Microbial Diseases of the Urinary and Reproductive Systems

Human urinary system

- Physiological defenses
  - Mechanical flushing
  - Acidic pH
  - Phagocytic cells
  - Secretory immunoglobulin
- The urinary tract has not normal microbiota, but the distal urethra is typically colonized by skin flora

Human reproductive organs

- Vagina has a normal microbiota, typically dominated by lactic acid bacteria
- Eight-fold gender difference in susceptibility to cystitis accounted for by
  - Length of the urethra
  - Proximity to the anus
Urinary Tract Infection (UTI)

- Very common bacterial infection
- Agents
  - Gram-negative enterics: *Escherichia coli*, *Proteus* spp.
  - *Staphylococcus saprophyticus*
- *Cystitis*: Inflammation of the bladder
- *Pyelonephritis*: Inflammation of the kidneys
  - Can lead to kidney damage
  - Potentially life-threatening
- UTI may be asymptomatic

Bacterial STDs - *Gonorrhea*

- *Neisseria gonorrhoeae* difficult to culture
- May be asymptomatic in women, risk for pelvic inflammatory disease
- Drug resistance has become a serious problem
- *Ophthalmia neonatorum* is controlled by treating neonates with topical antibiotics

U.S. incidence of gonorrhea

![Graph showing U.S. incidence of gonorrhea from 1942 to 2002](image)
U.S. distribution of gonorrhea

(b) Geographical distribution of cases in 2002

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