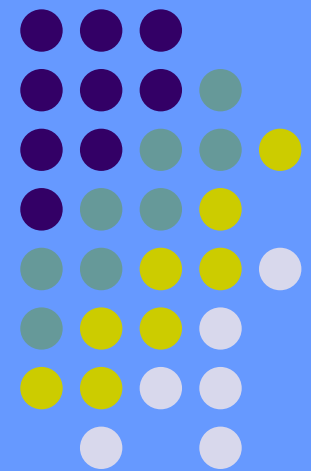


BASIC CONCEPTS OF INFECTION CONTROL

Principles of Antibiotic Policy

International Federation of
Infection Control



Abbreviations

- HAI
 - Hospital-acquired infection
 - Healthcare-associated infection
- IC
 - Infection prevention and control
- ICT
 - Infection control team
- MDR
 - Multi-drug resistant/resistance



Introduction

- Discovery of antibiotics - a revolutionary event that saved millions of lives
- However their effectiveness lessened because microorganisms develop resistance
- To postpone development of resistance, antibiotics should be used rationally





Introduction

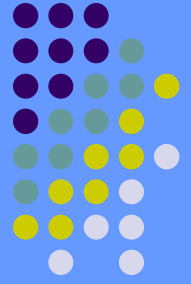
- Delay resistance by
 - Better prescribing
 - Education
 - Guidelines
 - Protocols
 - Surveillance of antibiotic usage and bacterial resistance with regular feedback to physicians
- Initiatives must exist together with effective IC



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Antibiotic Resistance

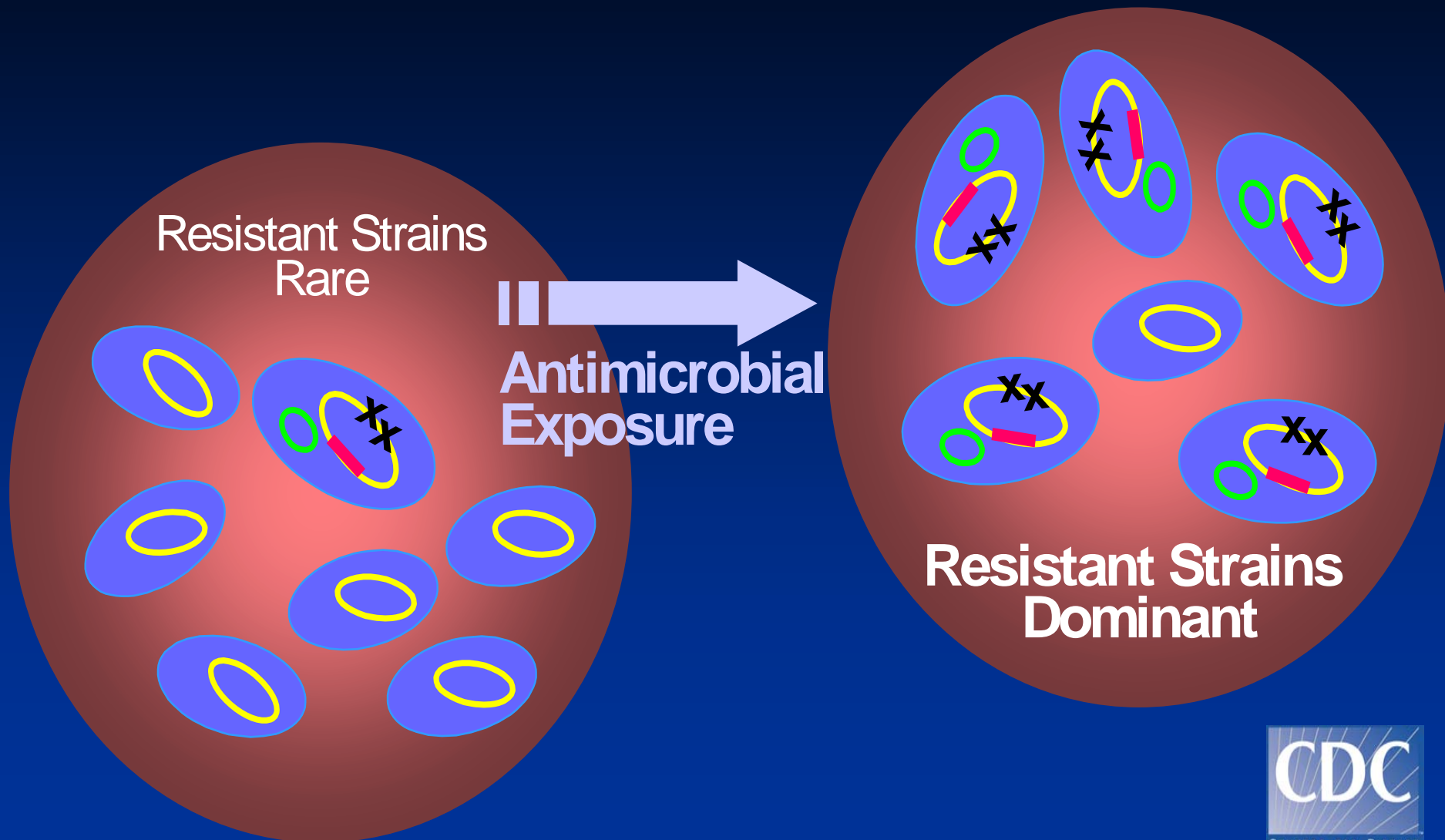


- Develops through the process of mutation
- As bacteria rapidly multiply, mutations can be expressed very quickly
- If this happens where the antibiotic is commonly used, resistant strains will be selected and become prevalent

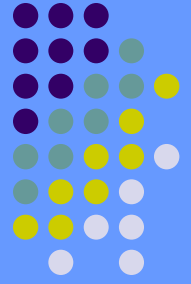




Selection for antimicrobial-resistant Strains



Treatment



- Treatment of one patient's infection may potentially affect all microorganisms in a population
- Therefore, narrow spectrum antibiotics should be used whenever possible



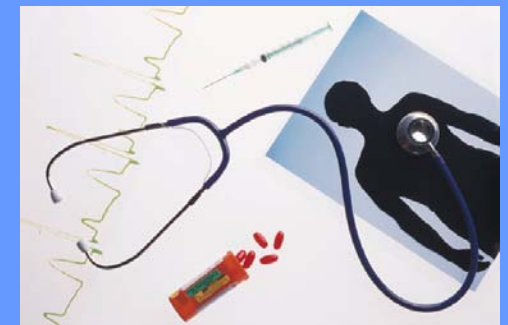
Antibiotic Stewardship



- Antibiotic stewardship programmes modify prescribing practices of physicians, usually resulting in decreased use
- Should be well designed and implemented through a mixture of
 - Voluntary
 - Persuasive, or
 - Restrictive means
- Education is important



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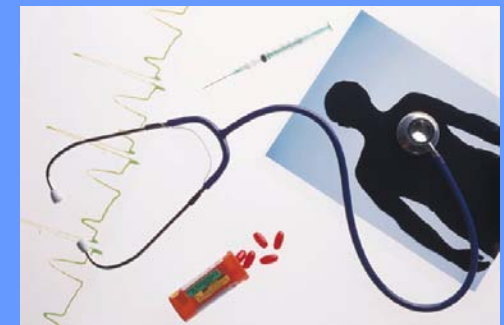


Antibiotic Stewardship

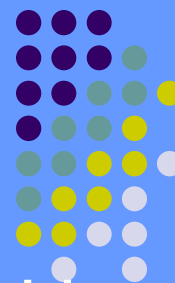
- Audit regularly and provide feedback both to users and programme directors
- If an audit indicates that voluntary methods are not working, restriction of certain classes of antibiotics may be necessary



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Antibiotic Guidelines



- Policies should focus on using antibiotics with
 - Narrowest spectrum
 - Inexpensive
 - Have minimal toxicity
 - Least impact on development of resistance
- Initiatives start at national level with
 - regulation of production
 - import of antibiotics
 - control of local production



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Hospital Antibiotic Policy



- Have guidelines and protocols for antibiotic use
- Protocols may be ward specific
 - Especially if there are special problems due to bacterial resistance, i.e., in oncology or intensive care wards
- Requires prioritisation by hospital administrators, involvement of multiple stakeholders, dedication of sufficient manpower and financial resources



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Hospital Antibiotic Policy



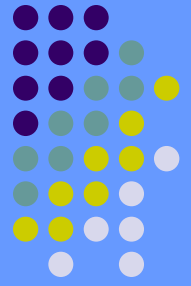
- Important initiatives are:
 - Antibiotic committee
 - Antibiotic management team
 - Guidelines and protocols
 - Education



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Antibiotic Committee



- Can be a stand-alone Committee
- Can be part of the Drug & Therapeutics Committee



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Antibiotic Committee



- Members should be:
 - Physicians who prescribe antibiotics
 - Nurses, especially if they prescribe antibiotics
 - Pharmacists
 - Microbiologists
 - Members of hospital management
 - Member of Infection Control Committee (in small hospitals, may be microbiologist)
 - Others as needed



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Antibiotic Management Team



- Team to advise on antibiotic use and audit prescribing (often larger hospitals)
- Can include infectious disease physicians, clinical pharmacologists, pharmacists, clinical microbiologists, and any doctors authorized to use reserve antibiotics
- An antibiotic pharmacist (at least part-time) with support of IC Doctor is minimum requirement for smaller institutions



Guidelines and Protocols



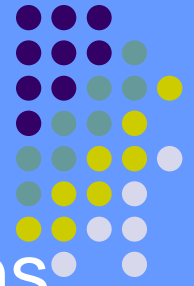
- Some hospitals issue guidelines to be followed by physicians
- Others issue protocols with which physicians are expected to adhere



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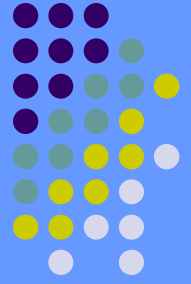
Guidelines and Protocols



- Developed after discussions with physicians determining their recommendations on
 - Type of antibiotic
 - Route of administration
 - Dosing and duration of therapy
- List of antibiotics available depends on country's politics and funding of the health care system



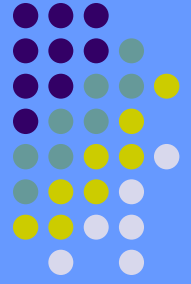
Guidelines and Protocols



- Policy includes:
 - List of antibiotics in the formulary - no others to be used
 - Guidelines for empiric and targeted treatment of most frequent infections
 - Protocols for surgical prophylaxis (including stop-orders after 24 hours)



Guidelines and Protocols

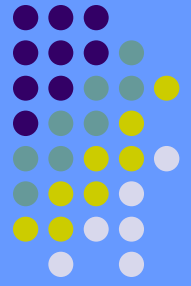


- Policy includes:
 - Protocol for evaluation of parenteral antibiotics
 - Includes stop-orders after 3-5 days and recommendations for sequential treatment
 - Protocol for a reserve antibiotic
 - How to order
 - Who can authorize use



Education

- Plan to include
 - Formal meetings
 - Clinical rounds with antibiotic committee members or antibiotic management team
 - Formal lectures
- Plan to focus on
 - New antibiotics
 - New methods of administration
 - Influence on bacterial ecology



Education



- Provided by employees or by an independent professional from outside of the hospital
- It must NOT be provided by individuals from the pharmaceutical industry unless a committee member is present



Microbiology Laboratory



- Only test recommended antibiotics
- Only report first line antibiotics if an isolate is sensitive
- Only if isolate is resistant, add the second line antibiotic
 - Makes it less likely that second line antibiotics (usually broader spectrum, more toxic, more expensive) will be prescribed.



Key Points



- Resistant bacterial strains are selected in hospitals due to huge usage of antibiotics
- If resistant bacteria develop in an environment where the specific antibiotic is used, they will become prevalent
- To preserve the susceptibility of microorganisms and postpone development of resistance, antibiotics should be used rationally



Key Points

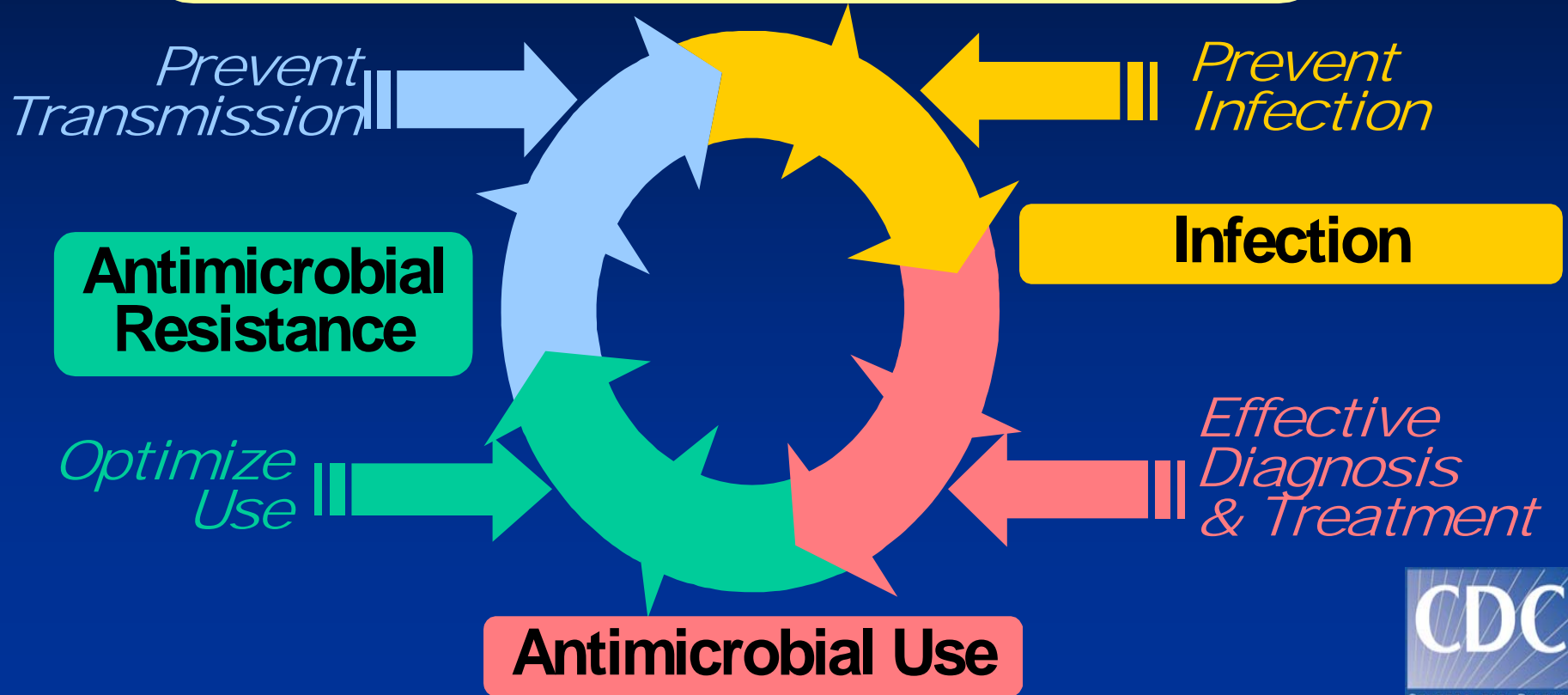
- Good antibiotic prescribing practices should be encouraged within hospitals
- The microbiology laboratory service can assist clinicians to use targeted antibiotic treatment for patients





Antimicrobial Resistance: Key Prevention Strategies

Susceptible Pathogen





Key Prevention Strategies



- Prevent infection
- Diagnose and treat infection effectively
- Use antimicrobials wisely
- Prevent transmission

Clinicians hold the solution!

References and Further Reading



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