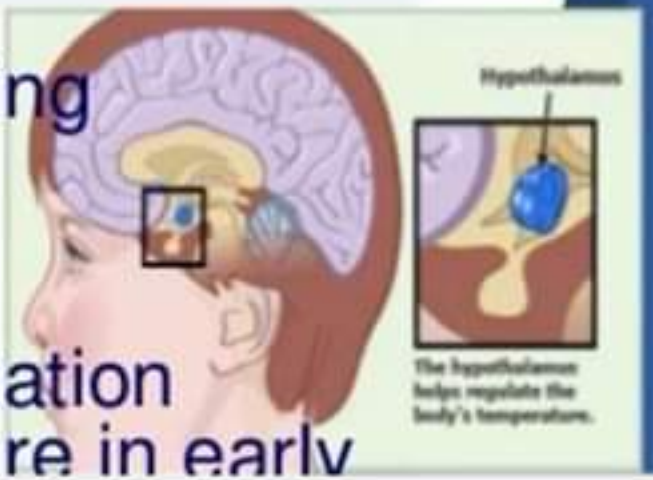
FEVER.

DRNMN1

INTRODUCTION

- NORMAL BODY TEMPERATURE -36.6 to 37.2 ℃
- Regulated by thermosensitive neurons in the

  Preoptic and anterior hypothalamus
- Thermoregulatory responses:
  - Redirecting blood to or from cutaneous vascular beds
  - Increased or decreased sweating
  - ECF regulation
  - Behavioral responses
- Circadian rhythm or diurnal variation results in lower body temperature in early



- Skin temperature is 0.4 ℃(0.7° F) lower than oral temperature
- Rectal or eardrum temperature is 0.4 ℃ (0.7° F) higher than oral temperature
- Oral temperature is the reference and fever is diagnosed when it exceeds (37.8° C).

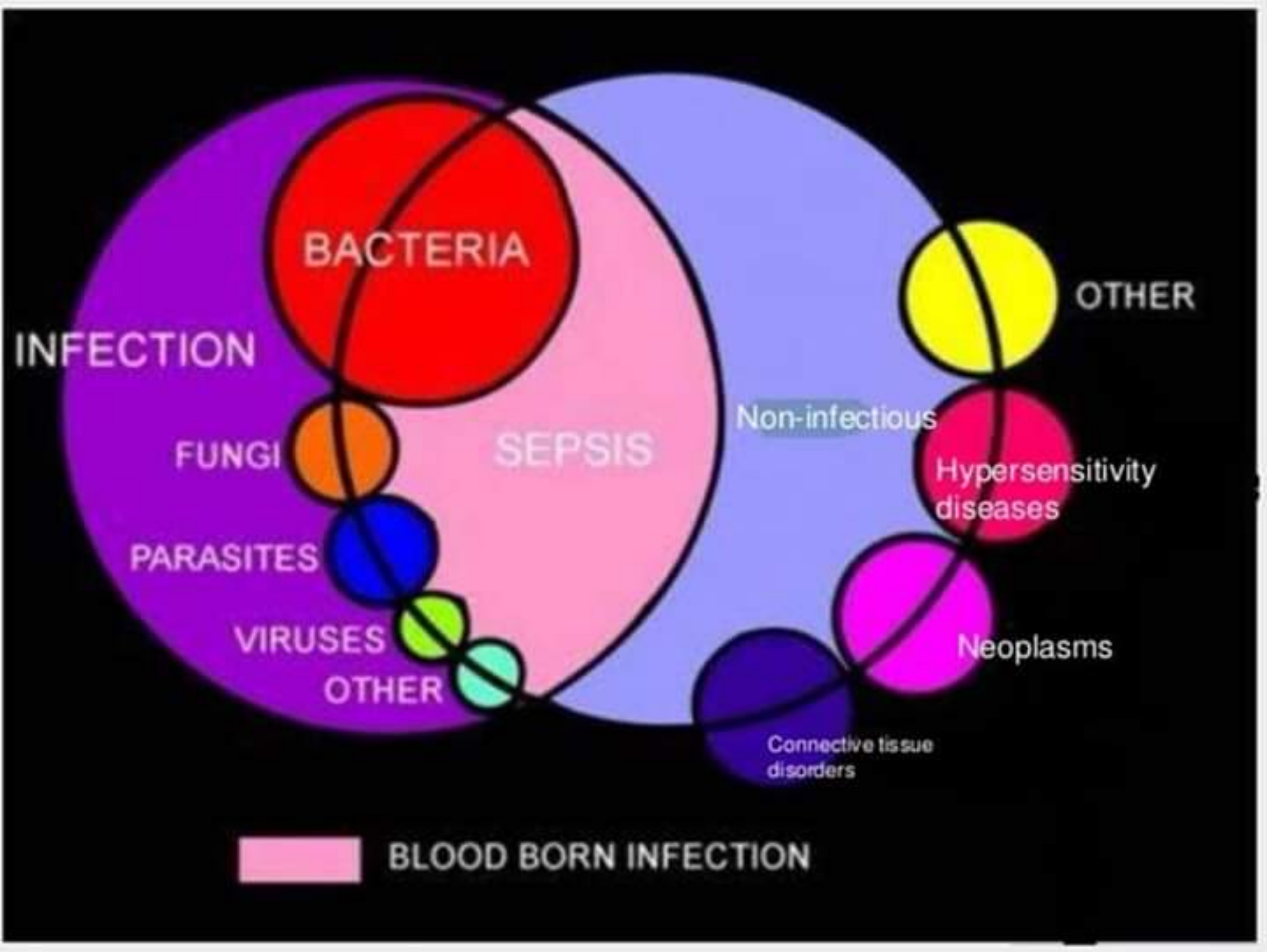
DEFINITION OF FEVER

- Fever is a controlled increase in body temperature above the normal hypothalamic set point
- Rectal temperature >38 ℃
- Hyperpyrexia is > 40° C

Causes for fever? ????

Medical information for

- ✓Infectious causes
- ✓Non infectious causes


BACTERIA
INFECTION
FUNGI
SEPSIS
PARASITES
VIRUSES
OTHER
OTHER
Non-infectious
Hypersensitivity diseases
Neoplasms
Connective tissue disorders
BLOOD BORN INFECTION

Bacterial- specific infections.

- ✓ Salmonella typhi.
- ✓ Tuberculosis.
- ✓ Mycoplasma pneumoniae.
- ✓ Klebsiella pneumoniae.
- ✓ Streptococcus pneumoniae.
- ✓ Staphylococcus pyogens.
- ✓ Meningococcemia.
- ✓ Campylobacter.
- ✓ Brucellosis.
- ✓ Yersiniasis.
- ✓ Rat bite fever(streptobacillus moniliformis disease)
- ✓ Cat-scratch disease(bartonella hensalae)
- ✓ Listeria monocytogens.
- ✓ Francisella tularenses(tularaemia)
- ✓ Actinomycosis.

Bacterial-localised infection.

- ✓ Abscesses:
  Abdominal,brain,dental,hepatic,pelvic,perinephric,rectal,subphrenic.
- ✓ Cholangitis.
- ✓ Infective endocarditis.
- ✓ Mastoiditis.
- ✓ Osteomyelitis.
- ✓ Pyelonephritis.
- ✓ Sinusitis.

Spirochaetal infections.

- ✓ Lyme disease(borellia burgdorferi)
- ✓ Relapsing fever(borellia recurrentis)
- ✓ Leptospirosis.
- ✓ Rat bite fever(spirillum minus)
- ✓ Syphilis.

Fungal infections

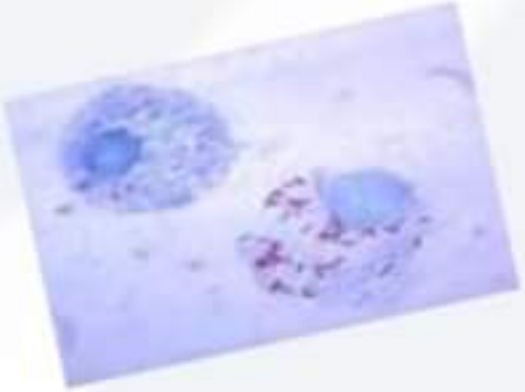
- ✓ Blastomycosis.
- ✓ Coccidiomycosis.
- ✓ Histoplasmosis.
- ✓ Aspergillosis.

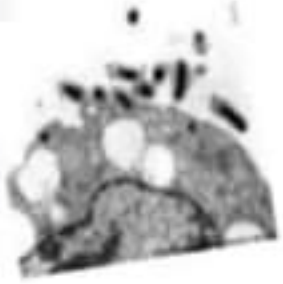
Chlamydial infections.

- ✓LGV
- ✓Psittacosis.

Ricketssial infections.

- ✓ Q fever.
- ✓ Rocky mountain spotted fever.
- ✓ Ehrlichia canis.
- ✓ Tick borne typhus.





Viral infections.

- ✓ Varicella-zooster.
- ✓ Mumps,measles,rubella.
- ✓ Influenza virus
- ✓ HIV.
- ✓ Herpes simplex virus.
- ✓ Infectious mononucleosis
- ✓ Yellow fever(flavi virus fabricus)
- ✓ Cytomegalo-virus.

Parasitic.

- ✓ Malaria.
- ✓ Amoebiosis.
- ✓ Babesiosis.
- ✓ Giardiasis.
- ✓ Toxoplasmosis.
- ✓ Trichinosis.
- ✓ Trypanosomiosis.
- ✓ Visceral larva migrans(toxocara)
- ✓ Shchitosomiasis.

Connective tissue diseases.

- ✓ Juvenile rheumatoid arthritis.
- ✓ Systemic lupus erythematosus.
- ✓ Juvenile dermato-myositis.
- ✓ Bechet's disease.
- ✓ Polyarteritis nodosa
- ✓ Giant cell arteritis

Hypersensitivity diseases.

- ✓ Hypersensitivity pneumonia.
- ✓ Drug fever.
- ✓ Serum sickness.
- ✓ Pancreatitis.

Neoplasms.

- ✓ Lymphoma
- ✓ Hodgkin's lymphoma
- ✓ Leukaemia
- ✓ Neuroblastoma
- ✓ Wilm's tumour
- ✓ Atrial myxoma

Granulomatous diseases like :

- ✓ Sarcoidosis.
- ✓ Granulomatous hepatitis.

Familial heriditary diseases:

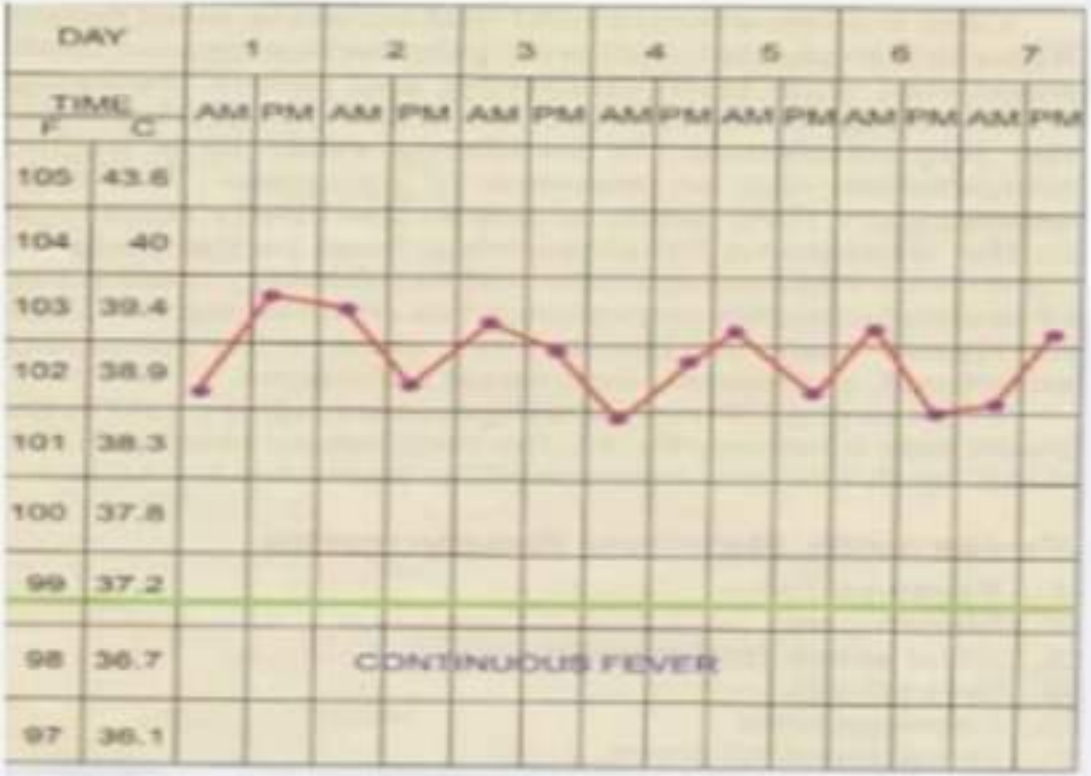
- ✓ Familial mediterrenian fever.
- ✓ Anhidrotic ectodermal dysplasia.
- ✓ Hyper triglyceridaemia
- ✓ Sickle cell crisis.
- ✓ Familial dysautonomia.

Miscellaneous conditions:

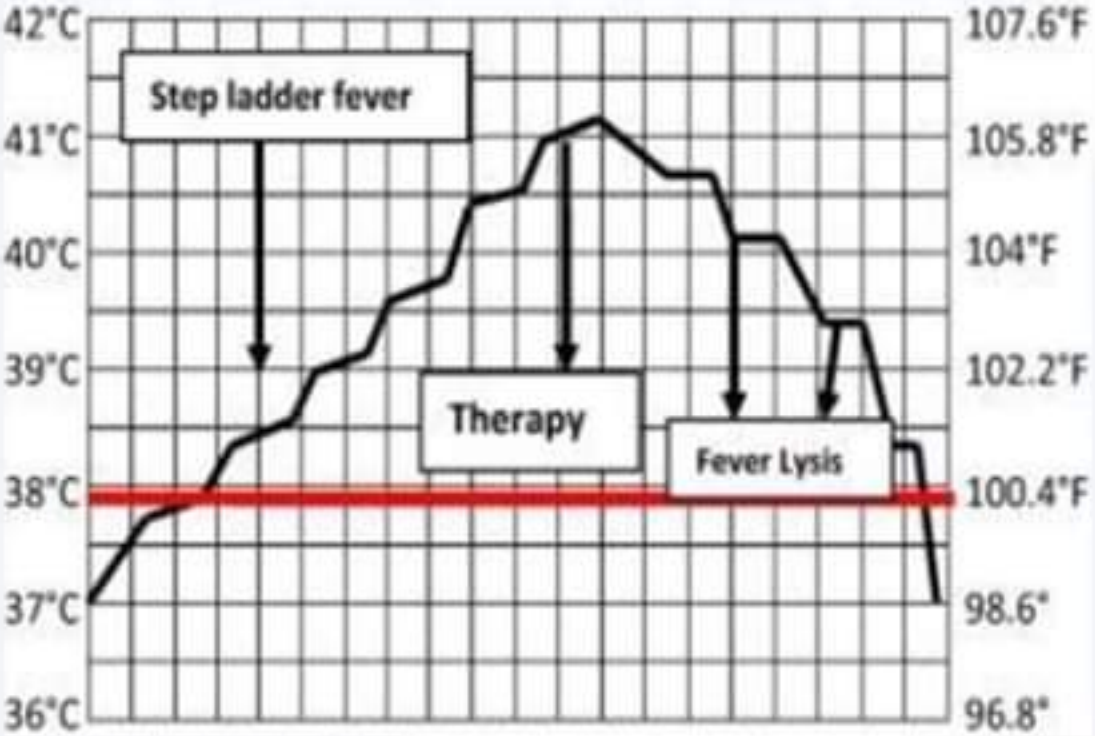
- ✓ Chronic active hepatitis.
- ✓ Diabetes insipidus.
- ✓ Inflammatory bowel disease.
- ✓ Pulmonary embolism
- ✓ Thromboembolism
- ✓ Hypothalamic-central fever
- ✓ Factious fever
- ✓ Aplastic anaemia.
- ✓ Agranulocytosis.

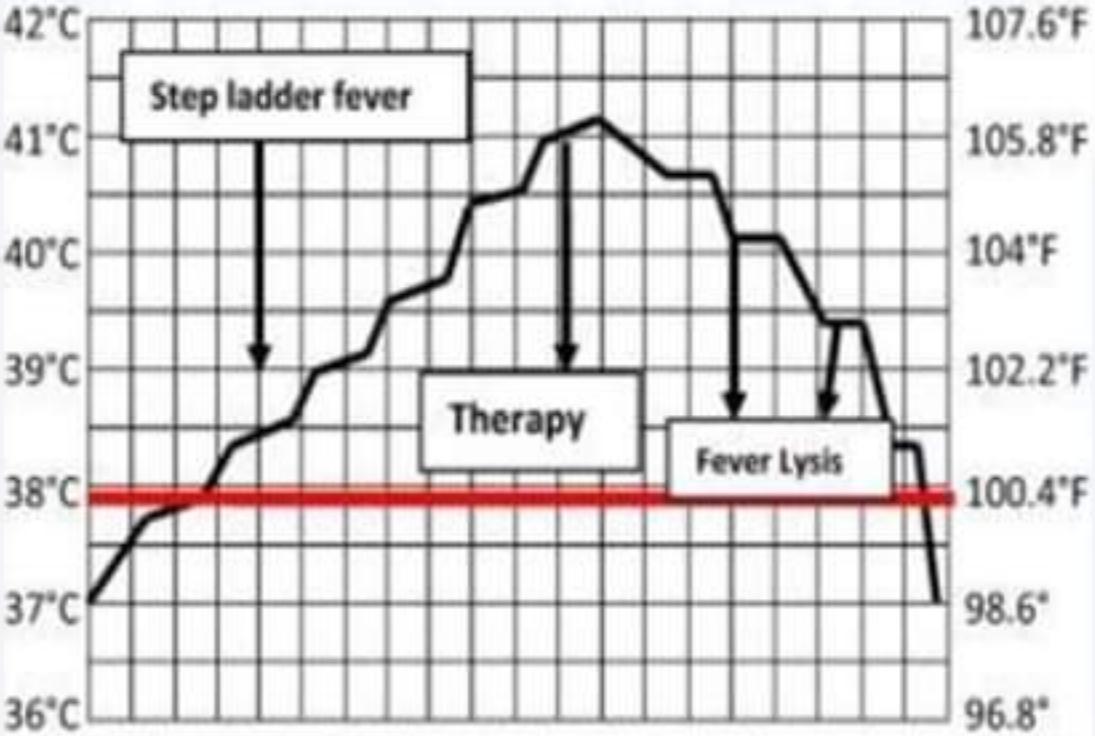
Patterns of fever.

Continuous fever.



- Eg. Lobar pneumonia, infective endocarditis,enteric fever.


42°C
41°C
40°C
39°C
38°C
37°C
36°C
107.6°F
105.8°F
104°F
102.2°F
100.4°F
98.6°
96.8°
Step ladder fever
Therapy
Fever Lysis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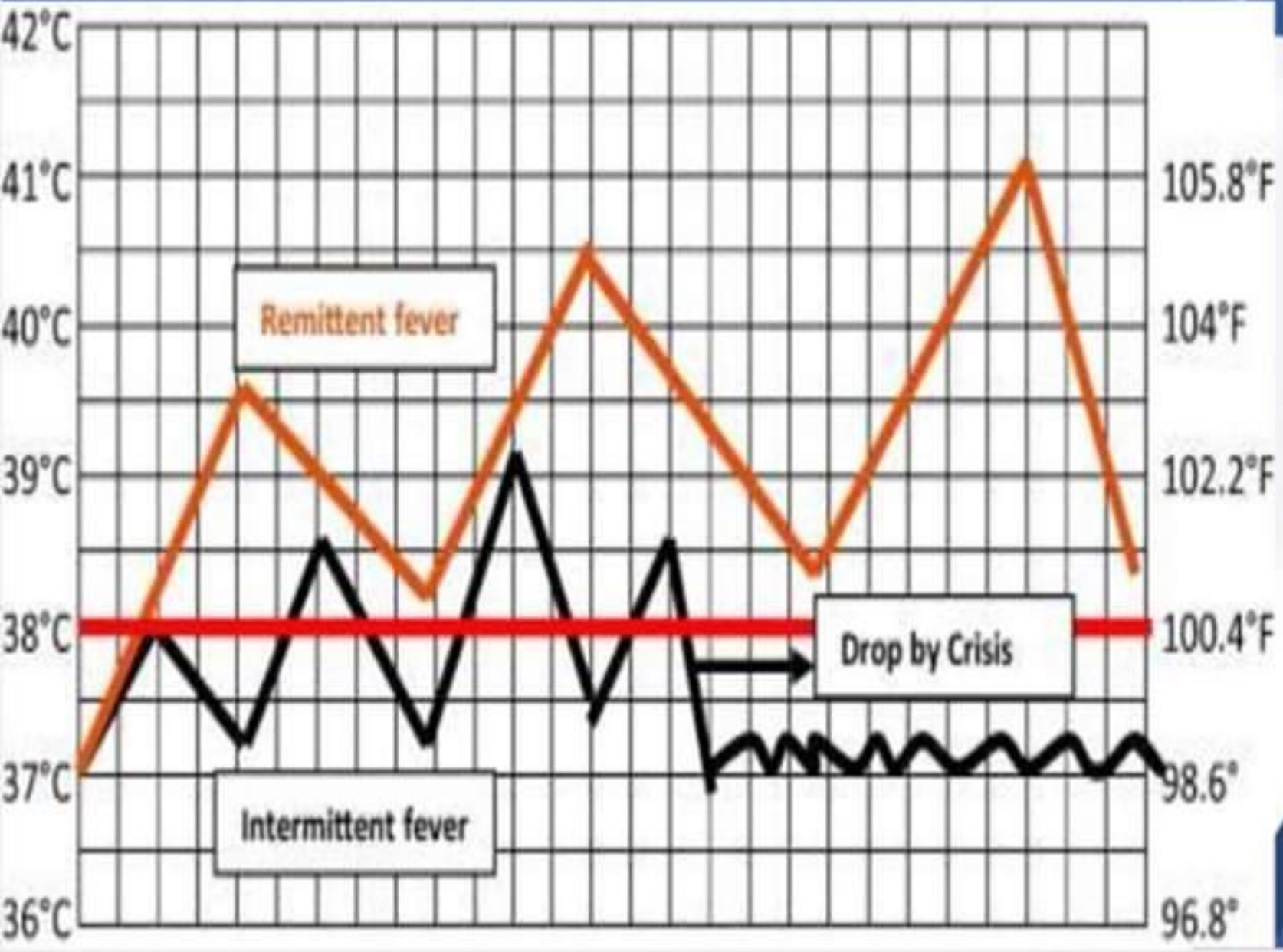
Step ladder fever
Therapy
Fever Lysis

Remittent fever.

Intermittent fever

E.g,malaria,kala-azar,septicaemia,pyaemia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96.8°
Remittent fever
Drop by Crisis
Intermittent fever

Relapsing fever.

- Tertian fever.
- Saddle back fever.
- Periodic fever.
- Quartan fever.
- Biphasic fever.
- Pel-Ebstien fever

Febrile patients at increased risk for serious bacterial infections

RISK GROUP	DIAGNOSTIC CONSIDERATIONS
Immunocompetent patients	
Neonates(<28 days)	Sepsis and meningitis- group B streptococcus, E. coli, listeria, HSV, enteroviruses
Infants 1-3 months	Serious bacterial disease 10-15% ,bacteremia 5% UTI
Infants & children 3-36 months	Occult bacteremia 0.5% of children immunized with Hib pneumococcal conjugate vaccine ,UTI

IMMUNOCOMPROMISED PATIENTS	
Sickle cell disease	Sepsis, pneumonia, meningitis caused by S. pneumoniae, osteomyelitis caused by Salmonella and Staphylococcus aureus
Agammaglobulinemia	Bacteremia ,sinopulmonary infections
AIDS	S.pneumoniae, H.influenza ,Salmonella
Congenital heart disease	Infective endocarditis ,Brain abscess with right to left shunting
Malignancy	Bacteremia with gram –ve enteric bacteria , S.aureus & coagulase –ve staphylococci , fungemia with candida & aspergillus

Guidelines for investigations

- If fever is recorded at home by reliable parent , then treat as febrile neonate .
- In false cases excess covering should be removed & temp. retaken in 15-30min .
- Blood ,urine ,CSF should be cultured .
- CSF study includes cell counts, glucose, protein levels, gram stain & culture.
- HSV & Enteroviruse polymerase chain reaction .
- Stool culture ,chest radiograph .

Treatment

- For ill appearing febrile infants ceftriaxone (50mg/kg every 24 hours – normal CSF finding, 80mg/kg every 24 hours – CSF pleocytosis) or cefotaxime(50 mg/kg every 6 hr) ,plus Ampicillin(50mg/kg every 6 hr) to cover L.monocytogenes & Enterococcus .

Meningitis – vancomycin (15 mg/kg every 6 hr) for penicillin resistant S. pneumoniae .

Acyclovir for HSV infection .

- For infants with fever who appear generally well & have a total WBC count of 5000-15000 cells/ml & normal urinalysis results are unlikely to have serious bacterial infection .