University Hospitals of Derby and Burton NHS Foundation Trust

TRUST POLICY FOR ANTIMICROBIAL PRESCRIBING

Reference Number CL-RM 2009 058	**Version** 5		**Status** Final	**Author:** Kayleigh Lehal (Previous policy – Julia Lacey) **Job Title** Lead Antimicrobial Pharmacist
Version / Amendment History	Version	Date	Author	Reason
	2	October 2012	J.Lacey	Update due
	3	October 2015	J Lacey	To incorporate new national guidance on antimicrobial prescribing and stewardship
	4	February 2019	J Lacey	Update due, and joint policy for UHDB
	5	August 2022	K Lehal	Update due
Intended Recipients: All medical and clinical staff, Associate Directors, Service Managers, Heads of Nursing, Quality Improvement Leads, Senior Matrons, clinical pharmacists, Heads of pharmacy.				
Training and Dissemination: Dissemination via the Trust Intranet and via periodic mandatory infection control training.				
To be read in conjunction with: Policy for prescribing and supplying restricted antimicrobials				
In consultation with and Date: Antimicrobial Stewardship Group (reports to infection control group and Drugs and Therapeutics), Medical Advisory Group				
EIRA stage one Completed Yes Stage two Completed N/A				
Procedural Documentation Review Group Assurance and Date				Antimicrobial Stewardship Group Medical Executive Group
Approving Body and Date Approved				Trust Delivery Group - 28 November 2022
Date of Issue				November 2022

Review Date and Frequency	September 2025 (then every 3 years)
Contact for Review	Lead Antimicrobial Pharmacist
Executive Lead Signature	 **Garry Marsh - Executive Chief Nurse**

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Appendices

TRUST POLICY FOR ANTIMICROBIAL STEWARDSHIP

1 Introduction

Antimicrobial agents are essential treatments for serious infections; however administration of antimicrobials can lead to the selection of antimicrobial-resistant organisms. The prevalence of antimicrobial resistance (AMR) has risen alarmingly over the last 40 years and few truly novel antimicrobials have been developed. Inappropriate use of antimicrobials increases the risk to patients of colonisation and infection with resistant organisms such as Methicillin resistant *Staphylococcus aureus* (MRSA), *Clostridioides difficile*, Extended Spectrum Beta Lactamase (ESBL) producers, Carbapenem Resistant Enterobacteriaceae (CRE) and Vancomycin Resistant Enterococci (VRE) which may subsequently be transmitted to other patients. Healthcare associated infections due to resistant organisms are associated with increased morbidity and mortality.

The term 'antimicrobial stewardship' is defined as 'an organisational or healthcare-system-wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness'. Antimicrobial stewardship is an important element of the UK Antimicrobial Resistance Strategy. Improving antimicrobial prescribing through an organised antimicrobial management program will improve the safety and quality of patient care and contribute significantly to reductions in the emergence and spread of AMR.

This policy does not provide advice on which antimicrobial should be used in specific infections as this is covered in the antimicrobial guidelines. This policy also does not provide information on which antimicrobials can only be used following advice from a microbiologist. This information can be found in the restricted antimicrobial policy, the Trust formulary and on the Trust antimicrobial intranet site.

2 Purpose and Outcomes

This policy sets out the UHDB standards for prescribing antimicrobials and monitoring and improving the quality of antimicrobial usage. The policy provides employees of UHDB with a framework for prescribing and reviewing antimicrobial agents, thereby ensuring appropriate stewardship of antimicrobial agents within UHDB.

Implementation of this policy will contribute to:

- Safe, effective and appropriate use of antimicrobial agents within UHDB thereby optimising patient outcomes.
- Slowing the rise in resistance and reducing the risk of infections caused by multi-resistant agents such as MRSA, ESBL, AmpC, CRE and VRE.
- Reducing the risk of Health Care Associated Infections (HCAIs) such as *Clostridioides difficile.*
- Ensuring that UHDB complies with the requirements of The Health and Social Care Act 2008: code of practice on the prevention and control of infections and related guidance (July 2015).

3 Definitions Used

For the purposes of this policy, antimicrobial agents include antibacterial, antifungal, antiviral, antiprotozoal and antihelmintic medicines, which are listed in the British National Formulary, Chapter 5, which are being used for treatment, or for surgical prophylaxis.

EPMA is the Trusts electronic prescribing system (Lorenzo at Derby sites and Meditech at Burton sites).

4 Key Responsibilities/Duties

4.1 Antimicrobial Stewardship Group (AMSG)

a) To approve antimicrobial policies in the organisation.

b) To use data from a variety of sources to provide assurances regarding antimicrobial usage within the organisation with regard to;
   - Antimicrobial consumption patterns
   - Quality of antimicrobial prescribing
   - Resistance patterns
   - OPAT
   - Safety of antimicrobial prescribing (including HCAIs)

c) To identify gaps in antimicrobial stewardship processes and commission work streams to address these.

d) To commission education and training on antimicrobials.

4.2 Antimicrobial Stewardship Lead Clinicians

The antimicrobial stewardship lead clinician for each business unit will assist the AMSG in ensuring that recommendations on antimicrobial prescribing are adhered to in their clinical areas and assist in the development of action plans to influence antimicrobial prescribing in their areas.

4.3 Consultant Microbiologists

In addition to contributing to the duties outlined by the antimicrobial stewardship group the consultant microbiologists will:

a) Advise on appropriate antimicrobial choice and duration in individual patients where appropriate.

b) Telephone and offer advice on prescribing antimicrobials when cultures have significant growth requiring prompt action.

c) In conjunction with clinical teams and the antimicrobial pharmacist, contribute to the development and updating of evidence based guidelines for empirical and targeted antimicrobial use, as requested by the Trustwide Guideline Group.

d) Carry out surveillance on antimicrobial resistance, by presenting data (provided by the microbiology lab manager) to the AMSG and use this information to inform guideline development.

e) Provide feedback on antibiotic audits to prescribing clinicians and assist in development of action plans.

f) Provide education to prescribers on antimicrobial prescribing, resistance patterns and stewardship.

g) Contribute to the development of antimicrobial stewardship policies.

h) Contribute to implementation of the policy for prescribing of restricted antimicrobials and adhere to the policy.

4.4 Managers/Clinical Leads/Senior Matrons/Matrons

Will ensure their own practice complies with this policy and encourage others to do so.

4.5 Consultant Medical Staff

a) Will ensure their own practice complies with this policy and encourage others to do so.

b) Should ensure that regular audits of antimicrobial prescribing are carried out in their areas.

c) Ensure that up to date evidence based guidelines are available for treating infectious diseases in their particular speciality.

4.6 Prescribers

Will ensure that their own practice complies with the standards for prudent use of antimicrobials as outlined in section 5.

4.7 Antimicrobial Pharmacist (AMP)

In addition to participating in the tasks of the AMSG, the antimicrobial pharmacist will:

a) Co-ordinate the rolling program of antimicrobial audits and produce reports for AMSG, ICC, the CCG and the divisions.

b) Provide data on antimicrobial usage and expenditure to the AMSG and divisions.

c) Ensure that the antimicrobial guidelines are readily available to prescribers in clinical areas, including maintaining the intranet site and the smartphone App.

d) Contribute to the development and implementation of policies relating to antimicrobial stewardship.

e) Take an active role in ensuring the availability of up to date evidence based guidelines for empirical and targeted antimicrobial use. Collaborate with the Trustwide Guideline Group to review and approve any guidelines produced by clinical teams which contain antimicrobials.

f) Participate in education of medical staff and other healthcare professionals on antimicrobial prescribing, resistance and stewardship

4.8 Clinical Pharmacists

a) Should encourage prescribers to adhere to the standards in section 5. For all prescriptions not containing the required information, the pharmacist should remind the prescriber of the requirements. If the prescriber cannot be contacted, the pharmacist should write in the notes requesting a stop date for the antimicrobial agent.

b) Should encourage adherence to the Trust Antimicrobial Guidelines and question non-adherence with prescribers.

c) Should ensure that restrictions on the use of certain antimicrobials are adhered to according to the restricted antimicrobial policy.

d) Should ensure that prescriptions for first doses of antimicrobials are supplied promptly so that patients receive their first dose within an hour in sepsis.

e) Will assist the AMSG in implementing targeted action plans to influence antimicrobial prescribing in specific clinical areas, including collecting audit data.

f) Should check culture and sensitivity results when validating or revalidating prescriptions for antimicrobials or when making a supply of antimicrobials, and advise on any necessary changes to treatment.

g) Should ensure that the dose and frequency of antimicrobials are appropriate, taking into account the severity of infection, patient's weight and renal and hepatic function.

4.9 Infection Prevention and Control Team

The infection prevention and control team (IPCT) will provide the AMSG with relevant surveillance data on healthcare-associated infections.

4.10 Nursing Staff

a) Should request the prescriber to write a stop/review date or course length on antimicrobial prescriptions if it has not been done.

b) If there is a stop date or course length on EPMA or the prescription chart, will stop administering antimicrobials at midnight that day, unless indicated to stop sooner. If the patient is still unwell at this time then the nursing staff should request a medical review the following morning.

c) If there is a review date only on the chart, will continue to administer the antimicrobial drug as prescribed until a new review or stop date has been added, and prompt the medical staff to review.

d) Should ask the prescriber to reconsider the stop or review date if doses have been missed, especially if the patient is still unwell or during a weekend where regular review is unlikely.

e) Should prompt prescribers to consider IV to oral switching where appropriate, in accordance with the guidelines.

f) Should inform medical staff promptly if a patient is unable to receive their antimicrobial treatment by the prescribed route.

g) Should ensure that first doses of antimicrobials are administered promptly so that patients with sepsis receive their first prescribed dose within an hour. Nursing staff should remind prescribers to prescribe a stat dose if it is more than one hour until the next scheduled dose.

h) Antimicrobials which are unavailable on the ward or clinical areas (or in the POOH cupboard at Burton) should be ordered by contacting pharmacy directly e.g. by bleeping the ward pharmacist or the on call pharmacist out of hours, in order to avoid delays to treatment.

5 Standards for Prudent Antimicrobial Prescribing

Based on Public Health England; Start Smart – Then Focus Antimicrobial Stewardship Toolkit for English Hospitals 2015, adapted for local use.

Overarching principles:
An antimicrobial agent must only be prescribed if clinically indicated, where there is likely to be clear clinical benefit, according to the patient's clinical signs and symptoms of infection and/or sepsis. Antimicrobial prescriptions should be reviewed daily, and treatment should be targeted towards the causative pathogen, for the shortest appropriate duration, to reduce over exposure to broad spectrum antimicrobials.

5.1 When Starting Antimicrobial Therapy:

Start Smart - this means:

- Antimicrobial therapy should not be started unless there is clear evidence of infection.

- A thorough drug allergy history should be taken. In line with NICE guidance on drug allergy, patients with a history of such allergies should be assessed, and the allergy label removed where it is not correct, in order to improve patient outcomes.

- Relevant clinical specimens should be obtained for microbiological investigation, prior to antimicrobial administration whenever possible (but do not delay therapy in severe infections).

- Prescribers should consider the risk of resistant pathogens such as MRSA or ESBL-producing organisms or previous HCAI such as *C. difficile* and offer alternative treatment regimens accordingly or seek expert advice. Prescribers should make use of the infection control alerts on EPMA to identify patients with previous resistant pathogens.

- Effective antimicrobial treatment should be started promptly within one hour of diagnosis in patients with severe sepsis or life-threatening infections.

- Prescribing of antimicrobials for empirical use should comply with local antimicrobial prescribing guidance. In the absence of local guidelines the British National Formulary (BNF) or evidence-based national guidance should be followed.

- Targeted therapy should be used in preference to empirical / broad-spectrum antimicrobial treatment, unless there is a clear, documented clinical reason (such as mixed infection or life-threatening sepsis) for prescribing the latter. Prescribers should be aware that broad-spectrum antimicrobials are sometimes not as potent in vitro as their narrower-spectrum counterparts against certain pathogens.

- Clinical indication (and disease severity if appropriate), drug name, dose and route should be documented both on the drug chart/EPMA and in clinical notes. The indication should be amended on the prescription once the diagnosis becomes clearer.

- The oral route should be used in preference to the intravenous route wherever possible. Intravenous antimicrobials may be considered for severe infection; in patients who are unable to tolerate oral antimicrobials; where oral therapy would not provide adequate tissue penetration or where there are no suitable alternative oral agents.

- Potential drug interactions must be considered before prescribing antimicrobial agents, (e.g. anticoagulants), along with other clinical factors that would affect the drug (e.g. altered renal or hepatic function)
- Expert medical microbiological advice must be sought for complicated infections.

5.2 Use of Stop and Review Dates on Antimicrobial Prescriptions

- Prescribers should write a review date (which is by 72 hours) or a stop date on EPMA or the medicine chart for each antimicrobial agent prescribed. Depending on the electronic prescribing system in use, the review date may need to be entered in the additional information box. The audit standard is that by 72 hours a stop date should be on the prescription. If the prescriber decides that treatment needs to continue beyond the stop date or course length indicated, then it is their responsibility to amend the chart or rewrite the prescription.

  In critical care, haematology and paediatrics it has been agreed that the routine use of review/stop dates on the charts is not always appropriate. However, the daily consultant review must be documented in the case notes.

- Single dose antimicrobials should be prescribed for surgical prophylaxis, where antimicrobials have been shown to be effective, unless agreed otherwise in local guidelines. Prophylaxis should be given within the 60 minutes ***prior to incision***, unless samples are being taken intra-operatively for culture and sensitivity testing.

5.3 Duration and Review of Treatment

All antimicrobial prescriptions should be reviewed by a senior clinician (ST3 or above) at 48 – 72 hours or sooner if clinically appropriate and a clear plan of action documented - **the 'antimicrobial prescribing decision'.**

The five 'antimicrobial prescribing decision' options are:

1. **Stop** antimicrobials if there is no evidence of infection.

2. **Switch** antimicrobials from intravenous to oral, following the Trust guidelines for IV to oral switching. If continuing with IV antibiotics beyond 72 hours, the reason for this should be documented.

3. **Change** antimicrobials according to microbiological sensitivities ideally to a narrower spectrum – or broader if required.

4. **Continue** and document next review date or stop date.

5. Outpatient Parenteral Antimicrobial Therapy (**OPAT**) (see OPAT policy).

It is essential that the review and subsequent decision is clearly documented in the clinical notes.

6 Managing the Policy for Antimicrobial Prescribing

Ensuring that antimicrobial prescribing is appropriate will be achieved by the following mechanisms:

6.1 Education on Appropriate Prescribing

All relevant clinical staff will receive appropriate education on the prescribing of antimicrobials. This education will be a part of induction training for new junior doctors and also part of mandatory training provided to all doctors who prescribe antimicrobials to patients, regardless of their seniority, non-medical prescribers who prescribe antimicrobials and advanced clinical practitioners. Mandatory training on antimicrobials will also be provided to all nursing staff who administer antimicrobials, and to clinical pharmacists.

Additional education may also be needed as part of the action plans to influence antimicrobial prescribing in specific clinical areas.

6.2 Audit of and Feedback on Antimicrobial Prescribing

A rolling program of antimicrobial audits will provide clinical areas with regular feedback about their antimicrobial usage. All prescribers will be expected to participate in the audits.

If a clinical area is identified as having a healthcare-associated infection problem, which may be related to antimicrobial usage, targeted audit and prescribing data will be fed back to the clinical area and an action plan will be formulated to tackle the problem.

6.3 Restrictions on Antimicrobial Usage

The use of certain antimicrobials within the Trust will be restricted, either to reduce the risk of HAI, such as *C. difficile*, or to minimise the spread of resistance and preserve their effectiveness. These antimicrobials will only be released by Pharmacy, for listed indications, within the antimicrobial guidelines, or following documented discussion with a consultant microbiologist, or in exceptional circumstances (e.g. where unable to contact a consultant microbiologist in a timely way for a patient with sepsis). See the restricted antimicrobial policy for more information.

7 Monitoring Compliance and Effectiveness

Compliance and the effectiveness of this policy will be monitored by:

Monitoring Requirement:	Monitor appropriateness of antimicrobial use in the Trust in terms of: - Choice of treatment (in line with guidelines or otherwise appropriate) - Route of administration - Use of pre-emptive stop dates and duration of treatment - Documentation of indication - Documentation of the review of antimicrobials at 48-72 hours after initiation and the action taken - Adherence to the guidelines for surgical antimicrobial prophylaxis, looking at choice, timing and duration - Appropriate sending of specimens for MC&S - Adherence to the restricted antimicrobial policy - Prompt administration of treatment in severe sepsis and septic shock Number of cases of *C. difficile* infection, and how many of these were attributable to sub-optimum antimicrobial prescribing
Monitoring Method:	A programme of antimicrobial audits Surveillance of HCAI Surveillance of antimicrobial resistance patterns Monitoring of antimicrobial consumption
Report Prepared by:	Kayleigh Lehal – Lead Antimicrobial Pharmacist
Monitoring Report Presented to:	Audit report sent to divisional leads and infection control group Stewardship report to Drugs and Therapeutics group, the Antimicrobial Stewardship Group and Infection Control Committee (ICC) Quarterly Audit report and progress with action plan to CCG
Frequency of Report	Audit reports quarterly Monthly reports to ICC

	Monthly reports to Antimicrobial Stewardship Group Quarterly reports to Drugs and Therapeutics Group Quarterly reports to CCG

8 References

Department of Health (Updated July 2015). The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance

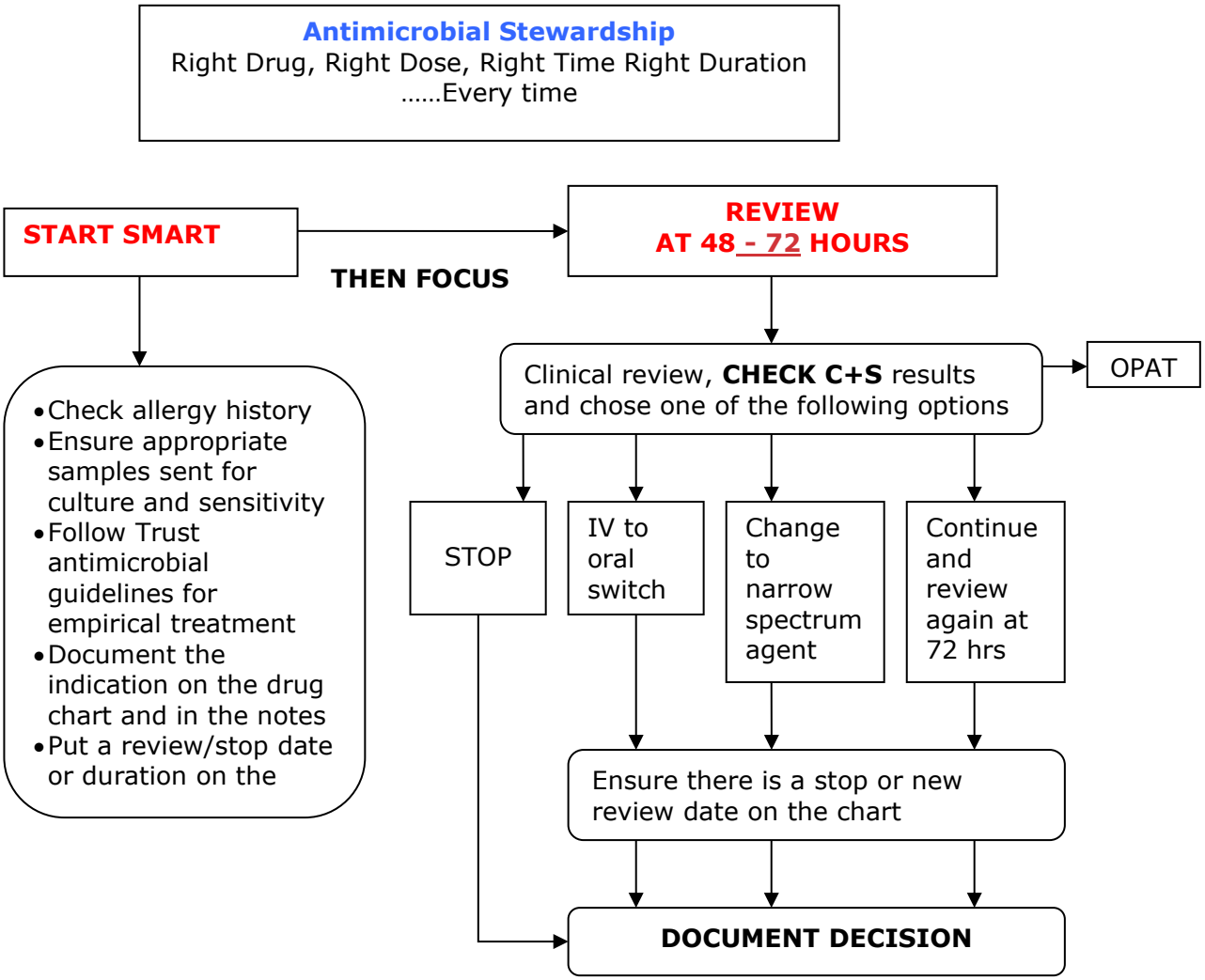
NICE guideline NG15 (August 2015) Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use

Public Health England (November 2014) Start Smart – Then Focus. Antimicrobial Stewardship Toolkit for English Hospitals

Department of Health (2009). *Clostridium difficile* infection: How to deal with the problem.

Department of Health, Tackling Antimicrobial Resistance 2019-2024 The UK's Five Year National Action Plan https://www.gov.uk/government/publications/uk-5-year-action-plan-for-antimicrobial-resistance-2019-to-2024

Appendix 1: "START SMART THEN FOCUS"



Adapted from Public Health England (March 2015) Start Smart – Then Focus. Antimicrobial Stewardship Toolkit for English Hospitals