh.gov.za/docs/policy/2011/malaria_prevention.pdf

http://www.doh.gov.za/docs/policy/2011/malaria_treatment.pdf



3 groups


- Trematodes (flukes)
 - Schistosomiasis (bilharzia)
- Cestodes (tapeworms)
 - Taenia solium
- Nematodes (round worms)
 - Ascaris
 - Whipworm / hookworms

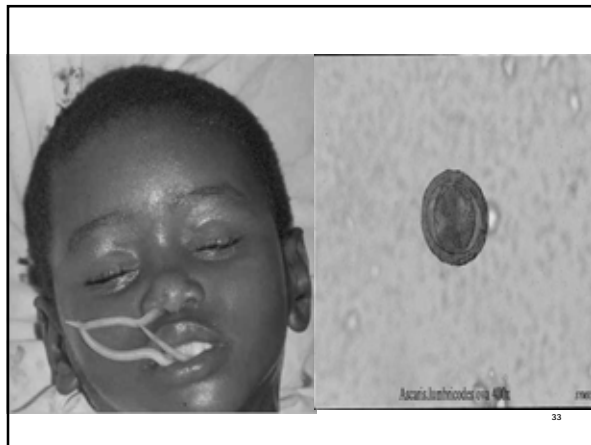
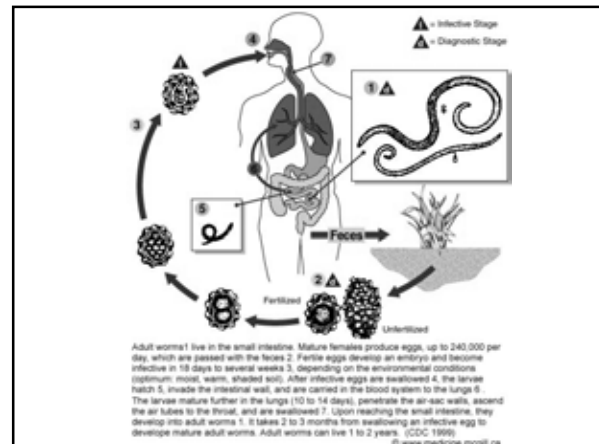
Ascaris Lumbricoides

- n Largest roundworm
- n Most common human helminthiasis
- n Tapers at both ends
- n Produce 200 000 ova daily

- n Infective within 2 weeks



www.healthtype.com



- n Clinically - usually present due to pulmonary manifestations

- n Adequate sanitation
- n Fertilizers
- n Children living in endemic areas
 - deworm every 3-6 months

Wittenberg DF. Coovadia's Pediatrics & Child Health: A manual for health professionals in developing countries. 6th Edition. Oxford University Press: Southern Africa; 2009. Part 5 p335-361

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- n Broad spectrum
 - Mebendazole 100mg bd 3/7
 - Albendazole
 - 1-2 years 200mg single dose
 - > 2 years 400mg single dose
 - Repeat in 3 weeks if needed

SAMF 7th Edition Antiparasitic Products: Anthelmintics p.467-472

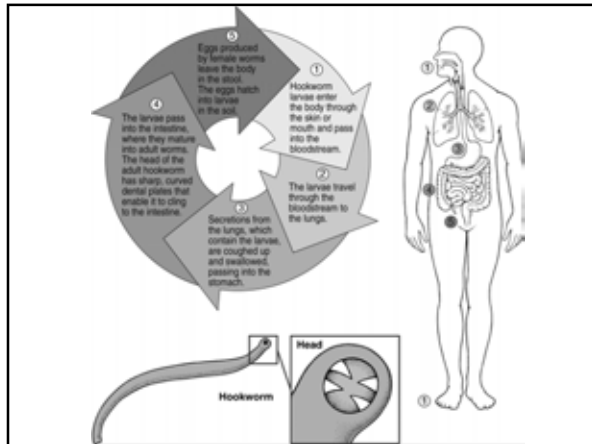
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Hookworm

- n *Ancylostoma duodenale*
- n *Necator americanus*
- n Common in rural communities
- n Bloodloss 0.2ml/day with adult hookworms
- n Heavy infestations
 - hypochromic microcytic anaemia
 - hypoalbuminemia

Wittenberg DF. Coovadia's Pediatrics & Child Health: A manual for health professionals in developing countries. 6th Edition. Oxford University Press: Southern Africa; 2009. Part 5 p335-361

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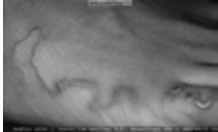


n Clinically

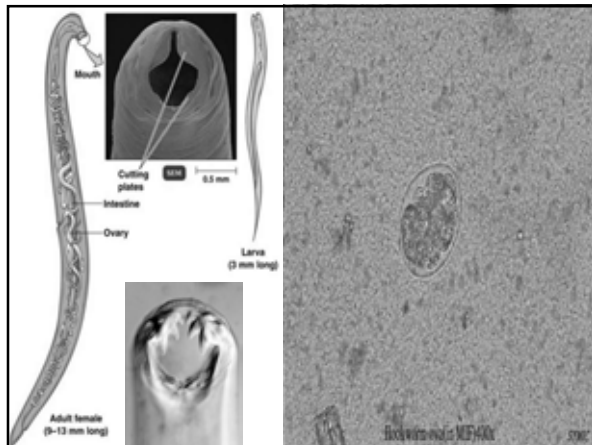
1. Zoonotic species
Cutaneous larva migrans
2. Hypochromic microcytic anaemia
Failure to thrive

n Wearing shoes

n Improved sanitation



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n Mebendazole 100mg bd for 3/7

n Mixed helminth infections

Albendazole

- 1-2 years 200mg single dose
- > 2 years 400mg single dose

Repeat in 3 weeks if needed

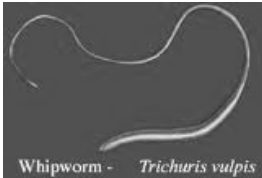
SAMF 7th Edition Antiparasitic Products: Anthelmintics p.467-472

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Other parasite to remember...

Whipworm

- Failure to thrive
- Anaemia
- Rectal prolapse



Whipworm - *Trichuris vulpis*

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Le Petit Journal

NOTICE.
PREVENTIVES OF CHOLERA!

Published by order of the Faculty Council, under the sanction of the Medical Council.

BE TEMPERATE IN EATING & DRINKING!
Avoid Hot Vegetables and Exotic Fruit!

Abstain from COLD WATER, when heated, and above all from ardent Spirits, and if habit have rendered them indispensable, take much less than usual.

SLEEP AND CLOTHE WARM!
DO NOT SLEEP OR SIT IN A DRAUGHT OF AIR.
Avoid getting Wet!

Attend immediately to all disorders of the Bowels.

TAKE NO MEDICINE WITHOUT ADVICE.
Medicine and Medical Advice can be had by the post, at all hours of the day and night, by applying at the British House in each Ward.

JAMES KELLY, Chairman of Sanitary Committee.
CALAN S. WOODS, M.D., Reporter.

Bacteria: *Vibrio cholerae*
 Spread: Fecal-orally (CONTAMINATION)
 Pathogenesis: Secretory diarrhea (rice-water diarrhea)

Headache
 Vomiting
 Nausea
 Abdominal Cramps
 Diarrhea

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URGENT ALERT! CHOLERA CRISIS!

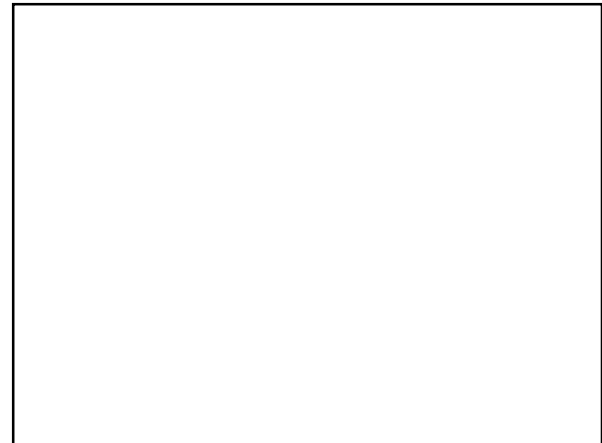
The cholera outbreak, which started in August 2010 and has taken over 100,000 lives and caused over 10 million cases in Zimbabwe, has now spread across the entire region affecting Botswana, Mozambique, South Africa and Zambia, with millions of people now living under the threat of contracting the deadly disease.

POINTS TO REMEMBER

HOW TO TREAT CHOLERA

IMPORTANT

Destined to Lead. SCANIAs strong belief in social responsibility is derived from one act of kindness at a time.



Short history of...

n **Thrombocytopenia**
 Fever
 Rash
 Back Pain

n **Myalgia/arthralgia**
 Vomiting/diarrhea

Headache
 Eye Pain
 Muscle Aches
 Joint Pain

n **Meningococemia**
VHF
Septicaemia
Malaria
TBF
 ...

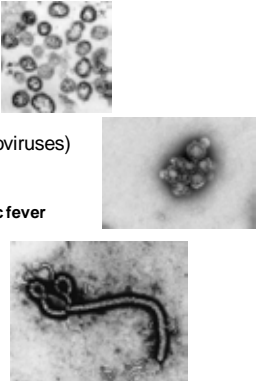
Viral haemorrhagic fevers

n Person-to-person spread
 n High death rates


n BSL 4 lab

n 3 groups of viruses:

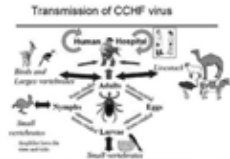
- .. Rodent-associated
 - n Arenavirus (Lassa virus)
- .. Arthropod-borne viruses (Arboviruses)
 - n Rift-Valley fever
 - n Crimean-Congo haemorrhagic fever
 - n Yellow fever
- .. Unknown reservoirs/vectors
 - n Ebola
 - n Marburg




CCHF




- n Hyalomma tick (bontpootbosluis)
- n Contact blood from infected slaughtered cattle, sheep...
- n Northern Cape
- n Free State
- n Usually < 7 days



CCHF



- ø Platelets and WCC,
- ø AST/ALT,
- ø Malaria smear
- ø BSL4



n Management:

- .. Ribavirin (CCHF and Lassa)
- .. Supportive care
- .. Infection control

