



Ministry of Health
Brunei Darussalam

NATIONAL BEST PRACTICE GUIDANCE FOR GOOD ANTIBIOTIC PRESCRIBING PRACTICE (GAPP)



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1.0 Objective

- 1.1 To provide standardised guidance on best practice for good antibiotic prescribing.

2.0 Scope

- 2.1 This document is applicable to all prescribers of antimicrobials in Brunei Darussalam.

3.0 Background

- 3.1 Antimicrobial resistance is a worldwide phenomenon that is a threat to public health. Whilst there is a new infectious disease that is discovered nearly every year for the last 30 years, development of new antibiotics have not been able to match this pace. Known diseases and infections that evolve to become more resistant to existing drugs is present even locally. Encouraging development of new antibiotics is needed, and what prescribers on the ground can collectively do is to preserve effectiveness of current antibiotics active against current infections by practicing the judicious use of this precious resource.
- 3.2 Judicious use of antibiotics is part of antibiotic stewardship, which is a set of activities and interventions that aim to improve treatment of infections and also reduce the adverse outcomes from overuse or misuse of antibiotics. Such adverse outcomes include the alarming rise in antibiotic resistance rates and adverse drug reactions (e.g. allergy).
- 3.3 Good antibiotic prescribing practice (GAPP) is one of the strategies in antibiotic stewardship. This in part shares the principles of WHO's systematic approach to good prescribing practice in general, which can help minimize poor-quality and erroneous prescribing.

3.4 The WHO six-step approach to prescribing suggests that the physician should:

3.4.1 Evaluate and clearly define the patient's problem.

3.4.2 Specify the therapeutic objective.

3.4.3 Select the appropriate drug therapy.

3.4.4 Initiate therapy with appropriate details and consider non-pharmacologic therapies.

3.4.5 Give information, instructions, and warnings.

3.4.6 Evaluate therapy regularly (e.g., monitor treatment results, consider discontinuation of the drug).

4.0 Policy

4.1 All prescribers should practise the procedures and principles outlined whenever prescribing antibiotics.

5.0 References

5.1 Guide to Good Prescribing- A Practical Manual. WHO Publications, 1994. <https://apps.who.int/medicinedocs/pdf/whozip23e/whozip23e.pdf> - accessed 15th August 2019.

5.2 Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use. Nice Guidelines. August 2015. <https://www.nice.org.uk/guidance/ng15> - accessed 3rd August 2019.

5.3 Sevinc F et al. Early Switch from Intravenous to Oral Antibiotics: Guidelines and Implementation in a Large Teaching Hospital. *Journal of Antimicrobial Chemotherapy* 1999; 43: 601-606

6.0 Definitions

- 6.1 **Antibiotic stewardship:** A healthcare facility-based set of activities and interventions that aim to promote and monitor the judicious use of antibiotics to preserve their future effectiveness.
- 6.2 **Antimicrobial resistance:** Loss of effectiveness of any anti-infective medicine. Including antibacterial, antiviral, antifungal and antiparasitic medicine.
- 6.3 **Antimicrobials and antimicrobial medicines:** Includes all anti-infective therapies (antiviral, antifungal, antibacterial and antiparasitic medicines) and all formulations (topical, intravenous and oral agents).
- 6.4 **Antibiotics:** Used interchangeably with antimicrobials.
- 6.5 **Prescriber:** Any healthcare practitioner who is authorized to prescribe medications.

7.0 Procedure

7.1 Prescribing of Antimicrobials - General Points

- 7.1.1 When prescribing antimicrobials, prescribers should follow the latest local or national guidelines where available.
- 7.1.2 Choose narrow-spectrum antimicrobials appropriately, as unnecessary use of broad-spectrum agents can cause harm by:
 - 7.1.2.1 Causing collateral damage by killing off non-pathogenic local flora that act as part of the host defense by competing for nutrients and secretion of antibiotic secretions;
 - 7.1.2.2 Applying selection pressure to colonizing bacteria, increasing the risk of a patient being colonized with resistant strains which may later lead to true infections, which are unresponsive to first –line antimicrobials.

- 7.1.3 However, the following are specific circumstances in which broad-spectrum antibiotics should be strongly considered:
- 7.1.3.1 For patients with life-threatening infections or severe sepsis;
 - 7.1.3.2 For immunosuppressed patients;
 - 7.1.3.3 For patients recently exposed to antimicrobials or failed first line therapy with more narrow spectrum agents;
 - 7.1.3.4 For patients who are at risk of infection with resistant microorganisms due to recent contact with healthcare OR have had a history of infection with resistant microorganisms in the last 12 months; and/or
 - 7.1.3.5 For patients with a laboratory- confirmed resistant organism.
- 7.1.4 When deciding on whether or not to prescribe an antimicrobial, the prescriber should take into account:
- 7.1.4.1 The severity of the infection;
 - 7.1.4.2 The host (immunocompetent vs immunocompromised);
 - 7.1.4.3 The risk of antimicrobial resistance for individual patients and the population as a whole; and
 - 7.1.4.4 The importance of a clinical assessment assessing the above and documenting the diagnosis, which will determine need for antimicrobial therapy.
- 7.1.5 For patients in hospital with suspected infections, appropriate microbiological samples should be taken before prescribing an antimicrobial. It is important to note that such sampling should not delay timely antibiotic administration especially in sick patients.
- 7.1.6 Prescribers should counsel patients and their family/carers regarding:
- 7.1.6.1 The nature of their condition.
 - 7.1.6.2 Whether antibiotics are necessary or not.
 - 7.1.6.3 If antimicrobials are not necessary during that assessment, then to explain why (e.g. viral infection) and offer alternative options (e.g. symptomatic treatment, drainage of site of infection).

- 7.1.6.4 Safety-net advice: what they should do if their condition deteriorates or if they face problems during their treatment.
- 7.1.6.5 If antimicrobials are necessary, to explain the following:
- 7.1.6.5.1 Indication for treatment.
 - 7.1.6.5.2 Counsel about potential side effects and what to do if they occur (e.g. to stop the antimicrobial immediately and seek medical attention promptly if develops breathing difficulty and facial swelling immediately after first dose of antimicrobial).
 - 7.1.6.5.3 Importance of adherence to the treatment as prescribed and completion of therapy.
- 7.1.6.6 Consider giving additional written information if relevant, or if requested by the patient. This may aid in better adherence to antibiotic treatment.
- 7.1.6.7 Documentation of the decision to prescribe antimicrobials should be made clearly in the notes and include:
- 7.1.6.7.1 The indication being treated.
 - 7.1.6.7.2 The dose (optimized to ensure penetration into the site of infection or type of infection, e.g. high dose ceftriaxone for meningitis, high dose ceftazidime for suspected/confirmed *Burkholderia pseudomallei* infections).
 - 7.1.6.7.3 The route of administration.
 - 7.1.6.7.4 The duration of treatment.
- 7.1.6.8 When a decision to prescribe an antimicrobial has been made, the prescriber should take into account the benefits and potential harm associated with the particular antimicrobial, including:
- 7.1.6.8.1 Drug allergies and intolerances.
 - 7.1.6.8.2 Possible interactions with other medicines.
 - 7.1.6.8.3 Effect of timing of food and drink on the antimicrobial.
 - 7.1.6.8.4 Other co-morbidities, e.g. renal or hepatic impairment and need for dose adjustment.

7.1.6.8.5 The risk of selection for organisms causing hospital acquired infections.

7.1.6.8.6 Ensure that for select antimicrobials (e.g. aminoglycosides and vancomycin), that levels are monitored to minimize toxicity and ensure optimal therapeutic serum levels are attained.

7.1.7 Where the prescriber is prescribing outside of local guidelines, it would be ideal to document the reasons for the choice.

7.1.8 Where relevant, consider consultation for surgical intervention for optimal control of infection. This is beneficial for the following reasons:

7.1.8.1 Source control to reduce the infective load (e.g. drainage of an abscess).

7.1.8.2 Allows better penetration of antibiotics to the site of infection.

7.1.9 Surgical prophylaxis should not be prescribed beyond 24 hours for the majority of surgical procedures. Exception to this would be discovery of established infection during surgery in which case, it would necessitate conversion of antimicrobial prophylaxis into a treatment course.

7.2 Prescribing Antimicrobials in Intravenous Form

7.2.1 For a patient who needs empirical intravenous antimicrobial for a suspected infection, to prescribe an intravenous antimicrobial guideline from the hospital formulary and in line with established latest guidelines.

7.2.2 Oral route of administration for antibiotics is preferred over intravenous where possible. Intravenous therapy exposes patients to risks of intravenous line-related complications, such as bacteremia and thrombophlebitis and has been shown to delay discharge from hospital.

7.2.3 The following circumstances are examples in which intravenous antimicrobial therapy should be strongly considered:

7.2.3.1 Patients strictly nil by mouth.

7.2.3.2 Patients unable to absorb oral antimicrobials (e.g. due to a non-functional GI tract or malabsorption).

7.2.3.3 Patients with bacteraemias.

7.2.3.4 Patients with serious deep-seated infections where intravenous therapy is crucial to ensure adequate drug levels at the site of infection. Examples include: meningitis, intracranial abscess, liver abscess, endocarditis, severe skin and soft tissue infections, osteomyelitis, septic arthritis, mediastinitis, empyema, infections involving prostheses/foreign bodies.

7.2.4 To practise antibiotic “time-out”, where the intravenous antibiotic is reviewed at 48 - 72 hours. This is a form of appropriateness review of the intravenous antibiotic. Review of the patient’s clinical progress, any available microbiology results and relevant inflammatory markers (where relevant) will determine:

7.2.4.1 Whether or not the antibiotic needs to be continued.

7.2.4.2 If the antibiotic is to be continued, then to:

7.2.4.2.1 Refine or de-escalate antibiotic choice to be culture-directed, i.e. according to culture results, where available;

7.2.4.2.2 Assess for appropriateness of intravenous to oral switch;

7.2.4.2.3 State the final duration of treatment, if relevant.

7.3 Consider intravenous to oral switch if all the criteria are fulfilled:

7.3.1 Completed 48-72 hours of intravenous therapy.

7.3.2 Condition of the patient is improving.

7.3.3 Haemodynamically stable.

7.3.4 Trend towards normalisation of body temperature and inflammatory markers (leucocyte count).

7.3.5 Able to tolerate oral medication and appropriate oral antimicrobial option is available.

7.3.6 Functioning gastrointestinal tract without signs of malabsorption.

7.3.7 No serious deep-seated infection.

7.3.8 Treatment for liver abscesses, other adequately drained abscesses and empyemas, osteomyelitis and septic arthritis may be changed to oral therapy after at least 2 weeks of intravenous therapy.

8.0 Monitoring

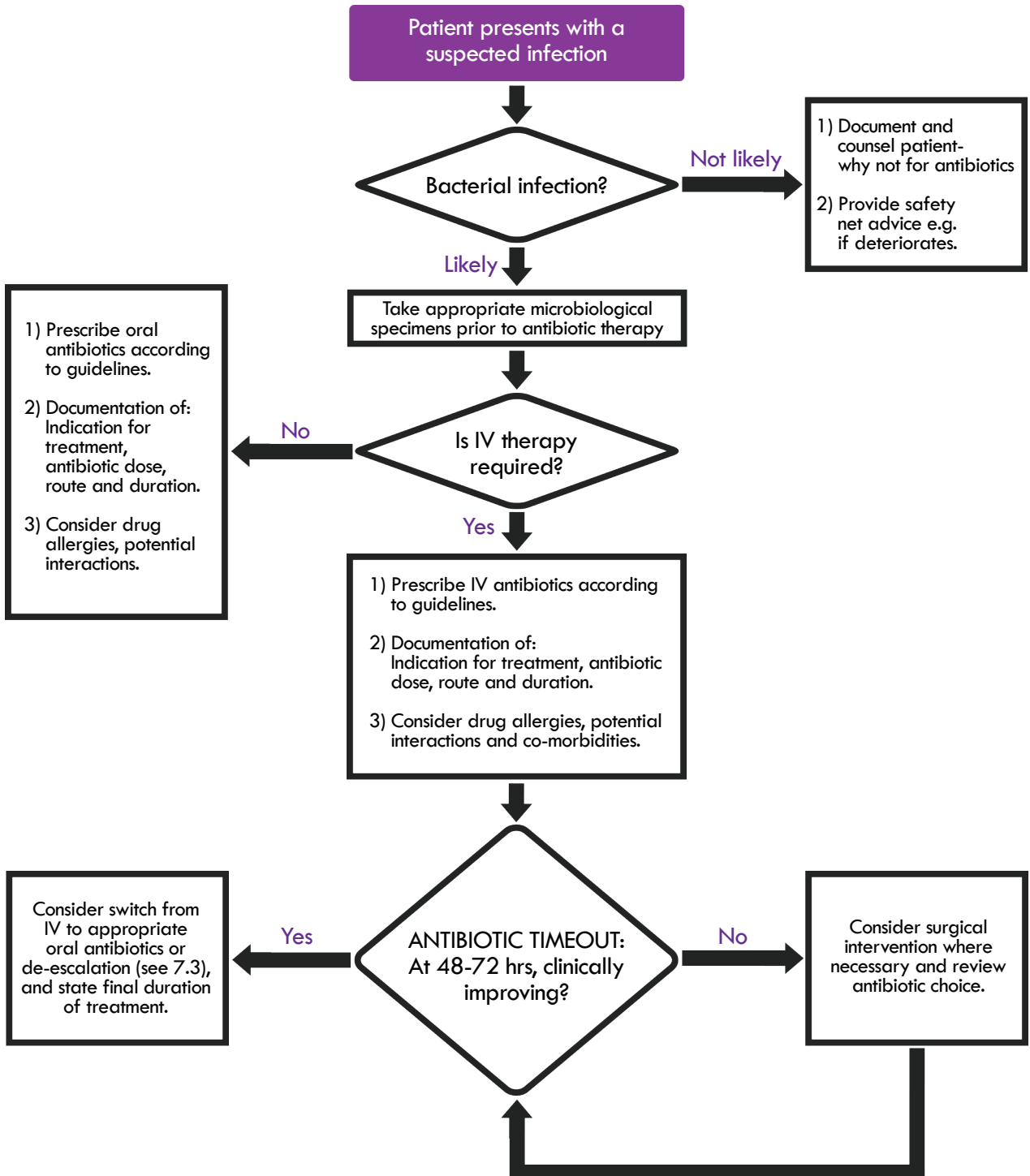
- 8.1 Monitoring for adherence to this document is recommended to facilitate continued best practice in prescribing antibiotics.
- 8.2 Components of the GAPP document which may be considered for audit and monitoring can include:
 - 8.2.1 Antibiotic timeout- e.g. documentation of all the timeout process; rate or percentage of adherence.
 - 8.2.2 Documentation of counseling for select antimicrobials.









9.0 Work Process

- 9.1 Refer to Annex 1 for the Flowchart for commencing antibacterial therapy using principles of good antibiotic prescribing practice.



Annex 1: Flowchart for commencing antibacterial therapy using principles of good antibiotic prescribing practice.



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Notes

