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Welcome to your Summer edition!

This issue, as you may have gathered from our striking cover, we have a sustainability theme. Did you know that in the US alone, nearly 2 billion kilograms of healthcare waste is generated annually, 70% of which comes from operating theatres? We feature a study that looks specifically at operating theatre waste in Australian hospitals in 'Clinical waste – a major environmental burden'. We also examine PVC recycling programs in hospitals in 'Taking a 'healthy' approach to PVC sustainability'.

If you're looking for creative ways to manage waste at your organisation, check out our Day in the Life feature with ANMF (Vic) environmental Health Officer Ros Morgan, who has some inspiring solutions. Or if it's food waste that concerns you, our 'Creating a sustainable foodservice' feature is a great place to start.

The tyranny of distance and limited resources is a challenge for healthcare workers and patients living in rural regions of Australia. 'In Conversation with telepalliative nurse Brett Hayes' explains how Hayes and team have successfully implemented a telehealth program assisting palliative care patients and their families in regional West Australia.

Similarly, telehealth provided a solution for Dr Tim Buchman of Emory Healthcare in the USA. Worried about his team burning out from providing night shift support to ICU clinicians, he need a way to offer help without the burden of night shifts. His solution? Telehealth centres based in Australia. Read about it in 'Turning night into day'.

As always, there is a wealth of great stories in this issue, so settle in for an engaging and informative read.

Laini Bennett
Editor, H+H
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WANT TO CONTRIBUTE?

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

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

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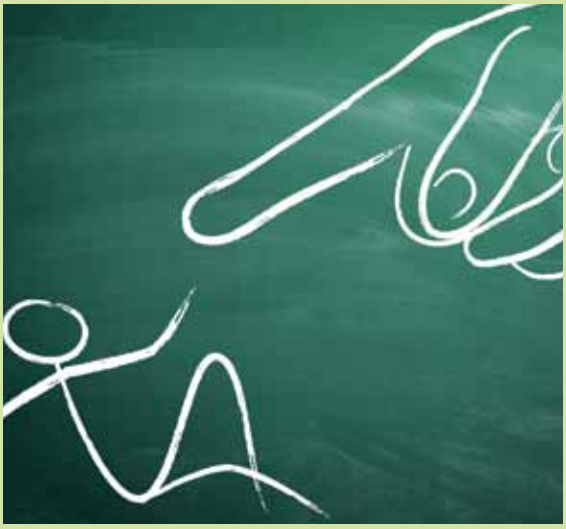
The Rounds
Updates in health care



Bullying doctors a threat to patient safety

Low level unprofessionalism by medical practitioners is a risk to patient safety, according to the authors of a Perspective published by the *Medical Journal of Australia*.

It is associated with poor staff psychological wellbeing, including stress, reduced teamwork and communication, and loss of concentration. Less well understood, they said, was emerging evidence that "even low level unprofessionalism is a significant risk to patient safety".

Unprofessional behaviour in the medical profession may range incivility through to passive aggression, public criticism of colleagues, deprecating humour, through to bullying, discrimination and harassment.

The 2016 survey of the Victorian Public Sector Commission found that 25% of staff in health agencies experienced bullying, and in a 2014 survey of the Australian Nursing and Midwifery Federation, 40% of nurses reported bullying or harassment in the previous 12 months. In 2015, the Royal Australasian College of Surgeons found that 49% of respondents had been subjected to discrimination, bullying, harassment or sexual harassment.

"A large, multisite study in the US showed that patients whose surgeons received a high number of unsolicited patient reports of negative behaviour ... experienced a 13.9% higher surgical and medical complication rate compared with surgeons with few such reports."

The 2016 Senate inquiry into the medical complaints process in Australia recommended that governments, hospitals, specialty colleges and universities commit to eliminating bullying and harassment but, according to Westbrook and colleagues, "provided little direction as to how this should occur".

Gluten-free food contains gluten

For coeliac patients who require a strictly gluten-free diet, being able to trust that food labelled 'gluten-free' is just that, is essential.

However, a new Australian study tested 256 'gluten-free' manufactured foods and found one in 40 contained gluten.

While the majority of gluten-free foods in Australia have no detectable gluten, the research shows better processes could be put in place in the interests of patients who are trying their best to adhere to a strictly gluten-free diet.

The new study, published in the *Medical Journal of Australia*, was conducted by a team led by Dr Jason Tye-Din, head of coeliac research at the Walter and Eliza Hall Institute and gastroenterology consultant at the Royal Melbourne Hospital.

The study tested 256 commonly purchased manufactured foods labelled as gluten-free at the National Measurement Institute in Melbourne. If gluten was detected and confirmed with a follow-up test, then a fresh sample was purchased and analysed to assess if the contamination was isolated or affecting multiple batches. The findings revealed that one in 40 foods labelled as 'gluten-free' did not comply with the national standard of 'no detectable gluten'.

Dr Tye-Din said the results were important for coeliac patients whose health depended on a strict gluten-free diet.

"While it was pleasing to see that the majority of samples had no detectable gluten, the fact that gluten was detected in some samples tells us better processes could be put in place in the interests of people who require a gluten-free diet.

"For instance, the study found a 'gluten-free' pasta which contained more than 3 mg of gluten in a standard single serve. This is a minimal amount but could have a harmful impact on patients with coeliac disease if consumed frequently," Dr Tye-Din said.

Dr Tye-Din said the researchers had notified all the manufacturers of products containing detectable gluten and made recommendations.

"More frequent testing will improve detection and allow companies to take steps to identify and address the underlying cause. Ultimately, this will reduce the risk of gluten exposure to people with coeliac disease.

Midwife banned from practising

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A former midwife has been permanently banned from practising midwifery.

The Victorian Civil and Administrative Tribunal found that previously registered midwife Dianne Jean Macrae had engaged in professional misconduct while providing care to patients at Bacchus Marsh Hospital; a decision was made that she should never practise again. Macrae is one of 38 practitioners at the hospital under investigation or who have had actions taken against them.

The outcome was welcomed by the Nursing and Midwifery Board of Australia (NMBA) and the Australian Health Practitioner Regulation Agency (AHPRA), who referred Macrae to the tribunal. It is the first tribunal outcome from AHPRA's investigation into matters relating to Bacchus Marsh Hospital (Djerriwarrh Health Services). Other practitioners have been dealt with by the NMBA through other regulatory actions.

In February 2016, AHPRA and the NMBA launched investigations in relation to the care provided by individual practitioners at the Bacchus Marsh Hospital during the period of October 2011 to February 2013. The investigations included Macrae, a registered midwife, who was employed as an Associate Nurse Unit Manager (ANUM) by the Djerriwarrh Health Services at the hospital.

The NMBA referred a series of allegations to the tribunal on 1 May 2018 relating to Macrae's performance as a midwife. The allegations included:

- failure to carry out clinical assessment and care (inadequate interpretation of foetal cardiotocography (CTG)
- failure to recognise and respond to an urgent situation
- inadequate clinical records.

Macrae admitted all allegations.

The tribunal found that Macrae had engaged in 10 instances of professional misconduct under the Health Practitioner Regulation National Law, as in force in each state and territory (the National Law). The tribunal noted each practitioner has individual professional responsibility to work in accordance with the relevant standards and codes. Moreover, many of the proven matters related to incompetence, which falls outside of the working conditions.

The tribunal reprimanded Macrae and accepted an undertaking from her that she would never apply for registration as a midwife again.

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Common antibiotic destroys superbug

An adjusted antibiotic has reduced patient fatalities from antibiotic-resistant strains of superbugs *Klebsiella* and *E. coli* by nearly 9%, and could eventually save 30,000 lives per annum.

Researchers tweaked the use of existing antibiotics and trialled the treatment on almost 400 patients with the life-threatening superbugs at the Royal Brisbane and Women's Hospital, along with 25 other hospitals worldwide.

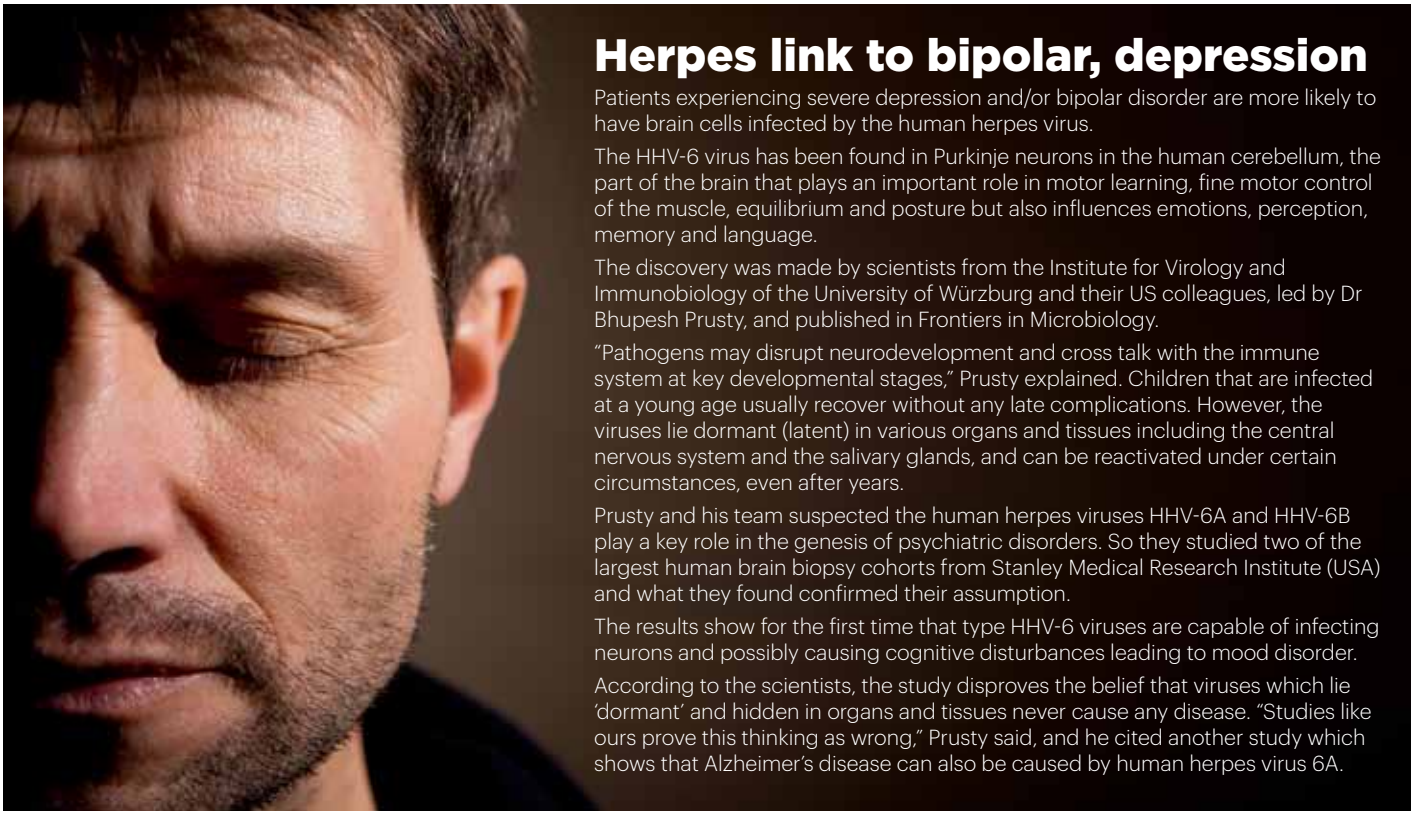
University of Queensland's Centre for Clinical Research (UQCCR) Director Professor David Paterson said the Merino Trial re-examined antibiotics already in use so that treatment practices could be updated immediately without having to wait for new drugs to be approved — a process that takes years.

"There is an urgent need to consider appropriate antibiotic use in the face of rising antibiotic resistance," he said.

"We found that prescribing the common antibiotic meropenem was more effective against the superbug than other antibiotic treatments, and drastically increased the rate of survival." Meropenem is inexpensive and is available in all Australian hospitals.

The findings are published in the *Journal of the American Medical Association*.

The Rounds
Updates in health care



Herpes link to bipolar, depression

Patients experiencing severe depression and/or bipolar disorder are more likely to have brain cells infected by the human herpes virus.

The HHV-6 virus has been found in Purkinje neurons in the human cerebellum, the part of the brain that plays an important role in motor learning, fine motor control of the muscle, equilibrium and posture but also influences emotions, perception, memory and language.

The discovery was made by scientists from the Institute for Virology and Immunobiology of the University of Würzburg and their US colleagues, led by Dr Bhupesh Prusty, and published in Frontiers in Microbiology.

"Pathogens may disrupt neurodevelopment and cross talk with the immune system at key developmental stages," Prusty explained. Children that are infected at a young age usually recover without any late complications. However, the viruses lie dormant (latent) in various organs and tissues including the central nervous system and the salivary glands, and can be reactivated under certain circumstances, even after years.

Prusty and his team suspected the human herpes viruses HHV-6A and HHV-6B play a key role in the genesis of psychiatric disorders. So they studied two of the largest human brain biopsy cohorts from Stanley Medical Research Institute (USA) and what they found confirmed their assumption.

The results show for the first time that type HHV-6 viruses are capable of infecting neurons and possibly causing cognitive disturbances leading to mood disorder.

According to the scientists, the study disproves the belief that viruses which lie 'dormant' and hidden in organs and tissues never cause any disease. "Studies like ours prove this thinking as wrong," Prusty said, and he cited another study which shows that Alzheimer's disease can also be caused by human herpes virus 6A.

Sepsis rates dropping in men, but still higher than for women

Sepsis-related deaths are falling in rich countries, but mortality is still higher in men than women in all countries except Australia, Austria and New Zealand.

The study of 34 countries, presented at the annual European Society of Intensive Care Medicine conference, shows that in rich countries overall, mortality from sepsis has fallen by around a quarter in men since 1985, with a smaller reduction in women.

While some countries (namely, Finland, Iceland, Ireland and New Zealand) have made progress to improve sepsis mortality, mortality rates continue to rise in others such as Denmark, Greece and Lithuania. In both the United States and the United Kingdom, while there has been progress, these countries still have sepsis rates above the global average reported in this study.

Sepsis is the body's overwhelming and life-threatening response to infection, which can lead to tissue damage, organ failure and death. Sepsis consistently ranks among the most fatal disease syndromes globally.

Researchers assessed 30-year temporal trends in sepsis mortality globally using the WHO Mortality Database. Sepsis was defined by the International Classification of Disease (ICD) versions 9 and 10. They obtained sepsis-related, sex-specific mortality data from countries with "high usability data" from the WHO Mortality database and computed Age-Standardised Death Rates (ASDR, deaths per 100,000 population). They then generated models to assess temporal trends in sepsis mortality over the 30-year period.

A total of 34 countries were included in Europe, Australasia and North America. For men, the countries with the greatest percentage change over the observation period include Finland (- 80.9%), Iceland (-76.0%), New Zealand (-70.2%) and Ireland (-68.9%), while increases in mortality were observed in Denmark (+5.8%), Israel (+15.9%), Greece (+16.3%) and Lithuania (+39.2%). For women, the greatest percentage decreases were observed in Finland (-79.4%), Iceland (-76.6%), Bulgaria (-70.0%) and Ireland (-62.3%), and increases were observed in Denmark (+20.4%), Lithuania (+23.0%), Greece (+33.5%) and Malta (+43.0%).

Countries that might have been expected to make substantial progress over these three decades, such as the United Kingdom and the United States, saw declines below the average found in this study. The UK, for example, saw rates fall by only 17% in men and only 12% in women from 1985 to 2015.

The authors also found gender differences in mortality in almost all countries. With the exception of Australia, Austria and New Zealand, all countries had higher rates of sepsis mortality in men than in women.

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Clinical waste — a major environmental burden

Co-authors*: Allana Bryan, Greg Doran, Clare Flakelar, Julia Howitt, Michael Oelgemöller, Linda Shields

When we examine the effects of waste on our lives and the environment, one type of waste is often overlooked: hospital waste confers a huge impact on the environment and a potential threat to human health. This study examined the volume of waste from an Australian hospital's operating theatres.

Reports indicate that in the USA alone, 4 billion pounds (1,814,369,480 kilograms) of waste is generated annually by healthcare facilities with up to 70% of this coming from operating theatres.[1] In many countries, clinical waste is often steam treated (decontaminated) and dumped in landfill.[2] Although considered safe, it represents a significant environmental burden. The material of many waste objects such as surgical drapes (and others) — polypropylene (PP, also known as polypropene) — does not biodegrade and thus takes centuries to decompose naturally.[3]

In some Australian states, incinerating hospital waste is a common method of disposal; however, this can be even worse than if the waste is stored in landfill.[4] While incineration kills most microorganisms and significantly reduces the volume of waste,[4] the technique can release significant amounts of harmful emissions into the atmosphere, especially dioxins, furans and mercury.[5] In addition to these disposal and degradation challenges, the sheer volume of hospital waste (for example, surgical drapes, plastics, cotton, latex, etc, and contaminants such as human tissue, blood, bacteria, viruses, prions, drugs, heavy metals, chemicals, drugs, etc) causes a significant economic burden for authorities. This can be further complicated and dangerous when the waste includes cytotoxic contaminated waste from oncology services in hospitals/clinics.

Due to its large volume, complex composition and potentially toxic nature, hospital waste is expensive to treat and remove.[6,7] Waste items have been categorised and several studies have tried a range of techniques to reduce its volume.[6,8]

The purpose of this study was to gain an understanding of the amount and type of waste generated in the operating theatres of a large, tertiary referral hospital in regional Australia, to provide an at least superficial description of the waste from hospitals that creates an enormous financial and environmental burden.

Study design

This observational study was done in two parts:

1. A study in one area of a hospital, the operating theatres, where items of waste going into garbage bags were listed.
2. An in-depth examination of the listed items, their manufacturers and component parts.

The aim was to provide data about what goes into the waste in operating theatres and provide a cursory description of its composition.

Site

The hospital is a large, tertiary referral hospital in an Australian regional city. It provides a wide range of surgical procedures, except for the most complicated neurosurgery, and transplant surgery. There are 12 operating theatres, and the hospital takes patients from across their lifespan. The waste is collected and treated according to the recommended guidelines, removed from the operating theatres to a holding bay, from where it is collected by a waste management company for deposition into the local council waste management plant. There it is steam treated, compacted and placed in a large pit, as part of the full waste load of the hospital.

In an operating theatre, at the end of an operation, and after the final count of all items that require the count check, everything that is used is disposed of into either large plastic garbage bags or, for sharp items, into specific sharps disposal containers, and, if cytotoxic drugs have been used, into specific containers for disposal of those items. Everything else is collected into plastic bags and removed from the theatre before the cleaning begins in preparation for the next surgery. If the operation is small, for example, insertion of grommets into a child's ear, there will be one or two bags of rubbish. If it is a very complicated and lengthy operation, the numbers of waste bags can increase into the hundreds.

Data collection and analysis

For one week, an experienced perioperative nurse (co-author Allana Bryan), attended a series of operations that were representative of the full range of procedures undertaken at the hospital and recorded everything that was thrown into the garbage bags during each operation. Where possible, the resulting list was supplemented by manufacturers' details of all the items. That list was then studied by a chemist (co-author Clare Flakelar) who, by examining websites, by going over material datasheets supplied with the items or by contacting manufacturers, created a list of the component parts of each item thrown into the rubbish.

Results

Table 1 shows the list of items that were dropped into the plastic garbage bags for removal. It was not possible to count the numbers of bags being filled, or to actually count the items as they were bundled up and thrown out as soon as one operation was finished, to make way for the next one.

"Due to its large volume, complex composition and potentially toxic nature, hospital waste is expensive to treat and remove."

However, Table 1 shows that the list is highly varied and lengthy.

To view the tables, visit the online version of this story at [insert bitli link here]'.

Discussion

The problem of waste received significant attention in Australia after the ABC aired the TV series *War on Waste*.[9] As waste from health services was not included in the program, the series initiated the current investigation into the enormous amount of waste generated in hospitals, clinics, dental surgeries, veterinary practices and other places where any sort of health care is delivered. Two of the authors are perioperative nurses, who are greatly alarmed by the amount of waste generated during surgical operations, prompting the decision to try and investigate the type of waste thrown out in operating theatres. While there is a need for single-use items during surgery, it is obvious that the amount of waste is disproportionate to the requirement for single-use items. Table 1 shows an alarmingly long list of items disposed of over a period of just one week. More concerning was the breakdown — albeit our analysis was limited due to health and safety concerns — of the waste. Plastics of all kinds constituted much of the waste products. This is similar to the results reported for two large hospitals in the state of Florida, USA,[10] and is probably not surprising, given the ubiquity of plastics in the world today.

Conclusion

There are some limitations to this study; its superficiality, inability to quantify the amount of waste thrown out, the fact that it was done in only one setting — operating theatres, and that we have not sought to replicate or

validate the study in any other healthcare setting. Regardless, this study will alert health professionals about the general issues surrounding hospital waste. Given most of the waste ends up in landfill,[1] with problematic chemicals potentially leaching into soil and groundwater,[2] it is time for people working in any healthcare situation to think about the validity of single-use products, of recycling[11] and of better ways to cut down on the number of items that are used when delivering health care.

Acknowledgements:

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TABLE 1: list of observed items disposed of in plastic garbage bags at the end of surgical procedures

- All sterile stock distributed by the Central Sterilising Department has some form of packaging, including kimguard, steri peel, autoclave tape, glue.
- Disposable curtains
- Anaesthetic circuits from airway to machine – from the intubation tube to the circuit that connects to the anaesthetic machine.
- Suction from patient to suction machine, including sucker heads - all plastic and contain body fluids.
- Metal Instruments – some disposable at present. There are instruments in anaesthetics and surgery that are disposable.
- Blood pressure cuffs with Velcro and rubber.
- Syringes
- Disposable laryngoscopes, bronchoscopes - contain fibre optics
- ECG electrode dots - contain glue and foam and metal
- Brushes all shapes and sizes
- Bone substitute INFUSE bone graft
- Bone void filler
- Stimulation rapid cure, paste and beads (dissolvable antibiotic beads)
- Bone graft filler, silicate calcium phosphate
- Prosthetics - screws plates, wires, rods, joints, metal cabling system for fractures
- Tourniquets - small for the arms and larger for orthopaedic surgery.
- Bean bags for patient positioning. Heavy plastic cover with polystyrene beads inside.
- N95 masks filter respirators and basic theatre masks
- TEDS stockings - -material/nylon, used for deep venous thrombosis prevention
- Pressure inflation bags
- Grafts and valves - some of these grafts are stored in porcelain and formaldehyde
- Cardioblate BP2 cardiac ablation system
- Flowtron leg compressors
- Catheters of many forms, silicon drainage bags and receptacles (can contain up to 10 litres of varying fluids)
- Soda lime used to filter CO2 from patient to anaesthetic machine.
- Plasters for fractured limbs
- Tapes – sleek, micropore, bandaids, elastoplast, leucoplast
- Safety glasses, goggles and shields
- Nappies, tampons and sanitary pads
- Specimen containers and blood vials, many sizes and shapes
- Cements for bone – Palamix, Palacos, some are gentamycin (antibiotic) impregnated
- Albumix - human albumen
- Tisseel fibrin sealant
- Bactoseal shunt system (antibiotic impregnated)
- Wooden tongue depressors
- Bougie dilators made of a rigid plastic with lead inside
- Gelports, laparascopic kits, retreiver bags, Tungsten tip laparascopic scissors and forceps and clip appliers, protack, visiports. All of these products are insulated
- Meshes - Compsix (BARD), Prolene mesh (Ethicon), Vicryl mesh (Ethicon), Ventral patch (Ethicon),
- Sepra and 3D
- RBI2 - Single-Use Suction Rectal Biopsy System
- Insufflation tubing
- Recell autologous cell harvesting device
- Bowel staplers and clips - Proximate, ligasure, EEA, GIA, Sealers and dividers, thunderbolt
- Body parts, hair, teeth, tissue of all kinds, etc

Dressings: Adaptic, Aquasell, Alginate, Acticoat, Mepilex, Allevyn, Surgicell, Foam, Gelfoam, Spongestan, Opsite, bandages, velband, Jelonet, Bactogras, Xeroform -3% Bismith Tribromophenate in Petroleum blend minimal use, Ioban plastic drape imprenated with betadine

Fluids: acticlor, betadine, chlorhexadine, formalin, fat and blood in suction containers up to 10 litres per bag, CSF, FRED anti fog (EMI)

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Microdial Flowmeter
A smoother transition to room air

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

Innovation in the treatment of oxygen dependency in infants

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

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

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

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

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

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

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

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

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

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

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Protecting the vulnerable from climate change

Jennifer Wressell MACN*

Does climate change really have an impact on health? Would we really notice if the earth's temperature rose by 1°C? These were questions registered nurse Jennifer Wressell asked herself, not realising the links between climate change and the impacts on her practice. Involvement in a climate forum exposed her to statistics about the impact of climate on health outcomes, particularly of the vulnerable. She reports here on how healthcare practitioners can make a difference.

The problem with climate change is that it happens so slowly, it is marching like an insidious snail across the world. We rarely see the effects and we have largely adapted as the climate has started to become more extreme, but climate change is already here — we are living with it. Over the last 100 years the earth surface temperature has increased by .9°C, the water level has risen by 20 cm and the rate of temperature change is increasing rapidly.[3] Since the 1950s, snow depths have declined,[3] and since the 1970s Northern Australia has become wetter and Southern Australia has become drier. Heavy rainfall now accounts for an increasing proportion of our annual rainfall and extreme fire danger days are increasing.[3] The number of very hot days has been increasing in Australia since the 1990s and heatwave events are becoming more common.[10] But humans are good at adapting, learning to cope and developing strategies to mitigate the effects, especially when the adaption required is slow.

Vulnerable communities at risk

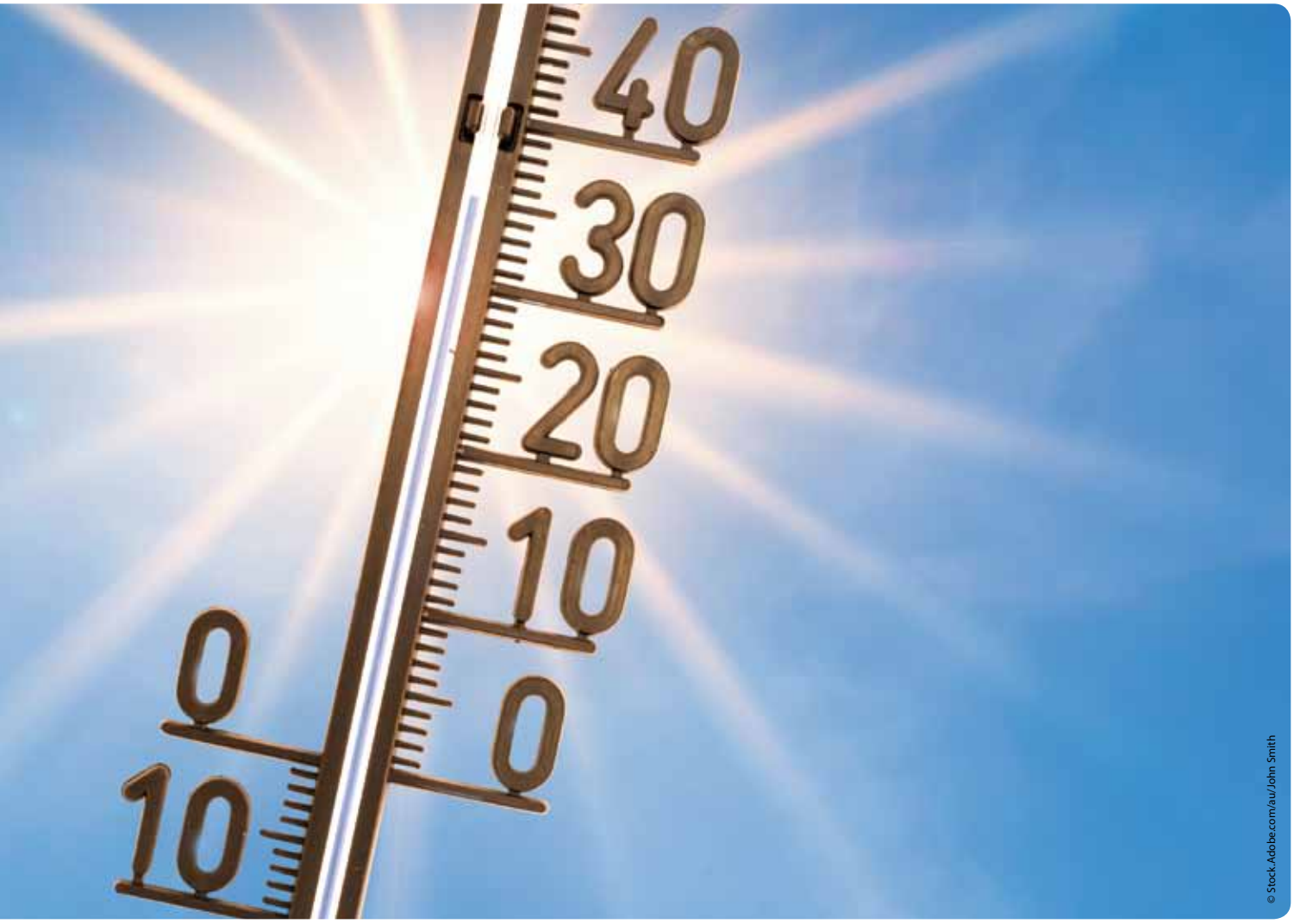
Unfortunately in our communities adaptive capacity is not evenly distributed. Certain populations have limited ability to adapt to climate extremes; the elderly, disabled, homeless and individuals with chronic disease are all at risk. This leads to significantly increased health challenges for these populations during heatwaves and cold spells. In one of the most comprehensive studies exploring the impact of heat on illness, Harvard School of Public Health[2] found that "extreme heat ... put the elderly at 18% greater risk of being hospitalised for fluid and electrolyte disorders, 14% greater risk for renal failure, 10% greater risk for urinary tract infections and 6% greater risk for sepsis." More recently, Lee and Guth[9] identified significant relationships between temperature extremes and increased occurrence of subarachnoid haemorrhage.

The relationship between extreme temperatures and cardiac presentations is the most well established, with short-term exposure to climatic change increasing the risk of ischemic cardiac events, pulmonary heart disease, cardiac arrhythmia, heart failure, ischemic stroke and myocardial infarct.1,8 In Australia, research conducted following the 2009 heatwaves in Melbourne demonstrated a 12% overall increase in Emergency Department presentations, and a 37% increase in those 75 or older and a 46% increase in ambulance emergency cases.4

"We need to be aware of the increased risk that vulnerable populations face."

How health professionals can help

As health professionals and health system managers, we need to be aware of the increased risk that vulnerable populations face and be part of developing plans to help mitigate the challenges. As a nurse working in the community health sector, environmental solutions that can be used to achieve safer home environments are an important risk mitigation measure. In Victoria initiatives like 'Climate Safe Rooms' create partnerships between primary health providers, individuals with chronic diseases and scientists. The idea of this is to create one room in a house were individuals who are at risk during a heatwave or cold spell can retreat into and maintain a stable temperature, reducing the risk of adverse health outcomes.5 These initiatives provide the blueprint for sustainable, low-cost housing modifications that reduce associated risks of extreme weather conditions. As nurses, part of our role is to



advocate for our clients — more widespread use of these types of climate adaption measures could significantly reduce the risks faced by individuals with chronic diseases, the elderly or the disabled.

Education should be provided to all health professionals, to allow for adaptive health service provision. Health services need to be able to educate the public, as well as manage appropriate public health programs and work in partnership with community organisations to create local adaption plans.[7] As health service managers, nurses need to become more adept at recognising the effect of climate change and matching this to local population data; predictive modelling can then be used to anticipate future health needs and develop staffing models to allow for surges in demand.[6]

As nurses, we play a vital role in advocacy for our communities; recognising the impact of heatwave and cold spell weather extremes is an important part of providing proactive health care. Given that the links between climate extremes and healthcare needs is well established, education, planning and risk mitigation should be important parts of our role. The development of a cohesive strategy needs to be incorporated at all levels of healthcare provision to ensure responsive systemic planning.

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*Jennifer Wressell has over 20 years of experience in the nursing profession and is passionate about climate change and its effects on our health system, both now and into the future. In 2016 she moved out of the healthcare industry and into science and exploration, managing tradies and scientists over a winter in Antarctica for the Australian Antarctic Division. She currently works as a health program consultant for mindful innovative action.

Putting patients at ease with smart and effective technology

When thinking about hospitals and the day-to-day technology that staff use to look after patients, it is easy to focus on larger equipment like an MRI or CT Scanner. These are essential tools when it comes to diagnosis and finding the best course of treatment for a condition — but treatment is only half the battle. To help patients heal, medical professionals also need to consider their mental wellbeing and keeping a patient positive is essential on the road to recovery.

If you find yourself in the emergency room as a patient, things have probably not gone your way in recent times. Chances are you would prefer to be anywhere else and so when it comes time to be admitted, the more effortless that process is, the better. This is where the Brother TD-2000 series label printers can assist in patient care, by streamlining admissions - especially when it comes to Patient ID printing. In addition to speed, it also allows for higher reliability and can improve patient safety by utilising smarter and safer patient ID techniques and barcode medical administration system integration.

A brief prepared by the Centre for Health Systems and Safety Research in 2013 found that barcode point of care systems 'have the potential to reduce administration errors but are sometimes used incorrectly due to technology limitations and poor design e.g. faulty barcodes'. It is therefore essential that any barcode system be infallible, especially when relied upon for the wellbeing of a patient. The report conclusions stated that these systems rely on well-designed technology that is being used correctly by caregivers. The TD-2000 series is designed specifically to make the process simple and easy-to-use while maintaining high reliability and optimum functionality.

The TD-2000 series uses barcode point-of-care technology for real-time verification of crucial information like patient details, what medication they require and dosage as well as time and route. It is also compatible with TrustSense™ media from PDC Healthcare — a trusted leader in positive patient identification for more than 55 years, which adds an extra level of reliability. This technology used in the printer series can provide automated alerts to caregivers in order to eliminate potential harmful errors before they occur, helping to protect patients, provide peace of mind for clinicians, and maintain compliance with important patient safety regulations.

Brother TD-2120N

The Cerner Certified Brother TD-2120N is a perfect match for the healthcare industry as it is a robust and versatile solution that is highly customisable. It can be used as a desktop labeller, connected directly into a PC or configured to be portable using the optional lithium-ion battery attachment. Brother understands that every healthcare professional is different and that the needs of an environment can change over time. With the demands placed on the care professionals, versatile and mobile tools are essential in maintaining accuracy with maximum efficiency.

The TD-2120N prints at 15.24 centimetres per second at a maximum resolution of 203 dots per inch. It has 32MB of RAM and 16MB of onboard flash and can accommodate rolls of up to 15.7cm in diameter, meaning less time wasted reloading media. It provides healthcare workers with the option of wirelessly printing a variety of barcode labels quickly and whenever needed in the laboratory, pharmacy, front desk or even at the patient's bedside. With support for the most common barcode protocols, it is ideally suited to any labelling task in healthcare.

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Northern Beaches Hospital —

a new model of healthcare delivery for NSW

The first hospital in NSW to achieve a 4 Star Green Star rating, the much anticipated Northern Beaches Hospital combines practicality and elegance.

Central atrium with artwork and circular skylights.

The Northern Beaches Hospital is a new state-of-the-art tertiary hospital that navigates the requirements of sophisticated clinical services delivery while providing an environment that fosters dependability, security and optimism for patients, a positive and encouraging workplace for staff, and a meaningful and connected new civic building for the local community.

The first hospital in NSW to achieve a 4 Star Green Star rating (design, build and operation), the Northern Beaches Hospital is a 488-bed metropolitan facility providing a range of services including emergency, interventional, intensive care, high dependency, coronary care, day surgery, medical imaging, birthing, special care nursery, paediatric inpatient, public and private inpatient units, renal dialysis and day medical facilities, outpatients, medical centre, specialist consulting suites, mental health unit, clinical and non-clinical support.

The NSW Government contracted Healthscope to design, construct, operate and maintain the new Northern Beaches Hospital, which is a public and private hospital combined in one integrated facility. BVN Architecture and CPB Contractors were key partners in the design and development of the hospital, which was delivered on time and on budget.

Operating theatre in action.

Hospital architecture

Hospital architecture is not just a matter of constructing a building: it is a question of balancing the needs of an ever-changing professional environment; providing for efficient and effective workflows, developing technologies, patients with varying and increasingly complex illnesses, sophisticated engineering systems and so forth, while also navigating and incorporating social and environmental sustainability, economics and most importantly, human beings.

Healthscope and BVN worked closely together to ensure staff, clinician, patient,

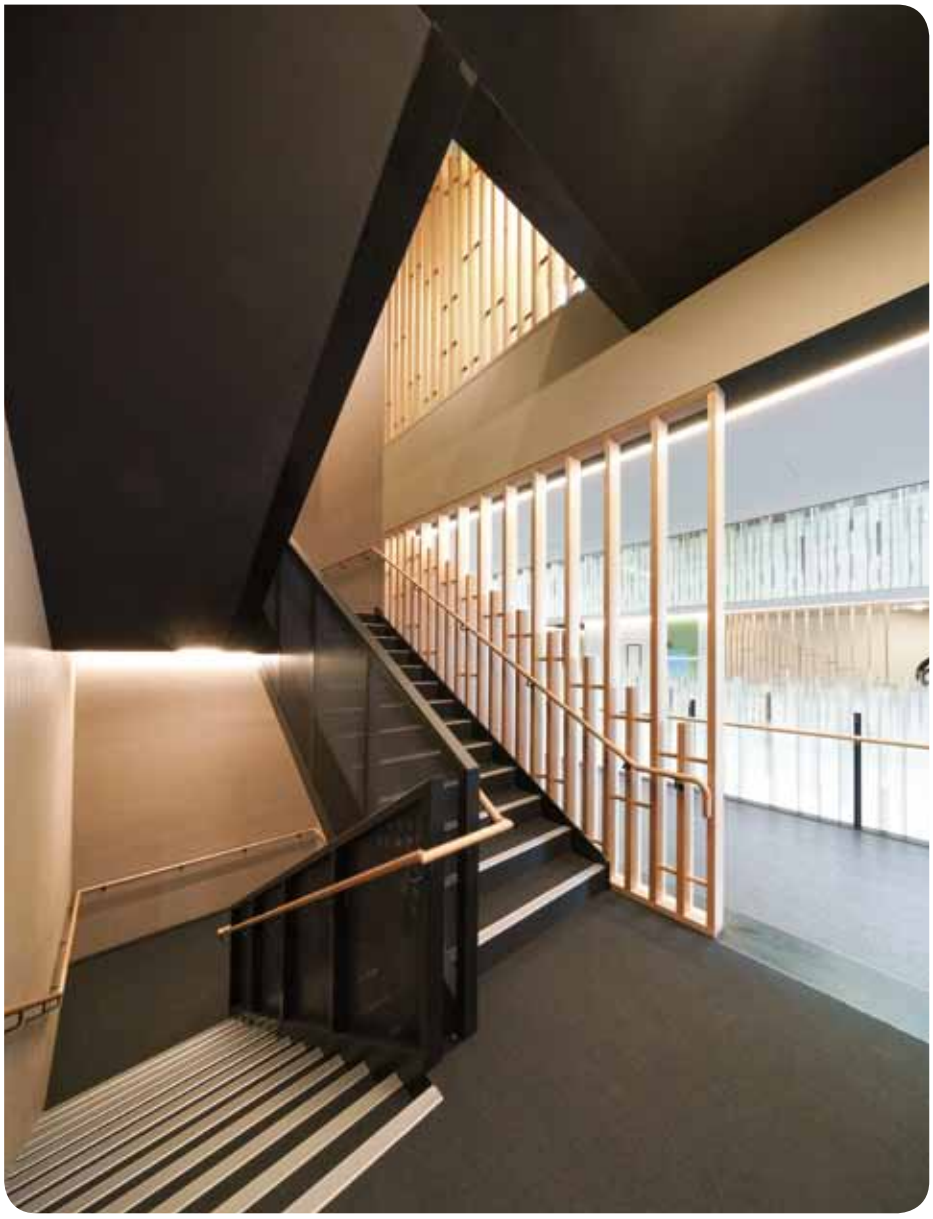

Image credits: ©John Gollings

carer and visitor needs were synthesised. Healthscope's vision for the hospital was driven by the provision of care and commitment, and safety and excellence to the Northern Beaches community. The campus design focused on accessibility and safety, and importantly, a sense of welcome for patients and their families and the many hundreds of staff who will inhabit it daily.

The High Street

The building has been conceived of as a mini town — with a high street forming the backbone of the town — and all departments connecting back to this street. In this instance the street is multilevel, stretching high to connect and unite all floors of the building. It takes the form of a seven-level atrium, beginning at the hospital's front door and driving through the very centre of the building, providing visibility across the levels. The atrium is lit by large glass walls to the east and the west and a playful collection of circular skylights providing coloured portholes of light into this central space.

The atrium is home to two striking artworks, both created by local photographers and both celebrating the unique environment of the beaches. The first is the detail from the bark of a scribbly gum by local photographer Suzanna Harroothunian. The second, by 15-year-old photographer Nicholas Seale, is of waves lapping along the sand. This piece is a result of a competition held with the talented students from the neighbouring Forest High School.

Form and massing of the building

The building has three key components — the podium, the inpatient units (wards) and the atrium, with the ground and first floor comprising the 'podium' of diagnostic and treatment facilities. Key departments such as emergency, medical imaging and operating theatres that require large contiguous floor plates and direct connections to each other are located here. Courtyard gardens are carved into the podium to provide green spaces and natural light deep inside the building.

The podium forms a base for the various inpatient units above — intensive care units, the birthing suite, paediatrics ward, the special care nursery and medical and surgical wards. These units have expansive views to the south, east, west and north from patient rooms and patient lounges, with significant distances between the building forms to allow these views to be maximised. Above the northern inpatient units, located within the same building footprint, are two floors of specialist consulting suites.

External materials and detail

The 'window frames' that define the end of the building have tall and striking proportions and are spilt vertically into pairs on the north, east and west, and threes on the south, to enhance the building's height; they extend elegantly out to the bushland and surrounding precinct.

The frames are lined in a warm timber and rest on the building's base, which uses a glazed masonry brick — a material that provides both scale and texture to the parts of the building that engage with the ground plane.

The facades have been broken up into a fine linear patterning of window and wall — utilising a white metal panel in long, vertical panels 300 mm wide, interspersed with long, tall windows forming a shadow, running floor to floor. The fineness of the scale of the narrow panels and tall windows provides a playful counterpart to the scale of the building — a strong and definable form with a delicate skin.

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

Many 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.

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

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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."

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HermanMiller
Healthcare

A Day in the Life

...of Ros Morgan, the Environmental Health Officer at the Australian Nursing and Midwifery Federation (Victorian Branch).

Every day nurses, midwives and carers see examples of the link between people's wellbeing and health and their environment. It could be an older person with environmental exacerbation of respiratory diseases or a pregnant woman affected by the heat. Six years ago, ANMF members asked their union to become more involved in climate change and environmental issues policy debate. The creation of Ros's role was one of the ANMF's many responses. Ros is an intensive care nurse with a contagious passion for sustainability practice in healthcare services.

06:40 My train commute gives me a chance to catch up on emails. I also check inquiries on the ANMF (Vic Branch) Green Nurses and Midwives Facebook page. It's a closed group with more than 800 active members sharing ideas and information about successful sustainable projects in their health services.

08:00–09:00 I arrive in the office and start answering member inquiries. Nurses and midwives are so conscious of the waste health care generates. I get asked to clarify what clinical waste goes where, what waste goes in hospital commingle and PCV, Kimguard and metal instrument diversion. Another hot topic is 'How do I set up a green team?'. I read newsletters from The Climate and Health Alliance and Global Green and Healthy Hospitals.

09:00–10:30 I meet with the ANMF events team. We're finalising the speakers for the 2019 ANMF (Vic Branch) Health and Environmental Sustainability Conference. I'm excited about the nurses and midwives who will showcase their creative interventions turning surgical huck towels into boomerang bags, including surgical blue wrap in urban survival kits and removing plastic straws from clinical settings. Every action counts! Every second year we package this one-day conference with the biennial Nurses and Midwives Wellness Conference.

10:30–12:30 I travel up to the Department of Health and Human Services for the Waste Project Working Group meeting. Reinventing the wheel is a frustrating waste of time when nurses and midwives are working hard to meet all our clinical responsibilities. The role of this group and the department's Waste Education Officer Rachel McConville is to develop multiple resources to clarify available waste segregation streams.

Another source of frustration is the application of the clinical waste guidelines; for example, can a needless syringe go into landfill or is it always considered a sharp? We're developing a new FAQ document to clarify issues around syringes, pharmaceutical containers and blood rules in Victoria.

06:30 8:00 9:00 10:00 11:00 12:00

Ros Morgan (centre) with ANMF (Vic Branch) Assistant Secretary Pip Carew (right) and ANMF Marketing and Events Manager Bobby Kuriakose discussing speakers for the 2019 ANMF (Vic Branch) Health and Environmental Sustainability Conference.

All image credits: ©ANMF (VIC)

Morgan created this 3D waste segregation bin to facilitate understanding about recycling.

ANMF's industrial composter, known as CLOey, dehydrates 20 kilos of organic waste daily.

12:30–13:30 Back in the office I turn my eye to the revision of the Environmental Protection Authority Victoria's clinical waste guidelines and a draft supporting document. This is part of my work with a subgroup working with EPA Victoria and the Department of Health and Human Services.

After a quick lunch in the staff hub, I peep in the bins to see how ANMF staff are going with waste segregation. I assure you I'm not the only bin checker out there! If I identify problem areas I can feed back into our education. All clear today!

Our industrial composter dehydrates 20 kilograms of organic waste daily from the ANMF building, which is made available for staff to take home for their gardens.

13:30–16:00 Twice a year we run 'Nursing for the Environment' to help nurses and midwives develop a practical plan to introduce or improve sustainable practices at their workplace. I'm currently rewriting the course so we can run two new programs — beginners and advanced.

16:00–17:00 I finish off an abstract for an international conference to share many of Victoria's successes with similar-minded nurses and midwives across the globe.

12:30 14:00 16:00 17:00

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

Practical sustainability

Get together with your colleagues and get practical. Here's some of Ros Morgan's favourite projects to get you started. She says, "Start where you are, use what you have, do what you can."

Surgical blue wrap fashion show

Team up with some colleagues who are handy with a sewing machine and create some catwalk creations. Events like this get people thinking about the re-use possibilities. Members of the Green Nurses and Midwives Facebook Group have used this blue wrap, also known as Kimguard, to create boomerang bags and camping kits.

Rugs for the homeless

Did you know that non-bio-degradable soft plastics and bread bags can be cut into strips and crocheted into insulating floor mats? As environment sustainability officer for Monash Health, Morgan coordinated a project which made 27 adult-sized rugs for the homeless using 20,000 plastic bread bags from the Monash Medical Centre's Clayton kitchen.

Green mascot

Keen to find ways to engage, Morgan purchased a Kermit the Frog costume, which she uses to make environmental education a bit more fun. The amphibian Muppet has made an appearance at various events including handing out environmentally themed colouring in pictures to bed-bound children. It seems kids aren't the only ones who like dress-ups!

3D display

Set up a display table to provide a visual resource of what waste goes where and what waste can be diverted from landfill in healthcare waste. Include things like commingle recycling, surgical blue wrap, PVC, single-use metal instruments, phones and printer cartridges.

Create a 3D bin to teach waste segregation. Morgan found an old set of collapsible camping shelves from a garage sale and made a heavy card front with peep holes cut into it. This made a great 3D model for displaying appropriate waste segregation.

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- ✔ Category Management implementation
- ✔ Proactive Procurement from transactional to strategic
- ✔ Challenging the key procurement challenges
- ✔ Suppliers panel for aged care
- ✔ How to review catering contracts
- ✔ Identify opportunities for food purchasing aggregation
- ✔ Hospitality procurement
- ✔ Asset management
- ✔ Reducing utility spend
- ✔ Procurement what went wrong

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- ✔ Senior Executives, Business development, sales/marketing managers from suppliers of products and services to the Aged Care sector.
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Effective environmental cleaning protects the health of patients and staff: successful training is available

Over recent years there has been substantial evidence showing that bacterial contamination of environmental surfaces in hospital rooms is a major factor in the transmission of healthcare-associated pathogens.[1,2] Pathogens such as Vancomycin resistant *Enterococci* (VRE), Norovirus, *Clostridium difficile* (*C. diff*), Methicillin resistant *Staphylococcus aureus* (MRSA) and other multidrug resistant (MDR) bacteria can persist in the environment for days, weeks and months; posing an ongoing risk for transmission and acquisition.[3]

Despite many advances in technology, cleaning by hand is still the main way of breaking the chain of environmental pathogenic transmission. But despite the importance of effective, thorough cleaning, studies show that some members of environmental cleaning staff often do not clean surfaces as recommended. Murphy et al, demonstrated that less than 50% of hospital room surfaces are adequately cleaned when manual cleaning techniques are used.[4] Since the human factor is known to be a vital yet variable ingredient of cleaning compliance and success, ongoing education to improve cleaning staff's understanding and knowledge of their vital role is a pragmatic strategy to promote and improve cleaning compliance and efficacy.

Historically, environmental cleaning departments are known to be extremely busy, and many may also be under resourced. It's common for new staff members to be trained using a 'buddy' system, whereby the new employee works and learns side-by-side with an existing member of staff. Managers have recognised that this method of training is far from ideal; bad habits, short cuts and outdated information and practices may be passed on, leading to confusion and ineffective environmental cleaning.

The clinical specialists at GAMA Healthcare Australia believe that patients and healthcare workers deserve a safe and clean environment. We understand the role of environmental contamination in healthcare settings relating to transmission of pathogens and healthcare-associated infections (HAIs). The team has successfully designed and implemented a programme of educational workshops and packages ranging from 15 minute in-services to comprehensive 1 hour modules. These include hands-on cleaning workshops and assessment-based learning about current evidence, best practice, standards, and infection prevention principles and guidelines to meet the needs of busy hospital and healthcare cleaning departments. The modules are tailored to benefit all levels of staff abilities and there's also an innovative, hands-on element using UV fluorescent markers. That visual aid gives staff an easy, practical illustration of the difference between ineffectual or effective cleaning, affording the opportunity to put what they have learnt into practice.

The success of 'Module 1' has been remarkable. Feedback from cleaning staff highlights the value of small groups of 6-8 participants.

" *...well prepared and delivered, the facilitator kept to small groups, which made the training easy for staff to understand and ask questions and it was followed by an assessment*". Grace Moustoukas – Training coordinator Support Services, Townsville Hospital, QLD.

Participants have expressed their gratitude to managers for being allowed to attend the session. They are proud of themselves for gaining new knowledge, and are excited to put it into practice.

"*The workshop was engaging, and empowering, with initiatives easy to implement*". Miguel Barros – Support Services Manager, Northern Health, VIC.

Environmental services staff's knowledge, attitudes and beliefs about the importance of their role may have a significant impact on their attitude and enthusiasm for cleaning – and in turn on the effectiveness of their efforts. GAMA Healthcare is committed to providing ongoing training and support for all our customers. We believe that knowledge, through education and support, is empowering. It enables staff to apply a rationale to their duties that plays a crucial role in the healthcare setting as they feel included in the battle against healthcare-associated pathogens, striving for patient and staff safety.

To find out more about GAMA's ground-breaking training programmes, please contact GAMA using the details below.

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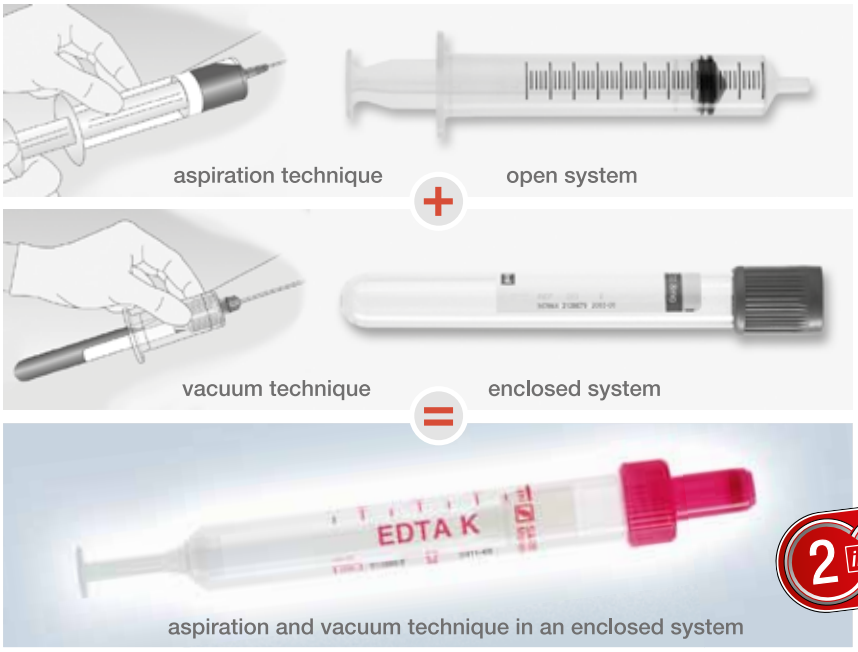

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Redressing quality and safety in aged care

Ramon Z Shaban*, Julie E Potter^

Mandating improved patient-to-staff ratios is only one step required to improve quality and safety for our aged in Australia. Recognising and addressing the issues in our existing model is the next.

Ensuring that personal and clinical care delivered to older persons living in aged-care institutions is high quality, safe and effective is a widely accepted community and societal norm and expectation.

Care for our older citizens has traditionally been delivered in 'nursing homes' and, in many settings, this has continued. In recent years there has been a reframing of this towards residential and aged-care facilities (RACFs). The care delivered in nursing homes and RACFs is affected by a range of factors, such as regulations, funding and expertise of the workforce. The enactment of the *Aged Care Act 1997* signalled the creation of a new model of aged care through the amalgamation of hostels and nursing homes into RACFs. This transformation moved the funding model of nursing homes from 'health care' to 'social care', and removed the regulatory and legislative requirement for care to be delivered by qualified registered nurses, with mandatory 24-hour cover in nursing homes.[1]

New model creates new issues

The new model resulted in significant changes to the profile of people entering a residential care facility. Individuals who had previously entered low-level care, such as a hostel, now remained in the community. When they eventually entered residential care they were older, with an increased acuity due to complex medical and mental health conditions. The proportion of people in residential aged care with complex health care needs has quadrupled from 13% in 2009 to 61% in 2016, with a drop to 55% in 2017 (reflecting a change to the method of rating).[2]

By June 2017, people diagnosed with at least one behavioural or mental health condition made up the majority of residents (85%), with half diagnosed with depression (47%) or dementia (52%). Mental health conditions render residents particularly vulnerable, needing specialised support. A recent study found of 141 resident deaths from suicide reported to the coroner, over half (66%) of residents had been diagnosed with depression, and a major life stress, such as deteriorating health, was reported in 80% of residents.

However, researchers were unable to determine if the residents had entered care with depression or whether they had been diagnosed with it subsequently.[3] The limited access of residents to skilled allied health, nursing and medical health care professionals means that many of their complex clinical needs, such as wound care and pain relief, and mental health needs, are often unmet.[4]

Response to sustained failure

Residential care patients with mental illness have been subjected to sustained physical and chemical abuse, and neglect. A landmark case is the South Australian government-run Oakden Older Persons Mental Health facility, closed in September 2017 after an investigation and Senate inquiry unearthed 10 years of neglect of elderly patients with dementia.[5]

Subsequently, increased auditing led to the Commonwealth closing one aged-care service per month.[6] The legislative and regulatory oversight for care delivered in residential care facilities has comprised the Commonwealth's Accreditation Standards, with 44 expected

"This is the latest in a series of 20 reviews into aged care in 20 years."

outcomes.[7] These standards have been supplemented by a National Quality Indicator Program (QI Program) that commenced on 1 January 2016.[8] However, system failures have permitted accreditation of organisations that had been delivering substandard care, such as the Oakden facility.[5] National accreditation standards have been subject to gaming by substandard service providers and were limited by focusing on provider processes. The QI Program, while an attempt to highlight the consumers' experience and their quality of life, is limited by voluntary participation of facilities.

In response to these issues, a new single set of standards — the Aged Care Quality Standards — has been developed and, subject to parliamentary processes, from 1 July 2019 will replace the existing Accreditation Standards. These new Standards will apply to all aged-care services, including residential care, home care, flexible care and services under the Commonwealth Home Support Program.[9] Concurrently, a new Aged Care Quality and Safety Commission will be established, with $106 million to support better facilities, care and standards in aged care.[6] The Aged Care Quality Standards focus on quality outcomes for consumers rather than provider processes.

Royal commission

Furthermore, in 2018 — seven months after release of the South Australian Independent Commission Against Corruption's report into Oakden, and after more than 5000 submissions from aged-care consumers, families, carers, aged-care workers, health professionals and providers in the aged-care sector — the government has established the Royal Commission into Aged Care Quality and Safety. [6] The Commission's Terms of Reference were announced in October and include inquiry into the following matters:

1. "the quality of aged care services provided to Australians, the extent to which those services meet the needs of the people accessing them, the extent of substandard care being provided, including mistreatment and all forms of abuse, the causes of any systemic failures, and any actions that should be taken in response;
   - how best to deliver aged care services to:
   - people with disabilities residing in aged care facilities, including younger people; and
2. the increasing number of Australians living with dementia,
3. the future challenges and opportunities for delivering accessible, affordable and high quality aged care services,
4. what the Australian Government, aged care industry, Australian families and the wider community can do to strengthen the system of aged care services to ensure that the services provided are of high quality and safe;
5. how to ensure that aged care services are person-centred, including through allowing people to exercise greater choice, control and independence in relation to their care, and improving engagement with families and carers on care-related matters;
6. how best to deliver aged care services in a sustainable way;..." [10]

This is the latest in a series of 20 reviews into aged care in 20 years.[11] The challenges of the quality and safety of aged care are well-documented. This is perhaps best captured by recent salient remarks by the Australian College of Nursing Chief Executive Officer Adjunct Professor Kylie Ward, who indicates that Australia's 360,000 aged-care workers are primarily unskilled workers, comprising 75% of the aged-care workforce.[12] The quality and safety of care delivered to older citizens in RACFs will never improve while the workforce is unskilled and lacks professionalisation, and the 2018 Royal Commission into Aged Care Quality represents the opportunity to address this.

Mandating nurse-to-patient ratios, as now occurs in acute care settings, is a critical step in the pursuit of high-quality and safe care of older citizens, and just one of the measures available to the Commissioners of Inquiry. The professionalisation and appropriate resourcing of this sector, together with the (re)recognition of the care provided in RACF as health care, is fundamental to future quality and safety of aged-care services in Australia.

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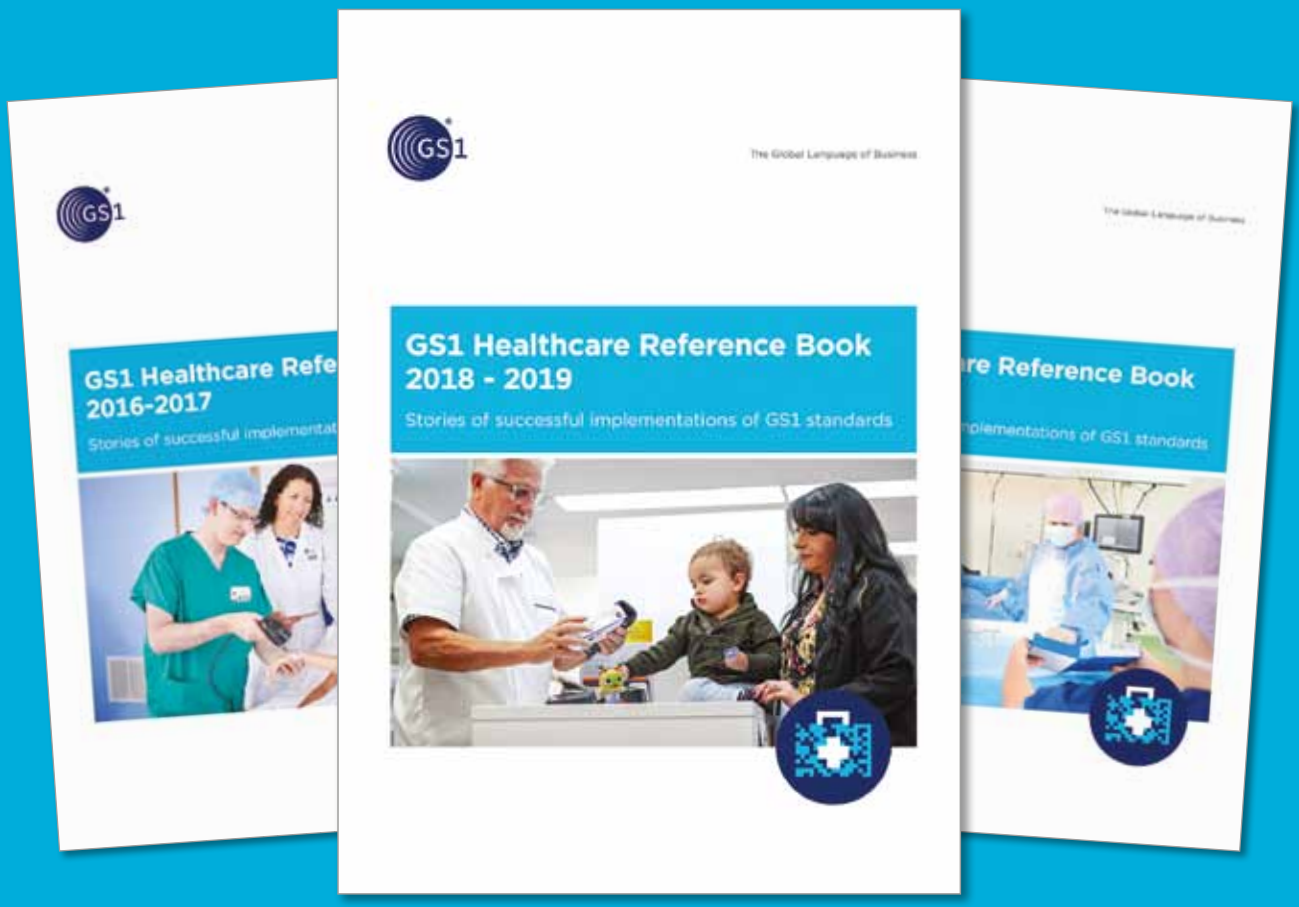

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Third *Atlas* to drive healthcare improvements

Conjoint Professor Anne Duggan*

In his *Atlas of the European Novel*, Italian literary scholar Franco Moretti says of maps: "A good map is worth a thousand words... because it produces a thousand words: it raises doubts, ideas."

These words elegantly capture the beauty of the recently released *Third Australia Atlas of Healthcare Variation* — which, like its predecessors, challenges prevailing assumptions about the appropriateness and accessibility of health care delivered across Australia.

Developed by clinicians working with the Australian Commission on Safety and Quality in Health Care, in partnership with the Australian Institute of Health and Welfare, the third *Atlas* examines neonatal and paediatric health, thyroid and gastrointestinal investigations and treatments and cardiac tests.

It also analyses changes in prescribing behaviour over the previous four years for antimicrobial, opioid, psychotropic and ADHD medicines.

By mapping healthcare use in Australia by where people live, the *Atlas* works by highlighting variations which may be unwarranted, or as Moretti might say, it "raises doubts".

Rates of an intervention that are substantially higher or lower in some areas may mean that some people are getting health care they don't need while others may be missing out on health care that they do need.

It's this examination of the status quo and the investigation of clinical variations that leads us to ask the right questions — those that can drive systemic improvements to maintain Australia's world-class health system.

Questions raised

A series of such questions to come out of the third *Atlas*, as an example, relate to the care we provide to the youngest and most vulnerable members of our community.

In addition to in-depth investigations of antibiotic use in children and proton pump inhibitor medicines in infants, the third *Atlas* examined the timing of planned caesarean sections.

We have known for some time that if a woman has a healthy pregnancy and there is no clinical need for earlier delivery, then waiting until approximately 39 weeks is best for baby and helps to avoid adverse outcomes associated with early births.

There is also emerging evidence linking early births to an increased risk of a range of longer-term adverse outcomes.

Conjoint Professor Anne Dugan with Health Minister Greg Hunt, and the Commission's Chair Villis Marshall (far left) and Chief Medical Officer Robert Herkes (far right), at the launch of the Atlas on 11 December 2018.

So it is concerning that among the four states and territories reporting this data, the *Atlas* found no medical indication for between 42–60% of planned caesareans carried out before 39 weeks; and none for 10–22% of caesareans planned before 37 weeks — significantly increasing the risk of adverse outcomes for these babies.

The natural question this raises is: Why are these early births taking place?

Seeing the big picture

The flipside to doubt in Moretti's statement is ideas; in the case of the *Atlas* series these are represented by key recommendations — 45 in total in the third *Atlas*, and seven for reducing unnecessary early planned caesarean births alone.

These specific recommendations aim to motivate action across the health system to investigate and reduce unwarranted variation. Along with making recommendations, the other real benefit of the *Atlas* is how it packages huge amounts of data in a usable way giving both the bigger picture but also providing opportunity for deeper investigation and action at the local level.

More than 300 local areas across Australia are represented in the interactive *Atlas* — available to all online — allowing for exploration and comparison of variations at macro and micro levels.

Implementing changes in complex systems take time, and while the first *Atlas* was published relatively recently, the series has already made a significant impact in how leading medical thinkers, researchers and policymakers think about the delivery of health care in this country.

Released in 2015, the first *Atlas* focused on care related to antibiotic prescribing, and surgical, mental health and diagnostic services. The second *Atlas*, released in 2017, examined chronic disease and infection — potentially preventable hospitalisations, cardiovascular conditions, women's health and maternity and surgical interventions.

In this short space of time, the series has driven a raft of initiatives — from further research into the prescribing of ADHD, antidepressant and antipsychotic medication

Key findings from the *Third Australian Atlas of Healthcare Variation*

Neonatal and paediatric health

- In 2015, between 42% and 60% of planned caesarean sections performed before 39 weeks' gestation did not have a medical or obstetric indication.
- In 2016–17, more than 3 million antibiotic prescriptions were dispensed for children aged 0–9 years.
- In 2016–17, there was almost a four-fold difference between the lowest and highest state and territory rate in PBS dispensing of proton pump inhibitor medicines for infants age 1 year and under.

Gastrointestinal investigations and treatments

- In 2016–17, 274,559 gastroscopies and colonoscopies were performed during the same hospitalisation, representing 1044 hospitalisations per 100,000 people of all ages.
- Low rates of hospitalisations for colonoscopy for Aboriginal and Torres Strait Islander Australians and people living in outer regional and remote areas.

Thyroid investigations and treatments

- In 2016–17, 5.5 million TSH tests and 2.3 million thyroid function tests (TSH plus T3 and/or T4) were ordered in Australia.
- Rate of neck ultrasound varies up to six-fold, and the rate of thyroidectomy varies up to five-fold, between local areas in Australia.

Cardiac tests

- The rate of cardiac stress testing and imaging varies up to 10-fold between local areas in Australia.
- Rates of cardiac stress tests and imaging, and standard echocardiography are higher in major cities than in regional and remote areas.

Repeat analyses

Between 2013–14 and 2016–17:

- The rate of antimicrobial prescriptions dispensed decreased by 9%.
- The rate of ADHD medicines dispensed in people aged 17 years and under increased by 30%.
- The rate of opioid medicines dispensing increased by 5%.
- The rate of antipsychotic medicines dispensed in people aged 17 years and under or in people aged 18–64 years increased by 8–9%.
- For people aged 65 years and over, prescription rates of antipsychotic medicines decreased; however, the volume of antipsychotic medicines supplied on any given day remained stable.

for children through to updated Royal Australian and New Zealand College of Psychiatrists (RANZCP) clinical guidelines on the management of mood disorders and schizophrenia and the development of clinical care standards for heavy menstrual bleeding, osteoarthritis of the knee and colonoscopy.

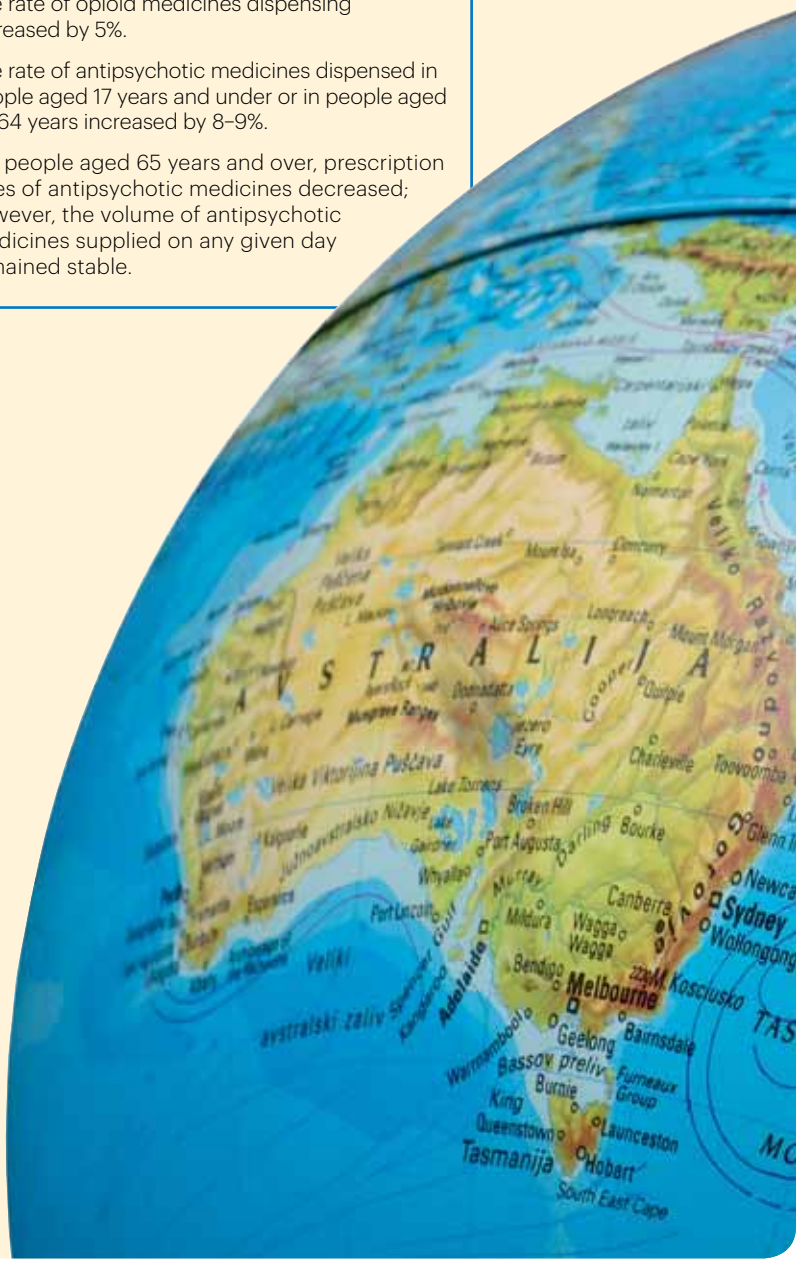
The value of monitoring clinical variation is now also reflected in the second edition of the National Safety and Quality Health Service (NSQHS) Standards — with the new Clinical Governance Standard, effective in 2019, requiring health services to monitor and respond to variation in clinical care.

These are stellar achievements for such recent publications but I have no doubt that the findings from the third *Atlas* will lead to equally important improvements.

In the box below you will find just some of the key findings from the third *Atlas*, but its true value lies in its complexity and depth.

It is a challenging, intricate and invaluable tool that ensures we keep focus on delivering the right care, for the right person, at the right time. I find it quite beautiful — and I invite you to explore it further.

*Conjoint Professor Anne Duggan is Clinical Director, Australian Commission on Safety and Quality in Health Care.



Medicine shortages addressed in law

Kristin Michaels*

In any healthcare setting, when we are interrupted or tied up by 'administrivial' tasks, valuable face-to-face time with our patients is lost.

For hospital pharmacists, this lost time comes at the expense of cognitive pharmacy services and direct care to patients and their families, and one such administrative tension has reached crisis point in recent years.

Convoluted supply chains, a lack of reporting requirements for pharmaceutical companies and increasingly complex patient needs have converged to challenge an essential requirement of Australia's health system: the provision of the right medicine, to the right person, at the right time, in the right way.

Medicine shortages

Medicines shortages affect all countries, but depth of understanding and corresponding policy to manage and mitigate shortages varies.

Last year, SHPA worked to convert anecdotal local evidence into hard statistics through the landmark Medicine Shortages in Australia Report, informed by data from 280 metropolitan, regional and rural health service facilities gathered by SHPA members over a 24-hour period in April.

The findings received significant media attention and thrust the issue of medicines shortages into the health national conversation, and it was clear why: on one single day hospital pharmacists reported 1577 individual shortages across a wide range of medicine classes, almost 40% being antimicrobial medicines, and reported that shortages negatively affect patient treatment in one-third of cases.

Cross-referencing responses with warnings and alerts available that day through government websites, including the Therapeutics Goods Administration's Medicine Shortages Information portal, revealed 85% of reported shortages were not listed by their respective companies.

Incredibly, many pharmacists contacted SHPA saying they wanted to list additional shortages, but ran out of time.

Towards a resolution

Following the report's release, the work began in earnest.

SHPA convened the Medicines Shortages Working Group to contribute to an evidence-based approach reflecting the community's expectation that, in reasonable circumstances, the most appropriate medicines for their treatment should be reliably available in Australia.

This group partnered with the Department of Health and other health organisations — including the Australian Medical Association and the Medicines Partnership of Australia — to develop a new national protocol, under which medicine suppliers would be required to report all medicines shortages in confidence to the TGA. Under a new classification system, all medicines shortages deemed to carry 'extreme' or 'high' patient impact would be mandatorily published on the public Medicines Shortages Information Initiative (MSII) on the TGA website.

In June 2018, Health Minister Greg Hunt introduced a bill to amend the *Therapeutic Goods Act 1989* which, for the first time, defined a medicine shortage in Australia as existing when the supply of a medicine, for a six-month period, "will not, or will not be likely to, meet the demand for the medicine for all of the patients in Australia who take, or who may need to take, the medicine".

In September, the Therapeutic Goods Amendment (2018 Measures No. 1) Bill 2018 passed the Australian Senate, to come into effect on 1 January 2019.

Positive impact

The new protocol promises to make a huge impact on the effectiveness of hospital pharmacists in Australia, liberating their time to spend on crucial face-to-face cognitive pharmacy services on the wards, maximising their input into multidisciplinary medical teams.

From the coalface to Canberra, this swift turnaround is not only a triumph for collaborative advocacy, it is a win for the most acutely ill Australians who can take a degree of comfort in knowing government, pharmaceutical companies and their hospital care team are on the same side in ensuring the most appropriate medicines available for their treatment are always readily on hand.

*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.

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 differing 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 who 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 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 regulator 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 transducers (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 transducers in Australia. They really 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.

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Hospital violence: we can reduce it

Laini Bennett

In 2014, surgeon Dr Michael Wong survived a vicious knife attack in the foyer of the hospital where he worked. He wants his story to raise awareness of security weaknesses in hospitals.

All image credits: ©Dr Wong

It was a regular day at work; nothing special, nothing out of the ordinary, the morning that Dr Michael Wong hurried through the sliding doors and into the foyer of the Western Hospital in Footscray, Victoria. A neurosurgeon, spinal surgeon and a full-time staff member of the public hospital, he was juggling an enormous workload and was ready to start his day.

Surrounded by people in the busy foyer, it didn't occur to Dr Wong to feel anything but safe — until he was accosted by a patient. Pulling a small knife from his pocket, the man began to stab him repeatedly.

Shocked bystanders sprang into action. Hurling a bag and a small sign at his accoster, they distracted him momentarily, allowing them to pull Dr Wong through the double doors of the emergency ward to relative safety.

Stabbed 14 times in his arms, chest, abdomen, back, legs and forehead, it then took multiple teams of surgeons — including two colorectal surgeons, two cardiothoracic surgeons, a spinal surgeon and three plastic surgeons — nearly 12 hours in the operating theatre to save his life.

In the process, Dr Wong's lung was partially removed to stem profuse bleeding from a deep wound to his back that had contributed to losing his entire blood supply during the operation.

Lack of security

Dr Wong had not recognised his attacker. He later learned that he'd been part of a team of people treating the patient. Mentally ill, the patient had poorly managed schizophrenia, and the attack on Dr Wong was the outcome.

Asked what could be done to reduce the risk of similar such attacks, Dr Wong's views are clear: hospitals need to reduce publicly accessible areas and beef up security.

"Why do we have so many publicly accessible areas in a hospital? It makes no sense," he said. "In most hospitals, the general public can walk through the foyer, take a lift and walk to a patient's bedside without being stopped."

A deep wound to Dr Wong's back resulted in a partial lung removal.

"When do you ever see security in the foyer of any hospital?"

Dr Wong would like to see patient wards and other appropriate areas closed to the public, with doors only accessible via security swipe cards issued to staff. Family and friends of patients could ring a doorbell to be given access.

He also believes security guards should be stationed in public areas.

"When do you ever see security in the foyer of any hospital?" Dr Wong asks.

While most hospitals station a security guard in an emergency department where patients might be drunk, on drugs or mentally ill, there are rarely guards in other public spaces such as the foyer.

Dr Wong recalls the attack on heart surgeon Dr Patrick Pritzwald-Stegmann, who died in 2017 from a coward's punch in the foyer of Box Hill Hospital in Victoria. He believes that having a security guard stationed in the foyer could deter similar such attacks, and even if it didn't prevent the attack, the guard would be on hand to help.

Management accountability required

While acknowledging that the Victorian Government has put more funding into hospital security since his 2014 knife attack, Dr Wong worries that the current management model for hospitals deters real action.

"Who is responsible for the day-to-day running of a hospital? We don't have a clear view on that. Is it the board? The CEO? The state government? The federal government? There's multiple layers of management and a funding model where no-one wants to take responsibility. That's one of the issues in terms of implementing concrete steps," he said.

"The policymakers and the people in charge of the day-to-day running of the hospital have to wake up and do something about it."

New appreciation for life

Dr Wong recognises that he is lucky to have survived the attack and return to work. "You appreciate how precious life is. It can end at any second."

But it was a long road to recovery: his arms and hands were in splints for six weeks, and he required painful physiotherapy and hand therapy to regain full use of his arms and hands. It was three months before he could work again.

During the time off he realised he no longer wanted to feel like he was on a very fast factory conveyer belt. He now works both in private and public practice, but has fewer patients, preferring to spend more time with each one. "It's better for me, and a better outcome for the patient," he said. The change has reduced his stress levels and given him more time with family.

The attack has also given him a new perspective on his patients. "I feel more empathy towards them," he said. "I have a deeper understanding of what they're experiencing, and how disruptive a serious disease condition can be to their lives."

False sense of security

But the attack has also made Dr Wong acutely aware of his personal safety.

"As a doctor, even as a nurse working in a large hospital, we often have this false sense of security because there are so many people around," he said.

"Now I realise that this is not true. All it takes is someone with a small knife and you can be seriously damaged; you can be killed. I accept we cannot total stop violence, but we can reduce it."

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Preparing for a death

Inevitably, healthcare workers will be faced with the imminent death of a patient. Author and palliative nurse Sallie Tisdale* helps carers navigate this emotional journey.

One of the roles a good nurse fills is that of witness. When we care for people who are dying, part of our nursing will be to look. We look, and we explain: "Yes, this is normal. This is what happens. This is how we die. This is what it looks like." But we can do this only if we allow ourselves to see.

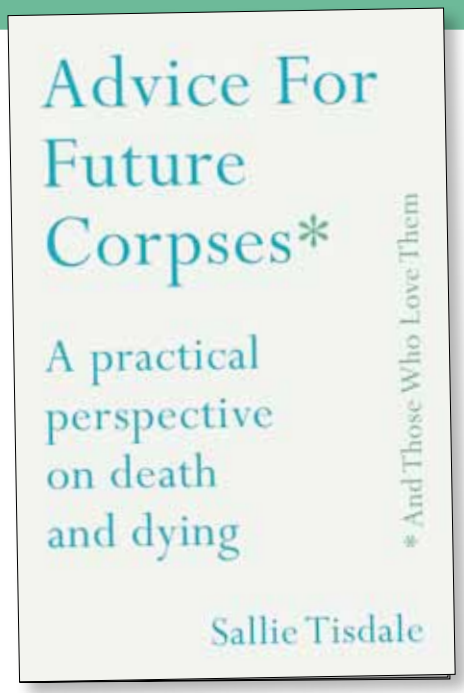
It's not that easy to see death clearly. We are filled with contradictions — never entirely believing in our own deaths, struggling to accept the deaths of others. We push and pull patients in various ways.

Most people know when they are dying. They don't need to be protected from the knowledge. But people who are dying will try out ways to respond to what is happening to them.

Denial

A person may say things that sound ridiculously optimistic. "I'll be playing tennis by Christmas." She may just want to feel better for a time. Families can cultivate denial, and to do so is common in many cultures. We shouldn't insist on taking it away. Part of good nursing care is allowing people to find their way in their own time. This includes coming to terms with the truth of their own death.

Everyone involved may join in the denial. As the writer Cory Taylor said in her memoir of dying from melanoma, "In hospitals we don't talk about death; we talk about treatment." Research shows that doctors generally overestimated survival of cancer patients, and that health professionals are overly optimistic about medical treatment in general. We're



all afraid to die, and it shows in our care sometimes.

Doctors and nurses have all kinds of human reasons to avoid the truth. It's hard to lose a patient you've come to like; it's hard to fail at a cure.

I work in a palliative care program. Most of our clients die after a slow decline, telegraphed for weeks or months. In the last few weeks of life, the nurse often visits every day; she or he teaches the caregivers and the family what to expect, what symptoms mean, how to use medications, how to do everything possible to keep a person comfortable and how to know when death is imminent. And yet that same nurse may be unable to chart that a patient has died. He has passed away, or expired. Sometimes the nurse cannot bring herself to write the bare, undeniable word.

Selfishness

The hardest part of a death is the simple loss of a person. But a close second is the need to shove your own fears and desires to the side. Sherwin Nuland noted that at such time "everybody becomes enormously selfish", and he emphatically includes doctors and nurses along with family.

We may not even recognise that selfishness is driving our choices. We work within an inevitable conflict of interests — you are dying and I want you to live. Doctors may not know they are doing this; when they offer yet another experimental drug, they may genuinely believe they know what's best for the patient. But best: best is subjective. Best is your point of view. Best is what you want, and it may not be best for the dying person.

The nurse is acting on behalf of the person in the bed. What that person wants is what counts. It may be quite different from what you would choose for yourself in the same position. You want the person to live. You want the person to die your version of a good death, or to live another week or try another course of treatment. But it's not about what you want.

Above all, if you are talking with a person who is dying, be aware of what you want and what

you think the dying person should do and should feel, and keep it to yourself.

Instead, explain how you will give support, no matter what happens. Explain that, whatever the shape of her last moments, the dying person will be allowed to make what choices are possible. (These choices may be few, and they may be based on plans made months or years before.) The person is always spoken to at the bedside, not about. Symptoms are treated, but only in the way the dying person wants. The person in bed leads the way. No-one — family, nurse or doctor — imposes their beliefs.

Despair

A person may say something that sounds completely hopeless: "There's no point. It's no good. This won't work." He may be trying out this possibility, seeing how it feels. It's not very helpful to say, "You're going to be fine!" when you know better.

Towards the end of life, many aspects of medical and nursing care become futile. Other treatments may simply be unnecessary or intrusive — drawing blood for lab work, certain medications (are you really worried about the cholesterol level at this point?), even checking blood pressure, can be stopped. But sometimes we describe this as "withdrawing" treatment, or "doing nothing more".

One of the worst sentences a patient can hear is "There's nothing more to be done." Not only does this undermine a person's fragile composure, it's not true. There is so much to be done. At the end of life, we will be busy offering emotional and physical support, managing symptoms, protecting privacy and providing the many small actions for family and patients that allow for a comfortable death.

Acceptance

Experience helps; there's no way around it. If you want to be more comfortable with death itself, with your death and the death of others, spend time near it. Sit with the dying, and pay attention.

Acceptance is found only by wholly inhabiting our own denial of death. Contemplating death is really contemplating resistance, for a long time. How do we get ready to die? We start with not being ready. We start with the fact that we are afraid. A long, lonesome examination of our fear. We start by admitting that we are all future corpses pretending we don't know.

*Sallie Tisdale is an experienced palliative care nurse and the author of nine books, most recently *'Advice for Future Corpses (and Those Who Love Them)'*.

Preventing medication-related harm in the elderly

Dr Natalie Soulsby*

Did you know that each year 230,000 people are admitted to hospital, and many more people experience reduced quality of life, as a result of adverse drug reactions (side effects)?

As we get older, the chances are we will be started on medications for our various ailments. Although these medications can be beneficial, we also know that the more medicines we take, the more likely we are to experience one or more side effects from them. It can be difficult to identify the culprit, as we don't always experience problems from the first time we take our medicines, or even realise that it is the medication that is the problem.

Let me introduce you to Martha...

Martha had been living with her daughter for the last four years and was quite well. Suddenly over several days she became confused and didn't want to take her medications. Her daughter also noticed that she appeared to have a temperature. She was concerned about her mum and spoke to her doctor. The doctor requested that Ward MM conduct a medication review to ascertain if it was one of her medicines that was causing her problems.

How did we help Martha?

A Ward MM clinical pharmacist visited Martha in her home, spoke to her daughter and had a look at her medications. We realised that Martha had been recently started on a medication to help address some behavioural issues that she had been exhibiting because of her dementia.

This medication (risperidone) can cause a rare but potentially life-threatening side effect called neuroleptic malignant syndrome (NMS), of which Martha had some of the symptoms. We contacted Martha's GP and explained to him that we thought this was most likely the guilty culprit and her GP decided to stop this medication.

Within a few weeks Martha was taking her medications and walking around, and her general health had returned to normal.

Martha's symptoms were quite extreme, so we were alerted to the issue quickly and able to identify the problem medication.

So, what is medicated-related harm?

It is where someone experiences a harmful effect from their medication. It may be non-predictable, eg, an allergic reaction; predictable, eg, a side effect; or preventable, eg, a medication error. Another name for this is an adverse drug event.

The more medicines a person takes, the greater chance of experiencing some sort of side effect from one or more of them. The tipping point appears to be five or more medications and, as one of my colleagues likes to say, when asked "What is the most dangerous drug you can take?", his answer is "the sixth one!"

Why is eliminating medication-related harm important?

In addition to the impact on quality of life, an individual may also require a clinical intervention such as a visit to a doctor or the hospital. It is estimated that medication-related harm is responsible for about 30% of hospitalisations in older Australians. Up to 15% of older people visiting their doctor report experiencing some sort of medication-related harm, and up to a quarter of these are deemed preventable.

How can we eliminate medication-related harm?

Be informed. Ensure your clients ask questions of their doctor and pharmacist as to why they are being prescribed that medication, and what to expect, both as a benefit and potential risk (or side effect).

It is also important to adhere to the medication regime outlined by the doctor or pharmacist — taking medication at the right time or storing it in the right environment can be critical to the success of its effectiveness.

As the industry gets to grips with the new Single Aged Care Quality Standards, we need to holistically review our approach to medications for some of the most vulnerable people in our community.

By far the best approach is prevention. Proactive medication care is essential to eliminating medication harm.

Startling stats

- The cost of drug-related hospital admissions is costing the nation more than $1.2 billion per annum.
- 88% of people taking five or more medications will be experiencing side effects and they may not even realise.
- 66% of Australians over the age of 75 are taking five or more medications.
- 20% of Australians over the age of 75 are taking 10 or more medications.
- 24% of medication-related problems can be attributed to the way medicines are stored, managed and used in the home.

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*Dr Natalie Soulsby is Head of Clinical Development at Ward MM and presented on 'Medications in Aged Care — Challenge or Opportunity' at the recent LASA National Congress.

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Increasing patient involvement: 4 rules of engagement

Dr Yossi Cohen*

Allowing patients to be more engaged with their care can help people be healthier and deliver better health outcomes. Technology is seen as a key enabler.

However, technology-enabled patient engagement is evolving. Globally, most countries exhibit a relatively low level of maturity for common patient engagement online functions, such as patient access to medical records, appointment booking, or communication with clinicians through secure messaging.

This is certainly the case in Australia, where efforts to engage the general population in electronic health care are often overshadowed by privacy and security concerns.

A recent survey of general medical practices in Victoria, published by Urooj Raza Khan et al from Charles Sturt University, found that while 76% of 51 healthcare providers had interacted with the Australian national My Health Record, only 29% of 179 patients had done the same.

While 66% of respondents believed MyHR contributed to making patient care easier and faster, only 49% believed it helped make patient care safer. Some 57% thought MyHR adoption should be encouraged through things like more user education and training, marketing and promotion, and usability improvements.

As we look to MyHR and other technology initiatives to further engage patients in their own care, the following considerations, based on the experience of the UK National Health Scheme (NHS), should be borne in mind.

1. Expect a strong undercurrent of clinicians' objections

In September 2017, UK health secretary Jeremy Hunt spoke about the "patient power decade", noting, "The decade when the master–servant relationship that existed for three millennia between doctors and patients will be turned on its head, and patients will use the information that

becomes available at their fingertips to exert real control".

Indeed, patient engagement entails fundamental cultural change in the patient–doctor relationship. Such a change is not always easy for those involved.

Specifically, clinicians will need to adjust and realign themselves with this emerging reality, and there is considerable evidence from around the globe that it is not a straightforward step.

For example, research for the Sowerby e-Health forum showed that general practitioners in the UK are reluctant to share health data with patients. Only one in four GPs thought that the benefits to patients of accessing their own electronic health record outweighed the risks. Data from SERMO, a network for doctors mainly in the United States, has shown that two-thirds of doctors are reluctant to share data with patients.

2. Patients are not easily impressed

Granting patients access to their own care records does not necessarily result in meaningful engagement. For example, according to research from the UK Houses of Parliament, the percentage of GP surgeries in England allowing patients to access their summary care record online, book appointments and order repeat prescriptions increased from 3% to 97% between 2014 and 2016. However, patient uptake was extremely low: only 0.4% patients used the service.

"Granting patients access to their own care records does not necessarily result in meaningful engagement."

In fact, patient access to care records is only a prerequisite for engagement. Patients must be able to identify benefits for themselves beyond accessing their own information in order to engage.

A potential pitfall is looking at patient engagement projects through the more common care provider's 'business case' or 'care improvement' prisms. Patients, however, look at it through the 'what's in it for me' prism. While care provider considerations are important, such projects first and foremost need to keep the patients satisfied.

3. Choose your targets carefully

One size certainly does not fit all.

Often, patient engagement projects are the last step of an electronic patient record implementation or the creation of a regional health exchange. Then, all patients receive access to the newly created care records as a mean of engagement, with a common single user experience for all.

However, different patients have different needs that require different engagement functionality. For example, while a pregnant woman would appreciate using an engagement portal to contact her obstetrician if she is concerned, read information that relates to her pregnancy, subscribe to antenatal classes in her area and be reminded of pending vaccinations for the newborn, an elderly diabetic patient would like to use an engagement portal to see recent blood results, send latest blood glucose readings to his doctor, and read guidance on how to manage his diabetes, for example, during the month of Ramadan.

Therefore, one should start by identifying the different patient cohorts and build customised engagement campaigns. For each such cohort, it is important to aim for the functionality sweet spot that is on one hand rich enough to gain traction with patients, but on the other hand is practical to implement.

4. Adopt a cautious view of benefits

Although gaining popularity, not all engagement methodologies have proven as beneficial as originally anticipated, and often evidence is mixed or contradictory. For example, recent research highlighted cases where: commercially available wearable devices did not improve weight loss over 24 months; health coaching telephone calls combined with telemonitoring did not reduce 180-day readmissions in patients with heart failure; and high-tech pill bottles with digital timer caps did not improve medication compliance.

Therefore, when deciding on how to engage with a particular cohort of patients, understand what it is that you want to achieve. Then take a cautious view of the benefits, mitigating the risk of unproven benefits by offering a range of services with varying degrees of confidence in the perceived benefit. These can be convenience services, such as subscribing to classes online, or clinical services such as setting urgent care preferences. Then, once your engagement campaign is live, monitor and adjust the mix based on what works best.

To be successful, patient engagement projects require careful planning and execution, underpinned by good understanding of the different patient cohorts and their unique requirements.

*Dr Yossi Cohen is a Physician Executive at InterSystems, providing clinical input to improve the use of InterSystems HealthShare to meet NHS organisations' needs around high performance, patient safety, quality improvement and cost control. Previously Vice President of R&D at Compugen, a computational drug discovery company, Cohen was responsible for discovering novel drug candidates by developing analytics for big data.

New technology
to reduce patient falls from bed

The technological era is well and truly here. However, despite some progress, the aged-care industry is largely yet to realise the potential that technology can bring to not only facility management but, more importantly, residential care.

This institutional delay in adapting to new technology has seen Melbourne-based company Sleeptite, and its CEO Cameron van den Dungen, embark on a journey with one aim in mind — to develop technology that will see Australia become a world leader when it comes to increasing the quality of health care provided to its elderly.

Sleeptite and its partners are developing a system that will alert carers to residents at risk of falling should a resident leaving their bed willingly, or accidentally, allowing faster response times. Non-invasive, medical-grade sensors in bedding materials will feed information into a central interface alerting carers to movements or potential areas for concern, so they can direct their energies to the people most in need at the right time.

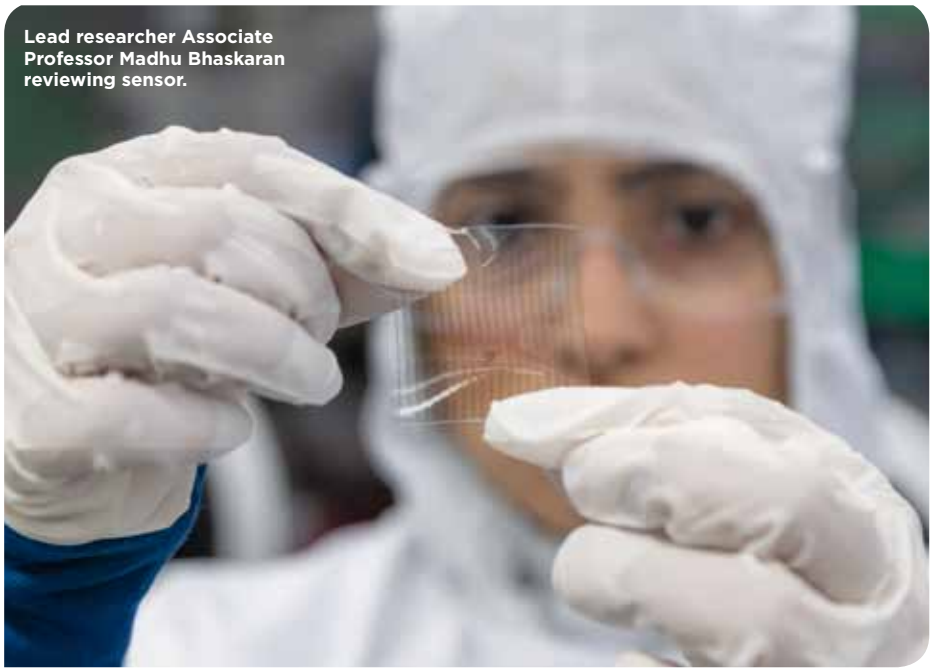
The Sleeptite program will offer nurses and carers greater insight into the real-time health and wellbeing of residents, while also providing facility managers with reporting metrics that will help benchmark homes. "We need to equip the valuable carers with systems that allow them to out-perform any aged-care worker that has gone before them," van den Dungen said.

Origins of an idea

Joining the family business, Forty Winks Hawthorn, in 2008 van den Dungen travelled the world researching what new technologies were bringing to the bedding industry. He discovered a passion that took him back to his family roots — his Oma owned private aged-care homes across Melbourne when the family first immigrated to Australia from the Netherlands in the 1950s.

"When I looked at how new technology was being introduced to a bedroom setting I realised most of it wasn't being designed to have a tangible effect on a user's state of sleep, more as a point of difference between brands. This line of thinking led me to investigate how technology could truly benefit a person's overall wellbeing," van den Dungen said.

Ultimately, it was a connection with a team of award-winning researchers at RMIT University in Melbourne that turned a passion into reality



Lead researcher Associate Professor Madhu Bhaskaran reviewing sensor.

Sleeptite CEO Cameron van den Dungen (l), joined by Australian Program Partners RMIT & Sleepeezee.

and saw Sleeptite awarded a $1.7 million federal government grant through its CRC-P program earlier this year.

"Meeting the team at RMIT was a game changer for me. The flexible proximity sensors they had designed and were continuing to develop meant we were closer to achieving my purpose than even I had probably realised only months earlier," van den Dungen said.

Sensing movement, reducing falls

Now Sleeptite and RMIT are taking the existing technology and developing flexible proximity sensors that can be embedded in materials that sit external to the human body while still providing medical-grade monitoring of a person's vital signs.

The program involves not only developing the sensors but a vast advanced manufacturing project, also run out of Melbourne by another Sleeptite partner, Sleepeezee, as the technology is taken out of the lab and adapted to real-world situations and environments.

The research team at RMIT is equally excited about the potential of Sleeptite and how the technology they have been developing for almost seven years will be making a difference to some of Australia's most vulnerable people.

"When you start developing these technologies you always hope that one day it will leave the lab and be put into a real-world environment and I couldn't be more excited about the impact this technology will have," lead researcher Associate Professor Madhu Bhaskaran said.

Associate Professor Sharath Sriram echoes Bhaskaran's sentiment: "We are surrounded by technologies that make life easier, but there are not many that make it better and this is what makes the Sleeptite program so unique," he said.

Sleeptite aims to have the first phase of the Sleeptite program in field trials by early 2019.

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Biophilic design in health care

Natassja Wynhorst*

With many years of research, there is no denying that the exposure to nature has a positive impact on health, wellbeing and overall happiness — even to the extent that green spaces promote prosocial behaviours.

It is due to these evidential factors that many modern designs, including within healthcare, residential and commercial properties, are based on biophilic design. Biophilic design has grown exponentially over the past few years as it has gained a greater understanding and further awareness. There is also overwhelming research supporting how specific design elements create greater patient experience, care and recovery.

Biophilia itself is the inherent human inclination to connect, and have an affiliation, with nature. Biophilic design is an extension to this and can be defined as the incorporation of natural materials, natural light, nature views, vegetation and other experiences from the natural environment into the built environment.[1]

Essentially, biophilic design focuses on aspects of the natural world that have contributed to human health, happiness and productivity in the constant endeavour to be fit and to survive.[2] Another distinguishing feature of biophilic design is its emphasis on the inclusion of the overall setting or habitat, and not just simply an isolated occurrence in nature.[2]

There is significant evidence showing the substantial positive effects this design concept has within healthcare facilities. Patients within hospitals and other medical locations that have incorporated the natural environment into the facility's design have been found to have substantial healing benefits. This is because simple inclusions of nature, or interpretations of it, aid in the healing process of patients.[3]

It is common for stress to be a major factor in inhibiting the body's healing processes and recovery time. However, when patient rooms have views of nature, less pain medication is dispensed for the respective patients, and the overall condition improves as it reduces stress and relieves pain. Statistically speaking, the incorporation of biophilia within hospitals has reduced post-operative recovery by 8.5% and the use of pain medication by 22%.[4]

Similarly, biophilic design also results in environments that soothe, comfort, calm and orientate, making it extremely beneficial to healthcare environments specialising in behavioural health. However, to support patient needs within behavioural healthcare environments, it is essential to avoid literal representations of imagery that can trigger unwanted or traumatic feelings or memories.

There are many ways to implement the design concept of biophilia into healthcare design, including the six basic principles of biophilic design: environmental features, natural shapes and forms, natural patterns and processes, light and space, place-based relationships and evolved human-nature relationships.[1]

These principles are implemented into health care through the creative inclusion and optimisation of spaces with a human focus, thermal comfort levels, air quality, toxin levels and ventilation, acoustic comfort, improved natural lighting, internal and external natural views, the use of natural materials, textures, patterns and colours, the use of recuperative spaces, and the psychological and physiological effect on the space.[4]

Biophilia and the extension of biophilic design are of significant importance in healthcare clinics, centres, practices and hospitals, especially due to the evident disconnection many have to the natural environment within modern, urbanised areas.

The ability to reduce stress, speed up recovery times, positively impact behavioural disorders and liven up what is traditionally considered a sterile space are only a few benefits of biophilic design. The recognition of our need to connect with nature also boosts productivity, efficiency, morale and overall service delivery, allowing healthcare practitioners to perform at their optimum level, while patients receive their optimum care in a cleverly designed environment.

For further information, visit www.interitehealthcare.com.

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*Natassja Wynhorst is Client Experience Executive of Interite Healthcare Interiors.

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Sustainable superabsorbents

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Sustainability is the next stop for every industry and organisation to achieve cost reduction with maximum profit. Healthcare organisations are marching towards the green pathway by making use of eco-friendly products. Initiatives are being implemented to achieve sustainable solutions in hospitals to save costs and improve efficiencies.

According to a report from Johnson & Johnson Medical Device Co., 88% of healthcare executives and 92% of physicians surveyed believe sustainable solutions can bring a radical change in terms of long-term savings. With that in mind, medical superabsorbent polymers (SAPs) are being manufactured using raw materials that favour this eco-friendly trend, and efforts are being made to incorporate them into healthcare facility waste management programs.

What is an SAP?

Currently, SAPs are manufactured using petroleum-based vinyl monomers that reflect relatively lower biodegradable attribute and eco-friendliness. SAPs are used in such products as wound dressings, nappies, feminine hygiene pads and incontinence pads, and are designed to absorb fluids.

With the rising concern for environment protection and growing green chemistry, renewable polymers have drawn significant attention against the backdrop of low cost of production, resource abundance and biocompatibility.

Lately, natural polymers are being used to manufacture SAPs, such as chitosan, starch, cashew gum, cellulose, rice husk and raw bran, to name a few.

Of these, chitosan, an abundant polysaccharide of natural origin, offers a superior biodegradability. These radical changes are likely to be the future, introducing a cohort of opportunities for manufacturers of SAPs.

Eco-friendly hydrogels to enforce the sustainability initiative

Manufacturers that use SAPs are developing products like baby nappies with a focus on thinness, for optimum level of comfort, and reducing environmental impact.

To support this, governments from various countries are offering incentives to carry out research programs to develop green SAPs. For instance, the 'Make in India' policy offers several incentives for R&D initiatives to carry out green practices.

With a significant demand for SAPs in the healthcare domain, new developments are being carried out to complement their use. Swift technological advances coupled with increased funding from stakeholders and investors have aided manufacturing of novel medical care products in order to enhance performance.

Recently, chitosan-based SAPs have been gaining more ground on the back of their excellent absorption properties along with higher biodegradability, biocompatibility and antibacterial properties.

Recycling absorbent hygiene products

Against the backdrop of growing concerns pertaining to medical waste, efforts are being made to transform and re-use hospital waste material. One such innovative idea includes the effective treatment and disposal of waste absorbent hygiene products (AHPs) made from SAPs that are used in feminine pads, baby diapers and adult incontinence products. Fater SpA has patented a new technology that can recycle waste from absorbent hygiene products previously considered non-recyclable.

Companies have been focusing on recycling valuable material to develop other products, thereby limiting the need to extract virgin material and therefore reducing greenhouse emissions and environmental footprint.

Initiatives complementing sustainability

Several measures are being carried out to initiate sustainability in the SAP space across various healthcare facilities. Some of the steps being undertaken to incorporate sustainability into routine operational tasks are outlined below:

- Carrying out waste audits of current and future practices.
- Establishing categories of waste that need sorting along with precise guidelines for their disposal.
- Increasing awareness among facility caregivers and staff by explaining waste segregation rules, and organising training programs of the recycling programs and waste management systems.
- Addressing all identified non-compliances during waste handling or during audits by facility management.
- Setting key performance indicators for financial savings and risk management resulting from recycling AHPs made from medical superabsorbent polymers, and monitoring results.
- Installation of adequate waste containers in facilities.

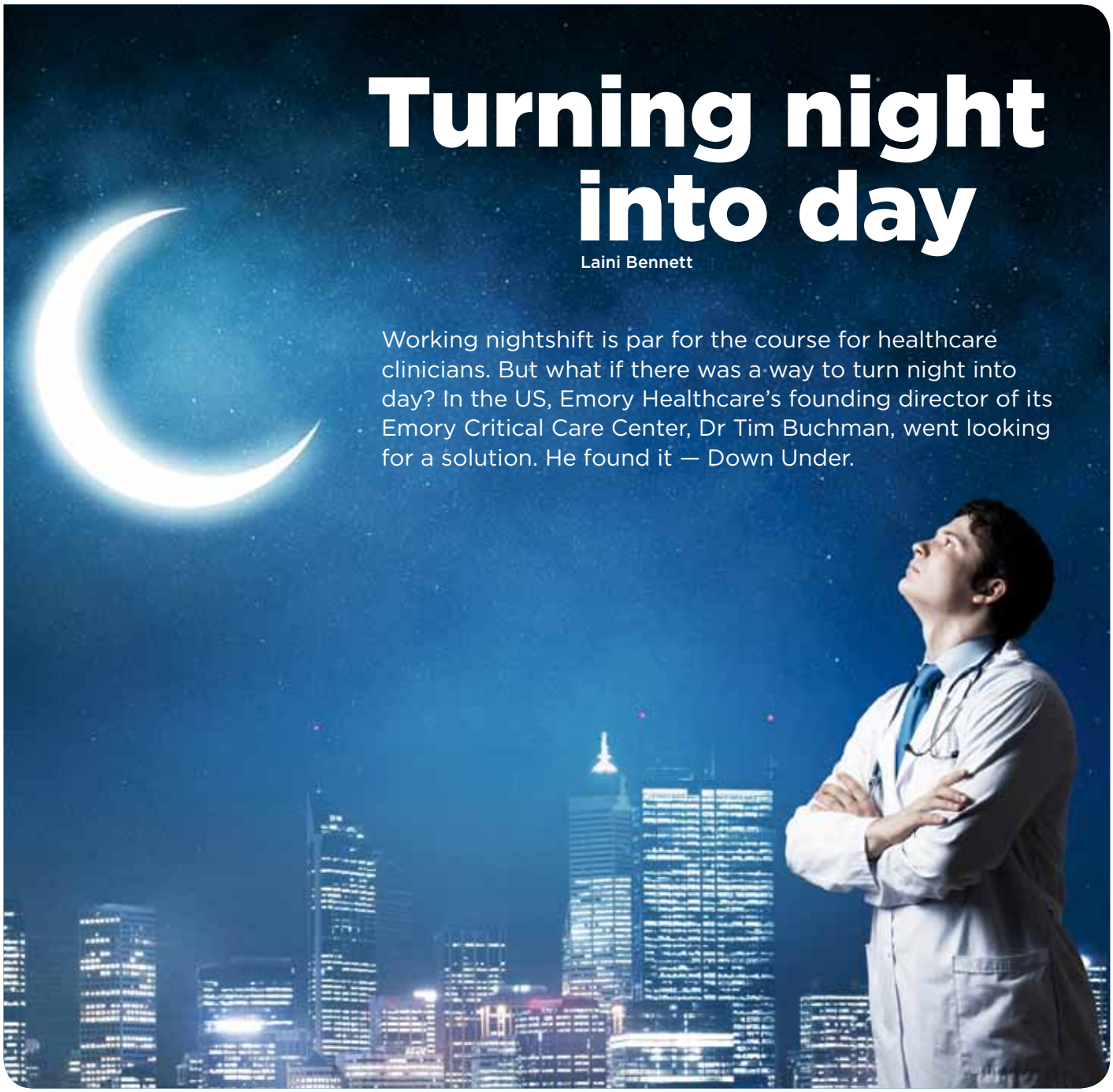
These initiatives can be integrated in tenders that are issued by healthcare facilities for waste handling with no surplus costs, in turn facilitating sustainability.

For more information, visit the research study on Medical Superabsorbent Polymers Market by Fact.MR.

Turning night into day

Laini Bennett

Working nightshift is par for the course for healthcare clinicians. But what if there was a way to turn night into day? In the US, Emory Healthcare's founding director of its Emory Critical Care Center, Dr Tim Buchman, went looking for a solution. He found it — Down Under.



Dr Tim Buchman.

Off the back of yet another exhausting overnight shift, Dr Tim Buchman knew he had to find a new way to support the US-based Emory Healthcare ICU team during their nightshifts. "I turned to my work partner, eICU Operations Director Cheryl Hiddleson, and said, 'I can't do this anymore. I need to find a way to turn night into day.'"

If they could base themselves in a country on the other side of the globe, he explained, where it was daytime during their nightshift, they could support the Atlanta-based bedside team remotely via technology.

Australia: on everyone's bucket list

At the next staff meeting, Dr Buchman brought a globe of the world with him and put the idea to the team, asking, "Who wants to spend a couple of months in Beijing, China?" There was no response.

Looking further south on the globe, he asked: "Okay, who would like to spend eight weeks in Singapore?" A couple of hands went up, but the enthusiasm level was still low.

Figuring third time's a charm, Dr Buchman said: "Okay, how about the Harbour Bridge, the Opera House and Crocodile Dundee?" All hands in the room shot up.

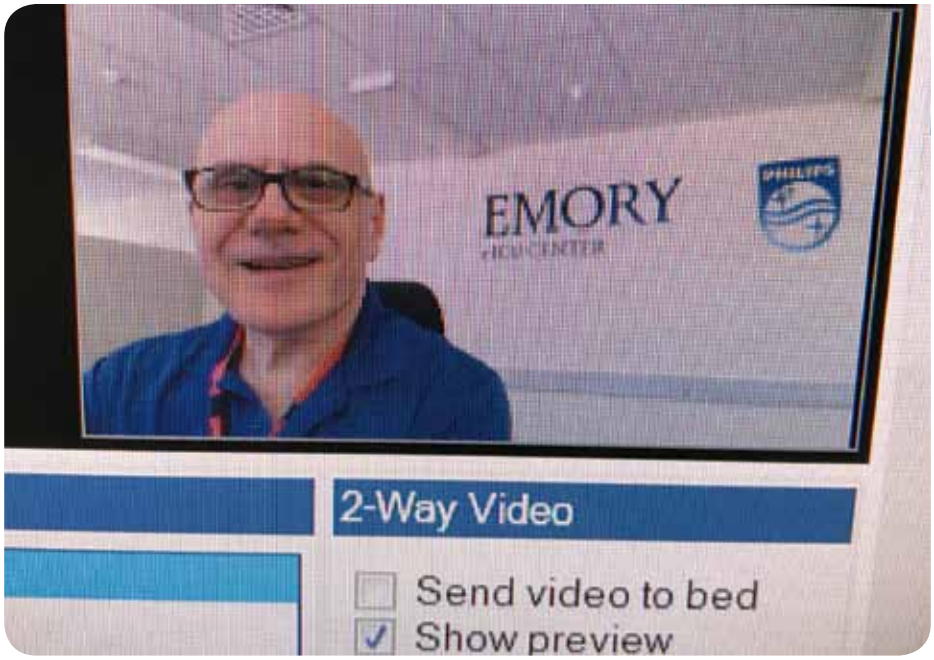
"Australia is on everyone's '*I really want to go there but it will never happen*' bucket list," Dr Buchman laughed. "It became very clear that Australia was everyone's desired destination."

Logistics, logistics, logistics

Then it became a question of how to make it happen. Dr Buchman's wife suggested he speak with one of her old bosses, Professor Bruce Dowton, now Vice Chancellor of Macquarie University. Before long, they'd agreed to a six-month research pilot.

Cheryl Hiddelson working in the Perth eICU.

Below left: Dr Tim Buchman liaises with a colleague in the US via the Perth eICU.



"That's how we ended up at Macquarie University Hospital, seeing if it was even possible to move our technology and providers to the other side of the globe and have them tell us 'we can do this'," Dr Buchman said.

As it turned out, the pilot was so popular that the participants not only said 'we can do this', but 'when can we do this again?' resulting in a decision to turn the pilot into a permanent program.

Finding new digs

Much as Sydney had been welcoming, the time difference during daylight saving in both countries meant that the Emory care staff in Sydney's summer were working from 11 am to 11 pm to cover the Atlanta 7 pm to 7 am night shift. As a result, they resolved to establish their next support outpost in Perth, Western Australia, where the work schedules and time zones aligned serendipitously. A hosting relationship between Emory Healthcare and the Royal Perth Hospital has since been announced, leveraging Philips' remote intensive care unit monitoring technology.

Working with Cheryl Hiddelson to establish the new facilities in Australia, Dr Buchman said the set-up "was at once more difficult and easier than you'd imagine". Their biggest challenge was implementing an end-to-end secure circuit linking the Atlanta site and the Perth site that guaranteed privacy. "Our IP addresses and VoIP telephones must be completely isolated so we can guarantee a level of reliability and security that our patients, their families and our institution demands. That was the most complex part of it," he said.

On the other hand, the legalities around having care staff working out at the Australia sites turned out to be straightforward. Rather than attempting to license US doctors and nurses locally, or license Australian healthcare workers for the US, it was simpler to send US care workers to Australia for limited rotations. The Australian medical and legal authorities had no issues with this approach, so long as the Emory team were not servicing Australian patients.

Noah's Ark philosophy

Not wanting their caregivers to be isolated in Australia, the remote intensive care unit (ICU) is always manned by clinicians working in pairs. An Emory doctor and nurse team in Perth partner with two nurses in Atlanta to support the ICUs three to four nights a week, while the remaining nights are covered entirely by an Atlanta-based night-shift team. Together they support five hospitals and a dozen ICUs.

Typically, a nurse supports between 35 to 45 beds and a doctor supports 120 to 130 beds, delivered via an ultrahigh-resolution audio visual circuit into the patients' rooms, allowing them to interact with the patient, their family and caregivers. Mobile communication carts can also be taken into the emergency department to support patients who are critically ill, but for whom no bed is yet available in the ICU, and closed-circuit conferencing is available for confidential discussions.

Long-distance care welcomed

Having conducted 90 goals-of-care conversations for critically ill patients, including from Sydney and Perth, Dr Buchman remains surprised at how amenable patients and their families are to receiving difficult news and emotional support via videoconferencing.

"People are so used to talking about their most intimate lives in their cell phones that having the undivided attention of a senior physician who knows about their loved one, essentially on demand, is something they embrace with a fervor that I still find difficult to fathom," he said.

Increasing demand

While the remote ICU is popular with both patients and clinical staff, and Emory is considering establishing a second pair of caregivers in Perth, any expansion of the service will occur slowly to ensure quality is not sacrificed. "Trust among the care staff and patients is essential," Dr Buchman said.

"The technology, interpersonal and communication skill sets are hard won and not everyone can do it.

"If we expand, the focus will always being on the needs of the patient and family, and not on the bottom line, the spreadsheet."

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Nurse Gail Yarran is a Ballardong and Wadjuk woman living on Noongar country in Western Australia. Recognised in 2018 by HESTA as Nurse of the Year, she speaks about closing the gap, her faith, and her resilience in the face of repeated episodes of personal and institutional racism.

Bridging two worlds

Di Martin*

Gail Yarran is a fiercely determined woman. From the time her primary class laughed at her when she said she wanted to be a nurse, Yarran has worked tirelessly to overcome prejudice and improve the health of Aboriginal people.

As she's discovered herself, racism and poor Aboriginal health outcomes exist hand in hand. It's not only because some have suffered discrimination at the hands of medical professionals.

So Yarran works closely with Aboriginal and Torres Strait Islander people, advocating for them, protecting them as they make their way through the health system, and calling for more Indigenous health workers.

Her colleagues simply refer to her as 'The Bridge' for her continuing efforts to weave together the two worlds of mainstream health and Indigenous culture.

A challenging start

Gail Yarran grew up in the tiny country town of Quariding, about an hour's drive due east of Perth.

One of seven girls, Yarran's family grew up "in a tin shack with no running water or electricity".

Yarran with colleague Dr Bas.

She remembers a pivotal moment in her long journey as a nurse and educator.

"When I was in primary school, I would have been about eight years old, I said that I wanted to be a nurse when I left school. The little country school was full of racism and the wodgella (white) kids, the whole class, just laughed and laughed at me saying, 'A black girl can't be a nurse'. I was really broken that day."

When Yarran talks about how she survived this experience, and many like it, she makes particular mention of her mother's support and guidance.

"I was very blessed to have a very strong family who was focused on belief in equality for all humanity, support for each other and a mother whose wisdom was gentle. She [said] that bullies were narrow-minded, had limited understanding, and were to be pitied rather than feared.

"My mother saw further than others and encouraged me to stay strong because I was worth it and my culture was too."

The journey begins

With her mother's support, Yarran found a job at the local hospital serving meals and scrubbing bedpans.

It was there the matron approached her to train as a nurse.

At first Yarran declined, doubting herself, but over time she agreed, and found herself at the Manjumup Training Hospital in the early 1970s.

It was nearly 20 years later that she enrolled at Curtin University to qualify as a registered nurse.

What came as a shock to Yarran is that even in this academic environment, racism followed her from classroom to classroom.

Yarran with baby Keisha Hill.

L–R: Jasmine Yarran, Gail Yarran and Dallas Yarran at the Hesta Nursing & Midwifery Awards last year. Image© HESTA

"I had four midwife students as friends, but out of a class of 40 the rest either didn't care, weren't inclusive or sometimes were just downright cruel. My wodgella friend and I heard one midwife student say to another, 'Did you see the car Gail is driving? I bet the government just gave it to her because she's Indigenous'.

"These women were meant to be nurturing nurses with a postgrad qualification that honoured and respected all women, but when it came to a classmate their racism shone through," Yarran said.

Yarran says throughout university she maintained close contacts with her family and community, but also drew strength from her white friends.

"A couple of those wodgella girls wouldn't stand for the things said about me and together we grew and stood together. Those girls valued my wisdom and we are still really close friends today."

Drawing on her faith

Yarran advises other Indigenous health workers to identify their supports, and make sure they can talk to those people when they've run up against prejudice or closed minds at work.

For Yarran, this includes drawing on her faith.

"I have a deep spiritual faith and I know that my faith kept me strong. Mum used to encourage us that there was a battle we could see and a spiritual battle that we couldn't. In the spiritual battle I had so many good forces and strength that my family and I could resist the paralysing effects of outward bullying. Our kinship is validating, supportive and strengthening.

"In this way, with joy, successes, family connections, yarning with others, and fellowship and involvement in other communities that were loving, giving, supportive and life-giving, I learnt to combat and resist the terror that racism gives."

Advocating for the community

As both a clinician and an elder, Yarran is particularly effective as an advocate for better health care for Aboriginal and Torres Strait Islander people.

Part of the maternal child health team at the Derbarl Yerrigan Health Service, Yarran advocates for the client, encourages people who may not otherwise engage with mainstream health care, and says she's always working to build better awareness of Indigenous experiences.

She advocates what she calls "clinical yarning" — teaching non-Indigenous health professionals how to make connections and build trust with Aboriginal people.

She says health professionals have to take the time to understand where their clients are coming from, and what is their history and culture, in order to provide appropriate care.

Along the way she has earned the respect of Indigenous and non-Indigenous people and health professionals alike, who call on her wisdom to solve issues at a local and state level.

Yarran sits on advisory councils at Royal Perth Hospital and King Edward Memorial Hospital, is involved in two research projects at Murdoch University, and is a volunteer Indigenous ambassador for the Heart Foundation.

She has presented at universities and spoken at international, state and local conferences, always seeking equal opportunity and parity for Indigenous Australians.

The HESTA Nurse of the Year Award is simply the most recent of Gail Yarran's many accolades.

*Di Martin is former Director, Communications at the National Rural Health Alliance. This is an edited extract of an article that first appeared in the NRHA's Partyline magazine.

Image© Derbarl Yerrigan Health Services

Clinical waste watch

Ros Morgan*

Nurses, midwives and carers want to do more to reduce waste in health care. Here are a few tips.

Global Green and Healthy Hospitals has a platform of 10 ways in which health care can reduce its carbon footprint.[1] The one that usually stands out for nurses and midwives is 'waste' — it's in our hands and we decide which bin to put it in.

There is so much waste in health care. Vigilant nurses, midwives and carers see this every day and are increasingly looking for opportunity to reduce waste, recapture value and preserve resources.

But how?

There is confusion about waste segregation in the community before we add in the complexity of health care and our already busy clinical loads. And then — isn't hospital waste irritating?

It's right to be cautious. Managed inappropriately, there are serious risks. At the same time, 75–80% of healthcare waste is comparable to municipal garbage.[2] Even the Victorian Clinical Waste Guidelines (IWRG612.1) include the responsibility, where practicable, to avoid the generation of the waste stream and maximise re-use and recycling.[3]

Victoria's Department of Health and Human Services has linked the funding of health services with an obligation to have and report on an Environmental Management Plan.[4] This inevitably includes waste management. Since July 2017, the Department also requires public health services to report waste data. This is entered into the Environmental Data Management System (EDMS). When you recycle, not only are you doing the right thing — you are an asset to your organisation as they implement and report on their mandated governance expectations. Have you found out who manages your organisation's Environmental Management Plan? Are they capturing your stellar efforts?

There are many examples of streams that can be diverted from landfill inside of health care. These include:

- **Commingled:** the same as at home. If the plastic can be scrunched, leave it out of the recycling. Paper towel is a low-quality, short fibre — so it's landfill. In fact, when in doubt, throw it out. Planet Ark advises that is better to have a few things go through to landfill that perhaps are recyclable, than to risk contaminating the stream and seeing it all go to waste.[5] To this we must add that infection control is always the priority.
- **Surgical blue wrap:** made into park benches and road signs.
- **PVC:** it only takes 2.5 kg of PVC to make 18 m of garden hose!
- **Single-use metal instruments:** melted into new product.
- **E-waste:** did you know that in 2015 Apple recovered over a ton of gold from its recycled phones and computers? That's US$40million!

Don't know where to start? Start where you are, use what you have, do what you can! No one is going to argue with you getting your clinical waste right, yet this is one of the most intensive and expensive waste streams. Melbourne Health won the 2016 Premier's Sustainability Award for reducing their dialysate clinical waste from 2.4 kg per patient treatment to 1.55 kg.

Of course, there is the question — should we even bother? We've all seen the headlines about China not taking our recycling and threats of sending it to landfill. How would you respond to a work colleague asking about this?

First, we must keep up the pressure for all levels of government to solve this problem by supporting appropriate technologies and market outlets for recycled content. That means keeping the recycling bins full.

Here in Victoria, we already recycle most of our waste locally and the Andrews government 2017–18 budget invested $30.4 million over four years to improve management of waste and recover more resources.[6] There are already Australian businesses turning this crisis into opportunity.[7] Our planet has finite resources and we must recycle to keep the virgin materials extracted at their highest and best use for as long as possible. We consider this further in the 'Nursing for the Environment' course. Keep your eye out on the ANMF (Vic Branch) website, anmfvic.asn.au, for the next program — not to be missed!

What does that symbol mean?

It is easy to be confused by the many symbols that are present, or even absent, from the items we want to segregate.

The **mobius loop** is the universal recycling symbol, with three folded arrows that form a triangle.

The **resin code** is when you see a number inside a triangle. Numbers identify the type of synthetic material used to manufacture the container. They do not necessarily indicate that the item can go into commingled recycling. For example, you may see a resin code on a soft plastic bubble packaging or on a polystyrene cup. These are both contaminants in the general commingled recycling. Some items made overseas have no symbol on them. Go by the general rule. If you can scrunch it — landfill. And if in doubt, throw it out.

*Ros Morgan is the Environmental Health Officer for the Australian Nursing and Midwifery Federation (Victorian Branch).

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Reducing the risk for patients and health workers

Con-Serv is committed to meeting the growing needs across the healthcare industry and we are constantly reviewing our range to ensure we have the best solutions available to support a better quality of life.

In Australia, suicide accounts for 3,128 deaths per year and is the leading cause of death among people 15-44 years (ABS, 3303.0 - Causes of Death, Australia, 2017). With bathrooms posing a high-risk area for public and private facilities, we have developed a range of Anti-Ligature Grab Rails and Showers to help reduce the possibility of self-harm.

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Featured Products

Automated inventory management cabinets

Terso Solutions, Inc. provides innovative RFID hardware and software solutions for automating supply chain and inventory processes.

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Electro-Com (Australia) Pty Ltd
www.electrocom.com.au

Product recall system

GS1 Australia's Recall Health is a whole-of-industry solution developed in consultation with government agencies and state-based health authorities. A national online system, it is an integral component of the Australian Government's Digital Health Supply Chain reform.

Recall Health shares the most up-to-date product recall information with all involved stakeholders in real time. This ensures high levels of efficiency and patient safety are maintained.

Organisations who use the system to communicate their recall notifications exceed the minimum requirements of the TGA's Uniform Recall Procedure for Therapeutic Goods (URPTG). Medical technology companies, pharmaceutical suppliers and state government health departments have subscribed to the Recall Health portal as a reliable and efficient method for conducting product recalls and withdrawals.

Recall Health is designed to make the effective removal of faulty products from the health system safer and more efficient.

GS1 Australia
www.gs1au.org

Creating a sustainable foodservice

Nicole Senior*

The food we eat represents an opportunity to reduce our environmental footprint both at home and at work. Making changes in institutional foodservice can make an even bigger difference due to its larger scale. Here are some ideas to consider.

Approximately 15% of all food purchased in Australian households is wasted.[1] The commercial and industrial sector disposes of 2.2 million tonnes of edible food every year.[2] Wasted food represents a double whammy for the environment: the loss of resources that went into producing it and the greenhouse gases and leachate it creates in landfill.[3]

Food waste is estimated to cost the Australian economy $20 billion each year.[2]

Hospital foodservice systems contribute up to 50% of all hospital waste.[4] It has been suggested that some food waste is unavoidable to ensure patients' food and nutrition needs are met. However, foodservice systems can be more reactive and flexible to minimise wasted food. For example, Wi-Fi enabled devices for taking food orders combined with expanded menu choices and innovative meal production and reheating technology. These allow for personalised meal ordering, reduced lag time between ordering and service and reduced incidence of default meals. Assisted meal times and easy-open packaging can reduce plate and tray waste.

The food waste hierarchy

The food waste hierarchy is a framework that ranks prevention as most favourable through to the last resort option of disposal into landfill.[5]

In the institutional setting, the food waste hierarchy could be applied in the following ways.

Prevention

More responsive foodservice systems can provide the right food to the right person at the right time and avoid unwanted plated food.

Offering mid-meals and nutritional supplements rather than providing these as standard can reduce waste; however, this requires high staff involvement to avoid malnutrition.

Serving smaller portions in cafeterias can reduce plate waste.

Re-use

Shelf-stable prepackaged food that is not delivered can be re-used. The re-use of prepackaged food that has been in a patient's room is considered an infection risk and usually wasted. This problem is ripe for an innovative solution.

Donating surplus food to charities can save disposal costs and contribute to community wellbeing. The most well-known organisations are OzHarvest and Second Bite. They will collect food and distribute it to community groups in need at no cost. Legislation provides indemnity to organisations who donate safe food.

Recycle

When food is no longer suitable for consumption, the nutrients can be returned to the soil as compost or in worm farms (vermiculture). This can be done off site or on site. Check out the Victorian food organics recycling guide[6] to find out what might best suit your needs.

Organisations such as Reground[7] will collect spent coffee grounds from cafes to make compost.

Collect food scraps for local farms.

Packaging

Choosing recyclable packaging and having good recycling systems enables packaging resource recovery. Hospitals with compartmentalised waste collection trolleys allow sorting at the ward level. Providing separate recycling bins next to general waste allows visitors and staff to recycle packaging. Promote the use of re-usable coffee cups rather than disposable cups as most cannot be recycled.

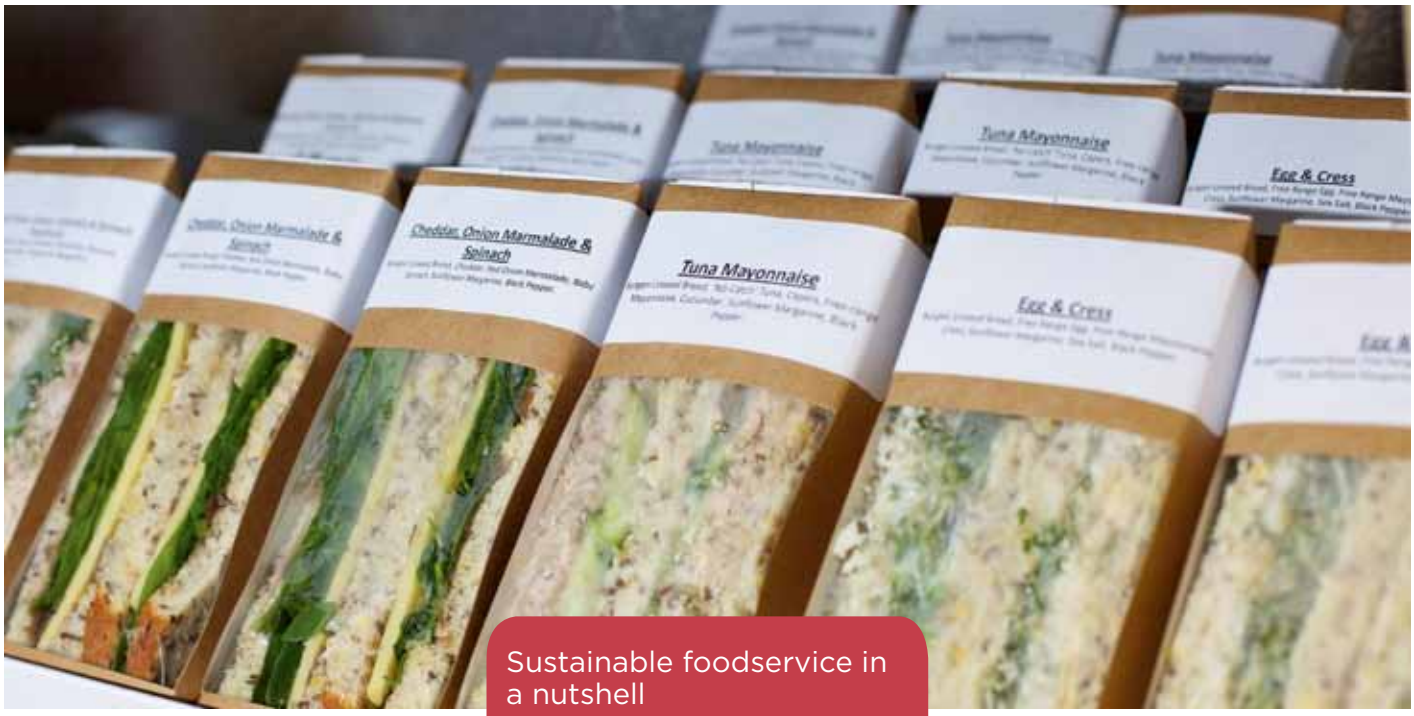
Sustainable seafood

Australian seafood is some of the most well managed in the world; however, the majority of seafood consumed in Australia is imported.

Food waste hierarchy

Prevention	Avoid generating surplus food Prevent avoidable food waste over-catering and plate waste)	**Most favourable option**
Re-use	Re-use surplus food for people in need (donate surplus food)	
Recycle	Recycle food waste into animal feed Recycle food waste into compost	
Recovery	Recover energy from food waste (not commonly available in Australia)	
Disposal	Dispose unavoidable food waste into landfill and collect gas for utilisation (not commonly available in Australia)	**Least favourable option (last resort)**

Adapted from Papargyropolou, Lozano and Steinberger et al (2014),5



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Choosing Australian seafood is a good way to ensure you are sourcing sustainable seafood. You can find out the status of Australian seafood species at www.fish.gov.au. Alternatively, look for the Marine Stewardship Council (MSC) blue fish logo on products, or download the Australia's Sustainable Seafood Guide app from the Australian Marine Conservation Society.

Plant-based meals

Plant-based diets have a lower environmental impact than diets containing meat. This is because of the high resource requirements for meat production and the greenhouse gas emissions produced by ruminant animals such as cattle and sheep.[8] Vegetarian and vegan dishes have become increasingly common on menus, although consumer research suggests the term 'plant-based' has the broadest appeal, even to meat eaters.[9] The San Adventist Hospital in Northern Sydney has a predominantly (but not totally) plant-based menu. Talk to your staff dietitian about making your menu more plant-based. Sourcing local and seasonal food has environmental benefits as well.

Tap water

Australia is fortunate to have safe, potable water on tap in most areas. Despite this, bottled water is popular and this is unfortunate because bottled water has a big environmental impact. Plastic bottles are made from non-renewable fossil fuels[10] and require large amounts of energy to produce. Many empty bottles enter the litter stream and they take around 450 years to degrade in landfill. Make tap water freely available to avoid the need for bottled water.

How to get started

A bin audit, similar to the kind carried out by ABC TV at Kiama High School as part of the *War on Waste* series, is a good start. This will immediately identify issues and provide a baseline for ongoing monitoring and evaluation of your efforts. Targeting high-volume, high-cost or avoidable food waste will yield tangible benefits. Framing the results in financial terms can help secure management support for taking action. Your local government (or hospital) sustainability officer or sustainability committee can help, as will harnessing general community awareness about environmental sustainability. Most people are concerned about our environment and looking for practical ways they can do their bit.

Sustainable foodservice in a nutshell

- Avoid food waste in landfill
- Encourage and support package recycling
- Choose sustainable seafood
- Promote plant-based meals
- Make tap water standard
- Get started with a bin audit.

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*Nicole Senior is a freelance Accredited Practising Dietitian with a keen interest in food sustainability. She has worked as a consultant to the food industry, NGOs and governments, and is a member of the Dietitians Association of Australia (DAA) Food and Environment Interest Group.

Featured Products

Augmented reality smartglasses

Epson Australia has launched its next-generation Moverio BT-35E augmented reality (AR) smartglasses with transparent Si-OLED display.

Designed for daily use, the smartglasses allow users to keep their display in front of them as they carry out their tasks allowing for increased productivity. Offering an out-of-box experience, the smartglasses provide plug-and-play operation with no special software required.

The new BT-35E features an interface unit with HDMI and USB Type-C ports to easily connect to popular output devices and seamlessly blend digital content into the real world. When used with a compatible USB Type-C output device, the interface does not require an external power source.

The smartglasses are designed to fit over the majority of eyeglasses comfortably and are ANSI Z87.1 Safety-Glass Compliant.

Epson Australia Pty Ltd
www.epson.com.au

Temperature WiFi data logger

The model B10 Temperature WiFi Data Logger monitors temperatures of vaccine, blood and food fridges easily and wirelessly. Records store to the cloud and can be retrieved at any time from anywhere with internet access.

The easy-to-install, WiFi-enabled, bespoke data logger is installed in over 1000 hospitals and medical centres.

Alerts are sent in real time via email, SMS and voice call, and also locally with a buzzer alert. If an alert is not acknowledged then the alert escalates and is sent to another list of contacts until someone responds.

The data logger is battery backed in case of a power failure.

HLP Controls Pty Ltd
www.hlpcontrols.com.au

Taking a 'healthy' approach to PVC sustainability

Healthcare organisations throughout Australia and New Zealand can contribute to improving their environmental footprint and may save on disposal costs through recycling their PVC waste. Sophi MacMillan, Chief Executive of the Vinyl Council of Australia, reports on how their innovative and thriving PVC Recycling in Hospitals Program is making a difference.

Plastics — widely used in clinical applications — are a significant share of hospital general waste. It has been estimated that all plastics account for about one-third of a hospital's general waste, most of which is sent to landfill. Of all plastic waste generated by a hospital, PVC medical products are estimated to represent about 25%.

The good news is that PVC items such as intravenous bags, face masks and oxygen tubes can be readily recycled by Australian reprocessors and given a sustainable new 'second life' in products ranging from garden hoses to outdoor playground matting.

Our PVC Recycling in Hospitals Program aims to collect high-quality, used PVC medical products for recycling into useful new products. Previously this material was sent to landfill. It is estimated that around 50 million PVC intravenous bags are used each year in Australia.

The program began as a small pilot to identify what PVC products were recyclable at three of the hospitals within Western Health in Victoria in 2009. It has since grown to encompass more than 160 hospitals across Australia and New Zealand, thanks to the enthusiasm and commitment of healthcare professionals who have embraced the scheme.

The program is important on so many levels: environmentally, economically, socially and ethically. It is simply the best thing we can do for a material like PVC that is intrinsically linked with our modern-day lifestyles. As our (currently) 25 million-strong population continues to grow, so will levels of waste produced.

As program managers we work with key partners including Baxter Healthcare, which manufactures some of the items collected; Welvic Australia, a PVC reprocessing company; plus Aces Medical Waste and SWS Healthcare Solutions, who specialise in logistics management of the PVC waste collections.

Through PVC Recycling in Hospitals, a significant percentage of PVC can be diverted from landfill to recycling at a lower cost, or cost neutral compared to current landfilling practice. Recycling PVC uses around 85% less energy than producing virgin PVC. It saves around 1.8 kg of carbon emissions per kilogram of medical product recycled.

Most PVC collected from Australian and New Zealand hospitals is processed and manufactured into new products in Australia and New Zealand. The program's success has inspired similar schemes in South Africa, Thailand and the UK (RecoMed scheme launched in 2014).

How does the PVC Recycling in Hospitals Program work?

Implementing the scheme relies on engagement from the hospital's management, support services and infection control. Start with one area, such as renal, where there is high volume and capacity to separate PVC items. From there, you can expand to areas such as theatres, recovery wards, intensive care units and day surgery.

Dedicated, clearly marked collection bins for PVC waste are placed close to the theatres and ICU areas where the specific products collected are in high use. Training is crucial to minimise contamination by other products and information materials are provided so hospital staffs are educated as to what can be collected and where it should be placed.

It helps greatly to have a program 'champion', such as a sustainability officer, who can promote the scheme and its benefits and engage staff. Generally, most employees at hospitals involved in implementing the program are enthusiastic about it and think it is a great initiative.

A key reason why the scheme has been so successful is due to the passion of the staff in hospitals to undertake recycling of plastic products that they use in their workplace.

Playground matting made from recycled PVC.

They recycle at home and so they can't understand why they shouldn't be able to recycle in their workplace setting as well.

The program has spread largely through word of mouth and feedback has been positive, with comments such as "it's a great idea that anyone can be involved", "healthcare waste bothers me" and "why is this not mandatory in all hospitals? We recycle in our home".

Challenges

Correctly sorting the PVC waste is vital to minimising cross-contamination from other materials such as metals, elastic straps and latex, for example. The program is voluntary, relying on staff engagement and vigilance to make it work; while it takes extra time, as one nurse says, "it becomes second nature to do it".

Expanding the program

Having beaten our '150 hospitals by the end of 2018' target early, we're working hard to expand the program, especially in Queensland and NSW.

Victoria is a PVC recycling hotspot, with collection bins in 75 healthcare facilities. Interest in program participation is growing in every state and territory, with a quarter of the inquiries received from NSW and similar increases from Queensland and Victoria.

Plans are also underway with Victoria's Department of Health & Human Services to increase volumes from within hospitals already participating in the program in Victoria. We're also developing a better feedback mechanism to hospitals on their success at separating the PVC and minimising contamination in collections.

PVC hospital recycling program.

IVF bags for recycling.

Image credit: Vinyl Council of Australia.

Benefits for all

Participation in the program offers hospitals a cost-efficient way to dispose of recyclable materials, save on disposal costs and reduce landfill. Around 200 tonnes of PVC per year are being recycled through the program, yet there is the potential to do so much more.

Recycling PVC also results in reduced carbon emissions and ensures that this recyclable material can be diverted from landfill and re-used in new products. A standard 240 L recycling bin will hold around 40 kg of PVC — equivalent to about 1000 IV bags. A typical Australian hospital of 300 beds can recycle 2.5 tonnes of PVC each year.

According to Welvic Commercial Director Matthew Hoyne, the future is "really bright" for the recycling of medical waste and for recycling in general. He said: "There's a strong appetite in the marketplace for manufacturers to have recycled content in their existing products, which is being driven by more eco-conscious consumers."

Bradley Keam, Sustainability Manager at Baxter Healthcare, commented: "As a large manufacturing site in Western Sydney with more than 600 employees, we have the corporate and environmental responsibility to continually think about the environment that we live in and what legacy we are leaving to the future."

The Vinyl Council is very proud of how our award-winning program has grown. Our objective is to facilitate growth in sustainable PVC recycling practices in Australia, and this program is an excellent example of what can be achieved through collaboration and persistence to find a solution.

Case study: Sustainability initiatives in a Melbourne health dialysis centre

About Coburg Dialysis Centre

Coburg Dialysis Centre is a satellite unit of The Royal Melbourne Hospital, which caters for 60 haemodialysis patients, operating 15 chairs six days a week. The unit performs approximately 8500 haemodialysis treatments a year.

Hospital goal

- Maximise plastic recycling
- Minimise landfill waste

The issue

Each haemodialysis treatment uses about 2.5 kg of plastic, equating to around 75 kg of plastic per day. This represents large amounts of waste from consumables made from PVC.

Sustainability strategy implemented

In 2013, the PVC recycling program was introduced with assistance from the Vinyl Council of Australia. This included provision of education material for staff, wheelie bins for PVC, and collection of the waste by a local PVC recycler free of charge. Melbourne Health's Sustainability Officer, Monika Page, also helped to develop hospital-wide recycling initiatives.

Progress achieved

Segregating medical waste has led to a 33% reduction in clinical waste per dialysis treatment.

Clinical waste per patient treatment has reduced by an average 0.80 kg over the past two years. This amounts to around 7 tonnes and cost savings of over $5000 annually.

Clinical waste costs approximately five times more than general waste disposal, and twice as much as commingled recycling. PVC is recycled at no cost to us. Between November 2015 and May 2017, just over 1600 kg of PVC have been recycled.

For more information on how you can join the PVC Recycling in Hospitals Program, contact the Vinyl Council of Australia on (03) 9510 1711 or email info@vinyl.org.au.

Vinyl Council Australia
info@vinyl.org.au

Waste not, want not

Laini Bennett

An award-winning family-owned dental practice in Victoria is demonstrating that good business practice and sustainability can go hand in hand.

Far left: Customers drop their old toothbrushes and empty toothpaste and dental floss containers off at the practice.

Left: Dr Panjkov with water tanks painted with Victoria's flora and flora emblems including the Leadbeater's Possum and Pink Heath.

Lisa and Robert Panjkov with the CEO of Victoria Sustainability, Stan Krpan (centre).

The team at Beaconsfield Dental from Berwick are as passionate about the environment as they are of good dental hygiene, having purpose-built their dental practice with sustainability at its heart.

"It's not just good business, it's the right thing to do — it's where the future lies," said dentist and practice owner Dr Robert Panjkov. "It's nice to do the right thing."

While the ultimate goal is for the business to be entirely energy and water self-sufficient, Panjkov and his practice manager wife Lisa are proud of their environmentally friendly achievements to date. Their efforts have been recognised repeatedly, with Beaconsfield Dental winning the Casey Cardinia Business Award for Sustainability and the Environment three years in a row, from 2015 to 2017.

They are also this year's winners of the prestigious 2018 Victorian Premier's Sustainability Awards in the Health category, and finalists in the Casey Cardinia Business Awards for Health, Education and Well-being.

Super solar

To date the Panjkovs have installed 126 solar panels for the practice, positioning them to take advantage of the morning and afternoon sun. Over 4.5 years, the panels have generated 96 megawatts in electricity, saving 10 tonnes of CO_2 in 2017 alone.

"It's still not enough for us to be self-sufficient; we have four sterilisers and thermal disinfectors and they use a lot of power," Dr Panjkov said. More solar panels will be installed in the future, to help achieve their goal of self-reliance.

The practice also gains energy efficiency through its insulated walls, double-glazed windows, LED lighting, solar hot water and judicious use of heating and cooling systems in conjunction with closing window blinds against summer heat, or opening them on cooler days.

They have even installed an electric car charger so that patients with Teslas can charge their cars while visiting the practice.

Water efficiency

Beaconsfield Dental has water tanks with 17,000 litres of capacity, used for toilet flushing and garden irrigation. Having installed a meter to track water usage, they were delighted to learn that they'd saved 40,000 litres of water within a seven-month period.

Their garden is filled with indigenous plants local to the area, which are drought tolerant and attract native fauna. The plants are sustained with a carefully managed irrigation system, along with mulch from their four compost bins filled with plant and vegetable matter generated within the business.

Old becomes new

Patients are encouraged to bring in their old toothbrushes, as well as empty toothpaste and floss containers to be recycled by Colgate. But it's not just patient waste that is recycled — everything that can be repurposed is saved by the business. Shredded paper is taken to the local pet shop for use as bedding or placed in the compost bins, while amalgam waste, batteries, printer cartridges and old computer products are collected and dropped off at recycling collection points.

Wherever possible, biodegradable and environmentally friendly products are sourced, such as patient cups and bibs, suction tips and cleaning products.

Waste awareness

The whole team at Beaconsfield Dental is on board with their environmental policy, understanding that sometimes it can be the simple things that contribute to sustainability, such as ensuring appliances and computers are in sleep mode when not in use, and turning off lights when leaving the room.

It's not just the practice team who are on board — patients are impressed with the team's sustainability program and regularly ask advice for their own schemes.

To those patients and healthcare practices wanting to take a leaf out of Beaconsfield Dental's book, Panjkov's advice is to start with solar panels and, if possible, to install water tanks. "You're generating something from nothing," he said. "If you can't do that, use biodegradable products and recycle everything and anything you can."

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Paying it forward

Laini Bennett

As Johnson & Johnson Medical Devices ANZ's first female Managing Director, Susan Martin is keen to see other women in healthcare leadership climb the ranks. She speaks with H+H about why female managers need to stop placing constraints on themselves.

Imposter syndrome is alive and well in female managers, says Johnson & Johnson Medical Devices ANZ Managing Director Susan Martin.

She is forever having conversations with female leaders in the business, particularly of child-bearing age, who are putting restraints on themselves. "They say: 'I can't go for that job, that won't work because I'll have a child next year.' But if you ask them where it's coming from, it's from themselves," Martin said. "Women put constraints on themselves without actually asking such questions as: 'Could I do that job part-time?'"

Martin speaks from experience. When she was pregnant with her first child, she was worried about telling her boss and what it would mean for her career. Her stomach grew bigger and bigger, and by 18 weeks she couldn't hide it anymore. Prior to meeting with her manager, she prepared all the reasons why she couldn't go for a promotion that they'd discussed.

"All of them were unfounded," Martin said. "The first thing my male boss said was: 'Excellent, congratulations! Ok, let's think about how we can still make this happen.'"

Passion for health care

When Martin was just 14, her mother had a stroke; it was a life-changing moment that motivated her to become a nurse. That, and a desire to travel the world. Nursing gave Martin the opportunity to fulfil her passion for both health care and travel, her skills being put to use in Australia, London and New Zealand.

Six years into her nursing career, Martin was working in Epworth Hospital, Melbourne, in the cardiac catheterisation laboratory where her interest was piqued by all the new technology and innovation. So when an opportunity arose for her to take on a sales role with Johnson & Johnson (J&J), she seriously considered it. J&J was a highly regarded, reputable company, deep in innovation — it seemed like a safe bet.

But she had a back-up plan. "I said to my nurse unit manager: 'I really want to take this opportunity but will only do it if you promise that if I don't like it, you'll have me back,'" Martin said. Her nursing manager said yes, and 19 years later, Martin hasn't looked back.

Mentoring managers

In both nursing and at J&J, Martin has been fortunate to have a number of both formal and informal mentors, providing insight and perspective with a pragmatism borne from experience.

"Initially we all feel a bit bulletproof and that we can do everything ourselves. But the reality is — especially as you move up the organisation with bigger spans of control — that this is clearly not the case," Martin said. "Being able to say 'I need help, or I don't understand' certainly doesn't go astray."

Now Martin is paying it forward as executive sponsor of the J&J Women's Leadership & Inclusion Program for Asia Pacific, a role she's held for 18 months.

She is proud of their progress to date, with the region's leadership program more than doubling in size since she took on the role. J&J runs mentorship programs, seeks to attract women from science, technology, engineering and mathematics (STEM) backgrounds at universities, and even has a fathers and daughters program launching in 2019, aimed at showing J&J fathers the critical role they play as their daughter's most important male role model, and how they can help set them up for their future career success.

"It's very much strategy led, under our three pillars of advancement, inclusion and community; it involves our male allies and looks at how we can advance our women, whether it be through mentorship or supporting them through major life events," Martin said.

Male sponsorship

While J&J Medical Devices APAC has more female than male employees, as they

climb the ladder into management those percentages change. "It's a work in progress, but we're pleased with how we're going," Martin said.

She points out that her career at J&J has received strong sponsorship from men in senior leadership positions, and that she has not been impacted by the perceived 'glass ceiling' that many women experience. "I'm not saying we're perfect, but I feel very fortunate to be in a company like J&J."

Martin believes women can somewhat influence the glass ceiling by being true to themselves. "I think women need to absolutely understand the role that they play in terms of being their authentic self," she said.

"There is nothing worse than [a woman] trying to be a man in this world. You need to be true to yourself from that regard."

Ask questions and listen well

Martin believes that good leadership consists of "big questions and big listening".

"Good leaders have the ability to ask the right questions at the right time," she said. "Good leaders have the ability to listen well, and good leaders — although they will take input from various subject matter experts in their environment — are also good at making decisions."

She acknowledges that good leaders also need work-life balance. As a mother of three boys aged 8, 10 and 14, Martin says she has "got better at saying yes, and better at saying no".

"For example, late night calls at 3 am — do we need to do them all the time? Sometimes you can say no. And sometimes you need to say no to the kids; I can't be at every single event, but I'll absolutely be at the ones that are important," she said.

"Do I get it perfect? No, absolutely not. But I do the best that I can, like most working mothers do, and hope I get it right more often than not."

Martin as a scrub nurse during a coronary angioplasty at Intra Care.

Martin (left) with new Executive Vice President and Worldwide Chair of Medical Devices Ashley McEvoy at an internal J&J event in Singapore, marking World Mental Health Day on 10 October 2018.

Image credits: ©Johnson & Johnson Medical Devices

In Conversation

Laini Bennett

In Conversation provides a glimpse into the life of an 'outlier' — an exceptional person going above and beyond to improve outcomes in their field. We speak with Brett Hayes, Regional Manager for Specialist Palliative Care in the West Australian Country Health Service, who founded the TelePalliative Care Service. In recognition of his work, Hayes was awarded winner of Western Australia's 2018 Nurse/Midwife of the Year at WA Nursing and Midwifery Excellence Awards, and won the Excellence in Rural and Remote Health category for the teleconferencing service.

Your teleconferencing program has significantly improved the lives of the Wheatbelt's palliative patients and families. How did the program come about?

The telehealth infrastructure already existed in the hospitals. We'd been doing teleconsults for a long time, getting patients to come into a hospital for consultations with other services. The next logical step was taking it out to the community where there was clearly a need.

Initially there was resistance to the idea from management, a lot of people saying 'no, we can't do it'. But I knew that we weren't going to get more funding or staff, and that we were going to get more patients; we needed to do something different and this was the best option we had.

After three years of persuasion and insistence, we received approval for a two-year pilot program.

What did the pilot program tackle?

We wanted to see how far we could push the technology, but the real intent was to allow people to die at home. We found that 70% to 80% of our palliative patients wanted to die at home, whereas prior to the program only 7% to 14% could actually do so.

We have conducted 70 videoconferences (VCs) with 45 patients, and around 50% of them died at home. Of those who wanted to die at home, we've supported 74% to die at home.

How does service work?

Patients are admitted into the program via a referral from a GP, nursing staff or metropolitan team and are assessed to see if they meet the criteria for a palliative care service. We then meet with the patient face to face and have a conversation about their needs. We discuss their videoconferencing options and test out the videoconferencing (VC) program on their computer, laptop, smartphone or tablet. Subsequent consults are done via VC. If they have consults in Perth we do them via VC if the specialist agrees.

Have you experienced technology issues?

The internet has been more stable than we expected, and has improved in the past two years. There are some places that have internet black spots, the picture is pixelated or the sound is distorted. But during the two-year pilot program we did 70 VCs and only abandoned four of them due to bad picture.

What are the major challenges for palliative care in rural regions?

The main challenge is distance, particularly in the Wheatbelt where the population is spread out over a 157,000 km^2 area. It can take three hours to travel to one patient, so we can't see as many patients as we want to. We currently have around 160 palliative patients on the books, and our dedicated specialist palliative team has myself, a clinical nurse and a social worker — you can imagine that trying to see everyone is impossible.

The other challenges are lack of staff and no 24-hour service. If something happens at 2 am and the carer panics,

Brett Hayes being announced as the winner of the 2018 Nurse/ Midwife of the Year.

2018 WANMEA Nurse of the year winner Brett Hayes, the Minister for Health the Hon Roger Cook MLA and Meredith Walker from the WA Nurses Memorial Charitable Trust.

there is no service they can contact for help. They can call the local hospital, but the best they can do is tell that patient to come in. Unfortunately, if there is no doctor present, they can't be admitted to that hospital, which means they need to go to the next closest hospital, and so on. We've had issues where patients wanted to die at home but there was no support.

A lot of the patients are farmers, and their closest hospital may be an hour away. Rural patients also have to rely on family to provide 24-hour support, unlike in the cities where there are commercial nursing services available.

Since changes last year, it's also more difficult for rural patients to get Aged Care Assessment Team (ACAT) packages, which can take up to nine months to be approved. By that time our patient has often passed away. Palliative patients are automatically not eligible for NDIS packages. So the only thing they have left is our palliative service.

What impact has the program had on your patients and families?

People were extremely grateful that they don't have to travel. There are some patients that are so unwell that they can't actually get out of house to the local hospital. One patient had extensive disease and it would take them an hour to just get him into the car with all his equipment. Going to the local hospital was a day's event. We put a stop to that and did VC at home.

Other families appreciated the timeliness of the program, and that their loved one could die at home if that is what they wanted.

Are other regions seeking to replicate your program?

There are seven regions with palliative care teams and they're all interested in establishing the program. In fact, three have already rolled it out. We've put together a steering committee to help support the other regions, so the program can go state-wide.

What about 24-hour support?

To date the program hasn't cost anything, because we used existing infrastructure, but a 24-hour service takes extra money. It all comes down to funding. Everyone thinks it's a fantastic idea but it's tricky to get money.

Most people will have heard of 'economy class syndrome' — a catchy term for the potentially fatal threat of venous thromboembolism (VTE) on long-haul flights. However, most are unaware that while their risk in the air is only four times their normal risk, it increases to 100 times greater than normal once admitted to hospital.

New standard tackles venous thromboembolism deaths

Associate Professor Amanda Walker*

Each year in Australia, 30,000 people will develop VTE.[1,2] More than 5000 people will die as result — and more than half of these cases occur within 90 days of hospitalisation, with both medical and surgical patients affected.[3] Many clinicians remain unaware that this elevated risk extends for more than three months following their patient's hospitalisation.

VTE causes at least 7% of all hospital deaths,[4,5] and is considered to be one of the leading preventable causes of death in hospital. In up to one-quarter of cases, sudden death may be the first clinical sign of VTE.[3,6]

Accordingly, the Australian Commission on Safety and Quality in Health Care has developed a nationally agreed standard of care to address this very significant health threat.

The Venous Thromboembolism Prevention Clinical Care Standard is informed by leading clinical experts, and translates international guidelines and other current evidence into clinical practice to reduce avoidable death or disability caused by hospital-acquired VTE.

Prevention is key to avoiding VTE

An individual's risk of VTE is complex and linked to multiple factors, including their genetic predisposition, their past history of blood clots, their current medical issues, the medications they are taking, the procedure they are undergoing and their mobility status.

Encouragingly, we know that whatever their underlying individual circumstances, implementing good risk prevention strategies can decrease hospital-acquired VTE by up to 70%.

Given the effectiveness of these prevention strategies, it is worrying that a recent Australian report[7] found that fewer than half of clinical units surveyed were routinely assessing patients for their risk of developing blood clots on admission to hospital.

Furthermore, only 74% of those assessed to be at risk were offered VTE prevention based on the risk of their risk assessment.

It is vital that hospitals have processes in place to routinely assess a patient's risk of VTE and, where appropriate, provide them with an effective individualised VTE prevention plan during and following their hospital stay.

A systematic approach to preventing VTE

Clinical care standards identify quality statements about the care that should be delivered, and provide supporting information for health service organisations, clinicians and consumers.

The Venous Thromboembolism Prevention Clinical Care Standard will assist health service organisations to ensure that they have systems in place to routinely:

- assess each patient's risk of clotting;
- balance that against the risk of bleeding from prevention techniques;
- discuss those risks with the patient;
- develop a management plan that is appropriate for that individual; and
- ensure that, where appropriate, the management plan is handed over to support ongoing prevention efforts and monitoring of side effects in the community.

Minimising harm from anticoagulants

A significant medication safety issue that has been highlighted through incident monitoring is the inappropriate duplication of anticoagulants. A common example is when a clinician does not recognise that a patient is already taking an oral anticoagulant for another indication (eg, artificial heart valve, atrial fibrillation) and initiates injectable VTE prevention (eg, Clexane), causing excessive anticoagulation and bleeding.

The clinical care standard is accompanied by two appendices which function as ready references for clinicians to support both the recognition of anticoagulants and the safe use of anticoagulants.

Find out more

Download and review the Venous Thromboembolism Prevention Clinical Care Standard and the supporting resources at the Commission's website: www.safetyandquality.gov.au/VTE.

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