

Policy Applies to:

This policy aims to support credentialed specialists anti-microbial stewardship at Mercy Hospital.

Related Standards:

- New Zealand Infection Control Standard NZS 8143.3:2008
- EQuIP criterion 1. 5. 2 Infection Control

Rationale:

The purpose of this policy is to ensure individual patients and the community benefit from appropriate antimicrobial use.

The objective of anti-microbial stewardship is to ensure the best clinical outcome for the treatment or prevention of infection, with minimal toxicity to the patient and minimal impact on subsequent resistance development.

Definitions:

Antimicrobial stewardship (AMS)

AMS is a defined process to assist and support clinicians with decisions regarding the optimal selection, dose and duration of an antimicrobial agent. Antimicrobial stewardship (AMS) is a systematic approach to optimising use of antimicrobials to reduce inappropriate use, improve patient outcomes and reduce adverse consequences of antimicrobials (including antimicrobial resistance, secondary infections (e.g. *Clostridium difficile*), toxicity and unnecessary costs).

The NZ Formulary

An independent resource providing electronic point-of-care information for prescribers as well as supplementary guidance on best practice. The Formulary links to the current BPAC Antibiotics Guide for primary care, enabling prescribers to select 'an effective agent at the correct dose with the narrowest spectrum, fewest adverse effects and lowest cost'.

Objective:

- Promote the appropriate use of antibiotics both prophylactically and in the treatment of infections
- Provide information on recommended antimicrobial prescribing agents to credentialed specialists
- Report on prescribing practices against prescribing standards to specialists and external monitoring agencies
- Provide education on appropriate antimicrobial usage.

Implementation:

- An electronic copy of the NZ Formulary (www.nzformulary.org) is available to specialists in all clinical areas. Formulary is updated when new information is released
- Specialist advice on antimicrobial therapy is able to be accessed through the medical microbiologists of Southern Community Laboratories.
- Credentialed specialist Surgical Preferences are documented
- The surveillance plan monitors designated surgical antibiotic prescribing parameters (as per the Infection Control annual plan)
- Medication Committee monitors and reports on prescribing practices and informs stakeholders on updated and new prescribing information
- Pre admission patients are assessed for medication allergies Alerts placed on patient files when patients have an antibiotic allergy
- Reported patient infections are reviewed for antibiotic prescribing against best practice guidelines
- Antimicrobial Awareness week education is promoted annually to specialists, staff, patients and visitors.

Evaluation

- Contract in place with Southern Community laboratories and Medical microbiologist
- Infection Prevention and Control plan identifies annual surgical wound infection surveillance focus
- Infection Prevention and Control bi-monthly reports on surveillance details of antimicrobial practices against best practice parameters (choice, dose, timing, duration)
- Surveillance surgical wound infection database available for review, (F drive, Clinical, Coolock, Surveillance)
- Antimicrobial surveillance data reported to Australian Council of Healthcare Standards (ACHS) (choice, dose, timing, duration) and results reported to Infection Prevention and Control Committee
- Medication audit and Medicines Committee minutes reports on prescribing standards and medicine related incident reports
- Patient wound infection review of antibiotic prescribing activities
- Wellness promotion calendar and assessment of Antimicrobial Awareness week activity
- Infection Prevention Control bi-monthly report.

Associated Documents

- **Appendix I - Principles of Judicious Antimicrobial Prescribing**

External

- New Zealand Antimicrobial Resistance Action Plan (DRAFT Version 1, for consultation), April 2017
- Antimicrobial Resistance: New Zealand's current situation and identified areas for action, Ministry of Health, March 2017
- Antimicrobial Stewardship Policy, Government of Western Australia, Department of Health, 2015
- Surgical Antimicrobial Prophylaxis Intervention Guidelines - Hip and Knee Arthroplasties, Surgical Site Infection Improvement Programme November 2013, National Quality Improvement Programme
- Antimicrobial Stewardship in New Zealand, Imogen Thompson, May 2013
- Australian Council of Healthcare Standards Clinical Indicator Programme.

Internal

- NZ Formulary
- Surveillance Policy
- MDRO Policy
- Surgical Preferences
- Medicines Management Audit Tool
- Medicines Management Committee
- Infection Control Annual Plan
- Infection Prevention and Control Committee
- Antimicrobial Audit tool
- Pre admissions Electronic Alert System, Clinical Services Work manual
- Patient admission assessment form
- Adverse Reactions to Medication Policy, Clinical Services Work manual.

Appendix I

Principles of Judicious Antimicrobial Prescribing

The appropriate use of antimicrobials is critical to the effective delivery of care for patients and is a key factor in the management of antimicrobial resistance.

Antimicrobial stewardship is defined as processes to assist and support clinicians with decisions regarding the optimal selection, dose and duration of an antimicrobial agent.

The objective of AMS is to ensure the best clinical outcome for the treatment or prevention of infection, with minimal toxicity to the patient and minimal impact on subsequent resistance development.

Key principles for judicious antimicrobial use

1. It is good practice to collect appropriate specimens (whenever possible) prior to commencement of empiric antimicrobial therapy as long as this doesn't delay therapy.
2. Consider the following factors prior to prescribing any antimicrobial agent:
 - M** microbiology guides therapy (where possible)
 - I** indications should be evidence based
 - N** narrowest spectrum required
 - D** dosage appropriate to the site and type of infection
 - M** minimise duration of therapy
3. Antimicrobial Stewardship aims to ensure that a patient with a bacterial infection receives optimal treatment with antibiotics. 'Optimal treatment' means treating patients with the right antibiotic for the condition, at the right dose, by the right route, at the right time and for the right duration based on accurate assessment and timely review. The nine standards include:
 - 1) A patient with a life-threatening condition due to a suspected bacterial infection receives prompt antibiotic treatment without waiting for the results of investigations
 - 2) A patient with a suspected bacterial infection has samples taken for microbiology testing as clinically indicated, preferably before starting antibiotic treatment.

- 3) A patient with a suspected infection, and/or their carer, receives information on their health condition and treatment options in a format and language that they can understand.
 - 4) When a patient is prescribed antibiotics, whether empirical or directed, this is done in accordance with the current version of the antibiotic formulary. This is also guided by the patient's clinical condition and/or the results of microbiology testing.
 - 5) When a patient is prescribed antibiotics, information about when, how and for how long to take them, as well as potential side effects and a review plan, is discussed with the patient and/or their carer.
 - 6) When a patient is prescribed antibiotics, the reason, drug name, dose, route of administration, intended duration and review plan is documented in the patient's health record.
 - 7) A patient who is treated with broad-spectrum antibiotics has the treatment reviewed and, if indicated, switched to treatment with a narrow-spectrum antibiotic. This is guided by the patient's clinical condition and the results of microbiology tests.
 - 8) If investigations are conducted for a suspected bacterial infection, the responsible clinician reviews these results in a timely manner (within 24 hours of results being available) and antibiotic therapy is adjusted taking into account the patient's clinical condition and investigation results.
 - 9) If a patient having surgery requires prophylactic antibiotics, the prescription is made in accordance with the current antibiotic formulary and takes into consideration the patient's clinical condition.
4. Antibiograms, or cumulative antibiotic susceptibility results that reflect local resistance epidemiology, may be used to guide empiric antimicrobial decision making.
 5. A switch from intravenous (IV) administration to the oral formulation of an antimicrobial is to be made as soon as it is safe to do so and IV to oral switch is to be promoted by pharmacists and clinicians.

Criteria for IV to oral switching:

- When the patient is tolerating oral fluids/food and there is no reason to believe poor oral absorption from the gastrointestinal tract.
 - Temperature is less than 38°C or improving over 24 hours.
 - Signs and symptoms of the infection are improved or resolved.
 - An appropriate oral alternative is available.
6. All patients on antimicrobial agents are to be reviewed at each medical practitioner attendance to consider whether it is clinically appropriate to de-escalate to a narrower spectrum agent, to switch from IV to oral agents, or to cease antimicrobials.
7. Protocols for antibiotic use must be consistent with the most recent version of the antibiotic formulary. This requires access to the current edition of these guidelines by clinical staff (electronic versions or provision of hard copies) and prescriber education programs.
8. Access to specific broad spectrum antimicrobials (antibacterial, antifungal and antiviral agents) should be restricted to prevent overuse and selection of resistant organisms and to mitigate the cost of therapy.

Surgical prophylaxis

Prophylaxis should only be considered in the following scenarios, when either there is a significant risk of infection or when the consequences of infection would be disastrous (e.g. joint replacement surgery):

1. Contaminated surgery – Surgical antimicrobial prophylaxis is strongly recommended when there is a risk of macroscopic soiling of the operative field. Examples include: large bowel resection, biliary or genitourinary tract surgery with infective bile or urine.
2. Clean-contaminated surgery – surgical antimicrobial prophylaxis is recommended where the mucosa is penetrated under controlled conditions without unusual contamination. Examples include laryngectomy, uncomplicated appendectomy, cholecystectomy, transurethral resection of prostate gland.
3. Clean surgery – surgical antimicrobial prophylaxis is only recommended for insertion of a prosthesis or artificial device or for high risk areas such as the central nervous system, eye, aorta or sternum.

Antimicrobial prophylaxis cannot be relied upon to overcome poor surgical technique (e.g. inadequate haemostasis, excessive damage to tissues, inadequate debridement).

The first dose(s) of surgical prophylaxis should be given at a time that ensures adequate plasma and tissue drug levels are achieved at the start of the procedure (i.e. administration of prophylaxis one hour prior to commencement of the operation).

Repeat intra-operative doses are recommended for prolonged procedures of more than three hours or if there is excessive blood loss. "Prophylaxis" continuing for more than twenty four hours postoperatively is unnecessary and potentially dangerous.