SA Health

IV to Oral Switch Clinical Guideline for Adult Patients: Can Antimicrobials S.T.O.P.?

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SA Health

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Disclaimer

This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion, with consideration to antibiotic resistance epidemiology in South Australia. In facilities where the prevalence of multi-resistant organisms may differ, local hospital guidelines may take precedence. Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation. If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom and detailed reasons for the departure from the guideline.

This state-wide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for:

- Discussing care with consumers in an environment that is culturally appropriate, and which enables respectful confidential discussion. This includes the use of interpreter services where necessary
- Advising consumers of their choice and ensure informed consent is obtained
- Providing care within scope of practice, meeting all legislative requirements, and maintaining standards of professional conduct
- Documenting all care in accordance with mandatory and local requirements.

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1. Background

Choosing intravenous or oral antimicrobial therapy?

Many infections can be managed appropriately with oral antimicrobials. Oral therapy is usually associated with less serious adverse effects and avoids complications that can be seen with intravenous (IV) therapy (e.g., cannula-related infections, thrombophlebitis).[1] Oral antimicrobials are typically less expensive and are not associated with the equipment and administration costs accompanying IV therapy.

To manage serious infections in hospital, most clinicians use IV antimicrobials initially to ensure an optimal concentration of antimicrobial at the site of infection. IV therapy may also be required if patients are unable to tolerate oral medication (e.g., swallowing difficulties), or gastrointestinal absorption is likely to be reduced (e.g., vomiting, gastrointestinal pathology).

Why switch from IV to oral antimicrobial therapy?

Inappropriate antimicrobial use is recognised as a key driver of antimicrobial resistance (AMR). Unnecessarily prolonged courses of IV antimicrobials are also associated with increased length of hospital stay, increased costs (i.e., equipment and health professional expertise to administer IV agents), and the increased morbidity and mortality associated with IV line infections.[2-7] To optimise antimicrobial use, a switch from IV to oral therapy as soon as possible is recommended.

When to switch

The optimal time to consider switching a patient to oral therapy is after 2 to 4 days of IV therapy. This period of time allows the clinician to evaluate the patient's microbiology results and assess their response to treatment. A large number of clinical trials support the early switching to oral antimicrobials after this period of time with equal treatment efficacy and no adverse effects on patient outcome.[3,8-10]

The flow chart in this guideline aids the clinician in deciding if it is safe to switch a patient to oral antimicrobials. A patient must meet several criteria prior to switching:

- Display signs of clinical improvement (Box 1)
- Able to tolerate oral therapy (Box 2)
- Not have a condition in which higher concentrations of antimicrobial are required in the tissue or a prolonged course of IV therapy is essential (Box 4)

There are a number of conditions in which a **switch to oral therapy should be considered** including:

- Pneumonia
- Skin and soft tissue infections
- Urinary tract infections
- Uncomplicated Gram-negative bacteraemia
- Intra-abdominal infection without deep seated collections

A consultation with the Infectious Diseases team or a clinical microbiologist can provide guidance regarding the suitability of switch to oral therapy and the appropriate agent. The table in Box 3 also provides a guide for selection of the appropriate oral agent. It is important that the clinician reviews any microbiology results available prior to the change.

When selecting an antimicrobial it is recommended that the clinician follow the antimicrobial creed of MINDME:[1]

M	Microbiology guides therapy wherever 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
E	Ensure monotherapy in most cases

2. Definitions and acronyms

AMR	Antimicrobial resistance
BD	Twice daily
CRP	C-reactive protein
ID	Infectious diseases
IV	Intravenous
QID	Four times daily
TDS	Three times daily
WCC	White cell count

3. Safety, quality and risk management

National Safety and Quality Health Service Standards

Clinical Governance	Partnering with Consumers	Preventing and Controlling Infections	Medication Safety	Comprehensive Care	Communicating for Safety	Blood Management	Recognising and Responding to Acute Deterioration
☐	☐	☒	☒	☐	☐	☐	☐

The following actions of the relevant standards are applicable:

Standard 3 – Preventing and Controlling Infections

- Actions 3.18, 3.19: Antimicrobial stewardship – The health service organisation has systems for the safe and appropriate prescribing and use of antimicrobials as part of an antimicrobial stewardship program.

Standard 4 – Medication Safety

- Action 4.01: Integrating clinical governance – Clinicians use the safety and quality systems from the Clinical Governance Standard when implementing policies and procedures for medication management, managing risks associated with medication management, and identifying training requirements for medication management.

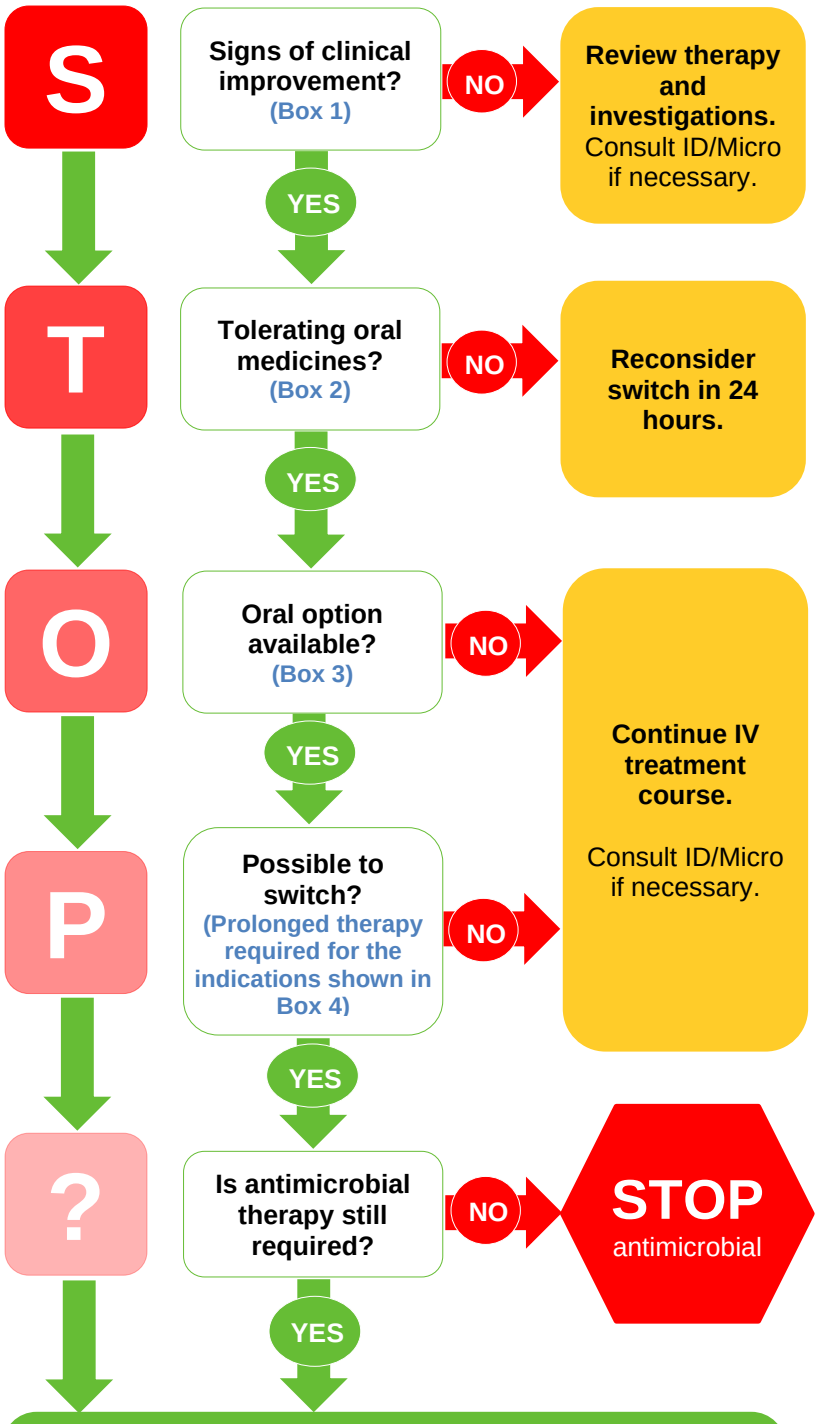
4. Principles of the standard

National standard 3, *Preventing and Controlling Infections,* aims to reduce the risk to patients, consumers, and members of the workforce of acquiring preventable infections; effectively manage infections, if they occur; prevent and contain antimicrobial resistance; promote appropriate prescribing and use of antimicrobials as part of antimicrobial stewardship; and promote appropriate and sustainable use of infection prevention and control resources.

National standard 4, *Medication Safety,* aims to ensure clinicians are competent to safely prescribe, dispense and administer appropriate medicines and to monitor medicine use. To ensure consumers are informed about medicines and understand their individual medicine needs and risk.

5. Pathway / protocol

Patients who have negative blood cultures and have received ≥ 48 hours of IV therapy may be eligible to STOP or switch to oral therapy
Use this guideline to select appropriate patients – important exclusions apply (see Box 4)



SWITCH to oral therapy (see Box 3)
(Contact Infectious Diseases, Clinical Microbiology, or Clinical Pharmacy for advice)
Local contact number: _____

Box 1

Signs of clinical improvement (must meet ALL criteria)

- Afebrile (temp > 36°C and < 38°C for past 48 hours)
- CRP trending down
- Stable immune response (WCC > 4 and < 12 x 10^9 cells/L or trending towards normal range
- No unexplained tachycardia
- No unexplained hypotension
- No tachypnoea

Box 2

Tolerating oral medicines (must meet ALL criteria)

- Patient is not nil by mouth and there is no concern for aspiration (e.g., impaired consciousness)
- Patient is tolerating oral food or enteral feeding*
- Oral absorption is not compromised (e.g., diarrhoea, vomiting, malabsorptive disorder, recent GI surgery, colostomy, swallowing disorder)

**Enteral feeding: consult pharmacy for advice on suitable formulation and administration method*

Box 3

Common oral antimicrobial options

Use the following guide to select appropriate oral therapy. Refer to relevant antimicrobial guidelines where available for preferred oral options for specific indications, e.g., community acquired pneumonia.
Note: Doses provided are for normal renal function – refer to the *Australian Medicines Handbook* or the *Therapeutic Guidelines: Antibiotic* for dosing in renal impairment.

Current IV therapy	Oral option (adult doses)
Amoxicillin 500mg – 1g TDS	Amoxicillin 500mg – 1g TDS
Amoxicillin with clavulanic acid 1.2g TDS	Amoxicillin 875mg with clavulanic acid 125mg BD
Benzylpenicillin 600mg – 1.2g QID	Amoxicillin 500mg – 1g TDS
Ceftriaxone 1g – 2g DAILY	Amoxicillin 875mg with clavulanic acid 125mg BD^
Cefazolin 1g – 2g TDS	Cefalexin 500mg – 1g QID
Ciprofloxacin 200mg – 400mg BD	Ciprofloxacin 500mg – 750mg BD
Clindamycin 600mg TDS	Clindamycin 150mg – 450mg TDS
Flucloxacillin 1g – 2g QID	Di / flucloxacillin 500mg – 1g QID
Metronidazole 500mg BD	Metronidazole 400mg BD or TDS
Piperacillin with tazobactam 4.5g TDS or QID	Amoxicillin 875mg with clavulanic acid 125mg BD **Pseudomonas:** seek advice from Clinical Microbiology or Infectious Diseases
Amoxicillin + gentamicin ± metronidazole	Amoxicillin 875mg with clavulanic acid 125mg BD or 500mg/125mg BD or TDS
Cefepime, gentamicin, meropenem, vancomycin	Seek advice from Clinical Microbiology or Infectious Diseases
The following IV drugs have equivalent oral doses: azithromycin, linezolid, fluconazole, trimethoprim/sulfamethoxazole	
^Consider patient allergy status when converting to a penicillin	

Box 4

Prolonged parenteral therapy IS required for the following indications

- Deep-seated infection e.g., abscess/empyema
- Meningitis or encephalitis
- Necrotising soft tissue infection
- Infected implant or prostheses
- *Staphylococcus aureus* bacteraemia
- Osteomyelitis
- Septic arthritis
- Endocarditis

6. References

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7. Document ownership

Clinical Guideline owner: The South Australian expert Advisory Group on Antimicrobial Resistance (SAAGAR)

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8. Document history

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