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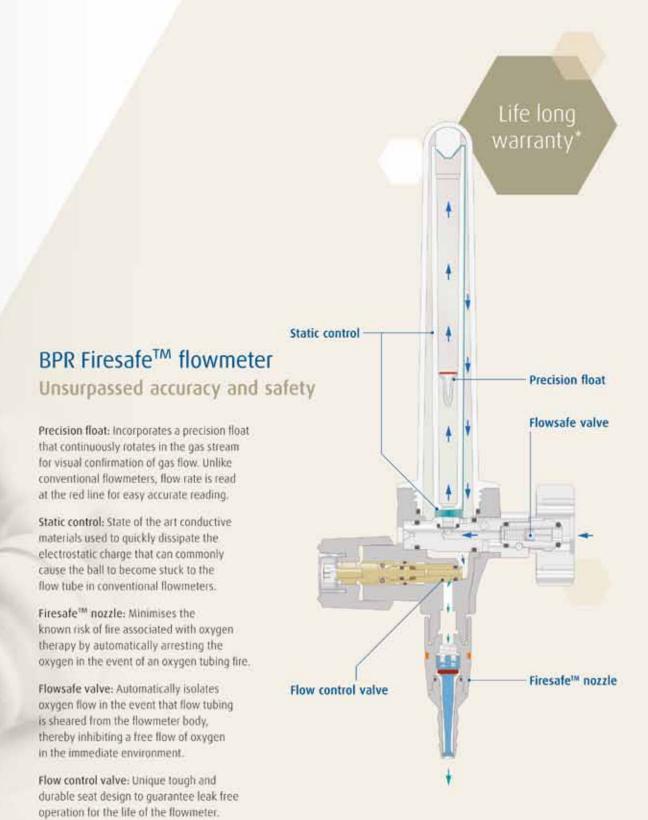


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CONTENTS

THE SAFETY ISSUE





SAFETY



Managing violence in healthcare settings



Old whooping cough vaccine could protect against food allergies



Vaping: risky business or sensible quit strategy?

INFECTION CONTROL



COVID-19 and breaking the chain of infection: the importance of the basics of infection prevention and control

CLINICAL SERVICES



Reducing the burden of sepsis

DESIGN IN HEALTH



New \$345m hospital in the heart of Adelaide



Active design of stroke unit aids patient recovery

SUSTAINABILITY



Sustainability in focus at SMHS

TECHNOLOGY



Unlocking data's potential in health care



Intergalactic telemedicine

MENTAL HEALTH



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CONTENTS

H#SPITAL HEALTHCARE

REGULARS



Editor's Welcome
Jane Allman



14, 46Contributing Editor
Amy Sarcevic



The Rounds
Breaking news and
latest medical research



34 Pharmacy *Kristin Michaels CEO, SHP*



16 Infection Control Professor Ramon Z Shaban

DAILY NEWS

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hospitalhealth.com.au/ magazine

STRAIGHT TO YOUR PHONE





SCAN to see the latest Hospital and Healthcare news

56

Tackling toxic workplace culture in hospitals

LEADERSHIP



In pursuit of nurse-led research

FOOD SAFETY



Food in a crisis

AGED CARE



Disaster strategies for the aged-care sector

A DAY IN THE LIFE



Meet Captain Starlight

IN CONVERSATION



Professor Kathryn North

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Safety in the face of unprecedented events

rought. Fire. Flood. Pandemic. In recent months Australia has faced a stream of events that have challenged communities, leaders, the health system, as well as other facets of our lives — and it looks as though rough times are still ahead.

Personal safety and community health concerns have been escalating as the COVID-19 outbreak has evolved from a distant regionally isolated health crisis to a health emergency affecting the whole world.

Situations such as these test our systems, leaders and infrastructure - no more so than our health and hospital facilities. While many industries devise plans for potential quarantine measures, our healthcare workers prepare for the frontline of the pandemic.

With challenging times ahead, we hope that healthcare staff will receive the resources and support they need to care for affected members of the population as well as themselves.

This autumn's safety issue is packed full of features with safety at the core including infection control in the face of coronavirus, trauma and mental health, management of violence and aggression in healthcare settings, public health concerns over vaping and strategies to improve outcomes in sepsis. We also cover safety strategies in the face of disasters, with a focus on food safety and the aged-care sector.

I hope you enjoy the issue's engaging features.



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The Rounds Updates in health care



NSW sepsis pathway outperforms international model

Sepsis Kills — the adult sepsis pathway (ASP) developed by the Clinical Excellence Commission and used in NSW hospitals — was shown to be more effective than the internationally recommended Quick Sequential (Sepsis-related) Organ Failure Assessment (qSOFA), as shown in a Macquarie University study.

With findings published in the *Internal Medicine Journal*, the NSW model is more likely to trigger a warning of patient deterioration from sepsis than the internationally recommended model.

CEC Director Systems Improvement Dr Harvey Lander welcomed the findings, which call on all Australian hospitals to follow the NSW lead and use the Sepsis Kills ASP.

"We welcome findings which demonstrate the pathways being used in NSW, including the new electronic sepsis alert, are highly effective in supporting the early detection of sepsis and therefore improved patient outcomes," Dr Lander said.

"We know sepsis is a global health priority and is the leading cause of death in hospital patients worldwide.

"Rapid detection of sepsis and starting antibiotic treatment within one hour is critical to improved patient outcomes so we welcome findings which show the NSW Sepsis Kills program is leading international standards in this early detection of symptoms."

The study found that while early detection is the best defence against sepsis, in two-thirds of cases, qSOFA would not have triggered a warning of sepsis before the patient's death.

Lead author Associate Professor Ling Li said the Sepsis Kills ASP would have triggered a warning for more than 90% of cases who died in hospital and the warning would have been triggered eight days before death in half of the cases.

"qSOFA has been put forward as an effective tool for early detection of sepsis; however, our research shows this is not the case and we are calling on all Australian hospitals to use ASP to ensure the best care for patients," Associate Professor Li said.

Despite advances in care, sepsis remains a huge burden. ASP and qSOFA were devised to prompt clinicians to assess the possibility of sepsis at a patient's bedside by considering certain criteria. The Macquarie University research shows that ASP is more effective in detecting the early warning signs of potential sepsis, improving the patient's chance of survival.

Meet PAT, an online tool to support senior independence

Victorian not-for-profit aged-care provider Benetas has launched an online resource for older Australians to assess their physical resilience and take steps to stay independent for longer. The self-screening tool means that older Australians will be in a better position to detect and address early signs of frailty before a serious health decline occurs.

The Positive Ageing Tool — also known as PAT — was developed on the back of government-funded research that Benetas undertook in 2018 in conjunction with Monash University.

Benetas General Manager of Quality, Outcomes and Research Dr Catherine Joyce said this is a much-needed tool — one in two Australians aged over 60 years who live in their own home are at risk of a relatively minor health issue triggering serious decline.

"Once that happens, for many there's no going back," Dr Joyce said.

"If someone has low physical resilience, a small incident like a fall or virus could be the tipping point that means they'll no longer be able to live independently in the community.

"We all know someone who has been managing fine, and then an incident which might be minor for other people tips them over into being in need of high care and residential support. This is about getting in early and helping to avoid exactly that," she said.

With five simple questions, PAT offers older Australians an evidence-based, user-designed health assessment to monitor physical resilience, coupling this with expert resources to support those in continuing to lead a life they

Benetas CEO Sandra Hills OAM said that health promotion and early intervention is exactly where aged care needs to be headed.

"The traditional aged-care services from residential care, home care, clinical and allied health services are all incredibly important, but if we're going to meet an ageing population, we really need to be at the forefront of early intervention

"This is about ensuring that people and their families have the information they need well in advance of their health declining. Whether you're 65 and going for runs or 75 and facing prescription changes, we need people to be monitoring their health, taking proactive steps and not wait until it's too late."



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The Rounds

Updates in health care

Spike in mental health distress calls

Lifeline has received a "sustained spike" in distress calls since the onset of the Australian bushfire crisis in August 2019 and has just launched a purpose-built helpline to support those affected.

The charity said that on "tough days", calls have increased by as many as 250 per day (15%). It is the first time the 57-year-old service has seen a call volume increase of this scale.

John Brogden, Chairman of Lifeline Australia, said that those directly impacted by the bushfires are likely to experience a range of symptoms — including anxiety, confusion, insomnia, panic, loneliness and withdrawal. In extreme cases, they may experience suicidal ideation or the desire to self-harm. These are the hallmark symptoms of post-traumatic stress disorder (PTSD), which affects 12%

Lifeline's purpose-built helpline will serve to not only ensure that an increased number of volunteers are on hand to respond quickly to instances of distress, but also to ensure that specialist advice is given.

"Trauma can be quite complex in nature, and is less well understood than more common disorders like anxiety and depression. Our motivation for the helpline was to ensure that we are supporting victims in the best way we can. This means offering tailored advice and providing the right kind of referrals to meet people's complex needs," Brogden said.





Study suggests chest CT to diagnose COVID-19

A Chinese study has found that chest CT outperformed lab testing in the diagnosis of COVID-19. Publishing their findings in Radiology, the researchers from Tongji Hospital in Wuhan, China, concluded that CT should be used as the primary screening tool for COVID-19.

Without specific treatments or vaccines for COVID-19, it is essential to detect the disease at an early stage and immediately isolate infected patients from the healthy population.

According to the latest guidelines published by the Chinese government, a diagnosis of COVID-19 must be confirmed by reverse-transcription polymerase chain reaction (RT-PCR)

The low sensitivity of RT-PCR implies that a large number of COVID-19 patients won't be identified quickly and may not receive appropriate treatment

"Early diagnosis of COVID-19 is crucial for disease treatment and control." Compared to RT-PCR, chest CT imaging may be a more reliable, practical and rapid method to diagnose and assess COVID-19, especially in the epidemic area," the authors said.

Recent research found that the sensitivity of CT for COVID-19 infection was 98% compared with 71% for RT-PCR.

To assess the performance of chest CT in diagnosing COVID-19 in the current study, 1014 patients underwent both chest CT and RT-PCR tests.

The results showed that 59% of patients had positive RT-PCR results and 88% had positive chest CT scans. The sensitivity of chest CT in suggesting COVID-19 was 97%, based on positive RT-PCR results.

In patients with negative RT-PCR results, 75% had positive chest CT findings. Of these, 48% were considered as highly likely cases, with 33% as probable cases. By analysis of serial RT-PCR assays and CT scans, the interval between the initial negative to positive RT-PCR results was 4-8 days.

Ahpra urges consumers to be safe before cosmetic surgery

The Australian Health Practitioner Regulation Agency (Ahpra) has launched the education campaign 'be safe first' to advise consumers of the risks associated with cosmetic procedures.

The be safe first campaign includes resources to help consumers ask the right questions before going ahead with a cosmetic procedure.

Ahpra CEO Martin Fletcher said the campaign encourages consumers to think seriously about who is undertaking the procedure, where it is performed and the product being used before going through with any cosmetic procedure.

"All cosmetic procedures have risks, and we are advising anyone thinking of having a cosmetic procedure to 'be safe first' and make an informed decision," he said

"Many concerns are raised with us after someone has had a bad outcome from a cosmetic procedure. We want everyone to know what to look out for and which questions to ask before going ahead," Fletcher said.

For the last three and a half years, Ahpra has helped protect consumers by working with several agencies to respond to concerns about cosmetic procedures — this has included prosecuting eight individuals and companies for offences under the National Law relating to cosmetic procedures.

In the be safe first campaign. Ahora is advising consumers to check first if the person carrying out the procedure is registered and appropriately qualified on the national online register of practitioners.







Managing violence in healthcare settings

Amy Sarcevic

t's Saturday night in an orthopaedic trauma ward in Sydney and nurse Melissa (name changed for privacy) has just had to elevate a code black* for the second time this month

A 35-year-old male patient, believed to be under the influence of methamphetamine (ice) is issuing violent threats to others on his four-bedded ward. Patients, staff and visitors are terrified for their safety.

Melissa has been looking after the man for nearly three hours — tending his wounds, inserting a cannula and assisting him with bathroom visits — amid outbursts of rage and expletive-ridden insults, of which she is predominantly the target. She is also terrified, but is legally bound by a duty-of-care mandate and is unsure about her right to refuse treatment

Normalising the abnormal

Violence against healthcare professionals is on the rise and is believed to be linked to the increasing popularity of violence-inducing drugs and the growth in patients presenting with acute mental health problems.

According to the American College of Emergency Physicians (ACEP), 75% of workplace assaults happen in healthcare settings. A staggering 47% of physicians have been physically assaulted at work and 50% said that other patients have also been harmed.

Like many other healthcare professionals, Melissa considers these altercations a normal part of her job.

"It goes hand in hand with the profession. I sort of come to work and semi-expect to be abused. It's the nature of the trade," she said.

Regardless of her attitude, she told *Hospital + Healthcare* that she feels powerless to effect change.

"I've had minimal training on conflict resolution or de-escalation," she said. "I've been a nurse for four years now and am exposed to these sorts of situations frequently. Yet, I don't feel

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like I've been given the right tools to deal with violent [or] drug- or alcohol-affected patients."

Competing priorities

Australia has already seen some coronial cases and civil litigation as a result of managing hospital violence and some experts are concerned that fear of legal action may interfere with safety outcomes.

"A lot of staff are unsure about whether they may be held legally accountable if a patient is harmed in a high-risk situation. For example, if a patient suffers an injury while being forcibly restrained," said Senior Emergency Physician and Academic, Professor Anne Maree Kelly.

"I sort of come to work and semiexpect to be abused. It's the nature of the trade," Melissa said.

"They often steam ahead with medical procedures, even though they may be putting themselves in danger.

"We seem to have forgotten that staff have a right to a safe workplace under workplace safety legislation," she said.

Kelly, who spoke recently at Informa's Medico Legal Congress, said there are further safety concerns when it comes to balancing legal and ethical considerations in the context of the Mental Health Act and its involuntary provisions.

Speaking about the Victorian Mental Health Act she told *Hospital + Healthcare*, "Although the Act recognises risk, I think it has possibly underestimated the nature of risk staff and patients are often exposed to.

"On an emergency ward, patients are often brought in by police under the provisions of the Act, yelling death threats and physically lashing out at staff. These patients tend to be non-consenting, but some may be deemed unfit to make that determination.

"Here, staff will need to make quick decisions in a rapidly evolving and legally precarious environment. They will need to balance the risks of sedation, which carries a small (albeit important) risk of harm including death; restraint; as well as the need to exercise involuntary provisions."

Reduced patient outcomes

Aside from the direct threat to staff and patient safety, a secondary consequence of managing

violent, drug-affected or non-consenting patients is reduced health outcomes.

A staggering 80% of emergency physicians believe that other patients have been affected as a result of managing workplace violence.

"It consumes so much of our time and resources," Melissa said. "We are stretched as it is and, sometimes, we need all hands on deck when it comes to restraining people or deescalating risky situations. Sadly, this is often at the expense of tending to other patients."

As well as the immediate effects on patient outcomes, Melissa also reported a sense of "compassion fatigue" as a result of her ongoing exposure to these scenarios.

"Hospitals are high-stress environments and people lash out for all sorts of reasons. When you absorb that on a daily basis, it does sometimes make you lose sight of why you entered the profession. In my case, that was to help people," she said.

"Of course, I always strive to do my job well, but when you are persecuted it can take away your 'mojo'. And sometimes that mojo is what you need to give the best possible care."

Melissa's parting message to healthcare professionals is to stop normalising abuse and make sure your workplace takes safety seriously.

*In NSW the term 'code black' is used in a duress response to identify when a person is facing a personal threat or physical attack. It differs from the meaning of 'code black' in other jurisdictions.

15

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The importance of the basics of infection prevention and control

Professor Ramon Z Shaban*, Dr Cristina Sotomayor-Castillo**, Kaitlyn H Radford^, Jeremy Malik^, Samantha Bell^^

Clobal news and social media platforms are flooded with information about the outbreak of the 2019 coronavirus disease known as COVID-19 caused by the novel agent severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Since first being reported to the World Health Organization (WHO) on 31 December 2019, 1.2 COVID-19 has rapidly spread from China to every continent in the world except Antarctica. WHO declared the situation a global health emergency of international

concern on 30 January 2020, then a global pandemic on 11 March 2020. In the space of three months the virus spread to more than 170 countries, with more than 330,000 cases and 14,000 deaths. It is widely reported to be an unprecedented global pandemic like nothing we have seen in more than a century, with fears of it eclipsing the 2009 swine flu pandemic and overtures of the severity of the great 1918 Spanish Flu.

At the time of writing it is still very early on in the timeline of the outbreak — literally



Understanding how the infection is spread is fundamental to our efforts to prevent and contain its spread, especially when there is no definitive treatment available.

are countless other questions that health professionals, scientists and the whole world are asking, and an enormous global thirst for information.

Despite these unknowns, there is much that we do know about this infection and disease — health professionals and scientists have learned a great deal in the space of weeks and months since this all started in late December 2019.

We know that this infection is caused by a virus, in particular a coronavirus. Coronaviruses are not new. They are a family of viruses, with which humans have considerable experience. The common cold is a coronavirus — as it is the Severe acute respiratory syndrome coronavirus 1 (SARS-CoV-1) — responsible for an outbreak occurring in 2003 — and also the Middle East respiratory syndrome coronavirus (MERS-CoV), which saw another outbreak first reported in 2012.

SARS-CoV-1 and MERS-CoV — both contagious, sometimes fatal respiratory illnesses — have generally similar clinical characteristics to COVID-19.

Clinically, COVID-19 presents like many other respiratory illnesses, with classic

symptoms including fever, sore throat, cough and difficulty breathing.³ We understand the incubation period of COVID-19 to be between one and 14 days, with a mean incubation period varying between five and seven days.

Although SARS-CoV-1 and MERS-CoV have generally similar clinical characteristics to COVID-19, the death rate is somewhat different. SARS-CoV-1 had a case fatality rate of 11%; MERS-CoV approximately 35%. SARS-CoV 1 was contained in 2004 and extinguished shortly thereafter; MERS-CoV cases have continued in small numbers since 2012, with 2494 cases and 858 deaths across 27 countries.

We know there is no definitive treatment for the infection or disease, with no antibiotic or specific antiviral agent available. Moreover, there is no vaccine, and little prospect, if any, of one being available in the short to medium term.

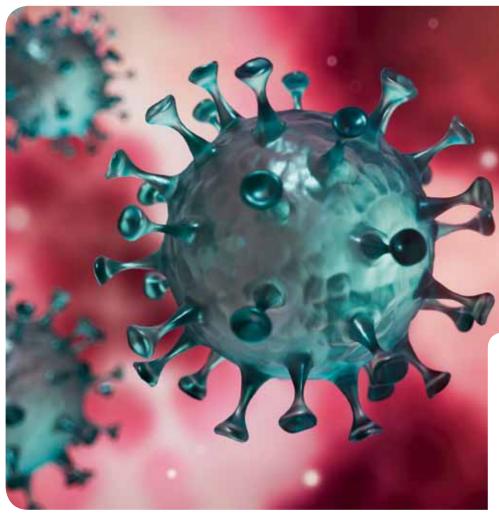
We also, rather critically, understand that the mode of transmission of the infection is via contact and droplet transmission. In basic terms this is very important, because it goes directly to our efforts to interrupt transmission and break the chain of infection. Understanding how the infection is spread is fundamental to our efforts to prevent and contain its spread, especially when there is no definitive treatment available

In terms of infection prevention and control strategies, WHO recommends employing basic hygiene principles that are known to reduce the risk of transmission of acute respiratory infections4 via standard and transmissionbased precautions. Standard precautions include hand hygiene (consistent with the 5 Moments for Hand Hygiene); use of personal protective equipment (PPE); safe use and disposal of sharps; routine environment cleaning; reprocessing of re-usable medical equipment and instruments; respiratory hygiene and cough etiquette; aseptic technique; waste management and appropriate handling of

Contact precautions include use of appropriate PPE, including gloves, aprons or gowns, eyewear, face shields and face masks. For droplet precautions, a surgical mask is indicated. Droplet precautions include the use of surgical masks for healthcare workers and coughing patients as well as maintaining proximity of more than one metre when possible.

Airborne precautions include the use of P2 or N95 respirators for healthcare workers, use of surgical masks for coughing patients and the use of negative pressure

less than three months — and there are many things we don't know about this virus and disease. As a novel or 'new' virus, there have been, are, and will be very many questions about it. One key question that is common to all outbreak investigations is what the source of the infection was and how did it find its way into human populations? We understand it to be a zoonosis — an infection that animals are the host of, and which humans are accidental or incidental hosts. There



rooms, where possible.⁵ Other elements include dedicated equipment; allocation of single rooms or cohorting of patients; enhanced cleaning and disinfecting of the patient environment; and restricted transfer of patients within and between facilities.

Routine sanitisation of hands and hightouch surfaces are considered successful and cost-effective measures for limiting the spread of disease. Recommendations against the COVID-19 outbreak indicate that frequent handwashing should be exercised, especially after direct contact with ill people or their environment. Individuals with symptoms of acute respiratory infection should practise cough etiquette by maintaining distance and covering coughs and sneezes with disposable tissues or coughing or sneezing into their elbow. Where possible, close contact with people suffering from acute respiratory infections should be avoided.6

The novel and dynamic nature of this outbreak means that things happen and change quickly. It is vital that every individual, from healthcare workers to community members, refer to official, reliable, trusted sources of advice. Importantly, the systematic and sustained application of standard and transmission-based precautions, which we know are effective, is what will afford us the greatest opportunity to see our way through this outbreak safely and effectively.

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Blood pressure cuffs come into frequent contact with the skin of patients and are rarely disinfected. A number of studies have evaluated whether and to what extent blood pressure cuffs become contaminated with pathogens that may cause HAI.

Due to the risk of blood pressure/ sphygmomanometer cuff contamination, many now use disposable blood pressure cuffs. A recent study from Australia¹ tested whether disinfection of blood pressure cuffs using disinfectant wipes was an effective (and cost saving) option. A sample of 54 nondisposable sphygmomanometer cuffs were collected from a rural emergency department and tested for bacterial contamination before and after decontamination using Clinell Universal Wipes. Levels of contamination were significantly lower following decontamination with the wipes; 29% of the cuffs had no growth before decontamination compared with 98% after decontamination. The authors concluded that using wipes to decontaminate non-disposable cuffs would be clinically effective, environmentally friendly, and costsaving compared with using disposable cuffs.

A Japanese study sampled pressure cuffs in wards and outpatient clinics at an acute-care hospital in Japan. The cuffs were sampled on

the inside (skin-contact side) using gauzes. Of the 30 cuffs sampled, remarkably, 11 (31.4%) were contaminated with MRSA. The team also evaluated two different methods of disinfection: an outsourced washing process and wiping with 80% ethanol. No cuffs were found to be contaminated following either disinfection process. Only a small number of cuffs were included in the disinfection study, and they weren't sampled before and after treatment, but these findings reinforce that blood pressure cuff disinfection is an option.

A study from the north of England³ sampled 24 cuffs from an acute care hospital, finding potential pathogens on 14 (58%) of the cuffs. Clostridium difficile was cultured from 8 (33%) of the cuffs, and MRSA from 2 (8%) cuffs. The findings of these pathogens on such a high proportion of the cuffs argues for disinfection between patients or the use of disposable cuffs.

Taken together, these studies show that blood pressure and sphygmomanometer cuffs can become contaminated with pathogens that can cause HAI during routine patient care. Whilst using disposable cuffs is an option, disinfection using disinfectant wipes is clinically effective, environmentally friendly, and cost-saving compared with using disposable cuffs.

GAMA Healthcare have developed a 'Clean Between' campaign that promotes the cleaning of shared patient equipment between each use. This practice, although recommended by most state and national guidelines, is often missed. Education on the importance of the cleaning of shared patient equipment between each use and the impact on patient safety is essential to reduce healthcare associated infections.

To download your free digital 'Clean Between' pack, please visit bit.ly/clean-between.



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Reducing the burden of sepsis

Dr Brett Abbenbroek* and Associate Professor Luregn Schlapbach**

epsis is a time-critical medical emergency that arises when the body's response to an infection damages its own tissues and organs. It can lead to shock, failure of multiple organs and death if not recognised early and treated promptly. While sepsis can affect anyone, the most vulnerable patient groups are young children, patients with chronic health conditions and the elderly.

The recent Global Burden of Disease Study found that sepsis kills an estimated 11 million patients every year. In Australia, the study found that previous estimates were exceeded by three times as many sepsis cases and almost twice as many deaths. The current estimate gives a more accurate picture of the size of the problem by including sepsis occurring outside of the hospital, putting the number of Australian cases at 55,000 and deaths at 8700 annually. The true impact of sepsis on the population extends well beyond deaths and direct healthcare costs: patients with sepsis often suffer from prolonged, sometimes life-long sequelae affecting quality of life and productivity, and related impact on their families.

In May 2017, the World Health Organization recognised sepsis as a global health priority, adopting a resolution to improve the prevention, diagnosis and management of sepsis around the world. The World Health Assembly (WHA) resolution calls on all United

The true impact of sepsis on the population extends well beyond deaths and direct healthcare costs.

Nations member states to take specific actions to reduce the burden of sepsis, including implementing national action plans.

The Australian Sepsis Network (ASN), hosted by The George Institute for Global Health, is a collaboration of individuals and organisations working to reduce the burden of sepsis in Australia across all age groups. The mission of the ASN is to facilitate a coordinated national approach to tackling sepsis in Australia.

In response to the WHA resolution, the ASN convened a National Sepsis Summit in 2017 that produced the Stopping Sepsis National Action Plan, with four overarching goals:

• Establish a nationally coordinated sepsis advocacy body.

- Invest in prevention and awareness campaigns.
- Establish and implement a national sepsis clinical care standard.
- Invest in support services for sepsis survivors and their families.

At present, healthcare services widely accept benchmarks defining best practice in diseases such as major trauma, myocardial infarction or stroke. In contrast, there is wide variability of care in meeting international best practice to improve the recognition and timely treatment of sepsis. As an inherently time-critical disease, effective recognition and intervention has a huge potential to save lives and result in improved cost-effectiveness of healthcare delivery.

Core components of so-called 'sepsis bundles' include taking blood cultures and lactate, providing intravenous antibiotics and administering a fluid bolus. Increasing the reliability of delivering sepsis bundles requires work along distinct processes. These include:

- i) public awareness and education to facilitate the recognition "could this be sepsis?";
- ii) systematic screening programs in healthcare facilities;
- iii) implementation of sepsis treatment bundles in hospitals;
- iv) benchmarking for best practice at state, national and international levels; and
- v) developing support systems for affected patients and families beyond discharge.

Subject matter experts are engaged by the ASN to provide advice on clinical practice, policy, research, education and consumer lived experiences to achieve targeted and effective interventions that aim to reduce the burden of sepsis. Improved coordination across clinicians, healthcare and academic institutions, public health and policymakers will be key to improve outcomes for children and adults with sepsis in Australia. The National Action Plan from ASN has set the strategy for this endeavour.

*Dr Brett Abbenbroek (RN, BSc, MPH, PhD) is the Australian Sepsis Network Program Manager within the Critical Care Division at The George Institute for Global Health, Sydney.

**Associate Professor Luregn Schlapbach is Co-Chair of the Paediatric Statewide Sepsis Clinical Advisory Group in Queensland, and Chair of the ANZICS Paediatric Study Group. He works in the Paediatric Intensive Care Unit at Queensland Children's Hospital.

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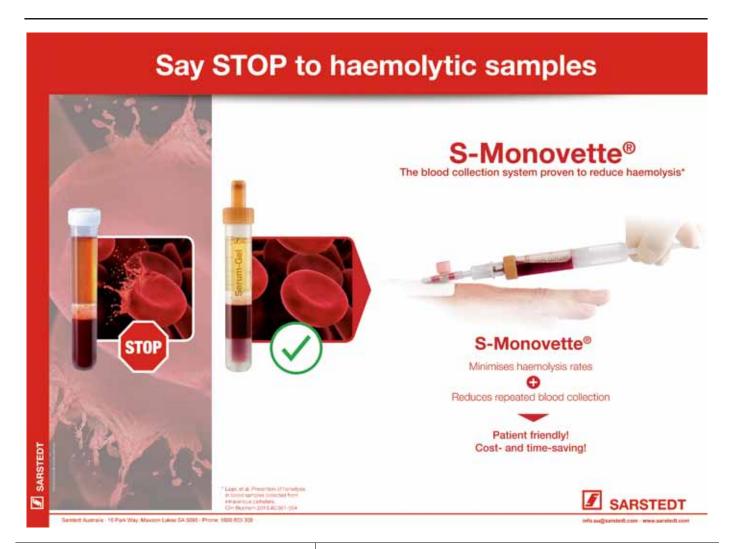
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review of child food allergy cases from the late 1990s has revealed that children who received one or more doses of an older whole-cell whooping cough vaccine were 23% less likely to be diagnosed with a food allergy than those who had the updated acellular version.

Examining 500 cases of children diagnosed with a food allergy by a specialist allergist during the time that Australia transitioned from the whole cell to the acellular vaccine, the multi-institutional Australian research suggests that the whole-cell vaccine could have the added benefit of boosting protection against life-threatening allergies to foods such as eggs, milk, soy, peanuts, tree nuts, wheat, fish and shellfish. The findings are published in *The Journal of Allergy and Clinical Immunology: In Practice*.

"This retrospective case-control study suggests that the change from using whole-cell pertussis- to acellular pertussis-containing vaccines in the late 1990s may have contributed to the marked increase in food allergy in Australia," said Professor Katie Flanagan, Head of Infectious Diseases at Launceston General Hospital and Clinical Professor at the University of

"Such non-targeted effects of vaccines have been well described in the literature in recent years and occur because vaccines can modify the immune profile and thereby alter susceptibility to allergy

and infections that are not targeted by the vaccine.

"This offers the exciting potential to harness these vaccine properties in future vaccination strategies to provide broader effects than simply protecting against the vaccine-targeted disease," she said.

Paediatrician and vaccine researcher Professor Tom Snelling from Wesfarmers Centre of Vaccines and Infectious Diseases, based at Telethon Kids Institute, spoke to the Australian Science Media Centre, explaining that while the whole-cell vaccine was effective in providing long-lasting immunity, it resulted in more reactions such as fever compared with the acellular vaccine, accounting for why Australia and many other countries switched over to the acellular version.

Professor Snelling explained that the wholecell vaccine stimulated a different immune response (Th1) compared with the acellular version, which stimulates a Th2 response.

"A healthy immune system requires a balance of Th1 and Th2. A newborn has a tendency for a Th2-dominated immunity to prevent an immune response from mounting against the mother," he said.

"Normal immune system maturation involves exposure to harmless microbes in the environment, which stimulate the immune system to achieve balance. If that doesn't happen, a person can be left with a Th2-skewed immune system.

"We know that Th2-skewed immune systems predispose children to the development of allergies and other atopic diseases such as food allergies.

"Because children live in environments where they are less frequently exposed to harmless microbes, the normal maturation process occurs less often. We hypothesise that this predisposes to high rates of food allergies and other allergic diseases," Professor Snelling said.

"We further hypothesise that the whole-cell vaccine can do the same role as harmless microbial pathogens in helping to stimulate a balanced Th1/Th2 immune system and therefore to help protect against the development of food allergies."

Professor Snelling said that one of the take-home messages from the study is that vaccines can have beneficial effects beyond protection against specific target infections.

To further test the study hypotheses, Professor Snelling and colleagues are conducting the OPTIMUM trial to investigate the protective effect of the whole-cell vaccine. The trial will randomly assign 3000 babies to the standard schedule of vaccines or a schedule in which the first whooping cough vaccine is given as a whole-cell vaccine to see if there's a significant difference in the incidence of food allergies between the two groups.

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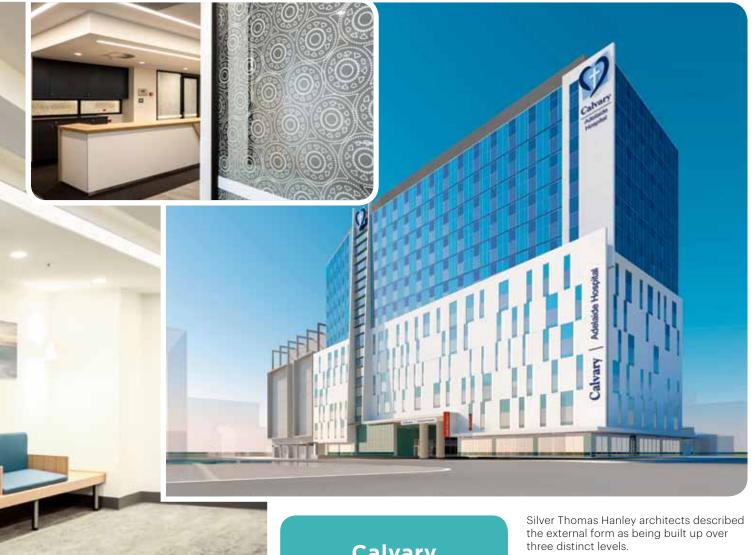


Calvary Adelaide Hospital is said to be the largest private hospital in South Australia, marking Calvary Health Care South Australia's biggest undertaking in Australia. ocated in the heart of Adelaide's CBD, Calvary Adelaide Hospital has been designed to deliver high-quality, compassionate health care under the established national Calvary network, which has been caring for South Australians since 1900.

The \$345 million hospital — which encompasses the former Calvary Wakefield Hospital and Calvary Rehabilitation Hospital — specialises in acute medical and surgical services including general and

bariatric surgery; neuro and spinal surgery; vascular, cardiology and cardiothoracic surgery; orthopaedic and sports medicine; general medicine; and acute rehabilitative

To design the contemporary hospital facility, Calvary Health Care South Australia engaged renowned architecture firm and health specialist Silver Thomas Hanley, employing property developer Commercial & General to oversee the multimillion-dollar project. Building Contractor John Holland



Calvary
Adelaide has
been built with
the capacity to
adapt to and
embrace the
latest advances
in technology.

Group completed the building in late 2019 ahead of the hospital's opening in early January 2020.

Design considerations

Calvary Adelaide Hospital has been built with patient comfort, experience and functionality at the forefront of its design. With the health sector continually evolving in a fast-paced environment, Calvary Adelaide has been built with the capacity to adapt to and embrace the

latest advances in technology. Through innovative design, state-of-the-art equipment and practical amenities, the new hospital is future proofed to ensure longevity at its CBD location.

Calvary Adelaide Hospital cuts a distinctive profile across the Adelaide skyline. The 12-storey, two-tone hospital is said to be unlike any other hospital facility in the state. An immediate design element is the distinctive blue facade — a reference to the national Calvary branding and colourways.

"At the street level, transparent, glazed walls allow for interface with the public. This allows the cafe, lobby and tenancies to be inviting and engage passers-by. Directly above the street level is the podium, characterised by solid facade, articulated in white precast concrete panels, with windows allowing select views from the spaces within. These levels house the technical spaces of the hospital, operating theatres, procedure rooms, admissions and recovery spaces.

"The facade articulation allows for controlled views, while maximising privacy and security."

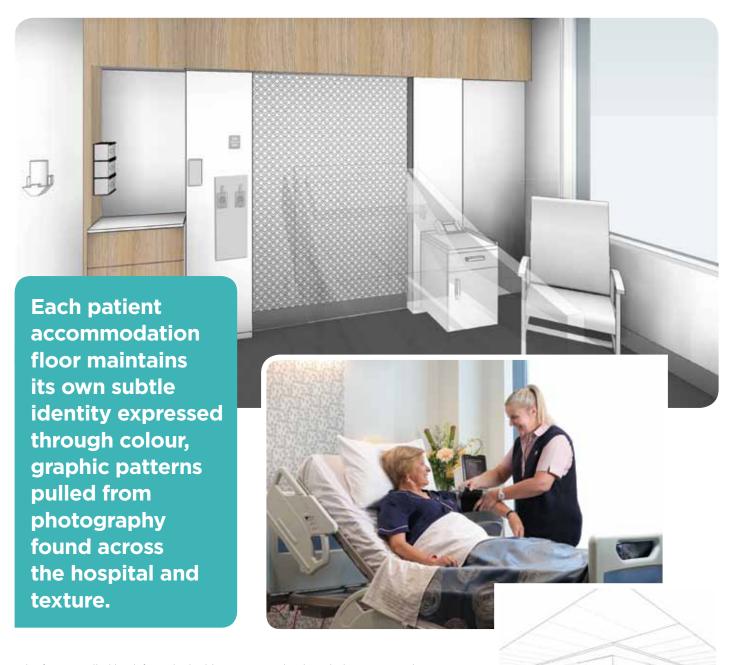
Hospital or hotel?

Progressing to levels six through to 11, the hospital houses single-occupancy patient rooms, with each room showcasing expansive views and modern ensuite bathrooms. The internal design is a direct reflection of the brief to deliver personalised patient experiences that are more aligned to a hotel stay than a clinical hospital environment.

"The inpatient unit tower completes the building. The variegated blue glass captures the colour of Calvary's corporate branding, while reflecting the blue of the surrounding sky," Silver Thomas Hanley said

27

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"The form is pulled back from the building boundary, allowing all patient bedrooms access to expansive views across the Adelaide skyline and bringing in valuable natural light.

"Three terraces are located around the north-eastern side of the building, providing breakout space for staff at level five, with a rehabilitation garden and space for both inpatients and outpatients on levels six and seven."

Hard-wearing, textural limestone is featured in highly trafficked areas including the ground floor main entry while the deep-pile carpeted zones identify personal, quiet areas. These areas, including the level one chapel entrance and foyer, are furnished with lounge seating to provide a club-style amenity and comfort for visitors and Calvary staff.

Design continuity with individual accents

Continuity of design is carried throughout the hospital with timber finishes pairing

seamlessly with the varying colourways found on each ward, including iconic wall-size photography by Ben Goode.

Each patient accommodation floor maintains its own subtle identity expressed through colour, graphic patterns pulled from photography found across the hospital and texture. Localised identity assists patient orientation, allowing for a relaxed and comfortable stay.

Contrasting, muted tones adorn the walls of patient bedrooms, with graphics backing the large bedhead to create a focal point in the room. Warm timber panelling is seen throughout the patient bedrooms to enhance the patient experience and elevate the hotel-style aesthetic in line with communal areas in the hospital.

Facilities

Calvary Adelaide provides 344 beds, an additional 66 day beds and 23 interventional suites comprising 16 stateof-the-art operating theatres (including five dedicated day surgery theatres), Adelaide's first hybrid theatre, two angiography laboratories and four procedural rooms. The new facility also accommodates onsite radiology and pathology services, a retail pharmacy and a coffee shop, as well as consulting tenancies with over 70 specialist doctors now conducting their practice from the location.

The hospital is also said to provide the only 24/7 private emergency department in South Australia — allowing patients to be seen faster and to receive high-quality, critical care day and night.



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Active design of stroke unit aids patient recovery

Royal Melbourne Hospital's new stroke unit offers a new time-critical, high-intervention rehabilitation treatment. Designers used biophilic principles and a central 'racetrack' to get stroke patients active within 24 hours. The impact on recovery, cost and staff satisfaction has been profound.

troke is one of Australia's major causes of death and disability, but an exciting new treatment called endovascular clot retrieval (ECR) is having a major impact on patient outcomes. The time-critical, technically challenging, high-intervention rehabilitation treatment starts within 24 hours of clot removal.

The latest research shows the greatest benefits of ECR are achieved when blood flow is restored early, so getting short-term, highneeds patients up and active early is crucial.

ClarkeHopkinsClarke architects has quite literally designed Royal Melbourne Hospital's new Stroke and Neurology Unit around this high-impact new approach. Project Architect Nicholas Simmonds said the bespoke facility uses biophilic design features including abundant natural light, soft curved forms, timber joinery and rug-like floor features, serene blue and warm grey seating upholstery and feature walls, and cosy nooks where staff, patients and visitors can

interact and clinicians can observe incidental rehab activities or write up clinical notes. The effect is a calming, informal interior with elements of home, which naturally supports brain stimulation, physical activity and social connectivity.

"The environment needs to strike just the right balance in terms of stimulation," Simmonds said.

"If a stroke patient is overstimulated, that can send them into stroke again.

The Racetrack

Patient rooms are located around the outside of the unit to capture natural light — a natural brain stimulant that aids recovery. Previously decentralised rehabilitation services and new clinical and caregiver support facilities are accommodated in a central hub. Rooms and rehab are linked by a wide circular walkway dubbed 'The Racetrack'. This light-filled, sociable space is lined with upholstered timber joinery seating.



nages credit: Rhiannon Slatter.

Staff, patients and visitors have embraced The Racetrack for all kinds of interactions and incidental rehabilitation: short walks, frequent rests, family visits, impromptu meetings — even companionable sessions where patients sit together working on brain-stimulating puzzles.

ClarkeHopkinsClarke Heath Partner Justin Littlefield said The Racetrack gives staff clear sightlines and subtle wall and floor markers to help unobtrusively monitor patients' progress.

"Initially a patient might get up from a room opposite and just walk across the corridor," he said. "Later they might take shortcuts through the middle — there's another seat on the opposite side of this central zone, so there's another 20 steps or so that gets them to the next spot. Eventually they might go for a whole loop of one of these ends, which all vary in distance. We actually had a lot of fun designing for these changing needs."

ECR requires high patient-staff ratios akin to intensive care. The new unit decentralises clinical staff, locating a small staff workbench outside a pair of patient rooms to enable constant oversight and frequent interaction. Operable glazed walls and windows in high-dependency unit bedrooms can be switched from clear to opaque when privacy is required.

The design improves links to other departments, introduces teaching, training and research facilities that support patient care and staff development, and includes a higher proportion of single-bed patient rooms.

Patient satisfaction and recovery speed

Professor Mark Parsons, RMH Director of Neurology and head of the new Stroke Unit, said the design is having a "massive" impact on patient recovery and satisfaction.

"The old ward was really 19th-century design and now we've moved well into the 21st century.

"There's lots of evidence that if you deprive stroke patients of a nice environment they actually recover more slowly. What we call an enriched environment, with lots of stimulation and activity, stimulates the brain to form new connections.

"We're seeing patient satisfaction surveys of over 90% each month, and more stroke patients being discharged directly home who would previously have had to go on to rehabilitation.

"For the same length of stay, patients have a much better level of function than they did previously. They're able to go home and look after themselves, rather than need further rehabilitation to get them to an independent level," Professor Parsons said.

Happier patients and better recovery are producing huge savings for the hospital and the broader community, according to Professor Parsons.

"If you save one stroke patient from going to a nursing home, you're saving the community around \$200,000 in the first year and \$100.000 thereafter.

"You would only need to prevent 10 patients a year from going to a nursing home to cover the cost of the ward. I think that's a wonderful investment."

Satisfied staff

Staff satisfaction has also increased with the new design. More appealing, less clinical-looking spaces to walk, meet and rest are motivating patients to stay active throughout their stay. Centralised rehabilitation services mean that valuable recovery time is no longer lost as staff shuttle patients to other departments.

Ward Clerk Mavi Whitton conceded that staff do more walking on the new ward but said they recognise the health benefits of that and appreciate the clear sightlines, natural light and touches of home like lovely timber joinery.

"For staff, this ward is much quieter and we feel a lot more connected," she said.

"We seem to be able to see each other and communicate better. Patients love the rooms. They love the light. And they love the clean spaces we've got. It's beautiful."





In pursuit of nurse-led research

Sandy Middleton is a trailblazer



Sandy Middleton — Fellow of the Australian College of Nursing (ACN), Professor of Nursing at the Australian Catholic University and Director of the Nursing Research Institute — is a passionate advocate of nurse-led research to improve the quality of patient care.

er work on the Quality in Acute Stroke Care (QASC) program highlights the importance of nurse-initiated protocols in achieving better outcomes for stroke patients. As a result of Professor Middleton and her team's findings, new stroke management protocols have been adopted across Australia and are currently being implemented in 12 European countries. In 2019, Professor Middleton was one of four finalists selected for the ACN's inaugural Health Minister's Award for Nursing Trailblazers, an award acknowledging and celebrating the extraordinary contribution nurses make to the Australian healthcare system.

Professor Middleton was recently awarded fellowship to the Australian Academy of Health and Medical Sciences (AAHMS) for her achievements and exceptional contributions to health and medical science in Australia.

Formal training is vital

Continually exploring the 'why' in nursing care, Professor Middleton believes in questioning current nursing practices to improve care processes and patient outcomes. "Why do we do what we do and are there better ways of caring for our patients that result in improved outcomes for them?" she asks. Earlier in her career, this question led Professor Middleton to undertake formal research training to understand how best to rigorously investigate these important questions.

Advocating the crucial role that nurses play in the healthcare system, Professor Middleton wants other nurses interested in research to realise their ambitions via training. "The most important piece of advice I can give to those who are serious about understanding and doing research is the need to undertake formal research training," she said.

"Research opportunities could include becoming a site investigator in a current research project to learn how trials are organised and how to contribute data. It's also a good idea for nurses to link in with current clinical researchers at their hospitals, and to attend seminars and conferences to see how research is presented and how latest research could influence day-to-day practices."

Professor Middleton also recommends undertaking a small quality-improvement study, advising nurses to enlist the help of a mentor in the first instance.

Passionate pursuit of knowledge

Professor Middleton is passionate about nurses pursuing research initiatives, but highlights that there are still barriers to be overcome. To make nurse-led research more accessible and valued, Professor Middleton wants to see significant funding in place for formal research training opportunities for nurses such as Master and PhD scholarships, the establishment of a career pathway in clinical research, and boosts in the number of experienced nursing research trialists able to generate rigorous evidence needed to guide nursing practice. Ward-level appreciation of the value of research and strategies for how best to integrate the expertise of nurses with PhDs into clinical practice would also go a long way to improving opportunities for nurse researchers.

What advice would Professor Middleton give to women thinking of moving into a leadership role? "Get a good mentor or mentors — they are invaluable."

Looking to the future

As for the future of the nursing profession, Professor Middleton hopes to witness improvements in research training infrastructure, with an emphasis placed on its importance. An increase in clinical research roles — particularly those concentrating on multisite research as opposed to smaller quality improvement studies — would also be welcome. Finally, Professor Middleton hopes for better collaboration within nursing to answer some of the big questions surrounding clinical care gaps.





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Batteries play an important role in the overall safety, performance, and reliability of many medical devices. Medical devices are increasingly technology focused and the number of battery-powered devices will continue to grow.

While there are many advantages to using batteries in medical device applications, such as backup power or portability, having reliable devices is paramount and having long-lasting batteries is essential.

"Replacing batteries is a significant cost centre for businesses in the medical industry, as they need to be replaced often to ensure the reliability of the devices. In addition to the cost of purchasing batteries, hospitals and medical centres are paying a much higher cost for the labour to replace them," Jane Lo, Duracell Asia B2B Senior Director said.

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While other battery brands serve both retail and professional customers, Procell only focuses on the professional market to guarantee products and services specifically designed for device-specific usage.

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Medicines safety and quality Pharmacists step up and in

Kristin Michaels, CEO, SHPA

Facilitating the safe and effective use of medicines is the core business of pharmacists, especially in hospitals.

he use of medicines is the most common healthcare intervention, with more than nine million of us taking a prescribed medicine every day.

While many medicines are nominally lowrisk, or considered low-risk by those who take them, 1.2 million Australians have experienced an adverse medication event in the last six months and medicationrelated problems lead to 250,000 hospital admissions every year.

Health Minister Greg Hunt's October 2019 announcement that medicines safety and the quality use of medicines would be Australia's next national health priority area was an important step in ensuring this slow-burning crisis stands front and centre in the health policy landscape.

The next step is harder: how do we connect the dots on medicines safety to keep more people well, safe and out of hospital?

How do we ensure medicines are being taken in the right way for the right reasons, and make a positive difference to people's lives, right across the country?

Bridging the gap

At a time of unprecedented focus on medicines safety, hospital pharmacists are positioned to draw on their expertise and practice skills to bridge many of the gaps that contribute to avoidable medicinerelated harm and hospitalisation.

Across our hospitals, Australian pharmacists already lead the safe and quality use of medicines through core services. These include taking medication history and reconciliation upon admission, regular medication review during episodes of care, discharge medication counselling and supply and clinical handover to primary healthcare providers.

Once further empowered and supported, however, Australia's pharmacy workforce can fill our pressing medicines safety gaps by stepping up, and stepping in.

Stepping up includes implementation of the Partnered Pharmacist Medication Charting (PPMC) model and implementation of pharmacist-led medication safety programs.

Stepping in involves the application of interim medication charts at key transition points and ensuring patients have access to clinical pharmacists in health services, seven days a week.

The PPMC model has demonstrated significant improvements in safe and quality care, reducing the proportion of inpatients who experience at least one medication error by almost two-thirds compared with traditional medication charting while also reducing the length of inpatient stay by more than 10%.

The Pharmacy Board of Australia's position statement on pharmacist prescribing released last October noted there are no regulatory barriers in place for pharmacists to prescribe "via a structured prescribing arrangement or under supervision within a collaborative healthcare environment", paving the way for rollout of this key medication safety intervention, which also delivers efficiencies for our medical colleagues.

With Australia's hospital pharmacy workforce well established in the acute setting, highly trained and valued by clinical colleagues, a number of other pharmacist-led medication safety programs can translate into the same improvements in medication safety. These sound simple, but are extremely powerful, and include developing systems and processes to reduce risk of medication errors, performing hospital-wide medication safety audits and providing education for doctors, nurses and pharmacists on safe use of medicines, safe prescribing principles and safe handling of medicines.

When it comes to stepping in, hospital pharmacist expertise is urgently needed to support crucial transitions of care as Australians move from hospital to the home, or to aged care, or vice versa. During these transitions, the probability of medication errors increases sharply, as administration delays and errors are common, particularly in the first 24 to 72 hours after hospital discharge.

Hospital pharmacists
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hospitalisation.

Interim medication charts offer a solution, especially for older people discharged to residential aged-care facilities or home care. When prepared by a hospital pharmacist, interim medication charts have been shown to effectively ensure continuity of care and eliminate the need for a GP or locum doctor to perform this essential task on the day of discharge.

A fourth gap that can be addressed by Australia's hospital pharmacy workforce is the potentially harmful lack of clinical pharmacy services available on weekends. Stepping in to support seven-day-a-week hospital pharmacist care — including through use of telehealth — has already

begun in some states and territories, a move that is based on stark logic.

Australian Institute of Health and Welfare statistics highlight that there are more emergency department presentations on weekends compared with weekdays and that 69% of presentations occur between 8 am and 8 pm.

In our hospitals, patients are admitted and discharged seven days a week and, just as medical and nursing units are available, patients admitted to hospital after hours or on weekends should be afforded the same level of pharmacy care as those that present during business hours.

The additional presence of hospital pharmacists to provide care to inpatients and outpatients will prevent medication errors, reduce adverse drug reactions and support clinicians with prescribing advice, all of which are crucial to improving outcomes and ensuring smooth discharge into community care.

By stepping up and stepping in, the roles of hospital pharmacists can be easily augmented, and their potential harnessed, to help prevent medication-related harm and support the safe and quality use of medicines for people receiving care across our health services.

The use of medicines will only increase; now is the time to get it right.





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

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

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

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

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

guidelines stipulate that drinking water should not contain any more than that.

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



E-cigarettes containing nicotine are illegal in Australia. Some health experts believe they shouldn't be, arguing that e-cigarettes are an effective smoking-cessation tool. Others say that vaping is harmful and warn of an uptake in vaping by young Australians. So what is Australia's best path to achieve the best public health outcome: legalise vaping or not?

Jane Allman

Risky business or sensible quit strategy?

Icotine-containing e-cigarettes are legal in the UK, the EU the US and, more recently, New Zealand. Many regulators and health experts in Australia acknowledge that e-cigarettes could play a legitimate and valuable role in reducing the negative consequences of smoking, providing smokers with an effective tool to quit.

Other tools such as patches and gum — known as nicotine-replacement therapies (NRTs) — have been shown to be less effective quitting tools compared with e-cigarettes in a study published in *The New England Journal of Medicine*. Many smokers miss the sensory element of smoking cigarettes. Some miss the social element of smoking with others.

In March 2018, The Standing Committee on Health, Aged Care and Sport published a report following a year-long inquiry into e-cigarettes, recommending that the Australian ban on e-cigarettes remain in place. Although nicotine-containing e-cigarettes cannot be legally purchased in Australia, nicotine can be imported via the Therapeutic Goods Administration's (TGA) Personal Importation Scheme with a prescription from a GP. Products that promote therapeutic outcomes must obtain TGA approval before they can be sold.

Despite being illegal, nicotine e-cigarettes are available in Australia via online overseas retailers and the black market. While these are unregulated, potentially compromising consumer safety, many vaping communities have identified sources for vaping products that have been cleared by overseas governments.

One of the main arguments of health professionals in support of vaping to quit is that if vaping products were legal in Australia, they could be appropriately regulated to ensure consumer safety.

The risk is in the delivery

While nicotine is addictive and a key barrier to quitting smoking, it is widely accepted that the main health threat to smokers comes from the delivery system. The combustive process of smoking cigarettes and the resulting toxins and carcinogens that are inhaled — including benzene, carbon monoxide, ammonia, arsenic and lead — are serious threats to health,

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leading to life-threatening conditions such as cardiovascular disease, stroke and lung cancer

With vaping, there's no combustion, no smoke, no tar. There are chemicals present in e-cigarettes — they are by no means harmless devices — but the main argument is that if you're addicted to nicotine and can't quit smoking, vaping is a better option.

The safety question

Given that e-cigarettes have emerged relatively recently, many argue that we do not have the long-term data to assess the ongoing health impact of vaping.

Australian Tobacco Harm Reduction Association (ATHRA) Chair Dr Joe Kosterich spoke to *Hospital + Healthcare*, explaining that while we do not have the same volume of data as for smoking, vaping has been around for long enough to see that it is less harmful than smoking.

"What we do know from 15–17 years of experience is that there are far, far fewer chemicals involved with vaping compared with smoking." he said.

"Vapers are not exposing themselves to the carcinogenic compounds that smokers are."

Dr Kosterich highlighted that when it comes to vaping, the question of safety depends on what question is being asked.

"If the question is 'should non-smokers start vaping?' the answer would be no. But if we're talking about smokers who are struggling to quit, then vaping is the better option.

"When we look to countries where vaping has been established for some time, we can look to the UK, where reviews conducted by Public Health England (PHE) have found vaping to be at least 95% less harmful than smoking cigarettes."

PHE's research has driven UK public health policy, with vaping successfully harnessed as a smoking-cessation tool. The UK Office for National Statistics reported a smoking rate of 14.7% in 2018, down from 20.2% in 2011. Other countries that allow vaping have seen similar declines in smoking rates.

Smokers who have switched to vaping typically experience improvements to their health within a short period of time. A 2019 study published in the *Journal of the American College of Cardiology* found that smokers demonstrated a significant improvement in vascular function within one month of switching to e-cigarettes.

What about the US?

In its podcast The Truth About the Vaping Crisis, Freakonomics Radio explored the specific conditions that led to the vaping-



related health crisis in the United States. While the UK adopted a harm reduction strategy — aimed at maximising smoking cessation among adults and minimising uptake by young people — the US went down a different path...

The U.S. Food and Drug Administration (FDA) initially classified e-cigarettes as drug-delivery devices, not tobacco products, meaning they were subjected to tough restrictions that effectively banned the sale of e-cigarettes.

This ruling was contested by e-cigarette companies, leading to the reclassification of e-cigarettes as tobacco products. This lifted the ban on their sale, but prevented them from being promoted as smoking-cessation tools. As companies were unable to market to smokers, marketing that happened to appeal to younger Americans — fun colours and flavourings, for example — led to a boost in vaping uptake by 18- to 24-year-olds, many of whom had never smoked. A lack of regulation meant that hundreds of America's youth became addicted to nicotine.

The UK's regulatory measures sought to protect youth by limiting the amount of nicotine in vaping products to 20 mg/mL. The US did not implement these regulations, with some vaping liquids containing as much as 54 mg of nicotine per mL, contributing to much higher youth vaping rates.

On 2 January 2020, the FDA issued a policy prioritising enforcement against certain unauthorised flavoured e-cigarette products that appeal to children, including fruit and mint flavours. Under this policy, companies that do not cease manufacture, distribution and sale of unauthorised flavoured cartridge-based e-cigarettes (other than tobacco or menthol) within 30 days risk FDA enforcement actions.

ATHRA reported that the outbreak of serious vaping-related lung injuries in the US and Canada is almost certainly due to black-market THC (cannabis) oils sold by unauthorised dealers, not nicotine e-liquid.

The vaping gateway

There are concerns that the availability of e-cigarettes in Australia may serve as a 'gateway' into smoking, particularly for young people. Some argue that e-cigarettes could renormalise smoking and lead to new nicotine addictions and a pathway to tobacco cigarettes.

Restrictions on the sale and marketing of e-cigarettes to younger people can help to alleviate this risk.

Examples from countries such as the UK indicate that smoking rates among younger cohorts continue to fall in places where e-cigarettes are available. Cancer Research UK stated that despite the availability of e-cigarettes in the UK there has been no increase in youth smoking of tobacco.

When looking at Australia's situation, Dr Kosterich stated that regulation is important to ensure people get what they think they're getting.

"Risk cannot be obliterated. Teens are a cohort in our society that will inherently take risks," he said.

"Is it a good thing that teens experiment with vaping? No, but it is less noxious and harmful than smoking. People are far better breathing air, but the reality is that experimentation will happen so we have to focus on finding strategies to minimise harm and this is what we want for public health policy in Australia."

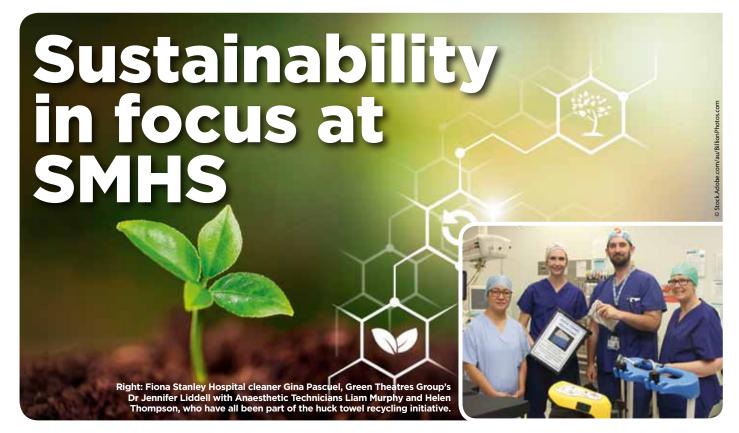


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project to recycle hand towels used in Perth's Fiona Stanley Hospital (FSH) operating theatres is just one of many environmental sustainability initiatives being embraced by the South Metropolitan Health Service (SMHS).

The linen 'huck towels' are used by theatre staff to dry their hands before operating and are discarded after a single use.

Now they are being collected and supplied to disability provider ParaQuad Industries to launder and sell, raising funds and creating employment for people with physical and intellectual disabilities.

"Being the biggest hospital in the state allows us to make a significant impact, stop a large amount of huck towels going to landfill and recycle them for a great cause in the community," said FSH Supplies, Linen and Waste Operations Manager Jay Leonard.

An initiative of the Green Theatres Group and facilities management partners Serco, this project is also helping to meet the SMHS Environmental Sustainability Framework goals.

Green Theatres Group's Dr Jennifer Liddell said the project was an important step towards waste reduction across Fiona Stanley and Fremantle Hospitals.

"The Green Theatres Group was created by the anaesthetics department in early 2015 when the hospital first opened, and aims to introduce and promote systems that reduce the environmental impact of the operating suite activities," Dr Liddell said

"Environmental sustainability initiatives within theatres at FSH have been considered a high priority since the early stages of commissioning.

"Currently we can recycle commingled paper and plastics, metals, hard plastics, PVC and

batteries, and we have trials of new streams planned for 2020. We are continually looking at ways to increase and improve upon these."

The Green Theatres Group has taken a broad approach to sustainability with a 'Reduce, Re-use and Recycle' attitude. In addition to recycling, the group has implemented changes to reduce consumables and move away from singleuse plastics towards more environmentally sustainable materials.

SMHS Chief Executive Paul Forden said there was a real commitment across the organisation to drive opportunities to reduce its carbon footprint and increase environmental sustainability.

"We have a sustainability implementation framework to guide activities which reduce waste, energy consumption, water use and food waste.

"There is also a commitment to ensure we have green and ethical purchasing policies in place for our procurement processes," he said.

The framework is based on the goals of Global Green and Healthy Hospitals (GGHH) — an international network of hospitals, healthcare facilities, health systems and health organisations dedicated to reducing their environmental footprint and promoting public and environmental health.

SMHS became a member of the GGHH Network in May 2019, aligning them with international best practice approaches in environmental sustainability.

"The most encouraging thing about our sustainability focus is the enthusiasm from our staff to be part of the change. They are coming up with the great ideas and providing innovative solutions to implement them," Forden said.

"This has to be a social movement amongst our staff as they are the ones who will have the hands-on responsibility for sorting recyclables and making local changes, such as reducing paper use.

"As management, our responsibility is to make change at a broader level and ensure we are supporting our staff in their efforts by removing barriers to innovation and helping them to find solutions"

Forden said it was also important to use technology to provide digital alternatives for patients to reduce travel and the associated emissions.

"WA already has a well-developed telehealth network through rural and remote centres, and we want to add to that by increasing the number of metropolitan patients accessing digital outpatients — this will be a win-win for patients and the environment."

Learning from other health services and organisations is also important.

"Later this year we will host Dr David Pencheon from the NHS, who is a leader in sustainable health care. I know his input will inspire more fantastic ideas we can explore," Forden said.

"Hospitals are huge consumers of energy and resources and we have a responsibility to our community to ensure we are playing our part in tackling climate change."

SMHS delivers hospital and communitybased public health care to a population of almost 650,000 people across the southern half of Perth, and includes Fiona Stanley, Fremantle and Rockingham General and Murray District Hospitals.



Saliva test shows high drug use among aggressive Emergency Department patients

A world first study conducted at the Royal Melbourne hospital using the same saliva drug test technology that police use on the roads is putting research into practice.

The study tested the saliva of people who came to the emergency department with signs of acute behavioural disturbance for illicit substances to measure prevalence and test feasibility of this approach. Knowing what drugs a person has taken can help nurses to better monitor and care for patients in the acute phase of the toxidrome. This can also help plan for discharge – i.e. ensure patients are provided with harm minimisation strategies regarding recreational drug use and offer referrals to AOD services.

Why was the Securetec DrugWipe chosen for the trial:

- Useability, providing a good structured way that's not bias
- ▶ Feasibility, an affordable method of testing to better control incoming abusive patients
- > Ease of use, a quick 8-minute screen

What drugs does the DrugWipe detect?

- Amphetamines/Methamphetamines
- Cannabis
- Opiates
- Cocaine
- Benzodiazepines (optional)





The study found out that of all patients who were aggressive, 40% of those are on drugs and 92% of this figure are under the influence of meth/amphetamine.

Having a test that's readily available to determine what a person is under the influence of allows emergency workers to better assess patients and plan their care.

Researchers also found only 22 per cent of those who were tested admitted to using illicit substances within the 24 hours prior, indicating poor self-reporting.

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A Day in the Life of a

At work each day, Abe Mitchell transforms into Captain Starlight to bring fun and laughter to children and their families.

08:30-09:30 I jump on the train for my morning commute wearing my civilian clothes or 'civvies' as we call them. It's important to our Starlight mythology that we're not recognised by the kids in our programs when we're not on duty so our 'secret identities' are protected. We are superheroes from Planet Starlight after all.

It's 10:00, which means it's time for our Starlight Express Room doors to open! Often, even before 10:00, there are door knocks from kids outside eager to play.

On arrival, we sign the kids into a system to help us know who is in the room at any given time, which is important for our Safeguarding Children and Young People policy. Also at this time, the allocated Captain Starlights head out on their Rocket Rounds on the hospital wards. We have a schedule so that we're visiting the right wards and clinics at the right time for maximum impact to the kids who can't make it to our room.

11:00-13:30 The Starlight Express Room is pumping! The room is full of patients, siblings, parents, carers, friends and family - all making the most of this medical-free zone dedicated to fun and play. Families are making craft pianos for 'Music Month', there are kids playing video games, a Jenga tower topples to the clamorous sounds of laughter. Depending on the patient's needs, the room can be very busy and exciting at one time, while at other times, we can dim the lights and make it more of a chill-out space to cater to a particular child's needs.



09:30-10:00 I get to the hospital and grab the keys to the Starlight Express Room from security. I always share any new jokes I've heard with security. If I can make security laugh, it's a good sign I've got a winner! Our Captains team then prepare the Starlight Express Room for the day's activities. We set up the preplanned craft based on our monthly themes; prepare all the furniture, video games, board games; and then wipe down all surfaces for infection control.

Next up, we have our 'Captain's Huddle'. This is 5-10 minutes to get the team on the same page about how the day is going to play out: how we're going to make the room special; any special guests; which volunteers are coming in; which Captain Starlights will be on 'Rocket Rounds' (taking the Captain Starlight fun to children in their wards and clinics); and who will be playing with kids in the Starlight Express Room. Today, I'm in the Starlight Express Room. We suit up into our purple and yellow costumes and share a quick warm-up together — we're ready for action!

At 10:30 it's time for 'The Morning Show'. We have our own TV station called 'Starlight TV', which lets us broadcast live to the hospital wards. It's a great way for us to reach kids who are confined to their rooms, letting everyone know what's happening in the Starlight Express Room that day, and is also amazing for keeping the boredom at bay.

Today it's Friday so we play 'The Friday 5'. We also take requests for movies to play on 'Starlight TV' and chat to the kids live on air using the hospital internal phone system. We get a call from a bored patient who would love a visit from Captain Starlight. We message the Captains on the wards to let them know there's been a special request and straight away, they're onto it!



42



13:30-14:15 Phew! I take a quick break and recharge my batteries for the afternoon.

15:30 It's daily 'Game Show' time and on Fridays we play bingo. Bingo is without a doubt one of our most popular weekly activities, with kids picking the numbered balls out of a bucket and yelling out or calling in from their wards when they have 'BINGOOO!'. One teenage girl, who's a regular, loves 'Starlight TV' so we put her on as a host with the green screen behind her. The entire hospital loves getting behind bingo.

• 17:00 It's time for us to blast back to Planet Starlight — in other words, close the Starlight Express Room. In our room, the Captains made a music video to the US boy band NSYNC's hit 'Bye Bye Bye'. We play it every day and turn the lights up. The song lets everyone know it's time to finish up whatever they're doing and makes closing the room fun for our visitors. Once the doors are closed, we clean the Starlight Express Room and re-group to talk about the day's highs and lows and cover any special news and matters to address. We don't need to do a full pack-down today as Livewire (Starlight's adolescent program for ages 12 and up) is hosting a movie night in the room this evening.



14:15

14:15-15:30 A dad and his daughter make their Starlight Express Room debut. They met Captain Starlight on Rocket Rounds and received a postcard telling them all about the Starlight Express Room and couldn't wait to check it out. I give them a tour of everything they can do in the space. It's quite busy this afternoon, so we host a video game tournament on our big screen, writing scores on the nearby wall that also acts as a whiteboard. I'm not sure who's more competitive — parents, carers or the kids! Regardless, it's heaps of fun and a great way for families to meet and connect with each other in what doesn't feel like a hospital setting.



16:00-17:00 It's starting to quieten down a little. A few teens who've finished hospital school for the day come in to play cards before we close. One Captain Starlight is playing the ukulele to a baby and her mum in the corner. The two pairs of Captain Starlights who've been visiting patients on Rocket Rounds return to record where they've been and who've they've visited. I head out with my fellow Captain Starlight (we always work in pairs) to deliver a prize to our bingo winner. It's a Spiderman activity kit and he's stoked! We ask if he'd like to request a movie. He does, so we write it down in the 'Captains Huddle' for

tomorrow's team to note. No surprises — he's requested Spiderman!

17:30 I change out of my costume, ready for my commute home. It's usually then, on the train, when the buzz of the day wears off and I realise how exhausted I am. Was it worth it? As always, absolutely.



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**.

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Hospital undergoes

digital transformation with network fabric integration

Julian Critchlow, General Manager, Extreme Networks Australia and New Zealand

ydney Adventist Hospital (SAH) — known as 'the San' — is an acute-care private hospital with capacity for 550 licensed overnight beds. It is the largest private and the largest not-forprofit hospital in NSW, Australia.

The San has been undergoing a transformation to become a true digital hospital. With a small team to manage its infrastructure, the San needed to have visibility and control of every element of the environment. Every IP-enabled device is on the one network, including systems such as CCTV and BMS controllers. In addition, no point solutions are implemented that might create organisational or operational barriers: every solution deployed at the San needs to be monitored and managed centrally by the San's own IS team, with any issues able to be diagnosed and quarantined quickly to avoid wider impact on those critical services running the hospital. The facility called for a responsive, reliable, robust network infrastructure with automated and secure rapid device provisioning and a network able to support mobile and highly virtualised workloads.

Moving away from VLANs and using Extreme Fabric Connect, the San's network has transformed, enabling faster delivery of new applications and services.

An advantage of Extreme Fabric Connect is automated service provisioning. The San's network administrator no longer needs to physically program every point across the network — it's faster, more accurate and less error prone to provision at the edge of the network. The platform also offers the ability to isolate and separate services; for example, an

administrator can easily isolate all the blood pumps in their own environment, which cannot be achieved with VLAN alone.

"A key requirement was that our network had to support an intensely integrated environment to ensure continuity of core services," San Head of IS Operations and Infrastructure Barbara MacKenzie said.

"As a digital hospital, our data is absolutely critical to patient care, so everything has to work 100% of the time. In a hospital environment it has to be business as usual 24 x 7 x 365, so there are no maintenance windows and there can be no downtime on the network and core services."

The hospital is using zero client terminals in the wards for its clinical workforce, with RFID single sign-on tap-in for login access, ensuring no sensitive patient data is ever stored on these devices. With a lot of accredited medical officers (AMOs) and specialists visiting and working in the hospital, the network has also enabled BYOD, allowing these practitioners to access the information they need at the bedside, or anywhere on campus.

The San has extended its SanCare electronic medical record (EMR) by developing its own native mobile clinical app — SanCare Mobile — for its doctors and other staff to use.

A 'mobile first' strategy is also being rolled out for nurses so that they can access and enter patient observations and other assessments at the bedside with the SanCare app on a smartphone device. "Nurses can take a photo of a patient's wound and send it straight through to the patient's record. The progress notes from doctors, nurses and other carers are all instantly available, and we're constantly adding more and more functionality for the full EMR to be extended by the mobile app," MacKenzie explained.

"The feedback from doctors has been overwhelmingly positive. Over a 48-hour period, 200 doctors typically use the mobile app. There are many anecdotes such as the doctor waking in the morning and being worried about one of her patients, so before she even got out of bed she just opened the app and checked on what had happened overnight."

The San's goal is to extend its mobile capabilities for greater data input and access directly at the patient's bedside and to connect more of its biomedical and monitoring devices via the network, so that this data can be fed back into each patient's record in the EMR and be instantly available to doctors. Increasingly, the San is rolling out biomedical systems and wireless-based devices that are connected via the network and feeding data on each patient back into the EMR system. This has already been completed in the ICU, the birthing suites and for the hospital's ECGs.

"The nirvana is for all of our patient monitoring platforms to be feeding straight into our EMR," MacKenzie said.

To achieve this, the San's wireless network upgrade is underway to factor for the greater number of wireless devices it will be able to connect and manage across the hospital's campus.



In summer 2019, Bianca fled her home on the first sight of a catastrophic fire warning on her mobile phone, which — still to this day — she never leaves out of sight.

esisting the fight element of her fight-orflight state, Bianca, mother of two young children, had no choice but to take shelter in nearby Sydney for the days that followed. Meanwhile, her neighbours stayed and fought huge behemoths of flames, surrounding their once leafy Blue Mountains suburb.

Returning to her neighbourhood — a charred landscape — Bianca (a prolific writer on the subject of mental health) knew it was wise to keep an eye on her unfolding psychological and physical symptoms.

The silent enemy

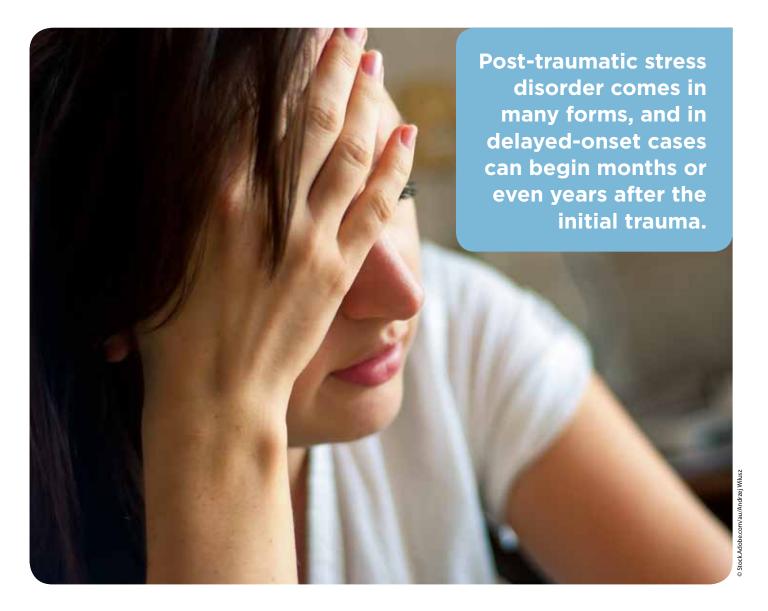
Post-traumatic stress disorder (PTSD) comes in many forms, and in delayed-onset cases can begin months or even years after the initial trauma.

Some of its forms, like acute stress response — associated with car crashes and other catastrophic events — are well known among

the general population and healthcare community. Others, like complex PTSD — a condition arising from ongoing exposure to cumulative trauma, like that experienced in domestic abuse or evacuation — aren't as well understood. Similarly, some side effects, like flashbacks, are commonly recognised, whereas others — like paranoia, dissociation and shame — are lesser known, albeit equally damaging.

Bianca was traumatised by her experience. Her sustained periods of anxiety, night-time panic attacks and hyper-vigilance seemed unrelated to her bushfire encounter, but thankfully her mental health literacy enabled her to recognise these early PTSD symptoms in good time and seek specialist help.

"It's strange because the content of my thoughts was seldom about the evacuation experience," she told *Hospital + Healthcare*.



"I was in a constant state of angst and wouldn't have known why. But my underlying PTSD knowledge told me these symptoms were in fact a trauma response. A professional diagnosis later confirmed this to be true."

Complex trauma specialist and President of the Blue Knot Foundation Dr Cathy Kezelman said, "We hear so much about PTSD in the media, but most of this is centred around a narrow definition of its most common form.

"We imagine it will be obvious if we — or our patients — are experiencing PTSD or a more complex trauma response, when in reality the manifestations can present subtly and build gradually over time. They can also mimic or co-occur with other conditions, like anxiety or depression."

Cost of inappropriate or under treatment

Dr Kezelman said that subtle manifestations should always be taken seriously and understood — complex PTSD sufferer Louise illustrates why.

Louise experienced complex PTSD following domestic abuse. She told *Hospital + Healthcare* that she initially sought medical advice for secondary symptoms like depression and anxiety.

"I was prescribed a low-level antidepressant/ antianxiolytic combination drug by my GP, which I took for about a year," she said.

"It had some positive impact on my wellbeing in that it helped me to sleep. But after a year I was still struggling with overwhelming bouts of shame and feelings of self-hatred.

"I had very commanding suicidal thoughts and emotional flashbacks — where I wouldn't recall the traumatic events per se, but rather the emotional state I felt at the time.

"The medication did little to combat that, and all of this took a major toll on my wellbeing and general health. I was close to attempting suicide on a number of occasions."

Buds of hope

Dr Kezelman advises that, although trauma is often complex to diagnose and treat, recovery is possible over time with the right support and targeted treatment.

Her treatment framework includes a combination of psychosocial and biomedical interventions.

"Diagnoses aside, trauma is almost always—at its core—about feeling unsafe in the world," she said.

"To this end, support networks, talk therapy and self-soothing strategies form a major part of the response. Medication can have a role to play, but I don't recommend it as a matter of course."

Bianca saw a psychologist specialising in anxiety, which she said helped her enormously. Her suggestion to the healthcare community in the aftermath of one of Australia's worst bushfire crises is to get familiar with the specific types and symptoms of PTSD.

Dr Kezelman added, "If a patient self-reports a traumatic event but appears asymptomatic, encourage regular check-ins for the weeks and months that follow, as delayed-onset symptoms may occur.

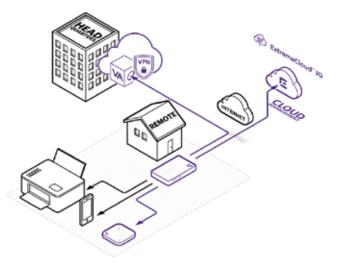
"Also consider getting specialist training on trauma. There are plenty of quality courses out there and if you don't have trauma on your radar you are likely missing the opportunity to support patients appropriately.

"Finally, make sure that you, as a healthcare professional, are using strategies to manage your own stress response to treating traumatised people. Vicarious trauma — that experienced from witnessing or hearing about the trauma of others — can be just as damaging."



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From September 2019 to February 2020, fires impacted the Australian coastline from southern Queensland all the way down to Mallacoota and along the south coast of Victoria. Fires also threatened lives and homes in the Adelaide Hills in South Australia and north of Perth in Western Australia.

felt helpless as I watched footage of the devastating fires from my home. I am a volunteer with the Australian Red Cross, a volunteer firefighter and co-founder of the Australasian Women in Emergencies Network. I had forged a career out of disaster resilience and emergency management at local, state, national and international levels, yet here I was, sitting at home, doing nothing. I felt anxious for the people out there, facing their worst fears, standing side by side with neighbours to protect homes — the firefighters and emergency service workers doing all they could to help.

I finally received a call from the Australian Red Cross Commander asking me to deploy the next day as the field operations officer in the Bairnsdale Relief Centre. My role was to coordinate the Australian Red Cross presence in the centre and provide support to the volunteers working there.

Australian Red Cross volunteers are experienced in the set-up and running of relief centres. We provide advice, support and guidance to the relief centre managers and other agencies and support people as they arrive at the centre and during their stay.

People at the centre had evacuated or lost their homes. The mass evacuation order following forecast catastrophic bushfire conditions also brought people who were on holiday or had homes further east. Some were passing through to get information or something to eat — others were staying, camped on the ovals surrounding the relief centre or sleeping in their cars with their belongings and pets.

Nothing prepares you for seeing people so vulnerable, but equally, nothing is as heartening as seeing so many people helping out, in formal and informal roles. The inundation of donated goods to the relief centre was evidence of people's innate compassion and need to help others.

Information is key

The Red Cross registers those who come to the relief centre so their friends and family know they are safe. As well as ensuring people have access to basic needs like food, water and somewhere to sleep, we provide psychosocial support, helping people feel safe and calm. Information is really important to people impacted by disasters,



Me (far left) with the Red Cross team and Hon Darren Chester MP at Bairnsdale airport. We are waiting to send volunteers to Mallacoota in Black Hawk helicopters to relieve the local Red Cross team who live in Mallacoota who had been there since the fires impacted the town.

48

so we bring as many agencies, people and current news into the centre as we can to answer people's questions and get them started with planning their next steps.

The weather forecast predicted worsening conditions overnight, with potential ember attacks on Bairnsdale. Qualified firefighters were asked to bring their gear to the Incident Control Centre (ICC) the following day, just in case they were needed for firefighting duties. I sourced a set of firefighting overalls, boots and helmet and was ready to go.

The decision was made to let the people in the relief centre know what may unfold overnight so they could prepare and head further west if they wanted to, while the conditions were still safe.

Nothing was held back. People were advised that at around 3 am the following morning, increasing winds and a cumulonimbus cloud forming over the fire ground not far away may lead to an ember attack. Maps indicated where the fire currently was and where it might move. People asked questions about their safety and about particular towns and suburbs. It was very sobering, but I am glad we told people what was happening so they could make whatever decisions they needed to.

I returned to the relief centre at around 10 pm to see if the retiring team needed anything. A few members of the community lingered to watch the news, charge phones or be around others.

At midnight, as I was about to leave, a man came into the centre looking lost and curious. I left my colleagues to offer him help. He told me that



Nothing prepares
you for seeing
people so vulnerable,
but equally, nothing
is as heartening
as seeing so many
people helping out.

he was sleeping outside in his car with his three dogs. He had seen people coming in and out of the building so he came to see what was going on.

I explained what happened in the relief centre. That he could get food, water, essentials (there were plenty of things people had donated — toys, toilet paper, dog food, clothes, bedding, toiletries) as well as a cuppa and a chat. He settled on the latter

He shared his story... His wife had left their property with their cats earlier in the day when conditions had worsened. He wasn't sure where she had gone and hadn't made contact with her yet. He had stayed longer with the intention to defend their property. He was most concerned about his shed, tools and heavy machinery. He told me about his work and all the things he had in his shed. When I asked him where his property was, he got tears in his eyes as he said the name of his town. He didn't know if his house would survive — he knew it was in the path of the fire. I knew from the briefing earlier that evening that his property was in the impact zone.

I stayed with him until 1 am, hearing his story and sharing mine. I imagined there were many people who were not getting much sleep that night. Sometimes the best thing to do in these situations is just be with others, to listen, share and hope.

Tragedies, triumphs and heartache

To witness others' stories — their tragedies, triumphs and heartache — is a privilege I will never take for granted. To sit beside people on what could be the worst day of their life and provide friendship, support and someone to confide in. That's why I volunteer at the Australian Red Cross.

As it turned out, the ember attack did not occur later that day — the thermal layer kept moisture in the air and stopped the convective cloud from forming.

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Care sector
Learnings from a
catastrophic emergency

for the aged

A recent forum held at the Leading Age Services Australia (LASA)

Tri-State Conference provided an opportunity for aged-care stakeholders to share tips on emergency preparation. Following Australia's unprecedented bushfire season, aged-care providers need to ensure appropriate measures are in place, including evacuation plans, flexibility for staff and understanding what is covered under their insurance policies.

CT Emergency Services Agency Territory Emergency Management Officer Rob Kilpatrick explained that, with resources stretched during catastrophic emergencies, aged-care providers should not rely on the emergency services being able to attend. He urged providers to be prepared in their business continuity planning in case emergency resources are not available.

Bush Nurse Centre Manager Anne Brewer from East Gippsland, Victoria, explained that when her community was threatened by catastrophic bushfires, the centre faced challenges evacuating elderly Australians, who were reluctant to leave.

"Older community members don't believe they should leave town because it has never happened before. Many of the fire plans had never been fully tested and people thought they could manage, but later found — mentally and physically — they could not.

"We do not have the power to make people leave, but we can use tools to help them understand the practicality of their decisions

"Elderly Australians often have cardiac or respiratory problems. I advise them that if they have a medical event in the face of a fire, help may not be available or accessible."

51

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"There is enormous pressure in evacuating — it is enormously disruptive for elderly people to have to move out <u>of their homes</u>." — <u>Liz Roberts</u>

Brewer highlighted the importance of providing support to staff as well as seniors and residents. She said that allowing staff to have flexible work arrangements was an important part of the support strategy in addition to providing staff with access to counselling services.

Planning for workforce disruption should form a key part of disaster planning.

"Because we were so widely impacted, the situation took out almost our entire workforce. A lot of our younger ones really stepped up because of the intensity and longevity of the emergency, which was fantastic to see."

Brewer said that emergency planning is key

"Our fire seasons are getting earlier and longer and we must factor in staffing issues in the context of firestorms, floods and even illnesses."

Emergency planning considerations:

- Consider the likely effect of an emergency situation on your ability to maintain business continuity.
- Think beyond 1-2 days and consider what the situation might look like 1-2 months down the track.
- What changes need to be made? What happens if water is contaminated or power is out for longer than a day or so?
- Are fuel stores in place for generators?
- In the case of bushfires, check access to masks and air purifiers.
- Know who and where resources are but don't solely rely on them. Resources may not be able to access affected areas or plans may change.
- Maintain control over as much as you can but ask for help early.
- Logistics is a vital and time-consuming job — identify someone for that job and give them the lead to do just that.

Learning from experience

Buckland Aged Care Services CEO Liz Roberts said that the Blue Mountains facility — home to 420 residents, including 144 in residential care and the rest in retirement living — was fortunate to be the only aged-care facility in the Blue Mountains that did not have to evacuate.

"We've evacuated twice previously — in 1994 and 2013. Having had two previous evacuations and the lessons learned, we felt we were safe to remain on our site.



"Since 2013, we have put enormous resources into protecting the site, in order to be able to keep our people at home. We feel that we can manage our people best within our facility," she said.

"There is enormous pressure in evacuating—it is enormously disruptive for elderly people to have to move out of their homes.

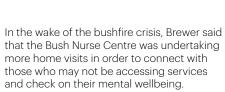
"During evacuations, a small number — who we didn't expect to have negative outcomes — passed away and we believe this was stress-related from people being moved and put into uncomfortable circumstances.

"So we have learnt a lot of lessons over time but from our perspective, a lot of it is about the resilience of our staff. They are people we need to rely on but, at the same time, we need to care for."

Roberts explained that many staff are dealing with their own personal circumstances — including fire threatening their own homes and worry about their children, partners, animals and wildlife.

"It is absolutely useless to make people feel like they must be at work when they just can't cope. The first thing I say to people is if you don't feel you can be here, please don't be. If you need to be with your family or your home, that's where your first responsibility has to be.

"I often reflect that I do not know how we can expect our staff to care for people if we, as managers, don't care for them."



"We are running, with quite a few clubs in the town, a number of social activities with a variety of counsellors in the crowd, just listening out for people.

"There are people feeling 'I lost everything' and feeling 'I lost nothing'. The guilt of feeling that they lost nothing may well be worse than for those who have lost everything. These people can easily isolate and fall through the cracks in the busy time of the community trying to recover. Certainly, there's an awareness that home aged-care providers should take this on board.

"There was a huge amount of variation between the service offered by home care providers during the fires and we will be advocating on behalf of our clients that this changes for the better," Brewer said.

Insurance: vital yet overlooked

Vikki Karatovic, health and community services manager at corporate insurance broker Lockton Companies Australia, said that under-insurance is always the biggest issue when it comes to property claims.

"An ISR policy provides cover for an insured peril. It is split into two sections, Section One on property loss. Section Two is the consequential loss and the business



interruption. There needs to be damage to insured property to trigger Section Two business interruption cover.

"The biggest issue that loss adjusters have found is that the ISR policies specifically exclude pollutants, so it does not typically include smoke or soot because that is considered pollution. So if you are evacuating a facility because of smoke and there is no damage to your property, you will not have cover.

"It is also important to understand what you are covered for in the case of being unable to get in or out of your property.

"If access to your property is via a road or bridge, you need to have your policy endorsed to cover that," she said. "Bushfires also need to be within a certain distance of your property for it to be covered."

She advised providers to speak with their insurance brokers to ensure they fully understand their policy.

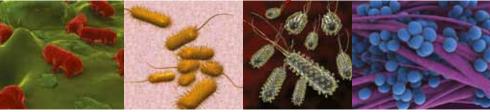




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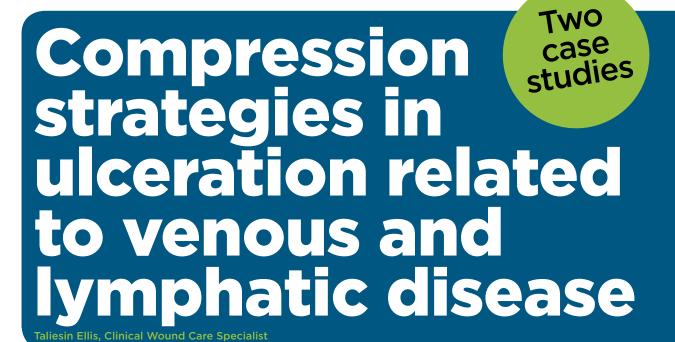
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Case 1

The patient (JC), aged 85 years, lived alone in the house she grew up in. While she had no immediate family, her social life consisted of a few friends who would regularly call her or drop in for a visit. She was always interested in current events and loved watching AFL. JC's sense of humour was very keen and there was always a lot of jokes and laughter at each of our interactions. Despite her strength of character and positive outlook, her wounds were a source of pain and misery over a number of years and this care journey was one that required as much careful attention to the inner person as the outer person. JC's care journey took place over a five-month period in 2019.

Medical history

- · Type 2 diabetes mellitus.
- · Severe osteoarthritis in the right hip.
- Osteoporosis.
- Cancer of the colon (sigmoid): 6 months chemotherapy and colonic resection with temporary ileostomy.
- Falls.
- Cellulitis in bilateral lower legs from 2015.
- Lymphoedema occurring for more than 10 years.
- Hypertension/hypercholesterolaemia.
- · Aortic valve stenosis.

Wound characteristics

JC had suffered bilateral lower limb cellulitis and ulceration over a four-year period. With antibiotic therapy the legs would improve marginally and then the tissue would deteriorate back to a point where dressings could not properly contain the exudate or odour. This meant that she required daily dressings and spent considerable time interacting with the healthcare team. Her impression was that the problem she suffered could not be 'cured' and

that she would have to live with the condition for the remainder of her life.

At our first interaction in mid-2019, JC's daily life consisted of sitting in her chair with her legs wrapped in dressings, fluid leaking onto towels below her feet and taking multiple strong pain medications to help control the burning and stabbing sensations she was experiencing in her lower legs. As she walked, large pools of serous exudate would form a trail on the floor, which she referred to her as her 'elephant steps'. She could not wear shoes as her feet were so swollen and she rarely slept more than 2 hours at a time due to pain and discomfort.

Treatment

JC received a full vascular assessment 6 weeks before the case study treatment was commenced. Her ankle-brachial pressure index was found to be above 1.0 due to the lymphoedema, but arterial flow to the foot was deemed to be within safe limits for compression. At first attempt of compression after this initial assessment, JC found the sensation of tightness to be unbearable. Her pain levels increased and her legs and feet were hot, adding to her discomfort. She was happier with just crêpe and dressings.

At our first interaction, we spent time talking to set a plan that would result in improvement to JC's life and condition. It was, and always is, very important to establish a proper understanding of what the person with a wound wants to achieve, otherwise treatment does not reflect patients' desired outcomes and therefore rarely works.

JC was afraid of compression because all previous attempts had resulted in additional pain with no improvement, so gaining insight as to the problems she experienced was vital to implementing therapy.

After a lengthy discussion, JC was clear that she wanted healing and that she was prepared to undertake the necessary steps to achieve this outcome, including compression with Lymphlex Reduce (Sentry Medical).

Plan

- · GP-led oversight.
- Assess for infecting microorganisms and subsequent implementation of a 6-week course of antibiotic therapy to systemically treat cellulitis.
- · Lymphlex Reduce Compression Therapy.
- Monitoring of pain levels.

Dressings.

- Thoroughly cleanse/scrub wounds and legs with medical sponge or similar.
- Povidine/lodine solution from knees to toes (and in between), leaving for 2 minutes then rinsing off and drying with sterile towel from dressing pack.
- Moisturiser to any areas of skin on legs that was not ulcerated.
- Super-absorbent dressings with impervious backing.
- · 2 x weekly changes of Lymphlex Reduce.

Outcomes

After the first 2 weeks of treatment, JC no longer had exudate or odour escaping from her legs. Pain had reduced to intermittent only and ulcerated areas had begun to heal. After 4 weeks there was exudate only at lateral malleolar ulceration sites, but the skin had become very itchy so JC's GP introduced steroid cream 2 x weekly to the intact skin. Itching quickly subsided with this approach.

After 8 weeks there were no active wound areas and after 12 weeks all skin was intact, the tissue had consolidated and treatment consisted of cleansing and moisturising the legs only — this was now done during JC's showering routine rather than as a dressing procedure. At this time JC moved to compression hosiery.

Conclusion

Lower-leg compression is the cornerstone of treating ulceration related to venous and



lymphatic disease. Without compression, healing will be very slow or not occur at all. JC was able to live a life without pain and suffering and found Lymphlex Reduce to be the most comfortable form of compression she had experienced.

Case 2

Mrs L, aged 70, had suffered with unhealed lower leg ulceration and cellulitis over a 6-year period prior to August 2019. The last three of those years she had sat in her house with her legs uncovered, wrapped with absorbent paper, resting on towels and taking several showers a day to relieve pain and odour. She had cut herself off from friends and family and thought that her life was over. She was suffering significant posttraumatic stress related to the trauma she had experienced with these unhealed wounds. Mrs L had endured multiple admissions to hospital including five visits to an emergency department over the 18 months prior to the treatment period described in this case study.

Medical history

- Lymphoedema more than 10 years.
- Hypertension.
- Rheumatoid arthritis/osteoarthritis in the right hip.
- · Lower limb ulceration.
- · Migraine.
- Anxiety.

Wound

Wounds were circumferential bilaterally, covered with yellow slough and leaking malodourous sero-purulent exudate that was not contained by dressings. The cellulitis and lymphoedema present on both lower legs and wound areas were between 3 and 10 mm deep. There were obvious signs of infection.

Mrs L described her wound pain as, "... ants eating her flesh ..." and had not slept properly for years as a result.

Mrs L's calf and ankle circumference was 42 cm and 30 cm, respectively.

Treatment

Vascular assessment had been carried out on Mrs L at a local hospital before the case study treatment was commenced. Her arterial inflow was found to be satisfactory and the hospital had suggested a regime of compression therapy that was refused by the client due to pain.

At the initial treatment assessment, we spent time talking about Mrs L's significant stress. She reiterated her fear of compression and her more general fear of health professionals. After a lengthy discussion about Mrs L's desired goals, she was very clear that she wanted to heal but doubted very much that this could be achieved. We mutually decided that a 4-week period of intensive treatment would be tried with her full engagement in the treatment plan, including compression with Lymphlex Reduce (Sentry Medical).

Plan

- GP support for treatment gained.
- Swabs were taken to determine microorganisms: heavy growth of Pseudomonas Aeruginosa.
- · Antibiotic therapy as required.
- · Lymphlex Reduce Compression Therapy.
- · Monitoring of pain levels.

Dressings

- Thoroughly cleanse/scrub wounds and legs with medical sponge or similar.
- Povidine/lodine solution from knees to toes (and in between), leaving for 2 minutes then rinsing off and drying with sterile towel from dressing pack.
- Moisturiser to any unulcerated areas of skin on legs.

- Super-absorbent dressings with impervious backing
- 2 x weekly changes of Lymphlex Reduce.

Outcomes

After the first 2 weeks of treatment Mrs L no longer had exudate or odour escaping from her legs. Pain had reduced to intermittent only and ulcerated areas had begun to heal. After 4 weeks exudate had reduced but persisted from active wound areas. Slough was disappearing and revealing several demarcated wounds on postero-lateral areas of both legs. Mrs L's pain was virtually nil and she had begun sleeping. Her GP introduced steroid cream 2 x weekly to intact skin to reduce skin scale. Itching quickly subsided. The client was very happy and wanted therapy to continue — she especially found the Lymphlex to be comfortable and unlike other compression she had experienced. After 10 weeks there was no cellulitis, wound areas had all but disappeared and slough was completely resolved. After 16 weeks all skin was intact, tissue had consolidated and treatment consisted of cleansing and moisturising legs only. At this time Mrs L moved to compression hosiery.

Conclusion

While Mrs L's anxiety levels had reduced during treatment, her post-traumatic stress had not. She would later seek professional help for this. The key to treatment here was coming up with a plan that the client could engage with, setting small targets to encourage continuation, acknowledging the suffering and using a compression system that was acceptable to the individual.

Lymphlex Reduce has been shown to be more comfortable, cost-effective and acceptable to clients than other comparable systems. The foam layer in particular is very soft and Mrs L stated that she barely noticed the compression was there.

55



ustralia's healthcare industry has recently revealed one of its most pressing challenges. In August last year, an article surfaced describing the extreme exhaustion, lack of training and underpayment experienced by a junior doctor in a Victorian public hospital. The article alleged doctors faced 60-hour working weeks with no time allocated for clinical training, and a culture of bullying and intimidation by senior doctors. According to the Australian Medical Association, the hospital in question had breached its legal obligations.

A similar case emerged in December, where a survey of over 1000 junior doctors found the vast majority had made errors in their practice due to the exhaustion and burnout caused by excessive workloads and inadequate staffing. Survey respondents said they had raised these concerns with their employers, only to

have them "brushed off" with no action taken.

Most recently, a survey of close to 10,000 doctors-in-training found one in three had either witnessed or been targeted by toxic behaviour in the workplace in the last 12 months.

In an industry centring on the care and preservation of life, and the promotion of both physical and mental wellbeing, this is a concerning trend. When our healthcare professionals are struggling at the hands of an industry that neglects the wellbeing of its most valuable players, we are all at risk.

Yet as alarming as these cases are, they're all too common — not just in the healthcare industry, but in the broader workforce too. Our six-year study of more than 25,000 participants found that 55% of Australian workers worry excessively, 45% experience distress symptoms and

30% experience excessive work intensity. And more often than not, toxic workplace cultures play a key role.

A toxic workplace culture is one that causes serious and ongoing stress to those operating within it. Stress can be mental, physical or emotional, and can result from co-worker or manager behaviours, the work environment or the work itself. Characteristically, toxic workplace cultures tend to bleed into other areas of life, often having negative repercussions on people's relationships, health and self-esteem.

One of the most sinister traits of a toxic workplace culture is that it's often difficult to detect until after you've fallen victim to it. However, there are key signs to look out for. Withdrawn and disengaged employees, a fear-driven environment, an absence of trust and a high level of absenteeism are all tell-tale signs of a culture in need of change.

Like any toxic substance, long-term exposure to these environments can be deeply detrimental to our health and wellbeing — evidenced, as of late, by too many health professionals. Bullying, intimidation and high levels of workplace stress caused by short staffing, time constraints and inadequate clinical training can quickly result in burnout — a condition recently classified by the World Health Organization as a legitimate occupational phenomenon.

In any other industry, when burnt-out staff are forced to function in toxic environments for extended periods. workplaces suffer from high rates of turnover and decreased productivity, ultimately compromising the bottom line. It's more or less the same when it comes to the healthcare industry, with one critical difference: it puts patient care at risk. In the survey of junior doctors mentioned earlier, three out of five had reported making clinical errors as a result of severe stress and understaffing, while further research found burnt-out doctors often displayed hostility towards patients and frequently made poor decisions relating to patient treatment.

As the growing pressures of an ageing population mount, it's evident that Australia's health industry is in need of an urgent culture shift. For the sake of both patients and medical professionals alike, meaningful change requires commitment and understanding from every level of the organisation. It must be led by senior leaders and those in governance — not just frontline practitioners — and it requires cultivating a high-trust, resilient environment where communication and collaboration are encouraged, and staff are supported in not only their practice, but in their mental and physical wellbeing. Importantly, it requires recognising the indisputable link between the welfare of doctors and the welfare of patients. >

One of the most sinister traits of a toxic workplace culture is that it's often difficult to detect until after you've fallen victim to it.







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supporting a culture of trust is crucial for individuals, teams and organisations to function efficiently and, indeed, to thrive.

Though the concept of overhauling an entire industry will seem impossible at the least, enacting cultural change begins with the simplest of steps:

Build trust in senior leadership: We

know trust underpins patient relationships; however, it must also underpin relationships within the organisation, particularly between senior leaders and staff. Supporting a culture of trust is crucial for individuals, teams and organisations to function efficiently and, indeed, to thrive. Investment and skill development for senior leaders within the 36 leadership trust factors provides a framework for cultivating high trust within the team and the organisation, and helps to shift a fearbased culture.

Equip and educate staff: Start by ensuring all staff understand the distinction between 'mental health' and 'mental distress' and can identify the symptoms of poor mental health. Ensure staff who are experiencing mental distress can access comprehensive and confidential support by making sure the relevant systems and structures are known across the organisation.

Prioritise resilience: Resilience is more than the ability to withstand adversity — it is the ability to navigate adversity with purpose and clarity. Our research has shown that actively building resilience leads to a 32% reduction in symptoms of anxiety, while improving focus, positivity, optimism and decisiveness. Encourage

staff to invest in building personal resilience and ensure that rosters are structured to enable adequate rest — including those of doctors that are rostered as on-call.

Open communication: A high-pressure culture is often conducive to hypervigilance, fear and divisiveness amongst staff. Offset this by encouraging open and frequent communication, ensuring staff are able to share feedback, concerns and ideas through clear communication channels. This is particularly vital for junior doctors who are typically the most vulnerable to stress and excessive workloads. Enabling staff to speak up — and importantly, be heard — is the first step to creating a culture of cooperation and belonging.

Call for accountability: Efforts to shift a toxic workplace culture will inevitably raise questions around accountability, yet it's important to avoid playing the blame game. Meaningful change requires personal accountability across all levels — from the C-suite down. Ensure staff are clear on roles and responsibilities, and that leaders are responsive to the concerns of those under their care.

The change required within our healthcare industry is significant, but so too is the risk of leaving the situation unaddressed. The truth is, the problem facing our healthcare professionals is a problem for all of us — if our wellbeing depends on that of our doctors and nurses, then it is in our best interests to ensure they are supported and cared for in their work.





Healthcare companies solve data storage woes

report prepared by CDW Healthcare claims that the healthcare industry is experiencing explosive growth in data. The total amount of data is projected to grow from 500 PB in 2013 to 25,000 PB by 2020, which is an astonishing 50 times growth. It is said that such a phenomenon is mainly contributed by the adaptation of PAC applications. In short, modern medical workspace urgently needs a file server solution that can not only store a significant amount of growing medical records and data: a stable and secure solution also needs to be adapted to ensure service continuity as it is the key to prepare themselves for growing data demand.

Artemis Eye Clinics carry out more than 70,000 eye surgeries by over 80 doctors annually at its 16 surgical centres and more than 30 locations in Germany. The clinic was looking for a fast, promising, high-availability solution to ensure the secure operation of heterogeneous hospital networks that was compatible with its existing Windows Hyper-V clusters to provide the best performance and stability for virtual machine operations. Synology High Availability (SHA) solution was quickly identified and implemented at each location with two Intel based Synology NAS

as they were used in a high-availability failover cluster for iSCSI connection to Hyper-V servers. If there is a failure in the active server, all VMs will automatically fail over to the second Synology NAS in the cluster. Thus, the clinics can continue to work without interruption, which implies significant cost savings and reliability.

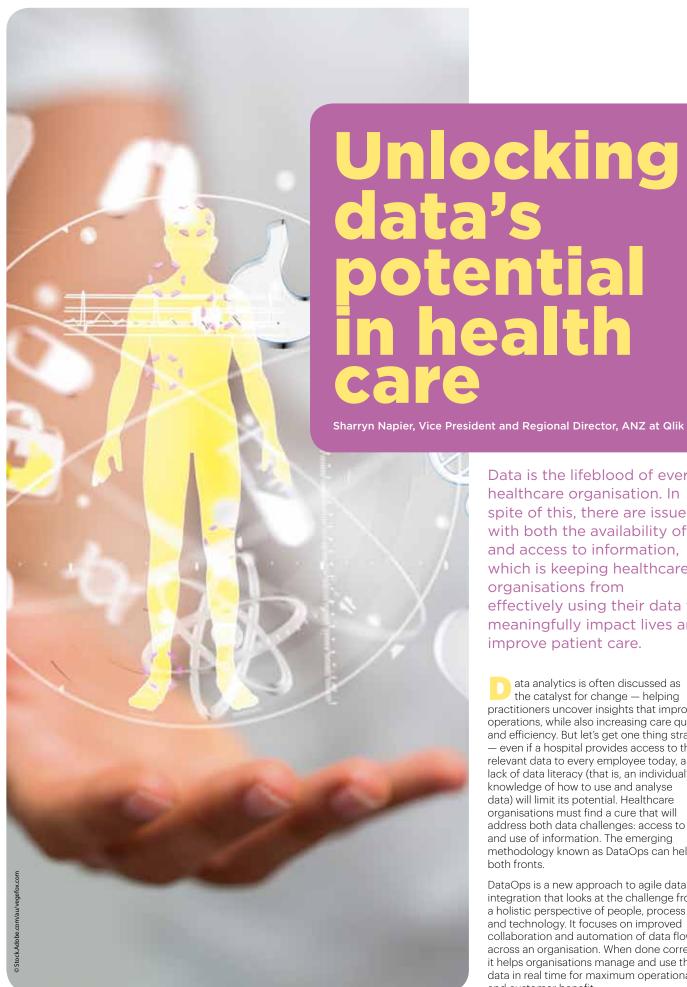
One of the UK's largest veterinary groups was in need to equip a small, reliable and costeffective onsite data storage solution after installing digital imaging facilities including X-ray, CAT scans and ultrasound scans at each of its 50 locations. Although each practice has a different capacity requirement, they still have the same needs of a PACS server. The PACS package that comes with Synology NAS allows the client to split the storage into two types: online storage where images are stored locally on the Synology NAS device; and then after a duration, the images are moved to nearline storage via the built-in Synology Hyper Backup feature, for which they have chosen Amazon S3. This allows the user to still view archived data if required, retrieving it back to the NAS with speed and ease. The Synology NAS supports DICOM solutions that are compatible with

the digital imaging equipment used in the practices as not only can they communicate to each other, the images taken are also instantly transferred from the imaging machine straight to the NAS for backup.

Corin APAC, who develops, produces and distributes reconstructive orthopaedic devices worldwide, struggled with an inefficient and costly data management system at its APAC headquarters in Australia. Corin APAC was looking for add-on software solution to backup offsite data and Office 365. With over 2400 mailboxes, software licence fees were mounting. Corin ultimately selected Synology solutions for reliability, costeffectiveness, future expandability and ease of use. Synology's solution not only serves as the main storage server but also backs up Corin's entire Office 365 deployment without additional licensing fees. Not only are Corin's 2463 accounts being protected by Synology's Active Backup for Office 365 solution, critical business data on Microsoft OneDrive for Business, Outlook, SharePoint Online, address books, and calendars are all safely backed up onto their Synology solution on a daily basis. This decision essentially saves Corin Australia AUD\$84,000 annually on licence fees



For more information please visit www.synology.com/enu



Data is the lifeblood of every healthcare organisation. In spite of this, there are issues with both the availability of and access to information, which is keeping healthcare organisations from effectively using their data to meaningfully impact lives and improve patient care.

ata analytics is often discussed as the catalyst for change — helping practitioners uncover insights that improve operations, while also increasing care quality and efficiency. But let's get one thing straight — even if a hospital provides access to the relevant data to every employee today, a lack of data literacy (that is, an individual's knowledge of how to use and analyse data) will limit its potential. Healthcare organisations must find a cure that will address both data challenges: access to and use of information. The emerging methodology known as DataOps can help on both fronts.

DataOps is a new approach to agile data integration that looks at the challenge from a holistic perspective of people, process and technology. It focuses on improved collaboration and automation of data flows across an organisation. When done correctly, it helps organisations manage and use their data in real time for maximum operational and customer benefit.

61

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Featured Products

Keep up with the latest industry innovations



Airepure FOCUS air filtration systems are claimed to provide superior air quality at the operating-theatre-table level compared with the conventional arrangement of individual terminal ceiling-mounted HEPA filters.

Airepure provides unidirectional and ultra-clean ventilation (UCV) systems that cater to a range of operating theatre requirements; from day surgeries and surgical rooms with less demanding airflow requirements through to orthopaedic and neuro operating theatres where deep-wound surgery is carried out and there is a high risk of hospital-acquired infection via airborne routes.

All Airepure operating theatre ventilation systems are the result of extensive design research, CFD modelling and refinement from 20 years of installations within Australian hospitals.

Airepure FOCUS Systems comply with the local Australian Council on Health Care Standards (ACHS) guidelines for air flow and velocity at the operating table level and international standards nominated in UK HTM-03 and European standard ISO/DIN 1946-4 (2008-12).

Airepure Australia Pty Ltd www.airepure.com.au

> continued

Fighting the data access challenge

As the amount of health data being created increases daily, issues of how to capture and manage it more efficiently have emerged. Part of a DataOps strategy involves allowing appropriate real-time access (for all users) to data for analytics — while keeping it protected accordingly.

Health providers looking to implement DataOps require a data management platform that has continuous data integration, to ensure it can deliver the real-time analytics required. Tools like change data capture (CDC) will ensure any data changes that occur across core application systems and databases (eg, small changes to a patient profile or updates to treatments and prescriptions) will update quickly across the entire system. Furthermore, open IT architectures based on hybrid or multi-cloud provide the best efficiency and agility to improve patient care and increase operational efficiencies.

Remaining data compliant

Healthcare organisations must track where data is located and how it is being used at all times to remain compliant with government regulations. In an age of increased scrutiny on health record management, thanks to the My Health Record discussions and ongoing privacy complaints from patients to the Office of the Information Commissioner, practitioners must work hard to improve patients' perceptions of data governance practices in health care. A core component of a DataOps framework is the creation

It's the data-literate healthcare organisations that will be able to uncover valuable insights in time to truly transform patient care.

of an enterprise data catalogue — an internal marketplace that lists what data is available for analysis. The marketplace informs clinicians, doctors and staff on how the data was collected, shared and modified, along with the associated access rights. The catalogue also provides additional governance capabilities to drive transparency, such as masking personally identifiable information to ensure regulatory compliance.

Raising your organisation's data health

Data is no value to a healthcare provider if users don't understand what it is, or how to use it. It's the data-literate healthcare organisations that will be able to uncover valuable insights in time to truly transform patient care.

In the case of Sydney Local Health District (SLHD), the implementation of its STARS (Sydney Local Health District Targeted Activity and Reporting System) Back Pain App enables healthcare professionals to treat lower back pain (and reduce overprescription of opioid treatments) by delivering meaningful data to the frontline. More than 50,000 patients present with

back pain to emergency departments in NSW every year. Of these patients, 70% are given opioids despite known harm, 30% receive unnecessary imaging and 17% are admitted to hospital. Given back pain reduces Australia's GDP by an estimated \$3.2 billion a year, there's a huge opportunity to improve clinical practice.

By bringing together information that was previously siloed across electronic medical record systems - such as patients' demographics, diagnoses, allied health service review, pain medicines used, pathology tests, diagnostic imaging, costs of care and patients' admission status - STARS collates these in a governed, real-time manner and presents the data back to clinicians through an intuitive interface. The easy-to-understand dashboard allows staff to quickly access summaries of patients with lower back pain while highlighting clinical variations. Healthcare professionals are able to compare data across hospitals to compare treatment plans and patient data, which in turn ignites conversations about trends, prescription rates and overall patient care.

Like the team at SLHD, taking data to the next level should be a priority for the healthcare sector. Healthcare organisations must bring together the teams working with and using data through the adoption of modern technologies. This is how DataOps was born, to fill in the gap and break internal silos, so all departments and executives can unlock the full potential of their data for improved patient care and experience.

Computerised medical cart

The Advantech AMiS-50E computerised medical cart features a 21" panel PC powered by a 7th generation Intel Core i5/i7 processor for high-performance computing. It is equipped with an iPS-M420S medical-grade power system that uses a Panasonic lithium-ion battery pack to deliver energies of 400 Wh. This battery supports up to 10 h of operation and can be recharged in 3 h. The iPS-M420S power system is also embedded with Advantech's AMiS_Link intelligent power management software, which enables remote monitoring and configuration of low-battery alerts, temperature alarms and charge/discharge cycle times.

To ensure access to hospital information systems (HIS) from any location in the hospital, the AMiS-50E is equipped with standard Gigabit Ethernet connectors and two built-in 5 dB antennas that



offer enhanced WLAN (802.2a/b/g/n) connectivity. The system I/O includes three USB 3.0, two USB 2.0, one DisplayPort and one HDMI display output, as well as two expansion slots (one M.2 and one mini PCIe) for integrating additional peripherals such as HD cameras, barcode readers, LAN+COM modules and patient monitoring systems.

The cart's motorised height adjustment feature allows its height to be easily adjusted for maximum comfort and usability.

Compliant with IEC 60601-1MDD and IEC 6060-1-1-2 medical-safety standards and IPX1-rated for water resistance, the AMiS-50E is certified for use in critical healthcare environments. The system's fanless design provides silent operation and easy cleaning.

Advantech Australia Pty Ltd www.advantech.net.au

Containment air filtration systems

Airepure Australia's airborne containment and isolation filtration solutions are designed to meet the critical standards required of negative pressure isolation rooms, quarantine isolation rooms, pandemic wards, TB wards, PC3 level biocontainment laboratories and cyclotron nuclear medicine areas.



Solutions include: terminally mounted HEPA containment housings and systems; inline containment exhaust filtration systems; bag-in-bag-out (BIBO)-style containment systems with bubble-tight isolation dampers, decontamination/fumigation ports, a remote scan arrangement for testing and BIBO arrangements for filter change-out; customengineered HEPA (particulate) and HEGA (gaseous) containment filtration systems.

Airepure's NATA-certified on-site technicians can service existing exhaust filtration containment systems through the replacement and testing of HEPA filters to meet Australian Standards and state healthcare regulations.

Airepure Australia Pty Ltd

www.airepure.com.au

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In an astounding example of technology advancing health care, a blood clot in the jugular vein of an astronaut aboard the International Space Station (ISS) has been treated via telemedicine.

NC School of Medicine blood clot expert and member of the UNC Blood Research Center Stephan Moll was contacted by NASA for his vast knowledge and treatment experience of deep-vein thrombosis (DVT) on Earth. This was the first time a blood clot had been found in an astronaut in space, so there was no established method of treatment for DVT in zero gravity.

The astronaut's blood clot was asymptomatic, but was discovered when the astronaut was taking ultrasounds of the neck for a research study on how body fluid is redistributed in zero gravity.

"My first reaction when NASA reached out to me was to ask if I could visit the International Space Station (ISS) to examine the patient myself," Moll said.

"NASA told me they couldn't get me up to space quickly enough, so I proceeded with the evaluation and treatment process from here in Chapel Hill."

Although the astronaut cannot be identified, we know that the patient was two months into a six-month NASA mission on the ISS when the DVT was discovered.

HOSPITAL + HEALTHCARE **AUTUMN** 2020 hospitalhealth.com.au Moll explained that in a normal situation, a patient with DVT would be started on a course of blood thinners, which they would take for at least three months to prevent the clot from getting bigger and to lessen the harm it could cause if it moved to a different part of the body such as the

"There is some risk when taking blood thinners that if an injury occurs, it could cause internal bleeding that is difficult to stop," Moll said.

"In either case, emergency medical attention could be needed. Knowing there are no emergency rooms in space, we had to weigh our options very carefully."

Moll and a team of NASA doctors decided blood thinners would be the best course of treatment for the astronaut, but their pharmaceutical options were limited. The ISS keeps a small supply of medicines on board, and there was a limited amount of the blood thinner enoxaparin available. Moll advised NASA on what dosage of enoxaparin would effectively treat the DVT and last until NASA could get a new shipment of drugs — which Moll helped select - to the ISS.

Treatment aboard the ISS

Enoxaparin was delivered by subcutaneous injection, with the treatment lasting for about 40 days. On day 43 of the

The astronaut performed ultrasounds of the neck with guidance from a radiology team on Earth in order to monitor the blood clot.

astronaut's treatment, a supply of apixaban - a pill taken orally — was delivered to the ISS by a supply spacecraft.

Throughout the treatment process, which lasted more than 90 days, the astronaut performed ultrasounds of the neck with guidance from a radiology team on Earth in order to monitor the blood clot. Moll was also able to speak to the astronaut during this period through email and phone calls.

"When the astronaut called my home phone, my wife answered and then passed the phone to me with the comment, 'Stephan, a phone call for you from space.' That was pretty amazing," Moll said.

"It was incredible to get a call from an astronaut in space. They just wanted

to talk to me as if they were one of my other patients. And amazingly, the call connection was better than when I call my family in Germany, even though the ISS zips around Earth at 17,000 miles per hour."

The astronaut stopped taking apixaban four days before the journey home - a decision made by Moll and his NASA counterparts because of how physically demanding and potentially dangerous the re-entry process can be for astronauts. They did not want an injury to be exacerbated by the use of blood thinners. The astronaut landed safely on Earth and the blood clot required no further treatment.

Moll continues to work with NASA and said there's a need for more research of how blood and blood clots behave in space.

"Is this [DVT] something that is more common in space?" Moll asked.

"How do you minimise risk for DVT? Should there be more medications for it kept on the ISS? All of these questions need answering, especially with the plan that astronauts will embark on longer missions to the moon and Mars."

The material for this case study was provided by University of North Carolina Health Care, with the study published in The New England Journal of Medicine.



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Building digital healthcare supply chains for our future

Given recent events, the need to ensure that the supply chains supporting healthcare are efficient and digitally enabled has never been more important. Building future capability in both suppliers and health organisations is a must.

elbourne Health Logistics' (MHL)
Supplier Improvement Pilot Project,
involving 10 small-to-medium enterprise (SME)
participants, focused on applying data capture
technologies, making data quality improvements
and introducing suppliers to Electronic Data
Interchange (EDI).

Set to implement a transformative warehouse management solution, to solve challenges with their supply chain and inventory management, MHL requires suppliers to adjust the way they provide and share information. To support this, MHL approached the federally funded AusIndustry Entrepreneurs' Programme to work with suppliers.

The vision was for suppliers to digitise their supply chains, ensuring the ability to meet the needs of MHL and the broader industry. This meant reviewing processes and technology capability and changing manual methods to the use of automation and digital technologies.

With data standards as the foundational elements, key focus areas included:

- Allocation of GTINs to products ensuring information is captured via barcodes, with additional information such as batch and expiry date included for products.
- Allocation of GLNs to locations (physical and virtual) enabling traceability across the supply chain.
- Data management to ensure quality and consistency of data to support processes in the supply chain from purchasing through to point of use.
- · Building an EDI capability.
- Supporting digitisation of supply chain transactions.

Brett Henderson, a Business Facilitator with the Entrepreneurs' Programme was impressed with the SME suppliers who signed up for the pilot program.

"They took on the challenge by investing considerable time and money," Brett said.

"What we have found from a majority of the participants is that they not only embraced the pilot, but they looked for more ways the technology could help their business. They

took a holistic approach and as they did this, they started to recognise opportunities to really improve revenue-generating capabilities and productivity improvements.

"Once they saw this, they began to envisage other benefits that could flow through. While it is still early in the process, there's a real change in a majority of the businesses who are in the program, in terms of capability-building and finding new opportunities for the business."

EDI benefits focus around efficiency gains

A lead in the project was Health Purchasing Victoria (HPV), which partners with public health services to identify and procure goods and services for hospitals across Victoria.

As Director of Data and Systems at HPV, Rob identified many key benefits of EDI including:

- Providing real-time processing and eliminating time needed to manually send, receive and enter orders.
- Improving business cycles by ensuring stock levels are kept constantly up-to-date and visible.
- Improving accuracy and minimising data entry errors.
- · Improving forecasting.

"While EDI definitely delivers cost savings, the efficiency gains are the stand-out benefit for suppliers. By adopting EDI, suppliers can help to futureproof their business," he said.

"The pilot has also highlighted how important it is to have one national product catalogue to store product information used by health services throughout Australia.

"With a single common catalogue, a supplier only needs to update one catalogue when they have a new product or the specifications and descriptions have changed. This is another huge efficiency boost," he added.

A common system to future proof your business

Santo Cavaleri, General Manager of the Supply Chain at Melbourne Health said, "Melbourne Health is currently implementing a warehouse



Participants at the Melbourne Health SME Supplier Partnership Workshop held at GS1 in February, who were extremely pleased with the outcome of the pilot project.

management system that relies on the transfer of data such as GTINs. It's important for us all to become compliant with the 21st century and the best place to start is by talking to GS1. Coles and Woolworths have been doing EDI for years, whereas the medical industry is underdeveloped. There are a lot of benefits we're not harnessing.

"As a state and a nation, we've got to have a common goal. We need one common system for everyone. We need leaders not laggers."

Collaboration leads to bigger opportunities

AusIndustry's Brett Henderson and Mike Sewell were on the frontline in working with suppliers.

"In many cases, we'd adapt the project to meet the changing needs of the participants," Brett said

"It was quite collaborative. Suppliers recognised where they needed to develop their capabilities and understood the benefits of looking at a broader picture saying, 'Is this just Melbourne Health or is it broader?' And in looking broader, they could see the bigger opportunities that will come as a result," he

Australia needs to catch up to global trend

Aldo Santo, President of AHSPO and Chair of the pilot committee, said that Australia needs safe and secure precision health care.

"Digitisation is a global megatrend and all healthcare suppliers need to come on board. We need to be better at what we do and healthcare supply chains are directly related to improving patient outcomes."

A digital future for health care in Australia

While it will be several years before the supplier-to-warehouse level is complete, the next step being planned is to continue the process into the hospital to ensure we can track all products to the patient.

Suppliers who participated in the pilot included GAMA Healthcare, Imaxeon, Intersurgical, Metwood, Multigate Medical Products, OAPL, Orthocare, Parker Healthcare, Sentry Medical and Ultra Health Medical.



For more information visit

www.GS1au.org/healthcare or call 1300 227 263



Food in a crisis

Ensuring food safety and nutritional requirements in emergency situations

Anika Rouf*

atural disasters pose a threat to food security — the ready availability of food that is safe for consumption and nutritionally adequate. In most cases, natural disasters result in displacement of people from their settlements, decreased agricultural outputs and increased food prices, as well as personal and financial hardship for communities.

Disruption of essential utilities including electricity, gas and water is very common in natural events, whether it be floods, cyclones, severe storms or other disasters. In light of the recent bushfires and floods across the country, it is important to educate consumers on coping strategies so they are better equipped to deal with natural disasters.

Good emergency preparedness includes having a plan to stock up on adequate

supplies of food and water as well as other essentials such as health documentation and IDs.

Preparing food and water before a natural disaster

If you are living in a disaster-prone zone or have been issued with evacuation warnings, it is necessary to have at least a three-day supply of food. These foods should have a long storage life, require little or no cooking, water or refrigeration and meet the needs of babies or other family members with dietary requirements.

Any salty or spicy foods should be avoided as these increase the need to drink water, which may be in short supply. After receiving evacuation warnings, at least a three-day water supply for each person and pet should be stored and covered as

67

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Building an essential pantry and emergency kit for your household

Most people do groceries on a weekly basis but this may not be possible in the event of an emergency. Due to damage to homes, it may be difficult to prepare foods after a disaster so it may be useful to stock up for a 14-day period. Here are some essentials to consider:

- · Bottled water
- Water sterilising tablets
- Concentrated juices/sports drinks
- Breakfast cereals
- Bread
- Spreads that do not need to be refrigerated (such as peanut butter
- Milk powder/UHT milk
- Health supplies and medications
- Ready-to-eat meals
- Canned foods
- A manual can opener
- Baby food/formula
- Snack foods (such as dried fruits, nuts biscuits, crackers, snack bars)
- Alcohol-based wipes (if the water supply is likely to be disrupted)
- Plastic cutlery and paper crockery
- Gloves for food handling
- Heavy-duty aluminium foil

water may be in short supply or become contaminated.

As it may not be possible to source fresh food following a natural disaster — particularly if there is no power — canned vegetables such as corn, beetroot and lentils are a good option, as well as canned fish and legumes as a source of protein. These can be paired with carbohydrates such as wholegrain toast or crackers. Breakfast cereals consumed with UHT milk would provide a source of carbohydrate, calcium and other micronutrients.

In the case of a power outage:

- Refrigerated foods will remain safe if the power outage lasts for up to four hours.
 However, if the outage continues for more than four hours, the food should be thrown out.
- Frozen foods are safe for up to a one day after a power failure.
- In order to maintain the cold temperature, it is best not to open the door unless food needs to be removed or eaten.
- Ice bricks from the freezer can be placed into a cooler bag and used for keeping



perishable foods (such as meat, poultry, seafood, dairy and cooked foods).

 Once the power is restored, use a thermometer to determine the safety of foods. Any food that has reached more than 6° should be thrown out.

In the case of a bushfire:

- One of the main dangers of fire is the toxic fumes from burning materials

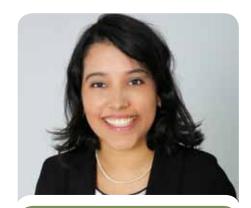
 any food that has been near a fire should be thrown out, even if it appears to be ok. Food in the refrigerator (raw and cooked) should be thrown out as the refrigerator seal isn't airtight, which means fumes can get inside.
- Chemicals used to fight fires contain toxic chemicals so any cooking utensils that may have been exposed to firefighting chemicals should be washed in hot soapy water then sanitised in one tablespoon of chlorine bleach per 2 L of water and rinsed.
- Any food being disposed should be wrapped in newspaper and placed in the bin. Incorrect disposal could result in fly breeding or animal and pest scavenging.

In the case of flood:

- Throw out any food that may have come into contact with flood water. Similarly, discard any food packed in plastic, paper or cardboard that appears to be water damaged.
- Do not drink tap water unless you have received updates from your local council declaring it to be safe for drinking.

Bottled water is safe to drink as long as it has not been exposed to flood waters. If this is not available, water must be boiled first to kill any disease-causing organisms that may be present. Allow the water to cool before drinking.

- When boiling is not possible, household bleach can be used to kill some (not all) disease-causing organisms. Add 1/8 teaspoon (8 drops) of regular household bleach for each gallon (~4 L of water). If water appears to be cloudy, use a clean cloth to filter.
- Wash dishes and cooking utensils that have been exposed to flood water using hot soapy water.



*Anika Rouf is a dietician and PhD candidate in nutrition and dietetics at the School of Life and Environmental Sciences, University of Sydney.



xygen is one of the most commonly prescribed medicines and its use sustains and improves the quality of life for millions of people around the world. However, its ubiquitous nature comes at a cost. Oxygen rich environments significantly increase the risk of fire as they create an environment in which fires can easily ignite and burn quickly causing serious burns for patients and even loss of lives.

Most oxygen fires occur in the home, but they also occur in acute hospitals, community healthcare and social residential facilities. Patient safety can be placed at risk if due diligence is not applied when using medical oxygen and where medical oxygen has been exposed to heat sources or open flames such as lit cigarettes. These actions, either accidentally or deliberately, can lead to a fire in a clinical setting. Whilst fires in clinical settings may be less prevalent, the potential for harm is much greater. Institutional facilities have many patients with chronic or acute conditions, who may be difficult to evacuate or protect in the event of a fire. If breached, medical gas pipelines have the potential to introduce vast quantities of oxygen to accelerate a fire.

Even a small increase in environmental oxygen levels from 21% to 27% will double the energy and intensity of a fire. With a gas pipeline breached and fire doors closed and creating a seal, the potential for a major fire is significantly increased.

Medical device regulations have long required risk reduction to be addressed in a clear hierarchical manner with 'safety by design' being the primary risk control. Regulations are



clear that changing the instructions for use and/or labelling for a medical device does not change the degree of risk.

Firesafe™ technology represents a 'design for safety' solution to oxygen fire risks because it operates automatically if the oxygen tube becomes ignited. Fitted in the oxygen tube close to the patient, firebreaks stop the flow of oxygen, which extinguishes the fire in the oxygen tube.

This technology is also integrated into the Firesafe flowmeters. Firesafe nozzles fitted on

the flowmeters ensure that any fire in the tube is prevented from reaching the medical gas pipeline.

Evidence from the UK, where firebreaks have been mandated for home oxygen since 2006, shows a very large reduction in deaths as a result of home oxygen fires, when compared with the USA and Japan.

Appropriate ISO standards for oxygen devices now already include a requirement for oxygen firebreaks and many service providers globally are now fitting them as standard practice.



For more information call us on **1300 363 109** or email **hospital.care@boc.com** or visit **www.boc.com/healthcare**

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The imminent death of fax?

Bradley Davis, GoLogic Group CEO

We know shared political views will divide a room and trigger conversation. Fax can elicit the same response? It's true!



few months ago, I presented to a group of Monash University Executive MBA students visiting the AusTrade Landing Pad in San Francisco, California. Thirty seconds into my presentation, audible gasps of disbelief accompanied the revelation that the fax industry was growing worldwide; while others who regularly work with fax technology confirmed the astonishing truth that fax was, indeed, still very much alive.

We can all agree that the Australian healthcare industry has a deep reliance on fax technology. As an industry, we have integrated with it so tightly that an organisation's movement away from fax is akin to self-imposed social isolation! Ouch. In 2017, IDC published a white paper reporting that the biggest driver for organisational fax usage was use of fax technology by the organisation's valued stakeholders, which, in turn, made use of fax for the organisation requisite for conducting business. Translation: "Everyone else is using fax. so I have to fax too."

Document transmission through fax technology has long been regarded as a security safe-haven, and still today is a reliable and stable method of document transfer that:

- Requires a direct peer-to-peer connection before transmission
- Meets strict privacy, security and other regulatory requirements
- Provides proof of physical delivery
- Is cost effective when compared to alternative methods of physical delivery

So, back to our room of astonished Executive MBA graduates... yes, fax continues to remain relevant and usage grows from year to year. But we must consider the questions:

- 1. Is there a better alternative technology to fax?
- 2. If so, how can it be implemented when a whole industry would seemingly need to switch in the same moment?

3. And if these concerns can be solved, where does that leave fax?

An alternative to fax?

GoLogic Group developed Australia's leading online fax solution, GoFax, over 15 years ago and continues to improve the product and serve its 10,000+ customer base. The team and I have been working incredibly hard on a new vision that embraces everything we've learned over the last 15 years while simultaneously recognising the industry's evolving requirements.

We bucked trends to move the industry from physical fax hardware to cloud based fax solutions, so, it won't be a surprise to our many loyal customers that we're blazing a new path of smooth transition from fax to user-verified, secure messaging delivery (SMD) and file transfer technologies.

We recognise both the demand for secure message delivery and its potential in improving upon the efficiency and effectiveness of fax technology. In many cases, when paired with secure digital file transfer, it serves as the next logical evolution from, and alternative to, fax transmission. Though, the problem still remains, how can you implement a shift from fax when the whole industry would seemingly need to do so simultaneously?

Introducing Notifyre — a transitional communications platform



Notifyre gives organisations the ability to transition from traditional messaging mediums like fax, to more secure, advanced and interoperable technology options like SMD. Organisations can easily make the shift to SMD in their own time without being in synchronised step with every other organisation in the industry.

The modular-based platform can be used for organisations as a foundation for secure communication, with the flexibility to implement messaging products they are familiar with like fax, whilst trialling and implementing new technologies to meet growing industry standards across healthcare.

Using the Notifyre directory and smart Al routing, Notifyre gives users the options to send different file types dependent upon the receiving user's options for allowed communication delivery, whether it's fax, SMS or SMD and file transfer.

To register for early access visit www.notifyre.com/beta

Features:

- Supports secure messaging delivery and file transfer (powered by STIRDIE)
- Send & receive fax/send and receive SMS

 built to support high volume messaging
- Advanced security features including data sovereignty
- Manage user roles and permissions across your organisation
- Access using online dashboard, desktop & mobile app, integrate with email
- API integrations available

Introducing STIRDIE — SMD and file transfer



STIRDIE is a block-chain based SMD and file transfer product. STIRDIE securely supports documents and other files within its secure messaging framework with advanced features to manage file permissions as well as maintaining a complete audit trail and history.

We are actively working towards connecting digital health-ready organisations and users to our secure messaging delivery directory.

By joining the STIRDIE secure messaging network, organisations and their users can set their privacy settings in the directory to "public" which will allow other users to initiate a connection and begin sending.

We're also building the STIRDIE "general public directory" that would include verified patient users in the flow of sensitive data, like lab results, prescription details and diagnosis outcomes.

Features:

- Secure, encrypted digital file transfer with no limitations to file type
- Connects you to verified organisations and users within the directory
- Manage user permissions and access options when sharing
- Maintain a complete and verifiable record of all digital transactions

To register for early interest visit www.stirdie.com/beta

So, where to from here?

Fax has proven its value over decades and has shown its adaptability in both form and function. Rightly so, Government and Industry will continue to push for development of new tools and ways of addressing industry hurdles. I feel confident in saying that we haven't read our last article declaring the imminent death of fax with SMD standing on its grave. These suppositions paint our choices in black and white when there is a whole colourful array of possibilities that take advantage of the strengths of SMD, as well as fax and many other communication mediums.

The transitional communication platform, Notifyre, will give users the confidence to experiment with SMD while maintaining established critical communication pathways with stakeholders over fax and SMS.

STIRDIE, a robust and interoperable SMD and file transfer technology, accessible within the Notifyre platform, will leverage off the backbone of unique fax number identifiers to determine whether the message and file intended for a recipient can be sent via SMD or by traditional fax.

History teaches us that the best outcomes are often derived from the utilisation of the strengths acquired from diversity. As part of that diversity within the available secure communication tools, I believe that fax will

continue to be relevant as it integrates with future technology, that it will play a part in the successful delivery and outcome of SMD within Australia, and that it will maintain a role in the way the industry does business for years to come. Politics may divide a room when opinions are shared but there's no reason for fax to do the same. We can utilise the best of all technologies for the benefit of the industry to ensure a positive outcome for organisations, practitioners and patients alike.

Join us in building the future of secure messaging interoperability

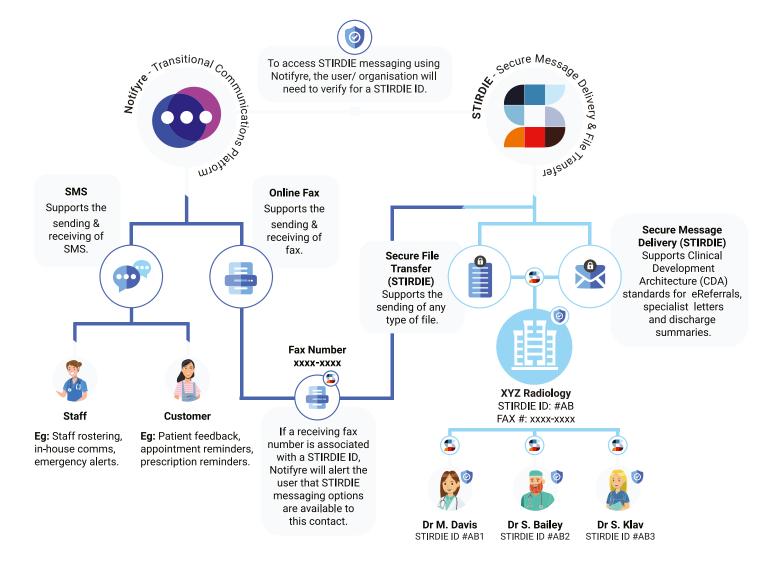
We're not blind to the fact that our Secure Message Delivery tool, STIRDIE, has obstacles to overcome, and we recognise that you might have some input or expertise that you'd like to see incorporated into future development. If that's the case, we're currently inviting consultation.

Please register your interest at

www.stirdie.com

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In Conversation...

with Professor Kathryn North

lane Allman



In Conversation provides a glimpse into the life of an 'outlier' — an exceptional person going above and beyond to improve outcomes in their field. In 2019, Professor Kathryn North AC won the prestigious Peter Wills Medal — Research Australia's flagship award — in recognition of her outstanding leadership in genomic medicine. which has helped drive Australia's international reputation in this field.

s Director of the Murdoch Children's Research Institute, Professor North plays a key role in integrating genomic testing and diagnosis into standard health care, with the aim to shorten diagnosis times and increase diagnostic rates to enable early intervention as well as provide access to treatment for people with genetic disorders and cancer. Through her own research, she has worked to identify new disease genes and improve diagnosis, setting the benchmark for ongoing research efforts.

Could you tell us about the research that led to your award?

This award, which I'm incredibly thrilled to receive, really recognises a range of roles I've played — not just as an individual researcher but as part of the efforts of hundreds of researchers in Australia and around the world working together to bring

advanced genomics into standard health

After training as a child neurologist, I became increasingly fascinated by genetics and its potential to predict, diagnose and help treat disease. The lure of research drew me back to the lab, with a major focus on inherited muscle diseases like muscular dystrophy, which can lead to lifelong disability in affected children and adults. My work in this area led me to discover the effects of the gene ACTN3, which influences muscle power and recovery from damage and was subsequently dubbed the 'gene for speed'.

We studied elite athletes and demonstrated that ACTN3 is a major determinant of skeletal muscle performance, but my team has also recently shown that variations in ACTN3

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influence disease severity and progression in Duchenne muscular dystrophy. We are now studying how it influences musclewasting associated with ageing, steroid use and cancer.

My research is just one example of how genomic medicine can make a tremendous difference. This led me to help establish Australian Genomics, a national network of clinical and laboratory genetics services, hospitals, universities, research institutions and patient advocacy groups working together to establish procedures to enable all Australians' access to genomic health care. The Murdoch Children's Research Institute is now at the forefront of the genomics revolution, translating the latest discoveries into clinical practice.

What is the significance to patients of having an accurate diagnosis?

An accurate diagnosis is hugely important because it gives answers to both the patient and the clinician. In my work as a paediatrician, I've seen parents desperately seeking an answer to the cause of their kids' intellectual or physical disability, wanting to know about their child's future and whether they would have other affected children.

Previously, we just couldn't answer these questions. Advances in genetic technology mean all genes can now be sequenced quickly and cheaply, and the information used to predict, diagnose and treat rare diseases as well as many forms of cancer.

What advances have we seen for patients in the genetics area in the last 20 years?

Medical genetics and genomics has changed dramatically since the mid 90s. In the past we were able to give families with affected children a clinical description, but couldn't accurately put a label on what exactly was wrong.

The Human Genome Project and the development and rollout of advanced next-generation, ultrarapid gene sequencing have been an absolute game changer. I couldn't have imagined that we'd be using genome technologies in the clinic within two years of using it in a research setting, increasing the diagnostic rate fivefold, and having geneticists working side by side with intensive care physicians to provide that diagnosis within three days.

We can now provide a genetic diagnosis for 50 to 90% of our families and answer these difficult questions.



"I've seen parents desperately seeking an answer to the cause of their kids' intellectual or physical disability, wanting to know about their child's future and whether they would have other affected children."

How do you think advances in genomics and genetics will impact children and their families in the next 20 years and beyond?

Genomics is absolutely going to transform healthcare delivery. Using global data gathered and shared responsibly from millions of people, we can be much more accurate in making a prediction about the individual. We will be able to move to a healthcare model of prediction, prevention, early intervention and targeted treatment, and eventually improve and maintain the wellness of the population rather than focusing solely on illness.

This will no doubt come with significant challenges. To overcome these we need to approach genomics at the local and national level, and partner globally to be able to apply our insights to individuals accurately and with meaning.

Why do we need to engage with the community about genetic research?

It's incredibly important we engage at a public level so the community can understand our work. We need to bring the public along on this journey and explain the applications and great benefits of applying 'big data' and genomic technologies to benefit individual patients. It's up to us as doctors and researchers to convey those messages accurately, strongly and with a united voice.

Research Australia's Health and Medical Research Awards are important because they increase the visibility of science in general and medical research in particular within the community. They bring recognition to the researchers behind some of Australia's most exciting medical and health discoveries, and kickstart conversations we need to be having to harness the possibilities of science for community benefit.





Out & About

Research Australia's 17th Health and Medical Research Awards — held on 14 November 2019 at Metropolis Southbank in Melbourne — celebrated the achievements of individuals and organisations that have helped further Australian health and medical research excellence. The annual awards provide an opportunity to recognise scientists, doctors and extraordinary Australians who are working to bring life-changing breakthroughs to patients.







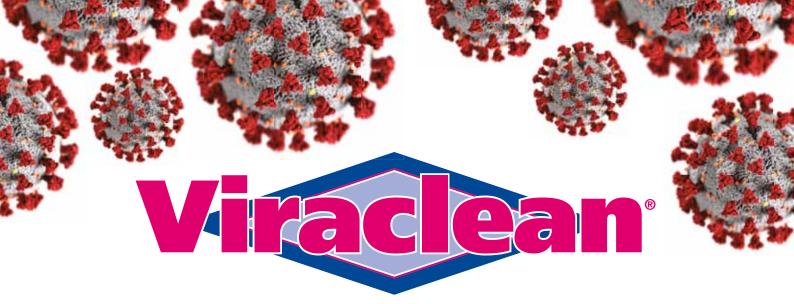




1. Jenny Morawska (RA Director) and Dr Lisa Gillinder (Frontiers Research Award Highly Commended Finalist from Mater Health). 2. Prof Kathryn North AC with other awards attendees. 3. Research Australia Managing Director and CEO Nadia Levin with Federal Minister for Health Greg Hunt. 4. Chris Chapman, Nadia Levin, Peter Wills Medal Award Winner Prof Kathryn North AC from the Murdoch Children's Research Institute and Peter Wills AC. 5. A/Prof Greg Kaplan (RA Director), Dr Christine Keenan (Griffith University Discovery Award Winner from the Walter and Eliza Hall Institute), Prof Bonnie Barber (Executive Dean — Research [Health] from Griffith University), Dr Alexandra Bannach Brown (Griffith University Discovery Award Highly Commended Finalist from Bond University). 6. Alexandra McManus (Previous RA Director), Prof Gordon Lynch (Advocacy Award Winner from the University of Melbourne), Annabelle Wilson (Advocacy Award Highly Commended Finalist), the Hon Chris Bowen (Federal MP and Shadow Minister for Health), Duncan McPherson OAM (Advocacy Award Highly Commended Finalist). 7. Research Australia Board: Chris Chapman (RA Chair), Jenny Morawska (RA Director), Prof Alexandra McManus (Previous RA Director), Prof Mary Foley AM (RA Director), A/Prof Greg Kaplan (RA Director), Nadia Levin (RA Managing Director and CEO).







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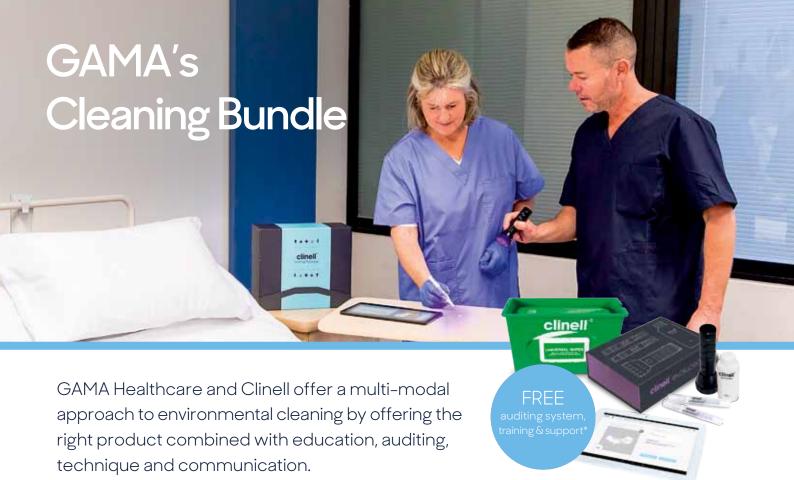


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