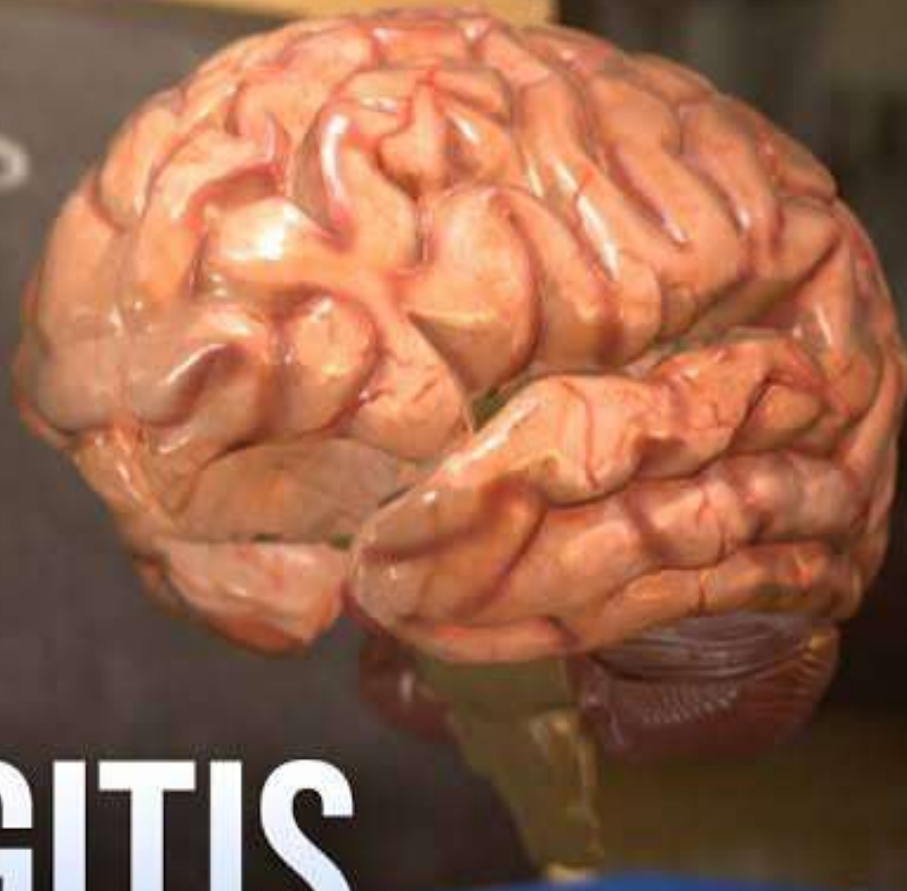




SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

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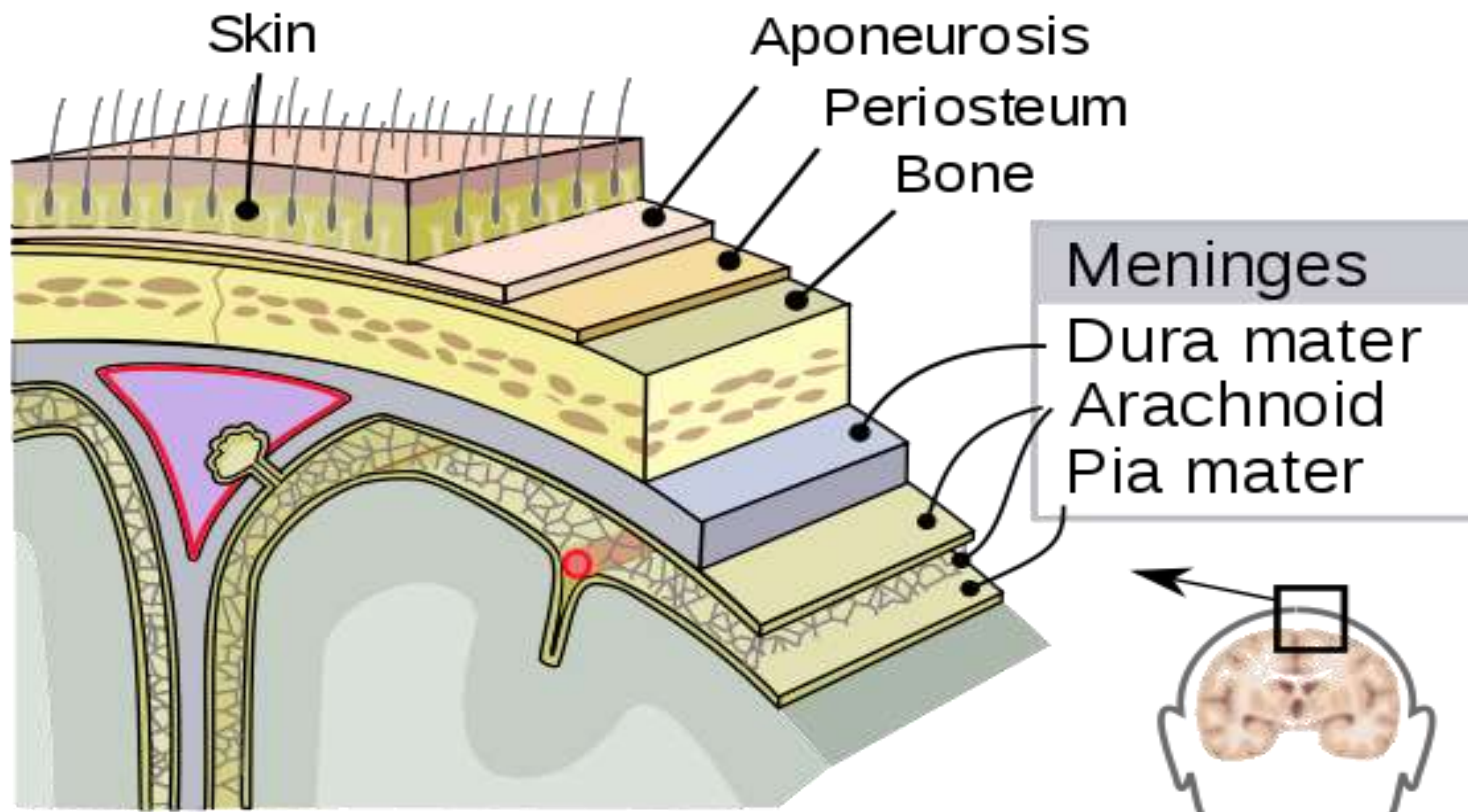


MENINGITIS

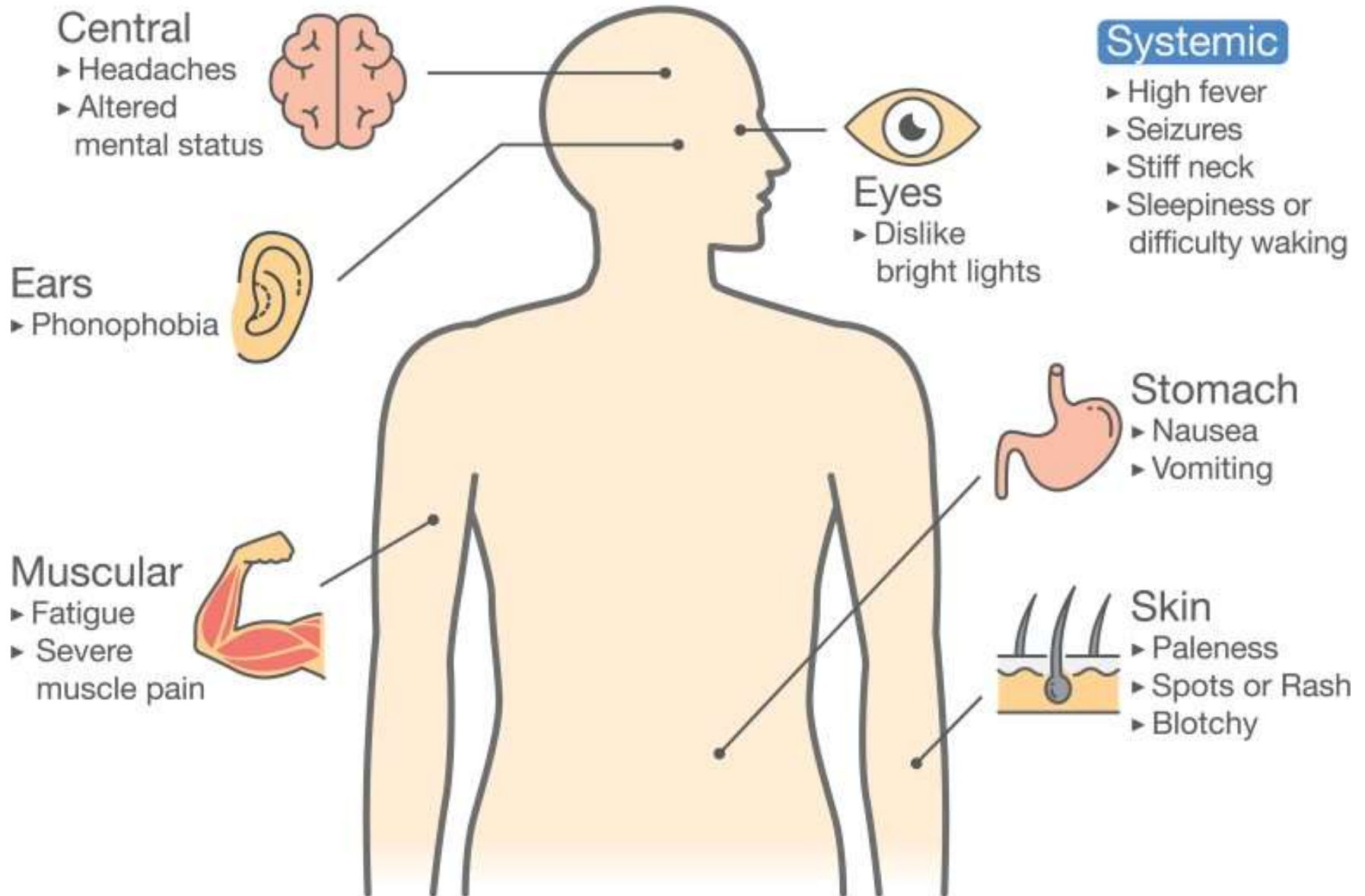
HEALTH

INTRODUCTION

- Meningitis is an acute inflammation of the protective membranes covering the brain and spinal cord, known collectively as the meninges.



Symptoms of Meningitis



ETIOLOGY

Bacterial infections

- Group B Streptococci
- Escherichia Coli
- Listeria Monocytogenes
- Neisseria Meningitidis
- Streptococcus Pneumoniae

Viral infections

- Enterovirus (Coxsackie)
- Herpes simplex
- HIV
- Mumps
- Varicella Zoster
- Lymphocytic choriomeningitis

Fungal infections

- Cryptococcus Genes
- Coccidioides genus

Tubercular Meningitis

- Mycobacterium tuberculosis

Parasitic infections

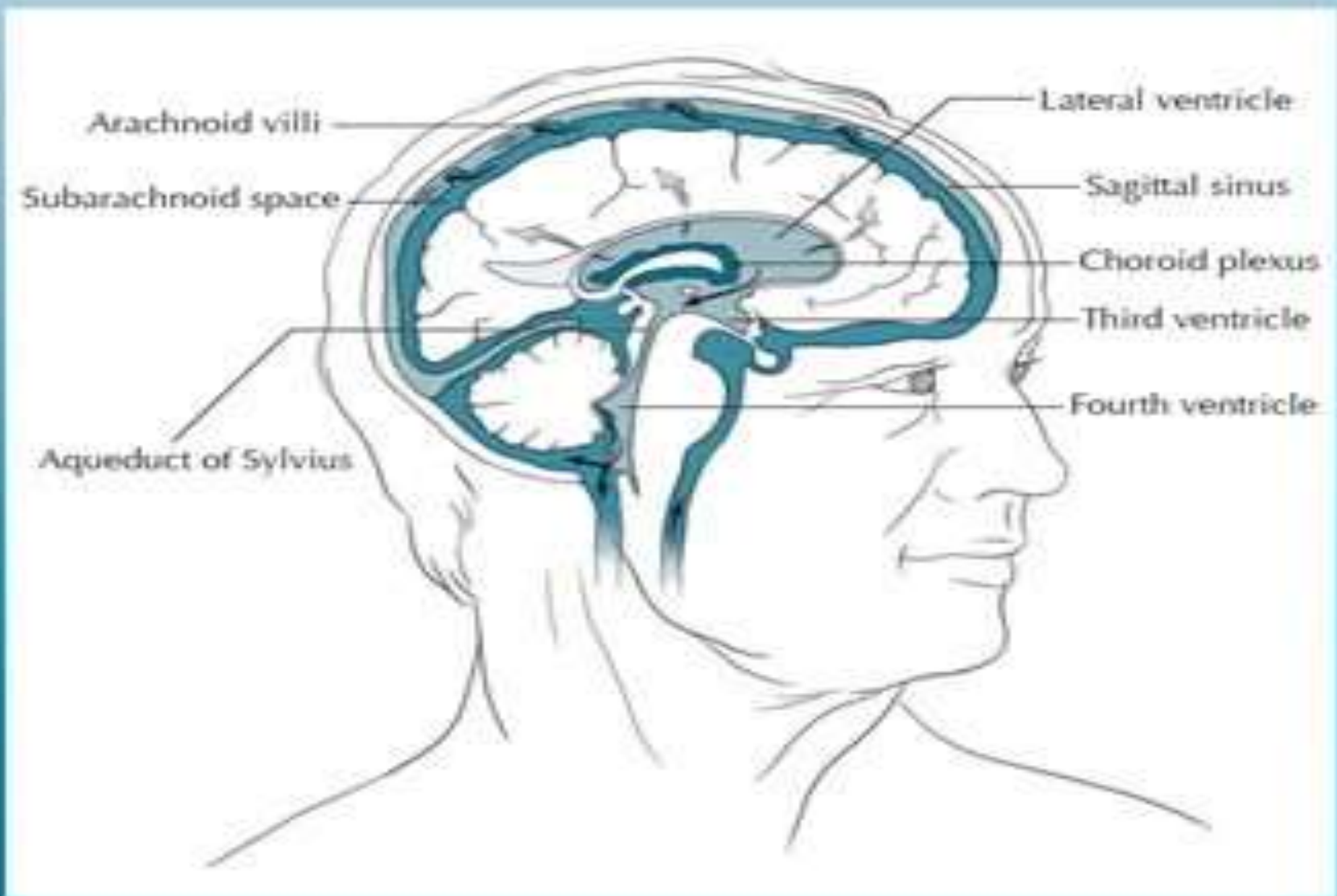
- Plasmodium falciparum

PATHOPHYSIOLOGY

Direct spread

- Direct spread is due to deformities:
- Otitis media
- Sinusitis
- Skull fracture

Cerebrospinal fluid (CSF) circulatory pathway: The drawing shows a view of the brain. The black arrows show the major pathway of CSF flow. The gray arrows show additional pathways.



Hematogenous spread

- Bacteria or virus enters into the CSF through blood stream
- In CSF, foreign bodies activate neutrophils and macrophages by triggering immune system On
- activation of neutrophils and macrophages, they release cytokine mediators.
- Increased release of cytokine mediators cause inflammation of meninges (meningitis).

DIAGNOSIS

Lumbar puncture : L3 and L4

- Assessment of CSF through lumbar puncture
- Increased intracranial pressure
- Increased WBC
- Increased proteins
- Decreased glucose

Polymerase chain reaction

- For HIV, Enterovirus and Tuberculosis.

Kernig's sign

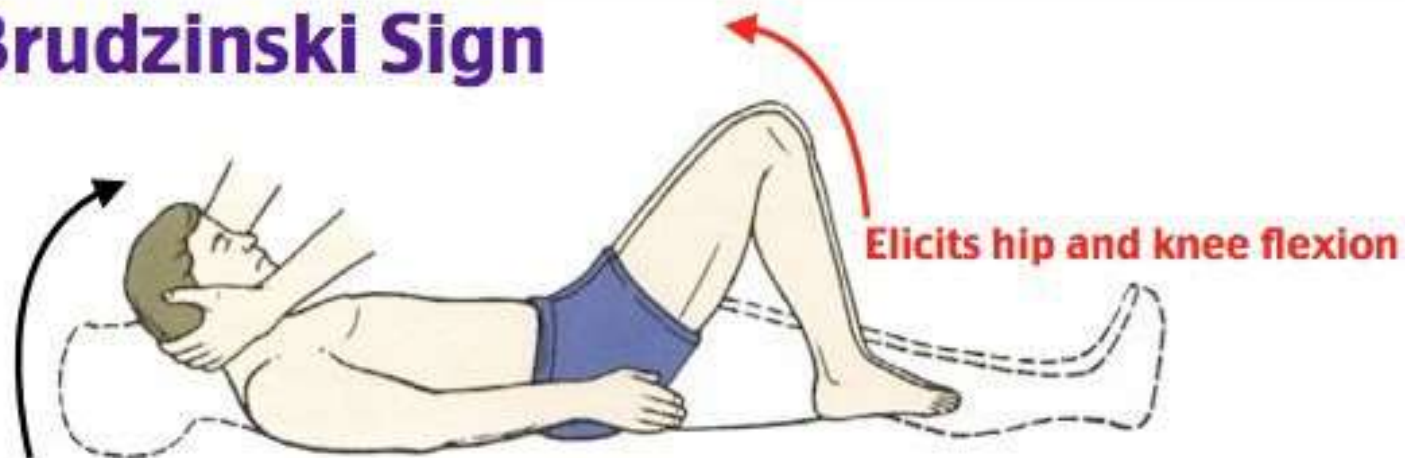
Brudzinski's sign

Kernig Sign



- 1 Knee is flexed to 90 degrees
- 2 Hip is flexed to 90 degrees
- 3 Extension of the knee is painful or limited in extension

Brudzinski Sign



- 1 Passive flexion of neck

TREATMENT

- Antibiotics: Ampicillin, Gentamicin, Vancomycin, Penicillin G, Ceftriaxone, Cefotaxime.
- Anti- viral agents: Acyclovir, Valacyclovir.
- Anti- fungals agents: Fluconazole.
- Anti- Parasites: Albendazole, Mebendazole.
- Vaccine for Neisseria meningitidis.

