

HOSPITAL AND HEALTHCARE

SPRING 2020

**INFECTION
CONTROL
ISSUE**

COVID-19 **IN AUSTRALIA: WHAT** **HAVE WE LEARNED?**

REMOTE HEALTH

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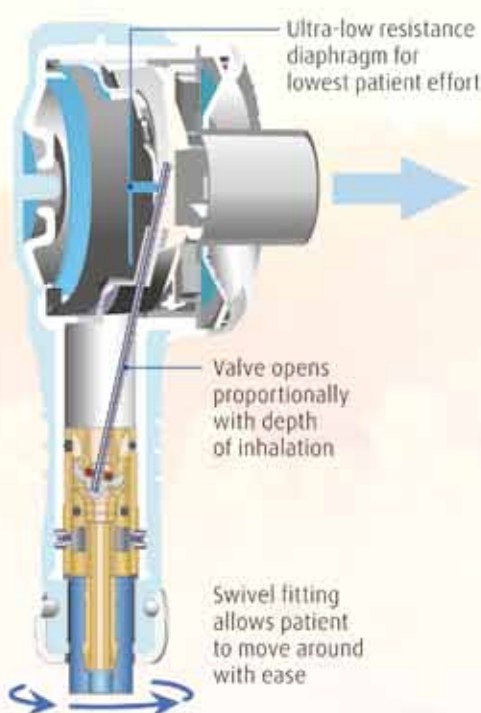
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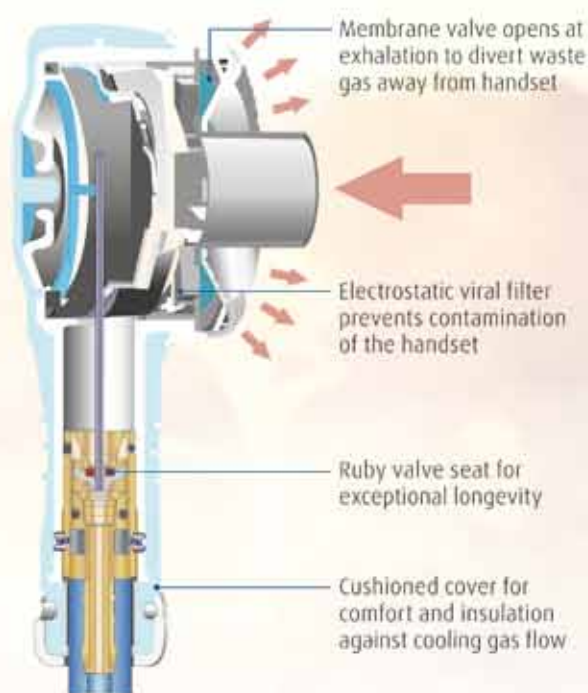
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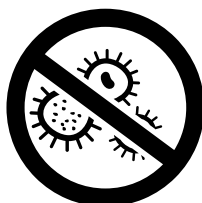


Valve closed (exhalation)



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Welcome to our infection control issue

Infection control is currently the primary focus of the globe, and the stakes are high. As a nation, Australia is an example of infection control success, curbing the spread of the virus and managing outbreaks. Victoria's recent success in bringing COVID-19 cases below 20 is a testament to what can be achieved, despite the high costs.

This issue, we take a comprehensive look at Australia's approach to stopping the spread of COVID-19. We look at infection control in hospitals, in aged care, in quarantine hotels. We consider the vulnerability of remote Indigenous communities and how infection control is paramount to many communities' survival. We also consider the effects of the pandemic on the mental health of frontline health workers and outline the work being done to find a safe and effective vaccine.

Yours remotely,

Jane Allman

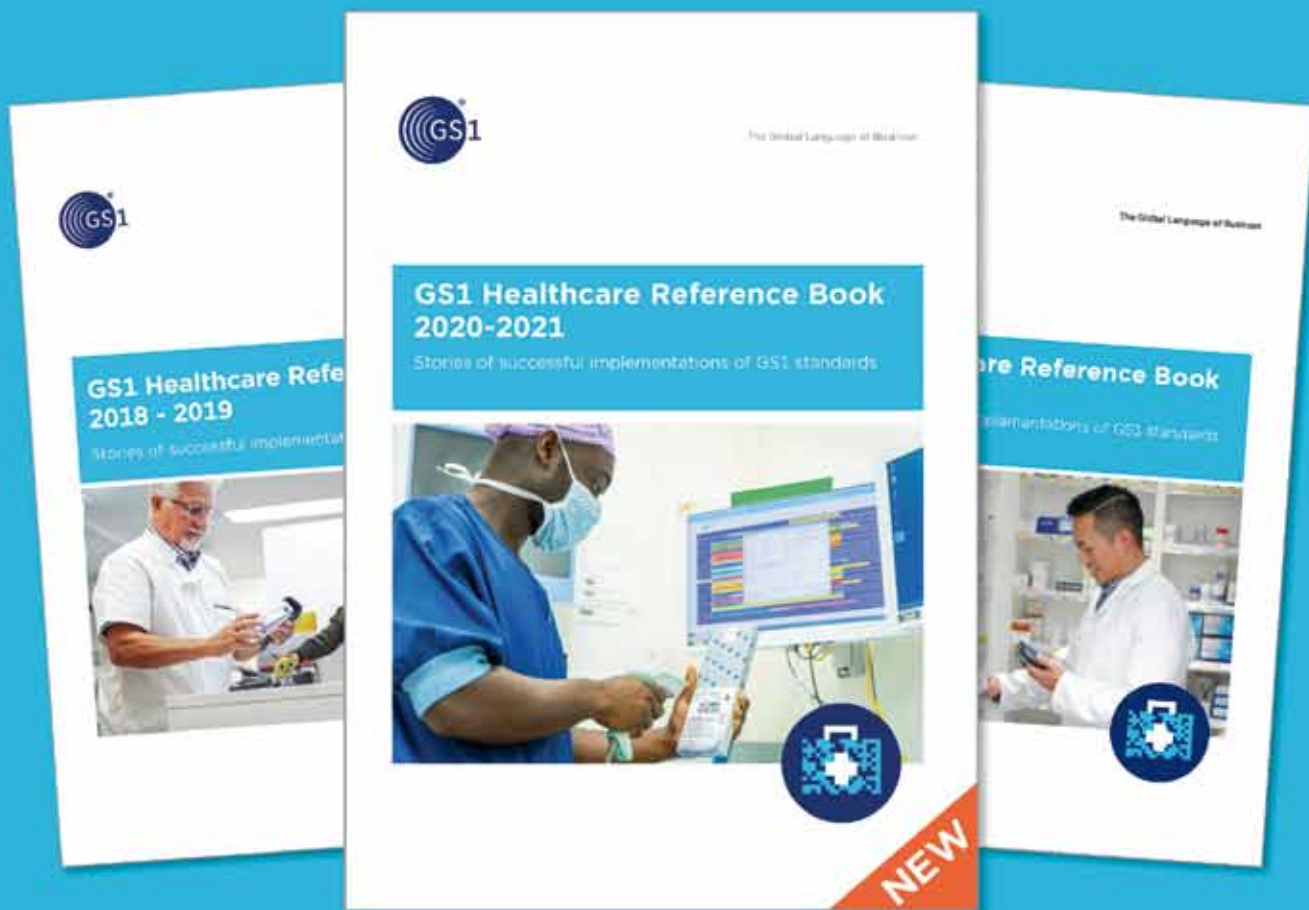
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Wollongong Hospital engages InovaAir for a clean air solution

Air filtration in hospital and healthcare environments has always been of critical importance in preventing the spread of airborne infection.

With the rapid spread of COVID-19 earlier this year, Dr. Trevor Gardner and the Wollongong Hospital COVID-19 task group were proactively looking for a solution to create negative pressure environments to reduce the potential spread of transmission contaminated air, to staff and patients for two of the hospital's COVID wards as well as their ICU. With the pandemic being a high priority, Wollongong ordered and fitted ~40 InovaAir commercial grade air filtration systems in order to comply with air movement regulations.

These systems were able to be quickly installed by the hospital's own contractors with minimal building modifications and were operational within days.

InovaAir is an Australian manufacturer of innovative, tailored medical-grade HEPA filtration systems. They manufacture and distribute air purification solutions for both

domestic and commercial applications. Their air purifiers are designed to filter out everything from aerosols, bushfire smoke, mould spores, VOCs and ultra-fine particles at 99.95% efficiency down to 0.3 microns. Systems utilise a high efficiency pre-filter, HEPA filtration and final stage carbon filters. Unlike some of the cheaper plastic alternatives, InovaAir uses powder coated aluminium construction.

InovaAir systems are utilised in commercial applications such as hospitals, medical centres, schools, nursing homes, gyms and office spaces.

InovaAir's founder and owner Nicholas Kraus says, "Indoor air quality has always been important, however with the current situation with the pandemic as well as the rampant bushfire season of 2019/2020, we have found people are not just considering their air quality, they are now taking action for the safety of their staff and clients as well as themselves."

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The Rounds

Updates in health care

Specialised pandemic training to help remote communities

The Australian National University (ANU) has developed specialised pandemic training for Aboriginal and Torres Strait Islander health workers and practitioners to help protect remote Australian communities from COVID-19 outbreaks. More than 50,000 people have accessed the training, developed following a request from the National Aboriginal Community Controlled Health Organisation (NACCHO) and the Australian Government.

The training program is made up of five online modules, including an introduction to COVID-19 epidemiology, contact tracing, interviewing, the use of PPE in remote communities and data management.

"Contact tracing in remote Indigenous communities is likely to look very different to how we usually do it in the city or urban areas," said Alyson Wright, an epidemiologist from the ANU Research School of Population Health.

"There are language and cultural differences to consider, and in some places there is a lack of telecommunications.

"The Aboriginal health workforce has important cultural knowledge and key relationships in their communities, so they are critical to helping with public health responses," Wright said.

"When we do interviews in remote communities, we use the language 'right place, right time, right person'. This is about understanding key cultural considerations when working with Aboriginal and Torres Strait Islander communities. Right person means who one can talk to; right place means where they can talk; and right time means what can be shared with others. Training local Aboriginal health workers and practitioners in contact tracing means that they already understand these cultural nuances.

"Aboriginal and Torres Strait Islander people are considered at greater risk of severe forms of COVID-19, because of underlining chronic health conditions in this population," Wright said.

NACCHO Deputy CEO Dawn Casey said, "Aboriginal health workers have been invaluable in managing previous outbreaks in Aboriginal and Torres Strait Islander communities.

"We need to use their expertise in contact tracing for COVID-19, and these training modules give them the information to do this effectively and safely."



Image credit: The Australian National University.



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'Caff-naps' boost alertness on the nightshift

Research from the University of South Australia (UniSA) has found that coffee and a catnap could be the answer to staying alert on the nightshift, with the combination improving attention and reducing sleep inertia.

More than 1.4 million Australians are shiftworkers, with more than 200,000 regularly working night or evening shifts.

Lead researcher Dr Stephanie Centofanti from UniSA Online and the Sleep and Chronobiology Laboratory at UniSA said the finding could help counteract the kind of sleep inertia experienced by many shiftworkers.

"Shiftworkers are often chronically sleep-deprived because they have disrupted and irregular sleep patterns," Dr Centofanti explained.

"As a result, they commonly use a range of strategies to try to boost their alertness while on the nightshift, and these can include taking power naps and drinking coffee — yet it's important to understand that there are disadvantages for both.

"Many workers nap during a night shift because they get so tired. But the downside is that they can experience 'sleep inertia' — that grogginess you have just after you wake up — and this can impair their performance and mood for up to an hour after their nap.

"Caffeine is also used by many people to stay awake and alert. But again, if you have too much coffee it can harm your overall sleep and health. And, if you use it to perk you up after a nap, it can take a good 20–30 minutes to kick in, so there's a significant time delay before you feel the desired effect.

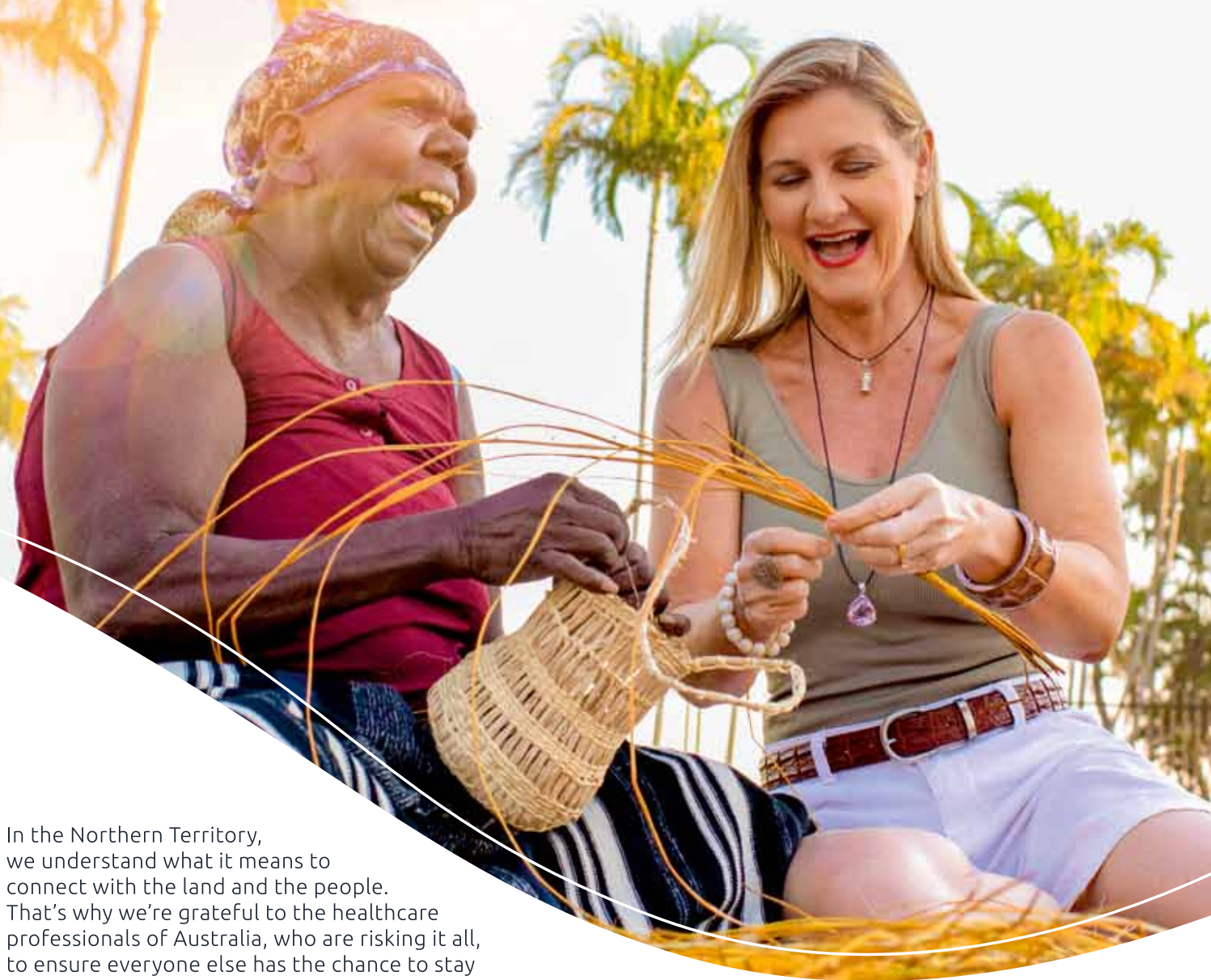
"A 'caffeine-nap' (or 'caff-nap') could be a viable alternative — by drinking a coffee before taking a nap, shiftworkers can gain the benefits of a 20–30-minute nap then the perk of the caffeine when they wake. It's a win-win."

The small pilot study — published in *Chronobiology International* — tested the impact of 200 mg of caffeine (equivalent to 1–2 regular cups of coffee) consumed by participants just before a 3.30 am 30-minute nap, comparing results with a placebo group.

Participants taking a 'caffeine-nap' showed marked improvements in both performance and alertness, indicating the potential of a 'caffeine-nap' to counteract sleep grogginess.

Dr Centofanti said this shows a promising fatigue countermeasure for shift workers. She says the next move is to test the new finding on more people.

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The Rounds

Updates in health care



Sun safety sensor lets you know when you've had too much

Sun safety sensor lets you know when you've had too much

Researchers at Macquarie University's Nanotechnology Laboratory have created a personalised, wearable UV-sensitive device that could help millions avoid skin cancer.

Designed by Dr Noushin Nasiri, the device is about the size of a fingernail and measures the wearer's sun exposure, alerting them when they've exceeded the limit for their skin type.

The real-time sensor detects a user's exact location, determining whether they are indoors or outdoors, in shade or sunlight, and how much UV radiation their skin has absorbed over 24 hours.

"Then, if you've gone over the safe limit, the device uses Bluetooth to communicate with an app on your smartphone to send you a text saying you've had enough exposure and you should get out of the sun or cover up," Dr Nasiri said.

"Knowing your skin type, our sensor can calculate how much cumulative UV you can tolerate and then when you're at risk, it will alert you immediately."

An advocate of preventative medicine, Dr Nasiri said her novel, affordable device could alert millions of people in Australia and around the world to the dangers of overexposure to the sun, decreasing their skin cancer risk.

Last year, Dr Nasiri and her Master's student Tasrif Noor created a prototype and published a 'proof of concept'. Now they're looking for an investor to incorporate the sensor into an existing smartwatch, Fitbit, sunglasses or clothing. The device will be affordable, costing less than \$20.

"We are so close to commercialising the device this year — and it's very exciting," Dr Nasiri said.

Sniffer dogs train to detect COVID-19

University of Adelaide researchers are working with international partners to train sniffer dogs to detect COVID-19. Previous research has shown that dogs can detect specific volatile olfactory compounds (VOCs) caused by viral infection in people.

It is hoped that COVID-19 detection dogs would complement existing methods by providing low-cost, instantaneous and reliable screening.

Dr Anne-Lise Chaber and Dr Susan Hazel from the University of Adelaide's School of Animal and Veterinary Sciences are coordinating the Australian arm of the alliance.

Early results from the international team — led out of the National Veterinary School in Alfort, France — show that specialised working dogs can detect COVID-19 VOCs in patients, with some recording a 100% success rate.

Indications show that dogs trained in this way can identify infected individuals prior to development of symptoms, or in those who are asymptomatic. This would be a powerful tool for effective control of COVID-19 in Australia.

"If results from our local study are positive, we will be able to move to the clinical screening phase," Dr Chaber said.

"According to recent studies, dogs are not susceptible to SARS-CoV-2 and the virus cannot replicate in them. COVID-19 dog detectors will be a reliable, repeatable, cheap, easy and fast way to screen or pre-screen potential cases. This tool will become crucial when borders reopen or if we face another wave."



SA researchers develop infection-busting bandages

Researchers at the University of South Australia have developed a novel coating that can be applied to any wound dressing to simultaneously reduce wound inflammation and treat infection in chronic wounds.

Comprising a stable nitroxide radical that is plasma polymerised into a smooth coating, the bandages have potential to revolutionise the treatment of chronic wounds such as pressure, diabetic or vascular ulcers that won't heal on their own.

With research published in *RSC Advances*, lead researcher Dr Thomas Michl from UniSA STEM said that upgrading current dressings with this state-of-the-art coating will promote effective healing on chronic wounds and reduce patient suffering.

"Proper care for chronic wounds requires frequent changes of wound dressings, but currently these wound dressings are passive actors in wound management," Dr Michl said.

"Our novel coatings change

this, turning any wound dressing into an active participant in the healing process — not only covering and protecting the wound, but also knocking down excessive inflammation and infection.

"No other method achieves this to date."

In Australia, nearly half a million people suffer from chronic wounds, costing the health system an estimated \$3 billion each year. It's a similar picture around the world.

With growing rates of global obesity, diabetes and an ageing population, chronic wounds are increasingly affecting large proportions of the general population — yet until this

breakthrough discovery, few treatments have shown such positive results.

The technology is highly scalable and sustainable, making it a viable option for broad application worldwide.

The team is now investigating the shelf life of the coatings, with encouraging results. Next steps are preclinical trials, with products potentially available in two to three years.





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Optimal bowel health

Fibre and the “secret ingredient” in pear and prune juice

Eating is a very socially enjoyable experience for many of us. As we get older, it's important to continue to eat foods which maintain good health. With ageing, appetite can change. Due to decreased mobility, it may become increasingly difficult to buy groceries and to prepare meals. Not eating enough of the foods you need every day could mean that you don't meet your requirement of essential vitamins, minerals, macro nutrients and fibre. Fibre is especially important, as it helps with bowel regularity and stabilising blood glucose and cholesterol levels. Eating enough fibre is also related to a reduced risk of chronic diseases such as heart disease, certain cancers and diabetes¹. Interestingly, countries with traditionally high fibre diets have lower rates of diseases such as bowel cancer, diabetes and coronary heart disease. Most Australians do not eat enough fibre, with the average intake being 20–25g per day. The recommendation for fibre for adults is 30g per day for men and 25g per day for women. It is even more important for older Australians to consume the recommended amount, as the digestive system slows down with age. Increasing how much fibre we consume, as well as drinking more fluids and regular exercise, can help to maintain good bowel health.

Adding More Fibre to Your Diet

Consuming a diet low in fibre can contribute to conditions including constipation. This is even more likely to affect us as we get older due to lifestyle factors including a change in routine, reliance on regular medications and decreased activity². Good sources of fibre include wholegrain cereals, fruits, vegetables and legumes³. Pear Juice and Prune Juice are widely used for the management and treatment of constipation. The key ingredients in Pear and Prune Juice are the natural fruit sugars sorbitol and fructose⁴. These sugars have an osmotic effect, meaning they draw water into the bowel and help soften the stool⁵. **SPC ProVital Pear Juice and SPC ProVital Prune Juice** both contain these natural fruit sugars, which contribute to laxation. They are also made from 100% Australian fruit, with no added sugars, preservatives or added colours. They are a tasty and convenient way to add variety to the day and, combined with a high fibre diet, will help keep your digestive system healthy.

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1. National Health and Medical Research Council. Nutrient Reference Values for Australia and New Zealand. Dietary Fibre. May 2019. Available @ <https://www.nrv.gov.au/nutrients/dietary-fibre>
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Hotel quarantine

Infection control lessons learned

Amy Sarcevic



When infection control strategies aren't watertight, bacteria, viruses, fungi and parasites can spread like wildfire.

According to WHO statistics, one in 10 patients globally acquire an infection in their receipt of health care, and contagions cause up to two-thirds of deaths among hospital-born infants.

Measures like hand sanitisation, personal protective equipment (PPE) and physical distancing can offer a firebreak from virus or bacteria transmission — but not an infallible one.

A laxly implemented protocol, a clinical governance blind spot or a simple human trip-up can create leaks in any infection control strategy. In the context of a pandemic, this can have a catastrophic fallout.

Rachel Jones (name changed for privacy) recently stayed at a quarantine hotel in Sydney on her return from San Francisco. She described the infection control measures at the quarantine facilities as “stringent”, but probing further exposed some weaknesses in the overarching strategy.

“It was strange because some of the staff my partner and I encountered on our transit to the hotel weren’t wearing PPE,” Rachel said in an interview with *Hospital + Healthcare*.

“Police escorts and airport staff for example weren’t wearing masks or gloves.



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"We thought this was strange given the potential need for physical contact these professionals may need to have — either with us or our possessions," she added.

It may be easy to recognise the holes in this virus containment strategy, but often these weaknesses go unnoticed, particularly when there are multiple lines of accountability in a healthcare delivery setting — in this case, military, police and private-sector workers.

"Additionally, we were denied vacuum cleaners at the hotel," Rachel continued.

"I totally understand the logic. If everyone is handling the same machine then there is a risk of cross-contamination. However, it did mean that there were a lot of skin cells and hairs all over the floor. So much so that we used our old towels to try and scoop up some of the floor dirt," she said.

A secondary concern is the effect this appeared to have on Rachel's immune system.

"I developed impetigo on around day five of my quarantine stay and I'm convinced this is a result of the conditions we were living in. I have never had impetigo in the past, nor do I have any other skin conditions," Rachel continued.

"I developed impetigo on around day five of my quarantine stay and I'm convinced this is a result of the conditions we were living in."

"We were jet lagged, stressed, devoid of exercise, sunlight and the health-conscious diets we would normally choose to eat. We felt disgusting by the end of our stay."

Had Rachel's contagion been more serious, it may have impacted her ability to ward off COVID-19, said Professor Brian Oliver of the University of Technology Sydney (UTS). Compounding this is the heightened possibility of COVID-19 exposure, given that viruses and bacteria share many of the same transmission properties.

"A weakened immune system can change the course of a respiratory viral infection from a relatively minor common cold to

a severe infection, as we have observed throughout the COVID-19 pandemic," Professor Oliver said.

"In aged-care facilities, where a large portion of people are immunocompromised, the virus has had devastating effects. In schools, where people normally have functioning immune systems, the opposite has occurred — with the virus instead emerging as a more transient, upper-respiratory infection."

COVID-19 aside, Rachel's experience of impetigo could have been more serious if she had an underlying health condition. Episodes of acute rheumatic fever, for example, are believed to be triggered by impetigo.

A further clinical governance oversight was the failure to follow up with Rachel and her partner in the aftermath of their quarantine stay.

"Had I not taken the initiative to let the hotel know I'd contracted impetigo at the facilities, they'd have been none the wiser," she said.

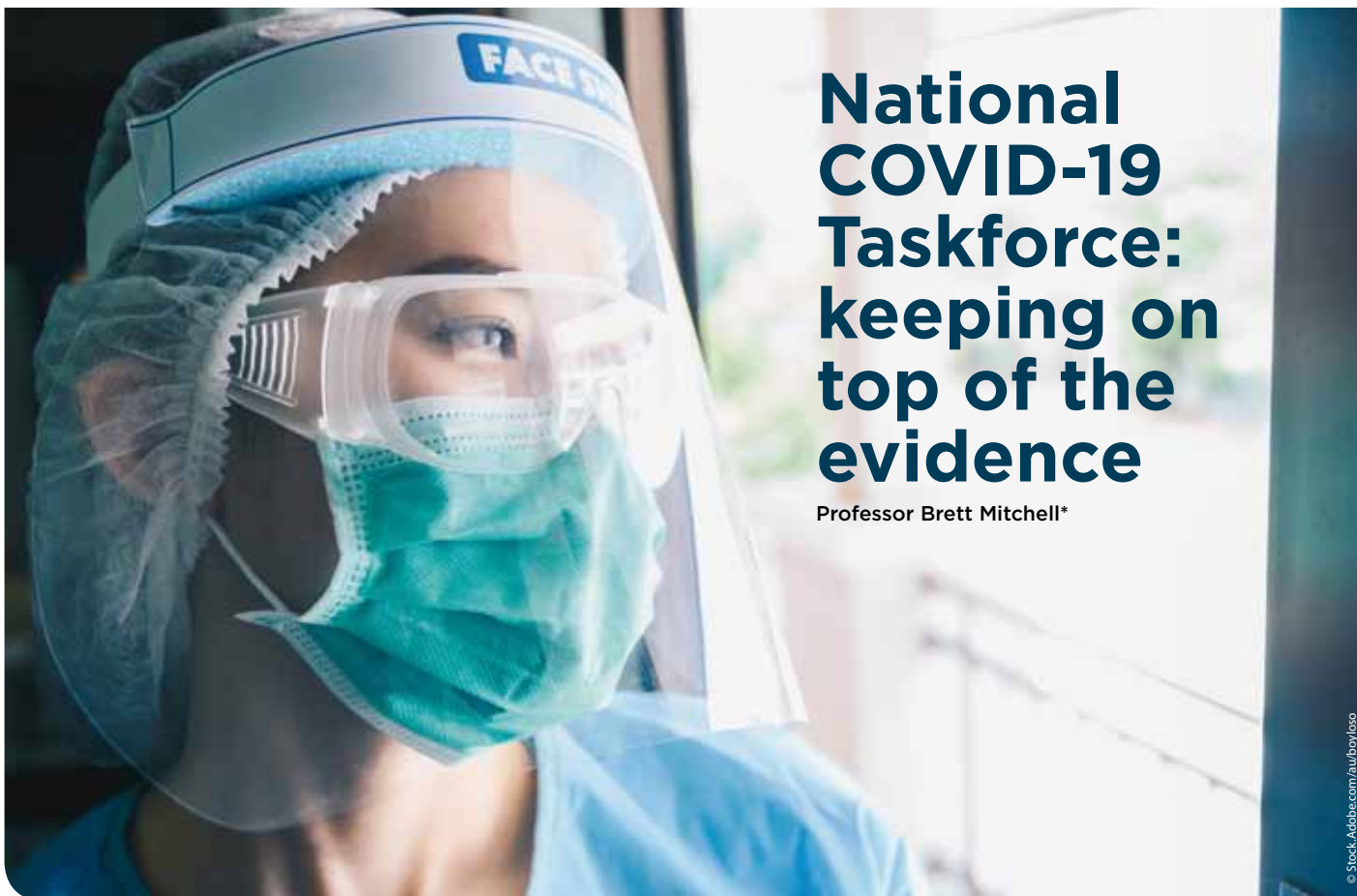
"I'm assuming they sterilised the facilities after I told them, but I wouldn't know for sure if they did. Judging by the condition of the carpet when we entered, it didn't seem as though the premises were being thoroughly sterilised, from top to bottom, as a matter of course."

Professor Oliver said, in order to be watertight, infection control measures at quarantine facilities must be comprehensive, as well as pre-empting situational factors.

"If people are trapped in a quarantine facility for two weeks, then it's likely they might start exercising on the floor because they have no other means of doing so. They may also get their towels mixed up with their partner's or family members', since hotel towels tend to be uniform in colour.

"If we are really serious about preventing spread of viruses and bacteria, then an infection control strategy must consider these sorts of factors.

"Thankfully, COVID-19 appears to be quite easy to destroy through sterilisation. Bacteria, however, can be far more stubborn, and it could be that an underlying bacterial infection makes somebody more vulnerable to the COVID-19 virus."



National COVID-19 Taskforce: keeping on top of the evidence

Professor Brett Mitchell*

Sourcing up-to-date reliable information on COVID-19 management and treatment can be difficult. There are so many different sources of information, from peer-reviewed journals, mainstream media, social media, peers, media statements and 'preprints' — or non-peer reviewed journal articles.

What makes this even more complicated is the potential bias associated with some of these sources of information. The key question then springs to mind: how can I find reliable information? Information where all the work has been done — assessing bias, quality of evidence, synthesising this with existing literature and consider the practical and clinical implications of recommendations. This is where a COVID-19 Clinical Evidence Taskforce (<https://covid19evidence.net.au/>) comes in very handy.

The Taskforce, led by Executive Director A/ Professor Julian Elliott, is a diverse coalition of peak health bodies that focus on clinical care of Australians with COVID-19. At the time of writing, the number of peak bodies involved stands at 30 and includes the Australasian College for Infection Prevention and Control (ACIPC), Australian and New Zealand College of Anaesthetists (ANZCA), Australian and New Zealand Intensive Care Society (ANZICS), Royal Australian College of General Practitioners (RACGP) and many

more (<https://covid19evidence.net.au/about-the-taskforce/>). Despite being led in Australia, the evidence is widely accessed internationally.

"Through the National COVID-19 Clinical Evidence Taskforce we've established a truly world-class collaboration of experts who work around the clock to identify, evaluate and implement global COVID-19 research findings. This means that frontline clinicians have a trusted single source of evidence-based guidance in a time of great uncertainty," says A/Professor Julian Elliott.

A first of its kind, the National COVID-19 Clinical Evidence Taskforce provides a clear and consistent voice of cross-disciplinary consensus on the clinical care of patients with COVID-19. The team work around the clock to analyse global research findings, evaluate the evidence, collate and prioritise clinicians' questions and update COVID-19 clinical guidelines and clinical flowcharts. Traditionally, clinical guidelines are updated every few years, but the Taskforce has developed 'living' guidelines, updated each and every week.

The evidence surveillance system used, tracks and identifies relevant studies as results are available, allowing teams to identify and summarise global COVID-19 research findings. Findings are synthesised and reviewed by feed into 7 expert guideline

panels where recommendations are formed. Recommendations are then reviewed by the Guidelines Leadership Group each week, which comprises the 30 leading health organisations covering primary, acute and critical care settings around Australia. Where full consensus has been met from all organisations, recommendations are then published.

Recommendations are presented as a flowchart (<https://covid19evidence.net.au/#clinical-flowcharts>) or in a living guideline (<https://covid19evidence.net.au/#living-guidelines>). Living guidelines contain detailed information regarding the reviews undertaken including certainty of evidence, evidence summaries, forest plots, rationale and more. All information and data is transparently reported. The Taskforce include pre-prints in the evidence reviews, providing full data is available. Certainty of evidence and the data is reviewed again, once the final publication is published.

Such an approach does require considerable resources, as well as voluntary work. The approach used is a world first and in times of a pandemic, having clear transparent information is critical.

*Professor Brett Mitchell is from the School of Nursing and Midwifery at the University of Newcastle and is a Member of the COVID-19 National Guidelines Leadership Group.

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COVID-19 in Australia: what have we learned?



Ms Kaitlyn Radford*, Dr Cristina Sotomayor-Castillo**, Mr Jeremy Malik*** and Professor Ramon Z Shaban****

CCOVID-19 has highlighted risks associated with globalisation and the associated threats to health and security. The interconnectivity of individuals moving locally, regionally, nationally and internationally underpins the different types of containment and mitigation measures to prevent and control the spread of the infection.¹

In Australia, the first wave of COVID-19 infection was associated with imported cases from overseas. On 25 January 2020, Australia reported its first confirmed case of imported COVID-19 from Wuhan, China, where the pandemic originated.^{2,4} In the

following two months, the majority of cases in Australia came from international travellers returning from China, Iran, the United States, Europe and passengers on board the *Ruby Princess* cruise ship.⁵ In response, an Australian Health Sector Emergency Response Plan was activated by the Australian Government on 24 February, outlining four key strategic objectives aiming to prevent the spread of COVID-19 in the community (Figure 1).⁶

The first objective aims to characterise the nature of the virus and the clinical severity of the disease in the Australian context. It was soon confirmed that the clinical



Figure 1: The Australian Health Sector Emergency Response Plan: four key strategic objectives.

symptoms of COVID-19 included fever, sore throat, cough and difficulty in breathing,⁷ with a main mode of transmission via direct contact with infected people and indirect contact by contaminated surfaces with infectious droplets. The incubation period has been reported to be between 1–14 days, with increased mortality and morbidity associated with older people and immunocompromised individuals. Asymptomatic carriage of COVID-19 has been confirmed, which may add barriers to case identification, contact tracing and the actual practice of infection prevention and control (IPC) measures in the community.⁷

The second objective focuses on reducing the transmissibility, morbidity and mortality of the disease. In terms of case importation, the Australian Government has progressively imposed border restrictions since 1 February. What started as a travel ban from mainland China rapidly evolved into restricted entry to all foreigners and a total ban on overseas travel for residents as of 24 March.⁸ For travellers arriving in Australia by air or sea, case isolation and quarantine started in early February at designated hospitals, later changing to home and hotel quarantine as case numbers increased during March. Household members and close contacts were required to quarantine at home and get tested, should symptoms arise.⁸ Since 28 March, all overseas travellers have been required to go into government-approved mandatory hotel quarantine for 14 days, to further prevent the risk of imported spread of COVID-19.

To reduce interstate transmission, border closures occurred across all states and territories from late March, with each jurisdiction enforcing their own set of

An Australian Health Sector Emergency Response Plan was activated by the Australian Government on 24 February, outlining four key strategic objectives aiming to prevent the spread of COVID-19 in the community.

entry requirements.⁹ To decrease mortality, physical distancing measures were implemented across the nation. Vulnerable groups were encouraged to remain at home, except for emergencies, and to seek support from family and carers for food delivery and other essential services.¹⁰

Public health orders across Australian jurisdictions significantly restricted the movement of individuals, with travel limited to essential purposes only. Employers across Australia directed their employees to work from home to limit the spread of COVID-19.^{11,12} In terms of education,

Australia's states and territories kept schools open during the pandemic. Remote learning was implemented while attendance was recommended to be limited to children of essential workers and those without other care options.¹³

For all activities involving groups of individuals, keeping a physical distance of 1.5 metres was encouraged. Businesses had to comply with a new one person per 4 m² policy within their facilities.¹⁴ Although restrictions to gathering and movement were staged differently across states and jurisdictions,⁸ the end of March saw cancellation of various entertainment and sporting events and closure of gyms and clubs. At this time heavy fines were enforced by the police for those not adhering to physical distancing measures.⁵

The scale of the pandemic brought never-seen-before challenges to the health system, forcing the Australian Government to find ways to support it, which is objective three of the Emergency Response Plan.

Mobile and drive-through testing facilities were introduced in hotspots to reduce the strain and support health systems. Prior to the pandemic, telehealth had been growing at a slow pace, but its acceleration became a priority to help reduce the risk of community transmission and provide protection for patients and healthcare providers.¹⁵

We have seen the rapid implementation of the following actions: expansion of intensive care unit (ICU) capacity to curb the surge in number of COVID-19 cases; increased PPE supplies across the country; cancellation of elective surgery and other services to reduce risk of COVID-19

This infographic COVID-19: Break the chain of infection - Stopping COVID-19 was developed by the Australian Commission on Safety and Quality in Health Care (ACSQHC). ACSQHC Sydney (2020). Please note: The Commission periodically revises its published resources as required.



transmission to both staff and patients; and a greater partnership between public and private health systems.⁵

Objective Four focuses on the community and COVID-19. Two apps have been developed by the Australian Government for the general public including the Coronavirus App, which provides the latest pandemic updates and advice from official sources, and the COVIDsafe App, which uses Bluetooth to trace cases and close contacts.¹⁵ Additionally, official public announcements have been provided daily across social media platforms and news outlets.¹⁶

Free, accessible and increased COVID-19 testing across jurisdictions maximises opportunities for the public to take responsibility for their own health and safety.¹⁰ Australia's success in mitigating the first wave can be attributed to

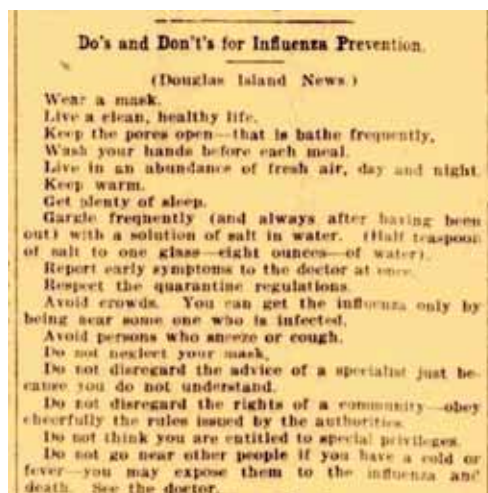


Figure 2. 1918 Spanish Flu pandemic recommendations. Douglas Island News (15 Nov 1918, Friday, Douglas, Alaska).

enforced social distancing, effective border closures, high testing rates, as well as meeting the nation's four objectives in the response plan.⁵

The robust identification of new cases and effective contact tracing allowed restrictions to ease in June 2020, with businesses such as gyms and bars reopening under implemented COVID-19 safety plans. However, in Victoria, inadequate non-compliance with public health orders (eg, breach of mandatory hotel quarantine protocols) led to extensive community-acquired COVID-19 cases in August.

These events contrast with the first wave, where only 10% of the 6695 cases were community-acquired.¹⁷ The Victorian Government has implemented strict close-contact tracing protocols in open venues to enable active surveillance around the

rising number of confirmed cases. On 2 August, Victoria commenced a stage 4 lockdown by enforcing an 8 pm to 5 am curfew and limiting the reasons to leave home to food, exercise, work and care. Additionally, strict border closures have been put in place across Australia.¹⁸

History shows us that although devastating, what the world is experiencing now is not unusual. The 1918 Spanish Flu IPC recommendations to the community are almost identical to the current public health recommendations (Figure 2).

COVID-19 will not be the last emerging infectious diseases affecting global population. In the absence of effective treatment and vaccines, the implementation of a comprehensive package of containment and mitigation strategies has enabled the control of COVID-19 spread. Sustained adherence to IPC protocols, provision of accessible and affordable testing, and enforcement of strict physical distancing and contact tracing measures have all helped to contain the spread of COVID-19. The success of these measures is largely dependent on public compliance and community engagement. Learning from these collective experiences will help public health units improve infection prevention and disease control responses and plans in future pandemics.

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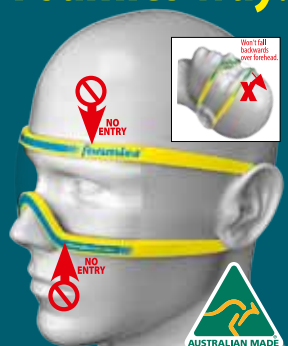
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Infection prevention is at the forefront of day-to-day life more than ever before. COVID-19 has forced non-essential procedures to be put on hold in an effort to reduce the spread of infectious diseases and protect the population, consequently causing a backlog of patients waiting for treatment.

Hospitals and clinics must look to find innovative solutions that are standardised and regulatory approved to allow for timely reprocessing of reusable medical devices, reducing the lists of patients waiting for procedures.

This solution must be safe, cost effective, practical and proven to work.

The solution is Stella!

What is Stella?

Stella is a semi-automated system designed specifically for the reprocessing of heat-sensitive small and medium-sized, rigid and flexible, non-lumened and single-lumened endoscopes used in urology, gynaecology, IVF, cardiology, ENT, anaesthesiology, endoscopy and respiratory.

Stella combines the simplicity of manual soaking with the sophistication of an automated washer disinfecter.

There are two options for the Stella System: Stella with Pulse providing semi-automated high-level disinfection; or Stella with Pulse and Cleaning providing semi-automated cleaning followed by high-level disinfection.

How can Stella help?

Cuts capital expenditure

Healthcare facilities may try to overcome slow device reprocessing by investing in a large device fleet to circumvent the slower turnaround times from central reprocessing. Stella is significantly cheaper than other automated systems available on the market.

Stella will high-level disinfect a device in five minutes. This allows healthcare facilities to reduce waiting lists and costs, achieving high patient throughput.

Stella is the perfect option to increase the number of procedures carried out per clinic and to reduce costs.

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Chemical safety is key when selecting the right disinfection method for medical devices. Neither patient nor clinician should be exposed to toxic chemicals that put them at risk. Stella uses Tristel Fuse for Stella for disinfection — a non-toxic chemistry with a proven health and safety track record, providing peace of mind for professional and patient.

Microbiology and Chemistry

Stella uses Tristel Fuse for Stella, Tristel's proprietary disinfectant which utilises chlorine dioxide.

Tristel Fuse for Stella has been tested in accordance with EN 14885:2018, the European regulatory standard that provides guidance for chemical disinfectants to make efficacy claims. It is bactericidal, fungicidal, virucidal, mycobactericidal and sporicidal in accordance with EN 14885:2018 and the testing requirements of the Therapeutic Goods Administration (TGA). It has been subjected to numerous simulated in use device tests and clinical studies which have been published in scientific peer reviewed journals such as BJU International (Gilling et al., 2013).

How Stella Meets Regulatory Requirements

In Australia, Stella and Tristel Fuse for Stella are regulated as a medical device by the Therapeutic Goods Administration (TGA).

The regulatory pathway for each disinfectant depends on the claims made in the instructions for use, labelling and promotional material. Only instrument-grade disinfectants and sterilants can be used to disinfect medical devices.

These disinfectants must comply with the essential principles for quality, safety and performance. The manufacturer must provide a technical file, which documents the evidence that it meets the requirements of the essential principles, and must follow a conformity assessment procedure to demonstrate whether the requirements of this Regulation relating to a device have been fulfilled.

Stella and Tristel Fuse for Stella meet TGA requirements and are approved as Class IIb medical devices.

To learn more about the Stella System, please don't hesitate to contact your local Tristel office, or visit www.tristel.com.

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Controlling infection

when using mobile devices in healthcare settings

Alan Stocker, Health Practice Lead, Wavelink

COVID-19 has created a renewed awareness of the importance of cross-contamination and infection control in healthcare facilities.

Developments including smartphones and other mobile healthcare devices can become potential breeding grounds for the virus as well as other infections. This risk becomes far worse if the devices are shared among multiple people without being effectively cleaned at regular intervals.

When doctors, nurses and other healthcare professionals are incredibly busy looking after patients, stringent disinfection protocols may be overlooked. A recent study found that almost one-third (32%) of survey respondents did not regularly clean or decontaminate the mobile devices they used in a healthcare setting.¹ This can be of significant concern because SARS-CoV-2 has been shown to live on surfaces for up to several days.²

The combination of rarely cleaned devices and a days-long infection window means that healthcare facilities need to take special care when it comes to managing devices. Contaminated devices are dangerous for staff members and patients, especially those who are already vulnerable because they're undergoing surgery, in the intensive care unit or elderly. Even a mild infection can quickly render healthcare staff unable to work and can prolong illnesses for existing patients. A more serious infection can result in adverse outcomes even in otherwise healthy individuals.

Mobile devices can be overlooked for cleaning in a clinical setting, but their high rate of use means they're ideal vectors for carrying the virus. Users are constantly touching their smartphones, holding them up to their faces and speaking into them — users almost certainly don't wash their hands each time before using their mobile device.

It's therefore clear that addressing the risk of device-related contamination should be high on the agenda for all healthcare organisations.

It's important to note that there is a difference between clean and disinfected devices. A device may look clean — it may even have been thoroughly wiped down — but, if the cleaning process doesn't include disinfectant, the device is likely still carrying the virus. Unfortunately, consumer-grade smartphones and some other electrical devices are too delicate to be cleaned with the harsh chemicals required to kill the virus. This means they may be contaminated with the virus even after superficial cleaning.

Using purpose-built devices that are designed for use in clinical environments is essential so that they can be cleaned properly. During this time of increased risk, healthcare facilities should consider banning or reducing the use of personal mobile devices in favour of purpose-built devices that can withstand disinfectant using chemicals such as bleach, hydrogen peroxide and isopropyl alcohol, or even UV cleaning equipment.

These chemicals will remove the virus from devices, ensuring they're disinfected and not just superficially cleaned. Using them on a consumer-grade smartphone, however, could damage the device or even destroy it altogether.

To keep devices safer for use, it's important to implement a set of policies or procedures regarding disinfection. The five moments of hand hygiene map out the essential points at which healthcare practitioners need to wash their hands. Similarly, healthcare organisations should set out the five moments of device hygiene. This means disinfecting the device at the following key moments:

1. Before using it for the first time.
2. Before handing it to a new user.
3. After using it, especially in an area where infectious people are known to be.
4. After it's exposed to any bodily fluids or other risk.
5. Before recharging it.

When cleaning purpose-built devices, it's important to avoid disassembling them or deliberately overexposing them to liquids, steam or other corrosive elements. The device should be switched off and disconnected from the charger, and the battery removed, before cleaning. The cleaning solution should be placed onto a cloth rather than sprayed or poured directly onto the device. Disinfectant wipes can also be used in most cases, as can standard medical-grade cleaning wipes using quaternary-compound cleaning agents.

It's important to use common sense when cleaning devices and avoid being unnecessarily rough with them. The battery should only be reinserted when the device is completely dry.

With purpose-built devices that are designed to withstand the harsh clinical environment, healthcare organisations can implement disinfecting protocols that lower the risk of infection.

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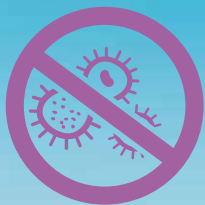
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The search for a COVID-19 vaccine

Who's left in the running?

Amy Sarcevic

With more than 800,000 deaths worldwide and multibillion-dollar economic damage incurred weekly, all eyes are firmly fixed on the 100+ vaccine candidates currently competing to tackle COVID-19.

Aside from providing a light at the end of the tunnel, tracking vaccine progress is vital. To secure enough national supply, governments must sign advanced purchase orders of vaccines, long before they are approved for sale.

This means having a clear understanding of how each candidate is performing in clinical trial phases. Back the wrong candidate and governments run the risk of leaving no alternative options.

But although just a handful of COVID-19 vaccine manufacturers have made it as far as human trials so far, picking a likely winner is not as easy as it seems.

In total, more than five different vaccine methods are being trialled: some allowing for faster candidate selection but tripping up on safety and tolerability tests, others utilising a more drawn-out yet reliable method.

So, who is currently leading the COVID-19 vaccine race?

As it stands, just eight vaccine manufacturers have been approved for phase III clinical trials — the final phase before a regulatory green light.

The US Government has selected three of these to fund for phase III trials under Operation Warp Speed: Moderna's mRNA-1273, the University of Oxford and AstraZeneca's AZD1222, and Pfizer and BioNTech's BNT162.

More recently, Australia has backed just one: AZD1222.

At a glance these candidates appear to hold the most promise, but a look through a more discerning lens reveals some upcoming hurdles for these vaccine varieties.

The AZD1222 candidate, for example, uses a controversial method — one that has never been approved for human use in more than 25 years of experimentation.

Its adenovirus vector-based approach — which works by infecting someone with live virus cells — must find an elusive balance between “immunogenicity” and “tolerability”, Professor Nikolai Petrovsky of Flinders University explained.

“The problem with this method is that you are treading a fine line. If you don't give someone a strong enough infection dose with the vaccine virus, it won't have much effect — that is, it won't be sufficiently immunogenic,” Professor Petrovsky said.

“Conversely, if you give a high dose of virus to try and get sufficient immunogenicity, it could generate unacceptable levels of toxicity. Subjects will then experience symptoms of a bad viral infection. If you can't find that sweet spot — which for some viral vectors simply does not exist — then it's not viable.”

Recently, the AZD1222 solution has shown an acceptable safety profile and good antibody responses, maintaining its position in the race. However, the track record of its methodology suggests we should back it with caution. It may still turn out to be unsuitable for large segments of the population, or confront other serious safety issues.

The US Government's remaining top pickings — BNT162 and mRNA1273 — use the equally controversial mRNA approach. This method is also unproven, with no mRNA solution ever being approved for sale in two decades of research.



Like adenovirus vectors, synthetic mRNA vaccines also tend to generate toxicity, as foreign RNA within cells is often interpreted by the body as a viral infection. In response, the cells can inflame, causing flu-like symptoms such as fever, weakness and muscle aches.

For this reason, high-dose arms had to be discontinued in Moderna's clinical trial for its mRNA-1273 solution.

Although it has since progressed to phase III trials using a smaller dose arm, it is yet to be seen whether this formula will move the needle in terms of immunogenicity.

Now rapidly advancing from the middle of the field are a number of recombinant spike-protein-based vaccines, produced by the likes of Adelaide-based company Vaxine as well as Novavax, Sanofi and Sequiris.

These synthetic protein-based vaccines are more complex to design — and hence slower to produce — but are widely believed to be the most reliable vaccine technologies. Their tried-and-tested method forms the basis of many modern vaccines, including approved formulas for influenza, hepatitis B and human papilloma virus.

Spike-protein-based solutions tend to generate a pure, non-infectious, non-inflammatory vaccine that is safe and well tolerated. While the pure spike protein by itself may have low immunogenicity, this issue is solved by adding an 'adjuvant' — an immunogenicity turbocharger.

Although this vaccine variety may not have been the first to bolt out the door, its slow but steady formula may hold out for longer than its counterparts.

"We are confident, based on previous experience of using the recombinant spike protein method, that this approach will offer strong and durable protection against COVID-19, without causing any safety issues," Professor Petrovsky said.

In other words, those that are currently leading the COVID-19 race aren't necessarily the most likely to cross the finish line. In fact, history tells us that they may not cross it at all.



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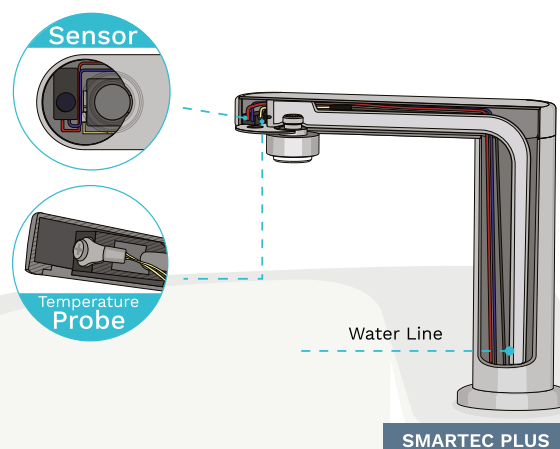


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Have you seen Malmet's infection control solutions?

How the leading equipment for reprocessing reusable medical devices benefits an entire healthcare organisation

Renelle Harrison

How long since your team reviewed the infection control standards? Specifically the National Safety and Quality Health Service (NSQHS) Standard for Preventing and Controlling Healthcare-Associated Infection?

With the continued presence of COVID-19, infection control is suddenly first priority on the community agenda — but hospitals and aged care providers know there's much more to infection prevention and control than hand sanitiser and face masks.

Of particular importance is the reprocessing of reusable medical devices — such as utensils and bed pans — within the healthcare setting (Action 3.14 in the Standard). To meet Accreditation Standards, many facilities are now facing the difficult decision of which infection control equipment solutions will best meet their needs, or how to establish a plan to comply with the Standard within the appropriate time frame.

Here's where Malmet comes in.

With an extensive sales and service network, Malmet has heard the questions from managers, faced the challenges with site

engineers and walked with frontline workers on the ground. This examination of two of the industry's leading washer disinfectors by Malmet will give you an insight into how a high level disinfection can help you breeze through the compliance finish line, and ultimately get gold standard results for staff and patients.

From aged care to patient care — a solution for every setting

Both the ES-D Bedpan/Urine Bottle Washer Disinfector and the WDS Bedpan/Urine Bottle and Utensil/Bowl Washer Disinfector offer peak efficiency when it comes to high level disinfection for dirty utility rooms (DUR).

Unlike other similar style machines, every cycle in the ES-D and WDS uses detergent. This feature is essential to infection control, adding a second aid to the cleaning process to break down organic material for a higher level of disinfection. This is great news for health and aged care service organisations looking for easy solutions to comply with the greater requirements now demanded by the NSQHS Standard. You can rest assured

that you'll get the right cycle every time for optimum thermal disinfection.

Each machine has been tested to exceed compliance requirements for the highest relevant Australian and ISO Standards, which means under recommended usage conditions they will offer reliable efficiency time and time again.

The ES-D and WDS are also independently proven to eradicate bacteria and viruses that can be found on reusable medical devices, giving your staff and patients peace of mind with the highest safety standards.

Efficiency and safety outcomes for managers

As a manager, you want equipment on the floor that satisfies infection control standards, but you also want equipment that will provide practical outcomes for efficiency and staff safety.

The ES-D has a lower water and power consumption for decreased running costs, but also a lighter environmental footprint. Despite the compact size, this

unit still maintains a practical capacity when compared with similar style equipment.

The high capacity of the WDS means it can handle high volumes of work on busy wards quickly and efficiently, speeding up work processes when you need it most.

Both machines are microbiologically tested by an independent NATA certified lab. This means you can know you're employing trusted technology that meets infection control standards by providing high level disinfection — not just a water wash and flush function.

Each of these machines is also fitted with the factory set Malmel Door Obstruction Feature. A pressure sensor detects any obstruction and safely reopens the machine door. With the safety of your staff at a premium, mitigating the risk of injury on the ward is a big plus for your WHS management team.

Proven results for patients and frontline health workers on the floor

Both the WDS and the ES-D offer hands-free operation, preventing infection transmission across contaminated surfaces. As an added bonus this also prevents wear and tear on the machines, and makes life easy for staff coming to the machine with gloved hands.

The WDS offers three cycle options which allow users to wash and disinfect urine bottles only, utensils only, or a combination of reusable equipment. This versatility means that you don't have to leave dirty items waiting around until you have a full load. The cycle selection panel is complete with graphics for ease of use, and sensors minimise the risk of the incorrect program being selected. The ES-D is even easier, with a simplified panel offering reliable results.

Site engineers farewell installation and maintenance headaches

The ES-D and the WDS are both manufactured with an inbuilt, power efficient steam generator. This means no external hot water system is required, simply connect the water supply and say goodbye to an additional hot water system maintenance program. And with all the steam managed internally, you can also say goodbye to fire service callout fees due to accidental alarm triggers.

Many healthcare sites don't have the luxury of 3-phase power, but this doesn't mean you should have to miss out on a high capacity machine. The WDS offers an option for single phase power, so you can have the best of

both worlds. You don't have to upgrade your circuits for the ES-D either, which is available in 240V 10A and 240V 20A.

There is also no venting required for either the ES-D or the WDS, which alleviates more headaches for site maintenance and engineering staff. In the past you may have had to create building modifications for existing and capital works projects in order to accommodate exhausts, creating a more complex installation. This is no longer an issue, so you can focus resources on other aspects of your redevelopment, and have the peace of mind of a lighter building maintenance schedule in the long term, as well as knowing you've chosen a machine with proven longevity and reliability.

The standard machine maintenance schedule offered by Malmel is also a bonus, with less site visits than other brands. And facilities can have the assurance of Malmel trained and qualified technicians on hand when you need them.

So where to from here?

This really depends on your facility's plan of compliance with the Infection Prevention and Control Standard. But here's a general guide to make sure your facility is on the right track:

1. Establish a gap analysis: Malmel can support your facility to establish and compile a gap analysis to determine your current level of compliance with the standards. This can assist your site to assess and plan each stage of your compliance according to your priorities, such as machine capacity, ongoing maintenance and service, or working with building constraints.
2. Not ready to upgrade your equipment yet? Utilise a quality improvement framework to specify time frame, milestones, and deliverables that will facilitate your implementation of the standards.
3. Plan for high level disinfection: Review the NSQHS Standard, as well as AS 4187.2014. Determine what your organisation really needs in a compliant machine to provide the highest standards of infection control for your team and your patients.

By choosing Malmel Infection Control Solutions, you're choosing the gold standard in patient care with our proud history of reliability, performance, and experience in DUR equipment. The great news is that Malmel's specialist infection control equipment is made right here, so you can achieve high standards with quality, Australian-made infection prevention and control solutions.

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Features and benefits

Regulator and flow meter are integrated into the valve

- No regulators or flow meters required
- Saves time with no equipment changeovers
- All standard flow settings are provided (1-15 lpm)
- No maintenance costs, as product is maintained by Coregas

Dual oxygen outlets

- Users can attach tubing to the firtree outlet and/or equipment to the D.I.O.
- Simple, versatile functionality makes it convenient to use.

Contents gauge

- Clearly displays gas contents in real time with no need to touch the open/close valve
- High capacity cylinder
- Increased gas capacity of 0.639 m³ (639 litres) saves time with less cylinder changeovers
- Potentially lower stock holdings
- User-friendly design
- Two ergonomic carry handles
- Tamper proof seal provides quality assurance
- Lightweight cylinder package makes handling easier
- Plastic coating makes it easy to clean
- Staff training in 6 easy steps
- Sleek, professional appearance ensures patient confidence

Specifications

Product code	202178 Gas Medical oxygen
Gas content	0.639 m ³ (-639 litres) at 15°C and 101kPa
Cylinder fill pressure	20 000 kPa at 15°C
Diameter	115 mm
Height	524 mm
Weight (empty)	3.5 kg
Weight (full)	4.4 kg
Outlets - Firtree	Tubing diameter: 6-8 mm
(Therapy tubing connection)	Flow rates: 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 15 lpm
- Diameter index outlet (D.I.O.)	Maximum outlet pressure (g): 400 kPa
Also referred to as sleeve index system (S.I.S)	Flow rates: up to 300 lpm as per AS 2902-2005



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It's a team effort

Behind the scenes of NSW's pandemic response

Since 22 January 2020, thousands of NSW Health staff across the state, Australian Defence Force personnel, Qantas workers and even Taronga Zoo employees have played their part in the public health response to the COVID-19 pandemic. Testing, contact tracing, epidemiology, system planning and preparedness, pathology, research, media and communications, and of course our frontline hospital staff, have all worked to contribute to the state's pandemic response.

NSW Health's Public Health Emergency Operations Centre (PHEOC) Operations team led by epidemiologist Jennie Musto — and the contact tracing team headed by Carolyn Murray — have identified more than 31,321 close contacts associated with 3890 positive cases. The state's PHEOC provides integrated command of the NSW Health response including undertaking contact tracing, providing expert advice and coordination of all public health services during emergencies.

Tracing contacts

Historically, contact tracing has been used to combat infectious diseases like measles, but has been scaled up to respond to the COVID-19 pandemic, with the development of a central NSW Health Contact Tracing team.

"We've grown to a team of around 150 working day and night to follow up people who have been in contact with people diagnosed with COVID-19," Director of Contract Tracing Carolyn Murray said.

"At any one time we can be working virtually across a number of workplaces, with the capability of making up to 1300 calls to the community a day."

Murray explained that when someone is diagnosed with COVID-19, the first step is an in-depth interview to understand their movements and who they have been in contact with while infectious.



Carolyn Murray and her contact tracing team

The contact team call individuals identified by the COVID-19 case, provide them with instructions for self-isolation and offer further support for the isolation period, with empathy and ongoing support being a critical part of the team's training and ongoing duties throughout the contact tracing process.

"The aim is to have them isolated for the full incubation period of 14 days, so that should they develop symptoms themselves, they won't have exposed anyone else to the virus."

The infectious period is currently defined as 24 hours prior to the patient developing symptoms; however, you can be infectious without having symptoms, which is why it's important for close contacts to follow self-isolation advice.

"An incredibly significant element of this is ensuring we engage with people in a compassionate and supportive way," Murray said.

"Although our primary objective is contact tracing, we also need to support the person in question and make sure they have the information and advice they need given the experience can be very difficult for some to cope with, particularly if they live alone or have pre-existing conditions.

"We treat each case individually, for example if someone needs help with groceries, or they might need further one-on-one phone conversations with a trained mental health professional — then they get the support they need to make these obligations a bit easier."

"Although our primary objective is contact tracing, we also need to support the person in question and make sure they have the information and advice they need."

Pathology

At the time of writing, more than 2.338 million tests have been carried out in NSW to screen for COVID-19, with NSW Health Pathology supported by private clinics and GPs across the state.

Since January, the NSW Health Pathology team at the Institute of Clinical Pathology and Medical Research, in Westmead, has been working to sequence genomes of the virus to examine the origin of, and relationships between, cases. To date, the team has sequenced over 910 cases, discovered 51 genomic clusters and identified probable transmission between 91% of cases for which no epidemiological links were initially available.



Epidemiologist Jennie Musto leads NSW Health's PHEOC Operations team

Communications and media

Close to 900 multilingual COVID-19 resources have been produced for multicultural communities in NSW. Engagement on social media with multicultural communities in the state has also been outstanding. In July and August, the NSW Multicultural Health Communication Service (MHCS) organic posts on COVID-19 reached a combined total of 2,995,648 people with 73,895 engagements (likes, reactions, comments, retweets, shares and clicks) and 64,448 video views.

NSW Health's Strategic Communications and Engagement team have issued 306 media releases and health alerts, while Premier Gladys Berejiklian, Minister for Health Brad Hazzard and Chief Health Officer Dr Kerry Chant have conducted more than 100 press conferences.

Hospital capacity

NSW Health is working towards quadrupling our ICU capacity from 500 to 2000. Hundreds of new ventilators have been delivered to date, with more on the way, and dedicated COVID-19 wards have been set up should they be required.



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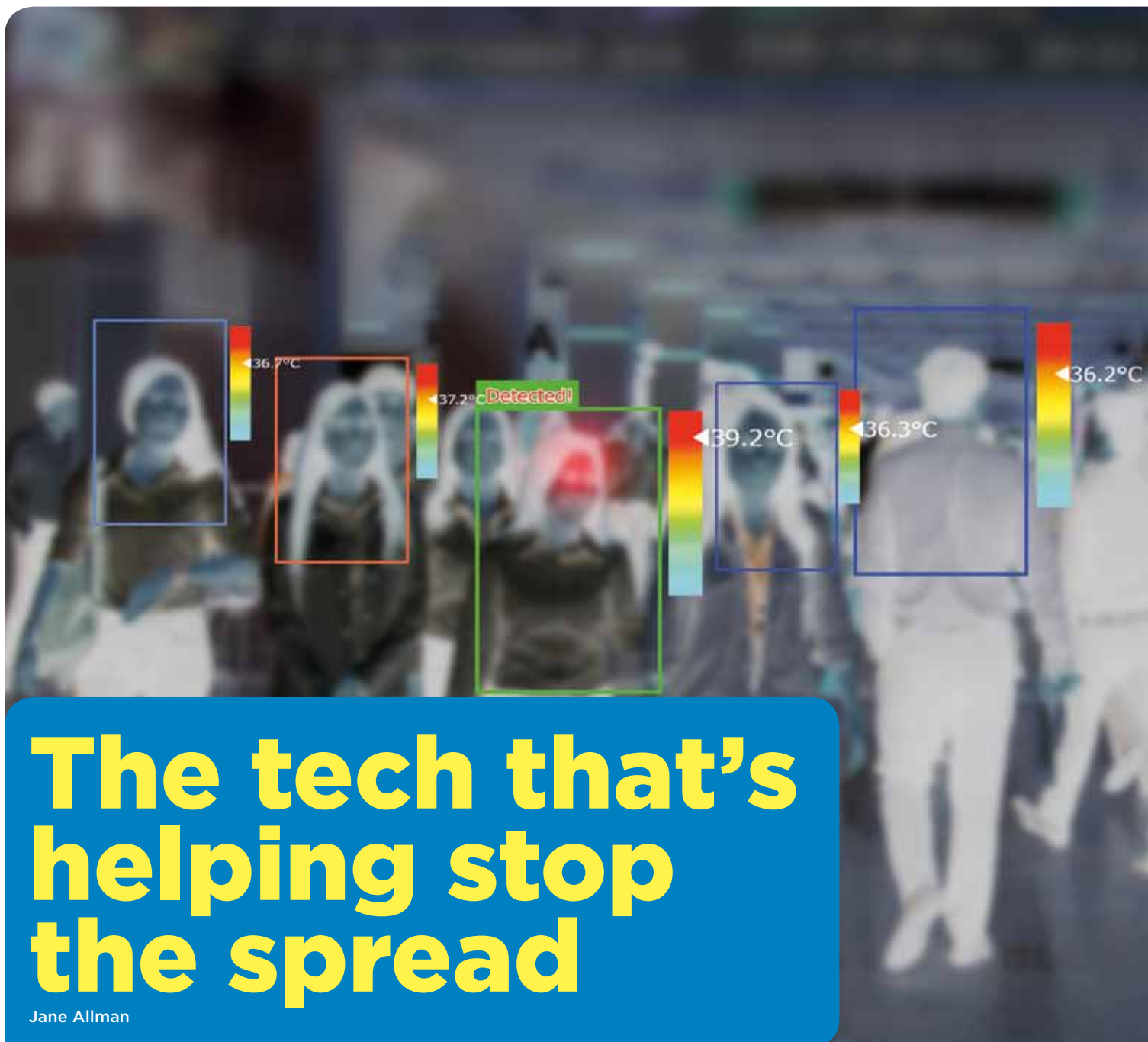
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The tech that's helping stop the spread

Jane Allman

We take a look at some of the COVID-busting infection control technologies being used to mitigate the spread of SARS-CoV-2.

Infection control robots

Ultraviolet (UV) light has potential for helping us manage the COVID-19 pandemic due to its sterilisation abilities. Portable no-touch UVC light systems can supplement hospital cleaning and disinfecting practices.

UVC — one of the three types of radiation emitted by the sun — has the ability to kill germs and can be used as an alternative to chemical disinfection; however, it must be used with caution. A paper published by the International Society for Infectious Diseases on new technologies in infection prevention stated that as UV light is toxic to humans, touchless room-cleaning

should only be used in empty patient rooms, such as after a patient has been discharged.

UVC can be used to sterilise objects, water, surfaces and materials, including devices such as phones, hospital floors or public transport vehicles.

A study published in *medRxiv* demonstrated that UVC irradiation is effective in inactivating and inhibiting SARS-CoV-2 replication.

Meet LD UVC, the infection-fighting bot

Automation solutions provider OMRON Asia Pacific, in collaboration with



One of the biggest challenges we face with COVID-19 is how quickly it can spread through the community and surge local health facilities to capacity before the source and extent of the individual outbreak is even known.

Much is still unknown about COVID-19. What we do know is that the more rapidly we can isolate patients with COVID-19, the better we can protect the wellbeing of healthcare workers so they can continue providing the exceptional patient care we've come to expect from Australian nursing staff.

St Vincent's Hospital Sydney is one such healthcare facility that has not waited for it to be too late to act. The hospital engaged Hospital Products Australia (HPA) to transform normal ward rooms into COVID-19-patient-ready rooms within hours using the Negative Pressure Room Conversion Kit. HPA converted ward rooms into COVID-19-safe bedrooms accommodating up to four patients each. These negative-pressure rooms supplement existing facilities by providing surge capacity, which can be rapidly redeployed as required or stored away for future use.

How the conversion kit works

- The room is made airtight and any gaps larger than 1 mm are covered with tape.
- An airtight change room is inflated and attached to the door frame. Zip doors allow entry/exit of beds or wheelchairs.
- A ventilation system with HEPA filtration is connected to the inflated change room.

Thermal cameras

With body temperature checks accepted as an important tool to help mitigate the spread of COVID-19, thermal cameras are in demand for a wide range of industries and facilities, including hospitals, aged-care homes, airports and schools.

Techmetics Robotics, has entered the UVC disinfection space with the launch of its robot — LD UVC.

Equipped with lasers and passive infrared (PIR) motion sensors for obstacle detection and avoidance, the LD UVC robot is designed to autonomously manoeuvre through narrow corridors, elevators and automatic doors to disinfect premises by eliminating 99.90% of bacteria and viruses.

The robot shuts off its UVC light upon human detection. Features like bumper, sonar and emergency stop provide additional safety.

OMRON Asia Pacific Managing Director of Industrial Automation Business Takehito Maeda said, "Given the utmost significance of sanitisation and disinfection in the post COVID-19 era, we believe the robot will

yield a great value to organisations who are struggling to find the right, effective, less labour-intensive and long-term solutions to ensure their premises are safe and germ-free."

Negative Pressure Room Conversion Kit

One of the biggest challenges we face with COVID-19 is how quickly it can spread through the community and surge local health facilities to capacity before the source and extent of the individual outbreak is even known.

Having spent several months catching up with and responding to outbreaks, some Australian hospitals are now taking a more aggressive, proactive approach to their preparations to mitigate the effects of possible sudden surges in the future.



OMRON's LD UVC robot manoeuvres through narrow corridors, elevators and automatic doors to disinfect premises.

The Body Temperature Detection System provided by Johnson Controls can accurately detect facial temperatures of up to 40 people at once.



HPA's Negative Pressure Room Conversion Kit can convert ward rooms into COVID-19-safe bedrooms within hours.

Several hospitals have installed temperature-screening technology at hospital entrances to assess people's temperatures as they arrive on premises.

Technologies such as Johnson Controls Body Temperature Detection System are providing a valuable early warning detection solution, allowing hospital staff to stand back and monitor people from a distance as they walk in front of the camera.

If a person is found to have a high body temperature, an audible alarm will activate, allowing staff to discreetly implement health procedures that may include isolating the person.

This screening process has proven to be particularly reassuring for hospital staff, who are dealing with large numbers of the general public coming in for COVID-19 testing.

The Body Temperature Detection System can read the temperatures of up to 40 people every minute and employs advanced facial recognition to allow the system to read face temperature for a more accurate measurement. This also stops any false readings, which may be caused by a person carrying a hot drink.

Antiviral textiles

Researchers from the Free University of Berlin's Institute for Animal Hygiene and Environmental Health have demonstrated that textiles treated with Livinguard Technology can destroy 99.9% of SARS-CoV-2.

“As governments seek to restart their economies, technology will play an important role in the protection of health and wellbeing.”

Developed by Swiss hygiene company Livinguard, the technology can inactivate exhaled viruses when applied to fabrics incorporated into face masks. Masks using Livinguard technology are already in use by law enforcement and frontline workers in Singapore, Japan, Germany and the United States.

“As governments seek to restart their economies, technology will play an important role in the protection of health and wellbeing,” Livinguard Founder and CEO Sanjeev Swamy said.

“What is truly exciting for us is that this technology has been proven effective and

safe for everyday uses, such as for use on airplane seats and public transport, to protect our population in all areas of life. Through this, we hope to be able to open possibilities for governments and public health authorities to move more quickly to reopen, while keeping the populations safe.”

Uwe Rösler from the Institute for Animal and Environmental Hygiene said the textiles could also help to reduce hygienic issues in other general and medical areas beyond COVID-19.

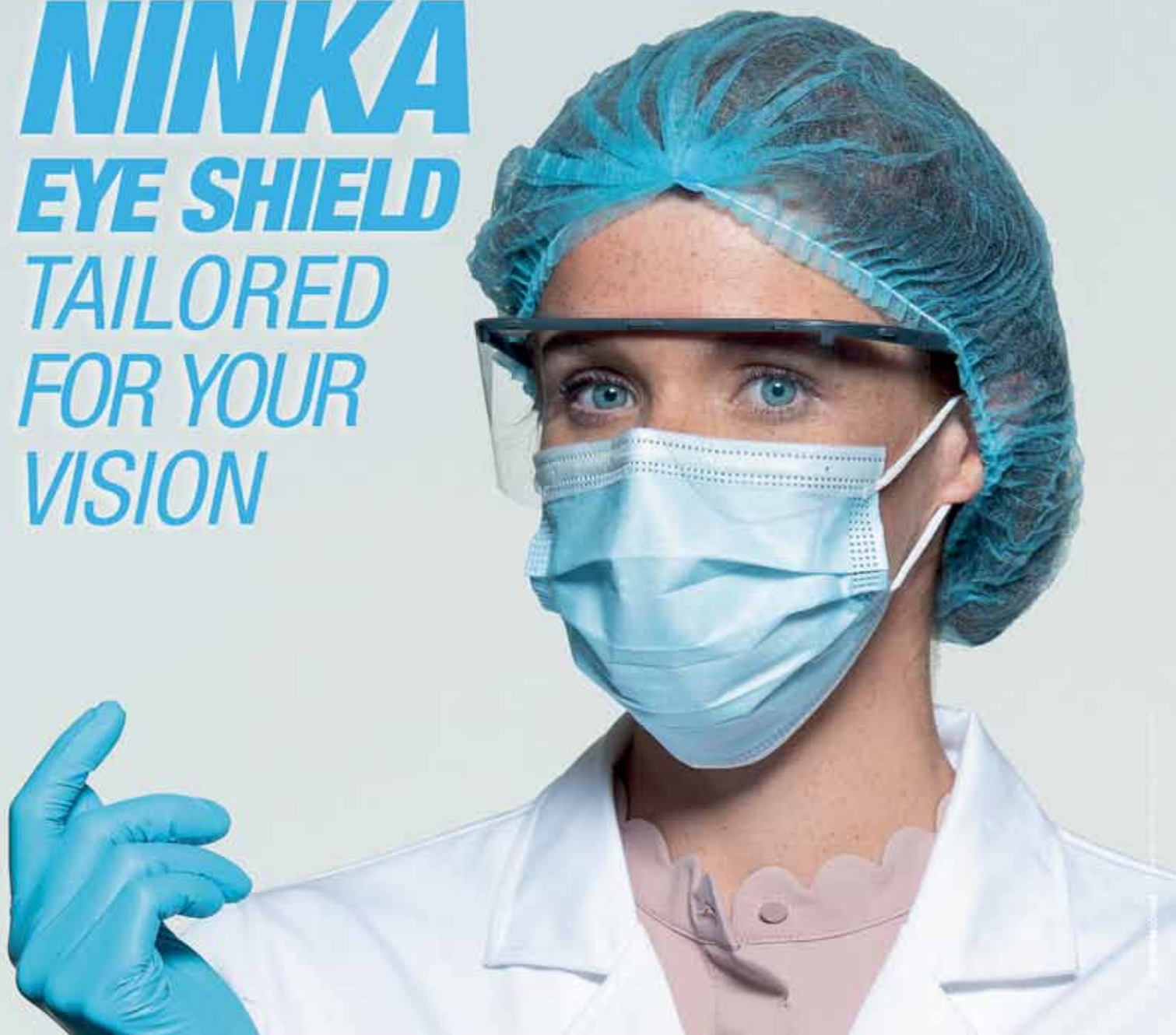
“Imagine the ability of airlines to treat seats and folding tables with our technology, ensuring that viruses and bacteria are continuously killed and prevented from spreading,” Swamy said.

“This can drive not only benefits for public health but significant efficiencies for companies in high-traffic industries in relation to resources applied to cleaning and disinfecting services.”

How does it work?

The principle underlying the Livinguard technology is to apply a positive charge at the molecular level to textile surfaces. When microbes come into contact with these positive charges, the microbial cell — which is negatively charged — is destroyed, leading to permanent destruction of the microorganism. Livinguard technology has been found to be safe for the skin and lungs, and allows users to re-use masks up to 210 times with no compromise on safety or efficacy.

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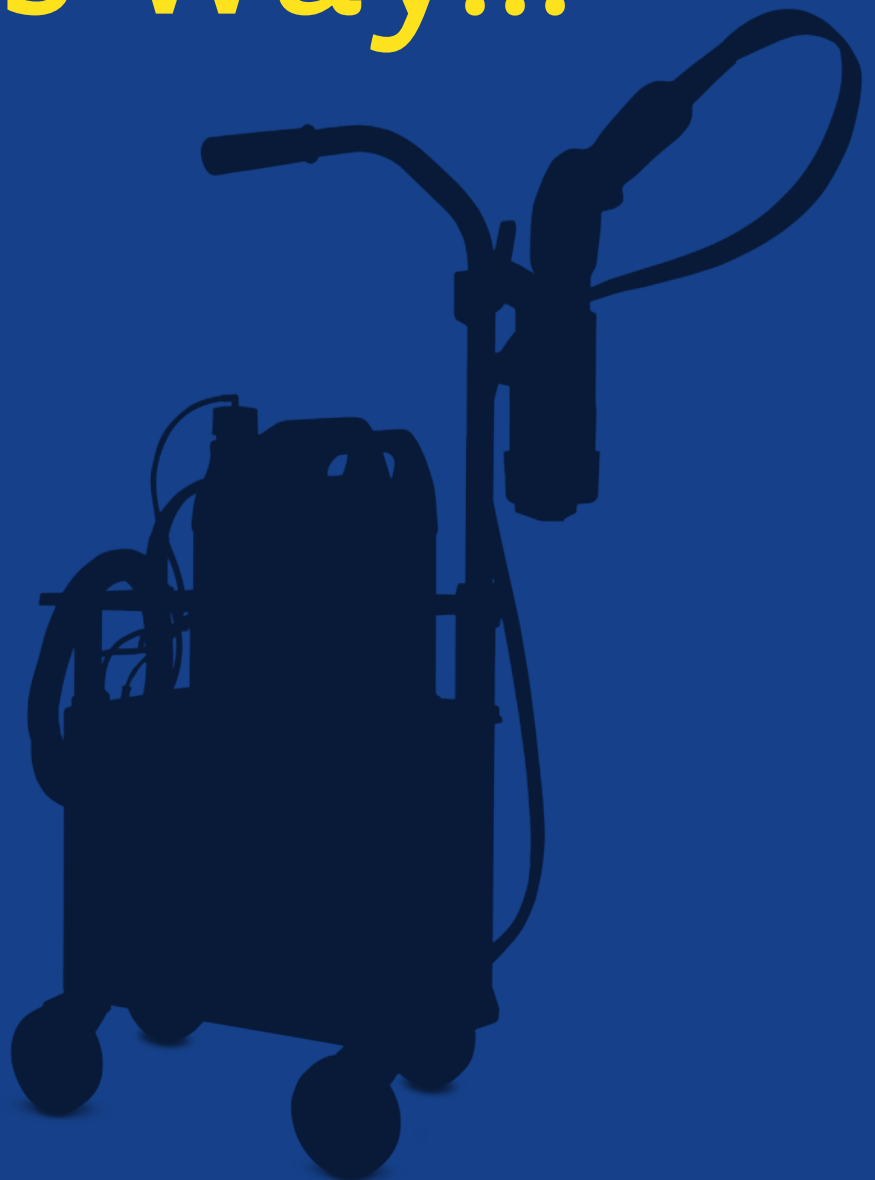
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The critical role of National Critical Care Trauma Response Centre teams

The Northern Territory is home to the globally recognised National Critical Care and Trauma Response Centre (NCCTRC), a specialised training facility established and funded by the Australian Government to enhance Australia's response to sudden-onset disaster and emergency events, locally, nationally and internationally.

The COVID-19 pandemic has highlighted the invaluable health work undertaken by the Centre's personnel, who operate as Australian Medical Assistance Teams (AUSMAT). These multidisciplinary teams include doctors, nurses, paramedics, logisticians and allied health staff such as radiographers and pharmacists. Their dedication and professionalism have drawn immense gratitude and appreciation Australia wide, as they disperse throughout the country to assist in COVID-19 hotspots.

Assignments include providing support for the Victorian Aged Care Response Centre, encompassing 149 visits to 71 aged-care facilities across Melbourne (as at late August),

where teams work with facility staff to assess procedures and boost infection preventions and control.

An AUSMAT mission to Perth supported the quarantining of crew and passengers from the German cruise ship *MV Artania*, as well as the *Vasco Da Gama* on Rottnest Island in WA. In north-west Tasmania, essential emergency care services were provided by an AUSMAT team during a COVID-19 outbreak.

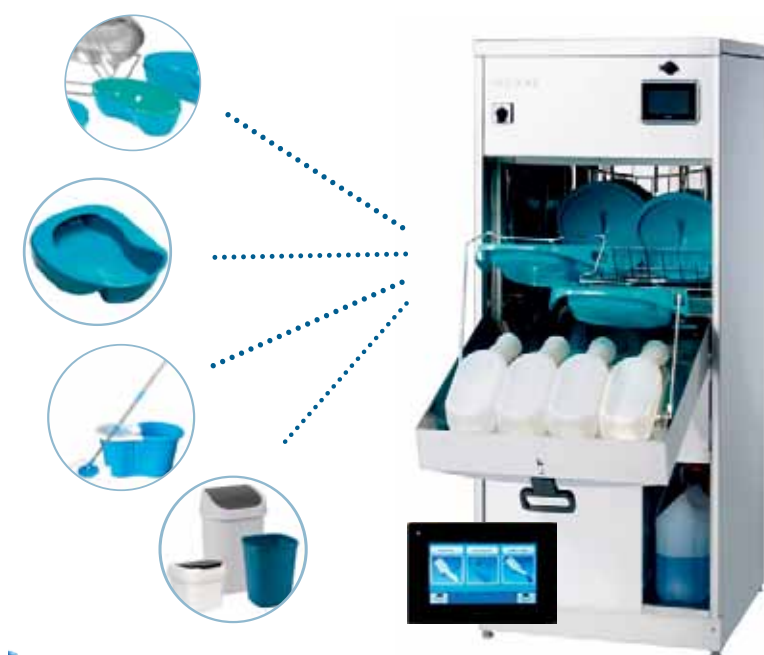
In collaboration with NT Health and the Australian Defence Force, NCCTRC teams also assisted with the screening of US Navy and Marine personnel arriving in Darwin, prior to their 14-day quarantine.

Northern Territory Business Events, the official convention bureau for the Northern Territory, works closely with the NCCTRC to promote the important role undertaken by the Centre and its teams. Business events planners are invited to tour the Centre's warehouse facilities with a view to including the facility as a technical tour or featuring NCCTRC personnel as keynote conference speakers.



Abigail Trewin, Director of Disaster Preparedness and Response at the NCCTRC, meets with a group of business events planners visiting the organisation's Darwin warehouse

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The DEKO-190 is a proven solution for hygienic ward cleaning and above all, best practice infection control.

The Rhima DEKO-190 is the only machine that flushes and washes with hot soapy water in a similar fashion to instrument washer disinfectors and after a hot rinse, disinfects with steam. It not only disinfects the utensils but also the entire inside cabinet, piping and pump system.

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Perkins design packs a punch

The building design at Perth's Harry Perkins Institute of Medical Research takes its cues from the human body, with a central stairway twisting like a strand of DNA and revealing different activities on different levels.

The most remarkable architectural quality of the Harry Perkins Institute's main building is not just the eye-catching aesthetics. The innovative design, created to foster collaboration between researchers, is what really sets it apart from other similar structures.

Director Professor Peter Leedman says the building was designed to attract scientists to Perth and, once working here, to bring researchers from different areas together.

"We can achieve so much more in our work on cancers, cardiovascular disease, rare genetic disorders, diabetes and more when we collaborate on our discoveries.

"This building achieves that brilliantly," he said.

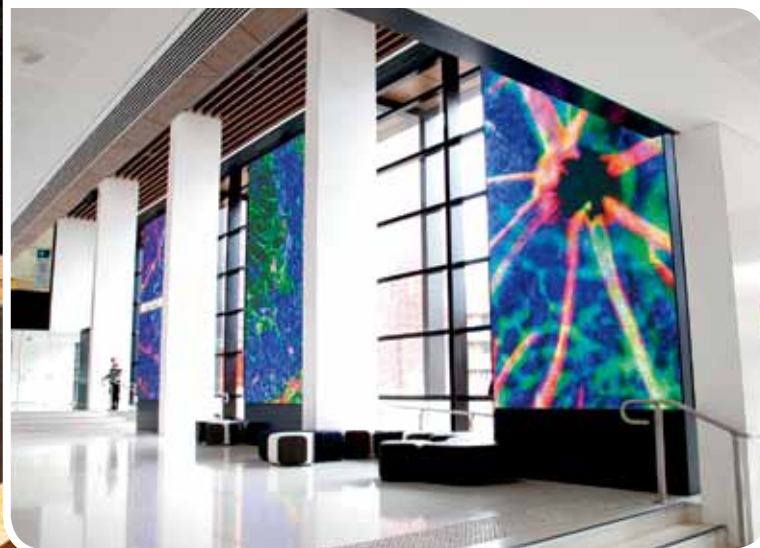
Located on the campus of one of Perth's largest public teaching hospitals, the Perkins is uniquely positioned to fast-track the development of new discoveries and treatments.

"Its wholly owned clinical trials facility, Linear Clinical Research, is situated both within the Perkins and within the adjacent Sir Charles Gairdner Hospital. Linear provides international and local pharmaceutical and biotechnology companies the facilities to trial latest drugs





The Perkins' main building is a dramatic departure from typical laboratory designs.



and treatments in healthy volunteers and cancer patients," Professor Leedman said.

According to Hames Sharley architect James Edwards, the Perkins' main building is a dramatic departure from typical laboratory designs. He said that traditionally, research buildings were designed as three-layered cakes with two layers of laboratories and one of offices.

"We became interested in whether that type of design really fostered good research," Edwards said.

Before putting pencil to paper, the Hames Sharley team carried out extensive research around Australia and overseas, finding the conventional designs have drawbacks.

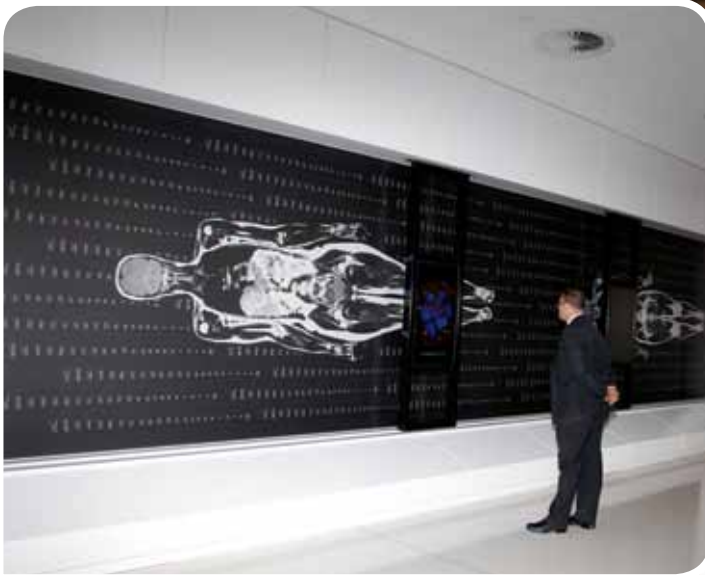
"Research discoveries were often made due to 'happy accidents' and the traditional architectural approach just wasn't keeping up," he said.

"We proposed a radically different approach built around a central highly activated core, with the laboratories

running north to south with natural light on two sides," he said.

"To walk between the offices and the laboratories, researchers have to move through the centre, which houses the meeting rooms, lunchrooms, lift, toilets and a striking DNA-inspired stairway that spirals up the core of the building's 10 storeys."

Supersized colour displays of researchers' work are projected on the walls around the stairway, highlighting the value of the



**“Everything circulates from the core, like blood that is oxygenated and circulates around the body.”
— James Edwards**

research and sharing publications with other researchers.

Edwards said it was hoped that, as researchers encountered each other in these central spaces, relationships would build and ideas would be exchanged.

“Everything circulates from the core, like blood that is oxygenated and circulates around the body,” he said.

Hames Sharley also created highly flexible open-plan work spaces, best suited to accommodate ongoing changes in research, with enclosed quiet spaces throughout the building for when concentration or privacy is needed.

“A common observation from staff is that it is a feelgood building. We designed the windows using the largest panes of glass the builder could transport. This gives very special quality plus exceptional views of the leafy surroundings,” Edwards said.

International engineering consultancy Arup engaged more than a dozen Perth-based specialist engineers, together with colleagues from elsewhere in Australia and Britain, to ensure the structural, fire and geotechnical engineering involved in creating the new building embraced state-of-the-art technology and exceeded best-practice guidelines.



“The complexity of the structure, built to accommodate the highest international standards of scientific research, required specialist engineering skills and the procurement of innovative solutions to enable efficiencies of design,” Arup’s building leader for the project, Alistair Avern-Taplin, said.

“Our team was focused on supporting Hames Sharley to design this impressive building without restricting them from an engineering perspective, and the results for this five-star-rated facility speak for themselves.”

With funding from Lotterywest, Hames Sharley and Freeman Ryan Design created three spectacular installations for the foyer to woo public interest. An electronic artwork showing colourfully stained cells is spread across 4 m-high digital banners

within the double-storey entry foyer. Hundreds of slowly changing images have been used by multimedia technologists to show the splendour of the microscopic world.

At the western end of the foyer, outside the institute’s public auditorium, is a single backlit membrane printed with oversized MRI scans of a male and female volunteer. A vertical beam of light travels the length of the installation, simulating the MRI scan and giving details of the organs it travels over.

“Its whirring and clicking noises recorded in hospitals and laboratories captivate everyone meeting in the foyer, from groups of students to members of the public.

“At every level this building engages staff and visitors in the wonderful world of medical research,” Professor Leedman said.

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Did you know that water pipes, in many cases, can be up to or more than 70 years old? So, it is no surprise that researchers from Macquarie University have detected traces of copper and lead contaminants in domestic water samples from kitchen taps across New South Wales.

Many consumers don't understand the importance of water filtration in their homes and office spaces. It is therefore up to professionals in the industry to educate consumers about the risks associated with prolonged consumption of these contaminants and the long-term effects they have on brain development and liver function.

'My results show that there is quite a significant concentration of lead and copper in the drinking water that is coming out of people's kitchen taps into their morning cup of tea,' says lead author of the study, PhD researcher Paul Harvey¹.

The team tested 212 'first drawn' samples from kitchen taps that were taken after the water had been sitting in a tap for a nine-hour stagnation period — similar to what happens when you run the tap in the morning to make your morning cuppa. All samples contained copper, while lead was present in 56% of the dwellings tested.

Notably, 8% of the lead samples contained higher than 10 micrograms of lead per litre, where Australian

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1. www.sbs.com.au/topics/science/humans/article/2016/08/11/widespread-lead-contamination-domestic-tap-water-found-nsw.

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Lumary CM: now supporting software functionality specifically developed for HCP service delivery



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Recently Adelaide-based HealthTech company, Lumary, launched new functionality within its healthcare platform product, Lumary Care Management (Lumary CM), specifically designed for Home Care Package (HCP) service providers. This feature, which has been co-designed with HCP care providers, is an extension of their healthcare platform and increases Lumary's specialisation within the aged care industry, helping to provide better care to the ageing population of Australia.

In recent years there has been an increase in the focus on the aged sector and how care is delivered. Current reforms in this area, as well as the call for technological and business model transformation, means that care providers are under pressure to focus on client care and satisfaction. However, this will only be achieved through the use of technology that takes the burden of administration off of the provider, whilst giving them a complete and accurate view of each of their clients.

Integral to the reforms are placing clients at the center of their servicing system, providing them with more choice and control, and structuring the system to support the clients and their families. This reiterates the need for a technology solution that is consumer-centric. This is where the Lumary

CM platform, with HCP-specific functionality, assists aged care providers.

"Our job is to hide all the complexities and make things simple for carers so they can focus less on the administrative overheads and compliance and do their job — which is to care, to feel, to nurture. Things that technology and machines can't do but people do really well. Let the technology handle the stuff we are not great at and let carers do what they do well," said Lumary VP of Sales, Pete Boyd.

Additionally, businesses will need to ensure they are able to lower costs and optimize business outcomes whilst improving revenue. And the only way providers are going to be able to do this is by leveraging a technology system that allows them to do this whilst keeping the client centre focussed. "Our team has experts with deep practical and legislative knowledge. People may have had lots of practical experience in aged care, but new legislation and rules are different.

You need a balance of knowledge on both sides. The government HCP requirements around leave management, level changes and income-tested fees are incredibly complicated, and this is where Lumary CM allows businesses to achieve both consumer satisfaction and business success," said Boyd.

So what HCP features does the Lumary CM platform assist with?

- Meets HCP compliance requirements seamlessly
- Manages organisational requirements & financial systems
- Streamlines daily tasks
- Creates trackable data, anytime, anywhere
- Builds meaningful data insights which means better quality care
- Allows transparent engagement with clients
- Allows more collaborative care: improved client and carer engagement
- Supports the ageing community to live independently and take control of their at-home healthcare and lifestyle services.

"Perhaps the biggest win with Lumary Care Management is the transparency it enables all stakeholders, including the care recipient, care workers, family and friends, to access the platform and to understand an older person's needs and progress. This encourages better quality, customised care," concluded Boyd.

For more information or to request a demo please go to www.lumary.com.au.



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Support to solve global challenges

Fifteen young Australians have been awarded the 2020 Westpac Future Leaders Scholarship to further their investigations into solving some of the world's most pressing challenges.

According to Westpac Scholars Trust CEO Susan Bannigan, "The Future Leaders Scholarship program gives some of Australia's brightest and most ambitious students the chance to pursue their big ideas. Partnering with Australia's leading universities to invest in this innovative thinking is something we need now more than ever."

Meet the scholars

Denzil Furtado is a biotechnology researcher focusing on effective treatment delivery for rare diseases, especially those of the central nervous system.

What do you see as being the main challenges to effective drug delivery?

A fundamental challenge of gene therapy is getting nucleic acids to target parts of the body without being damaged or degraded. This whole process starts with encapsulating the nucleic acid in a protective carrier known as a nanoparticle and then administering the medicine via injection. Once injected, the ideal nanoparticle should:

- travel through the bloodstream without being degraded or recognised by the immune system;
- cross relevant biological barriers and enter target organs (these barriers are specifically designed to keep foreign things out);
- selectively enter into disease-affected cells;
- precisely release the therapeutic nucleic acids once inside cells, without exposing

Westpac scholarship program backs our future leaders and innovators

them to the cell's garbage collectors (known as lysosomes);

- break down and be filtered out of the body, without causing waste products to build up in the organs or tissues where the nucleic acids were delivered.

Each of these poses a major engineering hurdle, but recent advances have enabled us to overcome many of them. The existing challenge is meeting all the requirements of effective delivery with a single nanoparticle design.

I believe that the single biggest challenge facing drug delivery lies with crossing biological barriers and reaching the most distant and out-of-reach cells of specific

organs (such as the brain). This is especially the case when it comes to dealing with central nervous system disorders, since the brain has a protective barrier that prevents almost anything in the bloodstream from entering it.

What strategies are you hoping to use to solve some of these challenges?

I hope to use my PhD research project and the support of my Westpac Future Leaders Scholarship to uncover effective and clinically viable methods for getting nucleic acids into target organs, especially the brain.

By testing different nanoparticle combinations and using a barcoding method to identify which nucleic acid came from

Denzil Furtado



Georgina Lau



The Future Leaders Scholarship program gives some of Australia's brightest and most ambitious students the chance to pursue their big ideas.

which nanoparticle, the hope is that we can reduce the number of iteration cycles and shorten the timeframe required to find an optimal carrier for organ-specific drug delivery.

Georgina Lau is a public health researcher with a passion for using health data to drive evidence-based practice and policy. Her research seeks to minimise the burden of injury in Australia.

"In addition to being associated with significant healthcare and economic costs in Australia, injury can have serious, lifelong consequences for those involved. The use of alcohol and other substances, including prescribed medications, are known to

increase the risk of road transport crashes. However, there is limited research on the impact of substances in many other injury causes, such as falls, assaults and burns.

As both injury and substance use rates are higher in vulnerable populations, including people experiencing homelessness and mental health conditions, I am passionate about the intersection of these two issues and preventing injury.

Through the support of the Westpac Scholars Trust and my Westpac Future Leaders Scholarship, we will quantify the presence of substances across key injury causes. Then, we will survey and interview injury patients to gain a deeper

understanding of how these substances may be influencing risky behaviours that lead to injury.

This project will provide important information that will help us to define the problem of alcohol and other drug use in serious injury. Ultimately, this will help to inform the development of injury prevention strategies to reduce the number of injuries associated with the use of these substances."

Olivia Johnson



Olivia Johnson is driven by a desire to understand the origins and development of the diverse populations we see around the world today and the modern relevance of evolutionarily significant genomic regions. Her PhD will look at developing genome-wide selection scanning technologies to detect genetic selection in ancient and modern genomes.

"All forms of selection produce footprints in the genome, which can be identified and interpreted based on what we know about the signals and the populations in which they are found. To date, my research has focused on positive selection, whereby beneficial genetic variants increase in frequency in a population. However, there have been recent suggestions that some of the signals being identified are being misinterpreted. Hence, I am currently focusing on distinguishing these forms of selection to better comprehend the footprints left by these evolutionary processes.

With an improved understanding of these signals, I hope to develop methods to identify them in genomic data and apply these techniques to both modern and ancient human genomic data to contribute to the current knowledge of human evolutionary history.

How can a better understanding of genome selection help us better understand modern diseases?

Humans have encountered many new environments and living conditions throughout history, and genetic variation has played a role in helping us to adapt to these novel conditions. My honours research project looked at genomic selection in ancient individuals, ranging from 3000 to 45,000 years ago. I found that their genomes were tailored to their environment, and a number of the signals identified were also present in modern descendants of these populations. This suggests that we still have the inherent ability to overcome selection pressures that our ancestors once faced.

However, what is good in one environment may be bad in another. It is plausible that some of the diseases we see today are a result of changes in lifestyle and environment from what we are genetically adapted to.

A hypothesised example of this is the case of autoimmune diseases. The transition to a farming lifestyle brought with it an increased pathogen load due to proximity to animals. Within these farming populations, stronger immune responses to this bombardment of pathogens was likely advantageous. However, it is now suspected that some of these once advantageous variants now confer autoimmunity, with contemporary individuals encountering far less pathogens but the body still mounting strong responses.

What do you find most interesting about genetic selection in relation to disease and human health?

I have long had an interest in genetic disease, as my younger sister was born with cystic fibrosis. Throughout my life I have tried to better understand her disease and where it stems from, especially as there is evidence to suggest that evolutionary processes have acted on the variant at some point during the course of human history. I find it fascinating that genetic selection that has occurred throughout human evolution, dating back tens of thousands of years and possibly even earlier, may continue to have impacts on individuals living today.

Monash University PhD student **Kealan Pugsley** is an aspiring psychiatric geneticist, fascinated by the links between genes and behaviour. Her PhD project will investigate how heritable factors influence brain development to better understand the biological mechanisms that drive clinical behaviours in the first years of life.

How have technological innovations identified specific genes driving the onset of ASD?

The roles of inherited and common risk-associated gene variants have been difficult to characterise. This is shifting with the advent of genome-wide association (GWA) methodologies, which employ high-throughput microarray analyses of the entire human genome to examine associations between millions of common genomic variants — referred to as single nucleotide polymorphisms (SNPs) — and the expression of a phenotype or trait.

A recent meta-analysis of data arising from GWA studies of a large case-control ASD cohort has identified novel SNPs meeting statistical significance for genome-wide association, providing the first replicable list of common ASD risk loci. The SNPs were enriched in regulatory regions of the genome likely involved in brain development — a process known to be aberrant in ASD — providing crucial insights into the molecular players likely involved in the presentation of the disorder phenotype.

How could gene-editing technology help us understand how genes impact brain development?

Gene editing techniques such as CRISPR-Cas9 allow models to be created harbouring SNPs of interest and permitting the phenotypic consequences of these genomic variants to be assessed and measured accordingly.

I am working to genetically engineer the ASD-GWA variants into case-derived induced pluripotent stem cells (iPSCs) using CRISPR technology and observe the effects these elicit on cellular morphology and function.

Kealan Pugsley



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When the COVID-19 pandemic hit Australia earlier this year, no-one imagined how widespread the outbreak would become or the impact it would have on lives, the economy and how businesses operate.

With hospitals being at the forefront of fighting COVID-19, pressure has mounted on hospital food operations to find new ways of feeding hungry employees (and visitors).

Hospital cafeterias have had to adjust their work practices and menus. Having a properly developed and executed plan, sharing information and knowledge, backed up with on-the-job training with food-handling employees is essential. Reviewing the plan periodically will be required.

Maintaining high standards of food safety practices combined with cleaning and sanitising of equipment and surfaces are important considerations for cafeterias. Advice is recommended to all food businesses by the national food regulator, Food Standards Australia New Zealand.

Handwashing

High standards of food safety start with good handwashing and personal hygiene — a key requirement of Food Safety Standard 3.2.2. and contained within the Australia New Zealand Food Standards Code. With rapid and repeated public health messaging of the importance of washing hands combined with mandatory handwashing training, everyone who handles food should have a raised awareness. Washing hands in a designated sink or basin with soap and water is one of the most effective ways to

prevent the spread of bacteria and viruses and is a legal requirement for all food business owners to follow.

Contamination prevention

Employees that handle food have an obligation to protect food, surfaces and equipment from contamination and are required to inform their supervisor if they are unwell and displaying symptoms of vomiting, diarrhoea, fever, sore throat, jaundice or respiratory illness.

Any employee displaying symptoms of COVID-19 (fever, coughing, sore throat, fatigue, shortness of breath) must not enter the workplace. Food handlers should consult with their doctor and only return to work once they have received a clearance.

It is important to strictly adhere to fundamental food safety practices such as correct use of food-handler gloves (changing them after every task) and the use of tongs and utensils rather than direct bare-hand-to-food contact. Correct storage practices and hygienic handling are necessary. Cooking potentially hazardous food to the required temperature of 75°C by measuring the core of food using a clean and sanitised probe thermometer should be done routinely. Hot holding of food in bain-maries must be over 60°C to prevent pathogen growth.

Menu considerations

Menu adjustments include removing self-service of salads and soup — which increases the risk of infection — instead offering these food items as 'grab-and-go' options in tightly sealed biodegradable packaging. The food packaging should

be fit for purpose to maintain hot or cold temperatures and maintain the integrity of the quality of food.

Specific ingredient labelling of these foods will address any customer concerns with food allergens. Having a clear, printed message on the food packaging advising customers to consume the food product immediately after purchase is a good idea.

Well-stocked vending machines for dispensing 'grab-and-go' food such as fruit salad have become popular in hospitals. Customers should discard uneaten food products two hours after purchase.

Building customer confidence

Gaining customer confidence is an important factor. When customers enter the cafeteria, they want to observe clear signage and directions, with hand-sanitiser stations strategically placed and being used. Cafeteria visitors want to see that social distancing is being observed and that employees are cleaning frequently touched areas such as benchtops, counters, door handles and fridges. Other frequently touched surfaces include cutlery holders, trays, counters, tables and chairs, food contact surfaces, customer display areas, vending machines, handrails, tap handles, switches, and EFTPOS keypads and cash registers.

SARS CoV-2 can survive on surfaces for many hours but is readily inactivated by cleaning and disinfection.

Frontline leaders need to provide clearly set out procedures and ensure that employees with cleaning duties have the appropriate level of training and the correct equipment. Employees need to know what needs cleaning when, and should be supervised to ensure that cleaning is carried out to the highest standard.

Routine cleaning should be done throughout the day and every time a food preparation process is completed (clean as you go), as well as at the end of the day.

Care should be taken when wiping tables and work surfaces. A dirty cloth or one that is used from one surface to the next repeatedly can spread bacteria and viruses across surfaces. For this reason it's important to start with a clean cloth and use a detergent and sanitiser.

Keeping these few tips in mind will help mitigate the chances of infection with COVID-19.

**Andrew Thomson is the company director for Think ST Solutions, a food consultancy offering practical solutions to both management and staff in hospitals, aged-care facilities, restaurants, hotels and the food industry.*

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Health collaboration crucial for the best care of older Australians

Sean Rooney, CEO, Leading Age Services Australia

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The COVID-19 pandemic has brought into sharp focus the crucial relationship between aged care, hospitals, general practice, ambulance services and the whole health system.

What we have learnt — in sometimes tragic and devastating ways — is the importance of having cooperative models and strong communications across the entire health sector, to deliver the best care and protection for older Australians.

In Victorian aged care, we have seen thousands of people infected with coronavirus and many deaths linked to the pandemic.

At the same time, health authorities confirmed that statistics showed up to one-third of residents infected with the virus would pass away.

However, in the critical first weeks of the Melbourne and Mitchell Shire outbreaks, there were repeated reports of major shortfalls in surge staffing. Aged-care homes also reported that requests to move initial resident cases of COVID-19 immediately into hospital were ignored.

Hospital transfers have the capacity to enable aged-care homes to focus on their COVID-19 response plan including contact tracing, staff and resident testing, resident and family communication and facility cleaning — critical measures that need to be enacted early if an outbreak is to be contained.

Back on 1 April, the federal government partnered with the private hospital sector to add another 30,000 beds and 105,000

skilled staff, to back up public sector hospitals in our nation's COVID-19 response.

As the crisis unfolded in Victoria, the state government's decision to suspend non-essential elective surgery freed up health workers to assist in aged care.

Similarly, the federal government assigned defence personnel and AUSMAT staff. This level of assistance undoubtedly saved lives. However, sadly, many lives have been lost and many hard lessons have been learnt.

Caring for our most vulnerable is not just a matter of response — it must include comprehensive preparation and planning that is well coordinated across all the moving parts.

Aged-care facilities have had — and continue to modify, according to lessons learned — their specific COVID-19 response plans. However, the midst of a crisis is not the time to discover that other associated health services are working to a different plan or have limited resources available due to competing priorities or are being overwhelmed by demand on their services.

From early times during the pandemic, we saw welcome extensions of health linkages into aged care including the greatly increased use of telehealth and onsite pathology services.

Leading Age Services Australia (LASA) has worked hard since the very beginning of the pandemic to try to ensure a cooperative approach, wanting the needs and lessons learned at the frontline of care to influence decision-making at the highest levels.

Unfortunately, when the second wave of the virus hit Victoria, holes were revealed in the

collaboration and planning between aged care and many aspects of the health system.

Cooperation was inadequate and too many people suffered.

To rectify this, the Health and Aged Care Ministers announced in late July the immediate formation of the Victorian Aged Care Response Centre (VACRC), which has set a national standard for the delivery of emergency support.

Now, Aged Care Response Centres are part of the planning for every state and territory.

LASA's view is that these centres must focus not only on outbreak response, but equally importantly on coordination of prevention and protection planning and activities, including 'stress testing' COVID-19 response plans at state and regional levels.

In August, the federal government decided to form an Aged Care Advisory Group, to provide policy advice to the Australian Health Protection Principal Committee (AHPPC) to support aged care against the pandemic.

LASA endorsed this outcome given our advocacy to government on the need for review and reflection on lessons learned.

LASA welcomes both the Response Centres and the National Advisory Group — but we must further extend fundamental collaboration, whether it is against coronavirus or any other future challenges.

We must weave the aged-care and health systems together — from towns, suburbs and regions, to the formation of national policies — to create a strong safety net to protect our most vulnerable and valued older Australians.



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Cognitive overload in a pandemic

Jane Allman

The work of healthcare professionals has always been critical, challenging and pressure filled, but the COVID-19 pandemic is something else. With healthcare systems across the world overwhelmed, their nurses and doctors are overwhelmed, too.



Chief Nursing Officer Dr Rhonda Collins has a mission — to find ways to relieve the immense cognitive burden that sits on the shoulders of the healthcare workforce. These roles are stressful at the best of times, but things have gone next level since COVID-19 emerged on the global stage.

Healthcare workers report having never seen the degree of pressure that is currently placed on nurses and doctors around the world. When we consider what is unique to the current situation with COVID-19 there are still so many aspects of the disease that we have yet to discover and understand.

Understanding cognitive overload

Learning theory identifies three types of cognitive load: intrinsic, extrinsic and germane:

- **Intrinsic cognitive load:** The cognitive effort expended to complete a problem or task. For healthcare workers, intrinsic load is affected by stress factors that diminish working memory and can be compounded by larger, deeper emotions.
- **Extrinsic cognitive load:** The cognitive effort the environment demands. If you're bombarded with information and you can't control how it's coming at you, you can have a heavy extrinsic load.
- **Germane cognitive load:** The effort expended to make sense of new information. If you receive a pathology value with no context and have to retrieve past values and other information to understand the complete picture, your germane cognitive load is heavy.



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Under normal circumstances one or more patients wouldn't be dying each day. Healthcare workers wouldn't be cut off from their support networks. There is a real sense of urgency and crisis — of life and death.

exactly what it is that we're swinging at," Dr Collins explained.

"The only weapon we have is to treat the symptoms. If a patient has a fever, we attempt to bring it down; if a patient is breathless, we give them oxygen; if they're not able to breathe, we can put the patient on a respirator.

"These are the tools we have right now and the main burden of this is being felt by nurses. Nurses are the largest healthcare force and they are on the frontline, managing symptoms of relentless streams of patients."

Marathon not a sprint

Nurses are wearing PPE over long, gruelling shifts. The very wearing of this degree of PPE can make nurses feel isolated from their colleagues and patients. Some tape a photo of themselves onto their front to help foster a connection with their patients and colleagues. Many nurses are separated from their families out of fear of spreading the virus to their loved ones. For those that do return home after exhausting shifts, clothes are removed before entering the house and showering. Until this has been done, they cannot embrace their partner or children.

"The impact of this pandemic is compounding and we're realising that it's not a sprint but a marathon. Any long-distance athlete knows that you cannot maintain an

Communication problems and cognitive overload have been associated with medical errors, which hospitals can address with a communication strategy that helps reduce the cognitive load of healthcare workers.

Dr Collins' focus is to relieve the load borne by healthcare workers by using intuitive technology in the context of a communication strategy. The aim is to simplify communication and offload the burden of retrieving, retaining and recording information.

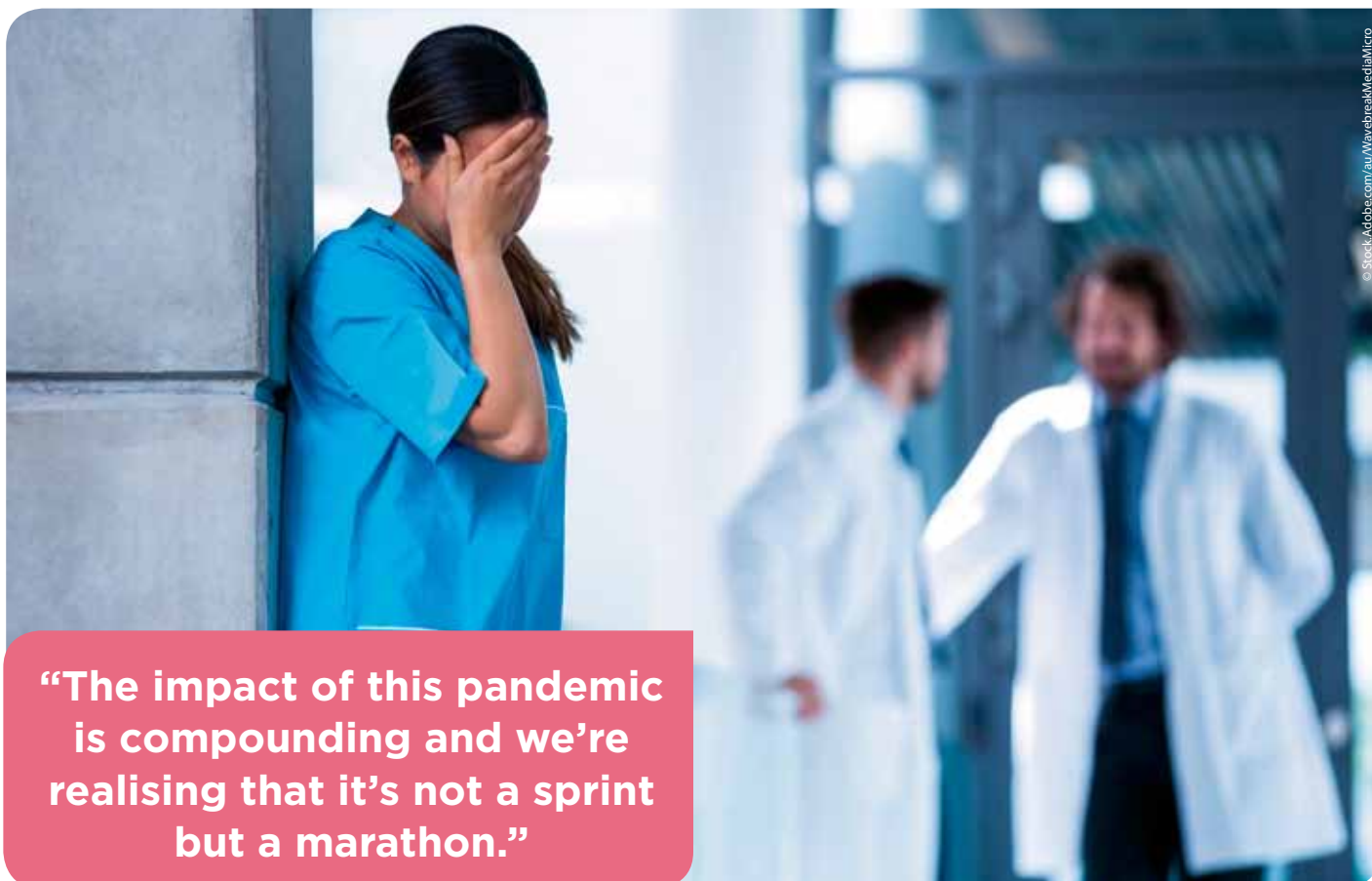
"Short-term memory is the first thing to be impacted when we're under cognitive strain. We may forget a medication or forget a procedure, and this can have devastating consequences."

Pressures of the pandemic

The pandemic is contributing significantly to the cognitive burden placed on frontline health workers. When staff are cognitively overloaded mistakes occur. People lose the ability to cope and the ability to recall information.

COVID-19 throws a plethora of symptoms our way — from toothache to diarrhoea to breathlessness and cold-like symptoms. Patients can go from having a cough to needing a ventilator in four hours. The element of stealth is also a challenge, with many infected members of the population having no symptoms, thus facilitating the spread of the virus.

"The number one problem is that we're swinging at something, but we don't know



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“The impact of this pandemic is compounding and we’re realising that it’s not a sprint but a marathon.”

intense pace indefinitely. Over time the stresses take their toll.

“The level of intensity we saw in the first weeks of the pandemic is not sustainable. Charged with adrenaline, health workers might have thought that they could sacrifice seeing their families to battle the virus, but after four weeks or so, mental resilience begins to break down.

Dr Collins explained that once health professionals came to realise that they were in this for the long haul, they understood they would have to ratchet back and take care of themselves in order to prevent burnout.

“One nurse I spoke to had been working for 157 days straight.

“This situation is not normal. Under normal circumstances one or more patients wouldn’t be dying each day. Healthcare workers wouldn’t be cut off from their support networks. There is a real sense of urgency and crisis — of life and death. It’s intense.”

So what are some of the strategies that can help in this unprecedented situation?

Support programs

Smiling Mind and the Australian Government have been working together to ensure that healthcare workers have access to mental health support.

“When people are isolated and with no outlet, their mental health really suffers, so programs such as Smiling Mind’s Healthcare Worker Program are extremely helpful resources,” Dr Collins said.

The app-based mindfulness program is designed to provide busy healthcare workers with easily

accessible information, resources and practical activities designed to support good mental health and wellbeing. The program covers topics such as mindfulness, stress management, clear thinking, connection, resilience and sleep.

Cohort creation

Dr Collins explained that one strategy to relieve the burden of the pandemic on nurses is to group together patients that require increased care. The creation of COVID-only facilities allows staff rotation so that healthcare workers aren’t always dealing solely with critically ill COVID-19 patients.

Staffing levels

Boosting staff levels will be critical over the coming months. Nurses approaching retirement will not want to repeat their experience of working at the frontline of a pandemic. It is likely that the nursing profession may face critical staff shortages.

Leadership

Dr Collins said that one of the key strategies to helping our health workforce lies in good leadership.

“Leaders need to look at how they can relieve the burden that is placed on nurses and other healthcare workers, especially in the current circumstances.”

Dr Collins advocates the use of technology to lift a portion of the heavy burden that falls on the shoulders of frontline nurses.

“Technology can carry the burden of memory by providing accurate, timely information to relieve clinicians’ cognitive load and help improve patient safety.

“A device that can relieve the burden of memory is going to have a huge positive impact. Instead of having to remember all the things I need to do during a shift, the device remembers for me.

“A hands-free, voice-activated wearable really comes into its own during a time when nurses are swathed in PPE and trying to avoid touching shared surfaces. I can just say ‘Okay, Vocera!’ and communicate or get the information I need.”



Chief Nursing Officer Dr Rhonda Collins is a Texas-based registered nurse, working with nursing leadership groups globally to increase their understanding of Vocera solutions. Dr Collins is a frequent speaker on the evolving role of nurses, the importance of communication and how to use technology to improve clinical workflows and care-team collaboration.

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- Step 2 - TOE Probe Transportation Case
- Step 3 - Medizyme Enzymatic Cleaning
- Step 4 - Rinse and Dry Probe - QwikDry Cloth
- Step 5 - Electrical Leak Testing
- Step 6 - High-Level Disinfection - TD 100CE
- Step 7 - Rinsing After High-Level Disinfection
- Step 8 - Probe Drying - QwikDry Cloth
- Step 9 - HEPA Filtered Probe Storage
- Step 10 - TOE Probe Procedure Case



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Delivering 'as-a-service' infrastructure via the cloud

The healthcare industry is rapidly adopting a cloud-first, 'as-a-service' model within their IT infrastructure. This is to deliver better patient services at the bedside, underpinned by greater flexibility and automation at the network layer, with IT security being of critical strategic importance.

In recent findings, the Australian Cyber Security Centre (ACSC) identified that the medical industry is under increased pressure to respond to the COVID-19 pandemic and that the health, aged care and medical research sectors have become a prime target for both Advanced Persistent Threat (APT) actors and ransomware attacks.

For example, one of the key challenges cited in the industry is security vulnerabilities of legacy medical IoT devices. Add to this the fact that newer connected devices, now in widespread use, are often built with commodity software and hardware components making them just as much of a security threat to cyber criminals who are highly familiar with these protocols. Network management is critical to gaining the visibility required to ensure patches are up-to-date and suspicious anomalies are identified and actioned, before they become a full-blown breach.

In a recent survey, Extreme Networks found that, whilst 98% of healthcare organisations are hosting at least one solution in the cloud, for many, network infrastructure remains intransigently stuck in its current mode of operation. And that is primarily because there is a (false) market perception that there is no single vendor that can provide an as-a-service, end-to-end network management layer across the entire infrastructure.

The traditional network in hospitals, health and aged care facilities is also under increased pressure due to the exponential growth in network connected users and devices to provide enhanced IT services at the bedside, improve medical treatment and health outcomes for patients. The traditional network has been extended even further during the pandemic with an increased use of telehealth services and connected health monitoring devices for patients at home. All this

is culminating in extra strain on the IT teams needed to support the explosion of connections and performance demands, not to mention the fundamental cost implications of simply adding network capacity in legacy CAPEX models.

Given the current extraordinary times, it is vital that the status quo around network infrastructure is designed, built and run to ensure it meets the requirements for modern healthcare services.

The sheer scale, proliferation and diversity of devices in a standard healthcare environment means effective management and security of the underlying network has to be supported from the edge to the core by scalable, on-demand and automated tools.

Extreme Networks' approach is to allow healthcare providers to consume network services flexibly, driven by ExtremeCloud IQ, a fourth generation, containerised cloud network management platform that works across the Extreme Wired and Wireless portfolio. The ability to drive existing Extreme Wired, Wireless and IoT security capabilities from a continuously updating cloud platform is key. This model creates a more flexible and responsive network solution for healthcare providers. ExtremeCloud IQ also utilises automated AI and machine learning capabilities, along with data analytics, to continually self-correct and improve network performance, and alert for anomalies that might indicate attempted breaches or device issues.

For patients accessing telehealth services or with monitoring devices at home, it's important to not only ensure the priority and security of the audio and video session and any patient data in transit, but also the security of the IoT devices themselves, now that they are beyond the very edge of the organisation's network. It is also a challenging time for network administrators, who suddenly have to deal with rapidly increasing demands on network resources and a far more diverse and remote IT environment. Healthcare organisations need to question the status quo and look to invest in a flexible, cloud-driven network infrastructure that can easily adapt and scale beyond the limits of traditional hardware-based solutions.



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Discoveries in bionics

Turning medtech innovation into real-world solutions

Jane Allman

Queensland is fast becoming a vibrant hub of bionics innovation in Australia, with a host of medtech talent committed to addressing the needs of people around the world living with complex disabilities, chronic diseases and previously untreatable health conditions.

Bionics Queensland — a not-for-profit launched in 2019 — is playing a key role in identifying and accelerating human bionic innovations and is on a pathway to fast-track neural and AI-enabled bionic devices, myoelectric and robotic limbs, biofabricated implants and artificial organs, prosthetics and wearables.

Key to encouraging and fostering innovation in this field is the advent of the Bionics Queensland Challenge. Held for the first time this year, the Challenge brings grassroots innovators, hospital clinicians, academic researchers and industry practitioners together to turn groundbreaking ideas into real solutions.

Bionics Queensland CEO Dr Robyn Stokes said this year's Challenge showcased Queensland-led discoveries in bionic mobility such as a lightweight exoskeleton, a bionic glove to restore finger and hand movement, a device to help restore spinal sensation plus technologies to improve hearing, spatial orientation and emotional disorders.

"We are confident that hosting the Challenge annually will boost Queensland's medtech breakthroughs and progressively bring life-changing bionic devices and treatments to the market to transform lives," she said.

"We are establishing a bionics lab of collaborative industry stakeholders,

researchers and scientists to engage Queenslanders and interstate and offshore partners in an exciting array of innovations."

The inaugural Bionics Queensland Challenge 2020 has awarded seven innovative projects a share in \$170,000, which will be used to fast-track market testing and manufacture of new medical devices, treatments and allied health services to assist those living with chronic diseases and complex disabilities.

Supported by the Advance Queensland program, the Challenge awards three major category winners \$50,000 each and provides \$5000 to each of four promising teams with early-stage bionic innovations.

Hospital + Healthcare spoke to the team leaders of the Challenge's major category prize winners.

Bespoke lab-grown vascular grafts

Team: Trent Brooks-Richards (Project Leader), Cody Alexander Fell, Sabrina Schoenborn and Mark Allenby

Trent Brooks-Richards and his team from the Biofabrication and Tissue Morphology Group at the Queensland University of Technology are growing bespoke tissue-engineered vascular grafts (TEVGs) via soft robotics to treat peripheral artery disease (PAD), which affects 200 million people across the world each year.

Currently, PAD is treated with the use of stents or an autograft, which involves excising an artery from another part of the body and then using this to replace the diseased artery.

Brooks-Richards explained that the main problem with this strategy is that 40% of those needing a graft do not have enough healthy vascular tissue for the procedure. "In these cases, a synthetic graft is currently the primary alternative. However, synthetic grafts are not currently able to match the mechanical properties of the artery, do not allow for the tissue to regenerate and may need replacing due to wear or if the patient is still growing, ultimately leading to more surgeries, placing stress on the patient and the healthcare system. Synthetic grafts



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can also cause complications with some patients as their body can react adversely to the foreign material, which is why lifelong medication is often required after surgery," he said.

Brooks-Richards and his team have developed an innovative approach to create anatomically and functionally bespoke TEVGs.

"One of the key challenges of lab-grown arterial tissue is that it doesn't have the same mechanical features as the arteries in the body, which are continually working and stretching as blood travels throughout the body and the patient moves during daily activities. Without mechanical input, the tissue doesn't know how to act as an artery, so we have to train it to do so," Brooks-Richards explained.

"Using soft robotics in the laboratory, we can impart mechanical stimulation to the tissue so it will grow as it should and function as it should once it's transplanted into the body."

To create the framework on which the artery grows, the team 3D prints a structure

**The Challenge
brings grassroots
innovators, hospital
clinicians, academic
researchers
and industry
practitioners
together to turn
groundbreaking
ideas into real
solutions.**

based on the patient's CT data, which is used to create a scaffold that mimics the artery's exact position in the body and will eventually dissolve to be replaced by the body's tissue. This means that the resultant arterial tissue will be anatomically bespoke to precisely fit the patient's body.

The method has great promise to improve outcomes as transplant rejection and excision-site comorbidities are redundant.

Brooks-Richards expressed that the Bionics Queensland Challenge had provided the team with an amazing opportunity to take the technology forward.

"The process of taking a concept through to market is long and expensive, so winning the Challenge has enabled us to take the next step much faster than we would have done otherwise.

"We have been provided with exposure to individuals with skill sets and expertise that have helped bring together the multidisciplinary components of our project.



"I believe the Challenge is an important way to not only accelerate positive change in people's quality of life, but also expose the general public to the fantastic work that is taking place in bionics and to inspire students by showcasing so many potential STEM career opportunities for the future."

Virtual reality, attention mapping, AI and gaming after brain injury

Team: Dr David Painter (Project Leader), Professor Heidi Zeeman, Benjamin Richards and Professor Trevor Hine

Dr David Painter and his team are using gaming technology to disrupt traditional methods of assessing spatial attention in people who have sustained brain injuries.

Implementing virtual reality (VR) systems, the team has created an attention-mapping tool known as Attention Atlas. Patients wear a headset that allows them to experience a 3D virtual space and are tasked with finding a particular letter amongst other letters spaced across a spherical surface. A controller allows them to point to the target letter. During this process data is collected and analysed by AI.

"A key problem with stroke to the right hemisphere of the brain is the resulting damage to someone's ability to pay attention," Dr Painter explained.

"Injury to this part of the brain commonly renders an inability to see objects in the left field of vision."

The team has developed a driving simulator game to train the brain to pay attention. The action-based game demonstrates the negative consequences of not paying attention to the user. The combination of attention mapping and the driving intervention have had a positive impact on attention recovery.



Dr David Painter and his team have developed a driving simulator game to improve attention.

"The Challenge has encouraged us to think about how our work might be applied and commercialised in the real world."

"By creating a VR-enabled assessment we can map the attention component and offer the driving simulation to improve attention deficits."

Although the precise mechanisms are yet to be determined, the driving game intervention may restore some of the hemispherical balance that is disrupted by stroke. It's about rewiring and restructuring the brain — to train one part of the brain to take over the function of another.

Dr Painter explained that one of the major benefits of implementing gaming technology is that it has a good price point, is user ready and already has an established market.

With an academic background in neuroscience, Dr Painter said that one of the great things about the Bionics Queensland Challenge is that it has encouraged the team to see their product from a different perspective, outside of an academic scope.

"The Challenge has encouraged us to think about how our work might be applied and commercialised in the real world."



Dr Pandey and his team

Dr Pandey's research endeavours to integrate light and electronics into parts of the body to create a bionic sense of touch.

"Working with rehabilitation clinicians has helped us to build a network and achieve broader outreach, and thinking about how the product is used in the clinic has helped us build on our research and think about end-user application."

"The next step is market validation, which will involve working with more clinicians and using their feedback to prepare the product for the market."

Smart prostheses with a bionic sense of touch

Team: Dr Ajay Pandey (Project Leader), Sevda Trifonova, Sreya Singh, Oliver Campbell, Ling Kuan Kim and Dr Heba Khamis

Dr Pandey's research endeavours to integrate light and electronics into parts of the body to create a bionic sense of touch. He and his team have created 'electronic skin', which can emulate the sense of touch.

"We take for granted many of our interactions in the physical world," Dr Pandey said.

"Without a sense of touch, everyday tasks such as grasping and lifting objects



Developing smart prosthetics

become extremely challenging, and this is a major problem faced by amputees — the loss of touch translates into a loss of function."

Dr Pandey explained that the main challenge is to create an electronic sense and meld this with prosthetics. The team is investigating opto-electronic components embedded in the prosthetic, which can sense the application of pressure and then feed this information to the nerves, which is then carried to the central nervous system (CNS).

"Biological signalling processes employ ion transportation via sodium, potassium and calcium channels to send messages from the CNS to peripheral limbs. We are attempting to use devices to convey this message via a transducer that conducts both electrons and ions."

By developing a bioelectronic interface, the team hopes to create a solution that will

convert electron signals to ionic signals and vice versa — this will allow electronic messages to be translated to biological nerves.

"The great thing about this technology is that it can be applied anywhere in the body, as the signalling process is the same."

Dr Pandey said that the Challenge has provided a way to transform advanced academic knowledge into a real-world device.

"Publishing papers is all well and good, but end users do not usually see the realisation of academic ideas. Having support from funding bodies and access to interdisciplinary stakeholders on one platform is a resource that allows innovative research to be converted into cutting-edge technology."

Service Registration Assistant

Passing the digital health baton with confidence and certainty

Jane Allman



Accurate details of healthcare providers and services are key to ensuring efficient and high-quality care pathways for patients. Out-of-date information means that patients' medical documents and information cannot be sent from one healthcare provider to another, blocking the flow of the patient's care journey. Disruption to the flow of patient information from one service provider to another results in a time-consuming search for correct details — a frustrating and costly undertaking for busy healthcare practices.

Across Australia's healthcare services, changes to staff and location occur on a regular basis. Practitioners move to other practices; new practitioners come on board; practices offer additional services or open up in new suburbs. But what is the process for ensuring the healthcare market hears about these changes?

Until now, the process has involved forms — 15 to 20 — all requiring the same information to be completed and sent to separate organisations — Medicare, GP practices, public health services, health service directories and so on. Unsurprisingly, not everyone gets the memo.

The Australian Digital Health Agency has developed the Service Registration Assistant (SRA) — a digital tool that allows healthcare providers to update the whole network in just one place when staff or contact details change. The updated contact information is immediately passed on to all authorised parties.

"SRA is a tool that allows organisations to publish information about themselves for others to access in a valid and consistent way," Agency Program Manager Neeraj Maharaj said.

"To ensure accuracy and consistency, healthcare practices are best placed to update and publish their own information.

"The tool eliminates the need for hundreds of directories around the country to manually keep

their directories up to date. The SRA maintains an authoritative version of the healthcare service and practitioner details in external services such as secure messaging provider directories, hospital directories, clinical pathway directories, referral directories and the National Health Service Directory (NHSD)," Maharaj explained.

The Agency and its partners, the Northern NSW Local Health District (the LHD) and Healthy North Coast (deliverers of the North Coast Primary Health Network program), recently released initial results from the SRA proof-of-concept trials, which demonstrated significant improvements in supporting electronic communications between healthcare providers.

Findings from proof-of-concept trials reveal that 48 healthcare services (HCS) have published their details to the LHD across 60 transactions (12 healthcare services have had more than one update):

- 8% (5) of HCS didn't exist in the address book and were required to be added;
- 87% (52) of existing HCS required updates; and
- only 5% (3) of HCS required no change.

In addition, 320 practitioner record updates have been published to the LHD resulting in the following updates to their address book:

- 18% (57) of practitioners didn't exist in the address book and had to be added;
- 78% (251) of existing practitioners required updates; and
- only 4% (12) of practitioners required no change.

Clearly, the quantity of updates required in proof-of-concept trials reveals the omnipresent

inaccuracies and inefficiencies of current systems.

Positive feedback

Feedback from the trials found that 75% of users saw value in the SRA. Benefits of improved data quality include reductions in practice manager and administration workloads, improved patient experiences and quality of care, cost reductions and improved efficiency across the healthcare sector.

Testing the tool in Northern NSW LHD revealed an increase in successful discharge summary delivery to patients' GPs. This helps the GP continue post-hospital care through follow-up appointments.

Prior to SRA, Northern NSW LHD administrators reported spending between two and eight hours maintaining address books each week. Relieving this burden will make an enormous difference to the people working in these roles.

Data accuracy helps support a seamless and improved healthcare experience for patients, improving communication and trust between patients and their care providers.

Trials of the SRA uncovered that many GP practices were receiving messages for practitioners that were no longer at the practice. Notifying the necessary bodies to update their directories was resulting in increased workloads and diverting focus from patients. SRA will solve this problem.

A focus on partnership

SRA is a partnership between Australia's Primary Health Networks, peak bodies such as the Australian Association of Practice Management and other providers of frontline health care. Building coalitions of understanding within the healthcare sector allows the tool to be the best that it can be.

A Day in the Life of a Sydney paramedic

Every 26 seconds someone in NSW calls 000 for an ambulance. Responding to an array of incidents across the city, a paramedic won't know what emergency situation they'll be called to next. It is sometimes said that paramedics see more trauma in one shift than most people see in a lifetime.

Paramedic Steve Perryman has been working in Sydney for 12 years. He is currently based at St Ives Ambulance station in the city's north-west. Today we will ride along with him and see what happens. Seatbelts are a must — things may get bumpy.



06:45 Hello, I'm Steve. Today I will be the treating paramedic (we take it in turns to treat and drive). I am working with a good paramedic called Darren. We start our pre-shift checks of the ambulance.



08:55 A convertible car has crashed at high speed into a telegraph pole. The pole has sheared in half, electric wires are down and the car has come to rest on its side in someone's front garden. A female passenger has half her body under the car and the driver is trapped above, still in his seat. Someone tells me that a 12-year-old boy may have been ejected from the vehicle. I look around for the boy — the scene is chaotic and people are running around. I find the child some 20 metres away in the neighbour's front yard. I assess the child and begin treatment, he has several broken bones. With the assistance of two more ambulances we stabilise the three patients and urgently transport them to hospital.



06:45

07:01

08:55

07:01 Our first call of the day comes in. An elderly man has fallen and can't get up. We arrive at the house but can't get in so I find the bathroom window open and climb on a bin to get a better position. Removing the flyscreen window I wriggle through, knocking shampoo bottles off the window ledge and into the bath. I open the door for Darren.

I find the elderly man and assess him. He is not a COVID risk. He has sustained a break to his mid-shaft femur. I get IV access and give him some morphine. We set up a splint and realign the fracture. Another ambulance arrives to help us carry our patient out and into our ambulance.



Darren (driving) and Steve on the road.

A paramedic never knows what's in store on any given day.



13:38 We are called to a school sports field where a 16-year-old male has been tackled in a game of rugby. He has a fractured ankle. I give him pain relief and splint up his leg. It's an easier job than the last two and I am grateful for the break (excuse the pun). We take him to hospital and have a nice chat about his school life and his aspirations of becoming an Australian rugby player.



17:02 We arrive at the address of a 59-year-old woman in cardiac arrest, with CPR being performed by her family. We frantically put on our PPE. I take over CPR and another ambulance arrives to give us a hand. It's hot and exhausting doing CPR with a gown and a mask on. We try everything to restore her life but she is not responding to any treatment. Eventually we call it and cease CPR. I place a blanket over her. Sweat drips off my forehead as I stand up. I find the husband in the next room and sadly advise him that his wife has passed away. I sit with him for a while and we have a talk, I make him a cup of tea and organise for his family to come over.

11:19 Our next patient is a 33-year-old male. He is high on ice and had been walking around with a samurai sword. Because the man is violent and has a weapon, the police are on their way — they quickly get things under control. The man has been tasered and restrained in handcuffs but he is screaming, threatening and violently thrashing. It seems pointless to start asking him about his past whereabouts — has he been isolating? Does he have COVID symptoms?

I give the man an intramuscular injection of droperidol. Unfortunately it does not work so I give him midazolam. Within a few minutes he is settled and it's now safe for us to transport him to hospital. Police travel with us for safety.

15:21 We race to a 76-year-old woman at home with sudden onset of imbalance and slurred speech. The woman has prominent facial droop and her eyes are deviating to the right. She is having a stroke. We rapidly load her into the ambulance and race off to hospital.



18:38 An unconscious 74-year-old male is in a restaurant nearby. He has diabetes and had briefly passed out. He has low blood sugar so I give him some glucose gel and he perks up. He doesn't want to go to hospital and he is eagerly waiting for his Mongolian black bean beef to arrive. We leave the man with his family to enjoy a good meal and Darren and I return to our station. We clean up, restock and sign off. We will be back again early in the morning. I wonder what tomorrow will bring...



A Day in the Life is a regular column opening the door into the life of a person working in their field of health care. If you would like to share a day in your working life, please write to: hh@wfmedia.com.au.

Microdial Flowmeter

A smoother transition to room air

Working in partnership with neonatologists, BPR Medical has designed a special range of Microdial flowmeters that provide Neonatal ICU and Special Care Baby Units with the precision and control needed to effectively treat premature babies with medical oxygen.

Innovation in the treatment of oxygen dependency in infants

Premature babies with Respiratory Distress Syndrome (RDS), may receive mechanical ventilation as a lifesaving intervention. This ventilation can cause damage to the lungs, leading to a chronic lung disease, often referred to as bronchopulmonary dysplasia (BPD). An infant with BPD will often need to be weaned off oxygen over several weeks or months — with the level of effectiveness depending on the controlled gradual reduction in levels of “fraction of inspired oxygen” (FiO₂).

To enable controlled adjustments of FiO₂ levels, BPR Microdial flowmeters feature a Microflow™ dial control that enables precise and reversible mini step changes in the oxygen flow. This dial technology delivers oxygen flow rates in gradual steps of as little as 10 cc per minute (Table 1).

Microdial flowmeters are available in two models; a paediatric version with flow rates of 0–3 lpm and a neonatal version with flow rates of 0–1 lpm. These two models allow minute changes of FiO₂ levels, facilitating a smoother transition to room air. (Table 2).



With advanced technologies, Microdial flowmeters ensure reliability and superior performance. A built in pressure regulator ensures the oxygen flow remains consistent, irrespective of varying supply pressure. Furthermore, gas quality is assured by a dual filtration system which includes a 40 micron pre-filter and a 5 micron internal filter.

TABLE 1: Nominal flow rates (lpm) per Microdial selector setting

Flow Rates Neonatal 0–1 lpm	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	1.0
Flow Rates Paediatric 0–3 lpm	0.02	0.03	0.05	0.08	0.12	0.20	0.30	0.50	0.75	1.0	3.0

Notes: Tolerances on delivered flow rate are +/- 15% for setting below 1 litre per minute and +/-10% for 1 l/min and above.



TABLE 2*: Estimated FiO₂ levels associated with flowmeter flow settings against patient weight (neonatal model)

Weight (kg)	1	0.1	0.09	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01	Flow rates (lpm)
0.7	100.0%	32.2%	31.1%	30.0%	28.9%	27.7%	26.6%	25.5%	24.4%	23.3%	22.1%	FiO ₂ levels
1	100.0%	28.9%	28.1%	27.3%	26.5%	25.7%	25.0%	24.2%	23.4%	22.6%	21.8%	
1.25	84.2%	27.1%	26.5%	25.9%	25.3%	24.6%	24.0%	23.4%	22.8%	22.2%	21.6%	
1.5	73.9%	26.3%	25.8%	25.2%	24.7%	24.2%	23.6%	23.1%	22.6%	22.1%	21.5%	
2	60.5%	25.0%	24.6%	24.2%	23.8%	23.4%	23.0%	22.6%	22.2%	21.8%	21.4%	
2.5	52.6%	24.2%	23.8%	23.5%	23.2%	22.9%	22.6%	22.3%	21.9%	21.6%	21.3%	
3	47.1%	23.6%	23.3%	23.1%	22.8%	22.6%	22.3%	22.0%	21.8%	21.5%	21.3%	
3.5	43.9%	23.3%	23.1%	22.8%	22.6%	22.4%	22.1%	21.9%	21.7%	21.5%	21.2%	
4	40.8%	23.0%	22.8%	22.6%	22.4%	22.2%	22.0%	21.8%	21.6%	21.4%	21.2%	

*Notes: 1 Adapted from Benaron DA & Benitz WE, Maximizing the Stability of Oxygen Delivered Via Nasal Cannula, Arch. Pediatr. Adolesc Med 148: 294–300, March 1994; 2 Assumes inspiratory time of 0.3 seconds; 3 Assumes tidal volume 5 ml/kg; 4 Assumes all nasal cannula output inhaled; 5 This information is provided to demonstrate possible applications for Microdial Flowmeters. It is not provided for clinical use and should not be relied upon for such purposes.



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Keeping it real: people at the heart of health care

Associate Professor Amanda Walker, Clinical Director, Australian Commission on Safety and Quality in Health Care

It has been a year of unprecedented upheaval for health services globally. The challenges faced by healthcare professionals during the COVID-19 pandemic are unmatched in our lifetime.

As the Australian health service workforce strives to prioritise, reorganise and adapt to provide safe health care in the new COVID world, it's vital that consumers take an active role in their own care.

It has been 12 months since the Australian Commission on Safety and Quality in Health Care (the Commission) released the second edition of the Australian Charter of Healthcare Rights (the Charter). The revision was timely — never has it been more critical to maintain a focus on person-centred care.

Fundamental to good clinical practice, person-centred care supports safe and

high-quality care for each individual, so they receive the right care, in the right place, at the right time. The Charter provides clear guidance for all health practitioners on how to deliver person-centred care to consumers, including patients, carers and families.

Progressing to a new landscape

Developed through 12 months of consultation, the second edition of the Charter reflects feedback from consumers about the issues that are most important to them. It describes all of the rights that consumers have and fosters a shared understanding of what people can expect when they receive health care.

Updates to the Charter reflect the change in the healthcare landscape since it was first released in 2008, empowering consumers

to ask questions, share decisions about their care and provide feedback. There is clear evidence that people who understand the risk and benefits of their decisions make better choices.

Australian health practitioners should use the Charter as a guide to ethical practice and person-centred care. It is also embedded in the National Safety and Quality Health Service (NSQHS) Standards that all public and private hospitals, day procedure services and public dental practices must meet to maintain their accreditation.

Valuing person-centred care

The revised Charter focuses on consumers being a partner in their own care, to the extent that they choose or are able.

Developed from the consumer perspective and backed up by extensive research, the Charter explains how health service organisations can place the consumer at the centre of planning and delivering health care across seven domains: access, safety, respect, information, partnership, privacy and feedback.

Evidence shows us that person-centred care improves both the safety and the quality of health care. When consumers are encouraged to speak up about their needs and ask questions, they are less likely to suffer complications as a result of better understanding their health situation and the care they require.

Using the Charter is also a requirement for accreditation to the NSQHS Standards, of which Action 2.3 states that health service organisations must use the Charter (or use a charter of rights that is consistent with the Commission's Charter) and ensure that it is easily accessible to consumers.

A dynamic healthcare environment

The challenges of COVID-19 for our healthcare system are complex and far-reaching, and have changed the way many health service organisations provide care.

For some consumers, this has meant changes in the way they access their health care. While the rise in telehealth and the use of technology to improve patient access has empowered many, there have also been reports of consumers avoiding or delaying accessing health care. The impact of COVID-19 on people's psychological health and wellbeing is another factor likely to influence decisions to access health care.

In this rapidly changing environment, with competing demands, anxieties and new ways of working, how can healthcare professionals keep consumers at the heart of health care?

It is worthwhile to consider:

- Has your health service organisation considered different approaches to planning and consumer engagement?
- What steps has your health service organisation taken to understand the changing needs of your consumers?

The Charter provides a useful framework that health service organisations can use

Fundamental to good clinical practice, person-centred care supports safe and high-quality care for each individual, so they receive the right care, in the right place, at the right time.

to maintain their focus on person-centred care. It can be used as a guide — a way to think about and test how potential changes to systems and processes may impact on consumers across each of the seven domains. The Charter can also help to ensure that any changes made help to maintain consumers' rights.

Supporting partnerships with consumers

Rights to information and partnerships between consumers and healthcare providers are cornerstones of the Charter. Sharing information about themselves can be challenging for some consumers who may not be aware of their rights, or perceive a power imbalance with healthcare providers. Periods of stress and difficulty may amplify these barriers.

However, it is a worthwhile challenge to address as encouraging the voice of the patient can bring about enormous improvements in the provision of care.

Discussing healthcare rights can build trust and help consumers to feel respected and empowered to share their personal information, experiences and preferences, all of which will help to identify the best path towards achieving their healthcare goals.

Health service organisations can use the Charter to support their partnerships with consumers and consumer groups. The Charter highlights the importance of respect, open communication, asking questions and sharing information in fostering successful partnerships.

It provides guidance to healthcare providers on the types of information that consumers should receive to inform their decision-making and provide informed consent. Consumers are also made aware of their right to privacy, to give feedback, to be provided with open disclosure when things have gone wrong, and to contribute to improving the quality of health service organisations.

Spreading the word

Resources on the Charter are available to support health service organisations and their consumers to better understand healthcare rights — in both print and digital formats, including as audio recordings and an animation video for screening in waiting rooms.

Ensuring consumers receive information tailored to their needs is a key element of the

information domain in the Charter. This is particularly important in reaching vulnerable groups and people from culturally and linguistically diverse backgrounds. In support of these consumers, the Charter has been translated into 19 languages and Braille, and is available in large print and an Easy English version on the Commission's website. An implementation guide for health service organisations is coming soon.

It has never been more important for health service organisations to remain focused on person-centred care. The Charter provides a clear and accessible framework for health service organisations to ensure that consumers are kept at the heart of the healthcare system, both now and post-pandemic.

This article was developed with Lucia Chiappini from the Commission's Partnering with Consumers team.



Associate Professor Amanda Walker is a Specialist in Palliative Medicine in the Southern Highlands of NSW who has led state-wide work in End-of-Life Care at the Clinical Excellence Commission in NSW. As Clinical Director at the Commission, she has focused on the development of clinical care standards, resources to address Hospital Acquired Complications, and support for clinicians to provide Comprehensive Care. Associate Professor Walker led the release of the revised Australian Charter of Healthcare Rights in 2019.

Creating reliable and informative video content for patients



© Stock/Adobe.com/au/Gondenkoff

The digital evolution has dramatically shifted the healthcare landscape. Australians are taking charge of their own health care more than ever and want trusted information to bring greater clarity and simplicity to their own healthcare decisions.

The ever-increasing demand for quality, engaging information is providing opportunities for hospitals and healthcare services to create real and authentic content that connects and informs their patients. We know that most patients will Google everything, so why not give them trustworthy and reliable content that they can watch?

Ideally, video should be central to all patient engagement. For many chronic conditions, the landscape of treatment options and medications is often cluttered, confusing and complex. People who are suffering from a chronic health condition can experience a broad range of emotions (shock, confusion, anger, fear, anxiety) and physical symptoms are often concurrent with their emotional state.

“Doubt, worry, anxiety. This is me since my diagnosis. I’m suffering. I really need to know more and feel more understood.” These are the feelings of many Australians diagnosed with a chronic health condition.

Ultimately, patients want to feel understood, understand what is going on and be given hope. Video is an excellent patient engagement tool that can help to put patients’ minds at ease. Here are some of the benefits:

In the same boat

By watching a patient case study video of someone with the same condition, viewers can learn more, feel less alone and acquire a greater sense of control. For example, a woman who has been diagnosed with breast cancer and prescribed a certain treatment may seek out a video of another woman who has undergone a similar treatment. Stories that are relatable give us identity and hope. The same applies to carers.

Finding simplicity in complexity

When people are in the early stages of diagnosis or undergoing treatment, informative video content can help patients navigate their healthcare journey in a more positive way. Clear and simple videos can

translate complex medical concepts and terminology into digestible content.

Addressing expectations

An informative and friendly ‘walk through’ video for pre-admission/ pre-treatment that explains processes such as paperwork, online registration, medication, arrival, pre-theatre and general surgery/ treatment information can help ease patient anxieties about what to expect from the healthcare experience. Explanatory videos can also unburden doctors and support staff from having to repeat the same information for each patient.

Videos as engagement tools

Patient videos that focus on disease education can be excellent engagement tools. Patients invest time in researching their medical conditions, treatments and side effects so equipping them with information that can assist them along the way is not only helpful in reducing worry and anxiety but also assists healthcare professionals by having calmer, well-informed patients.

Research has shown that educational videos can improve health literacy, self-efficacy and patient satisfaction. Increased knowledge and empowerment can lead to positive health behaviour change. (*PLoS One*, Denny et al.)

Specialists and healthcare professionals often report having to spend a long time explaining general hospital and surgical procedures to patients. Whilst patient–specialist face-to-face communication is vital, patients often report that they feel unsure and overwhelmed after specialist appointments. Video can equip them with knowledge and information that alleviates fear and uncertainty and helps make their health journey a more positive and empowered experience.

To learn more, visit <https://laundrylane.com/>.

Reference

1. Denny M. et al. Video-based educational intervention associated with improved stroke literacy, self-efficacy, and patient satisfaction. *PLoS One*. 2017 <https://doi.org/10.1371/journal.pone.0171952>.



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COVID-19 and the vulnerability of remote Indigenous communities

Dr Gabrielle O'Kane, CEO, National Rural Health Alliance

We are reminded all too often that COVID-19 doesn't discriminate. It can infect and affect anyone, regardless of age, location, socioeconomic status or other health circumstances.

Unfortunately though, it can be more devastating for some sections of the community than others. The situation in Victorian aged-care facilities has been a tragic reminder of the way in which this virus affects our most vulnerable in the community. That's why, when COVID-19 first hit Australia, it was so important — and remains just as important — that strong measures were taken to protect remote Aboriginal and Torres Strait Islander communities.

As the Department of Health notes, Aboriginal and Torres Strait Islander peoples and people living in remote communities are at greater risk of COVID-19 due to higher rates of other health issues in these communities, difficulties accessing health care, people often being very mobile and travelling often, and in many cases relying more on outreach services.

When COVID-19 hit, the message from many Aboriginal and Torres Strait Islander organisations was clear: protecting these remote communities was of the utmost importance. On 20 March, Pat Turner — CEO of National Aboriginal Community Controlled Health Organisation — told the ABC that it would be "catastrophic" if COVID-19 got into remote Indigenous communities, not only because of the potential loss of life, but also the loss of cultural heritage.

But the Australian Government was quick to act. From midnight on Thursday, 26 March — the day after the most widespread 'lockdown' measures were introduced across the country — travel restrictions for many remote communities were put in place. This was after some communities had taken matters into their own hands, such as the Anangu Pitjantjatjara Yankunytjatjara (APY) lands, which had closed their borders in early March.

As of September, these restrictions have eased to varying degrees across the country, but fortunately we have not seen a single COVID-19 case among Aboriginal or Torres Strait Islander people in remote communities. Thankfully, Turner's warning of catastrophic consequences never came true.

Sadly we can't say the same for indigenous communities in other countries — for example, in the United States the Navajo Nation, the largest Native American reservation, has been said to have had the country's worst outbreak when compared with any individual state.

But of course, this isn't to say that the travel restrictions haven't taken their toll on these remote communities, even if they have succeeded in keeping the virus out.

In the Northern Territory, residents of remote communities said that the border restrictions made it difficult or impossible for them to travel to buy essential supplies. There were also significant disruptions to supply chains for things like fresh food, making it particularly difficult for some local stores to keep healthy produce on the shelves.

Food security is already an issue in remote Aboriginal and Torres Strait Islander communities — 31% of people in these remote areas live in a household that had run out of food and couldn't afford to buy more, and 9% went without food when they ran out, according to the Australian Bureau of Statistics. The impact of disruptions to food supply chains would only have made things worse.

There's also the impact on Indigenous businesses in areas that have seen income streams dry up, particularly those who rely on

tourism. The \$123 million package announced by Minister Ken Wyatt on 2 April to support Indigenous communities will go some way to helping these businesses.

At the end of the day, history will probably show that acting swiftly and restricting travel to remote Aboriginal and Torres Strait Islander communities was the right thing to do. We did what few other countries have been able to do and kept COVID-19 completely out of remote Indigenous communities.

But we are frequently reminded by the Australian Government and by state and territory governments that we are fighting two battles — the health battle and the economic one. Nowhere is that clearer than in remote Aboriginal and Torres Strait Islander communities. That's why the post-pandemic recovery period must focus on economic support for these communities, including tackling issues around food security and affordable housing.

And then let's not just be content with getting things back to a pre-COVID level — let's use this opportunity to address some of the pressing health issues that were affecting Aboriginal and Torres Strait Islander people before the pandemic as well. That's things like access to health care, tackling structural racism, demonstrating a real commitment to addressing the social determinants of health and creating a healthcare system that is culturally safe for all.

While many of us are just happy to get back to how things were before the pandemic, we know that we should aim higher if we really want to improve the health of people in remote Aboriginal and Torres Strait Islander communities.

Laura is featured in our new Black Nightingale V Neck scrub top which is dedicated to the 200th anniversary of Florence Nightingale and a nod to the Year of the Nurse and Midwife 2020.

NNT's Petal Print



NNT: dressing healthcare workers since 1962

At NNT, we are committed to creating uniforms that foster safety and confidence in our healthcare professionals' working lives. Balancing functionality with style, we use innovative design and construction methods to produce high performance garments, characterized by a contemporary, professional look that belies comfort and easy care.

Our latest innovation, the "Petal Print" range which is now available in a variety of styles and colours, was identified as a key garment for the season, effortlessly working back with existing uniform ranges, or for those ready to make a bold statement.

NNT's Petal Print

The beauty of this versatile range is its suitability for a diverse size range, ensuring your entire team looks uniform, all while ensuring each individual's personality isn't lost in the process.

In addition to the style credits, this range is truly unique with the application of the Polygiene anti-bacterial finish, which is designed to keep you feeling fresher for longer.

To be your best, you need to wear the best and NNT's trustworthy reputation is built on the instinctive understanding of exactly what our customers require. Having dressed healthcare workers since 1962, we inherently understand your requirements and we are proud to be there every step of the way #becausewecare.

We sat down with Registered Nurse, Laura to understand why she chose a career in nursing and what it has been like to face COVID-19 on the front line.

NNT: Why did you choose a career in healthcare?

Laura: Being part of a team working towards a common goal is really satisfying. The industry allows for growth and further learning — there are so many different specialisations you can move into. Also, job security is very important, and there will always be a need for nurses.

NNT: What is the most rewarding part of your role?

Laura: My job is to make a positive difference to the lives of patients and their families. Even during some of the more difficult days at work, I have still been able to make a clear impact.

NNT: What do you feel is the biggest challenge in your industry right now?

Laura: COVID-19 has been very challenging. I'm incredibly proud to be a nurse right now, and to see how our industry has mobilised to protect our communities is nothing short of inspiring.

NNT: How does wearing a uniform impact your daily work life?

Laura: Being easily identifiable to staff and patients is crucial and long shifts are physically taxing, so I need comfort and functionality. When you look good, you feel good which is always a great boost to your confidence. Most of all, I love wearing a uniform because I don't have to think about what outfit to wear every day.

NNT: If you could design your own uniform, what would it look like?

Laura: There are so many different demographics in nursing and we all want to look good, so the design has to be comfortable and modern. No fuss to wear or wash is also essential. The NNT Scrubs I am wearing right now are perfect and I feel great in them.

NNT
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For more information visit
www.nnt.com.au or <https://bit.ly/33a6kLY>

Featured Products

Keep up with the latest industry innovations

Electrical leakage tester

The ULT-2000 Series Electrical Leakage Tester from BC Biomedical is designed to test the electrical safety of all types of diagnostic ultrasound transducers, independent of the ultrasound machine on which they are typically used.

The device tests the integrity of the outer insulation barrier of the transducer and capacitive leakage currents.

The device can be used for electrical leakage testing within the disinfectant reservoir of the TD100 CE Automated TOE Probe Disinfectant or the TOEClean Automated TOE Probe Cleaner Disinfectant.

The 'soft touch' transducer adapters are designed to eliminate the possibility of costly damage. These adapters utilise the multi-pin mating connector for the ultrasound transducer to be tested. The transducer electrical connector is subjected to only the same level of insertion and locking force that is usually seen when the transducer is connected to the ultrasound machine.

Features include a range of 0.5 to 500 μ A, designed to meet manufacturer transducer specifications; user-selectable challenge (test) voltage (90 to 275 VAC) and frequency (50 or 60 Hz); compatible with Dale Technology.

The device is available from AMT Group.

AMT Group Australasia
www.amtintlgroup.com.au



Hospital-grade disinfectant

Whiteley Corporation's Viraclean is a hospital-grade disinfectant used for infection control. It is effective against SARS-CoV-2 (the virus that causes COVID-19), which may be present on healthcare surfaces.

The result of years of intensive research into advanced cleaning and disinfecting technology, the product provides effective surface cleaning, particularly of high-touch areas (ie, doorhandles and benchtops). Effective surface cleaning combined with good hand hygiene will assist in protecting staff and patients throughout the winter season, which has a higher incidence of colds and flus.

Viraclean is a ready-to-use product with a pleasant fragrance. It is pH neutral with good materials compatibility.

The Viraclean label lists that it is proven to kill: *Acinetobacter*; *Candida albicans*; Coronaviruses including SARS-CoV-2 (COVID-19); *Enterococcus faecalis* (VRE); *Escherichia coli* (E coli); Hepatitis B Group virus; Herpes Simplex virus; Influenza virus; *Klebsiella pneumoniae* (CPE/CRE); *Proteus vulgaris*; *Pseudomonas aeruginosa*; *Salmonella choleraesuis*; and *Staphylococcus aureus* (MRSA or Golden Staph).

For more information: www.whiteley.com.au/infection-prevention.

Whiteley Corporation
www.whiteley.com.au



Antimicrobial film for coronavirus protection

UniPrint's antimicrobial film has recently passed certification that proves its efficiency in combating the viral load of coronaviruses. The characteristics of antimicrobial protective film were shown to reduce coronavirus viraemia by 95% after a contact of 15 min, and nearly 99.9% after a contact of one hour (compared to an untreated membrane).

The innovative antimicrobial film is made of clear cast PVC with a thickness of 60 μ m. It contains antimicrobial agents that inhibit and neutralise the growth of microbes on its surface. This technologically advanced film has been tested by the Pasteur Institute and proven to quickly inhibit bacteria and coronaviruses, preventing their spread.

The antimicrobial film is smooth, waterproof, a non-irritant and compatible with a range of cleaning protocols. It is also resistant to most chemical agents, alcohol, diluted acids and oils. The antimicrobial activity can be maintained after 365 cleanings with water, alcohol and chlorine bleach.



The antimicrobial adhesive film is designed for antimicrobial protection of surfaces in the workplace, providing an easy-to-install approach to high-traffic surfaces where hygiene protection is required. It is fully conformable with a matte finish.

It is suitable for indoor and outdoor use, and can be applied to any sign or printed material. The film can be used to provide protection for public areas, hospitals, public transport, gyms, aged care and offices. It is suitable for furniture (communal dining tables, reception benches and chairs), touch screens, counters, windows, equipment and any high-traffic/high-touch surface areas.

The antimicrobial film can be used as an added layer to coronavirus protection plans.

For more information: www.uniprint.com.au/anti-microbial-protection.

UniPrint Pty Ltd
www.uniprint.com.au



For more details on these featured products, and more, go to www.hospitalhealth.com.au/products



Uniform supplies

NNT's healthcare range of uniforms is designed to meet the rigours of the everyday working life of healthcare professionals in any situation. The range is designed to be durable, flexible and comfortable, and offers functional advantages to look after staff and patients.

With 'wash and wear' fabric, the Matt Jersey Twist Neck Short Sleeve Top has been designed to become a wardrobe favourite.

NNT Uniforms
www.nnt.com.au

Anti-choking device

LifeVac is a non-powered, single-patient portable suction device developed for clearing the upper airway, intended to be used in an emergency when standard current choking protocol has been followed without success. LifeVac has been registered globally as a Medical Device.

Generating over 300 mmHg of suction, LifeVac requires no maintenance — the only consumables of the device are the masks that should be replaced every 3–5 years. The device comes in a variety of kit options to suit any workplace or setting.

LifeVac is listed on the ARTG as a Class 1 Medical Device and under the NDIS as a home safety product.

LifeVac Australia
www.lifevac.net.au/



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SALMONELLA
SACCHAROMYCES CEREVISIAE
MRSA, C.DIFF(SPORE FORM) AND NOROVIRUS

Flinders Neonatal Unit

When a basin becomes the difference between life and death

In June 2020, five babies at Flinders Medical Centre Neonatal Unit were infected with a rare bacteria — *serratia marcescens*. The outbreak was linked to a hand basin in the neonatal room, where a swab from the drain tested positive for the bacteria.

A 2017 study published in *Applied and Environmental Microbiology* modelled dispersion of green fluorescent protein (GFP)-expressing *Escherichia coli* from sink wastewater to the surrounding environment.

Three experiments tested whether live organisms in a sink's P-trap could be dispersed by running water by adding ~1010 CFU/mL GFP-expressing *E. coli* in saline to an autoclaved P-trap.

The researchers discovered that when GFP-expressing *E. coli* cells were allowed to mature in the P-trap, a biofilm extended upwards over seven days to reach the strainer. This led to droplet dispersion when the faucet was turned on. The authors expressed their concern of "an increasing number of reports



implicating *Gamma-proteobacteria* as often carrying genes of drug resistance from colonised sink traps to vulnerable hospitalised patients".¹

Taps discharging into, or nearby wastes, transfers bacteria and biofilm, undoing the whole benefit of a handwash and causing hazardous situations around the area. A rear offset waste ensures taps will not discharge into a waste, and that spray pattern from handwash will not aerosol bacteria and biofilms from inside waste.

Australian-owned company Gentec Australia has launched a range of healthcare basins specifically designed to prevent infections by offsetting the drain hole. The patented design prevents biofilm and bacteria aerosol as well as splashback from the waste during handwashing. The basins are designed to improve infection control, with: rear offset waste to eliminate aerosol from taps and spray pattern from a handwash; seal installation to eliminate bacteria creep into basins; antimicrobial technology; and sloped surfaces to prevent bacteria growth in stagnant water.

These solutions are designed to prevent infectious diseases spreading from hospital staff to other staff and patients.

Reference

1. Kotay, S., et al. 2017. Spread from the Sink to the Patient: In Situ Study Using Green Fluorescent Protein (GFP)-Expressing *Escherichia coli* To Model Bacterial Dispersion from Hand-Washing Sink-Trap Reservoirs. *Applied and Environmental Microbiology*, 83(8).

Digital Health Institute Summit 2020

The Digital Health Institute Summit 2020 will unite the digital health movement in 2020, one of the health sector's most challenging years. It presents a unique opportunity to reconnect with like-minded peers and forge new alliances as we bring together clinical leaders, researchers and forward thinkers to present their latest innovations, best ideas and practical case studies.

Over 100 speakers from around the world will present on a wide range of digital health topics. Keynote speakers include Dr Stephen Klasko, Prof Carolyn McGregor AM, Prof Michael Kidd, Adj/Prof Shelley Nowlan and many more luminaries.



There are two ways to attend the Summit — in person or online. One registration gives you access to all five city programs plus the Global Speaker Showcase, an online group of digital health leaders and expert presenters. Full conference content will be available on-demand for three months post-event.

More info: <https://digitalhealth.org.au/institute-summit>.

Date: 5– 25 November 2020

Venue: In-person in Brisbane, Perth, Sydney or Adelaide and online

Contact: events@digitalhealth.org.au
+61(3) 9326 3311

Organiser: Australasian Institute of Digital Health (AIDH)



Medical panel PC

The 21.5" point-of-care medical panel PC from Avalue Technology provides a balance of performance and features, with its slim and lightweight design.

Designed for operating and exam rooms, bedside entertainment and nursing stations — including mobile carts — the HID-2132 is capable of helping professional healthcare workers complete daily tasks in healthcare institutions.

The product is available from Tekdis.

Tekdis

www.tekdis.com.au

Location services solution

Hospital Products Australia (HPA) and Zebra Technologies have partnered to provide Real Time Location Services (RTLS), a solution that helps identify, track, locate and monitor every patient, staff and asset in an organisation. RTLS provides real-time data into the health and whereabouts of key assets and reduces costs of physical asset losses.



Sensors and tags are placed on critical medical assets and devices: workstations on wheels, medical tablets, patient blood bags, IV pumps, heart monitors, beds, wheelchairs and anything that influences patient outcomes. Discreet beacons and RFID readers automatically note the location of the asset or device as it moves — providing real-time visibility into every item.

Staff get instant asset locations using HPA's customer service portal, RightNow, and in-depth reports are generated through Zebra's cloud-based Savanna software. The two layers of access give staff visibility to all the critical supplies they need, freeing up more time to focus on patient care. Management can access utilisation reports, which will help to reduce unnecessary purchase of extra inventory, while also allowing them to easily monitor trends and order before supplies fall below critical levels.

Hospital Products Australia

www.hpaust.com

Disposable face shield

Bollé Safety's line of public health products is designed specifically for the healthcare and service industries.

The DFS2 is a disposable face shield, fitted with an elastic headband that fits all head sizes. Its 22 x 33 cm screen protects the face from splashes, droplets and body fluids. The product is made of a material designed to resist fogging, which can be a real issue with eye protection functionality. DFS2 is a simple, economical face shield that can be worn over glasses.

The product is not intended to be used against mechanical hazards. Always read and follow the instructions for use.

Each face shield comes in its own flat pack and is ready to use upon opening, which makes the product well suited to the first responder and medical personnel.

The product complies with AS/NZS 1337.1 section 3.3.4 "Protection against splashes".

Bolle Safety AU Pty Ltd

www.bollesafety.com.au



Air purifier

The AirClean DE20 Plus from InovaAir is a medical-grade H13 HEPA air purifier that filters 99.95% at 0.3 microns efficiency.

This air purifier is designed to filter sub-micron particles, including bacteria and viruses, ultra-fine dust, allergens and pollution from main roads and construction.

The AirClean DE20 Plus features precise digital controls with quiet operation, designed for 24/7 operation.

Filter life is continually monitored and displayed along with preset night and express clean modes.

InovaAir Australia Pty Ltd

www.inovaairpurifiers.com.au

Building the robotic cleaning workforce



Current global events have resulted in increased demand for autonomous cleaning solutions, particularly in healthcare environments. In response, professional cleaning solutions and services provider Nilfisk has added to its portfolio of autonomous solutions, launching the Nilfisk Liberty SC60 — a robotic floor scrubber powered by Brain Corp's BrainOS AI software platform — and a UVC light-based solution for Nilfisk's existing robotic floor scrubber, the Nilfisk Liberty SC50, to target viruses and other pathogens.

"During the past months, cleaning has become even more essential for businesses and institutions, as they face new cleaning demands and requirements brought on by the pandemic," Nilfisk CEO Hans Henrik Lund said.

"Many have turned to autonomy to meet these new demands, and we are extremely honoured to be their partner. Together with our technology partners, we work each day to drive innovation in the market and deliver solutions to boost our customers' cleaning performance — and the SC60, the newest member of our autonomous portfolio, is a testament to that.

"Years of development have introduced state-of-the-art robotic technology within professional cleaning and, as a leader in intelligent cleaning, Nilfisk is committed to operating at the forefront of this evolution. We are, therefore, very excited to add two new innovative solutions to our portfolio," Lund said.

"Together with our strong technology partners, we constantly strive to deliver the market's best autonomous solutions,

tailored to our customers' unique cleaning requirements, and environments, in order to elevate their standard of clean."

UVC disinfection

Designed by partner Carnegie Robotics, Nilfisk's UVGI solution was created during the peak of the COVID-19 pandemic to target viruses and other pathogens.

The solution uses UVC light to inactivate viruses and other pathogens and can be attached to the Nilfisk Liberty SC50. The robotic floor scrubber removes dirt and debris while the UV technology disinfects the surface simultaneously. The machine aims to deliver reliable, effective cleaning and disinfection of indoor spaces where hygiene is of the utmost importance, such as hospitals, airports, supermarkets and schools.



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How to evaluate masks and avoid fake products

Piksters

Sadly, the Australian market has been flooded by poor quality masks that don't provide enough protection for healthcare workers (the TGA is currently investigating ARTG-included devices). The masks' defects are not always obvious from either the packaging or by non-microscopic inspection. Some can look and feel like a suitable mask despite falling well short of the Australian performance requirements.

What is the Australian Standard?

Surgical or medical face masks are classified as Level 1, 2 or 3 under the AS 4381:2015. They are categorised according to:

- Their bacterial filtration efficiency (BFE).

- Their resistance to blood and fluid penetration as a splash at about an arterial pressure.
- Their breathability (the differential pressure inside versus outside of the mask fabric).

Note that Australian healthcare standards do not require a measure of particle filtration or a viral filtration efficiency rating, although this may be provided by the reports from the manufacturer.

Also note some N95 masks, which are mainly used for dust and particle filtration to 95% of defined 0.1 μm particles, may be less effective against clinical challenges involving fluids. The hydrophobic layer in

Some can look and feel like a suitable mask despite falling well short of the Australian performance requirements.



AS 4381 masks is to prevent splash, fluids and droplets coming through your mask.

Tip: you can do a very rough test for hydrophobicity yourself by putting a cup of water into your mask — it should hold the water without leaking if it is Level 2 (the actual test is a blood-like viscous fluid fired from a gun at 120 mmHg, not a static, sustained pressure). However, if you have a fake medical mask, eg, layers of paper or cotton, it will leak. Likewise, tiny droplets or aerosols of fluid created in sneezes and coughs may get through as well. A proper hydrophobic layer allows air but stops fluid.

Level 1 face masks filter at least 95% of bacteria and resist splashes at 80 mmHg (typical diastolic blood pressure). These are suitable for consultations with patients with URTIs and clinical procedures where the risk of splashes is low.

Level 2 face masks filter at least 98% of bacteria and resist splashes to 120 mmHg (eg, a cut artery at normal systolic blood pressure). They are suitable for use during procedures where light-to-moderate splashes and aerosols are expected such as biopsies, wound debridement/closures and dentistry.

Level 3 masks filter at least 98% of bacteria and resist splashes to 160 mmHg. They are intended for procedures that generate large amounts of aerosols or where the risk of splashes is high. These are generally required for more invasive surgical procedures that are typically performed under general anaesthesia.

How to spot fake masks

The easiest way to avoid being scammed is to ask your supplier the questions below. If

they pass, get a sample and tip a cup of water into it. If it leaks it's probably not Level 2, and it probably doesn't have a hydrophobic layer. Some test certificates are photocopies from other suppliers, forgeries etc so if possible, ask the supplier why they are confident of the test certificate authenticity. Here are some other questions:

1. Is your product entered on the ARTG (Australian Register of Therapeutic Goods) as a medical device?

Every mask sold to healthcare providers must be. However, it is still very easy to list a substandard mask on the ARTG, and listing the product per se does not prove its conformity to the Australian Standard! So, keep asking...

2. What Australian Standard level are the surgical masks rated at? Can I have evidence of conformity?

Some suppliers will not know the mask level or will say incorrect things... for example one company said the masks were Level 2, but



their technical report had no evidence of a breathability test or fluid resistance, so it couldn't pass the Level 2 requirements despite their assertions it was Level 2. Beware of masks that don't specifically address the Australian Standard and its requirements. Also bear in mind a CE Type II face mask is not equivalent to an Australian Level 2. (Europe has no splash resistance requirement until it is rated Type IIR).

3. Are the masks AS 4381 compliant? Does the supplier know what technical parameters are required to make it comply?

Some suppliers we speak to are unaware of exactly what is required of masks of different levels. If they themselves don't know how to verify the quality of the products they sell it is unlikely that you are getting what you pay for. Some masks are marketed as compliant and might meet some of the criteria such as the BFE but fail in other areas such as breathability or fluid resistance.

4. Have the masks been INDEPENDENTLY tested for compliance?

The lowest level of evidence is a 'declaration of conformity'. Traditionally this has been acceptable. We strongly recommend against that now. Given the widespread distribution of substandard masks it is best to ask the supplier if they have independent and preferably internationally recognised test reports proving their claimed BFE, fluid resistance and breathability (preferably from a lab not in the same country as where the masks are manufactured).



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Medication safety is everyone's business

Kristin Michaels, SHPA CEO

Medicines are a pillar of health care, used across all settings from cutting-edge trial immunotherapies that harness the body's own immune system to off-the-shelf tablets that treat common conditions like hay fever or migraine.

A downside of this ubiquity is that medicines can quickly cause harm for many reasons, including interactions with other medicines and personal diet choices, causing damage through over- or underuse, or simply being out of date.

With the use of medication being the most common healthcare intervention, and more than 9 million Australians taking a prescribed medication every day, the challenge of upholding safety has never been more important.

A 2019 report highlighted that 1.2 million Australians have experienced an adverse medication event in the last six months and 250,000 hospital admissions annually are a result of medication-related problems, costing Australians \$1.4 billion each year. The transition of care from hospital back into the community or aged care remains a known challenge, as identified by the Royal Commission into Aged Care Quality and Safety.

Bold steps to confront the challenge have been taken, with Health Minister Greg Hunt announcing Medicine Safety and Quality Use of Medicines as Australia's tenth National Health Priority Area one year ago.

As medication experts, hospital pharmacists lead and facilitate the safe and high-quality use of medications at the most critical stages of the care journey, when Australians

are at increased risk of adverse effects and require the closest attention. In these centres of healthcare excellence, the most unwell Australians are treated, and the most complex and high-risk medications are used.

Hospital pharmacists are central to the collective effort to improve care outcomes through a stronger focus on medication safety in Australia. The Society of Hospital Pharmacists of Australia (SHPA)'s Medication Safety Position Statement supports this crucial endeavour, advocating that:

- Medications can be harmful if not used appropriately, therefore medication safety is core business for all health service organisations.
- Consumers are entitled to safe, effective and timely medication management services while they are undergoing medical treatment.
- As pharmacists are experts in medication management, they should be integrated into the multidisciplinary healthcare team, working in partnership with health practitioners and consumers, to lead, facilitate and promote high standards of safe and timely prescribing, dispensing, administration and monitoring of medications, ensuring safe and optimal medication use for all Australians.

So what does this look like in practice?

Working with our members at the coalface, four priorities have been identified by SHPA's Medication Safety Specialty Practice Leadership Committee to achieve better patient health outcomes to mitigate the risks of medication-related harms:

1. Expansion of Partnered Pharmacist Medication Charting (PPMC) to all Australian hospitals.
2. Use of Interim Medication Charts in key transitions of care settings.
3. Seven-day, extended-hours access to clinical pharmacy services in all health settings where medications are being used.
4. Pharmacist-led medication safety programs in all Australian hospitals.

Each of these innovations unlocks the potential of hospital pharmacists as members of the multidisciplinary care team, while keeping the safety of the patient centred. They range from small modifications to 'business as usual' to the significant revision of traditional practice, all based on the expertise of members, and evidence of the value of hospital pharmacy services. Many are already growing in prevalence, implemented across Australia.

While the challenge is significant, research shows approximately 50% of all medication-related harm is preventable and the appropriate use of medications fundamentally contributes to significant health gains.

A coordinated national approach that identifies and promotes best practice models and measures progress towards reducing medication-related harm has the potential to improve the health of Australians and create savings across the healthcare system.

Medication safety is everyone's business but, with greater latitude to lead evidence-based innovations that improve the safety of patient care, hospital pharmacists can lead the way.

Cutting through the dirt on disinfectants

How to make the best decision for your environment — through COVID-19 and beyond

During these challenging times, there has been a lot happening in the world of infection control and that has brought out the good and the bad in our society.

This has included the good in reputable companies that continue to provide quality products and advice for many years and the bad in those that sprang out for the opportunity to profit from an unfortunate situation.

We have all heard the stories of being bombarded with marketing material. It has been a difficult task to sift through all of the information and make sure you are making the right choices for you and the environment you work in. Promises of natural ingredients and long-lasting effects well beyond what would be normal protocol for environmental cleaning are among those and, sadly, sometimes the promises do not deliver the results you need.

While most people who work in a healthcare environment are aware of the rules and regulations surrounding claims made on products and advertising, there are many people who are not as well versed.

Get to know your TGA

The first port of call when making any consideration is to visit the Therapeutic Goods Administration website.

The Therapeutic Goods Administration (TGA) is part of the Australian Government Department of Health and is responsible for regulating therapeutic goods including prescription medicines, vaccines, sunscreens, vitamins and minerals, medical devices, blood, and blood products.

You can also see what the role of the TGA is by watching their information video at <https://www.tga.gov.au/role-tga>.

The TGA has published a list of products that have been approved to make the claim against COVID-19. This can be found at <https://www.tga.gov.au/disinfectants-use-against-covid-19-artg-legal-supply-australia>.

All products regulated by the TGA will be assigned an ARTG number beginning with an R or an L depending on whether it is Registered or Listed (this is the Australian Register of Therapeutic Goods number).

Responsibility of the supplier and you the decision maker

It is important to do further research to ensure you are making the best decision when choosing products. This is where responsibility falls beyond the TGA and into the hands of the product owner and those who advertise and subsequently, to you, to check whether the products will do what you need them to do.

There are many products to choose from but there are easy ways to cut through marketing jargon and to clearly see what the differences are.

Ways for you to do this are:

- Ask or download the ARTG summary on the product and check what it is listed for.
- The advertising claims should not go beyond what is mentioned on the summary as this has not been verified by the regulatory body.



- Some products are exempt from the TGA and cannot make specific claims in their marketing. These will not have an ARTG number assigned to them.

- Request the MSDS (Material Safety Data Sheet) as this will give you information on the product such as its composition, its usage and safety concerns.
- It will also tell you how the product needs to be stored and what safety equipment needs to be worn if any.
- This is important information when considering where the product will be used, by whom and where.

Looking beyond COVID-19

COVID-19 has been a big challenge for us all. As an enveloped virus, we know that it is one of the easiest pathogens to break down with disinfectants. However, in our environments, there are pathogens that are not as easy to break down. Although the TGA COVID-19 list provides products proven to be effective against this virus, some of the products do not go far beyond this capability.

This is where the research done with ARTG summaries and MSDS information is vitally important.

When searching to have better all-around protection against pathogens, there are fewer products that will achieve this and many factors to consider which are relevant to your situation and the environment you want to protect.

Anaeron is an Australian owned and operated company which has been providing quality products, advice, and guidance on how to best make the right decision for you. It is important to keep up to date on latest developments, regulations, and guidelines and this is where Anaeron can also assist.

We are immensely proud to distribute a range of products that are made right here in Australia by Steri-7 Pty Ltd.

- S-7XTRA solutions and wipes are listed on the ARTG as a Hospital Grade cleaner disinfectant working in (1) clean or dirty conditions that cleans and kills. Bactericidal, virucidal including Coronaviruses including SARS-CoV-2 (COVID-19) (30 minutes for parvovirus), sporicidal (including C-Difficile), tuberculocidal, fungicidal and kills mould, and that provides a reactive barrier that stays active between cleans for ongoing protection.

Steri-7 products have the philosophy of Break, Treat, Prevent:

- **Break** the chain of infection by using Steri-7 products to
- **Treat** the affected surface with a non-toxic, pH Neutral Cleaner Disinfectant that is effective and protects in between cleans and
- **Prevent** occurrence of a pathogen being re-introduced.

Contact us when considering products for your facility and put S-7XTRA products to the test for today's challenges and beyond.

(1) Excerpt from ARTG Summary.



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In Conversation...

with Professor Roianne West:

on a mission to achieve equity in our health system

Jane Allman

Why do vast gaps exist between Indigenous and non-Indigenous Australians when it comes to health outcomes? What would you say if someone told you that racism is embedded in Australia's healthcare system, and that the system itself was perpetuating inequities?



In Conversation provides a glimpse into the life of an 'outlier' — an exceptional person going above and beyond to improve outcomes in their field. Professor Roianne West is an inspiration, taking on the immense task of unravelling racism in Australia's complex health system through innovative training and education, and inspiring a generation of healthcare workers to understand the impact of racism on the health outcomes of Aboriginal and Torres Strait Islander people.

In addition to her role as Foundation Professor of First Peoples Health and Foundation Director of the First Peoples Health Unit at Griffith University, Professor West is also an invaluable member of the Lowitja Institute Research Advisory Committee, and her contributions in this role have shaped the direction of Aboriginal and Torres Strait Islander health research throughout Australia.

Born and raised Kalkadoon on her grandmother's ancestral lands in North West Queensland and with connections to the Djaku-nde peoples in South West Queensland, Professor West's pioneering work in Aboriginal health research and health workforce reform began 25 years ago as an Aboriginal health worker at an Aboriginal Community Controlled Health Service.

Awarded the 2020 Lowitja Institute Cranlana Award for her outstanding research leadership, Professor West's ultimate mission is to improve health outcomes for Aboriginal and Torres Strait Islander people by focusing on boosting the number of Indigenous Australians in the health workforce and

finding the right training and educational frameworks that positively impact on retention and completion rates. This process involves rigorous assessment of educational and training models — to find the best way to teach Aboriginal and Torres Strait Islanders and prepare them for the health workforce.

"Cultural safety is essentially a euphemism for racism," Professor West quotes Professor Gregory Phillips.

"The aim of my work is to prevent racism from being perpetuated. I want the next



“When we talk about clinical safety, cultural safety is a vital component. Clinical safety is not possible without cultural safety.”

generation of health workers to understand and acknowledge our past and how that has shaped them, their professions, and the health system and policies that we have today. I want them to know how to provide care to First Peoples on an individual, organisational and system level.”

Ahpra, through the Aboriginal and Torres Strait Islander Health Strategy Group, defines cultural safety as determined by Aboriginal and Torres Strait Islander individuals, families and communities.

According to Ahpra, culturally safe practice is the ongoing critical reflection of health practitioner knowledge, skills, attitudes, practising behaviours and power differentials in delivering safe, accessible and responsive health care free of racism.

“When we talk about clinical safety, cultural safety is a vital component. Clinical safety is not possible without cultural safety,” Professor West explained.

Previous policies have seen things done to, rather than with, Indigenous Australians. This stems from the idea that non-Indigenous Australians know what's best and so should

be the ones to make the decisions. This idea is at the core of why racism is perpetuated in our systems and institutions.

Professor West's work strives to disrupt the system through innovative training and education, so that the next generation of health workers don't just do what has always been done, but work with individuals and each other to make the system better.

“Our innovative training and education frameworks are designed intentionally to invoke discomfort. We want non-Indigenous health students to feel emotion, because this is what will move them and connect to new learning, and this is what will instigate change. If students don't understand that invasion and colonisation has had an impact, racism will continue to perpetuate.”

Professor West explained that the very presence of Indigenous Australians in the health workforce brings often unrecognised Indigenous knowledge. Although this knowledge is difficult to articulate, this is what we need to acknowledge and, where possible, teach to non-Indigenous workers.

Power dynamics play an important role in unravelling systemic racism. Australia's healthcare system is complex, with many hierarchies, but giving agency to Indigenous Australians at an individual, organisational and system level is paramount. Ensuring Indigenous leadership in key decision-making forums is vital to disrupt the existing system and allow Indigenous voices to be heard and valued to make a difference.

Why, for example, was it only in 2019 that we saw an Indigenous Australian placed in charge of the country's Indigenous Affairs portfolio? A non-Indigenous person leading the Indigenous Affairs portfolio is as ridiculous as Tony Abbott being appointed Minister for Women.

As members of communities and societies, we embed cultural concepts unconsciously, and it's not until we begin to question the operations of certain systems and institutions that we can address racism.

To help close the gap in healthcare outcomes, Indigenous voices and choices need to be included when informing health policies so that they become part of the fabric of our health system.



Image credits: Celsus

SA hospital sets example in pandemic handling

South Australia has been recognised for its successful management of COVID-19, with the 'once controversial' Royal Adelaide Hospital (RAH) on the case management frontline.

Designed and constructed to deal with extreme events — from pandemics to earthquakes — teams within the hospital have come together in difficult circumstances to deliver world-leading health outcomes during the pandemic.

A video produced by hospital consortium manager Celsus shows RAH's performance during the pandemic and will be used as a resource for hospitals around the world, to improve their practices and performance in the wake of COVID-19.

Celsus produced the video to highlight how the new RAH has played a crucial role in South Australia's management of COVID-19 to date. It has already been circulated to more than 30 of Celsus's global investors and financiers, receiving positive feedback on how South Australia, and the RAH in particular, has dealt with the pandemic.

Many of these investors are involved in funding and managing major hospitals around the world, so lessons learned in South Australia will almost certainly be applied globally.

Celsus intends to use the video in future industry presentations locally and internationally to demonstrate why the RAH — from its design and construction through to everyone who works at the hospital — has so far been successfully managing the pandemic.

RAH was designed and built for a pandemic with notable features including:

- Single patient rooms to reduce the risk of infection and cross-contamination.
- Facilities in each individual room can be monitored and changed from a central point, including temperature settings.
- The air-conditioning system can be set to 'pandemic mode', which isolates dedicated areas within the hospital to avoid cross-contamination.
- Treatment facilities are 'vertically stacked' to provide quick and direct access from the rescue chopper helipad down to the emergency department, intensive care units, technical suites, blood bank and laboratories.
- COVID testing clinic facilities were able to be set up in a way that ensured people being tested were kept separate from other patients and hospital staff.



- Automated guided vehicles ferry medical supplies, food and linen throughout the hospital with minimal human contact.

"I think South Australia has done brilliantly," Central Adelaide Local Health Network CEO Lesley Dwyer said.

"I often say 'Where else would you want to be in the world right now?' You know you're in the safest country and in the safest state. And what we have been able to do is use the assets that we have such as the building.

"But the true asset is the partnerships that we have and the way that we deliver care. So I describe it as a moment where this building has really come into its own. We've learnt to love it."

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*WHO guidelines on hand hygiene in healthcare. World Health Organisation, 2009

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