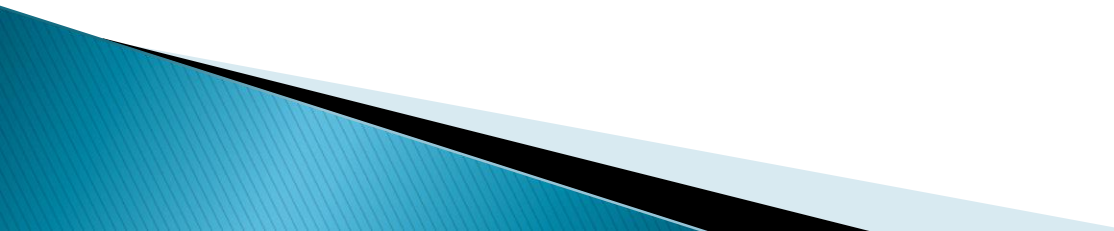


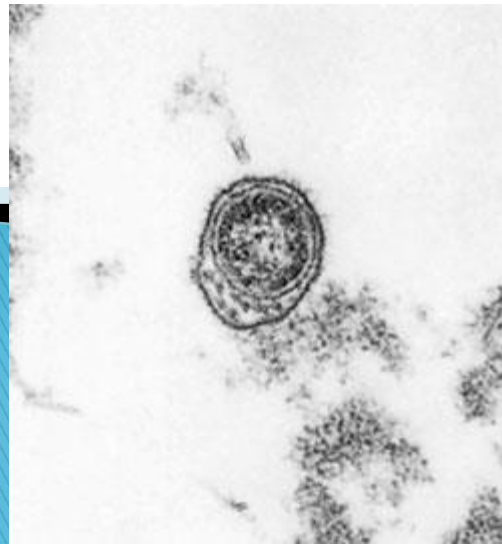
# Mycoplasma

- ▶ The Mycoplasmataceae are the tiniest free-living organisms capable of self-replication.
  - ▶ They are smaller than some of the larger viruses. Mycoplasmataceae are unique bacteria because they **lack a peptidoglycan cell wall.**
  - ▶ Their only protective layer is a cell membrane, which is packed with sterols (like cholesterol)
- 

# Pathogenic *Mycoplasma* and *Ureaplasma* Species of Humans

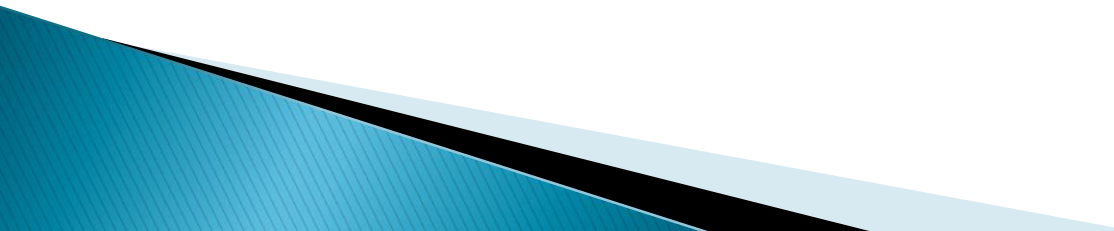
ORGANISM	SITE	PREVALENCE	DISEASE
<i>M. pneumoniae</i>	Upper and lower respiratory tract	Common	Primary atypical pneumonia
<i>M. hominis</i>	Genitourinary tract	Common	Postpartum fever; pelvic inflammatory disease
<i>U. urealyticum</i> <i>Ureaplasma urealyticum</i>	Genitourinary tract	Very common	Nongonococcal urethritis

# spirochetes




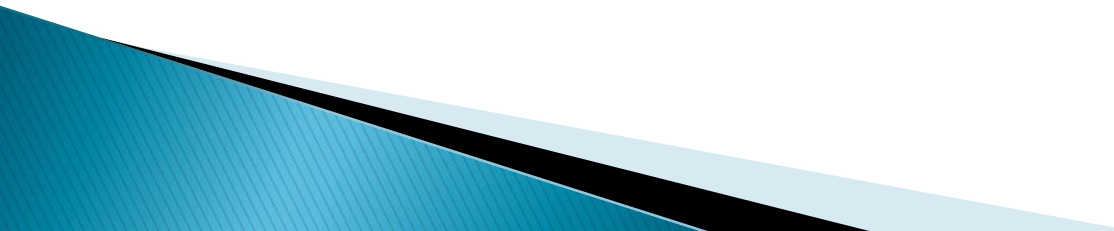
# spirochetes

- ▶ This group includes the bacterium *Treponema pallidum*, which causes syphilis.
- ▶ have a gram-negative cell wall but are too small to be seen with the light microscope and so must be visualized with a special darkfield microscope.

- ▶ Spirochetes are divided into 3 genera:
    1. Treponema,
    2. Borrelia,
    3. Leptospira.
- 

# Treponema pallidum ( Syphilis)

- ▶ Is the infectious agent responsible for the sexually transmitted disease syphilis.
  - ▶ **Stages of syphilis.**
  - ▶ **Primary Syphilis**
  - ▶ The lesion becomes indurated and ulcerates but remains painless although slightly sensitive to touch.
- 

- **In secondary syphilis,**
  - ▶ the bacteria multiply and spread via the blood throughout the body.
  - ▶ Widespread rash, generalized lymphadenopathy, and involvement of many organs.
- 



## ➤ **Latent Syphilis**

- ▶ Most patients are asymptomatic during this period

## ➤ **Tertiary Syphilis**

- ▶ Develops over 6–40 years, with slow inflammatory damage to organ tissue, small blood vessels, and nerve cells.

# ***BORRELIA***

- ▶ The corkscrew-shaped *Borrelia* are larger than the *Treponema*, and therefore can be viewed under a light microscope with Giemsa or Wright stains.
- ▶ *Borrelia* cause **Lyme disease** (*Borrelia burgdorferi*) and **relapsing fever**
- ▶ Both of these diseases are transmitted by insect vectors.

# Clinical manifestations of Lyme

Stage	Clinical
<b>Early localized stage (Stage 1)</b>	<b>E</b> rythema chronicum migrans (ECM)
<b>Early disseminated stage (stage 2)</b>	<ol style="list-style-type: none"><li>1. Multiple smaller ECM</li><li>2. Neurologic: aseptic meningitis, cranial nerve palsies (Bell's palsy), and peripheral neuropathy</li><li>3. Cardiac: transient heart block or myocarditis</li><li>4. Brief attacks of arthritis of large joints (knee)</li></ol>
<b>Late stage (stage 3)</b>	<ol style="list-style-type: none"><li>1. Chronic arthritis</li><li>2. Encephalopathy</li></ol>

# Early localized lyme



# Late stage of Lyme disease



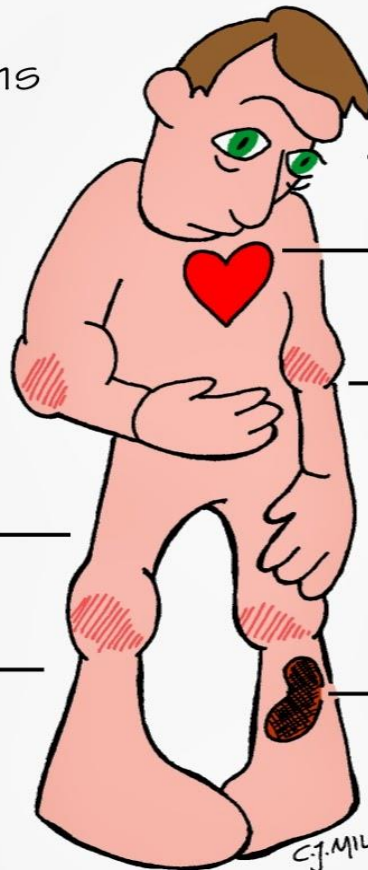
## Flu-Like Symptoms

- Headache
- Fatigue
- Fever
- Chills
- Sore Throat
- Muscle Aches

Insomnia

## Psychological Complications (Long Term)

- Depression
- Dementia



Hearing Loss

Paralysis of Face

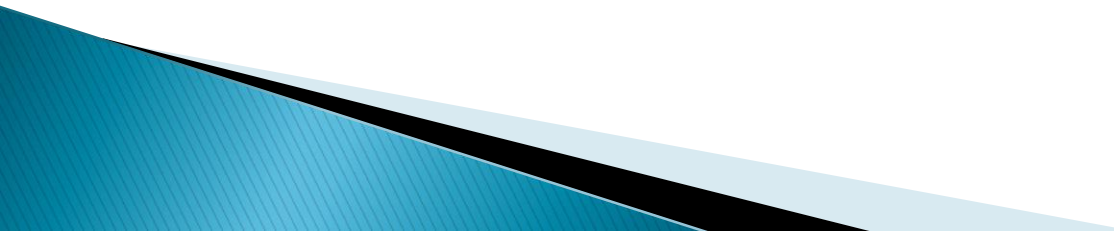
Heart Complications  
Rapid or Slow Heart Rate  
Chest Pain

Syncope, Palpitations,  
Dyspnea

Hot, Swollen,  
Painful Joints

Rash at the Site  
of the Tick Bite -  
Itching

# Relapsing fever

- ▶ Relapsing fever is an illness with fever, headache, muscle pain.
  - ▶ It lasts about 1 week and returns a few days later. The relapses may continue for as many as four cycles.
- 

# LEPTOSPIRA

- ▶ **LEPTOSPIRA INTERROGANS**

L. interrogans infection causes the disease **leptospirosis**

- ▶ It is an animal disease that is coincidentally transmitted to humans, primarily by water or food contaminated with animal urine and via small skin abrasions or the conjunctiva
  - ▶ It can cause jaundice, hemorrhage, tissue necrosis, and/or aseptic meningitis.
- 