PHARMACY FORECAST AUSTRALIA 2023

SEPTEMBER 2023

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CONTENTS

1. ACKNOWLEDGMENTS

2. FOREWORD

The Society of Hospital Pharmacists of Australia (SHPA) is pleased to present *Pharmacy Forecast Australia 2023*, our third window into our nation's pharmacy future.

Pharmacy leaders drawn from every state and territory, covering regional and metro areas and hospitals of all sizes, have informed 35 recommendations, grouped into key themes impacting our healthcare system. The Forecast is a robust conversation-starter, a strategic thought leadership piece on emerging trends and phenomena forecasted to impact pharmacy practice and the health of Australian patients to 2028.

Importantly, SHPA's methodology remains unchanged, with the themes' questions, analysis and recommendations drawn directly from leading pharmacists and their colleagues (Forecast Panellists, or FPs) based on their experiences in a range of roles, covering all Australian jurisdictions and unrestrained by organisational limitations.

The 2023 report is divided into six themes: Pharmacist and technician scope of practice and expanded prescribing, Trust (health literacy, socio-economics factors), Pharmacy system risks and impacts, Preventative and personalised medicine, Business agility in hospital pharmacy and Healthcare access and hospital evolution.

Through the analysis and recommendations the Theme Leads provide advice and guidance on how to approach issues pertinent to our times such as driving the safe expansion of pharmacist-led prescribing roles, and the agility and mobility to apply their specialty medicines expertise where it is needed most (Theme 1).

Emerging from COVID-19, the Forecast also explores trust from many angles, between professions, between practitioner and patient, and the interconnectivity, security and respect that ensures safe and equitable care (Theme 2). Looking beyond our backyard, pharmacy system risks are analysed amid the realisation that generational 'black swan' events now seem to occur at alarming frequency, with discussion around the role of pharmacy in disaster planning and recovery, securing medicines supply and protecting and supporting the workforce through societal change (Theme 3).

On the technological front, pharmacogenomics is discussed, with an urgent call to ramp up planning now to ensure robust training is in place and planning sufficient to maximise the benefits and minimise risks associated with A.I., machine learning, pharmacogenomic testing and 3D printed medicine in hospital pharmacy and health care (Theme 4). Finally, the Forecast looks to the leadership and innovation required to ensure departments are operationally agile, informed by quality and timely data, and have the latitude to identify and upscale high-value care that delivers efficiency and better care outcomes (Theme 5). This flows into discussion of the funding, legislative, educational and cultural barriers, and how they can be overcome, to ensure hospital pharmacy continues to evolve and improve toward 2028 (Theme 6).

It has been a wonderful experience and privilege to see the Forecast continue to grow and evolve to this 3rd edition. On behalf of the Pharmacy Forecast Advisory Committee I thank our fantastic Theme Leads for their time and contributions. It is my hope your opinions and recommendations are discussed and debated in the spirit of our new Forecast tradition, in the interests of sharing information and ideas to improve medicines safety and patient care for all Australians.

Russell Levy
Chair, Pharmacy Forecast Advisory Committee

3. INTRODUCTION AND METHODS

Forecasting future events is key to creating strong strategic plans. The intention of *Pharmacy Forecast Australia* is to empower current and emerging pharmacy leaders, their healthcare colleagues and policy-makers with tangible solutions and ideas to address wide-ranging healthcare challenges.

AN ITERATIVE PROCESS

Pharmacy Forecast Australia 2023 draws on a central concept of James Surowiecki's *The Wisdom of Crowds*: the collective opinions of 'wise crowds' – groups of diverse individuals in which each participant's input is provided independently, drawing from their own locally informed points of view – can be more informative than the opinion of any individual participant.

The development process of the Pharmacy Forecast Advisory Committee (see Acknowledgements) saw a series of workshops identify and interrogate key issues and concerns they believed would influence health-system pharmacy in the coming five years, further informed by insight from SHPA's policy and advocacy activities. That list was expanded and refined through an iterative process, resulting in a final set of six themes, each with six focused topics on which the survey was built. Each of the 36 survey items was written to explore the selected themes in greater detail.

Survey Respondents – Forecast Panellists (FPs) – were nominated and selected by the Advisory Committee using the same criteria as the 2021 and 2022 editions and asked to respond to the questions as stated in this report based on their first-hand knowledge of current conditions in their region, not based on their understanding of national circumstances.

2023 FORECAST PANELLISTS

Responses were received from 107 FPs (a 73% response rate). Representation was captured from across all Australian states and territories: Vic (34%) and NSW (15%), Qld (17%), SA (8%), WA (11%), NT and Tas (6%) and the ACT sitting at 3% response rate. Most of the FPs (95%) had been in practice for greater than ten years, and 58% had been in practice for greater than 20 years.

Most FPs held the title of Chief or Director of Pharmacy, and all held senior positions. Most FPs indicated their primary practice setting / organisation was in the public sector (91%) and (7%) indicated private.

Over half of FPs described their primary practice setting / organisation as a metropolitan hospital (67%), while 20% indicated they were from a regional/rural hospital. Government/NFP departments or agency representation saw 10% and 8% were from academia.

Forecast Panellists reported their primary practice setting / organisations offered a diverse range of services, including home health or infusion care (65%), specialty pharmacy (82%), in-patient care (87%), ambulatory care (73%), paediatric care (55%), and hospice care (36%).

USER GUIDE TO THE *PHARMACY FORECAST 2023*

Each section of this report summarises one theme's survey responses in detail, with the results discussed, and used to inform recommendations that will stimulate strategic and policy planning. It is intended to stimulate thinking and discussion, providing a starting point for individuals and teams who wish to proactively position themselves for potential future events and trends rather than be reactive when they occur.

4. PHARMACY FORECAST AUSTRALIA 2023

THEME 1 — PHARMACIST AND TECHNICIAN SCOPE OF PRACTICE AND EXPANDED PRESCRIBING

Advisory Committee Leads: Melissa Faehrmann, Jonathan Penm
Theme Leads: Erica Tong, Brett Anderson

INTRODUCTION

Pharmacists are recognised as an important part of the healthcare system, however with increasing demands on the healthcare system due to factors like the COVID-19 pandemic and GP shortages, pharmacists and pharmacy technicians could be better utilised in providing clinical expertise and efficient medication management as a means to enhance patient care, decrease wait times in emergency departments and improve healthcare access across Australia.

In addition to funding for pharmacist-led services such as medication reviews and vaccination in community pharmacies, pharmacists could be more widely deployed and utilised within hospitals and in primary healthcare settings. Partnered Pharmacist Medication Charting and prescribing are examples of pharmacist-led models that should be more-widely implemented to improve medication safety and timely access.[1]

SHPA submitted recommendations to the Australian Federal Government for the 2023-2024 Federal Budget, including a Pharmacy Scope of Practice review to fully leverage the expanding roles of pharmacists and pharmacy technicians in Australia. The submission recognised that hospital pharmacists improve patient outcomes, reduce healthcare costs and optimise medication use.[2]

Re-defining or expanding pharmacists and pharmacy technicians' scope of practice is important to support safer, more efficient and cost-effective healthcare delivery by understanding and scaling effective care models, alleviating administrative pressures on medical and nursing staff and improving the overall healthcare system's performance in acute and outpatient settings.

REFERENCES

1. Society of Hospital Pharmacists of Australia. Partnered pharmacist prescribing 'benefits at every level' as SHPA launches National PPMC Credential.
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PARTNERED PHARMACIST MEDICATION CHARTING

Most Forecast Panelists (FPs) believe Partnered Pharmacist Medication Charting (PPMC) will be a standard of care in all Australian hospitals for the majority of patients admitted to hospital by 2028, with combined responses indicating that 81% thought this was either somewhat or very likely to occur (Figure 1, Item 1).

The Australian Health Professionals Prescribing Pathway describes a number of possible frameworks for pharmacist prescribing in Australia, including autonomous prescribing, prescribing under supervision and prescribing via structured prescribing arrangement.[1] The collaborative and interdisciplinary nature of health care teams within hospitals lends itself to the prescribing under supervision model, which involves the pharmacist and endorsed prescriber agreeing on a clinical management plan that is patient specific. This is a collaborative model where several Australian studies have shown it is appropriate for implementation in an acute inpatient hospital setting.

One multi-centre study[2] demonstrated the impact of the PPMC model on reduction of length of stay in hospital. The results of the study identified that, on average, one pharmacist would be expected to undertake the PPMC model for 5 to 10 patients per day, equating to potential savings of $4725 to $9450 per pharmacist per day.[3]

In the pilot study[4], randomised controlled trial[5] and the multi-site evaluation[2] of PPMC, safety of the model was demonstrated with a significant reduction in medication errors. The multi-site evaluation demonstrated that the proportion of patients with at least one medication error was reduced from 66% with PPMC to 3.6% compared to standard medical charting with a number needed to treat (NNT) to prevent one error of 1.6 (95% CI: 1.57-1.64).

Barriers to implementation include stakeholder and executive engagement in hospitals where pharmacists are not well embedded within medical units, the availability of pharmacists in the evening and overnight when a significant proportion of patients present to emergency departments, and the resources required to maintain enough credentialed pharmacists to sustain the service.

Additionally, another barrier in some PPMC models is the need for co-authorisation by medical officers due to legislative and/or regulatory barriers, which is seen to limit the maximal efficiencies that can be derived from a PPMC model, particularly given the medical workforce shortage and capacity issues being observed around Australian hospitals. Various jurisdictions are exploring or implementing pharmacist-led collaborative models that do not require a medical officer's authorization, to achieve further efficiencies and reflect contemporary practice.

As the Federal Government undertakes the Unleashing the Potential of our Health Workforce - Scope of Practice Review, pharmacists' scope of practice expansion in hospitals should be reflected in this review and any legislative and regulatory changes to pharmacist's scope resulting from this review should be applicable and relevant to pharmacy practice in all settings.

To help facilitate broader uptake of the PPMC model across Australia, the SHPA and Alfred Health have partnered to deliver a National PPMC Credential.[6]

Additional funding needs to be made available to resource sustainable models of PPMC across Australia, to ensure consistency and reliability of the model including after-hours without being of detriment to other pharmacy services.

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PHARMACY TECHNICIANS WILL PERFORM 'TECH-CHECK-TECH' NATIONALLY

More than half (64%) of FPs anticipate Tech-Check-Tech (TCT) inpatient supply models to be undertaken in the majority of Australian hospitals by 2028 (Figure 1, Item 2). TCT models provide opportunities for role expansion for pharmacy technicians and liberate pharmacists from performing this non-clinical task. A 2020 meta-analysis demonstrated that pharmacy technicians perform accuracy checking of prepared items more accurately than pharmacists.[1]

TCT models have existed for decades in the UK and USA and first commenced in Australia in the early 2010's.[2] Since this time, 11% of Australian hospitals have adopted the role.[3] The scope of TCT models in Australia was originally restricted to non-imprest medication supplies due to interpretations of the 2015 Pharmacy Board of Australia 'Guide to Dispensing'.[2] This guide has since been superseded and in 2022, Canberra Health

Services extended the scope of TCT to include discharge and outpatient prescriptions. Their framework was underpinned by three pillars: governance, training and legislation.[4]

Potential barriers to expanding TCT models include pharmacy departments with decentralised dispensaries and dispensaries where only one pharmacy technician is present.[5] Currently, an Australian provider of TCT training does not exist, and Australian hospitals have utilised overseas providers such as the Pharmaceutical Society of New Zealand or recruited UK trained accuracy checking pharmacy technicians to perform the role.[2,4,6]

Uptake of TCT roles is likely to be supported by a national position statement outlining the scope for pharmacy technicians performing this role. Such a position statement must consider the legislative differences between each Australian state and territory.

Past Australian TCT models have predominantly used UK-accredited pharmacy technicians. As discussed in the 2022 *Pharmacy Forecast Australia*, 71% of FPs believed that a nationally consistent credentialing model for pharmacy technicians could be developed by 2027[7]. Such reforms can overcome reliance on recruiting pharmacy technicians who have undergone overseas training and provide a robust pathway for Australian pharmacy technicians to expand the scope of their roles.

To ensure that the TCT model is sustainable, it needs to be ensured that the technician workforce is further resourced, strengthened and appropriately remunerated.

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NATIONALLY CONSISTENT PHARMACY TECHNICIAN TRAINING

More than half (61%) of FPs indicated they believe it's likely that pharmacy technicians will undertake formal, nationally-consistent training by 2028 (Figure 1, Item 3). Such reforms can overcome reliance on recruiting pharmacy technicians who have undergone overseas training and provide a robust pathway for Australian pharmacy technicians to expand the scope of their roles.

Nationally-consistent training could be provided through the TAFE sector or via professional bodies such as the SHPA. Enrollment into the updated Certificate III/IV in Hospital/Health Services Pharmacy Support is anticipated to be available in late 2023/early 2024. These updated qualifications have addressed feedback to include medication-specific knowledge and skills training to undertake SHPA-endorsed roles.[1] The process of updating qualifications to the adapting workforce requirements is slow and largely provides development opportunities to prospective pharmacy technicians. Thus, the need for on-the-job training will continue to exist as a more dynamic response to workforce changes and provide opportunities for the current workforce to develop their skills.

Hospitals that have introduced top of scope pharmacy technician roles, such as medication history taking, counselling and Tech-Check-Tech models, have largely designed in-house training packages that lack national uniformity.[2,3] The labour-intensive development of training packages acts as a barrier to role expansion whilst the inconsistent training requirements can flame the 'trust' concerns within both the pharmacist and pharmacy

technician workforces, as a technician who has been credentialed in one hospital may not have this recognised at another.

The opportunity exists for the profession to overcome individualised approaches to training requirements for the pharmacy technician workforce by developing nationally consistent training programs such as residencies for pharmacy technicians and creating a training and credentialling framework for pharmacy technicians to perform full of scope activities such as Tech-Check-Tech and clinical support roles. Such frameworks may expedite the expansion of pharmacy technician roles to ensure pharmacy departments can meet the future needs of their patients.

In parallel to the expansion of pharmacy technician roles, there also needs to be a change to pharmacy technician's career progression and remuneration.

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EMBEDDING PHARMACISTS IN THE MEDICAL EMERGENCY TEAM (MET)

FPs were divided by the likelihood that pharmacists will be embedded in the Medical Emergency Team (MET) in the majority of Australian hospitals by 2028. 45% of FPs felt this somewhat or very likely, while 55% felt this somewhat or very unlikely to occur (Figure 1, Item 4).

Early identification of, and response to, clinical deterioration of hospital inpatients is crucial in the reduction of patient mortality.[1] Medical Emergency Teams (MET), also known as Rapid Response Teams, are in widespread use globally to identify and manage clinical deterioration. In the United States of America, pharmacists have been embedded in medical emergency teams for decades. Studies have been conducted that have demonstrated that pharmacists provide valuable input when attending MET calls, however the majority of this research has been conducted in the US.[2,3]

Pharmacists attending MET calls may require additional training to allow them to contribute to the patient's care more meaningfully, including Advanced Cardiovascular Life Support (ACLS) training, which is not training routinely undertaken by pharmacists. The PPMC model can also play a useful role in a MET call scenario by facilitating timely, appropriate medication administration.

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PHARMACIST-LED HOSPITAL OUTPATIENT CLINICS ENABLED BY ACTIVITY BASED FUNDING

More than 70% of FPs believe it likely that all major hospitals will have at least one pharmacist-led hospital outpatient clinic that is enabled to be funded by Activity Based Funding by 2028 (Figure 1, Item 5).

Outpatient or ambulatory care pharmacist roles have existed overseas for over two decades however such roles are relatively new in Australia. Queensland Health was an early adopter of outpatient pharmacist clinics, utilising the Australian Activity Based Funding model. In 2019-2020, the Princess Alexandra Hospital expanded

their existing outpatient pharmacist clinics to 18 servicing areas such as: cardiac preadmission, cancer services, mental health, persistent pain and transplant services.[1,2] Such clinics have been demonstrated to facilitate collaboration with clinicians, improve transitions of care and monitor patient's response to therapy.[2]

Under the 'Tier 2 Non-Admitted Services Definition Manual 2022-2023' published by the Independent Hospital Pricing Authority, outpatient clinical pharmacy consultations can be reimbursed.[3] The 40.04 clause allows for clinical pharmacy consultations that involve:

- review of medicine orders, new and repeat for clinical appropriateness
- identify and resolve medicine related problems with the prescriber before processing the medicine order
- counsel patients or carers to ensure that the patient understands all information required for safe and proper use of the medicine
- provide consumer medicines information required for the safe and proper use of the medicine

Consultations for the purposes of performing administrative or dispensing tasks such as signing/stamping prescriptions are excluded under this clause.

SHPA supports the removal of the 6.5% activity funding cap that inhibits the expansion of much needed clinical pharmacy services and forces hospital pharmacy departments in Australia to decide between resourcing inpatient services or outpatient clinics rather than taking a person-centered approach and supporting both. SHPA also advocates for a wider range of non-admitted clinical pharmacy items to be incorporated in the Tier 2 Non-Admitted Services Classification to encompass the breadth of hospital pharmacy outpatient services being delivered in Australian public hospitals. Incorporating a tiered level consultation structure for hospital pharmacy outpatient services would support broader implementation in Australian hospitals, and ultimately provide higher quality and safer care that reduces admissions.

Despite the existence of this funding opportunity for outpatient pharmacy services, existing caps on Tier 2 claims limit the widespread adoption of such services nationally.

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EMBEDDING NON-DISPENSING, PRESCRIBING PHARMACISTS IN PRIMARY HEALTHCARE

There is great variability between FPs attitudes towards the likelihood of embedding non-dispensing, prescribing pharmacists into most general practice, Aboriginal Community Controlled Health Organisations, residential aged care facilities and other primary healthcare facilities to support safe and quality use of medicines and undertake medication reviews by 2028.

40% of FPs felt this would be likely (somewhat or very) while 43% and 15% of FPs felt this would be somewhat unlikely and very unlikely respectively (Figure 1, Item 6).

There are various obvious barriers to timely and reliable implementation of non-dispensing pharmacists in these primary care settings, including a lack of available funding and unclear service and remuneration models.

Non-dispensing, primary care pharmacists could be used to relieve the burden of an already struggling healthcare system, focusing predominantly on general practice. A collaborative pharmacist–GP model of post-hospital discharge medicines management can reduce the incidence of hospital re-admissions and ED presentations, achieving substantial cost savings to the health system, similar to the United Kingdom (UK) model.[1,2] The UK model was feasible through a strategic shift to funding and priorities, which saw pharmacists transfer from working in community pharmacies to non-dispensing areas due to budget changes which in turn

saw some community pharmacies close. While Australia is still in very early stages of the 60-day dispensing model, a similar shift in pharmacist roles may be expected over the next five years.

In an alternate model, non-dispensing pharmacists could also be optimally placed to optimise primary care in high-risk areas, demographics or settings, such as in all Aboriginal and Torres Strait Islander communities. The Medical Services Advisory Committee (MSAC) announced that it also supports funding to embed non-dispensing pharmacists in Aboriginal and Torres Strait Island primary health services, which is one step closer to prioritising and improving safe and quality use of medicines within this patient group.[3]

While the FPs attitudes vary dramatically regarding integrating non-dispensing, prescribing pharmacists into these primary care settings, to make these roles more attainable, there should be advocacy for these positions and expansion of clinical services.

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CONCLUSION

The recommendations under this theme, regarding pharmacist and pharmacy technician scope of practice and prescribing models, hold significant timeliness for the Australian healthcare system. The evolving healthcare landscape, exacerbated by the challenges of the COVID-19 pandemic, demands a re-evaluation of the roles and contributions of pharmacists and pharmacy technicians. Pharmacists and pharmacy technicians should be integrated more widely into the healthcare ecosystem in coming years to improve patient care, reduce costs and enhance healthcare access and equity across Australia. These recommendations align with the government's focus on equitable medication access and care.

As Australia faces considerable healthcare workforce challenges and an urgent need to address health disparities, the timely implementation of these recommendations can have a positive impact on healthcare outcomes. This includes improving medication management, reducing hospital readmissions, and supporting access to medicines among our Indigenous populations. Acting on these recommendations promptly is pertinent to ensuring a more efficient, equitable and sustainable Australian healthcare system.

RECOMMENDATIONS

1. Broaden Partnered Pharmacist Medication Charting

Provide dedicated resourcing to PPMC national credentialling programs, ensure sustainable resourcing models for PPMC across Australia that include after-hours service provision, and enable legislative and regulatory changes to support nationally consistent PPMC models.

2. Expand pharmacy technician scope

Expand scope of practice for pharmacy technicians to achieve efficiencies in medicines management and supply, strengthening the pharmacy technician workforce.

3. Appropriately remunerate pharmacy technicians

Reform pharmacy technician career pathways, progression and remuneration to support and reflect expanded scopes of practice.

4. Support more pharmacy service coverage for MET calls

Standard pharmacy service hours should be expanded to allow pharmacists to attend a significant proportion of MET calls, as clinical deterioration of patients occurs 24 hours a day. Training programs specific to pharmacists, such as on advanced cardiac life support, need to be developed to equip pharmacists with the skills required to meaningfully contribute on a medical emergency team.

5. Expand activity-based funding for pharmacist-led outpatient clinical services

The 6.5% National Funding Cap to Federal public hospital funding should be removed to facilitate more Tier 2 Non-admitted Services for pharmacist-led clinical services in outpatient clinics, enabling safer care and prevention of admissions.

6. Embed non-dispensing pharmacists in primary care

The Society of Hospital Pharmacists of Australia should continue to advocate for non-dispensing, clinical pharmacist positions in primary care and expansion of clinical services in various primary care settings.

PARTNER PERSPECTIVE

National Aboriginal Community Controlled Health Organisation

Aboriginal Community Controlled Health Organisations (ACCHOs) have been involved in pharmacist extended scope conversations for many years. ACCHOs' models of care are based on comprehensive and integrated service delivery, where team members work in an environment conducive to supporting extended roles for all staff, for the benefit of meeting clients' holistic needs. Furthermore, many regional and remote services have relied on pharmacists to deliver a range of extended activities due to overall demands on a limited workforce. This includes ACCHO pharmacists working in large multidisciplinary teams providing services integrated within ACCHOs' clinical systems and processes; providing immunisations in ACCHOs; managing complex logistics cold-chain and procurement, beyond medicines, across multiple sites; working as diabetes educators and other clinical roles; providing tailored medicines review services and coordinating Medicare services outside of standard pharmacy programs; and much more.

The IPAC Project (Integrating Pharmacists within ACCHOs to improve Chronic disease management) demonstrated the clinical benefit and cost effectiveness of integrating non-dispensing pharmacists with extended clinical roles into ACCHOs. Based on the positive recommendation from MSAC, it is highly likely that this program will be implemented within the next 5 years. IPAC implementation may also then have a medium-term policy impact on other non-dispensing pharmacist roles, such as nation-wide implementation of on-site pharmacists into aged care and general practices.

The complexities of prescribing definitions and regulation make it difficult to speculate on the time frame for when, if or how pharmacist prescribing will occur. In the community setting, pharmacists have already been prescribing over the counter products for many years, based on the conceptualisation of prescribing in the Health Professionals Prescribing Pathway and current Pharmaceutical Society of Australia Practise Standards released in 2023. NACCHO will remain attentive to the demand for pharmacist prescribing from Aboriginal and Torres Strait Islander people and ACCHOs, however current evidence of its value for our sector and community demand is limited.

Mike Stephens, Director, Medicines Policy and Programs
And Team

FIGURE 1. Pharmacist and Technician Scope of Practice and Expanded Prescribing

Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2028 in the geographic region where you work?"

VERY LIKELY	SOMEWHAT LIKELY	SOMEWHAT UNLIKELY	VERY UNLIKELY

1. Partnered Pharmacist Medication Charting will be a standard of care in all Australian hospitals for the majority of patients admitted to hospital

38%	43%	14%	5%
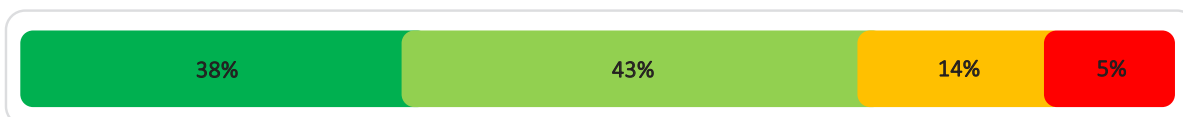
2. The majority of hospital pharmacies will have technicians credentialled for Tech-Check-Tech inpatient supply models
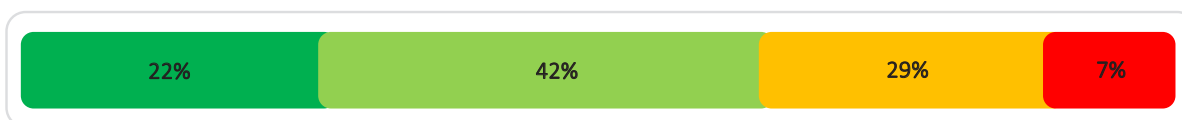
22%	42%	29%	7%

3. Hospital pharmacy technicians will undertake formal, nationally-consistent training

10%	51%	30%	8%
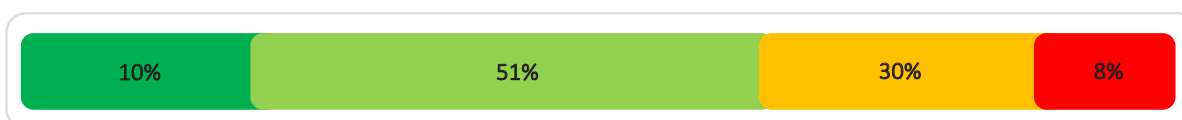
4. Pharmacists will be embedded in the Medical Emergency Team (MET) in the majority of Australian hospitals

7%	38%	40%	15%

5. All major hospitals will have at least one pharmacist-led hospital outpatient clinic that is enabled to be funded by Activity Based Funding

30%	41%	24%	5%
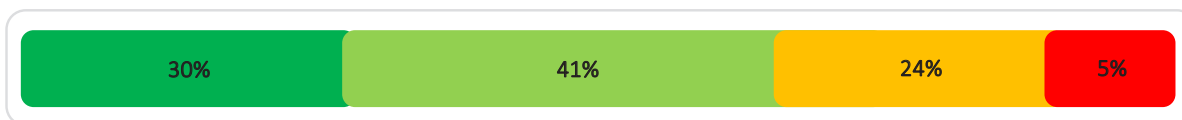
6. Non-dispensing, prescribing pharmacists will be embedded into the majority of general practice, Aboriginal Community Controlled Health Organisations, residential aged care facilities and other primary healthcare facilities to support safe and quality use of medicines and undertake medication reviews

6%	36%	43%	15%

THEME 2 — TRUST (HEALTH LITERACY AND SOCIO-ECONOMIC FACTORS)

Advisory Committee Leads: Peter Smart, Emma Sykes
Theme Leads: Nam-Anh Nguyen, Chastina Heck

INTRODUCTION

Trust can be defined as "choosing to risk making something you value vulnerable to another person's actions". The opposite, distrust, is deciding "what is important to me is not safe with this person in [their] situation (or any situation)".[1] What is at stake for consumers, what they may be choosing to risk, is their health and autonomy. For pharmacists, it may be their credibility.

Trust matters to pharmacists because patients, their carers, and other healthcare professionals have expectations that the safest and most effective care will be delivered, time and time again.

Trust exists between each individual pharmacist or pharmacy technician and the patient, and collectively between the community and the profession.

The community trusts that pharmacists and the health sector more broadly will direct services equitably and ensure the most vulnerable in society are supported. But with such disparities in health literacy and socio-economic determinants of health across Australian communities, are we getting the balance right? Are pharmacists, as a profession and as individuals, sufficiently agile to address challenges to crucial trust encounters in the future?
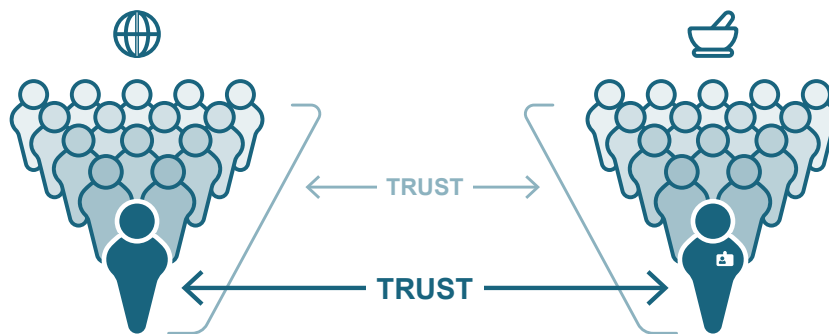
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RELATIONSHIP BUILDING: TO BUILD TRUST TAKES INTENTION AND EFFORT

In 2021, pharmacists were the eighth most trusted profession in Australia[1], but this high level of professional trust could be challenged given changing models of care, facilitating shorter lengths of stay in hospital, and/or changes in technology and virtual services creating physical distance in interactions between pharmacists and patients.

However, more than half (59%) of Forecast Panellists (FPs) agree advances in process and technology will enable pharmacists to spend at least 30% more time developing relationships and building trust with their patients to enable more person-centered care by 2028 (Figure 2, Item 4). Integrated electronic medicines management systems should enable pharmacists to get out from behind paper charts and computers, and gain time back to engage more with patients. The challenge is ensuring this 'bonus' time is used to build trust and relationships and resist the temptation to view it as an opportunity to consult with more patients or take on more tasks.

On the contrary, 40% of FPs see *less* time for relationship-building in this future state, indicating a perception that time could or should be re-invested in areas outside of patient-pharmacist interactions, quality use of medications and patient safety projects. But at what cost? And who determines the return on investment?

Trust is not built over a set time period. According to Brene Brown's adage of the marble jar of trust, it is the little things that build up over time[2]; every encounter is a chance to build on the trust of individual consumers and the community as a whole. Even if there is limited time or depth to patient engagement, pharmacists can demonstrate reliability, accountability, integrity and generosity through their approach and actions to build up collective trust in the profession.

But limited time does present challenges such as the ability to quickly consider person-specific factors such as cultural safety, particularly for First Nations Australians, and health literacy, and apply clinical knowledge to fit the needs of the person so they feel seen, heard, respected and valued.

Further, in the context of technological advances, it is critical to be acutely aware that within the client-provider relationship there linger risks of a digital divide for vulnerable patient cohorts.[3] For example, careful consideration is needed when designing pharmacy services and initiatives for those people with a high school education or lower (see Image 1) - a cohort that is more likely to require health and wellbeing support, and potentially other options to access care.

Risks of a digital divide.

Compared to those with university education or higher, those with high school education or lower were:

3 x less likely to be aware of digital health technologies
5 x less likely to have access to digital health technologies
5 x less willing to use digital health technologies
2 x as likely to be comfortable to share health information
3 x less likely to be interested to access and contribute to their healthcare plans

17% of consumers experienced some technical difficulties when accessing telehealth.

17% of consumers reported the technical quality of the telehealth consultation affected their meeting.

Image 1

The Australian Human Rights Commission' Digital Economy Strategy[4] reflects the need to invest in technology and ensure that access is fair, equitable and accessible to all, including those with disabilities: "Human rights protections will help ensure public trust in new technology". Pharmacy leaders need to ensure their services do not contravene, inadvertently or otherwise, the recommendations of this national strategy.

Moreover, as society moves deeper into the digital age and healthcare professionals are entrusted with vast amounts of sensitive data, perhaps the most catastrophic risk for a breach in trust is through a cybersecurity breach. Pharmacists and hospital pharmacy departments should never be complacent with sensitive information that is so easily accessed and shared as part of the core business. The Australian Digital Health Agency has a variety of useful resources to guide programs and processes to protect patient data.[5]

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BEING TRUSTED TO DRIVE EQUITY: PROFESSIONAL AUTONOMY MAKES MOST IMPACT

Most FPs (77%) acknowledged that models of care will need to change to support a health system that moves past reactive services toward a holistic approach in which patients are supported in wellness by an integrated team, providing care closer to where patients need it (Figure 2, Item 1).

As the pharmacy profession and scope of individual roles both expand within the Australian health system, greater trust should be gained from decision-makers to enable increased autonomy when implementing new services and/or models. The demonstrated ability to deliver valued pharmacist-led services, as exemplified by Partnered Pharmacist Medication Prescribing, helps foster a culture in which a formal business case simply ratifies an already agreed position. Pharmacists generally are trusted and valued team members, increasingly found working in environments such as aged care homes, General Practices and Aboriginal Medical Services, but even these models of care may not be patient centric enough and remain underutilised by vulnerable populations who may be geographically distanced from health care services. This is reinforced by a 2022 Deloitte report stating the reimagined health system will be achieved by "enhancing the consumer experience… reducing costs and providing better value care...improving population health and health equity."[1]

FPs expressed uncertainty (45% likely, 55% unlikely) when asked if they would feel empowered to make autonomous professional judgments around which patients would benefit most from their care and be unconstrained by KPIs and financial drivers by 2028 (Figure 2, Item 2). In many respects health care is a business, with many KPIs driven by Australian Commission on Safety and Quality in Health Care accreditation processes, but pharmacists must exercise caution to ensure KPIs aren't the only thing driving activity. There is risk of malalignment of quantity of services versus quality. For example, a high number of medication reviews per day on a ward may not be 'better' than time invested in detailed pharmacist-patient counselling, which contributes to the development of rapport, trust and health literacy. Individual practitioners need autonomy to decide if a given target of 100% is critical or desirable – acknowledging that genuine involvement of family and carers, along with the use of interpreters, is more time consuming. The health service must trust pharmacy departments to design services according to need, and likewise pharmacy managers must foster trust in individual pharmacists to determine who benefits most from their care.

One example of where problems can arise is in hospital pharmacies inability to dispense Pharmaceutical Benefits Scheme (PBS) medications under the Closing The Gap PBS Co-Payment Measure. As a result, the trust in the system has been compromised on many fronts, a situation on which SHPA continues to advocate to the Federal Government.

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ENLIGHTENING PATIENTS: DEMYSTIFYING PHARMACIST ROLES IN THE HEALTHCARE JOURNEY

While the number of hospital pharmacists has grown over 50% in the last decade, do patients really understand the pharmacist role in hospital environments?[1] FPs showed an even divide (48% likely vs. 52% unlikely) when asked if the role of pharmacist's beyond medicines use will be better understood by the community and have resulted in improved health literacy by 2028 (Figure 2, Item 3). Through the patient-centred simplification of name badges that provides an introduction emphasising 'name' ahead of 'role'[2] and evolution of less hierarchical uniforms, pharmacists are likely often mistaken for doctors or nurses, disappearing into the mechanics of a busy hospital stay.

Perhaps this is where the strength of Aboriginal ways of knowing, being and doing can benefit the whole health service: sharing part of our own story to build connections and trust to influence patient behavior and improve health literacy, along with being "seen" as part of the hospital encounter. "Whether by status ('come down to our level'), terminology ('bring it down') or physical act ('sitting down'), … there was a sense of care and respect

felt when health professionals were willing to minimise their power, their status, their high words, their physical position, and relate to their client with care, humility and something closer to equality."[3]

In addition to modifying our verbal and body language, influencing when and where pharmacy services are provided in the patient journey can mitigate the erosion of trust caused by the patient's need to repeat their story to multiple people. This could be as simple as placing pharmacists, and therefore initial conversations about medicines, earlier in the care episode.

In order for pharmacists to contribute towards an improved understanding and self-management towards wellness in vulnerable populations, there is much to learn and appreciate beyond traditional pharmaco-therapeutics. An investment in targeted continuing professional development (CPD) learning can strengthen trust relationships with these patients who will benefit most from our care and grow their understanding of pharmacists' skillsets.

Hospital pharmacists should consider the Pharmacy Board of Australia's advice[4] for deciding the relevance of a CPD activity by having a holistic mindset when answering the question: "Will this improve my practice as a pharmacist?"

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BUILDING TRUST IN THE PROVISION OF INFORMATION: ARE WE THERE YET?

When there is relationship trust, between individuals and based on the principle of behaviour, it ultimately builds market trust and societal trust, between the community and the profession. Market trust is trust in the profession, which could be considered a brand and is based on the principle of reputation. Societal trust is based on the principle of contribution, whereby the profession gives back to the community and improves health, especially in times of crisis (e.g. the COVID-19 pandemic).[1]

Traditionally, medicines information has been provided by medicines information pharmacists, and often to other healthcare professionals, rather than to consumers. But in the age of 'information excess' centred on the internet and fueled by social media, consumers need a reliable source of medicines information. Positively, the majority of FPs believe it is likely (52% somewhat, 28% very) that the professional image of pharmacists will have evolved such that they are near-universally regarded as a trusted and reliable resource for health information by patients by 2028 (Figure 2, Item 5).

This is a heartening result given trust is again eroding in core Australian institutions — including business, government, non-government organisations (NGOs) and media — following a temporary spike during the recent pandemic. It is also an important result, as specialty pharmacy roles continue to grow to meet the needs of increasingly complex patient profiles, as more people take more medicines in an ageing society.[2]

Interestingly, FPs didn't feel as strongly about the adoption of an "information specialist" role in hospital pharmacy departments to support departmental and/or professional messaging to the community with nearly 70% believing that it is unlikely half of hospital pharmacy departments will have this role by 2028 (Figure 2, Item 6).

How can the profession leverage existing resources to get the right messages (accurate, timely, culturally-appropriate) out into the community? One way is to collaborate with the consumer engagement and communications/media teams within organisations to inform the community about new services or innovations as well as regular messages about medicines and healthcare.

On a relationship level, trust and reliability is built by providing medicines information and creating a safe space for consumers to ask the questions they want to ask, share the personal information that helps tailor care to their situation, and receive information in a way that is sensitive to their needs and makes sense to them. Pharmacists can be culturally aware and responsive, as well as emotionally intelligent in their interactions, to build space for trust to grow, even if encounters are short and finite.

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CONCLUSION

Building trust takes time. Where time is limited, it should be used wisely to build trust with each patient encounter, while adding to the cumulative trust the community has in the profession through its conduct.

To build effective trust, there always needs to be intention. Trust takes intention and effort, but the benefits are clear. When there is trust in the workplace, pharmacists contribute to the decisions that impact patient care and address health equity, as pharmacists know who will benefit most from their services and care.

When there is trust within patient-pharmacist relationships, patients are enabled to actively co-produce, rather than passively recieve their care and healthcare. When there is trust between communities and the profession, it makes it easier to provide information and to modify services to address the disparity in health literacy and socio-economic determinants of health.

RECOMMENDATIONS

1. Assess trust in the workplace

Evaluate the level of trust currently in the workplace and the organisation's relationship with consumers. Resources to assist include, The Dare to Lead Braving Inventory[1], the '10 Ways To Build Trust in a Relationship' article from Positive Psychology[2], and the podcast Trust on Purpose with Charles Feltman and Ila Edgar[3].

2. Assure culturally safe health services for patients

Ensure cultural responsiveness training is available to all staff. Resources to assist include the Indigenous Allied Health Australia's training.[4]

3. Regularly review cybersecurity within health services

Look at how stringent your processes and systems are with respect to confidential and sensitive patient information. What would happen in the event of a cybersecurity breach?

4. Consider trust in system and program design

When initiating new programs (nationally or locally), consider the impact of trust and relationships in the design of the system. Design and redesign service delivery with a focus on the patient perspective.

5. Ensure no patient cohorts are slipping through the cracks

Evaluate services for equity. Are there vulnerable groups that are missing out or who are "unseen"?

6. Leverage connections to improve health literacy

Connect with organisational communications or consumer engagement teams and work together to send the right messages to the community about medication management, including in ways that address varying health literacy in the community.

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PARTNER PERSPECTIVE

Consumers Health Forum of Australia (CHF)

The profile of pharmacy, and its prominence in consumers' minds, has quite possibly never been higher.

This is due to a range of factors including various state-based trials on extending prescribing rights to pharmacists, the increased role of pharmacists during the Covid-19 pandemic and even the rise of telehealth prescribing services that advertise directly to consumers.

And of course, no one can ignore the optics of pharmacy owners and their overt opposition to 60-day prescriptions being allowed for many people with stable, chronic diseases.

When the everyday Australian health consumer sees these issues fought out in the media, in Parliament, and even in the retail pharmacy space, they are faced with a choice: Do I now regard pharmacists primarily as trusted health professionals, or do I see some sections of the profession more interested in looking after their business rather than looking after my health?

The continued trust of pharmacists and their valued advice relies squarely on their reputation as independent health professionals.

In our role of advocating for what is in the best interests of health consumers, CHF knows pharmacists are valued members of each person's healthcare team. Our research and consultations continually reinforce this.

However, we also know that trust may be diminished in the face of conflict, especially if policy changes are misunderstood or politicised.

As the pharmacy sector plans and adapts for the future, it is vital that consumers are supported in their healthcare choices via education, efforts to raise health literacy and fair debate. In particular, CHF would love to broaden the understanding of Australians about what services and expertise they can access from pharmacists in the various clinical settings.

CHF looks forward to working with the broader sector to achieve this so that trust in pharmacy professionals is maintained and health outcomes are optimised for all.

Dr Elizabeth Deveny, CEO

FIGURE 2. Trust - health literacy, socio-economics factors

Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2028 in the geographic region where you work?"

| VERY LIKELY | SOMEWHAT LIKELY | SOMEWHAT UNLIKELY | VERY UNLIKELY |

1. Models of care that deliver medication management services directly to vulnerable patient groups will be commonplace. (e.g., outreach services, home delivery, community health clinics, GPs, aged care homes, HMRs, street doctor)

| 20% | 57% | 20% | 4% |
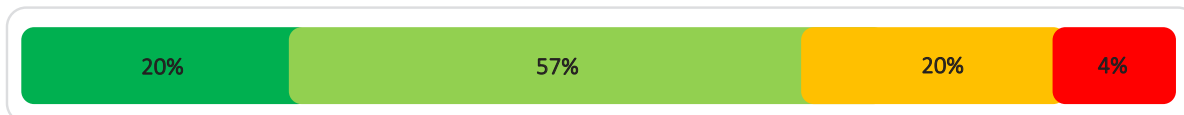
2. Hospital pharmacists will feel empowered to make their own professional judgements to determine which patients would benefit most from their care and be unconstrained by key performance indicators and financial drivers

| 18% | 27% | 36% | 19% |

3. The role of pharmacists beyond medicines use will be demystified and better understood by the community and have resulted in improved health literacy

| 7% | 41% | 44% | 8% |
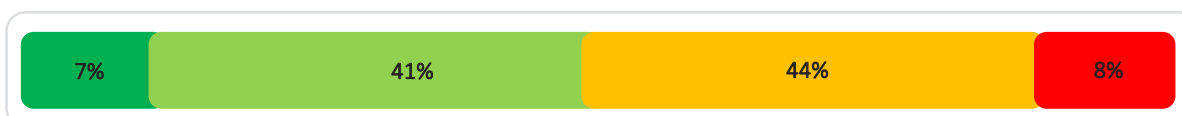
4. Advances in process and technology will enable pharmacists to spend at least 30% more time developing relationships and building trust with their patients to enable more person-centered care

| 8% | 51% | 32% | 8% |

5. The professional image of pharmacists will have evolved so that they are near-universally regarded as a trusted and reliable resource for health information by patients

| 28% | 52% | 19% | 1% |
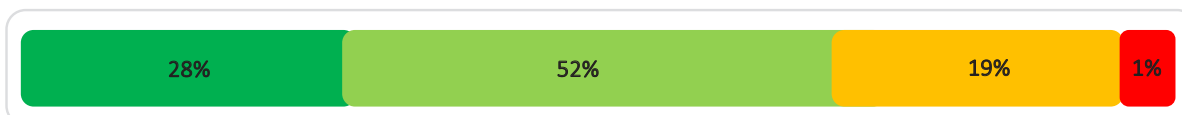
6. At least half of hospital pharmacy departments will employ an 'information specialist' to support departmental and/or professional messaging to the community

| 12% | 19% | 46% | 23% |

THEME 3 — PHARMACY SYSTEM RISKS AND IMPACTS

Advisory Committee Leads: Jeanie Misko, Emma Sykes
Theme Lead: Libby McCourt

INTRODUCTION

In an era of rapidly evolving landscapes, healthcare finds itself confronted with a range of challenges and uncertainties. As nations navigate through complex political dynamics and recover from the COVID-19 pandemic, the future of healthcare and its delivery is susceptible to profound impacts.

The political landscape in which we live and work influences every aspect of our lives. Policies and legislation locally and abroad shape the availability of essential medicines, how pharmacy professionals work, and how that work is remunerated.

There is significant influence of the political landscape and the intricate interactions among Local, State, and Federal governments, affecting numerous topics under examination within this Forecast theme. As such, the focus will centre on three issues within these domains: 1) access to medicines, 2) disaster health, planning, and preparation, and 3) addressing workforce pressures.

ACCESS TO MEDICINES

Supply of essential medicines is critical for healthcare delivery and for the ongoing health of Australians. Forecast Panelists (FPs) had a strong level of agreement that acute medication shortages would be experienced more frequently by the year 2028, with 92% agreeing that it was either very likely or somewhat likely (Figure 3, Item 5).

Historically, medicine shortages in Australia have been caused by a myriad of factors including complex supply chains and dependency on overseas manufacturers for essential medicines. However, unprecedented new threats to medicine shortages may emerge in the future, such as the impact of social media on medication supply. One such example of this is the semaglutide (Ozempic) shortages caused by widespread discussions on social media about its potential weight loss effects.[1] This combined with websites offering online prescriptions and delivery of medicines resulted in a rise in consumers accessing this medication for weight loss in 2022 and 2023 and contributed to semaglutide shortages, reducing access to this medication for people with Type 2 Diabetes.[1,2] This consequently caused a flow on effect to dulaglutide which also experienced shortages.[1] The TGA is actively investigating unlawful advertising of Ozempic and has requested more than 3,500 advertisements of these medicines for weight loss be removed from various platforms.[2] This example highlights one of the future unknown risks to medication supply chains, including the likelihood of future medication supply issues being triggered by social media.

Despite the impact of social media on medicines supply being novel, it is evident that medicine availability will continue to be mostly influenced by international relationships and trade dynamics. FPs had a strong level of agreement that foreign policy, trade, and international alliances would impact the affordability and quality of pharmacy services and medicine with 79% agreeing that it was somewhat or very likely to impact their geographic region by 2028 (Figure 3, Item 1). According to a Therapeutic Goods Administration (TGA) report from 2019, approximately 90% of medicines used in Australia are sourced from overseas.[3] The COVID-19 pandemic, conflict and disasters in Australia and abroad, and trade sanctions placed on Australia have highlighted the vulnerability of overseas supply chains and the risks of being reliant on just one country for an essential product or service.

The TGA has previously sought consultation around ensuring reliable supplies of important medicines and have made changes to legislation to improve access to medicines such as The Medicine Supply Guarantee (2021) which saw medicine companies committing to holding at least 4-6 months of onshore stock of certain medicines.[4] The effectiveness of these strategies is still to be examined, but while they may help to ensure supply of medicine shortages, they do not improve Australian sovereign capability of medicines manufacture.

In the FP, 80% believe that it was somewhat unlikely or very unlikely that critical medicines listed on the TGA Medicines Watch List would be domestically manufactured by 2028 (Figure 3, Item 4). The Medicines watch list is a legislative instrument setting out a list of known critical medicine ingredients to assist sponsors at the TGA to simplify and speed decision making when deciding if a medicine shortage or permanent discontinuation may have a critical patient impact.[5,6] This list consists of medicines such as antimicrobials, antidotes or treatments for poisonings, medicines used in emergency or critical care, anticoagulants, vaccines, medicines for obstetrics, and antivenoms.[6] While the manufacture of medicines in Australia may not be feasible for all types, such as for those requiring a highly specialist workforce or equipment, manufacture of medicines on the Medicines Watch List would ensure Australia has access to critical lifesaving medicines. The high level of agreement with this statement reflects Australia's limited capacity to manufacture essential medicines in large volumes.

For Australia to manufacture medicines domestically, investments and amendments to regulation, facilities, and workforce training are required as well as incentives for companies.[7] The COVID-19 pandemic saw a large boost in Australian manufactured COVID-19 vaccines with investments in facilities and workforce. This has been sustained with recent announcements of an mRNA vaccine manufacturing facility in Melbourne (opening 2024).[8] However, vaccines are just one component of the Medicines Watch List. Manufacture and supply of other medicines on this list will be reliant on other facilities and upgrades such as the expansion of Viatris' medicine facility in Brisbane (finalised end of 2022),[9] a new Noumed Pharmaceuticals manufacturing facility in Adelaide (opening 2025),[10] and the recent takeover of the Pfizer manufacturing facility in Perth by pharmaceutical company BridgeWest (end of 2021).[11]

Some of these facilities, such as the Noumed Pharmaceuticals manufacturing facility were made possible by the Australian Government's Modern Manufacturing Initiative (Medical products).[10] This Initiative encourages linkage between domestic and international firms, increasing scale, supply capacity, and ability to innovate.[12] This is just one of several grants and incentives available through the Australian Government to support medical manufacturing.[13] While investment in medicine manufacturing and expansion of current and building of new facilities is promising progress, the impact of these initiatives on medicine supply chain shortages remains to be seen.

While issues related to supply chain may be outside individual pharmacist control, professional pharmacy organisations can advocate for changes to policies, legislation, and incentives which may impact these issues. Professional organisations and pharmacy leaders also play a role in facilitating or advocating for system changes, such as implementation of state-wide services that identify and address shortages in a coordinated manner. In states and territories where there are centralised procurement capabilities (such as Central Pharmacy in Queensland), this service could not only identify the shortage, but also provide solutions of alternative stockists or alternative therapies where required. This would save the workload of individual sites investigating these issues on their own.

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DISASTER HEALTH, PLANNING AND PREPARATION

Almost 90% of FPs agreed that disasters were likely to impact pharmacy services and medication access to local areas by 2028 (Figure 3, Item 2). This is unsurprising given the number of prominent natural disasters that Australia has faced in recent years. Globally, natural disasters are increasing in frequency and intensity.[14] Urbanisation and high density living mean that when a disaster does strike, more people and their health are impacted.[14,15]

Disasters of all kinds impact health both acutely and chronically.[15-17] Acutely, health may be impacted by increased injuries as a result of the disaster or by acute exacerbations of chronic conditions either in response to the disaster itself (e.g., smoke causing a flare of asthma) or due to missing essential medicines which may have been lost in the disaster (e.g. exacerbation of heart failure due to missed doses of diuretic). Chronically, new conditions may arise in a disaster aftermath including chronic pain or injury, new cardiovascular conditions, and new mental health conditions such as post-traumatic stress disorder. As an essential part of the healthcare team, pharmacists as medicines experts contribute significantly to the ongoing health of the community before, during, and after a disaster. This contribution includes but is not limited to, medicine knowledge and also logistical supply solutions.[18]

In Australia, state and territory governments are responsible for managing health emergencies (including natural disasters).[17] Health emergency management is coordinated between state and territory health authorities, Local Hospital Networks, and to varying degrees Primary Health Networks.[17] Despite the importance of pharmacists in disasters, and the essential services that they provide, there is variability across jurisdictions as to their input on disaster health planning and response, few opportunities for pharmacists to undergo training or education in disasters, and little government support for pharmacists' involvement in disasters.[19] The National Critical Care for Trauma Response Centre contains a small group of pharmacists who work on planning, preparedness, and processes for pharmacist to be trained for disaster deployment. However, in Australia there is no standardised and pharmacist specific training available for pharmacists to respond to disasters at their daily places of work.

To prevent disruptions to the essential services provided by pharmacists during disasters, it is important to understand their current place in disaster management, and the evidence behind their involvement. Support should come from Local, State and Federal governments for more involvement of pharmacists in disaster planning and response including in individual facilities, Local Hospital Networks, Primary Health Networks, and professional organisations.

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ADDRESSING WORKFORCE PRESSURES

A 2023 Pharmacy Guild report projected that by 2026 there will be a shortfall of 6,022 full time equivalent pharmacists across the pharmacist workforce.[20] Several factors impact the supply and demand of pharmacists including, but not limited to, training and education programs, changes to scope of practice, renumeration, concentration of pharmacists in metropolitan areas, and listing on Skilled Occupation Lists for medium and long term visas.[20]

Most FPs (78%) claimed that it was somewhat or very unlikely that skilled migrants with recognised qualifications would be sufficient to address pharmacy workforce demands by the year 2028 (Figure 3, Item 3). While hospital pharmacists are currently on the Australian Skilled Occupation List, a 2008 paper summarised that only 80-100 overseas trained pharmacists satisfy the Australian Pharmacy Councils requirements to become registered in Australia per year.[21] The latest figures from the Australian Pharmacy Board demonstrate that in 2023 there were 32,265 general registered pharmacists, 2,354 provisional registered pharmacists, and 1,470 non-practicing pharmacists.[22] When considering these numbers and the shortfall outlined by the Pharmacy Guild report[20,22], the addition of 100 pharmacists per year is unlikely to make a significant impact on the pharmacist requirements and is unlikely to meet workforce demands.

As well as the addition of new pharmacists, retention of pharmacists in the aftermath of COVID-19 has been flagged as an issue, with only half of people surveyed in 2022 saying they would stay in the pharmacy profession for more than 10 years.[23] Research on pharmacy and health professional retention more broadly has cited challenging working conditions, inadequate renumeration, and lack of professional opportunities as reasons for leaving the workforce.[24-25]

FPs were divided about whether State and Federal enterprise agreements or awards and conditions of employment for pharmacy staff will improve to align with the cost of living by 2028. Approximately 40% of FPs believed this was very or somewhat likely, while the remaining 59% believed it was somewhat or very unlikely to occur (Figure 3, Item 6). This divide likely reflects uncertainty as to how cost of living will change over the next five years, especially given the ongoing recovery of the COVID-19 pandemic and cost of living rises.[26] Responses to this question may also have been impacted by differences in State and Territory Enterprise Bargaining Agreements (EBAs) or in location of practice (rural, regional, or metropolitan).

Intrastate and interstate migration as a result of the COVID-19 pandemic have also changed cost of living and housing affordability in unexpected ways.[27,28] If cost of living in regional and rural areas continues to rise, recruitment and retention of staff in these areas may become particularly challenging. Pre-pandemic, enticing individuals to work in regional areas relied on the appeal of more affordable rents, housing costs, and overall living expenses compared to urban centers. However, this has shifted as regional areas experienced a population surge during COVID, nullifying the financial advantage of lower costs. Attracting staff to these regions has become difficult as the wages offered no longer provide appropriate compensation for living and working in regional areas. Convincing people from other states or metropolitan areas to relocate for specific roles in the regions has become a daunting task, as the cost of living is now comparable, while the housing options are limited. Consequently, finding innovative ways to incentivise individuals to work in regional areas has become a pressing concern.

As well as movement between metropolitan and regional workforce, another important consideration is the potential for shortages of pharmacy staff to disproportionately impact hospital pharmacies if award agreements are not competitive with wages seen in community pharmacy. Over the last few year renumeration in hospital

pharmacy has been higher than community, however, as private businesses there is potential for community pharmacies to raise their wages ad hoc to be in line with increases in cost of living or to attract more staff.

As the pharmacy workforce continues to evolve and grow their scope of practice, considerations of how the pharmacy workforce will be bolstered and appropriately remunerated are critical.

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CONCLUSION

The landscape for pharmacy practice and medicines supply poses intricate challenges for hospital pharmacists in the future. The analysis of medication supply issues – encompassing shortages, international relations, and sovereign capability – underscores the need for resilient and diversified supply chains to mitigate vulnerabilities. Understanding the vital role pharmacists play in disaster health, as evident from their contributions during crises, emphasises the significance of proactive disaster preparedness and effective collaboration between healthcare stakeholders. Furthermore, the pressing concern of workforce supply issues and appropriate remuneration for pharmacists highlights the necessity of innovative recruitment strategies and fair compensation to attract and retain skilled professionals.

To ensure the continued strength and efficiency of hospital pharmacy services in the future, stakeholders must remain vigilant in addressing these challenges, fostering adaptability, and sustainability amid the ever-changing pharmacy system landscape.

RECOMMENDATIONS

1.   Robustly review interventions to improve medicine supply to Australia

Professional pharmacy organisations and hospital pharmacy leaders should be involved in future evaluation of interventions (such as legislation, policies and incentives) designed to improved medication supply to Australia, including government manufacturing incentives and the Medicine Supply Guarantee.

2.   Implement state-wide services to coordinate medicines shortages

State and territory-based services should identify shortages and provide centralised expert advice on alternative suppliers or therapies to hospital pharmacists. Professional pharmacy organisations and hospital pharmacy leaders can play a role in advocating for and implementing this change.

3. **Increase pharmacist involvement in disaster planning and preparedness**

Professional pharmacy organisations, hospital pharmacy leaders, and pharmacy leads at individual sites can play a role in advocating for pharmacists' involvement in disaster planning and preparedness activities. This includes involvement in planning and preparedness at individual hospitals, Primary Health Networks, Local Hospital Networks, and state and territory departments of health.

4. **Improve pharmacist access to disaster planning, response and recovery resources**

There is a need for improved access to disaster resources for pharmacists including templates for disaster management plans, education, and training. These may be developed with subject matter experts, professional pharmacy organisations, and/or university stakeholders.

5. **Align awards and enterprise agreements to keep up with cost-of-living pressures**

It is essential that pharmacists are renumerated for their time and efforts in a way that aligns with cost-of-living. Given current and widespread financial challenges, including cost-of-living adjustments into award and enterprise agreements would provide improved financial security for the pharmacy workforce.

6. **Scope and evaluate workforce retention strategies and immigrating pharmacist assessment processes in response to workforce shortages**

While pharmacist retention in the workforce has been highlighted as a critical issue, there is little information on what strategies are most effective for improving retention and how they have been implemented in the hospital environment. Scoping, evaluating, and sharing information on which strategies are most effective would allow professional organisations, pharmacy leaders, and unions to advocate for changes to assist with retention.

PARTNER PERSPECTIVE

Therapeutic Goods Administration (TGA)

Global medicine shortages remain a key concern for the Therapeutic Goods Administration (TGA) throughout 2023, with management strategies leveraging local and international networks more important than ever. These networks provide early signals and advice about emerging shortages, and foster collaboration on mitigation strategies.

In Australia, the TGA convenes a monthly medicine availability working group with jurisdictional representatives, using data modelling to identify at-risk medicines and establishing, promoting and refining pathways and strategies to address shortages. The TGA also regularly convenes medicine shortage action groups in response to specific shortages with key stakeholders including pharmacist and other health professional groups, suppliers and wholesalers. Relevant experts share information, developing advice and strategies to manage shortage impacts, including sourcing overseas alternatives or enabling pharmacists to substitute scarce medicines through legislative instruments.

Internationally, the TGA has strong collaborations with many overseas agencies and regulators. The TGA is currently vice-chair of the Global Regulators Working Group on Drug Shortages, with quarterly meetings of the World Health Organization and the regulatory agencies of Canada, US, UK, EU and Japan. Shared international supply chain information helps to prevent and manage significant medicine shortages.

International networks also share information on pre-market therapeutic goods evaluation, ensuring our regulatory framework meets international best practice standards. The TGA is currently Chair of the Access Consortium, joining Health Canada, Health Sciences Authority of Singapore, Swissmedic and the UK's Medicines and Healthcare products Regulatory Agency. Through Access, pre-market regulatory processes can be conducted at a global level, reducing regulatory burden and bringing more medicines to the Australian market sooner.

In the current fast-paced medicines landscape, the TGA constantly evolves and builds local and global relationships. This provides opportunities to share information and innovate our regulatory systems, increasing responsiveness, adaptability and ability to service the medicine needs of Australians now and into the future.

Professor Anthony Lawler, Deputy Secretary, Health Products Regulation Group
And Team

FIGURE 3. Pharmacy System Risks & Impacts

Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2028 in the geographic region where you work?"

VERY LIKELY ■   **SOMEWHAT LIKELY** ■   **SOMEWHAT UNLIKELY** ■   **VERY UNLIKELY** ■

1. Changes in Australian foreign policy, Australian sovereign capability, trading environments, trade agreements and/or international alliances will impact the affordability and quality of pharmacy services and medicines

31%	48%	15%	6%
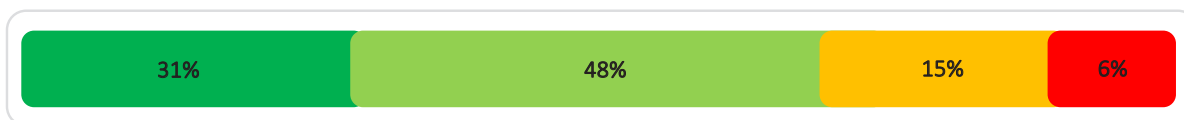
2. Natural and/or man-made disasters (local and abroad) will impact pharmacy services and medication access to local areas

48%	38%	12%	2%
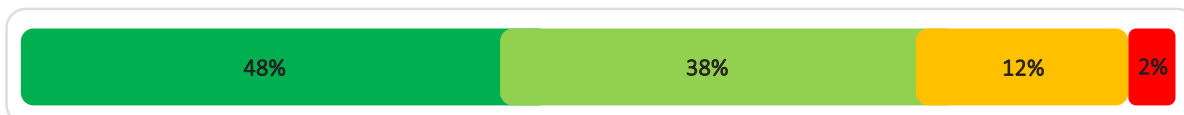
3. The availability of skilled migrants with recognised qualifications will be sufficient to address pharmacy workforce demands

2%	20%	55%	23%
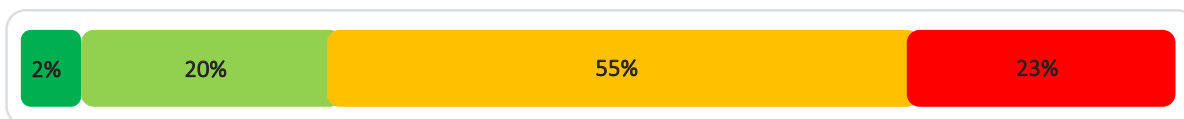
4. Critical medicines listed on the TGA Medicines Watch List will be domestically manufactured to support supply chain resilience and sovereign capability

0%	20%	51%	29%
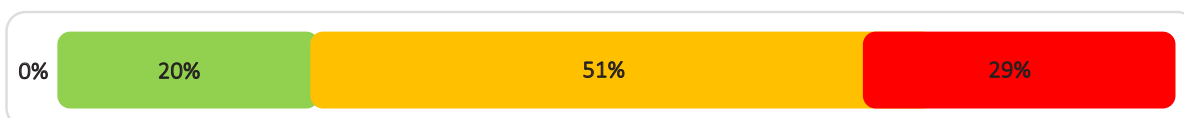
5. Extended and acute medication shortages will be experienced more frequently

50%	42%	8%	0%

6. State and federal enterprise agreements or awards and conditions of employment for pharmacy staff will improve to align with cost of living

1%	40%	41%	18%

THEME 4 — PREVENTATIVE AND PERSONALISED MEDICINE

Advisory Committee Leads: Sven Marxen, Jonathan Penm
Theme Leads: Zeyad Ibrahim, Nazanin Falconer

INTRODUCTION

The implementation of personalised and preventative medication and artificial intelligence (AI) are highly topical in healthcare, and their applicability to pharmacy practice is no exception. When weighing the path to achieve nuanced patient care, we should consider how many factors come into play with each decision. It can be overwhelming to think about, particularly when multiplied by the number of conditions that a practitioner may see each day and the number of decisions that are needed to achieve optimal care for patients.

This *Pharmacy Forecast Australia 2023* theme focused on three topical and emerging aspects of personalised care — pharmacogenomics, 3D printing, and data driven decision making — and their role in achieving optimal therapeutic outcomes and patient safety.

Pharmacogenomics is a rapidly expanding area in Australian pharmacy, with accessibility to genomic testing increasing. Its growing potential has been noted in multiple areas of healthcare, including in a position statement of The Royal College of Pathologists of Australia[1] and consideration by The Royal Australian College of General Practitioners.[2] The question in this Forecast theme, was how prepared is the hospital pharmacy workforce for increased access to pharmacogenomic data in clinical settings?

Data-driven decision making and tools such as artificial intelligence and machine learning technologies are providing promise in healthcare. Expectation and appetite for AI in the media and among the public are growing with items like ChatGPT becoming widespread, and its appearance in strategy documents such as *Queensland Health Digital Health 2031*.[3] The ability to review a patient's history and factor in multiple decision points for a treatment recommendation is one example of how such technology may support personalised and preventative healthcare. Given medicines are the most used form of health intervention, this section explores pharmacists' role in these exploding tools.

3D printing is an area of significant promise with the ability to change fixed doses to customised forms and polypills. It is not an area to be ignored, with The University of Queensland providing research in this space.[4]

The promise of personalised and preventative healthcare is positive, and Australia's pharmacy workforce needs to be ready for the changes and technologies that will be required to support it.

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PHARMACOGENOMIC TESTING

Completion of the Human Genome, International HapMap and the 1000 Genomes Projects in the early 2000s showed the complex nature of underlying human genetic variations that could determine and contribute to altered medication responses.[1]

Regarding wider uptake of pharmacogenomic (PGx) testing Forecast Panelists (FPs) were divided, with 46% believing it likely vs 54% believing it unlikely that pharmacists will be able to advocate for and order PGx tests and provide clinical interpretation in collaboration with multidisciplinary teams by the year 2028 (Figure 4,

Item 1). This result is expected as the Australian pharmacy workforce has barely understood or incorporated genomics into practice due to the lack of focused genomics education in undergraduate and/or postgraduate pharmacy courses. This has impacted the complete understanding of the importance and the impact of PGx implementation in drug use, which is still in its infancy.

A promising sign looking to the year 2028 however, is that nearly half (46%) of FPs moved to embrace the implementation of such new clinical science into the pharmacists' duties (Figure 4, Item 1).

PGx is an applied science that investigates how genetic differences may affect individual response(s) to medicines. PGx generally explores an individual's genetic makeup, lifestyle and environmental factors to assist clinicians in pre-determining impact drug response and adverse effects.[2] Getting therapeutic choices correct the first time is critical to a successful outcome of drug therapy. Advances in human genome mapping have increased our understanding of its potential impact in the pathogenesis of disease and in the prediction of drug treatment effects which consequently have led to a new approach to drug therapy called "genomic medicine".[2, 3]

Pharmacists are the medicines experts and the clinicians in the best position to improve medicines outcomes by improving efficacy and reducing toxicities in this new era of genomic medicine and PGx. A genomically trained pharmacist would be able to order and advocate for specific PGx testing related to particular drug-gene pair interaction relevant to each individual patient's scenario. Furthermore, these pharmacists would be able to interpret the PGx report as well as advise on the precise dosing recommendation and the utilisation of a particular drug in each individual patient (precision medicine). An early example of success is an emerging drug-gene pair interaction that has shown significant impact and prediction of response, leading to change of dosing and regimens in patients with Lymphoproliferative Disorders, such as paediatric Acute Lymphoblastic Leukaemia and adult Diffuse Large B-Cell Lymphomas.[2, 4, 5]

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AI AND HOSPITAL PHARMACY

With increasingly busy hospitals and an ageing population vulnerable to inappropriate polypharmacy, health systems struggle with optimal management of patient care and workflows. AI has been touted as the panacea that will transform healthcare, helping an overloaded workforce with clinical decision making, productivity and efficiency. AI-enabled analytics also offer new opportunities to improve clinical diagnosis, treatment and hospital workflows. However, these benefits have not been realised by Australian clinicians as many AI models remain in the development or prototyping stages.[1]

As with any new medical device, AI-enabled analytics can pose risks if not developed and deployed appropriately.[2] A rigorous development and evaluation process is essential, which can take many years to complete. Furthermore, implementation into Australian clinical practice requires regulatory approvals by the Therapeutic Goods Administration (TGA), as well as robust digital infrastructure, and staff who are adequately equipped to implement, update and manage novel systems in an iterative manner.[3] It is therefore not clear if the Australian healthcare system will have the organisational and digital readiness to support the implementation of this technology in the next five years; only 7% of FPs were confident that by 2028 Australian hospitals will have the digital readiness and capacity (i.e. digital infrastructure) to facilitate implementation of AI-enabled analytics for medication and pharmacy processes. Another 38% thought it was somewhat likely, however more than half (55%) thought it was somewhat or highly unlikely this will be the case (Figure 4, Item 2).

What are the roadblocks?

Firstly, regulatory requirements. While AI and machine learning (AI/ML) systems are emerging in many hospitals overseas, and more than 150 AI/ML applications have received approval for routine clinical use in the US and Europe[4], there is limited understanding of regulatory requirements to implement these technologies within the Australia health setting. Just as with any new medical device, AI models require approval by regulatory bodies such as the TGA. In the US and Europe, the FDA and European Commission[5-7] have proposed a regulatory framework for registration of such technologies, however in Australia a clear step-by-step process for implementation into practice is currently lacking.

Secondly, interoperability between multiple electronic systems. Although many Australian hospitals have been digitally transformed, they utilise varying electronic health and medical records (EHRs and EMRs) and digital systems, each serving different purposes, or designed for use in different specialties (e.g., oncology, pharmacy dispensing systems, critical care). Some of these systems do not ''speak'' to each other making it difficult to obtain standardised real-time data. This creates complexity around implementing AI-embedded tools that require interoperability and congruency between systems if they are to be safely embedded into routine care.[8] AI-enabled analytics for medication management should be able to interact with the EMR, pharmacy dispensing systems, and other relevant digital databases. This integration allows use of real-time patient data, for risk prediction, diagnostic purposes and medication management.

And finally, a suitably skilled and supported pharmacy workforce. Implementing and utilising complex digital systems requires a skilled and knowledgeable workforce and pharmacists with expertise in informatics are crucial to the safe and effective implementation of AI tools.[9] There is a pressing need for health services and tertiary institutions to collaboratively invest in training of healthcare professionals, including pharmacists, on how AI can be integrated into practice.

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PHARMACOGENOMICS IN SPECIALTY CARE

FPs reiterated uncertainty around pharmacogenomics (PGx) as a topic, with 64% indicating a belief it was unlikely pharmacists will routinely use pre-emptive pharmacogenomics testing to guide use and dose of medicines for cancer care, mental health and cardiology by 2028 (Figure 4, Item 3).

As outlined in responses to PGx testing (Figure 4, Item 1), the pharmacy profession in Australia is still lacking in understanding of PGx testing, inhibiting pre-emptive testing recommendations and justification of cost in hospital settings. As more evidence emerges with emphasis on the implementation of PGx to reduce adverse drug reactions (ADRs) and toxicities, especially in cancer care and mental health, pharmacists will be presented with an opportunity to embrace such practice and include it in their daily routine.

Clinical Pharmacogenomic Implementation Consortium (CPIC) and the Dutch Pharmacogenomics Working Group (DPWG) are major international organisations that assist these clinicians to determine the required pre-emptive useful testing for each individual patient's clinical scenario(s) to optimise medication utilisation, improving efficacy and preventing or reducing toxicities. These tests are available at different pathology and genomic labs. Some, such as like thiopurine methyltransferase (TPMT) testing are covered by Medicare and others still have out-of-pocket expenses. However, most patients, when counselled, are happy to pay to assist optimising their care.[1, 2]

PGx directed use and dosing has become mainstream in the use of some medicines, especially in cancer care, mental health and cardiology, by identifying actionable genes that interact significantly with a particular medicine. Pharmacists, who had received directed genomic training, would be able to order and utilise these tests to cater for each individual patient's needs and requirements.

Examples of drug-gene pairs in cancer care — including Capeciatbine/ 5FU – DPYD, Mercaptopurine – TPMT and Mercaptopurine – NUDT15 — can predict toxicities and hence could prevent significant adverse impacts of these serious medicines. This both improves cancer care while supporting a better quality of life for people undergoing cancer treatment.[1, 2, 3]

In cardiology, an important drug-gene pair is Clopidogrel – CYP2C19, which can predict patients who may fail treatment and end up with restenosis post angioplasty.[4]

In mental health, significant numbers of drug- gene pairs are actionable and hence a complete CYP450 panel is highly recommended. Many antidepressants like venlafaxine require CYP2D6 full functionality in order to provide relief of the patient with minimal toxicities. Same can apply to antipsychotics like clozapine and CYP2D6 as well, to predict which patient would likely suffer significant neutropenia.[5]

Furthermore, PGx testing has become a reasonable requirement for pain management utilising different opioids and anti-inflammatories as more actionable drug-gene interactions are emerging.[6, 7, 8]

While the body of actionable evidence grows, restrictive legislation and non-funded test costs trouble pharmacists who are willing to implement PGx testing, restricting them from prescribing pathology testing for relevant patients with potential drug-gene interaction risk.

PGx testings are increasingly required to optimise patients' care, improve efficacy and minimising toxicities. Pharmacists are medication experts, however they are required to undertake genomic training in order to lead this new frontier and assist other clinicians improving clinical outcomes for each individual patient. Medicare funded testing would facilitate clinician pharmacists ordering and advocating for such testing.

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3D PRINTED PERSONALISED DOSES

Use of 3D printing to manufacture oral dosage forms is an important step toward truly personalised medicine. As well as the potential to significantly reduce costs and medicine wastage, 3D printing can improve medication safety and efficacy. It promises to deliver tailored medication dosages, shapes, flavours and sizes to meet the needs of individual patients. For example, enabling deprescribing with gradual tapering of medications when no commercially prepared doses are available.

In Australia 3D printing is still seen to be in its infancy, a sentiment that was echoed in the responses of FPs; an overwhelming majority (92%) were not optimistic, stating it was unlikely that 3D printing will be routinely available for medicines in the year 2028 (Figure 4, Item 4). This is likely due to two key factors: firstly, there is currently a lack of robust studies testing efficacy and safety of this novel approach for routinely used medication and, secondly, there is a need for regulatory changes (i.e. via the TGA) for approval of 3D printing devices.

Despite this area being a new field to pharmacy with limited evidence for routinely used medications, there is growing research supporting future benefits. The orodispersible levetiracetam (Spirtam) was the first 3D medicine dosage form that was approved by the U.S. Food and Drug Administration in 2015.[1] Around the same time, a UK-based group published their study of the development of the first 'polypill', in which they incorporated five medicines: aspirin, hydrochlorthiazide, ramipril, pravastatin and atenolol into one tablet.[2] More recently a group at The University of Queensland published on the 3D printing of caffeine tablets, using common fused deposition modelling, and used this example to demonstrate safety and efficacy of their printing technique.[3] However, before this technology can become mainstream and managed by compounding pharmacies and hospitals nationally, further research is needed to confirm safety and efficacy in other commonly used therapeutic agents.

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PHARMACISTS AND PREDICTIVE ANALYTICS

Technology now impacts all aspects of health services, and predictive analytics using machine learning and health data are emerging as key solutions to improve clinical workflows and patient outcomes. This places additional responsibility on pharmacists to ensure safe and judicious practice when considering tools related to medicines and the profession.

Predictive analytics are algorithms — developed using conventional statistical methods or AI/ machine learning — that utilise large datasets to forecast the probability of future outcomes.[1, 3] They can assist clinicians with decision making, e.g. will this patient be readmitted to hospital in 30 days, or are they at risk of bleeding from their anticoagulation? This can help improve patient outcomes by identifying who is at high risk of an adverse event to initiate timely risk mitigation strategies and optimise use of scarce healthcare resources.

An example of predictive analytics in pharmacy is the prediction of medication harm, in which an algorithm using digital hospital data provides probability of a patient experiencing medication harm during hospitalisation, and hospital readmission due to medications.[2, 3] Studies of such algorithms are rapidly emerging in the literature but what is needed is the translation of these algorithms into software that has user acceptability and validity.[3]

Prior to implementation into routine practice, it is necessary for models or algorithms to be tested for validity and to ensure generalisability to other hospitals and healthcare settings — considerations for how they will be implemented in a usable way — while being tested for impact on patient outcomes.[1,4] The majority of FPs (71%) agreed there will be a need for specialist pharmacists to lead the evaluation and implementation of predictive analytics into routine clinical practice by 2028. For this to occur, pharmacists also require specialist training, e.g. in the use and implementation of digital technologies. With the growing implementation of digital

healthcare systems, there is a pressing need for pharmacist informaticians who can enable the appropriate and safe use of digital tools.[4, 5] The biggest barrier to implementation of these technologies in routine care is a lack of the robust clinical trials needed to ensure their safety and efficacy. This is an area where pharmacists can play a key role.

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WHEN TECHNOLOGIES COMBINE TO HELP US ACHIEVE PERSONALISED THERAPY

FPs were divided on whether pharmacists would be engaging with tools that use genomic and AI technologies for medication use and safety by the year 2028 with 50% of responses sitting either side of likely and unlikely that this scenario would occur (Figure 4, Item 6). Perhaps counterintuitively, this result is promising as the profession is still moving to understand the utilisation of different platforms and solutions to apply PGx into practice. This shows some understanding of the hurdles that prevent the full implementation of PGxs to clinical practice, which include the availability of tools to assist pharmacists to allow such important practice changes in the future, along with how this will be potentially brought into decision making processes for patient care.[1, 2]

The utilisation of genomics, together with the pharmacology of different medicines have produced enormous and complex data that is very difficult to interpret. These different datasets interact at different levels and yield complex models.[3] Hence, the requirement for machine learning and AI involvement to facilitate understanding and interpretation of such complex data is paramount. The science of modelling and pharmacometrics — utilising both pharmacokinetic/pharmacodynamic (PK/PD) modelling and PGx data — are becoming fundamental to designing and tailoring dosing and medication use to individual patients, which use both patient and medicine characteristics, and their interactions, to optimise the treatment outcome. Significant software solutions like LixSoft, NonMEM and ChatGPT are very helpful to develop and understand medicine modelling and use it in clinical practice with precision capabilities.[3, 4, 5]

Pharmacists would be able to utilise these combined tools to benefit patients with medication-gene interaction, personalising treatment choice and accurately prescribe dosing according to the interpretation of results. The utilisation of these tools would lead to significant improvement of safety and quality use of medicine.

Furthermore, the utilisation of such tools and platforms would encourage clinicians and researchers to design studies that target specific populations and subsequently save expenditure and time on patients that won't respond to these treatments because of their genomics.

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CONCLUSION

Although personalised and preventative medicine are regularly used terms in Australian health care there is room to continue to improve and apply this across our interventions, including medication usage and pharmacy services. Three potentially major strategies have been discussed under this theme — pharmacogenomics, data driven decision making and 3D printed medicine — and they all have the potential for exciting future benefit, either independently or in combination.

While FPs saw clear roles and optimism around the need for the pharmacy profession to lead the development of predictive analytics, there was a more measured response to the use of tools like Artificial Intelligence/machine learning and pharmacogenomics in the 2028 timeline, and lower confidence still around access to 3D printing to tailor medicine dose.

What was clearly identified, is action is needed now to ensure pharmacy is on the front foot in the key areas explored within preventative and personalised medicine. Upskilling of the workforce in these areas and ability to integrate such refined practice into patient care needs consideration and strategy; now is the time for pharmacy to play a leading role in designated interest groups around these topics.

RECOMMENDATIONS

1. Increase pharmacists' knowledge and training in pharmacogenomics and related disciplines

There is a need to increase pharmacogenomics training opportunities for pharmacists so they are prepared for the incorporation of genomic testing into practice. New pathways to undergo credentialling in precision medicine – including pharmacogenomics/advanced practitioners – to the point of requesting specific testing are also needed so pharmacists are enabled to initiate and recommend personalised dosing and/or usage to other clinicians to optimise patient's care.

2. Plan for the implementation of AI into hospital pharmacy and health care

Clear step by step processes are required to inform the clinical implementation and utilisation of AI-enabled analytics. These include a proficient workforce and streamlining of regulatory requirements, seamless integration with the EMR, and a skilled pharmacist workforce who can implement and use systems for clinical practice. We should look to the US, the European Commission and the International Medical Device Regulators Forum (IMDRF) for further guidance.[1] Incorporating digital skills into the pharmacy undergraduate curriculum, and postgraduate courses will lend itself to development of digitally prepared pharmacists.

3. Explore and expand pharmacists' role in pharmacogenomic testing

Pharmacy is well placed to be involved in advocating for, ordering and incorporating genetic testing into medication treatment processes, however education of the profession and advocacy to gain access to this involvement will be critical in the very near future.

4. Evaluate and assess the value of 3D printed medicine to achieve quality use of medicine and medicines safety

There is a need for researchers and clinicians to identify areas and medications where 3D printing can help optimise patient medication management, and for robust clinical trials to evaluate safety and efficacy of the new technology. Only then can 3D printing become routinely available in pharmacy practice.

5. Facilitate programs and pathways for pharmacists to become leaders in healthcare data analytics

Pharmacists should collaborate with multidisciplinary teams and researchers so they can be closely involved in the development, and evaluation of predictive analytics that can impact medication management and patient safety. To facilitate this, the profession should be equipped with knowledge and understanding of the role of digital health through implementation of courses within undergraduate, postgraduate and specialist training programs to upskill the profession.

6. Support pharmacists to become leaders across collaborative personalised medicine dosing technologies

Pharmacists have a potential role in understanding how each technology (PGx, AI, 3D printing) interact or can be used to individualise medication therapy for a patient. Ensuring pharmacists have an understanding of such technologies, how they can be utilised effectively, interplay with PK/PD/PGx modelling, and their limitations would place pharmacists in a good position to provide leadership in the personalised medicine paradigm.

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PARTNER PERSPECTIVE

Australian Genomics

The genomic revolution is truly upon us – the pace of research and development of new genomic and other 'omics technologies is outstripping the ability of the health sector to evaluate and adopt them. Genomic medicine, which is the analysis of an individual's genome to inform health-related decisions, is central to the concept of personalised medicine, as well as precision preventative medicine.

There is no question why preparing the Australian pharmacy sector for pharmacogenomics is the basis of Recommendations 1 and 3 (Theme 4) for Pharmacy Forecast 2023. Mis-prescribing can result in the use of ineffective pharmaceutical interventions, or serious adverse drug reactions – both of which occur at alarming rates and cost the Australian health system more than $1.4B per year.

We can move toward more personalised prescribing with pharmacogenomics - the technology is available and there are currently up to 100 gene-drug pairs that can inform prescribing. But we need to solve the challenges associated with delivery of pharmacogenomics as a clinical service, including ensuring equitable access and identification of priority populations; preparing the workforce (across public and private sectors) including development of decision support tools and practice guidelines, and determining how to safely and securely share the information and integrate it into the patient record so it is visible to pharmacists.

Australian Genomics drives growth and uptake of genomics in health by shepherding new genomic technologies into the health system where their value is based on evidence, incorporating utility (personal and clinical), cost effectiveness, and strong consideration of ethical, legal and social implications. In this role Australian Genomics' incubator model was applied to pharmacogenomics to explore the international landscape and engage key local stakeholders in discussions about research gaps to be addressed for integrating pharmacogenomics. Through the final report's key recommendations, Australian Genomics supports pharmacogenomics as a research priority of the Medical Research Future Fund Missions and as an area of strategic importance to Australia. Engaging the pharmacy sector will be key to achieving these aims.

Tiffany Boughtwood, Managing Director
Matilda Haas, Research Projects & Partnerships Manager

FIGURE 4. Preventative and personalised medicine

Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2028 in the geographic region where you work?"

VERY LIKELY **SOMEWHAT LIKELY** **SOMEWHAT UNLIKELY** **VERY UNLIKELY**

1. Pharmacists will be able to advocate for and order pharmacogenomics tests, and provide clinical interpretation in collaboration with multidisciplinary teams

10%	36%	42%	11%

2. There will be organisational readiness and capacity (i.e. digital infrastructure) to facilitate implementation of AI-enabled analytics for medication and pharmacy processes into Australian hospitals

7%	38%	35%	20%

3. Pharmacists will routinely use pre-emptive pharmacogenomics testing to guide use and dose of medications for, cancer care, mental health and cardiology

7%	29%	48%	16%

4. 3D printing will be routinely used to produce personalised medicines with variable doses for patients

1%	7%	47%	45%

5. There will be a need for specialist pharmacists to lead the evaluation and implementation of predictive analytics (e.g., algorithms to predict medication dose, therapeutic response, patient outcomes) into routine clinical practice

25%	46%	19%	10%
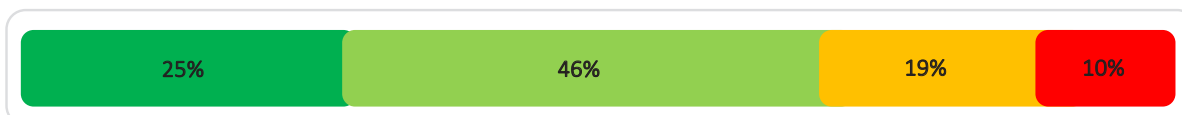
6. Pharmacists will be engaging with and using emerging tools that use genomic and phenotypic patient data, in combination with artificial intelligence technologies, to optimise medication use and safety

7%	43%	35%	15%
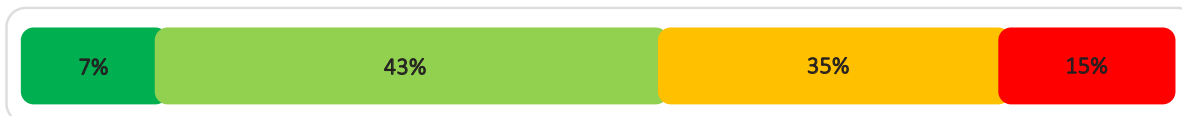
THEME 5 — BUSINESS AGILITY IN HOSPITAL PHARMACY

Advisory Committee Leads: Paul Toner, Margie Butnoris
Theme Lead: John Evans, Amy Murray

INTRODUCTION

Australian healthcare is in a constant state of change, with leaders navigating pressures including increasing demand, complexity of clinical activity, funding challenges and workforce shortages. Pharmacy services must consistently adapt to current and future service needs, reviewing their agility and responsiveness to internal and external influences, both anticipated and unexpected. Given this constant flux in the healthcare environment, business agility in hospital pharmacy could be considered a case of act or be acted upon.

This is the first *Forecast* reports that has asked pharmacy leaders to consider the business acumen, agility and workforce potential required to support contemporary and ever-evolving service delivery. An undeniable influence on this assessment is that in this immediate post-pandemic phase, pharmacy services have an acute opportunity to 'take stock' and consider the significant changes to service delivery and business models that have occurred over the last three years. This includes- but is not limited to - expansion in scope of practice, legislative changes to improve patient access to medicines, evolving models of care and the fragility of the pharmaceutical supply chain.

In the context of Australian pharmacy care, this theme on business agility considers state and territory-based advocacy leadership, the ability of our workforce to provide quality and appropriate care across the continuum, data and associated analytics that can drive business development and financial autonomy and independent decision-making to achieve the best pharmacy service across the patient journey.

LOOKING TO LOCAL LEADERS

A formal pharmacy lead for each state/territory, supported by the required funding and role development, is an opportunity to provide an agile response to emerging medication management and workforce priorities. While some jurisdictions have roles leading functions related to pharmacy practice, often labelled 'chief pharmacist', these are inconsistent across the nation. These roles range in scope and responsibility, ability to inform and influence, establishment as funded or volunteer positions and operate at facility, organisation and/or state level.

Compared to other countries, including the United Kingdom and the United States, where pharmacists are independent of other professions, pharmacy in Australia is usually embedded within Allied Health[1]. This changes the dynamic around responding to medication management and workforce needs, just as the need for change is becoming more important.

Forecast Panellists (FPs) were evenly split when asked whether a formal pharmacy lead role would be established in their jurisdiction to lead an agile response to emerging medication management priorities by 2028, where 54% said this was very or somewhat likely and 46% somewhat or very unlikely to occur (Figure 5, Item 1).

Perhaps the more pessimistic responses are reflective of a pragmatic view of the present political challenge in each jurisdiction, rather than a lack of FPs level of support for, or opinion of the criticality of establishing such roles.

A Lead Pharmacist role is pivotal for progression and viability of the profession. This formal role would provide expertise and knowledge to build confidence in the pharmacy workforce and could oversee many priorities[2] including, but not limited to:

- Fostering professional leadership
- Developing the role and scope of the pharmacy profession
- Providing strategic advice and input into workforce planning and development
- Leading, coordinating and contributing to the development of public policy and initiatives

- Promoting and leading medication safety
- Providing expert advice and mitigation strategies to mitigate medication shortages.

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'SUPER' DATA-DRIVEN SUPPLY

At a supply chain level, it could be argued that pharmacies are not dissimilar to supermarkets. Both entities are dependent on the right stock being available in the right quantities at the right price to meet patient/consumer needs. Arguably though, where pharmacy differs from supply focused companies such as supermarkets is in the availability and usage of data analytics to drive supply chain management. Indeed, pharmacy generally lags behind other sectors in leveraging data for operational performance.[1] Given the difference in focus between the two sectors of profit versus health outcomes, investment in this area can be challenging.

FPs were positive as to whether pharmacy would be able to leverage data analytics to improve inventory management by 2028 with 63% reporting it somewhat or very likely to occur. Equally there was a healthy scepticism on whether this was achievable in the medium term, where 32% of FPs indicated they felt it was somewhat unlikely to occur. (Figure 5, Item 2).

Given the cost of medicines is the highest expenditure item for a hospital pharmacy, and that purchasing and usage data is generally available from inventory management systems, opportunities exist to increase pharmacy inventory management efficiency through algorithm-based ordering, predictive stock levels and out of stock management.

Predictive data and responsive inventory management could also be used to quantify and minimise wastage, which runs in the order of 4% of medicine spend.[2] Given the hundreds of millions of dollars spent on medication annually, the potential savings from data-analytic improved ordering and stock management are self-evident.

There are a range of available technologies including automation and predictive analysis tools to support health services in maximising the use of data.[3] Pharmacy departments should embrace opportunities within their organisations to achieve funding for these improvements which create a wealth of data to improve business agility.

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SPACE TO INNOVATE, SPACE TO THRIVE

Anecdotally, pharmacy leaders report different levels of autonomy in regard to financial and operational delegations within their health systems. While a more formal baseline assessment has not been completed, FPs were asked to consider a future state where financial and operational autonomy would be delegated to individual pharmacy departments, and where pharmacy leadership teams were able to proactively implement and adjust models of best fit for service delivery.

FPs were relatively pessimistic about this being achievable, with one-third (33%) indicating that this was somewhat unlikely and a further 21% indicating that this is very unlikely to occur by 2028 (Figure 5, Item 3). That said there are still pockets of optimism among FPs, where 37% indicated it was somewhat likely to occur by 2028, perhaps driven by a different style of local executive leadership, that encourages and fosters proactive change.

The FPs viewpoints and cynicism of this achievement may be influenced by their current experiences within their health organisation. Of note is the fiscal financial environment within health services in this immediate post-pandemic phase. The challenge for pharmacy is that if new and innovative models of service delivery are required to meet consumer demand, then where will these models originate from, if not from pharmacy? As part of larger organisations pharmacy departments will and need to be financially and operationally accountable, but autonomy and innovation can potentially exist within budgetary and strategic goals.

Pharmacy departments have a historical record of innovation - from the introduction of clinical pharmacy services decades ago to pandemic-driven solutions of the last few years. Responding to and keeping up with the rapid changes in delivering healthcare can be challenging to balance in addition to innovation. Perhaps those who are most agile in bringing innovation to life will be the ones given the most financial and operational autonomy[1].

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OUTCOME-DRIVEN INPUTS AND REAL TIME DATA

The primary consideration when establishing and maintaining a staffing structure for the provision of pharmacy services, is the desire and drive to provide patient-centered, high-quality care that ensures the safe and effective use of medicines. Key measures to reviewing pharmacy service delivery and determining opportunities for investment and disinvestment could include:

- Patient reported outcome measures (PROMs)
- Organisational activity including funding, length of stay, access and flow
- Financial sustainability e.g. medication expenditure, optimisation and governance
- Service measures e.g. readmissions, medication incidents, hospital acquired complications, NEAT

There has been significant work undertaken to define Australian pharmacy practice standards, setting patient to pharmacist ratios and identifying emerging and essential services to improve patient safety.[1] However, current models to determine funding and resources for the provision of pharmacy services are unclear and inconsistent – and are not necessarily linked directly to patient outcomes. This is evident in the immense disparity of funding and resources for the provision of pharmacy services across Australia.[2]

Almost two-thirds of FPs indicated it would be likely for patient outcome data to be the basis for service funding by 2028 with 20% indicating it would be very and 44% somewhat likely. The remaining 36% of FPs indicated it would be unlikely (with 24% indicating somewhat and 12% very unlikely) (Figure 5, Item 4).

The challenge for the profession is identifying, validating and standardising pharmacy-specific PROMs so that patient outcome data can be utilised to determine funding, resources and equitable patient-centered quality care.

Real time data availability for all elements of pharmacy practice remains outside of the status quo for most Australian pharmacy departments. Instead, departments have historically relied on retrospective audits when gathering and reviewing data to effectively plan and manage the workforce requirements to meet health service needs.

The survey question around this topic was pitched broadly, with types of real-time data not detailed in the statement. Such datasets may be specific to workforce demographic factors, but also influencing service factors such as:

- Admission data (by specialty)
- Discharge number forecasts (by specialty)
- Access and patient flow
- Theatre cases
- Season fluctuation forecasts

- Prescription counts by day by hour
- Absenteeism

FPs were particularly bullish in their response to the idea of real time data being available to aid workforce management by 2028, with 76% expecting this to become a reality (Figure 5, Item 5). With labour costs in pharmacy being second only to medication inventory costs, such a positive response is perhaps indicative of a desire to deploy staff in a flexible way in order to meet health service needs.

It is perhaps reasonable to consider that historically pharmacy staffing rosters have been relatively static: pharmacy staff member A is allocated to work location B. This location may be the dispensary, a ward, treating unit or other specific duty. The Covid pandemic forced changes to this model by necessity – and pharmacy responded. Leveraging real time data may assist the next iteration of flexible workforce planning and management.

Using data sources such as those noted above could enable elements of the pharmacy workforce to be deployed to locations based on need/demand, flexing staff numbers up or down based on forecast and real time activity. As healthcare services roll out and develop electronic health records (EHRs), utilising available data will further support this, for example through digital command centres.[3] Pharmacy departments need to embrace these advances to better support the services they provide.

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A WORKFORCE FOR ALL OCCASIONS

The pharmacy workforce and models of service delivery *are* adapting to current and future health needs[1]. As complexity and activity increases within the health system, and the emphasis on delivering care to patients "closer to home"[2], there is a requirement for a sufficiently agile and skilled workforce across all pharmacy professionals.

When asked to consider if pharmacy workforce could respond to health service needs by 2028, two-thirds (66%) of FPs indicated it would be unlikely (41% somewhat and 25% very unlikely) (Figure 5, Item 6). This indicates a feeling of pessimism within the workforce around not only the number of people available but also skill mix and professional development.

Both the question and the response give no indication if the concern lies across acute, sub-acute or primary care delivery, nor if it is directed at both the pharmacist and clinical-support or operational workforces. The concerns raised by the FPs are reflected in the fact that only 4% indicated that it was highly likely Australia would have a sufficiently skilled and agile workforce by 2028. (Figure 5, Item 6)

It is clear from the responses that further assessment needs to be completed, and further enablers identified by professional organisations and partners to ensure that there is an agile and skilled pharmacy workforce available to meet the demand of Australian healthcare.

One emerging solution is SHPA's Australian and New Zealand College of Advanced Pharmacy (ANZCAP), which recognises the experience and expertise of practitioners, as aligned to areas of specialty pharmacy practice such as cardiology, geriatric medicine, infectious diseases and pain management. While ANZCAP recognition primarily provides a framework for reflecting on career progress, it also facilitates structured training in specialty skills, an important addition to help address a systemic issue.

Given the importance pharmacists play in the health system the solution to any workforce shortfall needs to be addressed at a broader health workforce level[3]. This will necessitate the involvement of both state and federal governments and learning institutions. In the meantime, upskilling typically remains at a local level and not one which is applied everywhere.

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CONCLUSION

The Pharmacy Workforce continue to present as an agile and dependable workforce who can respond to many needs to support organisations to deliver high quality patient care. Going forward, there are many opportunities to become more agile in both workforce and business models at local, jurisdiction and national levels. The ever-growing wealth of data is key to supporting pharmacy services in business and operational models and embracing this should be adopted at every opportunity.

RECOMMENDATIONS

1. **Introduce a Pharmacy Lead in every jurisdiction, with a consistent role in each, responsible for pharmacy services, workforce development and responding to current and emerging medication management issues and challenges**

Advocacy and support are required across each jurisdiction and at a national level to implement dedicated pharmacy leads. There are many opportunities for such roles to provide strategic leadership and expertise to develop the profession and improve patient care.

2. **Implement analytical data tools to support medicines inventory management**

Pharmacy Departments should implement systems to maximise the use of data and analytics to optimise medication inventory. Where such tools are not yet adopted or in place, opportunities to invest in these should be sought. To support this, development of staff is key who can be champions and experts in this area.

3. **Use patient outcome data to enhance, optimise and grow pharmacy service optimisation and delivery**

Pharmacy Departments should use all available patient outcome data to demonstrate cost and economic benefits when reviewing services. These should also be used to support decisions on high value care, (and where to invest), low value care (and how to disinvest) and how to measure cost-effectiveness.

4. **Develop new frameworks to support pharmacy service benchmarking and workforce reviews**

The development of new frameworks should be embraced to allow useful data sets to be used to assist with service decision making and reviews. This should be standardised nationally to support consistency and benchmarking of pharmacy services. Accelerate development of the pharmacy workforce to mitigate the incidence and impact of workforce shortages.

5. **Embrace recognition of specialty practice skills**

Support the agility of Australia's pharmacy workforce by encouraging the development and recognition of specialty skills, such as through the structured training pathways and portfolio-building capability of the emerging Australian and New Zealand College of Advanced Pharmacy (ANZCAP).

PARTNER PERSPECTIVE
Telstra Health

In today's ever-evolving healthcare landscape, business agility has become the cornerstone to success, especially in hospital pharmacy, where medication management is critical. Over the past two decades,

technology disruptions have significantly impacted healthcare and pharmacy business agility. The traditional pharmacy model, reliant on manually entering data between disparate electronic dispensing systems, no longer meets modern patient care demands. To enhance patient safety and operational excellence, there's a pressing need to adapt and innovate by embracing digital solutions developed alongside data standards.

Recognising the patient centric approach means that key sectors of the healthcare system, such as Primary Care, Aged and Residential facilities, and acute hospitals, need to connect. Multiple medication errors occur at the transition of care and digital health will play a role in assisting in the continuum of care. Technology providers must develop digital medication management solutions that empower hospitals, residential aged care and community care services to streamline workflows, enhance accuracy, and optimise resource allocation. Furthermore, by adopting a robust program of standards at a foundational level across the entire ecosystem of solutions, and services will see an increased benefit when harnessing cutting-edge technologies, such as artificial intelligence, data analytics, and cloud-based platforms.

To address the disparate siloes of pharmacy and medication management systems, it is imperative everyone looks to the use of standards such as Fast Healthcare Interoperability Resources (FHIR), Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT), Australian Medical Terminology (AMT) and Logical Observation Identifiers Names and Codes (LOINC) to support real-time updates on patient profiles, prescriptions, and medication availability. This interconnectedness minimises errors, reduces turnaround times, and ultimately leads to improved patient outcomes.

The shift toward business agility in hospital pharmacy relies on strong digital solutions with data standards. These solutions enhance medication management, enabling proactive responses to market changes, regulations, and new treatments. They boost patient safety, operational efficiency, and empower healthcare providers to be agile, adaptive, and future-ready.

Tricia Liebke, General Manager - Customer and Clinical Engagement, Hospital Care

FIGURE 5. Business agility in hospital pharmacy

Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2028 in the geographic region where you work?"

| ■ VERY LIKELY | ■ SOMEWHAT LIKELY | ■ SOMEWHAT UNLIKELY | ■ VERY UNLIKELY |

1. My state/territory will have a formal pharmacy lead, supported by the required funding and role development, whose purpose is to provide an agile response to emerging medication management priorities

| 20% | 34% | 38% | 8% |

2. Considering the technology and subsequent agility available to supply-focused companies such as supermarkets, equivalent predictive analytical data will be available for agile and responsive inventory management/supply for pharmacy services

| 13% | 50% | 32% | 5% |

3. Financial and operational autonomy will be delegated to pharmacy departments to proactively implement and adjust models of service delivery

| 9% | 37% | 33% | 21% |

4. Patient outcomes data will be the key to determining funding and resources for the provision of pharmacy services

| 20% | 44% | 24% | 12% |

5. Pharmacy departments will have access to real-time data to effectively plan and manage workforce capacity to meet health service needs

| 29% | 47% | 18% | 7% |
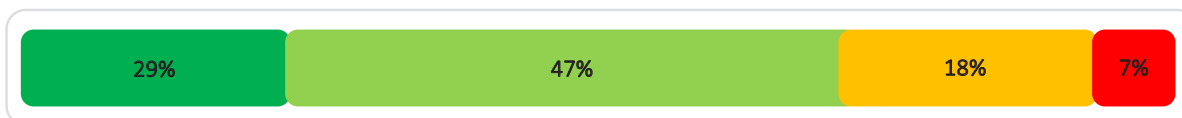
6. There will be a sufficiently agile and skilled workforce across all pharmacy professionals to respond to the needs of the healthcare system and the health services they work in

| 4% | 30% | 41% | 25% |

THEME 6 — HEALTHCARE ACCESS AND HOSPITAL EVOLUTION

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INTRODUCTION

Health is a fundamental human right, and health equity can only be achieved when every person can reach their full potential for health and wellbeing.[1] A person's ability to access health care when and where it's needed is determined not only by the economic, regulatory and political structure of the healthcare system, but the conditions in which people are born, grow, work, live, and age, known as the social determinants of health.[1-2]

Australia's healthcare system is funded by federal, state/territory and local governments, as well as private institutions, insurers and not-for-profit organisations, with the remaining one-fifth of healthcare costs funded by the out-of-pocket expenses (paid by people accessing healthcare and medicines) in community, hospital and specialist healthcare settings.[3-6] Australia is touted as having a universal healthcare system, with a mandatory public insurance scheme (Medicare) at its foundation, enabling free public hospital care and subsidised medicines. [3-4] However in 2021 it was estimated that 1.5 million Australians did not have enough money to pay for the healthcare they needed.[7]

Medicare, a market-based fee-for-service funding model, relies on practitioners being available and accessible to provide subsidised healthcare at affordable prices, to a large enough population to ensure adequate practitioner income. Failure of this market-based model in numerous rural and remote locations has contributed to increasing inequity in healthcare access, and health outcomes, with local governments, charitable foundations, the Royal Flying Doctor Service, and public hospitals stepping in to support and enable access to rural primary healthcare.[8-12] Lack of access to primary care is known to be a driver of rural hospital emergency department (ED) presentations, with rural people 36% more likely to present to the ED than their urban counterparts.[13]

Since early 2020 the COVID-19 pandemic has provided further challenges in access to hospital care, with ongoing impacts on emergency department activity, hospitalisations and elective surgery waiting times.[13] However, the pandemic hastened the evolution of hospital operations, with accelerated implementation and upscaling of telehealth, e-prescribing and virtual care.[14-15]

With ongoing growth in demand, it is important the entire healthcare system evolves to support access for all Australians in all regions. Healthcare practitioners now have an opportunity to embed the recent advances in telehealth and virtual pharmacy to meet this need. Services traditionally led by medical and nursing colleagues should be championed by the pharmacy profession to address gaps in healthcare access and meet the complex health needs of communities. Efficiencies gained through standardisation of formularies to guide medicine procurement, and flexibility to enable a remote health workforce to provide virtual service delivery, will likely continue to revolutionise the way health care is provided from Australian hospitals.

The challenge for pharmacy leadership will be to capture all the opportunities available to support the evolution of pharmacy services beyond the traditional scope of practice.

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VIRTUAL CARE TO BECOME THE NORM FOR HOSPITAL CLINICS

Forecast panellists (FPs) expressed cautious optimism with more than half (55%) believing by 2028 a majority of patient consultations would be delivered by virtual care and that this would be supported by the appropriate technology with sufficient connectivity to make it viable (Figure 6, Item 1).

In 1917, Western Australia's first recorded episode of telehealth attracted national headlines after Halls Creek postmaster Fred Tuckett performed emergency surgery on injured stockman Jimmy Darcy, who'd sustained internal injuries when his horse fell during a cattle stampede. With the help of a penknife, some morphine, and morse-coded instructions via telegrams from Dr Joe Holland in Perth, Jimmy's bladder was repaired, although he succumbed to malaria almost 2 weeks later.[1]

In 1987, all areas in Australia (including the most remote areas) had "basic" telephone services, and by the 1990s, "most Australians" had basic internet access via copper wire and satellite technology.[2] With the construction and implementation of the National Broadband Network (NBN) in the early 2000s, several state governments began to invest in videoconferencing technology to enable telehealth consultations that supported rural emergency healthcare. For almost 20 years, the innovations that connected rural patients and their local healthcare providers with specialist expertise via videoconferencing plugged some of the gaps in access to healthcare for rural patients, providing care that wouldn't otherwise be available.[3-7]

In 2020, in response to the COVID-19 pandemic, significant and urgent investment in digital transformation from government and the private sector resulted in widespread implementation and adoption of Medicare-funded telehealth services in primary care.[8] Between March 2020 and July 2022, 118.2 million telehealth services were received by 18 million patients, with more than 95,000 practitioners using telehealth to deliver healthcare services.[8] The significant surge in demand for internet connectivity during the early stages of the pandemic required augmented and increased capacity to be delivered via the NBN. At the same time further expansion of the NBN by connecting to new premises, was hampered by global supply chain issues and shortages of crucial hardware components.[9]

Before and since, hospital pharmacy departments have developed innovative telehealth-based models of care catering for rural and urban patients alike, with SHPA's Hospital Teams of the Year in 2019, 2020 and 2021 all recognised for their impact in providing hospital-based pharmacist expertise to rural patients - cardiology outpatients in western Victoria, rural chemotherapy patients across WA, and hospitalised patients in Western NSW respectively.[11]

Despite the accelerated advancement in telecommunication platforms in recent years and their increased utility in healthcare, almost 10% of Australians remain "highly excluded" from digital services, so further increases in adoption of hospital pharmacy outpatient telehealth services will rely on the acceptance, access, affordability and digital ability of individual Australians continuing to grow.[12]

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ACCESS TO MEDICINES FOR ALL PEOPLE, EVERYWHERE

FPs expressed it was strongly unlikely Australia will have adopted a single national formulary by 2028, with a combined 83% of responses indicating it would be somewhat or very unlikely to occur (Figure 6, Item 2).

The advent of the Pharmaceutical Benefits Scheme (PBS) saw the delivery of Australia's first national formulary,[1] which allowed for access and funding of medicines for a variety of conditions across Australia, with its initial focus on the primary healthcare system.

Non-Primary care is often delivered in settings regulated by the State or Territory in both Public and Private hospitals or accredited facilities.[2] In addition, the funding for non-primary care is a complex mix of both state and commonwealth governments.[3]

The increasing cost and complexity of medicines used in non-primary care settings has seen a rise in the use of local formularies to guide clinicians on the safe, equitable and evidence-based use of medicines.[4] These formularies will often cover the use of all medicines within a facility including both PBS and non-PBS medicines. An increasing trend has seen the wider adoption of state-based formularies[4] administered by state agencies applicable to the healthcare facilities administered by the relevant state. This is observed with state-based formularies now in operation within WA, SA, Qld, Tas and NSW.[4]

While the increased adoption of state-based formularies within public healthcare settings for non-primary care will likely see increased equity and quality use of medicines within those jurisdictions, it highlights the potential for inequity of access to high cost and complex medicines as restrictions, or permissions, may vary greatly across jurisdictions. The impact of varying restrictions to high-cost medications between states is an area in need of further research.

In addition, separate governance and funding arrangements for Private Healthcare facilities has given rise to separate formularies and clinical governance within these facilities. While private healthcare facilities have the ability to access medications within the PBS, there is no mechanism for non-PBS public funding of medications that are approved for use by a state agency formulary, apart from funding as part of Medicare Services, Health Insurance and patient co-contributions for medicines.

The various governance structures and funding arrangements between publicly and privately administered facilities results in a complex environment in which to establish an overarching framework to deliver a "national"

formulary for non-primary services. This poses a unique challenge to delivering the goals of the National Medicines Policy namely to have fair, timely, reliable and affordable access to high quality medicines.[5]

Given the complex environment for non-primary services as it is related to medicines funding and access, collaboration with a variety of stakeholders will likely be the primary tool in order to achieve any increases in equity where these vary between healthcare facilities and settings.

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PHARMACISTS PRESCRIBING IN AMBULATORY CARE

FPs were pessimistic that pharmacists would be deployed to more than half of all ambulatory care clinics and that they would have some degree of prescribing rights by 2028 with a combined total of 66% indicated that it would be somewhat to very unlikely to occur (Figure 6, Item 3).

This is perhaps surprising given the emerging reality where increasingly advances are being made with the incorporation of pharmacists in multi-disciplinary ambulatory care clinics and a growing number of centres where pharmacist prescribing or partnered prescribing is currently occurring.

There is a paucity of data to compare outpatient waiting times in Australian public hospitals contributing to the absence of consistent metrics to allow effective comparisons.[1] Nevertheless, it is widely recognised that ambulatory care clinics are a fundamental competent of the health system and that they are as equally strained as non-ambulatory services.[2] The advent of Activity-Based Funding has enabled some centres to incorporate pharmacy into multidisciplinary clinics as well as others where pharmacists offer standalone services.[3] Increasingly, due to a specialised skills set, pharmacists are being called upon to become embedded into these care settings with clear benefits to patients in terms of safety[4] and a redirection of workload across different health professions.

Pharmacists have already demonstrated their prescribing capability through supervised prescribing programs in admitted care settings. There is already a significant adoption of partnered pharmacist medication charting models.[5,6] The Pharmacy Board of Australia has also made clear that prescribing under supervision is a model able to be progressed within a pharmacist's current scope of practice. The widespread adoption of this model of care is now largely contingent on changes to state-based legislation in order to remove existing obstacles.[7]

Undertaking reforms which would allow pharmacists to work to their full scope of practice in ambulatory care clinics would arguably free up capacity in the healthcare system and potentially reduce the significant wait times for specialist outpatient appointments. Such an action would mirror similar expansions seen in community pharmacy based prescribing programs already active across a variety of juristctions.[8-10]

Before pharmacists prescribing can be implemented in ambulatory care settings existing barriers will need to be overcome. These include dispelling perceptions of increased risk through analysis of data demonstrating non-inferior outcomes, enabling pharmacist to prescribe on the pharmaceutical benefits scheme and developing clinical governance and collaborative prescribing models within facility clinical governance frameworks to enable widespread adoption of this model.

Workforce constraints will need to be addressed coupled with adequate pharmacist credentialling for work in ambulatory care settings established. This will be challenging where the existing workforce is already operating in an environment of increasing demand more broadly.[11]

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NEW GRADUATES JOB-READY FOR VIRTUAL CARE DELIVERY

There was significant agreement amongst FPs with a combined total of 81% indicating that they believe it would be somewhat to very likely that virtual care will be incorporated into pharmacy undergraduate curricula by 2028 (Figure 6, Item 4).

COVID-19 saw a rapid re-thinking in the way healthcare is delivered, with one of the many focuses being how to maintain access to clinical services where patients have no or minimal physical access to the healthcare facilities and clinicians in person.[1] Some health system level changes have reset the thinking on how hospital care can be delivered as demonstrated by the advent of virtual emergency departments[2,3] and examples of fully fledged virtual hospitals.[4]

The rapid roll out of e-Prescribing in Australia[5] has similarly seen patients able to have many medications prescribed via telehealth with this becoming an emerging feature in Public Hospitals for both virtual and in person care.[6] Hospital Pharmacy has adapted and will continue to need to adapt to the evolving changes in virtual care that touch on the wide gamut of the complex services that hospital pharmacies provide and integrate with.

It is logical to expect that the next generation of pharmacy students will enter the workforce equipped with skills to maximise the effectiveness of their communication via telehealth platforms. Pharmacy student curricula already addresses in-person communication techniques that enable the collection of relevant information, medicines education, and demonstration of medication administration techniques, to name a few examples. With the rapid expansion of telehealth and virtual care in the hospital sector over the last 20 years, and the primary care sector over the last 4 years, the health workforce has adapted on-the-job to the changing models of care delivery. Whilst the effectiveness of verbal communication via telehealth can be assessed in a similar way to in-person communication, challenges in recognising non-verbal cues, and overcoming obstacles in building rapport are essential to telehealth being an acceptable, culturally safe and effective consultation model.[7]

Medication safety in a digital landscape no longer looks at the traditional transcription errors paper records are prone to, instead providing a much broader scope to deliver safe care. The stead increase in digital applications has seen a corresponding increase in the digital literacy skills required by the pharmacy workforce. With increasing uptake of digital tools into the virtual healthcare space increased digital literacy will be expected. Key elements of virtual care will by necessity need to be embedded in pharmacy curricula to prepare future graduates for the workplace.[8]

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PHARMACY INTEGRAL AT TRANSITIONS OF CARE

FPs were evenly split on the likelihood that all high-risk patients transitioning between hospital and community care would be supported by funded and appropriately skilled pharmacists by 2028 with 42% and 43% believing this would be somewhat unlikely and somewhat likely respectively (Figure 6, Item 5).

It is well understood that involving skilled pharmacists at the transition of care is beneficial for patients who move between care settings[1-2], however the implementation of Transition of Care pharmacist roles in Australia remains highly variable.[3]

Current efforts by the Federal Government to establish funding models for employment of on-site pharmacists in aged care, and by the Australian Pharmacy Council to accredit training and education pathways that provide credentialing for such pharmacists, have likely provoked much optimism amongst FPs.[4-5] It's possible these efforts are helping fuel optimism in responses to this question, with half the FPs agreeing that the pharmacist workforce dedicated to addressing the medication-related risks associated with transition of care, would be appropriately specialised, skilled and funded in the next 5 years.

However, with the other half of the FPs expressing the opposite view, it's possible that current workforce shortages are seen as a barrier to mitigating the risk for all high-risk patients that move from hospital-based care to community-based care in the next 5 years. As Australia continues to explore funding reforms in healthcare[5-6], identifying and eliminating, delegating or automating the low-value activities that pharmacists currently perform will be key to enabling a skilled and adequately sized workforce to perform these high value healthcare and medication management activities.

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CONSUMER CULTURAL PRACTICE INTEGRATED IN PATIENT MANAGEMENT

FPs were sceptical that cultural and traditional healing practices will be incorporated into policy in all hospitals by 2028 as indicated from a combined response of 56% believing it would be somewhat to very unlikely to occur (Figure 6, Item 6).

The 2022 Reconciliation Barometer shows that, against this measurement, Australia's journey towards reconciliation and greater justice for First Nations Peoples is on track.[1] Reconciliation Action Plans continue to have extensive reach across Australia, with almost four million people working or studying in an organisation with a Reconciliation Action Plan, and more than six million Australians being members of a peak body or sporting club with a Reconciliation Action Plan.[2] This represents a broader recognition amongst the Australian population that the wrongs of past government policies, including the widespread and forcible removal of Aboriginal children from their families, resulted in trauma and harm, passed on to each new generation.[2-3] Government and non-government health services are undertaking a variety of programs to improve the quality of healthcare delivered to First Nations Australians, and to educate and upskill the healthcare workforce in culturally safe practices.[4]

However, First Nations people continue to experience discrimination in Australia's healthcare system. In 2021-22 when waiting for elective surgery, 50% of First Nations Australians were admitted to hospital within 50 days, compared with 50% of Other Australians being admitted within 39 days.[6]

With cultural safety of hospitals being defined by the experience of the First Nations people who access and use them, this includes their treatment by healthcare professionals and their own feelings of cultural safety.[5] In Emergency Departments in 2021-2022, First Nations Australians left "at own risk" (or did not wait) 1.4 times as often as Other Australians – and when admitted to hospital, were 5 times as likely to leave "against medical advice" – these represent indirect measures of the lack of cultural safety experienced, by First Nations Australians in those hospital environments.[5]

In 2017-18 one-third of primary care Aboriginal Community-Controlled Health Organisations (ACCHOs) provided bush medicine, bush tucker, traditional healing and cultural services, however there is a lack of data on the uptake of these practices within mainstream health services.[7]

Whilst there are clearly some health services that are already enabling person-centered culturally safe care including the use of traditional medicines and healing practices, approximately three in five FPs did not agree this would be the case in all Australian hospitals by 2028 (Figure 6, Item 6). This represents an opportunity for hospital pharmacy leadership to continue to engage with the First Nations and culturally diverse communities, to ensure that such policies and practices are co-designed. Delivery of culturally safe care is enabled in culturally safe workplaces that are free from racism, by practitioners who are culturally responsive and progressing towards cultural competency. Discriminatory attitudes towards non-western / complementary / alternative / traditional medicines must continue to be challenged, in order to enable the widespread provision of holistic person-centred, family-centred and community-centred care from Australian hospitals.[8]

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CONCLUSION

The ever-increasing demand for acute care services and an uneven distribution of their availability across the country provides the driver to approach healthcare access and hospital evolution with a renewed outlook. Traditional service models cannot meet the healthcare demands of an aging population without developing innovative and novel solutions such as virtual healthcare. Pharmacy practitioners and education providers will need to embrace virtual healthcare, which when provided with the right technology has been shown to be as effective direct contact with a practitioner.

Access to healthcare can be further enhanced by removing existing barriers to pharmacist prescribing programs. These should be supported by credentialed safe practice models to cement community and peer confidence. This in turn will demonstrate the added value which positioning pharmacists in ambulatory care can provide and enable more efficient and safer patient experiences at transitions of care. The advocacy of all healthcare providers with government and industry will be required to address inherent obstacles perpetuating uneven access to high-cost medicines. As medicines become increasingly bespoke and expensive such collaborations will be necessary to provide equity of access to healthcare and place the consumer at the center of decision making.

RECOMMENDATIONS

1. **Enable pharmacists to deliver clinical pharmacy services to patients independently via Medicare Benefits Schedule (MBS) funding**

For consultations that do not require a physical examination or in-person observation of the patient, pharmacists in any setting should be funded via the MBS to deliver clinical services to individuals, such as follow-up medication reviews, monitoring and management of medication regimens as part of a multidisciplinary chronic disease management plan, and individual or group-based services such as health promotion activities.

2. **Establish a Jurisdictional Medicines Formulary forum to harmonise medicines access and share information, trends and learnings across jurisdictions**

Investigate the establishment of a Jurisdictional Medicines Formulary forum and information sharing to enable improved harmonisation of medicines access options across jurisdictions.

3. **Advocate for pharmacist prescribing**

Pharmacy leaders need to advocate for the removal of legislative obstacles to pharmacist-led prescribing programs at state government level while simultaneously working to develop professional pharmacist prescribing credentialling programs (see also theme 1, recommendation 1).

4. **Collaborate on needs-based virtual care training**

Pharmacy professional bodies, including representation from hospital pharmacy, must work collaboratively with university bodies to establish the needs of the health care systems and translate these into skills and competencies to enable pharmacists to be trained and ready to support virtual healthcare.

5. **Fund research into pharmacist-led and collaborative models of care in non-admitted settings**

Advocate for frameworks to drive more research into models of care that embed pharmacists prescribing in non-admitted settings to show improvements in access with non-inferior patient outcomes.

6. Address data gaps on cultural safety of Australian health services

Data on cultural safety in mainstream health services continues to be lacking. Work is required to collate robust data on these services, in partnership with key advisory bodies such as Aboriginal community controlled health organisations, to provide a more comprehensive assessment of cultural safety across the Australian health system.

PARTNER PERSPECTIVE

Australian Medical Association (AMA)

Earlier this year the AMA launched a report which called for politicians to change the way the think about health spending. For too many policy makers (and too many economists) health spending is viewed only as a cost. As health practitioners, we know that it is an investment — we see the benefits everyday. But we also see the impacts when costs are cut, not just in our patients but also in our colleagues as they struggle to manage more with less.

We need to reframe our thinking. The money we invest in healthcare can improve health outcomes and support economic growth. Keeping people healthy reduces the costs and burden on our healthcare system and drives economic growth and productivity.

We have evidence to back this up. AMA analysis has demonstrated that keeping our population healthy and engaged in the workforce has delivered an estimated $57.3 billion increase in Gross Domestic Product, or 2.5 per cent, over the last 14 years. This benefit has not been properly accounted for. At the other end, we are not counting the cost of delayed access to care, the deterioration of patients waiting on essential surgery waiting lists, and the loss of productivity as a result.

To drive evolution of in our hospitals and our health system more broadly, we need to change our approach. We are focused on treating poor health outcomes, not preventing them. We have a 'sickcare' system rather than healthcare system. We need a holistic healthcare system that tackles both existing health issues and prioritises prevention. Primary care can and should be better funded to prevent hospitalisations. Hospitals need to be funded appropriately and supported to improve performance.

The AMA will continue to advocate for a change in thinking and more investment in healthcare. Investment for the whole system, so that we can all continue to deliver the care our patients deserve.

ama.com.au/health-is-the-best-investment

Steve Robson, AMA President

FIGURE 6. Healthcare access and hospital evolution

Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2028 in the geographic region where you work?"

■ VERY LIKELY ■ SOMEWHAT LIKELY ■ SOMEWHAT UNLIKELY ■ VERY UNLIKELY

1. A majority of patient consultations will be delivered via hospital clinics virtually with telehealth infrastructure and adequate connectivity to deliver the care

7%	48%	38%	7%

2. All states and territories will have adopted a single national formulary, inclusive of all medicines listed on the Pharmaceutical Benefits Scheme and high-cost medicines, to maximise equity of access to treatment for all Australians in public facilities

2%	16%	41%	42%

3. More than half of hospital ambulatory clinics nationally will have a pharmacist integrated into their models of care who can prescribe therapy for patients independently

2%	32%	41%	25%

4. All undergraduate pharmacy courses in Australia will have embedded the delivery of virtual care into their curricula

23%	58%	13%	6%
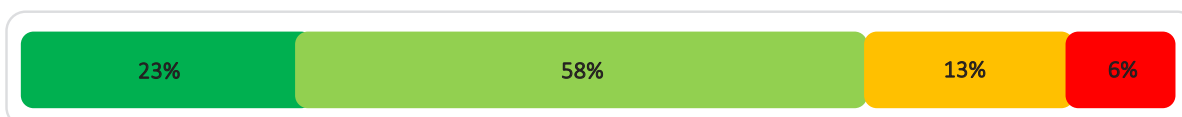
5. All high-risk patients transitioning between hospital and community care will be supported by an appropriately specialised, skilled and funded pharmacy workforce to support quality care outcomes

6%	42%	43%	9%

6. All hospitals will have developed consumer-centered policies which enable the culturally safe use of traditional medicines and healing practices

15%	29%	34%	22%

PHARMACY
FORECAST
AUSTRALIA
2023