ANTIMICROBIAL RESTRICTIONS IN **MEDIUM TO LARGE-SIZED** HOSPITALS

Fact Sheet

The Case for Restricting Antimicrobials in Healthcare

The development of antimicrobial restrictions is considered a core strategy of antimicrobial stewardship (AMS) in Australian hospitals.[1] Effective models of restriction can have a significant impact on prescribing behaviours and improve the appropriateness of prescriptions by creating a 'choice architecture' that is engineered towards more prudent use.[2] Successful implementation of antimicrobial restriction policy has also been associated with significant cost savings and reduced rates of resistance in nosocomial pathogens,[3,4] and often has an immediate and observable impact.[4]

"How can we best monitor the impact of a restriction policy in our large facility?"

In assessing the reliability of restrictive processes, all hospitals should periodically examine the proportion of antimicrobial prescriptions that are compliant with local restriction policy. (See *Indicators for Quality Use of Medicines in Australian Hospitals - Indicator 2.2*, on the NSW Therapeutic Advisory Group website.) Facilities using an electronic approval system need to regularly assess the proportion of restricted orders that are being captured by the software and consider these results when reviewing usage rates. These hospitals may also wish to examine the proportion of requests that are approved, which may direct further investigations and prescriber education.

AMS teams should map new or modified restrictions with expected (and unexpected) effects on consumption of antimicrobial agents or classes. The quality of antimicrobial prescribing may also be altered by restriction policy,[4] and can be assessed by reviewing the appropriateness of individual prescriptions in spot surveys or point prevalence studies. Attempts to establish links between restrictive interventions and patterns of antimicrobial resistance can be more complicated, however relationships have been demonstrated for specific antimicrobials and target pathogens using well-designed investigational methods such as interrupted time series analyses.[4,5]

CONSTRUCTING A LOCAL RESTRICTION POLICY

Before developing or reviewing an antimicrobial restriction policy, each facility must construct a clear picture of available personnel and off-site contacts, their time constraints, existing duties and respective levels of infectious diseases expertise. The committee that oversees AMS needs to consider local capacity to manage restrictions both within and outside of business hours. It may be wise to examine other hospitals, and evaluate what works well (or not so well) in facilities of a comparable size and resource base.

A finalised restriction policy ought to provide information that informs or supports the practical application of restrictions. Out-of-hours access to restricted antimicrobials should be outlined, as should default procedures for when circumstances cause a breakdown of the restriction model (e.g. absence of an approver). Policy documents should also provide clear conflict resolution pathways that have been endorsed at a facility or LHD level.

When making decisions about restricting individual agents, your AMS Committee (or equivalent) should consider the following:

- **What is the rationale for restriction?**
- **What is the most appropriate type of restriction?** (E.g. criteria-based, expert approval, prescriber declaration)
- **Can restriction of this agent be managed with existing AMS resources?**
- **What are the likely gains from this restriction?** (E.g. cost savings, altered local resistance patterns)
- **What are the risks associated with this restriction?** (E.g. impaired access to therapy in life-threatening conditions)
- **Is this agent commonly restricted in other facilities? (And if so, to what extent?)**

For more advice, see the ***List of Recommended Antimicrobial Restrictions*** available on the QUAH website.

MODELS OF ANTIMICROBIAL RESTRICTION

Antimicrobial restriction policy should follow a set framework to organise and understand restrictions. The most successful models of restriction are those designed according to the specific needs and resources of an individual facility, and often involve grouping of antimicrobials into either levels or categories.

Basic Category Model

Category models classify antimicrobial agents into specific groups according to the nature of their restriction. For example, **Category A** may contain agents for which expert approval is mandatory while **Category B** contains agents with pre-approved access for nominated indications or specialties. (**Category C** may list all other antimicrobials.) Some facilities may create categories based on whether or not the decision to prescribe requires an entry in the local electronic approval system, while others may classify agents as simply 'restricted' or 'unrestricted'.

Traffic Light Model

A traffic light model classifies antimicrobials according to a relative degree of restriction. **GREEN** antimicrobials are unrestricted, indicating agents which are appropriate for regular access. **ORANGE** antimicrobials are restricted, prompting the prescriber to 'proceed with caution' as the agent has limitations placed on its use or accessibility. **RED** antimicrobials are highly restricted, indicating that a prescriber must 'stop and review' prior to prescribing, as there are strict limitations or risks that must be addressed.

Medium to large-sized hospitals have higher rates of staff turnover than smaller facilities and require a straightforward model of restriction that is easy to teach and remember. As the workload associated with antimicrobial restrictions tends to increase with facility size, a sustainable model requires resource planning for both compliance monitoring and targeted education and awareness campaigns.

QUAH Quality Use of Antimicrobials in Healthcare

Antimicrobial Restrictions in Medium to Large-Sized Hospitals Fact Sheet
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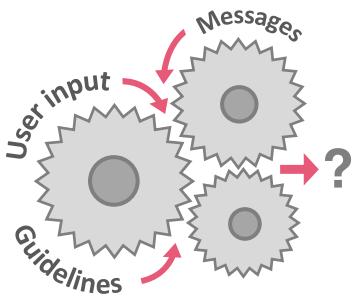
CLINICAL EXCELLENCE COMMISSION

Use of **AMS software** to support antimicrobial restrictions

In large facilities, the workload associated with antimicrobial restrictions and stewardship interventions often becomes a major operational task for AMS teams. This workload can be successfully moderated through the implementation of electronic software to support prescribers and streamline the approval process. Such software should not be considered a standalone solution, but instead a tool that incorporates a range of useful functions to support AMS activities within a facility or LHD.



Clinical Decision Support

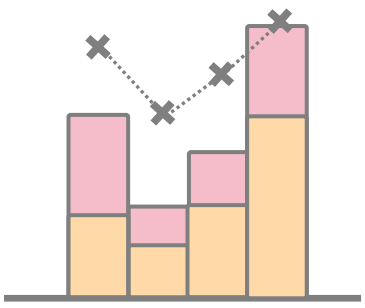
AMS software may offer clinical decision support, often by integrating prescriber requests with access to locally-endorsed therapeutic guidelines. Prompts and key messages may be customised to improve the quality of prescribing, reducing the number of inappropriate prescribing requests before they reach the AMS team.

(Semi-) Automated Approvals

Based on the input of the prescribing clinician, AMS software may have the ability to generate ongoing or temporary approval of a restricted antimicrobial agent when certain criteria are fulfilled. This function saves a considerable amount of time on the part of both prescribers and approvers, and also allows for more convenient tracking of duration-dependent restrictions and expired approvals.

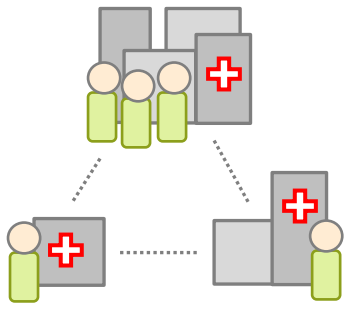
Risk Screening

AMS teams are able to examine current restricted antimicrobial prescriptions within an electronic system and can prioritise rounds based on which patients are most likely to require a review. This may include patients receiving high-risk or high-cost antimicrobials and patients with complicated disease states requiring consultation.



Data Collection

When used effectively, AMS software can collect and store a wealth of data related to both the quantity and quality of antimicrobial prescribing. Facilities should perform regular audits to monitor the proportion of relevant antimicrobial prescriptions that are being captured electronically.



Multi-Site Involvement

AMS software used across multiple sites within a network or local health district can facilitate the shared operation of a core AMS team and may also enable a comparison of data collected at different facilities. Use of an electronic system to integrate restriction policy across multiple sites may be appropriate for those looking to develop an LHD-wide approach to AMS.

"Will having AMS software ensure that our facility meets the National Safety and Quality Health Service Standards?"

The presence or absence of AMS software is not a consistent predictor, nor the key determinant, of whether or not a healthcare facility has an effective AMS program.

Electronic software used to manage antimicrobial restrictions does not represent an all-in-one solution for AMS, but rather a comprehensive and highly functional tool designed to support stewardship activities within the context of an overarching AMS program. While electronic management systems are recommended for large hospitals and tertiary facilities,[6] the extent to which these systems contribute to meeting the relevant standards is entirely dependent on how the system is utilised in practice. In an appropriately resourced facility (or group of facilities), AMS software can streamline day-to-day operations, automate some elements of data collection and ensure allocated time and personnel are used most efficiently. AMS software does have its limitations however, and subsequent gaps in practice need to be recognised and addressed within the wider strategy for enacting and improving AMS at a local level.

For more information on AMS in the context of the National Safety and Quality Health Service Standards, please refer to the *Safety and Quality Implementation Guide Standard 3: Preventing and Controlling Healthcare Associated Infections.*[6]

Getting your prescribers on board…

Prescriber engagement is critical to the successful implementation and maintenance of a restricted antimicrobial formulary. The following actions will assist in developing a cooperative relationship with clinical stakeholders.

1 Provide easy access to information regarding antimicrobial restrictions

Prescribers are more likely to understand and accept restrictions when they have ready access to the relevant policy documents and computer applications. The local restriction policy should be able to be explained easily and succinctly, and the committee that oversees antimicrobial stewardship should be able to offer a rationale for each restriction on request. Lanyard cards containing a quick reference list for restrictions may also be a useful tool for improving prescriber engagement.

2 Offer opportunities for prescriber input and feedback

Prescribers need to be recognised as key stakeholders of a restricted formulary, and as such there should be clear lines of feedback and opportunities for clinician input on existing antimicrobial restrictions. This may be coordinated via the AMS Committee or Drug & Therapeutics Committee.

3 Allocate sufficient resources for prescriber education and training

Prescriber education sessions and workshops should cover how to access information on local restrictions and case tutorials can provide examples which offer insight into prescribing restricted agents. If a facility uses AMS software, ensure that there is a process in place for all clinicians to access training opportunities that are directed to their needs.

4 Use an evidence-based approach, integrating local data where possible

To achieve optimal compliance, prescribers need to believe their local restrictions are evidence-based, achievable and do not compromise patient safety for the sake of financial gain. Where possible, committees should examine a combination of published evidence and local data on antimicrobial usage and appropriateness, particularly when justifying specific restrictions which may be perceived as contentious or unnecessary.

References: Please see the QUAH page on the CEC website for full fact sheet references. (www.cec.health.nsw.gov.au/programs/quah)