



# Climate-Driven Extreme Weather Events: **Australian Nurses' and Midwives' Experiences**

**2024**

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## Authors

This report provides a series of case studies that highlight nurses' and midwives' critical contributions and leadership in responding to climate-driven extreme weather events. The project to develop the case studies was undertaken in 2024 by members of the Planetary Health for Nursing & Midwifery – Research & Education Collaborative.

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We also acknowledge the Traditional Owners of Country throughout Australia, and their continuing connection to land, sea and community. We pay our respects to them and their cultures, and to Elders both past and present.

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# Background

“While we would not want to attribute every extreme weather event to climate change – the pattern is building and the costs are rising – the human costs and the financial costs.”

**Edward Davey**

**Across the world**, 2023 saw unprecedented high temperatures, with heat records broken across all continents<sup>1</sup>. Rising temperatures are driving changing weather patterns and having a catastrophic effect. Extreme weather events – including heatwaves, bushfires, droughts, heavy rains, severe storms, hurricanes, and cyclones – are escalating in intensity and frequency, and resulting in significant human, economic and environmental loss<sup>2</sup>.

The impact of climate change on global health is undeniable<sup>3</sup> and as extreme weather events escalate, healthcare systems face growing pressures. The direct health implications of these events are substantial, encompassing not only immediate injuries and fatalities but also long-term psychological, physical and social health issues. Extreme weather events have also revealed critical vulnerabilities in health emergency responses and infrastructure resilience<sup>4</sup>.

Amid these challenges, nurses and midwives play a crucial role in emergency responses and broader health system adaptation to climate change. Their frontline experiences in addressing the health outcomes of climate-driven disasters position them to contribute to resilience and adaptation strategies.

This report presents a series of case studies of nurses and midwives who have led or been actively involved in responding to a range of extreme weather events. Their inspirational leadership during the crisis situations portrayed will enable healthcare and educational organisations to re-imagine the role of nurses and midwives in preparing for and responding to climate driven disasters. The case studies were developed following interviews with nurses and midwives from four Australian States. Each nurse and midwife reviewed and gave permission for use of their case study in this report.

“Climate change is already affecting health and wellbeing in Australia. In the last decade, catastrophic floods, devastating fires, and intensifying heat have taken a physical and mental toll on people across the country. In the years ahead, even with a rapid acceleration of global mitigation efforts, climate change will increase pressures on the natural and social systems that support human health and wellbeing.”

**National Health and Climate Strategy, 2023**

# Sunae Reilly

## Endorsed Midwife



**In March 2022**, the town of Woodburn in Northern New South Wales, faced a climate-driven catastrophe that tested the resilience and spirit of its 750 residents. Woodburn, nestled in a bend of the Richmond River, had weathered floods before, but nothing could prepare the town for what was to come. On the morning of March 7, the levee in Lismore, a nearby town, was breached at 5am. By 5:30pm, Woodburn residents received evacuation orders as the river swelled with a ferocity no one anticipated. The floodwaters surged through the town, inundating homes and businesses. The townspeople were hastily evacuated by boat to the bridge, where they spent a harrowing night with their pets and livestock. Among the evacuees was Sunae Reilly, an Endorsed Midwife with a private practice in the area.

As dawn broke the next day, the evacuees were relocated to the local school, situated on the only hill in the area. Sunae observed that the elderly, many of whom were on anticoagulant medications, were suffering from significant injuries sustained during the evacuation. She quickly mobilised a makeshift medical station with the help of a retired paramedic and an enrolled nurse. Despite the collective loss, the community's spirit shone. Volunteers assisted by boiling water for wound cleaning, and offering comfort. As people continued to arrive, some rescued from their rooftops, the need for medical supplies became critical. First aid packs were retrieved from the school, and emergency kits were collected from the shelves of the local State Emergency Services' flooded shed. With limited resources, Sunae and her team treated injuries, provided oxygen and managed the medical needs of hundreds of people.

Sunae realised that many evacuees had left behind life-saving medications. She meticulously documented the needs of 350 people, including people with type 1 diabetes and those on methadone programs. Despite the challenges, she coordinated retrieval efforts, sending boat crews to salvage medications from fridges floating in flooded homes. Meanwhile, Sunae's family contributed in various ways. Her partner and brother used their boats to rescue more people and animals, while her mother and sister cooked meals from the school canteen stock. Sunae's focus extended to the most vulnerable: mothers with infants, breastfeeding mothers, and pregnant women. She ensured formula, clean water, and bottles were available and arranged for breastfeeding mothers to help those without formula.

*“The townspeople were hastily evacuated by boat to the bridge, where they spent a harrowing night with their pets and livestock.”*

From 6am, Sunae began organising the evacuation from the school to the larger town of Evans Head. By nightfall, 80% of the evacuees had been moved. The population of Evans Head doubled with the influx, straining the already depleted local medical infrastructure. Sunae presented the list of required medications to the only one General Practitioner (GP) available, ensuring the continuation of critical treatments.

After a short rest, Sunae returned to the evacuation centre to assist. A call about a woman possibly in labour prompted her to assemble an emergency birth kit and coordinate with the military for additional supplies to be airdropped from Lismore's maternity unit. She continued to check on local pregnant women and new mothers' postnatal needs via FaceTime, working with the GP to organise an airdrop of antibiotics for a woman with a post-caesarean infection.

For five gruelling days, Sunae worked tirelessly. When she returned home, she was greeted by the sight of her home having been reduced to a muddy shell, a stark reminder of the devastation wrought by the flood. Sunae's story is a testament to the power of community and the difference one individual can make in the face of climate driven disasters. ■



# Hylda Wapau

## Nurse Navigator



**Hylda Wapau's role** in responding to health impacts during extreme weather events in her community exemplifies the integration of climate adaptation strategies into nursing practice, particularly in remote Indigenous communities. A proud Torres Strait Islander woman, Hylda works as a Nurse Navigator in the remote communities of the Northern Peninsula Area, Queensland. Hylda's motivation to support her community through climate impacts is deeply rooted in her Indigenous heritage, emphasising the unique bond she shares with her community members. This cultural and spiritual connection enhances her ability to provide person-centred care, navigate the complexities of change, and support individuals through their health journey in a culturally safe way.

In December 2023, tropical cyclone Jasper impacted the remote Indigenous community of Wujal-Wujal. It caused significant flooding which necessitated the evacuation of 270 residents. The Nurse Navigation team was pivotal in providing care, conducting welfare checks, ensuring access to services, coordinating medication supplies, and organising specialist appointments and referrals. They also organised psychological support and counselling for the community, as part of the recovery process. The Wujal-Wujal

community's resilience and the collective efforts of health professionals and volunteers emerged as a key strength during and in the aftermath of the cyclone, demonstrating their capacity to unite and overcome adversity even under challenging circumstances.

When reflecting on the impacts of climate change, Hylda described how rising sea levels, bushfires, extreme heat, and water restrictions, are all impacting her community's health. She believes the challenges the community faces from climate change are often exacerbated through delayed inter-sectoral service responses and poor inter-service collaboration. This highlights the need for better communication and coordination, more so in potential disaster zones, during pre-planning, event coordination and recovery efforts.

Hylda emphasised the need for better models of meteorological systems to enable clear predictions and early warnings to people living around flood zone areas in all parts of Queensland, especially remote communities. She also feels there is a critical need for clear guidelines on managing extreme heat and bushfire smoke, as well as sustaining water quality and availability, to protect vulnerable groups like the elderly and children in remote communities. ■



# Christina Aggar

## Nursing Academic



**In February 2022**, a devastating flood impacted Lismore and surrounding areas. It reached 14.4 metres, the highest flood level on record, and left thousands of people were homeless. Southern Cross University was designated the primary emergency evacuation centre for hundreds of traumatised people and their pets. They gathered on the campus with their meagre belongings; it was dark and there was no power.

Following an urgent call for help from the Local Health District, Associate Professor Christina Aggar convened a group of more than 30 volunteer academics and students from the nursing and health clinic teams, enough to staff two shifts a day for two weeks. The team systematically assessed the evacuees' health and social care needs, sourced medications, equipment, mobility aids and listened to survival stories. They distributed towels, clothing, and toiletries, and used a golf buggy to take those with mobility problems to shower in the gym; many hadn't been able to bathe for several days.

Christina's team organised the evacuees into groups, allocating some to the large lecture room, others to smaller tutorial rooms, and even on the veranda. Safety was a priority and the most vulnerable, the elderly, single women, and families were allocated a space in the nursing classrooms. Christina recalled that "...it was chaos, people everywhere, bad things going on such as stealing and drug dealing". There was a police presence, but they were in the main gym area.

**"Nurses are very good at organising things, but afterwards, everyone needed time to reflect and be debriefed...there were so many traumatic experiences."**

Each person had a story to tell and the volunteers drew upon their communication and interpersonal skills, building trust and rapport. Many of the evacuees had been socially isolated, and a number lived with mental health issues. Some of the women had escaped domestic violence and had sought refuge in the local caravan park. One brave single mother had put her baby in an esky and escaped through a window, desperately swimming through the water until she was eventually rescued.

Christina reflected that "...nurses are very good at organising things, but afterwards, everyone needed time to reflect and be debriefed...there were so many traumatic experiences". She added that with the increasing frequency and severity of extreme weather events, all nurses need to appreciate the significant impact for communities, particularly for marginalised and vulnerable groups. Christina feels there is a critical need to educate current and future healthcare professionals, while at the same time helping to build community resilience to future climate events. ■



# Carolyn Antoniou

## Nursing Academic



**It was Christmas day.** Milton, a small coastal town was surrounded by escalating bush fires burning to the north and south. This town has a population of less than 2,000 but these numbers swell considerably during peak holiday seasons.

Carolyn was the registered nurse 'in charge' on the afternoon shift and responsible for both the 20-bed Milton hospital and the emergency department. The hospital was desperately short staffed. Many of the rostered staff were either protecting their properties or unable to get to work because the highway was blocked. After a 'ring around' a few of the local nurses agreed to leave their Christmas celebrations and come and help.

At 3pm the hospital's electricity failed and Carolyn had to manually turn on the outside generator. This provided for one light in theatres, maternity, the nurse's station and the emergency department. The patient monitors had limited battery life and were not able to be recharged. Carolyn was particularly concerned about a very unwell patient in the emergency department who needed constant monitoring. As there wasn't an onsite doctor, the visiting medical officer (VMO) was called and, together with the two ED nurses, assumed responsibility for critically ill patients including firefighters needing treatment for smoke inhalation and respiratory burns.

Community members and stranded holiday makers began to come to the emergency department asking for help. Some needed critical medications like insulin. Because the town's electricity was cut off, people who were oxygen dependent also came to the hospital. Others were asking for baby food and formula as all the shops were closed.

Because a number of people were stranded, unable to return home and in need of somewhere to stay, the team contacted the State Emergency Service who provided stretchers that were set up along all the corridors. The kitchen staff cooked and catered for patients, evacuees and staff, as well as doing rounds with a tea trolley and making sure everyone had something to eat and drink.

With no way of knowing how long the highway would be blocked, and with people attending the hospital requesting medications and essential supplies, the local pharmacist was contacted. Even though it was Christmas Day, he opened the chemist, working with the hospital to ensure people were able to have access to the essential medications they needed. Similarly, the owner of the town's IGA opened the grocery store offering to supply anything that was needed. He turned up at the hospital with torches and batteries – before this



the nurses had been relying on tiny neuro torches. As early evening approached, the air became thick with smoke and it began to get dark. While the fires continued, police and fire control kept in contact with Carolyn, checking on patient and staffing numbers in case the situation worsened. The local ambulance crews, with all hands-on-deck, were checking in regularly to ensure everyone was ok and they assisted with patient assessments and care in the ED in between call outs.

Only one of the monitors still had battery life and this was being used by a woman in congestive cardiac failure who was very unwell. Normally this type of patient would be transferred to a larger hospital. Because there were no helicopters going in or out on that day, the nurses had to do the best they could to manage her in the resus room. But they were concerned about what would happen if she deteriorated, especially with it getting dark.

Just as one of the maintenance men was planning to access some of the lights that had been used for recent road works, the electricity came back on. Carolyn recalled the immense sense of her relief she felt knowing that they would not be heading into a frightening night without any electricity.

The fires worsened over the next week and during this time blackouts were frequent. The stretchers remained set up in corridors to provide for the needs of increasing numbers of patients and community members. Staffing rosters were abandoned – it became a daily matter of seeing who was able to get to the hospital, who was cut off, and who needed to stay and protect their property.

Carolyn recalled that this situation was effectively managed because of effective communication and teamwork and, as it was a small town, there was a strong sense of community, close connections and a lot of trust. For Carolyn, there was a feeling of satisfaction after the fires; she and her team had risen to the challenge, worked cohesively, and responded to rapidly unfolding and complex situations, with limited access to external support. ■

# Tania Beament

## Nursing Academic



**On 22 November 2023**, residents of Western Australia were told they should be prepared for a five-day heatwave with temperatures of more than 40°C expected. Against these extreme temperatures, bushfires began in Wanneroo, 36 kilometres north of Perth, destroying nearly 2000 hectares of land and multiple homes. During the fires, hundreds of people needed to be evacuated.

With fires less than 50 metres from Elderbloom's Jacaranda Lodge, a residential aged care facility, and evacuation centres either at capacity or unable to accommodate the needs of residents with cognitive and/or mobility issues, Edith Cowan University (ECU) was contacted for support. It was 8.30pm, yet within 15 minutes of first contact, Dr Tania Beament, Acting Executive Dean in the School of Nursing and Midwifery, had devised an emergency plan that saw the School's demonstration wards at the Joondalup campus converted into an evacuation centre for 64 of the Jacaranda Lodge residents.

Under Tania's leadership, and working with ECU security staff, a team of nursing and midwifery staff, friends, and family members immediately assembled at the University and transformed the demonstration wards into warm and welcoming facilities. Simulation equipment was put in storage, beds were remade with clean linen, workstations, treatment and storage areas, and a staff room were created. Teaching spaces were converted into activity areas, including an Elvis-inspired music room to create a secure environment conducive to the needs of older people. Forty-five minutes later, Tania and her team welcomed the first residents to arrive in the dark car park, escorted them to their temporary accommodation, and settled them into their new beds.

*“Our residents, staff and families are truly indebted to the whole ECU community in their dynamic and compassionate response during our plight ... A truly inspiring team of people who met us with genuine warmth and care, making the unimaginable happen.”*

The residents stayed at ECU for six days, while the fires were brought under control. During this time the Jacaranda Lodge staff cared for the residents, and most of their meals were provided by ECU, with special dietary requests outsourced. In recognition of the fear, distress, and anxiety that often accompany these types of rapidly unfolding events, the ECU team helped to support the residents' emotional and psychosocial needs, taking them for walks, listening to their stories and engaging them in a range of activities. Fiddle blankets were also created by a group of community members as a way of providing sensory stimulation for those with dementia.

Ninety-six-year-old Ken Mills, one of the Jacaranda Lodge residents, said of the evacuation experience “We are very lucky to come here, and be able to eat and sleep, I am very grateful for this”. Appreciation for the support and care provided by Tania and her team was also expressed by Suzy Tillotson, the manager of Elderbloom, who said: “Our residents, staff and families are truly indebted to the whole ECU community in their dynamic and compassionate response during our plight. The care and services at our disposal surpassed all conceivable expectations. A truly inspiring team of people who met us with genuine warmth and care, making the unimaginable happen”.

During the Wanneroo bushfires, Tania and the ECU team exemplified collaboration, high-level strategic planning and crisis management skills. Their previous healthcare experiences positioned them well to immediately and effectively lead resilience and adaptation strategies during this climate-driven disaster. Just as importantly, their ability to recognise and support the emotional needs of residents, is a testament to the teams' ethos and their capacity to uphold the values of their profession when presented with unexpected and rapidly unfolding emergencies. ■





# Greg Melbourne

## Clinical Research Nurse Consultant

**In 2015, a severe storm cell** struck Kurnell, a community at the southern end of Botany Bay, NSW, and where a large population of disabled and service-dependent individuals live. The storm caused extensive damage, leaving many without homes or electricity. Among the affected were those who were ventilator-dependent quadriplegics and individuals on home dialysis who required continuous electricity and water supply for their health needs.

At the time of this storm, Greg was a Clinical Nurse Consultant in Disaster Management, overseeing the disaster response for nine facilities within the local health district. His role was critical in ensuring preparedness, response, and recovery during climate-related disasters.

Health services received multiple alerts from the police and the State Emergency Service (SES) regarding power outages, and, although not directly responsible for providing care, they needed to ensure appropriate plans were in place. Greg's role was to contact community health services to confirm the status of vulnerable individuals and ensure their safety without direct intervention unless necessary. The disaster management process involved a systematic approach to coordination. Greg collaborated with various health services ensuring that vulnerable individuals had the necessary support. He and his team sought lists of at-risk individuals from the community health system. This task was challenging as many individuals were self-sufficient and had robust disaster plans, including their own generators. These individuals were tracked indirectly through their need for medical consumables, such as dialysis supplies.

Greg's team maintained a level of oversight, stepping in only if there was no existing support available. This approach followed the prevention, preparedness, response, and recovery model, ensuring a structured and methodical response. Through effective coordination and communication, Greg ensured that all vulnerable individuals in Kurnell received the necessary support during the storm.

Greg described a separate flood event which occurred in 2022 and necessitated the opening of an evacuation centre at the local Club Menai in NSW. The severity of the flood meant that it was likely that existing evacuation centres would be overwhelmed, prompting the need for additional facilities. Greg's role expanded to managing the health response within this new centre, focusing on COVID-19 measures and addressing logistical challenges. Rapid Antigen Tests (RAT) were conducted for all arrivals to prevent the spread of the virus. The centre faced significant challenges,



including a lack of resources such as beds and food supplies. The initial plan was to move evacuees to other locations quickly, but many had to stay longer than anticipated due to insufficient arrangements.

Given the multicultural population, Greg ensured that the evacuation centre was accessible and respectful of cultural and religious practices. Specific pathways of access were established to allow people of the Islamic faith to avoid areas with alcohol and gambling, ensuring their comfort and adherence to their beliefs. Coordination with multiple agencies, including the Red Cross, St. Johns Ambulance, and welfare organisations, was essential in managing the evacuation centre. Despite limited resources, Greg's team worked diligently to provide support. Greg's adaptive response and consideration of cultural sensitivities were key factors in managing the situation effectively. ■

# Wendy Young

**Registered Nurse**



**Derby is a remote town with a population of approximately 3,000 people.** The temperature in Derby can range from 4°C – 44°C, and there are often long periods of time without any rainfall. There is one hospital in Derby and it provides emergency, maternity, medical and surgical services. The major referral site for Derby is Broome, however access to Broome is limited at times by cyclones, which are increasing in frequency and intensity. Wendy Young is a registered nurse with experience in trauma, emergency, intensive care, and paediatrics. She described a number of situations where extreme heat events impacted on the provision of care. “During one heatwave a patient on the ward experienced a cardiac arrest, and was transferred to the emergency department for advanced life support. Due to a persistent heatwave, the air-conditioning had failed, and internal ambient temperatures had soared – the staff were required to wear plastic gowns for infection prevention and control measures. The resuscitation continued for over two-hours during which time support staff were bringing ice-cold water into the room for the staff to prevent dehydration”.

During another extreme heat event, the hospital mortuary broke down, and deceased patients had to be transferred to other hospitals. As some of the deceased were local Aboriginal people, the families were very distressed that they would be separated by such significant distance. Another consequence of frequent heat-related events was finding Yankauer suckers and oxygen tubing had melted in the hospital-run ambulance because of high temperatures.

“Due to a persistent heatwave, the air-conditioning had failed, and internal ambient temperatures had soared – the staff were required to wear plastic gowns for infection prevention and control measures.”



Wendy also recalled caring for a four-day old infant who was experiencing seizures of an unknown cause. The infant needed to be urgently transferred to a tertiary referral hospital. However cyclonic weather in Broome delayed the transfer because all flights were cancelled.

Alongside extreme heat events, flooding also impacts the local community: “People with chronic illnesses often experience delayed care when flooding prevents access to usual healthcare. In one case a patient missed out on dialysis for 3-weeks, became overloaded and required transfer for tertiary-level care”.

Wendy described the importance of a whole of community approach to extreme weather events. Community stakeholders, including the local Aboriginal Elders, are critical for communicating public-health matters during times of crisis, and encouraging people to evacuate when necessary. Wendy explained that in small towns like Derby, everyone must be ready to respond and, with minimal resources available during times of crisis, both healthcare professionals and community members have to rely on each other. ■

# Sigrid Pitkin

Nurse Practitioner



**Sigrid Pitkin practices in regional, rural, and remote Victoria**, where she helps people manage allergic diseases such as allergic rhinitis, asthma, food allergies, and eczema. Her work is deeply intertwined with the unique health challenges of these areas, particularly with regard to thunderstorm asthma.

In 2016, Sigrid witnessed firsthand the devastating impact of the world's largest recorded thunderstorm asthma event. On the evening of 21st November, over 14,000 respiratory-related emergency department presentations overwhelmed the health system. Tragically, there were ten recorded deaths, and many people required ventilation and specialist care. The scale of this event was a stark reminder of the vulnerabilities faced in rural health. Nurses like Sigrid, working in emergency departments, were at the forefront of the response.

Thunderstorm asthma is not unique to Australia, but in country Victoria where rye grass is prevalent, it occurs more frequently. During the spring and summer pollen seasons, high rye grass pollen counts, combined with the changing humidity levels of thunderstorms, cause pollen particles to

rupture in turbulent air. These minute sub-pollen particles can bypass nasal hairs and throat secretions, traveling deep into the lungs and triggering asthma attacks in those with rye grass allergies. Most of the patients Sigrid saw during the 2016 event had allergic rhinitis but no previous history of asthma.

Looking ahead, Sigrid is deeply concerned about the impact of climate change on the frequency and severity of thunderstorm asthma events. Current models predict that climate change will alter atmospheric conditions, increasing the likelihood of thunderstorms in Eastern Australia, where thunderstorm asthma is most prevalent. Rising temperatures may also expand areas suitable for rye grass cultivation, increasing the risk further.

Sigrid believes nurses and midwives have an individual and collective responsibility to develop effective strategies to mitigate the consequences of climate change and reduce the occurrence of thunderstorm asthma. Her commitment to her patients drives her to ensure that future climate-driven challenges of this type are met with preparedness so that the best possible care can be provided. ■



# Donna Wilson

**Registered Nurse and Academic**



**Donna was born in Lismore, Northern NSW in a lower socioeconomic part of the district**, but where the sense of community was strong. Donna's family have lived through several floods and, in the 35 years that they have lived in Lismore; the worst flood was about a meter at the deepest point under the house. Every time a flood warning came, they would lift everything up from under the house, and move cars to higher ground. It was a routine process; they were not naïve to what floods meant.

The Lismore floods of 2022 were catastrophic and unprecedented. The flood warning came, however, no one knew what was happening from hour to hour. It was erratic ... one minute it was predicted to peak at 8 metres ... then 12 metres. Although Donna's parents were able to take their caravan and evacuate in time, the flood water hit so quickly that others were unable to get out of their houses. For many, the only recourse was to climb inside their roof cavities and await help. For the next three days no one could get in or out of Lismore.

In the weeks and months following the floods, the clean-up was intense and dangerous, made worse by a second flood only a week after the first. In addition to supporting her family, Donna could not ignore people who were covered in infected cuts and sores which needed treatment. Donna's father had an infected eye from dirty water being splashed onto his face but he wouldn't go to the hospital. He'd heard that the hospital was understaffed, really busy and not coping well under the pressure. There was one operational pharmacy in the next town, but with needing to cover the whole of Lismore and limited ability to source new stock, they quickly ran out of supplies.

**“We learn from wind, rain, flood, lightning, hail or fire – they teach us stories.”**

**Metcalf & Costello, 2021**

One of the things Donna noticed in the following days and weeks following the floods, was the absence of any healthcare staff. People were driving past and offering cleaning products and clothes etc. but no one was providing healthcare. It wasn't until a few weeks later that residents received bags from John Flynn Hospital which contained dressings and saline etc.

During this time, Donna also volunteered to work at the Southern Cross University evacuation centre. She felt a sense of responsibility to “do her job”. Donna and her colleagues worked with some of the town's most vulnerable people. Many had lost their homes and all of their belongings.

Despite their years of nursing experience, the university staff and students were not prepared or equipped to care for this number of vulnerable people, especially with the town's critical infrastructure being gone. Conversations that should have been documented were recorded on scraps of paper, unofficial and not confidential “We had to keep reminding ourselves this was an evacuation centre not a hospital”.

The short-and long-term impact of the 2022 floods on the community were, and still are devastating and had a profound impact on Donna, both personally and professionally. She now admits “I really had no idea about people's experiences when they go through something so major, whether it be health or financial or, any sort of hardship, how multifaceted it is, even down to their identity”. Donna described her parents' appreciation of the clothes they were donated, but their loss of identity from wearing someone else's clothes was profound. A moment of joy for her father was receiving a brand-new pair of safety boots ... they became his prized possession.

Donna says the experience of the 2022 Lismore floods has changed her as a nurse and as an academic. Her view of climate change has also changed, having always had trust in the science she now says “We're losing control over safety at too fast of a rate”. ■



# Nyree Parker

## Emergency Management Consultant



**Nyree Parker has held the role of Emergency Management Consultant** at Peninsula Health in Victoria, Australia, for over 10 years. She is responsible for critical emergency preparedness and response, including routine warden training, preparing and evaluating emergency and disaster business continuity plans, developing online learning resources, and maintaining oversight of emergency preparedness risk. Traditionally, Nyree's role has primarily included emergency preparedness and responses to hospital emergencies. However, this is changing, and her expertise is now utilised to plan for climate-related emergencies and extreme weather events, which are becoming more frequent. Nyree's experience as a critical care nurse provides frontline insights into healthcare during climate-related disasters. She draws on these experiences when leading operational reviews of emergency and disaster responses; and providing practical recommendations that inform emergency and disaster simulation exercises to better prepare clinicians for the realities of a changing climate. As a member of the Victorian Hospital Emergency Management Association and the World Association for Disaster and Emergency Medicine, Nyree acts as a vital conduit for international and national developments in recognising and responding to climate-related disasters.

Nyree explains that communicating with staff about extreme weather events is challenging, because there is not always adequate warning, and current technologies are not always effective at reaching those working across Peninsula Health's many sites. Nyree advocates for "innovative avenues to communicate with our workforce" so they receive time-critical information for their own safety and to keep those they are caring for safe". Nyree asserts that we must also change our clinical lens to look beyond symptoms to put the whole picture together: "We need to look out beyond the hospital walls towards our local communities and see what is influencing their health and wellbeing. We must be responsive to those needs". Learning from and being proactive about extreme weather events is critical. However, Nyree is concerned that there may not always be the resources or time to be able to evaluate healthcare service responses, and this leaves them vulnerable to repeating previous hazardous responses.

"The ignorance has frightened me" declared Nyree in relation to her own developing understanding of climate and health: "If I don't know, in my role, then nobody else will know either". Nyree sees education and professional development as key to being able to recognise and respond to extreme



weather events and disasters. Nyree has completed a Master of Disasters Health and is currently completing a Bachelor of Nursing (Honours) exploring registered nurses' readiness for climate change disasters. Looking back on her time in the ED, Nyree can see how many emergency department presentations were prompted by climate events: "I didn't realise it at the time, but now I know that more people die when overnight ambient temperatures remain high, which explains why there are so many ED presentations during heatwaves". Nyree is concerned with improving healthcare responses to the "silent killer" – extreme heat events, the impact of which is often under-recognised by clinicians: "We must consider the social welfare of people during extreme heat events; we have to think about the safety of discharging them home to a house that has been locked-up, holding heat for several days whilst they've been in hospital".

Nyree expects to see an expansion of the Emergency Preparedness Unit as climate-related emergencies and disasters become more frequent and severe. Nyree believes that the unit will lead the proactive response required to build "resilience in healthcare". This, Nyree believes, will come through greater collaboration between metropolitan, regional, and rural hospitals. Nyree acknowledges that rural and regional hospitals are 'more in-tune with their communities and the health impacts of climate-related disasters, such as bushfires and droughts. Greater resilience will require better healthcare service and systems. At the moment, however, hospitals are becoming "very high tech, which is not helpful during a disaster when technology fails". Nyree asserts that emergency preparedness education must focus on low-tech solutions that are sustainable during periods of disasters. Finally, Nyree recommends the urgent inclusion of climate-related education in undergraduate nursing and midwifery programs to prepare future nurses and midwives for climate-related disasters. ■

# Lisa McKenna

## Nursing Academic



**Lisa McKenna's involvement in the State Emergency Service (SES)** during a severe weather event in the Greater Dandenong region in February 2024, highlights the application of nursing skills outside of a traditional healthcare setting in responding to the impacts of climate change. As a team member answering emergency calls, Lisa responded directly to the community's needs from the destructive storms, which presented challenges to both infrastructure and people's health and wellbeing. The storms generated more tasks for the SES team, than they typically encounter in an entire year.

In the aftermath of the storm, Lisa and her team prioritised tasks based on urgency, focusing on clearing access and ensuring safety. Her nursing background provided a unique perspective, enabling her to triage and prioritise jobs, engage effectively with shocked residents, and employ critical decision-making skills. Lisa's account of these

events underscores the adaptability of nursing competencies, highlighting the ability to analyse situations, demonstrate empathy, effectively communicate, and perform basic first aid. This versatility speaks to the broader application of nursing skills in community settings, reinforcing the notion that nurses come equipped with a skill set that is invaluable in responding to extreme weather events, including through volunteer roles.

Lisa's reflections on her experience provide a deep understanding of the intersection between climate change, and community wellbeing. Her firsthand observations of February's storm devastation have led to a deeper realisation of the scope of impacts of climate change, fostering a commitment to engage more actively in climate-related health advocacy. Through her work, Lisa conveys the critical importance of preparing healthcare professionals, not just emergency or disaster nurses, for their role in addressing the health consequences of climate events within their communities. ■



# Executive Summary

**The case studies presented in this report** illustrate the critical and multifaceted roles that nurses and midwives play in responding to climate-driven weather events. These healthcare professionals demonstrated extraordinary leadership, resilience, and adaptability in the face of unprecedented challenges. Their efforts not only provided immediate relief and safe care during crises, but also contributed to long-term community resilience and preparedness.

The increasing frequency and severity of extreme weather events underscores the urgent need for comprehensive disaster preparedness and adaptation strategies within healthcare systems. Nurses and midwives will be required to support individuals and communities to anticipate, respond to and recover from the current and future effects of an unstable climate on healthcare provision. At the same time, building resilient systems capable of adapting to the impacts of climate change on health and healthcare is a collective responsibility. Transdisciplinary cooperation and intersectoral collaboration is critical, including between healthcare services, emergency services, and community organisations.

Acute climate events can have both direct and indirect impacts on human health, including respiratory and cardiovascular illnesses, vector-borne diseases, water-borne illnesses, and poor mental health resulting from post-traumatic stress disorders and climate migration<sup>5</sup>. Nurses and midwives must be educated to support individuals most at risk, with particular attention to safeguarding priority populations and marginalised communities such as frail and elderly people, young children, pregnant women and those with pre-existing co-morbidities and/or disabilities<sup>6</sup>.

There is a clear necessity for enhanced education and training programs that equip current and future healthcare professionals with the knowledge and skills required to effectively manage climate-related emergencies. Integrating climate change and disaster preparedness into nursing and midwifery curricula will be essential to ensure graduates are adequately prepared for our changing planet.

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