ANTIBIOTICS
II.

Resistance involves

- *Accumulation of inherently-resistant bacteria*
- *Spread of resistance genes among bacteria*
- *Mutant selection, sometimes during therapy*
- *Spread of resistant strains among patients*

Resistance to Antimicrobial Drugs

- *There are many different mechanisms by which bacteria exhibit resistance to antibiotics.*
  - *Microorganisms produce enzymes that destroy the antibiotics*
  - *Microorganisms change their permeability to the drug*
  - *Microorganisms develop an altered structural target for the drug*
  - *Microorganisms develop an altered metabolic pathway that bypasses the reaction inhibited by the antibiotic*

Cross-resistance

- *Microorganisms resistant to a certain drug may also be resistant to other drugs that share a mechanisms of action.*

- *Such relationship exist mainly between agents that are closely related chemically.*

Multi-resistance

Isolates resistant to one antibiotic are more likely than others to be resistant to chemically unrelated drugs

How Antibiotic center can help

- *Confirms unusual resistance for hospitals*
- *Types resistant bacteria, defining outbreak & epidemic strains e.g. MRSA*
- *Advises on therapy* vs. *resistant strains*
- *Runs surveys of resistance*
- *Advises on infection control*

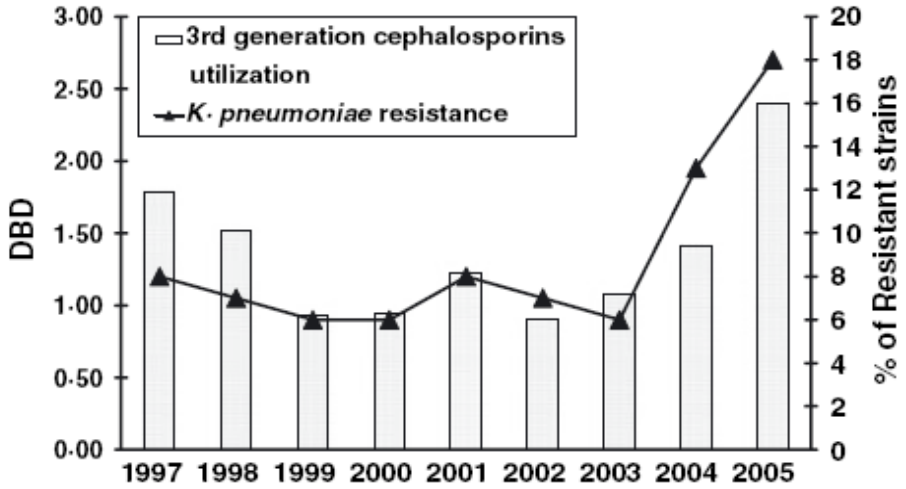

Fig. 4. Association of rate of *Klebsiella pneumoniae* resistance with third-generation cephalosporin utilization.

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ORIGINAL ARTICLE

Influence of third-generation cephalosporin utilization on the occurrence of ESBL-positive *Klebsiella pneumoniae* strains

K. Urbánek* MD PhD, M. Kolář† MD PhD, Y. Lovečková† MD, J. Strojil* MD and L. Šantavá* PharmD

*Departments of *Pharmacology and †Microbiology, Faculty of Medicine and University Hospital, Olomouc, Czech Republic*