

JUNE 2023

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OFFICIAL JOURNAL OF
The Pharmacy Guild

Community
Pharmacy
Vital Facts

PGA Pharmacy
of the Year 2023

Vinnies CEO
Sleepout Challenge

Winter EDITION



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PRESIDENT'S MESSAGE

One of the defining features of the community pharmacy sector is how it leads in the development and implementation of processes, products and ideas.

It is this willingness to constantly grow that has made Australian community pharmacy stand out on the world stage and be regarded as an early adopter of new ideas.

Traditionally the focus is on products and processes but at the Guild we try to look wider and one very important and relevant new service we are introducing aims at ensuring the welfare of Guild members and their staff.

The COVID-19 pandemic has highlighted all too starkly the need to refocus on the physical and mental health needs of people working in community pharmacies. The stresses of the pandemic, demands put on staff, abuse from customers and the uncertainty of the future have all taken their toll.

The COVID-19 pandemic also has highlighted the need for everyone to be aware of their mental health and ensure they are monitoring it during these stressful times.

Community pharmacies play an important role in helping patients (and their carers) stay mentally healthy through education on medicines and options, promoting adherence to their medicines regimens and also in helping the lifestyle changes (weight management, smoking cessation etc).



“THE REALITY IS THAT IF WE DON'T LOOK AFTER OURSELVES, WE CAN'T REALLY LOOK AFTER OUR PATIENTS.”

This can help patients manage their mental health issues, monitor their overall health, and promote healthy living. They also work closely and collaboratively with the patient's GP and other health care professionals.

But all too often we are so busy looking after our patients that we can neglect our own health.

The reality is that if we don't look after ourselves, we can't really look after our patients.

At the Guild we were determined to do something about it and so from July we are introducing a free employee assistance program for members and their staff.

We know how important mental health is, so this is a way the Guild is supporting our members to support the health and wellbeing of their workforce. In addition to professional counselling and therapy services, the new member service will offer access to ongoing proactive health advice, via a range of interactive digital tools such as a mobile app and website resources.

To ensure we are offering the best possible employee assistance program, the Guild has partnered TELUS Health (which was formerly as LifeWorks) which is a renowned provider of remote counselling support with more than 50 years' experience.

After examining a wide range of providers, we decided on TELUS Health because it offers a comprehensive modern program which has been designed to destigmatise mental health issues as well as offering a more holistic approach.

Some of our members, particularly some of the banner groups, already have programs in place, so we will have a tailored offering that complements these existing programs and we have worked with our branches, banner groups, stakeholders and the Pharmacists' Support Service to ensure what we are offering meets the needs of our members and their staff.

Trent Twomey
National President

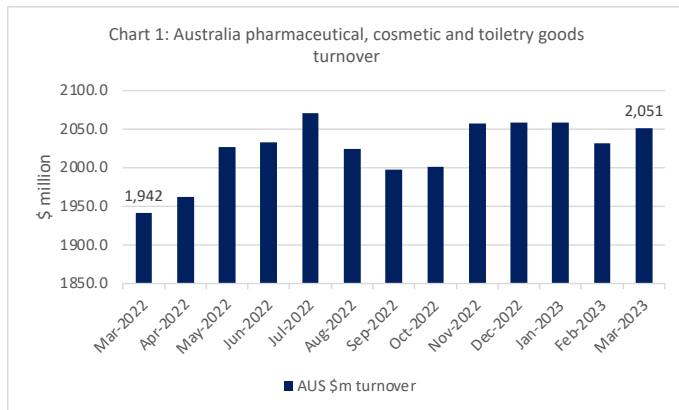
STATE OF THE AUSTRALIAN ECONOMY

Retail Trade Update – May 2023

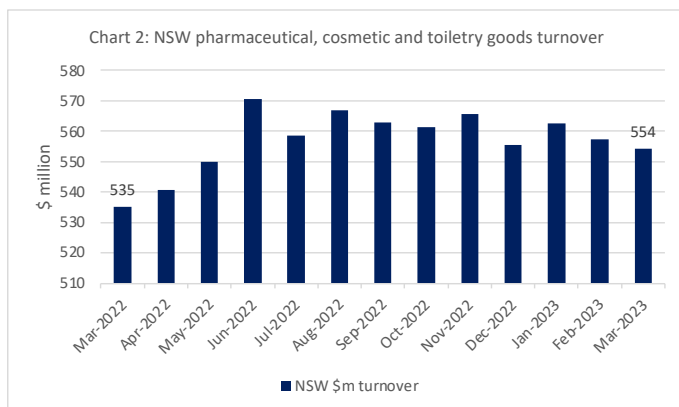
The dollar value in turnover for pharmaceutical, cosmetic and toiletry goods, which is an Australian Bureau of Statistics (ABS) definition that includes community pharmacy (including prescriptions, OTC, and front of shop items) has been relatively solid.



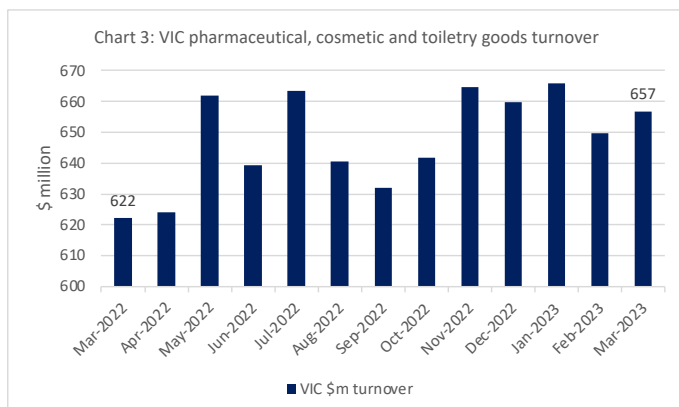
Chart 1 shows the monthly level of the dollar value of turnover for pharmaceutical, cosmetic and toiletry goods nationally. In March 2023 (latest data available at the time of writing), the dollar value reached \$2,051 million. This is up from \$1,942 million in March 2022, a 5.6 per cent increase. In comparison, retail turnover for all categories nationally has increased by 5.4 per cent over the same period.



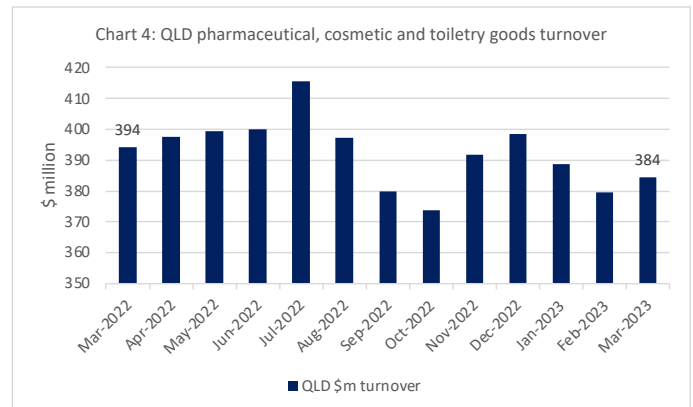
Turning to each jurisdiction, New South Wales recorded 3.6 per cent year-on-year growth in the dollar value of retail trade for pharmaceutical, cosmetic and toiletry goods to March 2023, which was below the national growth figure of 5.6 per cent. Chart 2 shows a value of \$554 million in retail trade in March 2023 for New South Wales. In comparison, retail turnover for all categories in New South Wales has increased by 5.7 per cent over the same period.



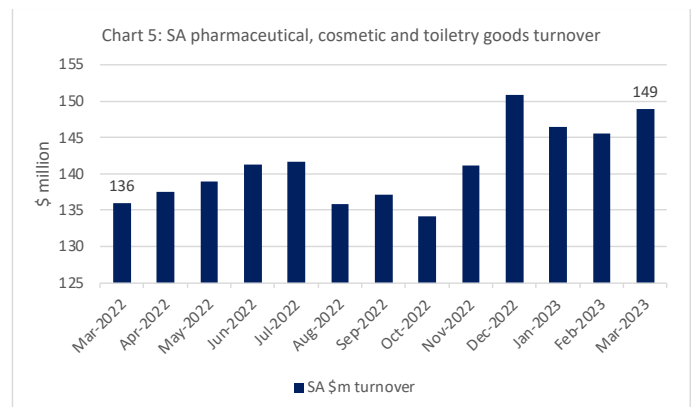
Victoria's dollar value of turnover for pharmaceutical, cosmetic and toiletry goods is given in Chart 3. It shows that the March 2023 result (\$657 million) was a 5.6 per cent year-on-year improvement against March 2022 (\$622 million), in line with the national growth rate and also in line with retail turnover growth for all categories in Victoria over the same period.



Queensland's pharmaceutical, cosmetic and toiletry goods turnover declined by 2.5 per cent year-on-year to March 2023. On a monthly basis, turnover reached \$384 million in March 2023 (Chart 4). In comparison, retail turnover for all categories in Queensland has increased by 2.7 per cent over the same period.



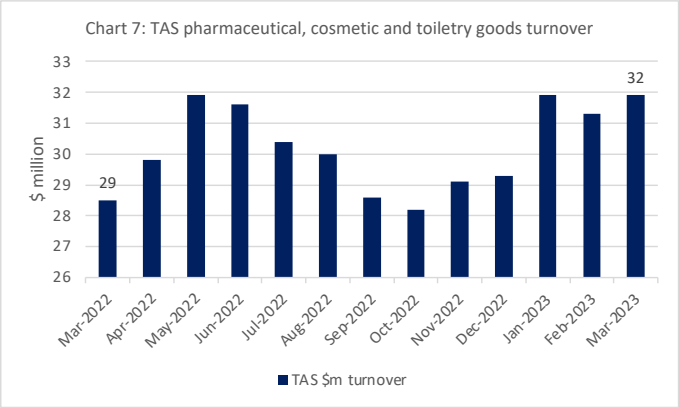
South Australia's pharmaceutical, cosmetic and toiletry goods turnover recorded 9.5 per cent year-on-year growth to be \$149 million in March 2023 (Chart 5). In comparison, retail turnover for all categories in South Australia has increased by 8.2 per cent over the same period.



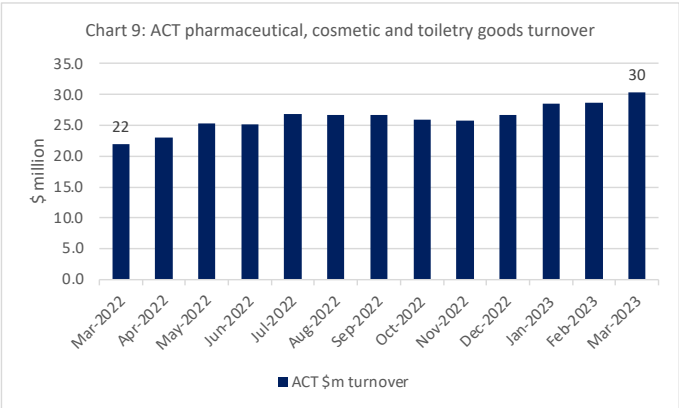
Western Australia has had very strong growth in pharmaceutical, cosmetic and toiletry goods turnover. As at March 2023, the monthly dollar value was \$233 million (Chart 6), a 20.3 per cent year-on-year growth rate. In comparison, retail turnover for all categories in Western Australia has increased by 6.9 per cent over the same period.



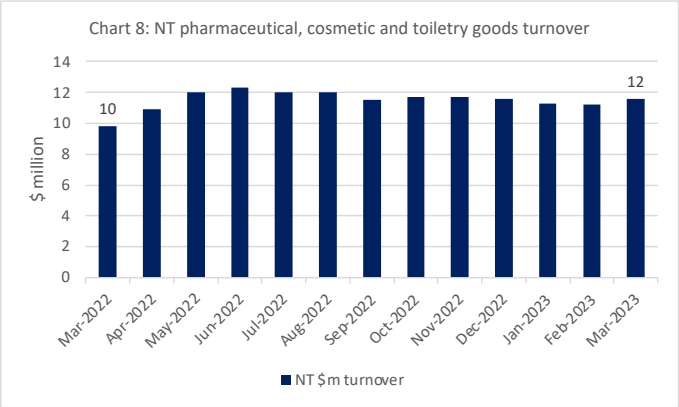
Tasmania year-on-year growth rate in pharmaceutical, cosmetic and toiletry goods turnover to March 2023 of 11.9 per cent exceeded the national result of 5.6 per cent. In March 2023 retail trade was \$32 million (Chart 7). In comparison, retail turnover for all categories in Tasmania has increased by 7.1 per cent over the same period.



Finally, also off a low base, the Australian Capital Territory recorded the strongest growth on a year-on-year basis to March 2023, with growth of 37.7 per cent and a dollar value of retail trade in March 2023 of \$30 million (Chart 9). In comparison, retail turnover for all categories in the Northern Territory has increased by 7.9 per cent over the same period.



Off a small base, the Northern Territory recorded 18.4 per cent year-on-year growth in pharmaceutical, cosmetic and toiletry goods turnover to March 2023 to reach \$12 million (Chart 8). In comparison, retail turnover for all categories in the Northern Territory has increased by 4.7 per cent over the same period.



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Guild of Australia



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Vital facts on community pharmacy

1



There are **5,901** community pharmacies in Australia¹

2

On average, every person visits a community pharmacy **18** times each year, in metropolitan, rural and remote locations².



3



Community pharmacies are the most frequently accessed and most accessible health destination, with over **428.2 million** individual patient visits annually and **2,131 pharmacies** open after-hours, including weekends³.

4



In 2022, under the PBS and RPBS, community pharmacies dispensed almost **222.1 million** Government subsidised (Above Co-Pay) prescriptions⁴.

5



Pharmacists are one of the most trusted professions along with nurses and doctors. Public opinion surveys have shown that **84%** of adults trust the advice they receive from pharmacists⁵.

1. PBS Expenditure and Prescription Report
 2. Pearson, D., De lure, R. (2021) NAB Pharmacy Survey 2021. NAB. <https://business.nab.com.au/nab-australian-pharmacy-survey-2021-48091/>
 3. GuildLink data
 4. Department of Health, Date of Supply Report, downloaded 9 May 2022, Accessed at <https://www.pbs.gov.au/info/statistics/dos-and-dop/dos-and-dop>
 5. <https://www.roymorgan.com/findings/7244-roy-morgan-image-of-professions-may-2017-201706051543>



6



In capital cities, **97%** of people have access to at least one pharmacy within 2.5 km radius, while in the rest of Australia **66%** of people are within 2.5 km of a pharmacy¹⁰.

7



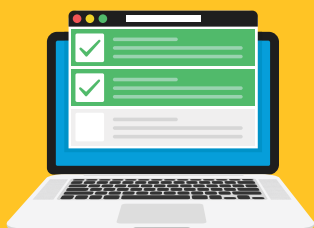
More than **94%** of pharmacies nationwide have achieved quality accreditation⁷.

10



There have been over **122 million** electronic prescriptions issued for patients (original and pharmacy repeat prescriptions)⁸.

8



As of 30 June 2022, **99.9%** of PBS or RPBS prescriptions are now claimed electronically online⁹.

11

As of 30 December 2022, there were **35,732** registered pharmacists in Australia. **63.8%** of pharmacists are women; and about **58%** are under 40 years of age¹¹.



9

53% of patients say they use one pharmacy for everything or at least one category of product / service. **38%** of patients state they were driven by convenience of location⁶.

Vital facts on community pharmacy



6. CP2025_Integrated Market Research Report 2018 – Orima Research

7. Quality Care Pharmacy Program

8. Australian Digital Health Agency, www.digitalhealth.gov.au, April 2023

9. <https://www.servicesaustralia.gov.au/annual-report-2021-22>; Page 68

10. The Pharmacy Guild of Australia 2020

11. Pharmacy Board of Australia Registrant Data; December 2022



12



Seven Community Pharmacy Agreements have been negotiated between the Government and the Guild, underpinning patient access to PBS medicines and professional services for over 30 years.

13

In 2020–21, **1,487,300** of all hospitalisations were classified as potentially preventable. Of these, **199,563** potentially preventable public hospitalisations and **64,366** private hospitalisations were due to chronic conditions (excluding diabetes). Medicines adherence is an important role for community pharmacists.¹³



14



Community pharmacies provide a national network of National Diabetes Services Scheme access points for the **1,487,300** Australians with diabetes registered with the NDSS¹⁵.

16



Pharmacies support public health initiatives such as Opioid Replacement Therapy and needle and syringe programs and participating in the Return of Unwanted Medicines Program improving social, economic and health outcomes.

15



Between July 2021 and June 2022 there were **15.8 million** dose administration aids provided by community pharmacies to patients to assist them to remain living at home¹⁴.

17



Community Pharmacist-Led medication adherence interventions have improved adherence rates by **9.3%** and reduced health system costs by **\$1.9 billion**¹².

Vital facts on community pharmacy

12. Dovepress Journal – Patient Preference and Adherence: Pharmacist-led medication non-adherence intervention: reducing the economic burden placed on the Australian Health Care system

13. Australian Institute of Health and Welfare Admitted Patient Care 2020-21; Table 8.2; <https://www.aihw.gov.au/reports-data/myhospitals/sectors/admitted-patients>

14. <https://www.health.gov.au/resources/collections/pharmacy-programs-data>

15. <https://www.ndss.com.au/about-diabetes/diabetes-facts-and-figures/diabetes-data-snapshots> (April 2023)



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Business Leaders Urged to Take on THE SLEEPOUT CHALLENGE

And Help Australians Find a Home

Y

Your city needs you! Will you rise to the challenge? Now's your chance to stand up for people at risk of or experiencing homelessness by being part of a movement to help those doing it tough. Sign up to your Vinnies CEO Sleepout, start raising money and help bring an end to homelessness in your city.



Owner & CEO Capital
Chemist Group

Words | Roger Tall



The Vinnies CEO Sleepout is returning on June 22 for 2023, with Vinnies aiming to beat last year's record event which raised more than \$9m for homelessness support.

In Australia there are more than 122,000 people experiencing homelessness and the CEO Sleepout is about making real on the ground impact by calling on the business community to rise to the challenge.

The sleepouts will again be held in capital cities and regional centres right around the country on what will be one of the shortest and coldest nights of the year.

The event recruits a variety of CEOs, business owners, founders, business and community leaders from across Australia aiming to help end the cycle of homelessness.

Roger Tall is one such business leader. Roger is the owner and operator of the Capital Chemist Group which over the years has grown from two local pharmacies to now forty-two across Australia.

He is passionate about giving back to the community and supporting people experiencing homelessness. Roger has been involved in the Vinnies CEO Sleepout for several years and encourages others to get involved to help Vinnies break the cycle of homelessness.

"Rather than spending a lot of money on advertising we decided it was far better spent on community programs," Mr Tall said, "very much a win-win situation for all parties".

"I like to think that this community spirit will be my legacy and hopefully will be picked up by the coming generations of young pharmacists."

Roger encouraged all business and community leaders to get involved, not just CEOs.

"People can see what other people are doing and realise there is no reason why they can't give back as well," said Mr Tall.

National Campaign Manager Helen van Nooten echoed Roger's sentiment and says there is more need now than ever before for those doing it tough.

Ms van Nooten said with a greater need for housing than ever, this year's event will be vital to providing homelessness services and programs to Australia's most vulnerable.

"By spending a night sleeping rough, you can directly contribute to helping an Australian family access a place to call home – not just for a night, but for the long term," Ms van Nooten.

Funds raised across the country will continue to support those experiencing homelessness to find shelter as well as supply them with essentials like food, clothing, bedding and hygiene items.

"The CEO Sleepout isn't just about raising funds, it's also a chance to learn more about the realities of homelessness, what we're seeing in our own communities and what we can do together to help."



REFERENCES

If you'd like to find out more about the Vinnies CEO Sleepout locations or to register for the 2023 Sleepout please visit ceosleepout.org.au



Register for the Vinnies CEO Sleepout

**HELP BREAK THE CYCLE OF HOMELESSNESS BY SLEEPING OUT
ON ONE OF THE COLDEST, LONGEST NIGHTS OF THE YEAR.**

Be part of something greater; spend the night with other business and community leaders, fundraise and change the lives of Australians experiencing homelessness.

22 JUNE 2023

For your nearest event visit
ceosleepout.org.au or scan the QR code →



VITAMIN D

The Sunshine Vitamin

U

Unlike other vitamins, vitamin D is neither exclusively nor prominently available through the diet. Instead, an estimated 90–95% of vitamin D is provided endogenously through skin synthesis after exposure to ultraviolet B (UVB) light from the sun.¹



But despite an abundance of sunshine in Australia year-round, as our winter season comes to a close each year, it is estimated that almost a quarter of adults have a mild or moderate vitamin D deficiency,² with deficiency levels rising to as high as half the population in south-eastern states.^{1,2}

The Role of Vitamin D

Vitamin D is available through sunlight, food and supplements and it must undergo two chemical processes in the body before it is considered to be biologically active.^{1,3} The first process occurs in the liver when vitamin D is converted to 25-hydroxyvitamin D [25(OH)D], which is also known as calcidiol.³ The second process occurs predominantly in the kidneys (but also in other tissues) where it is converted to the active form 1,25-dihydroxyvitamin D [1,25(OH)₂D], also known as calcitriol.³

Vitamin D's role is well established as being essential for musculoskeletal health.^{4,5} It is required for calcium absorption in the gastrointestinal tract and plays an important role regulating and utilising serum calcium and phosphorus.^{4,5} For this reason, severe vitamin D deficiency impairs bone mineralisation, presenting as rickets in children and osteomalacia and osteoporosis in adults.^{4,5}

More recently, achieving adequate vitamin D has been found to support good immune health, possibly playing a role in reducing the severity of the flu^{6,7,8} and protecting against some autoimmune diseases.⁹ There is also growing evidence that it may be beneficial in the prevention and treatment of cardiovascular disease^{4,9} respiratory illness^{7,8} and depression¹⁰—although further research is needed before firm conclusions can be drawn.

How Much Sunlight is Sufficient?

Sun exposure is not without problems, particularly in 'sunburnt Australia' where the sun is harsh and skin cancer rates are amongst the highest in the world.¹¹ It is therefore paramount to balance the incessant risk of overexposure against the need to be exposed to moderate levels of UVB light to maintain adequate levels of Vitamin D.

Realising the importance of facilitating this vital balance, in 2016 a group of national peak health bodies* came together to provide more specific guidelines based on UV index.¹¹

- **In summer and spring** (or when UV index is above 3):
6–7 minutes of sunlight before 10 am or after
2 pm on most days of the week.
- **In the late autumn and winter** (or when some parts of southern Australia experience UV index below 3):
20–40 minutes of sunlight in the middle of the day.

To balance sun safety, the Cancer Council recommends that sun protection be used when the UV Index is 3 or above, which can be year-round in northern areas of Australia.¹¹ Alternatively, when the UV index is below 3, it is advised that it is safe to go outside for short periods of time without sun protection, with the exception of those at high altitudes or near highly reflective surfaces like snow.¹¹

Food sources of vitamin D

While diet can also provide vitamin D, intake through diet alone is considered to be insufficient.^{1,2} But this isn't to say that food intake should be disregarded, as dietary consumption can play an important role in maintaining adequate vitamin D stores. Food that can provide vitamin D includes: plant sources (vitamin D2) such as mushrooms, in particular mushrooms that have been treated with UV radiation; animal sources (vitamin D3) such as oily fish (e.g. salmon, tuna, mackerel), fish oils, egg yolk and beef liver; and fortified foods, which include milks, cereals, breads and margarines.

Supplementation

Serum concentration of calcidiol is currently the best marker for clinical assessment of vitamin D status.³ While optimal levels of vitamin D are disputed worldwide, Australian organisations generally define levels <29nmol/L as deficient and >50nmol/L as sufficient, with anything in between considered suboptimal.^{3,5}

For patients who are diagnosed with vitamin D deficiency, pharmacists should be recommending supplementation as a means to achieve adequate levels.^{1,3,5} Currently, Osteoporosis Australia recommends a dose of 3,000–5,000IU/d for 6–12 weeks.⁵ Once patients have reached sufficient levels, if appropriate, they should be encouraged to maintain their status through a combination of moderate and safe sun exposure alongside the consumption of vitamin D-containing foods.^{1,5}

For patients who are not vitamin D deficient, but are at risk of vitamin D deficiency, supplementation should be considered at a lower dose. Osteoporosis Australia recommends 1000–2000IU/d.⁵ Individuals who are considered at risk of deficiency include:

- people with naturally darker skin
- people who are elderly, housebound or in a residential care facility
- people who cover up for religious or cultural purposes
- people who deliberately avoid sun exposure for cosmetic or health reasons
- people who spend long hours indoors, including people in occupations where they predominantly work indoors
- babies who are born to vitamin D deficient mothers
- people who have had gastric bypass surgery
- people with anorexia nervosa.

For patients who are not vitamin D deficient and are not at high risk of deficiency, there is insufficient evidence to warrant supplementation for general wellbeing.³

COVID-19 considerations

Discussions on the importance of vitamin D come at an appropriate time given the current COVID-19 pandemic. As sun exposure is the major determinant of vitamin D status, experts have questioned the impact home isolation may have had on the population levels of vitamin D. In addition, studies have shown a possible association between low vitamin D serum levels and poor lung function,^{6,7} which has spiked interest in the possibility of vitamin D status impacting COVID-19 mortality. There is thought amongst the scientific community that a deficiency in vitamin D could increase one's risk of contracting COVID-19 or may lead to a more severe disease course.¹²

While data regarding the prevention and treatment of COVID-19 with vitamin D supplementation is not yet available, vitamin D is an essential nutrient, and healthcare professionals should promote recommended intakes of vitamin D for patients who are concerned.

Through being able to recognise those at risk and being familiar with current avenues and recommendations for attaining adequate vitamin D, pharmacists can play an integral role in preventing and treating vitamin D deficiency. Ultimately, pharmacists should be confident in educating and guiding patients towards appropriate supplementation and lifestyle interventions.

**Cancer Council Australia, the Australasian College of Dermatologists, the Australian and New Zealand Bone and Mineral Society, Osteoporosis Australia and the Endocrine Society of Australia*

2 Minutes of sun exposure needed for people with moderately fair skin to achieve about one-third of a minimal erythemal dose (MED)

| Region & City [†] | Dec-Jan, 10am or 2pm [‡] | Jul-Aug, 12pm |
|----------------------------|--------------------------------------|------------------|
| NORTHERN | | |
| Cairns | 6-7 | 7 |
| Townsville | 5-7 | 7 |
| CENTRAL | | |
| Brisbane | 6-7 | 11 |
| Perth | 5-6 | 15 |
| SOUTHERN | | |
| Sydney | 6-8 | 16 |
| Adelaide | 5-7 | 19 |
| Melbourne | 6-8 | 25 |
| Hobart | 7-9 | 29 |
| NEW ZEALAND | | |
| Auckland | 6-8 | 24 |
| Christchurch | 6-9 | 40 [§] |



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that supports Australian community pharmacy.**

THE PARACETAMOL DEBATE

And Why it Matters so Much for Healthcare in Australia

The past year has seen strong debate around access to paracetamol with concerns around misuse. At the beginning of the discussion the regular users of paracetamol were invisible, by the end they were being acknowledged. What we have to do is to include people with chronic conditions in our decision-making process, avoid these kinds of fights and improve lives through clinical and medical engagement of and with, consumers into the future.





This time last year we had just had an election, a new government was settling in, and if we needed paracetamol because of an arthritis flare up or recurring pelvic pain we wouldn't have thought that just months later consumers would be in the fight of their lives simply to be able to buy this well understood, generally very carefully used, and valued medicine.

At the same time the 3.4 million, or 1 in 5 Australians over 25, who live with chronic pain were invisible. Pharmacists and doctors of course knew them, but in general the community does not see or acknowledge the huge prevalence of this condition nor its impact on people's lives.

In the past 5 years this cohort has seen a big change to the availability of some key medicines used for many years to alleviate chronic pain, in 2018 codeine was made prescription only and in 2021 opioids were also strongly restricted.

At the time that the government was deciding on the restrictions to opioids, Painaustralia, the peak advocacy body for the 3.4 million Australians with chronic pain, was part of the Opioid Regulatory Advisory Group. In every single meeting of ORAG it was noted in the minutes that when changes were brought in it was essential that alternative treatments must be offered at the point of change, or we would see people struggling to cope.

Meeting minutes show: "Abrupt discontinuation or rapid deprescribing can lead to suicide if not well managed, not just serious withdrawal symptoms", that patients would need "adequate support, that "there may be no suitable alternative medicine/treatment modality available for patients attempting to transition away from opioids" and that therefore alternatives need to be discussed and "The use of non-opioid alternatives" needed to be raised with healthcare professionals.

And yet, when the changes were rolled out, many consumers were offered no alternative treatments.

We know suicides took place as a result of the change and many other consumers have struggled ever since to know how to manage chronic pain.

The good news is that there are alternatives, and that there is a great deal health care professionals can do to point consumers in the direction of the best clinical care possible, in multi-disciplinary, self-managed as much as possible, pain care. Pharmacists can play a key role here in providing advice about medicines and broader treatment strategy. But the lesson here is that governments need to listen not just "consult" and then ignore the advice they are given or not consult at all.

Back to 2023 and we have had the decision handed down by the TGA that people can't be trusted with 20 paracetamol tablets from the supermarket, 16 (2 days' supply) will have to do. That if you can get to a pharmacy (not easy for rural and remote Australia) then you can get a pack of 50 (1 week's supply) off the shelf or 100 (2 weeks' supply) if you have a chat with the pharmacist for a pack from behind the counter.

The TGA's original proposal was scary for people with chronic pain. The original proposal was:

1. Reducing the size of packs of paracetamol sold in supermarkets and convenience stores and in pharmacies without the advice of a pharmacist – This unduly impacts people on low incomes who often buy their paracetamol on payday – this would provide only two to three days of supply.
2. Limiting the number of packs of paracetamol products that can be purchased in one transaction to 1 or 2 packs to reduce home stockpiles of paracetamol – this would, for some, provide only two to three days of supply. Not everyone lives close to a supermarket or pharmacy and has the means, or when living with chronic pain, to easily access these services every couple of days. This would have huge rural and remote impacts for those who don't have a pharmacy nearby.
3. Making modified-release paracetamol, which is designed for long-term use rather than for acute pain, available only with a prescription – increases the costs to consumers who have to then visit a GP, which is not always easy to do and also increases costs to government.
4. Restricting the purchasing of paracetamol without a prescription to individuals aged 18 years and

older – discriminates against young carers, and young women who have pelvic pain and young people living alone before 18 years of age.

Painaustralia did support proposals 5, 6 and 7.

5. Improving the communication around the potential harms from paracetamol
6. Maintaining and expanding follow-up care and support after self-harm
7. Increasing awareness about safer storage of medicines and reducing stockpiling of unwanted medicines.

And yet while proposal 1 has been adopted, the most constructive suggestions and 5, 6 and 7 have been dumped. We are told that the vast majority of misuse issues happen in the home and from the family supply of medicines.

Meanwhile, the same government is selling 60 days dispensing of prescription medicines as a saving to consumers but apparently, we can't be trusted with a week's supply of paracetamol off the shelf for those with chronic pain.

The reason the proposal didn't consider those with chronic pain in the first place is that we were not included as "Experts" on this issue. And yet people with chronic pain must be the most significant group of those who rely on paracetamol in the nation, while alternative treatments are expensive and hard to access.

Fortunately, after much advocacy the Government has started to see our needs. I hope that governments will start listening to the 1 in 5 consumers living with constant pain and prioritise their lives and recovery as much as they do others in the health decision making process.

Meanwhile, we really do need now to turn our minds to the safe storage of medicines in the home. It's time we gave a lot more information to families who want everyone who needs medicines to have them and reduce harm to those who are using them as a cry for help.



FIND OUT MORE

For more information visit
www.pinaustralia.org.au

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This dark brown cloudy liquid might look like something out of *Harry Potter's Advanced Potion Making* curriculum, but this is a real-world remedy for chesty cough that's been around since the 19th century.^{2,3}



Senega, one of the two active ingredients was discovered by American Indians, derived from the root of the perennial senega herb and listed on the US Pharmacopeia in 1820.^{2,3}

It's thought the anti-tussive effect of the senega plant root is due to saponins, which much like a detergent, may help to break up phlegm.^{2,3}



Aside from its iconic Gold Cross branding on shelf, Gold Cross Chesty Cough Senega and Ammonia is memorable due to its characteristic wintergreen scent, thanks to small amounts of methyl salicylate that are naturally present in the senega root.^{2,3}



Of course, the other half of this Gold Cross duo is ammonia salts, which are thought to trigger reflex expectoration.⁴

A potion of choice?

Acute cough is one of the most common reasons people seek medical care and is most often related to upper respiratory tract infections (URTI), like common colds and influenza as well as bronchitis.^{5,6}

An acute cough may develop over the course of infection as nasal secretions and mucus are produced as part of the innate immune response and this type of cough is usually self-limiting. While dry cough is usually driven by itch and irritation in the throat, a chesty cough is when the cough is trying to bring up mucus further down the airways.⁷

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For more information, reach out to your local Representative. Stay tuned for the next edition!



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FROM BACKDATED TO INSPIRATIONAL

How an ordinary pharmacy was transformed into an award-winning business serving the local community

W

When Sam Afsar, Co-proprietor of Pharmacy 777 at Shoalwater in WA employed an innovative solution to create greater efficiency in his business, he also created a business model that gave him more time to address the needs of his patients in the process.

What he didn't realise at the time is that as well as solving his workflow issues, Spencer would become a source of great entertainment for those patients.





Sam, could you please share a little background on yourself and your journey in pharmacy?

I've been a pharmacist and a pharmacy owner since 2008. I've been part of Pharmacy 777 Shoalwater as the team leader/owner since 2012. I've had an incredible journey in this pharmacy.

We had a backdated pharmacy, which was quite dark, gloomy, with a lot of gifts, like cosmetics and items that are not really health related. And we are inside a community of mainly elderly clientele. We weren't really reflecting the community's needs, it was a pharmacy, but not a community pharmacy.

Our journey has been all about how do we make ourselves relevant in the health space inside this community. We did a major renovation and got rid of all the gifts, the different cosmetics, and any non-health line products.

When we did set up the pharmacy, it was all about increasing efficiency inside the business. How the patient's journey is going when they're handing in the script or when they're coming in for a primary care inquiry and how well that's met. And a lot of it is to support the pharmacist, because we are a very pharmacist heavy model. We only have pharmacists handing out every single prescription and we only have pharmacists and pharmacy interns to take care of any of the primary care needs. We don't have any non-pharmacist staff serving the patients.

It was a matter of how we create a workflow that leads to the best patient outcomes.

That has also allowed us to come up with a lot of different services that meet the needs in the community. But a lot of it has come on the back of liaising with our local doctors and a local specialist to see what services can be done, also how they can be done and how detailed they need to be and what needs are we meeting.

Throughout our 2023 PGA's Pharmacy of the Year Award journey, our work with our elderly clientele's journey when they go in and out of hospital, has been highlighted a lot. It is a very traumatic and stressful time for them. They don't have a lot of in-home support or a lot of mental support before or after. We do a pre-consult before they go into hospital and a post-discharge.

Once they come out, what are their needs? Do they need any support, for example, with mobility, medication management or deliveries? We are trying to make sure that all our services are relevant for those people at that phase of their life.

Outside of that, we also run a very good sleep apnoea service whereby we do have a local sleep specialist who oversees everything that we do. It does give the credibility to our local GP's and even dentists to refer to us, because they know it's not a commercially run project.

Although it's a very commercially successful and profitable service for us, it is actually done on the back of how we can support our patients. And even outside of that, we do wound care support services, vaccinations, and general services that everyone else does as well. But all our specialised services are designed to help support the community. And in that journey, we found all our patients became very close to us, being with us in the store became very personalised.

You have just been awarded with the 2023 PGA's Pharmacy of the Year Award. How do you feel about having just won this prestigious award?

It's a huge honour and it is a big win for the entire community in Shoalwater. I can't express how happy the whole community is. We have received so many messages, phone calls, even patients driving ten to fifteen kilometres just to come and say well done. We had all the local clubs put it up on their posts and it has just been a very, very big sort of community win. It has been phenomenal.

Has the award inspired you or sharpened your focus about what is important for running your pharmacy?

It 100% has. The entire team has come together and what we have always prided ourselves on is that it is all about what the patient sees and how the patient feels. The concept of how we can make that better has now become a lot clearer to us after we have won it. And we were very touched by how many people have seen this as a win for themselves.

Your BD Rowa™ Robot was installed last year. How did you first hear about BD Rowa™ and what interested you most about it?

We've been looking at automation for a while, because we've had pretty good growth over the course of the last five, six years. We saw the BD Rowa™ Robot at different conferences like APP, and we have some friends who are also pharmacy owners that have used the product.

We came to a point, that our patients, being an elderly community post COVID, don't want to come outside their house as much because their family wants them to stay at home. If they want to come into the pharmacy, the efficiency needs to be that much better, because we are not a big pharmacy, so space is always a concern, otherwise you wouldn't even think along these lines. But in the end, we decided to do it just purely because we wanted to make sure that we save the patient's time.



What other goals did you want to achieve for your pharmacy? What were the main reasons that you decided to invest in a BD Rowa™?

Another main goal was to support the different efficiency timelines. Now efficiency is not just about how fast the script is being done, that's obviously a key factor, but it's also about how much time the staff now has to spend with the patients because there's no longer any nitty, gritty dispensary management required anymore.

We don't need to do things like stocking the shelves manually, looking for the shelf labels, barcode problems and even things like expiry date checks, what brands are there, having conversations with reps going around in circles. A lot of work has been saved, which has now allowed us to even have our technicians focus on delivering the scripts at a faster rate, so that the pharmacist can focus on the patient with every benefit health advice related conversation.



Can you please take us on a journey and describe your experience working with the BD Rowa™ Team and In-house Architect?

The journey from the start to having the Robot installed has been absolutely brilliant. We spoke to Matt multiple times, and he helped us to understand the different modelling with the BD Rowa™ Robot, which was really helpful because we didn't have a clue. And because of the time that was taken at that period, we felt it wasn't rushed at all. We felt that there was just enough time and enough questions to be answered, so that we felt very confident going into the process. The way it was all done was phenomenal.

Pooja, the BD Rowa™ In-house Architect collaborated with Brandon from our management team to align the BD Rowa™ Concept with the 777 design and brand standards. She designed a few workflow options which assisted us in visualising the BD Rowa™ Solution in our pharmacy. Furthermore, it helped us understand the space constraints and opt in optimal workflow efficiencies.

Basically, the actual BD Rowa™ Team worked very well with our project team to tie in the right times and right date. For the Robot installation Sonya, from the BD Rowa™ Service Team, flew in and was also fantastic to just guide the team through, like the installers, to do that phenomenal job. They were very appreciative of the fact that we still had a pharmacy to run in a small space, so they didn't try to take over. They're very patient if we had to go in and out of different spaces at the most inconvenient times. For us that was a very, very good process to go through.

Did it take time do get used to it? What were the biggest changes to routines and where did you notice the first improvements?

We could tell straight away this was going to save us a lot of time. It was probably just actually getting used to, what do we do now? It was a very easy transformation. There's always sort of small hiccups here and there when launching certain products and knowing where does what go, but nothing out of the ordinary at all. We grasped it pretty quickly and we don't have a lot of technologically savvy staff here. It is a big testament on how easy it is to use the product that we actually got used to it, very quickly.

What have been the biggest day-to-day changes to your pharmacy since using the BD Rowa™ Robot?

Just going back to the energy that it has created because of a lot of the workflow problems it has solved inside the dispensary, it gives everybody more energy and more time to speak to the patients and the patients are happier. And it does create a bit of theatre because they see that the scripts are coming out so quickly. So many patients come in just to see how the Robot operates. All the kids come in after school to see how it operates. So, with this automation you forget the theatre it creates and how cool it can be for everybody. It's been great.



How do you and your staff feel about your BD Rowa™ Automatic Dispensing Robot today? To what extent is it a fully integrated part of your team?

The BD Rowa™ has become a huge part of our team and I wish that we had done it earlier, to be honest. We did a naming competition for it, and we had over 400 names submitted. His name is Spencer the Dispenser and we actually call him Spencer. He's been absolutely phenomenal as a part of our team, and it just makes us all happy coming to work knowing that our bread and butter is actually so well looked after by Spencer.

Could you ever imagine running your pharmacy without your BD Rowa™ Automatic Dispensing Robot?

No, at this volume, no way. No chance. It has allowed us to grow without any headache at all.

For Pharmacy owners considering automating with a BD Rowa™ Automatic Dispensing Robot, what would be your recommendations or advice to someone considering the investment?

I would certainly suggest having a chat with the BD Rowa™ Team and going through the actual due diligence in detail. Just because your pharmacy is small or odd shaped, don't think that you can't do anything with it. From our experience the investment we made in it during the last twelve months, has already been paid back to us in spades. We have so many happier patients, happier staff and the whole management inside the pharmacy has been so much easier.



“HE’S BEEN ABSOLUTELY PHENOMENAL AS A PART OF OUR TEAM, AND IT JUST MAKES US ALL HAPPY COMING TO WORK KNOWING THAT OUR BREAD AND BUTTER IS ACTUALLY SO WELL LOOKED AFTER BY SPENCER.”

This interview is based upon information provided by Sam Afsar, Co-proprietor at Pharmacy 777 Shoalwater in Western Australia



FIND OUT MORE

To learn more about BD Rowa™ solutions, you can visit the website: **bd.com/rowa**

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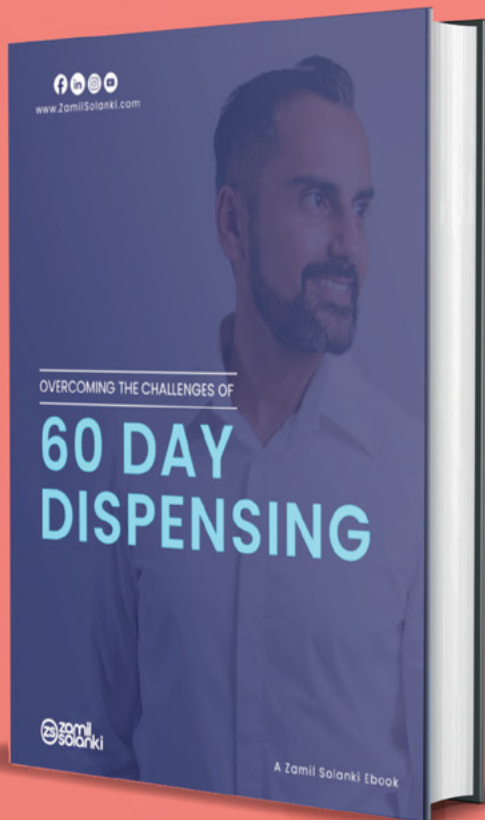
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IT'S TIME TO REDEFINE YOU!

In recent years, Australian health business owners, especially those in the community pharmacy industry, have faced numerous challenges due to ongoing government reforms. One such reform that has been on the top of everyone's minds lately, and has caused significant concern is the 60 Day Dispensing policy.

Words | Zamil Solanki
Award Winning Pharmacist, Entrepreneurial
Coach and Business Strategist



Now it's important to note that this isn't anything new. In fact, this was proposed back in 2018 as well.

And while this policy presents difficulties for many pharmacies, it's crucial to remember that the industry has overcome adversity like this before. I for one know this first hand.

When I entered the world of ownership, within months I was faced with the looming impacts of Price Disclosure and the impacts that this would have on our business moving forward. But by adopting a growth mindset, and learning from past challenges, we were able to reinvent our business and redefine our value. This ultimately allowed us to significantly grow by millions of dollars, and later exit for 3x the industry multiple.

So the moral of this is not to flex, but to demonstrate from the start of this article that while there is stormy weather ahead, it is your ability and willingness (this is the most important part when it comes to change) to deep dive into truly understanding your business and the community that you serve, and to develop and implement a plan that will determine whether or not you innovate and thrive, or do nothing and simply die.

In this article, we'll dive into what the implications are of 60 Day Dispensing (otherwise known as Increased Dispensing Quantities), examine the opportunities it presents, and discuss how health business owners can overcome roadblocks, invest in their team, and ultimately thrive in this new landscape.

Understanding the 60 Day Dispensing Policy and its Implications

The 60 Day Dispensing policy aims to change the current prescription dispensing model by allowing pharmacists to dispense two months' worth of medication at once, rather than the current one-month supply. Proponents argue that this will lead to cost savings for patients and the government, as well as reducing the administrative burden on pharmacists and doctors. However, critics contend that it could lead to increased medication wastage, patient safety concerns, and financial challenges for pharmacies.

It's also argued that existing ongoing stock shortages will also present significant problems for the rollout of such an initiative. Looking across the pond to New Zealand, we can see the impacts of this for medications such as fluoxetine (an antidepressant) which has been recently limited to 7-day supplies to ensure equitable access as a result of very limited stock availability.

Now safety is the number one consideration without a doubt. I cover that more in an e-book which you can get at the end of this article.

But what also matters is who actually benefits from this proposed cost-saving measure, and will the rest of the population not eligible to obtain 60 days' worth of medication be worse off instead?



Because if you look at those that may not be eligible, they are likely to be:

- The elderly
- Those with cognitive impairments
- Indigenous and Torres Strait islanders
- Children
- And other at-risk groups

Now I'm not saying this to be discriminatory. But if you look at the Government's Guiding Principles for Medication Management in the Community, you'll note that there are specific programs for these demographics that aim to ensure they are equipped with additional resources for appropriate medication management.

So if they aren't eligible for 60 Day Dispensing, they aren't any worse off right? They'll just keep getting their medications dispensed every 30 days instead.

But take a moment and think about what you may be doing to offset the losses from 60 Day Dispensing. Who will that actually impact?

And how will your community and team respond once the reality of the situation hits?

So in light of these implications, strong leadership and effective team management become even more essential.

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Investing in Your Team

LEADERSHIP, RETENTION, AND OVERCOMING ROADBLOCKS

The challenges presented by the 60 Day Dispensing policy highlight the importance of strong leadership in guiding pharmacy teams through uncertainty. Pharmacy owners who demonstrate a growth mindset, resilience, and adaptability will be better equipped to navigate these challenges and create a positive work environment that fosters employee engagement and loyalty. This, in turn, can help to reduce staff turnover and maintain a high-performing team capable of driving business growth.

In particular, pharmacy owners and their teams need to pay specific attention to the things that cause significant challenges more so in times of crisis and change. These are a lack of time, a lack of talent, and a lack of tactical integration techniques.

I call these the three T's – time, talent and tactics.

Lack of time:

Health business teams often struggle with time management due to increasing workloads, expanding responsibilities, and the need to stay current with industry changes. Pharmacies, in particular, face increasing demands for patient consultations, medication management, and additional services alongside their core dispensing duties. This can lead to owners and staff feeling overwhelmed and stretched thin, making it difficult to focus on long-term growth strategies and staff development.

Talent leadership struggles:

Attracting and retaining top talent can be challenging for health businesses, especially when there are time constraints from the leadership team. What research shows is that talent want to be engaged and invested in as well. This comes in the form of robust training and development plans from day 1 of their employment. Unfortunately though, many pharmacy leaders themselves don't have the necessary leadership skills or experience to effectively manage, motivate, and develop their team members. This can result in high staff turnover, low morale, and difficulty in building a high-performing team capable of driving business growth.

Tactically integrating knowledge:

Health business teams may possess extensive clinical knowledge but often lack the skills or experience to translate this expertise into effective business strategies. This can lead to a disconnect between the services offered and the business's ability to market, manage, and grow these services. Teams therefore often struggle with marketing, budgeting, and performance management, which can hinder their ability to capitalise on new opportunities and adapt to changing industry conditions.

From all of this though, what we do know is that in order to overcome the challenges we face today, and those tomorrow, we need to bridge the gap between our team's clinical expertise, with the real-world skills required to leverage this knowledge, and use it with an entrepreneurial or business lens.

Because let's be honest, where did you really learn what you know today when it comes to running, leading or owning a health business?

It would have been when working in a pharmacy.

But for most, our work in a pharmacy didn't come with a user's manual. We were guided by the leaders we were exposed to at the time. And through that guidance, we were able to (some better than others) navigate and start to bridge the gap between our clinical skills, and the entrepreneurial skills required to create a successful business.

So what might this look like?



Redefining Value

Before we answer that question, and knowing that your bottom line is about to take a hit, you first need to define what value you place on yourself, your business, your team, and the products and services you offer to your community.

Now I'm not going to dive into what that looks like specifically here right now (you can explore that in the e-book download available at the end of this article).

Instead, I want you to think about what happened when General Practitioners (GPs) encountered the Medicare freeze which rolled out back in 2014. The AMA claims that there has been "\$3.8 billion stripped from primary care" since then, resulting in "a primary care system struggling to survive, falling bulk-billing rates and patients waiting longer to access a GP"[^]

So my question to you is, over the past 10 years, what have you seen that backs up this statement. And when 60 Day Dispensing rolls out, what and how will you redefine the value you place on yourself, and what you give to your community in order to offset this.

Because here's the hard truth. GPs are now largely mixed billing whereby they offer bulk-billed rates for certain demographics, and private rates for other demographics.

So if that's been the outcome for GPs in order to remain viable, how are you going to shift the tides in redefining your value. And if not you, then who?

Right now, there's a race to the bottom. But we all know that doesn't last. It's simply not sustainable.

Those that were doing free deliveries are now not. And I'm not talking about the small pharmacies here, it's the big guys.

So now that you've thought about what value you place on yourself, now we can answer the question posed before – what does empowering your team with an entrepreneurial skillset look like that's going to allow you to implement the changes required to redefine your value, better use your time, redeploy your talent to profit-earning activities, and integrate next level thinking within your health business?

[^] Source: <https://www.ama.com.au/ama-rounds/7-april-2023/articles/medicare-freeze-strips-4-billion-general-practice>

Bridging The Gap

THE IMPORTANCE OF CURATED TRAINING PROGRAMS

Before we round this discussion out, take a moment and think back.

Think back to the time you got into this industry. The excitement you had and all the possibilities of what the future held for you.

Now fast forward a few years. Maybe it's a decade. What position are you in now? What's changed? Are you a team leader, or are you an owner? And what's the experience like for you at that moment? How are you actually living your values each and every day?

Now fast forward to today. How do you feel about where you are at? Those possibilities that you saw – have they come to fruition? If family is your highest value, what are you saying no to in order to live to that value? Can you even say no?

Speaking with pharmacy owners on a regular basis, one of the most common things I hear why pharmacists enter the world of ownership is for "freedom".

So, if you're an owner right now, how "free" are you?

Because here's another truth. There's only a handful of owners I personally know that could say yes to that question.

In order to obtain "freedom", sure you could step away from the business and let it run itself. But I have to ask, how well do you want the business to perform when you do this?

Because there are owners out there who simply walk away from their businesses, with little regard of how it performs. And that's fine if you've got cash to burn and really don't care about the community in community pharmacy.

But if you do care, then you need to ask yourself one thing – if I were to step away from my business tomorrow, what would I need to do to empower my team within the next 24 hours to set them up for success.

Now we all know that's not going to happen within 24 hours. But it's an important consideration – what if you couldn't work tomorrow, what would happen to your business?

So in order to bridge the gap between the clinical skillset your team possesses, and the entrepreneurial skillset and mindset required to overcome the challenges you face today, and to lead your business to greater heights, you need to take action.

What is it that you want to achieve?

And in order to achieve that, what we've learned, regardless of the goal you set for yourself, is that this requires an investment in your team. An investment to bridge the gap, with the objective of getting your life back.

And while short training courses can provide a temporary boost, they often fail to create lasting change. Think of this like a holiday. You go on holiday, get the tan, feel super energised and rejuvenated. And then after a week, the tan fades, and you're back into old habits and processes.

Instead, to bridge the gap, your team needs curated training programs specifically designed to impart real-world and tested skills to grow your business. These programs need to draw inspiration from the philosophies of renowned speakers and business coaches, and provide ongoing accountability and a

support framework to ensure practical outcomes and true integration of knowledge into daily practice is achieved.

Additionally, these training programs should focus on fostering a culture of innovation, collaboration, and continuous learning, which are critical elements for sustained business growth. But also, they need to be about integration and implementation – not just about creating shelf help where the knowledge sits on a shelf collecting dust and not being used.

Finally, effective curated training programs should also address specific skill gaps and provide practical tools for improving areas such as financial acumen, self-care, communication and persuasion, marketing, team leadership, and strategic planning.

Because in conclusion, it's not a matter of if, but when challenges knock on our door. It might be 60 Day Dispensing today, but who knows what tomorrow might bring.

The point is to be prepared. And we do that by understanding the problem we face, investing in holistic solutions, and taking our team on the journey with us to overcome the roadblocks, challenges and obstacles we face.

So now I leave you with a simple challenge.

Is this the catalyst you need to truly innovate and thrive, or simply do nothing, hoping that you will barely survive?



WANT A FREE E-BOOK TO HELP YOU NAVIGATE THE CHALLENGES OF 60 DAY DISPENSING?

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ABOUT THE AUTHOR

Zamil Solanki works with healthpreneurs – from individuals to large multi-national organisations – to help them overcome unique challenges and achieve their goals through curated training programs, and tailored holistic solutions. Unlike other coaches and consultants, we pair global research and techniques with our own experiences, having grown our own pharmacy by \$4 million and exiting it for 3x the industry average multiple. To do this, we focus holistically using 5 key pillars – mindset, planning, leadership, marketing and sales and specialize in workflow, innovation, automation and systems.

Zamil Solanki
Pharmacist, Business Strategist
& Entrepreneurial Coach



KEEPING YOUR BALANCE AS A STUDENT OF PHARMACY

What I Have Learnt About Staying Mentally,
Physically And Emotionally Healthy

A

As anybody studying for a professional qualification can attest, it's an extremely stressful time and keeping your mental and physical balance while doing life and studying at the same time is really challenging.



I'm studying to become an aspiring pharmacist and having just been through the exam period, I can tell you the challenge is real. However, I've learnt that there are a few things you can do to make things as easy on yourself as possible.

I've incorporated a few things into my life since I started my studies. I learned some really valuable lessons along the way and I'm sharing what I've learnt here, to help other students maintain their sanity under pressure.

Manage your time effectively

Pharmacy studies can be demanding, with a lot of coursework, assignments and exams. To succeed, you need to manage your time effectively. Create a schedule that allows you to balance your academic work, extracurricular activities and personal life. Prioritise your tasks and avoid procrastination.

Stay organised

Keep track of your coursework, assignments and exams. Use a planner or a digital tool to organise your schedule and make sure you meet deadlines. Keeping your notes and study materials organised will help you stay on top of your coursework.

Build strong relationships with your professors

Your professors can be a valuable resource in pharmacy school. Attend office hours, ask questions and seek guidance from your professors. Building a good relationship with them can help you succeed in your coursework and in your career.

Get involved in extracurricular activities

Joining a pharmacy student organisation like NAPSA or your local university pharmacy branch and getting involved in research can help you develop your skills, network with other students and professionals, and enhance your resume.

Take care of your mental and physical health

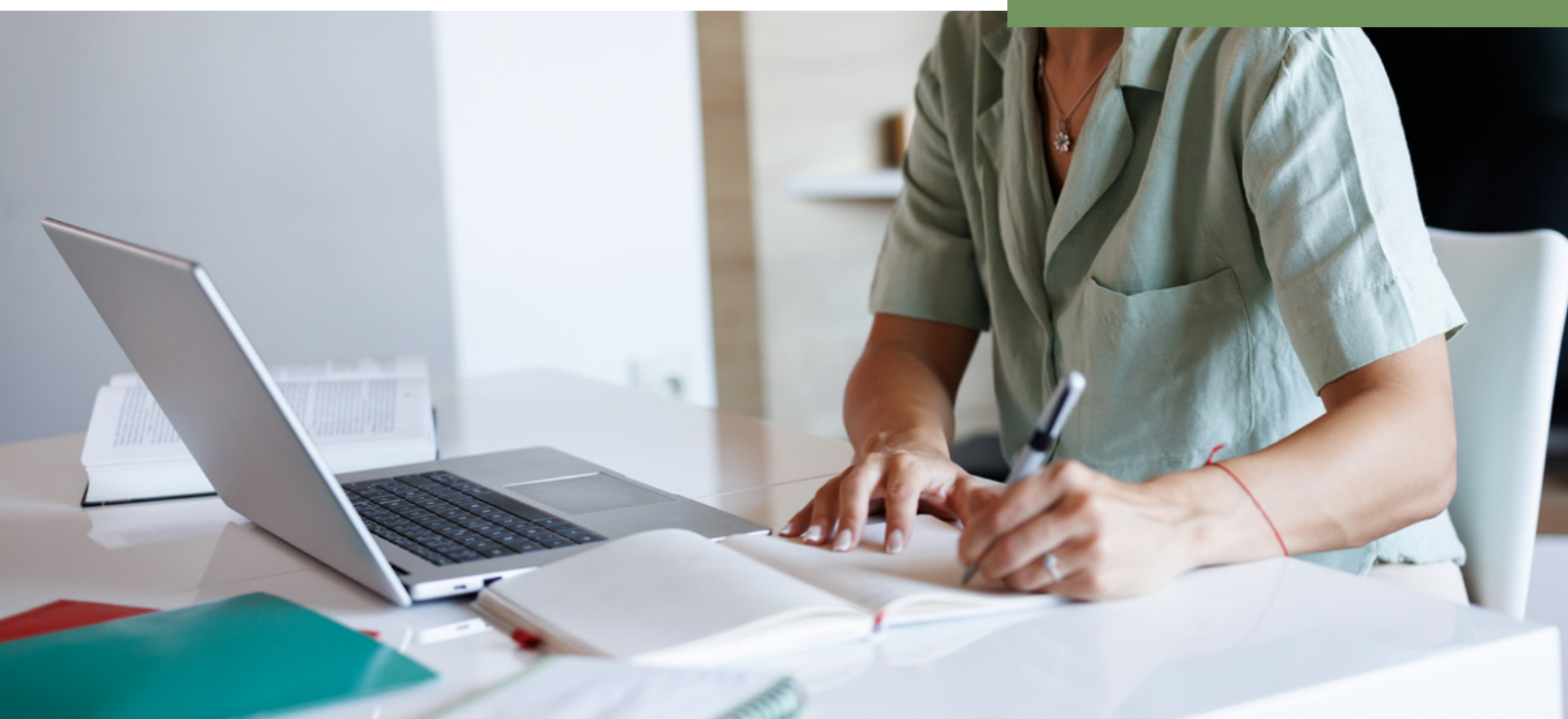
Pharmacy can be stressful so it's important to take care of your mental and physical health. Get enough sleep, exercise regularly, eat a balanced diet and practice stress-reducing activities like meditation or yoga.

Seek mentorship

Find a mentor, either within your pharmacy program or in the professional field. A mentor can provide guidance, advice and support as you navigate pharmacy school and your future career.

Stay up to date with industry news and trends

Pharmacy is a constantly evolving field so it's important to stay up to date with the latest news and trends. Subscribe to industry publications like ITK, attend conferences and follow NAPSA's social media accounts to stay informed. This will help you develop a deeper understanding of the industry and prepare you for your future career.



The Gold Standard for Pharmacy



Whether it's Glucojel; Australia's favourite jelly beans & bears, ITK; the official journal of the Pharmacy Guild, or the best pharmacy suppliers in their field, if it's exclusive to pharmacy, chances are it's proudly brought to you by Gold Cross.

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SUBMIT YOUR ANSWERS TO EARN CPD CREDITS

Answers can be submitted through GuildEd at guilded.guild.org.au. Australasian College of Pharmacy members can submit answers online at acp.edu.au in the CPD Library.



ASSESSMENT Q'S | P.51

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Pyelonephritis

- Describe the risk factors for pyelonephritis.
- Describe the symptoms of pyelonephritis.
- Describe the non-pharmacological management of pyelonephritis.
- Describe the pharmacological management of pyelonephritis.



ASSESSMENT Q'S | P.52

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Cyber Security Awareness in Pharmacy

- Describe the importance of cyber security in a pharmacy setting.
- Define key cyber security concepts and recall their relevance in a pharmacy setting.
- Highlight potential cyber security risks in a pharmacy setting.
- Outline practical steps to reduce the risk of a cyber-attack.

PYELONEPHRITIS

P Pyelonephritis is commonly associated with symptoms of the lower urinary tract suggestive of cystitis. However, the treatment of pyelonephritis is considerably different to that of cystitis and may require hospitalisation. Therefore, pharmacists need to have a clear understanding of the differences between pyelonephritis and cystitis and the corresponding management.





Learning Objectives

After completing this activity pharmacists should be able to:

- Describe the risk factors for pyelonephritis.
- Describe the symptoms of pyelonephritis.
- Describe the non-pharmacological management of pyelonephritis.
- Describe the pharmacological management of pyelonephritis.

Competency standards addressed:

2.2, 2.3, 3.1, 3.2, 3.5



Accreditation Number: A2306ITK1

Expires: 31/05/2025

This activity has been accredited for 0.75 hours of Group One CPD (or 0.75 CPD credits) suitable for inclusion in an individual pharmacist's CPD plan, which may be converted to 0.75 hours of Group Two CPD (or 1.5 CPD credits) upon successful completion of the associated assessment activity.

Key Points

- Pyelonephritis is a common infection of the kidney that usually manifests acutely with cystitis symptoms and abdominal or flank pain.
- The most common cause of pyelonephritis is *Escherichia coli*.
- Pyelonephritis is more frequent in women, due largely to a shorter urethra, which facilitates the passage of bacteria and ascending infection.
- Acute pyelonephritis manifests over hours or days and commonly has systemic effects such as fever, nausea and malaise, together with lower urinary tract symptoms suggestive of cystitis including dysuria, urgency, and pelvic pain.
- Aims of treatment are supportive and eradication of the infection with antimicrobials.
- Treatment covers pain management, antiemetics, and hydration.
- Antimicrobial treatment is per local guidelines until susceptibility can be determined.
- Severe cases are treated in hospital with parenteral antibiotics, until the patient is stable and can be swapped to oral.
- The prognosis of acute pyelonephritis is excellent following appropriate treatment.
- Pharmacists can educate patients about preventative measures to help reduce re-occurrence or reinfection.



Introduction

Pyelonephritis is infection of the kidney, including the renal parenchyma and collecting system. It is a very common problem, which usually manifests acutely with lower urinary tract symptoms and abdominal or flank pain. Patients may present to community pharmacies seeking advice and analgesia, and therefore a working knowledge of the natural history and practical management of pyelonephritis is important for all pharmacists. This article provides an overview of the epidemiology, pathobiology, and general management of pyelonephritis.

Aetiopathogenesis

Pyelonephritis is a type of urinary tract infection (UTI). Other forms of UTI include infection of the urethra (urethritis) or bladder (cystitis).

Pyelonephritis is almost exclusively caused by bacteria. They are typically gram-negative species, and a patient’s own normal bowel flora is the culprit in more than 90% of cases.¹ These bacteria contaminate the urethral meatus and subsequently ascend the urinary tract, resulting in clinical infection. Accordingly, around one third of pyelonephritis coexist with symptoms of cystitis.² It is estimated that less than 2% of cystitis ultimately evolves into pyelonephritis.³

The microbe most commonly detected is *Escherichia coli*.¹ Other frequently encountered organisms are listed in Table 1. Fungal or viral pyelonephritis is rare.

Table 1

| Common bacterial isolates in acute pyelonephritis. ¹ |
|---|
| <i>Escherichia coli</i> |
| <i>Klebsiella</i> species |
| <i>Proteus</i> species |
| <i>Enterobacter</i> species |
| <i>Pseudomonas</i> species |
| <i>Citrobacter</i> species |
| <i>Enterococcus</i> species |
| <i>Staphylococcus saprophyticus</i> |
| <i>Staphylococcus aureus</i> |

Urinary tract infections (UTIs) can be separated clinically into complicated and uncomplicated disease, thus pyelonephritis can be considered complicated or uncomplicated. Complicated pyelonephritis occurs when there are anatomical or functional limitations in the kidney which may hinder recovery, such as the presence of kidney stones, congenital abnormalities, or immunosuppression. Major reasons for an immunocompromised state include diabetes or use of immunosuppressive medications such as corticosteroids. While complicated pyelonephritis represents a minority of cases compared to uncomplicated, the complicated cases are generally more severe.

Chronic pyelonephritis is a separate entity to acute pyelonephritis and is not discussed in this review.

Epidemiology and Risk Factors

Pyelonephritis is a common reason for hospitalisation in Australia.⁴

Pyelonephritis is more frequent in women, due largely to a shorter urethra, which facilitates the passage of bacteria and ascending infection. The relative incidence in men increases with age due to enlargement of the prostate. Overall incidence increases with age in both males and females.

Other relatively unmodifiable risk factors include structural abnormalities such as a neurogenic bladder, urinary incontinence, diabetes, pregnancy, and use of immunosuppressive medications.

Modifiable risk factors include past urological instrumentation, urinary catheters, poor hygiene or frequent sexual intercourse, and poor hydration. Inadequate fluid intake results in low urine volume with urinary stasis, which promotes infection.

Clinical Features and Diagnosis

Acute pyelonephritis manifests over hours or days. Classical symptoms include:

- subjective fevers and chills
- nausea and vomiting
- malaise
- cloudy or malodorous urine, and
- flank or abdominal pain.

Urinary urgency, dysuria, and pelvic pain are present in many cases, implying concomitant cystitis and urethritis. Confusion is an important presenting complaint in the elderly. Infection is often recurrent and such patients may describe experiencing similar symptoms previously.

There is no single definitive investigation to establish the diagnosis. Diagnosis is usually straightforward and supported by obtaining simple urine samples sent for culture and susceptibility testing. Blood samples are also collected for hospitalised patients and sent for culture and susceptibility testing.⁵ Radiology requests such as ultrasound or computed tomography are performed in some instances when the diagnosis is concerning or uncertain.

Management, Prognosis and Prevention

Key aims in the management of pyelonephritis are supportive care for symptoms and eradication of infection with antimicrobials. Management can be further divided into inpatient or outpatient care, depending on disease severity and complexity.

Severity is defined by the Therapeutic Guidelines as non-severe pyelonephritis or severe pyelonephritis.

Non-severe pyelonephritis is considered when the patient

- does not have a fever 38 degrees C or higher)
- does not have systemic symptoms (e.g. tachycardia, nausea, vomiting)
- does not have sepsis/septic shock

Conservative measures include analgesia, antiemetics and maintaining hydration. This is reasonably simple in an outpatient setting for most patients with non-severe pyelonephritis. Many choices are available for directed antibiotic treatment for non-severe pyelonephritis. Local guidelines generally advise beginning empirically with amoxicillin with clavulanic acid (Table 2).⁵ Antibiotics may then need to be tailored based on culture susceptibility results, if infection is clearing inadequately or there is a resistant organism.

Patients who are systemically unwell with severe acute pyelonephritis or complicated pyelonephritis should generally be admitted to hospital for intravenous fluids and antibiotics. Australian intravenous antibiotic recommendations are listed in 'Table 2'.⁵ Therapy should be modified depending on culture results and antibiotic sensitivity, with narrower-spectrum agents associated with better efficacy and reduced antimicrobial resistance. Intravenous antibiotics can be de-escalated to oral once the patient is clinically improving, usually after approximately 24–48 hours.

Antibiotic resistance is an increasing issue and all clinicians, including pharmacists, should encourage treatment that is guided by antimicrobial stewardship.

Community pharmacists will occasionally encounter patients receiving extended durations of intravenous antibiotics through 'hospital-in-the-home' initiatives. Such treatment is rare and restricted to specialised clinical circumstances such as patients with a kidney transplant with recurrent or refractory infection, with ureteric stents, or those with bacteraemia from a fastidious or multi-resistant organism.

Two important patient populations with specific management issues in the context of pyelonephritis are pregnant women and individuals with renal impairment. Pharmacists should have an awareness of the ramifications of antibiotic choices in pregnancy; foetal toxicity or teratogenicity may be associated with certain medicines. Trimethoprim should be avoided in the first trimester, and nitrofurantoin avoided close to delivery.⁶ The Therapeutic Guidelines

Table 2: Australian Therapeutic Guidelines for empiric antibiotic therapy in acute pyelonephritis.⁵

| | |
|-----------|---|
| Nonsevere | <p>First-line empiric choice:</p> <ul style="list-style-type: none"> • Amoxicillin/Clavulanate 875/125mg every 12 hours for 14 days.*If penicillin allergy: • Ciprofloxacin 500mg every 12 hours for 7 days. <p>Once culture sensitivity results known, narrow therapy to one of the following:</p> <ul style="list-style-type: none"> • Amoxicillin 500mg every 8 hours for 14 days.* • Cephalexin 500mg every 6 hours for 14 days.* • Trimethoprim 300mg once daily for 14 days.* • Trimethoprim/Sulfamethoxazole 160/800mg every 12 hours for 14 days*. <p>For confirmed <i>Pseudomonas aeruginosa</i>, or resistance to above:</p> <ul style="list-style-type: none"> • Ciprofloxacin 500mg twice daily for 7 days. |
| Severe | <p>First-line empiric choice:</p> <ul style="list-style-type: none"> • Intravenous (IV) gentamicin (as per dosage schedule) plus either IV amoxicillin or IV ampicillin 2g every 6 hours <p>If gentamicin is contraindicated:</p> <ul style="list-style-type: none"> • IV ceftriaxone 1g daily or IV cefotaxime 1g every eight hours <p>If penicillin allergy:</p> <ul style="list-style-type: none"> • IV gentamicin as a single drug. <p>Once clinically improved, switch to oral antibiotics as for non-severe cases above.</p> |

Key: *if there is rapid clinical response – stop antibiotics after 10 days

have specific guidance for Acute pyelonephritis in pregnancy and recognise that acute pyelonephritis is associated with adverse foetal and maternal outcomes. For this reason, empiric therapy is intravenous and pregnant patients are only switched to oral therapy once patient is stabilised.⁶ (Refer to Therapeutic Guidelines for intravenous pharmacotherapy protocol in pregnancy).

Patients with advanced kidney disease necessitate dosage adjustment for reduced renal clearance. The author's preference is to avoid trimethoprim in patients with renal impairment, not because of nephrotoxicity but because trimethoprim interferes with renal secretion of creatinine and potassium, thus potentially artificially lowering the glomerular filtration rate on blood tests and causing hyperkalaemia. These effects are temporary and resolve with drug cessation.

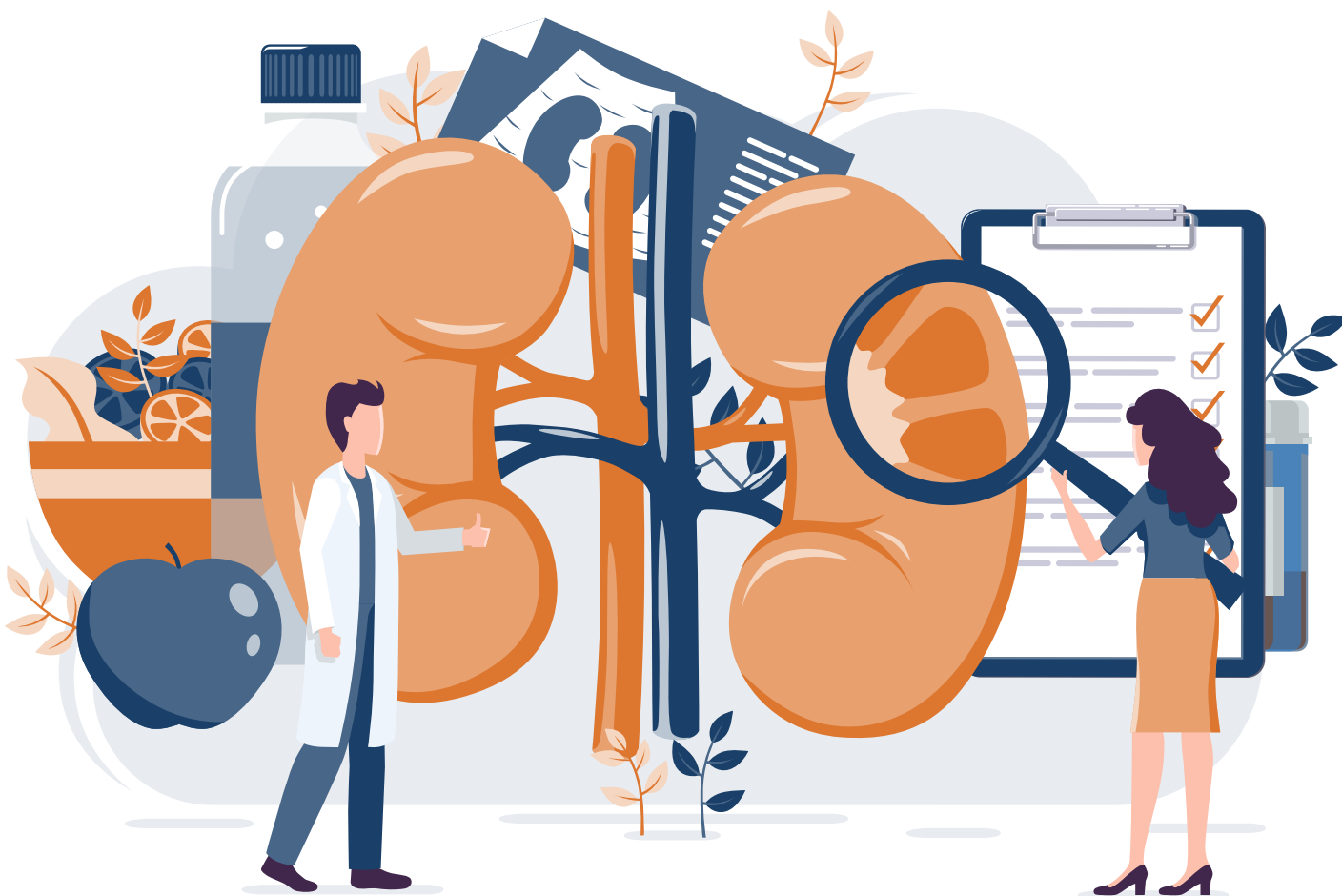
With appropriate antibiotic treatment, the prognosis of acute pyelonephritis is excellent, with the vast majority of patients achieving complete resolution. As opposed to cystitis, which often resolves quickly without specific antibiotic treatment. However, morbidity and mortality from pyelonephritis was significant in the era before the advent of antibiotics, thus early treatment for both non severe and severe pyelonephritis should not be delayed.

The main long-term concern of pyelonephritis is chronic renal impairment, which occasionally occurs following repeated or severe episodes. Patients with recurrent urinary tract infection often need further urological evaluation to identify an underlying reason, particularly men.

Pharmacists in the community are central to the care of patients with UTIs and may be required to provide counselling on supportive and preventative activities. In some jurisdictions in Australia pharmacists can diagnose and provide treatment for uncomplicated cystitis, however presentations whereby there is suspected pyelonephritis require a prompt referral. The risk of UTIs can be reduced by keeping adequately hydrated, voiding regularly, voiding soon after sexual intercourse, and improving hygiene. Patients should be advised to drink at least 2L of water per day. Regular consumption of cranberry has been thought of as controversial. However, a 2023 Cochrane review advised 'data supports the use of cranberry products to reduce the risk of symptomatic, culture-verified UTIs in women with recurrent UTIs, in children, and in people susceptible to UTIs following interventions'.⁷ Intra-vaginal estrogen is considered effective for postmenopausal women.⁸

Hexamine hippurate is theorised to impair bacterial growth; however, it is ineffective for UTI prophylaxis and is not recommended. The evidence for hexamine hippurate is poor and inconsistent.⁸ Urinary alkalinisers may ease the symptoms of urethritis or cystitis but are not useful for prevention of infection per se.

Long-term prophylactic antibiotics should be prescribed only in highly selected situations by a qualified physician.



CYBER SECURITY AWARENESS IN PHARMACY

An Overview of Key Concepts and Risk Management

A

As a result of the COVID-19 pandemic, governments, businesses and individuals have all seen a drastic shift and acceptance to digitisation of day-to-day activities and interactions. Ongoing geopolitics, disruptions to supply chains, together with technological advances and the ever-increasing connectedness of society and businesses has further brought the importance of information security and cyber security awareness to the forefront of our everyday lives.





Learning Objectives

On completing this activity pharmacists should be able to:

- Describe the importance of cyber security in a pharmacy setting.
- Define key cyber security concepts and recall their relevance in a pharmacy setting.
- Highlight potential cyber security risks in a pharmacy setting.
- Outline practical steps to reduce the risk of a cyber-attack.

Competency standards addressed:

1.1, 1.3, 1.6, 4.3, 4.4, 4.5, 4.7



Accreditation Number: A2306ITK2

Expires: 31/01/2025

This activity has been accredited for 1 hr of Group 1 CPD (or 1 CPD credit) suitable for inclusion in an individual pharmacist's CPD plan which can be converted to 1 hr of Group 2 CPD (or 2 CPD credits) upon successful completion of relevant assessment activities.

The constant evolution of the types of threats, vulnerabilities and technologies that are used to carry out a cyber-attack further increases the difficulty of keeping up with the readiness and response to a cyber security attack.

Table 1 provides an overview of some of the definitions of key terminology used within the cyber security context.

| Terminology | Definition |
|-------------------------------|--|
| Data | Discrete facts and/or numbers. |
| Information | Information is organised data with context and purpose. |
| Information asset | An information asset is a collection of knowledge or data that is organised, managed and valuable. An organisation needs to classify, manage the lifecycle of and control access to information assets. Examples of information assets in pharmacy include dispensing software, databases, Point of Sale (POS) software, documentation and websites. |
| Digitisation | Conversion of analogue information to digital (bits and bytes). |
| Information security | Is protecting information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction to provide confidentiality, integrity, and availability (CIA). |
| Information security incident | An information security incident is an unwanted or unexpected information security event, or a series of such events, that has either compromised business operations or has a significant probability of compromising business operations. |
| Cyber security | Cyber security is the practice of defending electronic information, network, and computer systems from deliberate attack to cause harm. |
| Cyber attack | Is a security incident that involves any kind of deliberate malicious activity that attempts to collect, disrupt, deny, degrade, or destroy information system resources or the information itself. |
| Threat | A set of circumstances, intended or un-intended, that has the potential to cause harm to the information assets of a pharmacy business by compromising the confidentiality, integrity and availability of information and associated computer systems resulting in financial loss and reputational damage. |
| Vulnerabilities | A characteristic or a weakness in the system (e.g. user behaviour) that could be acted on by a threat causing harm to the business. |
| Control Measures | Access control put in place to reduce risk and harm to information systems. |

Importance of information security and cyber security

- The 'mantra' or underlying goals of information security is to provide **Confidentiality**, **Integrity**, and **Availability** (CIA) of information and information systems⁷:
- The **Confidentiality** goal is to provide assurance that patient and/or business information is not disclosed to unauthorised individuals, processes, or devices either accidentally or intentionally.
- The **Integrity** goal is to provide assurance that data is created, amended, stored or deleted **ONLY** by authorised individuals and these processes of data management comply with the regulatory requirements as set out by the Office of Australian Information Commissioner (OAIC).
- The **Availability** goal is to provide assurance that information resources are accessible and usable when required by an authorised user.

The terms information security and cyber security are often used interchangeably when discussing protection of information assets; however, one way of correctly understanding the relationship between the two is that cyber security can be seen as a subset of the overall domain of information security.⁷ Cyber Security is about protecting the CIA of digital information assets whereas information security encompasses protecting the CIA of both the digital and physical information assets.

Any unauthorised access to these information assets by unauthorised people and devices can lead to major business disruptions, including financial loss, breach of patient confidentiality and/or complete breakdown of the business operations.

Cybercrime continues to show an upward trend, and this highlights the need for cyber security awareness amongst individuals, smaller businesses and larger organisations.⁸ The Australian Cyber Security Centre (ACSC) Annual Cyber Threat Report (July 2021 to June 2022) highlights the recent trends observed in the Australian context⁸:

- A cybercrime is reported every 7 minutes on average compared to every 8 minutes last financial year.
- Over 25,000 calls to the Cyber Security Hotline (15% increase from previous financial year) with an average of 69 calls per day.
- A 25% increase in the number of publicly reported software vulnerabilities worldwide.
- A rise in the average cost per cybercrime report to over \$39,000 for small business, \$88,000 for medium business, and over \$62,000 for large business – an average increase of 14%.
- Fraud, online shopping and online banking were the top reported cybercrime types, accounting for 54% of all reports.

Understanding of possible threats and vulnerabilities (see above definitions of terminology) to the information assets and information systems can assist in implementing protective measures to mitigate the risks and impact of cybercrime.

Cyber security risks in pharmacy

Some examples of cyber security risks that can occur in a pharmacy setting include:

- **Data breaches**⁷ – this is one of the most significant cyber security risks for pharmacies as workflow entails collecting and storing sensitive patient information, such as contact details, Medicare numbers, prescription details, and in some cases payment information, which can all be targeted by cyber criminals for financial gain. A data breach occurs when there is unauthorised access and disclosure of this sensitive information, and this can have significant legal, financial and reputational repercussions. Data breaches also have an impact on the privacy and confidentiality of patient information.
- **Ransomware attacks**⁷ – this is a type of malware that encrypts a victim's files or systems, and the hacker demands payment in exchange for restoring access and functionality. In pharmacy, ransomware attacks usually occur via email when a staff member clicks a malicious link or downloads an 'infected' attachment. Implementing cyber security practices such as regular data back-ups and employee training on identifying suspicious emails, can assist in mitigating the risks of ransomware attacks. If you fall victim to a ransomware attack, seek professional and legal advice.
- **Third-Party vendor risks**⁷ – sometimes pharmacies can be compromised through third-party software that have weak security controls causing increased vulnerability to cyber-attacks. This can cause disruptions in pharmacy operations and can have financial implications on the pharmacy business.
- **Social Engineering**⁷ – Cyber-attacks resulting from social engineering tactics is on the rise across all industries and pharmacy businesses are not immune to this trend. These tactics include phishing (general email), spear phishing (targeted email), vishing (phone calls), smishing (via SMS), are used to trick pharmacy staff into giving out sensitive business information or downloading ransomware and/or other malware. The main defence to minimise the impact from these attacks is regular staff training and awareness of cyber security risks by well-trained IT personnel. Additional having appropriate and up-to-date pharmacy policies and procedures that outline the legislative requirements and obligations of information security in pharmacy are of utmost importance.

Cybersecurity breaches can have significant impacts to a pharmacy business including compromising patient data, reputational damage, financial losses, regulatory fines for non-compliance and disruption to services.

There are three fundamental control measures that can be utilised to reduce the risk and impact of a cyber security breach⁷:

- **Preventative controls** – The aim is to reduce the **likelihood** of a security incident occurring e.g. training individuals (staff and customers) in recognising the different ways patient and business information could be misused and/or exposed without proper authority.
- **Detective controls** – Monitoring workflow to identify risks e.g. implement incident reporting mechanisms to monitor any cyber security risks that may occur due to social engineering (e.g. phishing, spear phishing, vishing, smishing).
- **Corrective controls** – The goal here is to ensure that in the event of an information security breach/attack corrective action is taken e.g. incident management and planning, disaster recovery planning and error handling.

Cybersecurity vulnerabilities can be viewed through three domains: personal, processes and technology. FRED has created a useful checklist that can be used to assess how potential risks to your pharmacy business may arise within these three domains. This checklist can be accessed via the following QR code or link.⁹



<https://www.fred.com.au/what-we-do/services/fred-protect/cyber-security-checklist/>

Cyber Security Responsibilities in Pharmacy

Digitisation and exchange of patient information between health providers has become a necessary tool for providing patient care and improving health outcomes. This has led to the need for pharmacies to embrace new software and hardware technologies to optimise workflow. Pharmacies deal with sensitive patient information on a daily basis and pharmacies (specifically pharmacists, pharmacy managers, and pharmacy owners) must take reasonable steps to protect personal patient information. The steps on how to protect personal patient information, are clearly defined in the OAIC Guide to securing personal information. Furthermore, all information gathering that occurs in a pharmacy businesses must comply with the Privacy Act 1988 and Australian Privacy Principles.

The Australian government and industry are actively monitoring data breaches and providing updates as necessary.¹⁰ It is important to note that pharmacies fall under the National Data Breach Scheme and thus are required to report data breaches to the OAIC and advise customers if a breach has occurred.¹⁰ There are financial implications for pharmacies and other businesses that do not comply with these reporting requirements – Refer to the OAIC Notifiable data breaches webpage for more information.

Furthermore, pharmacies can mitigate potential information security breaches by creating a positive information security workplace culture including¹¹:

- Understanding the organisation's information security policies and regulatory compliance obligations.
- Exercising good information security behaviours.
- Recognising the cyber security threats and vulnerabilities that apply to various staff roles.
- Reporting requirements that are designed to protect the privacy of health information.



Practical tips to reduce the risk of a cyber-attack¹¹⁻¹³

UPDATE YOUR DEVICES REGULARLY

When you update your device you are essentially fixing issues, weaknesses and addressing cyber security concerns. Software updates are one of the strongest defences against a cyberattack. Operating systems such as Windows, iOS or Android allow their users to setup automatic updates to apply 'patches' that prevent hackers from exploiting the information and information system.

SET-UP AND PERFORM REGULAR BACKUPS

Ensure data and information are securely backed up offsite (external device or online). Backing up information securely is a risk reduction strategy and can assist in recovery of your information in the event of a natural disaster or cyber-attack.

ANTI-VIRUS SOFTWARE

Using up-to-date anti-virus software, together with other security controls, can help to protect your network and devices against cyber-attacks. Seek advice from a cyber security expert on which anti-virus software best suits your business needs.

EXTERNAL STORAGE DEVICES

Be careful when using external storage devices, such as a USB stick, as this can pose potential risks including a data breach if the external storage device is lost or stolen. Also, external storage devices can carry malware that can allow hackers to access your information systems. Up-to-date antivirus software can be used to scan the external storage device for malware prior to connecting the device to your laptop or computer.

PASSWORD PROTECTION

Pharmacy businesses make use of various software applications and managing multiple passwords for these can be cumbersome and the tendency to use the same password can make the information system vulnerability to a data breach or cyber-attack. There are several measures in place to protect passwords that pharmacists and pharmacy owners should make use of. For example:

- For increasing the level of security, multi-factor authentication can be turned on to secure sensitive data (e.g. when accessing your business banking account).
- Use of password manager software application is another tool to manage multiple passwords; however, this does come with its own set of challenges if it is breached. An option is to use the password manager software for some passwords, but not all. Additionally ensuring the password manager itself has a strong password and, if available, turning on multi-factor authentication to access the password manager can provide an extra-layer of protection to your password manager.
- Setting a strong password – when setting a strong password use a combination of characters that are easy for you to remember, but hard for someone to guess (consider using a paraphrase). Refer to the following resource for tips on creating a strong password.



RECOGNISE AND REPORT SCAMS

Cybersecurity attackers often use email, text messages, phone calls and social media to gain access to your information by pretending to be a person or organisation you trust. Common traits of scammers include portraying authority, urgency, emotion, scarcity and making use of current event as the reason for their request. There are numerous types of scams and it is important to 'think before you click' and do not open any attachments or reply to requests from an unknown source. Instead go to an official source and confirm the request for information – refer to Scamwatch with details of recent incidents/trends and report a cyber security breach via an appropriate channel such as ReportCyber.

REMAIN AWARE

Organisations can raise their awareness about cyber security threats by subscribing to useful cyber security alerts including the Australian Cyber Security Centre and ScamWatch. Don't use public Wi-Fi for sensitive information and rather use a trusted, password protected network or your mobile data.

STAFF TRAINING

Ensure that pharmacy staff are adequately trained on cyber security risks in pharmacy and are aware of the possible vulnerabilities and threats. The Australian Digital Health Agency has a useful eLearning course on Digital Health Security Awareness that consists of five modules and this can be accessed via the following QR code or link:



<https://training.digitalhealth.gov.au/mod/page/view.php?id=765>



Conclusion

The increasing use of digital technology has allowed pharmacies to optimise operational processes, improve patient care, stay relevant and be competitive. However, these technologies have the potential to expose pharmacies to various cyber security risks, and being an integral part of the health sector, pharmacies are already a major target for cyber-attacks. Cyber breaches and attacks can have significant impacts to a pharmacy business including compromising patient data, reputational damage, financial losses, regulatory fines for non-compliance and disruption to services.

Human error or user behaviour can be classified as one of the most common types of cyber security risks. In a pharmacy setting, the lack of understanding of cyber security threats and vulnerabilities can result in information security breaches and cyber-attacks. Appropriate staff training and awareness can reduce cyber security risks. This article provides some practical tips that pharmacies can implement in their workflow to reduce the risks of cyber-attacks. In particular, pharmacy staff should use safe email practices, including adopting a 'think before you click' approach to any suspicious emails and text messages that come through.

Creating a positive information security culture within the workplace can reduce the potential risks of information security breaches and this includes recognising cybersecurity obligations and responsibilities, exercising good information security behaviours, recognising cybersecurity threats and vulnerabilities (at both an individual and business level) and reporting requirements.

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Pyelonephritis

01 Which of the following statements is INCORRECT?

- a) Pyelonephritis is infection of the kidney, including the renal parenchyma and collecting system
- b) Pyelonephritis is almost exclusively caused by bacteria
- c) The most common microbe involved in pyelonephritis is *Escherichia coli*
- d) Risk factors for pyelonephritis include age, urinary incontinence, diabetes, immune suppression, and male sex
- e) Complicated pyelonephritis occurs when there are anatomical or functional limitations in the kidney

02 In patients with possible pyelonephritis, what underlying risk factors or clinical features should prompt a referral to hospital for admission?

- a) Urinary urgency
- b) Cloudy urine
- c) Patient is taking an immune suppressant
- d) Pain on urination
- e) Flank pain

03 What preventative non-pharmacological measures are NOT useful to reduce the incidence of recurrent urinary tract infection?

- a) Adequate hydration
- b) Prophylactic hexamine hippurate
- c) Regular voiding
- d) Voiding after sexual intercourse
- e) Improved hygiene

04 What is the first-line empiric antibiotic option for nonsevere pyelonephritis recommended by Australian guidelines?

- a) Amoxicillin with clavulanic acid
- b) Trimethoprim
- c) Trimethoprim with sulfamethoxazole
- d) Metronidazole

05 Which of the following statements about the treatment of pyelonephritis is INCORRECT?

- a) Symptoms of pyelonephritis may include fever, chills, flank/abdominal pain, nausea, cloudy urine, frequent urination, pelvic pain & dysuria
- b) First line empiric therapy for severe pyelonephritis is IV gentamicin plus either IV amoxicillin or IV ampicillin
- c) Patients with severe pyelonephritis can be switched from IV to oral therapy as they clinically improve
- d) Urinary alkalinisers may help to ease the symptoms of urethritis or cystitis
- e) Narrow spectrum antibiotics are not used for pyelonephritis as they are associated with greater incidence of antimicrobial resistance



LEARNING OBJECTIVES

After completing this CPD activity, pharmacists should be able to:

- Describe the risk factors for pyelonephritis.
- Describe the symptoms of pyelonephritis.
- Describe the non-pharmacological management of pyelonephritis.
- Describe the pharmacological management of pyelonephritis.



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Cyber Security Awareness in Pharmacy: An Overview of Key Concepts and Risk Management

01

Within the context of information security and cyber security goals (Confidentiality, Integrity, and Availability (CIA)), which of the following statements best defines the term 'Confidentiality'?

- a) Preventing the authorised deletion of patient information.
- b) Preventing all access to information.
- c) Preventing any unauthorised disclosure of patient information.
- d) Preventing the unauthorised modification of patient information.

02

Which of the following options best describes a cyber-attack?

- a) Intentionally sharing individual user passwords with colleagues.
- b) Leaving the alarm system for the pharmacy off on a given date.
- c) Data loss that occurs due to a natural disaster.
- d) When vulnerabilities in the information system are deliberately exploited.

03

It is important to conduct updates on your device on a regular basis as this allows the operating system to fix any issues, vulnerabilities and security concerns that hackers can use to exploit your information and information system.

- a) True
- b) False

04

Which one of the following options outline examples of cyber security risks in a pharmacy setting?

- a) Staff fridge, alarm system and advertising banner on the fence.
- b) Filing draws, telephone system and pad locks on the back gate.
- c) Phishing, vishing and third party software.
- d) Privacy, financial loss and patient safety.

05

What are the three fundamental control measures that can be put in place to reduce information and cyber security risks?

- a) Preventative, Detective and Corrective.
- b) Detective, layered, and real time.
- c) As needed basis, Corrective and Detective
- d) Corrective, Numerical, and Alphabetical.



LEARNING OBJECTIVES

After completing this CPD activity, pharmacists should be able to:

- Describe the importance of cyber security in a pharmacy setting.
- Define key cyber security concepts and recall their relevance in a pharmacy setting.
- Highlight potential cyber security risks in a pharmacy setting.
- Outline practical steps to reduce the risk of a cyber-attack.



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