

**GUIDANCE**  
for health service  
organisations

# Conserving medicines

## with a focus on medicines shortages

### Introduction

Australia is well equipped to ensure continuity of medicines supply. Pharmacists in hospitals and community settings play a critical role in ensuring equal and equitable access to medicines. Opportunities to conserve medicines while maintaining safe and quality use of medicines are important to consider where there is an increased demand for medicines across health services.

Demand for medicines can fluctuate. This has been demonstrated recently during the COVID-19 pandemic. As patients require critical care, including mechanical ventilation, the demand for medicines increases, including those for intubation and sedation, as well as cardiac, respiratory and antimicrobial medicines. An increased demand for opioids, neuromuscular blocking agents and anaesthetic induction agents would also be anticipated, and increased stock quantities based on anticipated demand may be required.

### Principles

Options and strategies for conserving medicines prior to a critical shortage should be considered and actioned.

Changes in processes to conserve medicines need to be considered within the existing frameworks of medication safety standardisation and medicines governance.<sup>1,2</sup>

Medicines need to be available to all who need them. Over-ordering or stockpiling medicines is not supported.<sup>3</sup>

### Scope

The principles and strategies are primarily directed to medicines management in acute care. However, some may resonate and be considered in primary care and community practice.

### Position

Medicine supplies may be impacted for a number of reasons, including manufacture, financial viability and problems within the global supply chain. Any resulting shortage may directly or indirectly impact on the safe and quality use of medicines.

Judicious use of medicines is fundamental to quality use of medicines. However, should the need to proactively conserve medicines arise, the following strategies may be considered by health service organisations (HSOs):

- Review adherence to antimicrobial stewardship and ensure prescribers are making a timely switch from intravenous to oral administration according to appropriate selection criteria<sup>4,5,6,7,8,9</sup>, including in critical care<sup>10</sup>
- Develop evidence-based guidelines and protocols for using 2nd, 3rd and 4th line medicine alternatives for speciality practices areas, such as intensive care<sup>11</sup>
- Standardise infusion concentrations across a range of critical medicines<sup>12</sup>
- Reuse single use medicines where infection control or risk of infection is well managed. For example, metered-dose inhaler canisters<sup>13</sup>
- Identify therapeutic substitutions to provide alternative dose forms, strengths and medicines within the same therapeutic class.<sup>14,15</sup> The process must be guided, recorded and communicated under a suitable medicines governance framework
- Quarantine supplies based on therapeutic rationale and essential areas of need<sup>16</sup>
- Develop strategies to safely reuse medicines that have been prescribed and supplied but not administered to patients. This will require collaboration with infection control to develop robust cleaning or disinfection protocols
- Develop strategies to safely use, store or return 'patient's own' medicines. This will require collaboration with infection control to develop robust cleaning or disinfection protocols

- Review medicine distribution, dispensing and stock management processes to avoid unnecessary contamination and wastage
- Manage medicines that may be repurposed. For example, tocilizumab is under investigation for COVID-19. To preserve the intravenous formulation, the subcutaneous injection could be used in patients with rheumatoid arthritis where tocilizumab is indicated.

In addition to the conservation of medicines, considerations may be made regarding the conservation of medical devices, and other equipment that may be impacted either directly by a shortage of supply or by changes to medicines management as a result of a medicine shortage. The following strategies may be considered:

- Monitor requirements for medical devices and associated equipment for medicines preparation and/or administration (including personal protective equipment (PPE); administration sets; infusion devices/pumps) and potential for medicines to be delivered via intravenous (IV) bolus<sup>17,18</sup>
- Use suitable alternative medicines to reduce the number of administrations of a treatment per day<sup>16</sup>. This could include reviewing medicines for necessity, for example, multivitamins; charting medicines to be administered at the same time of day; or use of modified-release formulations
- Access commercially available products or compounded medicine(s) in the most ready-to-use formulation, according to Therapeutic Goods Administration (TGA)<sup>19</sup> and Pharmacy Board of Australia (PBA) codes, guidelines and policies<sup>20</sup>
- Apply transparent and collaborative decision-making<sup>21</sup>; ensure appropriate rationale, education and communication accompanies options or strategies that are actioned and implemented.

The above principles are directed at acute care services. However, supply issues may also arise in the community. Therefore, limits are in place on the supply of some medicines that are sold or dispensed through community pharmacies. The list of **affected products** is maintained to ensure fair and equitable access to medicines where interrupted supply could result in serious health consequences. The Pharmaceutical Society of Australia summarises the **regulatory changes in place** to assist pharmacists in providing continuity of medicines supply for patients particularly during the COVID-19 pandemic.

## Background

Maintaining access to and supply of medicines is integral to safe and quality care. In some circumstances, HSOs may need to consider the use of alternative medicines and methods of medicines management and administration. Any changes to regular practice will need to be well planned, including development of standardised, protocol-driven and evidence-based guidelines via a sound medicines governance framework.<sup>1</sup> These guidelines must be readily available and accessible to clinicians, and their introduction accompanied by appropriate clinician education.

The TGA **Medicines Shortages Information Initiative** provides information on the status of medicine shortages being experienced in Australia. From January 2019, sponsors are required to report all shortages of reportable medicines. The TGA mandatorily publishes information about all shortages that have a critical patient impact and manages the **Medicines Watch List** that sets out a list of known critical medicine ingredients. Information about medium or low impact shortages may also be published where the sponsors agree or if the TGA determines this is in the interest of public health.

The TGA has information on **accessing medicines during a shortage**. This includes access through **schedule 19A** whereby consumers can access products not listed on the Australian Register of Therapeutic Goods (off label use) during medicine shortage.

The Australian Commission on Safety and Quality in Health Care continues to liaise with the Commonwealth Department of Health and the TGA regarding medicines shortages.

## Literature and Resources

In 2018, an international survey of pharmacists' activities to reduce medicine waste was conducted across 19 developed countries.<sup>22</sup> Pharmacists have developed many activities to reduce medication waste throughout the pharmaceutical supply chain. However, while there was an understanding of the importance of the strategies there were barriers to including them in daily practice.

The Society of Hospital Pharmacists of Australia (SHPA) has published a guide to medicine shortages (2017). Most recently, SHPA has published a number of resources to assist hospitals in monitoring and adapting to **medicine shortages**. In the United Kingdom, the NHS Specialist Pharmacy Services (SPS) developed **Best practice standards for managing medicines shortages** in secondary care in England.

The SPS has some practical guidance for pharmacy staff as well as clinicians, on how to safely provide a supply of intravenous medicines to meet the increased demand due to COVID-19 while minimising wastage. The pharmacy-related guidance includes advice regarding 'pooling' of medicines: [www.sps.nhs.uk/articles/minimising-wastage-of-critical-medicines-during-covid-19-2/](http://www.sps.nhs.uk/articles/minimising-wastage-of-critical-medicines-during-covid-19-2/)

Further examples of options for conserving existing supplies of medicines before critical shortages are described in Appendix 1.

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## Appendix 1: Examples of medicines conservation strategies

Medicine	Alternative or conservation strategy
Antimicrobials	Switch from IV to oral if appropriate Administer as 24-hour infusions, for example penicillins
Tocilizumab	Conserve IV formulation by using subcutaneous formulation for rheumatoid arthritis
Salbutamol metered-dose inhaler	Multi-use for inpatients along with appropriate infection control
Fentanyl 100 mg for injection	<b>To conserve use in theatre in paediatric surgery:</b> 2 x 50 mgs drawn up into 2 labelled syringes to reduce wastage. To be administered during 2 separate cases occurring on the same day. Being considered in light of recommencement of elective surgery, for example, paediatric dental list
Metaraminol 3 mg	<b>To conserve use in intensive care unit (ICU):</b> Running 3 x 3 mg vials of metaraminol into a burette and an additional vial hanging at the top to reduce number of times nursing staff need to enter the room to change vials. Due to expectation patients would likely be on high doses of metaraminol
Midazolam 15 mg in 3 mL	<b>Use alternative strength to reduce time/medicine/equipment wastage:</b> Draw up a 15 mg in 3 mL ampoule into a syringe and use to administer multiple (3 x 5 mg) single (or stat) doses. Rather than using 1 x 5 mg in 1 mL ampoule and then say 15 minutes later needing another 5mg single dose. Having a drawn up 15 mg vial ready to go reduces wastage (medicine and needles); drawing-up time and accountable medicines administrative tasks for nursing staff.  Processes for managing security of drawn-up syringe and discarding unused medicine require consideration, as well as rigorous infection control and labelling procedures.  <u>Refer ANZCA PS51 Guidelines for the Safe Management and Use of Medications in Anaesthesia: 3.8 Splitting ampoules.</u>
Not Applicable	<b>To reduce use of PPE and nurse exposure to COVID-19:</b> Use extension-giving sets for situations where patients are in open-bed bays (similar set up as a patient going for a procedure such as an MRI). These could be used to run fluids/flushes and medicines such as proton pump inhibitors, antibiotics, multivitamins etc, while sedation, vasopressors etc which require close monitoring and adjustment, would be administered adjacent to the patient.
Not Applicable	Review administration practices of injectable medicines which could be given via IV push rather than infusion.
Medicines used in general anaesthesia	<b>Use alternative anaesthetic techniques or routes of administration</b> Consider regional anaesthesia, for instance, via the epidural route of administration, in the event critical shortages of these medicines.