Antimicrobial Stewardship Strategy:
Automatic stop orders

Automatically applied stop dates for antimicrobial orders when the duration of therapy is not specified. Can be individualized for specific antimicrobial classes, routes of administration and/or indications.

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Priority Level: **C**

Difficulty Level: **1**

Program Stage:

- ✓ Early
- • Intermediate
- • Advanced

For more information on these criteria and how they were developed, please see the Antimicrobial Stewardship Strategy Criteria Reference Guide.

Description

> **This is an overview and not intended to be an all-inclusive summary. As a general principle, patients must be monitored by the health care team after changes to therapy resulting from recommendations made by the antimicrobial stewardship team.**

With automatic stop orders, stop dates are automatically applied to an antimicrobial order when the duration of therapy is not specified. The goal is to ensure that antimicrobials are continued no longer than necessary. Automatic stop orders encourage reassessment of the duration of therapy based on the patient's response to treatment, and prescriber review of laboratory, microbiology and diagnostic imaging results after the specified length of time.

Automatic stop orders can be individualized for specific antimicrobial classes or routes of administration (e.g., intravenous vs. oral) and/or indications. Typical orders are 5 or 7 days for treatment of infection and 1 or 3 days for prophylaxis, but these may vary depending on the indication and route of administration (e.g., shorter for the intravenous route to facilitate intravenous to oral [IV to PO] conversion).

A clear policy and process are required that outline the criteria for applying an automatic stop order and any exceptions (e.g., febrile neutropenia, endocarditis or prophylaxis).

Ideally, when an antimicrobial order is modified, the original stop date should remain unchanged, but this is difficult to implement in practice.

It is useful if the day of therapy (e.g., "This is day 3 of 7") is displayed prominently in the patient's chart/electronic medical record to remind prescribers and other care providers when therapy needs to be reassessed. This information may also be incorporated into the process of care (i.e., during patient rounds).

Automatic stop orders can also be incorporated into order sets (e.g., to restrict the duration of post-operative prophylaxis).

Automatic stop order policies should allow for adequate notice so that the prescriber can reassess therapy without premature discontinuation of the antimicrobial(s). The process must also ensure the antimicrobial is not discontinued without the prescriber knowing. Approaches for informing prescribers of upcoming stop dates include use of reminders in the electronic medical record, generation of reports, and reminders by the pharmacist or other care providers.

Automatic stop orders are often most effective in the absence of robust clinical pharmacy services, where pharmacists are unable to monitor and ensure the appropriate duration of therapy when antimicrobials are prescribed.

Advantages

- Prevents unnecessarily prolonged therapy (potentially reducing risk of antimicrobial resistance, super-infection, adverse events).
- Reduces drug costs.
- Encourages reassessment of need to change therapy or route of administration.
- May be more useful in smaller hospitals or in the event of pharmacy staffing shortages, where pharmacy clinical services may be limited.

Disadvantages

- Potential for patient harm due to inappropriate and/or inadvertent premature stopping of antimicrobial(s) (often due to missed warnings/notifications).
- Risk of unnecessarily long durations of therapy and associated patient harms. This can occur if the physician automatically reorders the antimicrobial course because they are unfamiliar with the patient, and does not take the time to reassess ongoing need. In addition, changing an antimicrobial during a course of therapy (e.g., IV to PO conversion) may automatically restart the automatic stop order. (To prevent this, a 3-day stop order may be considered for all re-ordered antimicrobials).
- Labour-intensive for nursing and pharmacy to remind physicians about upcoming stop dates.
- No evidence that automatic stop order policies improve rational use of antimicrobials or decrease resistance.

Requirements

- Formal policy and procedure.
- Processes and staff training for notifications/warnings of upcoming stop date and the need for reassessment.

Associated Metrics

- Duration of therapy before and after introducing/eliminating an automatic stop order.
- Monitoring for safety and adverse outcomes related to premature stopping of antimicrobials.

Useful References

> **Select articles to provide supplemental information and insight into the strategy described and/or examples of how the strategy was applied; not a comprehensive reference list. URLs are provided when materials are freely available on the Internet.**

- Durbin WA Jr, Lapidas B, Goldmann DA. Improved antibiotic usage following introduction of a novel prescription system. JAMA. 1981;246(16):1796–800.

  Introduction of an antibiotic order form that required physicians to select the rationale for the prescription as either prophylaxis, empiric or therapeutic, along with a corresponding automatic stop date of 2 days, 3 days or 7 days, respectively.

  Mean duration of prophylaxis was decreased in the 2 months post-intervention.

- Lakhani A, McKenna S. Should automatic stop-orders policies be used in hospitals to promote rational use of antibiotics? Can J Hosp Pharm. 2008;61(1):60–62. Available from: http://www.cjhp-online.ca/index.php/cjhp/article/viewFile/13/12

  Pro and con debate on the use of automatic-stop policies.

- Do J, Walker SA, Walker SE, Cornish W, Simor AE. Audit of antibiotic duration of therapy, appropriateness and outcome in patients with nosocomial pneumonia following the removal of an automatic stop-date policy. Eur J Clin Microbiol Infect Dis. 2012;31(8):1819–31. Erratum in: Eur J Clin Microbiol Infect Dis. 2013;32(2):299.

  A retrospective chart review showed no significant difference in the duration of antibiotic therapy for nosocomial pneumonia after the hospital's automatic stop date policy was revoked. There was also no difference in incidence of infection-related mortality, resistant bacteria, superinfection or relapse rates.

- Engels DR, Evans GE, McKenna SM. Effect on duration of antimicrobial therapy of removing and re-establishing an automatic stop date policy. Can J Hosp Pharm. 2004;57(4):214–9.

  An increase in the duration of antimicrobial therapy was seen after the removal of a 7-day automatic stop order at a Canadian teaching hospital.

  Reintroduction of a 5-day automatic stop order led to a decrease in duration of therapy, but antimicrobial duration was still higher than the baseline when the 7-day automatic stop order was in effect.

- Gomez MI, Acosta-Gnass SI, Mosqueda-Barboza L, Basualdo JA. Reduction in surgical antibiotic prophylaxis expenditure and the rate of surgical site infection by means of a protocol that controls the use of prophylaxis. Infect Control Hosp Epidemiol. 2006;27(12):1358–65.

Samples/Examples

- Example 1: Markham Stouffville Hospital Corporation - Automatic Stop Orders Policy

- Example 2: Lakeridge Health - Automatic Stop Order (Medications) Policy and Procedures

These documents have been generously shared by various health care institutions to help others develop and build their antimicrobial stewardship programs. We recommend crediting an institution when adopting a specific tool/form/pathway in its original form.

Examples that contain clinical or therapeutic recommendations may not necessarily be consistent with published guidelines, or be appropriate or directly applicable to other institutions. All examples should be considered in the context of the institution's population, setting and local antibiogram.

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Links with Other Strategies

- Intravenous to oral conversion
- Surgical antibiotic prophylaxis optimization

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For further information

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Example 1: Markham Stouffville Hospital Corporation - Automatic Stop Orders Policy

MARKHAM STOUFFVILLE HOSPITAL CORPORATION

INTERDISCIPLINARY MANUAL

AUTHOR:	Manager, Pharmacy	**FOLDER:**	Medication Orders
APPROVED BY:	MAC	**REVIEW FREQUENCY:**	3 years
RESPONSIBILITY:	Director, Pharmacy	**ORIGINAL APPROVAL DATE:**	07/02/90
		REVISED/REVIEWED DATE:	R 14/05/09

300.914.916.015 AUTOMATIC STOP ORDERS

POLICY:

The purpose of the policy is to balance the need to safe guard patients from unnecessary and prolonged administration of medications while ensuring that orders are reassessed at appropriate intervals. The Automatic Stop Order (ASO) policy assigns a limited duration to certain medications unless **a specific duration is ordered by the prescriber.** This policy does NOT imply that the ASO period is a full course of treatment.

EXPECTED OUTCOME:

Medications with automatic stop dates will be reviewed within the ASO time period. Medications that are needed beyond the automatic stop date should be reassessed and reordered.

PROCEDURE/GUIDELINE:

1. ASO durations apply to the following medications that **do not state the duration of therapy in the original order**:

   - Injectable Narcotics – used for acute pain management
     *-all will get a **seven (7) day** stop date unless reassessed and re-ordered. Consideration must be given for a change to oral therapy where possible.*

   - Ketorolac (Toradol) – NSAID used for acute pain management
     *-all will get a **five (5) day** stop date unless reassessed and re-ordered.*

   - PCA Orders – *all will get a **two (2) day** stop date unless reassessed and re-ordered*

   - Antimicrobials – oral, injectable, topical and ophthalmic (exceptions: see point #2 below)
     *-all will get a **seven (7) day** stop date unless reassessed and re-ordered. Consideration must be given for a change to oral therapy as soon as possible.*

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2. Prescribers may override the ASO if a specified duration is stated in a subsequent medication order. (e.g. continue metronidazole for 10 days)

3. As part of antimicrobial stewardship, pharmacists have the authority to extend the automatic stop dates of antimicrobials for specified treatment and prophylaxis indications. Antimicrobials used for prophylaxis indications will be monitored and reassessed by pharmacists on an as needed basis. Antimicrobials used for treatment indications may be extended in intervals of up to the durations listed below and must be reassessed and reordered at that time.

   Prophylaxis Indications
   - Pneumocystis carinii pneumonia (PCP)
   - Spontaneous bacterial peritonitis (SBP)
   - Herpes simplex
   - Uncomplicated urinary tract infections (UTI)

   Treatment Indications and Automatic Stop Dates for Reassessment
   - bone/joint infection: 30 days
   - candidemia: 14 days
   - *clostridium difficile*-associated diarrhea (CDAD): 14 days
   - endocarditis: 30 days
   - febrile neutropenia: 30 days
   - hepatitis, chronic: 30 days
   - HIV: 30 days
   - prostatitis: 14 days
   - staphylococcus aureus bacteremia: 14 days
   - tuberculosis: 30 days
   - Other severe infection discussed with physician: 14 days

4. Orders for indefinite time period are not permitted (i.e. duration of stay, until further notice, till Discharge).

5. In cases where duration of therapy is unclear, the pharmacist or nurse will contact the patient's physician prior to the stop date as a reminder that the medication stop date is approaching and to reorder the medication if it is to be continued.

6. The physician may reorder the medication with a written, verbal or telephone order.

7. The physician is responsible for reordering automatically stopped medications. All reorders must specify the drug. Non-specific orders such as "continue medications" are unacceptable.

Example 2: Lakeridge Health - Automatic Stop Order (Medications) Policy and Procedures

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<tr>
<td rowspan="6">LAKERIDGE HEALTH</td>
<td colspan="2">Automatic Stop Order (Medications) Policy and Procedures</td>
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<td>Manual: Clinical</td>
<td>Document No.: A-300</td>
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<td>Section: Medications</td>
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<tr>
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<td>Revision Date:
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September 27, 2011
May 28, 2013</td>
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<td>Review Date:
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Introduction

The major goals of an Automatic Stop Order (ASO) policy include the following:

1. reassessment of a patient's clinical condition and response to drug therapy,
2. the review of the response to therapy based on laboratory, microbiology or diagnostic imaging reports
3. reassessment of the need for continuation, change or discontinuation of therapy
4. to encourage safe and rational drug use by preventing unreasonable and prolonged use of drugs

Policy

Medications governed by the Automatic Stop Order policy will be discontinued when the defined duration has elapsed.

If a specific time period is stated in the order (e.g. "for 14 days") the medication order will be authorized for that duration.

Medications governed by the Automatic Stop Order policy will receive an extended duration only when individually reordered.

Lakeridge Health   Page 1 of 2

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Example 2: Lakeridge Health - Automatic Stop Order (Medications) Policy and Procedures (continued)

Procedures

1. Upon receipt of a medication order for a medication listed in Table 1, the indicated or ordered Stop Date will be transcribed to the Medication Administration Record. Medication orders should include the indication and desired duration to prevent unintended discontinuation.

2. Pharmacy Services will enter the appropriate Stop Date in the computerized medication profile.

3. When the indicated Stop Date approaches, the prescriber is responsible for reassessing the order and either reordering the medication or ordering that the Stop Date is acceptable and that the medication may be discontinued. If the prescriber does not write either order, the medication will be discontinued as of the indicated Stop Date.

4. To assist with this reassessment, an Expired Rx List will be printed in each patient care area 24 hours prior to the Stop Date. This list will indicate only those drugs governed by this policy that have been entered in Meditech by Pharmacy with a Stop Date and Time (as opposed to a defined number of doses) that will be expiring within the next 24 to 72 hours. Additional medications that have been ordered with a duration will also appear on the list. This list can be used by each patient care area to alert the MRP of the need to reassess these medications.

5. Medication orders simply continued on a Medication and Treatment Review Form that do not indicate an extended duration and medication orders that change only the dose, route or frequency of a medication will be not be interpreted as a reorder and will only be continued until the original Stop Date is reached.

Table 1: Medications Governed by the Automatic Stop Order Policy

Medication Name/Class	Duration of Therapy	
	Acute Care	PASS Program
Sedatives/Hypnotics	14 days	30 days
Anti-infectives – Systemic	7 days	7 days
Anti-infectives - Topical	7 days	30 days
Ketorolac – Oral	5 days	5 days
Ketorolac – Parenteral	2 days	2 days
Methadone	60 days	60 days
Meperidine	2 days	2 days
Pantoprazole - Parenteral	3 days	3 days
Warfarin	7 days	7 days or until next INR

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