How to develop & implement an antibiotic policy
Overview of presentation

• Antibiotic prescribing in the UK
• Antibiotic resistance problems in the UK
• Reasons for having an antibiotic policy
• 5 stages in developing an antibiotic policy
• Conclusions
Antibiotic prescribing in the UK

• Antibiotics are prescription-only medicines

UK health care
  - Primary care (General Practice): 80% of antibiotic prescriptions
  - Hospital care: 20% of antibiotic prescriptions
Antibiotic prescribing in the UK

• Hospitals
  – At any one time 10-20% patients are receiving antibiotic therapy

• Primary care
  – In Scotland (population 5 million) 4.2 million prescriptions during 2006 (0.6% increase cf 2005)
  – 5X variation in prescribing rates between GP practices
Antibiotic resistance problems in the UK

**Clostridium difficile**

- Jan-Dec 04
- Jan-Dec 05
- Jan-Dec 06

**Proportion blood culture isolates of Staph aureus that are MRSA**

- Denmark
- Netherlands
- Austria
- Germany
- Spain
- France
- Portugal
- Italy
- Greece
- UK
Reasons for having an antibiotic policy

• Ensure patient receives appropriate therapy
  – Effective antibiotics are given where treatment is indicated
  – Antibiotics only used where indicated & are given for an appropriate duration
  – Drugs that are safe

• Save money

• Prevent emergence of resistance problems
  – Superinfection
  – Emergence & spread of new antibiotic resistances
How to develop a policy

- Decide on target
- Develop policy
- Implement policy
- Enforce policy & ensure compliance
- Demonstrate benefit

• Each of these stages needs to be carefully planned
Decide on target

• Requires consideration of:
  – Where antibiotic prescribing problems lie
    • Community
    • Hospitals
    • Both
  – What is the nature of these problems?
    • Overprescribing of antibiotics in general
    • Overprescribing of broad-spectrum antibiotics
    • Inadequate antibiotic prescribing
Decide on target

– What is the impact of these problems
  • Increased antibiotic resistance
  • Increased direct costs (the costs of antibiotics)
  • Increased indirect costs (↑length of stay; secondary infections, etc.)
– Feasibility of successfully implementing a policy
How to develop a policy

1. Decide on target
2. Develop policy
3. Implement policy
4. Enforce policy & ensure compliance
5. Demonstrate benefit
Develop policy
Selection of antibiotics

• Considerations
  – Microbiological
    • Causative microorganisms
    • Expected antibiotic sensitivities
  – Pharmacological & clinical
    • Convenience of administration
    • Side effects
    • Severity of infection
    • Site of infection
Develop policy
Selection of antibiotics

• Considerations
  – Financial
    • Cost of antibiotics
    • Costs of administration, monitoring
  – User representation & support
    • Essential to obtain buy-in from prescribers
    • Only they may be able to identify practical issues around use of certain drugs
    • Opportunity to educate prescribers
How to develop a policy

1. Decide on target
2. Develop policy
3. Implement policy
4. Enforce policy & ensure compliance
5. Demonstrate benefit
Implementation

• Education
  – About the policy
  – Enforcement

• Publicity
How to develop a policy

1. Decide on target
2. Develop policy
3. Implement policy
4. Enforce policy & ensure compliance
5. Demonstrate benefit
Enforce & ensure compliance

- Voluntary
- Audit
- Check prescriptions
- Limit antibiotic sensitivity reporting by laboratory
- Restrict availability of antibiotics
Enforcement outside hospital

- Difficult, even in UK where antibiotics are prescription-only medications
  - Data on antibiotic prescribing by individual doctors is collected
  - But because antibiotics are relatively low-cost drugs prescribing is not a priority of healthcare commissioners
Enforcement in hospitals

Doctor writes prescription

Antibiotic available on ward

Antibiotic available in hospital pharmacy

Antibiotic not stocked in hospital

Patient receives antibiotic

Antibiotic has to be released

Antibiotic has to be ordered

Antibiotic sensitivities withheld on lab reports

Limit availability of antibiotics

Pharmacist or microbiologist intervention

Audit
How to develop a policy

Decide on target

Develop policy

Implement policy

Enforce policy & ensure compliance

Demonstrate benefit
Demonstrate benefit

• Possibly the most difficult step
  – First challenge is to measure outcomes
  – Second challenge is that outcomes may be unexpected

• Gould & Jappy (Aberdeen, Scotland)
  – Took 3 years to develop & agree policy
  – Following implementation:
    » Antibiotic expenditure more than doubled
    » Increased from 11.9% to 18.7% of drug budget
    » 46% increase in defined daily doses
    » 2/3 of the increase accounted for by new drugs
Conclusions

• For an antibiotic policy to work
  – Don’t be too ambitious
    • The wider your target, the less successful you are likely to be
  – Ensure control of prescribing is properly resourced
  – Don’t raise expectations that a policy will deliver big savings
    • Often difficult to demonstrate savings against a background of drug cost inflation
    • Many other reasons (e.g. antibiotic resistance) for having an antibiotic policy