The available tools for stewardship

Nick Brown
27 November 2014
Goals of Antimicrobial Stewardship

• Improve patient outcome
• Improve patient safety
  – minimize unintended consequences of antimicrobials
• Reduce resistance
• Reduce healthcare costs
  – without adversely impacting quality of care
# Antimicrobial Stewardship Toolkit: IDSA guidelines

## Core Strategies
- Formulary restrictions and preauthorization*
- Prospective audit with intervention and feedback*
- Multidisciplinary stewardship team*

* Strategies with strongest evidence and support by IDSA.

## Supplemental Strategies
- Streamlining / timely de-escalation of therapy*
- Dose optimization*
- Parenteral to oral conversion*
- Guidelines and clinical pathways*
- Antimicrobial order forms
- Education
- Computerized decision support surveillance
- Laboratory surveillance and feedback
- Combination therapies
- Antimicrobial cycling

Dellit et al. *Clinical Infectious Diseases* 2007;44:159-77.
Priorities for AMS – Australian guidelines

Five strategies considered essential:

- up-to-date clinical guidelines that take into account local microbiology and susceptibility patterns
- formulary restriction and approval systems that include restricting broad-spectrum antimicrobials
- review of antimicrobial prescribing with intervention and direct feedback
- monitoring of performance of antimicrobial prescribing
- selective reporting of susceptibility testing results consistent with antimicrobial treatment guidelines.

Four others if local priorities and resources allow:

- educating prescribers, pharmacists and nurses about good antimicrobial prescribing practice and antimicrobial resistance
- using point-of-care interventions, including de-escalation of therapy, dose optimisation or iv-to-oral switch
- using IT systems such as electronic prescribing with clinical decision-support or online approval systems
- publishing susceptibility data for the facility at least annually.

‘Front-end’ versus ‘Back-end’ AMS strategies

**FRONT-END STRATEGY**

- Preauthorization and restriction
- Antibiotic prescription (by primary team)
- First few doses permitted for selected antibiotics
- Institution restriction criteria for selected antibiotics

**BACK-END STRATEGY**

- Prospective audit and feedback
- Antibiotic prescription (by primary team)
- Day 1: review dose and possibility of IV-to-oral switch
- Day 4: review appropriateness considering microbiological culture results
- Day 7: review duration of therapy

Antimicrobial stewardship team or infectious diseases physician

Approval

Intervention to optimize antibiotic treatment

Patient

Continues unless intervened by ASP

*Adapted from Chung GW et al. Virulence 2013; 4:1-7.*
Using antibiotics responsibly: right drug, right time, right dose, right duration

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Everyone prescribing antibiotics should consider both their clinical and public health responsibilities. The objective should be to provide optimal patient care while at the same time seeking to minimize selective pressure that may result in the emergence and spread of antibiotic resistance. To this end, in 2008 the European Centre for Disease Control initiated the annual European Antibiotic Awareness Day (EAAD) to take place on 18 November, when Europe-wide activities are undertaken to highlight the critical importance of prudent antibiotic prescribing. This year activities in England will focus on the optimal management of infections in secondary care, and will have two inter-related aims. The first is to improve the quality of the initial decision to prescribe an antibiotic (including making an informed choice of empirical drug and dose) in particular ensuring rapid prescribing and administration in presumed sepsis. This is deliberately combined with a second focus on the critical importance of formally reviewing antibiotic therapy at 48 h, based on the patient’s clinical response and the availability of microbiology test results. This should lead to a clear decision to stop, switch to oral, switch to outpatient antibiotic therapy (OPAT) or change antibiotic, if possible to a narrower spectrum. The EAAD campaign in England will highlight the need to ‘Start Smart—Then Focus’. The aim is that patients receiving antibiotics should receive the right drug at the right time at the right dose for the right duration.

Show that implementing an antibiotic stewardship program can not only save lives, but can save significant healthcare dollars. Inpatient antibiotic stewardship programs have consistently demonstrated annual savings to hospitals and other healthcare facilities of $200,000 to $400,000.

EXECUTIVE SUMMARY

This document presents guidelines for developing institutional programs to enhance antimicrobial stewardship, an activity that includes appropriate selection, dosing, route, and duration of antimicrobial therapy. The multifaceted nature of antimicrobial stewardship has led to collaborative review and support of these

Why Are Antibiotics Making Us Ill??
Find out here...
Several useful toolkits are available


CDC ‘Get Smart for Healthcare’: http://www.cdc.gov/getsmart/healthcare/

Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) ANTIMICROBIAL STEWARDSHIP: “START SMART - THEN FOCUS”.  

Get Smart for Healthcare

Studies indicate that 30-50% of antibiotics prescribed in hospitals are unnecessary or inappropriate. There is no doubt that overprescribing and misprescribing is contributing to the growing challenges posed by Clostridium difficile and antibiotic-resistant bacteria. Studies demonstrate that improving prescribing practices in hospitals can not only help reduce rates of Clostridium difficile infection and antibiotic resistance, but can also improve individual patient outcomes, all while reducing healthcare costs. Get Smart for Healthcare is a CDC campaign focused on improving prescribing practices in inpatient healthcare facilities.

Get Smart for Healthcare Topics

- Overview and Evidence to Support Stewardship
- Implementation Resources
- Stewardship Program Examples

Healthcare-Associated Infection Topics

- Dialysis Safety
- Hand Hygiene
- Healthcare-associated Infections (HAI)
- Injection Safety
- National Healthcare Safety Network (NHSN)
- Nursing Homes and Assisted Living
- Protecting Healthcare Personnel
- Sepsis

Get Smart Week

Antibiotic Prescribing in Hospitals: Improvements Needed

March 04, 2014
TARGET Antibiotics

“There are few public health issues of potentially greater importance for society than antibiotic resistance”

2013 CMO Prof Dame Sally Davies
The TARGET antibiotic toolkit

This toolkit is here to help clinicians and commissioners to use antibiotics responsibly and meet CQC requirements.

- Training resources
- Patient information leaflets
- Self assessment checklist and audit
- Resources for clinicians
- Antibiotic management guidance
- External clinical resources

[www.rcgp.org.uk/TARGETantibiotics](http://www.rcgp.org.uk/TARGETantibiotics)
Total items prescribed per 1000 population per practice (2012/13)
UK PRESCRIBING
Local Data

Gloucester CCG Vs Your Practices (Orchard Medical Centre and Uley)
Total items prescribed per 1000 population per practice (2008/09 – 2012.13)

- 8% INCREASE
- 23% INCREASE
- 16% INCREASE

- Tetracyclines
- Sulfonamides & Trimethoprim
- Quinolones
- Penicillin V
- Resistant Penicillins
- Metronidazole
- Macrolides
- Co-Amoxiclav
- Cephalosporins
- Ampicillin
- Amoxicillin

Gloucester CCG  Orchard Medical Centre  Uley Surgery

Royal College of General Practitioners
Public Health England
How can we fit together this evidence and change behaviour during consultation with our patients to improve antibiotic prescribing?
## TARGET:
Self Assessment Checklist

### What would be good practice now

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your practice use antibiotic guidance provided nationally or locally by the microbiologist or commissioners for treatment of common infections?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your practice use delayed prescribing on a regular basis for uncomplicated respiratory tract infections?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is the latest antibiotic guidance made available to all temporary prescribers working in your surgery?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Have you undertaken a practice wide antibiotic audit in the last two years?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Do your clinicians record clinical indication for antibiotic prescribed in patient notes using read codes?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### What most practices should aim to do soon

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a GP within your practice who takes a lead for antibiotic stewardship in the practice?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Do you analyse and discuss antibiotic prescribing at your surgery in comparison to local targets at least once a year?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Do you keep a written record and surgery action plan resulting from antibiotic audits?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### What all antibiotic aware practices should be doing

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your practice use patient focused strategies to highlight the importance of responsible antibiotic use? For example patient information, leaflets and posters.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Do your clinicians use patient information leaflets within your consultations?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is there a standard approach to antibiotic prescribing to avoid patients re-consulting with other clinicians within the practice, to obtain the antibiotic they expect?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Have you or anyone in your practice undertaken any antibiotic related prescribing clinical courses, for example MART and MUTC on the RCGP website?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
**TARGET: Antibiotic Management Guidance**

### What would be good practice now?

Does your practice use antibiotic guidance provided nationally or locally by the microbiologist or commissioners for treatment of common infections?

- Yes [ ]
- No [ ]

Is the latest antibiotic guidance made available to all temporary prescribers working in your surgery?

- Yes [ ]
- No [ ]

### Management of Infection Guidance for Primary Care for consultation and local adaption

<table>
<thead>
<tr>
<th>ILLNESS</th>
<th>COMMENTS</th>
<th>DRUG</th>
<th>ADULT DOSE</th>
<th>TREATMENT DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute cough, bronchitis</td>
<td>Antibiotic little benefit if no co-morbidity¹⁻⁴A⁺</td>
<td>amoxicillin or</td>
<td>500mg TDS</td>
<td>5 days</td>
</tr>
<tr>
<td>CKS⁶ NICE 69</td>
<td>Consider 7d delayed antibiotic with advice¹⁻⁵A⁺</td>
<td>doxycycline</td>
<td>200mg stat then 100mg OD</td>
<td>5 days</td>
</tr>
<tr>
<td></td>
<td>Symptom resolution can take 3 weeks.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consider immediate antibiotics if &gt; 80yr and ONE of:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>hospitalisation in past year, oral steroids, diabetic,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>congestive heart failure OR &gt; 65yrs with 2 of above</td>
<td></td>
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</tbody>
</table>
ScRAP
Scottish Reduction in Antibiotic Prescribing Programme

Prescriber Learning Event

“Reducing the unnecessary prescribing of antibiotics”

“Can we ScRAP the unnecessary antibiotic prescription?”

October 2013 edition
Using antibiotics prudently
- Hospital Prescriber Presentation

[Insert Name of presenter]
[Insert Name of hospital]
How prudent use of antibiotics can be promoted in hospitals

And

How we are trying to make it easier for you
Multifaceted strategies can address and decrease antibiotic resistance in hospitals

- Antibiotic prescribing practices and decreasing antibiotic resistance can be addressed through multifaceted strategies (Antimicrobial Stewardship) including:

  - Use of ongoing education
  - Use of evidence-based hospital antibiotic guidelines and policies
  - Restrictive measures and consultations from infectious disease physicians, microbiologists and pharmacists

Measures that can decrease antibiotic resistance

Prescribing Measures likely to decrease antibiotic resistance in hospitals are described in the *Start Smart – then Focus* guidance by the DH’s Advisory Committee on Antimicrobial Resistance and Health Care Associated Infections (ARHAI) 32-34

**START SMART:**

- Start prompt effective treatment in patients with life-threatening infection
- Collect appropriate and early cultures before starting antibiotic therapy 35.
- Prescribe in accordance with local antibiotic policies/guidelines and resistance patterns 36
- Document indication(s), route, dose and duration for antibiotic prescription on prescription chart and in clinical notes and
- For most surgical procedures, only single dose prophylaxis is recommended
- Consult infection expert(s) and/or pharmacists if appropriate 32-34

Measures that can decrease antibiotic resistance

THEN FOCUS:
At 48 hours; review the patient and make a clinical decision “the Antimicrobial Stewardship Decision” on the need for on-going antibiotic therapy.

Does patient’s condition and/or culture results) necessitate:

1. Stop of antibiotic therapy (if no evidence of infection)
2. Switch from intravenous to oral therapy
3. Change: De-escalation/substitution/addition of agents
4. Continuation - review again at 72 hours OR
5. Outpatient Parenteral Antibiotic Therapy (OPAT).

Day 2 - 28 November 2014

Workshop B:
What tools and what works: evidence to review effectiveness of stewardship toolkits

To be continued...