# Topical routes of administration

## Intraocular Penetration of Antibiotics

* Fortified from IV preparations
* Topical:
  + better absorption so concentration far exceeds MIC
  + Gonnococcal conjunctivitis: cefuroxime 5% eye drops
  + Topical amikacin
* Subconjunctival Injection
  + Rarely used due to temporary levels
* Intravitreal Injection
  + acute bacterial endophthalmitis
  + Vancomycin, ceftazidime, amikacin, amphotericin B
  + Risk of amikacin with macular infarction
  + Usually lasts 24-48hrs, if repeated often with a vitrectomy
* Systematic administration
  + Drugs need to cross the blood brain barrier
  + Especially in fungal infection

## Intravesical antibioitcs

## Antibiotics in Orthopaedic Bone Cement

* local antimicrobial "brachytherapy,"
* Primary prophylaxis and treatment
* The powdered antibiotic is mixed with a cement polymer, like polymethylmethacrylate (PMMA),
  + applied to prosthetic material or formed into beads (stimulan)
  + In open fractures, antibiotic-loaded beads or spacers are used to fill dead space and reduce the local bacterial load in poorly vascularized areas
* Often with systemic therapy
* Aminoglycosides +- cephalosporin
* Limitations
  + Affects mechanical properties of the cement
  + Resistance
  + Toxicitiy (e.g. SNHL with aminoglycosides) and allergy