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INFECTION CONTROL ISSUE



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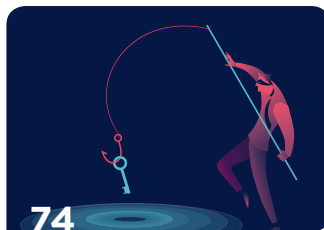
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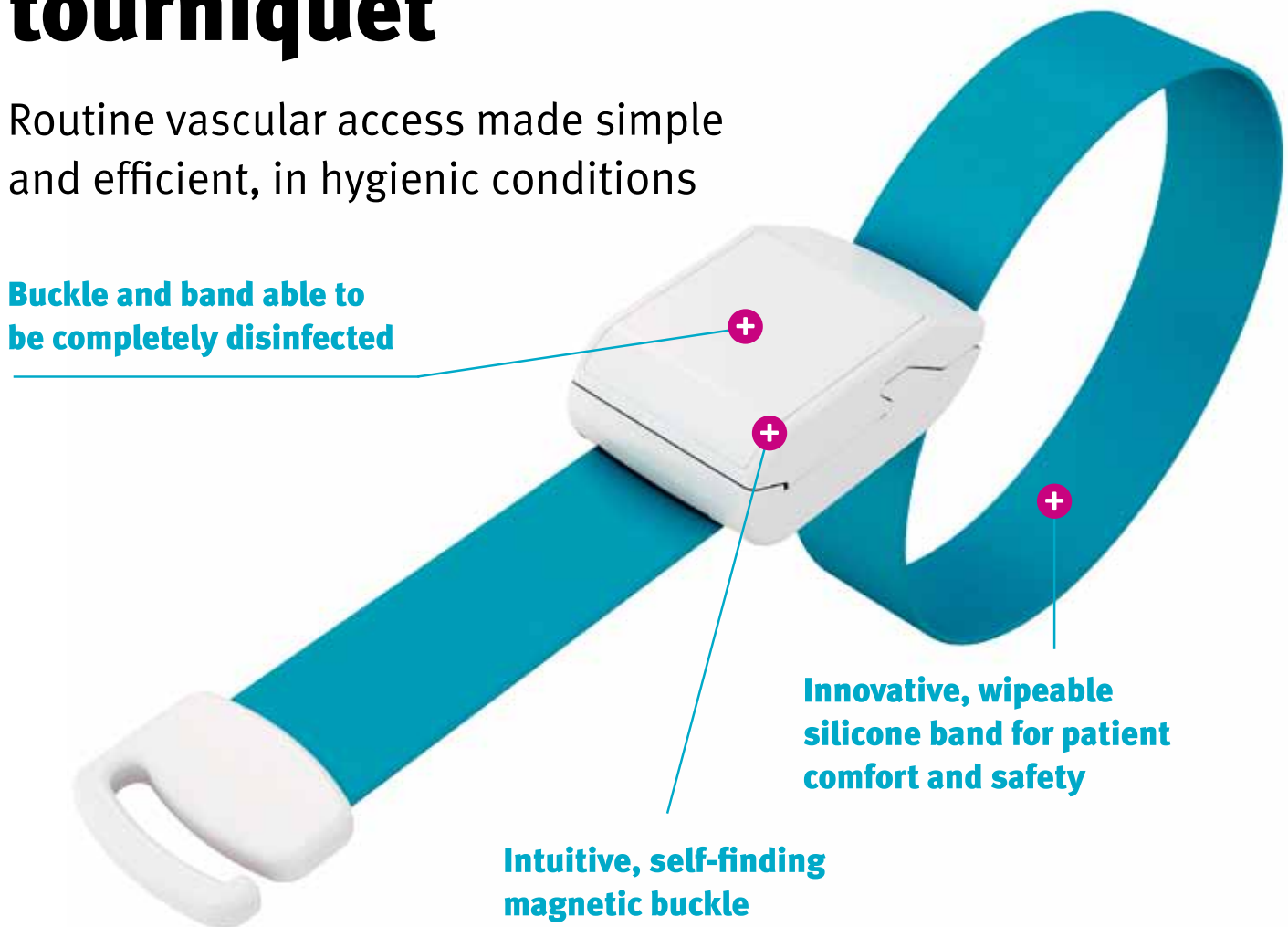
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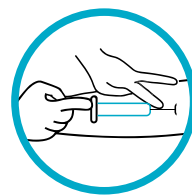
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Welcome to our Spring issue

Healthcare-acquired infections (HAIs) present a significant disease burden, with more than 170K infections occurring in public hospitals in Australia, resulting in 7583 deaths.

This is according to a paper, titled Burden of five healthcare associated infections in Australia, published in *Antimicrobial Resistance and Infection Control* journal. The five most frequent HAIs are: healthcare-associated *Clostridioides difficile* infection (CDI), healthcare-associated bloodstream infection, urinary tract infection, healthcare acquired pneumonia and surgical site infection (SSI), according to the report.

Interestingly and sadly, as a comparison, motor vehicle injuries contribute 180 disability adjusted life years (DALYs), infectious diseases 370 DALYs and respiratory diseases 1380 DALYs a year in 2015, the report suggests. DALYs, as most of you may be aware, provide a measure of healthy life lost, with one DALY representing the loss of the equivalent of one year of full health.

Considering the above statistics, it's a no-brainer that HAI prevention needs continued investment and research support.

In this issue's lead article, we feature an internationally recognised infection prevention and control researcher, Professor Brett Mitchell from The

University of Newcastle. With the growing threat of antimicrobial resistance and rising infections in health as well as non-health settings, Mitchell has taken it upon himself to transform the infection prevention landscape and was recently recognised with the National Health and Medical Research Council (NHMRC) award for his work.

While infection prevention and control (IPC) is one of the key themes in this issue, also featured are interesting and insightful articles on a range of topics, including chronic disease management, rural health care, clinical trials, addressing allergy issues, new low back pain standard, communication and patient outcomes, AI in health, the opioid epidemic, exciting healthcare design projects and more.

Hope you enjoy this information-packed issue, and as always, if you would like to contribute an article or a thought leadership, or have feedback to share, please send an email to hh@wfmedia.com.au.

Mansi Gandhi

Editor, H+H

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WANT TO CONTRIBUTE?

We welcome articles and research reports from health professionals across Australia for review for the quarterly print publication and our daily web page. If you have a story you think would be of interest, please send an email to hh@wfmedia.com.au.



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The Rounds

Updates in health care



Study explores techniques for reducing needle anxiety

A University of South Australia study has found two new nurse-led techniques that help reduce needle fear in primary-aged children. Based on a preliminary study involving children aged 8–12 years, the techniques are:

- Divided Attention — where a child's attention and expectations are drawn away from the needle.
- Positive Memory Reframing — where a child's exaggerations about the distress and discomfort of needles are redressed through discussion about the positive elements of the experience so that they form more realistic memories of the event.

The Divided Attention technique involved a one- to two-minute distraction game where a nurse tapped the child's arm above and below the vaccination spot in a random order, with the child focusing their attention on guessing which spot was touched each time. This game takes advantage of the potential analgesic effects of distraction.

The Positive Memory Reframing technique involved talking to children about a past injection and emphasising positive aspects, such as how brave the child was and praising specific strategies they used to reduce their own distress, for example, deep breathing and looking away. The aim is to foster a sense of self-efficacy to help children better cope.

The lead researcher, UniSA's Dr Felicity Braithwaite, said, "For many children, undergoing a needle procedure can be painful and distressing.

"Negative experiences of vaccinations in childhood can often lead to medical avoidance and vaccine hesitancy into adulthood, which can have devastating consequences when it comes to outbreaks of preventable diseases.

"By investing more time into techniques to help children manage their fears about needles, we hope to change these outcomes and deliver better health outcomes for the next generation."

The study involved 41 children and their parents, with participants randomly allocated to one of four groups — usual care, divided attention, positive memory reframing or a combination of the latter two interventions. Clinical outcomes were assessed at baseline, immediately post-vaccination and at two weeks post-vaccination.

Both strategies were tested in non-clinical settings (such as schools) to maximise the potential of broad vaccination programs that deliver minimal distress for children.

Acute work-related violence: new care model to improve hospital safety

The Sydney Local Health District (SLHD) will implement a new care-model where a specialised experienced team will be available 24/7, to aid in preventing and responding to acute work-related violence.

Department of Customer Service Executive Director Investigations & Enforcement Valerie Griswold said the new program was part of an enforceable undertaking secured between SafeWork NSW and SLHD following a workplace incident in 2019 where three nurses and a patient were stabbed by another patient in a Sydney hospital.

"A suite of strategies have been agreed to, including the implementation of a Behavioural Escalation Support Team, which will create a new health industry benchmark in workplace health and safety," Griswold said.

"As part of the agreement, the SLHD will develop and accredit a Graduate Diploma in the Assessment and Management of Acute Behavioural Disturbances to support staff to develop specialist skills in the management of work-related violence and aggression.

"The course will focus on increasing an understanding and awareness of factors of behavioural disturbances including mental illness, drug and alcohol abuse, dementia or delirium, and 25 scholarships will be available to clinicians from across the sector," Griswold said.

The enforceable undertaking entered into by SLHD included an agreement to spend more than \$3 million to promote workplace safety, including the employment of a program manager for the safe care of mental health and behaviourally disturbed patients.

Enforceable undertakings are legally binding agreements between SafeWork NSW and other organisations that constitute an alternative enforcement outcome to a criminal conviction. To be accepted, enforceable undertakings must demonstrate substantial, tangible work health and safety benefits to the workplace, industry and the community.

For more information on enforceable undertakings visit <https://www.safework.nsw.gov.au/compliance-and-prosecutions/enforceable-undertakings>.



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The Rounds

Updates in health care

Collaboration to deliver antiviral face masks and other PPE

Textile technology company Xefco and Deakin University researchers have joined forces to deliver longer-life antiviral face masks and other personal protective equipment (PPE) that safeguard against infectious pathogens like COVID-19.

The project, now in its final stages, is said to have improved the durability of already-developed antiviral and heat-reflective metallic coatings for textiles.

Tom Hussey, CEO at Xefco and lead of the research collaboration, said the outcomes of the research and development (R&D) were poised to increase the quality and longevity of antiviral masks and other critical PPE manufactured in Australia.

"By advancing the metallisation technologies, we have created a more durable textile for PPE that can be used over extended periods while providing improved protection against COVID-19 and other viruses," he said.

"In addition to increasing the life of the product, our research has generated new possibilities for repurposing the materials at the end of their life to create a circular supply chain and reduce the consumption of raw materials."

Dr Alessandra Sutti, Associate Professor at Deakin University's Institute for Frontier Materials (IFM), said the project demonstrated the importance of knowledge translation that focused on extending product life and repurposing existing materials.

"IFM's researchers have made significant improvements to the durability of the materials," she said.

"These improvements include improved durability to laundering, disinfecting, aging and exposure to certain liquids, and are set to support the important move away from single-use PPE products."

Image Supplied

Heart attack prediction using AI

Professor Natalia Trayanova, Johns Hopkins University, USA, has developed an artificial intelligence and bioengineering tool that could prove to be life-saving for more than four million Australians affected by cardiovascular disease (CVD).

The tool was showcased at the Bionics Institute 2022 Graeme Clark Oration in Melbourne.

Using data-driven machine learning and biophysics-based modelling, Trayanova has created 'digital heart twins' — virtual replicas of a person's heart that can be used to forecast progress of heart disease, estimate the risk of heart attacks and inform treatment decisions.

"My AI technology uses algorithms created from MRIs and PET scans, in combination with deep learning of clinical data, to predict a patient's risk of sudden cardiac death over a period of 10 years," Trayanova said.

The application of Trayanova's technology could be key to reducing the burden on our country's healthcare system, as CVD costs the Australian economy almost \$12 billion annually (2018–2019).

She said, "I envisage a future where re-hospitalisations and repeat procedures are reduced; shifting heart disease treatment options from being based on the state of the patient today, to optimising the state of the patient for the future."

Bionics Institute CEO Robert Klupacs said the Institute was proud to be principal sponsor of the 2022 Graeme Clark Oration, a science event with a long history of showcasing eminent biomedical scientists.

"Over 1000 Melburnians have registered to join us at the Oration and learn about the future of heart health care from Professor Trayanova — a pioneer in the field of computational cardiology. This is an event not to be missed," he said.



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Review set to pave the way for International PCOS Guidelines

A recent review of Polycystic Ovary Syndrome (PCOS) research and care, led by Monash University, provides a summary of best-practice evidence and advocates for greater funded research to address remaining gaps in knowledge about this often neglected condition.

The review highlights the need for dedicated services and enhanced uptake of evidence-based resources to optimise best-practice diagnosis, care and health outcomes in partnership with women. It also provides an up-to-date reference point for clinicians and other health professionals who provide health care to women with PCOS, according to the researchers.

PCOS affects 8–13% of women, with diagnosis requiring multiple consultations, often delayed and based on irregular periods, higher levels or signs of excess male type hormones, including excessive hair growth or severe acne, and ultrasound changes on the ovaries. The condition has metabolic, psychological and reproductive features and is one of the main causes of infertility in women.

Professor Helena Teede, from the Monash Centre for Health Research and Implementation (MCHRI) said the review paves the way for the 2023 release of the International PCOS Guidelines, funded by the National Health and Medical Research Council (NHMRC) Centre for Research Excellence in Women's Health in Reproductive Life.

"There are key knowledge gaps that clinicians have when diagnosing and treating PCOS. The review seeks to improve accurate diagnosis, limit treatment inconsistencies and address barriers to providing patient-centred care. It also highlights the need for holistic models of care to support women and for greater investment in research in this common, yet complex condition," Teede said.



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Updates in health care

Asthma preventer medicine overprescribed

Seven out of 10 Australians with asthma aged over 12 years may be prescribed too much preventer medicine.

In *Australian Prescriber*, a peer-reviewed journal part of NPS MedicineWise, Prof Helen Reddel and co-authors from the Woolcock Institute of Medical Research write about finding the lowest effective dose to control asthma.

From the 2021 Census, we know that over 2 million Australians have asthma. It is one of the three most common long-term health conditions in Australia. Using medicines wisely is important to live well with asthma.

"There are lots of reasons why you may be using a higher dose of asthma preventer medicine than you need," Reddel said.

"If your asthma has been stable for more than three months, check with your doctor. It may be possible to reduce the dose."

This can sometimes save you money. Providing your treatment is still preventing asthma flare-ups, it can also lower the chance of uncommon side effects like cataracts and brittle bones.

"With asthma, it is not a case of 'one size fits all'," Reddel said.

"The medicines and doses needed are personalised for each patient.

"For example, if you have very mild asthma, you may not need to take a preventer medicine regularly. There are new Australian guidelines about a puffer that you can use only when you have symptoms, that relieves symptoms and also includes a preventer medicine.

"Do not stop taking preventer medicine without medical advice. Your doctor can check your asthma medicines and update your asthma action plan," she said.

Read the article in *Australian Prescriber*.



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Tiny sensors to prevent hospital pressure sores

Tiny smart bed sensors embedded in hospital mattresses could help put an end to painful and potentially life-threatening pressure sores.

Scientists from the University of South Australia have designed minute optical fibre sensors that can be attached to the upper surface of a mattress to monitor movement and record heart and respiratory rates.

The unobtrusive sensors can detect when a hospital patient turns over, leaves a bed or just remains motionless, picking up their breathing.

Nurses can therefore be remotely alerted if a patient has not moved within a couple of hours, prompting them to adjust the patient's position.

Lead researcher Dr Stephen Warren-Smith said the technology could "significantly relieve" the burden on hospital staff having to constantly monitor patients for pressure sores.

"Each year, thousands of older Australians in hospitals and nursing homes experience pressure injuries, or ulcers, which take a long time to heal and can be fatal," Dr Warren-Smith said.

"At the very least these injuries can cause severe pain, disrupt sleep, affect their mood as well as their rehabilitation, mobility and quality of life."

Unlike the sensors that many people wear on their wrists to monitor physical activity and physiological signs, the optical fibre sensors are embedded in the same space as a person, but not on them physically.

Hospitals currently use weight-based sensors or cameras installed in the room to monitor patients, but both have limitations, Dr Warren-Smith said.

The optical fibre sensors are sensitive enough to record heart and respiration rates and can detect whether a person is in the bed, even if they remain stationary for long periods.

"Respiration rates are often the first sign that a patient is deteriorating. This normally requires devices to be attached to the patient, either on the chest, as a mask on the face, or ventilator. These can be restrictive and sometimes inappropriate in an aged care setting.

"Monitoring vital signs continuously, unobtrusively and cheaply via the mattress-embedded sensors is a far better solution for both patient and nurse," Dr Warren-Smith said.

The technology is explained in a recent paper published in the *Journal of Biomedical Optics*.



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Trial explores gestational diabetes, blood sugar control and risks for bubs and mums

Lowering the target blood sugar level for those with gestational diabetes during pregnancy may reduce the risk of birth complications for the baby but increase them for the mother, according to Australian, NZ and international research.

Gestational diabetes often causes the birth of especially large babies who face a high risk of obesity and type 2 diabetes. While the researchers say the lower blood sugar target didn't significantly impact baby size, the risk of death or injury to the baby was 1.3% compared to 2.6% for the higher blood sugar target. The risk of major haemorrhage, clotting problems or other health complications for the mother was 5.9% for those with the lower target compared to 3% for the higher target.

Women can change their diets and take medication to control their blood sugar, but currently, it is unknown how tightly those levels should be controlled to minimise the risks to the mother and baby.

The new results can help doctors decide what blood sugar level individual patients should strive for while managing their gestational diabetes. The study included 1100 pregnant women and is the largest randomised comparison of two blood sugar level targets reported to date in a diverse population.

Caroline Crowther of the University of Auckland, New Zealand, and colleagues, reported the findings and said, "This unique trial allowed for the sequential implementation of the newly recommended tighter treatment targets for women with gestational diabetes and assessed if there are true benefits, without harm, to use of tighter treatment targets." However, the researchers point out that there is still a need to confirm their findings through additional randomised trials and in different healthcare settings.



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The game-changing research for HAI prevention



Amy Sarcevic



We all know the importance of good hygiene in preventing infections, but, until now, nobody has been able to quantify the impact individual hygiene measures have — not just on infection acquisition rates, but on the broader healthcare system.

Professor Brett Mitchell of Avondale University said the major shortage of research in this area matters, because it leaves health services unclear on how to prioritise training, resource allocation and everyday practice.

“For example, we know that substandard urinary catheter hygiene is linked to urinary tract infections (UTIs), but to what extent? Also, how much do catheter-induced UTIs cost financially in terms of antibiotics, hospital stays and GP consultations; and more broadly in terms of patient wellbeing?” Mitchell said.

“If the answer to these questions is ‘very little’, then channelling significant resources into improving catheter practice may not be appropriate — there could be other more impactful infections that warrant this investment. By contrast, if the answer is on the top end of the scale, you could consider more resource-heavy measures.

“Health services have a finite budget, so ‘over-investment’ in one area may mean that significant gains or actions in other areas are missed.”

Risk-benefit analyses

The lack of research surrounding hygiene protocols also makes it hard to perform risk-benefit assessments for infection prevention measures that carry risks of their own.

Having appropriate data around infection risks, such as UTI, can allow decision-makers to weigh up these risks more accurately and invest in areas of greatest need.

“For clinicians who have ever increasing workloads, understanding what practices are most important will help inform their priorities. Strong evidence to inform decision-making is therefore critical for both clinicians and decisions-makers,” Mitchell said.

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Incoming evidence base

To address issues like this, Mitchell is building a 'long overdue' evidence base for the prevention of hospital acquired infections (HAIs), after being awarded a grant from the Commonwealth Health Minister in 2022.

Currently, HAIs are a major sticking point in Australian healthcare delivery, with more than 165,000 acquired each year. While some are relatively harmless, others have high mortality rates, including pneumonia, which is among the most common.

Before lockdowns, pneumonia (and influenza) were the ninth leading cause of death in Australia, claiming 4124 lives in 2019. Immunocompromised people are especially vulnerable to it.

Mitchell points out that, despite its prevalence, little is understood about which protocols — or lack thereof — play the greatest role in pneumonia transmission within medical settings.

"Generally speaking, practitioners know that good oral hygiene can prevent pneumonia, as it stops pathogens getting into the upper respiratory tract. However, we don't know exactly what 'good' oral hygiene means. There isn't sufficient high-quality research to inform guidelines for things like how frequently practitioners should be cleaning patients' teeth, or what dental products work best, for example," he said.

"We need to build data around this, so that we can quantify the problem and provide an evidence base for the solution," he added.

Prevention not cure

It is not just people contracting HAIs that bear the health consequences of their existence. Often requiring antibiotics, the treatment of HAIs is contributing to our

"While infection prevention may seem like a simple area, a commonsense or intuitive approach clearly isn't working — as reflected in the high numbers of HAIs acquired each year."

antimicrobial resistance (AMR) epidemic on a large scale.

AMR — where viruses, bacteria, fungi and parasites learn to outsmart the drugs designed to kill them — is claiming an increasing numbers of lives each year.

Currently, 700,000 people die globally from infections that are not responding appropriately to treatment and this is expected to reach 10 million by 2050. The World Health Organisation has cited AMR as one of the top 10 public health threats currently facing humanity.

With greater pressure on healthcare professionals to minimise the use of antibiotics, Mitchell believes tackling HAIs at the root is important.

"My research looks at the prevention of HAIs as I believe this is where one focus should be. If infections are occurring and the treatment



options are losing their efficacy, then it makes sense to channel more effort into prevention research," he said.

Long overdue data

While Mitchell's research into HAI prevention is now well underway, he does not understand why the area has been neglected for so long by researchers.

"It's concerning that one of the greatest health concerns of our time is so under-explored," he said.

"While infection prevention may seem like a simple area, a commonsense or intuitive approach clearly isn't working — as reflected in the high numbers of HAIs acquired each year.

"Also, while we often have a good theoretical rationale for doing various hygiene measures, we don't have high quality designed studies that demonstrate they make a difference.

"I hope my research will change this and help practitioners channel resources into measures that actually work and have the greatest impact."

Mitchell's study will be completed in 2027.

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Rising to the challenge of infection control

The healthcare sector faces the ongoing challenge of controlling infection within sites such as hospitals, nursing homes and doctor's surgeries as hygiene standards remain higher than ever post-COVID.

And with both public and private healthcare bodies worldwide under increasing pressure to minimise costs in the face of rising energy bills and global supply chain issues, maintaining impeccable surface cleanliness to protect patients, staff and visitors from infectious disease is today more difficult than ever.

To achieve the delicate balance between budget management and infection control, healthcare building managers and cleaning operators must ensure that systems such as washroom dispensers, spray stations and chemical dispensing solutions are as accurate, efficient and durable as possible.

A significant increase in cleaning frequency post pandemic means dispensers should be able to withstand heavy usage and the impacts common in fast-paced healthcare environments, while accurate dilution ensures surfaces are properly cleaned first time and chemical wastage is minimized.

Meanwhile, with many operators facing uncertainty over how cleaning requirements may change over time, there is a significant benefit to installing modular systems that

can be easily extended by connecting additional units.

As well as increased cleaning becoming more common post-COVID, healthcare sites have implemented regular additional disinfection of high touch points such as handrails, door handles, lift buttons and light switches throughout the day.

In order to plan such routines, maintenance and cleaning staff must first identify the high touch points unique to that space, enabling them not only to plan additional cleaning but also to locate hand sanitizer dispensers appropriately and help minimize the spread of infection.

For example, SEKO's portable automatic hand sanitizer dispensers can be placed close to high touch points such as outside elevator doors or at the foot of staircases to encourage use while reassuring visitors of the site's commitment to infection control as well as their personal responsibility.

For fast, effective and comprehensive large-area disinfection, an increasing number of operators are turning to fogging systems. Designed for use after thorough cleaning, these systems fill the space with a fine mist of sanitizer at precise droplet sizes from five to 80 microns, removing harmful pathogens anywhere from operating theatres to waiting rooms.

SEKO, a world-leading manufacturer and supplier of cleaning and hygiene equipment, offers a catalogue of trusted infection-control systems including:

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Respiratory syncytial virus **prevention within reach**

Immunisations providing protection against deadly respiratory syncytial virus (RSV) could be just months away, with a monoclonal antibody treatment for babies likely to be accessible on the market within 12 months, followed closely by the approval of a maternal vaccine given in pregnancy to provide newborns with protection against the virus. This is according to latest research published in *The Lancet Infectious Diseases*.

Responsible for more than 100,000 deaths and 3.6 million hospitalisations in children each year, RSV infects the airways and lungs and is a key contributor to the global mortality burden due to life-threatening complications such as bronchiolitis and pneumonia.

Professor Peter Richmond, Head of the Vaccine Trials Group at the Wesfarmers Centre of Vaccines and Infectious Diseases, based at the Telethon Kids Institute, Head of Paediatrics at The University of Western Australia and Perth Children's Hospital Paediatrician, said researchers are now completing the final stages of development for numerous preventative antibody treatments and RSV vaccines.

"Observations from multiple studies conducted worldwide have shown there are nine potential candidates in Phase 3 clinical trials — the final stage prior to licensing for use — including two antibody immunisation treatments for prevention in babies and two maternal vaccines designed to be given to pregnant mothers," Richmond said.

"This is an especially exciting time for us — we started our first Phase 1 and 2 studies looking at RSV vaccines all the way back in 2000 and it has been a long journey to get to this point.

"Unfortunately, some of the early studies were unsuccessful and ceased in the development stages, but in 2016 we began to see positive results for a Phase 2 study looking at a monoclonal antibody treatment called Niversimab.

"We recently completed Phase 3 studies on Niversimab here in Perth, and there have been positive results reported from the Northern Hemisphere pre-COVID-19, so it is expected to be licensed for use as the very first RSV prevention treatment in the USA/Europe by late 2022 or early 2023.

"This week we began a Phase 3 study on the second potential antibody treatment, which hopes to provide long-lasting protection for babies at highest risk of being hospitalised with RSV, including those born prematurely,

or those with congenital heart disease or chronic lung disease," Richmond said.

Telethon Kids Institute is also the lead site in Western Australia for global studies finalising development of a maternal vaccine for pregnant mothers, with enrolment now complete and results expected in the coming months.

"I am very keen to make the most of this opportunity here in Australia, as I believe the potential burden of disease we may be able to prevent will be even greater than first thought, including decreasing the amount of antibiotics that are prescribed, reducing ear infections in young babies and decreasing more serious bacterial pneumonias that are associated with RSV infection. There is also the potential benefits of preventing longer-term complications such as chronic lung infections and asthma.



istockphoto.com/Kanika Palson

"As a paediatrician who has looked after sick babies with RSV for over 30 years, the idea that we could prevent a large proportion of these illnesses is fantastic and I feel privileged to have been involved in the process.

"In the next 10 years I hope to see licensed vaccines and preventative drugs being given to mothers, babies, toddlers and older adults, with multiple vaccine and monoclonal antibody platforms available that could even be combined with COVID and influenza vaccines, keeping our hospitals and GP surgeries much quieter over winter.

"The biggest challenge will be ensuring these vaccines are accessible and affordable in low- and middle-income countries where more than 99% of RSV deaths occur, especially given the effectiveness shown in the large

Phase 3 trials which included countries across Africa, Latin America and Asia.

"I am also concerned that parents may not be aware of RSV and the pivotal role it plays in serious infections in young children, and whether this may reduce the uptake of highly effective monoclonal antibodies or maternal vaccinations when they become available," Richmond.

Associate Professor Hannah Moore, Epidemiologist from the Wesfarmers Centre for Vaccines and Infectious Diseases and the School of Population Health at Curtin University, is preparing for a future vaccine rollout by assessing parental awareness of RSV.

"We're conducting a survey to gauge knowledge of RSV throughout the community and ask pregnant families and parents of

young children how they would feel about these vaccines being given to their newborn babies or in pregnancy," Moore said.

"This information will help us plan larger studies around community awareness and guide the development of educational materials for the general public, which will help parents feel confident about the vital importance of these long-awaited vaccines.

"We are also closely analysing the data we have collected about RSV in Western Australia to help shape vaccination policy and ensure the programs put in place have maximum impact. After many years working in this space, I can't wait to see a safe and effective vaccine program for RSV implemented in our community, significantly reducing hospitalisations and longer-term effects of the virus," Moore concluded.

Targeting airborne infection risk with real-time detection



Real-time detection of human-origin pathogens in air systems and automatically minimising infection risks is one of the research goals of the \$3.5 million+ ARC Australian Laureate Fellowship recipient QUT Distinguished Professor Lidia Morawska and her international team of scientists.

Morawska is globally recognised for her role in alerting the world to the fact that SARS-CoV-2 virus-laden airborne particles exhaled by COVID-19-infected people were a key source of transmission for the deadly disease from person to person through the air.

Calling upon her vast body of research and networks forged over three decades of air quality and health study, Morawska assembled and led 239 scientists from around the world to raise global recognition of virus-laden airborne particles as a major threat to public health.

In response, the World Health Organization updated its advice on airborne transmission, preventing millions of infections and deaths.

Her work is now considered one of four critical elements in fighting the pandemic and was recognised with the International Society of Air Quality's Special 2020 Award for Extraordinary Academic Leadership.

Morawska also recently received a \$5 million grant to lead the Australian Research Council (ARC) Training Centre for Advanced Building Systems Against Airborne Infection Transmission training centre to reduce airborne infections through improved indoor air quality for better public health.

In 2020 Morawska was admitted to the Australian Academy of Science and was named one of the TIME100 world's most influential people in 2021, among the array of awards and accolades bestowed during the pandemic and her research career.

She established in 1993 the Environmental Aerosol Laboratory, which in 2002 became the International Laboratory for Air Quality and Health (ILAQH) at QUT and in 2004 was

named a WHO Collaborating Centre for air pollution and health, the only WHO centre dedicated to this topic in this region, led by Morawska.

Morawska has gathered an interdisciplinary team with a core of leading national and international experts from the US, Italy, the UK, UNSW, University of Melbourne, Spain and Canada as well as QUT medical engineers, mathematicians and architects.

"We spend more than 90% of our lives in buildings. We do not realise how complex their interior atmospheres can be. We waste much energy to maintain mediocre atmospheric quality, inadequate for many occupants, in our homes and building.

"We cannot detect pathogens to prevent us from inhaling them and our buildings do not respond to outdoor- and indoor-generated air pollution, to prevent pollutants from outside or their efficient removal.

"To address this, we have set out three technologies we will aim to achieve:

- To create the first reliable, cost-efficient, anonymised method for mapping indoors spaces in real time, to detect and locate people and detect the direction of airflow and how it mixes to provide personalised ventilation and thermal control.
- To create a real-time technique to detect human-origin pathogens in air systems and automatically minimise infection risks.
- A cost-efficient network to sense certain pollutants, for analysis to identify types of pollution sources (eg, combustion versus re-suspended dust) and origins both indoors or outdoors."

Morawska said the fellowship research would be divided into four themes co-led by early and mid-career researchers to give them leadership opportunities in research and training and would comprise seven postgraduate positions in all.

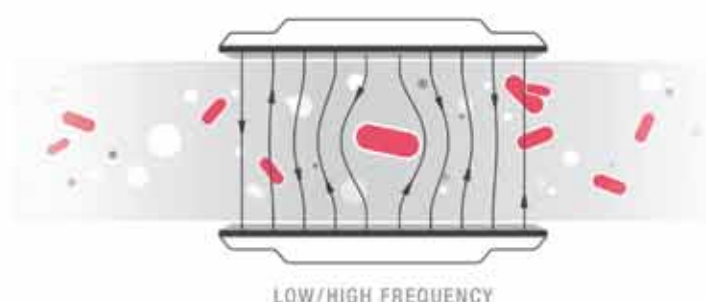


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Home-grown innovation transforming global infection prevention practice

trophon® technology is an Australian innovation that has transformed the global infection prevention landscape. As the first major breakthrough in high-level disinfection (HLD) for ultrasound probes in more than 20 years, the trophon device is now recognised as the world's leading automated HLD solution for ultrasound probes. With its proprietary disinfectant mist, the trophon device produces safe and consistent HLD with no handling of toxic or hazardous chemicals.

The trophon family includes both trophon EPR and trophon2 devices which share the same core technology of 'sonically-activated' hydrogen peroxide. trophon EPR and trophon2 are equivalent as determined by regulators in terms of efficacy, disinfectant, clinical parameters and independent cycle verification (chemical indicator).

trophon: the global standard of care for ultrasound probe HLD

In Australia, patients will suffer from an estimated 165,000 healthcare-associated infections (HAIs) each year.¹ Up to 55% of these HAIs are preventable.² Medical device reprocessing is one of the key strategies required to help break the chain of infection transmission. With ultrasound probes now used throughout most healthcare departments, automated solutions that offer safe, consistent HLD are necessary to keep patients safe.

Developed by Australian infection prevention company Nanosonics, the trophon device is recognised as the global standard of care for ultrasound probe HLD. With nearly 30,000 units operating worldwide, approximately 98,000 people each day are protected from the risk of healthcare-associated infections with trophon technology.

Redefining chemistry for confidence

trophon technology has redefined chemistry for HLD of ultrasound probes with its proprietary hydrogen peroxide disinfectant, which is 'sonically-activated' to create a very fine mist. Each trophon cycle consumes only approximately 2 millilitres of disinfectant, and the mist penetrates shadowed areas formed by crevices, grooves and imperfections on the probe surface. This ensures reproducible efficacy for every probe and every patient with every cycle.

trophon devices also replaced the need for manual handling of toxic, hazardous chemicals by staff performing HLD. For the first time, automated HLD could be performed reproducibly and safely at the patient point of care. As fully enclosed systems, trophon devices mitigate the risk of exposure to hazardous chemicals, fumes and spills that are often associated with wipes and traditional soaking methods, requiring only gloves as PPE. At cycle end, residual hydrogen peroxide is passed through destructors and the by-products are environmentally friendly and safe hydrogen and water.

Masterful microbial defence

The trophon device is the only automated HLD technology for transvaginal, transrectal and surface probes to meet mandatory microbial efficacy test requirements for TGA listing, CE marking and FDA clearance. In addition to mandatory testing, the trophon device goes beyond requirements and eliminates a broad range of pathogens, including sexually transmitted pathogens like human papillomavirus (HPV).³

trophon technology also passes the AOAC 966.04 sporicidal test.⁴ This test uses two types of carrier device that model challenging medical surfaces likely to be encountered

in clinical practice, including surface imperfections and shadowed areas. Ultrasound probes have grooves and crevices that need to be disinfected to the same extent as smooth surfaces, otherwise the next patient may be at increased risk of infection. Unlike other automated HLD solutions, trophon technology has proven efficacy with these challenging surfaces and does not require additional cleaning steps for shadowed areas. trophon devices give you confidence in delivering consistent patient protection even in the most challenging clinical scenarios.

Australian made with local support

Nanosonics is your trusted partner in infection prevention, offering world-leading technology with local manufacturing, R&D and customer support. Nanosonics is proudly Australian-owned with a dedicated local team offering first-class customer service across Australia, with prompt and comprehensive technical support for both trophon EPR and trophon2. Nanosonics also offers a digital traceability solution, AuditPro™, providing facilities with the opportunity to standardise ultrasound infection control compliance. Together, Nanosonics' trophon technology and AuditPro system arm healthcare professionals with the tools needed to drive compliance and improve patient safety.

Contact Nanosonics today to learn more about trophon technology and AuditPro.

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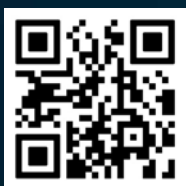
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^As at June 2022. Nanosonics Limited (Manufacturer): 7-11 Talavera Road, Macquarie Park, NSW 2113, Australia. T: +61 2 8063 1600 E: info@nanosonics.com.au W: www.nanosonics.com.au The trophon® family includes the trophon® EPR and trophon®2 devices which share the same core technology of 'sonically-activated' hydrogen peroxide. Nanosonics and trophon are trade marks of Nanosonics Limited. © 2022 Nanosonics Limited. All rights reserved. NAN0863. 177586-ANZ-AD. September 2022.

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Hidden pathogens in hospital hot water systems



A new study by environmental health experts at Flinders University has found evidence of hospital water as a source of potential infection and even antimicrobial and multidrug-resistant organisms.

"Biofilms formed on taps, showers, drains and other outlets provide an ideal niche to harbour these dangerous antibiotic-resistant pathogens originating from the supply water or the human microbiota from washing contaminated hands," said lead researcher Claire Hayward, from the Flinders University College of Science and Engineering.

The elderly, newborns and those with compromised immune systems are especially vulnerable to waterborne infections. The number of individuals with conditions that may put them at risk of 'opportunistic premise plumbing pathogens' (OPPP) infection such as advanced age, cancer and immunodeficiency are increasing, warn Flinders' researchers.

OPPPs, such as *Legionella pneumophila*, *Pseudomonas aeruginosa* and *Mycobacterium avium*, are a group of waterborne pathogens that are slowly receiving increased public health attention in infection control guidelines. "However, drinking water as a source of healthcare associated infections continues to be

overlooked or underestimated in this monitoring," Hayward said.

These waterborne pathogens (or OPPPs) can be disinfectant-resistant and persist in refuges with low nutrients; they form biofilms capable of supporting other clinically relevant pathogens such as *Staphylococcus aureus*, *Enterobacteriaceae*, *Klebsiella pneumoniae* and *Escherichia coli*.

Once biofilms are formed on taps, showers, drains and other plumbing surfaces, there are numerous potential ways for contamination and transmission, according to the researchers. Outlet device design including splashing and aerosolising of water can also increase the risk of contamination of nearby areas.

"The rise of these resistant pathogens has been identified by the World Health Organization and US Centers for Disease Control and Prevention as one of the most significant threats to global public health," said co-author microbiology expert Professor Melissa Brown.

"While the COVID-19 pandemic has increased the use of disinfectants and sanitisers, particularly in healthcare facilities, these antiseptic soaps do not tackle what's going on behind the scenes in the water supply pipes and faucets," Brown said.

Regular changes to tap and outlet filters, hot water service maintenance checks (for heat and pressure) and effective cleaning of shower and tap faucets are recommended for immune-compromised patients receiving health care at home and for post-surgical management.

"These measures can help reduce the risk of waterborne infections in home care, along with quality treatments of mains water to provide safe drinking water," said lead researcher Claire Hayward, from the Flinders University College of Science and Engineering.

The researchers also recommend broad, universal surveillance guidelines to understand the role of drinking water and water-related devices to reduce healthcare-associated infections and the rise of possible antimicrobial resistance that poses a threat to at risk individuals in healthcare as well as residential settings.

The article 'Hospital water as the source of healthcare associated infection and antimicrobial resistant organisms' (2022) by Claire Hayward, Melissa H Brown and Harriet Whiley has been published in the journal *Current Opinion in Infectious Diseases*.



The Unspoken Risks of Tourniquets, and the New Choice for Infection Control

Tourniquets are classified as 'non-critical' medical devices and are one of the most widely used pieces of medical equipment across a number of settings. This includes spaces such as Emergency Departments (ED) and Intensive Care Units (ICU), theatres, vascular access clinics, pathology, cancer care services, and other routine and everyday areas such as wards.

However, the involvement of tourniquets in invasive procedures — such as blood collection, line insertion and other vascular access routines — as well as their ability to travel, means that a new or adequately cleaned/disinfected tourniquet is paramount for proper infection control procedures. Evidence — both anecdotal and published — suggests that this does not always occur.

Tourniquets are ordinarily mobile, multi-use and made from fabric. As a result, these are difficult and slow to disinfect due to the nature of their material and design, often resulting in inadequate disinfection. A recent review of existing studies found that the majority of published research showed >70% of tourniquets exhibited contamination¹. The study also found that there are no standard practices, that tourniquets are shared and reused (sometimes for years) and patient safety may be jeopardised depending on material type and organisms found.

The introduction of disposable or single-use tourniquets can be more expensive and generate greater waste. Anecdotally, user satisfaction tends to be lower due to design and quality, as the item is manufactured for single use. Construction materials for both reusable and single-use tourniquets have

been shown to both pick up and transfer micro-organisms in a number of settings².

A third option of single patient tourniquets (where one tourniquet is assigned to a patient) reduces some of the risk, but is reliant on proper hand hygiene and handling, disinfection of surrounding surfaces, as well as disinfection or disposal of the device post-discharge, due to the risk of microbial dissemination. Crucially, a device could still be contaminated and used on a patient multiple times.

In a real-life example, a New Zealand study completed in a secondary-level hospital found various levels of contamination of tourniquets, with the highest levels found on the phlebotomy trolley post-ward round³. The facility disinfected all tourniquets overnight. They suggested a move to cost-comparable disposable tourniquets, but these were not preferred by staff and were found to be less comfortable for patients. Issuing patient specific reusables was cost-prohibitive. How could this example be generalised to larger facilities; to those with known MDRO issues; to those with greater frequency of use of tourniquets?

While there is ongoing research into the risk of blood-stream infections due to tourniquet contamination, the issue of tourniquet contamination itself is known and documented. Conventional tourniquets are routinely subjected to improper processing, if at all — a practice that does not occur with most other medical devices. So why should we settle for less? And what is the solution?

Enter daisygrip — a reusable tourniquet that can be completely disinfected by the user.

The daisygrip is manufactured from a smooth silicone band, which is comfortable for the patient, as well as being documented to pick up less contamination and being easier to disinfect than conventional fabrics⁴. With daisygrip, you can simply wipe, observe the required contact time, then use again. The band is coupled with an innovative and unique self-finding magnetic buckle, making closure faster, easier and able to be completed with one hand. Each unit can be reused thousands of times, saving on inventory and replacement. The daisygrip's patented, Red Dot Award-winning design has a focus on frequency and ease of use, as well as the ability to be completely disinfected in realistic times and places.

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1. "Health professionals' practices related with tourniquet use during peripheral venipuncture: a scoping review" (de Sousa Salgueiro-Oliviera et al. *Rev. Latino-Am. Enfermagem*)
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3. "Quantifying patient bacterial exposure risk from reusable phlebotomy tourniquets in a NZ secondary level hospital" (Schauer and Hammer. *Journal of Inf. Prevention*)
4. "Reduced bacterial contamination rates detected on silicone tourniquets compared to conventional tourniquets" (Grohamn et al. *BMC Infectious Diseases*)

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AI to detect COVID-19 infection



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Artificial intelligence (AI) can be used to detect COVID-19 infection in people's voices by means of a mobile phone app, reveals a new paper presented at the European Respiratory Society International Congress in Barcelona, Spain.

Wafaa Aljbawi, a researcher at the Institute of Data Science, Maastricht University, The Netherlands, claimed that the AI model used in the research was accurate 89% of the time, whereas the accuracy of lateral flow tests varied widely depending on the brand. Also, lateral flow tests were considerably less accurate at detecting COVID-19 infection in people who showed no symptoms.

The results suggest that simple voice recordings and fine-tuned AI algorithms can potentially achieve high precision in determining which patients have COVID-19 infection, she said.

"Such tests can be provided at no cost and are simple to interpret. Moreover, they enable remote, virtual testing and have a turnaround time of less than a minute. They could be used, for example, at the entry points for large gatherings, enabling rapid screening of the population."

COVID-19 infection usually affects the upper respiratory track and vocal cords, leading to changes in a person's voice. Aljbawi and her supervisors, Dr Sami Simons, pulmonologist at Maastricht University Medical Centre, and Dr Visara Urovi, also from the Institute of Data Science, decided to investigate if it was possible to use AI to analyse voices in order to detect COVID-19.

They used data from the University of Cambridge's crowd-sourcing COVID-19 Sounds App that contains 893 audio samples from 4352 healthy and non-healthy participants, 308 of whom had tested positive for COVID-19.

The app is installed on the user's mobile phone, the participants report some basic information about demographics, medical history and smoking status, and then are asked to record some respiratory sounds. These include coughing three times, breathing deeply through their mouth three to five times and reading a short sentence on the screen three times.

The researchers used a voice analysis technique called Mel-spectrogram analysis, which identifies different voice features such as loudness, power and variation over time.

"In this way we can decompose the many properties of the participants' voices," Aljbawi said.

"In order to distinguish the voice of COVID-19 patients from those who did not have the disease, we built different artificial intelligence models and evaluated which one worked best at classifying the COVID-19 cases."

They found that one model called Long-Short Term Memory (LSTM) outperformed the other models. LSTM is based on neural networks, which mimic the way the human brain operates and recognises the underlying relationships in data. It works with sequences, which makes it suitable for modelling signals collected over time, such as from the voice,

because of its ability to store data in its memory.

"These results show a significant improvement in the accuracy of diagnosing COVID-19 compared to state-of-the-art tests such as the lateral flow test," Aljbawi said.

"The lateral flow test has a sensitivity of only 56%, but a higher specificity rate of 99.5%. This is important as it signifies that the lateral flow test is misclassifying infected people as COVID-19 negative more often than our test. In other words, with the AI LSTM model, we could miss 11 out of 100 cases who would go on to spread the infection, while the lateral flow test would miss 44 out of 100 cases.

"The high specificity of the lateral flow test means that only one in 100 people would be wrongly told they were COVID-19 positive when, in fact, they were not infected, while the LSTM test would wrongly diagnose 17 in 100 non-infected people as positive. However, since this test is virtually free, it is possible to invite people for PCR tests if the LSTM tests show they are positive."

The researchers say that their results need to be validated with large numbers. Since the start of this project, 53,449 audio samples from 36,116 participants have now been collected and can be used to improve and validate the accuracy of the model. They are also carrying out further analysis to understand which parameters in the voice are influencing the AI model.

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The state of health

Almost half of Australians are living with chronic health conditions but over one-third of our nation's 'disease burden' is due to preventable risk factors, such as smoking, excessive alcohol consumption and not getting enough exercise. This is according to the Australian Institute of Health and Welfare's (AIHW) two-yearly health report card, Australia's health 2022.

The report comes at an important time as Australians continue to experience the effects of the COVID-19 pandemic, said AIHW Deputy Chief Executive Officer Matthew James. "In 2022, no health issue stands above or has had as wide-reaching impacts on our population and health system, with these effects to be felt for many years to come," James said.

The report found that 11.6 million (47%) Australians were estimated to have one or more common chronic health conditions, including diabetes, cancer, mental and behavioural conditions, and chronic kidney disease.

Our expanding waistlines are a notable example: 2 in 3 adults (67%) are either overweight or obese, while carrying excess weight is responsible for 8.4% of our total disease burden.

The coronary heart disease death rate steadily increased throughout the first half of the 20th century, but since 1968 has fallen by 89% (from 428 deaths per 100,000 to 49 per 100,000 in 2020). Coronary heart disease remains the leading single cause of death for males and second leading for females.

Seven in 10 (70%) people survived at least 5 years after a cancer diagnosis during 2014–2018 — an improvement from about 5 in 10 (52%) in 1989–1993.

There have, however, been marked improvements in many areas of health, including cancer survival, infant mortality and deaths from coronary heart disease.



Population groups

However, some population groups have different experiences of health than others. Generally, the higher a person's socio-economic position, the better their health. If all Australians had experienced the same disease burden as people living in the highest socio-economic areas in 2018, the total burden could have been reduced by one-fifth (21%).

In May 2021, almost 3 in 10 adults with disability self-reported their physical health as excellent or very good, compared with 55% of adults without disability.

The AIHW aims to improve the evidence base that supports improved health and wellbeing

for all Australians. One example of this, included in Australia's health 2022, describes insights gleaned from the first large-scale study in Australia to analyse health service costs in the last year of a person's life.

"Although just 0.7% of the Australian population die each year, 8.0% of the health expenditure in scope was for people in their final year of life. The outlay for hospitalisations was 39 times as high for people in their last year of life compared with those not in their last year," James said.

Doing well but room for improvement

We are living longer — life expectancy at birth was 83.0 years in 2020, the sixth-



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highest among the 38 OECD (Organisation for Economic Co-operation and Development) countries, according to the report. Males born in 2018–2020 can expect to live 81.2 years and females 85.3 years, up from 55.2 and 58.8 years, respectively, for those born in 1901–1910.

“Over the last 100 years, there has been a 98% decline in the age-standardised death rate from infectious diseases (such as tuberculosis, polio and diphtheria) due to childhood immunisation and disease control measures.

In the first decade of the 20th century, 1 in 10 children died before their 5th birthday (26% of all deaths, compared with 0.7% in 2020), primarily from infectious diseases.

“But with a population that is living longer, we are now experiencing higher rates of chronic and age-related conditions, such as dementia,” James said.

“For example, we know that older Australians use a higher proportion of hospital and other health services and 54% of all subsidised medicines were dispensed to people aged 65 and over.”

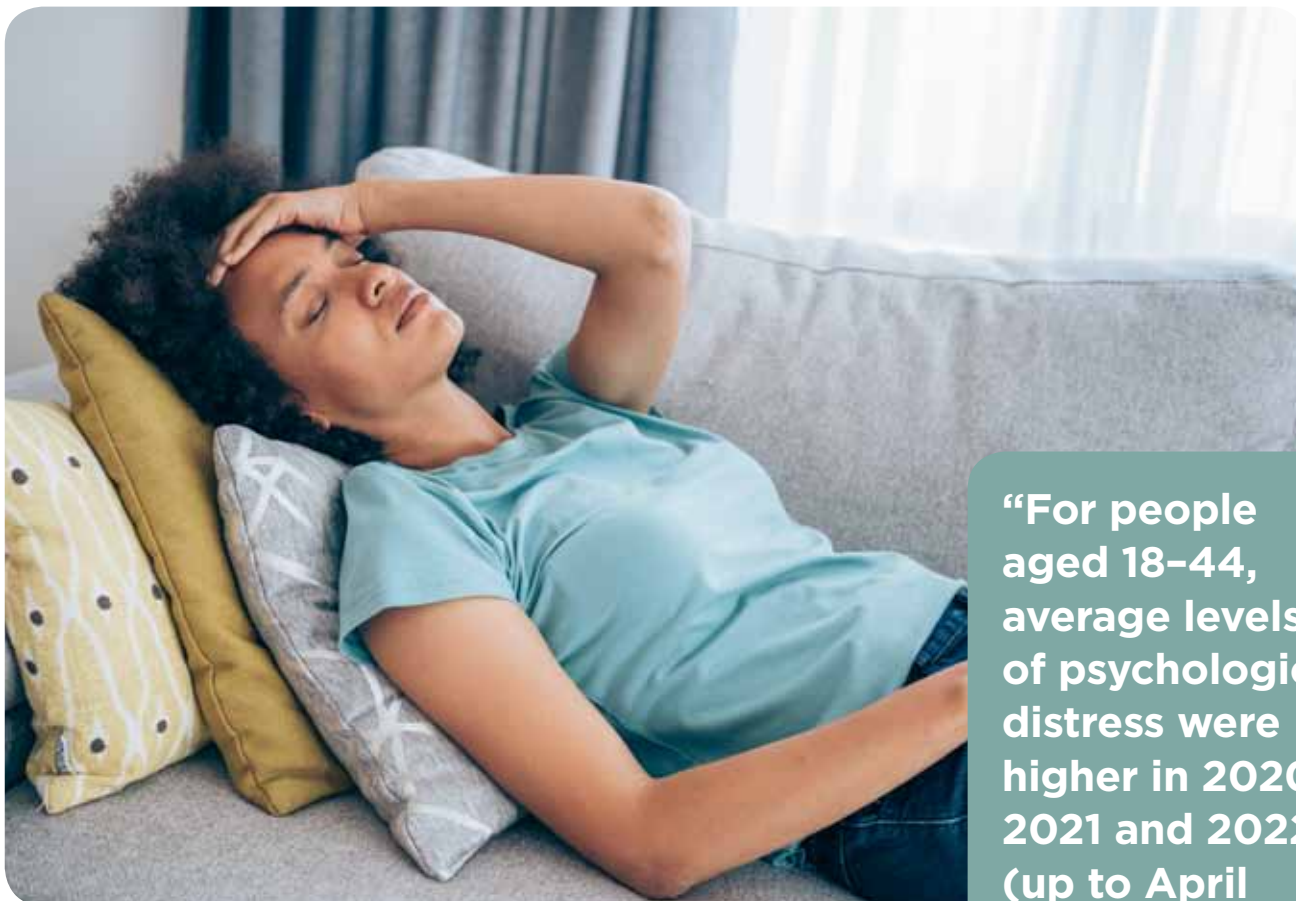
COVID-19 and changes in the health of Australians

Since the emergence of COVID-19 in Australia, there has been extraordinary public interest in the health of Australians, including the efforts made and measures put in place to protect our collective health.

The pandemic has affected, or has the potential to affect, the health of Australians in numerous ways.

“Throughout 2020 and most of 2021, Australia fared well compared with most countries. While Australia has world-leading vaccination rates for two doses, millions of Australians who contracted COVID-19 have experienced the direct impacts through acute illness, with some facing longer-term impacts, such as long-COVID,” James said.

“A range of longer-term health effects remain unknown, highlighting the need to continue to monitor these population health impacts into the future.”



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“For people aged 18–44, average levels of psychological distress were higher in 2020, 2021 and 2022 (up to April 2022) than they were before the pandemic, especially for those aged 18–24.”

According to ANUPoll surveys, since April 2020, fluctuations in the level of psychological distress and life satisfaction experienced by Australian adults have tracked developments throughout the pandemic, including the introduction and easing of restrictions to limit the spread of COVID-19.

“For people aged 18–44, average levels of psychological distress were higher in 2020, 2021 and 2022 (up to April 2022) than they were before the pandemic, especially for those aged 18–24. However, those aged 45 and above experienced either little change or improvements in their level of psychological distress,” James said.

Average life satisfaction

Average life satisfaction for Australians fell substantially during the early stages of the pandemic (from 6.9 out of 10 in January 2020 to 6.5 in April 2020). By January 2021 the average level of life satisfaction had returned to pre-pandemic levels and this remained the case in April 2021. However, in August 2021 life satisfaction was back to the same level as April 2020. As of April 2022, life satisfaction is yet to return to pre-pandemic levels.

At the onset of the pandemic, there were concerns that any economic downturn could have a significant negative impact on the number of deaths by suicide in Australia.

“The AIHW has compiled data from suicide registers as part of our ongoing work on suicide and self-harm reporting. This has shown that, despite a rise in the use of mental health services and an increase in psychological distress, COVID-19 has not

been associated with a rise in suspected deaths by suicide,” James said.

Excess mortality

James said that one way of understanding the impact of the COVID-19 pandemic is through the measure of excess mortality.

Excess mortality shows the difference between the actual number of deaths compared with the expected number based on previous trends. This measure includes both COVID-19 and non-COVID-19 deaths, reflecting both the direct and indirect impact of the pandemic.

Death rates were decreasing before the onset of the pandemic, with this trend continuing in 2020 and 2021. When variation is taken into account, there were 205 fewer deaths than expected in 2020 and 94 more deaths than expected in 2021.

However, there was a marked change in January and February 2022, with 3105 more deaths than expected in those 2 months alone.

For deaths registered by 30 April 2022, age-standardised COVID-19 death rates were nearly three times as high for those living in the lowest socioeconomic area compared with the highest socioeconomic area and 2.5 times as high for people born overseas compared with people who were born in Australia. Of those born overseas, the death rate was highest for people born in North Africa and the Middle East.

Additionally, the rate of severe disease from COVID-19 (ICU admission and/or death) was seven times higher for Aboriginal and Torres

Strait Islander people compared with the Australian population overall.

“There is also a need to focus on the medium- and longer-term health effects and health system use among all population groups,” James said.

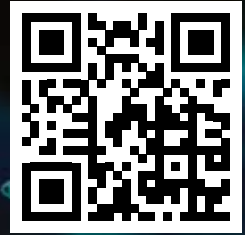
A national COVID-19 linked dataset

The AIHW is establishing a national COVID-19 linked dataset that will bring together COVID-19 cases collected in state and territory notification systems and existing health datasets, including deaths, hospitals, aged care, immunisation, Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) data.

This will provide an asset for use in COVID-19 research into the health effects of COVID-19. The linked dataset will also include research to inform health service planning, monitoring and evaluation, and health policy development at the national and state and territory level.

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What I've learned as a male midwife in **Arnhem Land**

Amy Sarcevic

Christian Wright, a male midwife working with Indigenous women in a remote part of Northern Territory of Australia shares his experience of working in a profession dominated by women, and the importance of trust in care delivery.



It was a dry Thursday afternoon in Arnhem Land, Northern Territory, when young mum Tanisha's* waters broke at just 23 weeks of gestation. Approximately 417 kilometres from the nearest hospital, an aircraft and doctor chaperone were flown in to her remote Aboriginal community within a few hours of the call for medical evacuation.

But Tanisha felt anything but relief when her medical retrieval arrived. The doctor disembarking the aircraft was a man, and in her Aboriginal culture it is taboo for men — including medical practitioners — to interact with women about 'women's business'.

In an interesting plot twist, however, Tanisha requested for her male midwife Christian Wright to come with her and be present for the birth.

Aside from being one of just 448 men to be working in midwifery in Australia (1.6% of the total workforce) Christian is no ordinary practitioner.

Recognising the sensitivities around men and women's interactions in Aboriginal culture, Christian has always thought outside the box about how he can make his patients feel comfortable.

His trust building with Tanisha began early in the antenatal process, when he learnt the local language and used cultural linguistic cues to convey empathy and earn trust.

"Speaking to people 'in language' is a great way to help them feel culturally safe. In some Aboriginal cultures though, there are other important linguistic considerations," he said.

"For example, when discussing taboo subjects, like women's health, men should use alternative, almost euphemistic, variations to formal language, to minimise embarrassment.

"Yothu Wanga', which literally translates to 'baby house' is a culturally safe term an older Aboriginal woman taught me to use when describing women's anatomy within some of the communities I work with.

"It is also important to use nuanced pauses and a hushed tone when discussing these subjects — and always with permission first."

Above and beyond the call of duty

Culturally safe communication is only a foundation for Christian's trust-building efforts with Aboriginal women.

Year after year, he has adjusted his everyday practice to meet patients' needs, often going above and beyond his expected duties as a midwife.

Performing glucose tolerance tests in the afternoon is one key way Christian has earned respect from expectant mothers in a local community.

The community in question has a tendency to engage in late night ceremonial activities and wake in the afternoon. This makes morning tests — as are commonplace in medical practice — less practical.

Christian altered his clinic hours to boost test participation rates and make women feel more comfortable.

"Respecting community rhythms is key to achieving good clinical outcomes," he said. "Since moving the tests to the afternoon, we've had greater patient compliance rates and much better health outcomes.

"Local women have also noticed my efforts to provide culturally safe care, which has built trust in my relationships with them."

Building trust to relieve fear

It is Christian's efforts to dispel fear among his patients, however, that have made the most meaningful impact.

Pregnancy and childbirth can be a daunting prospect for any woman — but for women in remote communities who have to fly alone to a 'foreign' land to give birth, it can be terrifying. At present, the Northern Territory has no mandatory provisions for a birthing partner to accompany these women to hospital, unless she has other children below the age of two that need to be supervised during the birth.

Christian has helped make this less intimidating by organising video introductions between hospital staff and expectant mothers, from early in the antenatal process.

"Women in remote communities typically do not attend the hospital for their antenatal appointments. This means they are only meeting the hospital staff for the first time when they give birth. Video introductions bring some familiarity to the people that will handle their care in hospital, which makes the whole process less scary," he said.



Christian has also organised a program to take expectant mothers on mussel and oyster collecting excursions known as 'hunting trips' during their hospital stay. This important cultural tradition allows women to gather nutrient-rich food to support lactation and foetal growth in the lead-up to their birth.

A high-definition example

In life-threatening situations, like premature labour, Christian's trust-building efforts have mattered the most.

Tanisha rang Christian when her waters broke and allowed him to make the assessments which led to her rapid evacuation. While in hospital, regular communication between Tanisha and her family with Christian back home, meant she agreed to stay with her baby in the neonatal intensive care unit.

Months later, Tanisha returned to community proudly showing off her 'miracle baby' to family and Christian.

For Christian, there is no sincerer form of feedback than having been requested as Tanisha's midwife.

"As a midwife, listening to women and building continuity of care is paramount. Trust is everything."

**name changed for privacy*

SPC Care: Delivering Meal Time Solutions for those with Dysphagia



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SPC Global is an Australian food manufacturer with a rich history exceeding 100 years. Leading brand portfolio includes SPC®, PROVITAL®, ARDMONA® & GOULBURN VALLEY®. SPC Care has recently been incorporated aimed at servicing the healthcare sector with a range of nutritious food & beverage products supporting those most vulnerable within both the domestic and global community. The Good Meal Company and The Kuisine Company are both market leading manufacturers of ready-made meals that service a wide range of customers with a particular focus on health settings. The newly formed SPC Care is responsible for the GMC & TKC company portfolio of products as well as the expanding SPC ProVital range.

At SPC Care, we believe that everyone has the right to eat well. We are transforming the way we provide food; to those in hospital, at home or in care. We believe our most vulnerable deserve better — better nutrition, better outcomes, better choice. We have developed a range of meals offering condition-specific nutrition designed to be eaten and enjoyed. Our newest addition to our ready-made meal offering is our great tasting Level 5 Minced & Moist Meal range. The meals have been developed in line with Hospital Nutrition Standards and have been compliance tested by a Certified Practising Speech Pathologist using IDDSI Audit Tools. To better understand

the importance of these meals and suitability for individuals, it is important to understand Dysphagia and how the IDDSI classification is helping to improve safety and care for those affected by the condition.

Dysphagia and IDDSI levels

Dysphagia is a swallowing disorder, where an individual may experience difficulty swallowing food or drinking fluids for a number of reasons. It is often caused by a number of age-related conditions like stroke, Parkinson's disease, motor neuron disease and dementia. Having trouble swallowing food and fluids may put an individual at risk of poor nutrition and dehydration. A speech pathologist may recommend changes to the textures of foods or drinks.

The International Dysphagia Diet Standardisation Initiative (IDDSI) Global standardized terminology and definitions for texture modified foods and thickened fluids were introduced into health care settings like hospitals and residential aged care facilities. Global standardized terminology and definitions were implemented to improve the safety and care for individuals with dysphagia.

The final dysphagia framework consists of eight levels (0–7) and includes both foods and liquids. Drinks are measured from Levels 0–4 and foods are measured from levels 3–7.

SPC Care: Healthy and Condition-Specific Meal Options

SPC Care range of Good Meal Co meals are suitable for those on a Level 5 Minced & Moist diet; with further R&D work in progress on the next addition to the Texture Modified Range, which will include meals suitable on the Level 4 Pureed Diet. Our delicious range of Texture Modified meals are tasty and visually appealing thanks to our use of shaped moulds. Making the components of the meal identifiable can help return dignity to the dining experience for those with dysphagia.

The SPC Care range of ProVital Puree Fruit is also suitable for those on a Level 4 Pureed Diet.

SPC ProVital Puree portion-controlled cups have been specifically developed to provide a more accessible fruit snack for consumers with fine motor skill difficulties. They were developed with guidelines established by Arthritis Australia to achieve the highest rating for ease of opening. The aim of creating the cups in this packaging is to provide a more accessible fruit snack for consumers with fine motor skill difficulties, ensuring 90% of the population can open the cups without assistance. For more information on our range please follow the link: <https://spccare.com/>



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Preventing patient lift injuries

Anina-Marie Warrener, Soter Analytics



A healthcare worker is more likely to sustain a musculoskeletal injury than a mining, construction or manufacturing worker. So how can we reduce manual handling risks and improve outcomes?

Studies have linked a higher risk of pain and injury in the healthcare sector to a worker's decision to leave their job. Employee turnover is a problem in many industries but in health care it is even more so.

Recent data shows that in Australia the turnover rate for residential aged care workers is 29% and for registered nurses it is 35%. Quality workers are already in short supply and the cost of replacing even a single nurse in Australia can be as high as \$104,686. Thus, it is paramount to implement solutions that reduce the risk of manual handling injuries in healthcare workers.

Musculoskeletal injuries are being reported in healthcare workers at a far higher rate than many other industries.

Lifting people is an unavoidable aspect of working in the healthcare industry. Nurses, paramedics and aged care workers regularly lift weights that, in any other industry, would be assisted by equipment. That is why patient manual handling poses one of the highest injury risks out of all industries with the most common types of musculoskeletal injuries sustained by healthcare workers being lower back injuries, strains, rotator cuff injuries and tendinitis.

One study found that as many as 83% of all injuries sustained in the healthcare sector were as a result of musculoskeletal factors. Every year, 55% of nurses experience lower back pain and 44% experience shoulder pain. Research shows that some healthcare



“Every year, 55% of nurses experience lower back pain and 44% experience shoulder pain.”

workers with lifting patients. These aides include things like mechanical hoists or slings and low-friction mats. The downside of many of these items are that they mostly require more than one worker to use them. The healthcare industry is often understaffed and researchers have found that workers will forgo equipment that requires two people to operate to move a patient because even if there is no one there to help them the patient still needs to be moved.

Policy and procedure

One way of overcoming this problem is implementing a strict two-person lift policy; requiring nurses, paramedics and aged care workers never to lift a patient alone. Many companies in the healthcare sector already impose two-person or no lift policies, urging staff to use equipment to hoist and move patients. However, some studies have shown that workers often do not abide by these policies. Health care is unpredictable, with workers being responsible for the health of frail, ill or otherwise high-risk patients. Usually, nurses, paramedics and aged care workers care deeply about their patients and when the choice is between helping a patient or following a policy most would choose to help, even if they do so at risk of injury.

Manual handling training

Most healthcare organisations incorporate some form of manual handling training into their onboarding processes for workers. Traditional manual handling training is usually conducted in a classroom setting and teaches basic ergonomic techniques for correct lifting and bending. Whilst training does somewhat increase awareness, researchers found that it is not likely to be retained afterwards and is unlikely to create any sustainable behavioural change in the long term.

Movement coaching

Another option is implementing one-on-one movement coaching; employing an ergonomics expert to work with healthcare staff at improving their own behaviours. One-on-one coaching is much more effective in creating behavioural change in the way in which healthcare workers bend, lift and twist when moving patients. However, this can be a very costly option (as much as \$1500 per worker) that is not scalable in large organisations.

Technology

Manual handling injuries can be prevented with an integrated data-driven approach incorporating smart wearable technology, machine learning and predictive analytics. This will help address the cause of injuries and reduce the ergonomic risks before they can even begin to lead to injury.

AI-driven wearable technology is shaking things up seeing healthcare organisations around the world weaving wearables into their processes. Solutions to assist workers to learn more about their movements, understand them and help reduce their risk of injury — permanently.

New advances in ergonomic training using sensors and biofeedback are forging a step change in the healthcare sector; targeting a decrease in absenteeism and turnover as result of manual handling injury reduction. Leveraging the power of artificial intelligence (AI) and machine learning (ML), coaching healthcare workers to self-correct their movements in real time and avoid ergonomic injuries is stimulating an engaging personalised pathway to sustainable behavioural change.

A hospital in Australia noticed that caregivers in the endoscopy department were suffering a higher rate of shoulder and elbow injuries. The workers were unsure how they sustained these injuries. The hospital partnered with AI-driven wearable safety tech developer Soter Analytics to trial their solution SoterCoach. They fitted 10 workers in the endoscopy department with wearable safety devices. The data collected showed that on their busiest days, they could perform up to 53 hazardous movements per hour.

Comparable labour-intensive departments would normally perform only five hazardous movements per hour. Combined with participant feedback the data highlighted one specific task aligned with the Soter report of excess arm elevation. The high result coincided with when caregivers were hanging scopes in drying cabinets.

The hospital implemented a small modification to the task by adjusting how caregivers hold the scopes when placing them in the drying cabinets. After applying this strategy the hazardous movements per hour were reduced to just 4.2 per hour and there have been no reported injuries to date.

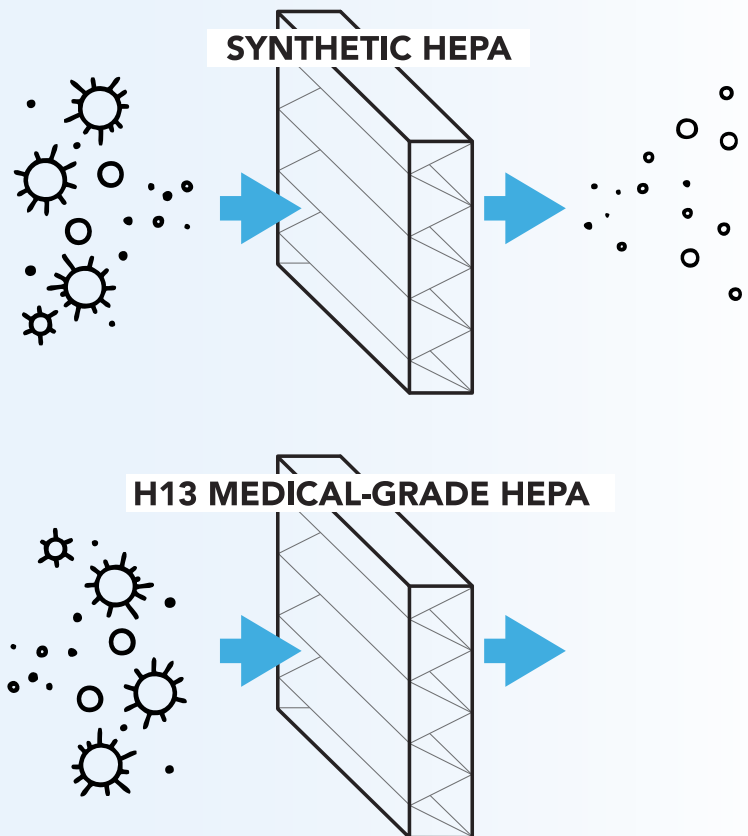
workers spend as much as 20 minutes out of every hour with their back in an awkward position.

So what can be done to reduce manual handling injuries in healthcare workers? Current market approaches to the problem can be broken down into four categories: equipment and aides, policy and procedure, manual handling training and movement coaching. Let's look at some of the options in these categories and their benefits and drawbacks.

Equipment and aides

Some companies have successfully reduced or eliminated ergonomic injuries through supplying additional equipment to assist

Air Purifiers in Hospital and Healthcare Settings



Air purifiers utilising HEPA filters (High-Efficiency Particulate Air) have become commonplace in hospitals and healthcare facilities with the primary aim of reducing airborne transmission of SARS-coV-2. The benefits of portable air filtration in hospitals include lowering room-to-room transmission and making areas safer for staff and patients.

With air purifiers gaining popularity in healthcare settings it's important to take a closer look at filtration efficiency to ensure these devices function as intended with the highest possible capture rate for aerosols containing SARS-coV-2 or other pathogens.

Filtration Efficiency

At its most basic level, an air purifier is only going to perform as well as the filters inside. When you are dealing with filtering viruses from the air, you need to select an air purifier with a medical-grade HEPA filter. Medical-grade refers to top-tier H13 or H14 efficiency-rated filters that will capture a minimum of 99.95-99.99% of particles @ 0.3 microns (PM 0.3) or larger. These are the same filters relied upon in infection control isolation rooms and operating theatres.

HEPA Filter Types

HEPA air purifiers commonly use either a synthetic pleated HEPA type filter or medical-grade, EN1822-rated HEPA paper.

HEPA 'type', commonly synthetic filters are made from polypropylene media with an electrostatic charge, the charge improves filter efficiency so the filter media will let through fewer particles. Synthetic filter media is used for 2 reasons; it's lower cost to manufacture and it creates less pressure drop, so the fan in the air purifier can be smaller.

The electrostatic charge on the filter media essentially magnetises the filter material to hold and capture more dust and particles, however, the caveat is the charge dissipates over time and causes the efficiency to reduce. In tests we have performed on synthetic filters we have seen a reduction from 99.95%, down to less than 75% during six months of use.

Synthetic filters usually cannot be certified as some ultrafine particles will penetrate the filter and therefore fail the stringent EN1822 efficiency tests. By contrast, HEPA paper, also known as glass paper, maintains the same very high efficiency for the life of the filter.

Key Points:

- The majority of air purifiers are not medical-grade filters (H13/H14 efficiency) and contain synthetic filters with lower E11 - E12 efficiencies.
- Buyer Beware: synthetic HEPA-type filters using materials like polypropylene do not maintain the stated efficiency for the life of the filter, HEPA paper is the only material guaranteed to maintain efficiency for the life of the filter. Synthetic filters use an electrostatic charge on the filter material which assists efficiency but over time the charge is lost and so is the efficiency.
- Bigger is better: the larger the size of the filter surface area (usually measured in m²) increases the efficiency of the filter due to a larger contact area. When comparing air purifiers look for the largest filter in size.
- The Clean Air Delivery Rate (CADR) advertised by many mass-produced air purifiers is not indicative of overall filtration efficiency.
- Air purifiers that direct airflow in all directions tends to recirculate their air at lower speeds making them less effective.

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The InovaAir V series Air Purifiers have been specifically designed for heavy-duty use in healthcare facilities. Each system features a certified H13 medical-grade HEPA filter, individually tested with a laser particle counter prior to dispatch to ensure they meet or exceed the advertised efficiency.

This is very important and often overlooked when comparing air purifiers. Many of the inferior consumer-grade air purifiers use synthetic HEPA filters and typically lose efficiency over the first 6 months of operation and then fail to provide the advertised 99.97% @ 0.3µm efficiency. InovaAir H13 medical-grade filters, however, maintain this high efficiency for the entire 3 year lifespan of the filter*.

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Why less is more when managing low back pain in the ED

Associate Professor Liz Marles*, Clinical Director at the Australian Commission on Safety and Quality in Health Care, explains why it's time for a cultural shift in our approach to managing back pain.

When you mention low back pain, everyone has a story. If you're an emergency physician or emergency nurse, there's a high probability you've treated a patient with back pain — the condition is one of the top five presentations to emergency departments.¹ There's also a high likelihood that you know a family member, friend or colleague who has suffered low back pain.

The release of Australia's first Low Back Pain Clinical Care Standard in September to help with the assessment and early management of acute low back pain episodes has been applauded across healthcare disciplines and among consumers. The standard is seen as a significant leap forward in addressing this common yet often distressing and debilitating condition.

The burden of low back pain

In Australia, low back pain is the leading cause of disability burden, and is the top reason for lost work productivity and early retirement.^{2,3} One in six Australians report back pain⁴ and it costs the Australian health system \$4.8 billion annually.⁵ The condition poses a significant burden to emergency departments, accounting for up to 2% of all

attendances and requiring an average length of stay between 4 and 5 hours.⁶

Over time, there has been a marked shift in recommended treatment for low back pain. The use of imaging, bed rest, pain medicines and surgery are now accepted as having a limited role in managing most people with this condition. Current evidence shows that providing patient education and advice, as well as promoting self-management and physical activity, are more effective.⁷

While we now have a good understanding for how low back pain should be managed, many people continue to miss out on recommended care or receive care that is not optimal.^{7,8} A recent systematic review of 195,000 patients across seven countries, including Australia, found that around one in three patients with low back pain presenting to the emergency department received referral for imaging and up to 60% were prescribed opioids.⁹

A road map for clinical care

The Australian Commission on Safety and Quality in Health Care (the Commission) developed the Low Back Pain Clinical Care Standard with a focus on early management

in emergency departments and primary care. The standard provides practitioners with a 'road map' to help patients manage low back pain episodes and reduce their chance of ongoing problems.

The standard comprises eight evidence-based quality statements describing what best practice care should entail (see Box 1). These include reserving imaging for serious underlying pathology and the judicious use of pain medicines.

The Commission has produced a 'Quick guide for emergency departments' providing an overview of the care described in the clinical care standard, with key actions and communication tips for ED physicians (see Figure 1).

Use pain medicines judiciously

Noteworthy in the standard is a shift in messaging around the role of pain medicines. Clinicians are encouraged to advise patients that pain medicines should be used to support activity, rather than to eliminate their pain.

The standard recommends avoiding anticonvulsants, benzodiazepines and antidepressants altogether and advises that





“The low back pain standard is a significant leap forward in addressing this common yet often distressing and debilitating condition.”

Patients should also be advised that incidental findings are very common in people without pain and are usually a normal feature of ageing.

A consistent approach

Research investigating usual care delivered for low back pain has shown there are numerous opportunities to provide patients with better care.⁹ Consistent messaging and education by all clinicians involved in a patient's care are key to dispelling myths and supporting shared decision-making.

It is heartening that the new clinical care standard has been endorsed by 17 key professional and consumer health organisations, including the Australian College of Emergency Medicine and College of Emergency Nursing Australasia.

The standard supports practitioners and health service organisations to deliver effective care for low back pain patients, who may be treated across different healthcare disciplines and often receive conflicting advice. People with back pain may seek care from emergency physicians, general practitioners, as well as allied health clinicians such as physiotherapists and chiropractors.

With a consistent approach and reassuring messaging, we can work together to remove barriers and prevent this common and sometimes debilitating condition from becoming a long-term problem for many Australians.

Read the standard and download resources at: safetyandquality.gov.au/lowbackpain-ccs

Low Back Pain Clinical Care Standard — Quality statements

- Initial clinical assessment
- Psychosocial assessment
- Reserve imaging for suspected serious pathology
- Patient education and advice
- Encourage self-management and physical activity
- Physical and/or psychological interventions
- Judicious use of pain medicines
- Review and referral

Read the full quality statements at safetyandquality.gov.au/lowbackpain-ccs.

This article was developed with Christina Lane and Alice Bhasale from the Commission's Clinical Care Standards team.



***Associate Professor Liz Marles is Clinical Director at the Australian Commission on Safety and Quality in Health Care and guided the development of the Low Back Pain Clinical Care Standard and chaired the Topic Working Group. She provides strategic leadership on work related to primary and community health care. A/Prof Marles is a general practitioner at Hornsby-Brooklyn GP Unit, with a special interest in chronic disease management, mental health and Aboriginal health, and a strong focus on holistic and preventative care.**

opioid analgesics should only be used in carefully selected patients, at the lowest dose for the shortest duration possible.

Importantly in the emergency department setting, simple analgesics and non-drug approaches should be used whenever possible. If an opioid is prescribed, the duration of therapy should be explained to the patient and included in the discharge summary, with the goal of avoiding prolonged use.

Reserve imaging for serious underlying pathology

Concerns about the potential overuse of imaging of the lumbar spine have been expressed for some time. The standard advocates that imaging should be reserved for patients with suspected serious pathology as routine imaging does not improve patient outcomes.¹⁰

Communication around imaging is key, and the standard offers practical communication tips for clinicians on how to explain and reassure patients. Where a potentially serious cause has been ruled out, it is important to discuss expectations of imaging and the limited role of scans in diagnosing low back pain.

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In healthcare, there's no time for downtime

It's true — not all buildings are created equal. Whether it be for purpose, efficiency, safety, or security, different buildings perform in different ways. So, how can you be sure that your healthcare facility maintains continuity for the safety of patients and staff, even in the event of unplanned downtime? Building resilience into your facility and processes is the answer, and Louise Monger, Vice President for Digital Buildings at Schneider Electric says this foresight can go a long way toward recovering faster and lessening the impact of downtime.

What is building resiliency?

Louise says that the resilience of your healthcare facility is determined by the longer-term functionality of your building before, during, immediately-after, and long-after a specific event that disrupts the delivery of care.

"When an unplanned outage takes place, keeping your essential services running, your patients safe, and your assets and campuses secure becomes a priority that is only possible if advanced planning has occurred," Louise says. "Put simply, your system requires data-driven power distribution and building management systems that proactively resist, recover from, and adapt to threats. An IoT-enabled infrastructure is foundational to resilience, helping you ensure 24/7 operational continuity, uninterrupted access to critical-to-care data, and robust systems."

Why improve building resiliency?

According to a 2016 study¹ conducted by Ponemon Institute, healthcare organisations face an average cost of \$740,357 per downtime incident. With this information in mind, IoT-based power and building

management systems prove their value the first time they prevent a downtime event.

In parallel, energy monitoring and forecasting in healthcare facilities not only allows for efficient operations on a day-to-day basis, but can also give an in-depth understanding of how you are using energy, how much the critical systems require, and when they require it most.

"To optimise resilience, healthcare facility managers should incorporate sustainability into their resilience plan," Louise says. "For example, if there is a high chance that backup power is needed, FMs should plan first for the most efficient use of power under both normal and extreme conditions, and second, for that power to be provided by a fuel that will minimise greenhouse gas and other emissions."

Likewise, monitoring of water systems can provide critical information and support the



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effective management of crucial resources in hazardous situations. Understanding a building's water consumption under typical conditions will allow facility managers to gauge how much water will be required in emergencies. This real-time monitoring can inform Critical decisions about an ongoing medical procedure or whether external resources, or even evacuation, are required.

This level of information across all systems can inform critical decisions during an emergency and may allow a facility manager to turn off unnecessary loads or divert resources to where they are really needed.

Day-to-day resiliency

In medicine, your facility simply can't afford a power problem disrupting a surgical procedure, an ICU, or other care areas, and according to Louise, an unseen factor

in electrical reliability in your building is power quality issues. "Invisible conditions like harmonics and voltage fluctuations can cause malfunctions or shorten the life of sensitive equipment," Louise says. "Unfortunately, these issues may only come to light following an incident or crisis."

To make these issues visible Louise recommends an IoT-enabled platform, such as Schneider Electric's EcoStruxure.

"The EcoStruxure platform lets you connect everything in your enterprise from the shop floor to the top floor," Louise says. "By collecting critical data through sensors and assets, EcoStruxure can then analyse this information and bring you meaningful insights which can be acted upon so your healthcare facility can achieve the highest level of resilience."

Should I have a microgrid?

Maintaining operations and the delivery of essential services during an extended, unplanned power outage is a central requirement of your resiliency strategy. To really prepare for and protect against blackouts, Louise says you should consider more than one line of defence.

"An Emergency Power Supply System (EPSS), which supplies power quickly to all primary services on the site, including all essential services," Louise says. "In addition to this, a microgrid can bring together all your energy sources while monitoring and managing supply and demand. As a result, microgrids provide the resilience you need to maintain normal hospital operations even if the utility grid goes down."

To support onsite generators microgrids offer day-to-day power capacity requirements to help connect, control, and monitor your energy resources. Using software to control and optimise the microgrid means you can proactively manage your energy production, promote renewable energy, and support the traditional emergency backup power systems in the event of an outage. Software can also help you with the measurements and validation necessary to maintain building compliance and accreditation.

Keeping it all cybersecure

While the IoT revolution enhances many aspects of healthcare, it also comes with an increased risk of cyberattacks. To protect sensitive data and essential equipment, your entire infrastructure must be modernised and cybersecure.

"Deploying cybersecure-by-design operation technology (OT) is not enough," Louise says. "You are only as strong as your weakest link, and the network layer — where devices communicate and data turns into business value — must also be protected. As you add or decommission devices over time or as older software becomes less secure, IT/OT becomes a complex puzzle."

Cybersecurity can be a major problem, and in fact, the average cost of a cybersecurity breach in healthcare data (including up to 280 days of recovery time) is around \$7 million².

"As your IT and OT architecture evolves, so must your approach to cybersecurity," Louise says. "It is best to start with an assessment that will analyse your operational environment for vulnerabilities and return prioritised recommendations to help you remediate high-risk areas first. At Schneider Electric, we offer scalable, 24/7 managed services to monitor and maintain your network, deploying technicians on-site as needed to help protect your power, systems, and people."

Boost resiliency with remote operations and condition-based maintenance

Remote operations deliver so much more than the ability to react to alerts. The true value of remote operations for healthcare facilities lies in the capacity to pre-empt, proactively troubleshoot, and prevent problems with building management systems before a disruption occurs. Likewise, a reactive approach to maintaining your electrical and building management assets exposes everyone to risk and uncertainty.

The most effective approach is to employ condition-based maintenance, whereby you are able to use remote sensor information to assess when to perform maintenance on your critical assets, as and when it is needed, rather than on a set schedule.

"Condition-based maintenance leverages the power of big data to help you anticipate problems and prevent disruption," Louise says. "The digitisation of power and building systems is the key to unlocking that data, making data-based decisions, and driving resiliency."

Building for the future

For healthcare facilities of the future, resiliency needs to be a core part of construction. The financial benefits alone make this a worthwhile pursuit, but there are other incentives as well.

"To achieve resiliency in your healthcare facility you need to predict, prepare for, and protect against any adverse event," Louise says. "But, resilience strategies offer more than just working out what happens in an emergency. Resilience planning enables you to think long-term through a wide lens to increase sustainability and make the best use of automation and data so that every day you can improve your power reliability, keep your healthcare facility cybersecure, protect your critical assets and manage your sites remotely."

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Five food safety questions to ask

Andrew Thomson, Director, Think ST Solutions



Food safety management requires monitoring and supervision at a senior corporate level. If you are leading a food service operation at a hospital, aged care facility or leading a catering operation, then you would be familiar with the need to have a Hazard Analysis Critical Control Point (HACCP)-based food safety management system and a solid understanding of food law requirements. As you may already be aware, you are ultimately responsible for food safety management — whether you provide an in-house or a contracted out service.

The organisational systems should be supported with the appropriate policies and procedures as part of a risk-based approach to food safety management. Food safety management requires commitment from management, including the chief executive officer. This commitment should be visible and active with a food safety management policy. Your senior managers should be a reliable source of food safety information for you and your customers; keep the trust of food regulators and accreditation assessors; earn the confidence of clients; and be a

catalyst to improve food safety across the organisation.

Food handling staff and management need to be accountable for implementing the food safety policies and procedures, and should seek continuous improvement in these areas.

Food safety management is an area of operational risk which is often overlooked, resulting from inadequate or failed internal processes, people and systems or from external events. Failure to appropriately manage operational risk can expose organisations to significant losses.

An effective monitoring and reporting process is essential for adequately managing operational risk. There should be timely reporting of key information to senior management and the board of directors to support proactive management of risks.

As a chief executive:

- How do you assure yourself the food safety management system has been fully implemented across the organisation?
- Have all food safety risks been identified, assessed and appropriate mitigation strategies put in place? How are you informed of this?
- What reporting processes are in place to inform you of the results (and actions taken) from internal and external audits and comprehensive senior management reviews to ensure the food safety management system is fit for purpose?
- How are you assured that the identification of the root cause of non-conformities is effectively addressed and has been endorsed by senior management?
- Have you received internal management reports on the effectiveness or return on investment with food safety training?

Like any risk management process, implementing a robust food safety management system and follow-through requires the effort of a team to be successful. Food safety management is a fundamental part of an organisation's risk management strategy.

The Role of Technology in Combatting Healthcare-Associated Infections

Long before COVID-19 started spreading globally, healthcare organizations (HCOs) were battling the spread of common infections in hospitals. There are approximately 200,000 healthcare-associated infections (HAIs) in Australian health facilities annually.

"HAIs remain a challenge for many healthcare organizations," said Jonathan French, senior director, Thought Advisory, HIMSS. "It's important for organizations to adopt different workflows that can reduce the spread of common pathogens and, in doing so, prevent infections."

The many costs of HAIs

HAIs commonly lead to lengthened hospital stays as well as hospital readmissions. Consequently, HCOs face increased medical costs for those patients' care. The resulting economic burden of HAIs is estimated to be more than \$1 billion per year.

There are also indirect financial consequences to HAIs in the form of patient satisfaction scores and the organization's reputation within the community.

"Having strong infection control practices, reducing HAIs and preventing readmissions are very standardized processes," French said. "The evidence is quite clear: When these processes are adopted and followed, patient outcomes are better. Patients are more satisfied with their care. And they will want to come back to your organization for care in the future."

Understanding the cleaning ecosystem

Successfully fighting pathogen spread and

supporting the standardized processes that can help mitigate HAIs relies on a complex cleaning ecosystem.

Most infections are transmitted through the air or through surfaces. Organizations need to rely on caregivers, not just the cleaning staff, to help keep different medical and computer equipment clean. Unfortunately, many of the workflows to keep equipment clean add burden to clinicians already experiencing high levels of burnout.

"HCOs rely on caregivers to wash their hands, wipe down a cart and follow other protocols to manage spread. Unfortunately, this can take a lot of time," according to Angela Poulson, senior product manager, Ergotron. "When you are in the middle of a busy shift, or you must immediately attend to a patient, there's a high risk of adding the element of human error to these critical processes."

Automation to help remove the element of human error

Engineered controls, automated processes and specific technology choices can help reduce the burden of extensive hygiene protocols on doctors, nurses and other clinical staff.

"Clinicians are going to be interrupted. They are going to be pulled in different directions as they provide care to patients," French said. "When you can offer automated support to help them follow the workflows that support infection control, it benefits everyone. It saves lives. It reduces costs. And it helps to prevent more infections outright."

Examples of engineering controls and automated processes include anti-microbial

protection used on products to promote infection control. Functional elements like smooth handles and open architecture designs are also inherently easier to clean and maintain. Many organizations choose wall mount workstations to reduce cross contamination between patient rooms that may be more likely with mobile medical carts.

Engineering controls and systems can offer infection preventionists (IPs) vital data in real time to document the infection control efforts in use. Software can help provide IPs data to demonstrate how a technique helps reduce pathogens to keep caregivers, patients and their families safe. Collecting those data points in real time can help HCOs cultivate more robust infection control policies.

Adding automated pathogen reduction systems to your infection control ecosystem offers tremendous value by reducing the variability and bias seen in other human-led endeavors.

Ergotron's open architecture workstation designs, anti-microbial treated surfaces and more support infection control initiatives and efficient workflows. Learn more at [healthcare.ergotron.com](https://www.ergotron.com).

Enhance healing spaces and promote infection control

Ergotron's CareFit™ family is designed to fit your people, workflows and environments. Fully enclosed technology and cabling enhances infection control to help protect patients and caregivers.

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Bridging the

Two major hospital redevelopments in Dubbo and Wyong in regional New South Wales are set to deliver much-needed regional healthcare infrastructure to remote communities.

The redevelopments, by architecture studio HDR, are designed with an aim to service the need for improved healthcare delivery and ensure staff and patient wellbeing. Part of the delivery of a program by the NSW Government to transform health care in rural, growing communities, the projects focus on practical, spacious layouts, natural light and biophilia to enhance staff wellbeing and patient recovery.

As HDR's health leadership team in Australia sketched out their plans for the two hospitals, their international colleagues were conducting a study into the effect of design on healthcare facilities in rural towns, with detailed outcomes set to inform the work of the studio, and its contemporaries in the years to come.

Working for the Western NSW Local Health District, HDR provided specialist healthcare master planning and design for the \$150 million Dubbo Base Hospital, which is now positioned as the major referral centre and acute care hospital for specialty services in Central NSW.



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The expansion and upgrade provides a new clinical services building, surgical inpatient unit, emergency department and short-stay unit, medical imaging unit, critical care floor, ambulatory care unit and renal unit.

HDR's revision of the masterplan brought the clinical building closer to the rest of the hospital (rather than across the road), achieving the design goal of supporting clinical efficiency.

A new entry foyer, a drop-off zone and extra car parking are also among the new and enhanced buildings and spaces. New maternity wards have been created, with the original wards converted into administration offices and a medical records space.

"HDR's masterplan provided clinical efficiencies and a functional layout that will work for the next 30 years," said Joe Mihaljevic, HDR Project Director.

Prominent Aboriginal artwork provides a welcoming feature for Dubbo's large Indigenous community and aims to positively impact the wellbeing of patients and their families. HDR integrated lighting in its designs to ensure the artworks were given due prominence.

Successful work on Dubbo Hospital Redevelopment saw HDR commissioned again by its client to design and deliver the Western Cancer Centre Dubbo, a new facility to deliver cancer treatment and diagnostic services to people across remote Western NSW.

In HDR's healthcare study 'Rural Resolve', access to parks, recreation and greenery is one of eight recommendations for the improvement of rural health care. Rural Resolve is a detailed study into the positive impact that design can have on the wellbeing of rural hospital patients, staff and visitors.

"Simply viewing savannah-like settings led to one study's participants reporting less fear

and anger, and more considerable attention and peacefulness," the study found.

Taking heed for the Wyong Hospital Redevelopment, HDR makes a prized feature of the facility's stunning bushland surrounds. Floor-to-ceiling windows at the end of each corridor and between patient beds reveal vast blue skies and sculptural trees.

"We recognised the stunning natural landscape of the western side of the building and made a point of capturing the views and natural daylight. It's such an important factor for the hospital and for the health and recovery of patients," said Alan Boswell, HDR Design Director.

Working for the Central Coast Local Health District, HDR helped deliver a new clinical services building as part of the \$200 million redevelopment.

The new six-level building, with scope for further levels on top, provides a new emergency department, intensive care unit,

additional treatment space, a new medical imaging department and medical assessment unit as part of the hospital's Stage 3 masterplan works.

The new facility is linked to the existing 1970s hospital by an enclosed footbridge.

"Access to good healthcare facilities is a right for people in regional areas as much as in the cities, and so we're delighted to have provided our design expertise in this sector which we aim to improve outcomes for staff, patients and the wider community," Boswell said.

care gap



"Prominent Aboriginal artwork provides a welcoming feature for Dubbo's large Indigenous community and aims to positively impact the wellbeing of patients and their families."



How healthcare organizations can maximize their return on insights

Shez Partovi, Chief Medical, Innovation
& Strategy Officer, Royal Philips

Like all commercial enterprises, healthcare organizations need to make a return on their investments. In recent years, we've seen how data has helped them achieve this by revealing costly inefficiencies and broken processes. But while many providers have seen success here, few have been able to tap into the vast potential that a special kind of ROI — return on insights — can offer when it's done at scale. But what does it mean to go beyond data and harness the power of insights at scale, and what new returns can healthcare leaders expect to generate?

Data vs insight: what's the difference?

Before we talk about what it means to have insights at scale, let's clarify what I mean by 'insight'.

Imagine a 54-year-old patient, Lucas. Which of the following would help you improve quality of care, reduce cost of care, and enhance his experience as a patient?

- A random blood sugar value reported to be 140 mg/dL
- An analysis of his medical history revealing a 72% likelihood of him developing diabetes-related eye disease in the next 18 months without intervention

The first statement certainly seems like a useful piece of data — an elevated blood-sugar. Though, what value does it provide beyond that? We're left wondering if this is a fasting blood sugar value, or perhaps this is post-meal in which case it may be acceptable. More critically, as a single data point it offers no trend information. If we had a string of data points revealing an upward trend, then we may have concluded Lucas has diabetes. The point is that data — while necessary — may not be sufficient to guide us to delivering on the quadruple aim.

Now let's consider the second statement. This is an insight, a red flag that intervention is necessary to help alter the predicted course of his diabetes. Some may refer to this as "clinical prediction" which is based upon machine learning applied to Lucas' prior medical data. Whatever terminology you choose, the outcome is that you have gained an insight about his likely clinical course. This insight can now help you plan treatment interventions to improve outcomes and reduce overall cost of care.

With this example, I trust the difference between data and insights has become clearer: the former is an atomic element that requires context for interpretation, whereas the latter provides a deeper understanding of

the patient's likely clinical course (an insight) and helps you manage the patient's treatment plan. Plus, if you look carefully, there is a subtle point in the example I shared: the insight was generated by machine learning. As clinicians, we could not have reasonably reviewed all the prior clinical data in the chart at the moment of care and come up with that insight. However, a computer can "read" through the chart at machine-speed and surface an insight for you just when you need it — at the point of care.

This is why, between the two choices above, I would prefer the machine-generated insight, and I would like that level of insight at-scale in any patient I see.

The compounding value of insights at scale

Now imagine if your healthcare organization had on-demand access to these sorts of insights in every part of your business, in both clinical and operational settings. Seamless, reliable data exchange between patient and practitioner, and across every device, generates informative, actionable insights embedded in your workflow, providing operational forecasting, clinical prediction, and enhancing the patient experience. While one of your teams may be using insights



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to determine the optimal treatment path for coronary artery disease, another may be using insights to automate reports for your billing and inventory management. Serving your organization from end to end, these insights change the very fabric of your business and how you operate for the better. This is what we mean when we talk about organizations having insights at scale — and this is what I'm passionate about enabling for today's ambitious healthcare leaders.

For the purposes of this post, we won't dive into the weeds of insights-at-scale infrastructure — more on that in a future post. Instead, let's focus on what I find most exciting about insights at scale: benefits healthcare leaders should embrace because of the compounding value that they can generate.

Let's look at an example. Nearly every ambulatory care clinic has to navigate the delicate balance between variable-length appointment times, late arrivals, last-minute bookings, no-shows and staff absenteeism. Managing these variables manually is inefficient, costly and a burden on your teams. So you invest in a digital solution — an AI system that analyzes data on your patients and assigns a no-show prediction to each of them. The system has just returned the following insight: "Sara has an 80% no-show

likelihood for her next appointment." While that insight is simple and self-explanatory, there is a compounding value it can generate for your organization:

- Initial reaction to the no-show prediction may be to double book Sara's time slot. After all, ensuring your appointment is full generates the greatest value for both your organization, and for the "other patient" that benefits from the likely open slot. This seems like a win-win — except perhaps for Sara. Because if Sara does show up, and her slot is double booked, she may potentially have less clinician time allocated to her.
- The compounding positive effect on the organization begins when your teams asks, "Well, why is Sara not likely to show up? Does she need a babysitter? Does she have transportation issues? Are there other insecurities that are predicating her to missing her appointment?" This is a second-order positive effect, as it drives your organization to perform more targeted outbound reach-out to support Sara and ensure she can make her appointment.
- Moreover, many of these outbound reach-outs can be automated using technology to bring scale to your organization, improving care delivery even at reduced cost. In fact, using these methods alone we've helped our partners reduce no-shows by up to 45% — not only improving delivery for those scheduled (since they didn't miss their appointment) but also reducing empty appointment slots or double bookings, which reduce the patient experience.
- Finally, having established a preferred line of communication with Sara and other potential no-show patients, your organization can then take the opportunity to strengthen the patient-provider relationship. This allows a more refined approach to potentially vulnerable individuals to better support their care journey. For example, you could enroll Sara to a patient-engagement initiative that provides educational resources about managing her condition(s), or encourage her to join a patient portal where she can easily document her symptoms and treatment progress from home, increasing your oversight of her when she's not in the clinic, as well as improving her access to care. (We recently launched such a portal to help strengthen patients' knowledge and satisfaction after functional endoscopic sinus surgery (FESS) using Philips Patient Management Solution — this led to a significant improvement in knowledge of their medical conditions, increasing their ability to play an active role in their care management.)

Consider where we started (with a single operational insight) versus where we've ended

up: that isolated 80% prediction unlocked a broader set of value; this is your Return on Insights. This is the power of insights at scale: it's not always about having a large number of atomic insights — it's about the second-order effects generated by those insights, leading to high-value, far-reaching returns across your organization.

To put these compounding returns in a real-world context, we recently collaborated with West Moreton Hospital in Australia, which was looking for a way to reduce in-hospital COVID-19 transmissions and the associated burden on their teams. We developed a remote-care solution where patients were given tablets and medical devices to measure and report just three values: temperature, blood pressure and oxygen levels.

The data generated was then fed into an integrated telemonitoring platform that returned insights on likely patient deteriorations — prompting clinicians to intervene earlier, or start dialogues with the most at-risk patients, increasing patients' ability to self-care from home. The insights generated resulted in a 53% reduction in emergency department visits, savings of AUD 1,010 per patient per month, and a 28% decrease in potentially preventable hospitalizations in chronically ill patients — all while simplifying the clinician experience and handing more independence back to patients. Once again, we see how even a relatively low insight 'set' can generate a multitude of high-value returns.

How to get started on the road to insights at scale

Embracing insights at scale doesn't have to mean applying AI or predictive analytics capabilities to every single part of your business. Nor does it require dealing with a deluge of insights from the get-go. You'd be surprised by how much value you can generate by starting with a few select use cases (like in the example of our no-show patient, Sara). Typically, I suggest beginning with use cases in operational forecasting, because clinical predictions are naturally more complex and tend to involve much more varied data types. Moreover, most organizations find it simpler to embed operational insights into their existing workflows. Once you've seen those early insights translate into measurable outcomes, I suggest expanding further into clinical domains.

Ultimately of course, the goal is to get to a place where your organization can make a return on insights in all areas, so you can improve the patient experience, streamline the staff experience, lower the cost of care, and improve your patients' health outcomes, delivering on the Quadruple Aim.

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In a healthcare system that values cutting-edge technology to diagnose, treat and manage conditions, consistent sharing of consumer health information remains an elusive target.

Australia has key systems in place to enable and support standardisation and connected health systems, such as national healthcare identifiers, and continues to make progress as shown by the rapid national uptake of electronic prescribing which was accelerated by the challenging COVID environment.

Consumers want a connected healthcare system

Despite this, there is growing impatience among consumers and healthcare providers for a more connected healthcare system as the healthcare sector lags behind other industries in adopting digital technologies and standards that deliver seamless connectivity. In 2022, cancers can be treated with sophisticated biological medicines tailored to the genotype of the cancer in question and advanced surgical techniques have revolutionised how once major surgeries are carried out as minimally invasive interventions.

What hasn't changed is the way consumer health information is shared through the health system — still to a large extent by paper, with inadequate and inconsistent presentation of the information required to safely manage consumer's information.

Connected care and consumer experience

Consumers have told us that repeating their story for every new clinician reduces the trust that they have in the system and alters their perception of their healthcare experience. Disparate systems within health services often have limited integration. So, while demographic information may flow seamlessly throughout the health service environment, clinical information may be siloed in different systems, such as oncology, acute care clinical information systems and outpatient systems.

Worse, when a consumer has multiple healthcare providers, printed summary information from one system needs to be transcribed into the next system. Transcription or manual entry of incomplete data is often the only means of clinical information system integration and fraught with potential sources of error.



Building the connected system Australians want

The Connecting Australian Health Care — National Healthcare Interoperability Plan (the Plan) aims to accelerate the digital transformation of healthcare delivery in a first-of-a-kind, nationally agreed and coordinated effort. A connected healthcare system benefits all participants by providing consumers with access to their health information when and where they want or need it and aligns to the Australian Charter of Healthcare Rights (second edition). A connected healthcare system supports clinicians and care team members by ensuring those appropriately authorised have access to contemporary and historical clinical information to guide decision-making and potentially reduce duplication and waste.

The Plan includes 10 principles, five priority areas and 44 actions to progress over the

next five years. The actions were developed in broad consultation with stakeholders across the health and care sectors. The Australian Digital Health Agency (the Agency) will lead and coordinate the implementation of the Plan. With access to leading health and technical experts the Agency is ideally placed to ensure the objectives of the plan are delivered.

The Plan will address inequality through inclusivity, with a national push towards ensuring that Australians of all ages, locations and cultural backgrounds are supported to access healthcare and health information. This will be done through digital health approaches that meet their needs — including that digital health works effectively to help 'close the gap' in health outcomes between Aboriginal and Torres Strait Islander and non-Indigenous Australians.

The Agency is currently stewarding the Plan through the intergovernmental approval process

and will publish the Plan on the Agency's website once approved. In the meantime work has commenced on key fundamental building blocks for connecting healthcare, including:

- Implementing a Healthcare Identifiers Roadmap to increase the adoption, for ensuring consumers and providers are identified accurately.
- Publishing the first edition of a National Catalogue for Digital Health Standards that will provide a single point of information to support the use of digital health standards for software developers and health information managers.
- Developing guidelines for decision-makers that highlight the importance of digital health standards when making investment decisions for information and communications technology in our health services — support materials will make it easy to incorporate these guidelines into tender requirements ensuring new systems are purchased with connectivity to the health system in mind.
- Developing a healthcare connectivity toolkit and educational materials that build capability and capacity in Australian healthcare workers, managers and software developers.
- Conducting a baseline survey of interoperability in a range of healthcare settings that will support ongoing measurement of our progress.

Everyone can contribute to connecting Australian healthcare

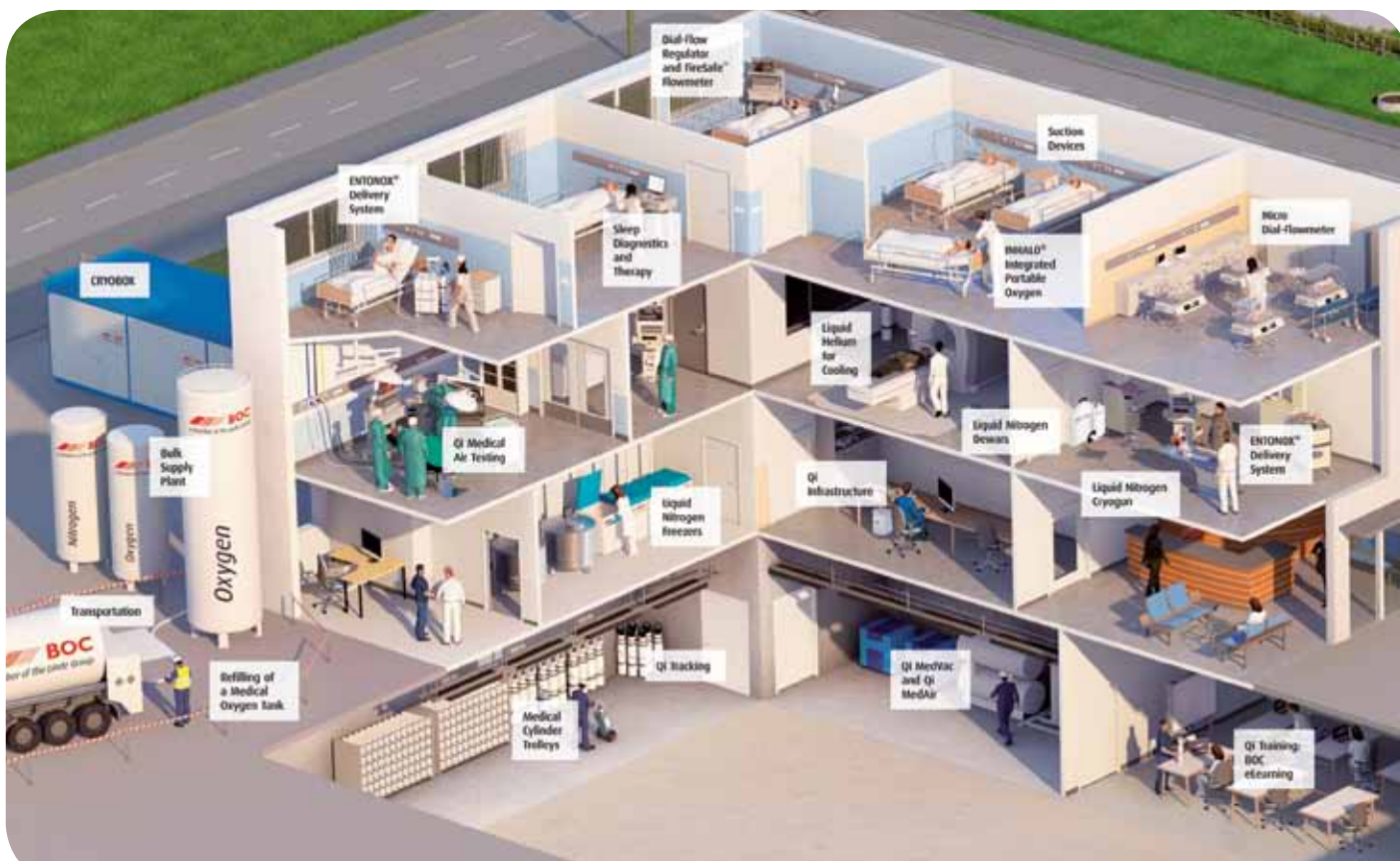
Health service staff can help the implementation of the Plan in a number of ways. Promoting the point of care collection of healthcare identifiers to complete patient profiles in clinical information systems is one easy action that can be done from today. Influencing colleagues to ensure high-quality discharge summaries are issued to consumers as they leave the healthcare service and simultaneously sent to the consumer's My Health Record is another.

There is a role for everyone involved in health care in Australia to achieve the target state where consumer health information can be shared safely, securely and seamlessly across the consumer healthcare journey.

***Dr Holger Kaufmann is the Acting Chief Digital Officer at the Australian Digital Health Agency (ADHA), responsible for reviewing international experience and trends and local innovation to help set the national digital health agenda for the Australian health sector. Holger has over 20 years' experience in digital delivery and innovation and holds a PhD in**



theoretical physics from the University of Cambridge, UK. Digital innovation in health care has been a long-time passion for him.



QI Risk Medical gas pipeline system and operational assessment

A well maintained, fit-for-purpose medical gas reticulation system is critical to a healthcare facility's ability to deliver reliable and safe patient care. However, hazards in the system can be easily overlooked, potentially compromising reliable and safe operation of the facility.

Common medical gas system hazards within a healthcare facility can include:

- Outdated gas cylinder manifolds that no longer comply with safety design standards.
- Unmaintained or non-compliant medical air plants, compromising reliability of supply and delivering poor-quality medical air.
- Insufficient pipeline and instrumentation drawings, increasing the difficulty of troubleshooting and repair of the medical gas system.
- Non-compliant cylinder storage or cylinder segregation resulting in fire and asphyxiation hazards.

Drawing on over 60 years' experience of providing medical gas solutions and support, BOC has developed QI® Risk as a proactive approach to manage the safety, reliability and compliance of medical gas reticulation systems.

QI Risk is a comprehensive medical gas pipeline and operational assessment package involving a thorough inspection, risk assessment, detailed reporting and recommendations by one of BOC's medical gas reticulation experts; giving your healthcare facility the insight required to ensure safe and reliable operation of the complete medical gas reticulation system.

BOC will work closely with you to tailor the scope of the QI Risk assessment package to meet the

specific requirements of your healthcare facility — this assessment can include all or part of the following areas:

- Liquid oxygen supply.
- Cylinder storage.
- Manifolds and manifold rooms.
- Medical gas alarm systems.
- Plant rooms, medical air and medical vacuum plants.
- Medical gas reticulation.
- Department, ward and theatre medical gas infrastructure.
- Medical gas training, policies and procedures.
- Safety regulatory requirements.

BOC can assist in the design, supply and fitting of medical gas infrastructure, equipment and maintenance; developing best practice solutions specific to a healthcare facility's needs and assisting in maintaining compliance and accreditation within current regulatory standards.

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Image credit: Denton Corker Marshall

Fostering collaboration with design

View of the Sydney Biomedical Accelerator from Western Avenue featuring the seven-storey circulation spine called the Connector.

Denton Corker Marshall + HDR in partnership with Arcadia Landscape Architecture and Aileen Sage are set to deliver the University of Sydney's Biomedical Accelerator facility, featuring a seven-storey circular spine, floating laboratories and a lot more.

The \$478 million Sydney Biomedical Accelerator (SBA) is a 36,000 m² health, research and education facility co-funded by the NSW Government, Sydney Local Health District and The University of Sydney.

The Accelerator has been benchmarked against the world's leading biomedical facilities such as the Karolinska Institutet (50% of Sweden's life science companies in one precinct), the University of Toronto's MaRS Discovery District and MassBio (life science super-cluster of 1100 members including Harvard, MIT, Brigham and Women's Hospital and Boston Children's Hospital).

Architectural concept of the Sydney Biomedical Accelerator from St Andrew's Oval — a solid base grounds the building and relates to the heritage context, while bold forms float above creating compelling imagery alluding to the scientific investigation within.

It is said to be a first-in-Australia facility equipped with a range of laboratory research facilities and clinical learning spaces. It will build a biomedical precinct to fast-track research and patient care in New South Wales.

For the first time, a physical bridge connecting the university and Royal Prince Alfred Hospital campuses will be established as a part of the project.

The project design has connectivity at its heart with a focus around a seven-storey circulation spine called the 'Connector'. The design competition jury noted: "The Connector is a compelling proposition, with the functionality and interconnecting qualities expected to foster collaborative interaction, providing a unique offering."

Alongside the Connector, laboratory planning lead HDR has designed a range of education and laboratory research facilities, specialist core laboratories and technical support spaces that bring together multidisciplinary teams and integrate fundamental research at the molecular and cellular level with patient-centred research and health outcomes.

In the following 12 to 18 months the architects will work with the university, Sydney Local Health District and other stakeholders to workshop and finalise designs. Early works for the Accelerator will commence this year and initial occupation is expected to occur from 2026.

Adrian FitzGerald, Senior Director, Denton Corker Marshall, said, "We designed the building as a clear, simple sculptural form with a solid base acknowledging its campus setting; a floating top with compelling imagery alluding to both scientific investigation within and an embedded Indigenous narrative in the sculptural sunscreens."

Graeme Spencer, National Director of Education + Science, HDR, said by pairing the group's local and global scientific expertise, it has the opportunity to design and deliver "state-of-the-art, highly adaptable biomedical laboratories where education, health care, engineering and science converge, ultimately enabling SLHD and The University of Sydney to succeed in biomedical research".

"Laboratories are one of the most programmatically complex and diverse environments to plan, design and engineer,

but using advanced design technologies and our data-driven process we have conceived a flexible and efficient design that will cultivate knowledge transfer between biomedical research talent, support robust creativity and collaboration, and enable the acceleration of the biomedical process — from research through to development and commercialisation."

The Accelerator will tackle some of our most complex health challenges, including cancer and neurodegenerative diseases, and position Sydney as a global leader in biomedical research. Scientists at the facility will conduct research into the building blocks of life, regenerative medicine, drug discovery and medical device development, and harness the latest in nanotechnology and gene and stem cell therapy to transform health outcomes in the state.

Vice-Chancellor and President Professor Mark Scott AO said the investment is a key component of the university's new 10-year strategy.

"It gives our renowned researchers and partners the infrastructure to take a major step forward in the global quest to find solutions to our biggest health challenges. Together, we have the potential to dramatically improve the future of health and medical care in this country," Scott said.

"Once the Accelerator is completed, the long-term relationship between our university and the Royal Prince Alfred Hospital will be further strengthened by the physical sharing and

linkage of facilities, accelerating the pathway between findings made at a patient's bedside to the research bench and back again."

The Vice-Chancellor said, "This project cements our long-standing partnership with the Sydney Local Health District and we are so thankful for the \$143.3 million commitment that the NSW Government announced for this project back in June."

Over 1200 world-class biomedical researchers and clinician scientists will be located onsite at the Accelerator, including over 800 university laboratory researchers and PhD students and 100 industry researchers.

Work at the SBA and the university's facilities at Westmead will be mapped together for shared access and collaboration. Capabilities will be designed to seamlessly complement each other across the two sites such as the viral vectors created at Westmead which will be used for gene and cell therapies development at the SBA.

Funding for the Accelerator also includes \$73 million in philanthropy to the University of Sydney. A \$20 million donation from the Susan and Isaac Wakil Foundation will establish The Isaac Wakil Biomedical Building, one of three buildings that make up the Sydney Biomedical Accelerator complex. Isaac Wakil Biomedical Building stands beside and connects to the Susan Wakil Health Building (not part of SBA), opened in 2021 and also supported by a \$35 million donation from the Wakis.





“The Accelerator will tackle some of our most complex health challenges, including cancer and neuro-degenerative diseases, and position Sydney as a global leader in biomedical research.”

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How good infrastructure monitoring helps healthcare providers maintain a healthy connection with patients

The advancement of medical science has been wonderful in that more diseases and treatments are being identified and treated. The innovation of medical technologies has evolved to also provide the convenience of eradicating the long waiting times patients and doctors have had to historically wait to receive medical imagery or results.

As the aging population continues to boom, this is not only putting pressure on the healthcare system but growing patient expectations are placing higher demands on the healthcare sector too. The instant availability of patient data means X-Rays, MRI scans, ultrasound images and laboratory test results are sent directly to monitors on the wall or a doctor's tablet.

This enables the main healthcare provider, often the General Practitioner (GP), to maintain the ongoing patient connection. Even when they are referred to third party specialists, they still have access to all relevant patient information at any time.

The digital format for recording patient information is the EHR (Electronic Health Record) or sometimes the EMR (Electronic Medical Record) and includes patient demographics, medical history, medical data and laboratory test results. It is a form of Customer Relationship Management (CRM) for the healthcare sector and helps maintain the connection between the patient and their primary healthcare provider.

The EHR is crucial to diagnosing patients and treating them. It provides the patient's history, past treatments, as well as vital signs and these things need to be assessed together when making decisions about treating a patient.

Public versus private hospitals

Australian public hospitals are largely funded in advance based on state and federal funding programs.

The real issue with the Australian healthcare system is that it is a notoriously fragmented ecosystem of GPs, specialists, allied health,

as well as a combination of both public and private hospitals. The problem that they are currently trying to solve is to deliver a digital health platform that all providers in the health ecosystem can access so that they have that single view of a patient's EHR.

Digital transformation in healthcare

Despite the apparent technical aspects of modern medicine, it is one of the last segments of the economy to become widely accepting of digital transformation for a variety of practical and privacy reasons. When it comes to the biggest impediments facing the healthcare sector in digitally transforming, the main issue lies in the complexity of the funding models. In Australia, the problem is that we've had a lot of systems that operate in silos because of the way that the health system is funded.

Electronic medical records have been fully embraced, particularly by healthcare administrators in the private sector and now by the state and territory governments with responsibility for healthcare. The two overarching goals of moving to the EHR are improved patient care and lower healthcare costs.

These medical records can be shared securely between other health providers using Enterprise Document Sharing (XDS). It is essential to monitor the network and hardware components involved with EHR processing to ensure that they are always accessible and updated. However, for patient privacy, only the data type, volume, pathway and device state are monitored, no individual details are accessible.

Patient privacy is paramount

Australia's need for a connected healthcare system has never been more significant and it needs to be accessible, progressive and secure. However, there are still substantial concerns over the privacy of digital patient records in Australia and who can get access to them.

Initially, there was a lot of scrutiny over the opt-in EHR for Australians, the My Health Record, launched a few years ago due to concerns over privacy and security of private medical information.

According to the Australian Digital Health Agency — the Government organisation managing the My Health Record — during the 2020–21 period the total active records in the My Health Record System was 23 million. Compared to the 2019–20 period, 2.69 million people accessed their My Health Record in 2020–21, which is a 14 percent increase on the previous year. This has been mainly driven by people accessing Covid-19 vaccination records and Covid-19 test results.

The Australian Digital Health Agency continues to make the My Health Record more accessible to everyone through making the My Health Record available through the HealthNow app. Information that is available on the app includes general immunisation history statements, hospital discharge summaries, advanced care directives and information about medications and allergies. Likewise, rise of online booking platforms such as HotDoc is showing how the adoption of digital health is being transformed. In January this year, the number of patient bookings through HotDoc reached three million — which was more than doubled from January 2020 figures.

With more interactions moving to eHealth, patient care has been completely reimaged and the experience for patients has undoubtedly improved due to the increased connection with primary healthcare providers. The accessibility of the EHR means individuals can take more control over their healthcare journey and make more informed decisions in consultation with their healthcare providers; however, it is essential for healthcare providers to remain on top of monitoring their complex IT infrastructures, ensuring they are operating at their optimal level.

Visit our page for more information on what IT monitoring can do to support your operational transformations.



AI in health — can we program human dignity?

New research about the role of dignity in machine-assisted medical treatment has brought the thorny issue of integrating artificial intelligence (AI) into human health care back in the spotlight.

Many clinical settings already use different applications of AI to analyse test results, speed up diagnoses and even guide treatment decisions — but not everyone is comfortable with outsourcing decisions about their health care to a machine.

“We need to think more deeply about the impact on people and about the way they feel about AI making various decisions about their health,” said Associate Professor Paul Formosa, a philosophy and ethics scholar at Macquarie University. Formosa is also an Associate Professor in the Department of Philosophy and a member of the Centre for Agency, Values and Ethics (CAVE).



If having AI involved in their health care makes people feel dehumanised, patients may struggle to accept its decisions or recommendations, no matter how accurate, or efficient, Formosa said.

“Image recognition is something AI is very good at — and there’s examples where AI trained on hundreds and thousands of images of eye retinas, for example, can perform as well or even better than humans in detecting certain diseases,” he said.

However, just because AI is effective at some functions doesn’t mean it is warranted in all circumstances, he said.

Preferring humans

Formosa and fellow researchers recently surveyed more than 470 people about different healthcare scenarios involving AI or human decision-makers, asking them whether they felt they were treated in a dignified and respectful way.

Respondents showed some clear preferences about how and where they would like to see AI used in health care, he said.

“People have a general preference for ‘assistive AI’, where the AI is part of the decision-making process, rather than autonomous, where it’s making decisions without a clinician,” Formosa said.

They also preferred to have a human decision-maker where a diagnosis was made, he said.

“People are concerned that AI, compared to humans, can’t account for their uniqueness,

“Just because AI is effective at some functions doesn’t mean it is warranted in all circumstances.”

and that some things can’t just be reduced to a number.”

However, there were signs that people were less concerned when AI was involved in decisions about resource allocation — for example, in getting an appointment with a specialist, because it was seen as fair or impartial — provided that the outcome was positive — in other words, that they were able to obtain an appointment.

Reducing stigma

Formosa said that the results summarise the majority of preferences, but the area is complex and there are some patients, and some situations, where AI may be preferred.

For example, research shows that many people have negative reactions to seeking medical treatment for things that they feel they will be judged on — such as illnesses caused by smoking or mental illnesses.

“People may be more comfortable interacting with an AI for these conditions,” he said, adding that this is an area for future research.

Perceptions of being ‘dehumanised’ can also depend on how the AI is integrated into the healthcare process, he said.

“If you only interact with an AI — it takes your symptoms, delivers diagnosis and treatment decisions — that could be quite dehumanising; but if you give your symptoms to a human doctor, who then sends off the data to the AI, receives the results and diagnosis, and then the human doctor presents the results to you personally, then the perception can be quite different,” he said.

Skill shortage

Formosa said that before integrating AI into health care, we need to step back and consider the more general question: should we offload ethical decisions to AI and machines?

“We need to drill down and work out what scenarios are fitting for AI, and where is it not appropriate.”

Offloading certain roles to AI can have broader impacts, he said, including a decision about what skills we prioritise for humans to retain.

“In diagnostic cases, for example, if doctors give over certain tasks to AI then they may lose those skills, so that also means we are making decisions about what skills really matter. And over time, this could impact the safety of these technologies, too.”

Hands up, who is ready for the next pandemic?



We all agree that this is not the end but rather the beginning of a new way of approaching hygiene in healthcare. Hard lessons learnt over the last few years have made us aware that what were once just recommendations or guidelines are now requirements and essential for our continued efforts to succeed. Stopping the spread of hand-based infections is perhaps one of the most critical factors on the agenda right now — the good news is that achieving this is becoming much more manageable.

Taking the battle to the front line

Hand hygiene is perhaps one of the most critical factors in limiting the spread of infection transmission. But even though we all adhere to the strict protocols for hand washing, we can never be 100% sure that the surfaces we touch are microbe or bacteria-free. Keeping hospital beds and other vital equipment rigorously clean has always been crucial in stopping the spread of multi-resistant bacteria and other infections, so, in addition to creating surfaces that are capable of being wiped down or washed thoroughly, LINAK has developed a system that actively controls the risk of infection from surface handling.

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Part of a bigger picture

Of course, anti-microbial protection alone can't stop cross-contamination in your busy working environment. But when combined with standard practices like frequent hand washing, wiping down and washing, and disinfection, it can contribute to lowering incidences of infection by extending the potential for protection from the very first point of contact. This is why it simply makes sense to ensure you have LINAK components next time you choose a bed or lift solution. And when you factor in the advantages of a wireless cable-free solution, you no longer have to worry about sanitising cables for trapped bacteria.

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support you in your cleaning on all levels — from simple wiping to washing tunnels. Because we develop and test our cleaning-resistant components under extreme conditions, you can expect them to work as they did on the first day... even after years of use. This means that when you choose your next lift or bed frame with LINAK components, you can rest assured that you are making it easier and more hygienic to perform your job safely — for the health of both you and your patients.

Towards a healthier future

At LINAK, we help you prepare for a future with even higher standards and an increased focus on hygiene. Our products for healthcare applications exceed several required international standards and certifications to protect you even when the going gets hectic. When choosing a LINAK integrated solution, you are best prepared to face whatever comes next with a durable solution that will keep adding value to your healthcare operation by keeping you and your patients safe for years. We've got your back.

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Better data, better care

Self-harm accounts for over 30,000 hospital admissions a year in Australia, usually occurring in the context of psychological distress. It is frequently directly associated with suicidal intent, psychosocial stressors and for many, mental ill health.

In a new Issues Brief, 'Hospital-treated self-harm: Improving care through improved data', the Deeble Institute for Health Policy Research — a research arm of the Australian Healthcare and Hospitals Association (AHHA) — recommends establishing a clinical quality registry for hospital-treated self-harm as a recognised mechanism for linking data to improved care.

Authored by 2022 Deeble Summer Scholar Dr Katie McGill, the Issues Brief highlights how routine care for hospital-treated self-harm is variable and can be substandard with care not meeting many patients' needs, and linkage to mental health services after discharge not part of routine practice.

"For people presenting to hospital for self-harm treatment, connecting with community and out-patient services can be a vital part of recovery, but routine care is not always in line with best practice and can fall short of meeting people's needs and expectations," said AHHA Chief Executive Kylie Woolcock.

"Reports of people experiencing stigmatising, judgemental and invalidating responses when presenting to health services for help after

self-harm or with thoughts of suicide is a significant concern.

"By improving data quality and collection practices in relation to hospital-treated self-harm, we can form a better picture of this vitally important national health issue. Self-harm usually occurs alongside psychological distress and is often associated with suicidal intent, psychosocial stressors and poor mental health.

"Currently, self-harm surveillance data relies on clinical records from hospital admissions, and while there have been improvements in data accessibility, this data infrastructure is not designed for the purpose of improving care at a service level, or delivering improvements in patient-reported outcomes.

"Many areas of the health system are recognising that we need to shift towards measuring patient reported outcomes and experiences and mental health care is no different. By continuing to incorporate these metrics into how we plan and deliver care, it can create potentially life-changing results."

The Issues Brief makes crucial recommendations including establishment of a clinical quality registry.

"A clinical quality registry for hospital-treated self-harm would create the link between data and improved care. By building on existing data collection frameworks with emerging self-harm clinical register capability, we can implement monitoring

and service improvements at a national level and improve the outcomes that matter to patients," Woolcock said. Below are the key recommendations:

- Self-harm surveillance data is critical for service planning and design, and accuracy and scope must be improved to ensure services can resource adequately for demand and tailor services to meet priority population needs.
- Improvements in care and outcomes for self-harm require reform for value-based health care that includes the routine collection and monitoring of PREMs and PROMs, and linking self-harm presentation surveillance data with outcomes data.
- Data infrastructure must be coupled with practice translation so that capability for learning health systems can be established. This will require audit and feedback loops at the hospital level to support service improvement efforts and government support to establish collaborative learning networks.
- Governments should commit to a strategic approach that transforms local leadership into sector-wide quality assurance infrastructure, by building clinical quality registry capability for hospital-treated self-harm. This activity should be effectively resourced and occur in a coordinated fashion in parallel with ongoing improvements in self-harm surveillance.

Navigating the waters of cyber security — the partially understood Multi-Function Printer fleet

According to PWC, there was an 84% rise in reported cyber incidents in Australia's healthcare sector between 2019 and 2020. In 2021, 85 organisations reported data breaches in the first half of the year alone. This phenomenon is impacting healthcare globally. Healthcare is the number one target in multiple geographies, and it's increasing at an alarming rate.

When we think of cyber-attacks and cyber attackers, we typically picture a hooded individual, hacking computers via the dark web. Think again. Remember, there are multiple doors for a data breach, some of them less obvious than others.

As organisations grow, so does the issue of managing an expanding printer fleet. In their Global Print Security Landscape publication, Quocirca's discovered that in excess of 60% of enterprises suffer data loss due to printer security breaches. Don't forget the unpretentious printer, sitting quietly in the corner. The less you know about it, the greater the risk to your organisation.

And the threats aren't just external. The risks from within your organisations are every bit as dangerous as those coming from the outside. Not all data breaches are intended to have malicious intent. Picture the clinical notes left on a printer, the Nurses' performance review sent to the wrong location, the unlocked printer tray containing blank prescription media, or the MFP brought from home and attached to your network. The list goes on.

“Any unknown aspect of your Multi-Function Printer fleet is a potential data breach, a likely portal for cyber-attack, and a very real risk to both clinical operations and patient care.”

Understanding your printer fleet has never been more critical to securing personal information, organisational data and maintaining safe, secure, and reliable clinical operations. What do you currently know about your printers? Where are they? If you know where, why is it there? Once the where and the why have been established, What type is it? Who installed it? Is it on your network illegitimately?

And it's not just about cyber security. Having conducted thousands of fleet

assessments, both from a technical, logistical, and clinical workflow aspect, our experience demonstrates that many MFPs are often found to be under or over utilised, inappropriate for the location they service, occupational health and safety hazards, not working, not where they should be, or simply missing in action.

So how do you manage this potential risk and gain back understanding and control?

The first step is mapping the vast waters that are your print fleet. A thorough technical assessment, combined with solid understanding of the healthcare environment is essential.

The second step is unifying your print infrastructure into a single, streamlined, fully managed service. This will establish real time, accurate understanding of potential risks, print behaviours, with the addition of predictive analytics using artificial intelligence to find problems before they strike.

When you are managing a fleet of MFP's, assessment and centralised management will be your new safety and inefficiency digital radar. **In an ocean full of pirates, a compass and a cutlass just aren't enough.**

1. Proven precautions to help protect health organisations and patients from cyberattacks
2. Cybersecurity firm Sophos report. "...The number of ransomware attacks on healthcare organisations increased 94% from 2021 to 2022"



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Faces behind regional clinical trials

TrialHub, an Australian-first federal government program, is working with regional and rural hospitals for setting up independent clinical trial units. In this article, we feature three health heroes who are changing the shape of rural healthcare.

Regional clinical trial patient John Robson is on a mission to tell fellow country people that you don't have to travel to a metro centre to receive the best health care.

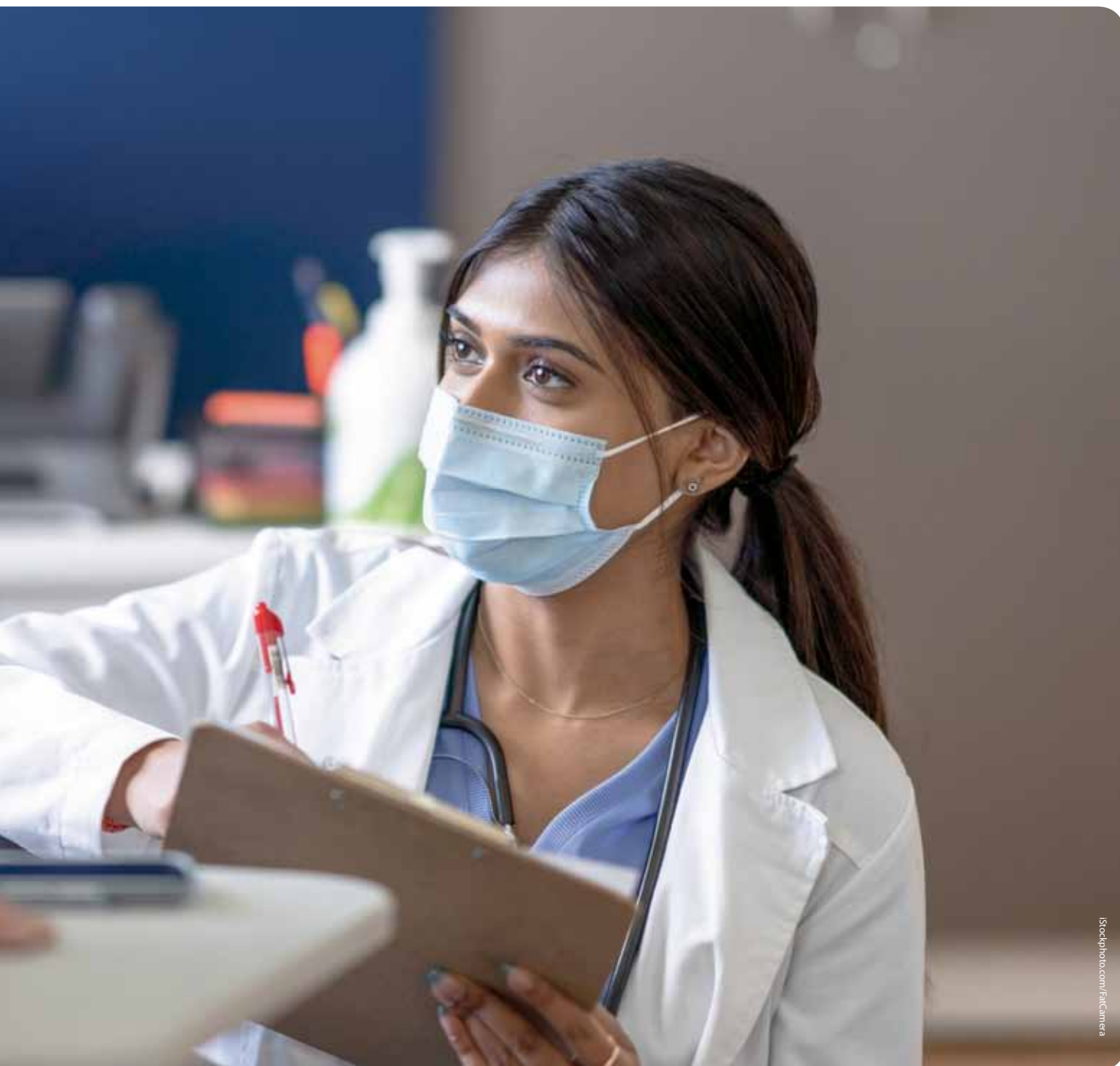
At the age of 60, he was given a dire cancer diagnosis and was put on a clinical trial to save his life. Now almost two years later, John's cancer is under control and he says it's all thanks to the research and oncology team at Bendigo Health in regional Victoria.

"I have nothing but praise for the entire team. The quality of care was excellent, I can't fault anything. I live one hour from Bendigo and three hours from Melbourne. Had my only option been to travel to Melbourne to go on a clinical trial, I would've said no, and the reality is I would now be dead," he said.

TrialHub, an Australian-first federal government pilot program, is working with regional Victorian hospitals to support them with what they need, such as workforce upskilling, to provide clinical trials to their community.

It's so that people, like John, receive the same access to cutting-edge interventions as their metro counterparts.

Tricia Wright, Head of Cancer Services at Latrobe Regional Hospital, Dr Chloe Georgiou, Medical Oncologist and Oncology Trials Fellow at Bendigo Health, and Mardi Cleggett, Clinical Trial Unit Manager at Mildura Base Public Hospital, are among the inspiring women working towards embedding clinical trials in their respective hospitals.



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A rising star in the Bendigo region is Dr Georgiou, who was also John's medical oncologist. She is TrialHub's first early career fellow and is being mentored by clinical trial experts at Alfred Health.

Bendigo Health has been offering clinical trials for two decades, but there hasn't been a dedicated clinical trials doctor until now.

"To do a fellowship like this previously, I would've had to be based at a big academic hospital that had an oncology service and trials, so this has allowed me to do the work that is usually only available in the city.

"There have been so many advancements in medical oncology, and the only way to do that is through clinical trials. There's always a need for better and more effective, and

less toxic treatments. This is what drives me," she said.

The Albury-Wodonga native said she's always been passionate about growing and developing her career in the country.

"A lot of my drive to specialise in oncology comes from watching family members having to travel long distances for cancer care, and knowing that, historically, there hasn't been great access to clinical trials for regional patients. Being able to develop my skills and bring them back to a regional area is something I always wanted to do, and it's something Bendigo Health is focused on doing with a hub and spoke model," she said.

Mildura is a regional town located four and a half hours from Adelaide, and a six-hour drive

to Melbourne — a challenging location for any patient wanting to go on a clinical trial.

But that's all soon to change. Mildura Base Public Hospital will open its first ever clinical trial unit building at the end of this year, with the aim of opening trials for recruitment late next year.

Spearheading this work is Mardi Cleggett, who is thriving in the challenge of starting up a clinical trial unit from the ground up.

Mardi started her career in administration and has a hospital and healthcare career that spans 25 years across middle and senior hospital management in Adelaide, Darwin and Canberra.

Clinical research, she said, is an area she's always been interested in and jumped at



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the chance when an opportunity came up to coordinate the STAREE trial on behalf of Monash University in Mildura.

"That was a community-based trial working in with general practices and exposed me to the recruiting and consenting processes, as well as engagement with doctors and patients. It gave me a really good overview of what's involved in clinical trials," she said.

From there, she went on to a senior management position at Mildura Base Public Hospital, and with a passion for research and clinical trials well and truly cemented.

"There was nothing, no research, no clinical trials. For those really unwell with cancer in this region, the travel to metro centres is incredibly gruelling. It was very welcomed news earlier in this year that we'd received funding from the Regional Trials Network, and then TrialHub, to help us set up our inaugural trial unit.

This meant a role to create the clinical trial unit was to become available and she knew this was the role her entire career had been leading up to.

"I have a lot of operational experience, and there is still more to learn about clinical trial delivery, but I'm being very well supported and mentored in areas such as governance and policy procedures by the experts from TrialHub, who will be with us for the next five years. I can't wait to look back in 12 months' time to see how far we've come," she said.

Dr Tricia Wright was a latecomer to medicine at the age of 40. With two primary-aged children, she took the plunge to study medicine — haematology would end up being her specialty.

"I studied part-time while working as a chef, office manager, research assistant and policy writer. All of these roles gave me an opportunity to observe different careers in health and academia, and I saw that medicine provided the opportunity to have a career

that crossed into all sorts of interesting streams such as clinical, research, teaching and administration," she said.

Starting a career as a doctor with lots of work experience, and being older, has had both benefits and challenges, she said.

"The life experience provides confidence in dealing with the very intimate personal aspects of caring for people who are unwell, and the confidence to navigate through the multitude of tasks that a doctor is expected to learn and perform. However, the career pathway to a specialist clinical and laboratory haematologist is long, around 12 years, and in many ways it's very competitive," she said.

Fast-forward to 2018, Dr Wright was appointed as the inaugural Head of Cancer Services role at Latrobe Regional Hospital, which is located in Traralgon, two hours from Melbourne. Under her helm, the cancer unit now comprises a large team of medical oncologists, haematologists and palliative care physicians with advanced trainees in medical oncology. They work across five health services in Victoria's Gippsland region providing cancer care.

"We have a strong team of senior nurses with medical oncology nurse practitioners, specialist haematology and survivorship nurses. We have developed the first independent medical specialist inpatient unit with a 24/7 on-call program paving the way for more specialists' units to come with our expanding regional health service. This was a critical foundation in being able to deliver clinical trials and associated clinical research programs," she said.

Dr Wright sees regional hospitals as a great setting for anyone wanting a fulfilling career.

"It is the best place to create a portfolio career. There is still so much work to be done, you can find your niche, make a difference and have an interesting and rewarding career," she said.



Dr Tricia Wright



Dr Chloe Georgiou



Mardi Cleggett

Advanced digital technologies

to cut energy and maintenance costs for healthcare facilities

Matthew Doley, Market Development Manager —
Smart Buildings, Electrification, ABB Australia

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- **Energy Management:** Countries across the world are sharpening their focus on sustainable use of energy to tackle the impacts of climate change. ABB Ability Energy and Asset Manager, an energy monitoring solution for commercial and industrial buildings, can help businesses save up to 30 percent on operational costs. It identifies waste of energy and reduces energy consumption while also promoting sustainability, helping achieve international certifications of energy management.
- **Asset Management:** This plays an integral role in increasing the reliability and availability of assets. ABB Ability Asset Health for electrical systems – MyRemoteCare a system that offers condition monitoring of assets and provides access to real-time status of each relay or other appliance within medium voltage switchboard around the world from the comfort of your desk, improving safety and reducing costs.
- **Building Management:** In today's environment, maintaining an efficiently

managed building is not enough. Intelligent solutions are more important than ever as they provide real time information to multiple stakeholders who need to take swift decisions to ensure security, safety and comfort of occupants as well as to protect the longevity of assets. ABB Cylon BMS includes best in class HVAC control, flexible lighting control, and extensibility to include ancillary building services. This is combined with real-time information on building conditions and powerful energy management.

- **E-Mobility:** The increase in the use of electric vehicles (EVs) also highlights the need for reliable and fast-charging solutions. ABB Ability connected chargers enable fast global service and pro-active maintenance. ABB has years of experience in creating, installing and maintaining charging infrastructure, including several nationwide charger networks.

Digital building automation is changing the way we perceive hospital and healthcare infrastructure, enabling a new era of comfort, health, well-being and sustainability. In the smartest hospitals, intelligent electrification is used to not only monitor but to quickly predict or detect issues and then deploy the right response. All this is complemented with a reassurance in knowing that the power behind it is distributed in the most sustainable way possible.

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* Lepp, et al. Prevention of hemolysis in blood samples collected from emergency outpatients. Clin Biochem 2011;46(9):911-914

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Keeping rural Australians out of hospital

Dr Kristen Glenister and Tessa Archbold, University of Melbourne

If you need urgent medical attention in a regional or rural area in Australia, you may find that you'll end up in an urgent care centre staffed by nurses. If you do need a doctor, one can be called in, but the doctor will likely charge you — and that can end up costing quite a lot.

In a small, rural town in northern Victoria, the urgent care centre advises patients that they will incur a fee if the doctor needs to attend.

This is on top of any pathology, medical imaging and transport fees.

Often the total amount is unknown at the time a patient comes in which is a confronting reality for anyone requiring urgent care.

If you are on a low income, which many people are in regional and rural areas, these fees could be enough to make you think twice about just how urgent your medical issue is. And the danger then is that by not seeking care when it's needed, your problem could just get worse.

This can end up being not only bad for people's health but could put a greater burden on the entire health system because by not treating a problem early patients can end up in hospital later.

This is a type of 'preventable hospitalisation' and it's a major problem for communities right across regional and rural Victoria.

But addressing the issue is complex.

Even with Australia's Medicare system, the cost is a problem for low-income earners, but there also needs to be work done on improving people's relationships with the healthcare system and ensuring continuity of care.

“Across Australia, bulk billing is under increasing strain due to rising clinic business costs and stagnated, inadequate Medicare rebates.”



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In our latest research, we have tried to better understand some of these complexities through detailed interviews with patients who were recently hospitalised for a long-term ‘chronic’ health condition as well as conversations with the health professionals involved in their care.

Our study was based in a regional Victorian town that was experiencing higher-than-state average preventable hospitalisations.

The term ‘potentially preventable hospitalisation’ is an umbrella one that describes hospital stays that could have been avoided with optimal access to primary health care, including affordable GP appointments when and where they are needed.

The use of the word ‘affordable’ may seem curious to Australians who are used to bulk-billed GP appointments, but bulk-billing rates in Australia are at their lowest in regional areas.

In the town where this study was set, bulk-billing rates are even lower than in other regional areas and there are no bulk-billing-only clinics.

Across Australia, bulk billing is under increasing strain due to rising clinic business costs and stagnated, inadequate Medicare rebates. Out-of-pocket expenses for visiting the GP can be high, particularly for people with ongoing health conditions.

One health professional we spoke to said:

“They [patients] might be looking at \$AU80 for a 15-minute appointment and they only get \$AU35 back, so if you’re expected to see your GP every week or fortnight, well you can see how people slip through the cracks”.

The impact of these costs was highlighted by one patient:

“I’m broke, I can’t get a job. I’m living off [Centrelink] New Start. It’s not enough. I have not enough food, I’m getting food vouchers to survive. I have to count potatoes. They

[health professionals] don’t get it. They don’t live like that.”

GP appointments also need to be accessed quickly when people become unwell, which can be hampered by long waiting times and GP shortages which have been long-standing issues in rural areas.

If patients can’t see a GP in time, or the GP didn’t respond when a patient said their condition was deteriorating — what would have been a simple issue could suddenly become complex.

“I actually had to get the MICA [Mobile Intensive Care Ambulance] paramedic down to me because that’s how bad I was. It might have been a two-day stay instead of nine days, if the doctor listened”.

Our study found that issues within general practice, including cost, were not the only factors that contribute to preventable hospitalisation.

The patients and health professionals we interviewed also told us that people who lived alone were often at greater risk.

These are people who may not have someone close that recognises when their health is deteriorating and advises them to seek help or to advocate for them when they are unable to advocate for themselves.

“There is no one there to tell you to go to the doctor... so maybe you missed that opportunity where it can be fixed quickly, then it’s panic stations and I have to go to the hospital because there’s no one around to look after me.”

Conversely, good relationships between patients and trusted health professionals assisted patients in managing their health.

In some regional areas, including the town our study focused on, local GPs also provide care at the hospital, contributing to a continuum of

care which often meant that GPs knew patients and their unique circumstances very well.

But not having a person dedicated to their discharge planning at the hospital also means that some patients may go home from hospital without being connected to beneficial local services — like home help or Meals On Wheels — or without understanding why they had been in hospital or properly informed of any changes to their medications.

So how do we tackle these issues and help to reduce preventable hospitalisations in rural communities?

Some solutions may lie outside of the health system — for example, addressing socioeconomic disadvantage or out-of-pocket healthcare costs which require system-level change.

However, other solutions are more straightforward like connecting patients with beneficial local health and social services and providing patients with clear and useful information about their condition as well as advice on how to look after their health.

A simple discharge checklist was developed as a result of our study, along with a booklet patients can take home with them.

Talking to both patients and health professionals is crucial in understanding the complexity of preventable hospitalisations and finding local solutions.

By highlighting these issues as well as other rural health inequities, we can ensure measures are in place to improve access to care and health outcomes for all people in Australia, regardless of where they live.

This article was first published on Pursuit. Read the original article.

Read original article here:
<https://pursuit.unimelb.edu.au/articles/keeping-rural-australians-out-of-hospital>



Part of the team — HPA helps Herston Private to create the highest quality surgical suites

When anaesthetist Patrick See and his surgical colleagues created Herston Private's premier operating suites, they turned to HPA for the highest quality equipment, service, and advice.

With a growing and aging population, and waiting lists lengthened by covid, Brisbane's medical facilities were stretched. The team at Herston Private realised there was a need to be met in the community and founded a specialist facility with three private operating suites, situated in the shadow of the Royal Brisbane and Women's Hospital.

The finest team was assembled — led by Ms Leith MacMillan (Director of Day Hospital Consulting Pty Ltd) to design and construct, license and accredit the state-of-the-art building and the same approach was taken when it came to the supply of surgical equipment. They selected Hospital Products Australia (HPA) — Australia's leading provider of healthcare solutions to hospitals, day surgeries and clinics.

HPA provided advice and guidance on the most appropriate equipment to suit each of the three suites, depending on the primary speciality focus of each one — orthopaedic, plastics, dental. HPA Business Development Manager Gareth Simes drew on his 20 years' experience as a theatre technician to recommend equipment that was bespoke for each suite, whilst also providing flexibility and longevity.

HPA supplied surgical lighting, medical supply pendants, operating tables, and patient trolleys — all the core equipment for a surgical operating theatre.

The equipment comes from more than one manufacturer, but as a distributor, HPA can provide a multi-supplier solution under one single contract.

But HPA does more than just supply the equipment — Patrick wanted a partner to manage it all too. HPA's installation, training, asset management, servicing, and maintenance were therefore key factors in Patrick's choice.

'I feel as if HPA are part of my team. Nothing is too much trouble, and they provide very real and tangible support to the life-changing work that we do in the operating suites.' Patrick See.

HPA managed the installation project, collaborating with and providing specs for the trades, ensuring a smooth and hassle-free installation.

Gareth ran training sessions for the clinical staff, to ensure they got the best from the equipment, and will run refreshers and updates periodically, and as new members join the team.

HPA tracks Herston's surgical equipment assets in their Service Now database, providing online reports that give the facility an at-a-glance view of the status of all equipment.

HPA provides warranties and carries out regular servicing and preventative maintenance. If there are any issues, they are authorised to make all repairs locally.

HPA will continue to manage the equipment through its entire lifecycle, giving Patrick

confidence that he can meet his target of not having to replace the equipment for 7-10 years.

In choosing to work with HPA, Patrick particularly values:

- Continuity — working with one partner across multiple capital equipment brands.
- Turnkey solution — a seamless process from selection, through installation to support.
- Expertise — guidance in selecting the products and managing the project.
- Hitting the budget — knowing he has best-in-class equipment, but not over-specification.
- Ease of purchasing — all equipment, servicing and maintenance bundled into a single contract, and the knowledge that they can add new vendors and still deal just with HPA.
- One relationship — partnering with one single company for all their equipment and service needs, and not having to worry about managing multiple contracts, or work out who to call for what.

Herston Private Hospital is providing much needed additional operating theatre capacity for the people of Brisbane. With HPA's help, they know they have the equipment to support them in their surgical practice, and the peace of mind of knowing that they are collaborating with a partner who is very much part of their team.



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For more information call **1300 472 878**, email **info@hpaust.com** or visit **www.hpaust.com**
Hospital Products Australia

Double extortion ransomware and patient data protection

Paul Prudhomme, Head of Threat Intelligence Advisory, Rapid7



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With access to a network and holding data for ransom, it's no surprise that ransomware is one of the most pressing and diabolical threats faced by cybersecurity teams. Causing billions in losses around the world, it has stopped critical infrastructure like healthcare services in its tracks, putting the lives and livelihoods of many at risk.

To better understand how ransomware attackers think, what they value and how they approach applying the most pressure on their victims to get payment, Rapid7 recently released a report titled 'Paint Points: Ransomware Data Disclosure Trends', revealing insights on the data that threat actors prefer to collect and release.

The report investigates the trend pioneered by the Maze ransomware group, of "double extortion", examining the contents of initial data disclosures intended to coerce victims to pay ransoms.

Threat actors have upped the ante by using double extortion as a way to inflict maximum pain on an organisation. Through this method, not only are threat actors holding data hostage for money, but they threaten to release that data (either publicly or for sale on dark web outlets) to extract even more money from companies.

The report identified the types of data attackers initially disclose to coerce victims into paying ransoms, highlighting how leaked data differs by threat actor group and target industry.

One of the more interesting results was a clearer understanding of the state of

ransomware threat actors. It's essential to know your enemy, and this analysis can pinpoint the evolution of ransomware groups, what data the individual groups value for initial disclosures and their prevalence in the market.

Heightened risks for health care

When it comes to the healthcare and pharmaceutical industries, there are some notable similarities that set them apart from other industries. For instance, internal finance and accounting files showed up most often in initial ransomware data disclosures for healthcare and pharma than for any other industry (71%), including financial services (where you would think financial information would be the most common).

After that, customer and patient data showed up more than 58% of the time — still very high, indicating that ransomware attackers value this data from these industries in particular. This is likely due to the relative amount of damage (legal and regulatory) these kinds of disclosures could have on such a highly regulated field (particularly health care).

All eyes on IP and patient data

Intellectual property (IP) disclosures in healthcare settings are different compared to pharmaceuticals — the healthcare industry focuses mostly on patients, so it makes sense that one of its biggest data disclosure areas would be personal information, but the pharma industry focuses much more on research and development than it does on the

personal information of people. In pharma-related disclosures, IP made up 43% of all disclosures. Again, the predilection on the part of ransomware attackers to "hit 'em where it hurts the most" is on full display here.

Finally, different ransomware groups favour different types of data disclosures, as our data indicates. For customer and patient data, REvil took the top spot with 55% of its disclosures containing such data, with Darkside behind them at 50%. Conti and Cl0p followed with 42% and 40%, respectively.

Security recommendations

There is no silver bullet to the ransomware problem, but there are silver linings in the form of best practices to help you protect against ransomware threat actors and minimise the damage, should they strike. This report offers several suggestions aimed around double extortion, including:

- Going beyond backing up data and including strong encryption and network segmentation.
- Prioritising certain types of data for extra protection, particularly for those in fields where threat actors seek out that data to put the hammer to those organisations the hardest.
- Understanding that certain industries will be targets of certain types of leaks, and ensuring that customers, partners and employees understand and are prepared for the heightened risk of disclosures of those types of data.

How technology is enabling rural and remote communities access to world-class healthcare

Ingrid Taylor, Account Executive — Queensland Health, Dell Technologies Australia & New Zealand



Rural and remote Australian communities face barriers to healthcare due to geographic spread, low population density, limited infrastructure, and the associated costs of servicing these areas. Technology has an increasing role to play in improving access and quality of care for all.

In northern Queensland, Townsville University Hospital (TUH) has taken the lead, with a range of innovative technology solutions across the hospital designed to improve performance, redundancy, scalability, and flexibility in an evolving digital environment.

TUH's transformation shows what's possible for healthcare across Australia, highlighting the opportunities of a digitised health sector.

Information sharing for equitable access

Around 28% of the Australian population lives in rural and remote areas. With higher rates of chronic disease than those living in larger centres, we must address the barriers to access these communities face.

In a country as large as ours, physically bridging the distance isn't always an option — but the right digital infrastructure can improve information sharing and the quality of the healthcare provided in tertiary hospitals servicing these areas.

Queensland Health's Digital Strategy for Rural and Remote Healthcare puts this into practice. Currently, limited infrastructure and siloed information in rural and remote Queensland impact health and well-being

in these communities; the strategy seeks to deliver equitable access to healthcare.

It's designed to improve patient care, support clinicians with the right tools for real-time clinical information and provide better care and coordination with healthcare partners.

How new technology is improving healthcare at TUH

As the tertiary referral hospital for Townsville Hospital and Health Service (HHS), it supports a population of almost 250,000 people across northern Queensland, including isolated indigenous communities.

Previously, TUH relied on older technologies requiring manual entry. Now, TUH uses Dell PowerStore as a single storage platform to provide block-based storage and a centralised data lake, the foundation of its ward management and patient flow reporting systems supporting the hospital's mixed workloads. The implementation saw significant growth in clinical media from pathology, microbiology, cardiology, and sleep studies. Crucially, staff can perform near real-time reporting instead of batch processing, improving efficiency and access to current information.

TUH also implemented Dell PowerScale, which provides a single repository for unstructured data, providing a highly available and cost-effective architecture. Together, the new storage solutions provide TUH with additional performance, improved redundancy, scalability and flexibility.

Townsville HHS Director of Information Technology Services Digital Health and Knowledge Barry Koch said Dell Technologies provided a collaborative and health-centric solution in a complex environment to support patients, clinicians and staff's digital journey.

Armed with data to support informed decision-making, clinicians can continue to provide lifesaving and life-supporting care, which is critical when patients may have already travelled long distances to receive care.

At the same time, the hospital can appropriately share data with other community service providers to enhance the population's health. Data can inform research, education, and targeted outreach prevention programs, proactively improving health outcomes in rural and remote communities.

"We want to be the leader of healthcare in the northern region of QLD. It's a blank canvas at the moment; we can implement change in an agile fashion using scalable solutions that Dell Technologies is continually innovating," Koch said.

Delivering the highest level of care to all

The success of TUH is promising, and the results are both scalable and repeatable. If hospitals everywhere can deploy similar solutions, we can offer quality healthcare to all — regardless of where in Australia they call home.

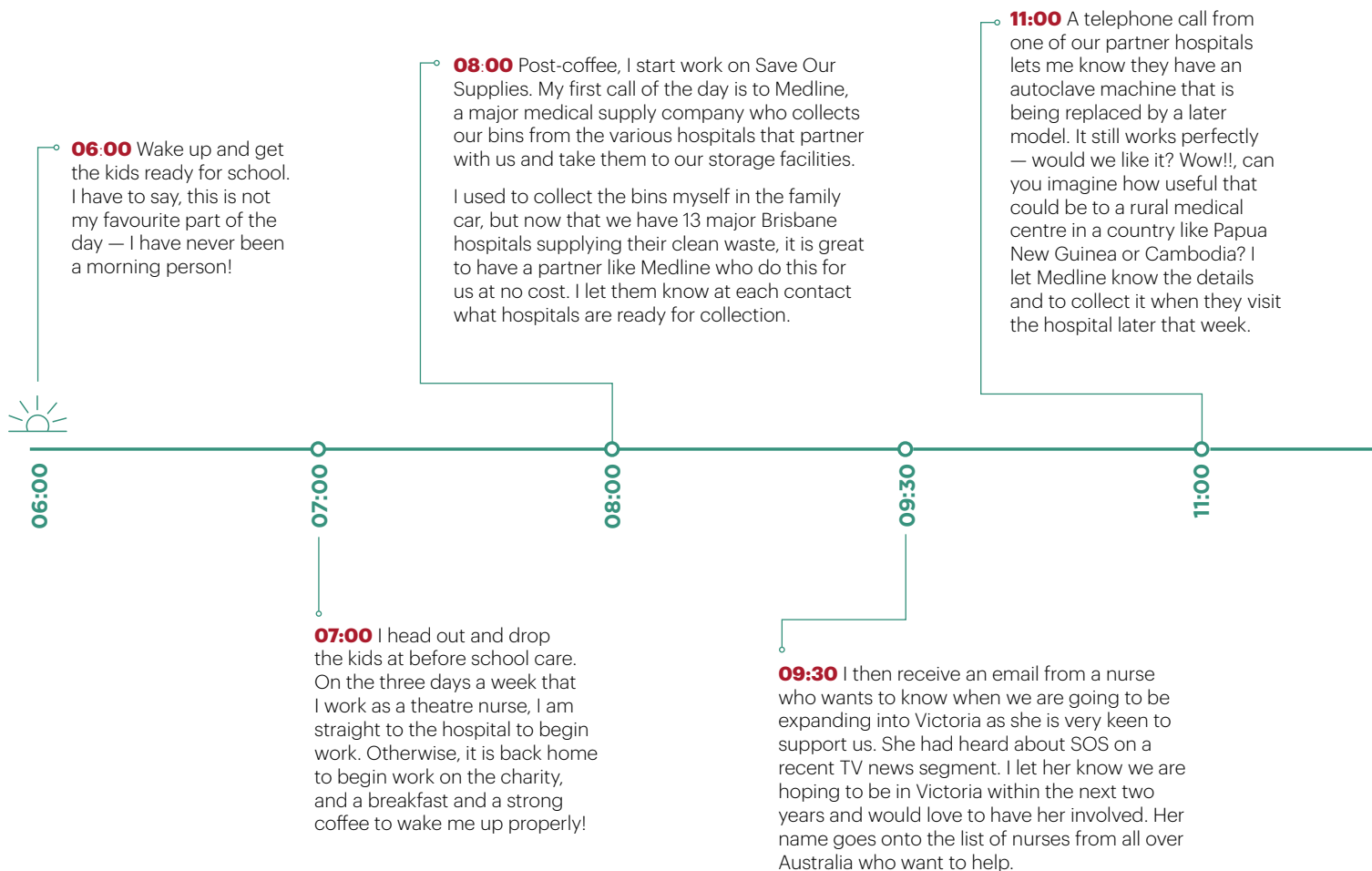
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A day in the life of **Claire Lane**

MACN, the 2022 Health Minister's Award for Nursing Trailblazers Winner

Claire Lane MACN is the Founder and CEO of the not-for-profit Save Our Supplies. In August 2022, she was awarded the Health Minister's Award for Nursing Trailblazers at the Australian College of Nursing National Nursing Forum in Darwin for her innovative nurse leadership.





I began my nursing career back in 2008, and from day one I have been working as a theatre nurse. I love my job working in the operating theatres and at last count I have assisted at over 2000 operations.

As I once told my parents, I can think of nothing more satisfying than having my scrubs and face mask on, blood on my gloves, stress levels high and my hand inside someone's body holding some critical instrument. Having said that, one of the first things that struck me about the operating theatre environment was the amount of wastage that occurs. It is simply appalling.

Australia's high standards of medical care mean that once the packaging is opened and the contents are no longer sterile, the remaining unused, clean supplies can no longer be used. They are simply dumped! Similarly, instruments, equipment and furniture are thrown out every few years despite being perfectly usable.

I could not believe that these perfectly usable supplies were not being reused in some way. I clearly remember the situation that tipped me over the edge and made think I really need to do something about all this waste.

I was assisting in an orthopaedic operation back in late 2012. Before the operation, I was instructed to dump all the unused items of a very expensive joint replacement kit into the medical waste bin. On enquiring about why were these and other clean items from cancelled operations not being recycled, cleaned or put to better use, I was informed that it was just the way it was and there was no organisation dealing with this problem.

It was then that I decided to form my charity, Save Our Supplies (SOS), to collect and repurpose this 'waste'. One way SOS provides this service is by providing special collection bins for the operating theatres of hospitals.

Clean, unused medical supplies and equipment are placed in our bins by the theatre nurses and are collected by us for repurposing. This 'waste' would have otherwise been dumped as landfill.

My life now is a juggling act between being a single mum looking after two school-age kids, working as a theatre nurse which puts the 'bread on the table' and running my charity. A typical day when I focus exclusively on SOS goes something like this:



istock.com/Fuzulhanum



12:00

12:00 For most of the day I field calls from partner and prospective charities to provide support for the day-to-day operations for SOS. This process goes well into the afternoon on this day, and the next call is to Rotary's 'Donation in Kind' charity. They partner with us to provide storage facilities and volunteers, and most importantly, they provide spare capacity in their foreign aid containers to ship our supplies overseas at no cost.

13:00

13:00 Today's call is to organise a volunteer's day next Sunday where we will sort, repackage and catalogue all the supplies. When I first started the charity, I used to do all this myself from my parents' granny flat where I lived at the time. However, today, we collect over 20 tonnes of hospital waste each year, so it is great to have a partner like Rotary who supply volunteers to help with the sorting, repackaging and cataloguing of all these supplies.

Last year this work delivered nearly \$2.0m in usable medical supplies and benefited thousands of people in desperate need of better health care. The repurposed supplies generated over 400 different types of operating theatre items plus many other specialty hospital items, like the autoclave.

17:00

17:00 I pick the kids up and begin sorting dinner, showers and general night-time activities.



19:00



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.

Tool warns of **patient deterioration**

CSIRO scientists have led a study to develop a machine learning tool which provides an early warning to medical professionals of a patient's deteriorating condition.

The study, in collaboration with Princess Alexandra Hospital and Metro South Health, showed the early warning deterioration alerts can be set to monitor patients two to eight hours before they are triggered by current clinical criteria.

CSIRO scientist Dr Sankalp Khanna said medical professionals could now use the data contained in electronic medical records (EMRs) to predict when a patient's vital signs such as blood pressure or temperature are likely to reach a danger zone, triggering patient decline.

With the massive amount of data in the EMR comes the potential for better patient care. For example, the information from the data can be used to help medical staff make decisions that can prevent a patient's deterioration from adverse events and acute illness. Up until recently, and still in some hospitals, patient data was not available electronically, restricting the capacity to develop digital tools to benefit from it.

"Until now there hasn't been a way to harness all the data in the EMR to predict patient health. This new tool has the potential to

transform the day-to-day functioning of health systems," Dr Khanna said.

"When applied to a test cohort of 18,648 patient records, the tool achieved 100% sensitivity for prediction windows two to eight hours in advance for patients that were identified at 95%, 85% and 70% risk of deterioration.

"Our scientists hold expertise in transforming data into usable information to help guide clinical choices. The new tool also sets out the reasons for the warning, which can guide the choice of intervention.

"The alerts warn medical staff when a patient is at risk of deterioration leading to possible death, cardiac arrest or unplanned admission to ICU. The tool can notify of the need for clinical intervention decision support tools such as these are a pre-emptive solution that can provide medical staff with an opportunity to intervene earlier to prevent adverse patient outcomes," he said.

Intensive Care Unit Staff Specialist at Princess Alexandra Hospital's intensive care unit Dr David Cook said this work is a genuinely useful and implementable way of managing unexpected patient deterioration across a large hospital.

"It is done without process duplication, nor does it interfere with established best practice

systems which are used to recognise sick and deteriorating ward patients," Dr Cook said.

Scientists are now in discussion with partners for a clinical trial to explore how the alerts work and how they can be best implemented into clinical workflows.



Early warning deterioration alerts can be set to monitor patients two to eight hours before they are triggered by current clinical criteria. Credit Stephen Andrews.

Leveraging IoT tools in healthcare for enhanced patient care and safety

Jodi Favaloro, Sales Engineer Asia Pacific, Cradlepoint



The quickly rising impact of IoT in healthcare isn't a surprise — not if you consider the worldwide need for medical attention, the devotion of practitioners to their care, and the vast potential to use emerging technologies for so many powerful uses.

Medical providers require reliable Internet for healthcare facilities, regardless of whether those are permanent locations, in ambulances or temporary pop-up health centres. Doctors and nurses in these places use devices and applications to monitor patient data, and sensors deliver insights into environmental conditions that affect care and safety practices.

It's an intricate ecosystem of technology, and it needs a simple system of underlying connectivity — an efficient combination of LTE, Wi-Fi, and Bluetooth connectivity.

Wide range of IoT in healthcare

Connected medical devices such as heart rate monitors, pulse oximeters, and glucose monitors allow healthcare professionals to track analytics so they can assess a patient's condition and quickly determine the proper next steps. Often these devices are connected via Bluetooth or Wi-Fi.

University of Virginia Health System operates a hospital, level I trauma centre, nationally recognised cancer and heart centres, and primary and specialty clinics throughout central Virginia in the U.S.

UVA Health System developed a toolkit with telehealth capabilities that links field emergency professionals to the UVA emergency room while stroke victims are being transported via ambulance. Getting a neurological assessment started enroute instead of after arrival at the hospital can save lives and prevent paralysis, speech and vision problems, and permanent disability.

A live video link between the ambulance and specialists in the UVA emergency room is a ground-breaking addition — but it's only possible with a continuous high-speed connection.

UVA Health System selected Cradlepoint NetCloud Service to facilitate reliable LTE

cellular broadband connectivity and includes extensive cloud functionality and a purpose-built in-vehicle router.

This plug-and-play LTE solution made deployment as easy as possible. After installation, firmware upgrades can be done remotely via cloud management.

Environmental monitoring is another multi-faceted need in healthcare environments. IoT in healthcare includes sensors that monitor things like the temperature of medicines and occupancy for social distancing. To help prevent emergencies, alerts can be set up to notify IT or operations staff when environmental data falls out of a normal range. These alerts can determine if any steps must be taken to remedy the situation.

Other IoT applications in a healthcare setting can include things like automatic temperature checks of patients and visitors to a healthcare facility. This saves time compared to manual checks and alerts staff if someone is displaying a fever and requires further checks. IoT can aid in improving efficiency of care in overstretched healthcare settings, with connected devices such as those used for ongoing vitals monitoring during a hospital stay like blood pressure and temperature for example. Automatic data capturing from various health checks can make data recording more efficient and streamlined, saving health professionals time in not having to manually record data and leaving little space for human error, or loss of information when patients are being monitored by several staff members.

How to easily connect healthcare devices with wireless solutions

In both pop-up and fixed clinic environments, LTE networks are an essential tool for connecting IoT medical devices and sensors to applications and data storage services from the cloud or main campuses. However, deploying IoT in healthcare facilities can take a long time and has been traditionally difficult to manage and keep secure because it depended on Wi-Fi. The key is a networking solution that simplifies the process and brings lots of functionality into one platform.

Cradlepoint's wireless broadband capabilities have benefitted numerous healthcare delivery organisations by providing connectivity anywhere. With Cradlepoint's NetCloud Service and wireless networking routers, a network can be established without an on-site IT team. Using NetCloud, the network can be configured in advance and shipped with proper SIM devices so the local staff only needs to power it up.

Headquartered in Omaha, Nebraska, U.S., Visio Health specialises in telemedicine operations management. The company helps healthcare providers identify telemedicine applications, select technology, define workflows, acquire equipment and software, incorporate staff and processes, and operate programs.

Visio Health's clinical-grade diagnostic telemedicine carts are a prime example of how IoT is shaping healthcare. This type of leading-edge technology required an equally next-generation networking solution that ensures reliable connectivity and security, and efficient management from anywhere.

Visio deployed Cradlepoint's NetCloud Service for IoT, which includes edge computing, SD-Perimeter technology for device-to-cloud security, and cloud configuration and troubleshooting through an IoT gateway with embedded LTE. Now it takes Visio just minutes to create a perimeter-secured overlay network over the Internet, with intelligent WAN path selection and single pane-of-glass management.

In other cases, when Cradlepoint Bluetooth adapters are added to specific devices, a dedicated Bluetooth network becomes unnecessary — simplifying the network architecture. Plus, NetCloud Service offers connectors that transport data to MQTT, as well as IoT SaaS, for a complete solution.

The result is a flexible, reliable network for simplified edge-to-cloud connectivity — enabling healthcare IoT and other sensors to fulfill their roles in the most efficient manner possible.



» For more information
Cradlepoint Australia Pty Ltd
www.cradlepoint.com/au

Q&A: Improving patient care through effective communication

Mansi Gandhi

Having worked as a pulmonary and critical care physician for more than 25 years, Dr Benjamin Kanter understands the role of communication in emergency situations too well. In this Q&A, Kanter, a physician innovator and Chief Medical Information Officer (CMIO), Vocera — now owned by Stryker — reflects on the role of technology and communication in improving care delivery and patient outcomes.

Having worked as a pulmonary and critical care physician for more than 25 years, Dr Benjamin Kanter understands the role of communication in emergency situations too well. In this Q&A, Kanter, a physician innovator and Chief Medical Information Officer (CMIO), Vocera — now owned by Stryker — reflects on the role of technology and communication in improving care delivery and patient outcomes.

Tell us a bit about the early days in your career?

I spent more than 25 years as a pulmonary/critical care physician. I cared for patients with complex illnesses, where every minute of delay could mean the difference between life or death, between remaining on a standard 'medsurg' floor (the same level of care) or requiring a transfer to a higher level of care

like an unintended transfer to the intensive care unit (ICU).

I was a medical student from 1978–82. When I started my time in hospitals, other than simply speaking with each other in person, there were four technologies nurses and physicians could use to communicate: a landline telephone, a pager (which really isn't a communication method but rather a standalone ringer notifying the recipient that someone wishes to speak with them), a fax machine and 'snail mail'. No one used fax machines for person-to-person communication and snail mail was used by hospitals to communicate with physician offices. So the only channels available for MD to RN communication were synchronous. There were no asynchronous methods unless one considers 'sticky notes' attached

to a patient's chart as a communication method, and sticky notes were common.

The technologies available for communication have expanded over the past few decades — particularly for asynchronous communication. The corollary of this is that there are now more options available for communicating — and the unintended consequence of this is that there is more attendant complexity. While it is now easier to choose a communications modality that is most appropriate for a given situation, it is also easier to make a decision to use a technology that may not be appropriate (ie, texting a physician about a medical emergency).

Synchronous communication still has its place, particularly for the transmission of voluminous or complex information and as



an immediately interruptive (ie, high priority) mode of communication.

What's the impact of mobile digital technologies?

Over the past decades, the rise of these technologies has enabled new asynchronous methods — SMS texting and email along with the complementary ability to exchange digital files, and the ability to replace pagers with smartphones for synchronous calls wherever and whenever as well as video chat.

Now, when provider to provider communications take place, the person initiating communication must run down not only which communication modes are available, but also determine which mode is most appropriate for the current situation and which modes the recipient has available and prefers. It is an increase in complexity, particularly if the communication system isn't designed appropriately.

For example, a medurg patient who is having an unexpected clinical issue is a classic event-driven communication, meaning something is or has taken place that requires the notification of one or more members of the

care team and is almost always time-sensitive to one degree or another.

In my early years that generally meant I would be paged, and the sender would be left wondering if I received the message. There was also the likelihood I was otherwise engaged, not on-call or temporarily not available — and not immediately able to respond. The page sender wouldn't know any of that, and they'd have the additional cognitive burden of having to remember that I was paged and hadn't yet responded, leading to the refrains: "Has Dr Kanter called back?" "Has anyone seen Dr Kanter?" "Is Dr Kanter covering for Mr Smith?" and "Has anyone seen Dr Kanter recently?" That would inevitably lead to a delay and an eventual call to my office and my office nurse, who I hopefully would have kept abreast of my actions/location and who would know how to reach me: more delays.

Now, the situation is quite different. With everyone carrying their own communication device (whether personally owned or enterprise provisioned), it's now easier to initiate communication, but much more challenging to determine what mode to use. Text or call or page? This question has made things like 'presence' information fundamentally important: who is available now, what is their role, what are their responsibilities, how do they prefer to be reached?

With a properly designed communication system, a nurse knows if a text message has been delivered and whether it has been opened (read). None of this was available via paging services. Additionally, if a call is made, the nurse no longer has to page me first and wait until I hopefully call back — instead she or he can simply call my mobile phone. When all of this is done appropriately the time savings is profound — and time is the primary metric when evaluating the efficacy of a communication platform.

What are some of the key challenges and how can we overcome them?

Some of the key challenges include: the proliferation of information sources and interruption fatigue; the proliferation of communication modalities; BYOD devices: mixing business and personal communications on the same device; security; managing expectations reducing cognitive burden — reducing burnout and improving response time to address clinical and operational issues.

What makes a hospital smart is not just the digital infrastructure but the ability to access the data.

Most communications in a hospital are event-driven and time-sensitive — something has happened that triggers the care team into action. The purpose of an intelligent communication solution is to shorten the time to act, clean up any confusion and act as a central mediator for all alarms and alerts to reduce interruption fatigue.

A clinical communication and collaboration (CC&C) platform does that, providing a way to connect clinicians and digital systems.

What's the key to improving patient outcomes?

The key to improving patient outcomes is reducing the time it takes to close the loop on an event. To accomplish this, the entire organisation needs to be on a unified communication platform. Multiple siloed platforms (nurses using one system, physicians another as an example) leads to confusion and chaos, and increases the risk of delays.

There needs to be a recognition that communication systems are clinical tools — used by clinicians in their care for patients. A communication platform may be purchased or implemented by the IT department, but they shouldn't own it: clinicians must own their communication system. From a leadership perspective, communications should be governed by a team of physicians, nurses, IT and administration.

Could you highlight the guiding principles health leaders must follow?

First, they must understand how healthcare solutions fit into the complex needs of hospitals, especially with respect to understanding key workflows and how they differ from one care team member to another. And they need to consider that the same end-user device might not be appropriate for every role.

Secondly, they must examine the types of information that need to be communicated and how that might vary from role to role. The staff directory should indicate a person's presence or availability in real time. How alarms flow to various roles and how they are to be escalated if the intended recipient is not available needs to be defined.

Thirdly, the platform requires communication preferences to be assigned for all roles, so that the platform can use rules to standardise and guarantee the delivery of time-sensitive information to the right care team member. The technology can be used to ease the communication burden, allowing staff more time to for direct patient care. The key is not to overburden staff with too much information but to reduce alarm and interruption fatigue.

Communication systems require intelligence — that is, some rules and/or logic to guide information traffic. It must 'understand' when a particular staff member is unavailable and then determine the most appropriate person to escalate the message to with respect to the specific information being communicated.

Ultimately, better patient outcomes will be realised by a CC&C platform that prioritises messages, reduces clinician stress and frees up time for clinicians to focus on patient care.



How humour helps paediatric patients

Doctor Ben Anderson first attended to Havana's heart condition when she was only three months old — 12 years later he's considered part of the family.

To Havana and her parents, there was no better way to express their deep appreciation and affection for "Dr Ben" than to nominate him in the Juiced TV Super Hero Awards, sponsored by QSuper (now part of Australian Retirement Trust).

Diagnosed with aortic stenosis at birth — a condition where the aortic valve is unable to open to full capacity — Havana requires ongoing treatment at the Queensland Children's Hospital.

With Dr Ben monitoring, diagnosing and performing interventions where necessary, she is now able to participate in school sport with her peers.

"Havana's most recent surgery has meant she can run around and be a 'normal' child for the first time ever, which is incredible," Havana's mother, Jamie, said.

"Dr Ben is just like family. Havana trusts him in every sense, and if he tells her she is going to be okay she really does believe him."

The centrepiece of Havana and Dr Ben's unique relationship has been their shared humour, with the pair exchanging jokes every appointment without fail.

"I'm not sure when it started, but now before every appointment Havana will search the internet for a few jokes and save them to read to Dr Ben," Jamie said.

Dr Ben's sense of humour has been significant in making Havana feel less anxious about her hospital appointments.

"Using humour isn't something that you learn to do. It is just a natural part of interacting with the patients, to put them at ease and make them feel that they can trust you," Dr Ben said.

"The children, especially Havana, are funny. Their honest observations just make my day."

Jokes aside, Dr Ben has also gone above and beyond in offering comfort and compassion to Havana. Jamie shared that Dr Ben made a

detour every day of Havana's last five-week admission to check in.

"Dr Ben just cares. My husband and I have always said if he ever left that hospital, we'd have to follow him. We just couldn't go with somebody else, he's amazing," Jamie said.

This admiration is reciprocated with Dr Ben considering himself lucky to have been there for Havana and her family throughout her entire health journey.

"I am in a very privileged spot to watch kids like Havana grow up. You get to know them, watch them go through their developmental stages and grow up into little humans," Dr Ben said.

"Being nominated was unexpected and touching. They're the ones going through it day in and day out, but they still want to thank me. It is incredibly sweet.

"I can't take full credit, of course. No individual can do any of this, it is always a team effort.

"We would like to thank Australian Retirement Trust and its QSuper team for making the awards possible; we're grateful to have the platform to share everything that Dr Ben has done for us," Jamie said.

Keeping your facility safe is easy with PathoCide's HOCl based solution



Today, cleaning is not just about appearance — it's about cleaning for health. In medical and aged care facilities, staff, customers and guests want assurance that cleaning programs effectively prevent the spread of infectious diseases without negatively impacting their wellbeing and the planet. To meet these new standards of clean, many facilities have transitioned to green cleaning programs using hypochlorous acid as an alternative to toxic disinfecting chemicals. And now with a TGA approval, our new PathoCide Hospital Grade Disinfectant surface spray will help you exceed these standards.

PathoCide Hospital Grade Disinfectant is an approved surface spray that can effectively stop the spread of COVID-19 and kills 99.9% of bacteria and viruses including *Staphylococcus Aureus*, *Pseudomonas Aeruginosa*, *Salmonella Choleraesuis*, *Poliovirus Type 1* and *Herpes Simplex Virus Type 2*, among many others.

What is Hypochlorous Acid?

Hypochlorous acid (HOCl) is the ingredient that PathoCide Hospital Grade Disinfectant is made from. It is a unique chlorine subspecies well known for its antimicrobial properties. In fact, it's most famously known for being naturally produced by white blood cells in all mammals to fight infections. The substance effectively eliminates a broad range of microorganisms. Recent technology in electrolysis has allowed this compound to be produced outside of our bodies. This process runs an electrical current through NaCl (table salt) and water and precisely controls the environment around the chemical (pH) to create a chemical reaction forming sodium hydroxide (NaOH) and hypochlorous acid (HOCl).

These two compounds are useful cleaning and disinfecting solutions for many types of hard and soft surfaces. Sodium hydroxide is a cleaner that removes soils, stains and residue build-up. Hypochlorous acid is a disinfectant that kills and inactivates a wide range of germs and viruses. Facilities can maximize the effectiveness of their cleaning programs by using the solutions in a two-step cleaning and disinfecting process.

Five Reasons to Use PathoCide Hospital Grade Disinfectant surface spray

HOCl can transform cleaning programs for the better. Consider these five benefits for your facility:

- 1. Efficacy.** HOCl inactivates a variety of viruses, including coronaviruses, in less than one minute. In a comparison of disinfectants used in surgical centers, hypochlorous acid reduced the bacterial count significantly more than standard disinfectants. It's also effective against the common cold, flu and norovirus, which is recognized as one of the most difficult viruses to kill.
- 2. Safety.** Producing PathoCide Hospital Grade Disinfectant requires only water, salt and electricity, meaning the disinfectant has no added fragrances, preservatives or irritating odors. It has been proven to be non-irritating to eyes and skin and can be used without personal protective equipment (PPE) like gloves and masks.
- 3. Sustainability.** Unlike conventional chemicals that can pollute waterways, hypochlorous acid is safe to dispose of without environmental concerns. Plus, generating hypochlorous acid on site enables the use of reusable spray bottles,

thereby reducing plastic waste. HOCl also does not contain volatile organic compounds (VOCs) that negatively impact indoor air quality.

4. Availability. Since water, salt and electricity are easy to source and don't rely on traditional chemical supply chains, facilities using PathoCide Hospital Grade Disinfectant can be assured the product will be available when required. This is especially important when supply chains experience delays or interruptions.

5. Increased use. As we look beyond the pandemic, and the world begins to return to normal, there is one topic that seems to be sticking around: increased cleaning frequency. Janitorial services, once hidden in the back or performed during the nightshift, are now on display. As cleaning frequencies increase and tend to be on display, it is critical that chemicals used do not expose those around them to harmful residues or active ingredients.

PathoCide Hospital Grade Disinfectant — The Solution that Cleans for Health

PathoCide Hospital Grade Disinfectant can prevent the spread of infectious diseases as well as if not better than conventional chemicals without the dangerous properties of bleach, quats and hydrogen peroxide. Choosing to use PathoCide Hospital Grade Disinfectant on site offers numerous benefits and demonstrates that your business cares for its staff, visitors and the environment.

Interested in learning more about how PathoCide Hospital Grade Disinfectant can benefit your cleaning program? Contact Dr Juhi Saxena today.



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Pharmacists not immune to workforce issues, **but part of the solution**

Dr Fei Sim, National President, Pharmaceutical Society of Australia

The indispensable role of pharmacists — whether it be in community pharmacies, hospital pharmacies, residential aged care facilities, consulting in general practice or other practice settings — as primary healthcare providers has been demonstrated through both natural disasters and the pandemic, ensuring that Australians have equitable and timely access to essential medicines.

We are, however, not immune to the challenges facing the health sector in all corners of Australia. Significant labour shortages have been affecting the pharmacy profession and putting further strain on already exhausted pharmacists for some time, only compounded by the pandemic.

Like many health professionals, pharmacists have been under immense pressure over the last two and a half years. As a profession, we have stepped up to these challenges, to deliver a record number of COVID-19 and influenza vaccinations and keep medicines accessible to the community. We kept our doors open when few others could. The integral role pharmacists play in the community cannot be overlooked.

On top of the pandemic, the services pharmacists are providing, particularly in community pharmacies, have been steadily growing. Community pharmacists are now often the first point of contact patients have with the healthcare system, seeking advice not only on medicines, but also on the treatment of minor ailments, smoking cessation, self-care and lifestyle assessments, vaccinations and other specialised services such as sleep apnoea and men's health

support. The paradigm shift in community pharmacy practice is largely driven by the needs of patients and the local community. Pharmacists also play a crucial role in a patient's transitions of care after being discharged from hospitals.

Our health system is almost at breaking point, with workforce capacity issue facing all health professions. To enable efficiency and sustainability in our health system, we need all health professionals to practise to their top of scope.

With the current general practitioner workforce crisis, pharmacists can and should be empowered to do more, supporting and working collaboratively with our general

practitioner colleagues to deliver timely, effective and quality health care to our patients.

Despite all of this, there has been little government support to grow the pharmacist workforce. In fact, pharmacy was not represented at all at the federal government's recent Jobs and Skills Summit, nor on the Federal Health Minister's Health Workforce Summit last month. Pharmacists need leadership from the federal government to plan for the future so that we can continue providing care to our communities.

We have seen extensive future workforce planning for other sectors of the health workforce — for doctors, emergency medicine, psychiatry, nurses and midwives.



Image supplied

These are critical areas of the health system that deserve attention and support, but so too are the pharmacists working long hours to keep their heads above water.

This is why the Pharmaceutical Society of Australia (PSA), as the peak national body representing all pharmacists, has been calling for a whole-of-profession workforce strategy, which would help identify workforce pain points and address sustainability of the pharmacist workforce.

A recent poll from the *Australian Journal of Pharmacy (AJP)* found that 67% of respondents had considered leaving pharmacy because of low wages. In fact, the government payment to a community pharmacist for COVID-19 booster vaccinations is still nearly \$10 less per dose than a general practitioner¹. Pharmacists are required to undertake the same COVID-19 vaccination training as any other vaccinators, and the same protocol is followed. The discrepancy in recognition and remuneration is unjustifiable.

In order to drive workforce capacity and capability, we must look at improving the attraction and retention of pharmacists — which often starts with addressing

pharmacist recognition, remuneration and career progression. The current structure of pharmacist remuneration in Australia does not reflect the skills, training, expertise or responsibility in the healthcare system. The average hourly pay rate for community pharmacists is well below that of professions with comparative levels of professional responsibility and training.

To ensure our pharmacists have rewarding careers, we must allow them to have an even greater impact on their communities through health sector collaboration opportunities. Pharmacists should be integrated within the wider healthcare team and be encouraged to undertake interdisciplinary team-based care. Regardless of practice settings, pharmacists and general practitioners work well together at ground level, and the genuine support and rapport we see in practice day in, day out should be enabled, acknowledged and celebrated.

Above all else, the health sector must recognise the importance of pharmacists and their role in the healthcare team — both as health professionals and medicine safety experts.

1. <https://www.psa.org.au/remuneration>

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Tackling Potentially Preventable Hospitalisations in Wound Care



Image: Supplied

The ongoing burden placed upon Hospital and Health systems due to the Covid-19 pandemic has brought the importance of employing strategies for the prevention of Hospitalisation wherever possible into focus like never before.

Ominous projections of the potential impacts of Antimicrobial Resistance (AMR) suggest that the current pandemic may be preview of worse to come. A 2016 review on Antimicrobial Resistance predicted that by the year 2050, AMR will be responsible for 10 million annual deaths worldwide.¹ It is also estimated that at least 30% of antibiotic courses prescribed in the outpatient setting are unnecessary.²

The Australian Institute of Health and Welfare defines potentially preventable hospitalisations (PPH) as hospital admissions that could potentially have been avoided through preventative health interventions, or appropriate individualised disease management. These include the treatment of infections or management of chronic conditions in Primary and community health care.³

This is particularly relevant to patients that either already suffer from, or are at risk of developing chronic wound conditions. In a 2020 guidance document, Lipsky et al⁴ concluded that whilst evidence is limited, applying principles of Antimicrobial Stewardship (AMS) to the care of patients with wounds should help to reduce the unnecessary use of systemic or topical antibiotic therapy.

As the first contact with the health system will often occur within a Primary or community health setting, early identification and appropriate interventions at this point can have a positive impact toward preventing hospitalisation and the requirement for systemic antibiotics.

A recent study aimed at improving standard of care through the early recognition and management of wound infection in a community health setting has shown positive results by standardising to a first-line antimicrobial dressing⁵. As any standardised framework would need to apply to all patients within a Health service (including children and potentially breast-feeding mothers), it is imperative that the product is safe for all patients. After careful consideration, Cutimed® Sorbact® (Essity) was selected due to its safe, physical mode of action.

As well as standardising care, and thus reducing variation, implementation of the pathway resulted in measurable improvements in cost-efficiency. A 47.68% reduction in spend on antimicrobial dressings containing silver, and a 14.34% reduction to spend across all antimicrobials was reported. Decreases in Antibiotic prescribing as well as a considerable reduction in wound swabs were also observed over the period.

This builds on a similar Community Health study utilising Cutimed Sorbact as first-line in a wound infection pathway.⁶ This study was based on the early intervention for patients deemed to be at high risk of wound infection, as well as those already displaying signs and symptoms of local infection.

Patients were classified for wound management purposes into one of the following pathways:

- Red: presenting with an established infection
- Amber: presenting with wounds that were positive for signs and symptoms of local infection
- Green: deemed to be at high risk of wound infection

Patients in the Green and Amber pathways received Cutimed Sorbact as the first-line dressing for prophylaxis, and treatment respectively.

In the audit, 85.6% of patients assigned to Green pathway displayed no signs of wound infection, whilst 75% of those assigned to the Amber pathway had shown improvement to the status of their wounds, which included resolution of infection, and were transferred to the Green pathway.

The authors recognised overall improvements to patient safety and standard of care outcomes and cost; observing a reduction of 47.3% in spend for products used to treat active wound infection.

As a leader in wound management solutions, Essity understand the significance that proactive wound management strategies can play in addressing PPH and combatting AMR. Please contact Essity to find out more.

1. Tackling drug-resistant infections globally: Final Report and Recommendations – The Review on Antimicrobial Resistance chaired By Jim O’Neill, May 2016
2. Fleming-Dutra, K., et al. (2016). “Prevalence of Inappropriate Antibiotic Prescriptions Among US Ambulatory Care Visits, 2010-2011.” JAMA: The Journal of the American Medical Association 315(17): 1864-1873
3. Australian Institute of Health and Welfare (2020) Disparities in potentially preventable hospitalisations across Australia: Exploring the data, AIHW, Australian Government, accessed 11 April 2022.
4. Antimicrobial stewardship in wound care: a Position Paper from the British Society for Antimicrobial Chemotherapy and European Wound Management Association: Benjamin A Lipsky 12, Matthew Dryden 3, Finn Gottrup 4, Dilip Nathwani 5, Ronald Andrew Seaton 6, Jan Stryja 7
5. The Leeds Wound Infection Framework: Development and implementation of a new pathway to improve care: Kate Williams Wounds UK, Vol 18, No 1, 2022
6. An audit to determine the clinical effectiveness of a pathway for managing wound infection.: Grothier, Stephenson Wounds UK, Vol 11, No 2, 2015



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¹ Fleming-Dutra, K., et al. (2016). "Prevalence of Inappropriate Antibiotic Prescriptions Among US Ambulatory Care Visits, 2010-2011." JAMA: The Journal of the American Medical Association 315(17): 1864-1873
² Tackling drug-resistant infections globally: Final Report and Recommendations – The Review on Antimicrobial Resistance chaired by Jim O'Neill, May 2016

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Should **remote nursing** be classed as a **‘specialist-generalist’** role?

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Whether it's isolation, lack of resources or the length of time required to develop trust with locals, nurses say working in remote Australian communities is a lot different to being in a city hospital.

An Edith Cowan University (ECU) study suggests remote area nursing should be classed as a 'specialist-generalist' role requiring further training and support on the job.

Researchers interviewed remote area nurses working in primary healthcare clinics in communities with 150–1500 residents across Australia.

ECU lead researcher Dr Kylie McCullough said nurses perceived their clinical knowledge to be insufficient for the advanced, generalist scope of work in remote areas — described as caring for communities from the 'womb to the tomb'.

Key issues were the need for cultural and clinical knowledge of health issues faced by people living in remote areas, particularly Aboriginal and Torres Strait Islander peoples, and the lack of experience in making critical decisions when working alone or with less experienced co-workers.

One respondent claimed she had to throw everything she'd learned "out the window and start again", while another claimed she was told: "You will see things here that you will never see anywhere else".

"They're asked to be more like GPs a lot of the time, and therefore need similar skills," McCullough said.

"On top of that, quite often there are no police or paramedics in these communities; if there's, say, a car crash, nurses hop into a LandCruiser and have to deal with these incidents all by themselves, with limited resources.

"It's a lot different to being on a ward; we're asking them to be 'super nurses' often without the proper preparation."

Flow-on effects

McCullough said asking workers to step straight into remote area nursing without any experience in such an environment was asking too much and had many consequences.

"You end up with more people being hospitalised unnecessarily," she said.

"Then they need the Royal Flying Doctor Service to transfer them to metropolitan hospitals and that adds more strain to the hospitals and greater stress for patients and their families."

Heavy and stressful workloads were seeing nurses abandon remote posts, resulting in a constant cycle of new staff coming into communities.

"This can erode the trust of the community in seeking health care," McCullough said.

"It takes time to build trust."

Improving the situation

McCullough said it was clear there needed to be action in educating and supporting nurses in remote areas. This could include a focus on training and hiring more nurse practitioners — someone who has studied a master's level and has the authority to prescribe medications and order pathology tests, amongst other advanced skills.

The nurse practitioners who took part in the study reported they were better suited to meet the additional expectations and aspects of the role, such as health promotion.

McCullough said greater flexibility for workers, such as fly-in fly-out rosters, and subsidising education and support initiatives could help attract and keep more nurses in remote areas.

She said nurses needed to be encouraged to remain in the same community for extended periods.

"Each community has its own set of challenges, so if someone has been there a while, they can better serve the public and better teach other nurses who come to work there," McCullough said.

"People in remote communities have poorer health outcomes in general and, like remote nurses, can be forgotten about as they're out of sight and out of mind."

The study, titled *Nursing in a different world: Remote area nursing as a specialist-generalist practice area*, was published in *The Australian Journal of Rural Health*.



People making tough times tolerable

The global pandemic proved that strong people could make the impossible happen according to Dianne Joannidis, Manager — Aged Care & OxyCare at BOC in Australia.

Q: What was the biggest pandemic issue for aged care providers?

It was crucial for aged care and healthcare providers to have a constant supply of medical gases, respiratory products, and services so residents with health conditions were supported.

BOC managed the supply of these vital products, allowing our Aged Care Partners to focus on the other issues the pandemic presented.

Q: How did your team deliver during the massive spikes?

I'm proud of the work our team did with customers to ensure a balanced and fair delivery program of medical devices. This avoided the need for panic buying.

BOC upscaled production so additional cylinders were available to cover surges and increased medical device stock.

Thankfully Australia limited the virus early and this helped us build capacity to deliver enough medical product for our needs and beyond. This allowed us to supply countries in Asia and the South Pacific in their time of need. BOC was proud to collaborate with humanitarian agencies and sent much needed medical gas and equipment to various parts of our region to help ease the crisis. India, Papua New

Guinea, Fiji, Tonga, and the Solomon Islands all received assistance.

Q: How do you think BOC differs from other suppliers?

BOC is able to manufacture multiple times the medical oxygen consumed nationally on a typical day.

We also have the capacity to store months' worth of oxygen across the nation, making us the 'go-to' company for oxygen supply to hospitals and aged care facilities.

Our operations team and relationship managers closely monitored stock to ensure reliable supply and communicated personally. Our team also engaged with our manufacturing partners globally to ensure order volumes could increase and be delivered.

Q: How did you ensure smooth deliveries of critical medical gas and equipment during the pandemic?

We significantly invested in our rental fleet of medical equipment renewing and extending our range of rental oxygen concentrators, regulators, flowmeters and cylinder handling equipment. BOC ensured stock was in multiple locations across Australia and complemented our extensive transport fleet to deliver where and when needed.

Medical devices were often airfreighted into the country instead of by traditional sea freight. This ensured products were available for customers as soon as possible, even though costs couldn't be fully recouped.

Q: Was cleaning and hygiene a bigger safety issue?

Safety is always top priority for BOC and we developed special disinfection protocols for rental medical equipment and cylinders to ensure the safety of our customers and staff.

Q: How do you future-proof the supply of medical gases and equipment for unexpected situations?

We are constantly collaborating with aged care and healthcare providers to understand their ongoing needs. That's the big learning — planning is key and it works.

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Managing future global health threats



Massive global failures at multiple levels in pandemic response led to millions of preventable deaths. But have we learnt our lesson?

National governments were unprepared and too slow in their response, paid too little attention to the most vulnerable groups in their societies and were hampered by a lack of international cooperation and an epidemic of misinformation, reveals the latest Lancet COVID-19 Commission report.

The Lancet Commission on lessons for the future from the COVID-19 pandemic synthesises evidence from the first two years of the pandemic with new epidemiological and financial analyses to outline recommendations that will help hasten the end of the ongoing COVID-19 pandemic emergency, lessen the impact of future health threats and achieve long-term sustainable development.

Strengthened multilateralism that must centre around a reformed and bolstered World Health Organisation (WHO), as well as investments and refined planning for national pandemic preparedness and health system strengthening, with special attention to populations experiencing vulnerability, will be key to achieving future goals, according to the report. Crucial investments also

include improved technology and knowledge transfers for health commodities and improved international health financing for resource-limited countries and regions.

The Commission is the result of two years of work from 28 of the world's leading experts in public policy, international governance, epidemiology, vaccinology, economics, international finance, sustainability and mental health, and consultations with over 100 other contributors to 11 global task forces.

"The staggering human toll of the first two years of the COVID-19 pandemic is a profound tragedy and a massive societal failure at multiple levels," said Professor Jeffrey Sachs, Chair of the Commission, University Professor at Columbia University (USA) and President of the Sustainable Development Solutions Network.

"We must face hard truths — too many governments have failed to adhere to basic norms of institutional rationality and transparency; too many people have protested basic public health precautions, often influenced by misinformation; and too many nations have failed to promote global collaboration to control the pandemic."

He further said, "Now is the time to take collective action that promotes public health and sustainable development to bring an end to the pandemic, addresses global health inequities, protects the world against future pandemics, identifies the origins of this pandemic and builds resilience for communities around the

world. We have the scientific capabilities and economic resources to do this, but a resilient and sustainable recovery depends on strengthened multilateral cooperation, financing, biosafety and international solidarity with the most vulnerable countries and people."

International cooperation

The COVID-19 response has shown several aspects of international cooperation at its best: public-private partnerships to develop multiple vaccines in record time; actions of high-income countries to financially support households and businesses; and emergency financing from the International Monetary Fund (IMF) and World Bank.

But the events of the past two years have also exposed multiple failures of global cooperation. Costly delays by WHO to declare a "public health emergency of international concern" and to recognise the airborne transmission of SARS-CoV-2 coincided with national governments' failure to cooperate and coordinate on travel protocols, testing strategies, commodity supply chains, data reporting systems and other vital international policies to suppress the pandemic. The lack of cooperation among governments for the financing and distribution of key health commodities — including vaccines, personal protective equipment and resources for vaccine development and production in low-income countries — has come at dire costs.

Pre-COVID-19 rankings of country preparedness for pandemics, such as the

2019 Global Health Security Index, ranking the USA and many European countries among the strongest for their epidemic response capabilities, turned out to be poor predictors of the actual outcomes of the pandemic.

The Commission found that the Western Pacific region, including East Asia and Oceania, primed by previous experience with the SARS epidemic of 2002, adopted relatively successful suppression strategies resulting in cumulative deaths per million around 300, much lower than in other parts of the world. Disjointed public health systems and poor-quality public policy response to COVID-19 in Europe and the Americas resulted in cumulative deaths around 4000 deaths per million, the highest of all WHO regions.

Commission co-author Maria Fernanda Espinosa, former President of the UN General Assembly and former Minister of Foreign Affairs and Defence, Ecuador, said, "All countries remain increasingly vulnerable to new COVID-19 outbreaks and future pandemics if we do not share vaccine patents and technology with vaccine manufacturers in less wealthy countries and strengthen multilateral initiatives that aim to boost global vaccine equity."¹

National preparedness plan

The report is also critical of national responses to COVID-19, which often featured inconsistent public health advice and poor implementation of public health and social measures, such as wearing face masks and vaccination. Many public policies did not properly address the profoundly inequitable impacts of the pandemic on vulnerable communities, including women, children and workers in low- and middle-income countries.

These inequities were exacerbated by extensive misinformation campaigns on social media, low social trust and a failure to draw on the behavioural and social sciences to encourage behaviour change and counter the significant public opposition to routine public health measures seen in many countries.

"National pandemic preparedness plans must include the protection of vulnerable groups, including women, older people, children, disadvantaged communities, refugees, Indigenous peoples, people with disabilities and people with comorbid medical conditions. Loss of employment and school closures due to the pandemic have devastated progress made on gender equality, education and nutrition and it

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is critical to prevent this from happening again. We ask governments, private sector, civil society and international organisations to build social protection systems and guarantee universal health coverage,” said Commissioner Gabriela Cuevas Barron, Co-Chair of UHC2030 (Geneva, Switzerland), Honorary President of the Inter-Parliamentary Union and former Senator in the Mexican Congress, Mexico.

Global vaccine-plus strategy

The deepening of socioeconomic inequities, coupled with economic and public health setbacks and growing social and political tensions, has jeopardised the 2030 SDG agenda, according to the report.

To prepare for future pandemic health threats, the Commission recommends strengthening national health systems and the adoption of national pandemic preparedness plans, with actions to improve coordinated surveillance and monitoring for new variants, protect groups experiencing vulnerability and create safer school and workplace environments by investing in ventilation and filtration.

“A global vaccine-plus strategy of high vaccine coverage plus a combination of effective public health measures will slow the emergence of new variants and reduce the risk of new waves of infection while allowing everyone (including those clinically vulnerable) to go about their lives more freely. The faster the world can act to vaccinate everybody, and provide social and economic support, the better the prospects for exiting the pandemic emergency and achieving long-lasting economic recovery,” said Commission co-author Prof. Salim S. Abdool

Karim of the Mailman School of Public Health, Columbia University, USA.¹

Promoting multilateralism

To improve the world’s ability to respond to pandemics, the Commission calls for WHO to be transformed and bolstered by a substantial increase in funding and greater involvement from heads of state representing each region to better support decision-making and actions, especially on urgent and controversial matters. The Commission supports calls from other panels for a new global pandemic agreement and an update of the International Health Regulations.

With the support of WHO, the G20 and major financial institutions such as the World Bank, the Commission recommends increased and more effective investment for both pandemic preparedness and health systems in developing countries, with a focus on primary care, achieving universal health coverage and disease control more generally.

To achieve this goal, the Commission estimates that around US\$60 billion would be required yearly, equivalent to 0.1% of the gross domestic product of high-income countries. Alongside this long-term funding commitment, the Commission recommends a 10-year effort by G20 countries to bolster research and development and investments in infrastructure and manufacturing capacity for all critical pandemic control tools including testing, diagnostics, vaccines, treatments and PPE, alongside support and training for health workers in low- and middle-income countries. These investments and the restructuring of multilateral global health efforts are essential to achieve the 2030 SDG Agenda, according to the report.

Building more resilient health systems

Further recommendations are made, such as the call for an expansion of the WHO Science Council to apply urgent scientific evidence for global health priorities, including future emerging infectious diseases; strengthening of WHO through the establishment of a WHO Global Health Board with representation of all six WHO regions; and strengthening of national health systems on the foundations of public health and universal health coverage, grounded in human rights and gender equality.

The Commission also recognises the need for an independent, transparent investigation into the origins of SARS-CoV-2, alongside robust regulations, to help prevent future pandemics that may result from both natural and research-related activities, and to strengthen public trust in science and public authorities.

A linked Editorial published in *The Lancet* says, “... as the Commission demonstrates, reassessing and strengthening global institutions and multilateralism will not only benefit the response to COVID-19 and future infectious diseases but also to any crisis that has global ramifications. The release of The Lancet COVID-19 Commission offers another opportunity to insist that the failures and lessons from the last three years are not laid to waste but are constructively used to build more resilient health systems and stronger political systems that support the health and wellbeing of people and planet during the 21st century.”

1. Quote direct from author and cannot be found in the text of the Article.

“To prepare for future pandemic health threats, the Commission recommends strengthening national health systems and the adoption of national pandemic preparedness plans.”





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The hidden costs of HAIs

Latest research indicates HAIs were the fifth leading cause of death in Australia in 2021

While news headlines and social feeds tell the story of injury and death in Australia from road safety and illnesses such as cancer, COVID and heart disease, a report published by Monash University points to healthcare-associated infections (HAIs) as the fifth leading cause of death in Australia last year.

HAIs, the infections people can get while they are receiving health care for another reason, can occur in any health care facility, including hospitals, ambulances, medical centres and long-term care facilities. According to the research by Monash University published in *Antimicrobial Resistance & Infection Control*, an estimated 170,574 adults admitted to public hospitals in Australia contract HAIs each year, resulting in 7,583 deaths.

To put the numbers into perspective, in 2020 there were 1,300 road deaths, 3,144

Australians died from breast cancer — one of the most commonly diagnosed cancers in Australia — and 6,500 Australians died from heart attacks.

Added to that, effective infection control is only going to become a more pertinent issue due to increasing resistance to antimicrobial drugs. The World Health Organisation declared antimicrobial resistance to be one of the top ten health threats facing humanity.

Fortunately, there is work happening both in Australia and overseas to develop and implement effective infection control practices. One encouraging example is leading Australian researcher Professor Brett Mitchell's research in preventing HAIs, which recently won the 2022 Commonwealth Health Minister's Award for Excellence in Health and Medical Research.

The award recognised his work and extensive research in infection control as well as plans to further develop practical approaches to prevent common HAIs and will provide funds to support his current research.

Another potential solution to better protect public health and prevent HAIs is long-lasting antimicrobial coatings, which remain effective even when surfaces are frequently cleaned or touched. These surface coatings form a protective barrier that continuously fights against the recontamination of surfaces, ensuring hygienic spaces and the prevention of avoidable infections, which significantly improve patient outcomes, staff health and wellbeing and healthcare service capacity.

Studies are revealing long-lasting, antimicrobial surface coatings can reduce HAIs by as much as 36 per cent and hospital staff sick leave by 11.2 per cent, leading to a view that antimicrobial coatings are the next step in any healthcare facility's infection control toolkit.

According to infection control specialist Dr Stephanie Dancer, "It is not impossible that an antimicrobial coating of some type will become standard for all healthcare surfaces one day."

Healthcare-associated infections are an urgent issue facing the Australian healthcare industry. To help prevent these infections, the healthcare industry needs to be equipped with the right technologies, not only saving patient lives, but creating a safer and better industry for all.

By Tim Smith, CEO of Allied BioServices.



For more information visit
<https://alliedbioservices.com.au>

HAIs are the most common complication affecting patients in hospital, and it is estimated they account for two million hospital bed days in Australia each year. One in ten hospital admissions acquire a HAI during their stay in hospital and even when they don't lead to serious complications, infections prolong hospital stays and recovery times — stretching healthcare resources and creating needless suffering for patients and their loved ones.

Featured Products

Keep up with the latest industry innovations

Anaesthesia machine

The Getinge Flow-i is an anaesthesia machine offering innovative Automatic Gas Control (AGC) and strong ventilation performance, suitable for specialised procedures such as paediatric and thoracic surgery. It has an ergonomic, height-adjustable version and a ceiling-mounted model suitable for the Hybrid OR.



The Flow-i anaesthesia machine is said to provide effective, personalised and cost-efficient care. All to meet the needs of operating rooms that treat the most challenging patients. Features include: ventilation performance to ICU standards; effective low-flow anaesthesia with Automatic Gas Control; MAC Brain for improved control of depth of anaesthesia; active hypoxia prevention with O₂Guard; and lung recruitment manoeuvres to prevent postoperative complications¹.

Automatic Gas Control (AGC) is said to make low-flow anaesthesia delivery effective. It offers FIO₂ target control, prediction tool, speed selection and has no manual adjustments.

For more precise control of depth of anaesthesia, Getinge created MAC Brain — a tool that visualises the difference in agent concentration between the lungs and the target organ, the brain.

Innovative Flow Core Technology is designed to promote efficient agent usage, providing the power and precision to ventilate challenging patients.

A recent study shows that the unique Automatic Gas Control (AGC) in Flow-i anaesthesia machine, which can help reduce sevoflurane wastage by up to 58%², is a sustainable and economic approach without compromising patient safety³.

With low-flow anaesthesia, a lower amount of anaesthetic agent is released into the environment, helping to reducing the impact of fluorocarbons and nitrous oxide on the ozone layer, thus reducing the overall greenhouse gas emissions.

For more information on Getinge's Anaesthesia solutions, or to read the AGC case study, click [here](#).

1. 2021 Yassen K.A et al. Respiratory and hemodynamic effects of prophylactic alveolar RM during liver transplant
2. AGC versus Low Gas Flow Anaesthesia (2L per minute FGF)
3. Kalmar AF, Van Der Vekens N, De Rydt F, Allaert S, Van De Velde M, Mulier J. Minimizing sevoflurane wastage by sensible use of automated gas control technology in the flow-i workstation: an economic and ecological assessment. J Clin Monit Comput. 2022 Jan 3. doi: 10.1007/s10877-021-00803-z. Epub ahead of print. Erratum in: J Clin Monit Comput. 2022 Feb 14.; PMID: 34978655.

Getinge Australia Pty Ltd
www.getinge.com/anz

Guided analysis tools

Minitab aims to help healthcare organisations improve quality of care, ensure safety and maximise cost savings using data analysis and smart process management. Created with healthcare professionals in mind, Minitab's Healthcare Module provides guided data analysis in commonly used and understood healthcare terms.

Health professionals can shift their focus to improving key performance indicators (KPIs) like wait time, costs, utilisation, patient safety and patient satisfaction without worrying about which analysis to use.

After years in school and training, learning statistics might not be on the top of any healthcare professional's to-do list. However, Minitab is with them every step of their analysis. Information icons connect users to support pages written in healthcare terminology with specific healthcare examples, while industry-leading technical support team is available via phone or email to help as needed.

Explore Minitab's Healthcare Module: www.minitab.com/healthcare-module.

Minitab Pty Ltd
www.minitab.com.au

Mobile flow cytometer



The CytoQuant handheld mobile flow cytometer measures bacteria and residue concentrations on surfaces.

Separate, precise counts are produced in just 30 s with a simple swab test that can be used by anyone — no special training or lab required. Measurements are not influenced by disinfectants, temperature or humidity and simple connectivity allows the user to export and document test results with ease.

ATP tests will measure biological residues and, while simple and fast, are said to not provide a meaningful indication of disinfection efficacy. Traditional plate count methods are said to take days to return a result and not all bacteria is culturable.

CytoQuant technology allows the user to quantify all bacteria with an intact cell wall and is the only solution currently available for immediate, on-site verification of cleaning and disinfection procedures, anywhere that hygiene is crucial such as hospitals, clean rooms and food production facilities.

Users can implement CytoQuant to enable informed decision-making for preventative control and preoperational actions.

Vendart Diagnostics Pty Ltd
www.vendart.com.au

Featured Products



Air purifiers

With a clean air delivery rate (CADR) of up to 1000 m³/h, the Ionmax+ Aire and Aire X High-Performance HEPA UV air purifiers offer clean air for staff and clients.

The purifiers feature dual HEPA H13 filters, UV sterilisation and an extensive coverage area of up to 260 m², and are suitable for clinics, reception areas and public spaces where ensuring staff and clients' health and safety is paramount.

The Ionmax+ Aire's comprehensive filtration system delivers two-way ventilation and captures 99.97% of particles as small as 0.3 microns, including odours, pollen, allergens, PM2.5 and virus and bacteria-laden aerosols.

Their six-stage air purification system includes two pre-filters, two antibacterial HEPA H13 filters, two activated carbon filters and two titanium dioxide (TiO₂) filters. Each air purifier has two UVC-Shield UV sterilisation lamps and an IONX-Shield negative ioniser.

The Ionmax+ Aire purifiers also use SmartSens, which continuously monitors indoor air and PM2.5 levels and adjusts the unit's operation based on the detected indoor air quality level.

Through the Ionmax mobile app, users can monitor and change the air purifier's settings remotely. The Ionmax+ Aire's air purification system is said to offer maximum protection from airborne diseases and infected aerosols within the air so that those within its coverage area breathe in healthy, clean air at all times.

The purifiers are available now with a two-year warranty from Ionmax Australia. Special trade discount for healthcare providers is available.

Ionmax

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Chef Luke Mangan, Mater Director of Dietetics and Food Services Sally McCray and Executive Chef Aman Marwah.

Mater has launched an edible garden pilot project in a bid to reduce burnout and enhance the wellbeing of health workers.

The therapeutic horticulture project is said to be the first of its kind at an Australian hospital and is being run in conjunction with Bond University researchers to determine the health and nutritional wellbeing benefits of gardening at work.

Mater Director of Dietetics and Food Services Sally McCray said healthcare workers had been under increased pressure in recent years with the global pandemic, and therapeutic horticulture was one way to 'care for carers'.

"We are starting off with a small growers' group of interested staff members who will maintain the outdoor gardens and be able to harvest the produce for their own use," McCray said.

"This initial group will inform a broader staff health and wellbeing edible garden program that we hope to roll out at the end of this year."

Mater has also partnered with celebrity chef Luke Mangan and Vegepod Australia to grow culinary greens in the hospital kitchen to service patients.

The micro herbs will be used in a range of dishes, co-created by Mater Executive Chef Aman Marwah and Mangan, to boost the nutritional intake of patients.

"Through Mater's partnership with Luke Mangan, we have developed a range of new menus that provide patients with nutritionally balanced, restaurant-style dishes," McCray said.

Bond University senior conjoint research dietitian Dr Jennifer Utters said, "The benefits

of therapeutic horticulture are becoming well recognised in disability services, aged care facilities and other settings, for helping to provide tools for respite and a way to care for carers.

"There is a growing body of research on the health benefits of gardening, including its ability to reduce emotional distress, improve quality of life and increase the consumption of vegetables.

"For staff, research shows that taking breaks in the garden instead of inside could help to reduce burnout reported by health workers."

McCray said Vegepod Australia had provided a six-square-metre self-watering garden that would be located at the hospital's South Brisbane campus. Vegepod Head of Community Simon Holloway said three large pods would be used in the pilot with staff able to choose produce from a long list of options, including tomatoes, rocket, spinach,

eggplant, chilli, capsicum, bok choy, herbs and more.

"This is the first time we have run a pilot program at a hospital and, apart from cost savings, the gardens enhance nutrition for those who consume the produce while offering huge mental health benefits," Holloway said.

"Staff don't have the time to visit beaches or forests or riverbanks to enjoy nature-based therapy, but they can get the same sort of benefits from caring for a small garden.

"Apart from mental and spiritual support, staff find there's a camaraderie that comes with tending the gardens and a great sense of contentment from the act of nurturing."

McCray said Mater patients would start benefiting from the kitchen-grown ingredients when their new seasonal Luke Mangan menus started being dished up later this month.





Softmed — your preferred partner of choice

Softmed is an Australian-owned company, founded in 2017, specialising in the domestic manufacture and distribution of healthcare and medical products.

They have recently opened a world-class local manufacturing facility and testing laboratory in Campbellfield, Victoria — operations commenced in 2020. The product list is ever-expanding; surgical masks, N95 respirators, sterilisation wraps, isolation, and surgical gowns, as well as numerous disposable non-woven based products. They pride themselves on their adaptability and innovation — having the capabilities to bring critical products to market quickly.

Softmed's goal is to become the largest domestic provider of over 300 types of non-woven disposable products for the medical, dental, aged care, food, hardware, safety. Additionally, they're working on building an international supply chain

via partnership to improve Australia's distribution and manufacturing efforts. This ensures surety of local supply and mitigates the risk of supply chain disruption.

The Softmed facility has ISO 13485 Certification (Medical Device Manufacturing) and has recently passed BSI accreditation and auditing. They are the first in Australia to produce the full cycle from non-woven fabric raw materials to end products. The onsite laboratory tests every batch of material and products for quality assurance purposes.

Softmed products comply with all Australian and international standards and are TGA registered. The N95 range cover most face types, shapes and sizes with very high fit test results achieved.

They are committed to setting environmental and sustainable goals with a focus on eco-safe production technologies, and where possible, procuring local material to minimise their footprint. The onsite solar

power currently generates up to 90% of electricity use.

As a leading Australian and Victorian-based manufacturer, Softmed has the capacity to produce and deliver high volumes of products very quickly, with large stockpiles of all required materials ready for manufacture. They're committed to partnering with regional and remote areas to provide logistics and warehousing solutions, thus reducing the need for large on-site storage at facilities.

Through trusted collaboration with industry, Softmed is driven to become a leading manufacturer, supplier, and partner to all healthcare groups across ANZ — with consideration on developing global markets.

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»
For more information
Softmed
www.softmed.com.au

Featured Products

Power system

Ergotron's LiFeKinnex power system eliminates power anxiety by keeping medical carts charged for when they're needed the most.

Designed for on-cart charging or hot swap, LiFeKinnex lets caregivers focus less on battery life and more on patient care with a reliable solution that promotes safety. Lithium iron phosphate (LiFePO4) battery chemistry lasts for more cycles than many other battery technologies, can be discharged fully without complications and offers a lower total cost of ownership for healthcare organisations. LiFeKinnex can easily be added to new or existing fleets.

Key benefits include: minimises downtime — a magnetic alignment connection supports quick battery swaps, while the power module's built-in battery keeps the system running continuously; longer battery life — claimed to recharge three to four times faster than a comparable SLA battery. Lithium iron phosphate (LiFe) battery technology is said to be safe and reliable, support about twice as many cycles as lithium-ion batteries and fit any workflow. Users can plug in the unit to charge the cart, even during use, or use the optional four-bay wall or desk battery charger to keep the cart moving with a hot swap.

Ergotron Inc

www.ergotron.com



Ergonomic chair

The Buro Roma 3 Lever high back chair with SafeTex fabric is suitable for any healthcare facility. The Buro SafeTex upholstery contains a surface inhospitable to key bacteria and mould, providing protection against staining, unpleasant and premature degradation that can affect the durability, lifespan and hygiene of a chair. The chair's ergonomic design is comfortable with adjustable seat angle, height and back rest angle.

The chair can be purchased from Winc, a workplace supplies company. Winc provides cost-effective workplace solutions which free health staff to do what they do best — care. Benefits include: customised pricing, next business day delivery, industry expertise and more.

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Hand towel

Solaris Paper's Sorbent Professional TAD hand towel has gone through stringent testing to be awarded the official Australian Made logo. The Australian Made logo requires "a significant transformation in Australia". Both the TAD paper making and the folding into interleaved towel is performed in Australia. Not only does this secure Australian jobs, but it also makes these products more readily available during the challenges of any shipping crisis and more flexible when demand spikes. TAD hand towel is desired in health care and aged care because of its effectiveness, so certainty of supply in these critical functions is a significant benefit.

TAD stands for Through Air Dried and is a technological improvement in hand towel making. With this type of paper, water is removed — and the paper is dried — by blowing air through the sheet (hence the name). This allows the fibres to create a mesh, with air pockets in between the fibres, and improves the properties of softness, thickness, stretch and most importantly, absorbency, with air pockets that quickly absorb the water. This means less paper and time is needed to effectively dry hands than a traditional hand towel. TAD paper is also softer and less abrasive on frequently washed hands. Less towel, and a reduction in dispenser refill rates, can save the workplace time and cost and helps the environment too.

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Solaris Paper Pty Ltd

solarispaper.com.au



Featured Products

Troubleshooting app

The OneConnect platform hosts all digital services related to LINAK actuator systems used in healthcare applications. Using the OneConnect app, service technicians and medical staff are provided with an overview of important system status and information from products with LINAK components.

When using the app, technicians can search for and identify products that indicate if scheduled maintenance, cleaning or charging is required, which makes it possible to take appropriate action more efficiently. OneConnect keeps users one step ahead to help meet increasing care, safety and efficiency demands.

The OneConnect portal allows for app content customisation and can communicate critical information directly to the user. The app is customisable and can include the user's brand, facility name, relevant details such as product images and product-specific information such as quick guides, user manuals, instructional videos, contact information and more.

Facility technicians can securely access system information from medical equipment with a LINAK component. Identify the root cause of system status information with detailed and secure views into the operation and status of the medical equipment/application.

Available for free download in the App Store and Google Play store, the app will automatically detect products in the range equipped with a LINAK Bluetooth-enabled system and display the current status and customised content configured in the OneConnect portal, making it a user-friendly solution. These system statuses include critical system information, such as a low battery, system error and if service or cleaning is needed. Furthermore, these statuses can be customised in software by LINAK to suit various medical types of equipment and environments.

LINAK Australia Pty Ltd
www.linak.com.au



WORLD BEST IS HERE

The DEKO 190 is a tall, white, industrial-grade disinfection machine. It has a large front-loading door that is open, revealing several white plastic bottles inside. To the left of the machine, there are four circular icons connected by dotted lines to the machine. The icons represent: 1) Surgical instruments (scalpels, forceps), 2) A mop and bucket, 3) A pair of slippers, and 4) A pair of gloves. The machine is set against a background of splashing blue water.

DEKO 190

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The logo for 'rethink reuse rhima' features a circular graphic with a blue and green leaf-like shape inside. To the right of the graphic, the text 'rethink reuse' is in a smaller font, and 'rhima' is in a larger, bold, blue font.

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Featured Products



Digital wayfinding app

Vertel's digital wayfinding solution, powered by Purple, allows staff and patients to navigate indoor and outdoor healthcare facilities using blue dot navigation quickly and efficiently with an accuracy of about one metre and specific turn-by-turn directions.

The wayfinding mobile app includes route planning, location-based messaging and incident reporting using a hybrid technology of Bluetooth low energy beacons, Wi-Fi and geomagnetic positioning. This hybrid approach means a simple operational environment, creating a solution with a seamless transition between floors and buildings. As a result, hospitals are set to provide a leading-edge service, staff are efficient with their time and patients can have an enhanced experience.

Vertel

www.vertel.com.au

Room status monitor

The Series RSME Room Status Monitor is designed for low differential pressure applications that require stringent pressure monitoring and alarming.

It can be configured to monitor positive or negative pressure in clean rooms, hospital isolation rooms, laboratories and vivariums. The RSME is a complete system with a touchscreen graphical user interface which enables access to pressure, humidity, temperature, air change, security, door status, calibration and alarm set-up.



The graphical display colour changes allow a clear determination of when the parameters are operating within the acceptable range (green), caution range (yellow) or have gone outside the acceptable operating range (red). The RSME room status monitor comes standard with BACnet MS/TP and Modbus RTU communications.

Each RSME includes a factory calibration certificate. The monitor is suitable for use in hospital isolation rooms, pharmaceutical facilities, dental offices and school nurse offices.

Dwyer Instruments (Aust) Pty Ltd

www.dwyer-inst.com.au

Featured Products



Disinfectant wipes

Whiteley V-Wipes Instrument Grade Disinfectant (low level) wipes are suitable for cleaning and disinfecting of environmental surfaces and non-critical medical devices such as hospital beds and theatre trolleys.

The unique formula of the V-Wipes, with their apertured fabric, is said to be proven to kill SARS-CoV-2 (COVID-19) in seconds. They are also effective against *Enterococcus faecalis* (VRE), *Klebsiella pneumoniae* (CPE/CRE), Measles virus, *Escherichia coli*, Herpes virus, Parvovirus, *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* (MRSA and Golden Staph).

V-Wipes are non-hazardous, non-flammable, do not contain phenolics or chlorine and are said to be 100% PHMB-free.

Whiteley
www.whiteley.com.au

Disinfectant

Callington's broad spectrum disinfectant Netbiokem DSAM+ offers quick and comprehensive protection for healthcare professionals and their patients.

Netbiokem DSAM+ eliminates viruses in just 2 min following application. It has been proven to kill an extensive list of viruses which can present in the healthcare environment including: SARS-CoV-2 (COVID-19) virus, Poliovirus, Norovirus, Adenovirus, Influenza A (H1N1), Murine hepatitis virus, *Escherichia coli* (E. coli), *Pseudomonas aeruginosa*, *Salmonella choleraesuis*, *Staphylococcus aureus* (Golden Staph) and *Proteus vulgaris*.

As a listed item on the Australian Register of Therapeutic Goods (ARTG), Netbiokem DSAM+ has met the conditions as an 'Other Therapeutic Good - Listed disinfectant'. This means it has been subject to assessment and monitoring by the Therapeutic Goods Administration (TGA), giving peace of mind it meets the standards required for effective use in the healthcare environment.

Callington Haven Pty Ltd
www.callington.com



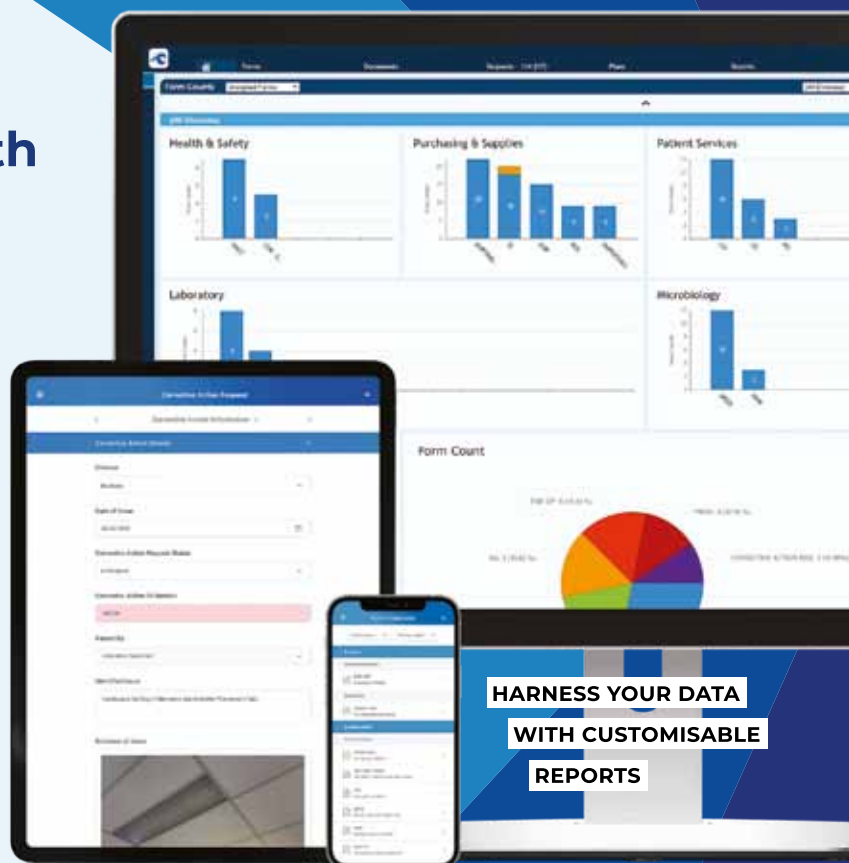
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Effective healthcare cleaning — saving lives and healthcare costs every day



Housekeeping staff responsible for cleaning within the healthcare environment are often at the forefront of patient safety and infection prevention, yet they do not always receive the focus they deserve.

Potentially infectious organisms can persist in the environment for prolonged periods, posing an ongoing risk for transmission and acquisition to patients and healthcare workers.

Contaminated surfaces serve as a mode of transmission for viruses with pandemic potential¹. Touchable surfaces in the environment can harbour harmful microorganisms, including drug-resistant organisms, cold & flu viruses and coronaviruses^{2, 5}.

A Healthcare-associated infection (HAI) is an infection occurring in a patient during the process of care in a hospital or other healthcare facility, which was not present or incubating at the time of admission. They are associated with increased morbidity and mortality and excess healthcare costs². An estimated **170,574 HAIs** occur in **adults admitted to public hospitals alone in Australia each year**, resulting in **7583 deaths**¹. This makes HAIs the most common complication affecting patients within the hospital setting.

HAIs can be classed as a potentially preventable adverse event rather than an unpredictable complication. It is possible to significantly reduce the rate of HAIs through effective infection prevention and control, including effective cleaning practices³.

Making surfaces safer

Implementing a bundled approach to environmental cleaning with well executed educational interventions can dramatically

improve the frequency and quality of decontamination⁴. A 2017 study by Hall et al.⁵ Researching Effective Approaches to Cleaning in Hospitals (REACH), evaluated an environmental cleaning bundle for reducing HAI rates in 11 Australian hospitals. Reflecting current evidence, five interventions were introduced.

These targeted improved cleaning practices, with an emphasis on engaging environmental services staff and included:

Training — Tailored for new and existing cleaning staff, with content reflecting cleaning roles and responsibilities⁵.

Technique — Including a defined and consistent cleaning sequence, a focus on high touch points, the use of sufficient pressure and movement, and adherence to product manufacturers' instructions for use⁵.

Product — Disinfectant for discharge cleans and daily cleans of high-risk rooms, plus wipes at point of care for medical equipment⁵.

Audit — Regular audit feedback for cleaning staff, with summarised results provided to clinical governance committees⁵.

Communication — Promoting a team approach, including daily contact between cleaners and ward managers. Cleaners represented on relevant clinical governance committees⁵.

A follow-up cost effectiveness review concluded that a bundled, evidence-based approach to improving hospital cleaning is a cost-effective intervention for reducing the incidence of HAIs⁶.

Implementing the REACH cleaning bundle generated AUD\$147,500 in cost savings.

Infections prevented under the cleaning bundle returned a net monetary benefit of AUD\$1.02 million and an incremental cost-effectiveness ratio of \$4,684 per quality-adjusted life year (QALY) gained⁶.

GAMA Healthcare provides support for all five components of this Cleaning Bundle, further reducing the impact on healthcare facilities as they struggle to find resources to facilitate change.

Contact GAMA Healthcare for more information on safe cleaning and disinfection and how we can support your cleaning team on (03) 9769 6600 or email australia@gamahealthcare.com.

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Addressing Australia's big allergy problem



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Ben and Tamara McKenzie tragically lost their 15-year-old son Max to anaphylaxis a year ago.

Max had anaphylaxis his whole life and managed his condition extremely carefully. Yet despite this and having a father that is an emergency physician and a mother with a background in health, he died suddenly from anaphylaxis in metropolitan Melbourne.

Max's father Ben said, "Max ate some walnuts and he developed sudden asthma as his main symptom. He used his EpiPen and his Ventolin, and he entered health care with 100% oxygen levels. Despite this, he deteriorated and did not receive the care from health professionals that he should have. His brain did not get enough oxygen and he died suddenly in intensive care 13 days later. Our pain is unimaginable, and it has not lessened. Sadly, we are not the only family who have had their child die in Melbourne in this way last year.

"There are so many facets to reducing allergy-related disease. All levels of government and all parts of our community need to play a part. Allergens are everywhere in everyday life and this means that the solutions will not be simple. We need to make sure that our emergency medical systems have world-class standards for when accidents inevitably occur. We need an allergy system that brings together all of these elements in a coordinated strategy that is robust and well-funded. It is important to recognise that different groups in the system need different information and different tools to play their role in managing allergy effectively," Ben said.

Combined action to improve outcomes

With a hope to improve outcomes and address Australia's big allergy problem, Ged Kearney MP, Assistant Minister for Health and Aged Care, alongside allergy experts, is launching two health organisations — The National Allergy Council (NAC) and National Allergy Centre of Excellence (NACE).

Backed by \$26.9 million in federal government funding, the initiatives will likely help accelerate allergy research and clinical care to improve the lives of five million Australians living with allergic disease and prevent anaphylaxis, including needless deaths.

"Serious allergies impact the lives of individuals and families in a massive way. That's why this \$26.9 million funding boost is so important. It's so critical to bring together all of our nation's peak allergy organisations, clinicians, researchers, policymakers and crucially, patients and carers," said Assistant Minister Kearney.

Maria Said AM, NAC Director and Co-chair, Allergy & Anaphylaxis Australia CEO, said, "Allergic disease impacts significantly on a person's health and wellbeing and can be life threatening. Allergy is among the fastest growing chronic conditions in Australia, affecting approximately 1 in 5 Australians.¹ I can't emphasise enough how the government's significant investment will transform the lives of these Australians through improved allergy research, clinical care, education, prevention and support."

Rates and deaths

Dr Preeti Joshi, NAC Director and Co-chair, Australasian Society of Clinical Immunology and Allergy (ASCIA) representative and paediatric clinical immunology and allergy specialist, said, "We know from our work and the House of Representatives' Walking the allergy tightrope report, that it is critical we reduce the alarming trend of anaphylaxis rates and tragic deaths due to allergic disease."

"Establishing these organisations will ensure the findings from quality research will be implemented effectively to improve and save lives," said Joshi.

Associate Professor Kirsten Perrett Director, NACE and Group Leader, Murdoch Children's Research Institute, added, "Sadly, our country is considered the allergy capital of the world. As Australia's leading allergy research body, we want to change that by expanding our evidence base for the prevention and management of drug, food, respiratory and insect allergic disease. To do this, the NACE will oversee a Clinical Trials Network, a National Allergy Repository, an Evidence and Translation Centre and training the

next generation of allergy experts. I believe this national plan of action will have a life-changing impact."

The NAC and NACE will together deliver the following:

- A shared care program to significantly cut wait times to see a specialist by at least 50% and improve access to quality allergy care for all Australians, especially in rural and remote areas.
- The digital infrastructure for a National Allergy Repository to facilitate precision medicine, allowing individualised allergy health care for children and adults. This would include a live anaphylaxis reporting system.
- A National Allergy Clinical Trials Network to provide Australians with accelerated access to safe and effective allergy treatments.

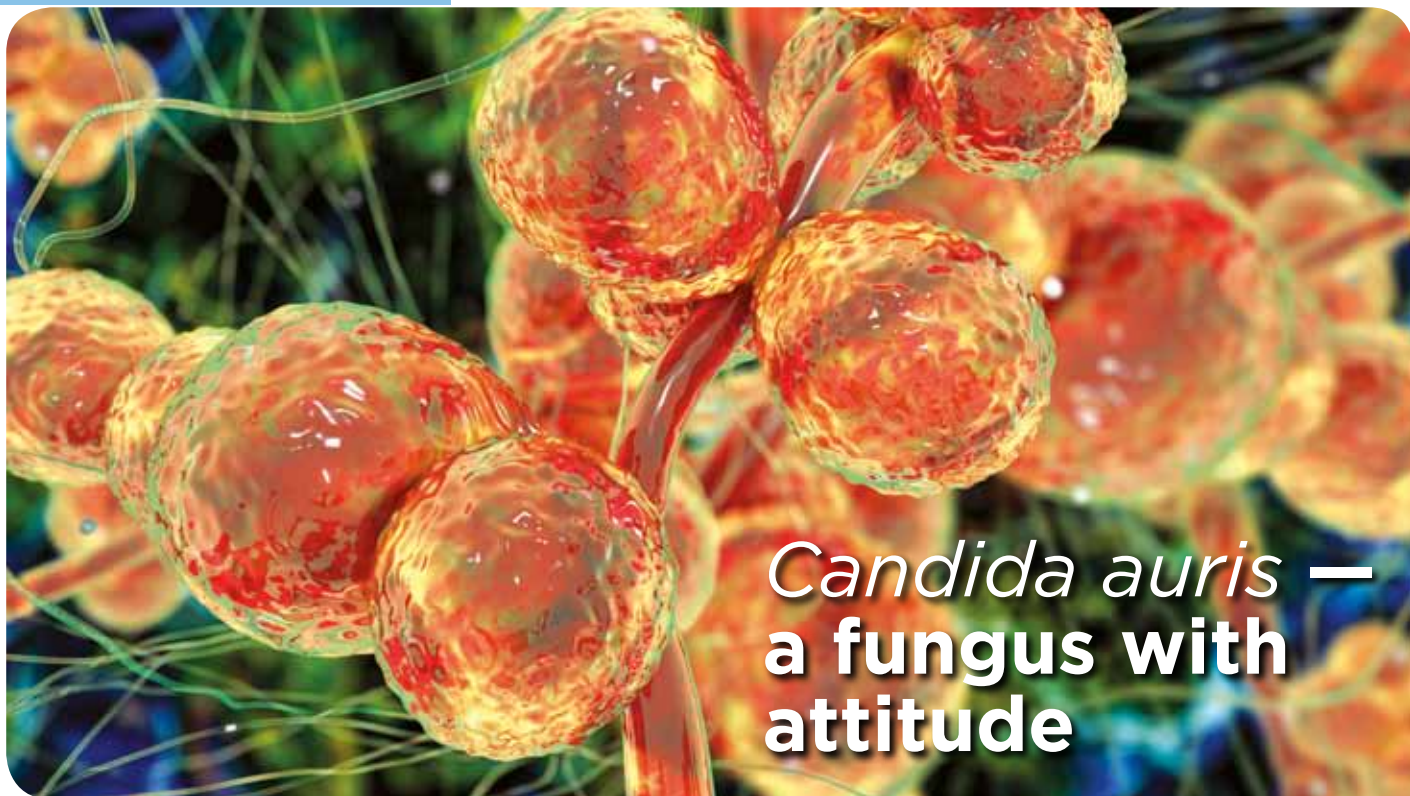
- Continued public health guidelines and prevention programs such as the successful food allergy prevention program 'Nip allergies in the Bub', which includes practical resources for parents and educational support for healthcare providers.
- New clinical and research capabilities to enable Australia to maintain its world-leading status in allergy research and to answer the most important questions in allergy that will guide the way forward to help decrease the burden on individuals, families, the healthcare system and the community at large.

The NAC is a natural progression of the National Allergy Strategy and will continue to be a partnership between the Australasian Society of Clinical Immunology and Allergy (ASCIA) and Allergy & Anaphylaxis Australia. The Centre for Food & Allergy Research has expanded to become the NACE, which will generate and synthesise the evidence base that underpins the activities of the NAC to ensure Australia remains at the forefront of evidence-based management of allergic disease.

Professor Michaela Lucas, President of the Australasian Society of Clinical Immunology and Allergy (ASCIA), said, "It is important the government has listened to the recommendations of the Parliamentary Inquiry. This funding will improve the health outcomes for patients with allergic disease and enable Australia's allergy organisations to provide world-leading allergy management and research."

"We know from our work and the House of Representatives' Walking the allergy tightrope report, that it is critical we reduce the alarming trend of anaphylaxis rates and tragic deaths due to allergic disease."





Candida auris — a fungus with attitude

The COVID-19 pandemic has driven a significant shift in both awareness and practical application of improved infection prevention and control practices. The pandemic has driven advances in disease prevention from hand hygiene, environmental cleaning and disinfection, to improved infection control awareness.

However, there are still many other pathogens that need to be eliminated to best protect patients, staff and the general public. Maintaining a singular pathogen focus on COVID-19 potentially exposes us to greater risk of and things other pathogens, which will lead to increased adverse health outcomes and morbidity. Primarily this is due to the different products, methods and disinfectant efficacy that need to be factored when dealing with the complex multi-pathogen risks.

Candida auris (*C.auris*) is a fungus from the same group of germs that cause thrush (*Candida albicans*) or serious blood stream infections in immune-compromised patients (*C.glabrata*, *C.parapsilosis*, *C.krusei* and *C.tropicalis*). Unlike most of the other candida species which live in the gastrointestinal tract, this fungus is also commonly found living on the skin. It is more resistant than other fungi to common treatments and over 90% of *C.auris* cases to date have been resistant to Fluconazole, the standard treatment for Candida infections.

Multi-resistant *C.auris* has only emerged relatively recently; it was first identified in Japan and South Korea. *C.auris* is of particular interest to clinicians due to the following characteristics of the fungus:

- Pathogen — it causes disease
- Risk to all patients
- Misclassification in laboratory diagnostic tests
- Few treatment options
- Easily spread
- Resistant to environmental disinfection

Healthcare facility outbreaks

As with other resistant pathogens, *C.auris* has been implicated in hospital outbreaks around the world. A large outbreak lasting over 12 months between 2015 and 2016 in a London resulted in 50 cases. Contact with an environment contaminated with *C.auris* was found to be a significant source of infection with the fungus.

Infection prevention and control

C.auris cases should be taken very seriously in all healthcare facilities and strict measures put in place to prevent spread to other patients as follows:

1. Notify IPC and infectious diseases experts
2. Isolate patient with contact and isolation precautions
3. For symptomatic disease, consult with infectious disease specialist and begin treatment
 - a. (treatment of asymptomatic colonization is not recommended)
4. Contact tracing and screening to determine local transmission risks
5. Increase environmental disinfection

Environmental disinfection

Removing *C.auris* from environments is a challenge due to the ease which it spreads and its resistance to common cleaning agents. The environment can remain contaminated for weeks. Subsequently many guidelines for the management of these infections advise daily and terminal or discharge cleaning with a strong environmental disinfectant such as a sporicidal disinfectant.

As with all environmental disinfection options, success will be easier if the area is regularly cleaned so that surface biofilm is not allowed to build up. Importantly as with other pathogens ensuring suitable contact time exposure to the disinfectant and sporicidal agent is essential in effective outcomes and pathogen reduction.

Summary

Multi-drug resistant *Candida auris* is an important pathogen which demands attention and action when identified in the healthcare setting. As well as implementing common IPC measures, disinfection of a potentially contaminated environment must be a priority. Always follow requisite guidelines for managing this pathogen and ensure contact times are enforced, noting that for any disinfectant or sporicidal agent the contact times against different pathogens may vary.

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Leading through the expanding horizons of IPC



ACIPC International Conference
13–16 November 2022

International Convention Centre Sydney and Online

Infection prevention and control (IPC) is a critical element in health — both acute and community, and aged care — settings. However, the last two years of the COVID-19 pandemic have highlighted the importance of IPC to those in the broader community. While the pandemic has dominated on so many fronts, it has also provided an opportunity to showcase the IPC leadership and innovation that exists within Australia.

The 2022 ACIPC Conference, to be held in Sydney, will focus on: Leading through the expanding horizons of IPC. The conference will provide an opportunity to reflect on the lessons learnt during the pandemic, the adaptations that have been made, the innovations that have occurred in IPC, along with other developments in industry and research. It will also showcase and celebrate the leadership shown during the pandemic.

The conference will focus on capturing new approaches and thinking, as well as the cornerstones of IPC: healthcare epidemiology; antimicrobial resistance and stewardship; IPC in long-term care and non-clinical settings; education, training and staff development; community engagement and patient care.

Over 45 expert speakers from across Australia and overseas are confirmed for the conference, including:

- Benedetta Allegranzi, Technical Lead, Infection Prevention and Control Hub and Task Force, World Health Organisation
- Margaret Leong, Infection Prevention and Control Advisor, Pacific Community

Pre-Conference Workshop — Infection Prevention and Control in Residential Aged Care Facilities

Sunday, 13 November

**International Convention Centre
Sydney and Online**

Effective 1 December 2020, each residential aged care facility is required by the Aged Care Quality and Safety Commission to appoint a minimum of one infection prevention and control (IPC) Lead. This is to ensure that providers are better prepared to prevent and respond to infectious diseases, including COVID-19 and influenza. The IPC Lead's role within the facility is to observe, assess and report on infection prevention and control, and to assist with developing procedures and providing best practice advice. The intention is to make sure each service has up-to-date infection prevention and control and outbreak management processes and procedures in place which are reflective of best practice.

The overarching aim of the workshop will be to work with participants to establish a greater understanding of the IPC Lead role and responsibilities at both national and organisation levels. The benefits, challenges and learnings will be discussed in order to inform the mandatory

framework, identify support initiatives and promote success.

The workshop is targeted at those nurses who are new or experienced in the IPC Lead role, those responsible for clinical governance within their organisation, educators, aged care providers, quality assessors and those who may be seeking to introduce the IPC Lead program into the home care service setting.

Invited guest speakers from the public and private residential aged care sector and infection prevention and control will share their insight of IPC lead programs with respect to the different contextual needs of the setting, and facilitate and participate in group discussion.

More information and registration

Visit the website for the full program and registration details: www.acipconference.com.au.

If you have any questions regarding the conference, contact the Conference Managers, Conference Design, mail@conferencedesign.com.au, +61 (0) 3 6231 2999.

- Jo Henderson, Clinical Nurse Consultant, VirtualKIDS, The Sydney Children's Hospital Network
- Forbes McGain, Anaesthetist and Intensive Care Physician, Western Health, Melbourne

Joan Carlini, Founding Chair, Gold Coast Hospital and Health Service Consumer Advisory Group

Visit the website www.acipconference.com.au for more speakers and presentation topics.



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- Infection Prevention and Control for IPC leads in Residential and Aged Care Facilities
- Infection Prevention and Control in Office Based Practice
- International Outbreak Response with the Global Outbreak Alert and Response Network (GOARN) and World Health Organisation (WHO)

Main Program:

- The IPAC National Summit - a journey of information across Australia and New Zealand jurisdictional IPAC/HAI programs
- Going green in IPC, featuring Dr. Forbes McGain
- Lessons Learned from COVID-19, featuring international experts, Martin Kiernan and Margaret Leong

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In Conversation

with Cyriac Roeding

Mansi Gandhi

In Conversation provides a glimpse into the life of an 'outlier' — an exceptional person going above and beyond to improve outcomes in their field.



Cyriac Roeding, a Silicon Valley-based entrepreneur and investor, sold his first computer program at the age of 15 in Germany.

Thirty-four years later, he has built three companies and is an investor in more than 20 startups and venture funds. Cyriac is the co-founder and CEO of Earli, a biotech company on a mission to detect and cure cancer early.

After selling Shopkick, a location-based mobile app that rewards customers just for walking into stores without having to buy anything, to South Korean conglomerate SK Telecom for \$250 million in 2014, Cyriac wanted to take two years off work. Six months in, he became unhappy because he "felt useless". That's when he decided he's never going to retire again and began the quest for his next adventure.

"My mind would have sent me to e-commerce or mobile commerce again, but my heart directed me to science. I'm not a scientist or a biologist but I love science and I just observed myself — what

I was reading; what I was interested in... When I didn't have anything to do, I'd read about the latest science breakthroughs," Cyriac said.

From brain-to-machine interfaces to consumer robots to "engineering meets biology and software", Cyriac looked at around 200 ideas before finalising his next big business venture. He found the intersection of engineering and biology particularly intriguing. The next 20–30 years will be the age of biology, not in a traditional way but rather the combination of wet lab with dry lab of engineering and biology, according to Cyriac. "Since I happened to live five miles from Stanford campus, I started stumbling around the campus and wanted to meet all those interesting people. I did meet a lot of interesting people, but the problem was that every single one told me that they were working on the world's most important idea," Cyriac said.

With limited industry-specific knowledge, Cyriac couldn't differentiate between a good idea, a very good idea and an outstanding idea. "There is an ocean of good ideas but there are very few outstanding ideas," he said.

On Thanksgiving Day in 2016, Cyriac's wife showed him an article on precision medicine in *Stanford Medicine* magazine. It was about an American physician-scientist Sam Gambhir (23 Nov 1962–18 Jul 2020), whose only child died of cancer, and about his work to find cancer early. Cyriac felt a gripping sense of grief and was immensely inspired by Sam's work. He contacted Sam and told him that "I'm not a biologist, not a scientist but I'm a serial entrepreneur looking to build my next thing and that I would like to meet him." Two months later, they met for breakfast on a Saturday morning.

"My first question to him (Sam) was — should someone with my background, or lack thereof, bother the world of biology with my presence," Cyriac said. Sam encouraged Cyriac to take the plunge. The field of biology, suggested Sam, had a lot of experts but it needed more generalists — people who understood how to set up a company and run a business. Sam shared the idea about synthetic biomarkers, forcing the cancer to produce a non-human substance to help reveal, then localise and ultimately destroy

Cyriac Roeding, CEO and Co-founder, Earli and Dr Andrew Scott, Head, Tumour Targeting Program; Head, Tumour Targeting Laboratory, Director, Department of Molecular Imaging and Therapy, Austin Health, at Olivia Newton-John Cancer Centre.



Image supplied



Earli Co-founder and CSO David Suhy, with one of the company's scientists, Vy Ngyuen.

Image supplied

istock.com/Anastasia Usenko

itself. Cyriac was fascinated and they soon started on a shared journey to make cancer a benign experience. In the early days, Cyriac would often find himself sitting at Sam's kitchen table trying to understand the nuts and bolts of synthetic biology.

Sam and Cyriac went through hundreds of people to find the right third co-founder and chief scientific officer. That became David Suhy, a gene therapy and bio startup expert with experience taking a gene therapy product all the way from inception to Phase 2 clinical trials. Earli was born in June 2018 and moved into its first lab space in South San Francisco a month later. David has been leading the science ever since. Unfortunately, Sam passed away in 2020 from a tumour of unknown origin but Cyriac and team continue to stay determined to carry on Sam's vision and mission.

In 2018, the founders had set an ambitious goal to begin human trials within three years. At the time, the investors weren't convinced and had chuckled. "This kind of pace is typically unheard of in the biotech industry, but just three years and two weeks after Earli

was founded — the first patient was dosed with Earli's Synthetic Biopsy compound," Cyriac said.

The company's human trials for cancer detection are being conducted in Australia at the Chris O'Brien Lifehouse (Sydney), the Olivia Newton-John Cancer Centre (Melbourne), at PASO (Frankston) and ICON Cancer Centre (Adelaide).

Earli needs 12–20 patients for trial but recruitment is particularly challenging because it is a diagnostic trial that offers no direct medical benefit to the patient, which means participation is based on altruism. COVID-19 and lockdowns only exacerbated these recruitment challenges. Earli is still searching for trial participants and additional cancer clinics, and those interested can find out more information here: <https://www.earli.com/trial>

We all know the road to commercialisation is fraught with hurdles and pitfalls, so what makes Earli different from other ambitious cancer detection biotech companies?

"The difference is we are not searching for cancer, we are forcing the cancer to make itself visible. And by doing so we might have a better shot at actually finding it early, because if you are searching for something that is shed by the cancer, like a liquid biopsy, then you are depending on what nature may not always provide to you. Instead, what if you could actually control the system and engineer your way forward, so that cancer is required to produce something it doesn't want to produce and thereby makes itself visible. It is a fundamentally different question, whether you are trying to search for cancer or whether you are forcing the cancer to reveal itself," Cyriac said.

Unlike other companies, we use biology for this, not chemistry, which allows for massive signal amplification, said Cyriac, adding that the same technique also "allows us to ultimately destroy the cancer".

While it's still early days for the technology, Earli is hoping to be ready for the market by 2026.

Out & About

Health-tech innovation

Leah Heiss, a health-tech innovator and Associate Professor, Monash University, has been awarded the 2022 Australian Women in Design Award at this year's Good Design Awards for her work across wearable health technologies and healthcare co-design.

Heiss is currently working on redesigning the experience of health care in Australia as a part of the Future Hospital Future Health Initiative. She is working with the World Health Organization to improve the uptake and implementation of WHO guidelines, particularly in developing nations. Her wearable health technologies include a jewel-like hearing aid, jewellery to administer insulin, jewellery to monitor cardiac events, swallowable devices to detect disease and emergency jewellery for times of medical crisis.

The award recognises women at the top of their field and seeks to encourage a more diverse and equal representation in design and creative industries, where women account for less than 17 of executive leadership roles.

Heiss said she was honoured to receive the award that seeks to address the gender imbalance within leadership roles in the design industry.

"I am passionate about bringing my design skills to the biggest challenges we face as citizens, particularly around equity and access to good health care," she said.

"Design can provide power and agency to people, a voice and a choice in how products and systems are created, what they look and feel like and how they function."

Over her career Associate Professor Heiss's design work has received six Australian Good Design Awards, including the 2018 Good Design Award of the Year. Her work is held in the heritage collections of Museums Victoria and the Museum of Arts and Sciences (Powerhouse), Sydney.

In her role as the Monash University Eva and Marc Besen International Research Chair in Design, Associate Professor Heiss strengthens the design capability in interdisciplinary projects across the university, both nationally and internationally.

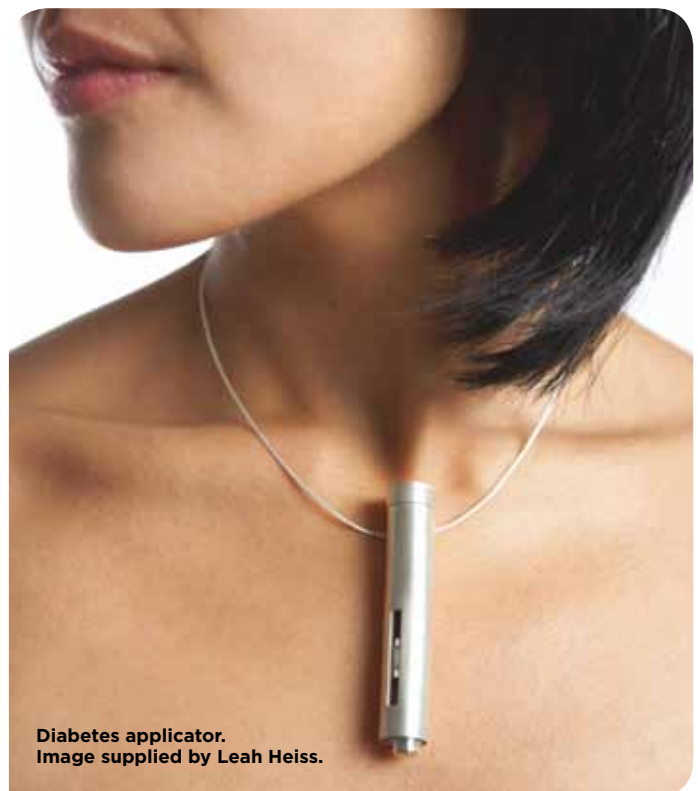
Professor Shane Murray, Dean of Monash Art, Design and Architecture, said the award is a wonderful recognition of Associate Professor Heiss's leadership in shaping the world's design future.

"Leah's work is a testament to our faculty's vision to respond to the major challenges facing the world today, leading major projects that unite industry and technology through design research," he said.

"Her experience and work in developing innovative health design solutions across devices, services and experiences will continue to further our impact through design."



Leah Heiss, health-tech innovator and Associate Professor, Monash University.
Image supplied by Leah Heiss.



Diabetes applicator.
Image supplied by Leah Heiss.



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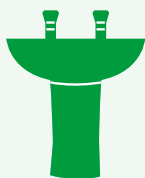
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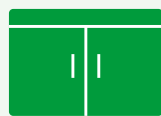
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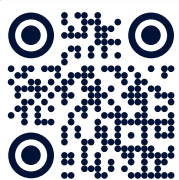
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