

IV to Oral Switch Clinical Guideline for adult patients: Can antibiotics S.T.O.P.

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Disclaimer

This guideline provides advice of a general nature. 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.

Information in this statewide guideline is current at the time of publication.

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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 statewide 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 and
- Documenting all care in accordance with mandatory and local requirements.

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Background

Why Switch From Intravenous to Oral Antibiotic Therapy?

To manage serious infections in hospital most clinicians use intravenous (IV) antibiotics initially to ensure an optimal concentration of antibiotic at the site of infection. Inappropriate antibiotic use is recognised as a key driver of antimicrobial resistance. Unnecessarily prolonged courses of IV antibiotics are also associated with increased length of hospital stay, increased costs of nursing, pharmacy and medical time in the insertion of IV lines, preparation, dispensing and administration of IV agents and the increased morbidity and mortality associated with IV line infections [1-3].

To optimise antibiotic use, a switch from IV antibiotics to oral therapy in the appropriate patient has a number of advantages. These include a shorter length of hospital stay with the associated reduction in morbidity and mortality, a reduction in staff workload and a reduction in antibiotic costs [1, 4-6].

When to Switch

The optimal time to consider switching a patient to oral therapy is after 2 to 4 days of intravenous 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 antibiotics after this period of time with equal treatment efficacy and no adverse effects on patient outcome [2, 3, 7].

The flow chart in this guideline aids the clinician in deciding if it is safe to switch a patient to oral antibiotics. A patient must meet a number of 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 antibiotic 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 at SA Pathology 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 antibiotic it is recommended that the clinician follow the antimicrobial creed of MINDME [8]:

- | | |
|----------|--|
| M | Microbiology guides therapy wherever possible |
| I | Indications should be evidenced based |
| N | Narrowest spectrum therapy required |
| D | Dosage individualised to the patient and appropriate to the site and type of infection |
| M | Minimise duration of therapy |
| E | Ensure oral therapy is used when clinically appropriate |

Definitions and acronyms

bd	Twice daily
CRP	C-reactive protein
IV	Intravenously
qid	Four times daily
tds	Three times daily
WBC	White blood cells

Standards

The following National Safety and Quality Health Service Standard (NSQHSS) standards apply:

Standard 3 – Preventing & Controlling Healthcare Associated Infections

- > Criterion 3.14 – Developing, implementing and regularly reviewing the effectiveness of the antimicrobial stewardship system.

Standard 4 – Medication Safety

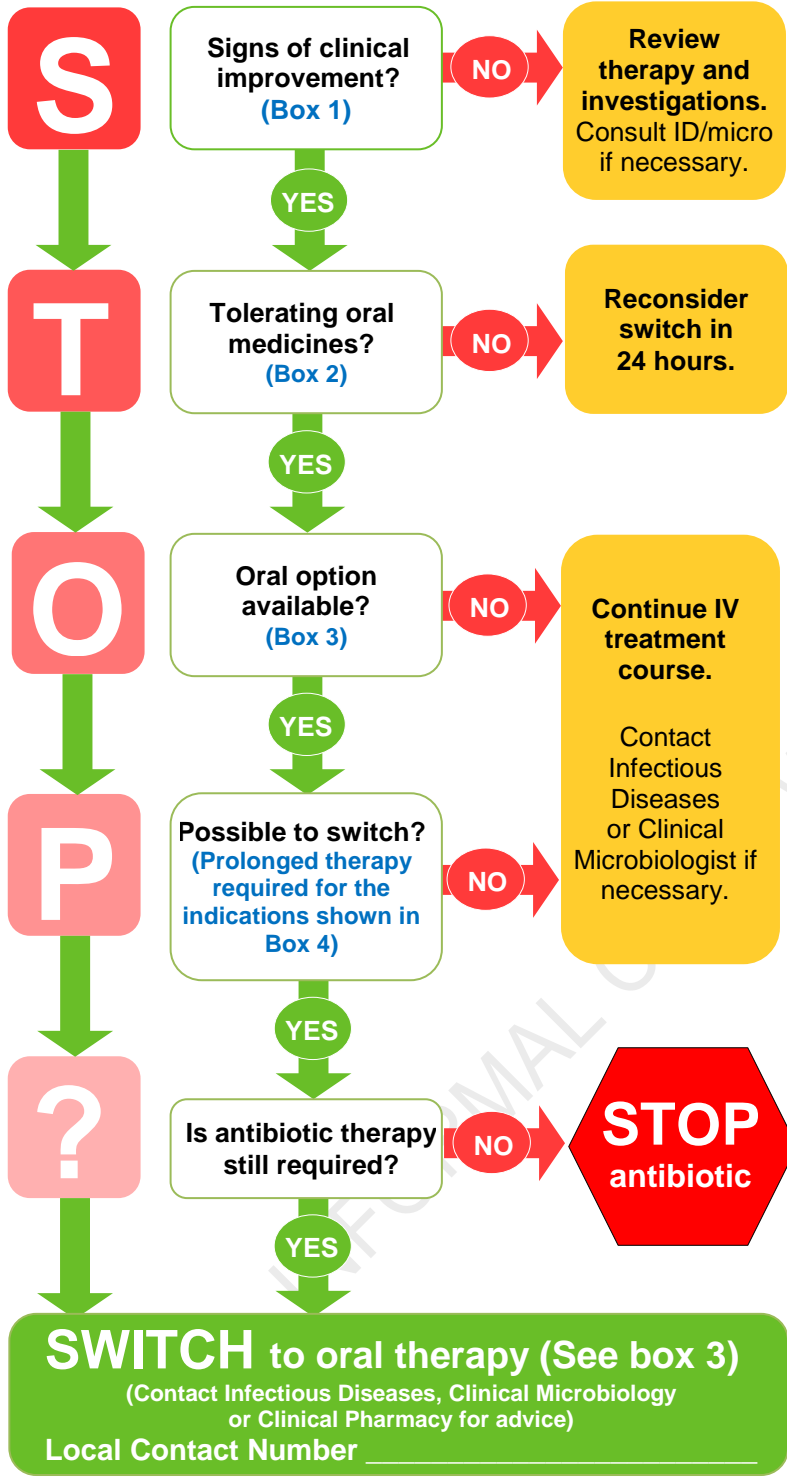
- > Criterion 4.1 – Developing and implementing governance arrangements and organisational policies, procedures and/or protocols for medication safety, which are consistent with national and jurisdictional legislative requirements, policies and guidelines.

Principles of the standards

Standard 3 aims to prevent patients from acquiring preventable healthcare associated infections and effectively manage infections when they occur by using evidence-based strategies that are based on the risk to both patients and staff.

Standard 4 aims to ensure competent clinician safely prescribe, dispense and administer appropriate medicines to informed patients and carers.

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).



Box 1
Signs of clinical improvement

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

Box 2
Tolerating oral medicines

- > Patient is not nil by mouth
- > Patient is tolerating oral food or enteral feeding *
- > Oral absorption is not compromised (e.g. diarrhoea, vomiting, malabsorptive disorder, unconscious, swallowing disorder)

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

Box 3
Common oral antibiotic options

Use the following guide to select appropriate oral therapy
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 dose)
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
Amoxycillin + gentamicin \pm metronidazole	Amoxycillin 875mg with clavulanic acid 125mg bd or 500/125mg 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

References

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Endorsed by South Australian expert Advisory Group on Antimicrobial Resistance (SAAGAR) May 2014, Last reviewed and amended August 2017.

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 Does this guideline replace another guideline with a different title? **N**
 If so, which policy (title)?

Approval Date	Version	Who approved New/Revised Version	Reason for Change
17/03/2015	V1	Safety & Quality Strategic Governance Committee	Original approved version.
23/10/2017	V1.1	Executive Director, Quality, Information and Performance	Minor revision & inserted into new template