Procedure

Antimicrobial: Prescribing, Management and Stewardship

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Executive sponsor	Executive Director Medical Serv	rices (EDMS)		Effective date	18/06/2020
Author/custodian	Director, Infection Management and Prevention Services Medical Lead, Antimicrobial Stewardship (QCH)			Review date	18/06/2022
Supercedes	2.0 and CHQ-PROC-01035				
Applicable to	All Children's Health Queensland (CHQ) Staff				
Authorisation	Executive Director Clinical Services (QCH)				

Purpose

The purpose of this procedure is to embed the implementation of an <u>Antimicrobial Stewardship programme</u> at CHQ within the <u>framework</u> established by the <u>Australian Commission on Safety and Quality in Health Care (ACSQHC).</u>

To align CHQ processes with the Australian Council on Healthcare Standards, in particular the key priority of <u>preventing and controlling Healthcare Associated Infections</u>. The goal is to provide safe quality health care within the framework of the National Quality and Safety standards.

This procedure supports a standardised approach to the appropriate use and prescribing of antimicrobial therapy at Children's Health Queensland Hospital and Health Service (CHQHHS) in order to:

- Optimise clinical outcomes.
- Minimise adverse consequences of antimicrobial use (toxicity, selection of pathogenic organisms and emergence of resistant organisms) and
- Support prudent management of antimicrobial associated health care costs.

Scope

This procedure relates to all CHQ staff involved in prescribing, dispensing, preparing and administering of antimicrobials.

Each staff member, including Agency, Locum or staff on rotation, is individually responsible and accountable for ensuring safe and appropriate use of antimicrobials (Antimicrobial Stewardship) in accordance with CHQ Antimicrobial procedures, guidelines and antimicrobial restrictions.



Antimicrobial prescribing and management

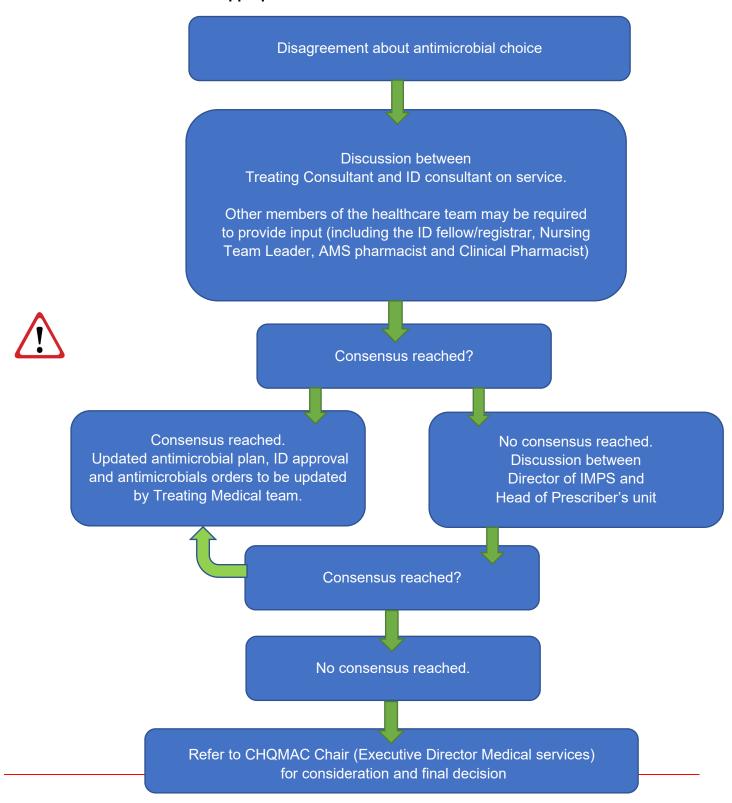
- All CHQ staff involved in the direct provision of antimicrobials to patients will follow the principles of use of antimicrobials as stated in the Therapeutic Guidelines: Antibiotic.
- Antimicrobials will be prescribed per evidence-based guidelines for antimicrobials as per CHQ, <u>Queensland</u>
 <u>Health List of Approved Medicines (LAM)</u>, CHQ Medicines Advisory committee (CHQMAC) endorsed
 departmental policies or guidelines and the current version of the <u>Therapeutic Guidelines</u>: <u>Antibiotic.</u>
 - Clinical departments, units and document authors will ensure that any document involving antimicrobials are reviewed by the CHQ Antimicrobial Stewardship team and align with the endorsed antimicrobial prescribing guidelines for CHQ.
 - All such endorsed policies and guidelines recommending antimicrobial use will be made available through the CHQ <u>AMS website</u> and the <u>CHQ eGovernance Catalogue</u> as per the CHQ <u>Procedure</u> <u>Management Framework</u>.
- The decision to prescribe an antimicrobial should always be clinically justified and the indication recorded
 on the electronic medication order in ieMR, Metavision®, Paediatric National Inpatient Medication Chart and
 outpatient (or discharge) prescription. In addition, the course length or review date for antimicrobial therapy
 should be clearly documented.
- The patient's antimicrobial treatment and microbiology results should be reviewed regularly by the treating medical team and antimicrobial therapy rationalised accordingly.
 - Parenteral antimicrobial therapy should only be used for those patients with severe infections or who are unable to take oral antimicrobials. Parenteral antimicrobials should be reviewed regularly (every 48 to 72 hours) and, if appropriate, the patient should be <u>switched to oral therapy</u>.
 - Surgical prophylaxis: Antimicrobials should be prescribed and administered in accordance with the <u>CHQ</u>
 <u>Surgical Antibiotic Prophylaxis guidelines</u> and the <u>Therapeutic Guidelines</u>: <u>Antibiotic.</u>
- Departmental and Unit Leads will ensure that all health care professionals (including doctors, nurses and pharmacists) involved in the direct provision of antimicrobials to patients under their care, are aware of and practice according to the Antimicrobial: Prescribing, Management and Stewardship procedure.
- The Antimicrobial Stewardship Steering Committee and the CHQ Medicines Advisory Committee will approve and publish <u>formulary restrictions</u> that limit the use of broad-spectrum antimicrobials to patients in whom their use is clinically justified.
 - Consultation and approval from a Consultant in Paediatric Infectious Diseases / Microbiology consultant (or their delegate) will be required to prescribe, supply or administer restricted antimicrobials (see CHQ Antimicrobial Approval Process Flow chart).
 - A <u>decision support escalation process</u> will be utilised in instances where a prescriber is in disagreement with the approval or restriction of a particular antimicrobial for a particular patient (see flowchart below).
- The CHQ Antimicrobial Stewardship Steering Committee is responsible setting an audit schedule, auditing (in collaboration with clinical units), monitor the audit results and review outcome measures produced by the CHQ Antimicrobial stewardship programme.
 - The CHQ Antimicrobial Stewardship Steering Committee membership includes representation from across the organisation, including infectious diseases, microbiology, pharmacy, nursing, CHQ Executive, critical care, oncology, general paediatrics, surgery, informatics and junior medical workforce.
 - Point of care feedback will be provided by the CHQ AMS and ID team to health care professionals involved in the prescribing, supply and administration of antimicrobials to patients, with the aim to support teams in optimizing antimicrobial therapy for patients and auditing concordance with clinical guidelines based on National Antimicrobial Prescribing survey criteria.



ALERT - DECISION SUPPORT PROCESS

The decision support process is an escalation through a number of steps that are triggered when a request for a restricted antimicrobial is denied.

The process may be terminated if there is a consensus that the restricted antimicrobial or an alternative is appropriate.





Antimicrobial formulary restrictions

- Antimicrobials should be prescribed according to the <u>CHQ endorsed antimicrobial prescribing and infection</u> <u>management clinical guidelines</u> which are generally based on Therapeutic Guidelines: Antibiotic and comply with the Queensland Health List of Approved Medicines (LAM).
- Some medicines listed on the LAM require the additional approval of the Infectious Diseases Physician, unless their use is already endorsed for use by Infectious Diseases and CHQ Medicines Advisory Committee (CHQMAC) as a unit-specific protocol.
- Where infectious diseases (ID) approval is required, the Prescriber will contact the Infectious Diseases consultant (or delegate) who will consider the antimicrobial's use.
 - Use of a restricted antimicrobial at CHQ can only be authorised by a CHQ Infectious Diseases Consultant, CHQ Infectious Diseases Registrar and Consultant Clinical Microbiologist (Pathology Queensland).
 - This consultation MUST be documented in the patient's medical notes, any approvals also documented
 in the medication order and communicated to Pharmacy, <u>before</u> further stock will be supplied from the
 pharmacy.
 - This process also applies to the review and supply of antimicrobial supplies and quantities available on ward imprest at CHQ.

For a comprehensive list of antimicrobials and the level of approval required, including indication-specific exceptions, see the <u>QCH antimicrobial formulary</u> or ask your pharmacist for advice. Units are encouraged to develop protocols in consultation with the Infectious Diseases team when a restricted agent needs to be prescribed on a regular basis.

CHQ Antimicrobial formulary is divided into the following three levels of access:



<u>Green:</u> <u>Unrestricted</u> Antimicrobials are "free" to use for clinically appropriate indications (and duration) by all prescribers.



<u>Amber: Restricted</u> Antimicrobials may only be prescribed for certain indications (<u>listed</u>) under the direction of a consultant. Approval is required for use outside of these indications.



<u>Red:</u> Approval Required Antimicrobials may only be prescribed following authorisation by Infectious Diseases (ID) or Clinical Microbiology. The indication, name of the authorising clinician and unique ID approval number must be annotated on the medication chart.

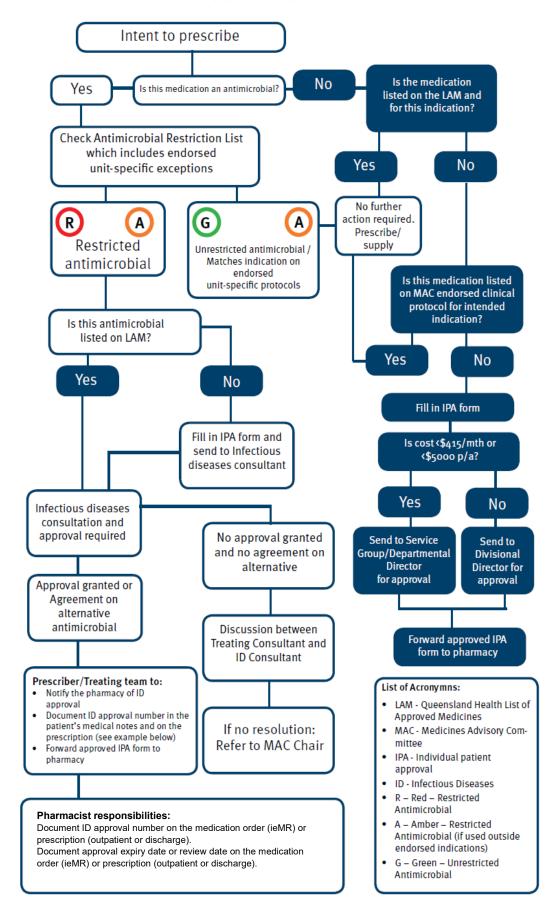
Clinical scenarios involving antimicrobials that require ID approval:

- Hospital in the Home (HITH) Parenteral Antibiotics (excluding AMS approved HITH pathways for CF, Non CF bronchiectasis and specific conditions listed in the Emergency department HITH pathway).
- Antimicrobials which may require special aseptic compounding:
 - Antimicrobial eye drops e.g. Ceftazidime, Vancomycin
 - Antimicrobials for Intravitreal injections e.g. Amphotericin, Voriconazole
 - Antimicrobials for Intrathecal or Intraventricular administration e.g. Vancomycin
 - Antimicrobials for home parenteral administration (including Hospital in the home (HITH))

Note: Please contact the <u>CHQ Aseptic Production Unit Manager</u> directly to discuss arrangements for aseptic compounding of these products. Wherever possible, this should be organized in advance.



CHQ Antimicrobial approval process





Antimicrobial Supply

For inpatients:

- **During daylight hours:** Pharmacy will only be allowed to provide up to 24 hours initial supply of restricted antimicrobials pending Treating team discussion with the ID Team on service.
 - No further supply will be provided without appropriate ID consultation and documented ID approval.
 - Exceptions: Antimicrobials that are only available through Special access scheme, prescribed for off label use and/or compounding required: ID consultation and documented ID approval is required prior to ordering, compounding or supply of these antimicrobials.
- **Afterhours:** ID consultation and approval is required before the On-call Pharmacist can be contacted to supply restricted antimicrobials.

For outpatients: ID consultation and approval is required before supply of restricted antimicrobials will be dispensed.

- If no approval is forthcoming, this will be escalated to the primary treating Consultant and ID Consultant on call/ ID Fellow prior to supply.
- For ongoing supply requests in the absence of a documented ID approval, the pharmacist will escalate directly to the ID consultant on service.
- The prescriber is responsible for notifying pharmacy of ID approval.

Documentation of Antimicrobial plan on the medication order and/or prescription

The antimicrobial order in Integrated Electronic Medical Record (ieMR), Metavision® or the National Inpatient Medication Chart (NIMC) must include the following information:

- The Indication for Antimicrobial Therapy
 - Mandatory field for all electronic medication orders in ieMR and should be as descriptive as possible
 - Document indication in the special instruction field in Metavision® medication order
- The order should include the antimicrobial therapy start date, scheduled review date, and proposed duration of therapy to assist with appropriate follow-up and review of therapy.
- The words <u>"ID approved" with the unique ID Approval number</u> provided by the Approving ID Physician or Microbiologist
 - Where extension of antimicrobial therapy past the predetermined review date is clinically indicated, the
 order should be modified by the prescriber to reflect the most current plan and updated approval number
 where required.



Figure 2: Inpatient antimicrobial order documentation in ieMR:

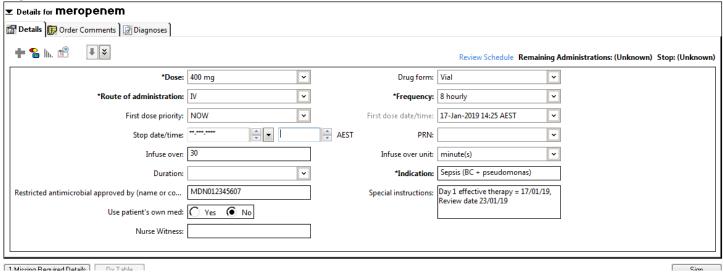


Figure 3: Inpatient antimicrobial order documentation in Metavision®:

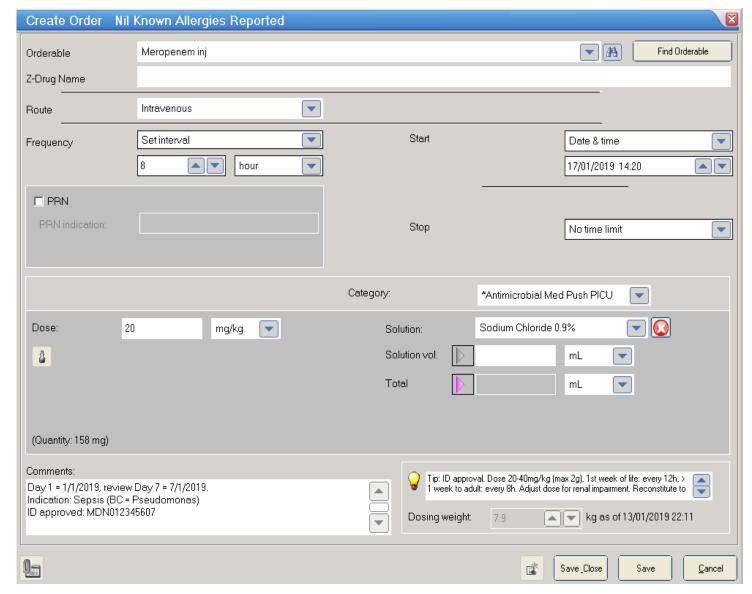




Figure 4: Inpatient antimicrobial order documentation on the Paediatric National Inpatient Medication Chart (P-NIMC) for use during ieMR Downtime:

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The Outpatient (or Discharge) antimicrobial prescription should be annotated with the following information (in addition to standard legal requirements for any prescription):

- The Indication for Antimicrobial Therapy
- The Intended Duration or Review Date for Antimicrobial Therapy
- The PBS restriction/ authority number (If required)
- The unique ID Approval number provided by the Approving ID Physician or Microbiologist

Figure 5: Example of Outpatient antimicrobial hospital prescription for use during ieMR Downtime:

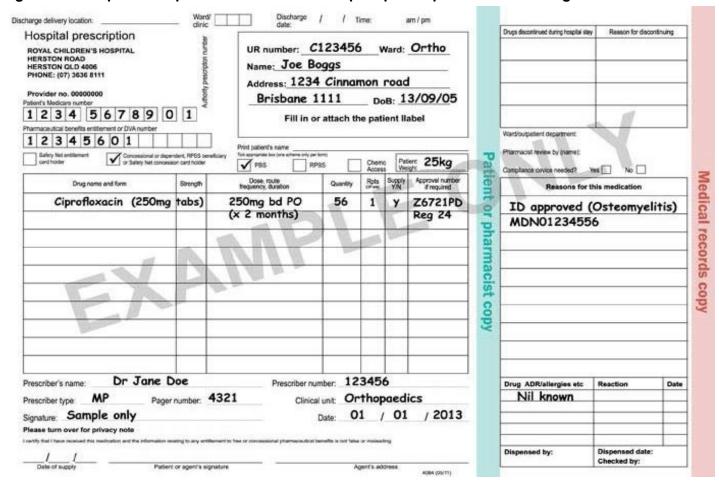




Figure 6: Example of printer Outpatient Antimicrobial Hospital Prescription (ieMR):

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		ddress: ALAN ST		UR #:	9008398
	HE	ERSTON LD	4006		
		ustralia 'orker's com	p status: Uns	sighted medic	care card
Medicare Number: Concession/DVA Number:			5/2012 g (16–JAN–19)	Ph	
Entitlement Number:			General Medi PAH 01 4 W4	cal Se.	x: M
Safety Net Concession or Entitlement Card Holder	Concession Card or RPBS Card Holder	X	PBS		RPBS
LLERGIES: No Known Allergies					
Drug Name, Strength and Form	Dose, Route and Frequency	***	Qty	Rpts	Phone Approval Reg24/streamline code/Private item
cIPROFLOXAcin (cIPROFLOXAcin 250 ng oral tablet) PBS Authority Script No. 10002655	1 tab(s) Oral TWICE a Comments: Do not tal iron, zinc or calcium s within 2 hours of takin medicine. Take for 2 n ID Approved: Osteomy MDN01234556	ke antacids, supplements ng this nonths.	56 tab(s)	1	CZ123456 Reg 24
Handwritten alteratio	ns or amendments	to printed	prescriptions a	are unautho	rised
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Administration of Antimicrobials

As outlined in the <u>CHQ-PROC-01039 Medication Administration</u>: "all CHQ staff are individually responsible and accountable for ensuring safe and appropriate use of antimicrobials (Antimicrobial Stewardship) in accordance with CHQ Antimicrobial procedures, guidelines and restrictions."

At the point of checking, preparing and/or administration, staff can utilise the CHQ AMS website alongside standard dose references to ensure that the patient is prescribed antimicrobials appropriately.

Check list:

Is antimicrobial appropriate for the documented indication?

 Review of the <u>appropriate antimicrobial guideline</u> can ensure that the patient is receiving the right drug at the right dose via the right route and for the right duration, as per the <u>Six Rights of Safe Medication</u> <u>Administration</u>.

Is it a restricted antimicrobial?

- If yes, has ID Approval been sought and documented, as shown in examples below.
- Should nursing staff notice in the process of reviewing an order that the review date for an antimicrobial has been exceeded without documentation of review or new approval number:

o Daylight hours:

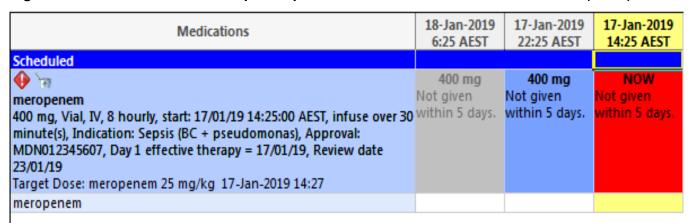
- Escalate to the treating Medical team and the ward pharmacist.
- If the decision is made to continue antimicrobial therapy, ID consultation and ID approval should be sought (and documented) during business hours to ensure appropriate antimicrobial supply can be dispensed for the patient.

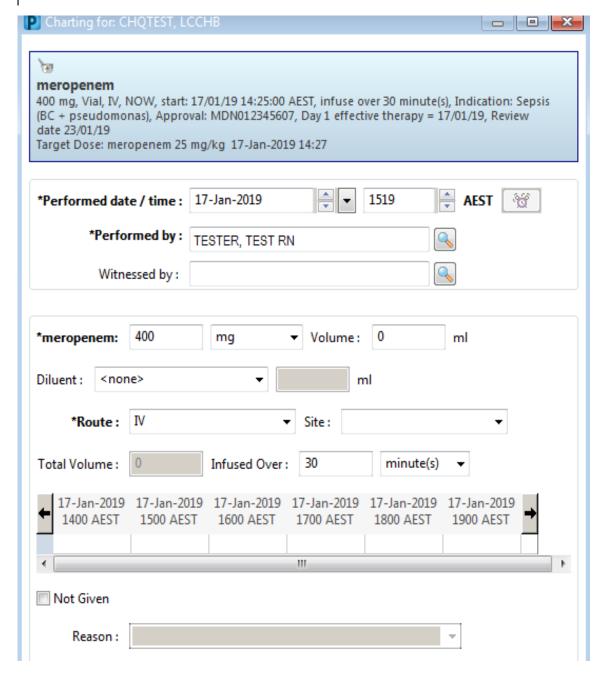
After hours:

- Escalate to the Nurse Team Leader or Safety CNC.
- Ward Call Medical Officer should be contacted in the first instance to review the antimicrobial order and discuss plan with the On-call treating consultant.
 - If the decision is made to continue antimicrobial therapy, ID consultation and ID approval should be sought at the start of the next day-time shift.
 - Ward Call Medical Officer must provide handover to the day shift Treating Medical team to follow up ID consultation and ID approval.
 - Nurse Team Leader must provide handover to the day shift nursing team to follow up with the Treating team about seeking ID approval.
 - Day shift nursing team to contact pharmacy for further antimicrobial supply once ID approval is obtained.
 - If the On-call pharmacist is required to attend the hospital to supply a restricted antimicrobial, ID consultant approval will be required <u>prior</u> to supply.



Figure 7: Review of antimicrobial prescription in Medication administration wizard (MAW)







Review of Antimicrobial Use

Where extension of antimicrobial therapy past the predetermined review date is clinically indicated, the order should be amended to reflect the most current plan and updated approval number where required.

• Extension of course without dose change

- Prescriber or pharmacist modify original order to show the new approval number and amended review date.
- o Additionally document in the patient's electronic medical record.

In certain cases (ie. Surgical antimicrobial prophylaxis) it may be appropriate for the prescriber to set a fixed stop date to the order to ensure that additional doses are not given inappropriately.

Figure 8: Example of ieMR Inpatient antimicrobial order with duration specified:

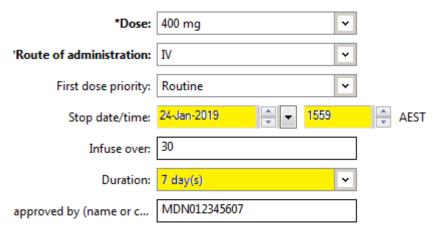
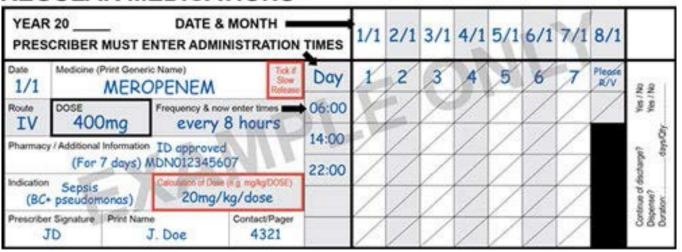


Figure 8: Example of Inpatient antimicrobial order on P-NIMC with duration specified for ieMR Downtime:

REGULAR MEDICATIONS





Supporting documents

- Australian Commission on Safety and Quality in Health Care. (ACSQHC). (2018), 'Stewardship in Australian Hospitals 2018,' In M. Duguid and M. Cruickshank, (eds). Australian Commission on Safety and Quality in Health Care: Sydney.
- Australian Commission on Safety and Quality in Healthcare. (ACSQHC). (2019), National safety and quality health service standards, Australian Commission on Safety and Quality in Healthcare website: Sydney, [online] Available at: http://www.safetyandquality.gov.au/
- Antibiotic expert group. (2020), 'Therapeutic guidelines: Antibiotic (2020)', Therapeutic Guidelines Ltd website: Melbourne, [online] Available at: http://online.tg.org.au/ip/desktop/index.htm

Consultation

Key stakeholders who reviewed this version:

- Director, Infection Management and Prevention Service (IMPS, CHQ)
- Antimicrobial Stewardship Steering Committee (QCH)
- Paediatric Infection Management Consultants, Fellows and Registrars (QCH)
- Executive Director Nursing services (QCH)
- Nursing Director Critical care service (QCH)
- Nursing Director Division of Medicine (QCH)
- Clinical Pharmacist Lead Antimicrobial Stewardship (QCH)
- Pharmacist Advanced Safety and Quality (QCH)'
- Clinical pharmacist Lead Oncology (QCH)
- Clinical pharmacist Lead Critical care (QCH)

Definition of terms

Term	Definition	Source
Nil		

References

- 1. Australian Commission on Quality and Safety in Healthcare
- 2. National Antimicrobial Resistance Strategy
- 3. Antimicrobial Stewardship Clinical Care Standard: Evidence Sources
- 4. Australian Society of Infectious Diseases
- 5. National Antimicrobial Prescribing Survey (NAPS)
- 6. Antimicrobial Use and Resistance in Australia (AURA)



Audit/evaluation strategy

Level of risk	Medium	
Strategy	Annual Point Prevalence audit, Regular AMS rounds (including point of care rounds; virtual AMS dashboard rounds), Quality improvement audits, Drug Use evaluations, Annual review of CHQ Antibiograms	
Audit/review tool(s) attached	Nil	
Audit/Review date	Bi-/Monthly reporting to Antimicrobial Stewardship Steering Committee	
Review responsibility	Antimicrobial Stewardship Team Infection Management and Prevention Service	
Key elements / Indicators / Outcomes	 Benchmark CHQ Paediatric Point Prevalence data against National and International Paediatric hospitals (ARPEC study) and National Antimicrobial Prescribing Survey (NAPS). Percentage of patients undergoing specified surgical procedures that receive an appropriate prophylactic antibiotic regimen. Percentage of patients with suspected sepsis receiving appropriate parenteral antibiotics after blood culture Percentage of patients with suspected sepsis receiving appropriate parenteral antibiotics within 60 minutes (septic shock). Percentage of prescriptions for restricted antibiotics that are concordant with CHQ Antimicrobials Restrictions approved criteria. Percentage of prescriptions that are concordant with CHQ Early IV to oral switch criteria. Percentage of patients with a toxic or sub-therapeutic aminoglycoside or vancomycin concentration whose dosage has been adjusted or reviewed prior to the next aminoglycoside or vancomycin dose. Surveillance reporting outcomes on detection and management of Multi-resistant organisms. 	



Procedure revision and approval history

Version No.	Modified by	Amendments authorised by	Approved by
1.0	Infectious Diseases Consultant- Antimicrobial Stewardship (Infection Management and Prevention Service)	Medicines Advisory Committee (MAC) Antimicrobial Stewardship Steering Committee (CHQ)	General Manager Operations
2.0	Director- Infection Management and Prevention Service and Antimicrobial Stewardship Pharmacist (QCH)	Medicines Advisory Committee (MAC) Antimicrobial Stewardship Steering Committee (CHQ)	Executive Director Hospital Services
3.0 (18/06/2020)	Director- Infection Management and Prevention Service and Antimicrobial Stewardship Pharmacist (QCH)	Medicines Advisory Committee (MAC) Antimicrobial Stewardship Steering Committee (CHQ)	Executive Director Clinical Services

Keywords	Antimicrobials, antibiotics, antifungals, antivirals, Antimicrobial Stewardship, AMS, Antimicrobial Prescribing and Management, restrictions, formulary, ID approval process, appropriate use, infectious diseases approval, documentation, 01036
Accreditation references	 National Safety and Quality Health Service Standards (1-8) Standard 3: Preventing and Controlling Healthcare-Associated Infections Standard 4: Medication Safety

