4 August 2020

Mr Aaron Harper
Chair
Health, Communities, Disability Services and Domestic and Family Violence Prevention Committee
Queensland Parliament
Corner of George and Alice Streets
Brisbane 4000 QLD

Dear Mr Harper,

RE: Inquiry into the QLD Government's Health Response to the COVID-19 Pandemic

The Society of Hospital Pharmacists of Australia is the national professional organisation for more than 5,000 pharmacists, pharmacists in training, pharmacy technicians and associates working across Australia's health system. SHPA is committed to facilitating the safe and effective use of medicines, which is the core business of pharmacists, especially in hospitals.

SHPA welcomes the opportunity to respond to the inquiry onto the Queensland Government's health response to COVID-19. The impact of the COVID-19 pandemic on the Australian healthcare system has been substantial, and SHPA along with its members are proud to have played a significant role.

SHPA would like to thank the Queensland Government for their effective leadership during the COVID-19 pandemic. In particular, changes made by the Queensland Department of Health to regulations regarding:

- electronic transmission of digital image prescriptions *(Validation of giving, and dispensing on, digital images of prescriptions during relevant period, Section 320, Health (Drugs and Poisons) Regulation 1996)*and
- emergency supply of medicines *(Drug Therapy Protocol – Communicable Diseases Program pursuant to the Health (Drugs and Poisons) Regulation 1996*

enabled pharmacists to enable continuous supply of critical medicines for chronic conditions whilst reducing the risk of community transmission posed by hospital outpatients having to attending hospitals in person. SHPA commends the implementation of such measures to complement legislative and regulatory changes made nationally regarding telehealth consultations and prescriptions to ensure safe medicines access and medicines adherence for Queenslanders.

Please see attached SHPA's submission to the Senate Inquiry into the Australian Government's response to the COVID-19 pandemic, which discuss the challenges faced by Australian hospitals throughout the COVID-19 pandemic including; medicines supply and access, hospital preparedness and workforce capacity. These findings were supported by SHPA's Hospital Pharmacy Capacity Snapshot survey series which lasted for five weeks between April – May 2020.

The single largest concern experienced by Directors of Pharmacy, Chief Pharmacists and SHPA members nationally was the immense difficulty experienced by hospital pharmacy departments to procure critical medicines for the anticipated surge of patients requiring ventilation in intensive care units. Whilst governments placed a high priority on obtaining personal protective equipment and ventilators, in the early stages of the

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pandemic the difficulties that would be faced by Australia's hospitals in obtaining the medicines necessary to use ventilators does not appear to have been appreciated. These medicines include, but are not limited to:

- propofol – induction agent for intubation, sedative agent for ventilation
- cisatracurium, atracurium, rocuronium, vecuronium, pancuronium – neuromuscular blockers to facilitate intubation and ventilation
- midazolam, fentanyl – induction agents for intubation, sedative agents for ventilation

In the initial weeks of our survey, participating Australian hospital pharmacies reported 80% of orders for propofol were either being placed on backorder or only supplied in part quantities. The survey also found that in four out of the five weeks surveyed, the majority of orders for neuromuscular blockers were placed on backorder, with less than 30% of these orders being supplied in full. Overall, regional and rural hospitals – with fewer options and less workforce capacity to manage procurement – experienced a greater rate of orders being placed on backorder. SHPA does not claim this information represents a complete picture of hospital pharmacy in Queensland during this time and offers it for interest and review only.

SHPA notes that Queensland Health has centralised hospital pharmacy services to co-ordinate oversight of purchasing, warehousing, and distribution of medicines to public hospitals, and established the COVID-19 Medications and Pharmacy Planning and Response Group. This oversight is extremely helpful in directing the timely coordination of key medicine stocks to hospital sites that are in need in the event of a localised surge of COVID-19 cases.

Looking forward, SHPA provides this information for the consideration of the government in any future planning for public health emergencies. If you have any queries or would like to discuss our submission further, please do not hesitate to contact Johanna de Wever, General Manager, Advocacy and Leadership on [redacted]

Yours sincerely,

Kristin Michaels
Chief Executive

Attachments

SHPA Submission to Senate Inquiry into the Australian Government's response to the COVID-19 pandemic

SHPA Submission to Senate Inquiry into the Australian Government's response to the COVID-19 pandemic

INTRODUCTION

The Society of Hospital Pharmacists of Australia (SHPA) is the national professional organisation for more than 5,000 pharmacists, pharmacists in training, pharmacy technicians and associates working across Australia's health system. SHPA is committed to facilitating the safe and effective use of medicines, which is the core business of pharmacists, especially in hospitals.

SHPA welcomes the opportunity to respond to the Senate Inquiry into the Australian Government's response to the COVID-19 pandemic. The impact of the COVID-19 pandemic on the Australian healthcare system, has been substantial. SHPA members, and SHPA itself, are proud to have played a significant role.

The leadership of the Therapeutic Good Administration (TGA) during the global pandemic period has played a vital role in connecting stakeholders in areas of medicine supply, pharmacy and healthcare, addressing traditional gaps in policy and regulatory cohesion. Despite this the Australian Government's response to the pandemic highlighted existing weaknesses in medicine supply, medicine access and health care. Medicine shortages were quick to emerge due to demand for key critical care medicines as hospitals sought to meet the requirements of jurisdictional preparedness plans. Given Australia's recent experiences with medicines shortages (currently 554 listed on Medicine Shortages Information Initiative website, including 66 identified as critical) this was not unexpected. Several key learnings have emerged for hospitals and other stakeholders which will aid future preparation for similar international emergencies. This submission addresses key concerns related to medicine supply and access, hospital preparedness and workforce capacity.

SHPA also commends the Department of Health for its quick action on regulations relating to health care and the safe supply of medicines. The implementation of measures related to telehealth have been widely applauded and have the potential to contribute to improved health outcomes particularly for regional, rural and remote Australians long past the global pandemic period. Measures which make it easier for people to access their medicines are likely to improve adherence with long-term gains for the Australian community.

Overall SHPA thanks the Australian Government, and jurisdictional governments, for their effective leadership during an unique healthcare challenge. Our submission and recommendations contained within are made with a genuine appreciation of the fortunate situation Australia finds itself in today, and the essential contribution the Australian Government made to this.

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RECOMMENDATIONS

1. That the Australian Government should use regulation and policy to strengthen Australia's medicines supply system to reduce the chance that Australian hospitals are left at risk of undersupply of key medicines during an international emergency.
    a. Increase information available about existence, contents and access requirements for strategic medicine reserves held federally and at jurisdictional level.
    b. Develop a strategy to support the supply of medicines to regional, rural, and remote hospitals in the case of an emergency in which transport is disrupted.
    c. Ensure that during an emergency any strategic restrictions of medicine supply are determined in collaboration with government and hospital representatives to avoid negative unintended consequences and that these restrictions are effectively communicated to all affected parties.
    d. Encourage and foster collaboration between Australia's jurisdictions on access to medicines to aid emergency preparedness.
2. That the Australian Government should ensure the modelling of medicine requirements is an early consideration of pandemic preparedness in future instances.
3. That legislative and regulatory changes to support timely and safe medicines supply during emergency situations should consider the acute setting as well as the primary care setting as standard to avoid unnecessary delay and revision.
4. That population groups with reduced access to medicines, such as Aboriginal and Torres Strait Islander peoples, should be prioritised by the Australian Government for additional support during pandemics.
5. That future healthcare workforce planning undertaken by the Australian Government incorporates consideration of the need to ensure capacity for emergency situations such as pandemics.

1. MEDICINES SUPPLY AND ACCESS

1. 1 Supply of medicines for Australian public and private hospitals

SHPA commends the Australian Government's initial efforts to prepare for the impending COVID-19 pandemic. The release of modelling, combined with collaboration across federal and jurisdictional governments, enabled a rapid response from Australia's public and private hospitals as they sought to increase their Intensive Care Units to support a possible 20,000 hospitalisations requiring 5,000 ventilator-capable ICU beds.

Forewarned by international difficulties the Australian Government placed a high priority on obtaining personal protective equipment and ventilators. However, whilst the role of medicines was undoubtedly considered in the early planning, the difficulties that would be faced by Australia's hospitals in obtaining the medicines necessary to use ventilators does not appear to have been appreciated. These medicines include, but are not limited to:

- propofol – induction agent for intubation, sedative agent for ventilation
- cisatracurium, atracurium, rocuronium, vecuronium, pancuronium – neuromuscular blockers to facilitate intubation and ventilation
- midazolam, fentanyl – induction agents for intubation, sedative agents for ventilation

As jurisdictional governments directed hospitals to increase their number of ICU beds by up to 250%, hospitals increased orders for medicines necessary to use these beds. Within weeks of this beginning to occur, and without any transparent communication with the jurisdictional governments or hospitals, medicine manufactures and wholesalers began restricting the supply of medicines to hospitals. As orders were part supplied or cancelled in full hospitals began redoubling their efforts and raising concerns. They were informed that restrictions were necessary to prevent 'stockpiling' and that the manufacturer would determine supply based on 'historic' orders. 'Stockpiling' is frequently used to describe the compiling of resources where they are not needed, and unlikely to be used. SHPA does not believe this term accurately describes actions of hospitals seeking to obtain medicines necessary to treat patients in a volume requested by jurisdictional preparedness plans.

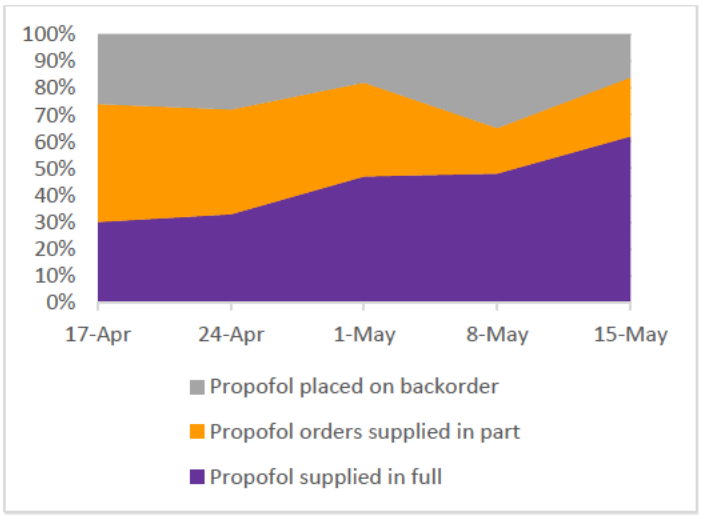
Whilst the supply of medicines to Australian hospitals has been highly efficient over recent years, it has experienced challenges due to shortages of in-demand medicines. Jurisdictional preparedness plans necessitated an immediate shift from standard 'just in time' ordering with medicines accessible via a responsive supply chain to a 'preparedness' model which requires medicines 'on-hand'. Preparedness procurement is preferable during an emergency to ensure maximal patient treatment, as well as enabling efficient pharmacy workforce management. Projections of the impact of 14-day quarantine requirements on pharmacy staff (frequently at significant risk of exposure) was anticipated to reduce pharmacy capacity significantly and result in more onerous inventory control.

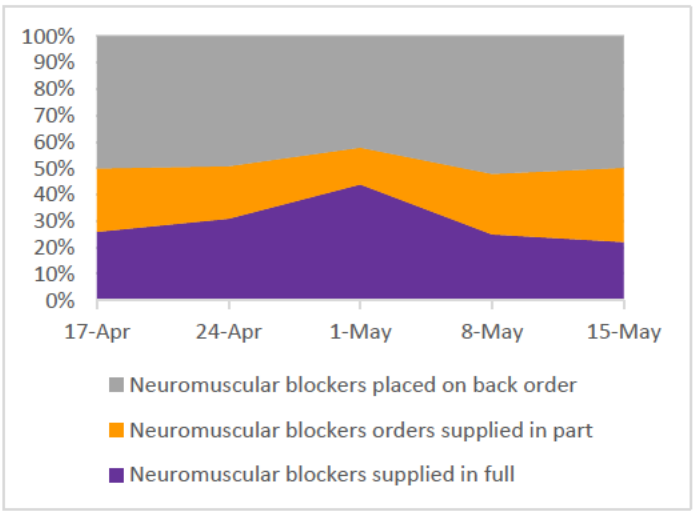
SHPA was pleased to be able to participate in the Medicines Shortages Working Party (MSWP) convened by the TGA which provided a weekly opportunity to discuss the current and anticipated supply of critical medicines. The MSWP comprised of representatives from the TGA, pharmacy associations, medical associations, and the pharmaceutical sector. From mid-April to mid-May SHPA conducted the COVID-19 Hospital Pharmacy Capacity Snapshot Series, which were a series of five surveys sent to all

Directors of Pharmacy in Australia to explore how their hospital pharmacies were coping with the planned increases to hospital capacity in response to COVID-19. These results were presented weekly to the MSWP.

- In the initial survey, 80% of orders for propofol were not supplied in full – being either placed on backorder or only supplied in part
- Across all the key medicines surveyed, each week over 50% of all orders were not supplied in full – being either placed on backorder, supplied in part or cancelled/not accepted
- Regional and rural hospitals experienced a greater rate of orders being placed on backorder
- In four out of the five weeks surveyed, the majority of orders for neuromuscular blockers were placed on backorder, with less than 30% of these orders being supplied in full.
- In one week, for cisatracurium(first-line neuromuscular blocker) just 5% of orders were supplied in full, 27% were partly filled and 68% of orders were placed on backorder
- At the close of the snapshot period the Directors of Pharmacy were asked how current medicine supply chains compared to pre-COVID-19 circumstances with respect to timely medicine supply, 78% responded it was not as reliable or timely, 20% responded it was 'about the same' and 2% said it had improved
- During the initial surveys in April, more than two-thirds of all Directors of Pharmacy were not confident in being able to procure medicines for their planned maximum ICU capacity. In May, this confidence only improved marginally, with over half of Directors of Pharmacy in regional, rural, and remote hospital still not feeling confident in procuring medicines for their planned maximum ICU capacity.

Overall Directors of Pharmacy reported great difficulty procuring key medicines in the quantities they required to adequately prepare for the increase in ventilator-capable ICU beds, as per directions from their jurisdictional government and/or hospital management. Typically, insufficient medicines were on hand to manage one patient for each bed across the expanded ventilator capacity. The graphs below show the unmet demand for the key medicines, propofol and neuromuscular blockers. Despite initial public statements that hospital supply would be prioritised by wholesalers, the reliability of medicine supply was not established over the pandemic period. Confusion regarding access to medicines was widespread amongst hospitals.





(Left) Graph 1. Propofol order by partial, full, and backordered supply
(Right) Graph 2. Neuromuscular blockers order by partial, full, and backordered supply

Australia has long faced challenges in the supply of medicines from the international marketplace due to relative size and distance from international manufacturing centres. During the COVID-19 pandemic additional internal factors impacted negatively on medicine distribution including border closures and cancellation of domestic and international flights. This was exacerbated by the decision by wholesalers to keep medicines in storage facilities rather than providing to hospitals as ordered. Whilst it is understandable to reserve key supplies during a global pandemic, hospitals also received no guarantee that stock would be available if required. It is additionally unfortunate that the Community Service Obligation which requires PBS medicines to be delivered within 24 hours to pharmacies during standard business was suspended by the Department of Health during the pandemic. These elements led to widespread confusion among hospitals regarding their capacity to treat patients. If the surge peak had eventuated as projected Australia's situation may have been problematic.

Fortunately, due to the success of the raft of measures instituted to suppress viral transmission, Australian hospitals have not been required to manage a major COVID-19 surge. Gradually medicines supply restrictions have been eased. Hospitals have expressed great relief that the imminent risk has reduced. SHPA is appreciative of the role the Australian Government and TGA played in supporting medicine supply during the pandemic. Looking forward SHPA recommends that the Australian Government utilise policy and regulation to ensure that Australia's medicines supply system is strengthened to reduce the chance that Australian hospitals are left at risk of undersupply of key medicines during a global pandemic.

1.2 Clinical engagement with pandemic medicines supply chain

SHPA was pleased to be able to participate in the Medicines Shortages Working Party (MSWP) convened by the TGA. The MSWP comprised of representatives from the TGA, pharmacy associations, medical associations, and the pharmaceutical sector. A subset of this group made up of the TGA, pharmaceutical manufacturers and wholesalers, was formed to specifically address the management of available stock.

Despite a request from pharmacy organisations there was no formal pharmacy representation in this subgroup focused on managing stock in shortage and at risk of shortage. This may have contributed to the implementation of a strategy which relied heavily on 'historic supply' and existing customer relationships with wholesalers. Greater understanding of hospital procurement specifically would have highlighted the problems with a blanket policy of 'part' or 'back-ordered supply' without the need for SHPA to undertake a weekly survey.

SHPA members reported that during the pandemic period (starting mid-March until mid-May) regardless of jurisdictional plans, wholesalers and manufacturers advised hospitals that orders were being supplied at 'historic levels'. Several factors contributed to increased order volumes leading to this wholesaler response. Principal factors were the expectation that medicines would be available on site to enable the increased ventilator fleet to be utilised for treating critically ill COVID-19 patients, and that once this intervention had been commenced, continuation of a patient's treatment was not reliant upon further procurement of critical medicines. Although this has been described as 'stockpiling', from the point of view of clinicians responsible for patient care, and from the patient's perspective as well, this reliability of medicines supply is a minimum expectation. Managing warehouse-imposed supply restrictions presented a range of challenges for hospitals including:

- Hospitals reported that wholesalers did not ascertain the appropriateness of orders before cancelling them, leaving hospitals without stock for normal activity as well as COVID-19 planning.
- One major wholesaler advised that as policy it could not check whether an order was from a hospital versus a community pharmacy and therefore that all customers would receive the same limited quantity regardless of order size.
- Hospitals seeking to establish additional ICU capacity were refused stock because their new orders did not match their 'historic supply'.
- Hospitals were forced to allocate pharmacy staff, who would otherwise be providing direct patient care, to following up part-orders, cancelled orders and back orders.
- Unreliability of supply of medicines, other than those for treatment of COVID-19 patients, meant that ongoing treatment of patients with a range of chronic illnesses became problematic requiring diversion of additional resources to prevent interruption to therapy.

The TGA was tasked by the Australia Government with monitoring and managing medicine shortages during the pandemic period. Whilst SHPA appreciated the opportunity to contribute to the Medicines Shortages Working Group and to present weekly results from hospitals this was insufficient to ensure that hospitals were not negatively impacted. Greater involvement by hospital pharmacists in the discussion of allocation strategies and management of stock from a clinical and hospital operational perspective would have improved the capacity of the response to the pandemic.

1.3 Support for medicine supply to regional, rural, and remote hospitals

During the pandemic regional, rural, and remote hospitals faced significant additional challenges in accessing medicines. Additional support from the Australian Government to prioritise their medicine supply or support transport would be valuable in future emergencies.

SHPA's COVID-19 Hospital Pharmacy Capacity Snapshot Series demonstrated that regional, rural, and remote hospitals experienced a higher rate of part-order supply and orders placed on backorder for key medicines to support ventilator-capable ICU beds when compared to metropolitan hospitals. Whilst most COVID-19 patients have and are expected to be treated in metropolitan hospitals a significant number of regional, rural, and remote hospitals have treated COVID-19 patients.

	Full order received					Part order received					None/Backorder				
	17 Apr	24 Apr	1 May	8 May	15 May	17 Apr	24 Apr	1 May	8 May	15 May	17 Apr	24 Apr	1 May	8 May	15 May
Metropolitan	43%	47%	51%	37%	26%	34%	26%	21%	27%	34%	22%	27%	28%	36%	40%
Regional/Rural	49%	39%	35%	36%	46%	20%	28%	28%	17%	16%	30%	33%	38%	47%	38%

Table 1: Supply of key medicines by location category

Regional, rural, and remote hospitals reported a greater rate of, and more widespread, medicine supply disruptions than metropolitan hospitals. Existing geographic challenges were exacerbated by border closures which put pressure on freight delivery routes, whilst increased order sizes drove competition for scarce stock. When combined with wholesaler restrictions, which did not prioritise particular hospital types or locations, regional, rural and remote hospitals were significantly disadvantaged. The reports of disrupted supply were first received in early March and continued until the end of the snapshot survey in mid-May. As late as early May, the high rate of backordering key medicines continued to be reported, with 47% of orders recorded as backorder for regional hospitals compared to 36% for metropolitan

hospitals. In one week of the survey 90% of medicine orders for responding rural and remote hospitals were reported to be on 'backorder'. Notably this was not only key medicines related to ventilation but more broadly across many drug classes.

SHPA members in regional, rural, and remote hospitals reported that:

- Wholesalers did not ascertain the urgency or appropriateness of orders before cancelling them without notification that this had occurred.
- Some wholesalers reduced their regional and state-wide customer service capacity during the pandemic making it more difficult for hospitals to highlight key orders or negotiate levels of supply.
- Regional hospitals seeking to establish additional ICU bed capacity were refused stock because their new orders did not match their 'historic orders'.
- Regional, rural and remote hospitals suffered extremely high levels of 'backorders', 'orders unable to be placed' and 'order cancelled'.
- With the closure of borders and cancellation of air traffic hospitals were unable to have stock that was allocated to them delivered.
- Regional hospitals, without dedicated procurement staff, were advised to order daily meaning that clinical staff had to be allocated to the procurement work, removing them from patient care.
- Despite awareness that the restricted supply system was not 'workable', remote hospitals were discouraged from requesting managerial intervention as it would 'involve a number of people and processes'.

Given that the major surge did not materialise; the impact of the pandemic on access to medicine supplies for regional, rural and remote hospitals, and the speed with which it was felt, was surprisingly significant. SHPA recommends that the Australian Government commit to providing additional policy or regulatory support to regional, rural and remote hospitals in the case of future emergencies such as a pandemic.

1.4 Transparency regarding role of Australia strategic medicine reserves

During the pandemic there was lack of clarity regarding the existence, contents, and access requirements of the federal National Medicines Stockpile. Knowledge of these three elements would be key to ensuring effective resource allocation during the pandemic. In particular, the inclusion of key medicines to support ventilation of critically ill patients was uncertain, leading to an attitude of self-reliance across hospital networks or, in some cases at the institutional level. Throughout the pandemic period, SHPA was unable to ascertain if the National Medicines Stockpile was a relevant resource for hospitals.

Similarly, information relating to jurisdictional medicine reserves was inconsistently available. By mid-May a majority of Directors of Pharmacy in various jurisdictions were aware that reserves of critical medicines were being established by their jurisdictional governments, but most reported that they did not know the extent or whether they could rely upon it. In contrast some members reported that their jurisdictions were able to effectively introduce access to key medicines in a timely manner to the benefit of their hospitals, notably New South Wales.

Question	Yes	No	N/A
Are you aware of a strategic medicine reserve you can draw on if your hospital is unable to supply adequate medicines to meet demand?	**78%**	22%	-
Are you aware of the extent of this reserve?	33%	**57%**	10%
Are you confident it will meet the demands in event of your planned for surge scenario?	10%	**75%**	15%

Table 2: Poll of Directors of Pharmacy week commencing Monday 18 May 2020

Whilst there may have been broad understanding of strategic medicine reserves at the regulatory and policy levels of the federal and jurisdictional governments this information was not communicated to the people responsible for working on this issue on a day-to-day basis. Sixty-seven per cent of responding Directors of Pharmacy reported they were *independently* determining appropriate stock holdings which indicates they were not considering any broader supply plans, or reserves.

The lack of clarity impeded the work of hospitals to ensure medicines access for patient treatment. In future it would be valuable if the Australian Government increased the information available regarding medicine reserves during non-pandemic periods so that protocols for access during pandemics are well understood.

1.5 Medicines access issues for Aboriginal and Torres Strait Islander people exacerbated by COVID-19 pandemic

Aboriginal and Torres Strait Islander people face significant barriers in accessing and using medicines, which were exacerbated by the COVID-19 pandemic. In response to well-known inequities the Australian Government has created several tailored programs which support access to PBS medicines during standard use. During the pandemic these programs were ill-suited to supporting access, especially for those in rural and remote locations relying on the S100 RAAHS program. In future tailored pandemic interventions are required to ensure this vulnerable population in both is not additionally disadvantaged in either metropolitan or regional locations.

The COVID-19 pandemic highlighted the unintended barriers that the various Aboriginal medicines access program rules include for the sickest and most vulnerable patients; those with chronic disease and multiple medicines that require regular review by their primary care providers, specialists and admissions to hospital. For example, patients who live in a remote area are currently unable to access their medicines funded under the S100 RAAHS program directly from their nominated pharmacy. This rule prevents access even if the patient is an urban area to receive medical care and despite the pharmacy having current and valid prescriptions available written by their primary care provider. During the COVID-19 response this was problematic as people who live in remote communities were required to quarantine/isolation in urban settings before being able to return home due to biosecurity provisions. Recently announced revisions in the 7CPA may relieve this specific issue which would be a positive development.

The following revisions would also greatly improve the accessibility of medicines during a pandemic for Aboriginal and Torres Strait Islander people:

- Allow hospital prescribers to indicate patients are eligible for the CTG measure for day admitted patients, patients seen in outpatient settings, in Emergency and on discharge.

- Allow hospital pharmacies to dispense medicines for patients that are eligible for the CTG initiative under this payment structure.

1.6 Nationally coordinated approach to allocation of medicines during a pandemic

The Australian Government's Department of Health worked effectively to collaborate with the jurisdictional governments across a wide range of issues during the COVID-19 pandemic. Access and supply of medicines presented a challenge as discussed previously. The development of a national approach to medicine supply and allocation during a pandemic would be beneficial for future events. Without this guidance historic differences between federal and jurisdictional authorities, coupled with the lack of transparency around planning and medicines held in hospitals may reduce the capacity of Australian hospitals to respond to a significant surge in case numbers, due to difficulties in sharing information, systems and resources.

SHPA understands that even prior to the pandemic, different jurisdictional governments had differing capacities and oversights of their hospital pharmacies depending on the governance and administration structure and relationships between the bureaucracy and hospital pharmacy departments. Jurisdictions that had more extensive relationships with their hospitals and hospital pharmacies generally had better oversight of key medicines stocks and were able to leverage existing communication channels with Directors of Pharmacy to assist them with preparedness planning for the COVID-19 pandemic.

For example, South Australia, Tasmania and Queensland have centralised hospital services including centralised hospital pharmacy functions. This means that the jurisdictional government can have a direct hand and oversight of purchasing, warehousing, and distribution of medicines to public hospitals. This oversight is extremely helpful in directing the timely coordination of key medicine stocks to hospital sites that are in need in the event of a localised surge of COVID-19 cases.

Jurisdictions such as Victoria lack centralised hospital services and hospital pharmacy functions, so lack the oversight of their public hospital pharmacy departments available in other jurisdictions. This means that data on key medicines stocks to support ventilator-capable ICU beds, is not readily available, significantly hampering the ability to assist health services to prepare for the pandemic and potential surge in cases. The pandemic also exposed the lack of collaboration and communication channels among hospitals within the same jurisdiction where there were no centralised pharmacy functions. The provision and reporting of medicine stock availabilities in states with centralised pharmacy is undertaken in a swift and efficient manner underpinned by clear objectives and outcomes. However, when similar activities were attempted in other jurisdictions, the historic lack of communication channels, collaboration, and logistical infrastructure, meant that this could not be undertaken efficiently to assist with pandemic preparedness.

Overall SHPA believes that the COVID-19 pandemic exposed some key weaknesses in the relationships between Australian federal and jurisdictional governments with respect to medicines procurement. Greater exchange of information and collaboration between governments responsible for health care would be beneficial. Improved leadership and governance is required to prepare Australian hospitals for future response to pandemics and public health crises. One possible action supported by SHPA is the reinstatement of the position of Chief Pharmacist at the federal Department of Health and the establishment a forum with comparable positions from all jurisdictions.

SHPA recommends that there be greater collaboration between Australian federal and jurisdictional governments on medicines and pharmacy policy, such that during a global pandemic, as it assists to secure key medicines and ensure they are supplied to areas in need in a timely manner.

2. HOSPITAL PREPAREDNESS

2.1 Updated modelling to enable revision of preparedness plan

The Australian Government was quick to provide information to the community and jurisdictions regarding the risk presented by COVID-19. This enabled meaningful widespread activity which greatly enhanced the effectiveness of the response to the pandemic threat. However, access to the modelling which informed those decisions has been limited, and revised information has been slow to be delivered.

When initial directives were given to expand hospital bed capacity to prepare for a surge in COVID-19 cases, the modelling undertaken by federal or jurisdictional governments to support these decisions was not publicly made available. Thus, as the rate of new cases in Australia slowed and the low extent of community transmission of COVID-19 became clearer, many directives for hospitals to ramp up capacity remained unrevised, in the absence of consensus modelling predicting case numbers in the short to medium future. This has led to confusion in relation to medicine procurement, workforce planning and medicine conservation.

Federal Department of Health modelling from mid-April predicted that even with quarantining and social distancing measures in place, Australia would hit a peak of ~5,000 daily ICU bed demand in Week 43 since the pandemic began. Given current reports this scenario appears unlikely, however there has been no updated modelling released by the Commonwealth. Similarly, if there has been any modelling undertaken by the jurisdictional governments, this has also not been made publicly available. Hospitals, like many other organisations, would benefit from greater access to this information.

As Australia and its jurisdictions gradually eases restrictions in a staggered manner, modelling for a second wave of COVID-19 in Australia is required to assist health services and hospital pharmacy departments to better prepare for ongoing treatment requirements. This modelling must include realistic case number growth rates and medicines usage data to understand both the absolute case numbers that can be managed through existing socks and supply capacity but also the rate of utilisation of medicines to determine the likely point were escalation of supply measures would be needed to prevent exhaustion of the medicines supply. This would also assist evaluation of the expected impact of the resumption of elective surgery.

2.2 Variations in regulatory change relating to pharmacy and medicines

SHPA commends the timely alteration of legislation and regulation regarding prescription medicines supply by the federal and state governments to support the safe supply of medicines to patients during the COVID-19 pandemic. Primary to these were revisions which enabled dispensing from digital images, emergency supply of medicine without a prescription and support for postal supply of medicines to reduce the risk of transmission.

Despite clear need, hospitals were initially excluded from regulatory changes related to dispensing from digital images and emergency supply of PBS medicines. These included the *National Health (COVID-19 Supply of Pharmaceutical Benefits) Special Arrangement 2020* and *National Health (COVID-19 Supply of Pharmaceutical Benefits) (Expansion of Telehealth and Telephone Attendances) Special Amendment 2020* as well as the *National Health (Continued Dispensing – Emergency Measures) Determination*

2020. Hospitals were also excluded from arrangements with Australia Post to encourage the mailing of medicines to patients. Over the pandemic period revisions to regulations were implemented which enabled hospitals to participate in most of these areas in many jurisdictions. However, future responses would benefit from a comprehensive implementation across pharmacy sectors to reduce the need for revision and alignment afterwards.

3. WORKFORCE CAPACITY

3.1 Workforce capacity revisions to mitigate the risk of a surge

Like many areas of health care, the hospital pharmacy workforce was at risk of being overwhelmed if a major surge had eventuated as projected. Regional, rural, and remote hospitals are at highest risk due to the low number of pharmacists employed by these facilities. Non-PBS states/territories were also a higher risk due to the fewer clinical pharmacist roles currently employed per hospital bed. Given this, SHPA was pleased to see the Australian Government's effort to support the capacity of the hospital pharmacy workforce through the automatic re-registration of all pharmacists by the Pharmacy Board of Australia. Whilst a surge workforce was not ultimately utilised this was a practical step which enhanced the workforce capacity to respond to the pandemic if required.

Looking forward SHPA would like to see greater consistency in hospital pharmacy service provision across jurisdictions to mitigate the risk of suboptimal care and possible workforce failure during emergency events. The ACT and NSW are the only two jurisdictions who are not signatories to the Pharmaceutical Reforms Agreement, meaning that patients receive less access to PBS medicines at discharge, and also that the lack of PBS revenue streams also means these hospital pharmacy departments have less clinical workforce capacity.

The below tables utilises data from the National Health Workforce Data Set to demonstrate that NSW and ACT have the highest ratio of hospital doctors per hospital pharmacist, and the lowest ratio of hospital pharmacist per 100 public hospital beds compared to jurisdictions that are signatories of the Pharmaceutical Reform Agreements. This means that hospital pharmacists in these states have a much larger clinical workload in both treating patients and assisting hospital doctors and would have been likely to be under greater pressure during a surge.

State	Number of hospital doctors per hospital pharmacist
New South Wales	9.1
Australian Capital Territory	8.9
Victoria	6.0
Queensland	6.4
South Australia	6.5
Western Australia	6.8
Tasmania	5.9
Northern Territory	9.6

Table 3: Number of hospital pharmacists per hospital doctor (National Health Workforce Data Set, 2017)

State	Hospital pharmacists per 100 public hospital beds
New South Wales	6.3
Australian Capital Territory	7.7
Victoria	10.6
Queensland	10.6
South Australia	8.9
Western Australia	10.1
Tasmania	10.3
Northern Territory	8.9

Table 4: Number of hospital pharmacists per 100 public hospital beds (National Health Workforce Data Set, 2017)

3.2 Funding for health peak bodies undertaking key roles during the pandemic

During the pandemic many health professional membership organisations in medical and allied health fields worked to support their members for the benefit of the Australian healthcare system. A small but strategically important group, the hospital pharmacy workforce is approximately 5000 pharmacists working in acute settings nationally to treat patients, manage medicine procurement and reduce the risk of adverse medicine events. The Society of Hospital Pharmacists of Australia is the professional peak body for pharmacists working in the acute setting providing education, resources, connection between members and collective advocacy on key issues impacting on patient care. SHPA does not receive peak body funding from the Australian or any jurisdictional government.

During the COVID-19 pandemic, SHPA provided crucial resources to its members and hospital pharmacy departments across Australia to manage and prepare their health services. These services, which included bi-weekly teleconferences for pharmacy managers across the sector, increased the capacity of hospitals to respond to preparedness planning by sharing information about treatment, medicine supply and pandemic management. SHPA also provided tools to support a hospital pharmacy surge workforce by extending access to resources to non-members to ramp up training and creating a workforce register of pharmacists able to take on roles in hospitals if required. Engagement with these activities funded by SHPA members was very high and feedback from participants very positive.

SHPA's medicine management advice, medicines shortage snapshots and conservation strategies were also in demand from medical, nursing and allied health stakeholders, meeting a need regarding acute medicines that is not addressed by current peak bodies. In addition, SHPA provided information resources, training and collaborative support to more than 400 non-members. These include pharmacists who stepped forward to work in hospitals during this period of global pandemic but who were not current members. SHPA's expanded role has benefited the Australian community, and supported the Australian Government's medicine policy and regulation activities, as well as supporting the activities of public and private hospitals.

During the global pandemic SHPA has also advised the TGA regarding the supply of medicines to hospitals nationally as part of the Medicines Shortages Working Group. This involved undertaking the weekly Hospital Pharmacy Capacity snapshots, analysing, and reporting on the findings. It presents a range of recommendations for future government consideration. All this work was undertaken without

government funding, so was at direct cost to members. A copy of the final report for this project is included in the Appendix.

Resources and tools to support SHPA membership	Reach
Hospital Pharmacy Capacity snapshots – a series of surveys to inform federal government of the hospital systems capacity during the pandemic	Five surveys and summary reports, shared with TGA, state and federal Departments of Health, 5000 SHPA members, and general public
Bi-weekly Directors of Pharmacy COVID-19 Management and Workforce Resource video conferences	Attendance averaging over 100 Directors of Pharmacy each week
Hospital Pharmacy Preparation Checklist	Shared with all Directors of Pharmacy and 5000 SHPA members
Hospital Pharmacy Workforce Relief Register	More than 900 registrations of pharmacists, pharmacy technicians and pharmacy students
Hospital Pharmacy Relief - Introductory training for those with less than six months hospital experience	More than 1,400 participants
Hospital Pharmacy ICU Upskilling Package	4,245 people accessed package
COVID-19-member discussion forum	5715 participants, 356 posts over 148 discussion threads
COVID-19 webinar series	More than 6,330 views
Update to the Australian Injectable Drugs Handbook (8th edition) - New section on optimal management of injectable medicines for Australians with COVID-19 disease	Shared with all Directors of Pharmacy and 5000 SHPA members
COVID-19 Quick Guides to help navigate newly authorised emergency supply provisions relating to emergency supply of medicines and digital image prescriptions	Shared with all Directors of Pharmacy, 5000 SHPA members and general public
Example 4-bed HDU imprest list for health services setting up new and temporary high dependency units needing guidance on imprest items	Shared with all Directors of Pharmacy, 5000 SHPA members and general public

Table 5: SHPA activities during COVID-19 period

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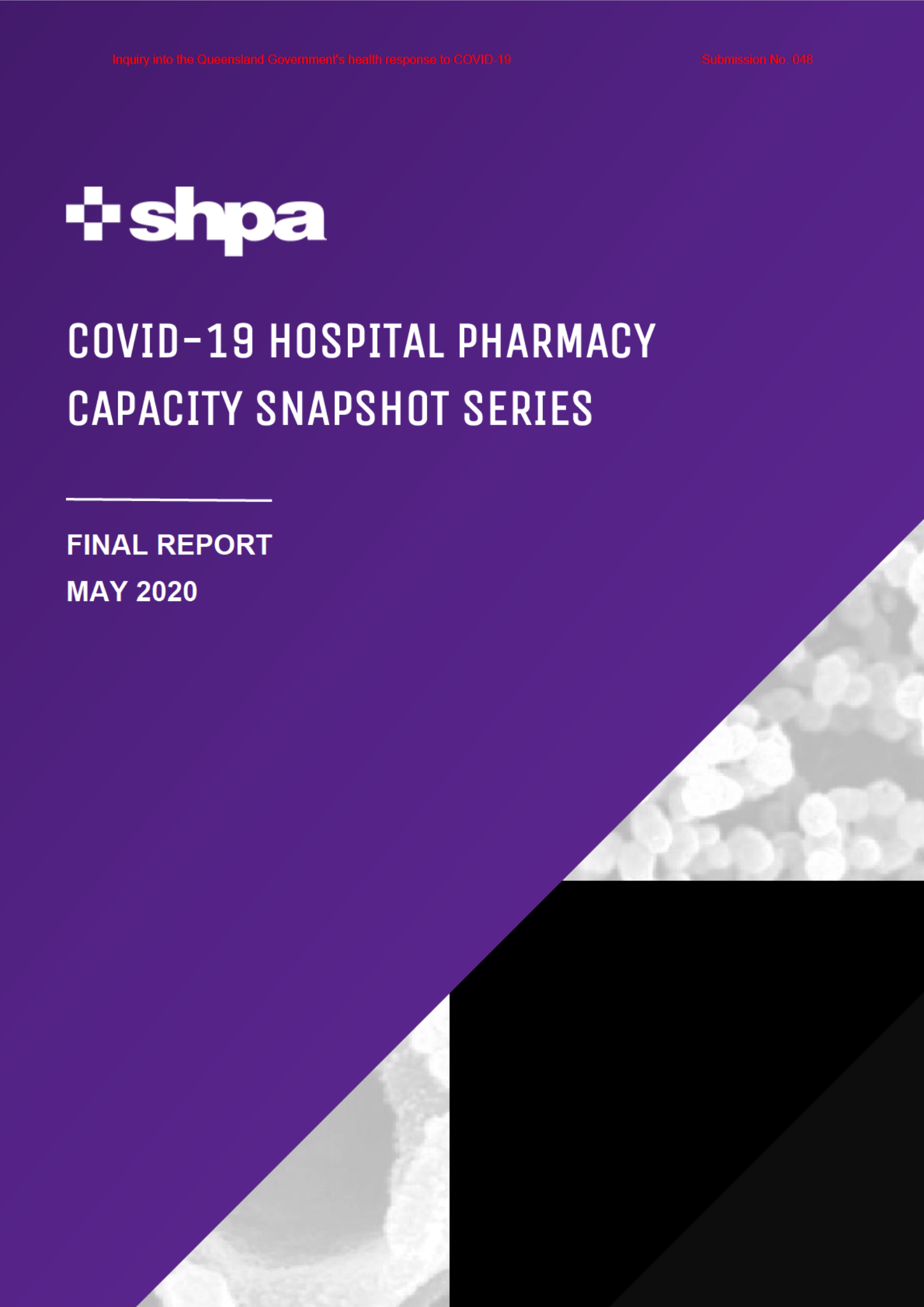
COVID-19 HOSPITAL PHARMACY CAPACITY SNAPSHOT SERIES

FINAL REPORT

MAY 2020



Over five consecutive weeks in April-May 2020, the Society of Hospital Pharmacists of Australia (SHPA) surveyed members regarding medicines on-hand, supply from pharmaceutical wholesalers and manufacturers and hospital capacity and workforce issues in order to gain insights into hospital pharmacy operations in the early stages of the national response to the COVID-19 pandemic. Two hundred and seventy-two responses were received. While snapshot reports were provided each week to the Therapeutic Goods Administration (TGA)'s Medicines Shortages Working Group, a final report, including recommendations, is hereby provided. Not all information gathered is discussed in this report.

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1. Summary of key issues

SHPA's first COVID-19 Hospital Pharmacy Capacity Snapshot ('capacity snapshot') was produced on Friday 17 April 2020, the week after the release of Federal Government modelling which predicted a total of three million COVID-19 cases in Australia, resulting in 20,000 hospitalisations requiring 5,000 ICU (ventilator capable) beds.

Despite effective governmental cooperation on procurement of ventilators and personal protective equipment (PPE), hospitals were left to compete for medicines necessary to support the treatment of COVID-19 patients on the open market. With no visibility of available stock from wholesalers, or their place in the customer queue, pharmacy departments attempted to procure stock of critical medicines to support the full capacity called for in their jurisdictional preparedness plans.

Given that typical hospital medicines procurement aims to carry a minimal inventory, this shift to procurement driven by the need to prepare for an impending pandemic demonstrates a substantial change in strategic demand for medicines. It replaces the 'just in time' model – through which hospitals carry minimal stock (often restocking several times per week) – with a 'preparedness' model, whereby hospitals or hospital networks seek to hold enough medicines to treat a significantly larger number of patients concurrently. The need for a shift in gears towards a 'preparedness' model was elicited from Directors of Pharmacy, who were called upon by their hospital management and jurisdictional health departments to implement action plans which included the establishment and support for an increased number of ventilator-capable ICU beds. For these plans to be activated hospitals required medicines to be 'on-hand'.

Our results demonstrated that Directors of Pharmacy were unable to implement jurisdictional preparedness plans effectively, flagging key concerns about the robustness of the medicine supply chain in Australia. Given the well-known challenges of medicine supply during non-pandemic times and a reliance on manufacturing in Europe and China, Directors of Pharmacy predicted early that medicine shortages would be exacerbated by a global pandemic. Our reports indicate that hospitals acted responsibly, ordering only enough stock to meet their hospital's preparedness plans (sometimes less) and continuing to order when deliveries were not met as requested. Although it was widely understood that strategic medicines reserves did exist in some jurisdictions, Directors of Pharmacy were largely unaware of specific information such as their actual or intended extent, and their ability to be accessed if needed.

With consistent responses nationally, ranging from forty-five (45) to sixty-six (66) hospitals (272 in total), hospitals remained highly engaged with this topic across the snapshot period (17 April to 15 May).

While stocks of propofol increased over the survey period, access to neuromuscular blockers remained acutely uneven and generally insufficient should a significant second surge of COVID-19 cases emerge. This will be a key concern over the next six months as elective surgery resumes and the possibility of a surge remains with lifting of containment measures.

SHPA's five surveys capture the high level of concern held by hospitals as they endeavoured to support jurisdictional preparedness planning. In addition, hospitals held concerns about the impact of the

pandemic on their workforce and their ongoing capacity to procure and manage stock daily if the workforce was reduced as projected. This was particularly pertinent for regional and rural hospitals.

When considered in relation to preparedness plans implemented by the jurisdictions, hospitals are still unable to access sufficient medicines to meet expectations. This highlights the fragility of the 'just in time' model. The uncertainty experienced by hospitals during this pandemic period may result in an ongoing change in demand for medicines as hospitals and jurisdictions place greater priority on certainty of medicines availability in times of emergency.

2. Key points

- Jurisdictional plans required a broad range of hospitals to increase their number of ventilator-capable beds by up to two hundred and fifty per cent (250%) and to have medicines 'on hand' to support these.
- While awareness of jurisdictional strategic medicines reserves was common among Directors of Pharmacy, there was little understanding of their actual or planned extent, leading to a lack of confidence in the ability to call upon such reserves if cases were to surge.
- Hospitals continue maintaining larger numbers of ventilator-capable ICU beds than in the pre-COVID era, and orders for critical medications have been in line with this requirement. SHPA did not find evidence of hoarding or stockpiling at the hospital level.
- Fifty-one percent (51%) of hospitals who participated in this snapshot have admitted patients with confirmed diagnoses of COVID-19 for treatment in either a High Dependency Unit (HDU) or ventilator-capable ICU bed.
- Fifty-seven percent (57%) of hospitals that had managed COVID-19 patients were in metropolitan areas, thirty-seven per cent (37%) in regional areas and six per cent (6%) in rural/remote locations.
- Medicines were not supplied as ordered to hospitals who have been managing COVID-19 patients in their HDUs and ICUs.
- Hospitals in regional, rural and remote locations continue to be less confident in their access to medicines and report greater difficulty in having orders filled.
- Hospitals also faced significant workforce issues related to managing procurement and inventory of critical medicines if the COVID-19 surge had materialised which contributes to advance ordering.
- As fewer orders were fully supplied, hospitals increased orders with a range of suppliers in order to mitigate the risk of undersupply should a surge materialise.

3. Demographics

From Friday 17 April to Friday 15 May 2020, SHPA's survey was completed confidentially by two hundred and seventy-two (272) respondents on behalf of hospitals. Many hospitals responded each week, while some responded less frequently. Participating hospitals were broadly representative with a majority from the public sector, while private hospitals accounted for fifteen per cent (15%) of

respondents. Across the snapshot period, responses were spread across regional (37%), rural/remote (17%) and metropolitan (46%) areas.

4. Strategic medicine reserves

According to polls conducted by SHPA in mid-May, Directors of Pharmacy were aware that reserves of critical medicines were being established, but unaware of which medicines are in these reserves, how much is stored, or how they could be accessed in an emergency (see Table 1). This indicates that information from jurisdictional governments regarding medicine reserves has failed to support hospital confidence, if this was the intention.

- Sixty-seven per cent (67%) of Directors of Pharmacy reported they were independently determining appropriate stock holdings to support their hospital's COVID-19 management plan.
- Seventy per cent (70%) of Directors of Pharmacy reported their preparedness plans have been modified over the five weeks of the capacity snapshots to respond to the volume of COVID-19 admissions.

Question	Yes	No	N/A
Are you aware of a strategic medicines reserve you can draw on if your hospital is unable to supply adequate medicines to meet demand?	**78%**	22%	-
Are you aware of the extent of this reserve?	33%	**57%**	10%
Are you confident it will meet the demands in event of your planned for surge scenario?	10%	**75%**	15%

Table 1: Poll of Directors of Pharmacy week commencing Monday 18 May 2020

5. Hospital capacity

Hospitals participating in SHPA's capacity snapshots are playing an essential role in Australia's response to the COVID-19 pandemic. After initially aiming to boost ICU and HDU beds by up to two hundred and fifty per cent (250%), most hospitals have revised their original preparedness plans as the COVID-19 pandemic has evolved.

- Fifty-one per cent (51%) of hospitals who participated in capacity snapshot series have treated patients with a confirmed diagnosis of COVID-19 in either an HDU or ventilator-capable ICU bed.
- Fifty-seven percent (57%) of these hospitals were in metropolitan areas, thirty-seven per cent (37%) in regional areas and six per cent (6%) in rural/remote locations.
- Across the survey series, hospitals have consistently indicated they were planning for a maximum ventilator-capable ICU bed capacity of approximately two and a half times (~250%) their pre-COVID-19 capacity.

- The responding hospitals planned to maintain an average of sixteen (16) ventilator-capable ICU beds over the next month. On average hospitals were intending to maintain an additional fifty-three per cent (53%) of ICU beds.
- Thirty-one per cent (31%) of hospitals reported they planned to maintain additional ventilator-capable ICU beds past the end of June 2020, and seventy-seven per cent (77%) planned to maintain increased inventory of critical medicines in the event of a surge.

6. Medicine treatment projections

To identify medicine shortages that could limit clinicians' capacity to treat critically ill COVID-19 patients, SHPA built projections of medicine requirements for additional ICU and HDU beds established by hospitals as part of their preparedness plan. Treatment for critically ill patients with COVID-19 typically involves intubation and ventilation, requiring the use of anaesthetic and neuromuscular blocker agents such as propofol and cisatracurium.

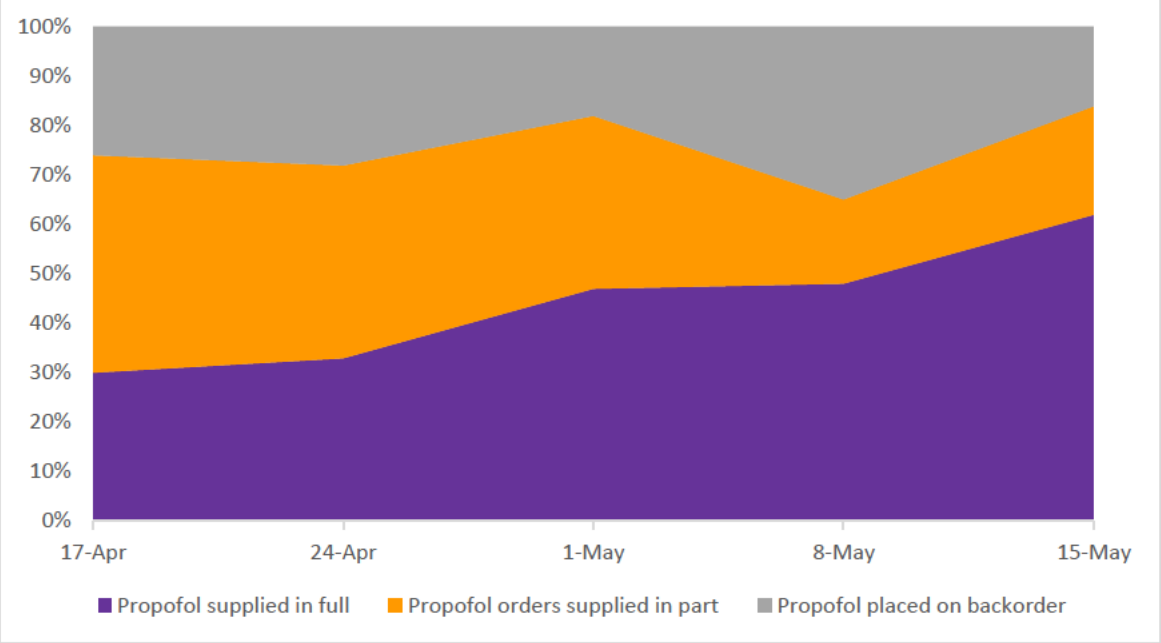
- During the snapshot period, hospitals had insufficient medicines to ensure all ventilator-capable beds could be utilised.
- The majority of participating hospitals reported insufficient stock of propofol and neuromuscular blockers to treat patients should all their beds be required for the typical ten-day length of stay/admission.
- A significant subset of these hospitals reported insufficient stock of propofol and neuromuscular blockers to treat patient numbers equivalent to their full ICU bed capacity for a single day.

7. Medicine shortages

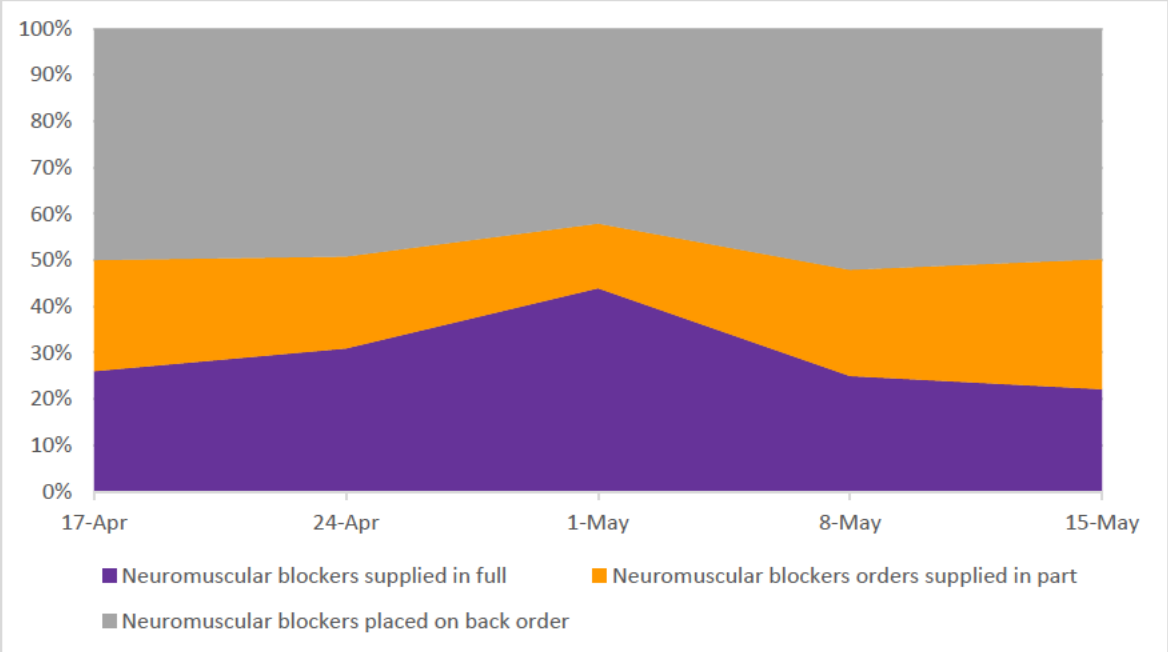
Hospitals were directed by jurisdictional authorities to procure medicines to support an increased number of ventilator-capable beds as part of COVID-19 planning. In most cases they were unable to do this to an adequate level. In particular, they were unable to obtain sufficient neuromuscular blockers to support widespread intubation and ventilation, an essential treatment for critically ill COVID-19 patients.

Initial reports by hospitals indicated eighty percent (80%) of propofol orders were not supplied in full. Subsequent questions sought to establish the appropriateness of these orders; analysis of these results indicated propofol orders over the full study period were well short of meeting respondents' increased ICU bed capacity.

Across the snapshot period (17 April – 15 May) backorders of propofol and neuromuscular blockers (NMB) were steady, with backorders typically more common than supply. While propofol supply showed gradual improvement (see Graph 1), neuromuscular blockers did not (see Graph 2).



Graph 1. Propofol order by partial, full and backordered supply



Graph 2. NMB order by partial, full and backordered supply

- Considering propofol dosing to maintain sedation for ventilated patients is a continuous infusion (not bolus injection), and assuming all orders were for the ICU (propofol is also used for anaesthesia), the quantity ordered between 11 April –11 May by all hospitals was only sufficient to supply the pre-COVID-19 ICU capacity. Propofol orders over the full study period were therefore well short of meeting expanded ICU bed capacity.
- Stocks of critical medicines including; cisatracurium, rocuronium, atracurium, vecuronium, pancuronium and propofol remain problematic even after the first threat of a surge has passed. Of these, vecuronium supply is the strongest at the time of the final report, with sixty-seven per cent (67%) of orders supplied in full.
- Stock levels of cisatracurium remain persistently low, with sixty-three per cent (63%) of requests across relevant products reported as either 'order unable to be placed' or 'backorder'.
- Regional, rural and remote hospitals have reported significantly higher experience of part-orders and orders placed on backorder over the snapshot period.
- Most often this is the result of a lower delivery of 'part-orders' which is often ten per cent points lower than the metropolitan rate.
- In one week (8 May report) it was reported that ninety per cent (90%) of rural/remote orders were placed on backorder, with only three per cent (3%) of orders received in full and seven per cent (7%) in part.

8. Resumption of elective surgery

SHPA is supportive of the need to resume elective surgery, recognising its important role in maintaining community health. Surgery largely utilises the same pool of medicines used to treat critically ill COVID-19 patients, meaning that use for one purpose reduces capacity for other use. Our members were concerned that the resumption of elective surgery could impact negatively on capacity for treatment of critically ill COVID-19 patients.

- In late April – early May more than eighty per cent (80%) of hospital respondents were less confident or unsure their propofol supply chains would sufficiently meet the demands of both COVID-19 planning and elective surgery.

9. Clinician confidence in medicine supply

Over the first four surveys, Directors of Pharmacy were surveyed regarding how confident they were on procuring the clinician-preferred medicines for treatment of critically ill COVID-19 patients at current capacities and planned capacities.

While confidence for treatment at current capacity improved steadily over the four weeks as Australia continued to flatten the curve, confidence for treatment at the maximum planned capacity remained persistently low. Half of respondents consistently said they had little or no confidence in managing the maximum planned capacity.

In response to current planned ventilator capacity over the next month only twelve and a half per cent (12.5%) of respondents expressed high levels of confidence in this regard (see Table 2).

Not at all confident	Not so confident	Somewhat confident	Very confident	Extremely confident
8.5%	19.5%	58.5%	4%	8.5%

Table 2: Clinician confidence of stock supply for next four weeks as of Friday 15 May 2020

10. Key recommendations

1. Assess actual medicine use in Australian ventilated COVID-19 patients to provide greater clarity on future requirements (in the event of a resurgence of cases or another pandemic).
2. Undertake epidemiological modelling to assess the risk of a second wave of COVID-19 cases, incorporating an exponential growth phase, occurring across multiple sites, to assist in assessing the appropriateness of medicines supplies, as mitigating measures are rolled back.
3. Strengthen Australia's medicines supply system to reduce the chance that Australia is left at risk of undersupply of critical medicines during an international pandemic.
4. Encourage and foster collaboration between Australia's jurisdictions on access to medicines to aid emergency preparedness.
5. Increase transparency of medicine stocks held in hospitals to enable smoother coordination of efforts to move stock if required.
6. Provide additional support to regional, rural and remote hospitals, who face a greater challenge due to limitations on transport and travel, with resulting prolonged delays in the supply of medicines.

11. Conclusion

SHPA's five weekly surveys capture a high level of concern held by hospitals (272 responses) during preparation for the COVID-19 pandemic. Despite regular discussion at high levels of government, visibility of medicines supply for hospitals was problematic during this period. This lack of transparency regarding the accessibility of medicines in wholesaler facilities, and potentially in government reserves, impacted hospital confidence and resulted in significant inefficiency as resources were diverted from clinical care to procuring stock that did not eventuate.

The situation for regional, rural and remote hospitals treating COVID-19 patients (43% of all hospital respondents that treated COVID-19 patients) is especially concerning given thirty-eight per cent (38%) of regional orders were placed on backorder in the final survey week. These regional and rural hospitals are required to work blind, as they seek to procure medicines to treat patients.

Fortunately, it seems less likely that an Australian surge is imminent, however the mid to long-term impact of COVID-19 in 2020 remains uncertain. SHPA is unaware of updated modelling that can inform the future

procurement of medicines for hospitals. We look forward to working with the government on policy and regulation which can improve this systemic issue to ensure Australian patients do not face the limitations on COVID-19 treatment that medicine shortages have imposed on patients in numerous other countries.