

***PROTEUS, PROVIDENCIA , Morganella***

**Species - *P. Mirabilis***

**- *P. Vulgaris***

**- *P. Penneri***

**Characteristics - gram -**

**- rod**

**- motile with peritrichous flagella**

**- non-spore forming**

**- non-encapsulated**

**- facultative anaerobic**

**- opportunistic pathogen**

**Reservoirs - humans (normal flora of the GI tract)**

**- water**

**- soil**

**Transmission** - fecal-oral

- direct contact
- contaminated water

**Toxins** – LPS

**Pathogenesis**

*Proteus* species produce urease ,resulting in rapid hydrolysis of urea with liberation of ammonia .Thus in urinary tract infections with *proteus* the urine becomes alkaline ,promoting stone formation .The rapid motility of this bacteria may contribute to its invasion of the urinary tract . *P.vulgaris* is an important nosocomial pathogens.

**Diseases** - especially of young males & the elderly of both sexes, wound infections

- otitis media ,meningitis ,septicaemia , osteomyelitis , focal lesions of diabetic patients . bronchopneumonia
- cystitis and urolithiasis
- septicemia

**Treatment** – cephalosporins and aminoglycosides

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# *PROVIDENCIA*

Species - *P. Stuartii*

- *P. Rettgeri*

- *P. Alcalifaciens*

**Characteristics** - same characteristics, reservoirs, transmission and toxins as *Proteus*

(see above, only differs in diseases and treatment, see below)

**Diseases** - gastroenteritis (see 1, primarily occurs in travelers)

- wound infections (primarily if burned)
- bronchopneumonia (primarily if intubated)
- cystitis (primarily if urinary catheter) and urolithiasis
- septicemia

**Treatment** – fluoroquinolones , tetracyclines

# ***Morganella***

Strains of *Morganella morganii* are motile & lactose-non-fermenting. They are urease positive, but they do not swarm on solid media. *M. morganii* isolated from sputum, infected wounds & urine.



# *Serratia*

*Serratia marcescens*: is a common opportunistic pathogen in hospitalized and narcotics addicts patients.

## **Characteristics :**

- A free-living saprophyte
- Motility +
- Pink, red or magenta non diffusible pigment

Prodigiosin

- Has been found in RT and UT infections

## **Diseases:**

- Meningitis, endocarditis, peritonitis, septicemia
- Nosocomial infections
- Multiple drug resistance to aminoglycosides and penicillins

**Treatment :** Third generation of cephalosporins