

Clinical Microbiology

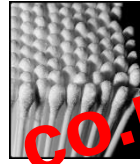
Sample Types



Identify causative organism



Shed eggs e.g. salmon



Swabs, Fluids & Tissues

Catalase activity

🟢 +ve = Staph.

🔴 -ve = Strep.

• *Staphylococcus aureus*:

- Commensal - 15% people
- Many strains invasive with multiple virulence factors
- Common causes of **boils, abscesses, ulcers**
- **Bacteraemia**
- **Toxic shock syndrome**
- **Gastroenteritis**
- **Pneumonia**
- **Scalded skin syndrome**

• *Streptococcus pyogenes* - Group A:

- Throat infections
 - Scarlet fever
- Skin infections
 - Necrotising fasciitis



Swabs, Fluids & Tissues

• *P. aeruginosa*

- G-ve
- Rod
- GI tract, moist
- Opportunistic

• *C. perfringens*

- Anaerobic G+ve
- Rod
- Spore former
- Part of normal flora
- Food poisoning
- Bacteraemia
- Gas gangrene
- Necrotising fasciitis



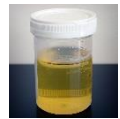
Swabs, Fluids & Tissues

• *N. gonorrhoea*

- Diplococoid
- G-ve
- Fastidious
- STI

• *T. pallidum*

- G-ve
- Syphilis
- Can't grow in lab
- Direct microscopy from swabs



Urine Culture

Chromogenic UTI agar

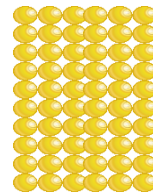
- Supports growth of major UTI microbes
- Oxoid "clarity" agar – prevents *Proteus* swarming
- Colours allow differentiation & ID
- Vary between suppliers
- Expensive



Organism Quantity:

Kass (1956)

- Contaminants <10⁴/ml in fresh urine
- Infections >10⁵/ml



Quantitative/Semi-quantitative methods:

- Dip-slide
- Calibrated 1ul/10ul loop
- Multipoint inoculator

Most common UTI microbes

- *E. coli*
- *P. mirabilis*
- *E. faecalis*
- *K. pneumoniae*



Test Type

Direct



Samples are inoculated onto susceptibility test plates at same time as primary culture for ID

Indirect



Pure colonies from primary culture can be tested



Poo

- *Campylobacter*
- *Salmonella*
- *Shigella*
- *C. difficile*
- *E. coli* O157

Blood



- *S. aureus*
- *E. coli*
- *S. pneumoniae*
- *P. aeruginosa*
- *C. albicans*