THE AUSTRALIAN
HOSPITAL HEALTHCARE
BULLETIN AUTUMN 2018

THE SAFETY ISSUE

Preventing food allergy tragedies

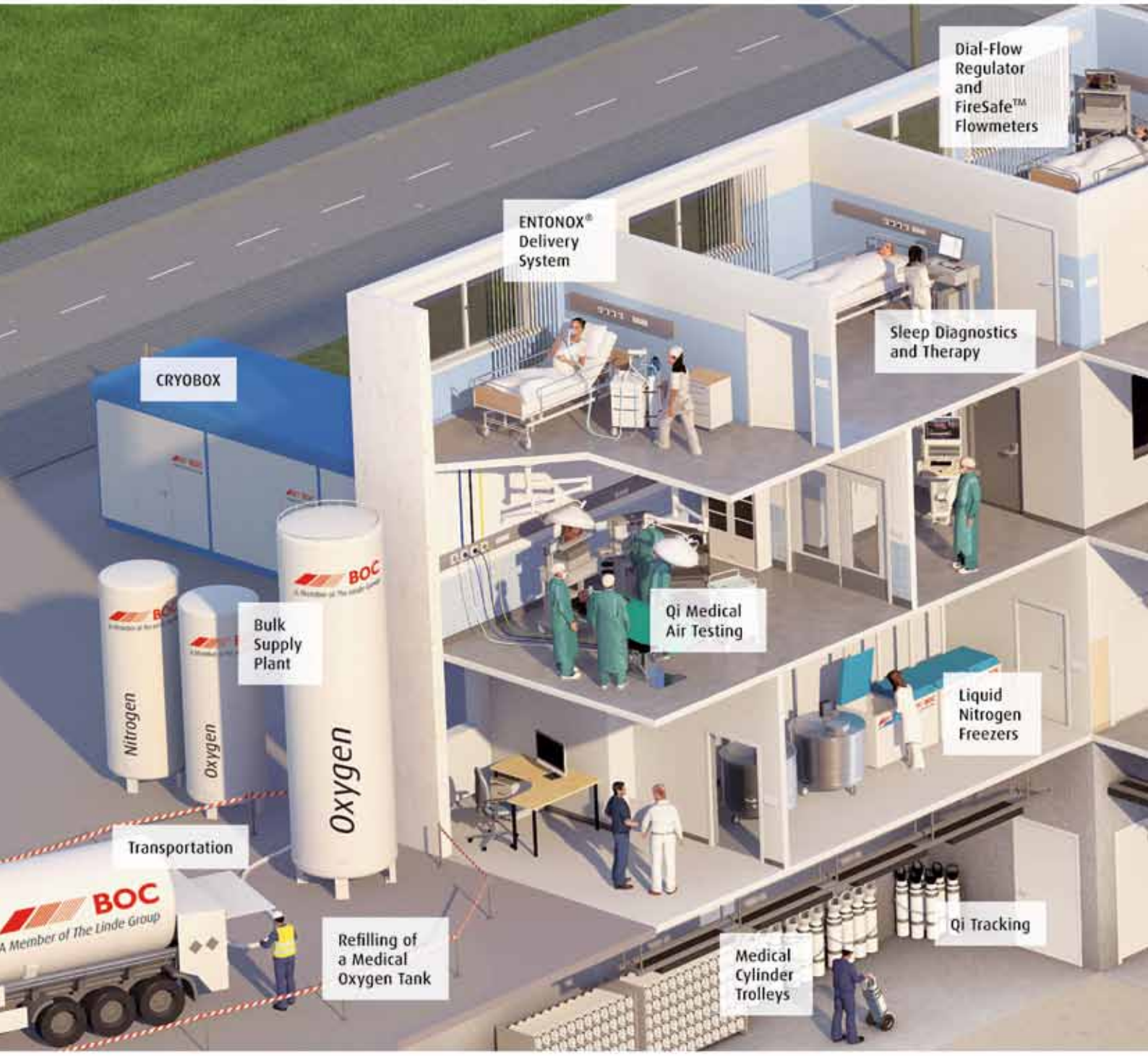
INFECTION CONTROL
Information underload

SAFETY
Tackling errors in healthcare

LEADERSHIP
Dr Peggy Brown, AO

PP100022780

BOC – Your partner for inspired healthcare.



INHALO®

Faster, Safer, Lighter.

The revolutionary INHALO® design integrates cylinder, regulator and flowmeter into a single, robust, lightweight and reliable unit. The INHALO® features a high content gas package which is faster, safer and easier to use than a standard cylinder.

Medical Gases

Leading the way.

Leading the way in the development and use of gases in medicine, our aim is to enable healthcare professionals to provide better and safer patient care. BOC offers a complete range of Medical and Scientific Gases that will meet your every need.

Qi Medical Gas Services

Compliance, Safety, Reliability & Efficiency.

With over 60 years experience providing gas solutions and support, backed by the technical expertise and professional standards, BOC's Qi MGS has an effective maintenance program to record all work performed on your assets and provide evidence to satisfy any regulatory requirements.

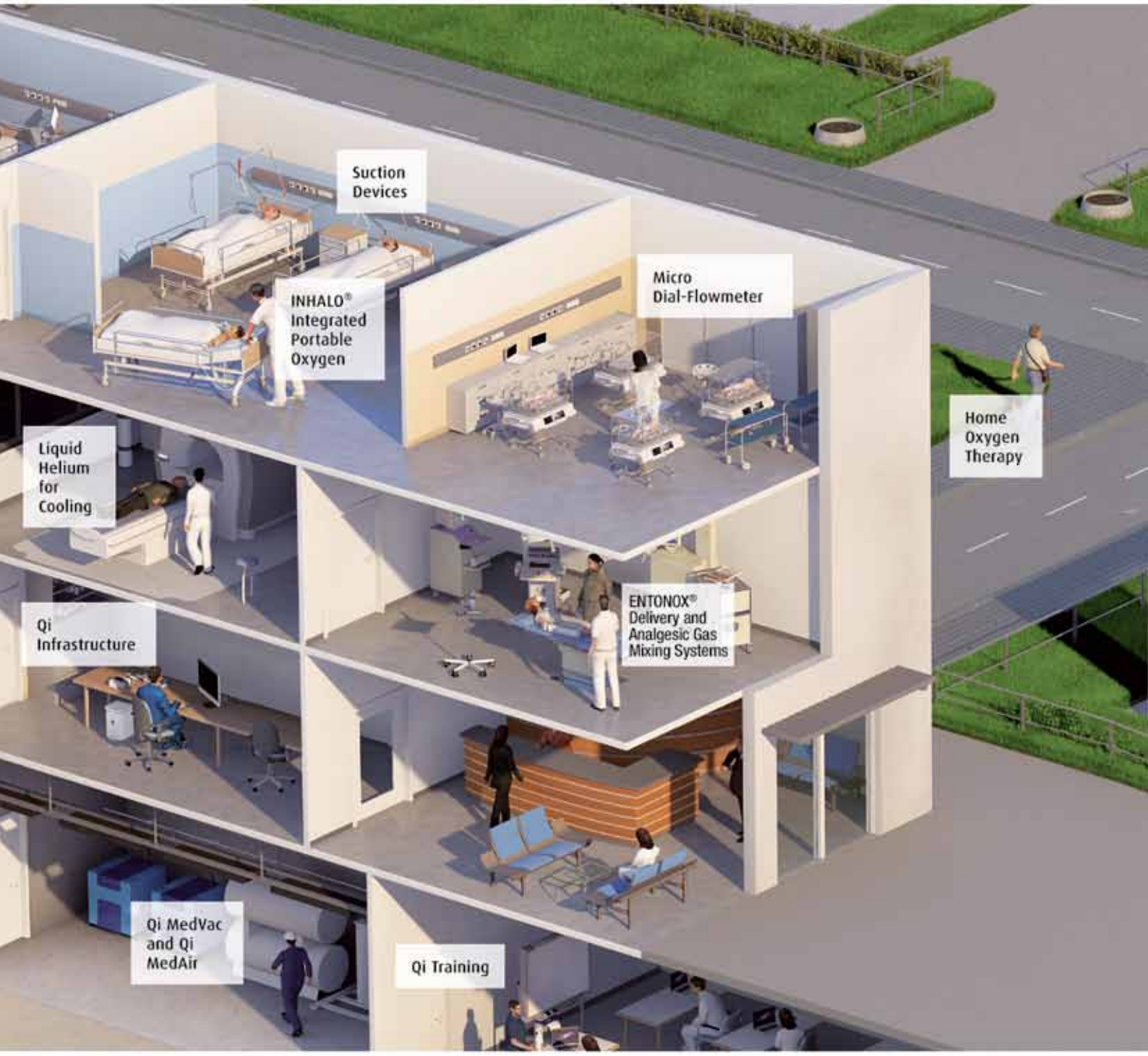
Medical Devices

Equipped for care.

BOC Healthcare is proud to offer our extensive range of precision high quality medical gas devices which provide a safer and more reliable way to use the medical gases and vacuum in your facility.

BOC: Living healthcare

BOC
A Member of The Linde Group



Home Oxygen Therapy

We don't take breathing for granted.

Our goal is to create a better quality of life for our patients. Working with the healthcare community, we provide innovative technology and a wide variety of patient focused services.

Sleep Care

A real awakening.

BOC Sleep Care offers a leading independent sleep diagnostic and therapy service. With our qualified sleep therapists and breadth of independent product offers, we provide dedicated support uniquely designed to meet the challenges of sleep apnoea care.

Australia:
BOC Limited
ABN 95 000 029 729
BOC Healthcare AU
10 Julius Ave
North Ryde NSW 2113

Hospitalcare:
T: 1300 363 109
F: 1300 363 438
E: hospital.care@boc.com
W: www.bochealthcare.com.au

Homecare:
T: 1800 050 999
F: 1800 624 149
E: homecare.au@boc.com
W: www.bochomecare.com.au

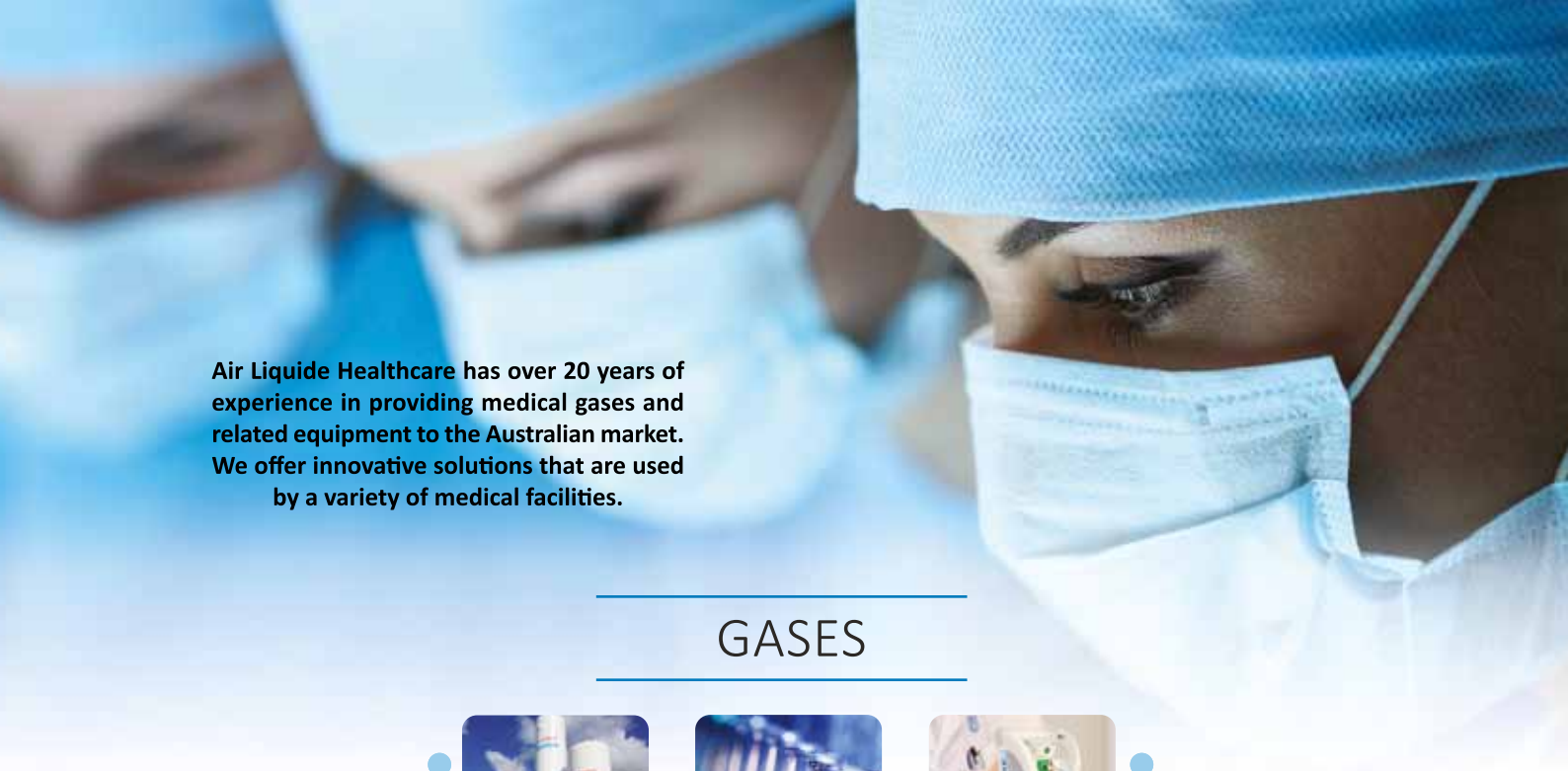
Sleep Care:
T: 1300 732 695
F: 1300 303 253
E: bocsleepcare@boc.com
W: www.bocsleepcare.com.au

CONTENTS

Cover image: © stock.adobe.com/au/LIGHTFIELD

COVER FEATURE

THE SAFETY ISSUE



Air Liquide Healthcare has over 20 years of experience in providing medical gases and related equipment to the Australian market. We offer innovative solutions that are used by a variety of medical facilities.

GASES

Medical Gases & Bulk Liquid Vessels
Our qualified technical experts are able to help you determine the best sized vessel for your needs and applications.

Special Gases

Integrated Cylinders
Our TAKEO$_2$™ and Presence™ cylinders are ideal solutions for safer and easier use of medical oxygen.

EQUIPMENT

Medical Gas Equipment

Cryogenics

Resuscitation

Dental Equipment
We provide solutions for the challenges dentists face every day with the experience, expertise, products and services you need.

SERVICES

Direct Maintenance
We offer preventative and corrective direct maintenance of your medical gas dispensing equipment, ensuring you are fully compliant with Australian Standards.

Education

Piping & Installation

Cylinder Management
Total Gas Service (TGS) is a unique program which embeds our technician in your operation to work closely with your medical and engineering teams.

Air Liquide HEALTHCARE

For more information, please contact **1300 360 202**
or visit **www.airliquidehealthcare.com.au**

CONTENTS

THE AUSTRALIAN HOSPITAL + HEALTHCARE BULLETIN

REGULARS

DAILY NEWS

hospitalhealth.com.au
/hospitalhealth
hospital_health

STRAIGHT TO YOUR INBOX

hospitalhealth.com.au/subscribe

STRAIGHT TO YOUR DESK

hospitalhealth.com.au/magazine

STRAIGHT TO YOUR PHONE

SCAN to see the latest Hospital and Healthcare news

DESIGN IN HEALTH

LEADERSHIP

TECHNOLOGY

OUT & ABOUT

Published quarterly, The Australian Hospital and Healthcare Bulletin is an independent voice for the hospital, health and aged-care professional containing regular features on major projects, healthcare disciplines, eHealth, government updates, news, conferences and events.

ONLY ZIP TECHNOLOGY TRANSFORMS WATER INTO A FORM YOU'LL INSTANTLY LOVE.

As world leaders in instant drinking water systems, Zip invented the innovative HydroTap, the smart and essential addition for every kitchen. Our integrated Australian-made appliance combines patented PowerPulse™ boiling and Direct DryChilling with MicroPurity filtration technologies to create pure-tasting boiling and chilled water you will love in an instant.

When water is this convenient and irresistible you'll love drinking more of it.
To improve your clients' hydration and well-being, **discover more at zipwater.com**

ZIP HYDROTAP | **PURE TASTING** | **INSTANT** | **BOILING** | **CHILLED** | **SPARKLING**

THE WORLD'S MOST ADVANCED DRINKING WATER SYSTEM

Zip®

THE AUSTRALIAN HOSPITAL + HEALTHCARE BULLETIN

CONNECT. SEARCH 'HOSPITALHEALTH'
PRINT / DIGITAL / MOBILE
VISIT **WWW.HOSPITALHEALTH.COM.AU**

Editor: Laini Bennett
ahhb@wfmedia.com.au

Publishing Director/MD: Geoff Hird

Art Director/Production Manager: Julie Wright

Art/Production: Colleen Sam, Wendy Blume

Circulation: Dianna Alberry, Sue Lavery
circulation@wfmedia.com.au

Copy Control: Mitchie Mullins
copy@wfmedia.com.au

Advertising Manager:
Nicky Stanley
0401 576 863
nstanley@wfmedia.com.au

Advertising Sales:
Nikki Edwards
+61 2 9487 2700
nedwards@wfmedia.com.au

PUBLISHED BY
Westwick-Farrow Media
A.B.N. 22 152 305 336

wfmedia connecting industry

www.wfmedia.com.au

Head Office
Cnr. Fox Valley Road & Kiogle Street,
(Locked Bag 1289)
Wahroonga NSW 2076
Ph: +61 2 9487 2700
Fax: +61 2 9489 1265

If you have any queries regarding our privacy policy please email privacy@wfmedia.com.au

Subscriptions for unregistered readers - price on application

Printed and bound by SOS Print + Media
Print Post Approved PP100022780
ISSN 2204-3438 PRINT
ISSN 2204-3446 DIGITAL

Welcome to your Autumn edition

In October 2015, 13-year-old Louis Tate entered a Victorian hospital for overnight observation. Louis had a history of asthma and allergies to cow's milk, raw eggs, peanuts and tree nuts, and his mother told the hospital as much when she brought him in for an asthma exacerbation.

Yet within 24 hours, Louis had died. The Victorian coroner's inquest found that a contributing factor to his death was anaphylaxis, believed to be from a single mouthful of breakfast he ate at the hospital.

Louis should have been safe in hospital. As should any patient.

So, as part of our safety-themed Autumn issue, we review the Victorian coroner's findings and lessons learned from the Louis Tate inquest in *It should never have happened*, then examine the food safety risk management strategies organisations should have in place in *Preventing food allergy tragedies in health and aged care facilities*.

Continuing the safety theme, we also look at:

- the fight against counterfeit medications,
- hospital acquired complications and financial penalties,
- how to implement a water safety plan to prevent Legionella from flourishing,
- safely treating patients with anorexia and bulimia, and
- a day in the life of WHS Advisor Hardik Jani, who is dedicated to providing a safe work environment for staff at Bendigo Hospital.

As editor of AHHB, I'm in the fortunate position of meeting and speaking to some incredibly talented people. In this issue, join me *In Conversation* with the award-winning Dr Elizabeth Rakoczy, who has created a gene therapy to treat wet macular degeneration, and meet National Mental Health Commission CEO Dr Peggy Brown, AO, who shares astute insights into the leadership lessons she's learned over her 30-year career, in *The road less travelled*.

Our Design in Health section features two stunning buildings, the Victorian Comprehensive Cancer Centre (VCCC) in Melbourne and the new Australian Institute of Tropical Health & Medicine (AITHM), set in the paradise that is Thursday Island.

There's plenty more, so settle in for an engaging and informative read.

Laini Bennett
Editor, AHHB
ahhb@wfmedia.com.au

WANT TO CONTRIBUTE?

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

Rollex MEDICAL

The Medical Refrigeration Specialists

Rollex Medical is the major supplier of Medical and Pharmaceutical Refrigeration in Australasia with over 7,000 units in operation.

The MATOS® PLUS series offers a range of European-built Medical Refrigerators / Freezers featuring an aluminum interior and the latest technology in controllers and compressors for accurate temperature stability.

Also available with our very own in-built patented technology which provides Cloud based Real-Time Temperature Monitoring & Fridge Rescue system.

Models range in capacity from 68 litres to 1460 litres.

MATOS

Tel: 1300 880 441 Email: sales@rollexmedical.com

Web: www.rollexmedical.com.au

New Zealand: Patent 596323 | Australia: Patent 2012336431 | Europe: Patent 12846969.9

The Rounds
Updates in Healthcare

On your best behaviour

New codes of conduct for all nurses and midwives in Australia took effect on 1 March 2018. The codes set out the legal requirements, professional behaviour and conduct expectations for all nurses and midwives in all practice settings.

The Nursing and Midwifery Board of Australia (NMBA) sets the standards, codes and guidelines, which together establish the requirements for professional and safe nursing and midwifery practice in Australia.

The new codes incorporate professional boundaries expectations, which are no longer separate documents. They also provide more guidance around:

- bullying and harassment,
- professional relationships,
- cultural practice and respectful relationships,
- lack of care,
- financial arrangements, and
- professional behaviour.

©stock.adobe.com/au/3d_generator

The codes can be viewed on the professional standards section of the NMBA website, alongside a suite of resources the NMBA has developed to support nurses and midwives to get to know their new codes, including conduct case studies and fact sheets. The NMBA has also launched a video promoting the values and principles of the codes, and a vodcast presentation explaining the key conduct expectations. The NMBA is asking nurses and midwives to view these resources which can count towards continuing professional development (CPD) hours.

Also commencing from 1 March 2018 in Australia, the International Council of Nurses Code of ethics for nurses and the International Confederation of Midwives Code of ethics for midwives. These documents replace the NMBA Code of ethics for nurses - August 2008 and the NMBA Code of ethics for midwives - August 2008.

How *not* to sneeze

If you want to smother a sneeze, pinching your nose while clamping your mouth shut isn't a good idea, warn doctors in the journal *BMJ Case Reports*.

One young man managed to rupture the back of his throat during this manoeuvre, leaving him barely able to speak or swallow, and in considerable pain.


©stock.adobe.com/au/olly

Spontaneous rupture of the back of the throat is rare, and usually caused by trauma, or sometimes by vomiting, retching or heavy coughing, so the 34-year-old's symptoms initially surprised the emergency care doctors.

The young man explained that he had developed a popping sensation in his neck which immediately swelled up after he tried to contain a forceful sneeze by pinching his nose and keeping his mouth clamped shut at the same time.

A little later he found it extremely painful to swallow and all but lost his voice.

When the doctors examined him they heard popping and crackling sounds (crepitus), which extended from his neck all the way down to his ribcage — a sure sign that air bubbles had found their way into the deep tissue and muscles of the chest, which was subsequently confirmed by a computed tomography scan.

Because of the risk of serious complications, the man was admitted to hospital, where he was fed by tube and given intravenous antibiotics until the swelling and pain had subsided.

After seven days he was well enough to be discharged with the advice not to block both nostrils when sneezing in future.

"Halting sneezing via blocking [the] nostrils and mouth is a dangerous manoeuvre, and should be avoided," caution the authors.

"It may lead to numerous complications, such as pseudomediastinum [air trapped in the chest between both lungs], perforation of the tympanic membrane [perforated eardrum], and even rupture of a cerebral aneurysm [ballooning blood vessel in the brain]," they explain.

Doctor convicted, fined $100,000

A former doctor who continued to practise the profession after being suspended by the Medical Board of Australia (the board) has been fined $100,000 for breaching the National Law.


©stock.adobe.com/au/Paul

Mohamad Anwar, who did not attend the Magistrates Court in Melbourne, pleaded guilty through his legal representation and was convicted of four charges of 'holding himself out' as a registered medical practitioner when he was not.

The charges were laid following an investigation by the Australian Health Practitioner Regulation Agency (AHPRA).

New class of antibiotics found in soil

A whole new class of antibiotics, with the potential to treat superbugs, has been isolated from bacteria that live in soil. US researchers looked at the DNA from over 1000 soil samples to find the new drug, which fights bacteria differently to most other drugs. The new antibiotic was able to kill drug-resistant skin infections in animals, said the researchers.

This class, called malacidins, kills several multidrug-resistant, disease-causing bacteria — including the methicillin-resistant *Staphylococcus aureus* (MRSA) skin infection in rats.

New antibiotics are needed to combat the rise of antibiotic-resistant infections. As most licensed antibiotics were originally extracted from microorganisms, interest has focused on looking for new drugs in diverse environmental samples.

The discovery has been reported in *Nature Microbiology*.

Program helps cancer survivors

A nutrition and physical activity trial for cancer survivors has found that participants who completed the program maintained lifestyle improvements, reducing the risk of their cancer recurring.

The trial results, undertaken by the Cancer Council NSW and the University of Newcastle, were published in the *American Journal of Health Behaviour*. They show that weight and BMI remained stable and participants kept up increased levels of physical activity in the 12 months post trial.

"Both of those factors — physical activity and a healthy weight — have been shown to reduce the risk of cancer recurrence and improve the psychosocial health of cancer survivors, so those results are really promising," said Cancer Council NSW Director of Cancer Support Services Annie Miller.

"We found that 12 months after the trial, 67% of participants continued to improve their level of physical activity, 63% maintained increased levels of moderate-to-vigorous exercise and 46% maintained their weight," Miller continued.

Because cancer survivors face many physical and emotional challenges after treatment, Cancer Council NSW offers its own lifestyle program for cancer survivors: ENRICHing Survivorship.

For more information, visit www.cancercouncil.com.au/ENRICH.

30% of emergency patient cannulas unnecessary

Research in a major Australian hospital has found that 30% of cannulas given to emergency department patients are not required, and that reducing the number of needles used in emergency could ultimately save the nation's healthcare system more than $13 million every year.

The research was undertaken at Royal Brisbane and Women's Hospital (RBWH) Emergency and Trauma Centre where, following a three-month trial, the number of cannulas inserted was reduced to three in 10 emergency patients. In response the hospital has developed an educational program known as CREDIT, which is being taken up by other hospitals nationally.

"In almost all emergency patients cannulas are put in too soon. They're great to easily give patients fluids and medications or have blood taken, but they aren't always needed," said RBWH Emergency and Trauma Centre Senior Staff Specialist Professor Louise Cullen.

"We're needlessly spending 15 minutes of staff time to put patients through an unnecessary and painful procedure that's increasing their risk of contracting a blood infection."[1]

RBWH Emergency and Trauma Centre Clinical Research Nurse Tracey Hawkins said hospitals needed to change the culture of needles being a routine part of the admission process.

"Now at every clinical handover, we ask staff to be 80% sure they would use a cannula before they insert one," she said. "Evidence showed us that many of our patients were getting cannulas that were not being used and through our research we realised that there was a culture of the 'just in case cannula' involved.

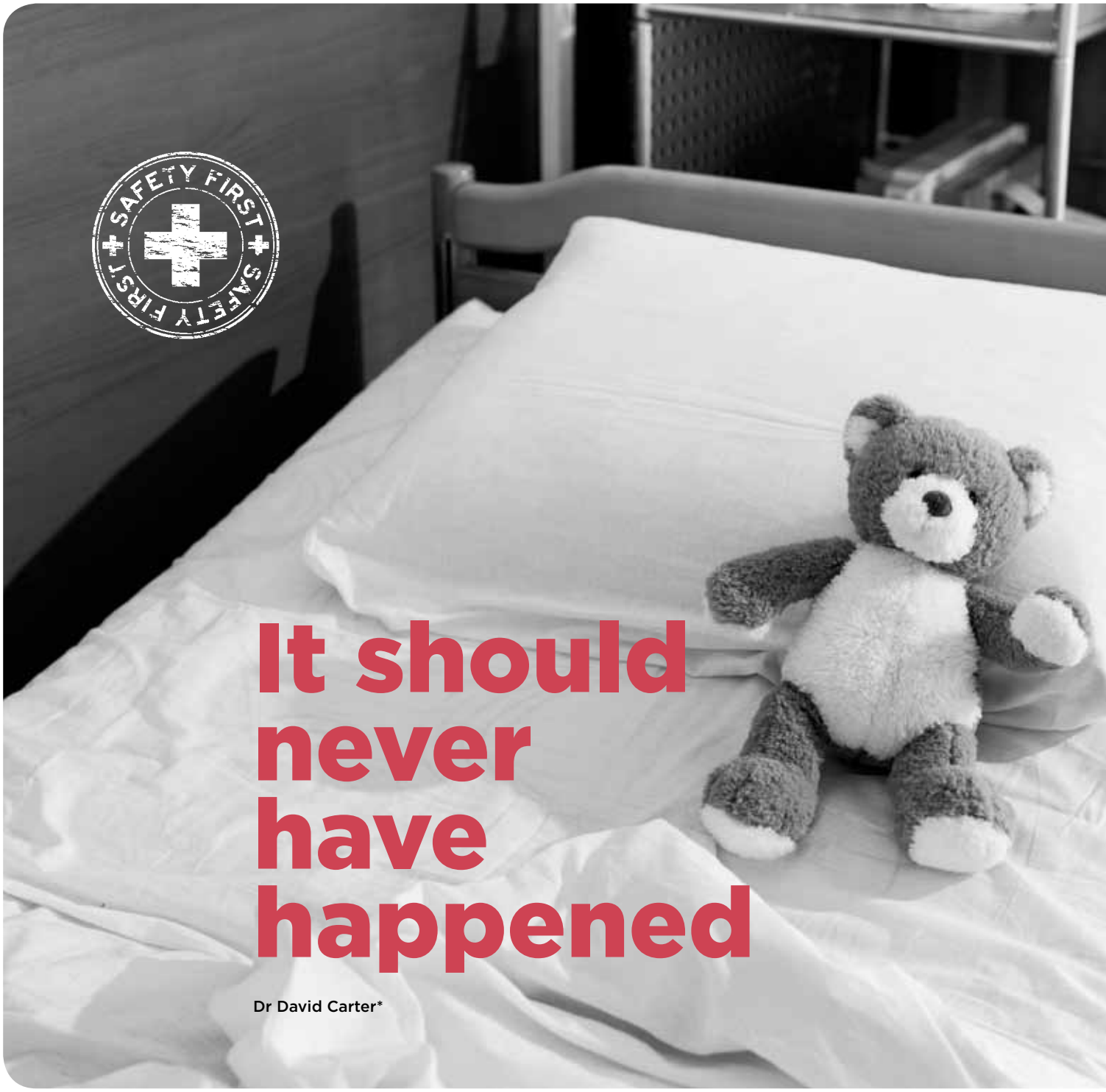
1 in 4 joint replacement surgeries unnecessary

An estimated one in four joint replacement surgeries for people with osteoarthritis (OA) are unnecessary, according to a new report.

In 2016, nearly 100,000 Australians received joint replacements to treat OA of the hip or knee — at an estimated cost of over $2 billion. Between 1994–2014, the state of Victoria had a 175% increase in hip replacements and 285% increase in knee replacements, with no sign of demand slowing.

A new report into OA in Victoria has suggested a new 'Model of Care for Osteoarthritis of the Hip and Knee', which would save money and improve outcomes for many patients. The report, published by MOVE, the national consumer-based organisation for muscle, bone and joint health, carries a series of recommendations for diagnoses, management and treatment of hip and knee OA in Victoria, which challenge many of the existing practices:

- OA can be diagnosed without X-rays.
- OA can be successfully treated in a majority of cases without surgery.
- Joint replacement surgery should only be a treatment of last resort.
- Pain management can be improved.



It should never have happened

Dr David Carter*

The tragic death of 13-year-old Louis Tate at Frankston Hospital in Victoria made headlines across the country. Tate, who had a well-managed but severe allergy to cow's milk, nuts and eggs, died at Frankston Hospital following a severe anaphylactic reaction caused by food served to him by the hospital. Tate required intubation, and died from a rare complication of anaesthesia, malignant hyperthermia.

The findings of a coronial inquest into his death were recently handed down. The inquest raised a range of issues, especially bringing attention to the need for all hospital services and activities (not only the obviously 'clinical' ones) to be an active part of the patient safety agenda, and the need for hospital and health services staff to follow proper procedures for securing evidence for internal investigation and potential coronial cases.

Louis Tate

Coroner Byrne made a series of observations that hospitals and health services managers must take note of in light of the death of Louis Tate.

The history

Louis Tate was admitted to Frankston Hospital late one evening for observation and oxygen therapy following an exacerbation of his asthma. Admitted to the paediatric ward, Louis' mother advised nursing staff of his food allergies and what he was able to eat for breakfast, all of which was documented in Tate's medical record. Discharge was arranged the following morning, after approximately eight hours in the hospital, with Louis' asthma having resolved.

Breakfast was prepared for Louis in the paediatric ward kitchen by a personal care assistant. The Registered Nurse who had admitted Louis gave evidence at the inquest that she advised her colleague that Louis could be served Weet-Bix with soy milk. This conformed with the advice provided by Louis' mother and Louis' own meal request given to the personal care assistant. However, nothing about Louis' allergies was recorded on a whiteboard in the paediatric ward kitchen that was used for this purpose, nor was anything recorded at the bedside to indicate or warn hospital staff of Louis' allergies.

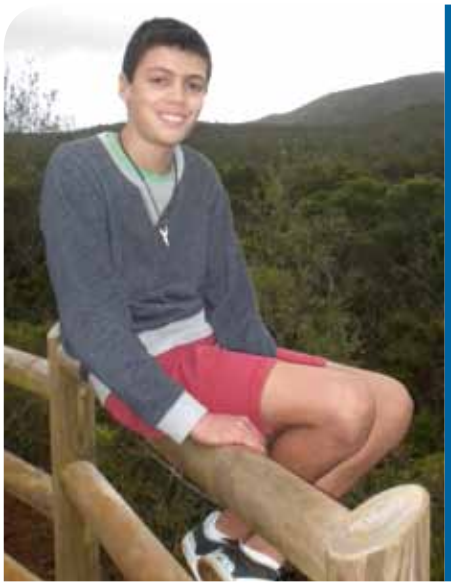
Minutes after his breakfast was served, Louis walked to the nurses' station and reported that he was experiencing a 'tingling' on his lips. Approximately two-and-a-half hours later, he died.

What went wrong?

After Louis told the nurses about the tingling, he was actively treated for his anaphylactic reaction, necessitating multiple MET calls, summoning of the paediatric retrieval team and eventual intubation. Louis had, however, eventually suffered malignant hyperthermia, a rare reaction to anaesthetic agents used to facilitate his intubation. Following cardiac arrest, he was declared deceased in spite of further, lengthy resuscitation measures.

Following an inquest into his death, Coroner Phillip Byrne concluded that Louis experienced an allergic reaction "virtually immediately after the first mouthful of breakfast". The Coroner was "comfortably satisfied" that Louis suffered an anaphylactic reaction to the breakfast provided, and whilst all of the medical management of his deterioration was timely and appropriate, Louis suffered a reaction to an anaesthetic agent which resulted in malignant hyperthermia "which could not reasonably have been foreseen".

Coroner Byrne concluded that the inquest into the death of Louis Tate was "one of the saddest cases I have dealt with over the decades" observing that there was a "cruel irony" attached to the events that led to his death. However, Coroner Byrne made a series of observations that hospitals and health services managers must take note of in light of the death of Louis Tate.



"All hospital services, activities and staff — not only the obviously 'clinical' ones — need to be an active part of the patient safety agenda."

Findings of the coronial inquest: crucial evidence destroyed?

An initial autopsy report into the death concluded that Louis' death had been asthma related, and not due to an anaphylactic reaction to elements found in the breakfast served to Louis Tate by the hospital. Coroner Byrne noted that "Louis' parents were in furious disagreement" with these initial findings, and this was the cause of engaging in an inquest. Given this conflict, and the importance of the allergy question, it was important to establish precisely what the allergen in the breakfast was.

Coroner Byrne, however, was frustrated in his attempts to establish what the allergen was. The hospital had failed to isolate the food that Louis had been given for the purpose of testing. A carton of milk had been delivered for testing; however, the Coroner was unable to satisfactorily confirm whether this carton of milk delivered for analysis by the hospital was in fact 'the' carton of milk from which Tate's portion had been served. In his findings, Coroner Byrne wrote:

Even without knowledge that Louis would ultimately die, the fact that very shortly after commencing breakfast he suffered symptoms indicative of an allergic reaction... dictated that the foodstuff that may have contained the allergen should have been retrieved and secured, if for no other reason than for the purpose of internal investigation.

As should be well known, in general, nothing should be done to a body after death if it may become a coroner's case. This includes items of equipment, implanted or otherwise. In the case of Louis Tate, this should have included the entire chain of food and food supply equipment — the actual food served to Louis, the food tray and implements, alongside food supplies located in the paediatric ward kitchen.

Findings of the coronial inquest: the food service regime

The hospital conceded to the coronial inquest that there was no written policy regarding food handling for patients with an allergy on the paediatric ward at the time of Louis Tate's admission. What did exist was an ad hoc process that relied on oral communication between the personal care assistant and nursing staff as to what food a patient could be given. However, the hospital did not concede during the inquest that Louis was given food or drink to which he was known to be allergic.

The coroner referred to these deficiencies in policy and procedure as 'systemic', and the hospital has since revised and strengthened its procedures and training related to food preparation and allergies. It is clear that policies, procedures and training were in place in the larger, centralised food services area. However, these had not been translated and adapted for the myriad of other situations in which food is served by hospital staff.

Dr Deborah Debono, a healthcare quality and safety researcher at UTS, calls this type of misalignment "a disparity between work-as-imagined versus work-as-[actually]-done". A more clear-eyed view of work at the clinical coalface is required, so that those managers and others who are distant from it do not promote policy and procedure that imagines or simply misses situations and practices where work and care is delivered.

The involvement of food service work in the events leading to Louis Tate's death highlights how all hospital services, activities and staff — not only the obviously 'clinical' ones — need to be an active part of the patient safety agenda in a manner attentive to the actual practices and work of health care, rather than those imagined — or forgotten — to be taking place.

Reference:

1. Inquest into the Death of Louis Oliver Tate (2018) Coroners Court of Victoria COR 2015 5382 (26 February 2018) (Coroner Mr Phillip Byrne) http://www.coronerscourt.vic.gov.au/home/coroners+written+findings/findings+-+538215+louis+oliver+tate

*Dr David Carter is a lecturer in the Faculty of Law at UTS where he focuses on the legal, regulatory and governance challenges involved in the delivery of safe, effective and sustainable healthcare services. At present, he teaches and writes on the regulatory practice of health law, public health law and criminal law, applying theoretical and empirical methods in aid of advancing legal and regulatory strategies for reducing the burden of healthcare-related harm and death.

Key points:

- The death of Louis Tate reinforces the need for continued improvement of the quality and safety of our health services.
- All hospital services, activities and staff — not only the obviously 'clinical' ones — need to be an active part of the patient safety agenda.
- Hospitals and health services should review their policy, procedure and training for food services activities and allergies — including where food is served outside of centralised food service areas.
- Policies and procedures that guide staff to prepare for potential internal investigation or coronial cases should be revised to include reference to non-medical equipment and materials where appropriate.

Qi Medical Gas Services

Preventive Maintenance. Compliance, safety, reliability and efficiency.

With over 60 years experience providing gas solutions and support, BOC's Qi Maintenance program's dedicated resources are backed by the technical expertise and professional standards that the hospital environment demands.

The development and maintenance of a hospital's medical gas system is Qi. Australian Standards (AS) and equipment manufacturer recommendations form BOC's benchmark for service. Our routine maintenance tasks are performed to BOC best operating practice which meet these requirements.

Depending on the design of your individual system, BOC can customise a program that includes 12 monthly service and maintenance of your hospital's medical gas reticulation system, including surgical tool control units, medical gas pendants, regulators, flow meters, compressors, vacuum plant and other medical gas related equipment.

BOC's preventive maintenance program is designed to operate efficiently and improve the life of your medical gas system. Creating a robust and reliable system avoids unplanned interruptions to supply, builds system confidence and contributes towards greater patient safety.

Maintenance plans are carried out by our skilled service technicians according to applicable standards and the manufacturers' servicing recommendations. The service of your equipment at regular intervals includes testing, maintenance repair, parts replacement and tuning.

With our broad Qi Medical Gas Services portfolio, BOC can help you meet the considerable challenges of compliance and safety in today's healthcare environment. At the same time, we provide balanced insight and flexible tools to improve control and coordination of medical gases throughout your facility.

Ask us how we can help you manage your servicing needs with a tailored servicing and repair plan for best practice preventive maintenance for:

- Gas manifolds
- Zone isolation boxes
- Breathing air testing
- Medical Gas Devices
- Medical gas alarms
- Medical gas outlets
- MedAir Plant and MedVac Plant

BOC: Living healthcare

BOC
A Member of The Linde Group

»

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

How many more Australian healthcare workers have to sustain a needlestick injury before safety engineered devices become routine?

Dr Cathryn Murphy PhD Honorary Adjunct Associate Professor, Faculty of Health Sciences & Medicine, Bond University, Queensland. CEO – Infection Control Plus Pty Ltd

A decade has now passed since the annual number of needlestick injuries (NSIs) among Australian healthcare workers (HCWs) was identified as more than 18,500 per year.[1] At the same time calls were made for widespread policy reform including routine NSI monitoring and mandated use of safety engineered devices (SEDs).[1] This brief report discusses Australian and international drivers, impediments and progress in prevention of occupational needlestick injury. It also embraces innovation in applications to better understand local NSIs and predict the organisational impact of investing in SEDs.

Australia remains one of the few developed countries without legislation or jurisdictional directives mandating comprehensive adoption and use of SEDs.[2] Healthcare workers in other similar countries or regions with longstanding infection control and prevention, including the United States[3], some Canadian provinces[4] and Europe[5] are all protected against NSIs by regulation mandating the use of SEDs. Other Asian countries including Korea[6] and Japan[7] have also recognised benefits in adopting SEDs rather than continuing to use traditional sharp needles and objects.

Despite the absence of a standardised national surveillance system for measuring the incidence of NSIs among Australian HCWs, proxy measures such as The Australian Council on Healthcare Standards (ACHS) most recent report of clinical indicator data for 2009–2016 indicate the overall rate of NSIs remains constant. Data over the eight-year period indicate that healthcare organisations have on average reported 4130 parenteral exposures each year. A parenteral exposure means any piercing of skin or mucous membrane with a contaminated sharp. [8,9]

In reviewing the ACHS data it is important to recognise that HCWs consistently underreport NSIs by up to 80%.[10] Also, healthcare organisations voluntarily participate in accreditation and submission of annual data to the ACHS. These organisations represent only a proportion of Australian acute healthcare facilities and exclude HCWs using sharps in long-term residential care facilities, first responder roles and commercial outpatient settings such as private specialist and diagnostic procedural rooms. As such, it is likely the ACHS report significantly under-represents the actual incidence of NSIs among all Australian HCWs.

Regardless of the absence of accurate NSI data, it is apparent that without the mandated use of SEDs Australia continues to experience significant numbers of occupational percutaneous exposures including NSIs. Paradoxically, to date many Australian healthcare organisations have resisted the removal of traditional non-safety sharp devices and replacement with SED alternatives.[2]

Ironically, a key argument offered in response to suggestions that SEDs will reduce the incidence of NSIs and associated assessment and follow-up cost is the cost of the SEDs themselves. Typically, SEDs cost more per-unit than their non-SED equivalent. Calculating the true cost of a NSI is complicated. Experts agree the total cost of NSI postexposure management includes both direct (laboratory, pharmacy, counselling, treatment and administrative) costs and indirect (loss of work time, emotional and psychological impacts) costs.[6] In fact, work undertaken by The Alliance For Sharps Safety and Needlestick Prevention In Healthcare[2] and an economic evaluation conducted by the Medical Technology Association of Australia indicate the adoption of SEDs in all Australian hospitals would realise an average annual cost saving of AU$18.6 million for uncomplicated NSIs and potentially AU$36.8 million if antiviral post-exposure prophylaxis and hepatitis C treatment were included.[11]

Given the unrelenting number of NSIs occurring among Australian HCWs and the ongoing reluctance of healthcare organisations to adopt SEDs in the absence of legislation mandating their use, it was perhaps always inevitable that innovation would be necessary to help decision-makers better understand, at a local level, the necessary investment and anticipated returns from implementing SEDs. It is therefore with much excitement we await the launch of new, promising applications from other stakeholders committed to making Australian healthcare safer by reducing the incidence and cost of NSIs. Until that time, we again ask: **How many more Australian healthcare workers have to sustain a needlestick injury before SEDs become routine?**

Disclaimer: Assoc. Prof Cath Murphy RN, B. Photog, MPH, PhD, CIC is a consultant to multiple medical manufacturers globally including BD Australia. Views expressed in this article are the author's own.

References:

1. Murphy C. Improved surveillance and mandated use of sharps with engineered sharp injury protections: a national call to action. *Healthcare infection*. 2008;13(2):33-37.
2. Murphy CL. The serious and ongoing issue of needlestick in Australian healthcare settings. *Collegian*. 2014;21(4):295-299.
3. U.S. Department of Labour. Occupational exposure to bloodborne pathogens; needlestick and other sharps injuries; final rule. Occupational Safety and Health Administration (OSHA), Department of Labor. Final rule; request for comment on the Information Collection (Paperwork) Requirements. *Fed Regist*. 2001;66(12):5318-5325.
4. Chambers A, Mustard CA, Etches J. Trends in needlestick injury incidence following regulatory change in Ontario, Canada (2004–2012): an observational study. *BMC Health Services Research*. 2015;15:127.
5. Dulon M, Lisiak B, Wendeler D, Nienhaus A. Causes of needlestick injuries in three healthcare settings: analysis of accident notifications registered six months after the implementation of EU Directive 2010/32/EU in Germany. *Journal of Hospital Infection*. 2017;95(3):306-311.
6. Oh HS, Yoon Chang SW, Choi JS, Park ES, Jin HY. Costs of postexposure management of occupational sharps injuries in health care workers in the Republic of Korea. *American Journal of Infection Control*. 2013;41(1):61-65.
7. Fukuda H, Yamanaka N. Reducing needlestick injuries through safety-engineered devices: results of a Japanese multi-centre study. *J Hosp Infect*. 2016;92(2):147-153.
8. Standards TACoH. *Australasian Clinical Indicator Report: 2009-2016*. Sydney: The Australian Council on Healthcare Standards;2017.
9. Standards TACoH. *Australasian Clinical Indicator Report: 2009-2016*; Infection Control, version 4.1, Clinical Indicators. Sydney: The Australian Council on Healthcare Standards;2017.
10. Medical Technology Association of Australia (MTAA). Value of Technology: Needlestick and Sharps Injuries and Safety-Engineered Medical Devices. North Sydney, Australia: MTAA; 2013.
11. Medical Technology Association of Australia. Use of safety-engineered medical devices (SEMDs) to improve prevention of needlestick and sharps injuries in the healthcare setting. 2012; https://www.mtaa.org.au/sites/default/files/uploaded-content/website-content/Sharpsv5.pdf. Accessed 16th February, 2018.

Uncover cost savings through safety

BD Safety Hypodermic Cost Model

The cost of switching to safety engineered devices is not simply the difference in device costs.

BD has developed a **Safety Hypodermic Cost Model** which has the ability to capture all of the associated costs that are relevant and specific to your hospital and generate a report showing what the economic impact is when switching to safety engineered devices for your injection procedures.

For more information on the BD Safety Hypodermic Cost Model visit >>

connect.bd.com/costmodel

Becton Dickinson Pty Ltd, 4 Research Park Drive, North Ryde,NSW 2113, Australia, Toll Free: 1800 656 100
Becton Dickinson Limited, 14b George Bourke Drive, Mt Wellington Auckland 1060, New Zealand, Toll Free: 0800 572 468

bd.com

Preventing food allergy tragedies

in health and aged care facilities

Andrew Thomson*

The tragic loss of Louis Tate, a 13-year-old boy who died in a Victorian hospital in October 2015, emphasises how important it is for health and aged care facilities to have appropriate food safety risk management strategies in place.

Louis Tate died after being admitted for overnight observation following an asthma attack. The Victorian Coroner Phillip Byrne recently found that a contributing factor to Tate's death was anaphylaxis, believed to be from a single mouthful of breakfast he ate at the hospital. According to the inquest[1], Louis had a history of asthma and allergies to cow's milk, raw eggs, peanuts and tree nuts and suffered a reaction despite the hospital being informed by his mother of his food allergies.

To avoid exposing patients with food allergies to risk, a robust risk management strategy should be integrated into your organisation's food safety program. In turn, this should be part of a company-wide, safety-first culture.

Know your obligations

Victoria has been a leader in food safety administration and enforcement for many years with the introduction of mandatory food safety programs for healthcare

"Every hospital and aged-care operation needs to be aware of the risks that food allergies pose to the general public that may be consuming their product."


©stock.adobe.com/au/pogonici

and aged-care facilities (and other food businesses) in 1999 (before the national approach).

Healthcare or aged-care organisations need to have a Hazard Analysis Critical Control Point (HACCP) based food safety program which must meet the legal requirement of Food Safety Standard 3.2.1. of the Australia New Zealand Food Standards Code, and additional requirements of state and territory food law.

The HACCP based food safety program system operating in your organisation should be a risk-based systems approach, supported with the appropriate policies and documented procedures to manage chemical, microbiological and physical risks associated with the production, processing, distribution and consumption of plated meals and other foods.

Food allergen hazards need to be identified with appropriate controls in place. This information needs to be included in the HACCP based food safety program. Every hospital and aged-care operation needs to be aware of the risks that food allergies pose to consumers and/or customers who may be consuming their product.

Review regularly

Having a documented food safety program that extends to ward areas does not go far enough. Healthcare and aged-care organisations must be able to demonstrate that they are complying with their food safety program and conduct a regular internal review of that program:

- at least annually or at planned intervals,
- when new equipment is purchased,
- when changes to the cooking methods or new or changed menu are introduced,
- when there are new cleaning chemicals, or
- if you outsource your food service operations to a third-party contractor.

Regular reviews will help to ensure continuing suitability, adequacy and effectiveness.

It is the responsibility of senior management to be involved in any review as it's not about having oversight but insight into the effectiveness of the process. To transfer this responsibility to another manager is not acceptable.

Mitigation strategies

When it comes to allergy management, the best way to minimise risks for patients and your organisation is to build mitigation strategies into your food safety program. Management and employee training across the organisation is critical.

Key questions to consider are:

- Who is responsible for food safety in your organisation?
- Who will check the ingredients used in menu items and note any that contain common allergens?
- What steps should food handling staff follow to avoid cross-contamination?
- How are a patient's food allergies communicated to staff to ensure awareness?
- What training is given to staff to ensure they understand the processes required for patients with allergies?
- What is the role of the dietitian, food services manager and food safety supervisor in the identification and control of food allergens?
- How should staff members handle an allergic reaction if it occurs?
- Do you have an electronic food management system to help manage allergies and if not, what system do you have in place?

In my experience (over many years) as an industry consultant and former food regulator, where a food safety program has been implemented, the processes are often not fully understood by operational management and employees, or there is inconsistent understanding of the processes.

*Andrew Thomson is Director of Think ST Solutions, a training and consultancy business offering practical solutions to the food industry, specialising in aged-care and healthcare facilities.
Visit www.thinkstsolutions.com.au.

"Real success comes from behaviour change as a result of a training initiative, because this is aligned with strategic and/or operational goals."

Consider the risks

When it comes to food safety, there are several common and challenging issues facing healthcare and aged-care organisations that require careful consideration. To be effective, these issues need to be reviewed in terms of capacity, capability, consistency and risk. Consider the following:

1. Is there a high level of consistency, reliability and accuracy for all food handling practices and processes across your organisation?

2. Is the role of the food safety supervisor — whose duty it is to supervise the handling of all food products, identify food safety hazards including food allergens and is involved in staff training — meeting your organisation's needs?

3. Are all procedures and practices documented, implemented and monitored, to ensure consistency of approach and minimise risk?

4. Has your workforce been trained to identify and manage risks?

Staff training

Managers need to regularly review the competence, experience, qualifications, capabilities and abilities of staff relative to the skills required by your organisation for current and future activities. Based on this review, managers should establish what training needs to be carried out and over what period.

A key requirement of Food Safety Standard 3.2.2 relates to the skills and knowledge of food handlers. Managers of healthcare and aged-care facilities are responsible for ensuring food handlers are competent in the tasks they perform.

Any training program needs to be structured, and must address commitment, accountability and implementation issues. It must include all employees who are part of the food chain process and should be part of a company-wide push to ensure a safety-first culture. Otherwise, if a team member is trained off-site and returns to a workplace where there is no change, there still exists many triggers to revert to old behaviour.

Managers need to develop appropriate training strategies to ensure success.

© stock.adobe.com/au/bubutu

The vast majority of hospitals and aged-care operations still focus on generic compliance approaches and this poses a significant challenge for their business.

For many facilities, it's a 'box ticking' exercise — measuring the number of employees trained. This leads to compiling statistics to satisfy the regulator, but real success comes from behaviour change as a result of a training initiative, because this is aligned with strategic and/or operational goals.

Ultimately, to achieve the desired food safety improvements, managers of healthcare and aged-care organisations need to ensure they consistently produce good quality and safe food and go beyond just meeting the minimum compliance standards. Integrating all food safety related business risks into daily activities to ensure the consumer receives safe and suitable food will go a long way to protecting both the patient and your organisation.

Reference:

1. Inquest into the Death of Louis Oliver Tate (2018) Coroners Court of Victoria COR 2015 5382 (26 February 2018) (Coroner Mr Phillip Byrne), http://www.coronerscourt.vic.gov.au/home/coroners+written+findings/findings+-+538215+louis+oliver+tate

Proactively manage risk

Ignoring risks which are associated with your business activity and its operations could negatively impact on:

- the health and safety of staff, patients and visitors,
- your organisation's financial position, and
- your organisation's reputation.

A proactive approach to risk management will help in:

- improving decision-making processes by ensuring the adopted strategies cover all contingencies and are hooked into appropriate mitigation actions,
- developing a tailored approach to suit your organisation and in assisting in creating value,
- developing an approach in reducing the risk of food contamination events occurring.

Effective risk management saves more than money — it saves lives

Risk management should be approached from a customer-centric perspective, rather than through the narrow lens of litigation prevention, particularly in the health industry where the consequences of error can be deadly.

While malpractice claims were an initial driver for the implementation of risk management practices, organisations are increasingly focusing on clinical risk management — aiming for quality clinical outcomes — which would have the flow on effect of reducing litigation and subsequent financial loss.

To effectively manage risk within a health industry setting, high-quality risk management practices are essential, to avoid outcomes such as exposure to litigation, loss of reputation and staff, illness and even death.

"Manual reporting of risks, leads to some severe disadvantages, including human error and interviewer reporting bias," says eQstats managing director, Andrea Rodriguez.

"In fact, many operatives in the industry lack the necessary statistical skills or analytical knowledge to effectively make assumptions about the data. eQstats software acts as the data analyst, providing users with a contextual interpretation of the data, in a meaningful report."

Other disadvantages include the reporting of retrospective data and significantly increased costs.

eQstats was recently recognised for its superior automated reporting, eQstats patent, along with its advanced incident and non-conformance reporting module and eQstats GRC platform.

"The driving aspect of the eQstats system is the development of the algorithms and processes to automate the decision-making process — ultimately to do the job faster and more accurately, for much larger quantities of incoming data," says Rodriguez.

Making the eQstats patent system unique is its ability to analyse and interpret the data, as well as write the report, effectively replacing a data analyst.

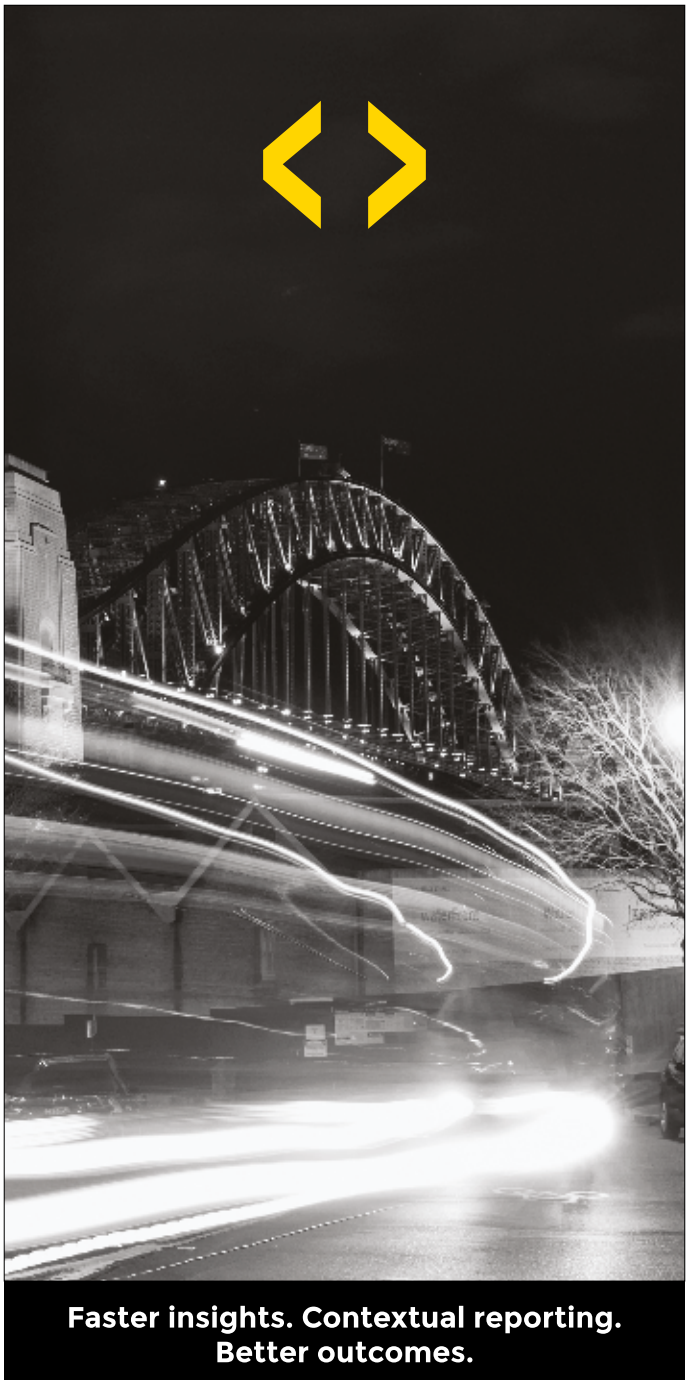
"This element of replacing human intervention during the report creation process required considerable new knowledge and innovation," says Rodriguez.

"Our incident reporting software is the most comprehensive platform of its kind in Australia.

"It goes beyond data collection, with advanced features that allow you to reduce and manage incidents while improving the quality of care delivered in your organisation. You can configure escalation plans and alerts, undertake a root cause analysis and link the incident to quality improvement activities, all from the one platform.

Other features of the award-winning eQstats patent system include its ability to:

- Transform incident data into meaningful insights
- Integrate with patient management software
- Escalate incidents based on risk assessments
- Benchmark incident data with industry peers



eQstats

For more information please visit
www.eqstats.com.au

Tackling errors in health care

The rise of financial penalties for preventable hospital-acquired complications

Professor Ramon Z Shaban*

With one in nine hospital patients suffering from a hospital-acquired complication, financial penalties are being increasingly used to motivate hospitals to ensure their risk and safety management systems are foolproof.

The safety and quality of health care is a priority driving force for hospitals, healthcare workers, patients and the wider community globally.[1] Today Australia — for the most part — enjoys a comprehensive medical system that is centred on universal health care, enabled by a range of free and subsidised public enterprises which, together with private enterprises, operate collectively as a complex system.

Such a complex system, however, has many moving parts. How these parts operate individually and collectively directly influences the safety and quality of the health care that the system provides. When they don't operate correctly or smoothly, or fail altogether, the system gives rise to error and the consequences for individuals can be, and sometimes are, catastrophic.

Understanding HACs

These hospital-acquired complications, known as HACs, are defined by the Australian Commission on Safety and Quality in Healthcare (ACSQH) as a "complication for which clinical risk mitigation strategies may reduce, but not necessarily eliminate, the risk of that complication occurring"[2]. A recent report by the Grattan Institute suggests that one in every nine hospital patients in Australia suffers a hospital-acquired complication, in the order of 900,000 patients every year.[3]

The costs of these hospital-associated complications, in human and financial terms, and others are well documented[4]. Central to contemporary clinical quality frameworks in hospital and other healthcare settings are efforts to prevent these and other forms of HACs.

Reducing the rate of, and ultimately preventing hospital-acquired complications, is a key contemporary mandate for hospitals and health professionals. The ACSQH has established and published a list of 16 hospital-acquired complications following reviews of the literature, clinical engagement and testing of the concept with public and private hospitals.[2]

As such, hospitals across the country are required to focus their efforts on reducing the rate of, and ultimately preventing, hospital-acquired complications. One way of motivating improvement is to price the cost of hospital-associated complications and to restrict public funding of such complications by imposing a financial penalty on the health system where it occurred. For example, financial penalties for preventable hospital-acquired infections have existed in some jurisdictions in Australia for some time, such as for preventable bloodstream infections.[5]

Financial penalties

But system-wide efforts to "price-prevent" hospital-acquired complications have arrived. Amendments to the National Health Report Agreement in 2017 signal the introduction of a comprehensive pricing and funding model for hospital-acquired complications[6]. This was followed by a Ministerial Directive[7] to the Independent Hospital Pricing Authority (IHPA)[8] to implement the agreed recommendations of the COAG Health Council on pricing for safety and quality to give effect to:

"(i) nil funding for a public hospital episode including a sentinel event which occurs on or after 1 July 2017, applying to all relevant episodes of care (being admitted and other episodes) in hospitals where the services are funded on an activity basis and hospitals where services are block funded; and

(ii) an appropriate reduced funding level for all hospital acquired complications, in accordance with Option 3 of the draft Pricing Framework for Australian Public Hospital Services 2017-18, as existing on 30 November 2016, to reflect the additional cost of a hospital admission with a hospital acquired complication, to be applied across all public hospitals; and

(iii) undertake further public consultation to inform a future pricing and funding approach in relation to avoidable hospital readmissions, based on a set of definitions to be developed by the Australian Commission on Safety and Quality in Health Care."[8]

This follows reports of health insurance companies requiring hospitals to provide warranties on surgical procedures and imposing financial penalties on hospitals where patient outcomes result in a hospital-associated complication.[9]

It is clear is that there are firm efforts to reduce healthcare-associated complications through pricing and financial penalties for such events, and equally firm efforts to make every complication count.[2]

**Professor Ramon Shaban is the Clinical Chair and Professor of Infection Prevention and Control at the University of Sydney and Western Sydney Local Health District, within the Sydney Nursing School and Marie Bashir Institute for Infectious Diseases and Biosecurity.*

References

1. Institute of Medicine. To err is human: Building a safer health system. Washington DC: The National Academies Press; 2000.
2. Australian Commission on Safety and Quality in Health Care. Hospital-aquired complications. 2018 (accessed 05 February 2018).
3. Duckett S, Jorm C, Danks L, Moran G. All complications should count: Using our data to make hospitals safer. Melbourne, Australia: Grattan Institute, 2018.
4. Trentino KM, Swain SG, Burrows SA, Spirivulus PC, Daly FS. Measuring the incidence of hospital-acquired complications and their effect on length of stay using Classification of Hospital-acquired Diagnoses (CHADx). *Medical Journal of Australia* 2013; 199(8): 543-7.
5. Russo P, MItchell B, Allen C Chang, Hall L. Healthcare-associated infection in Australia: tackling the 'known unknows'. *Australian Health Review* 2017.
6. Council on Federal Financal Relations. Schedule 1 - Addendum to the National Health Reform Agreement: Revised Public Hospitals Arrangements to the Intergovernmental Agreement on Federal Financial Relations. Canberra: Council of Australian Governments; 2017.
7. Australian Government. Direction to the Independent Hospital Pricing Authority ont he performance of its functioins under section 226 of the National Health Reform Act 2011 - No 2/2016. Canberra: Australian Government; 2016.
8. Independent Hospital Pricing Authority. Media Release - Ministerial Direction from the Hon. Greg Hunt under section 226(1) of the National Health Reform Act 2011.: Independent Hospital Pricing Authority; 2017.
9. Parnell S. No public funding for serious mistakes in hospitals. *The Australian*. 2017 March 7, 2017.

Table 1: Identified hospital-acquired complications in Australia[3]

Hospital-acquired complication	Diagnosis
Pressure injury	• Stage III ulcer • Stage IV ulcer • Unspecified decubitus ulcer and pressure area
Falls resulting in fracture or intracranial injury	• Intracranial injury • Fractured neck of femur • Other fractures
Healthcare-associated infection	• Urinary tract infection • Surgical site infection • Pneumonia • Blood stream infection • Central line and peripheral line associated bloodstream infection • Multi-resistant organism • Infection associated with prosthetics/implantable devices • Gastrointestinal infections
Surgical complications requiring unplanned return to theatre	• Post-operative haemorrhage/haematoma requiring transfusion and/or return to theatre • Surgical wound dehiscence • Anastomotic leak • Vascular graft failure • Other surgical complications requiring unplanned return to theatre
Unplanned intensive care unit admission	• Unplanned admission to intensive care unit
Respiratory complications	• Respiratory failure including acute respiratory distress syndrome requiring ventilation • Aspiration pneumonia
Venous thromboembolism	• Pulmonary embolism • Deep vein thrombosis
Renal failure	• Renal failure requiring haemodialysis or continuous veno-venous haemodialysis
Gastrointestinal bleeding	• Gastrointestinal bleeding
Medication complications	• Drug related respiratory complications/depression • Haemorrhagic disorder due to circulating anticoagulants • Hypoglycaemia
Delirium	• Delirium
Persistent incontinence	• Urinary incontinence
Malnutrition	• Malnutrition
Cardiac complications	• Heart failure and pulmonary oedema • Arrhythmias • Cardiac arrest • Acute coronary syndrome including unstable angina, STEMI and NSTEMI
Third and fourth degree perineal laceration during delivery	• Third and fourth degree perineal laceration during delivery
Neonatal birth trauma	• Neonatal birth trauma

Food for thought

Hannah Niven*

Supportive relationships, together with a carefully planned nutritional program, are important ingredients in a treatment plan that will help patients with anorexia nervosa recover, safely.

Anorexia nervosa is a serious and complex illness characterised by an ongoing restriction of energy intake accompanied by an overwhelming fear of weight gain and an obsessive, distorted view of one's own body weight or shape.

It has the highest mortality rate of any psychiatric illness with suicide being the leading cause of death among sufferers. There are a myriad of health complications associated with anorexia nervosa including, but not limited to, anxiety and depression, post-traumatic stress disorder, impaired short-term memory and concentration, significant electrolyte imbalances, bradycardia and cardiac deconditioning. Due to the seriousness of this condition, patients must be promptly medically stabilised, and nutrition requirements must be met in order to undo the above effects. Evidence-based strategies for how to do this while ensuring patient safety are outlined below.

Patient treatment plan

The first goal of treatment for people with anorexia nervosa is medical stabilisation, followed by weight restoration (with consideration given to refeeding syndrome), and finally, psychotherapy once the cognitive effects of malnutrition have been reversed. These goals should be written into a thorough treatment plan, taking into account the individual's circumstances and including a risk assessment in the interest of patient safety. An outpatient setting is recommended when the patient is not at imminent medical risk; however, the rate of weight gain tends to be far superior in a more restrictive, inpatient setting.

Research in weight restoration specifically for people with anorexia nervosa is limited and guidelines for refeeding vary between facilities, states and countries so it is difficult to give an exact caloric prescription to ensure weight gain. The Queensland Eating Disorder Service (QuEDS) recommends all inpatients with anorexia nervosa commence a continuous 24-hour nasogastric feed of 6300 kJ/day (1500 kcal) with an increase of 2000 kJ (~500 kcal) every few days, building up to an adequate energy level for each patient to achieve weight restoration.

In a recent literature review on nutritional rehabilitation in anorexia nervosa, a range of calorie requirements were identified. Healthy young women who do not have an eating disorder require 30 (20-40) kcal/kg/day for weight maintenance, while energy requirements for healthy males are 20–25% higher on average. Meanwhile, it has been observed that people with anorexia nervosa have a tendency to become hypermetabolic when oral intake is increased, whereby the amount of food needed for weight gain to be sustained may be higher than expected. As much as 60–100 kcal/kg/day could be necessary for weight gain to be sustained although the starting point for the prescribed kcal/kg/day will vary between patients.

Achieving stabilisation

Inpatients should not be discharged until a BMI of 17-20 kg/m2 has been reached. Once weight restoration has been achieved, psychotherapy should commence and regular weight monitoring should continue due to the risk of relapse. Data suggests a full recovery rate of 46% for Australians with anorexia nervosa, while for 20% of people, it remains a long-term chronic illness. In line with this statistic, a topic to be discussed in an outpatient setting is the effect of exercise on weight gain because many people with anorexia nervosa regularly exhibit excessive exercise and restlessness[8]. During recovery, people who exercise very little could gain 1 kg of body weight with an excess of 4000 kcal, whereas with excessive exercise, the same amount of weight gain could require an excess of 12,000 kcal.

Although the risks of morbidity and mortality associated with anorexia nervosa are a confronting reality, consideration should be given to how the patient would like to be treated. An online survey conducted by The Butterfly Foundation gathered responses from 117 Australians on their experiences of recovery from an eating disorder, with 72% of participants having been diagnosed with anorexia nervosa. The survey identified that throughout treatment, participants most valued having supportive relationships, and a sense of confidence, hope, autonomy and control, as well as feeling safe and understood.

Furthermore, honesty, compassion and understanding were identified as the most helpful traits in a therapeutic relationship. Although patient safety should remain a top priority throughout all stages of treatment, health practitioners should give thought to these survey responses in order to engage the patient due to the strong influence of therapeutic alliance on positive outcomes.

The long road ahead

Recovery from anorexia nervosa is a long and challenging road, with many setbacks to be expected. As health practitioners, the best we can do is to work alongside our colleagues and guide these patients to reach medical stabilisation and continually meet their nutritional requirements so that all aspects of their health are supported and maintained. Through all stages of treatment, our expertise, encouragement, understanding, non-judgment and priority of patient safety can provide the strength a person needs to claim their life back from the debilitating grip of anorexia nervosa.

An Accredited Practising Dietitian (APD) is an integral part of the management team for people with anorexia nervosa. To find an APD, visit www.daa.asn.au and search 'Find an Accredited Practising Dietitian' with 'Eating disorders' selected under 'Area of Practice'.

*Hannah Niven is an Accredited Practising Dietitian working in private practice in Brisbane and the Gold Coast. Hannah has a lived experience with eating disorders and this has given her a passion to work alongside other people and their loved ones during their recovery.

Are you aware you can meet the AS/NZS4187:2014 standard with an undercounter washer-disinfector?

AS/NZS4187:2014 requires individual Health Service Organisations to develop their own work place procedures to ensure their reprocessing activities result in safe reusable medical devices that are not hazardous to either staff or the environment. The objective is to produce reusable medical devices that can be used safely without risk of transmission of infectious agents, thereby reducing the possibility of an adverse reaction from residues.

Images (l-r): In a row, at the opposite, around the corner.

Often, day surgeries do not have the room, the capacity or budget to create a 3 Zone, Safe by Design concept. They do however have the ability to meet the standards with some simple floor designs and the capabilities of automated washer disinfectors. 'There are some pragmatic solutions to create a safe process', says Allard van Beek, National Sales Manager of Miele Professional.

You can see the suggested solutions require greater staff discipline to prevent cross contamination, but with a good logistic floorplan, it is very easy to contribute to patient safety. All situations have a clear direction from dirty to clean. Commencing with a sink to rinse the instruments if needed, the instruments are then placed in the machine, when the machine is at capacity processing is undertaken. After the cleaning and thermal disinfection cycle are completed, the door automatically opens undertaking drying, thereby preventing corrosion of instruments. The instruments are unloaded in the clean area, inspection and functionality testing is progressed and then prepared for sterilisation. -

Your outcome is achieved by using the correct equipment and creating a clear logistic flow.

Miele

»
For more information please **call 1300 731 411**, write **info@miele-professional.com.au** or visit **www.miele.com.au/professional**

Neutralising duff "sporicidal" claims of amine-based disinfectants

Clostridium difficile (*C. diff*) infection is linked to significant morbidity and mortality and represents a leading cause of healthcare associated infection (HCAI)[1]. When *C. diff* is expelled from the body, the living form survives for only a short time before it transforms into an endospore to protect itself from the environment allowing it to survive for many months[2]. Bacterial endospores are generally considered to be the toughest challenge for disinfectants. Consequently, they are used as the 'gold standard' for disinfectant testing; if it can kill bacterial endospores, you make the assumption that it can kill everything else besides. To eliminate *C. diff* from surfaces, a disinfectant with proven sporicidal activity (ability to kill spores not just inhibit their growth) should be used.

There is a lot of value to a disinfectant manufacturer in having a sporicidal claim so that the product can be used in healthcare settings to tackle *C. diff* spores. However, recently we have begun to see that not all products with "sporicidal" claims are in fact sporicidal. For example, amine-based disinfectants e.g. quaternary ammonium compound (QAC) and triamine-based products are among the list. It has been well known for over 25 years that QACs do not exhibit sporicidal activity[3,4].

Professor Jean-Yves Maillard, a world-renowned expert in disinfectant testing, highlights the challenge of inappropriate neutralisation in laboratory testing resulting in inaccurate "sporicidal" results for these amine-based disinfectants[5]. To claim sporicidal activity, the disinfectant must destroy 10^3 spores under specific conditions[6]. Even with these we are still seeing sporicidal claims for compounds known not to be sporicidal — there is no European test for *C. diff*. In testing, once the required contact time is reached the disinfectant is neutralised to stop any further activity — so that it mimics real life conditions. Sometimes completely neutralising the compound is difficult, particularly the amine-based disinfectants, because they are made up of several chemicals. If this step isn't completed correctly, the disinfectant continues to work beyond the planned contact time and efficacy can be over-estimated. The lack of a recognised European sporicidal test is a limitation, and so a UK-developed sporicidal testing standard for *C. diff* (requiring a 10^5 reduction in spores and an appropriate neutralisation step) should be considered the gold standard. No amine-based disinfectants have passed this test.

Due to the lack of sporicidal efficacy of amine-based disinfectants, an oxidising agent with proven efficacy should be used. Peracetic acid is an oxidising agent with a broad spectrum of microbicidal activity at low concentrations and is effective at reducing incidence of *C. diff* infection. Clinell Sporicidal Wipes combine peracetic acid with hydrogen peroxide providing two distinct sporicidal mechanisms by which the wipe acts[7], they have shown to reduce *C. difficile* associated disease by 72%[8].

When decontamination of the surface environment is suboptimal it can place staff, patients and visitors at risk[9]. GAMA Healthcare agrees with Professor Maillard, that it is both puzzling and concerning that products containing solely amines are being used as sporicides in healthcare settings.

References

1. Weber DJ, Anderson DJ, Sexton DJ, Rutala WA. Role of the environment in the transmission of Clostridium difficile in health care facilities. Am J Infect Control. 2013; 41(5 Suppl): S105-10.
2. Kramer A, Schwebke I, Kampf G. How long do nosocomial pathogens persist on inanimate surfaces? A systematic review. BMC Infect Dis. 2006;6:130.
3. Russell AD. Bacterial spores and chemical sporicidal agents. Clin Microbiol Rev. 1990; 3(2):99-119.
4. Wesgate R, Rauwel G, Criquelion J, Maillard JY. Impact of standard test protocols on sporicidal efficacy. J Hosp Infect. 2016; 93(3): 256-62.
5. Maillard J-Y. Are amine only-containing products sporicidal? J Hosp Infect. 2018, doi: 10.1016/j.jhin.2018.02.002.
6. BS EN14885:2015. Chemical disinfectants and antiseptics. 2015. British Standard Institution: London.
7. Leggett MJ, Spencer Schwarz J, Burke PA, McDonnell G, Denyer SP, Maillard JY. Mechanism of Sporicidal Activity for the Synergistic Combination of Peracetic Acid and Hydrogen Peroxide. Appl Environ Microbiol. 2016; 82(4):1035-1039.
8. Carter Y, Barry D. Tackling C difficile with environmental cleaning. Nursing Times. 2011; 107(36): 22-25.
9. Shaughnessy MK, Micielli RL, DePestel DD, Ardnt J, Strachan CL, Welch KB, Chenoweth CE. Evaluation of hospital room assignment and acquisition of Clostridium difficile infection. Infect Control Hosp Epidemiol. 2011; 32(3):201-206.

The NSQHS Standards

Helping to provide culturally appropriate health care for Aboriginal and Torres Strait Islander people

Margaret Banks*

Ensuring Aboriginal and Torres Strait Islander people have access to efficient, effective and appropriate health care remains a challenge for the Australian health system. Health service organisations must ensure that service provision is equitable, and that the specific and unique needs of Aboriginal and Torres Strait Islander people drive the level and range of the care that can be accessed by them.

While the current healthcare system does a good job of addressing the needs of a majority of Australians, Aboriginal and Torres Strait Islander people continue to have disproportionately poor health outcomes. The health disparities and treatment inequities between non-Indigenous Australians and Aboriginal and Torres Strait Islander people require a refocusing of health care to better address the unique needs of each patient.

The Australian Commission on Safety and Quality in Health Care plays an important role in ensuring that health service organisations across Australia provide safe and high-quality health care. The Commission has been considering the issue of variation in health care and health outcomes between Aboriginal and Torres Strait Islander people and other Australians. As a result, the National Safety and Quality Health Service (NSQHS) Standards now contain specific actions that address the health needs of Aboriginal and Torres Strait Islander people.

The Commission released the NSQHS Standards (second edition) in November 2017. The second edition of the NSQHS Standards addresses gaps identified in the first edition, including Aboriginal and Torres Strait Islander health. There are six actions focused specifically on Aboriginal and Torres Strait Islander health in the second edition. The implementation of these actions will help embed awareness of the specific needs of Aboriginal and Torres Strait Islander people and orientate the health system to provide more culturally appropriate care.

The six Aboriginal and Torres Strait Islander-specific actions are in the standards for:

- Clinical Governance
- Partnering with Consumers
- Comprehensive Care.

It is intended that through successful implementation of these six actions, Aboriginal and Torres Strait Islander people will feel more confident and safe in accessing the Australian healthcare system, and that the system will be better equipped to respond appropriately to their needs.

To successfully implement the six actions, health service organisations are required to:

- establish meaningful and ongoing relationships with local Aboriginal and Torres Strait Islander communities, organisations and groups to better understand the needs of Aboriginal and Torres Strait Islander people and involve them in determining their own health priorities (Action 2.13);
- ensure that the governing body addresses the needs and health priorities of Aboriginal and Torres Strait Islander people when planning the health service organisation's priorities (Action 1.2);
- develop and implement strategies to address the needs and priorities of Aboriginal and Torres Strait Islander people in the health service organisation's catchment, including adequately resourcing strategies and evaluating reports of their outcomes (Action 1.4);
- support the workforce to better understand the needs of Aboriginal and Torres Strait Islander people and improve their cultural competency (Action 1.21);
- create an environment where Aboriginal and Torres Strait Islander people feel safe, comfortable and welcome (Action 1.33);
- establish systems that accurately record Aboriginal and Torres Strait Islander status and use this information routinely to improve the quality of care for Aboriginal and Torres Strait Islander patients (Action 5.8).

To support health service organisations to implement these six actions, the Commission has produced the NSQHS Standards User Guide for Aboriginal and Torres Strait Islander Health. Developed in collaboration with the Wardliparingga Aboriginal Research Unit of the South Australian Health and Medical Research Institute, the guide provides health service organisations with practical strategies to help organisations improve the quality of care and health outcomes for Aboriginal and Torres Strait Islander people.

The guide also provides practical examples of health service organisations across Australia implementing strategies that would meet the six Aboriginal and Torres Strait Islander actions. They include:

- South Western Sydney Local Health District, which has developed specific service initiatives including outreach, drug and alcohol, specialist and speech therapy services;
- St Vincent's Hospital in Melbourne, developed and implemented specific clinical and clerical guidelines for the care Aboriginal and Torres Strait Islander patients;
- Bairnsdale Regional Health Service, which implemented new processes to improve identification of Aboriginal and Torres Strait Islander patients.

The safety and quality of care for Aboriginal and Torres Strait Islander people will only be improved when everyone who works in the healthcare system recognises that we are all responsible for providing equitable care — it is not solely the responsibility of Aboriginal and Torres Strait Islander units, employees or services.

Health service organisations will be assessed to the second edition of the NSQHS Standards from January 2019. The NSQHS Standards (2nd ed) and the NSQHS Standards User Guide for Aboriginal and Torres Strait Islander Health resources are on our website — https://www.safetyandquality.gov.au/second-edition.

*Margaret Banks is the National Standards Program Director with the Australian Commission on Safety and Quality in Health Care.

Information underload

Dr Holly Seale and Ji Park*

Websites often use imagery with Caucasian doctors and patients.

Hospitals are increasingly relying on their websites to prepare patients for their stay. Some are doing a better job than others, impacting patient outcomes — especially in infection control.

Hospitals have long understood the need to provide information to patients to prepare them for attending the hospital. Going into hospital can be a stressful time and it is recognised that this stress can be reduced by familiarising patients with the processes. Traditionally this has focused on informing patients about what to do prior to admission, about what to bring to the hospital and about what happens during their stay.

Influencing patient behaviour

More recently, information about engaging patients in infection prevention strategies has also been included on websites, brochures and booklets. This is important as studies have identified that the provision of information on healthcare associated infections (HCAIs) can positively influence the patients' engagement in infection control strategies. Patients who receive information on HCAIs demonstrate better understanding about the pathogens, risks etc and are more actively engaged in infection control and prevention measures compared to those who had not received any information.

But how are our hospitals informing and/or engaging with patients around infection prevention and control? As a first step to answering this question, we explored the information being provided on the websites of hospitals in NSW. We acknowledge that hospitals use multiple approaches (posters, brochures, verbal messages etc) to deliver information to patients, but we also know that nowadays many people, especially those with low health literacy scores, will not only seek out information on websites but trust the content provided. Therefore, information provided to patients electronically may play a key role in engaging future patients and their family/friends before they even set foot on-site.

Examining quality of content

Our paper, published in *BMC Infectious Diseases*, examined online information targeted at patients on HCAIs and infection prevention and compared it using the Suitability Assessment of Material (SAM) and Simple Measure of Gobbledygook (SMOG) readability formulas for suitability, readability and accessibility. We focused on public tertiary referral hospitals (with >200 beds) in Sydney. Thirty-six webpages were identified as being relevant and containing information about HCAIs or infection prevention.

Based on the SAM/SMOG scores, only three webpages were found to be 'superior'. Many of the webpages scored poorly in content, literacy, graphics, learning stimulation and cultural appropriateness. In comparison, most of the webpages scored well in the layout and typography. The majority (97%) of the materials were written at a level higher than the recommended reading grade level.

In most cases, there was little in the way of headings/subheadings so searching for the information on HCAIs and infection control required multiple clicks ('death by scrolling') through other pages/sites. Information provided in an obscure way could be a barrier for people, especially those with reading and IT difficulties. Lastly, very few of the sites utilised any cues for action; therefore, the website scored low regarding their potential to motivate people.

Hospital website imagery should reflect Australia's diversity.

Addressing cultural differences

Aside from the difficulties in actually locating the material, we found that most sites scored low in terms of cultural appropriateness. Given the mix of ethnic backgrounds of not only the patients attending hospitals in NSW but also the staff members working there, it was concerning to see that most pictures were of Caucasian doctors, nurses and patients. It was perhaps not too surprising to find that none of the material had been translated into other languages. As a simple first step to rectify this issue and engage people from culturally and linguistically diverse backgrounds, I would suggest ban the 'stock' photo and use real photos of the people walking in the doors of your hospitals. Hospitals should also consider the option of having resources available in the languages that represent the patients group frequenting the healthcare setting.

Improve websites to improve outcomes

Unless we start to make changes to the content, literacy demands and graphics of the hospital websites, patients seeking to engage with the system prior to admission will find the information overwhelming and its usability low. It is also unlikely that patients will go elsewhere to find information and therefore we have potentially lost a key opportunity to talk to them about the benefits of hand hygiene or about their role in reducing infections in hospitals. Further work is needed to address the appropriateness of hospital websites as platforms for promotion of infection prevention strategies and the receptiveness of patients towards receiving information in this format.

*Dr Holly Seale is Senior Lecturer and Ji Park a Masters student at the School of Public Health and Community Medicine, University of NSW

The S-Monovette® is the revolution in blood collection.

The S-Monovette® is an innovative enclosed blood collection system that allows the user to draw blood from the patient using the syringe or vacuum method, uniting the advantages of both techniques in a single product.

When used as a syringe, the phlebotomist has full control over the speed at which the blood is drawn into the tube. This is particularly useful for patients with fragile veins, such as the very young or elderly, where the use of the aspiration technique prevents even the most fragile veins from collapsing. When the tube has been filled, the plunger is simply snapped off to leave a primary sample tube which can be centrifuged and is compatible with all major analysers.

The S-Monovette® can also be used as an evacuated tube by drawing the plunger fully down and snapping it off immediately prior to blood collection. This creates a fresh vacuum and ensures a precise filling volume, ensuring a correct dilution ratio.

The reduced vacuum pressure in the S-Monovette® drastically reduces the rate of haemolysis and vein collapse, meaning increased sample quality and reduced costs associated with repeat collections. Furthermore, unlike pre-evacuated tubes, the S-Monovette® does not have to hold a vacuum for many months after manufacture, which allows the membrane stopper to be thinner and more easily penetrated by the needle sheath. This minimises the movement of the needle in the vein when attaching the tube, ensuring optimum patient comfort.

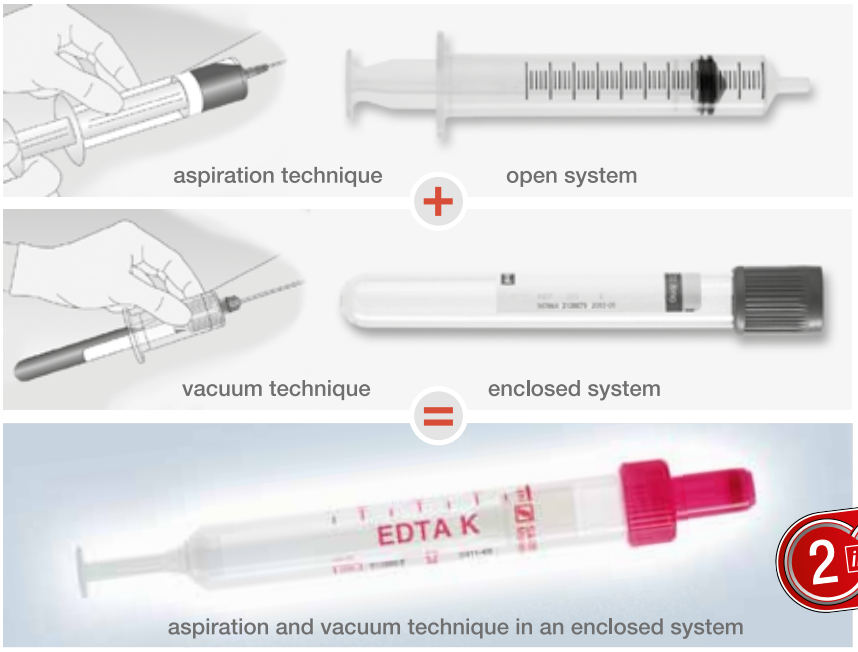
The S-Monovette® needle is ready to use so that there is no need for assembly to a holder. The needle is of a compact, low profile design, which reduces the chance of haematoma by allowing for a reduced angle of puncture and eliminates the possibility of needle stick injury caused by assembly of the needle and holder. The compact design also results in approximately one sixth of the sharps volume caused by using a pre-evacuated system, giving significant cost savings.

SARSTEDT

»
If you would like a visit from one of our Sales Representatives to demonstrate this system, please contact us on **toll free 1800 803 308.**

S-Monovette®

The Revolution in Blood Collection



One system - 2 techniques!

The S-Monovette® combines the advantages of both systems

- ✓ suited for all vein conditions
- ✓ optimal sample quality
- ✓ economical
- ✓ safe

SARSTEDT

SARSTEDT Australia Pty Ltd · 16 Park Way, Mawson Lakes · South Australia, 5095 · Tel: (08) 8349 6555 · Fax: (08) 8349 6882 · info.au@sarstedt.com · www.sarstedt.com

A Day in the Life

Hardik Jani, a Spotless Work Health & Safety Advisor, based on-site at Bendigo Hospital, Victoria, plays a key role in driving a safe culture by engaging, advising and mentoring the facility management team to mitigate risks and maintain efficient safety management systems.

06:30 My typical day starts with a quick shower, helping my wife and kids get ready for work/school, a quick cup of tea and breakfast and completing my morning prayer by lighting a Diya in the temple in our kitchen before I go to work. The prayer finishes with the Sanskrit sloka "सर्वे भवन्तु सुखिनः। सर्वे सन्तु निरामयाः। meaning: "May all become happy and healthy and free from illness." Every day I drive to work only a five-minute drive — that's the beauty of living in the country.

08:00 I start by checking emails, my calendar and responding to urgent messages. I review my 'to-do list', prioritising my work for the day to help me be productive, consistent and reduce stress levels.

08:30 I attend our daily operations meeting, where as a team we review the past 24 hours and plan for next 24 hours, including going over any incidents. This meeting is crucial, as we review any unforeseen problems in the team's workflow. It allows us to think of strategies to prevent any potential issues, address any challenges and most importantly, share key learnings.

09:00–11:00 This time of the day is usually spent working around the safety management system and sometimes involves a Skype meeting or teleconference with the regional manager from head office and my other WHS colleagues around Victoria. We review any critical incidents, injuries and near misses logged in our injury reporting system (IRIM) and discuss ongoing continuous improvement projects to reduce risks. This meeting provides me with an opportunity to contribute to other regional businesses by sharing the knowledge and key learnings from my site.

11:30 I eat my lunch (and might also read the news or talk to my wife) in the shaded area outside the hospital, where I watch and observe the range of people visiting the hospital — people from every age and culture finding care at the hospital. This part of the day rejuvenates my energy for the rest of the afternoon and makes me feel proud of the contribution the hospital is making in people's lives in regional Victoria.

06:30 — 08:00 — 08:30 — 09:00–11:00 — 11:30

Jani discussing a near-miss incident with Building Manager Aaron Manning, and carpenter Kevin Umina, for report logging and risk reducing strategies.

Jani going through the waste bin removal process with cleaning staff, to understand improvements and additional safety measures that can be made.

Jani discussing the return-to-work plan with Kayla Rayson, Cleaning Supervisor

12:00 Now it's time to walk the halls and interact with staff. Safety leadership is all about being a transformational leader. I typically spend two to three hours connecting with the staff from the various departments — cleaners, security, gardeners, maintenance and porters. Being new in the hospital environment, this walk and talk not only helps me to understand their roles and work environment, but also their risk exposure to develop effective risk reduction strategies. I strongly believe that these interactions are important for giving employees a sense of accountability and ownership in their roles, driving positive behaviours and building self-esteem. In my interactions I often emphasise the important role they play in running this hospital.

14:00 It's time to meet my external stakeholder Graham Olsen, OHS Director, Bendigo Health. I usually try catching up with him every second day to discuss and follow up on a range of topics including emergency preparedness, code grey scenarios, staff, progress on risk reduction plans or sharing new learnings.

Jani and Executive Chef Jason Cullen finalising the new workplace inspection schedule for food service.

12:00 14:00 15:00 16:00-17:00 17:30

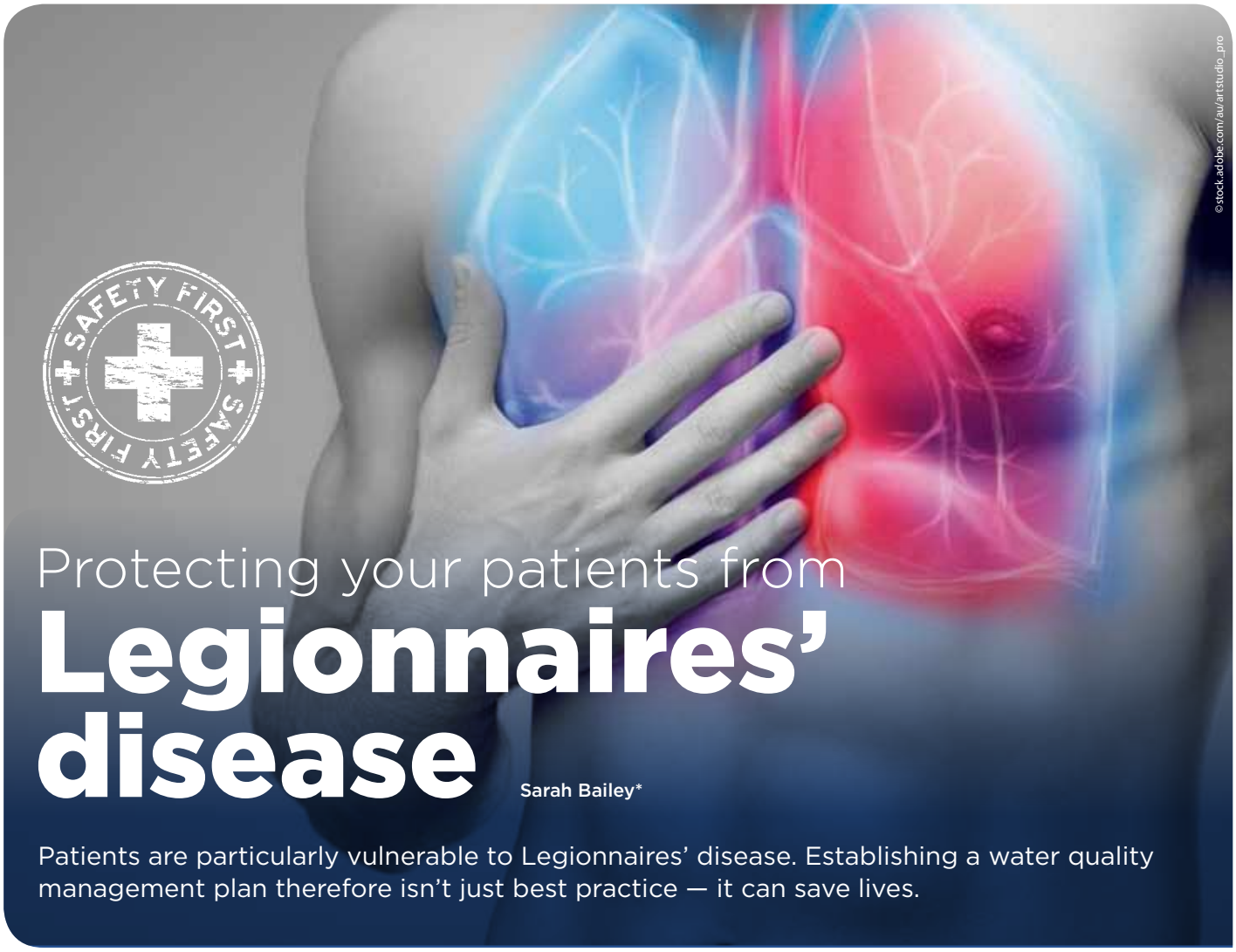
We review any critical incidents, injuries and near misses logged in our injury reporting system (IRIM) and discuss ongoing continuous improvement projects to reduce risks.

15:00 I turn my attention back to doing some visual audits and inspections, safety cycle checks or safety communications with department managers, supervisors and employees.
We normally plan these sessions; we may observe employee behaviours or work areas and check compliance of safety procedures and standards, or we might simply review the procedures and risk assessment documents for particular tasks in consultation with the employee doing the work to determine whether the documents are relevant and effective.

16:00–17:00 I jump back onto my emails and respond to urgent messages and phone calls. Now it's also time to review or complete risk assessment forms or other work safety documents in our IRIM reporting system. I also like to review my to-do list to make sure I've completed all the important tasks and type out my to-do list for the next day — this wraps up my day at work.

17:30 Normally I pass the evening spending time with my two little wonders in the park or in our backyard playing cricket — or whatever activity they demand for the day!

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



Protecting your patients from Legionnaires' disease

Sarah Bailey*

Patients are particularly vulnerable to Legionnaires' disease. Establishing a water quality management plan therefore isn't just best practice — it can save lives.

Legionnaires' disease is a disease of increasing importance worldwide. The Center for Disease Control (CDC) in the USA estimated in 2016 that the incidence of Legionnaires' disease has increased by 400% over the last 15 years. In Australia, there have been several high-profile outbreaks both in hospitals and in the community. Recent issues have been found in several hospitals all over Australia, with the most well-known recent outbreak taking place in the Wesley Hospital in Brisbane. The most common species discovered in outbreak situations in health care is *Legionella pneumophila*, although there are many other species of *Legionella* that cause illness in humans.

Legionnaires' is a respiratory disease that can affect anyone but predominantly affects the elderly and those with other conditions such as diabetes, with more men being infected than women. It can cause significant morbidity and mortality, and has a high level of admission to intensive care.

Applying best practice

The Wesley Hospital outbreak resulted in the production of guidelines for the control of *Legionella* and other microorganisms in Queensland and, ultimately, in the 2015 publication of the enHealth Guidelines for Legionella Control in the operation and maintenance of water distribution in health and aged-care facilities.

The enHealth guidelines apply to all water systems in aged-care facilities and health facilities in Australia, with the exception of cooling tower systems. In Queensland, producing a plan for the control of *Legionella* in a facility is compulsory under the *Public Health (Water Risk Management) Amendment Act 2016*. Queensland also has compulsory reporting of the results of *Legionella* testing in a health facility on a publicly available website. At present, most states have indicated that the guidelines will become compulsory in the future. As they stand, the guidelines are best practice within Australia, and it would be wise for any facility to produce a plan for the safety of their residents and patients.

While the guidelines refer mainly to *Legionella*, it is the view of many professionals that while producing a *Legionella* management plan, it is vital to assess and manage the risk of other waterborne pathogens such as *Pseudomonas aeruginosa*, *Xanthamonas maltophila*, *Acinetobacter* species and organisms such as non-tuberculosis *Mycobacterium* species. *Pseudomonas aeruginosa* is a common cause of hospital-acquired pneumonia in Europe and can be difficult to treat due to antibiotic resistance.

Creating a management plan

Step 1: Establish a project team and seek stakeholder input

The first step of creating the plan is to establish a *Legionella* risk management system, the first step of which is assembling a risk management team to produce the document. A team may include engineering staff, external consultants, infection control practitioners, clinical staff and executive level members. It should be ensured that the people producing the plan have the relevant expertise to do so, and extra training or the consultation of external experts may be required to produce an effective plan. The team should then produce suitable and effective written procedures for *Legionella* risk management within the facility.

Also, when the plan is being created, it is critical to seek input from all staff, not just those directly involved in the risk management team. Effective awareness training for all staff, along with an easy system for reporting any risks noted within the building, will improve the plan.

Step 2: Analyse the water systems

A full analysis of the water systems within the facility should be undertaken — a task

which will require both trades and clinical staff to be effective. At this stage, the vulnerability of the patients to acquiring waterborne disease should also be assessed — for example, areas such as oncology will have higher risk patients than a mental health outpatient clinic, and a greater degree of control will be required in these areas. A list of uses and users of water should also be prepared — this list will be extensive, and should include input from as many sources as possible to capture as many uses as possible. This will include everything from showers and dental chairs to humidifiers and steam mops.

Step 3: Identify hazards and risks and implement controls

Identifying the hazards and risks is the next stage, followed by implementing controls and monitoring — managing the risks. The hazards and risks from the water system will be many and varied, and some will require urgent action — this may be an engineering intervention or a change in clinical practice. All risks should be ranked, with the highest risk actions remediated first. Examples of this include ensuring that the hot water is circulating at the correct temperatures throughout the hospital water system, that shower heads are not affected by limescale, that water in the cold water tanks is circulating properly and that chlorine residuals in the tap outlets are at the proper concentrations.

Step 4: Establish a monitoring program

A suitable operational and verification monitoring program should then be set up for the facility. Operational monitoring is the tests that can be carried out day to day — often with instant results to determine if the controls implemented are working. Common operational monitoring includes testing for chlorine residuals in the water supply, temperatures from the taps and from the water heaters, the pH of the water and the turbidity of the water. Verification monitoring tests are those for *Legionella* species and, often, for heterotrophic colony counts (sometimes also referred to as total viable counts or total plate counts). As these verification tests take many days to get results, they should not be relied upon as the primary form of monitoring. Operational monitoring can provide on-the-spot information as to how a system is performing, and if the conditions for *Legionella* proliferation are prevalent in the system. This can allow a fast response to deteriorating conditions and reduce the chances of patients becoming exposed to *Legionella* species and other waterborne pathogens.

Step 5: Review the plan regularly

Finally, the document, once produced, is a living document. It should be reviewed at regular intervals and additionally it should be reviewed if a case is detected, if the results of testing indicate the plan is not working effectively or if there are any changes to the water distribution system.

An effective program, put together by staff who have adequate training and resources, will increase patient safety within the facility.

*Sarah Bailey is a Senior Consultant at QED Environmental Services, primarily working in the health and aged-care sectors in water and air quality, and infection control. Prior to her appointment at QED, she worked for many years as a microbiologist in the Australia and the UK, including for the Health Protection Agency, where she was involved in infection control and Legionella control. Visit www.qed.com.au.

Winning strategies for waiting rooms

The first thing most patients do in a healthcare setting is to wait. The number of minutes (or hours) depends on the situation, but the average time patients spend waiting to see their providers is 22 minutes. Until recently, researchers have rarely focused their attention on this part of the healthcare experience, but Herman Miller has begun studying the ways people wait to improve the process for patients, visitors, and the professionals who interact with them.

Why should we be interested in waiting?

Whenever patients are forced to wait, that experience influences their perception of quality of care. As public zones where people with illnesses gather, waiting rooms are sometimes seen as places where germs abound. This impression can create a sense of discomfort and urgency to leave the space as soon as possible—making it more difficult to tolerate service delays, errors, and inefficiencies—and lowering patient expectations.

Not surprisingly, research has shown that as wait time goes up, patient satisfaction goes down. Those who waited five minutes or less expressed 95.4 percent satisfaction with their experience, and satisfaction dropped steadily along with wait time, all the way down to just 80.4 percent satisfaction for those who waited more than 30 minutes. One study even suggested that perceived wait time is a more compelling indicator of patient satisfaction than actual wait time. A wait that "feels" long due to crowded, noisy surroundings or a lack of positive distractions like art, aquariums, or windows can lower satisfaction scores even more. This suggests that focusing on the emotion-related component of waiting may be an important part of improving the patient experience.

How can we improve the experience of waiting?

From the environment to the way we monitor lines, there are many ways to make waiting more compatible with people's wants and needs.

Consider the furniture.

1. Does it fit the bodies of the people who are using it?

We can make waiting rooms more inclusive by providing seating that accommodates everyone who's likely to use it.

2. Does it make people feel comfortable?

Naturally, furniture in waiting areas should support the people who use it, encouraging healthy postures and providing long-lasting comfort. However, helping patients feel comfortable in their surroundings goes deeper than ergonomic design. Choosing furniture that is designed to withstand high-traffic environments without showing wear and tear that would detract from aesthetics or comfort long after the furniture is installed.

3. Does the furniture support all of the different types of groups and postures in the waiting room?

Due to the diversity of individuals, illnesses, and family groupings, there is no single seat or seating configuration that will work for everyone who visits a waiting area. Furthermore, seating arrangements with closely packed chairs and no personal space could be expected to increase stress and anxiety and perceived waiting time.

4. Does the furniture allow people to do what they want while they wait?

In one study of a waiting room, the most common behaviours were getting out of a seat, talking, watching TV, watching other people, talking on cell phones, and dozing. Eating, drinking, and using a laptop were also observed. Another study identified several activities that functioned as positive distractions during the wait, including mobile devices, artwork, educational materials, views to the outdoors, TV programming and electronic monitors to inform patients about waiting time.

These observations suggest that an ideal waiting area should provide conversational groupings, charging stations for mobile devices, places to watch TV, and tables between or near seating to hold food and drink.

Appropriate furniture alone is just one of the keys to creating a positive environment. The arrangement of the furniture and design of the space can also enhance the experience.

Florabella: Lounge Seating, just one of our waiting room solutions

Style, comfort, and ease of cleaning share top billing with the Florabella lounge seating collection. The contoured seat and back are comfortable for a wide range of users, and a continuous wipe-out gap around the seat allows thorough and easy cleaning. An internal steel structure and replaceable components ensure lasting performance in demanding healthcare environments.

MicrobeCare: Anti-microbial Solution to stop the spread of Bacteria in waiting room environments.

MicrobeCare is an anti-microbial treatment that minimises the spread of bacteria, fungi, algae and yeast on a wide variety of Herman Miller products. It kills 99.99% of microbes and prevents microbe mutation. MicrobeCare is safe and has recorded proven results in highly sensitive healthcare environments.

HermanMiller Healthcare

»

For further information contact:
info_au@hermanmiller.com or visit hermanmiller.com.au

Elevating the human experience of care.

Herman Miller Healthcare addresses human needs in health and wellness environments across the entire continuum of care, with designs that consider patients, families and caregivers.

The innovative performance and superior construction of our products results in spaces that function better, while our holistic, human-centred design approach means they feel better too.

+ Procedure + Supply Carts

Modular system with universal sizes and easily interchangeable drawers and accessories.

+ Ava

Comfort for long periods of sitting, with lay-flat recline position and controllable footrest.

+ Florabella

Innovative floating seat lets potential contaminates flow to the floor, preventing build up of germs and bacteria.

+ Sleepover 1.2.3

Transforms from an arm chair to a single sleep surface – no mechanisms needed.

+ New Optional - MicrobeCare™

Herman Miller Healthcare's patented antimicrobial treatment provides added protection against bacteria, fungi, algae, and yeast. Environmentally safe and continually active, it kills 99.99% of microbes and prevents microbe mutation.

+ Sayl Chair

Fewer parts, less material, and still everything a good chair should be. Choose Healthful seating.

For more information and our full product range, please visit hermanmiller.com.au or email us at ***info_au@hermanmiller.com.***

Our products come with our peace-of-mind 12-year, 3 shift warranty, (excluding some fabrics, mechanisms and MicrobeCare).

HermanMiller Healthcare

A centre of **excellence**

Inspired by similar centres in the US, the VCCC was designed to bring together world-class cancer research and treatment under one, beautifully designed roof.

The Victorian Comprehensive Cancer Centre (VCCC) is a purpose-built centre of excellence for cancer research, treatment, education and care, located in the prestigious Melbourne Biomedical Precinct.

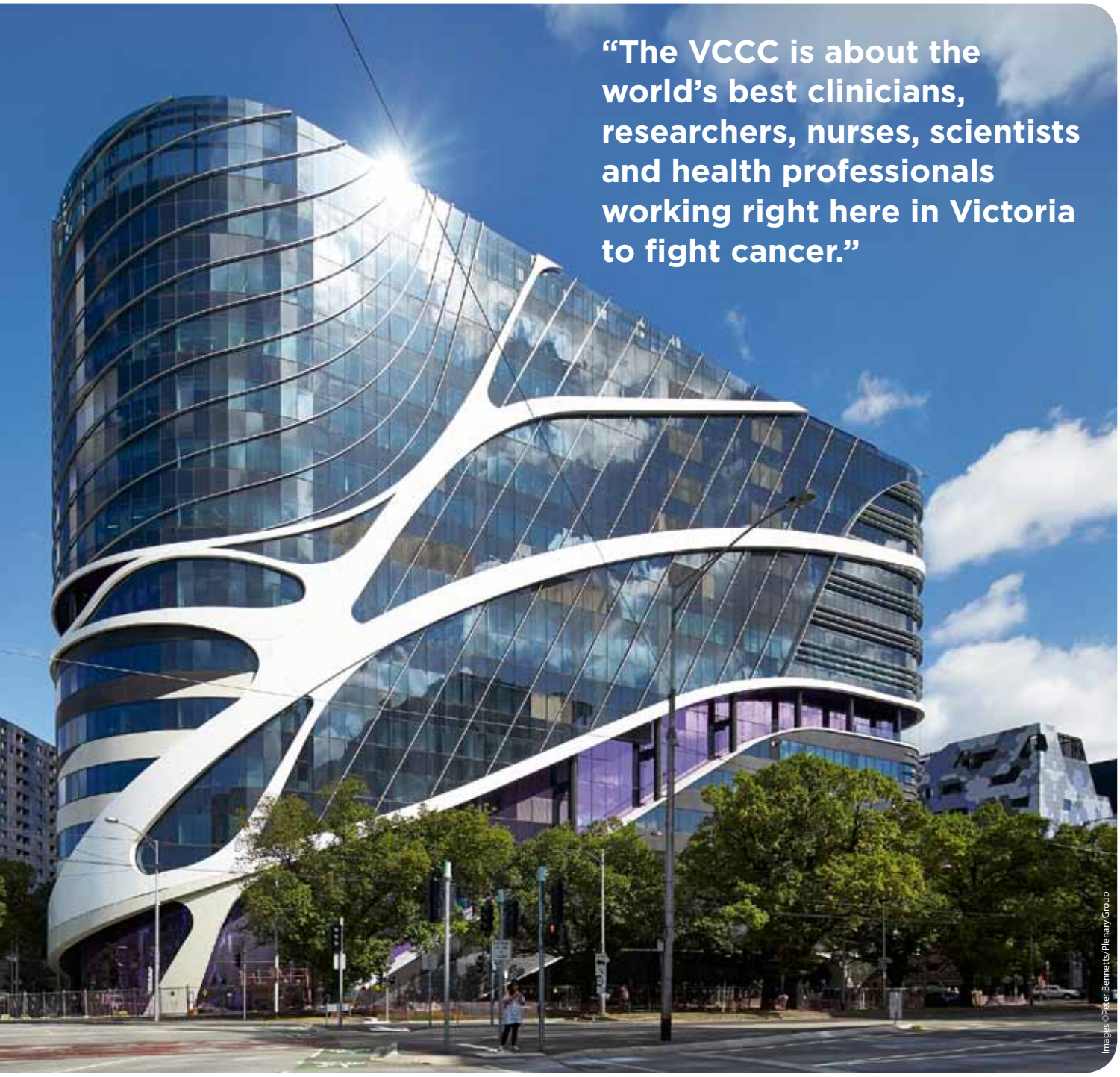
The $1 billion, 130,000 m^2 centre is home to cancer research, clinical services and educational facilities for the Peter MacCallum Cancer Centre (Peter Mac), Melbourne Health and the University of Melbourne. It also brings together an additional seven leading cancer organisations to form the VCCC Alliance in a collaborative effort to focus on improving patient and research outcomes: Austin Health, the Murdoch Children's Research Institute, St Vincent's Hospital Melbourne, The Royal Children's Hospital Melbourne, The Royal Women's Hospital, The Walter and Eliza Hall Institute of Medical Research, and Western Health.

An inspired model

The VCCC was inspired by the comprehensive cancer centre (CCC) model from the US, where cutting-edge patient services and research come together under one roof. There are 45 CCCs in the US; however, the VCCC is the first of its kind in Australia, connecting world-class cancer research, education, treatment and care.

Blending clinical, administrative and research facilities, the VCCC includes:

- more than 20,000 m^2 of dedicated research space for up to 1200 researchers;



- 110 same-day beds;
- 96 overnight inpatient beds;
- eight operating theatres;
- eight radiation therapy bunkers;
- a dedicated clinical trials unit;
- accommodation for families of country patients;
- education and training facilities;
- eight gardens and terraces comprising low-allergenic plants and materials; and
- two over-road bridges to specialist facilities at The Royal Melbourne Hospital.

Joint effort

Delivered under a public–private partnership, the Victorian Government contracted the Plenary Health consortium — comprising Plenary Group, the Grocon PCL builder joint venture and Honeywell — to design, build, finance and maintain the project for 25 years. Plenary Health engaged an architecture team of Silver Thomas Hanley, DesignInc and McBride Charles Ryan (STHDI+MCR).

When the VCCC opened in June 2016, Premier of Victoria Daniel Andrews proudly commented: "The VCCC is about the world's best clinicians, researchers, nurses, scientists and health professionals working right here in Victoria to fight cancer. We believe that everyone has the right to access the best treatment and technology, and the VCCC will guarantee just that."

Design features

The VCCC is easy to navigate due to its simple layout formed around a central atrium, which provides natural light and assists staff, patients and visitors in navigating their way through the building.

Opportunities to increase energy efficiency and reduce greenhouse gas emissions have been incorporated into the design, including such initiatives as 'free cooling' air-conditioning systems to reduce energy consumption, innovative facade shading to reduce heat load impact, and 350 spaces for bicycle parking. Builder Grocon-PCL undertook a self-assessment against the Green Star rating tool, indicating the facility would have likely achieved a 4 Star Green Star certified rating, signifying best practice in sustainable construction.

Future expansion

Plenary also delivered significant future expansion capacity upfront, at no additional cost, to allow for future growth. As an operational vote of confidence in how the facility was planned and designed, 100% of the expansion space has since been taken up.

In the expansion space on Level 1, Peter Mac teamed with the Sony Foundation to establish Victoria's first YouCan Youth Cancer Centre. Soon, the Level 13 expansion space will house the Ian Potter Centre for new Cancer Treatments, providing a home for the Peter Mac-led Immunotherapy Research Program, the Australian Genome Research Facility, the Cooperative Research Centre for Cancer Therapeutics, the Innovative Clinical Trials Centre, the International Cancer Research Centre and the National Proton Beam Therapy Centre.

"The VCCC is a golden opportunity to pioneer new techniques and research in these most difficult areas of cancer care and treatment," said Professor Sean Grimmond, director of Cancer Research, The University of Melbourne. "It will enable us to build completely new partnerships between a community of world-leading research and clinical experts."

Awards/recognition received

- Silver, Best Operational Project, 2017 PPP Awards
- National Commercial/Industrial Construction Award over $100 million, 2017 Master Builders Australia National Excellence in Building and Construction Awards
- Excellence in Construction of Commercial Buildings over $80 million, 2017 Master Builders Association of Victoria's Excellence in Construction Awards
- Victorian Architecture Medal, 2017 Victorian Architecture Awards
- William Wardell Award for Public Architecture, 2017 Victorian Architecture Awards
- Government Partnership Excellence, 2017 IPA National Infrastructure Awards
- New Construction Project of the Year, 2017 Elevator World Project of the Year Awards
- Best Project, 2016 The Design 100 GOV Design Awards
- Architecture Gold, 2016 The Design 100 GOV Design Awards
- Interior Design Gold, 2016 The Design 100 GOV Design Awards
- Best Large Commercial Project, 2016 National Electrical and Communications Association Victorian Excellence Awards
- Best International Healthcare Project, 2013 World Finance Magazine Infrastructure Investment Awards

Integrated valve regulator simplifies oxygen therapy

Coregas Integrated Valve Regulator (IVR) conveniently combines cylinder, regulator, flow meter and valve in a robust, lightweight and ready-to-use package. Coregas IVR, accessing medical oxygen quicker, easier and removes the operating costs of external regulators and flow meters. Simply attach your tubing or equipment to the unit and continue caring for your patient.

Features and benefits

Regulator and flow meter are integrated into the valve

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

Dual oxygen outlets

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

Contents gauge

- Clearly displays gas contents in real time with no need to touch the open/close valve
- High capacity cylinder
- Increased gas capacity of 0.639 m^3 (639 litres) saves time with less cylinder changeovers
- Potentially lower stock holdings
- User-friendly design
- Two ergonomic carry handles
- Tamper proof seal provides quality assurance
- Lightweight cylinder package makes handling easier
- Plastic coating makes it easy to clean
- Staff training in 6 easy steps
- Sleek, professional appearance ensures patient confidence

Specifications

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

coregas

»

Contact Coregas to find out why making them your gases specialist could be to your advantage. Coregas Pty Ltd. Phone **(02) 9794 2223** or visit **coregas.com.au**

Microdial Flowmeter
A smoother transition to room air

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

Innovation in the treatment of oxygen dependency in infants

Premature babies with Respiratory Distress Syndrome (RDS), may receive mechanical ventilation as a lifesaving intervention. This ventilation can cause damage to the lungs, leading to a chronic lung disease, often referred to as bronchopulmonary dysplasia (BPD). An infant with BPD will often need to be weaned off oxygen over several weeks or months — with the level of effectiveness depending on the controlled gradual reduction in levels of "fraction of inspired oxygen" (FiO_2).

To enable controlled adjustments of FiO_2 levels, BPR Microdial flowmeters feature a Microflow™ dial control that enables precise and reversible mini step changes in the oxygen flow. This dial technology delivers oxygen flow rates in gradual steps of as little as 10 cc per minute (Table 1).

Microdial flowmeters are available in two models; a paediatric version with flow rates of 0–3 lpm and a neonatal version with flow rates of 0–1 lpm. These two models allow minute changes of FiO_2 levels, facilitating a smoother transition to room air. (Table 2).

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

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

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

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

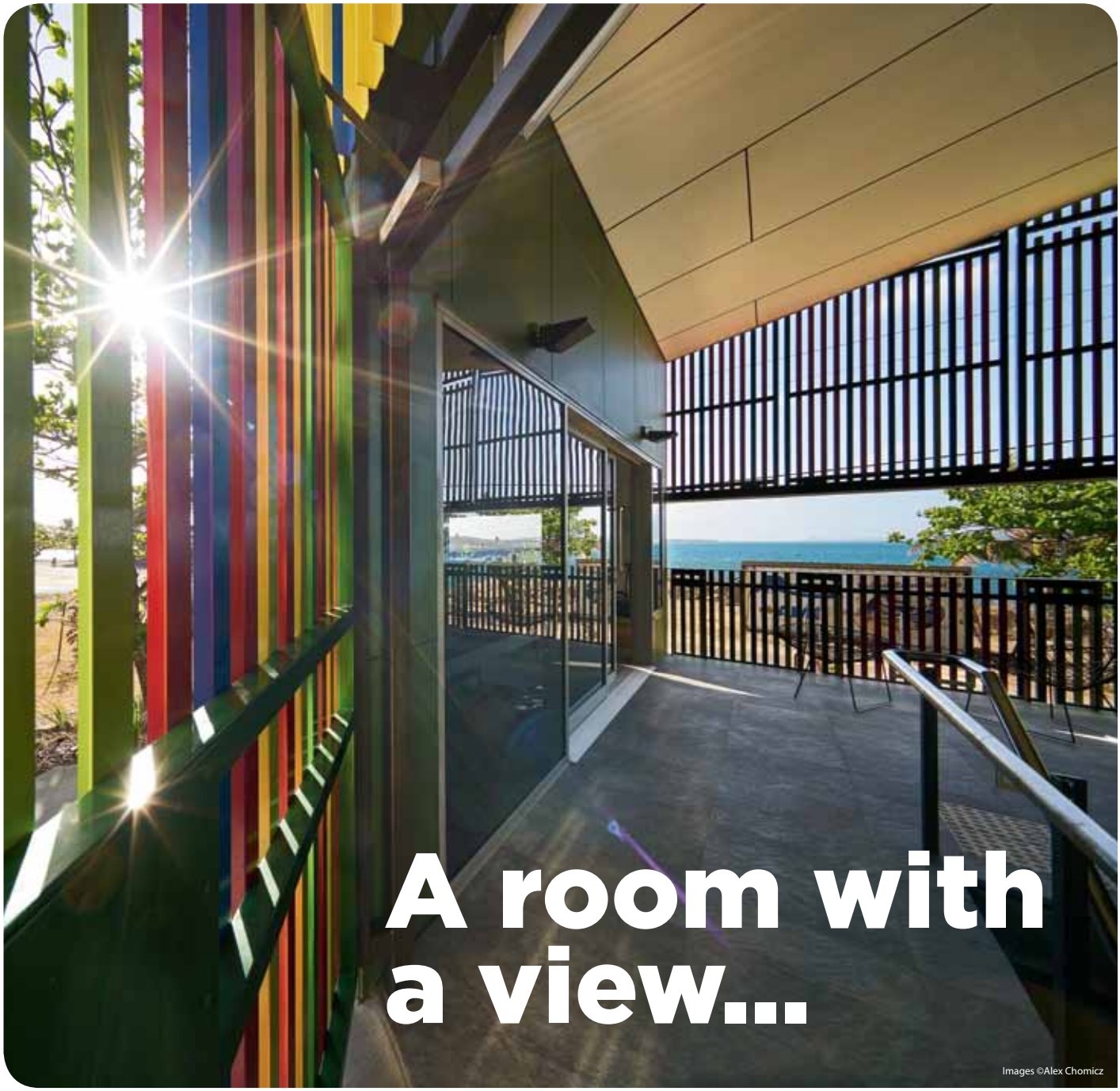
TABLE 2*: Estimated FiO_2 levels associated with flowmeter flow settings against patient weight (neonatal model)

Weight (kg)	1	0.1	0.09	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01	Flow rates (lpm)
0.7	100.0%	32.2%	31.1%	30.0%	28.9%	27.7%	26.6%	25.5%	24.4%	23.3%	22.1%	FiO_2 levels
1	100.0%	28.9%	28.1%	27.3%	26.5%	25.7%	25.0%	24.2%	23.4%	22.6%	21.8%	
1.25	84.2%	27.1%	26.5%	25.9%	25.3%	24.6%	24.0%	23.4%	22.8%	22.2%	21.6%	
1.5	73.9%	26.3%	25.8%	25.2%	24.7%	24.2%	23.6%	23.1%	22.6%	22.1%	21.5%	
2	60.5%	25.0%	24.6%	24.2%	23.8%	23.4%	23.0%	22.6%	22.2%	21.8%	21.4%	
2.5	52.6%	24.2%	23.8%	23.5%	23.2%	22.9%	22.6%	22.3%	21.9%	21.6%	21.3%	
3	47.1%	23.6%	23.3%	23.1%	22.8%	22.6%	22.3%	22.0%	21.8%	21.5%	21.3%	
3.5	43.9%	23.3%	23.1%	22.8%	22.6%	22.4%	22.1%	21.9%	21.7%	21.5%	21.2%	
4	40.8%	23.0%	22.8%	22.6%	22.4%	22.2%	22.0%	21.8%	21.6%	21.4%	21.2%	

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

BOC
A Member of The Linde Group

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



A room with a view...

Images ©Alex Chomicz

Inspired by the local environment, a new research facility in the Torres Strait combines elegant design with practicality, making the most of the stunning environment and views.

Set in the lush environs of Thursday Island is the beautiful new Australian Institute of Tropical Health & Medicine (AITHM). Designed by Wilson Architects, in association with Clarke & Prince Architects, the AITHM was established by James Cook University (JCU) and encompasses three new health research facilities located in Townsville, Cairns, and in the Torres Strait.

The facility brings together the expertise of a number of research centres to enhance infectious disease, chronic disease, public health, translational and health systems research.

Research undertaken within AITHM will strongly focus on the health problems of most importance to tropical Australia and the tropics worldwide.

JCU Lecturer Alan Ramsay says the facility's design recognises that research doesn't just take place in laboratories.

"A building like this, with so many social and open spaces, makes for a social building where researchers can cross-pollinate and discuss future projects. Being here [on Thursday Island] you're most sensitive to the needs of the community," he said. "I think the building can draw the community closer to the actual activity of research."

Researcher/PhD Candidate J'Belle Foster says the facility is perfectly positioned to address some of the cross-border health issues that are limited to this part of the world.

"We live and work in such a unique part of Australia; nowhere else are we closer to another country than we are here," she said. "I think what's most exciting about this place is the capacity for Indigenous people to come and learn about research, and to undertake research initiatives that are important to them."

The design is a direct response to, and expression of, a place that is both remote and sometimes extreme. It leverages the site's context proximate to the intensity of the blue waters and flora of Thursday Island.

Community Elder Aunty Romina Fuji says the design is a reflection of the region and the tropics' love for colour.

"It's about all colours and a multicultural society. It belongs to all of those people that have come through in the past, and who will be here in the future," she said. "It's an opportunity for our people to help in the research."

The exterior draws colours from nearby trees, flowers, the water and ground. The sloping site enables the laboratories as well as the short-term accommodation to make the most of the project's extraordinary views of the ocean.

AITHM facilitates cross-disciplinary research activities, research incubation and innovation translation into real outcomes. It includes accommodation space for researchers and consultation rooms, to cater to the health needs of the local Thursday Island community.

Funded by the Queensland Government ($6.3 million) and JCU ($300,000), the site is adjacent to the Torres Strait Hospital and will enable research, training and community engagement. This location is highly vulnerable to disease incursion and health security threats on Australia's northern border.

This new research facility focuses on infectious disease such as tuberculosis, chronic diseases like diabetes and obesity, parasites and investigations into the mosquitoes that transmit dengue and Zika. In addition, the community space will provide a platform for engagement and collaboration with the Torres Strait community and the hospital service to ensure translation of findings.

This building enables research in the field of tropical health and medicine and specifically investigates issues that are of concern to the Thursday Island communities. This research is key to improving the health and wellbeing of the people of Torres Strait.

Have you been introduced to the unique MicroPurity™ technology of the Zip HydroTap®?

Only Zip HydroTap technology transforms water at the touch of a button into a form you'll instantly love.

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

Many people don't understand the importance of water filtration in their everyday environments. It is therefore up to professionals in the industry to educate others 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 Harvey[1].

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 per cent of the dwellings tested.

Notably, 8 per cent 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.

For decades, Zip Water has been perfecting its MicroPurity water filtration technology to bring you delicious, crystal clear, pure-tasting water at the touch of a button. The ground-breaking 0.2-micron filtration system removes contaminants as little as 1/5000th of a millimetre, ensuring that the water delivered from Zip Water appliances is as delicious as it is healthy.

By expertly removing sediment and volatile organic compounds, lead and parasitic microorganisms — such as cryptosporidium and giardia, which are greater than 0.2 microns — Zip Water helps safeguard your clients.

As a longstanding leading Australian manufacturer, Zip Water prides itself on innovation and commitment to national and international standards.

All of its filtration products meet strict performance guidelines, and are independently tested by National Sanitation Foundation (NSF) International and approved under the Watermark Certification Scheme.

By selecting genuine Zip Water MicroPurity filtration, you can be sure that you will be offering your clients peace of mind with a product that will perform, and the assurance that you are installing an approved water filter that meets the highest of standards.

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

0.2 MICRON

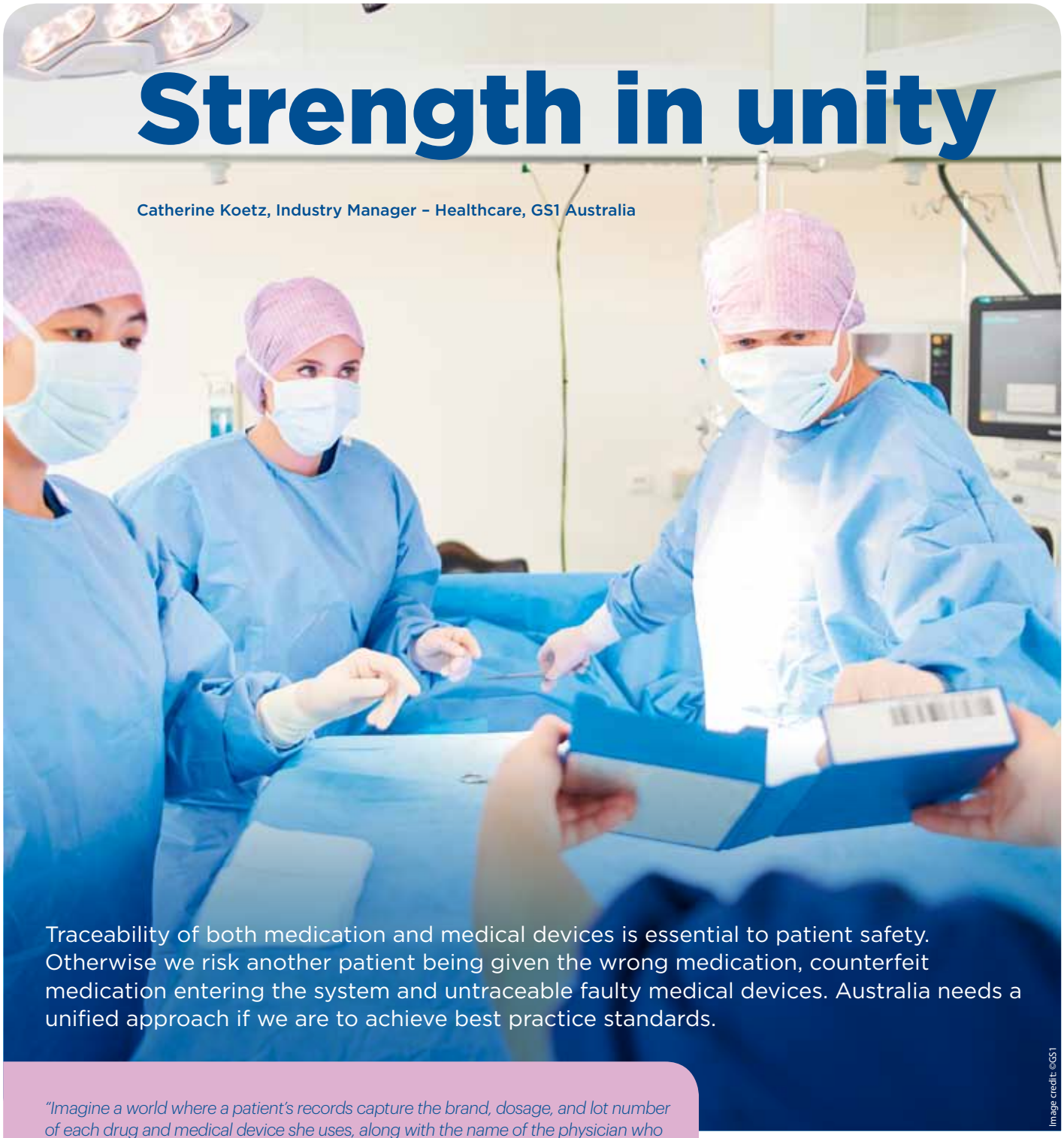
INDEPENDENTLY CERTIFIED NSF

Zip MicroPurity Filter

» For more information, **visit www.zipwater.com** or **call 1800 638 633**

Strength in unity

Catherine Koetz, Industry Manager – Healthcare, GS1 Australia



Traceability of both medication and medical devices is essential to patient safety. Otherwise we risk another patient being given the wrong medication, counterfeit medication entering the system and untraceable faulty medical devices. Australia needs a unified approach if we are to achieve best practice standards.

Image credit: ©GS1

"Imagine a world where a patient's records capture the brand, dosage, and lot number of each drug and medical device she uses, along with the name of the physician who ordered the product and the nurse who administered it;

where bedside scanning confirms that she gets the right product in the right dosage at the right time; where hospitals and pharmacies know the exact location of short-supply medical devices and drugs and when they can be delivered;

where regulators can recall adulterated products with accuracy and speed from every point in the supply chain; and where manufacturers can monitor real-time demand changes and shift their production schedules accordingly."

McKinsey Healthcare Report, Strength in Unity, 2012

This powerful statement opened the executive summary of this 2012 McKinsey report. It still resonates today across the health sector the world over. Regulatory bodies, manufacturers, health system operators, clinicians and health providers of all types as well as the most important healthcare stakeholder, consumers, all agree that this is what we need within our health systems.

But have we addressed the underlying challenges related to traceability that impact our ability to deliver this future? Do we really understand how important data standards and the utilisation of unique identification are to ensure we can deliver an interoperable, patient-centric and safer health system?

Traceability is essential

Ensuring traceability of the products used within health care is incredibly important in the pursuit of patient safety. Investigations such as those documented by journalist Katherine Eban in *Dangerous Doses* and within government investigations such as the Lindsay Inquiry in Ireland have highlighted where patients have been put at risk due to traceability not existing within the system that supports pharmaceuticals.

In the aftermath of the worldwide scandal related to Poly Implant Prosthese (PIP) breast implants, many countries discovered that they were unable to identify and contact all affected patients to communicate the potential risk (or not). This issue, and others like it, highlighted that without consistent identification and processes to capture data all the way through to the patient record, traceability of the devices is not possible. The challenge is made greater by our increasingly mobile populations where patients have relocated or where they are no longer in contact with the original implanting physician, and there are no centralised records recording the implant.

Using data to protect patients

We often think that traceability is only for the 'supply chain' and many do not see the risk to the patient or consumer without it, or the benefits to patients with it. We have also not always understood that the data related to the actual pharmaceuticals and medical devices that we are providing to patients and consumers is some of the 'data' we need to ensure their safety.

The issues documented above, and others like them, have really highlighted that addressing traceability is critical to safety in many instances. It is evident that changes need to be made across the entire process from the origination of a product, where the products are used by clinicians and when they reach the patient or consumer.

Since the McKinsey report, and the release of these other publications, what has changed to resolve the challenges of traceability within health care? The answer to this question is a lot; however, given the issues documented in the Grattan Institute's latest study of Australian Hospitals (All complications count: Using our data to make hospitals safer, Feb 2018), there is still more to be done.

Global trends

Globally there has been a significant shift in focus within the manufacturing communities of both pharmaceuticals and medical devices. They now understand the necessity for a harmonised global approach to traceability, as it removes manufacturing complexity and simplifies internal quality assurance processes. Representative organisations, such as the European Federation of Pharmaceutical Industries and Associations, have helped by strongly supporting a harmonised approach.

Within the regulatory environment there has also been a substantial number of new or revised regulations that require 'unique identification' of products based on recognised global standards. The Unique Device Identification Guidance from the International Medical Device Regulators

Forum laid out the need for a globally harmonised system to increase patient safety by supporting traceability through distribution, use and corrective action.

It also identified that such a system will assist with documenting and longitudinal data capture related to medical devices. This guidance has since provided the foundations for regulations in the USA, European Union and an increasing number of other countries globally.

Similarly, in pharmaceuticals there have been even more comprehensive regulations and traceability frameworks put in place in many countries. These address the need for secure supply chains as well as the requirement for improved accuracy in recording pharmaceutical information within the processes of prescribing, dispensing and administration.

Some of the most notable regulations globally include the Falsified Medicines Directive in Europe and the Drug Supply Chain Securities Act (USA). At a local level in Australia there have also been requirements emerging such as the identification and barcoding requirements of the National Blood Authority, which mandates globally unique identification and serialisation for all products they fund.

Leveraging technology

Despite these advancements, there remains a fundamental lack of understanding of the need for technology to ensure we can achieve traceability for our patients and fulfil the dream articulated by McKinsey. Unlike the United Kingdom, where they have reinforced the need to ensure all products, places and people are identified using unique identification, and that there is also the means to physically capture data this data within interactions or events, many others have focused less on this area.

Standards frameworks, such as the one in development and implementation by ACT Health, start to address this by outlining the standards that are needed, articulating how they will be captured and defining what future technology investments must support. The emphasis on global standards means that solution providers can now develop and implement scalable solutions that meet not only Australian but also international market needs.

If being able to capture and analyse data is accepted as one of the keys to creating safer health care in our hospitals and communities for our patients as suggested in so many studies, then this approach is a step in the right direction and one worth considering by others.

References:

1. Ebel, T, George, K, Larsen, E, Neal, E, Shah, K and Shi, D, 2012. Strength in unity: The promise of global standards in healthcare. McKinsey & Company. https://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/operations/pdfs/ops_%20%20mck%20white%20paper%20global%20standards%20vf.ashx
2. Eban, K, 2005. Dangerous Doses: A True Story of Cops, Counterfeiters, and the Contamination of America's Drug Supply. Harcourt. http://katherineeban.com/dangerous-doses/summary/
3. Duckett, S, Jorm, C, Danks, L, and Moran, G, 2018. All complications should count: Using our data to make hospitals safer. Grattan Institute. https://grattan.edu.au/wp-content/uploads/2018/02/897-All-complications-should-count.pdf
4. IMDRF UDI Working Group, 2013. UDI Guidance – Unique Device Identification (UDI) of Medical Devices. IMDRF International Medical Device Regulations Forum. http://www.imdrf.org/docs/imdrf/final/technical/imdrf-tech-131209-udi-guidance-140901.pdf
5. Lindsay, A, 2002. Report of the Tribunal of Inquiry into the Infection with HIV and Hepatitis C of Persons with Haemophilia and Related Matters. Dublin: The Stationery Office. http://health.gov.ie/wp-content/uploads/2014/04/Tribunal-of-Inquiry-into-the-Infection-with-HIV-and-Hep-C-of-persons-with-Haemophilia-and-Related-Matters.pdf
6. National Blood Authority Australia, Barcode Specifications, accessed February 2018. https://www.blood.gov.au/barcoding

From words to action

Kristin Michaels*

In line with international trends, the Advancing of Australian Pharmacy Practice credential provides a pathway to improved outcomes for patients.

Across the developed world, a number of unprecedented challenges are looming in health care.

With an increasing prevalence of chronic and complex disease profiles comes a greater need for expert medicines management, guidance and support; it is therefore crucial that pharmacists step up and thrive at the full scope of their practice.

Framework required

There is now more than ever a need to install a rigorous framework to guide the professional development of a highly skilled, flexible and adaptable pharmacy workforce, to fulfil the message from WHO: "There is no healthcare without a (competent) workforce".

As a profession-wide collaborative forum, the Pharmacy Practitioner Development Committee commenced operation in mid-2014, focusing on the development of pharmacist practitioners through consideration of competencies and scopes of practice.

Throughout 2015, the Australian Pharmacy Council (APC) undertook a Credentialing of advanced practice pharmacists pilot program, which used the Advanced Pharmacy Practice Framework for Australia as a tool for evaluating practitioner performance and guiding development.

International trends

On the international stage, the International Pharmaceutical Federation (FIP) released its global report: Advanced Practice and Specialisation in Pharmacy.

The report, based on the first collection of global data of its kind — from 48 countries — concluded that "professional advancement and the professional recognition of advancement in practice is a developing trend worldwide".

The following year (2017) saw FIP release its Pharmaceutical Workforce Development Goals (PWDGs) in Nanjing, China.

Central to the landmark Nanjing 'roadmap', the 13 international PWDGs are FIP's primary measurement of 21 countries' capacity and ability to implement their vision of a global pharmacy workforce that can meet tomorrow's healthcare challenges.

The 4th WDG is — Advanced and Specialist Development — aligned well with the work being done in Australia, adding impetus to collaborative efforts to put education and training infrastructures in place to advance the pharmacy workforce as a basis for enhancing patient care.

Australian think tank

In February 2017, back in Australia, a one-day roundtable reaffirmed the urgent need for a robust, sustainable, independent process to formally evaluate, provide feedback and recognise the work, scope and impact of the Australian pharmacy workforce above the base line degree and registration.

The Advanced Practice Think Tank, which comprised representatives from Australian pharmacy bodies, universities and leading international advanced practice groups, reiterated a collective commitment to developing a central operational mechanism to advance the national pharmacy workforce, in turn strengthening medicines management and delivering optimal health outcomes to Australians.

The Think Tank confirmed the need for the establishment of a sustainable credentialing process with closer ties with international partners which should implement principles previously outlined and formally tested by the APC pilot.

FIP Director for Education Development Professor Ian Bates, who attended the one-day roundtable, commented: "As in all areas of health care, future service delivery requires a transformative approach to workforce development — in this context, standing still means going backwards."

The commitment was bolstered by a report, published in the *Journal of Pharmacy Practice and Research* the same month, contextualising the story so far and reinforcing the enduring need for a robust framework to guide pharmacists' professional journey and outlining challenges and opportunities around re-establishing an evidence-based, collaborative approach to formalised evaluation, feedback and

recognition of pharmacy practitioners in Australia.

The report, Advanced pharmacy practice: Aligning national action with global targets, concluded: "As a profession we have a new and exciting opportunity to develop and implement a sustainable recognition pathway for advanced practice."

Commitment to progress

In November 2017, the commitment began to take form as the nation's leading pharmacy organisations united to launch the Advanced Practice Collaborative, a committee working collaboratively to examine and progress drivers for Advanced Practice in Australia.

Involving representatives from the Society of Hospital Pharmacists of Australia (SHPA), the Pharmaceutical Society of Australia (PSA) and the Pharmacy Guild of Australia, the Advanced Practice Collaborative was set up to examine barriers and enablers to Advanced Practice; review and monitor progress and adoption; provide advocacy, leadership and a liaison point for the profession; and develop an action plan for implementation of Advanced Practice in Australia.

Shortly after, SHPA established a body to oversee a process for assessing the individual impact of pharmacists' experience and expertise for Advanced Practice recognition, leading into 2018 and the launch of Advancing Practice.

Advancing Practice

With round 1 of submissions opening in March, Advancing Practice is Australia's new pathway for measuring practitioners' influence on pharmacy practice and patient care. As part of broader efforts to build a more highly skilled, flexible and adaptable Australian pharmacy workforce, the program is overseen by the Advancing Practice Advisory Board, comprising leaders from across the pharmacy profession and consumer health.

Importantly, the Advisory Board includes representation from the pharmacy profession in the UK.

There, more than 3000 pharmacists have started the professional recognition program for advanced practice. More than 500 have submitted their professional practice portfolio, peer-assessment evidence and scope of practice evidence and have been awarded recognised credentials for advanced practice: the model on which the new Australian approach is based.

For all pharmacists, regardless of where they work and the scope of their practice, Advancing Practice provides independent recognition of career progression, achievement and most importantly, their impact both directly and indirectly on patient care. Following four evaluation rounds per year, successful pharmacist applicants will be credentialed as Stage I Advancing Practice, Stage II Advancing Practice or Advanced Practice Pharmacist, continuing the legacy of the 2015 pilot.

In the longer term, the requirement for an Advancing Practice credential at a minimum stage could be used in employment models, and as a basis to improve and expand pharmacy services, but ultimately the process assures Australians that improving outcomes for patients is absolutely central to all pharmacists' work.

**Kristin Michaels is the Chief Executive Officer of The Society of Hospital Pharmacists of Australia, with a keen interest and experience in health system design. She is a seasoned Board Director in both the primary, acute and aged-care sectors. Kristin holds qualifications in Arts, Organisational Leadership, Governance and Health Service Management. She is a Fellow of the Australian Institute of Company Directors and is accredited as an International Partnership Broker.*

The road less travelled

Laini Bennett

Recently recognised with an Order of Australia for her leadership roles in medical administration at a state and national level, and to the discipline of psychiatry, Dr Peggy Brown is now CEO of the National Mental Health Commission. She shares with *AHHB* her journey to success and the lessons she's learned during her 30-year career as a woman in healthcare leadership.

Lesson 1: Open yourself to new opportunities

When studying to be a psychiatrist, it never occurred to Dr Brown that she might one day end up leading government health departments or, for that matter, as the CEO of a national organisation. "It wasn't my intention ... in fact, probably not my desire either," she laughed. "I thought I would be a psychiatrist or clinician for the rest of my days.

"But then there is a fork in the road, and you go in a slightly different direction. Many of my twists and turns in the road have been due to circumstance and opportunity, and not because of a mapped out career plan."

As those circumstances and opportunities arose, Dr Brown thought they sounded interesting and was willing to try something new. With encouragement from a mentor, she ultimately went from clinical work to running entire mental health government departments. The ability to help an even greater number of people was appealing.

"As a psychiatrist, you're working with people one on one and have the satisfaction of feeling someone is being helped. But you're making a difference for one person at a time," she explained. In her current role as CEO of the National Mental Health Commission, she has a much broader impact, helping to improve mental health policies and service delivery for the entire country.

Lesson 2: Be confident about what you 'bring to the table'

Sitting on a number of boards and committees, Dr Brown has never experienced a glass ceiling or negativity because she is female. She has found the boards in the health industry to be egalitarian. "It's about what you bring to it, not whether you're a man or woman," she said.

But she also believes that women need to be more confident about the contribution they can make. "Your experience may be different to others', but that's what is important. If everyone had the same experience and the same opinion, you wouldn't need everyone, you'd need one person. Diversity of experience and opinions is what helps to move things forward."

It takes time to build, but Dr Brown encourages female leaders to develop self-belief and a level of self-confidence in themselves and what they offer in their role. "You get the gigs because you're capable. You've got to believe you can do it," she said.

Lesson 3: Be true to yourself and your values

Being prepared to stand up for what she believes in has held Dr Brown in good stead during a career that has often been fraught with politics and media scrutiny. Over the years, she encountered situations that she believed were not being handled appropriately. She had to choose whether to 'not make waves' or to be true to her values and take a stance.

One of her earliest experiences of this was as a young trainee psychiatrist. Concerned that a particular training rotation was inappropriate and that trainees should not be put in that position, she approached the head of that training segment and expressed her concerns. "He told me that if I complained, I might find myself off the training program."

Dr Brown was challenged to consider whether she should keep quiet and protect her training position, or speak up and protect others from having the same experience. She spoke up. "It was the right thing to do," she said. And the result was positive.

"I did speak up, they did address it, they didn't throw me off the training program, and in the end it wasn't that big a deal," she

said. "I also know that there have been vast improvements in training programs since that time, over 30 years ago.

"But if something isn't right, I can't turn a blind eye or say it's not my concern, otherwise others will have the same experience, and things will never change."

Lesson 4: Build a trusted support group with whom you can consult

Throughout her career, Dr Brown has benefited from having mentors and peers with whom she can discuss work challenges, and says this has in part stemmed from her profession as a psychiatrist, where supervision is required and clinicians are used to discussing issues. She recommends that people build up a support group through learning sets or other opportunities and meet with them regularly so that if a problem arises, a ready-made, trusted support network is available.

Currently Dr Brown has three peer groups: a chief psychiatrists group, an administrative psychiatrists group and a clinician group. "I come away from those meetings feeling supported and validated," she said. "Everyone has challenges. And to be able to step back from it and talk about it is very beneficial."

Lesson 5: Look after your wellbeing

As a psychiatrist, Dr Brown has witnessed the downsides of stress and anxiety, and understands how important it is for people to look after themselves and their family. That said, she acknowledges she hasn't always found it easy to achieve work-life balance. "Do as I say, not as I do," she quipped.

After six years at Queensland Health oversighting the state's mental health services, Dr Brown was stressed, tired and in need of a break. So she and her family headed to the UK where she took up a clinical role, providing her with a change of pace and the opportunity to refresh. Eighteen months later they returned to Australia, where a reinvigorated Dr Brown became director of clinical services/chief psychiatrist for Mental Health ACT.

"Don't sell yourself short," she emphasised. "Believe in yourself."

"If you're someone who takes things on, you'll be asked to do more. You have to learn to say no, and to draw a line. You're more productive if you take time out for yourself," she said.

Lesson 6: Good leaders are good listeners

When asked what the ingredients for good leadership are, Dr Brown mentions several: trust, respect, integrity, credibility, self-reflection. But what binds them together are listening skills.

"Good leaders treat people fairly and decently," she said. "They can't just pronounce from on high, they need to listen … not just give directions.

"They also need to be prepared to receive feedback, and to seek out other people's opinions."

Dr Brown says that it is important that leaders can relate to people, understand issues from their perspective and take the time to explain why a decision has been made. "By and large, when dealing with staff, workers, patients, communities, they are reasonably happy to give you their trust if they understand why you've made a decision and how you might review it over time. They want to see there is a process there, how it relates to them and how they can influence it," Dr Brown explained.

Lesson 7: Believe in yourself

When it comes to women in leadership, Dr Brown speaks of 'imposter syndrome' and says it is not unusual for women to wonder "when are they going to realise that I'm a fraud and that I don't really know what I'm doing?"

She recalls the story of how she became director-general, ACT Health. The incumbent was moving onto a national position and Dr Brown was asked to act in the role while a recruitment process was undertaken. She was happy to do that but declined to apply for the job.

"I wasn't sure I wanted it, partly due to family reasons, and partly due to the breadth of the role," she said, explaining that the position covered not just mental health, but all health policy, funding, legislation and service delivery.

The first round of recruiting did not result in an appointment, and a second recruitment round commenced. By then Dr Brown had been in the acting role for six months, and realised she was able to do it.

"I got a sense of 'you can do more than you think you're capable of, and shouldn't sell yourself short'," she said. Promoted to director-general, Dr Brown was responsible for 7000 staff and a $1.4 billion budget, and supported the Minister for Health and the ACT Government for five years.

"Don't sell yourself short," she emphasised. "Believe in yourself."

Dr Brown is a guest speaker at the Women in Healthcare Leadership Summit in Sydney, 17–20 April, http://events.liquidlearninggroup.com/.

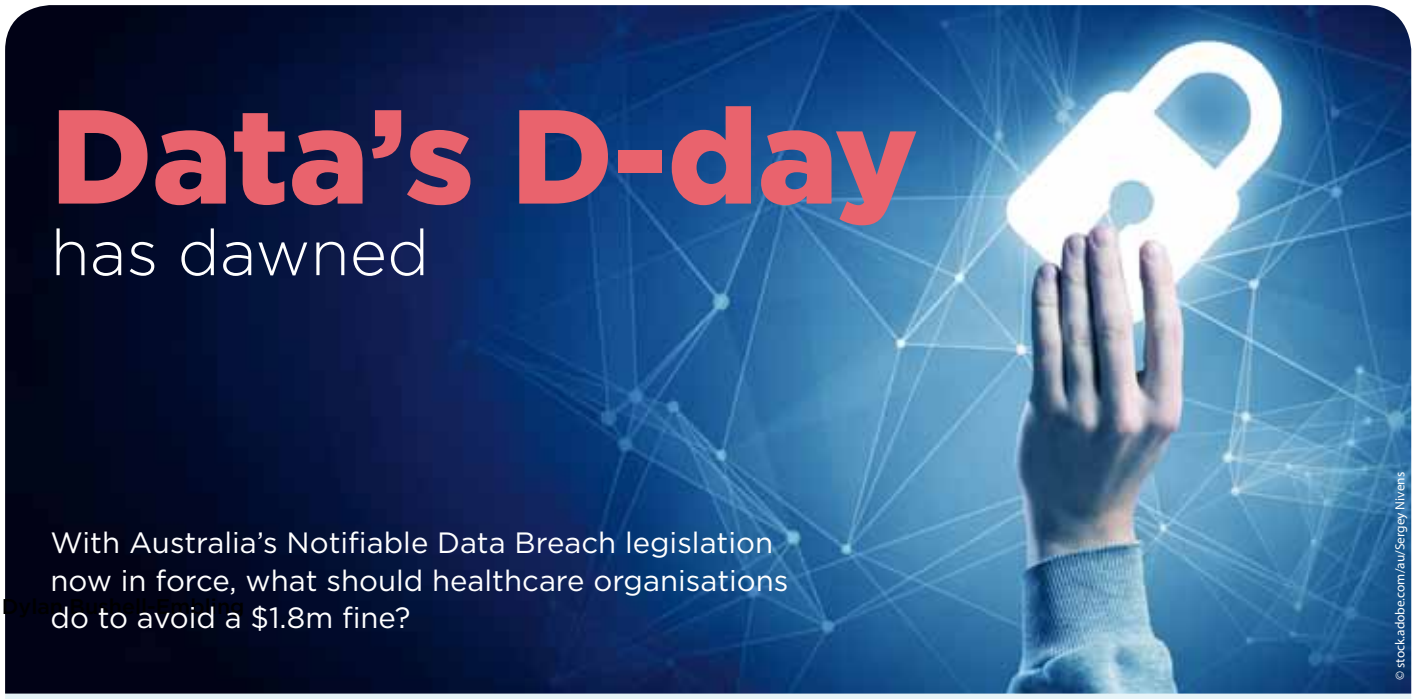
Image credit: National Mental Health Commission

In November 2017, Dr Brown (second from left) met in South Australia with Mental Health Commissioners from NSW, SA, VIC, QLD and WA.

Image credit: National Mental Health Commission

Dr Brown (left) in a panel discussion at the Rural and Remote Mental Health Conference in Broome in October 2017.

Data's D-day has dawned



With Australia's Notifiable Data Breach legislation now in force, what should healthcare organisations do to avoid a $1.8m fine?

Australia's Notifiable Data Breach (NDB) legislation is now in effect, but many organisations remain unprepared to deal with the new mandatory reporting rules and will need to make wide-reaching changes to their security policies and practices.

The NDB scheme applies to all Australian Government agencies as well as all businesses and non-profit organisations governed by the Privacy Act.

These include all organisations with an annual turnover of more than $3 million, plus a number of smaller businesses including health service providers, businesses that buy or sell personal information, credit reporting bodies and government-contracted service providers.

Failure to comply with the new legislation will put companies at risk of fines of up to $1.8 million for organisations and $360,000 for individuals, which could be crippling to a smaller company.

Any data breach that involves the exposure of personal information likely to result in serious harm must be disclosed to both the Office of the Information Commissioner and to affected individuals.

The scheme also requires organisations to make a "reasonable and expeditious" assessment of any suspected data breaches within 30 days of becoming aware of a potential incident.

The impact of the scheme could be wide ranging — research from Forcepoint published last year found that more than 90% of ASX-listed businesses, government departments and large NGOs were exposed to a data breach in 2016.

Are you ready?

The NDB scheme passed the Senate in May 2017 after being introduced in 2016. The previous government had attempted to pass its own version of the scheme in 2013, but it failed to pass the Senate.

But while the NDB legislation has been a long time coming, many Australian healthcare organisations remain ill-prepared.

A CyberArk survey from December found that 50% of organisations did not fully disclose data breaches to customers, 44% are only partly prepared to meet the guidance timings for a breach investigation and notification, and 41% of Australian business leaders report not having sufficient knowledge about security policies.

Similar research from law firm MinterEllison concurs.

"Our findings show that while most Australian organisations are well aware of cyber risk and the need to address it, much remains to be done to increase their resilience to meet requirements of the NDB Scheme," said Paul Kallenbach, MinterEllison partner and head of cybersecurity.

"Our firm recommends organisations focus on understanding and documenting their data and information flows; prepare, test and update their incident response plans; and provide regular training to staff at all levels. It's vital they do this, as cyber attacks are here to stay and pose a serious risk issue for government and business."

Always be prepared

Splunk's Simon Eid said that the scheme should serve as a reminder that healthcare organisations should constantly be reviewing their security infrastructure.

"Now is the time for the C-suite to consider whether they need to shift their approach to security within the business as a whole, in order to comply. By taking steps now to ensure data is secured and managed appropriately, organisations can decrease the likelihood of a data breach," he said.

"Having access to and analysing all data is integral to detecting where a data breach may have occurred. The next step is implementing a clear data breach response plan so the right people can take steps to mitigate the situation, which includes notifying individuals whose data has been exposed."

According to Centrify's Niall King, a response plan should be guided by the answers to six questions, the first of which are who is responsible for the potential corporate impact of a data breach and who is responsible for preventing data breaches.

Other pertinent questions are whether passwords being used by employees are strong enough, what happens when IT security is breached, what happens to security credentials when an employee leaves a company and how prepared an organisation is for the NDB scheme.

Even those organisations that are making efforts to improve their security posture may be focused on the wrong areas. A survey from Fortinet indicates that poor security hygiene is the root cause of a substantial portion of data breaches, with respondents stating that 31% of breaches experienced in the last two years were the result of social engineering, ransomware and email phishing.

But only 15% of Australian IT decision-makers (ITDMs) ranked employee training as their top cybersecurity investment priority, and just 20% nominated implementing security policies and processes.

"The urgency to prioritise security hygiene, educate with broader awareness or implement security approaches that leverage automation, integration and strategic segmentation is critical to defend against the highly damaging internet attacks possible in our near future," Fortinet's Patrice Perche affirmed.

TAKEO_2™ The Innovative Solution for enhanced Patient Safety and Cost Savings in Healthcare Facilities

Air Liquide *Healthcare* is proud to introduce TAKEO_2™, one of the world's first digital integrated cylinders. Australia is one of the first countries outside of Europe to implement this new technology.

About Air Liquide *Healthcare*

Air Liquide *Healthcare* is a world leader in medical gases, home healthcare, hygiene products and healthcare specialty ingredients. Air Liquide *Healthcare* aims to provide customers in the continuum of care from hospital to home with medical products, specialty ingredients and services that contribute to protecting vulnerable lives.

TAKEO_2™ is a major innovation in the Medical Oxygen field. This new generation cylinder combines a built-in pressure regulator, an ergonomic cap and a patented digital gauge, to provide healthcare professionals with the industry's safest and most cost-effective medical oxygen delivery system.

This new technology allows caregivers to better manage the administration of medical oxygen, by viewing the remaining time and volume available at a glance.

What does TAKEO_2™ mean for me?

This solution provides major benefits to healthcare providers:

Greater patient safety by reducing the risk of oxygen supply interruption:

- Staff can safely plan oxygen dependent transfers having immediate and accurate cylinder duration time.
- The permanent display of the remaining time and available volume as well as the safety alerts indicate when the cylinder needs to be replaced.
- The integrated valve with built-in pressure regulator provides a higher level of safety as it reduces the possibility of adiabatic compression associated with detachable pressure regulators.

Improved ease of use and faster oxygen set ups:

- With an ergonomic cap, a comfortable handle and a straightforward flow selector, patient care is significantly facilitated.
- The time-related data provides an unprecedented comfort level to caregivers who can better focus on their primary responsibility, the patient.

Cost efficiency through an effective use of the cylinder content and reduced equipment cost:

- With direct and exact information on remaining time, staff members are more confident to use most of the cylinder contents as they have a better control of the autonomy of the cylinder.
- Featuring an integrated valve, **TAKEO_2™** does not require a separate regulator to be attached. This eliminates the need to purchase regulators for medical oxygen cylinders, or to manage their maintenance and repair.

The use of the integrated **TAKEO_2™** cylinders reduces redundant and inefficient activities, enables caregivers to reallocate their time on the patients and delivers significant cost savings for the healthcare facilities.

How does it work?

When the cylinder is in use, the patented digital pressure gauge calculates and displays the time remaining in hours and minutes. No more estimations or calculations of the remaining content are required as **TAKEO_2™** cylinder provides direct intelligible information to medical staff with the remaining treatment time at the selected flow.

When the cylinder is not in use, it displays the available volume in litres. The device also features visual and audible warning alerts which indicate when critical levels are reached.

Safety messages are triggered:
- **When oxygen pressure is under 50 bars (¼ content)**
- **When the remaining contents fall below 15 minutes**

Air Liquide HEALTHCARE

»
For more information, please contact **1300 360 202** or visit **www.airliquidehealthcare.com.au**

2018 must be a year of action in aged care

Sean Rooney*

Leading Age Services Australia (LASA) is working in close partnership with the government on the reform agenda for aged care. The spotlight is now firmly on how the government responds. 2018 must be a year of action if the industry is to move forward.

At LASA, we are committed to working with our members and the federal government to resolve fundamental issues relating to the four key and interrelated policy pillars of access to services, funding of services, quality of services and delivery of services (that is, ensuring workforce capability and supply).

LASA's 2018–19 Pre-Budget Submission is extensive and includes 15 recommendations for government to consider as it prepares its Budget due for release on 8 May.

Our recommendations are informed by observations which include:

- The growing impact of recent Aged Care Funding Instrument (ACFI) changes and the indexation pause on residential aged-care financial performance. These changes, combined with the growing complexity of residents' needs, changing consumer and family expectations, and increasing operating costs, are placing increasing financial pressure on residential care providers. These issues are particularly serious in rural and regional settings, where viability is being seriously threatened.
- Based on the 2016–17 Aged Care Financing Authority Annual Report, approximately 30% of residential aged-care providers operated at a loss. Other financial pressures on providers, including a 3.3% increase to minimum wages, are expected to contribute to further decline in financial performance over time.
- The need for a multipronged response to the growing national queue for home care packages, which sees 101,508 consumers awaiting services as at 30 September 2017.

LASA's budget response

In developing our budget response, LASA has drawn heavily on member feedback derived from processes including the LASA submission to the Tune Review, member advice on home care reforms, LASA's own home care surveys, and our recently completed survey of our members' CEOs.

David Tune's report on the Legislated Review of the Living Longer Living Better (LLLB) reforms, released in September 2017, also supports many of our assertions around sector financial sustainability. Most notably the report states that:

- Meeting projected future demand will need additional investment by government beyond that currently planned
- Current planning mechanisms are not going to deliver sufficient services in the long term
- A key issue is how increased demand will be financed and the costs shared.

Independent financial modelling by respected industry analyst Stewart Brown has also identified the urgent need to address funding issues in both residential aged care and home care.

LASA believes that all potential resourcing solutions should be on the table to inform a mature and open national conversation. Any approach to funding must receive bipartisan support, as this is too important not to get right. To this end, LASA aims to engage with government and the community to progress this conversation of national importance.

New industry standards

Quality of care within the industry continues to be our highest priority and we welcome the new draft Aged Care Quality Standards released by the Department of Health on 30 January 2018.

These are a single set of quality standards that will replace the existing Accreditation Standards, Home Care Standards, National Aboriginal and Torres Strait Islander Flexible Aged Care Program Quality Framework Standards and Transition Care Standards.

Subject to agreement by the government, the new standards are expected to be implemented from 1 July 2018. A 12-month transition period will apply, meaning that assessment against the new standards will commence from 1 July 2019.

LASA has sought funding from government to support providers to implement the new standards and is currently considering a program of activities to support members in this transition.

These standards may be impacted by accreditation system and process changes resulting from quality inquiries like the Carnell Paterson Report, such as the move to having unannounced visits replace announced reaccreditation visits.

Collectively, we need to translate these developments into appropriate actions and outcomes that will address identified shortcomings, as well as contribute to

continuous improvement and community confidence.

LASA's commitment to ensuring this outcome is emphatic, as our country needs an accreditation system that assures the community of the safety, wellbeing and quality of life for older Australians living in residential aged care.

It is comforting to know that Australia's current quality framework is resulting in most Australians in aged care and their families receiving high-quality care, support and services that meet the most stringent national standards.

Of course, quality and standards in aged care are intrinsically linked to the industry's workforce.

Improving staffing ratios

LASA believes that the ongoing debate around staffing in aged-care facilities would be better served by focusing on the quality of outcomes for older Australians rather than mandated staffing ratios.

Notwithstanding recent public commentary regarding staff-to-resident ratios, quality of care is not as simple as the number of staff on duty or arbitrary staffing ratios. The basis for deciding on staffing levels and their skills mix needs to be driven by the actual care needs of individual residents.

Flexibility to adjust the staffing mix as the profile of a facility's residents change is a very important consideration and I believe we risk losing sight of this in the current debate.

LASA has welcomed the opportunity to work with the federal government's Aged Care Workforce Taskforce, headed by Professor John Pollaers, which is responsible for developing a wide-ranging workforce strategy focused on supporting safe, quality aged care for senior Australians. The taskforce is expected to complete its work by 30 June this year.

Four core principles

The aged-care reform agenda in Australia is predicated on four core principles: ageing in place; consumer choice; market-based competition; and consumer contributions. LASA recognises the critical importance of this agenda to ensure that accessible, affordable, quality care and services are available now and into the future and seeks to shape a proactive and pragmatic approach to driving sector reform, performance and sustainability.

The Commonwealth Government has said it is considering a number of inputs in developing further aged-care reforms, with links to the budget process. If we seize this opportunity it will be seen as a seminal moment where new foundations were laid for Australia's aged-care system to meet the needs of older Australians for decades to come.

The spotlight is now firmly focused on how the government responds. The industry has worked in close partnership with the government on the reform agenda to date. Expectations are set that 2018 must be the year of action.

**Sean Rooney is the CEO of Leading Age Services Australia (LASA).*

Top 10 myths
regarding nutrition for seniors

Dietitian and author Ngaire Hobbins* shuts down some old wives' tales surrounding the elderly and nutrition.

Research has found that up to 30% of older people living in the community are either malnourished or at risk of malnutrition. This is not their fault; it is often a consequence of a lack of awareness that the nutrition needs of seniors are unique and eating patterns must change with age to support physical and mental capacity. It can also be partly a consequence of social isolation and/or reduced physical/cognitive capacity, which is where the invaluable support of home and community care services comes to the fore.

Here are the top 10 myths when it comes to nutrition for the elderly.

Myth 1: The stomach shrinks as people age

Although appetite may change, the stomach doesn't shrink as people get older. In fact, not eating well enough only accelerates the ageing process.

Myth 2: Weight loss is healthy

Unfortunately, this is not the case for older people. Instead, dieting or unintentional weight loss should be avoided in the later years. In fact, extra padding in later age is beneficial and can support the body and brain of elderly patients in the years ahead.

Myth 3: Elderly people need to eat less as they get older

While metabolism slows and energy output decreases, food and eating remain the key to ageing well. Elderly people may need to eat less of some things and more of others, particularly foods rich in protein, vitamins and minerals.

Myth 4: Older patients only need to eat what they feel like

The ageing process can play tricks on people's appetites and the triggers that tell them if they are hungry or full. As a result, older people might eat less than their bodies really need. It's important to realise the vital importance of continuing to eat despite the tricks; this will ensure your elderly patients' bodies continue to get the energy and nutrients they needs to function. An outright loss of appetite is not normal, and could be symptomatic of an underlying health problem. If older patients are having problems, try to nourish them with small meals regularly throughout the day, even if they don't always feel like it.

Myth 5: A low-fat diet should be followed

Contrary to deeply entrenched popular opinion, a low-fat diet is not always the best, especially for older people. Fat is an important source of calories and some seniors might need to eat a bit extra to maintain weight. For most, however, eating foods containing mostly unsaturated fats is best for heart, body and brain health. Fats found in foods such as olive oil, nuts, seeds, avocado and oily fish are ideal.

Myth 6: Increase vegetable intake

Whilst nutrient-rich vegetables continue to be essential in the diet, protein foods need to

be at the centre of an elderly patient's plate, with the vegetables surrounding it from now on. This is because people need more, not less, protein as they get older. Protein keeps our muscles, our immune system, our body organs and brains working and renewing minute by minute. Vegetables are always important, but if your patient's appetite is small, ensure they get protein in first, then enjoy the vegetables.

Myth 7: Only drink water when thirsty

If someone feels thirsty they are already dehydrated, and that's a problem as neither your body nor brain can work at peak capacity in this state. Dehydration can bring on confusion and delirium, hamper kidney function and worsen a multitude of other conditions that commonly effect older people. Seniors tend not to sense thirst as efficiently and are therefore at greater risk of dehydration, making fluid intake an essential element of overall nutrition.

Myth 8: Supplements are sufficient

Of course the elderly can't live off vitamins and supplement tablets alone. The body works best when it is working — that means digesting food. What's more, most supplements promoted to help older patients live longer, boost memory and fight off dementia fail to live up to their claims. Many interact with common medications or just don't work the way they would if you consumed them from food instead. Older patients could spend a lot of money for no gain when they could do better by simply eating.

Myth 9: The elderly must always eat a 'proper meal'

Making sure older patients eat regularly is essential to helping them live well and remain independent as they age. However, eating three full meals a day can be a struggle if there is a loss of appetite or if they find cooking too difficult or time-consuming. The elderly can opt for prepacked meals, frozen dinners or takeaway foods, but some of these don't contain the protein or nutrients that are important to support ageing bodies and brains. If three good meals are too much of a challenge, five or six small meals or well-chosen snacks can be just as beneficial.

Myth 10: Malnutrition is a normal part of the ageing process

Malnutrition can affect anyone at any age, and it is is not normal part of the ageing process. However, seniors are at greater risk of malnutrition and it's important that everyone doesn't dismiss the warning signs as being a part of 'old age'.

Image credit: Home Instead Senior Care

*Ngaire Hobbins is the author of Nutrition for Seniors, a new resource commissioned by in-home care provider Home Instead Senior Care. The resource is a guide for aged-care professionals to understand healthy habits for eating well in old age. For more information, visit www.homeinstead.com.au.

HAPPYORNOT®

How Positive is Your Patient's Experience?

HappyOrNot — Improving Experiences for your Customers and Employees

The HappyOrNot service has a proven track record for **improving patient satisfaction by up to 12%** per year. Positive experiences mean increased likeliness to recommend your health care services, improving your service image and quality of care performance.

Our smiley terminals are being used in Hospitals, Health care Clinics, Dental Clinics, Aged Care Facilities, Veterinary Hospitals, Blood Services, Physiotherapy.

HappyOrNot is the solution to quickly and easily address health care pain points, enabling you to identify problem areas requiring attention so you can implement corrective actions immediately.

- **Provides continuous feedback by Hour, by Day, by Location rather than annual or quarterly surveys.**
- **Reduces/eliminates lengthy surveys which have less than 1% reach.**
- **Easily measure and validate impact of new initiatives.**
- **13,500,000 feedbacks collected to date by over 4000 industry leading clients.**

Predicting the future success of your organization starts with awareness of your current patient and employee satisfaction. Understand your service performance from their perspective, know where to make improvements, and follow the impact of your initiatives.

Push My Button
Official Reseller of HAPPYORNOT®

For more information on HappyOrNot contact Push My Button
Visit www.pushmybutton.co.nz or call (02) 8091 4356

FIND OUT MORE!
www.pushmybutton.co.nz

Dressed for medical success

E-textiles set to revolutionise health care

Chris Huang*

When most people think of wearables, they often think of the obligatory smart watches, fitness monitors and heart rate monitors that are typically worn on the wrist. However, one emerging market is smart clothing for health care — the idea of weaving electronics into a shirt, a blanket, a bandage, a knitted cap or pants to perform specific patient care functions.

E-textiles are designed to feel comfortable on the skin but at the same time be functional. These smart fabrics consist of traditional fabric woven with conductive fibres as well as electronic elements such as biomedical sensors, microcontrollers, fibre optics and wearable antennas.

An example of a biomedical sensor that could be used in e-textile applications is Analog Devices' AD8232/33 Heart Rate Monitor Front End. It is an integrated signal conditioning block for ECG and other biopotential measurement applications, designed to extract, amplify and filter small biopotential signals in the presence of noisy conditions.

E-textiles may be created, in part, on a typical tabletop sewing machine that embroiders thread into fabric in a pattern via a computer program. Instead of thread, however, metallic fibres from metals such as silver, nickel, carbon, copper, aluminium and stainless steel, like Adafruit's wearable electronic platforms from Mouser, are used and feel the same as traditional thread to the touch.

Depending on how the conductive fibres are woven in and the electronics included in the smart clothing, the fabric is durable and able to be washed like regular clothing, although some durability issues need to be ironed out before mass commercialisation.

Challenges for smart clothing

With a continued rise in many parts of the world of chronic disease — such as diabetes, heart disease, cancer and respiratory disorders — ageing populations that are living longer and an increase in the number of surgeries performed, e-textile developments are on the rise. In some clinical trials, smart clothing has been shown to protect against infectious disease, help sense the state of the wearer's health and help prevent, treat and manage health.

However, e-textiles face challenges that must be overcome, including further development in reliability, liability and certification. Regulatory approvals present a challenge for device manufacturers and researchers, as do approvals and certification from insurance companies.

Image credit: ©Edema ApS

A wearable, washable stocking that can be worn at home for use in monitoring edema in patients' legs is moving into the clinical trial and validation phase.

Image credit: ©University of Bristol

University of Bristol researchers are working to integrate soft robotics into clothing to support those vulnerable to falls.

Many smart clothing projects will take between three to five years to come to fruition. Many experts see this inflection point happening in the 2020 time frame.

Solving current problems

One area gaining a lot of interest is bedsheet or mattress e-textiles that are integrated with pressure sensors to manage and prevent bed sores by ensuring the patient is moving around. Conditions such as bed sores and incontinence in the elderly cost hospitals and care facilities money and time. Moisture sensors integrated into smart clothes for mapping incontinence in patients could prove to be a very worthwhile investment in the long run.

Clothing+ is working with Jabil to mass produce textile-integrated sensors that meet the necessary FDA requirements for medical-grade solutions. One e-textile idea is a bioimpedance vest, which measures water accumulation in the lungs to indicate heart conditions, and can be worn at home for trend analysis before hospitalisation, saving time and money. Another idea is a chest belt to provide a lung's performance through a topographic picture of the lungs, and a light therapy blanket for babies with jaundice allowing them to be removed from cradle light therapies and held by parents or loved ones instead.

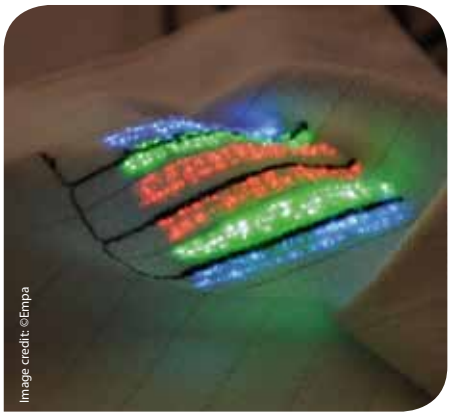


Image credit: ©Empa

Fibre optics integrated into a blanket or shirt in order to monitor skin circulation to prevent bed sores or monitor heart rates is what researchers at Empa are working on.

Edema ApS is developing a washable stocking to measure and monitor changes in leg volume with patients suffering from edema (fluid accumulation or swelling) in the lower limbs. While not yet available for patients, the stocking is being prepped for clinical trials and validation. Future uses of the stocking could be to monitor congestive heart failure or pre-eclampsia, which happens during pregnancy and involves hypertension, edema and protein in the urine.

Academia leading the way

Among those developing e-textiles for the healthcare market, work being done at the university level offers much promise for the future of patient care technology.

One interesting project is being developed by VTT Technical Research Center of Finland, where researchers have created smart fabric that can be used as clothing or blankets that calculate whether a patient needs to be cooled or warmed based on the initial date measured from the person and the environment. These garments could also be used by surgeons that get too hot during an operation with the clothing adjusting to the temperature of the body during surgery.

Ohio State University's ElectroScience Laboratory is working towards functional e-textiles that gather, store or transmit digital information by weaving antennas — such as the Intel Edison development platform — into something like a brain cap that senses activity in the brain to help treat conditions such as epilepsy or addiction. The researchers are also working on a smart bandage that tells a doctor how well the tissue beneath it is healing without removing the bandage.

Meanwhile, the University of Bristol is working on soft robotic clothing that could help vulnerable people avoid falls by supporting them while they walk and giving others bionic strength to move between sitting and standing positions or climb stairs.

The smart clothing involves nanoscience, 3D fabrication, electrical stimulation and full-body monitoring technologies. Researchers believe this technology could ultimately lead to potentially freeing wheelchair-bound people from having to use the devices.

The future of smart clothing

While many of these academic endeavours are moving forward and are working towards commercialisation, innovations in high-tech fabrics and advances in microelectronics are opening even further possibilities for healthcare-related e-textiles. Some experts see smart clothing completely replacing bedside monitoring in hospitals with shirts that track heart rate, blood pressure, oxygen intake and more. It is clear that e-textiles have a big future in improving healthcare outcomes for patients and practitioners.

Chris Huang* is a reporter for Mouser Electronics. For more information, visit https://au.mouser.com.

forbo
FLOORING SYSTEMS

sphera®

A NEW ERA IN HOMOGENEOUS VINYL

The new Sphera collection is setting new standards in homogeneous vinyl due to its design palette, technology and performance. Forbo's purpose built manufacturing plant uses the latest technology available. Phthalate free with high LRV's across an expansive, playful and fresh colour collection. Sphera achieves the highest class wear and chemical resistance and is a safe and hygienic floor. Visit **www.forbo-flooring.com.au/sphera.**

creating better environments

Can Australia design a health system where travel is optional?

Dr Louise Schaper*

There will come a time, in the not-too-distant future, where our children will either marvel at our resilience or question our judgement at our stories of how health care "used to be delivered... back in my day".

The young adults of today, raised in an internet-connected world, won't recall how people communicated before social media and those following in their footsteps won't recall a healthcare system that relied solely on in-person consultations to deliver and receive care.

Some of you will read this with a doubting mind, thinking, "I've heard this before" (and you are not wrong); however, there is renewed energy and momentum working to evolve healthcare service delivery through telehealth and virtual care.

Embedding telehealth into clinical consultations is a priority reform area of Australia's National Digital Health Strategy. Tim Kelsey, CEO of the Australian Digital Health Agency will address the plans of the Australian Government at the upcoming Australian Telehealth Conference in Sydney from 11–12 April.

He will be joined by eminent UK Professor of Primary Care Trisha Greenhalgh who, not shy of controversy, will answer the question "Why do so many telehealth programs fail?". Hunter New England CEO Michael DiRienzo and telehealth advocate Chris Ryan will respond to Greenhalgh's international take, with discussions on how Australia can design a health system where travel is optional.

The application of design thinking and co-design approaches to virtual care that work for the patient and the clinician will be featured heavily at the event. Health service designers, clinicians, clinical digital health leaders and digital disrupters from all fields are bringing creative thinking to the forefront of healthcare.

ATC 2018 will feature creative, co-design approaches — especially co-design work implemented at scale.

How can we improve the telehealth experience through the patient's eyes? At ATC 2018 we will illuminate the patient experience through four major pillars of design thinking: discovery, invention, prototype and delivery of scale. Design thinking is here and in telehealth it can build a bridge to take us from the current reality to a new future. Workshops and presentations across the two days will examine practical co-design approaches to creating the future of healthcare service delivery at scale.

Dr Christopher McGowan, CEO of Silver Chain Group, will be discussing his organisation's reformed service delivery where they are leading aged and community care in the use of virtual care technologies to improve health outcomes.

The Townsville experience on building virtual care scalability into regional health services and conducting clinical trials will be overviewed by Professor Sabe Sabesan, director of Medical Oncology at Townsville Cancer Centre.

I encourage you to consider joining us at ATC 2018, where you will meet Australian telehealth leaders and be part of the community collaborating across borders for change. It's an exciting time to be in health care and one day soon you will be able to tell your children stories of how you contributed to building the healthcare system which brings healthcare to them.

The Australian Telehealth Conference (ATC) 2018 will be taking place from 11–12 April 2018 at the Novotel Sydney Central. For further details, please visit www.hisa.org.au/atc.

www.hisa.org.au

*Dr Louise Schaper is CEO of Australia's peak professional organisation for digital health, HISA. Dr Schaper sits on the Advisory Board for the Stanford Medicine X conference and is a National E-Health Transition Authority Clinical Leader and graduate of Stanford University's Executive Leadership Program.

AUSTRALIAN TELEHEALTH CONFERENCE

atc

SYDNEY
11 - 12 April
2018

TRANSFORMING CARE

VIRTUAL, CONNECTED AND CO-DESIGNED

Australia's premier telehealth conference
explores the evolving world of virtual care with the emerging
focus on design thinking and co-design in healthcare.

VIRTUAL CARE

NEW MODELS OF CARE

DESIGN THINKING

PATIENT EXPERIENCE

ASSISTIVE TECHNOLOGY

BUILDING COMMUNITY

@hisa_ATC

#ATC18

PROUDLY BROUGHT TO YOU BY

HISA
AUSTRALIA'S DIGITAL HEALTH COMMUN

Allied Health Professions Australia

Australasian TELEHEALTH Society

Health Information Management Association Australia
A Strategic Asset

RACGP

Australian College of Rural & Remote Medicine
WORLD LEADERS IN RURAL PRACTICE

Charity leverages technology

to help mental health sufferers

Linda Currey Post*

UK-based charity Turning Point is applying advanced computer technology to support and help treat people suffering from drug and alcohol misuse, mental health issues, learning disabilities, and other debilitating conditions.

Use of synthetic marijuana is a particularly vexing problem in the UK, especially among teens, who often don't realise that the drugs — marketed in colourful packages as a "safe high" — contain psychotropic chemicals that can cause seizures, psychosis, even death, according to a recent study.

"We're entering into quite a new era of substances that we haven't seen before," notes Amarjit Dhillon, CIO of Turning Point, which began 53 years ago as an alcohol treatment centre and now offers treatment, counselling, and social services to a wider range of patients. It also helps the homeless and individuals recently released from prison find housing and jobs.

"We have the opportunity to use technology to be more effective in the treatment of people at the fringes of society," Dhillon says.

"We have the opportunity to use technology to be more effective in the treatment of people at the fringes of society."

The goal, he says, is simple: Save lives. Among Turning Point's technology-driven innovations:

- **Computerised medical histories:** Created using Oracle Service Cloud, these records give Turning Point caregivers immediate access to a patient's family medical history, prescription drug usage, and past treatments — information that's often critical to a correct diagnosis.
- **Swifter access to treatment:** Using an online system based on Oracle Service Cloud, Turning Point's staffers set up timely appointments with its healthcare providers. They can bypass the UK's long referral process, whereby citizens typically wait a month to see a National Health Service doctor. Patient wait times for medical care drop from about four weeks to as little as two days. In the case of a mentally ill client experiencing an episode, the client can get an over-the-phone assessment from a Turning Point therapist within moments.
- **Remote mental health assessments:** When the police make an arrest, they can use specially equipped vans — complete with a laptop and a 4G connection — to conduct a videoconference between people they detain for abnormal behaviour and the mental health workers back at Turning Point. Using Oracle Service Cloud, the counsellors have easy access to those electronic patient records, plus protocols to follow to assess the detainee's behaviour and recommend next steps in care.
- **Timely and consistent background information**: Using Oracle Content and Experience Cloud, staff can easily distribute treatment protocols to all Turning Point locations and employee websites. Those updates guarantee that all of the agency's care workers have immediate access to the latest information about the toxicity of and treatment for exposure to those ever-changing street drugs. The technology also makes it easy for Turning Point to create microsites with information about new drugs and various diseases as they become known, for supporting the wider healthcare community.
- **Chatbots:** Built on Oracle Mobile Cloud, chatbots use machine learning algorithms to offer patients advice in between conversations with a healthcare provider. For example, someone who begins to suffer an anxiety attack while stuck in a meeting can have a text conversation on his smartphone with a chatbot that reminds him to apply relaxation techniques and other coping measures. Chatbots offer patients simple access to help anywhere and anytime they need that assistance. Turning Point is now evaluating whether to use chatbots that respond to voice — as well as text — commands.

Looking to the future, Turning Point is evaluating new technologies, including machine learning, to help it determine which treatments are most effective. The agency is also researching blockchain to track the distribution and use of prescription drugs among its clientele.

Clients are encouraged to engage with the agency and its medical professionals via the channel of their choice — phone, website, mobile device, or chatbot, CIO Dhillon says.

Modern technology, he says, helps Turning Point's doctors, nurses, and drug recovery professionals provide more accurate diagnoses, deliver treatments faster, improve health outcomes, and even increase public safety. He applauds the high-profile efforts of the Royal Family to encourage citizens to seek help for depression and other mental health issues.

"There has been a shift in focus in this country toward getting people the help they need before their mental health deteriorates and the problem becomes worse," Dhillon says. "So we're interested in getting to people early and getting to people with the right pathways of treatment."

Based in London, the charity offers its services from more than 200 healthcare facilities, clinics, and hospitals across England. In some areas, Turning Point partners with other healthcare providers and takes its services to the streets.

Turning Point says 30,000 people use its services. It competes with other healthcare facilities for contracts funded by the National Health Service.

When Dhillon joined Turning Point from the private sector four years ago, he saw the opportunity to use technology to help the organisation not just improve services, but also reduce costs.

"There is always an increasing demand for healthcare, and we have the treatments people want and need," he says. "But the corresponding funding for healthcare doesn't always increase proportionally. I thought technology could help this organisation remain competitive so we can continue to serve our citizens for another 53 years."

* Linda Currey Post covers science and technology advances as a senior writer at Oracle. Visit www.oracle.com

In Conversation
with Prof. Elizabeth Rakoczy

Laini Bennett

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 this issue our guest is Professor Elizabeth Rakoczy, who is modifying viruses in order to use their powers for good. She has created a new gene therapy for exudative (wet) age-related macular degeneration (AMD) that is showing promise reversing vision loss in clinical trial patients. Recently, Professor Rakoczy was awarded the $50,000 CSL Florey Medal for lifetime achievement. We talk with her about her research and her AMD treatment.

Congratulations on your award! How important is this kind of public recognition to furthering your research goals?

Thank you. This is an extremely important recognition for these emerging new technologies. To the best of my knowledge, this is the first time that the Florey Medal has been awarded for gene therapy research, so it is important for the entire industry.

You had polio as a child, how did this influence your future career?

I had polio just for a short time, and I recovered fully from the disease. But the polio vaccine made me aware of important scientific breakthroughs in the treatment of diseases.

How does AMD cause blindness and what current treatment is there?

Not long ago, around 10 years ago, if someone had AMD the doctors couldn't offer anything. They said "unfortunately you will go blind and we cannot help you".

Then it was recognised that a specific factor called VEGF was inducing blood vessel growth in the eye, leaking blood into the macula. The blood destroys light-sensitive cells — photo receptors — which causes a black spot in the patient's vision, because light isn't detected in this area anymore.

Once the cause was known, the current treatment was developed, which is delivered by injections into the eye. This is a very unpleasant experience for the patient and it is very expensive, $2000 to $2300 per injection. Patients receive eight to 12 injections per year.

How does your AMD treatment work?

Our thinking was that we could use modified viruses to deliver a biofactory into the eye. This biofactory would produce medication within the eye, which neutralises the factor that is causing blood vessel growth.

The biofactory has two main features: One is a delivery vehicle, which is a modified virus, and the second is the content that the delivery vehicle is carrying, which is the genetic code for a molecule that neutralises VEGF. The content is a naturally occurring factor. In fact, it is present in everyone's body.

In theory at least, when you deliver this treatment, the patient only needs to receive a single injection, and the biofactory remains operational for years to come protecting the sight.

In the laboratory, the effects of AMD are being reversed, is that correct?

Yes, but it's not just in the laboratory, we have done human trials one and two. A larger percentage of the patients in the treatment group have had their vision maintained or improved compared to the control group, who were treated with the monthly injections. What is significant is that all the patients who continued to demonstrate visual improvement at the end of three years post injection came from the treatment group. This is an extremely important outcome.

What are the visual improvements? Does the black spot get smaller?

It might if it's caught at the right time. The black spot is caused by the blood vessels growing and leaking blood into the macula. But if you treat it quickly and stop the blood vessels leaking, then that person's sight can recover.

So if someone has had long-term AMD, it won't be as effective?

No. Once the light-sensitive cells are lost, they are lost.

Does your treatment help with atrophic (dry) AMD as well as wet?

No, this is only for wet AMD. Unfortunately at this point in time we do not have any treatment for dry AMD, which is the slow loss of the light-sensitive cells over 10–15 years; we don't really understand what is causing the cell loss and we don't have a treatment at the moment.

Can your biofactory treatment be applied to other eye illnesses?

Yes. We were using a similar approach for blind dogs. We ran large animal therapy trials, restoring sight to the eyes of dogs with Leber's congenital amarousis (LCA), an inherited disease that causes severe loss of vision in children due to a protein missing. We injected a modified virus that carries the missing protein into the eyes of dogs with LCA and they responded; ie, they gained sight. This treatment has been approved by the FDA in the US for treatment of LCA in humans this year.

Image credit: ©AAMRI

The Hon. Greg Hunt MP presents Prof. Rakoczy with the CSL Florey Medal at Parliament House in December 2017.

When you first started your career, you were researching viruses. How did you get involved in treatments for AMD?

I studied microbiology and biochemistry. Then I worked on the herpes virus and later on the papilloma virus and cervical cancer. It wasn't until 1989, when I moved to the Lions Eye Institute (LEI) that I began looking into AMD. I remember reading the literature and was shocked because there was absolutely nothing known about it other than clinical descriptions of the disease.

You created a very successful mouse model for testing drugs, gene therapy, stem cell therapies and other treatments for these diseases that have been licensed to 11 universities and four pharmaceutical companies. How did this eventuate?

Back then we didn't know what induced the blood cell growth in the retina. So we started to experiment with different growth factors and subsequently we and other researchers concluded that a factor which had been identified in the 1970s as inducing blood vessel growth in solid cancers was also responsible for neovascularization — new vessel growth in the adult eye. This factor was VEGF. We developed a mouse model that overproduced VEGF in the retina and observed that these animals developed neovascularization, ie, new, leaky vessels formed.

This retinal neovascularisation mouse model has become one of the most widely used mouse models in neovascular eye research.

Your AMD treatment is being brought to market. Who is undertaking this?

A US company called Avalanche Biotechnologies Inc., which was started specifically for this purpose. They floated the company on the NASDAQ and raised $400 million for research to bring this new treatment to the market. We have completed phase one and two human trials here at the Lion's Eye Institute. Avalanche, now called Adverum Biotechnologies, will continue with the trials later this year. If everything goes to plan, in the next three to five years we should see the new treatment for wet AMD on the market.

What impact is your wet AMD treatment likely to have?

This is what they call a disruptive technology, and a very significant one because it has significant commercial consequences. If we are to continue with these new technologies, I think it requires rethinking on an industry-wide level.

Out & About

Cicada Nobel Gala

Australia hosted its own version of the Swedish Nobel Prize Award Ceremony, in celebration of Australia's progress in science-based innovation from the National Innovation and Science Agenda (NISA).

The event was attended by 200+ science, innovation and Nobel heavyweights, including Swedish Embassy representatives, Australian Nobel Laureates, Innovation Australia Chairman Bill Ferris AC, university chancellors from Cicada shareholders (UNSW, ANU, USYD and UTS), federal and state ministers, and other titans of the VC investment and corporate communities.

The Cicada Nobel Gala aligned closely with the Swedish event, with a live feed to Stockholm linking both events, and the Cicada atrium imitating the Stockholm Town Hall in terms of menu, music and performances.

Speaking at the event, Dr Alison Todd (PhD), chief scientific officer of SpeedX, presented on her company's molecular diagnostic solutions that focus on multiplex diagnostics for sexually transmitted infection, antibiotic-resistance markers and respiratory disease. Dr Sean Pollock (PhD), co-founder of Opus Medical, also spoke, presenting on his new device that enables accurate and efficient breath hold for cancer radiation therapies, BreatheWell.

1


2


3


4

1. Dr Alison Todd from SpeedX. 2. Dr Sean Pollock from Opus Medical. 3. The Swedish Lucia procession. 4. A choir performs a Swedish Lucia procession, wearing traditional white gowns and bearing candles.


Image credit: NPS MedicineWise.
1

1. 18+ category winners Ashleigh Roberson, Kimbal Lynch, Lucas Tomoana and Riki James-Hall. 2. Under 18 winner Catriona Warren and her mother.


Image credit: NPS MedicineWise.
2

Winners of national short film competition on antibiotic resistance announced

To raise awareness about the global threat of antibiotic resistance, NPS MedicineWise and American Express Openair Cinemas (AMEX OAC) held a national short film competition.

Titled 'Preserve the Power', the competition tasked entrants with creating a 30-second short film to win their share of $10,000, with first-place prizes awarded to talent across two categories: Australians under and over the age of 18 years old.

The winning film for the 18+ category was *Keep the bugs outta the club*, featuring a man who is rejected from entering a pharmacy based on his overuse of antibiotics.

Co-judge Dr Sam Hay said Keep the bugs outta the club was "the total package, showing a great balance between comedic timing and messaging with outstanding cinematography and editing".

The judges were also impressed by *Therapeutic*, which took out first place for the under 18 category. The film features a couple representing an antibiotic and a bacterial infection having a therapy session.

"Sending a message about antibiotics is exceptionally important, especially in today's age when they're losing their strength. However, it seems that a message has more power if it is expressed through humour or a symbolic scene. Thus, we tried to find a way to send a message about antibiotics and make it fun to engage with," said 16-year-old Catriona Warren, producer of *Therapeutic*.

THE AUSTRALIAN HOSPITAL + HEALTHCARE BULLETIN

FREE SUBSCRIPTION

The latest industry news and updates for busy healthcare professionals

WHAT YOU GET

Print magazine

4 editions a year, published quarterly. Delivered straight to your desk.

Digital magazine

Delivered straight to your inbox.

eNewsletters

Weekly news round-ups delivered straight to your inbox.

What is The Australian Hospital + Healthcare Bulletin?

The Australian Hospital + Healthcare Bulletin (AHHB) is a national voice for hospital, health- and aged-care professionals. Published quarterly, AHHB contains regular features on major healthcare disciplines, projects, research, professional development and governance.

AHHB serves as a link, connecting health industry suppliers and service providers with key healthcare personnel including professional leaders and decision-makers throughout Australia.

AHHB is FREE for industry professionals.

Subscribe now at www.hospitalhealth.com.au/subscribe

clinell®

www.clinell.com.au

Kills Norovirus in 1 minute

Clinell Universal Wipes

Now classified as an instrument grade disinfectant

Clinell Universal Wipes clean and disinfect in one easy step, making them convenient to use in your healthcare setting every day.

✔ Effective against Norovirus

Our wipes are an instrument grade (Class IIB) disinfectant with wide spectrum antimicrobial activity against *Klebsiella* (CRE), Norovirus, MRSA and VRE.

✔ Prevents resistance

Clinell Universal Wipes offer a patented, alcohol-free formula containing a mix of biocides with different modes of action to help prevent microbial resistance.

✔ Trusted

With a near neutral pH and high material compatibility, Clinell Universal Wipes are effective on surfaces and are approved as a disinfectant by many medical device manufacturers.

GAMA Healthcare is proud to be the leading infection prevention company focusing on material compatibility.

We're very pleased to announce that Clinell Universal Wipes are now classified as an instrument grade disinfectant, effective against the following:

MICROBES	CONTACT TIME	TEST
BACTERIA		
Pseudomonas aeruginosa	60 seconds	EN 13727
	60 seconds	EN 14561
Enterococcus hirae	60 seconds	EN 13727
	60 seconds	EN 14561
Enterococcus faecium (VRE)	60 seconds	EN 13727
	60 seconds	EN 14561
Enterobacter cloacae (VRE)	60 seconds	EN 14561
Klebsiella pneumoniae (CRE)	60 seconds	EN 13727
	60 seconds	EN 14561
Acinetobacter baumannii	60 seconds	EN 13727
	60 seconds	EN 14561
Staphylococcus aureus (MRSA)	60 seconds	EN 13727
	60 seconds	EN 14561
Staphylococcus aureus	60 seconds	EN 13727
	60 seconds	EN 14561
VIRUSES		
Norovirus (MNV surrogate)	60 seconds	EN 14476
Influenza (H1N1)	60 seconds	EN 14476 (modified)
Herpes Simplex	60 seconds	ASTM E 1053
FUNGI		
Candida albicans	5 minutes	EN 13624
Aspergillus brasiliensis	5 minutes	EN 13624

Contact us for more information:
+61 (0)3 5976 1555 | clinell.com.au

www.gamahealthcare.com.au

JBN18109