HOSPITAL AND HEALTHCARE

SPRING 2019

INFECTION CONTROL SPECIAL

DESIGN IN HEALTH
Sunshine Coast University Hospital

INFECTIOUS DISEASES
The 'rise and rise' of measles

AGED CARE
Meeting dementia needs

SAFE FROM SUPERBUGS?

PP100022780

BOC

A Member of The Linde Group

Empowering you
Enabling your patients

Experience the confidence that comes with medical devices that are carefully selected for stand out safety and patient care.

Quality assurance

Safety and quality are our top priorities. Product samples are rigorously tested at our dedicated laboratories in Europe to ensure performance in real-life scenarios. High-pressure devices undergo special test protocols by our engineers for maximum safety provision.

Ethical responsibility

We source medical devices from carefully selected manufacturers that share our commitment to ethical practice, environmental efficiency, human rights and fair treatment of employees.

Optimum cost of ownership

Take advantage of our global network, which allows us to offer world-leading products and negotiate better pricing, enabling us to provide cost effective solutions.

Reliable service

Rely on our experienced local customer service team to provide all sales, training, maintenance and servicing support.

www.boc.com.au/healthcare | hospital.care@boc.com | 1300 363 109

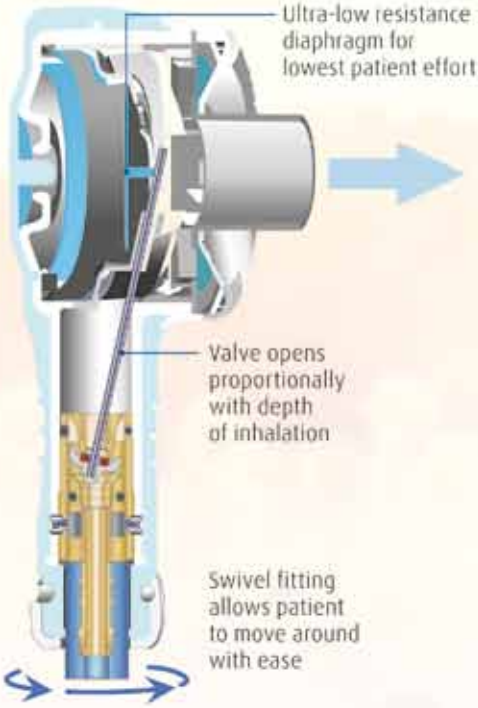
BOC: Living healthcare

Five-year warranty

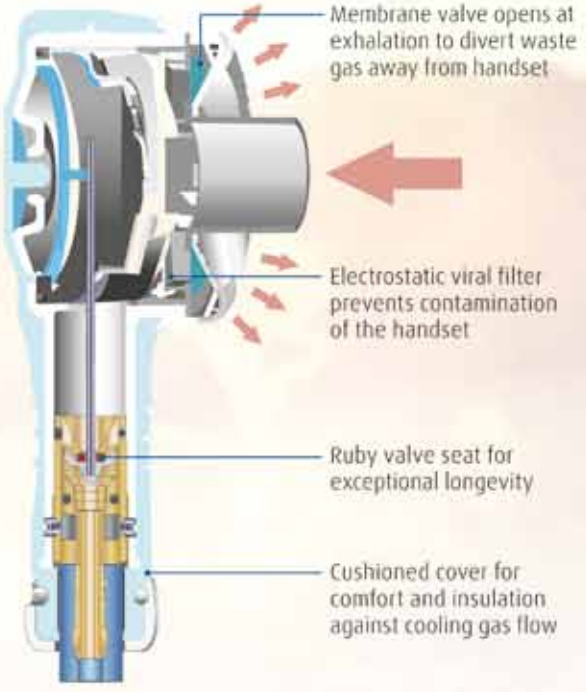
BPR Ultraflow ENTONOX® demand valve

Used in thousands of healthcare settings around the world, the Ultraflow™ demand valve gives patients more relief from pain for the same effort, while a five-year warranty period and service interval provides the best-in-class cost efficiency.

Valve open (inhalation)



Valve closed (exhalation)



MPT9-0268 EDA 0819 V1

CONTENTS

INFECTION CONTROL

Reynard.

We wipe out germs and cost considerations.

Germs.

For organisms so small, they pose big problems for hospitals. Infections place an unwarranted pressure on resources.

You cannot afford for patient health to deteriorate or staff getting sick.

Reynard's ever growing product range means you can choose a product that meets every operational and financial demand, whether cleaning, disinfecting, or patient comfort.

Products that work well first time, especially where germs are concerned, with many applications developed in consultation with hospital staff.

Add well stocked warehouses and an advanced supply chain, and a visit to www.reynardhealth.com.au can be time well spent.

Reynard is reassurance.

Reynard
Health Supplies

Cleaning & Disinfection | Patient Care | Dry Wipes | IV Therapy & Pre-Op | Hand Hygiene

CONTENTS

HOSPITAL AND HEALTHCARE

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

A DAY IN THE LIFE

TECHNOLOGY

ETHICS

LEADERSHIP

IN CONVERSATION

This magazine is FREE for industry professionals. **Subscribe: www.hospitalhealth.com.au/subscribe**

Published quarterly, Hospital + Healthcare 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.

TERUMO

Products designed for your safety

TERUMO is dedicated to providing innovative devices that help reduce the risk of sharps related injuries, that are easy to use and provide the best health outcomes for patients and increased safety for healthcare workers.

SurGuard2™ Safety Needles

A simple one-handed technique activates the safety shield of SurGuard2™.

Easily confirm activation of the safety shield:

- Hear the 'click'
- Feel the 'click'
- See the needle locked inside

BEFORE

AFTER

SurGuard2™ safety needles fit all luer lock and luer slip syringes.

VanishPoint® Retractable Syringes

Passive safety-engineered devices (PSEDs) are most effective for NSI prevention[1].

- Activation cannot be by-passed
- No change in clinical practice
- Needle automatically retracts into the syringe

BEFORE

AFTER

Terumo Australia Pty Ltd
Macquarie Park NSW 2113 Australia
Mount Albert Auckland 1025 New Zealand
E: cs_australia@terumo.co.jp

T: 1800 837 866
T: 0800 66 77 57

When safety matters, think TERUMO

Reference: 1. AOHP Journal, Spring 2014. Reducing Needlestick Injuries from Active Safety Devices: A Passive Safety-Engineered Device Trial.

TERUMO

HOSPITAL AND HEALTHCARE

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

Contributing Editors: Laini Bennett, Jacqui Jones, Carolyn Jackson
hh@wfmedia.com.au

Publishing Director/MD: Geoff Hird

Art Director/Production Manager: Julie Wright

Art/Production: Colleen Sam, Veronica King

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 9168 5516
nedwards@wfmedia.com.au

Kerrie Robinson
+61 2 9168 5517
krobinson@wfmedia.com.au

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

wfmedia
connecting industry

www.wfmedia.com.au

Head Office
Unit 7, 6-8 Byfield Street, North Ryde
Locked Bag 2226
North Ryde BC NSW 1670
AUSTRALIA
ph: +61 2 9168 2500

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 Spring edition!

Have you started your annual spring clean yet? You know what I'm talking about — that one weekend you put aside to do a deep clean of all the dirt and grime that's built up over winter, and to momentarily make your home feel fresher than ever. Of course, hospitals and other healthcare environments don't have the luxury of doing one big clean once a year, as good hygiene year-round is essential for preventing the spread of infections. You can find articles about the significance of hospital cleaning, as well as other measures to prevent infection control, throughout this issue.

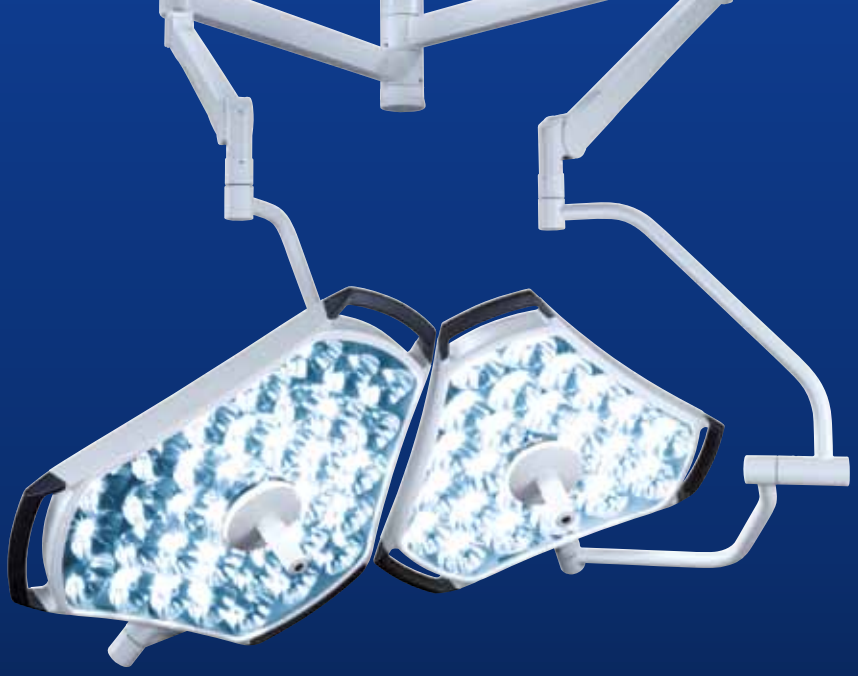
But while the importance of clean hospitals cannot be understated, they should not be so clinically cold and sterile that patients feel unwelcome. And so we have articles this issue on Sunshine Coast University Hospital as well as the Gandel Wing at Cabrini Malvern, both of which have been recognised for their efforts to maximise patient comfort while also incorporating sustainability features, including natural lighting and green spaces, designed to aid recovery. And let's not forget that catering to the needs of patients can sometimes be taken quite literally, with Andrew Thomson giving his two cents into how hospitals can improve their food game.

We also hear from some remarkable people who are doing their bit to bring quality health care to regional Australia: Purple House CEO Sarah Brown chats about life as the leader (she hates that word) of Australia's most successful dialysis network, 2019 Nurse of the Year Jenny Messell talks about aged care in the Top End and Ola Sorensen takes us on a virtual helicopter ride as he recounts a typical night shift conducting aeromedical retrievals as part of RACQ LifeFlight Rescue. It's stories like theirs that make you truly appreciate the diversity of the Australian healthcare industry, with so many different jobs available to serve the needs of so many different communities.

All these stories and more can be found in this spring issue of *Hospital + Healthcare* — so find a spot of natural light and sit down for what we hope will be an informative read. And don't forget you are always welcome to submit your own pitches for articles, so feel free to send us an email anytime.

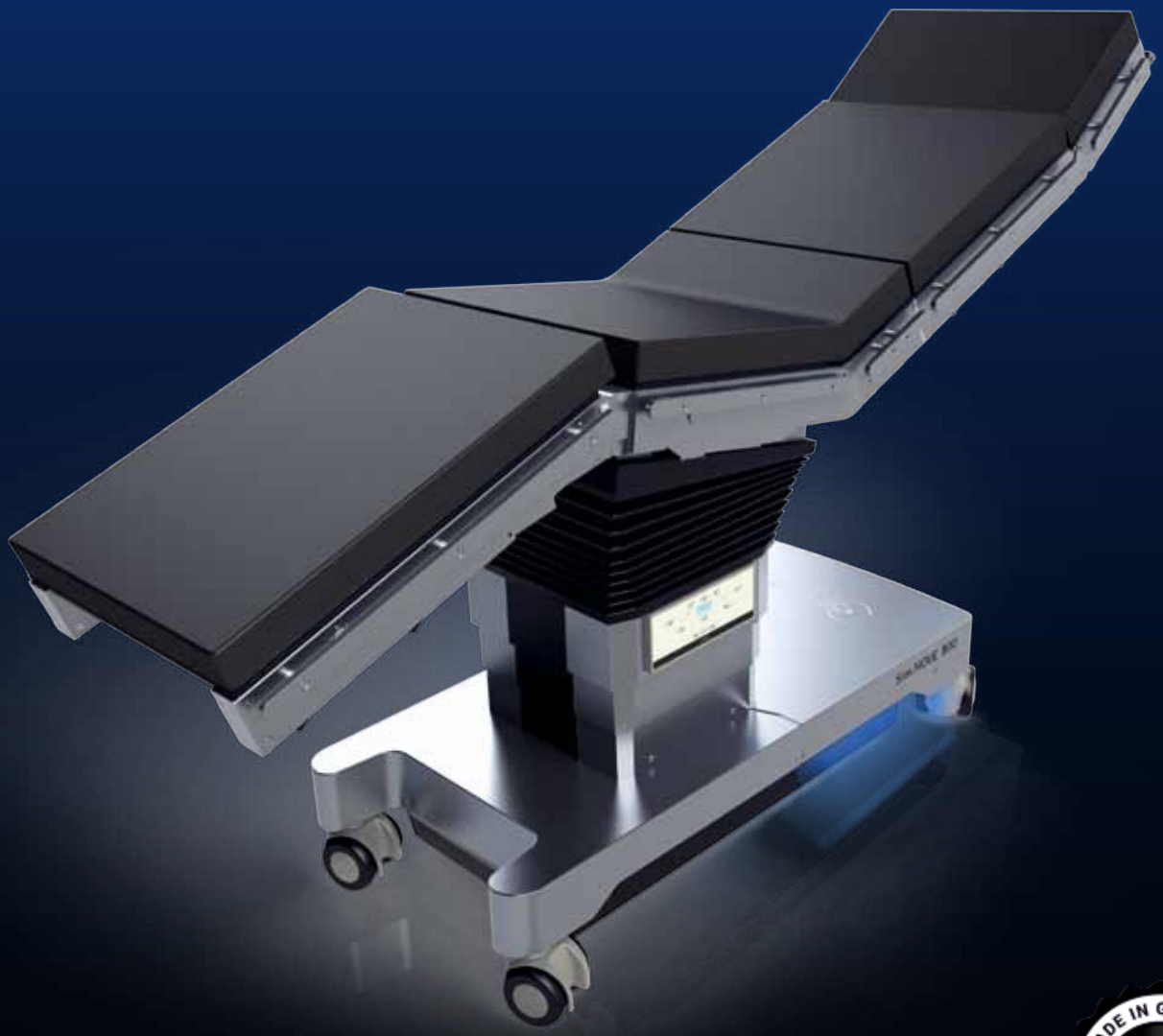
WANT TO CONTRIBUTE?

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



SIMEON MEDICAL

PUSHING TECHNOLOGY TO EXCELLENCE



MADE IN GERMANY · PRODUKT AUS DEUTSCHLAND

Sim.MOVE

New innovative my.LIGHT technology -
coded light signals to enhance user experience.

MEDIQUIP

mediquip.com.au

1300 246 349

THE NEW KITCHEN ESSENTIAL

All your drinking water needs, All-in-One beautifully designed system.

Remove the need for multiple taps in your kitchen with a single, beautifully designed system that delivers boiling, chilled and sparkling filtered drinking water, as well as hot and cold unfiltered water for your sink.

The Zip HydroTap All-in-One offers every water option you need from one multi-functional tap and a single intelligent compact under-bench system. That's why the Zip HydroTap will be the one and only hydration solution for your kitchen.

Discover more at zipwater.com

GOOD DESIGN Award

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

THE WORLD'S MOST ADVANCED DRINKING WATER SYSTEM

The Rounds
Updates in health care

Smartphones fight killer bacteria

A combination of off-the-shelf quantum dot nanotechnology and a smartphone camera could soon allow doctors to identify antibiotic-resistant bacteria in just 40 minutes, potentially saving patient lives, Australian scientists believe.

Macquarie University and University of New South Wales researchers say they have developed a cheap and rapid way to identify antibiotic-resistant golden staph (MRSA).

Their findings were published in the journal *Sensors and Actuators B: Chemical*.

Staphylococcus aureus (golden staph) is a common form of bacterium that causes serious and sometimes fatal conditions such as pneumonia and heart valve infections. Of particular concern is a strain that does not respond to methicillin, the antibiotic of first resort, and is known as methicillin-resistant *S. aureus*, or MRSA.

Rapid identification of MRSA was essential for effective treatment, but current methods made it a challenging process, even in well-equipped hospitals.

The researchers demonstrated a proof-of-concept device that used bacterial DNA to identify the presence of *Staphylococcus aureus* positively in a patient sample — and to determine if it would respond to frontline antibiotics.

They confirmed the presence of the bacterium using a mobile phone and some ultra-tiny semiconductor particles known as quantum dots.

"Our team is using synthetic biology and nanobiotechnology to address biomedical challenges," a study author, Associate Professor Anwar Sunna, head of the Sunna Lab at Macquarie University, said.

"Rapid and simple ways of identifying the cause of infections and starting appropriate treatments are critical for treating patients effectively.

The researchers' approach identified the specific strain of golden staph by using a method called convective polymerase chain reaction (or cPCR), a derivative of a widely employed technique in which a small segment of DNA is copied thousands of times, creating multiple samples suitable for testing.

Although at proof-of-concept stage, the researchers said their system, which was powered by a simple battery, was suitable for rapid detection in different settings.

"We can see this being used easily not only in hospitals, but also in GP clinics and at patient bedsides," lead author Vinoth Kumar Rajendran, of Macquarie University, said.

Researchers Anwar Sunna (left) and Vinoth Kumar Rajendran with their smartphone-enabled MRSA detector.

©Sunna Lab

© Stock.Adobe.com/au/photopalace

Eat to lower skin cancer risk

Eating a healthy diet rich in vitamin A may be a way to reduce skin cancer risk, research shows.

Findings from a team at Brown University were published in the *Journal of the American Medical Association Dermatology*.

The researchers showed that people whose diets included high levels of vitamin A had a 17% reduction in risk for getting the second most common type of skin cancer, as compared to those who ate modest amounts of foods and supplements rich in vitamin A.

Cutaneous squamous cell carcinoma was the second most common type of skin cancer among people with fair skin. Vitamin A was known to be essential for the healthy growth and maturation of skin cells, but prior studies on its effectiveness in reducing skin cancer risk had been mixed, said dermatology and epidemiology Associate Professor Eunyoung Cho, who led the research team.

The research team looked at the diet and skin cancer results of participants in two large, long-term observational studies: the Nurses' Health Study, which followed 121,700 US women from 1984 to 2012, and the Health Professionals Follow-Up Study, which followed 51,529 US men from 1986 to 2012.

Between the two studies, about 123,000 participants were white (and thus had significant risk of developing skin cancer), had no prior history of cancer and completed dietary reports multiple times. Among these individuals included in the team's subsequent analysis, 3978 cases of squamous cell carcinoma were reported and verified within the 24- or 26-year follow-up periods.

After grouping the study participants into five categories by vitamin A intake levels, the researchers found that people in the category with the highest average daily total vitamin A intake were 17% less likely to get skin cancer than those in the category with the lowest total vitamin A intake.

Associate Professor Cho said the study provided another reason to eat lots of fruits and vegetables as part of a healthy diet.

© Stock.Adobe.com/au/Anterovium

Drug-resistant bacteria found on hospital insects

More than 50% of bacteria recovered from flying insects in a group of English hospitals has been found to be resistant to one or more antibiotics, posing a potential infection risk to patients.

Over an 18-month period, researchers from Aston University collected almost 20,000 insect samples from seven NHS hospital sites. Flying insects were collected from a number of locations throughout the hospitals, including areas where food for patients, visitors and staff was prepared or stored as well as wards, neonatal units and maternity units. Higher numbers were collected in spring and summer, with the full results published in the *Journal of Medical Entomology*.

Microbiological analysis found that nearly nine in 10 of those insects tested were carrying potentially harmful bacteria — either internally or externally on their bodies — with a total of 86 bacterial strains isolated from the samples. *Enterobacteriaceae* — a family that includes *E. coli* and *Salmonella* — were the most commonly isolated, accounting for 41% of isolations from flying insects, followed by Bacillus (which includes the 'food poisoning bug' *B. cereus*) at 24% and Staphylococci (which includes *S. aureus*, a cause of skin infections, abscesses and respiratory infections) comprising 19%. In some cases, the level of bacteria carried by flying insects was enough to potentially cause infection.

The analysis showed that 53% of the strains were resistant to one or more class of antibiotics. Of this figure, 19% were resistant to multiple antibiotics. Penicillin was found to be the least effective antibiotic, with many bacteria showing resistance. Resistance to other commonly administered antibiotics, including vancomycin and levofloxacin, was also observed.

"The results from this large-scale microbiological analysis show that a variety of flying insects collected from UK hospitals do indeed harbour pathogenic bacteria of different species," said Federica Boiocchi, lead author on the study.

Study co-author Anthony Hilton added: "NHS hospitals are extremely clean environments and the risk of insects carrying bacteria and transferring these to patients is very low.

"What we are saying in this paper is that even in the cleanest of environments, it's important to take steps to prevent bacteria being brought into hospitals by insects."

Packaged foods trigger "tsunami of dietary ill health"

Australia's packaged foods are less healthy than those of the UK and USA, but are among the healthiest globally, an international analysis has found.

But the high levels of sugar, saturated fat, salt and kilojoules in many favourite products on supermarket shelves were potentially making us sick, with a possible "tsunami of dietary ill health" coming our way, the researchers said.

The George Institute for Global Health analysed more than 400,000 food and drink products from 12 countries and territories around the world.

The results were published in *Obesity Reviews*.

The countries were ranked using Australia's Health Star Rating system, which measures the levels of the nutrients such as energy, salt, sugar and saturated fat, as well as protein, calcium and fibre, and assigns a star rating from ½ (least healthy) to 5 (the most healthy).

The study found that the UK had the highest average Health Star Rating of 2.83, followed by the US at 2.82 and Australia at 2.81.

India got the lowest rating of 2.27 followed by China at 2.43, with Chile third from the bottom at 2.44.

Lead author Dr Elizabeth Dunford said the results were concerning because packaged foods and drinks were driving a double burden of diet-related diseases in many low- and middle-income countries.

"Globally we're all eating more and more processed foods and that's a concern because our supermarkets shelves are full of products that are high in bad fats, sugar and salt and are potentially making us sick," she said.

©stock.adobe.com/au/shock

Antibiotics linked to heightened bowel cancer risk

© Stock.Adobe.com/au/Sasa Komlen

Antibiotic use is linked to a heightened risk of bowel cancer, research published in the journal *Gut* has found.

But the risk was lowered for rectal cancer.

The researchers said their findings suggested a pattern of risk that might be linked to differences in gut microbiome (bacteria) activity along the length of the bowel and reiterated the importance of judicious prescribing.

In 2010, patients around the world took an estimated 70 billion doses of antibiotics — equivalent to 10 doses each, the researchers said.

Antibiotics had a strong and long-lasting impact on the gut microbiome, altering the balance of helpful and harmful bacteria.

The researchers wanted to find out if this might affect bowel and rectal cancer risk, and how. They drew on data submitted to the UK's nationally representative Clinical Practice Research Datalink (CPRD) between 1989 and 2012.

It contained the anonymised medical records of about 11.3 million people from 674 general practices — about 7% of the UK population.

The researchers collected prescribing information for 28,930 patients diagnosed with bowel (19,726) and rectal (9254) cancers during an average monitoring period of eight years, and for 137,077 patients, matched for age and sex, who didn't develop these cancers.

Antibiotics had been prescribed to 70% (20,278) of patients with bowel and rectal cancers and to 68.5% (93,862) of those without. Nearly six out of 10 study participants had been prescribed more than one class of antibiotic.

Those with bowel cancer were more likely to have been prescribed antibiotics: 71.5% versus 69%. Exposure levels were comparable among those who developed rectal cancer (67%).

The association between bowel cancer and antibiotic use was evident among patients who had taken these drugs more than 10 years before their cancer was diagnosed.

Whether antibiotic exposure was causal or contributory to colon cancer risk, their results highlighted the importance of judicious antibiotic use by clinicians, the researchers said.

The Rounds
Updates in health care


© Stock.Adobe.com/au/Tobilander

Dad's touch helps premmie bubs thrive

Getting more dads into neonatal units could help hospitals' littlest patients thrive, research from Edith Cowan University shows.

Researchers from the university's School of Nursing and Midwifery and international collaborators examined existing literature about men's experiences in hospital neonatal units that care for sick and premature babies.

They found that while fathers might feel out of place at times, the presence of dads in neonatal units was key to helping the most vulnerable babies thrive.

Nursing lecturer Dr Esther Adama said there was strong evidence that having skin-to-skin contact with their fathers in the first days of life provided significant health benefits for infants in neonatal units.

"Babies that had early skin-to-skin care from their fathers had better blood glucose levels, lower levels of the stress hormone cortisol in their saliva and were more settled," she said.

"There is also evidence that early skin-to-skin contact with their fathers resulted in babies gaining weight faster in the first 28 days after birth."

Dr Adama said the evidence showed that early close contact benefited fathers too.

"Research has shown that men who are more engaged in caring for their babies experience stronger hormonal and neurobiological changes that help to forge a stronger connection between fathers and their babies," she said.

But the research also showed there were impediments to fostering the dad and child bond.

Dr Adama said there were a number of things that neonatal units in hospitals could do to boost dads' involvement. These included:

- involving fathers in decision-making and help them understand the unit's technology;
- making neonatal units accessible at all hours for fathers and providing the opportunity for overnight stays;
- assessing fathers' and mothers' needs separately as individuals;
- allowing fathers to see other men in the unit spending time with their babies;
- communicating with fathers directly rather than solely via the mother.

Australian surgeons restore hand function in paralysed patients

A new Australian surgical technique has restored hand function to 13 young adults with complete paralysis in their arms.

The young adults with tetraplegia are now able to feed themselves, hold a drink, brush their teeth and write as a result of a novel surgical technique which connects functioning nerves with injured nerves to restore power in paralysed muscles.

The nerve transfer surgery has enabled the patients to regain movement and function in their elbows and hands, according to a report published in *The Lancet*.

During the surgery, Australian surgeons attached functioning nerves above the spinal injury to paralysed nerves below the injury. Two years after surgery, and following intensive physical therapy, participants were able to reach their arm out in front of them and open their hand to pick up and manipulate objects. Restoring elbow extension improved their ability to propel their wheelchair and to transfer into bed or a car.

The findings suggest that nerve transfers can achieve similar functional improvements to traditional tendon transfers, with the benefit of smaller incisions and shorter immobilisation times after surgery.

In 10 participants, nerve transfers were uniquely combined with tendon transfers allowing different styles of reconstruction to be performed in each hand, and enabling participants to benefit from the innate strengths of both tendon and nerve transfers. Nerve transfers restored more natural movement and finer motor control in one hand, and tendon transfers restored more power and heavy lifting ability in the other hand.

While only a small study, researchers say that nerve transfers are a major advance in the restoration of hand and arm function, and offer another safe, reliable surgical option for people living with tetraplegia.

Nevertheless, four nerve transfers failed in three participants and the authors conclude that more research will be needed to determine which people are the best candidates to select for nerve transfer surgery to minimise the incidence of failure.

Despite these achievements, nerve transfer surgery still has some limitations. For the best results nerve transfers should ideally be performed within 6–12 months of injury. Additionally, it can take months after nerve transfer for nerve regrowth into the paralysed muscle to occur and for new movement to be seen, and years until full strength is achieved.

(L to R) GAMA Healthcare CEO Suzanne Hammouche, Professor Brett Mitchell and Laureate Professor John Aitken. Image courtesy of GAMA Healthcare.

Partnership will fund new research into preventing healthcare-associated infections

The University of Newcastle has partnered with global infection control specialists GAMA Healthcare to help fund new research into preventing and controlling infections in health and care settings. The partnership will see the two organisations co-fund a five-year professorship on the Central Coast, with the University providing vital research and information that will help GAMA assess and develop interventions that could be rolled out in hospitals around the world.

There are an estimated 165,000 healthcare associated infections in Australian hospitals each year. One in 10 patients in an Australian hospital today is likely to get an infection they didn't have when they went into hospital. Resistance to antibiotics is further complicating this problem, making infections more difficult to treat.

Laureate Professor John Aitken, Pro Vice-Chancellor of the University of Newcastle's Faculty of Health and Medicine, said the partnership demonstrates the importance of education and industry working together to provide solutions to real-world health issues.

"Infection prevention and control and antibiotic resistance in our hospitals and care settings are such important areas of research, particularly given challenges such as bacteria becoming resistant to antibiotics. The need for solutions to prevent infections has never been greater," Professor Aitken said.

"This partnership is a great example of industry and education identifying a common area of interest where it can work together to establish expertise by combining intellectual leadership and research with innovative manufacturing to prevent the spread of infectious diseases."

GAMA Healthcare Ltd is a UK-headquartered company, with offices in China and Australia, specialising in manufacturing and distributing infection prevention products to the healthcare industry.

"As we look to further grow our clinical teams in Australia, with a new office opening in Melbourne in July, partnering with the University of Newcastle will enable us to continue to invest in Australian research to help reduce healthcare-associated infections," said Suzanne Hammouche, Chief Executive Officer of GAMA Healthcare.

As a result of the partnership, Professor Brett Mitchell will take up a position in the University of Newcastle's School of Nursing and Midwifery, initially based at its Ourimbah Campus on the Central Coast before moving to the new Central Coast Medical School and Research Institute, due to open next year.

A qualified nurse and Fellow of the Australasian College for Infection Prevention and Control, Professor Mitchell has held senior clinical roles in hospitals in the UK and Australia, as well as working in developing countries to help prevent the spread of infection. He is currently chair of a National Health and Medical Research Council committee revising national infection control guidelines for Australian hospitals and has worked extensively with the Australian Commission on Safety and Quality in Health Care.

He is also editor-in-chief of the *Infection, Disease & Health* journal and has more than 150 peer-reviewed publications and conference presentations.

"I'm very excited to be joining a University already at the forefront of medical research and studies at a time when it prepares to open a new Medical School and Research Institute on the Central Coast in partnership with the local health service. By working closely with industry, our research can provide tangible benefits that can lead to better patient care and outcomes."

The $85 million Central Coast Medical School and Research Institute will be based at Gosford Hospital and is a joint project of the University of Newcastle and Central Coast Local Health District. Earlier this year the University also announced plans for a new Gosford CBD campus. The project has already received $18 million Federal funding to support its development.

The prevalence of antimicrobial resistance in Australian aged-care homes, combined with high levels of inappropriate antibiotic use, support the need for increased action both in activities to improve antimicrobial stewardship and in infection prevention and control.

Antimicrobial use in aged care: the need for action

John Turnidge*

The Antimicrobial Use and Resistance in Australia (AURA) Surveillance System is coordinated by the Australian Commission on Safety and Quality in Health Care (the Commission) and funded by the Australian Government Department of Health and the states and territories. The AURA Surveillance System collects data on the appropriateness of antibiotic use and antimicrobial resistance in Australian aged-care homes and multipurpose services; in this article these are referred to as aged-care facilities.

AURA 2019: Third Australian report on antimicrobial use and resistance in human health (AURA 2019), which was recently released by the Commission, shows inappropriate antimicrobial use and antimicrobial-resistant organisms are safety issues for aged-care home residents.[1]

Rates of antimicrobial resistance found in aged-care facilities are as high as, or higher than, rates in hospitals for some organisms. This makes aged-care facilities particularly important reservoirs for antimicrobial-resistant bacteria, and their residents at increased risk of infections caused by them.

In facilities with frequent and inappropriate antimicrobial use, there is an increased risk for all residents of acquiring an antimicrobial-resistant infection. Even residents who are not receiving antimicrobial therapy are vulnerable, because of the potential for infections to spread within aged-care facilities. Other high-risk factors in aged-care facilities include:

- a close living environment and frequent contact between residents, visitors and staff who may be infected;
- residents moving relatively frequently in and out of hospitals;
- higher use of invasive devices such as urinary tract catheters;
- higher levels of colonisation with multidrug-resistant organisms.

The Aged Care National Antimicrobial Prescribing Survey (AC NAPS), which forms part of AURA, is conducted by the National Centre for Antimicrobial Stewardship. An increasing number of Australian aged-care homes and multipurpose services have been participating in AC NAPS on a voluntary basis since it commenced in 2015.[2]

In 2017, approximately 10% of aged-care facilities nationally participated in AC NAPS. The involvement of these facilities in AC NAPS provides them with substantial data to inform their infection control and prevention and antimicrobial stewardship practices. The AC NAPS shows consistently high rates of antimicrobial use for unconfirmed infections; antimicrobial use for long periods of time; the

widespread use of topical antimicrobials such as antifungal creams; and gaps in recording the reason for using antimicrobials or the length of time they should be taken.

In 2017, more than half (55.2%) of the antimicrobial prescriptions were for residents with no signs and/or symptoms of infection in the week prior to the start date, compared with 45.4% in 2016.

The most frequently used antimicrobials reported by AC NAPS contributors are cefalexin and clotrimazole (a topical antimicrobial). Cefalexin is not recommended as first-line treatment for either urinary or skin infections. In both 2016 and 2017, almost one-third of antimicrobial prescriptions were for topical use. Most minor skin infections, for which clotrimazole is understood to be used either therapeutically or prophylactically in aged-care homes, are self-limiting and resolve with standard skin hygiene care. If an antibiotic is required, topical antibiotics are only appropriate for patients with minor localised areas of impetigo.

Of all antimicrobial prescriptions dispensed for residents with signs and/or symptoms of infection in 2017, only 18.4% met internationally recognised infection definitions, compared with 36.5% in 2016.[3]

The three most common reasons, when recorded, for prescribing antimicrobials in 2017 were cystitis (17.1%), pneumonia (10.9%) and non-surgical wound infections (5.1%).

Data on antimicrobial resistance in aged-care home residents is also available from the AURA Surveillance System. This data indicates that the proportion of methicillin resistance in *Staphylococcus aureus* (MRSA), which was 32.1% in 2017, is higher in aged-care homes than in other settings.

The prevalence of antimicrobial resistance in Australian aged-care homes, combined with high levels of inappropriate antibiotic use, support the need for increased action both in activities to improve antimicrobial stewardship and also in regard to infection prevention and control through improved hand hygiene and cleaning of surfaces and equipment.

To complement efforts to improve antimicrobial use, a focus on clinical and personal care that addresses urinary, respiratory and skin health is also important to minimise the risk of development of infections and the likelihood that antimicrobials will be prescribed.

The new 'Aged Care Quality Standard 3: Personal care and clinical care' that took effect from 1 July 2019 requires aged-care providers to demonstrate implementation of infection prevention and control measures and practices to promote appropriate antibiotic prescribing and use. Standard 8 requires antibiotic stewardship programs as part of clinical governance.

Other AURA 2019 highlights

Antimicrobial use — hospitals

- In 2017, a national shortage of piperacillin–tazobactam had a considerable impact on patterns of antibiotic use in hospitals, including increased use of cephalosporins.
- The overall rate of inappropriate prescribing in hospitals that participated in the National Antimicrobial Prescribing Survey (NAPS) has been static since 2013, with almost one-quarter (23.5%) of prescriptions assessed being inappropriate.
- From 2013 to 2017, there has been an improvement in prescribing of surgical prophylaxis; prescriptions that extended beyond the recommended 24 hours dropped in NAPS contributor hospitals from 41.1% to 30.5%.
- Cefalexin and amoxicillin–clavulanic acid had the highest rates of inappropriate prescribing in NAPS contributor hospitals.

Antimicrobial use — primary care

- In 2017, 41.5% (n = 10,215,109) of the Australian population had at least one systemic antibiotic dispensed under the Pharmaceutical Benefits Scheme (PBS) or Repatriation Pharmaceutical Benefits Scheme (RPBS).
- There was an improvement in the rate of antibiotic dispensing under the PBS/RPBS, with a downward trend from 2015 to 2017.
- Approximately 50% of all antibiotic prescriptions were ordered with repeats; of those repeats, approximately half were filled within 10 days of the original prescription.

Antimicrobial resistance

- In *Escherichia coli*, resistance to ciprofloxacin and other fluoroquinolones continued to rise in community-onset infections, despite restricted access to these agents on the PBS. These changes in resistance may mean increasing treatment failures and greater reliance on last-line treatments such as carbapenems.
- In *Enterococcus faecium*, the overall rates of vancomycin resistance are declining nationally, although the absolute number of isolates with vancomycin resistance continues to increase.
- In *Staphylococcus aureus*, patterns of methicillin resistance continue to evolve; community-associated methicillin-resistant *S. aureus* has become prominent in remote and very remote regions.
- Carbapenemase-producing Enterobacterales (CPE) were the most commonly reported critical antimicrobial resistance (CAR) in 2018.
- Critical antimicrobial resistances reported from aged care were predominantly CPE or daptomycin-nonsusceptible *S. aureus*.

Assessment of AURA 2019 data has identified the following focus areas for improvement action:

Amoxicillin–clavulanic acid and cefalexin prescribing

- Reducing inappropriate prescribing of these antibiotics, and promoting use of narrower-spectrum antibiotics, such as amoxicillin, will reduce the volume of broad-spectrum antibiotic use in hospitals and the community, and contribute to preventing and containing antimicrobial resistance (AMR).

Chronic obstructive pulmonary disease

- Exacerbation of chronic obstructive pulmonary disease (COPD) is a common condition for which broad-spectrum antibiotics are prescribed; people with COPD are prone to developing AMR in respiratory isolates.
- There is a long-term trend in hospitals of high levels of inappropriate prescribing of antibiotics for exacerbation of COPD.
- Targeted strategies to improve the appropriateness of antibiotic prescribing for treatment of COPD in hospitals will be developed in collaboration with clinicians involved in antimicrobial stewardship and the specialists managing patients with COPD.

The guidance for the Aged Care Quality Standards notes that aged-care organisations need to do their part to change those practices that have contributed to the development of resistance and implement new initiatives to reduce inappropriate antibiotic usage and resistance.

The Australian Commission on Safety and Quality in Health Care will work with the Aged Care Quality and Safety Commission to promote ongoing surveillance of antimicrobial resistance and antibiotic use, effective infection and control programs and the development and implementation of antimicrobial stewardship programs in aged-care homes.

Aged-care homes and multipurpose services are encouraged to participate in monitoring programs, such as AC NAPS, that enable them to identify their antimicrobial use and appropriateness.

For more information, visit: https://www.safetyandquality.gov.au/antimicrobial-use-and-resistance-in-australia/aura-2019/.

References

1. Australian Commission on Safety and Quality in Health Care (ACSQHC). AURA 2019: third Australian report on antimicrobial use and resistance in human health. Sydney: ACSQHC; 2019.
2. National Centre for Antimicrobial Stewardship and Australian Commission on Safety and Quality in Health Care. Antimicrobial Prescribing and Infections in Australian Aged Care Homes: Results of the 2017 Aged Care National Antimicrobial Prescribing Survey. Sydney: ACSQHC; 2018.
3. Stone ND, Ashraf MS, Calder J, Crnich CJ, Crossley K, Drinka PJ, et al. Surveillance definitions of infections in long-term care facilities: Revisiting the McGeer criteria. *Infection Control and Hospital Epidemiology*. 2012;33(10):965-77.

*Professor John Turnidge is a Senior Medical Advisor with the Australian Commission on Safety and Quality in Health Care.

Antibiotic resistant organisms a growing problem worldwide

Glenys Harrington, Consultant, Infection Control, Diversey

Antimicrobial resistant organisms are a common cause of infections in healthcare facilities. Such infections are difficult to treat and are associated with poorer outcomes for patients and increased costs.

A recent Australia point prevalence survey (snapshot) in 19 hospitals across Australian states/territories noted 1 in 10 patients had a hospital associated infection. The three most common infections were a wound infection after surgery, pneumonia and urinary tract infection. These infections accounted for 64% of all healthcare associated infections identified. In addition the presence of an antibiotic resistant organism was documented in 10.3% of the patients.[1]

Problem antimicrobial resistant organisms include MRSA (often referred to as golden staph), Vancomycin-resistant Enterococci (VRE), Carbapenem-resistant *Enterobacteriaceae* (CRE) or carbapenemase-producing *Enterobacteriaceae* (CPE), a group of gram-negative bacteria that are resistant to the carbapenem class of antibiotics (antimicrobials used in treating invasive or life-threatening infections), and more recently *Candida auris* a yeast, resistant to multiple antifungal drugs.

Candida auris (*C. auris*) is spreading worldwide. *C. auris* can cause invasive infections (i.e. bloodstream) and large scale persistent outbreaks in hospitals are being increasingly reported. An example being a large *C. auris* outbreak in New York, involving 277 clinical cases and 350 surveillance cases where 151 facilities were impacted from August 2016 to October 2018 including 59 hospitals, 92 nursing homes, 1 long-term acute care hospital (LTACH), and 2 hospices.[2]

More than 1 in 3 patients with invasive *C. auris* infection die.

C. auris can readily colonize human skin and survive on dry surfaces for weeks. When people in healthcare facilities are colonized (persons carrying the organism but it is not making them sick) or infected they shed the pathogen from their skin into their surroundings, which can get on other people or nearby objects, allowing the organism to spread.[3]

C. auris is a serious global health threat. Even if healthcare facilities have not had a case of *C. auris* they need to be well prepared because spread can be unrecognised and outbreaks are extremely difficult to control. Adherence to local infection prevention and control recommendations such as the "Victorian Guideline on *Candida auris* for health services" will be crucial.[4]

In 2018, carbapenemase-producing *Enterobacteriaceae* (CPE) were the most commonly reported Critical Antimicrobial Resistances (CARs) in Australia.[5]

Throughout Europe carbapenem-resistant *Klebsiella pneumoniae* are rapidly spreading. A recent European Survey, collected through the European Survey of Carbapenemase-Producing *Enterobacteriaceae*, analysed the genome sequences (genetic information in an organism) of >1,700 *K. pneumoniae* samples taken from patients in 244 hospitals in 32 countries to determine how it was spreading.

Sophia David, lead author of the study, said, "Our findings imply hospitals are the key facilitator of transmission: over half of the samples carrying a carbapenemase gene were closely related to others collected from the same hospital, suggesting that the bacteria are spreading from person to person primarily within hospitals." [6,7]

Hajo Grundmann, co-lead author, said, "This research emphasises the importance of infection control and ongoing genomic surveillance of antibiotic resistant bacteria to ensure we detect new resistant strains early and act to combat the spread of antibiotic resistance."

Genome sequencing will enhance traditional infection prevention surveillance allowing staff to determine any geo-temporal relatedness to validate or exclude cross transmission events.

In addition there is now substantial evidence that contamination of surfaces in hospital rooms plays an important role in the spread of antibiotic resistant organisms. Organism can persist in the environment for hours to days, and in some cases months, frequently contaminating surfaces in patient rooms and medical equipment.

Unfortunately routine and discharge cleaning of room surfaces and medical equipment is frequently inadequate. Multiple studies have shown <50% of hospital room surfaces are adequately cleaned and it has now been established there is an increased risk of resistant organism acquisition from prior room occupant.

Enhanced daily and discharge disinfection in addition to cleaning will be vital in controlling resistant organisms. Healthcare facilities will need to select a disinfectant that has kill claims for the pathogens, a rapid kill and short kill/contact time, good cleaning properties, is nontoxic, proven compatibility with common healthcare surfaces and equipment, is easy to use and has an odour deemed acceptable by users and patients.

The Diversey one-step Accelerated Hydrogen Peroxide range including Oxivir® Tb and Sporicide Plus wipes meet all key selection criteria for cleaning and disinfection.

References

1. Russo, et al. The prevalence of healthcare associated infections among adult inpatients at nineteen large Australian acute-care public hospitals: a point prevalence survey. Antimicrobial Resistance and Infection Control (2019) 8:114.
2. Zhu Y, et al. "Laboratory Investigations of Candida auris Outbreak, New York 2016- 2018: Sample Source Diversity, Fungal Species Spectrum, Antifungal Resistance Patterns, and Genotypes" ASM Microbe 2019; Abstract Sunday-CPHM-889.
3. Sexton J, et al. "Mechanisms of Candida auris Transmission within the Healthcare Environment" ASM Microbe 2019; Abstract Sunday-CIV-LB-3.
4. Victorian Guideline on *Candida auris* for health services https://www2.health.vic.gov.au/public-health/infectious-diseases/infection-control-guidelines.
5. Australian Commission on Safety and Quality in Health Care (ACSQHC). AURA 2019: third Australian report on antimicrobial use and resistance in human health. Sydney: ACSQHC; 2019.
6. Wellcome Sanger Institute. Hospitals key in the spread of extremely drug resistant bacteria in Europe. 2019. https://www.sanger.ac.uk/news/view/hospitals-key-spread-extremelydrug-resistant-bacteria-europe.
7. Superbug spreads in European hospitals as resistance to last resort antibiotics grows.

Diversey

Antimicrobial resistant organisms are a common cause of infections in healthcare facilities.

A recent Australia point prevalence survey (snapshot) in 19-hospitals across Australian states/territories noted 1 in 10 patients had a hospital associated infection.[1]

PROTECT YOUR PATIENTS
1 WIPE - 1 MINUTE

Oxivir® Tb Wipes

Hospital Grade Disinfectant

ARTG No: AUST R 164850 - Oxivir Tb Wipes

Active: Hydrogen Peroxide 0.5%w/w

EFFICACY DATA:

When used as directed, Oxivir Tb Wipes are effective against a wide variety of pathogenic micro-organisms including Viruses and Bacteria.

ENVIRONMENTALLY RESPONSIBLE:

Active ingredient breaks down to oxygen and water.

Visit our stand to find out more
ACIPC Conference
STAND 17

Bacteria	Contact Time 1 Minute

Acinetobacter baumannii
Escherichia coli 0157:H7
Klebsiella pneumoniae
Pseudomonas aeruginosa
Salmonella enterica
Shigella dysenteriae
Staphylococcus aureus
Enterococcus faecalis, Vancomycin Resistant (VRE)
Staphylococcus aureus, Methicillin Resistant (MRSA)

Viruses	Contact Time 1 Minute

Hepatitis B Virus (HBV)
Herpes Simplex Virus Type 1 (HSV-1)
Herpes Simplex Virus Type 2 (HSV-2)
HIV-1 (AIDS virus)
Human Coronavirus
Influenza
Norovirus (Feline Calicivirus as surrogate)
Poliovirus Type 1
Rhinovirus
Rotavirus

BACTERICIDAL - VIRUCIDAL
1 min

REFERENCE: 1. Russo et al. The prevalence of healthcare associated infections among adult inpatients at nineteen large Australian acute-care public hospitals: a point prevalence survey. Antimicrobial Resistance and Infection Control (2019) 8:114

Diversey
Diversey Australia Pty Ltd, - 29 Chifley St, Smithfield NSW 2164 AUSTRALIA
Customer Service: 1800 647 779 diverseyvericlean.com

Investing in hospital cleaning for infection prevention

Dr Nicole White*, Alison Farrington** and Professor Brett Mitchell***

Environmental cleaning plays an important role in preventing healthcare-associated infections and, in turn, delivers cost savings for hospitals.

Healthcare-associated infections are a significant patient safety risk and are costly to treat. In Australia, there are an estimated 165,000 infections each year[1]. Environmental cleaning plays an important role in preventing healthcare-associated infections. However, little is known about the impact of better cleaning practices on infection rates, and whether additional investment in environment cleaning for this purpose is justified.

To generate evidence for the value of environmental cleaning, the Researching Effective Approaches to Cleaning in Hospitals (REACH) trial implemented an evidence-based cleaning intervention in 11 Australian hospitals. The intervention was a cleaning 'bundle' that comprised five components: training, technique, product, audit and communication[2].

At the start of the study, differences in existing cleaning practices and processes were identified between participating hospitals[3]. This meant that the cleaning bundle could be tailored to meet local hospital needs. All 11 hospitals implemented the intervention, between 20 and 50 weeks. The analysis of trial outcomes was published earlier this year, which showed that the cleaning bundle improved cleaning performance in patient bedroom and bathroom areas and reduced healthcare-associated *Staphylococcus aureus* bacteraemia (SAB) and vancomycin-resistant enterococci (VRE) infection rates[4].

These findings showed the value of the trial on clinical outcomes, but we also wanted to evaluate whether the REACH cleaning bundle was a cost-effective intervention. To address this question, we compared the cost of implementing the cleaning bundle in all 11 hospitals with expected economic returns from fewer SAB and VRE infections[5]. The aim of our analysis was to provide information to hospital decision-makers on the decision to adopt the cleaning bundle as part of their hospital's infection prevention and control program, as a valuable use of scarce healthcare resources.

The costs of improving hospital cleaning

We collected detailed information from all hospitals about costs incurred from establishing and maintaining the cleaning bundle during the trial. Examples of costs included the purchase of supplies, changes in product use and time commitments from hospital staff as part of their current workloads. Dollar values were assigned to staff time and consumables to provide a realistic estimate of the cost of implementing the bundle alongside existing hospital initiatives.

Total costs varied between hospitals, which was driven by multiple factors, including hospital size, the number of cleaning staff employed and the number of weeks spent implementing the bundle. Analysis of these data showed that the bundle was a low cost intervention, costing $349,000 for all 11 hospitals combined, or approximately $2500 for every 10,000 patient bed days affected by the intervention.

The economic case for investing in infection prevention

There is a strong economic case for hospitals to invest in measures that prevent healthcare-associated infections[6]. Patients who acquire an infection while in hospital require additional treatment with antibiotics, are likely to have longer length of stay and are more likely to die compared

with non-infected patients. Investing in measures that prevent infections can therefore save hospital resources for other uses and maximise health benefits for at-risk patients.

Our cost-effectiveness analysis therefore considered the potential cost savings from fewer infections under the cleaning bundle, as well as health benefits gained from fewer infection-related deaths. We consulted infectious diseases experts on the costs of treating SAB and VRE infections, and gathered evidence from the literature on expected patient outcomes due to infection. Patient health benefits were measured in quality-adjusted life years (QALYs), which represented years of life gained among patients who would have died from infection if the cleaning bundle was not implemented, adjusted for perceived health-related quality of life.

Lower infection rates observed from the REACH trial equated to the prevention of infection (SAB and VRE). Preventing these infections generated approximately $147,000 in cost savings over the trial (62 weeks). Approximately two-thirds of cost savings were attributed to the release of hospital bed days from fewer infections. When combined with implementation costs and estimated health benefits, our analysis showed that adopting the bundle had more than an 80% chance of being cost-effective, at an incremental cost of $4684 per QALY. This result corresponded to a net economic value of approximately $1 million in health benefits after accounting for implementation costs.

The results of our analysis provide strong evidence to support the allocation of hospital resources towards improving environmental cleaning practices. By implementing and evaluating the REACH cleaning bundle in a representative mix of Australian hospitals, we have provided decision-makers with information on the real-world costs of implementation and the cost-effectiveness of the cleaning bundle as an evidence-based strategy for reducing the burden of healthcare-associated infections.

The REACH study was funded by an NHMRC Partnership project grant GNT1076006, led by Queensland University of Technology and Wesley Medical Research. Industry partners were Ecolab, Kimberly-Clark Professional and Whiteley Corporation, who provided resources to support data collection.

References

1. Mitchell BG, Shaban RZ, MacBeth D, Wood C-J, Russo PLJI, Disease, Health. The burden of healthcare-associated infection in Australian hospitals: a systematic review of the literature. 2017; 22(3): 117-28.
2. Hall L, Farrington A, Mitchell BG, et al. Researching effective approaches to cleaning in hospitals: protocol of the REACH study, a multi-site stepped-wedge randomised trial. Implement Sci 2016; 11: 44.
3. Mitchell BG, Farrington A, Allen M, et al. Variation in hospital cleaning practice and process in Australian hospitals: A structured mapping exercise. Infect Dis Health 2017; 22: 195-202.
4. Mitchell B, Hall L, White N, et al. An environmental cleaning bundle to reduce healthcare-associated infection rates in hospitals: a randomized clinical trial. Lancet Infectious Diseases 2019; 19(4): 410-8.
5. White NM, Barnett AG, Hall L, et al. Cost-effectiveness of an environmental cleaning bundle for reducing healthcare associated infections. 2019.
6. Graves N. Economics and preventing hospital-acquired infection. Emerg Infect Dis 2004; 10(4): 561-6.

*Dr Nicole White is a Research Fellow at the Australian Centre for Health Services Innovation, Queensland University of Technology (QUT).

**Alison Farrington is Research Project Manager at the Australian Centre for Health Services Innovation, Queensland University of Technology (QUT).

***Professor Brett Mitchell is a Professor in Nursing at the School of Nursing and Midwifery, University of Newcastle.

About REACH

- 11 hospitals recruited from six states.
- Involved 6133 hospital beds and 1729 environmental services staff.
- Primary outcome: Weekly confirmed cases of healthcare-associated *Staphylococcus aureus* bacteraemia (SAB), *Clostridium difficile* infection (CDI) and vancomycin-resistant infection (VRE).

Components of the REACH cleaning bundle:

Training sessions delivered to environmental services teams including content on the impact of environmental cleaning on healthcare associated infections (HAI), cleaning roles and responsibilities and using the cleaning bundle.

Attention paid to cleaning technique, including the importance of a defined and consistent cleaning sequence, daily cleaning of the high-risk frequent-touch points and the use of sufficient pressure and movement.

Required use of disinfectant for all discharge cleans and for daily cleans of high-risk/precautions rooms; use of detergent for routine cleans; use of point-of-care wipes for medical equipment; and adherence to manufacturers' instructions for product use.

Monthly auditing of selected hospital rooms using UV fluorescent marker technology. Regular audit feedback was provided to environmental services teams and to clinical governance committees at each hospital.

Promotional activities to highlight the role and importance of environmental services staff. Activities encouraged daily contact between cleaning staff and ward leaders or managers and cleaning staff representation on relevant clinical governance committees.

Cleaning staff and hospital bed numbers

6133
hospital beds

1729
hospital staff

MALMET

AUSTRALIAN OWNED

Malmet is a leading Australian manufacturer of Washer Disinfectors, Blanket and Fluid Warming Cabinets, Drying Cabinets and Accessories.

We have been manufacturing hospital and aged care equipment since 1969, and supply hospitals and nursing homes throughout Australia and overseas through a comprehensive network of distributors and agents.

Malmet is a company belonging to the Celi Group of Companies, a privately owned and operated Australian family business.

All Malmet products are manufactured in Leeton, NSW an ISO 9001 and ISO 13485 certified site.

MALMET, THE AUSTRALIAN MANUFACTURER

WWW.MALMET.COM.AU

info@malmet.com

Reflecting on nurses' leadership role in antimicrobial stewardship: what does it look like, how does it work?

Leading role for nurses in antimicrobial stewardship

Fiona Gotterson*

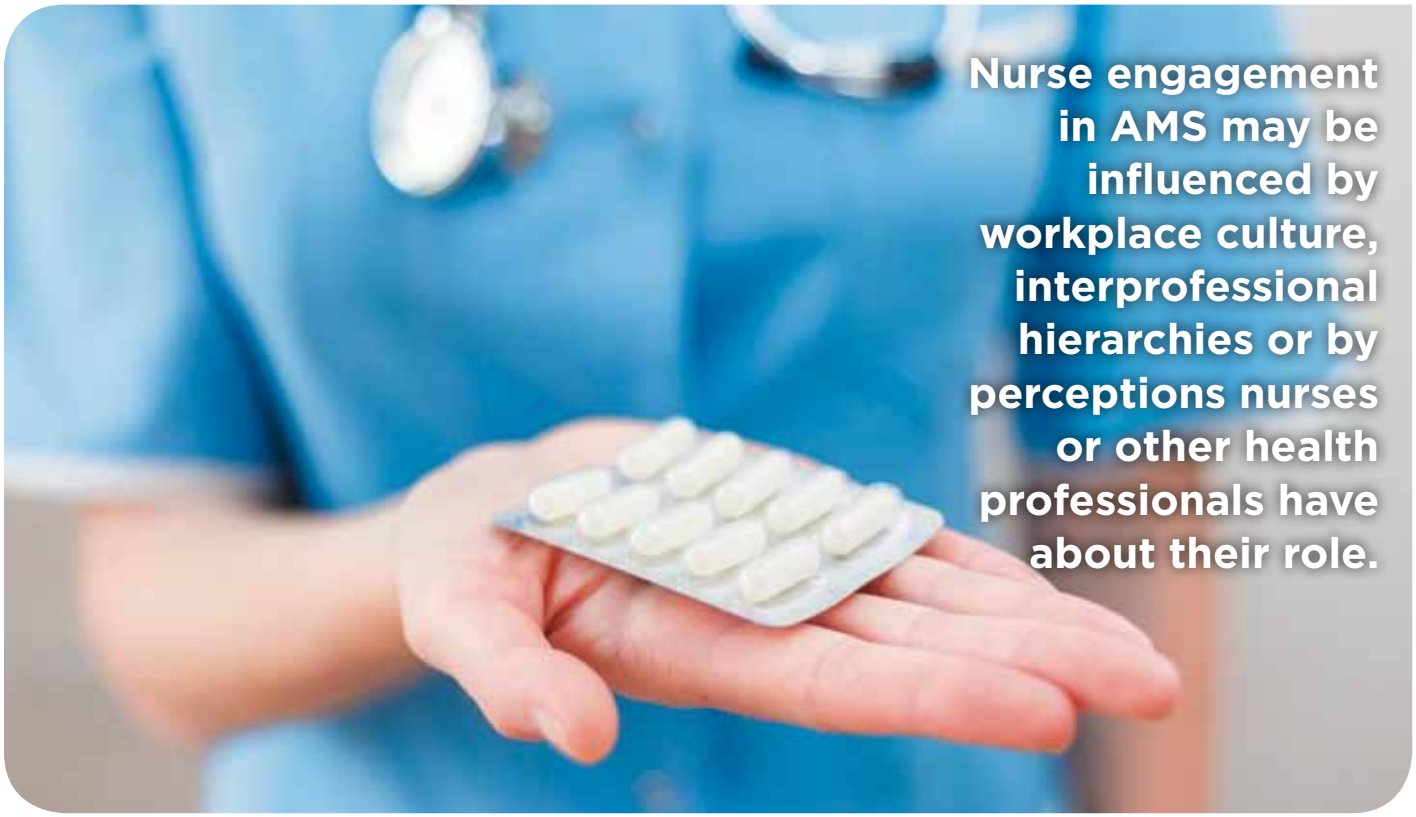
Antimicrobial stewardship (AMS) is an important element of a comprehensive infection prevention and control program. AMS aims to ensure that antimicrobials are used safely, so that people who require these medicines have the best possible outcomes. In hospital settings, AMS has been shown to improve appropriateness of antimicrobial prescribing, reduce unnecessary antimicrobial use and to positively impact rates of AMR.[1] AMS is multidisciplinary, which means it involves all health professionals who are involved in prescribing, dispensing or administering antimicrobials. This includes nurses.

Nurses may contribute to AMS in different ways; for example, by ensuring specimens for culture are taken, stored and transported correctly, by ensuring compliance with infection prevention and control measures, or by educating patients about safe antimicrobial use. Nurses may also have a leadership role in AMS. Nurses lead a range of programs and services in both acute and non-acute settings; however, the term "nurse-led" may mean different things.[2] Similarly, the concept of nurse leadership in relation to AMS is not well defined.

Anecdotally, there are examples of nurse-led AMS activities and programs in Australian hospitals, which appear to have been developed mostly in settings where specialist medical or pharmacist advice is limited or not available onsite, for example in small hospitals.[1] An unpublished survey by the Guidance Group in 2016 found that, of 254 respondent hospitals, 22 (9%) funded an infection control professional or nurse to manage AMS activities. However, leadership roles are not restricted to smaller hospitals; for example, at the Peter MacCallum Cancer Centre in Melbourne, a nurse practitioner candidate leads coordination of AMS.

Although few published studies have specifically explored nurses' leadership role in hospital-based AMS, there are some interesting findings. Considering nurses perceptions about their potential involvement in AMS, nurses see that their role in antimicrobial management is linked to patient advocacy,[3, 4] but also see that they require education, and look to nurse managers and educators as important sources of support.[4, 5] Regarding nurse-led AMS interventions, in Australian research, a nurse-led education intervention significantly improved nurse knowledge about AMS, and increased the number of nurses who agreed they would question, or had questioned, an antimicrobial order.[6] Finally, regarding nurse leadership of AMS programs, the role of nurses in advocating for patients, and applying their organisational and collaboration skills, were highlighted as important to the success of a nurse-driven AMS program which had been implemented in a South African hospital intensive care unit.[7]

These studies point to the potential for nurses to have a leadership role in AMS. But, detail about what enables nurses to fulfil such a role remains unexplored, despite that nurse-led programs appear to be well established in some settings. This lack of evidence limits understanding of how best to design, implement and sustain an AMS program that is nurse led. Unanswered questions are: What are the features of



nurse-led AMS? How do nurses establish and enact their leadership role? What are the facilitators of a nurse-led AMS program? How are nurse-led AMS programs best evaluated? What are the outcomes?

Education about AMS principles and practice is undoubtedly an important enabler for nurses in an AMS leadership role. However, education and training alone are unlikely to be enough to support nurses who hold AMS leadership responsibilities. Context is also important. Nurse engagement in AMS may be influenced by workplace culture, interprofessional hierarchies or by perceptions nurses or other health professionals have about their role.[3, 4, 8] Findings from studies exploring nurse led programs in other fields show that these same factors can determine the extent to which nurses exercise their leadership abilities.[2] Moreover, although there are established measures for monitoring the impact of AMS programs, these do not take into account the specific components of the nurse contribution, such as the communication, coordination and collaboration components of the nurse role, which have been identified as important concepts for measuring nursing practice.[9]

What nurse leadership in relation to AMS looks like, then, and how it works in practice, will very likely depend on the local context, resources that are available, and the nature and quality of professional support. Potential benefits of having nurses lead AMS interventions are apt to be similar to those associated with nurse-led initiatives in other areas, and may include improved clinical outcomes, a more patient centred approach to care and an engaged nursing workforce, enabled to more fully use and apply their nursing knowledge and skills.[2]

However, research is needed to enable a better understanding about nursing leadership of AMS, so that these benefits can be realised.

Current research at The National Centre for Antimicrobial Stewardship (NCAS) focuses on exploring nurse-led AMS programs in Australia, to understand how they work, what supports nurses to effectively lead a program and any challenges that are to be addressed. To learn more about this research, contact NCAS.

Footnote: Chapter 12 of the Australian Commission on Safety and Quality in Health Care's publication, Antimicrobial Stewardship in Australian Health Care,[1] discusses suggested approaches and considerations in the engagement of nurses in AMS, and to implementing nurse-led AMS activities. The publication includes links to many useful resources.

References

1. Australian Commission on Safety and Quality in Health Care (ACSQHC). Antimicrobial Stewardship in Australian Health Care. Sydney: ACSQHC, 2018
2. Douglas C, Schmalkuche D, Nizette D, Yates P and Bonner A. Nurse-led services in Queensland: A scoping study. *Collegian*. 2018; 25: 363-70.
3. Broom A, Broom J, Kirby E and Scambler G. Nurses as Antibiotic Brokers: Institutionalized Praxis in the Hospital. *Qualitative Health Research*. 2016; 30: 30.
4. Carter EJ, Greendyke WG, Furuya EY, et al. Exploring the nurses' role in antibiotic stewardship: A multisite qualitative study of nurses and infection preventionists. *American Journal of Infection Control*. 2018; 46: 492-7.
5. Mostaghim M, Snelling T, McMullan B, et al. Nurses are underutilised in antimicrobial stewardship - Results of a multisite survey in paediatric and adult hospitals. *Infection, Disease and Health*. 2017; 22: 57-64.
6. Gillespie E, Rodrigues A, Wright L, Williams N and Stuart RL. Improving antibiotic stewardship by involving nurses. *American Journal of Infection Control*. 2013; 41: 365-7.
7. Rout J and Brysiewicz P. Exploring the role of the ICU nurse in the antimicrobial stewardship team at a private hospital in KwaZulu-Natal, South Africa. *Southern African Journal of Critical Care*. 2017; 33: 46-50.
8. Edwards R, Drumright LN, Kiernan M and Holmes A. Covering more Territory to Fight Resistance: Considering Nurses' Role in Antimicrobial Stewardship. *Journal of infection prevention*. 2011; 12: 6-10.
9. Sim J, Crookes P, Walsh K and Halcomb E. Measuring the outcomes of nursing practice: A Delphi study. *Journal of Clinical Nursing*. 2018; 27: e368-e78.

This article is based on a presentation given by Fiona Gotterson at the 2018 ACIPC conference.

*Fiona Gotterson is a registered nurse and a PhD candidate at the National Centre for Antimicrobial Stewardship (NCAS) at the University of Melbourne. NCAS and its research is funded by the Australian NHMRC (APP1079625).

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.

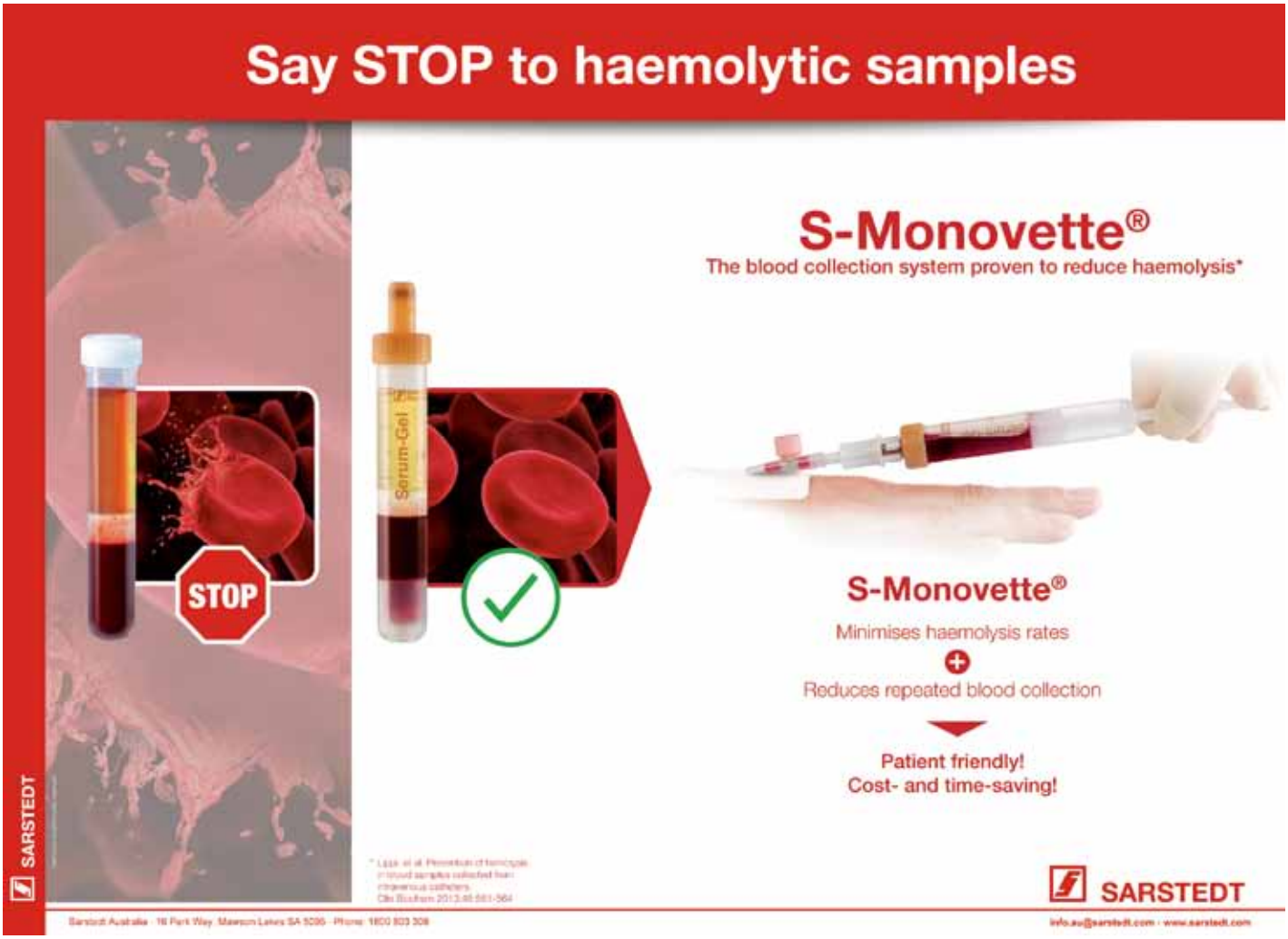
The S-Monovette® can also be used as an evacuated tube by drawing the plunger fully down and snapping it off immediately prior to blood collection. This creates a fresh vacuum and ensures a precise filling volume, ensuring a correct dilution ratio.

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.

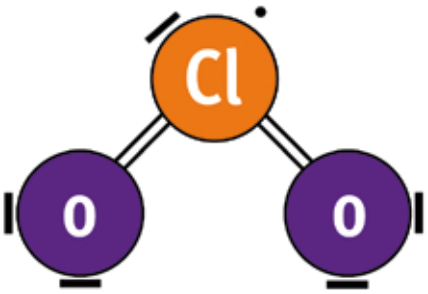
SARSTEDT

»
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.**



Chlorine dioxide

A better disinfection solution



EFFECTIVE IN CONTACT TIMES AS SHORT AS 30 SECONDS

ONE CONCENTRATION FOR ALL CLAIMS

BACTERICIDAL, VIRUCIDAL, YEASTICIDAL, MYCOBACTERICIDAL & SPORICIDAL

ORGANISMS CANNOT DEVELOP RESISTANCE

GOOD SAFETY PROFILE

Choosing a disinfectant for both medical devices and surfaces can be confusing. With so many different chemistries, modes of action, contact times, delivery methods, OH&S profiles and microbiological efficacies on offer, how do you select the right product?

Chlorine dioxide (ClO_2) has been used for decades as an effective disinfectant in a wide range of industries and is fast gaining recognition in the Australasian healthcare industry with an unparalleled reputation.

ClO_2 outperforms alternative chemistries, providing superior disinfection that can be tailored for various applications. Effective in exceptionally short contact times at lower concentrations, chlorine dioxide demonstrates a good safety profile whilst maintaining efficacy.

This makes it an ideal chemistry for use in healthcare, where fast, effective and simple disinfection is paramount.

What is chlorine dioxide?

Chlorine dioxide is an unusual molecule with structural bonding once thought to be impossible. The chlorine atom requires more bonds that it can physically withstand, which causes one of the electrons to be in constant exchange between the two oxygen atoms. This electron exchange is called Resonance and is the key reason why this chemistry is so unique. This constant vibration is a causative for why the oxidising agent can boast a broad-spectrum efficacy including bacteria, yeast, fungi, viruses, mycobacteria, protozoa and bacterial spores. Furthermore, microorganisms cannot build resistance to chlorine dioxide.

Surface disinfection

Chlorine dioxide is 263% more effective than conventional chlorine solution, one of the most commonly used surface disinfectants worldwide. Other chemistries such as alcohols or quaternary ammonium compounds (QACs) can provide reasonable efficacy against bacteria and fungi, but they are far less effective against viruses and mycobacteria and have no credible efficacy against bacterial spores in acceptable contact times.

Many disinfectant chemistries will successfully pass efficacy tests when tested under specific parameters. These can include clean or dirty conditions, cold or warm temperatures, extended contact times and high volumes of disinfectant liquid, meaning the tests are not always representative of real-life scenarios. Chlorine dioxide is effective within realistic user parameters.

Device disinfection

Oxidising agents such as ClO_2 are typically chosen for device disinfection due to their speed and broad-spectrum efficacy. However, substitute chemistries such as hydrogen peroxide and peracetic acid are known to be corrosive and potentially hazardous to clinical users. Medical devices have been successfully validated for disinfection using chlorine dioxide at ambient temperatures and low concentrations. Resulting in a safer user environment, and a longer life for the medical device itself.

Compatibility and safety

Chlorine dioxide is generated by combining base solution (citric acid) and activator solution (sodium chlorite) at point of use. This separation of solutions ensures that the chemistry is freshly generated and at its peak performance when applied to a medical surface. It also gives the product a long shelf life in comparison to other oxidisers. ClO_2 is known to be compatible with materials commonly found in medical equipment and environments and has an excellent health and safety profile when used at recommended levels.

Biofilm

Low concentrations of chlorine dioxide are effective against biofilm. Biofilm constitutes an aggregation of microbial species such as bacteria and fungi, which can accumulate on surfaces and cause infections. Biofilms are highly resistant to external factors such as disinfection and are a growing concern in infection control. The presence of biofilms in the lumens of medical devices can put patient lives at risk. Chlorine dioxide can induce a total and irreversible elimination of biofilm constituents (fixed bacteria, proteins and polysaccharides).

Tristel

Tristel has harnessed the power of chlorine dioxide, a proprietary formulation with unique delivery systems for the high performance of medical instruments and surfaces. To learn more about the power of chlorine dioxide and its applications, or to obtain the latest in studies and evidence for its use in disinfection, please don't hesitate to contact your local Tristel office, or visit www.tristel.com.

TRISTEL'S CHLORINE DIOXIDE (ClO_2) SOLUTIONS

THE ONLY COMPANY IN THE WORLD TO COMBINE A PROPRIETARY CHLORINE DIOXIDE FORMULATION WITH INNOVATIVE PACKAGING SOLUTION, FOR THE HIGH-PERFORMANCE OF MEDICAL INSTRUMENTS AND SURFACES

TRISTEL DUO OPH

FOR OPHTHALMIC MEDICAL INSTRUMENTS

TRISTEL DUO NCU

FOR NON-CRITICAL ULTRASOUND

TRISTEL RINSE ASSURE

FOR WATER USED IN ENDOSCOPE WASHER DISINFECTORS (EWDs)

ClO_2

STELLA

FOR SINGLE-LUMENED & NON-LUMENED ENDOSCOPES AND PROBES

TRISTEL JET

FOR SURFACES

TRISTEL TRIO

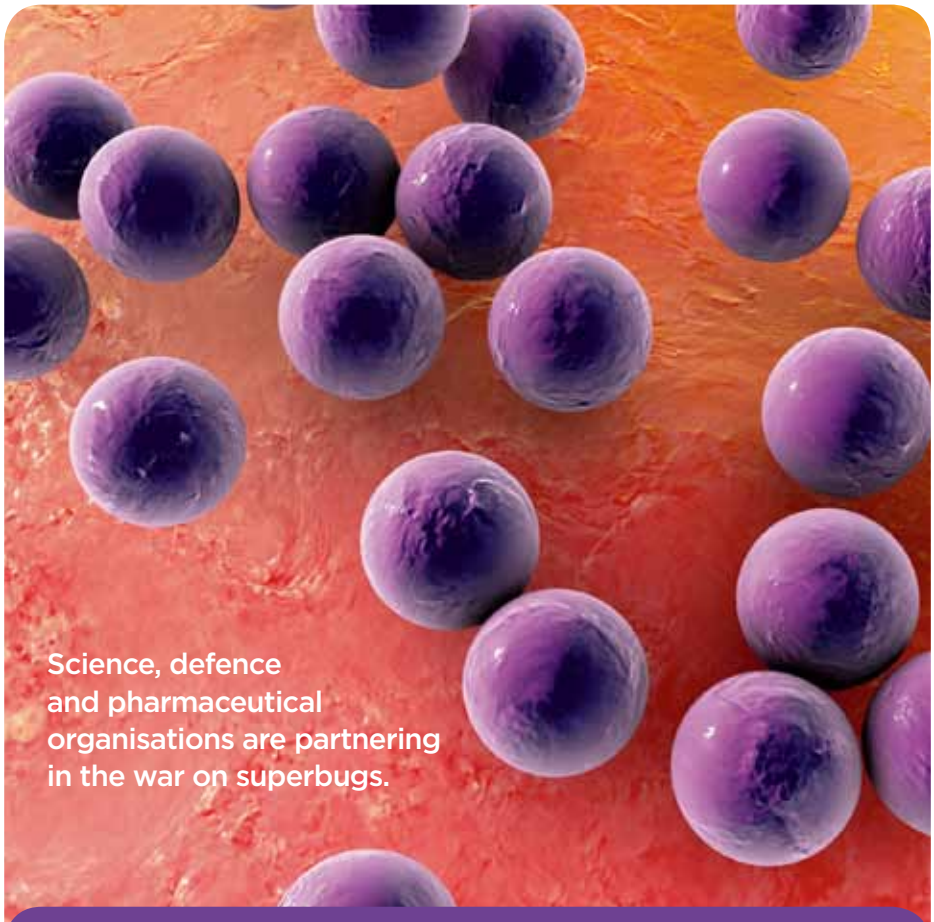
FOR NON-LUMENED, SEMI-CRITICAL ENDOSCOPES AND PROBES

Tristel™

WE HAVE CHEMISTRY.

TRISTEL NEW ZEALAND: +64 (0) 7 5771560 & info@tristel.co.nz
TRISTEL AUSTRALIA: 1300 680 898 & mail-au@tristel.com

Mkt-A01-934-1



Science, defence and pharmaceutical organisations are partnering in the war on superbugs.

Safe from superbugs

Jacqui Jones

Antibiotic resistance is a key challenge for effective infection control in hospital settings, whether in our cities, rural areas or field hospital settings.

Australia's national science agency, CSIRO, is working with Perth-based company Boulos & Cooper Pharmaceuticals and Melbourne-based DMTC (formerly the Defence Materials Technology Centre) on keeping civilians and service personnel safe from superbugs.

Early-stage trials have shown the drug Ramizol, developed by Boulos & Cooper Pharmaceuticals, to be effective against *Clostridium difficile* infection (CDI), an increasingly common hospital-acquired infection in both military field hospital and public health settings.

Specifically, Ramizol is particularly active against Gram-positive bacteria, which enables it to potentially treat other bacterial infections.

Biomedical manufacturing researchers at CSIRO are testing innovative chemical processing techniques to create the desired compound in the amounts required for effective use. DMTC sees the collaborative project as critical to validating a safe and cost-effective production process for the new drug compound, but also as a strategic investment in sovereign manufacturing and industrial capability, ensuring intellectual property and industrial expertise remains in-country.

CSIRO project leader, organic chemist and principal research scientist Dr Adam Meyer said his work looked at the development of a robust, reproducible, cost-effective and safe process suitable for the production of Ramizol at scale.

"Companies partner with CSIRO because we have significant drug discovery capabilities and can improve chemical processes," Dr Meyer said.

"We can develop and transfer a laboratory-scale process to pilot plant-scale, and on to commercial production."

Dr Meyer said there were several exciting aspects to Ramizol, one being its mode of action.[1]

Ramizol targets a form of 'relief valve' specifically found in bacteria called the 'mechanosensitive ion channel of large conductance' (MscL), which opens when pressure within the bacteria gets too much.

Ramizol makes this relief valve open more frequently and stay open longer than it ordinarily would, leading to loss of important solutes and osmolytes and making it effective against the CDI superbug.

"Basically, by having this mode of action you have less chance of resistance developing," Dr Meyer said.

CDI is classified as 'urgent-level' by the US Department of Health and Human Services' Centers for Disease Control and Prevention (CDC) — its highest category of threat level — declaring it "an immediate public health threat that requires urgent and aggressive attention".[2]

CDI is the main cause of diarrhoea in hospitals, causing more than 14,000 deaths a year in the US alone.[3] These figures are expected to significantly rise in the coming years as antibiotic resistance increases.

"CDI is becoming increasingly resistant to current antibiotics and Ramizol shows great promise in curbing this resistance," Dr Meyer said.

Dr Meyer said another benefit was that the early-stage trials showed Ramizol to be a clinically stable drug.

"Ramizol can be stored at room temperature so you don't have to worry about it decomposing, which obviously saves on transportation costs as you don't have to refrigerate it," he said.

"The storage, ease of transport and stable nature of the compound makes it particularly useful in field hospitals, which is a relevant consideration in both military and humanitarian or disaster-relief scenarios."

The project is part of DMTC's Medical Countermeasures program — a national and multidisciplinary effort to harness Australian technologies, leverage expertise and deploy skills in priority areas to support Australian defence and national health security outcomes.

Medical countermeasures include vaccines, therapeutics and diagnostics for the protection of military and civilian personnel against chemical, biological and radiological (CBR) threats, emerging infectious diseases and pandemics.

The program is bringing together best-practice industrial expertise and relevant public sector and research agency inputs under DMTC's proven model of collaboration and co-investment from all partners.

References

1. Iscla I, Wray R, Blount P et al. 'A new antibiotic with potent activity targets MscL'. Journal of Antibiotics, 2015, 68, 453-462.
2. US Centers for Disease Control and Prevention. Antibiotic resistance threats in the United States. Georgia: Centre for Disease Control and Prevention. 2013, p7.
3. US Centers for Disease Control and Prevention. Antibiotic resistance threats in the United States. Georgia: Centre for Disease Control and Prevention. 2013, p17.

Image courtesy of SC Johnson Professional.

Why can't we seem to say goodbye to poor hand hygiene

We know washing our hands is good practice. We know it's one of the most effective ways to prevent the spread of infections within healthcare settings. So why is hand hygiene compliance still an issue?

According to an American Hospital Association publication, there are ten primary causes of poor hand hygiene:

1. Ineffective placement of dispensers or sinks.
2. Hand hygiene compliance data are not collected or reported accurately or frequently enough.
3. Lack of accountability and just-in-time coaching.
4. The safety culture does not stress hand hygiene at all levels.
5. Ineffective or insufficient education.
6. Health providers, such as those carrying supplies, have their hands full.
7. Wearing gloves that interfere with hand hygiene.
8. The perception that hand hygiene is not needed if wearing gloves.
9. Healthcare workers forget to perform hand hygiene.
10. Distractions.

The Centers for Disease Control and Prevention (CDC) reports that some healthcare providers clean their hands less than half the times they should. Why? It might have something to do with the number of times a healthcare worker is 'supposed' to wash their hands in a day when following proper infection prevention practices. According to the World Health Organization's (WHO) 'My 5 Moments for Hand Hygiene' healthcare workers must wash their hands in each the following situations:

1. Before touching a patient.
2. Before any procedure.
3. After bodily fluid exposure.
4. After touching a patient.
5. After touching a patient's surroundings.

That seems like a lot of handwashing considering the number of patients a healthcare worker in a high-acuity unit interacts with during a shift. With this list of reasons for poor hand hygiene, it doesn't seem that surprising why hand hygiene might still be an issue.

Fortunately, there are products and systems on the market to help make this task as easy as possible for healthcare professionals. First is the acceptance of alcohol-based handrubs as an effective means of handwashing over the past few years. In fact, according to the CDC, alcohol-based handrubs are now the preferred method for hand cleaning within healthcare facilities (except in cases of *C. difficile*) because of their effectiveness at killing potentially deadly germs on hands in less time and, with some products, added moisturisers to protect the skin from drying, such as Cutan Alcohol Foam antiseptic handrubs.

Second is the addition of consistent education and reminders that can be included around the hospital to help remind healthcare workers to wash their hands. These reminders can help keep hand hygiene at the forefront of a healthcare worker's mind.

While the standards and opportunities for hand hygiene remain the same in healthcare, the availability of more efficient products and programs have made it an easier task for staff to comply with. Proper hand hygiene and sustained compliance are necessary when working in healthcare to ensure the health and safety of staff and patients. It is well known that hand hygiene has an enormous impact on patient safety and the performance of the hospital, so following all 5 Moments is the first step in overcoming poor hand hygiene practices.

Measles and the modern age

The rise of vaccine-preventable diseases

Dr Cristina Sotomayor-Castillo*, Jeremy Malik**

and Professor Ramon Z Shaban***

Despite decades of dedicated work, vaccine-preventable diseases are on the rise. One noteworthy example is measles, a highly contagious disease caused by a paramyxovirus that is easily transmitted by airborne droplets through coughing and sneezing.[1] Prior to the implementation of widespread vaccination programs, measles accounted for an estimated 2.6 million deaths annually across the globe, with young children and pregnant women identified as highly susceptible populations.[2,3] The incubation period of infection is typically 10 to 18 days, with the onset of typical symptoms such as fever, runny nose, cough, red eyes, sore throat and a classic red maculopapular rash over the body starting. People with measles are considered infectious from four days before, and until four days after, the onset of the classic generalised red maculopapular rash. In addition to the classical symptoms described, some patients experience significant and serious complications including diarrhoea, otitis media, pneumonia, encephalitis, seizures and even death.[4] A small number of patients may develop a rare, fatal complication of measles called subacute sclerosing panencephalitis (SSPE).[5]

The substantial global burden of measles infection in the 1960s spearheaded global vaccination efforts that saw the mandating of measles-containing vaccines in schedules for childhood vaccinations around the world.[6,7] In 2010, the WHO set three milestones for measles prevention to be achieved by 2015: i) routine coverage increase with the first vaccine dose of measles-containing vaccine (MCV1) among children aged one year old to ≥90% at every country; ii) reduce global annual measles incidence to <5 cases per million population; and iii) reduce global measles mortality by 95% from the 2000 estimate. In 2012, the WHO endorsed the Global Vaccine Action Plan (GVAP), with the objective of eliminating measles in four of the six WHO regions by 2015 and in five regions by 2020. Countries in all six WHO regions have adopted goals for measles elimination by 2020.[8] Progress has been made in regard to global vaccine coverage (from 72% to 85% increase) and 80% decrease on associated annual deaths. Since 2013, measles containing vaccine 1st dose (MCV1) coverage has remained relatively constant in the African Region (69%–70%), the Americas (92%), the European Region (93%–95%) and the Western Pacific Region (96%–97%); this last one is the only one to achieve and sustain >95% MCV1 coverage since 2006. During 2013–2017, MCV1 coverage increased from 78% to 81% in the Eastern Mediterranean Region and from 84% to 87% in the South East Asian Region.[9] The success and yield of these efforts were especially apparent in the regions of the Americas[10] and Europe[11]; measles was eliminated from the US, meaning absence of continuous disease transmission for 12 months

Australia has not escaped the resurgence of measles. In 2018 there were 103 confirmed cases of measles, with 150 confirmed cases this year as of the end of July 2019.

or more, in 2000. By 2016, the World Health Organization (WHO) had declared measles eliminated from the Western Hemisphere.

However, measles is once again on the rise. Though the global number of measles cases reported during 2000–2017 decreased by 80%, there has since been a recent sharp rise in the burden of the infection, with an astonishing 31% increase in measles cases worldwide since 2017.[9] Globally, 20.8 million infants did not receive MCV1 through routine immunisation services in 2017, with Nigeria, India, Pakistan, Indonesia, Ethiopia and Angola having the highest rates of unvaccinated children. This outbreak has been fuelled by the low historical and current vaccination coverage in particular populations, a rise in vaccine hesitancy[12], increasing global travel to countries where measles is endemic and those where outbreaks are documented.[13] Unvaccinated and non-immune travellers to these endemic areas of the world are at significant risk of contracting the infection and later on acting as vectors.

Australia has not escaped the resurgence of measles. In 2018 there were 103 confirmed cases of measles, with 150 confirmed cases this year as of the end of July 2019.[14] Unvaccinated and non-immune residents are susceptible to imported measles from visitors and travellers to highly endemic countries such as Thailand, Vietnam, Bangladesh, India, Philippines, Papua New Guinea, the Pacific Islands and Malaysia.[15]

The rise of measles is a significant global public health concern. In response, some jurisdictions have instituted strong and socially robust interventions as seen in March this year in the US, where a particular county in New York state barred unvaccinated children from public spaces, risking a fine of US$500 and up to six months in prison. Later in June, a bill was passed in New York to eliminate religious exemption claims which used to allow children to forgo vaccinations that are normally required for school. Building trust in vaccination programs is crucial to maintaining high immunity rates; broad community-based education programs reminding of the existence of these diseases throughout the world are key to reduce the gaps in vaccine coverage. Without these and other interventions, measles and other vaccine-preventable diseases will continue to rise, threatening the health of individuals and communities globally.

References

1. Lindberg C, Lanzi M, Lindberg K. Measles: Still a Significant Health Threat. MCN *Am J Matern Child Nurs*. 2015;40(5):298-305; quiz E21-2.
2. Goodson JL, Seward JF. Measles 50 Years After Use of Measles Vaccine. *Infect Dis Clin North Am*. 2015;29(4):725-43.
3. World Health Organization. Measles. WHO; 2019 [updated 9 May 2019; cited 19 Aug 2019]. Available from: https://www.who.int/news-room/fact-sheets/detail/measles
4. Arguedas AG, Deveikis AA, Marks MI. Measles. *Am J Infect Control*. 1991;19(6):290-8.
5. Wendorf KA, Winter K, Zipprich J, Schechter R, Hacker JK, Preas C, et al. Subacute Sclerosing Panencephalitis: The Devastating Measles Complication That Might Be More Common Than Previously Estimated. *Clin Infect Dis*. 2017;65(2):226-32.
6. Greenwood B. The contribution of vaccination to global health: past, present and future. *Philos Trans R Soc Lond B Biol Sci*. 2014;369(1645):20130433.
7. Markowitz LE, Orenstein WA. Measles vaccines. *Pediatr Clin North Am*. 1990;37(3):603-25.
8. World Health Organization. Progress towards regional measles elimination - worldwide, 2000 - 2017. WHO; 2018 [updated 30 Nov 2018; cited 29 July 2019]. Available from: https://apps.who.int/iris/bitstream/handle/10665/276217/WER934pdf?ua=1
9. World Health Organization. Measles and Rubella Surveillance Data WHO website: WHO; 2019 [updated 12 Aug 2019; cited 17 June 2019]. Available from: https://www.who.int/immunization/monitoring_surveillance/burden/vpd/surveillance_type/active/measles_monthlydata/en/
10. Moss WJ. Measles. *Lancet*. 2017;390(10111):2490-502.
11. World Health Organization Regional Office for Europe. Measles cases hit record high in the European Region [updated 20 Aug 2018; cited 17 July 2019]. Available from: http://www.euro.who.int/en/media-centre/sections/press-releases/2018/measles-cases-hit-record-high-in-the-european-region
12. Mundasad S. Measles resurgence 'due to vaccine hesitancy', WHO warns. BBC News [newspaper on the internet. 2018 Nov 29; cited 17 July 2019]. Available from: https://www.bbc.com/news/health-46387167
13. Krishnamoorthy Y, Sakthivel M, Eliyas SK, Surendran G, Sarveswaran G. Worldwide trend in measles incidence from 1980 to 2016: A pooled analysis of evidence from 194 WHO Member States. *J Postgrad Med*. 2019.
14. Australian Government. National Notifiable Diseases Surveillance System. Department of Health 2019. [updated 17 Aug 2019; cited 20 Aug 2019]. Available from: http://www9.health.gov.au/cda/source/rpt_3.cfm
15. Thapa A, Khanal S, Sharapov U, Swezy V, Sedai T, Dabbagh A, et al. Progress Toward Measles Elimination - South-East Asia Region, 2003-2013. *MMWR Morb Mortal Wkly Rep*. 2015;64(22):613-7.

*Dr. Cristina Sotomayor-Castillo is a Senior Research Officer at the Susan Wakil School of Nursing and Midwifery and Marie Bashir Institute for Infectious Diseases and Biosecurity, The University of Sydney.

**Mr Jeremy Malik is a Research Affiliate at the Susan Wakil School of Nursing and Midwifery and Marie Bashir Institute for Infectious Diseases and Biosecurity, The University of Sydney.

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

A hand in infection control

Alan Stocker*

Automated systems can help minimise cross-contamination in hospitals and aged-care facilities.

One of the biggest problems facing hospitals and aged-care facilities is cross-contamination that results in healthcare-associated infections. These infections can become very serious, with so-called superbugs becoming more difficult to treat due to their resistance to antibiotics. These multi-resistant organisms have the potential to prolong an otherwise uneventful stay in hospital and can even risk the patient's life.

One of the best ways to keep these superbugs and other cross-contamination under control is also one of the simplest: health practitioners must comply with rigorous and continuous hand hygiene best practices. In other words, regularly and thoroughly washing one's hands after working with patients can help keep hospitals and aged-care facilities healthier.

However, busy and overwhelmed healthcare practitioners may not always adhere to best practices as thoroughly as they should. It can be easy to forget to practise proper hand hygiene, especially when providing urgent care or when looking after a high number of patients at once.

Monitoring behaviour can help ensure that health practitioners comply with hand hygiene requirements. According to the World Health Organization (WHO), the gold standard for evaluating compliance on hand hygiene practices is being directly and unobtrusively observed by a trained observer.[1]

However, in practice this can be unrealistic for many health providers who don't have the resources to devote to such monitoring. Furthermore, even though compliance rates have been shown to increase for the duration of human observation, they tend to drop when that observation ends. In a facility with hundreds or even thousands of hand hygiene stations, human observation can only provide statistical sampling at best, meaning a better solution is needed.

The cost- and time-effective alternative for most facilities is an automatic hand hygiene monitor, which can report on metrics such as how often practitioners visit a hand hygiene station and can encourage compliance in real time. Proactive reminders are more effective than static ones such as posters or signs, and can turn positive hand hygiene behaviours into ongoing good habits.

Automatic monitoring can also help hospitals and aged-care facilities identify their biggest cross-contamination risks so that they can act appropriately to reduce those risks.

Hand hygiene isn't the only factor in infection control. Managing and tracing assets effectively can also play a significant role in preventing the spread of infections. Being able to accurately trace where equipment is in the facility and which patients it has come into contact with can help if an infection is discovered. Healthcare staff can monitor the other patients who have been in contact with the contaminated equipment and even provide prophylactic antibiotics if appropriate.

Automatically tracking assets using tags eliminates the potential for human error and ensures that no patient or piece of equipment is overlooked in the fight against infections and cross-contamination.

Similarly, tracking patients or residents and their movements throughout the facility can also help identify whether they've been at risk of cross-contamination. By understanding the path of the infection, facilities can potentially contain it without having to shut down the facility and without causing unnecessary panic or concern among those who are not at risk.

Furthermore, an automated tracking system can dramatically reduce the response time to a cross-contamination incident. This means the staff can begin to contain the infection sooner, which will result in fewer people being affected.

Facilities can also consider environmental monitoring to maintain conditions that aren't conducive to bacteria and infections. Keeping airflow contained and at optimum temperatures can reduce the risk of airborne infections taking hold.

Keeping surgical instruments sterile is also essential and can be made easier with automated tracking systems that alert staff members if a step in the sterilisation process has been missed. These automated solutions eliminate the risk of human error and help keep cross-contamination and healthcare-associated infections at bay.

Reference

1. https://www.who.int/gpsc/5may/monitoring_feedback/en/

*Alan Stocker is Health Practice Lead at Wavelink.

How correct ultrasound disinfection procedures protect patients

Jon Burdach, PhD
Head of Clinical Affairs, Nanosonics Limited

Introduction

Correct disinfection of reusable medical devices including ultrasound probes is important to prevent infection transmission. The number of ultrasound procedures is rapidly increasing and the need to keep up to date on reprocessing requirements may be challenging for some ultrasound users.

In Australia, ultrasound is increasingly utilised as an imaging modality across a broad range of health care departments/specialties. Many of these probes may be used on intact skin, non-intact skin or mucous membranes or could even occasionally contact sterile tissue. This presents a complex challenge as contact with these various body sites necessitates different levels of disinfection (e.g. low level disinfection or high level disinfection) prior to the probe's use.

Procedures are now taking place in different hospital inpatient and outpatient departments by health professions which include sonographers, physicians, nurses, anaesthetists, interventional radiologists, OBGYNs, nurse practitioners, and physician assistants. This has resulted in an increased use of surface probes for semi-critical and critical procedures such as biopsies, cell retrieval, cannulation, catheterisation, injections, ablations, surgical, aspirations and drainages.

Risks

Recent publications have highlighted the risk of using ultrasound if proper disinfection procedures are not followed.

In 2012, a patient died from a hepatitis B infection which was likely to have been caused by a failure to appropriately decontaminate a transoesophageal echocardiography probe between each patient use. As result of this fatality, an alert was released by the UK medical devices regulatory agency advising users to appropriately decontaminate all types of reusable ultrasound probes.[1]

Furthermore, according to a 2017 study carried out by National Health Services Scotland, patients were 41% more likely to receive positive bacterial cultures after a transvaginal scan when probes were only low level disinfected.[2]

Users should not only be concerned about correct probe disinfection, but also probe handle disinfection as a study found that probe handles are not routinely disinfected and 80% were found to be contaminated.[3]

Another important point for consideration is that while many sonographers believe that their transvaginal ultrasound patients are protected from infection risk by using barrier shields, and/or condoms, research has shown that up to 9% leak.[4-7] Australian guidelines require that these probes undergo high level disinfection (HLD) even when a sheath is used.[8]

Correct reprocessing

The diverse use of ultrasound probes is now prompting a renewed focus on correct probe reprocessing to ensure patient safety.

The ACIPC-ASUM Guidelines on the reprocessing of ultrasound probes (released February 2017) follow Australian and New Zealand standards (AS/NZS 4187:2014 and AS/NZS4815:2006). These guidelines are a world first joint guideline between an infection prevention and ultrasound society and form the minimum recommended practice for reprocessing ultrasound probes in Australia. They highlight that to ensure best practice standards, infection preventionists and ultrasound users need to work together to reduce the risk of infection that is associated with using ultrasound probes.

It's not just intracavity probes that require HLD

Guidelines from around the world, including those here in Australia, require ultrasound probes that come into contact with mucous membranes and non-intact, broken skin, to be high level disinfected.[8-15, 17]

A number of guidelines even specifically outline that automated validated processes for ultrasound reprocessing are the preferred option. This is supported by a study relating to manual disinfection methods which found that only 1.4% were fully compliant when using manual methods compared to 75.4% when using semi-automated disinfection methods.[16]

Conclusion

Ultrasound users should work with their infection prevention colleagues to understand current Australian guidelines and standards for reprocessing ultrasound probes. While the expansion of ultrasound carries potential infection control challenges, proper education is key to maintaining patient safety and minimising the risk of infection.

References: 1. Medicines and Healthcare Products Regulatory Agency (UK). Medical Device Alert: Reusable transoesophageal echocardiography, transvaginal and transrectal ultrasound probes (transducers) (MDA/2012/037), 2012. 2. Health Protection Scotland, NHS National Services Scotland. NHSScotland Risk Based Recommendations for the Decontamination of Semi-Invasive Ultrasound Probes: Risk of infection following semi-invasive ultrasound procedures in Scotland, 2010 to 2016. Version 1.0. October 2017. Accessible at http://www.hps.scot.nhs.uk/pubs/detail.aspx?id=3366. 3. Ngu A. et al. Reducing Transmission Risk Through High-Level Disinfection of Transvaginal Ultrasound Transducer Handles, Journal for Infection Control & Hospital Epidemiology, volume 36, May 2015. 4. Amis S et al. Assessment of condoms as probe covers for transvaginal sonography. J Clin Ultrasound 2000;28(6):295–8. 5. Milki A A and Fisch JD. Vaginal ultrasound probe cover leakage: implications for patient care. Fertil Steril 1998;69(3):409–11. 6. Storment J M et a l. Ineffectiveness of latex condoms in preventing contamination of the transvaginal ultrasound transducer head. South Med J 1 997;90(2):206–8. 7. Masood J et al. Condom perforation during transrectal ultrasound guided (TRUS) prostate biopsies: a potential infection risk. Int Urol Nephrol 2007;39(4):1121–4. 8. ACIPC-ASUM. Guidelines for Reprocessing Ultrasound Transducers. Australasian Journal of Ultrasound in Medicine. 2017;20(1):30-40. 9. Society and College of Radiographers (SCoR) and British Medical Ultrasound Society (BMUS). Guidelines For Professional Ultrasound Practice. Section 1.7: Transducer Cleaning and Disinfection. Revision 2, December 2017. Available at: https://www.bmus.org/static/uploads/resources/SCoR__BMUS_Guidelines_for_Professional_Ultrasound_Practice_Revised_Dec_2017_cG4AOnF.pdf. 10. Nyhsen CM, Humphreys H, Koerner RJ, Grenier N, Brady A, Sidhu P, et al. Infection prevention and control in ultrasound - best practice recommendations from the European Society of Radiology Ultrasound Working Group. Insights Imaging. 2017:doi: 10.1007/s13244-017-0580-3. 11. European Committee for Medical Ultrasound Safety (ECMUS). Best Practice recommendations for cleaning and disinfection of ultrasound transducers whilst maintaining transducer integrity.: 2017. 12. Health Facilities Scotland, NHS National Services Scotland, Health Protection Scotland. Scotland, March 2016. NHSScotland Guidance for Decontamination of Semi-Critical Ultrasound Probes; Semi-invasive and Non-invasive Ultrasound Probes. Document: HPS/HFS Version 1.0. 13. World Federation for Ultrasound in Medicine and Biology. 14. Health Service Executive (HSE) Quality Improvement Division – Decontamination Safety Programme. Ireland, January 2017. HSE Guidance for Decontamination of Semi-critical Ultrasound Probes; Semi-invasive and Noninvasive Ultrasound Probes. Document: QPSD-GL-028-1. 15. Welsh Health Technical Memorandum WHTM 01-06. Wales, 2014. Decontamination of flexible endoscopes Part C: Operational management (Including guidance on non channelled endoscopes and ultrasound probes). 16. Ofstead, CL et al., Endoscope reprocessing methods: A prospective study on the impact of human factors and automation. Gastroenterology Nursing, 33:304–11, 2010. 17. Rutala WA, Weber DJ, Healthcare Infection Control Practices Advisory Committee (HICPAC), Centre for Disease Control and Prevention (CDC). Guideline for Disinfection and Sterilization in Healthcare Facilities. USA: Centers for Disease Control 2008. MM01199-ANZ-ART V01

Always follow the manufacturers instructions for use.

Family first

This Sydney hospital has transformed its maternity spaces to cater to the growing role fathers play in the lives of their newborn children.

Cultural attitudes to fathers have shifted: fathers are now expected to play an active role in everything from pregnancy and labour to caring for their newborns and growing children. Studies have shown that, for children, there are life-long health benefits that come with their fathers participating in raising them, particularly in the early days. Research has also found that getting dads to interact with their babies from the very beginning can have long-term, positive effects on the health and lifestyles of both parents.

Cooperative parenting is an approach many institutions and industry stakeholders are now advocating — including Britain's Fatherhood Institute. With this approach, both father and mother are actively involved with raising their children from the get-go. As centres that care for new mothers in the first few days after their babies are born, hospitals have a significant role to play here: they are perfectly positioned to help new parents establish positive, involved relationships with their babies.

Cooperative parenting in action

This was something one Sydney private hospital had in mind when it came time to renovate their maternity unit. It had been constructed some 20 years previously, and, with revitalisation work on the cards, it was the ideal opportunity for the hospital to create an environment that supports not only new mothers, but also new fathers and other family members.

Five babies are now born here every day, and mothers stay, on average, four nights; five if they deliver babies via caesarean section. Births — whether by natural delivery, planned or emergency caesarean section — are intense, laborious and often painful experiences. Rest, comfort and support from caregivers, new fathers and other family members are therefore vital for new mothers in those initial days spent in hospital.

The right support

Support is important not only for the children themselves, but also for new mothers. Various studies have found that patients are less anxious and that their physical and mental health improves faster if a family member is present in their hospital room.

"Supporting people is very important in our maternity ward, in order to reduce anxiety levels...and to give mothers some rest," agrees the maternity manager at the Sydney private hospital in question.

According to the maternity manager, "It's useful for fathers to get used to baby being around." Indeed, for both fathers and mothers, those few days in hospital after the birth offer an ideal opportunity to familiarise themselves with their new arrival — and it's a time during which nurses and midwives can teach parents the skills they need to confidently look after their newborns once they get home.

It makes sense, then, that this private hospital wanted to create space in each room for a family member to stay with the new mother — and this renovation presented an opportunity for them to do so in an environment that, in being comfortable, sets the scene for support and for an effective learning experience.

"It's great to have partners staying to support the mothers overnight," says the maternity manager. "Especially for new parents, as they both need to experience looking after babies overnight."

Functional furniture

At this Sydney private hospital, more space wasn't an option. "We needed to look at how to use existing space well to accommodate needs of clients," says the maternity manager.

This was where efficient, multipurpose furniture could help. Herman Miller Healthcare supplied the hospital with pieces from the SleepOver collection, which are versatile and multipurpose by design. The SleepOver range consists of sofas, benches and armchairs that easily convert into comfortable bedding. They can also be used for work and dining, all without expanding their footprint.

Antimicrobial finishes and easy-to-clean surfaces also make the SleepOver collection a fitting choice for hospital rooms, keeping infection risks well under control.

The SleepOver Bench has been particularly successful in the hospital's postnatal ward. As a bench, it can seat several people at once — perfect for when family and friends come to see the new baby — and at night, it quickly and easily converts into somewhere partners can sleep.

"People have been asking us where they come from, as they are interested in them for home," says the maternity manager. "And midwives like them also because it's easy to use them, and they fold away well."

Post-renovation, the maternity ward has six birthing rooms and 28 private maternity ward rooms that are "Fresh and modern," she continues. "There's good use of furniture within these spaces, and the dads seem to be quite comfortable."

»
For more information visit
www.hermanmiller.com.au

SleepOver® 1.2.3

SleepOver Seating & Bench

Designed for healthcare environments where space is limited, the SleepOver Seating quickly transforms from a traditional looking chair to a single sleep surface — with no mechanisms needed. SleepOver Bench can seat multiple people or easily convert to a space for one person to sleep, providing a versatile, compact solution for healthcare environments.

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

Sustainable design transforming health care

Jonathan Cartledge*

Dubbed a "sustainability superstar" by a national property awards judging panel, the $1.8 billion Sunshine Coast University Hospital is setting the standard for green health care in Australia.

Sunshine Coast University Hospital

Sunshine Coast University Hospital

Just 1% of the 2000-plus Green Star buildings around Australia are in the healthcare sector. Most of Australia's greenest buildings are offices.

But if banks and law firms can reap the rewards of sustainable, healthy workplaces, then why can't doctors, nurses and — most importantly of all — sick people?

We now have more than two decades of research, thousands of demonstration projects and a solid business case for sustainable design. We know green buildings aren't just healthy for the environment, but also for the people who use them.

Our ageing healthcare facilities — with their around-the-clock operations, extensive air conditioning and specialist medical equipment — are notorious energy-guzzlers and water users. Hospitals use at least twice as much energy and around six times as much water per square metre as commercial office buildings.

The Australian Sustainable Built Environment Council, for example, has found the 'archetypal hospital ward' consistently consumes more energy than any other building type and has some of the biggest opportunities for improvement.

We know buildings certified under the Green Star sustainability rating system use 66% less electricity than average Australian buildings, produce 62% fewer emissions and consume 51% less potable water than those built to meet code.

And we know, from analysis undertaken in 2018, that Green Star-rated hospitals prevent around 35,000 tonnes of greenhouse gases from entering the atmosphere each year — equivalent to more than 4000 households' emissions.

The carbon-reduction case for green healthcare facilities is compelling, but pales in comparison with the patient and staff productivity outcomes.

One study undertaken by the Mackenzie Health Sciences Centre in Canada found that depressed patients in sunny rooms recovered 15% faster than those in darker rooms.

The Inha University Hospital in Korea achieved a 41% reduction in average length of stay when patients stayed in sunlit rooms.

Medical errors fell by 30% at the Barbara Ann Karmanos Cancer Institute in Detroit after hospital administrators installed acoustic panels to decrease noise.

And the Bronson Methodist Hospital in Michigan found that better ventilation, natural light, access to nature, music and privacy in its redevelopment project reduced secondary infections by 11%.

The body of evidence for practitioner productivity is also growing. Just one study from Harvard University found that green-rated buildings enhanced productivity by 26%.

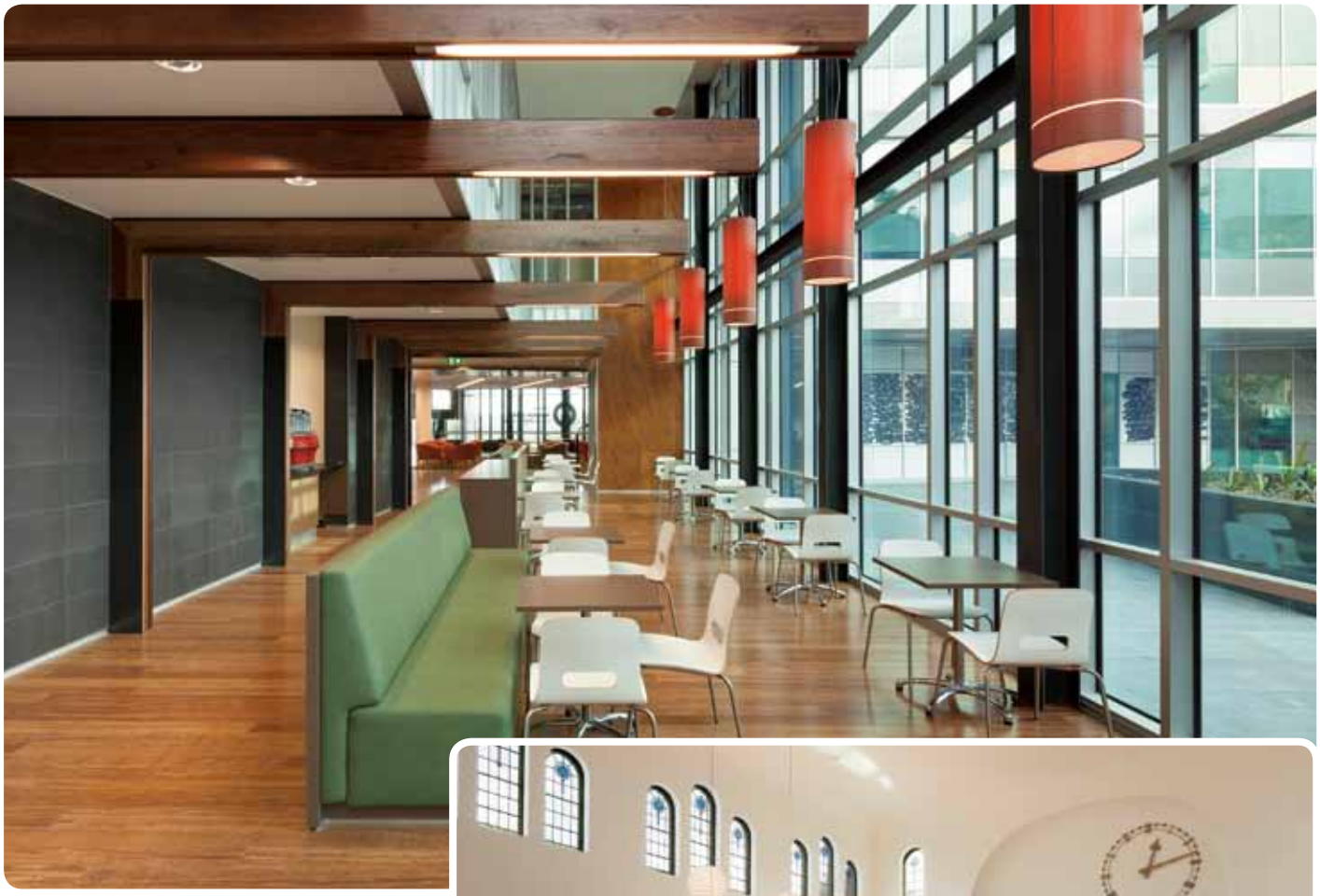
And Bronson Methodist Hospital found that applying green design principles to improve indoor environment quality in its buildings led to a 4.7% decrease in nursing turnover rates.

These are just some of the stories of sustainable health care. But we need more of them.

Just recently, the $1.8 billion Sunshine Coast University Hospital was recognised as Australia's best public building after taking home a prestigious award at the 2019 Rider Levett Bucknall/Property Council of Australia Innovation and Excellence Awards.

Dubbed a "sustainability superstar" by the judging panel, the hospital is the largest healthcare building to receive Six Star Green Star ratings for design and construction. It was applauded for "resetting expectations for green healthcare in Australia".

Delivered in a public-private partnership between the Queensland Government and Exemplar Health (a consortium comprising Lendlease, Siemens and Capella Capital, with partners Spotless Facilities Services and Aurecon), the hospital carefully balances



The $189 million Olivia Newton-John Cancer Wellness & Research Centre at the Austin Hospital was the first certified Green Star healthcare project in Victoria. Pictured above is a foyer overlooking a courtyard. Pictured right is a lounge area.

environmental concerns, like energy efficiency, with people-centric design.

One of the biggest challenges for the project team was to deliver a 152,000 m² building that meets clinical requirements without overwhelming staff, patients and visitors with its size. The building also had to optimise access to daylight, winter sun, sea breezes and the beautiful local landscape while managing harsher aspects of the Queensland climate, like the strong summer sun and heavy rainfall.

Upon full occupancy in 2021, the hospital is expected to consume 20% less energy than an equivalent non-Green Star facility. Solar hot water and thermal energy storage systems, energy metering and energy-efficient lighting all play their part.

And given that Queensland is no stranger to droughts and flooding rains, rainwater is harvested from around 80% of the hospital's 38,000 m² roof. Tanks can collect a massive 1.5 million litres and 90% of all water harvested is re-used.

Painstaking planning and project management were critical factors in the project's delivery, and the result is spectacular. Gardens, small courtyards and outdoor spaces are green sanctuaries, softening the scale of the hospital. Many of the patient rooms look out onto lush greenery, bushland, water or wetlands. Three-quarters of all patients and visitors have easy access to at least one place of respite — and just under 50,000 m² of space, around a quarter of the site, is green space.

This is the future of health care in Australia. While hospitals like this at the Sunshine Coast are still considered revolutionary, with time they will become business as usual, because we know that carefully considered sustainable design delivers better places for people.

*Jonathan Cartledge is Head of Advocacy and Public Affairs at the Green Building Council of Australia.

Flinders Medical Centre New South Wing in Adelaide set a high bar as Australia's first Green Star-rated hospital building and a design that is 42% more energy efficient than business-as-usual.

Is your healthcare facility at risk?

HOSPITAL ALERT

Recent studies show 93% of dry surfaces* tested in healthcare facilities were contaminated with a Dry Surface Biofilm.

High touch areas such as chairs, crash cart clipboards and bedside monitors were found to harbour MROs in Dry Surface Biofilm.**

Biofilms protect harmful microorganisms. To effectively kill these microbes you need to remove the biofilm first.

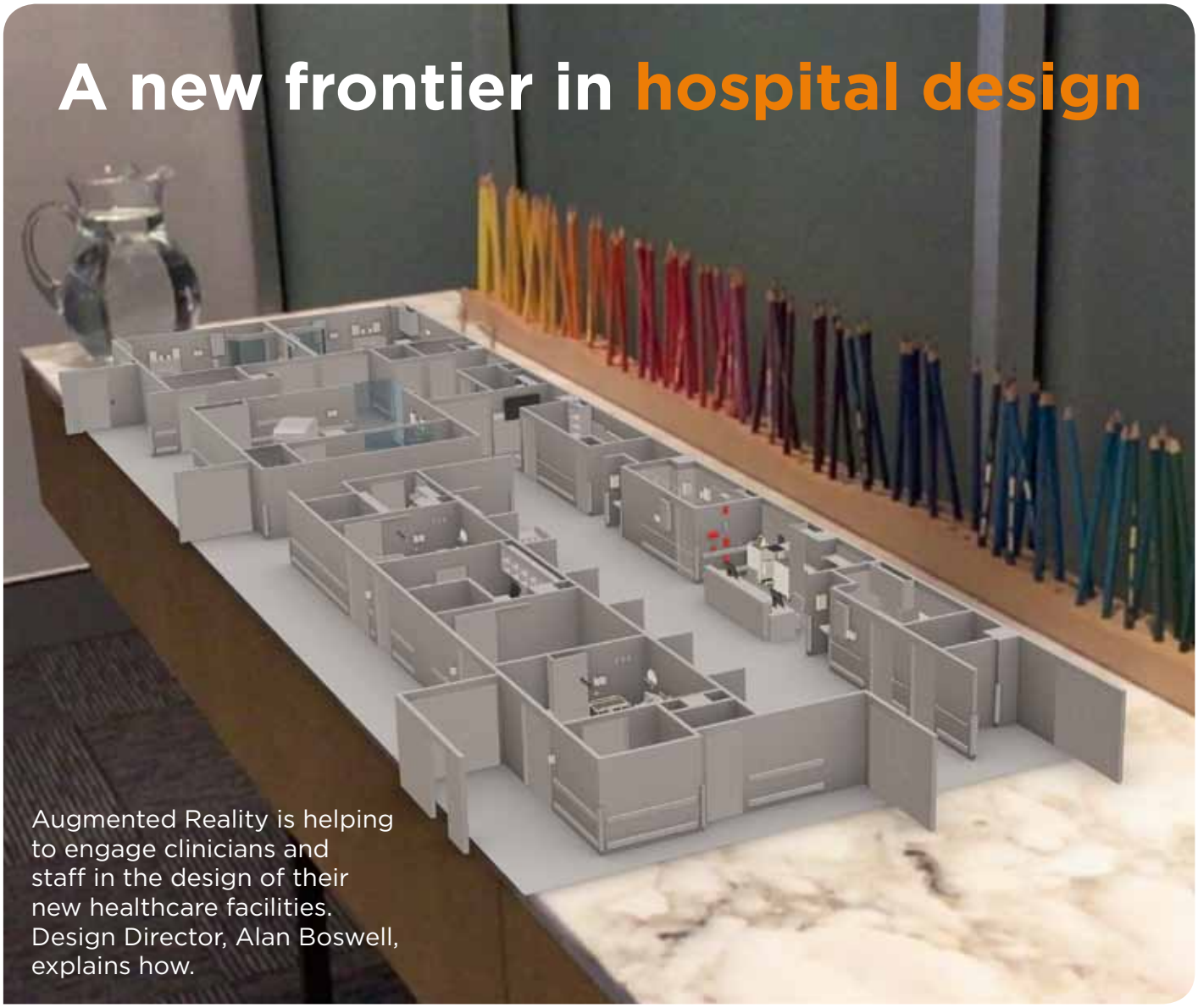
Don't wait for an outbreak, call 1800 833 566 for more information or to arrange a product trial.

'Presence of biofilm containing viable multiresistant organisms despite terminal cleaning on clinical surfaces in an intensive care unit'** K. Vickery, A. Deva, A. Jacombs, J. Allan, P. Valente, I.B. Gosbell. *Journal of Hospital Infection 80 (2012) 52-55.* *'A pilot study into location the bad bugs in a busy intensive care unit'** G.S.Whiteley, J.L.Knight, C.W. Derry, S.O. Jensen, K Vickery, I.B. Gosbell *American Journal of Infection Control 43 (2015) 1270-5*

For more information visit **www.whiteley.com.au**

Whiteley Medical

A new frontier in hospital design



Augmented Reality is helping to engage clinicians and staff in the design of their new healthcare facilities. Design Director, Alan Boswell, explains how.

It's a conundrum faced by all architects: how to effectively communicate design solutions to the users of a space, to raise their comfort and understanding of areas being proposed and, ultimately, to get their final sign-off and endorsement. It's an architect's job to ensure users of a facility understand what's being designed, and augmented reality is the newest technology to help.

A quick user engagement history

For many years, design work had to be communicated through drawings — a medium that is difficult for many people to understand, some of whom cannot read a floor plan or understand an elevation. Building Information Modelling (BIM) followed, which enabled a three-dimensional view of buildings to be created, allowing users to gauge an understanding of their proposed environment.

In the last few years, virtual reality (VR) has been used to better inform and engage users during the design process. Through the use of a VR headset or goggles, users can be fully immersed in the model of a new space, allowing them to 'move' to different places in a building and walk around in it. VR is now a widely used technology in architecture and is hugely beneficial in generating greater understanding for clients of their planned environment. Real-time rendering has further facilitated the process, allowing changes to be made to form, materials and lighting 'on the spot', creating further debate and discussion.

However, VR also has limitations, the most significant being the lack of user interface with each other. A person immersed in the VR model can explain what they're seeing and feeling in a space, but others can't see and feel it at the same time, which limits collaboration and understanding.

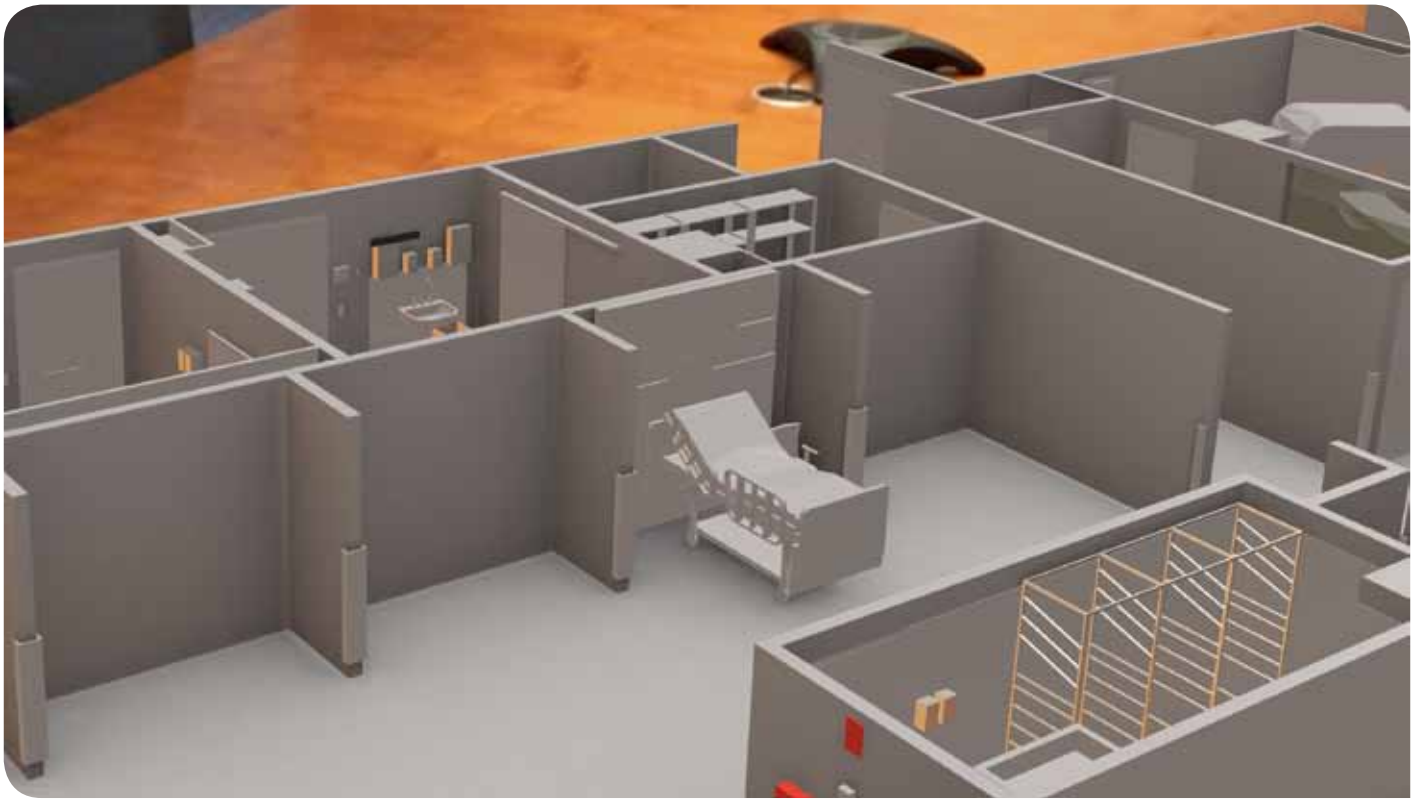
Then came augmented reality

More recently, architects have utilised augmented reality in the design of buildings, including hospitals and healthcare facilities. Still an emerging technology, augmented reality superimposes a computer-generated image into the real world. Sound confusing? Think of Pokémon GO — the app that had tweens running around cities a few years ago, chasing Pokémons that weren't really there.

Without getting too technical, an augmented reality model of a healthcare facility is created by bringing a BIM model into a software platform called 3D Studio Max. From there, we run scripts that automate some of the development processes, then bring the model into Substance Painter, to add additional texture and generate the file ready for viewing on a web browser. Sounds pretty straightforward, but it wasn't always that way.

When augmented reality first emerged, we created the model in a similar way, but it could only be viewed on mobile phones and tablets by creating an app (an additional step), which the user then had to download. The model also had to be superimposed over a real-life drawing or a real-life model (e.g. a 3D printed model). Now though, iPad and iPhone web browsers automatically scan surroundings, detect all the surfaces in a room, and allow you to place the model onto a table, a chair or even the floor. From there, you can rotate the model, navigate through it and zoom into it.

These technological advancements resurrected the technology for use in architecture.



How does this help architecture?

Augmented reality was not initially created for architects, but it is proving to be a highly useful tool to engage users and raise their understanding of designs. This is because, unlike VR, augmented reality allows groups of people to see and understand the same model at the same time.

This encourages communication and debate, prompts users to ask questions, to challenge design decisions and take ownership of their new healthcare facility. It allows architects to fully understand what the users want and what their key drivers are, ensuring relevant facilities are close to each other, departments have the correct flow, and essential medical items are placed in the appropriate location.

Even the most experienced clinical planners, people who have dedicated 30+ years to the design of healthcare facilities, cannot provide all the answers. Only clinicians and staff can do that — the people who will actually work in the new facility, providing care to patients. That is why augmented reality is a game-changer in the design of hospitals and healthcare facilities. Architects, health planners, interior designers, doctors, nurses and hospital administrators can all get on the same page at the same time.

Better use of time

To get the best outcome from user groups, it is imperative that the design is fully understood by clinicians and staff. This will enable them to have a better understanding of and input into what is being designed. The AR process has streamlined the time it takes for staff to understand the plans; therefore, more time can be spent on creating a design solution that is specific for them.

Augmented reality is also an excellent tool for architects themselves to make more informed and faster design decisions. They can see and experience spaces in real-time, and quickly make decisions as part of a unified design process.

The best bit

In addition to providing a consolidated design process in which the user has become a more informed and active participant, an additional bonus of the tool is its ability to fully inform all users of their new environment before project handover. Users are given the model and, using their own smartphones or tablets, can start to familiarise themselves with the layout and individual rooms before they move in. For example, in highly complex departments such as the Emergency Department, users can understand patient transfer flows or the location of the clean and dirty utilities in the department in 3D, before moving in.

Augmented reality helps clinicians and staff to participate in the design process, and in turn, allows architects to design environments of wellness with optimum clinical efficiencies.

HDR

» For more information, visit **www.hdrinc.com.au**

Designed for comfort

Bates Smart's latest health development, the Gandel Wing at Cabrini Malvern, provides next-generation treatment in cancer, cardiac, emergency, geriatric care, infectious diseases, maternity and neurology.

The $120 million building features the latest in cutting-edge design, urban amenity and modern technology to serve the needs of patients into the future.

Rising seven storeys above ground (and four below), the new wing provides an additional 48 beds, bringing the total number of hospital beds to 556. The new building welcomed its first patients in July and was completely occupied in late August.

Cabrini Health's new clinical services building, located at 183 Wattletree Road in Malvern, Victoria, signifies the end of nine years of planning and development to improve healthcare services and continues Bates Smart's longstanding relationship with the hospital, which spans more than 50 years.

Bates Smart Design Director Kristen Whittle said the 16,350 m^2 hospital precinct was the newest purpose-built environment of its kind with technology embedded throughout, coupled with a highly sophisticated design approach to create an environment that would become a national benchmark for patient comfort.

"Our design carefully blends sustainability with salutogenesis to create a building that soothes the spirit and promotes positive healing and wellness," he said.

"With the completion of this latest phase, Cabrini can continue to provide an exceptional patient experience for many years to come.

"This new extension combines cutting-edge technology with environmental design concepts and consciously considers the patient perspective.

"We have transformed the hospital ward from a purely clinical and sterile place into one of wellbeing, comfort and healing.

"Research has shown that access to views and nature has a direct impact on the wellness of patients.

"Our approach to all healthcare developments is about creating spaces for healing, rather than simply treating illnesses."

The natural slatted terracotta facade complements the adjacent sixties brickwork of the original hospital, uniting the site into a harmonious and identifiable health campus. The facade carefully fans out so that the patient's view from bed is unobstructed whilst providing screening. Each room enjoys views outwards towards nature and considered landscaped environments, cultivating a nurturing and serene atmosphere.

A critical addition to the hospital campus is the inclusion of the radiotherapy bunker, which completes the integrated cancer care model, improving the patient experience by allowing them to receive all their treatment under one roof.

Bates Smart Studio Director Mark Healey said the interior design team worked closely with Cabrini to place the patient firmly at the forefront of the design process.

"We have approached every aspect of this design through the lens of the patient to ensure new levels of dignity, comfort and safety are met," he said.

"The Gandel Wing will redefine the hospital room and treatment space to ensure new levels of comfort and control.

"Leveraging state-of-the-art technology, the room will automatically adjust to the most appropriate modes for lighting, heating and cooling, relieving the patient of this burden.

Research has shown that access to views and nature has a direct impact on the wellness of patients.

"We wanted to connect the patient more closely with natural systems through full-height windows, maximising natural light and fresh air through the use of operable windows."

Healy said that research suggested patients accessing bathroom facilities placed themselves at the greatest risk of falling. The Gandel Wing patient room design ensured direct sightlines between the bed and ensuite, together with subtle handrail lighting, which would assist in removing any ambiguity when waking in a foreign environment and increase levels of safety for the patient.

"We want to promote a more empathetic approach to healthcare design that has care at its core," Healey said.

"An environment that is energised by nature will, in turn, provide better amenity for patients, carers and staff."

Cabrini Chief Executive Dr Michael Walsh said the Gandel Wing would allow the health service to continue to provide the best possible care for patients, and their families, well into the future.

"The Gandel Wing will help Cabrini to be an even better health service, by consolidating, expanding and improving our facilities," Dr Walsh said.

"This building will help us to deliver the utmost care to our patients, in the local area and beyond, as we enter a new era in technology."

Bates Smart Studio Director Tim Leslie, who led the project team, said this was the practice's latest healthcare development, with the experienced team building upon the world-class design strategies established at The Royal Children's Hospital and, most recently, Bendigo Hospital.

"The combination of Cabrini's great vision with the generosity of the Gandel family's philanthropy provided the perfect avenue for the design team to explore, redefine and execute a holistic architectural health solution to meet Cabrini's high aspirations," he said.

"We are proud that this project will benefit the many generations of patients and staff to come."

All images credit: ©Peter Clarke

A training session in Port Lincoln. Pictured, from left to right, are: Jessica Collins; Dr Lara Roeske, VCS Foundation; Dr Sam Olaiya, GP, Port Lincoln; and Vicky Fisher.

Self-collection increases access to cervical screening

Dr Lara Roeske*

Despite cervical cancer being recognised as a preventable disease, rates among Indigenous women remain incredibly high — 3.9 times that of other groups. But a new screening method is breaking down cultural barriers to improve disease prevention.

Australia has been leading the charge against cervical cancer for many years now. Thanks to developments including Gardasil and an improved national screening program, we're well on our way to eliminate cervical cancer by 2100.

However, many Australian women remain at a high risk of cervical cancer, in particular, among Indigenous, culturally and linguistically diverse and rural and remote women.

Data has demonstrated that at least 80% of women who develop cervical cancer in Australia are not up to date with their screening or have never been screened. Meaning the best way to improve health outcomes for these women is to improve access to culturally appropriate screening methods.

There are many reasons women may not feel comfortable with a traditional cervical screen collected by a doctor or nurse. Self-collection was developed to break down some of these barriers and improve screening rates, ultimately saving women's lives.

Self-collection allows women to take their own vaginal sample for HPV testing and is available to women at least 30 years of age who haven't had a Pap smear for four or more years or who have never been screened and who decline a traditional screening test.

Australia was the first country to endorse self-collection in its national screening guidelines, which became available from January 2018.

VCS Foundation was the first laboratory to be accredited to support testing of self-collected samples and has been supporting health professionals to access the test from anywhere in Australia. Additionally, we provide training to health staff on the method and improving safe practice and a culturally appropriate approach to consultations.

To ensure more high-risk women have access to this lifesaving test, we recently completed a series of self-collection education programs for healthcare workers in rural South Australia including the communities of Mount Gambier, Port Augusta and Port Lincoln. The initiative was jointly funded by SA Health and the Australian Government Department of Health.

Self-collection training participant and rural generalist Dr Bas Kirmani, of the Royal Flying Doctor Service, South Australia, said GPs, nurses and Aboriginal workers each played important roles in promoting and undertaking screening pathways.

"It's fundamental to good health care to prevent diseases like cancer before they become life-threatening," he said.

"That's just common sense: you can spend your energy treating cancer once it has happened or you can put your energy into ensuring it doesn't emerge in the first place. This program does that, for a particularly vulnerable population.

"Cancer is the second most common cause of death among Aboriginal and Torres Strait Islander people and is anticipated to become the primary cause of death in the next 10 years.

"Aboriginal [people] and Torres Strait Islanders diagnosed with cancer are usually younger, have more advanced and more lethal types of cancers than other Australians and are significantly less likely to survive five years after their initial cancer diagnosis.

"It's true that self-collection is not a one-size-fits-all solution, but this method will allow more women to feel comfortable and safe during screening, greatly increasing the chances of uptake and therefore early detection and treatment.

"In our own experience, women are really comfortable with the design and intent behind the program, and the fact that screening frequency has dropped from every two years to five-yearly more or less sold itself — people are really happy with that.

"With the extra benefits of the self-collection program for those women who have fallen behind or out of the screening program, this is a way of conveniently helping an enormous number of women.

"Our patients understand that, and are willingly on board."

*Dr Lara Roeske is VCS Foundation's Director of Medical Education.

For Excellence in IV Therapy, Choose a Specialist

Partner with ICU Medical, an innovative company 100% focused on helping you deliver IV therapy excellence

Since IV therapy is our only business, meeting your needs with quality products and consistent supply is our only concern. We bring you intuitive, patient-centric IV products and services that provide meaningful clinical differentiation, consistent innovation, and superior value throughout your facility.

IV THERAPY

IV Consumables & Needlefree Connectors

IV Pumps & Accessories

Closed System Transfer Devices

Helping you standardise IV therapy wherever care is given

With a full line of IV solutions, pumps, safety software, and consumables designed to be intuitive, easy to use, and interoperable, we can help you reduce IV medication errors and streamline the flow of data from the pharmacy to the bedside—all without unnecessary disruption to your existing workflows.

See your ICU Medical account manager or call 1300 428 652

icumedical
human connections

1300 428 652 | www.icumed.com

Ageing joyfully

How functional design can lead to improved wellbeing for ageing Australians

Professor Catherine Bridge* and Dr Peter Sweatman**

Designing bathroom environments that suit the needs and abilities of older people can help reduce barriers to functioning and allow more people to age in place for longer periods.

The importance of the physical environment for ageing is well documented; bathroom design is not just about sanitation. For older people, it also influences a range of social and health measures including quality of life and self-care and is essential to maintaining independence. Inaccessible, difficult and hazardous environments can compromise older people's ability to carry out activities of daily living.[1]

Caring through design

Recent research has shown that design can be a direct substitute for care by up to 42% and can also result in a 40% overall improvement for health-related quality of life.[2] This effect is even greater for informal care and concerned changes to the bathroom (78.3%.).[3]

The Livable Bathrooms for Older People Project was a multidisciplinary, multimethod project developed to collect, analyse and synthesise older people's physical dimensions and abilities in the context of their domestic bathrooms into information that can be used to improve design outcomes. The project was funded as an Australian Research Linkage Grant with GWA Int as the industry partner.

One of the central approaches of the Livable Bathroom for Older People Project was The 'Livable Bathroom' survey, which was distributed to a representative cross-section of older Australians from all states and territories over the age of 60, using a database of 16,524 older persons provided by the Australian Electoral Commission; it is believed to be the largest design survey of its kind.

Key findings from the national survey included:

- Over half (51%) of respondents had bathrooms with separate showers with raised perimeters (hobs) making them inaccessible to wheelchairs and a potential trip hazard. A surprisingly large number (62%) said that they rarely or never used their bathroom to take baths.
- Over a third (37%) indicated that they went to the toilet 2–3 times during the night and increased frequency (3–4 times a night) was weakly correlated to medication usage.
- A quarter (25%) rated bathroom size being as poor and just under a half (48%) specifically mentioned insufficient space to dress/undress in the bathroom.

Q-bital
Healthcare Solutions

Launching Q-bital Healthcare Solutions in Australia

We deliver clinical infrastructure and knowledge with the speed you need to extend capacity, control the clinical pathway, and provide uninterrupted patient-focussed care.

Listen to Peter Spryszynski discuss how "flexible infrastructure can complement your healthcare team" at the 2019 IHEA Healthcare Facilities Management Conference on 11th October 2019 at 9:40am.

To find out more information contact:

T: +61 (0) 3 8376 2640
GPO Box 5099 | Melbourne
Victoria | 3001 | Australia

www.q-bital.com

- A fifth (20%) rated winter temperature in bathrooms as poor.
- A fifth (20%) rated the quality of the bathroom floor to prevent slipping as poor.
- Significant safety concerns were expressed, including not being able to call for help in an emergency (18%), not being able to get up after a fall (15%) and slipping in the shower or on wet floors (11%).

Keeping up appearances

Assistive products can have strong associations with disability and loss of independence. Design can be a powerful means of reducing the perceived stigmatising effects of supportive products. Design that promotes or aligns with positive motivations such as independence, forward thinking, improvement in lifestyle and living space is more likely to be accepted by the older people that would benefit from it. Designing bathrooms in anticipation of future need can be a powerful way of choosing long-term independence. Supportive features installed early can ensure many years of safer, more comfortable use.

Better product design helped to reduce the barriers to adopting more supportive features.

Some design approaches that were developed through the co-design process were:

- Adaptable — products that could be easily changed as the individual's needs changed, eg, toilet armrests that could be added when recovering from knee surgery but removed if no longer needed. Added nurse-call functionality can also provide greater confidence for the individual, and improve responsiveness of their carers.
- Multifunctional — when a product has a purpose in addition to the support function, then there is an additional reason to install it other than physical need, eg, an attractive grab rail can function as a sturdy, convenient towel rail.
- Integrated design — where many assistive products look like bolted on afterthoughts, products that include supportive elements that are aesthetically integrated into the whole bathroom design appear more attractive and harmonious.
- Safety for everyone — design that can make the bathroom safer for all people, not just people with reduced mobility, is appealing to everyone. Concern for children, pregnant women and people with injuries helped justify more functional design. Or as one co-designer put it: "What is necessary for us is a luxury for the younger ones."

What this means for the future of design

For designers, working collaboratively with older people provides rapid feedback on assumptions and design proposals. Older people have at least as varied aesthetic preferences as any other cohort, and they have a powerful connection between home and identity. For decision-makers, data can be analysed, synthesised and translated into multiple forms; however, the topics explored in this research are best understood through open-minded first-hand experience with people.

Ageing is something none of us can escape, and with Australians living longer, wealthier lives, more people are ready to embrace bathroom design extending from the utilitarian into a functional, yet individualised experience offering the luxury they're accustomed to in other aspects of their life.

This presents many opportunities for designers, architects and decision-makers involved in the design of physical environments for older Australians to design bathroom products and spaces that are safer, more inclusive and contribute to the overall wellbeing of all Australians.

In order to challenge common psychological barriers to the adoption of assistive products, the future of design for older Australians must take a more informed and personalised approach that considers both the functional and aesthetic desires of potential residents.

References

1. Mintzes, A., Bridge, C., & Demirbilek, O. (2015). Development of a National Survey on Aging and the Domestic Bathroom: The Livable Bathrooms Survey. In DS 80-1 Proceedings of the 20th International Conference on Engineering Design (ICED 15) Vol *1: Design for Life*, Milan, Italy, 27-30.07. 15 (pp. 575-584).
2. Carnemolla, P., & Bridge, C. (2016). Accessible housing and health-related quality of life: measurements of wellbeing outcomes following home modifications. *ArchNet-IJAR*, 10(2).
3. Carnemolla, P., & Bridge, C. (Accepted for publication). Housing Design and Community Care: How Home Modifications Reduce Care Needs of Older people and People with Disability. *Int. J Environ Res Public Health*.

Industrial design expert at Caroma, Dr. Sweatman specialises in developing user centred bathroom design for older Australians through collaborative workshop programs and laboratory research.

Focusing on enabling inclusive design for people with limited mobility, Professor Catherine Bridge is an expert in the Built Environment at the University of New South Wales.

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.

0.2 MICRON

INDEPENDENTLY CERTIFIED NSF

Zip MicroPurity Filter

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

Zip

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

Active ingredients

Hospital pharmacists in position to drive medicines leadership

Kristin Michaels*

As well as being the most common intervention in health care, medicines are a particularly complex area of policy. Primarily prescribed by doctors, administered by nurses, manufactured by industry, regulated by government, and reviewed, dispensed, managed, counselled and compounded by pharmacists, medicines are a powerful example of the complexity of health care as numerous professionals interact to enable treatment for a single individual.

Australians have high expectations surrounding access to medicines, and rightly so. We should all be proud of the comprehensive policy framework that has evolved to support timely access to high-quality medicines in a wide range of healthcare settings. No longer are people willing to accept that a pharmacy, hospital or residential aged-care facility doesn't stock a particular medicine. Even the highly regarded and independent Pharmaceutical Benefits Advisory Committee (PBAC) processes, which result in recommendations to the federal government regarding medicines that should be subsidised, have become the target of campaigns from consumers keen for the right to access expensive medicines at heavily discounted costs. Given the rate of medicines use in Australia, this is not surprising — nine million Australians take prescription medicines daily.

And yet medicines leadership remains piecemeal; rarely are medicine use, funding and clinical pharmacy care discussed in collaborative conversation. Given the multifaceted roles pharmacists play — from managing shortages to supporting prescribing in hospitals and treating patients — health policy has been slow to recognise the value in pharmacy care for people at risk of medicine-related complications.

Even the Medication Safety Standard, the accreditation requirements governing medicines management in our hospitals, makes little explicit mention of pharmacists and their in-depth medicine expertise. Similarly, the 1998 National Medicines Policy gives high priority to consumer medicine access and a sustainable industry, but little consideration to the fact that, without clinical pharmacy support, consumers are at heightened risk of undetected medicine interactions and debilitating side effects. More than 250,000 medicine-related hospitalisations occur every year in Australia.

In recent years, the maturing of medical research and technology has changed the nature of PBS medicine listings. Since 2013, more than 2100 new or amended listings have been added at an overall cost of around $10.6 billion; these listings are increasingly for the treatment of smaller groups of critically unwell patients in the acute setting. Approximately two-thirds of new PBS medicines listed in the last 12 months are dispensed predominantly in hospitals. Commonly subsidised under the 'special arrangements' classification, these medicines are prescribed under specific conditions, supplied only through hospitals,

require specialist medical care and supervision, and are high in cost. Not surprisingly, they also require substantial clinical pharmacy care including polypharmacy management, therapeutic drug monitoring, daily dose adjustments, adherence support and outpatient follow-up.

In addition, the breadth of medicines now available has created a specific need for pharmacists to facilitate effective prescribing as part of the multidisciplinary team in the acute setting. In a high-pressure and extremely busy clinical environment, an electronic medical record will offer more than 3500 medicines to be prescribed at discharge, many with various brands of the same medicine, resulting in 18,200 options. This, alongside information about biosimilar substitution, altering therapy to accommodate shortages, reducing polypharmacy and navigating various medicine subsidy and access pathways, is an overwhelming amount of information to expect medical professionals to maintain while they undertake their core work to diagnose, treat and care for patients. Thankfully, hospital pharmacists already carry the expertise to effectively navigate this complexity: a major Australian hospital-based study found that for every dollar spent on a clinical pharmacist to initiate changes in medicines therapy or management, approximately $23 was saved on length of stay, readmission probability, medicines, medical procedures and laboratory monitoring.

SHPA has long advocated for greater recognition of the importance of clinical pharmacy services in both hospital and community settings. At our recent Medicines Leadership Forum in Canberra this was reaffirmed with calls to strengthen support for the pivotal transition of care — as people move from hospitals back into their community — through hospital referral for clinical review for patients who are on new medicines and at high risk of negative impacts. In addition, we would welcome a renewed commitment to the founding document of the successful 'PBS medicines in hospital' program. This statement, 'Guiding principles to achieve continuity in medication management', outlines a pathway to high-quality medicines management, including effective clinical handover and equitable medicines access on discharge.

To ensure Australians gain the greatest possible benefit from medicine use, medicine leadership must consider the workforce as well as industry and consumer concerns. The successful combination of effective medicine, provided in an accessible manner, with appropriate pharmacy care, is essential for the positive patient outcomes we all seek. Increased collaboration and understanding of the role of each part of this puzzle will help achieve greater synergy in medicines policy and high-quality patient care. Alongside 118,723 medical professionals and 378,325 nurses, 31,785 pharmacists are equipped with the knowledge and know-how to play their part.

*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 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.

New emphasis on building 'traceability' into the healthcare digital thread

It's important for patient care to have accurate and up-to-date records of what devices have been implanted or used. Image provided for use with expressed permission of the patient.

The need to build product traceability into more processes within the health system has been highlighted by patients, patient groups and regulators globally.

This means not only making changes within the traditional supply chain itself, but also in the parts of the health system where the products come into contact with the patient, extending the supply chain all the way through to the patient.

Achieving this requires investment in systems and technology that will make it possible in the future to capture, store and manage the necessary data.

The need for greater availability of data is being driven by patients who are demanding to have accurate and up-to-date records of what devices have been implanted in, or used on, them.

Past incidents, where patient contact to communicate product issues was inhibited due to a lack of available data, have also highlighted the need for change. The mobile nature of Australia's population makes this a necessity.

Regulators around the world are already beginning to reinforce the change in behavior that is needed. The global move towards a harmonised and visible approach on how medical products are managed is also being discussed in Australia. However, beyond the regulation there is a significant technology uplift needed to ensure that traceability is enabled within the vast digital health landscape being implemented in Australia.

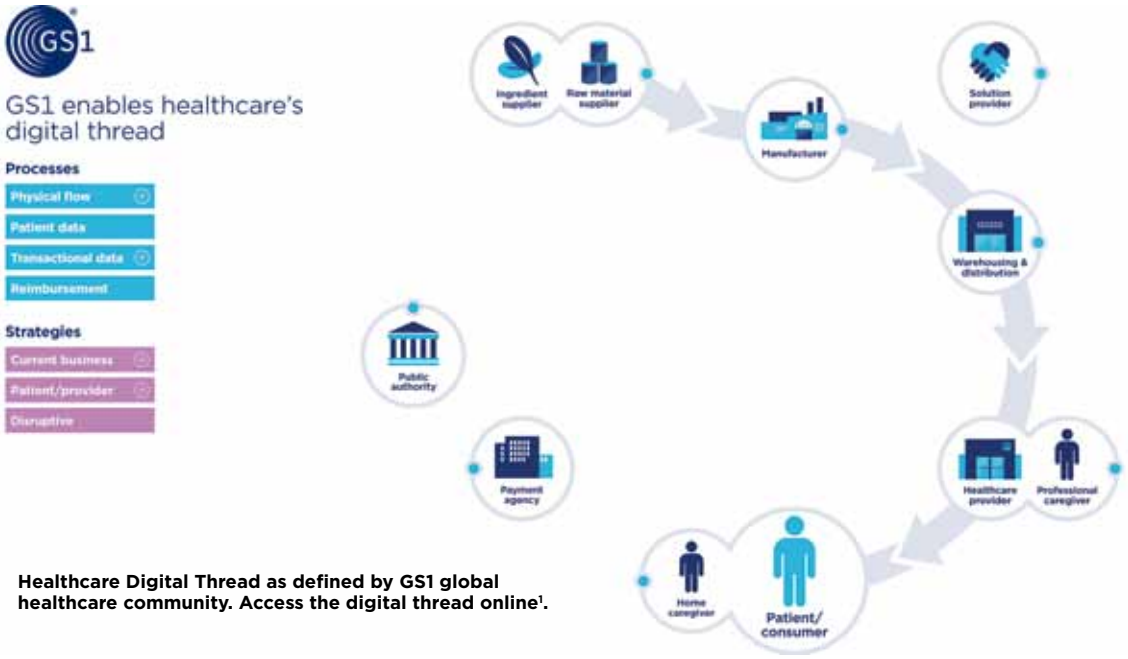
By working with their global healthcare community, GS1 defined the Healthcare Digital Thread (refer to diagram) to help depict the collaborative interrelationships and connections between healthcare ecosystem stakeholders. It also shows how the use of data and global standards can help give visibility to the physical flow of products and services that support patients.

Change is inevitable, though unfortunately complicated in Australia by our intricate health systems and geography. An effective digital thread in the real world calls for increased collaboration between all stakeholders. For healthcare providers it is critical to increase interoperability between electronic health records, enterprise resource planning, clinical and other relevant systems, which means that the solution provider community needs to adopt standards within their product offering.

The benefits to health providers and patients are obvious by ensuring there is consistent data and the ability to track products through to patients. With an effective and interoperable digital thread, product data can be efficiently captured, exchanged and analysed for future product development.

The increased emphasis on the use of global standards supports the need for data accuracy related to many of the digital health initiatives in Australia. Many leading clinicians and informaticians are advocating strongly for this to support patient safety initiatives and create greater visibility within their organisations.

For the sake of all patients, every stakeholder in the healthcare chain — large and small — must start planning for, and gradually implementing, traceability improvements within their organisations.



Healthcare Digital Thread as defined by GS1 global healthcare community. Access the digital thread online[1].

1. The interactive version of the GS1 Digital Thread can be accessed at https://xchange.gs1.org/sites/hc/hdt.
2. The TGA consultation on a proposed Unique Device Identification system can be accessed at https://www.tga.gov.au/consultation/consultation-proposal-introduce-unique-device-identification-udi-system-medical-devices-australia

Better healthcare
costs less with GS1 standards

Around the world, healthcare organisations of all types are implementing GS1 standards to deliver safer, more efficient care. The GS1 Healthcare Reference Books are resources to help you realise improvements for patient care and better management of healthcare supply chains.

GS1 Australia

Download a copy of the latest reference book **www.gs1au.org/HCrefbook19-20**
Or contact the GS1 Healthcare team **healthcareteam@gs1au.org**

Firesafe technology
A ‘design for safety’ solution to oxygen fire risks

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

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

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

Medical device regulations have long required risk reduction to be addressed in a clear hierarchical manner with ‘safety by design’ being the primary risk control. Regulations are clear that changing the instructions for use and/or labelling for a medical device does not change the degree of risk.

A risk overlooked is a risk taken

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

This technology is also integrated into the Firesafe flowmeters. Firesafe nozzles fitted on the flowmeters ensure that any fire in the tube is prevented from reaching the medical gas pipeline.

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

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

Upping the hospital food game

Harnessing culinary skills to improve the quality of hospital food can deliver cost savings and better quality of care.

Andrew Thomson*

Catering to hospital patients is a large part of quality of care.

There has been ongoing negative publicity about inedible food and its safety in hospitals which should be of concern to every hospital administrator.

Poor quality and unsafe hospital food gives rise to increased food wastage, budget pressures and longer hospital stays. When food does not meet patient expectations, an increasing number are using their mobile phone camera to post images to social media and media outlets. No hospital administrator needs negative media attention.

"Hospital food provides nourishment, aids recovery time and is something for a patient to look forward to during their recovery," said Advanced Accredited Practising Dietitian Anne Schneyder, from Nutrition Professionals Australia.

Good food AND good nutrition go hand in hand.

Schneyder said that many hospitals are already offering excellent food and food choices to their patients. However, providing the right food to the right person and ensuring that preferences, nutrition and dietary needs are met is a complex task. It is now well recognised that malnutrition and poor nutrition can independently increase risk of wounds and falls, increase mortality, length of stay and risk of readmission, and healthcare costs. It's something the hospital administrators simply can't ignore.

These are complex and layered issues for hospital administrators: quality of care, risk management, operational management, recruitment and selection processes and organisational training.

Funding

Respected industry consultant John Patison, from Redluob, said, "There is a real disconnect between hospital administrators and operational management and this results in hospital catering not receiving the attention and funding it deserves."

Patison said Australian hospitals offer extensive and complex food choices which typically goes beyond feeding patients three meals and two snacks a day on an estimated budget of $14 per day per patient. This per patient food cost also includes labour, food safety compliance and operation of software programs and other materials. When comparing hospital food costs to a typical Hungry Jack's 'dine-in' meal, a hamburger,

fries and soft drink are provided on a plastic tray for $12. Based on these figures alone, this suggests hospitals could do more.

With this amount of funding it's no wonder bland and unappetising food is served to feed patients.

Recruitment

Recruiting skilled chefs to work in hospitals is a real challenge for the catering manager and hospital human resources as the focus for chefs is on gaining employment in restaurants and hotels. With current recruiting arrangements, hospitals are not attracting people who are passionate about making high-quality meals.

The problem is compounded further by a shortage of chefs in Australia. Similarly, attracting skilled catering assistants who can work in a fast-paced environment and support other team members is also of concern. What is becoming increasingly evident is the recruitment of catering team members with low levels of literacy and numeracy, many having English as a second language. This provides a real challenge for the catering manager in how to train and develop these people. Management need to be aware of their key responsibilities — e-learning is not the answer here.

Irrespective, hospitals must ensure they have sufficient and suitably trained employees to provide safe, high-quality and nutritionally prepared meals for every patient.

Skills training

Hospital chefs must be able to produce a variety of meals for patients with multiple health conditions. It requires specialised training which is not necessarily offered by most hospitals or registered training organisations.

Many hospital catering managers are still focused on generic compliance training approaches and overlook the importance of developing a chef's culinary skills and catering assistants demonstrating portion control and food presentation skills.

No-one can argue that employees need a solid training program to perform their duties. A planned approach to training will ensure hospital catering operations strategically meet current and future business needs.

A well-trained and knowledgeable employee is not only the best insurance for a healthy operation, it also provides employees with information and skills that allow them to play a greater role. This type of training raises the status of the job, eliminates serious incidents, improves productivity and employee morale, and reduces turnover as they have a sense of ownership and belonging with their contribution being recognised. Employees that are not adequately trained cannot be expected to perform at the level required of them.

A fresh approach

A new way of thinking is required to provide long-term sustainable solutions.

1. It's important the modern manager shares their overall business strategy with their catering team because it provides an insight into their perspective and intended goals and direction.

2. There is an increasing number of secondary school students undertaking vocational education and training in commercial cookery and hospitality. Here is an opportunity for hospitals to examine the education and employment pathways to transition high school students who would consider making a difference in the healthcare setting. It is also a lifestyle choice.

The involvement of home economics and food technology teachers is required as they are at the forefront of student education. In regional and remote areas there is a strong role for regional development authorities to collaborate with local hospitals and schools.

3. Having an industry-wide mentoring program would positively influence and provide guidance for chefs to develop a range of skills, better understand and correctly use equipment and software programs, improve culinary skills and to share ideas. The Inspired Series created by Sydney chef Luke Mangan in partnership with TAFE NSW involves Australia's leading chefs. The Australian Culinary Federation has its own mentoring program. There are lessons to be learned from these mentoring programs.

It is time for hospital administrators to acknowledge that food and good nutrition is an important component of patient care and provide appropriate resourcing and employee training. There should be the setting of and ongoing monitoring of key business and food-related performance indicators to enable improvements. New and innovative thinking is required. There is a range of other strategic options, but all of this requires great will of all concerned to make a difference. One thing is certain, any improvements mentioned will provide real cost savings and quality of care for hospital administrators.

*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. Thomson is a board member of not-for-profit community food service operation Nonna's Cucina. Visit www.thinkstsolutions.com.au.

Naturally inspired.

The Northern Territory has an outstanding reputation in healthcare including tropical, emergency response, rural and remote delivery and Aboriginal health. Add a community perspective when staging your next conference in the NT by featuring local speakers, undertaking technical tours and increase delegate attendance by attracting regionally-based NT health professionals.

Ask the Northern Territory Business Events about innovative options for your next health conference.

ntbusinessevents.com.au
1800 656 209

Different in every sense

NORTHERN TERRITORY
BUSINESS EVENTS

Age services meeting dementia needs

David O'Sullivan*

The Royal Commission into Aged Care Quality and Safety has highlighted the challenges of managing the growing prevalence of dementia in Australia.

With more than 438,000 people in Australian currently living with dementia, it is the second leading cause of death and the leading cause of death among women in Australia.

More than half of all residential aged-care residents have a diagnosis of dementia and they tend to have much higher care needs than residents who do not have dementia.

But while some evidence to the Royal Commission has thrown up examples of failures in care for people living with dementia, there are plenty of cases where age services are not only meeting the needs of those in their care but also leading the way in setting best practice standards for meeting the needs of older Australians with dementia.

Specialist care units

In Western Australia a $70 million Specialist Dementia Care Program is being trialled at The Village aged-care facility in Inglewood, operated by Brightwater Care Group.

It is the first of 34 specialist care units to be established across Australia.

CEO Jennifer Lawrence said the opportunity to inform and enhance broader rollout of the program will allow Brightwater to build industry capacity for this critical area of need in aged care.

"This program recognises that those with challenging and complex needs require additional support, and the pilot will include specialist person-centred and multidisciplinary care to address those needs," she said.

The Specialist Dementia Care Program was developed through extensive consultation with dementia experts, clinicians, state and territory governments, dementia peak groups and carers of people living with dementia.

It includes a focus on a person-centred, multidisciplinary approach to care for people exhibiting severe behavioural and psychological symptoms of dementia (BPSD), who are unable to be appropriately cared for by mainstream aged-care services.

Brightwater is working with a range of stakeholders to offer specialised, transitional residential support, focusing on reducing or stabilising symptoms over time, with the aim of enabling people to move to less intensive care settings.

Innovative design

On the other side of the country, an innovative concept based on best-practice models from overseas is being trialled in Tasmania.

Korongee dementia village in Glenorchy is based on a typical cul-de-sac streetscape, featuring 12 eight-bedroom homes that will support 96 residents within a small town complete with streets, a supermarket, cafe, beauty salon and gardens.

The village aims to help residents maintain a sense of self, home and community. Residents are provided dementia-specialised care and can walk around the village and participate in everyday life decisions such as going to the cafe to enjoy a coffee

or heading to the supermarket to buy groceries for dinner.

Korongee was developed by not-for-profit aged-care provider Glenview in partnership with HESTA, specialist investment manager Social Ventures Australia and the Commonwealth Government.

Glenview CEO Lucy O'Flaherty said people living with dementia often struggle with unfamiliar spaces, colours and even decor, which is why each house will be designed to create familiar cultural touchstones of Tasmanian suburban life.

Technology

Technology is increasingly playing an important role in the management of people living with dementia in aged care.

IRT Group has partnered with Melbourne-based company IotTag to develop a tracking system to locate residents with early onset dementia who wander from sites.

Based on an existing design to locate missing domestic items such as keys or bags, it comprises hardware and a staff app which was tested in a two-stage proof of concept at IRT Woonona/IRT Kangara Waters. The system is now operational at IRT Kangara Waters.

Staff believe that in time this will free beds in care and secure dementia care, and may lead to individuals leaving care or secure care and moving back to low or self-care.

The next phase will include further rollouts and the implementation of a community drive piece in which the local community can download an app that allows IRT Group to leverage the GPS data and locate residents with more accuracy.

Once the bespoke solution is in place at selected IRT Group sites, IotTag will offer a generic version of the system to the general public and other aged-care providers.

Tools for carers

Recognising the growing need for better understanding around dementia, Churches of Christ in Queensland has secured the Australian licence for the Virtual Dementia Tour.

VDT is evidence-based experiential training that aims to provide a new level of empathy and understanding, leading to better outcomes for people living with dementia.

It uses sensory devices to alter participants' senses as they try to complete common everyday tasks.

This enables people to experience for themselves the multisensory challenges faced by people living with dementia — making it an excellent tool for caregivers and loved ones.

While technology can never replace human caring, it can go some way to assisting to improve quality of life for those with dementia as well as their loved ones and carers.

Leading Age Services Australia (LASA) CEO Sean Rooney said it is also important that all aged-care facilities are adequately funded and staff are trained to provide high-quality dementia care.

"It is critical that dementia care is also seen as part of the core business of mainstream aged-care facilities and is appropriately supported by government," he said.

"LASA wants to see government supporting a range of models for people living with dementia, addressing the wider issues of appropriate and flexible funding to care for these people in their own environments.

"Our ageing population presents an innovation imperative for the age services industry.

"We need to accelerate innovation and collaboration in our industry to translate ideas into action, resulting in better outcomes for older Australians."

*David O'Sullivan is Senior Media & Communications Advisor for LASA.

5 important ways to maintain patient confidentiality

Robust patient privacy and confidentiality are a fundamental part of the Australian healthcare system. Protecting the intimate information entrusted to medical professionals is part and parcel of the job.

But in a world that is becoming ever more digital, how can patient facing organisations be sure that they are keeping information appropriately protected at all times? This is a growing issue as we increasingly see the amount of patient data growing. In the digital age we also have more need than ever to connect different parts of the healthcare system to create a seamless experience for both doctors and patients.

So, how can we keep information safe in the modern medical environment?

1. Create thorough policies and confidentiality agreements

Drawing up all encompassing and wide-ranging confidentiality agreements or policies means that everybody on your medical team knows exactly what is expected of them in every eventuality. It must be read from cover to cover by every staff member and signed. It can also be regularly shared with patients to demonstrate that your organisation upholds strict confidentiality procedures.

2. Provide regular training

People adhere best to policies and practices when they fully understand why they are in place. Holding regular training sessions for all your staff members, from administrators to doctors and nurses, helps to reinforce how essential confidentiality requirements are, and provides a refresh of staff duties and expectations.

For best results, make these training times fun and a good opportunity to learn while getting to know colleagues. Taking a creative approach to the topic and introducing games can also help the information be more engaging whilst also being a positive experience for your staff.

3. Make sure all information is stored on secure systems

As the standard of healthcare improves and populations expand the amount of patient data being stored has increased astronomically. As a result, many practices and clinics may face challenges in correctly storing this information, both in terms of where huge data quantities can be saved and making the information easily accessible. Alongside these systematic difficulties it is essential that the highest level of security and digital protection is used when storing patient data. Purchasing platforms or using cloud providers that ensure your data is safe is the best way to look after this.

Furthermore, it is important that only strictly necessary personnel have access to this data. Levels of password protection that controls access is also worth considering and investing in.

4. No mobile phones

An easy way to eliminate possible threats to patient confidentiality is to strictly limit or remove mobile phones from patient areas. This ensures that no one could either maliciously or accidentally record or photograph private records or information. According to research by Imperial College healthcare NHS trust in London 65% of doctors used SMS to communicate with colleagues about a patient, opening up concerns about privacy.

This can sometimes be a difficult rule to enforce given the proliferation of digital devices. However, regularly reminding staff and patients why it is in their best interests can help to reduce any resistance.

5. Think about printing

Once all your technical solutions and security is in place it can be tempting to think you have everything sorted. However, printed materials that contain key patient information are often overlooked. Labels, forms and printed notes can easily be misplaced, or even stolen, if they are in a busy area. Having streamlined, easy-to-use and secure printing systems is well worth investing in.

Brother's print solutions for healthcare provide Cerner certified print solutions. They can link seamlessly with secure cloud storage, PDF and can provide password protected printing.

How can Brother help?

Brother provides specialised healthcare printing solutions, designed with patient confidentiality at front of mind. Our products improve efficiency across the board to help both staff and patients to reduce stress and maximise resources. Key services include:

- Improved point of care efficiency
- Stronger compliance and security measures
- Secure devices

To learn more about printing solutions to ensure your organisation can protect your patients' confidential information, visit empowers.brother.com.au

brother at your side

» For more information, visit **empowers.brother.com.au**

brother
at your side

BROTHER PRINT SOLUTIONS HELPING YOU HELP OTHERS

With Brother's Professional Monochrome Laser series, your team will be better equipped to handle their daily tasks. Filling its stackable trays with different paper requirements allows one unit to cater for scripts, pathology slips, radiology slips and general administration without the need for laborious paper switching and downtime. Be the most efficient team you can be with Brother.

Visit corpsolutions.brother.com.au/healthcare for more information on Brother's health solutions

A Day in the Life of a LifeFlight Critical Care Doctor

Every day in Queensland, the buzz of RACQ LifeFlight Rescue helicopters can be heard overhead, as they airlift sick and injured patients to hospital. The choppers are virtually 'flying intensive care units', which save critical minutes in getting patients to higher levels of medical attention. A service agreement with the Queensland Government, the sponsorship of RACQ and innovative profit-for-purpose social enterprises all contribute to pay for this vital service, which is provided at no cost to patients; however, RACQ LifeFlight Rescue relies on the community to help make up nearly 30% of funding each year. To ensure the aeromedical care is world class, most of the aircraft carry highly trained Critical Care Doctors on board.

Swedish doctor Ola Sorensen has just started work for LifeFlight, after a rigorous training program, where he learnt about the intricacies of aeromedical retrievals in Queensland. Here's a peek into what his day, or night, as an RACQ LifeFlight Rescue Critical Care Doctor looks like.

22:00 Tonight I'm on night shift, sleeping at the on-site accommodation at the Toowoomba RACQ LifeFlight Rescue base. I try to get as much rest as possible, because I have to be ready to jump into action to help patients at any time. On any given shift, the crew could be called to rescue a stranded hiker off a mountain peak, help people injured in a car crash or search for a missing kayaker in the ocean. These are the types of missions you may have seen RACQ LifeFlight Rescue perform, on the news. But the day-to-day work is mostly transferring sick patients to hospitals that offer a higher level of care.

Dr Ola Sorensen in winch training.

22:00

23:50 A call from the tasking agency, Retrieval Services Queensland, wakes the crew up just before midnight. We've been called to transfer a woman with health complications, from Miles Hospital to Toowoomba Hospital. We have a rapid response time, so hitting snooze isn't an option. Once that phone rings, it's action time. I quickly jump out of bed, put on my flight suit, grab four units of blood and the drug bag. Then I have a short briefing with the Queensland Ambulance Service Critical Care Flight Paramedic, who is a crucial part of the team. The rest of the medical equipment has already been checked and prepared during the day, which saves crucial minutes in getting off the ground.

Dr Ola Sorensen in front of an RACQ LifeFlight Rescue helicopter at winch training.

00:15 Meanwhile, the pilot and aircrew officer have prepared the helicopter and taken it out of the hangar. Once we're in the air, the aerial views of Queensland's stunning landscapes could be a tempting distraction, but I use this time to focus on preparing myself for what I'm about to face and to visualise what course of action I'll take. The information I receive about the patient's condition, before arriving at the scene, can sometimes be very limited, especially for 'priority one' callouts. The flight time is spent having in-depth conversations with the paramedic about potential complications and what treatment may be required for the patient.

All images ©RACQ LifeFlight Rescue

02:30 During the flight I closely monitor the patient and continue her treatment. This is a very different environment to what I'm used to working in, with a much smaller team and workspace than in the hospital.

An RACQ LifeFlight Rescue helicopter.

01:15

02:30

03:30

01:15 Miles is a small country town, about 200 kilometres north-west of Toowoomba, so the flight takes about an hour. We land on an oval near the hospital, as many of the rural facilities don't have a helipad. A Queensland Ambulance Service vehicle then either transports the patient to us or drives the aeromedical team to the hospital. The hospital staff or paramedics then hand over the patient, before I undertake my own assessment and continue treatment. The patient is loaded into the chopper and I call back the tasking agency with a situation report, before we take off to the receiving hospital.

Dr Ola Sorensen with a chopper at the RACQ LifeFlight Rescue Brisbane base.

03:30 We land on the rooftop helipad at Toowoomba Hospital. The patient is wheeled inside, where I do a handover with the receiving medical staff, before we leave her in good hands. We're now only a short flight back to the Toowoomba RACQ LifeFlight Rescue base. Once we land, all equipment is cleaned and restocked so it's ready for the next job, which may come at any moment.

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

QI Services

Compliance, safety, reliability and efficiency.

Solutions, service and expertise

With our broad QI Services portfolio, BOC can help you meet and exceed the considerable challenges of compliance and safety. With over 60 years' experience providing gas solutions and support, BOC's comprehensive QI Maintenance services and independent commissioning are supported by our technical expertise and the implementation of our specific Medical gas system asset management and servicing programme. This is designed to satisfy your accreditation requirements specifically surrounding the stringent AS2896 and AS3551 standards. High quality medical gases and devices comply with Australian Standards and are registered with the Therapeutic Goods Administration.

BOC has a strong presence throughout Australia and 24 hour support from qualified technicians and engineers providing comprehensive on-going maintenance and service support.

Our equipment

- Gas manifolds
- Medical gas alarms
- Zone isolation boxes
- Medical terminal gas outlets
- Medical air testing
- mAIR and mVAC plant
- Medical gas devices
- Surgical control units
- Medical gas pendants

Our services

- QI Engineering — design and installation
- QI Tracking — cylinder management and fleet operations
- QI Preventive Maintenance — independant commissioning of medical gas pipeline systems and maintenance services

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**

Enabling health care with artificial intelligence

Dhannu Daniel*

Artificial intelligence (AI) is augmenting human capabilities and enabling people and machines to work collaboratively, thereby changing the very nature of healthcare work.

A healthcare executive survey showed that an impressive 72% of Australian healthcare leaders are either piloting or planning AI adoption.[1] Furthermore, 93% of health executives have AI projects on their agenda, with just 7% saying they are minimally or not at all focused on AI.

With the strong focus on implementing AI, Accenture has identified four areas that healthcare organisations need to focus on to generate a strong return on investment (ROI) and ensure AI and humans work effectively together.

1. AI supporting humans

Staff shortages are increasingly becoming a problem within the healthcare sector in Australia. In fact, the Australasian College for Emergency Medicine reported that because of staff shortages in the Emergency Department, waiting times are "as bad as it gets" in Australia. AI can alleviate some of the burden as it has the potential to complete a range of tasks such as determining which patients need to be seen first.

For example, a company called Viz.ai uses machine learning to differentiate patients who need urgent attention from those who may safely wait, by analysing scans of their brains made on admission into Accident and Emergency (A&E). This is particularly useful in the case of stroke patients where getting the patient the right treatment at the right time can be life saving.

The University College Hospital in London has developed AI to predict which patients are most likely to miss appointments. Through creating an algorithm using records from 22,000 appointments for magnetic resonance imaging (MRI) scans, it was able to identify 90% of those patients who would not attend their appointment, resulting in cutting waiting times, increasing productivity and saving money for the hospital.

In the pharmaceutical sector, AI could assist by taking a new drug to market more effectively and efficiently. The sales process can be time-consuming and competitive. By leveraging the power of AI analytics, doctors and pharmaceutical companies have faster access to insights on prescription patterns, sales forecasts, patient journeys and customer preferences.

2. Humans ensure AI is ethical

The application of AI within health care raises several ethical problems that need to be considered before any investments are made. AI does not have the same ethical consciousness that humans have, and it cannot necessarily determine right from wrong — for example, the determination between patient rights versus public health when dealing with certain datasets.

Furthermore, as more people willingly submit their own genetic and genomic information direct to consumer companies, there is the potential for discrimination — whether for long-term care or life insurance — on the basis of that data.

Given the increasing role of AI in health care, we cannot advance health care without humans having oversight of AI. Hospitals and pharmaceutical companies have a duty of care to patients to ensure that they are building responsible AI which is free of bias. Many companies, and particularly those considered early adopters of AI, are doing so with the help of internal AI ethics committees, which ensure the organisation adheres to all of the rules and regulations around the use of AI.

3. AI complements analysis of data in a way that humans cannot

One of the key benefits of AI is its ability to analyse large quantities of data. People simply cannot do this on their own at such a pace, so humans can leverage AI to generate the insights they need.

For both pharmaceutical companies and hospitals, analysing patient feedback at scale is no easy task. Accenture helped a healthcare company leverage machine learning to create a sentiment analyser tool, which helped identify the emotional context of patient feedback with over 70% accuracy. In allocating this to the right part of the business, it has provided customer service teams with access to a rich source of insights on what is really working for patients and what is not.

Medical imaging is another area which requires a significant amount of data analysis and where the implementation of AI could be beneficial. AI-powered medical imaging systems can produce scans that help radiologists identify patterns and treat patients with emergent or serious conditions more quickly. By embracing the machine as an integral part of the care team and enabling it to automate routine procedures and processes, clinicians can:

- focus on the most complex and critically ill patients, and
- diagnose and treat disease more efficiently and effectively.

For example, Intel and GE Healthcare are piloting a new X-ray analytics tool to improve the quality of medical imaging. Healthcare's oldest form of medical imaging, X-ray scans, accounts for three-fifths of all medical imaging; however, the number of images that cannot be used due to poor image quality or patient positioning can approach 25%. It is hoped that the new technology will eventually help radiologists and technologists get the right image on the first try, therefore improving department productivity and freeing up more time for clinical interpretation and patient interaction.

4. AI augments a human's complex physical and mental skills

In the age of human and machine collaboration, AI augments a human's mental and physical skillset. For example, robots are increasingly being used by surgeons in microsurgical procedures to reduce mistakes that could affect a patient's recovery. Last year, more than 5000 surgical robots were used in over a million procedures worldwide, spanning across specialty areas such as orthopaedics, urology, general surgery, gynaecology, neurology, thoracic, otolaryngology, even dental implants and hair transplants.

These are significant benefits that can be seen by introducing AI into the healthcare setting, particularly in the areas of patient experience, efficiency, accuracy and cost savings. It can transform the industry and the time is now.

Reference

1. Injecting Intelligence into Healthcare - Accenture Executive Survey on AI in Healthcare Australia, Accenture, 2018

*Dhannu Daniel is Accenture's Lifesciences Lead for Australia and New Zealand.

Health informatics — more than just data

Jacqui Jones

Digital platforms provide the healthcare industry with great opportunities to empower the patient.

Health informatics is about more than just data — it's an opportunity to empower the patient.

That's the view of industry specialist Alexandra Ehrlich, who says health care would do well to follow the lead of the retail and banking sectors when it comes to embracing digital platforms.

Australia was already taking a step in the right direction with the national digital health My Health Record system, she said.

US-based Ehrlich, a biostatistician and a Principal Solution Consultant with Oracle Health Sciences, visited Australia for the recent digital health, e-health and health informatics conference HIC 2019.

She was a finalist in the Health Informatics Society of Australia's (HISA) digital health awards.

Her nomination in the 'Don Walker award – Industry' category recognised her work in data management, CX (customer experience) solutions and artificial intelligence supporting patient experience, as well as a White House AI (artificial intelligence) challenge on clinical trial matching.

At HIC 2019, Ehrlich was a guest speaker and panellist in a workshop on 'Personalising precision medicine: Bringing the consumer perspective to precision medicine'.

Ehrlich's presentation discussed the challenges and opportunities technology addresses in capturing pivotal health, environmental and socioeconomic data for patients.

"It's really about decision support," she said after the conference.

"Providers, what they want technology to do is help them get the right information at the right time. And often information has been implemented just to collect data.

"Keeping the providers in mind really allows us to keep in mind what they find valuable when doing that job. It's really being able to use that as a tool.

"In precision medicine especially there's a lot of information that comes from a lot of different places that's hard to make sense of."

Being able to integrate that into a platform that was easy to interact with was key, Ehrlich said.

A topic of concern, highlighted at HIC 2019, among healthcare professionals was how the industry was leveraging innovative technologies.

"I don't think clinicians are concerned they're going to be replaced but they're going to be overridden," Ehrlich said.

"We talked about, at the precision medicine seminar, we had a really good discussion about how to utilise AI today.

"One of the best cases we found connected that to the White House and the project we had around resource allocation. Using AI to get patients to the right resources. It was decision making, it wasn't diagnosing."

Ehrlich said a large part of this was focusing on the patient or consumer view, and considering what information they needed to make healthcare decisions.

"When a patient is sick or my child is sick, I'm trying to decide where to take them. Do I want to take them to the emergency room, do I want to take them to a GP?" she said.

"That data is there, that information is there. It's really the consumer experience part. We do this with retail, we do this with banking."

Ehrlich said the kinds of digital tools employed in the retail and banking sectors were a nice fit for health care.

"At Oracle, we're lucky we have a large portfolio across industries, we're able to use our best parts from other industries and bring them in in a thoughtful way," she said.

"That's part of my goal being here [in Australia] was to connect with what's going on in the healthcare field here."

Looking at My Health Record — how the project has been received and the next steps now that implementation is well underway — was a part of that work.

Ehrlich said a big focus was on how to maximise the technological investment for the benefit of the patient.

"I think what was really interesting to me was the different levels of conversations that are happening here around how to empower the patient. Because the way the system is set up and through a project like My Health Record, there's such an opportunity to empower the patient and connect to their health care. But in the US, because of the way we're set up, we're not quite there yet."

Ehrlich said a staged implementation of My Health Record was the right approach.

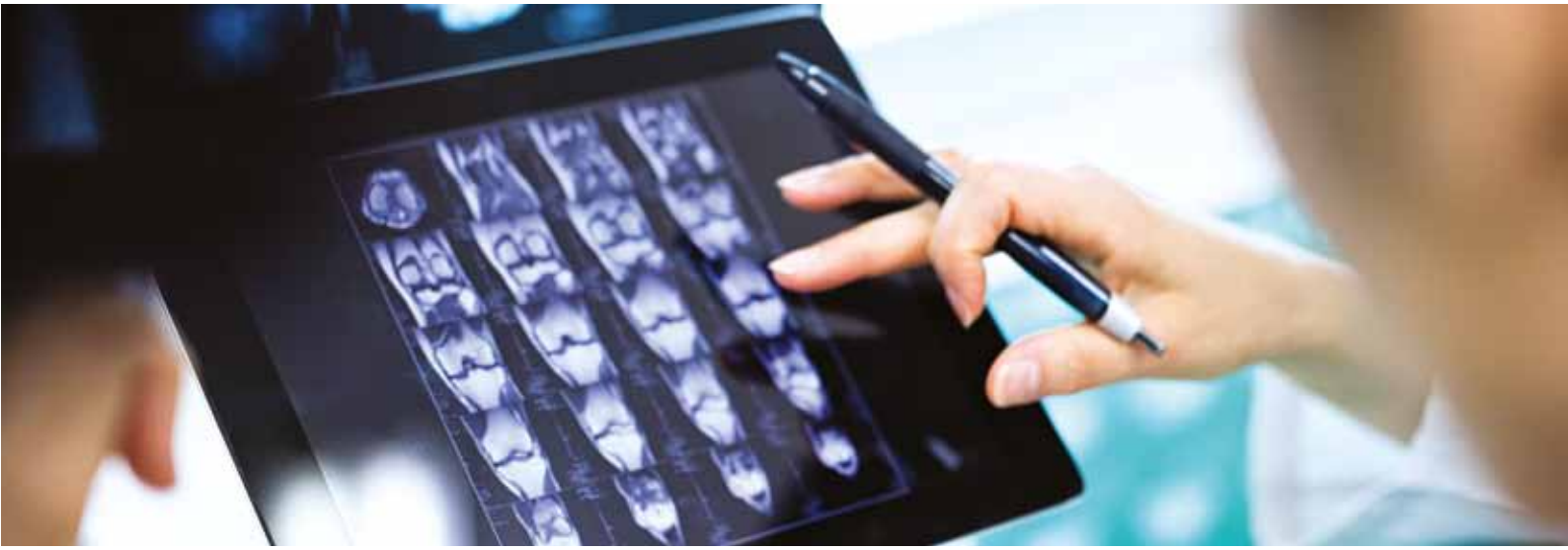
"I think the logical next step ... [is] to discuss the level of detail we want in the record. That has to be driven by what we find beneficial for the patients. I think there's going to be a period of let's experience this and see what works and what doesn't.

"From there I think the next step will be what new data needs to be in there in order to impact care. I think it's really about remaining patient-centric and really creating a process that keeps them front and centre. I think we all acknowledge that.

"But because of the way we've been operating for a long time, especially with technology, we haven't really created a standard methodology to do that.

"I think that's where the opportunity is to stop, take a deep breath and say, in order for this investment to be really beneficial and in order to be cognisant, we have to say the patient is really front and centre."

EMPOWERING HEALTHCARE MATTERS.



InterSystems delivers the software solutions providers need to transform care processes and meet the challenge of long-term healthcare sustainability. The health records of 500 million people in 80 countries rely on our technology. From TrakCare®, the world's most proven electronic medical record system, to HealthShare®, a family of connected health solutions, we facilitate the transition to value-based care and make care delivery more seamless.

Learn more at InterSystems.com/Healthcare

The power behind what matters.

InterSystems®
Health | Business | Government

Security of patient data

needs to be prioritised

Michael Dyson, Managing Director, SOTI Inc. Australia

As mobility continues to transform the way we live and work, cybersecurity and privacy concerns are top of mind for many individuals and businesses.

The healthcare industry is increasingly adopting mobile technology and becoming more reliant on the transmission of data, including confidential patient data on mobile devices. This shift has led to concerns around data security risks in health care, and the implications this may have on the privacy and safety of patient health information.

While recently the most intense scrutiny has been directed at the Australian Government's My Health Record, both healthcare providers and services generating patient health data should ensure this information is kept secure.

Healthcare sector under scrutiny

Data security in health care has been a contentious topic since the government extended the deadline to opt out of My Health Record to 31 January 2019. My Health Record is an online summary of an individual's health information, which can be viewed by both patients and healthcare providers. However, following public pressure regarding the security of this information, several amendments have been made.

Furthermore, when the Office of the Australian Information Commissioner released its first full quarter numbers under the Notifiable Data Breaches (NDB) scheme, it listed the healthcare industry as the worst culprit for NDB. As privacy and data security concerns swirl around My Health Record, NDB numbers will be closely watched.

While My Health Record has since gone live, many Australians do not support it. A recent survey conducted by SOTI revealed that only 39.12% of Australians surveyed support My Health Record, while the remainder either did not support it, opted out or did not have an opinion on it. SOTI's survey also revealed that Australians believe that patient health data privacy and security is the responsibility of multiple parties, not just the government. It found that 61.68% of Australians believe the government is responsible, 61.08% believe individual health providers are responsible and 39.32% believe they are responsible for protecting their own health information.

While the government may have come under intense scrutiny regarding the My Health Record system, it's clear that data security in health care is important to Australians. Australians expect both the government and individual healthcare providers to play an active role in securing patient information.

Risks to data security

Like many industries, mobility and the growth of the Internet of Things (IoT) are having a tremendous impact on health care. The downside of this is that more devices and more connected things increases security risks and the potential of leaking confidential patient data, which damages trust in the organisation, and could lead to financial losses and other negative consequences.

In the face of current scrutiny and high-profile security issues in the healthcare sector, health organisations are under pressure to ensure the data they store is secure. Yet over 40% of Australians surveyed are not confident that their healthcare provider has the appropriate data security measures in place for the devices that healthcare workers use.

A range of healthcare providers from hospitals, GPs and specialist clinics has large amounts of patient data that will be provided to the My Health Record system. These organisations must ensure a high level of security across the many devices used in health care. These include PCs, servers, mobile devices and medical devices. In terms of security, there are two challenges to address. The first is data security — ensuring any data stored on devices is protected. The second is network security — ensuring any patient data transmitted to and from a device is encrypted.

Healthcare providers and services need a comprehensive solution to ensure data and network security for all users. With new connected devices, IoT and new categories of endpoints, they need to be secured and managed with a single, unified mobility management solution.

Unified mobility management is critical

The survey revealed that 49.30% of Australians would feel more confident about the safety of their health information if their healthcare provider had a mobility solution that could wipe and lock devices remotely, enforce data encryption and require passcodes to secure data on devices. In order to provide the high level of data security necessary for the healthcare sector, enterprise mobility management (EMM) is required, as healthcare organisations must secure and manage the vast numbers of endpoints they are deploying to keep patient data secure and private. An integrated approach is crucial, as it will remove mobility silos and connect everything from mobile devices to IoT endpoints. With everything connected, it will be easier for healthcare organisations to secure and manage their mobile devices.

SOTI ONE is an integrated suite of mobility solutions. Working together, the platform removes mobility silos and connects everything. Then, when everything is connected, the integration, analytics and intelligence ensure a solution that evolves with advances in technology and allows for securing and managing mobile devices and IoT endpoints.

Digital reliance and mobility in health care will continue to grow, as will consumer awareness of data security in this sector. That's why healthcare providers and services should ensure they have an integrated mobility management solution in place, so patients can feel confident that their information is safe and secure.

One source of truth;

Revealing risk, compliance and governance through effortless reporting.

How do you enable the large and complex organisation with thousands of workers to instantly produce quality and risk data and client information needed to demonstrate compliance? Providing a single, integrated platform for collection, reporting and collaboration is a great first step, a 'systems based' approach will remove the 'silos' provide board and executive reports based on risk and performance.

Collaborate and scale the system to include your internal and external stakeholders, suppliers and partners – from home care organisations to the multi site acute care structure. eQstats systems approach is designed to meet your company specific and compliance demands – both now and in the future. Simple, consistent user interfaces across multiple devices. Free API integration with your Electronic Health Record or CRM.

One source of truth needs smarter software, systems and services. Let eQstats automate your quality, risk and compliance information , call us on 1300 131 081 or email hello@eQstats.com.au.

Aged Care Reform

BENCHMARK
Stratified
Digital
Benchmarking

INTEGRATE
EHR Integration

VALIDATE
Automated
Data Cleaning

CREATE
Build
Indicators
PDCA

COLLABORATE
Invite your team

RESULTS
Statistical
Reporting

incidents | surveys | standards
documentation | risk | indicators
nonconformity | pathways | audits

For information on our full range of services visit www.eQstats.com.au

eQstats

Download on the App Store | Get it on Google play

https://eQstats.com.au/indicator-app

FREE INDICATOR APP DOWNLOAD

Use our free indicator APP to submit your National Quality Indicator Data Mandatory Submission

p: +61 1300 131 081 www.eQstats.com.au e: hello@eQstats.com.au

Please do disturb

Delivering better patient care in healthcare facilities

Val Jovevski, Director of Healthcare Segment at Schneider Electric

What is this new building? It has 100 rooms and close to 250 beds. Each room is set to the occupant's preferred temperature and, when the room isn't in use, defaults to setback mode: the lights are turned off and the temperature is relaxed a little. Airflow set points remain unchanged in case occupants return unexpectedly. Residents can connect their smartphones to the building's app and operate the blinds to their room, letting in more or less natural light, as well as order their lunch from the restaurant.

This building isn't the newest five-star hotel. It's the hospital of now.

As our world becomes more connected, advanced technology has extended beyond patient medical care and into the hospital infrastructure itself. In particular, the Internet of Things (IoT) has changed the standard of information delivery and decision-making for both a building's facility manager and its users. Each person can access information and control aspects of the building environment in their own way — whether it's

"Each person can access information and control aspects of the building environment in their own way — whether it's to improve operational efficiency, patient satisfaction or safety for all."

to improve operational efficiency, patient satisfaction or safety for all.

This move to a person using data for their health and wellbeing is advanced. Consumers are already using wearable technology (smart watches, fitness trackers, etc) to measure personal health outcomes. In 2016, A PWC report into wearables found that 55% of Australians owned a wearable, and that number was set to increase, with almost half saying they were likely to purchase a smart watch or fitness band in the next 12 months. These connected devices have the capacity to feed data to building, IT, power, security and clinical management systems to create smart hospitals.

Healthcare facilities can now make smarter decisions about their energy use based on critical room occupancy data that previously hasn't been used to its full potential. Hospitals no longer need to waste energy by heating, cooling or lighting empty rooms, and can see when patients are in other areas of the hospital to facilitate operational tasks that might disrupt a patient's rest.

Patient safety presents another top concern. In healthcare facilities, uninterrupted access to power can mean the difference between life and death. Hospitals and surgical centres need constant, reliable power to feed medical instruments, life support machines and diagnostic equipment. One day of power loss can cost a hospital upwards of $1 million, and patients, their health or even their lives.

New construction has the benefit of being built to meet today and tomorrow's digital needs from the ground up. Existing hospitals, however, are faced with challenges. Many older facilities are not equipped with the right infrastructure to support energy and business efficiency — making their operating costs higher. Some can barely keep up with their backlog of maintenance, let alone comply with new sustainability regulations.

But there are solutions. IoT technology helps these facilities keep legacy systems, while identifying new opportunities for cost reduction. For example, by using cloud-based, automated building analytics and diagnostics software, hospitals can identify energy-savings opportunities and prioritise those with the greatest impact for the least investment. This type of intelligent software can predict how much a health facility can save by implementing a specific energy conservation measure or performing maintenance on a particular asset.

With ageing infrastructure and growing populations, health facilities will strain under the pressure. Australia's population is ageing, with one in seven people currently over the age of 65. By 2057, it is projected there will be 8.8 million older people in Australia (22% of the population). In 2016–17, there were 1.6 million emergency department presentations among people aged 65 and over — around one-fifth of the total 7.8 million presentations. In that year, people aged 85 and over accounted for almost one in four (23%) of all presentations for people aged 65 and over.

In health care, as more people use the system, traditional cost-cutting techniques — like reducing staff or services — simply do not work. Instead, they place patient and employee health and safety at risk. By looking for savings elsewhere and focusing on personalisation and patient experience, hospital stays might not be as highly anticipated as hotel stays, but they'll at least be as comfortable.

To find out more about Schneider Electric's IoT-enabled EcoStruxure for Healthcare solutions, visit www.se.com/au/healthcare.

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**

Not your standard CEO

Laini Bennett

All images ©Purple House/Emma Murray

Unconventional CEO Sarah Brown.

Sarah Brown with Purple House Chairperson Bobby West Tjupurrula in front of a mural depicting the Purple Truck.

The backyard of Purple House features a fire pit where Aboriginal dialysis patients, their friends and family sit around talking and cooking kangaroo tails. Purple House is not your standard dialysis centre, and their CEO is not your standard CEO. Sarah Brown shares her leadership journey from remote area nurse to running Australia's most successful dialysis network.

Despite years of experience, tertiary qualifications and a proven track record, Purple House CEO Sarah Brown doesn't like describing herself as a leader. "I hate that word," she said. She prefers to describe herself as 'steering the Starship Purple House', and recognises that she is not your 'typical' businesswoman.

"I am a woman who has never worn high heels in her life, has never worn lipstick and likes to have a joke. For me, the challenge is to puff myself up with health bureaucrats and those sorts of people," she said.

Building a health network

To understand Brown's story, it's worth understanding the organisation she works for.

Purple House is a network of dialysis, social support services and now, aged-care services for the Aboriginal community that are dotted across Central Australia and branch into Western Australia. They are owned and run by the Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation.

Purple House was borne from a need to provide dialysis services on country, saving Aboriginal elders the stress and indignity of seeking end-of-life treatment for renal failure far from home and community. The idea for the service came from the Pintupi people of the Western Desert, who raised $1 million for it through the sale of their own artwork and other donated Aboriginal paintings.

Brown joined Purple House as a part-time project manager, responsible for launching their first dialysis service in Kintore. Some 16 years later, she has over 150 employees running 19 dialysis services, nine social support services, a newly launched aged-care service and the Purple Truck mobile dialysis unit.

"I couldn't have imagined being in the same job for 16 years, but it's changing all the time," Brown said. "The challenges are different and the rewards and headaches are different, too."

A love of nursing and country

Brown was born in England and immigrated to Australia with her family in 1974. Growing up in Maryborough, Queensland, she was a self-described "pale little Pommy kid with a broad Black Country accent that none of the other kids could understand". Desperate to fit in, she began studying her adopted country's history and in the process, discovered the Aboriginal story, past and present. It struck a chord with her that continued to reverberate throughout her life.

Following in the footsteps of her mother, she became a nurse. "I thought nursing would be a job that would give me lots of options to travel the world and have lots of adventures. I have yet to travel the world, but I've had lots of adventures," she said.

Working as a remote area nurse, often in communities where she was the only clinician, gave her a strong foundation in the health and social challenges facing Aboriginal communities, and drove home the importance of building relationships.

"There are lots of remote area nurses who run around like chooks with their heads cut off, focused on workload and how much there is to do," Brown said. "But it's the relationships you build with each other that last. It helped me to think outside the box, to really take the time to listen to people to find out what they wanted, and how they wanted services delivered."

Focus on people

This emphasis on relationships is palpable throughout the organisation, with Brown encouraging her team to build a rapport

Sarah Brown and patient Rosie Patterson from Yuelamu enjoy a cuppa in Purple House's backyard.

Building trust off the back of strong relationships is something Brown takes very seriously, especially as her role requires that she navigate two worlds.

All images ©Purple House/Emma Murray

not only with patients, the board and the community, but with the volunteers, tourists, bureaucrats and philanthropists who broadcast Purple House's good work and contribute funding to their services.

Relationships are also the bedrock on which the organisation's culture is built. "There's an international shortage of dialysis nurses. We don't pay as much as some places and we are expecting people to live in remote communities and work a 6-day roster, but we've got a queue of dialysis nurses waiting to work for us.

"That shows me that we're looking after each other. It might sound twee, but if you get to build the culture of the place from the start and focus on people and the fundamentals, then good people find you."

Building trust and clever solutions

Building trust off the back of strong relationships is something Brown takes very seriously, especially as her role requires that she navigate two worlds. "You've got Aboriginal cultural priorities, and then you've got clinical governance — 'White Fella' standards. It's incredibly complex."

Brown works closely with Purple House's board, which consists of 11 Indigenous directors who represent communities across the Western Desert. Most of the directors are women, and all of them are either dialysis patients or have family members impacted by renal disease. "There is trust on both sides and we're very careful with that trust," she said.

And while Brown acknowledges that she will never be a 'corporate type', she says that this doesn't mean that Purple House can't be agile and clever. Indeed, there are many logistical challenges that accompany running a remote location health organisation that require clever solutions — and a great deal of planning.

Sarah Brown's key leadership tips:

- Know your business really well, so there are no surprises. "Otherwise things are going to come up and bite you on the arse," she said.
- Build strong relationships and trust with the people you work with. "Like with everything it's about relationships and trust — and not stressing the bad things too much and coming up with solutions."
- Have fun and celebrate successes.
- Don't procrastinate — or at least have a plan to deal with the issue.
- Be open to new ideas and change. Just because something was tried years before doesn't mean it won't work now. "Make sure you're always learning, growing, rethinking and revisiting things," Brown said.

"What happens if you've got a dialysis unit with one nurse who gets crook and you've got six patients out there? You have to be really good at planning A to F on any one day," Brown said.

Being clever also means knowing when to say 'no', to avoid stretching resources too thinly. Brown is regularly approached by communities from across the country, seeking help with setting up dialysis units. "We have to be really clever not to get buggered by our own success, stretch ourselves too far and put ourselves at risk. No-one can afford for us to get too big for our boots and fall on our faces," she said.

Approaching a milestone

Brown loves her work at Purple House so much that she finds it difficult to take annual leave. "I have an extreme fear of missing out. We have so much fun here, I can't imagine going on holidays!" she said.

As the organisation approaches its 20th anniversary since its foundation, Brown imagines that she and the House will grow old together. But she is conscious of not overstaying her welcome, jokingly asking the team to check her 'best before date'.

"You will tell me if I've expired and you want to get a new one," she tells them laughingly. They just laugh with her and follow their unconventional CEO onto the next challenge.

Holding a health conference or retreat in Alice Springs? Invite Sarah Brown to talk about Purple House's inspirational work. For more information, visit www.purplehouse.org.au/contact.

This interview with Sarah Brown was made possible thanks to the Northern Territory Convention Bureau. Contact the team for more information on conducting your conference in the Northern Territory.

Devoted to helping caregivers thrive

CAREFIT™

Introducing CareFit—the new line of medical carts from Ergotron

Based on insights and primary research, CareFit is designed to fit people, workflows and environments. Whether it's a lean and slim documentation cart, or a full-featured mobile workstation, CareFit is designed to be nimble, logical and intuitive.

CareFit Slim Laptop Cart

CareFit Slim LCD Cart

CareFit Pro Cart

LiFeKinnex™ Power System

NEW!

- Safe, hot-swap "LiFe" battery power
- Charge on the cart or use the 4-Bay Charger
- Simple magnetic attachment system
- Designed to support multiple workflows
- Intuitive for nurses and logical for IT managers

ergotron®
moving you forward

Contact David Charlton
Country Manager, ANZ
Phone: +61 2 8935 9494
Email: david.charlton@ergotron.com

The rise of educational technology in health care

Alexander Roche*

In educational technologies today we're seeing more and more disruption. From the greater use of mobile devices, the emergent use of virtual reality and augmented reality to the rise of social learning and microlearning in workplaces.

The increasing technical literacy required by the modern and modernising health workplace is disrupting traditional approaches to health care. It's important for institutions and professionals to embrace this disruption and not be frightened of it.

Preparing for the future of health care

The future of the healthcare workplace is evolving, with increased compliance auditing around workforce capabilities. It requires a greater need for just-in-time skill acquisition and retains the age-old problem of not enough resources, time and all pressures associated with these elements. Like every other industry, health care is moving to a digital space, with electronic medical records (EMR) systems and patient management systems (PMS) becoming commonplace and linchpin systems in daily work.

To prepare for the future, hospitals and aged-care facilities need to focus on streamlining current operational approaches. For example, today's skill development and learning requires tools such as learning management systems (LMS), which allow automation and reduce manual intervention.

Learning technologies need to keep up with other business systems such as EMR and PMS. For instance, moving into virtual-reality- and augmented-reality-based training can — and should — change the traditional face-to-face and 'flat' online training structure. Innovations like these keep institutions from falling behind as these technologies explode across other learning and entertainment domains.

Aligning learning strategies and objectives

A best-of-breed LMS such as Totara allows institutions like hospitals and aged-care facilities to create learning experiences and pathways that are specific and personalised, down to specific job role and business unit, keeping in mind there is no 'one size fits all' approach. This is facilitated by using an AI-style rule engine that draws on rich metadata on the staff member, which comes through robust integrations with the HR information systems.

This approach not only helps the institution align objectives with learning strategies but also produces a highly effective and automated business process for learning and development professionals to focus on improving their learning systems and content generation. The automation provided by the LMS means greater focus on developing the system and learning, not simply serving it up.

Benefits of in-house learning

The use of in-house learning allows organisations to focus specifically on different craft groups within the institution. This includes the ability to deliver just-in-time training to meet specific needs and manage the emergent risks.

It also allows organisations to develop as a whole and be seen to develop a 'culture of learning', wherein respected and key healthcare professionals and leaders can contribute to the professional development of their colleagues and the institution's professional community and capability.

Integrating CPD

Healthcare teams can keep up with their continuing professional development (CPD) through a variety of mechanisms.

Firstly, there's the internal compliance training that is delivered by the hospital or aged-care institution. Then there is the annual CPD requirements of health clinicians, where attendance at conferences that offer CPD points needs to be captured and submitted to the relevant industry body. It is important that the individual can easily capture and report on this learning.

We are also seeing opportunities arise from EduTech standards such as the learning records management standard 'Experience API' or 'xAPI'. This standard is letting individuals collate their learning beyond the context of a single institution.

Prioritise objectives over IT

It's important to put the 'technical cart' behind the 'business objectives horse' and not the other way around. That is, it is vital to make sure the business objectives are driving implementation and technical systems designs, such as educational technologies. This is the approach that institutions such as Austin Health, Alfred Health, Eastern Health and Medcast have taken in conjunction with Androgogic.

In the midst of technological change, AI and technology learning systems are offering hospitals and aged-care facilities a means of futureproofing their organisations and streamlining and automating current processes.

*Alexander Roche is the Founding Director and Principal Educational Technologist at Androgogic.

ATP – Rapid hygiene testing in healthcare

Beyond visual inspection – validating your cleaning

What is ATP? (Adenosine Triphosphate)

ATP is an energy-giving chemical found in all living things and is a universal indicator of organic residue.

How is it measured?

Hygiena ATP testing devices contain a natural enzyme found in fireflies. This enzyme produces a simple bioluminescence (light giving) reaction when it comes in contact with ATP.

Using Bioluminescence technology, Hygiena Luminometers can measure extremely low levels of ATP collected with testing devices (swabs). Measuring light produced from the reaction with ATP gives an excellent indication of surface cleanliness because the quantity of light generated is directly proportional to the amount of ATP present in the sample. The reaction is immediate, and results can be processed in seconds. The result is expressed numerically on the luminometer screen as a Relative Light Unit (RLU).

Establishing RLU Limits – What is a Pass or Fail?

Determining RLU pass/fail limits is a fundamental element to a successful ATP cleaning verification program. Setting RLU limits too high may allow contamination to persist on surfaces, endangering patients and staff. Setting them too low may result in overuse of cleaning supplies and excessive labour. Although there are no regulatory standards for RLU limits, peer reviewed studies and data from hospitals that have implemented the Hygiena system offer insight to help hospitals set appropriate RLU Pass/Fail limits according to industry accepted practices.

Literature review

In a recent study conducted by North Tees and Hartlepool Hospitals in the UK, data showed that by monitoring cleaning performance with the Hygiena SystemSURE Plus, these two hospitals experienced a 20% increase in Pass scores. In this study, Pass scores were categorised as any score below 100 RLU. During this time, the hospitals also experienced a 35.24% reduction in reported post 48-hour *C. difficile* infections. (Hygiena 2012)[1]

Mulvey, et al validated the Hygiena SystemSURE Plus ATP system and reported "An ATP benchmark value of 100 relative light units (RLU) offered the closest correlation with microbial growth levels <2.5 CFU/cm²". (Mulvey, 2011) [2]

Willis, et al compared visual inspection, microbiological analysis and ATP bioluminescence test results using Hygiena's system. This study found that of all sites samples, 36% gave unsatisfactory (Fail) results. Using a benchmark of 100 RLU, ATP bioluminescence test results delivered 37% unsatisfactory (Fail) results. (Willis, 2007) [3]

Gauci, et al validated the 100 RLU benchmark, showing that ATP monitoring objectively quantified a 77–92% increase in cleanliness. (Gauci, 2012)[4]

Recommendations

Based on clinical experiences and current literature, Hygiena recommends Pass/Fail RLU limits according to broad risk categories listed in Table 1.

While most hospitals use recommendations in Table 1 below, it is possible to create custom limits for test locations.

Anaeron is also working closely with Australian healthcare facilities on how ATP Testing can assist with the AS/NZ 4187 Guidelines which include recommendations on validation of cleaning lumen and non-lumen scopes.

SureTrend Software developed by Hygiena comes pre-set with reports, graphs and charts that help manage improvements, train staff and clearly illustrate performance. Test results are captured and can be immediately analysed to assist in providing feedback and improve on cleaning performance. Continuous improvement is an essential part of the Hygiena ATP cleaning verification system.

References:

1. Hygiena (2012) Case Study: North Tees and Hartlepool Hospitals, United Kingdom. Two Hospitals Improve Cleaning Sores and Experience Lower Infection Rates.
2. Mulvey, et al (2011). Finding a benchmark for monitoring hospital cleanliness. *Journal of Hospital Infection*, 25-30.
3. Willis, et al (2007). Evaluation of ATP bioluminescence swabbing as a monitoring and training tool for effective cleaning. *British Journal of Infection Control*, 17-21.
4. Gauci, et al (2012) Rapid objective measurement of cleanliness delivers improvements. Welsh NHS.

Surface/Application	Pass	Caution	Fail
Public area	100	101–200	>200
Near patient areas	50	51–100	>100
High-care areas	25	26–50	>50
Sterile services	10	11–30	>30
Ambulances	50	51–100	>100

ACIPC International Conference coming to Perth

8th International Australasian College for Infection Prevention and Control 2019 CONFERENCE

The ACIPC International Conference — a pre-eminent conference for infection prevention and control professionals in Australia — is coming to the Perth Convention and Exhibition Centre from 17–20 November.

ACIPC 2019 is set to broker new dimensions and frontiers in education, research and practice in infection prevention and control as together Australians prevent and control infection in our communities. Conference highlights will include:

- dedicated streams addressing infection prevention and control in a dental setting, and in aged care. These streams have been tailored to meet the needs of professionals working in these fields;
- a dedicated pre-conference workshop on AS/NZ 4187.2014;
- a diverse array of presentations from international and local experts;
- a comprehensive trade exhibition, showcasing the best in innovation and technology from a broad array of committed industry suppliers.

Pre-conference Workshop — AS/NZ 4187:2014

Sunday, 17 November will feature an afternoon filled with practical workshop sessions on topics related to AS/NZ 4187:2014, such as Standard-related issues, implementation and gap analysis, sterilising, water quality and more, rounded off with a Q&A panel. The workshop is open to anyone interested in AS/NZ 4187:2014 and is complimentary for conference delegates.

Sessions for Dental and Aged Care Professionals

On Monday, 18 November, the conference program will see a stream dedicated to presentations addressing infection prevention and control in a dental setting. Topics will include:

- Investigation of poor practice in the dental setting
- Accreditation in the dental setting
- Resources and management of infection control risks in the dental setting

On Tuesday, 19 November, the program will include an educational workshop on infection prevention and control in aged care. Following the workshop, a stream of the main conference program will be dedicated to invited talks and free papers discussing a variety of topics pertinent to infection prevention and control in aged care.

Speaker highlights

Professor Jennie Wilson, University of West London

Jennie has worked in the field of infection prevention and control for over 30 years, both as an infection control nurse specialist in London teaching hospitals and as a consultant epidemiologist at the Health Protection Agency.

She is currently Professor of Healthcare Epidemiology at the Richard Wells Research Centre, University of West London, where her research interests include the use of clinical gloves, surgical site infection and surveillance, urinary catheters and hydration of the frail elderly. She is also Programme Leader of the MSc Infection Prevention & Control.

Dr Ling Moi Lin, Singapore General Hospital

Dr Ling Moi Lin is currently the Director of Infection Prevention & Epidemiology at the Singapore General Hospital, where she plays a key role in the development and running of the program in the hospital.

She is the President of the Infection Control Association (Singapore) and President of the Asia Pacific Society of Infection Control (APSIC). Her interests are in infection prevention and control, antimicrobial resistance, molecular epidemiology as well as quality improvement. She is an experienced trainer in infection prevention and control, quality improvement, LEAN and patient safety.

Dr Marin Schweizer, University of Iowa

Marin Schweizer, PhD, is an epidemiologist and Associate Professor of General Internal Medicine at the University of Iowa in the US.

Since 2012, she has been involved in implementing a surgical site infection bundle among cardiac and orthopaedic surgery patients at 33 hospitals across the US. Her three current research grants focus on antibiotic stewardship among surgical patients, de-implementing unnecessary urine testing and nasal decolonisation of dialysis patients.

Registration is now open for the 2019 ACIPC International Conference. To view the full conference program, learn more about conference activities or register, visit www.acipcconference.com.au.

AMT Group
Australasia

TD 100 CE Automated TOE Probe Disinfector

TD 100 CE Automated TEO Probe Disinfector is new to the Australian market. It provides high-level disinfection of transesophageal echocardiogram (TOE) ultrasound probes in only a disinfection cycle of 5 minutes with printed verification upon completion of successful disinfection cycle.

The TEO Complete Care improves quality, reduces variations of manual cleaning, and controls cost in a variety of areas, from patient care to supply chain to overall departmental revenue management.

TOE Complete Care
10 Steps to Successful TOE Probe Reprocessing

Step 1 - Point of Use Cleaning
Step 2 - TEO Probe Transportation Case
Step 3 - Enzymatic Cleaning
Step 4 - Rinse and Dry Probe
Step 5 - Electrical Leak Testing
Step 6 - High-Level Disinfection
Step 7 - Rinsing After High-Level Disinfection
Step 8 - Probe Drying
Step 9 - HEPA Filtered Probe Storage
Step 10 - TEE Probe Procedure Case

CLEAN
Compliance solutions for pre- and post- disinfection of ultrasound probes.

DISINFECT
Everything you need for high-level disinfection of transesophageal (TEO) echocardiogram probes.

PROTECT
Compliance solutions to monitor, protect, transport and safety store ultrasound probes.

amtintlgroup.com.au
Phone: 1300 780 052

ARTG - 319542

Featured Products

Keep up with the latest industry innovations

Biofilm remover and disinfectant

Surfex from Whiteley Medical is a dry-surface biofilm remover and disinfectant, intended for use on environmental surfaces and non-critical medical devices such as hospital beds and theatre trolleys. The product's formula of buffered peracetic acid and surfactants is designed to ensure disinfectant efficacy critical for healthcare environments.

Surfex is proven to kill *Clostridium difficile*, *Norovirus*, *Parvovirus* and *Vancomycin-resistant Enterococci* (VRE).

Key features include: removal of dry surface biofilm which may serve as a reservoir for multidrug-resistant organisms in healthcare environments; an in-built detergent system that allows 'all in one' cleaning and disinfecting of surfaces; a colour-coded indicator system that shows when Surfex's biocidally active concentrate is safe to use; included on the Australian Register of Therapeutic Goods and approved for use on environmental surfaces and non-critical medical devices.

The Surfex Outbreak kit is also available to assist with containing an outbreak.

Whiteley Corporation
www.whiteley.com.au

Patient lift

Apexcare, based in Taiwan, produces residence beds, care beds, patient lifters, ceiling lifters and rehabilitation equipment, designed to assist aged and disabled people, to allow them to live a happy and dignified life with the best care available. The Patient Lift is used to move a patient from between their bed, wheelchair and batch room, saving the nurse vocational injury and ensuring patient safety.

The lift leverages the stable and reliable Danish LINAK electrical elevation cylinder. It can carry a maximum load of 150 kg (±10 kg). The lift has two 12 V rechargeable batteries that last up to 40 cycles of elevation after being fully charged.

Apexcare
www.apexcare.com.tw

Temperature sensor

Data logging vaccine and blood fridges is vital to ensure correct cold chain management and it's now easy and low cost. Even though it's winter, now is the time to make sure that your fridges are storing your vaccine and blood products at the correct temperatures.

The unit reads the temperature at the probe tip and sends it to the internet using the Sigfox network. This data is then sent to HLP Controls' data display website for graphing and reporting. The site also allows alarms to be set and users can log in from a computer or any internet-connected device. Alarms can be sent to any number of users.

The sensor's batteries can last up to 15 years (one report per day) or, with reports every 30 minutes, a battery life of up to five years is typical. The batteries are replaceable.

As long as there is coverage by the Sigfox network, this is a plug-and-play device — just place it and plug the battery connector in.

The Enless temperature sensors are unique in that they are fully self-contained. Model 300-032 is a waterproof, IP65 battery-powered temperature sensor with a high-accuracy Pt100 sensor on a 2 m teflon wire. The probe temperature range for the device is -30 to +100°C. The ambient temperature for the unit is -20 to +55°C. Measurement accuracy is 0.5°C, with a resolution of 0.01°C.

HLP Controls Pty Ltd
www.hlpcontrols.com.au

Environmentally friendly paper pill cups

Haines Disposable Paper Pill Cups are an environmentally friendly and cost-effective alternative to plastic pill cups. They are suitable for use in hospitals, doctor clinics, dental centres and aged-care facilities.

Haines Disposable Paper Pill Cups are designed to assist in the distribution of medication, to avoid cross-contamination and reduce staff work load.

The cups are wax-free and plastic-free and biodegradable/compostable.

They are designed to decompose within 2–6 weeks in general waste. They can also be recycled and can be disposed of in macerators.

They are latex-free and have pleats for extra strength.

Same day despatch and samples are available on request.

Haines Medical Australia
www.hainesmedical.com.au

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

Probe storage cabinet

The Cleanshield Probe Storage Cabinets — TGA ARTG 305387 — provide a dedicated and secure place to store disinfected Endoscope/TOE/Ultrasound probes. Each cabinet is designed to store probes in positive pressure HEPA-filtered clean air during storage, minimising probe contact with airborne contaminants. Thermally fused polypropylene construction makes the cabinet easy to clean with any disinfectant.

The probe storage cabinet is designed with hanging clips and shelves to allow for easy and secure placement of the disinfected TOE probe. The probe is allowed to hang freely inside the storage cabinet while the probe headset and cable are held in secure positions. Once the probe has been safely placed inside the storage cabinet the door can be closed and locked for added security. The polypropylene cabinet is designed to accommodate up to three probes or six probes and comes with a padded lower section to protect the delicate TOE probe tip.

All AMT Group cabinets are listed on the TGA ARTG and fully comply with AS 4187 requirements for probe storage.

AMT Group Australasia
www.amtintlgroup.com.au

Multiple use clinical gateway

The USM-110W is an ITE-certified edge solution-ready platform (SRP) aimed at diverse clinical applications. Powered by an ARM Cortex-A17 quad-core processor with over 5 years' longevity support and featuring a dual HDMI interface (supports up to 4K resolution) for video recording and analysis, the USM-110W provides a cost-effective, scalable solution for edge-to-hospital information system (HIS) applications. The flexible design of the device cover allows the platform to be easily customised with a specific logo/colour, integrated with an LCD panel or a high-performance HDD for a reduced time to market and easy integration with existing infrastructure.

Certified to relevant ITE safety standards, the USM-110W can be deployed as an intelligent hospital room solution, picture archiving and communication system (PACS), data transmission device, nursing station or hospital edge SRP. Additionally, the USM-110W supports Android 6.0, which provides an open source environment for easy software development.

The USM-110W is a highly expandable platform that can be integrated with various peripherals to extend the system functionalities for specific usage requirements. The platform's front and rear cover feature multiple easy-access I/O ports that enable convenient connectivity to facilitate effective management of hospital equipment and applications.

Advantech Australia Pty Ltd
www.advantech.net.au

How to navigate complex ethical dilemmas

Vanessa Pigrum*

When our care system is in crisis, how do hospitals decide how to distribute scarce resources? We address the ethical dilemmas facing health practitioners.

The recent crisis in Queensland's hospital system shines a light on the complex challenges practitioners and administrators grapple with every day.

Hospitals were faced with multiple public health events, a glitch-ridden system upgrade, and a bed shortage that led to emergency departments dealing with a flood of people seeking help and waiting days for admission. Experts warned that the situation was heading to a point where lives were at risk.

This confluence of events shows what happens when an already strained system is placed under acute pressure — and the decisions made in hospitals become even more consequential than usual.

You can't magic extra beds and more staff out of thin air. Increased investment can help address the problem in the long term, but provides no immediate relief for frontline workers battling to deliver an essential public service. It forces healthcare professionals and administrators to undertake the difficult moral calculus of deciding how to distribute a scarce resource.

How should hospitals tackle this impossible task? There is no shortage of operational rules, codes and procedures to follow, but they may not always have the answer we need. The starting point may be 'do no harm', but what if helping one person means leaving another to suffer? When there is no perfect outcome, what ethical frameworks might inform our decision-making?

The utilitarian approach: Do the most good

Utilitarianism says the goal should be to produce the greatest good for the greatest number. According to Peter Singer, this can

be understood as an ethical requirement to do the most we can to reduce avoidable pain and suffering.

At first glance, this is how our public hospital system works: patients are triaged based on need and treated in order of severity. But it's not as simple as just treating as many patients as possible.

Philosophers like John Stuart Mill argued that the goal is to maximise outcomes for the community at large — not just the individual presenting to emergency. This can ask for cold, dispassionate number crunching: is it right to treat a small number of car crash victims with potentially fatal injuries before containing a contagious disease that may affect the lives of thousands? Such a binary may be hypothetical, but utilitarianism demands consideration of uncomfortable questions that are all too familiar in health budgets: should funds go to acute care or prevention?

Justice as fairness: Prioritise the disadvantaged

In contrast to utilitarians, egalitarians like John Rawls ask that we place fairness at the heart of everything we do. A just society is one where everyone, regardless of race, gender, culture or class, has equal opportunity to participate in the system and enjoy equal access to essential public goods like health care.

For Rawls, institutions have a moral obligation to address inequality through their procedures and processes. This means devoting extra resources to the most disadvantaged people in society. By prioritising access to the most vulnerable, hospitals would arguably be delivering care to those who it will benefit most. It's a high moral bar to shoot for, but one that needs to be considered if our public health system is to be truly fair.

Virtue ethics: What is the good we are seeking?

In the opening of his cornerstone work, the Nicomachean Ethics, Aristotle cautions that the study of ethics isn't an exact science. His point is that it's impossible for any list of rules to dictate the 'right' thing to do in every situation. Instead, he proposes we focus on identifying the larger good that we are trying to achieve. Keeping that goal clearly in view helps us to determine the right course of action in difference circumstances. Our decisions must be guided by virtues like courage, kindness, generosity and moderation, and also need continual reappraisal in light of our growing understanding and experience — what Aristotle calls practical wisdom.

For those on the frontlines, these aren't hypothetical thought experiments. Who to treat and where to allocate funds are daily challenges with genuine consequences.

Health care is riddled with wicked problems, yet decisions have to be made. Reflecting on the ethical frameworks that underpin those determinations can help us to make better, more considered judgements.

*Vanessa Pigrum is the CEO of the not-for-profit Cranlana Centre for Ethical Leadership that helps executives develop their skills in critical reasoning and ethical decision-making.

Medical excellence in Taiwan

Laini Bennett

H+H was recently invited by the Taiwan External Trade Development Council (TAITRA) to the Medical Taiwan conference to experience Taiwanese innovation in medical devices and to talk one on one with their innovators in health care.

When it comes to medical devices, the Taiwanese are passionate about providing solutions that don't just perform well, but make a difference to the welfare of patients and carers alike. When H+H interviewed Taiwanese healthcare businesses at Medical Taiwan, this was a repeated theme, especially the desire to help their ageing population to live their lives with dignity.

Whether they're creating exoskeletons that allow wheelchair-bound patients to walk or opthamology kits that bring eye care to remote communities and house-bound patients, the Taiwanese focus on the people they're helping. They're also keen to go a step further when creating medical devices, to instead create solutions. This is evident in the number of services H+H viewed that incorporate artificial intelligence (AI) and the Internet of Things (IoT).

This year's Medical Taiwan conference had 326 exhibitors and 620 booths, with several key themes:

- Medical technology and IoT applications
- Home care and telecare products
- Entrepreneurs and start-ups
- The smart operating room

Several hospitals also had a strong presence, such as Taipei City Hospital, whose stand had a dozen different solutions it had created in partnership with Taiwanese innovators. H+H met with a wide range of interesting Taiwanese healthcare businesses, many of whom are seeking to distribute their products in Australia.

Opthamology kit will help rural communities

Product: EYE ATM portable ophthalmology system

Benefit: Portable, lightweight and cost-effective, the system will help provide eye care for regional communities and house-bound patients.

Distributors: Medical device distributors.

Taipei City Hospital has partnered with local medical device manufacturers to create medical innovations designed to support their 'people first' ethos. "People-centred care is a central concept to the hospital," Taipei City Hospital Deputy Superintendent and neurosurgeon Dr Dachen Chu explained. "Our patients are more than that, they're family."

Speaking at the Medical Taiwan conference in Taipei, Dr Chu demonstrated some of the equipment the hospital has co-developed with local partners such as the Industrial Technology Research Institute. Together, they have created a portable ophthalmology system, allowing patients in remote regions to be tested by local eye doctors. "It's light, transportable and leverages artificial intelligence," Dr Chu said.

The kit combines ophthalmic devices such as a portable slit-lamp, a portable fundus camera and a portable tonometer in a smart suitcase. Connected to Wi-Fi and diagnostic software, patient images can be uploaded into the database, allowing specialists at Taipei City Hospital to provide a diagnosis. The system also provides a diabetic retinopathy AI decision support system. Ideal for regional and remote areas and housebound patients, the portable ophthalmology kit will be available for sale later this year.

View: www.tpech.gov.tw

L-R: Dr Dachen Chu with Taipei City Hospital Department of Opthamology Director I-Lun Tsai, who developed the portable kit (pictured right).

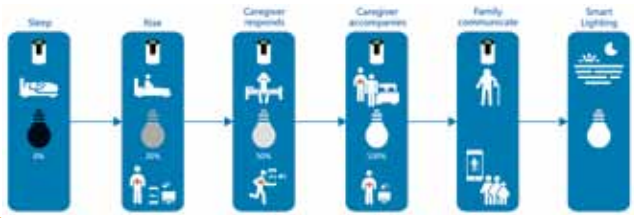
Reduce elderly falls with a mattress alert

Product: Oenix Biomed Solutions Nightingale System

Benefit: The in-built mattress sensors alert carers when an elderly patient is attempting to leave their bed, to reduce the risk of falls.

Distributors: Seeking distribution partners, particularly local telecommunication companies, multiple service operators (eg, cable television operators) and/or information and communication technology system integrators, to provide a one-stop service.

Oenix recently unveiled its new Nightingale Smartcare system, designed for use in aged-care facilities, hospitals and even homes. The system provides information to healthcare providers about their elderly patient's movement, to reduce the risk of falls. A smart mattress with 30 pressure sensors identifies when a patient is sitting, moving to the edge of their mattress or getting up. Connected to an integrated system, Nightingale provides instant status alerts to nurses, giving them the chance to quickly move to the patient's room to assist them from their bed before they fall. Nightingale includes a smart light and service button, which work in tandem with the smart mattress. The system can support up 50 to 60 people in a nursing home, and can be incorporated into a private cloud to ensure privacy security.



Goodbye handwritten name plates

Product: Refront Patient/Room Information Display

Benefit: Saves healthcare workers from manually creating patient name plates and handwritten notes on whiteboards about the patient's status.

Distributors: Medical device companies or buy direct.

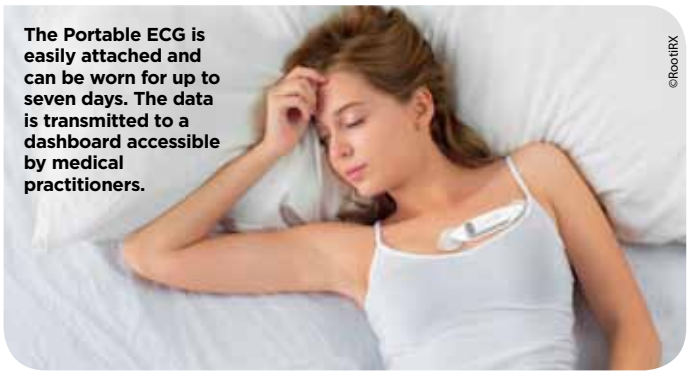
Say farewell to handwritten or printed patient nameplates and inefficient processes with the Refront Patient/Room Information Display. A patient's name and key information about their care can be uploaded wirelessly to Information Display using a smart cloud management system. It has five configurable user interfaces, flexible to meet different scenarios, such as instructions regarding the patient's diet or other messages to caregivers.

The screens are made using advanced e-paper display technology, similar to a Kindle, with low power consumption with high resolution. It is backlight-free to ensure undisturbed rest for the patient.

View: www.refront-iomt.com

©Refront

The information display offers patient information and messages to carers.



The Portable ECG is easily attached and can be worn for up to seven days. The data is transmitted to a dashboard accessible by medical practitioners.

©RootiRX

Portable ECG makes ongoing monitoring easy

Product: RootiRX compact ECG IP58

Benefit: Compact, lightweight heart-monitoring device that captures a single-lead ECG signal continuously up to 7 days.

Distributors: Medical device companies, pharmacies or buy direct.

At just 14 g, the RootiRx is a lightweight, water-resistant, wireless single patch that captures a single-lead ECG signal continuously up to seven days. It is easy to wear on the chest and can be used comfortably in daily activities such as showering and light exercise.

The monitor has built-in Wi-Fi, allowing recordings to be directly uploaded to the RootiCare data centre anywhere there is Wi-Fi internet. Its preview mode allows the doctor to check the signal prior to recording, resulting in less invalid recordings and a better diagnostic yield.

The monitor also provides doctors with insights garnered from thousands of clinical cases; it does this by drawing on clinical-grade biometrics from the ECG signal and using deep learning to provide the doctor with the collective learning of the medical community.

View: www.rooticare.com

Free Walk provides freedom from wheelchairs

Product: Free Bionics Free Walk

Benefit: Allows people who have been restricted to wheelchairs to walk independently.

Distributors: Medical device companies or buy direct.

For people with spinal cord injuries, the prospect of never walking again is a daunting one. Which is why Free Bionics developed its Free Walk exoskeleton, providing these patients with the freedom of movement and increased independence. Free Walk incorporates four motors at the hips and knees which, together with the skeleton, hold the patient firmly in place and allow them to stand and sit, and to walk forward.

Free Walk has in-built IMU sensors to detect the patient's shifting weight and posture. If the wearer leans forward, it knows the patient is going to commence walking. If they lean back, it knows you want to stop or to sit. The accompanying crutches also have built-in remote controls with customised parameter settings that allow the wearer to tell Free Walk what actions they want to take.

Free Walk can also be strapped on independently by the wearer, so they are not reliant on a carer's assistance. Free Walk may be used by patients who are between 150 and 190 cm tall, with a weight limit of 100 kg. The rechargeable battery can last up to two hours of walking, and allows the wearer to travel a maximum speed of 2 km/h.

Free Walk provides independence to people with spinal injuries.

©Free Bionics

©Spirit Medical

The RealView Video Otoscope

Bringing ear care into the 21st century

Product: Spirit Medical S900 RealView Video Otoscope

Benefit: High resolution screen not only makes it easier to view the ear canal but allows images to be recorded and downloaded for future viewing and comparison.

Distributors: Medical device companies or buy direct.

Otoscopes have moved into the 21st century with Spirit Medical's RealView Video Otoscope. Rather than a health practitioner peering into a small lense, they can instead clearly view a patient's ear canal via a small screen built into the device. The practitioner can take photos and record video of the canal, which can be used to show the patient and for comparison purposes.

A USB connection allows images and video to be downloaded from the device and stored or shared. This could also assist remote and rural practitioners in seeking third-party advice about a patient's condition.

Stylish comfort for elderly patients

Product: Green May Industrial GM09S Multifunctional Household electric bed

Benefit: The electric bed provides comfort with a touch of luxury for elderly people

Distribution: Seeking Australian distributor.

Green May specialises in electric beds for nursing homes and for elderly patients living at home. They create environmentally sustainable products that provide comfort and a touch of luxury.

The bed can be shifted into nine different positions, providing comfort and reducing the chance of bed sores, using an in-built hydraulic lift and German-made OKIN motor. To prevent accidents, the bed has a safety feature that stops it from lowering if it encounters an obstruction, such as a carer's hands.

The beds also feature a series of side rail slots that allow the safety rail to be repositioned easily to protect the patient from falling. The base is lightweight and made from a recyclable material that readily curves to the patient's shape.

View: www.green-may.com

Green May's most popular bed, the GM09S single electro-adjustable bed.

©Green May

Taiwan External Trade Development Council (TAITRA) www.taitra.org.tw

Share your skills overseas

The Australian Volunteers Program is looking for skilled clinical and allied health professionals to support change in 26 development countries.

We'll support you with:

Visit australianvolunteers.com

Australian Volunteers FOR INTERNATIONAL DEVELOPMENT

Australian Aid

The Australian Volunteers Program is an Australian Government initiative.

In Conversation...
with Jenny Messell

Jacqui Jones

Jenny Messell with the Honourable Natasha Fyles MLA, Minister for Health, and Professor Catherine Stoddart, Chief Executive Officer, Northern Territory Department of Health.

In Conversation provides a glimpse into the life of an 'outlier' — an exceptional person going above and beyond to improve outcomes in their field. We speak with Jenny Messell, Service Manager at Northern Territory Indigenous residential aged-care facility Juninga Centre. In recognition of her work, Messell was named winner of the 2019 Nurse of the Year at the Northern Territory Nursing and Midwifery Excellence Awards. She was recognised for her dedication and commitment to her clients and their families, as well as her leadership in the workplace. "At the heart of the Juninga Centre is Jenny Messell's dedication to professional service delivery," the judges said.

Your Nurse of the Year award recognises your work with the Juninga Centre. Can you tell us about the centre and who it provides services to?

Juninga Centre has been operating for 30 years. It is an Indigenous residential aged-care facility catering for 24 permanent residents and two respite beds with 10 independent cabins at the back that have home care packages. It is for Indigenous people but we do have non-Indigenous people reside here at times.

We have residents coming from all over the Top End communities to either have respite care or permanent care. They come from the islands too: Elcho Island, Groote Eylandt, Tiwi Islands.

What makes Juninga unique, compared with other aged-care centres/services?

Juninga is pretty unique in that it is built with Indigenous people in mind — open areas, access to the outside from every room. It has lovely gardens, a camp fire area and a great

Northern Territory Nursing and Midwifery Excellence Awards. 2019 award recipients group shot.

outdoor activities area. The residents can wander around and they feel right at home.

What does your role at Juninga involve?

My role at Juninga is the Service Manager. It involves me in making sure the day-to-day running of the centre is smooth. Making sure the residents are happy and comfortable, making sure the staff are happy. I greet the residents each day and have a little chat with them to make sure all is well. I have a lot of paperwork and reports to do so I am kept pretty busy each day.

How did you start in nursing and aged care?

I started my training at Manly Hospital, NSW, in 1976. My mother was a nurse and worked in aged care for as long as I can remember. My three sisters are all nurses working in different sectors of nursing. I did do some work at the aged-care centre my mother was working at when I was still at school and I think that may have contributed to my interest in aged care.

What are most important qualities for nurses working in aged care?

The most important qualities for nurses in aged care are compassion, patience, understanding, caring and listening to the residents.

What are the challenges of your role?

The challenge in my role is time. Time to get everything done on time. Also trying to connect the residents with their families, as they are so far away in communities and they rarely see each other or speak with family.

And the rewards?

The rewards are simple. When I see a resident smile and enjoying themselves it is very rewarding. We are doing something to make their lives more enjoyable.

The award judges highlighted your professional care of your clients and their medical, emotional and cultural needs. How do you meet emotional and cultural needs and why is this important?

I think we meet the emotional and cultural needs of the residents as a team. The lifestyle person gets information about the resident when they are admitted so a 'Lifestyle Care Plan' can be put together for their individual needs. These care plans are followed to make sure the resident is doing things they enjoy. We celebrate many cultural days with the residents, NAIDOC day being the biggest celebration of the year.

You are also described as a 'natural leader'. What makes a good leader?

I think a good leader is one that listens to staff and hears their issues and actions them as quickly as they can. Also having an open door policy for staff to come to me anytime. I know in the bigger facilities this is not possible, but we are a small facility so I can accommodate that. I think staff need to know that they are being listened to — sometimes they just need to get things off their back.

What does Juninga mean to its residents and their families — how do they benefit from the services offered?

Juninga means home to the residents and their families. They seem really happy to be here but they do miss their home communities and families.

What does the Nurse of the Year award mean to you?

The Nurse of the Year award means a lot to me. I am proud to have won it but I think all nurses need to get an award as they all do such a wonderful job and are such caring, compassionate and adaptable people.

Professor Catherine Stoddart, Chief Executive Officer, Northern Territory Department of Health, with Jenny Messell.

Out & About

At the Pharmaceutical Society of Australia's flagship conference PSA19, held in Sydney in July, a number of pharmacists were recognised for their high standards of commitment and professionalism.

1. (L-R) Pharmacist of the Year Mr Peter Crothers, NSW; Lifetime Achievement Award winner Col. (Rtd) Bill Kelly, ACT

2. Pharmacy Shark Tank competition winner Shannon Lawrence (second from left) pictured with the Pharmacy 'Sharks' Fernando Lizarraga, Mylan's Product Manager (left); Cathie Reid, Co-Founder of Australia's Epic Group and; Joey Calandra, PSA's General Manager Market Engagement. Community pharmacist Shannon Lawrence took out this year's Mylan-sponsored Pharmacy Shark Tank at PSA19 with her 'Ask the Pharmacist' app.

3. (L-R) CEO of MIMS Australia and New Zealand Mr Robert Best; 2019 PSA MIMS Intern Pharmacist of the Year Ms Ayomide (Mide) Ogundipe and; PSA National President Dr Chris Freeman.

4. PSA Mylan Pharmacy Student of the Year Ms Alice Hashiguchi.

5. Early Career Pharmacist of the Year Dr Fei Sim, WA.

6. (L-R) PSA National President Dr Chris Freeman and new Fellows: Dr Claire O'Reilly; A/Prof Rebekah Moles; Ms Michelle Lynch; Mr Tim Perry; Mr Phil Dibben and; Mrs Karen Carter.

8th international

Australasian College
for Infection Prevention and Control

2019 CONFERENCE

17–20 NOVEMBER 2019
PERTH CONVENTION & EXHIBITION CENTRE, PERTH, WA

The **Australasian College for Infection Prevention & Control** (ACIPC) invites you to attend Australasia's pre-eminent conference for Infection Prevention & Control professionals; ACIPC 2019.

This year's program features presentations from over **25 invited speakers** from Australia and abroad including:

- **Professor Jennie Wilson**
  University of West London
- **Dr Ling Moi Lin**
  Singapore General Hospital
- **Dr Marin Schweizer**
  University of Iowa
- **Cathy Jones**
  Healthscope
- **Susanne Tegen**
  Consumer Advocate
- **Emeritus Professor Mike Daube AO**
  Curtin University

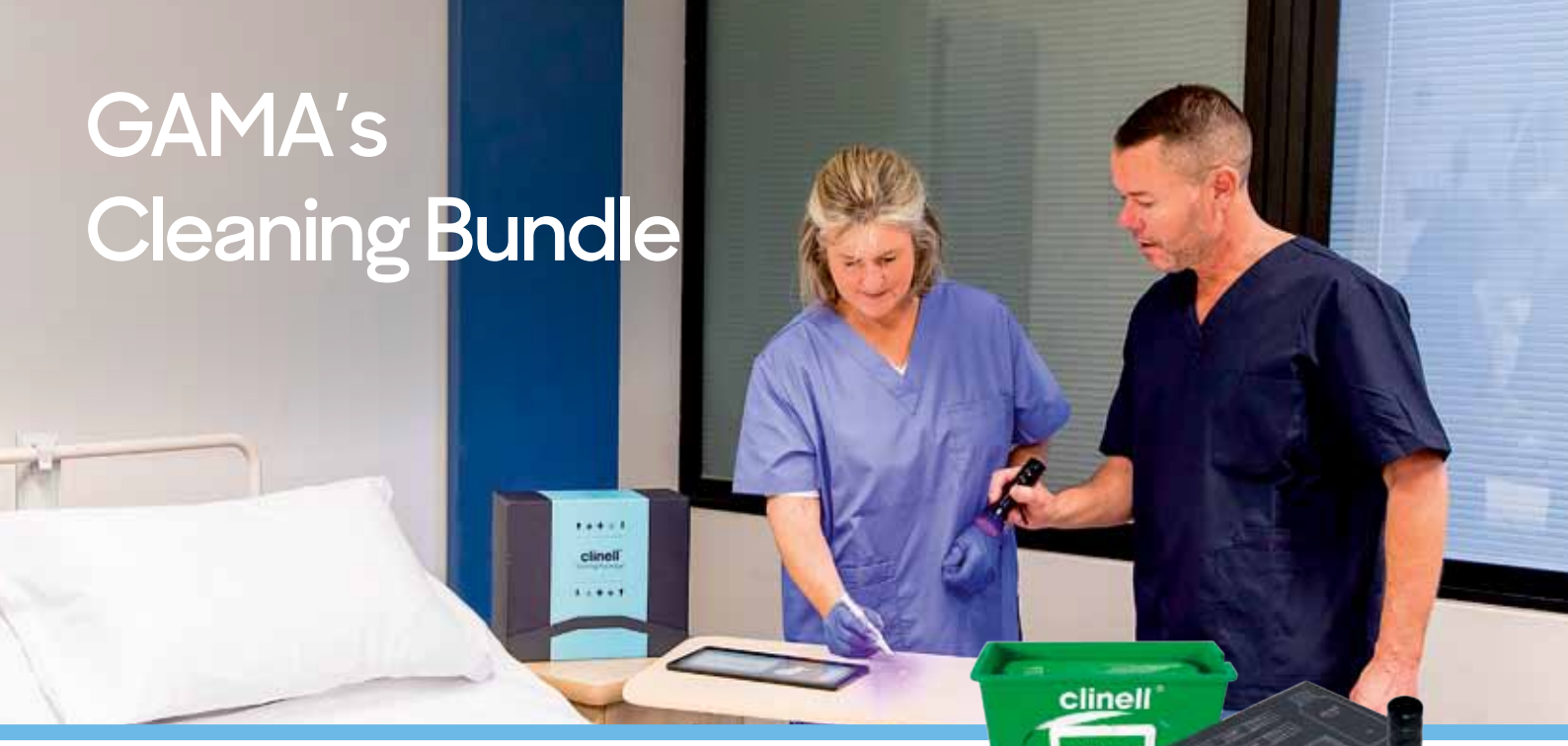
Why attend ACIPC 2019?

- Opportunities to see how knowledge and research is translated into practice
- Access international, national and local Infection prevention and control and infectious disease expertise
- Access the latest evidence based research
- Networking
- Learn about new products from experts on the trade floor
- Learn about ACIPC awards, scholarships and further educational opportunities
- Attend a dedicated pre-conference workshop on **AS/NZ 4187.2014**
- Participate in dedicated streams addressing infection prevention and control in a **dental setting**, and in **aged care**

For more information and to register visit the website

www.acipcconference.com.au

GAMA's Cleaning Bundle



GAMA Healthcare and Clinell offer a multi-modal approach to environmental cleaning by offering the right product combined with education, technique, communication and auditing.

FREE auditing system, training & support*

1 Product

High quality, cost effective products, proven efficacy in healthcare environments.

2 Education

Customised workshops for clinicians and/or cleaners and ward based in-services.

3 Auditing

Environmental tablet-based auditing software, with customised audits to suit facility needs.

4 Technique

Support with training staff on best cleaning practices: 'S' shape pattern, top to bottom, clean to dirty approach.

5 Communication

Personalised literature to promote and embed product and practice changes.

Contact us for further information:
+61 (0)3 9769 6600 | info@gamahealthcare.com.au
www.gamahealthcare.com.au

* For Clinell users, subject to minimum spend

GHA190109

GAMA Healthcare Australia Pty Ltd.,
Suite 1, 33-37 Duerdin Street, Notting Hill, VIC 3168, Australia.
T: +61 (0)3 9769 6600 E: info@gamahealthcare.com.au
www.gamahealthcare.com.au

gama healthcare