St John

OUT-OF-HOSPITAL CARDIAC ARREST REPORT

2025



ACKNOWLEDGEMENT OF COUNTRY

St John Western Australia (WA) acknowledges the First Nations peoples of the many Traditional lands and language groups across Western Australia as the Traditional Custodians of the Country. We pay our respects to their Ancestors and Elders, past and present.

St John WA is committed to honouring the unique cultural and spiritual relationships to the land, sea and waterways and the rich continuing contribution Aboriginal and Torres Strait Islander peoples make to our society.

SURVIVOR STORIES



SLAM DUNK FOR TEEN HERO

Perth teenager Dylan Bennet was just 17 and playing basketball in December, 2025, when his recent first aid course with St John WA was called into action.

One of the teenage players collapsed and Dylan recognised the signs of cardiac arrest immediately, wasting no time in dialling Triple Zero (000) and starting CPR.

“This kid was pulseless,” he said. “I just thought, I’m going to save his life.”

When paramedics arrived, the patient was given two shocks from an Automated External Defibrillator (AED) and rushed to hospital, where he made a full recovery.

“Once I zeroed in on the CPR, it was almost as if it was just me and the call taker,” Dylan said.

“I was definitely very relieved when the paramedics arrived and I thought, this kid’s gonna make it.”

Dylan was presented with a Community Hero Award and met call-taker Innika Fouwler, who helped guide him through the dramatic ordeal.

“If it happened again, I’d do it over and over again,” he said.



HEART STARTER AT FUN RUN

Runner and father-of-five Paul Jolly dropped unconscious metres from the finish line at a local fun run in May, 2025.

Thankfully an event volunteer doctor and bystanders went to his aid, quickly followed by St John WA Event Health Service (EHS) volunteers, who went to work delivering CPR.

Within the first five minutes, Event Ambulance Officers (EAOs) Amy and Suchi delivered the first shock from an AED.

EHS Paramedics Chris and David quickly followed up and delivered a shock from their Corpuls, and about 10 minutes after his collapse, Mr Jolly was awake and disorientated about having not finished the race.

Reunited at hospital with EHS ambulance officers Jamiee, Suchi and Amy, Mr Jolly was in tears with gratitude.

“These two little girls wouldn’t have me unless you’d restarted my heart,” he said, gesturing to his six-month-old and seven-year-old daughters nestled on his lap.

“I’m eternally grateful to you – and to the three other people and bystanders and runners on the day – all who helped save me.”





CAMPSITE COURAGE RESUSCITATES DAD

Scaddan farmer Nigel Norwood owes his life to the quick actions of his wife and teenage sons while camping at Alexander Bay, 100 kilometres from the nearest hospital in Esperance and one hour from ambulance help.

Mr Norwood suffered a cardiac arrest just before dinner at the coastal campsite on January 28, 2025.

Wife Lynne ran to find help to call Triple Zero (000) due to the lack of mobile coverage in the remote four-wheel-drive location.

His 16-year-old son Liam had recently undertaken first aid training as part of his cricket program at his Senior High School in Perth and began CPR with the help of a fellow camper.

His other son Bevan, 19, who also knew first aid raced to retrieve a St John WA community defibrillator from the nearby toilet block.

After the third shock from the AED, Mr Norwood's pulse returned and he was alert when the ambulance crew arrived.

"Without a doubt I wouldn't be here today without them," Mr Norwood said of his family.



POWER RANGERS SAVE THE DAY

For UK residents Peter and Anna Hall, a holiday in the South West of Australia was meant to be a time of relaxation.

But on February 5, while shopping in Dunsborough, their trip took a life-threatening turn when Peter collapsed in the local carpark.

Steve, a City of Busselton worker, was the first to respond and begin CPR, aided by a local doctor.

Andreas Kolm, a beach inspector with the City of Stirling for 36 years, was on holiday down south with his family when he saw the commotion and brought his personal AED from his car.

"You never think you'll need to use these skills, but when the time comes it can mean everything," Andreas said.

By the time the ambulance crew arrived, Peter was alive, thanks to the swift CPR and early defibrillation.

"I always wondered what would happen if I ever needed a defibrillator. Well now I know, it saved my life," said Peter.

Anna was overwhelmed with gratitude.

"Steve and Andreas didn't hesitate in saving Peter's life. We will always be grateful to them and to everyone who helped that day," she said.







CLOSE CALL TO TERRY'S ANGELS

Former police officer Terry Chaplyn wasn't too keen on asking for help but his sister Dorothy saw through the bravado and made the Triple Zero (000) call one morning in January.

Paramedics Cecilia Webbe and Connor Halliday were by Terry's side when they recognised their 70-year-old patient was having a heart attack.

Terry went into cardiac arrest three times in the back of the ambulance on the way to hospital, resulting in three defibrillator shocks that brought him back to life each time.

He needed another shock once he was in hospital.

Terry's message to men of his generation: "I reckon I'm like most blokes, we don't like asking for help.

"But if it wasn't for my sister calling the ambulance, and then the two angels who saved my life, I wouldn't be here."



BEATING HEART OF CONNECTED CARE

On March 10, Rick Bell arrived at St John Health Kambalda experiencing chest pain that had persisted for two days.

Thanks to the quick thinking of the reception team, Rick was immediately taken to the treatment room for monitoring and observations, where he suffered a sudden cardiac arrest.

Resuscitation efforts commenced immediately, and Rick was stabilised until Volunteer Ambulance Officers and the Community Paramedic arrived.

Working together, they ensured Rick remained in a stable condition throughout the transfer to Kalgoorlie Health Campus' Emergency Department.

He ended up requiring a quadruple bypass, and spent a couple of weeks in hospital after being flown to Perth.

A former St John WA volunteer himself, Rick said he hadn't stopped smiling since he took himself in for treatment.

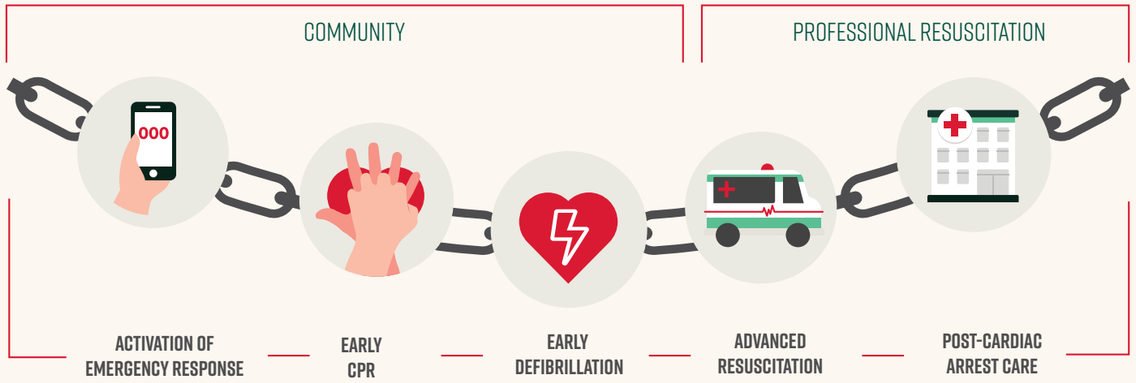
"I am so grateful to St John and the nurses and everyone," he said.

"Everything just fell into place at the right time."



ABOUT ST JOHN WA'S RESPONSE TO CARDIAC ARREST

SJWA provides ambulance services across a vast land mass, about 2.5 million km² in area, the largest area in the world covered by a single jurisdictional ambulance service. Western Australia (WA) has a population of 3.04 million, the majority of whom reside within the Perth metropolitan and south-west areas of the state.[1]



SJWA also provides first aid training and AED services to communities across the state to help cardiac arrest patients in the critical minutes before ambulance arrival in the event of sudden out-of-hospital cardiac arrest (OHCA). Research has shown that a patient's OHCA survivability decreases by about 10 per cent with every minute that passes without lifesaving CPR and delivery of an AED shock.[2]

The Chain of Survival is an internationally accepted series of steps that bystanders and community members at the scene of a cardiac arrest, along with professional Emergency Medical Services (EMS) can take to maximise survival from OHCA. The first three steps – activating an emergency response via a call to Triple Zero (000), initiating CPR, and providing defibrillation with a community AED - can be performed by bystanders prior to ambulance arrival and are associated with the largest benefit for survival.[3]

SJWA, like other jurisdictional ambulance services, attempt to optimise the Chain of Survival to give OHCA patients the best possible chance of survival. Upon recognition of cardiac arrest on a Triple Zero (000) call, SJWA Emergency Medical Dispatchers (EMDs) will provide the caller with instructions in performing CPR and using a defibrillator if one is available. To strengthen WA's response to OHCA events, members of the community may also be alerted via SJWA's Community First Responder program.

COMMUNITY FIRST RESPONDER PROGRAM

SJWA operates a Community First Responder (CFR) program with two key pillars that empower community members to act as spontaneous first responders during an OHCA. The goal is for responders to provide CPR and, where available, use a community AED before an ambulance arrives.

A statewide network

The State Defibrillator Network encourages AED owners to register their devices with SJWA. Once registered, these individuals, businesses, and/or organisations may be contacted in the event of OHCA nearby, to bring their AED to the scene and assist with lifesaving efforts.

In addition, AEDs stored in external locked cabinets can be accessed by bystanders via a code provided by SJWA's State Control Centre (SCC) when they call Triple Zero (000).

Activation of a registered AED increases the chances of defibrillation being administered in the critical first minutes following an OHCA.

SJWA strongly advocates for the widespread installation and ownership of AEDs, investing in this program for over a decade to improve survival rates following OHCA.

Enabled by technology

The First Responder App invites health professionals and members of the public with a First Aid certification to make themselves available to be notified when an OHCA occurs within 500 metres of their location. This means bystanders can offer crucial care, such as CPR, and relay vital information to the SCC while the ambulance crew is enroute.

The app also provides users with access to nearby AED locations, further enhancing the chances of timely defibrillation through the State Defibrillator Network.

See the Chain of Survival and CFR program in action.

Register your AED or sign up as a CFR – download the First Responder app



AMBULANCE RESPONSE

Triple Zero (000) calls for cardiac arrest generate a multiple-vehicle response, typically comprising of two ambulances, each with two clinicians. Where possible a Clinical Lead will be tasked in metropolitan areas to provide overview, leadership and additional decision-making support. These responders also carry mechanical CPR devices to be used if transport to an Emergency Department (ED) is undertaken.

In larger regional centres where the organisation is funded to provide a career paramedic response, a multiple-vehicle response of two ambulances will routinely be dispatched to cases of cardiac arrest. In other rural areas, cases may be attended by volunteer Emergency Medical Technician or Emergency Medical Assistant crews, with a Community Paramedic deployed to provide paramedic assistance where practical.

SJWA clinicians provide cardiac arrest care in accordance with the Australian and New Zealand Committee on Resuscitation (ANZCOR) Basic Life Support (BLS) and Advanced Life Support (ALS) algorithms[4] and are trained in a team approach to high-performance CPR.



*As at 2025, only St John staff and volunteers are alerted to incidents occurring in private homes.

INTRODUCTION

IN 2025, 151 WESTERN AUSTRALIANS SURVIVED AN OUT-OF-HOSPITAL CARDIAC ARREST (OHCA). EACH OF THEM IS ALIVE BECAUSE SOMEONE NEARBY WAS PREPARED TO HELP.

None of this happens by accident. The preparedness behind every life saved is built over months and years, in choices made long before anyone knew they would matter. Learning CPR, or simply being confident enough to push hard on a chest until help arrives. Putting an AED in the clubrooms, the staff room, the work vehicle, even the home. Registering that device so it can be found in an emergency. Signing up to the First Responder App to be called when a neighbour needs help. Each of these is an ordinary person preparing, in advance, to help a stranger. This is what a "system" to save a life is made of, and Western Australia has built one of the strongest in the world.

We do not leave that preparedness to chance. We invest in it deliberately, including in the next generation. Each year St John WA delivers free first aid education to more than 150,000 school students up to Year 10 across WA, so that knowing what to do in an emergency becomes a normal part of growing up here. In 2025 we saw what that can mean. When Nigel Norwood collapsed in cardiac arrest at a remote beach campsite, more than an hour from the nearest ambulance, it was his teenage sons who kept him alive, using first aid learned at school and a community defibrillator to deliver the shocks that restarted his father's heart. Prepared young people and an AED saved his life — not the clinical crews who followed. Nigel's story appears in this report.

The scale of that commitment showed again, as the State Defibrillator Network surpassed 12,000 registered AEDs. The milestone is the 12,000 devices businesses, clubs and individuals across the state have bought, registered and made available to someone they may never meet. More than four in five patients our crews attempted to resuscitate had already received bystander CPR before the ambulance arrived, a rate that remains among the highest reported anywhere, and our rural communities continue to lead the way. To every Western Australian who has trained, funded an AED, registered one, or stepped forward when it counted: thank you. You are the reason these stories have a beginning.

Holding it together is our State Control Centre, where Emergency Medical Dispatchers recognise cardiac arrest as it is described over the phone and coach callers to perform CPR, direct bystanders to the nearest registered AED, and mobilise community responders - all before an ambulance crew arrives. Early recognition on the Triple Zero (000) call is the spark for everything that follows, and WA's call-takers again performed among the best in the world, recognising 94% of cardiac arrests in 2025.

Our ambulance crews' preparedness continues to mature, with the culture of excellence around resuscitation being readily embraced. Our paramedics and frontline clinicians bring skill, persistence and a real belief that the care they provide changes outcomes. That belief is showing up where it matters. Our survival across the broader population of OHCA patients we treat rose to one of the highest levels we have ever recorded.

A guiding principle from the global resuscitation community is a simple one: measure and improve. WA has measured for a long time, through our enduring partnership with the Prehospital, Resuscitation and Emergency Care Research Unit (PRECRU) at Curtin University, who maintain the Western Australian Cardiac Arrest Registry that underpins this report and much of what we learn from it. In 2025 we extended that measurement to the care at the very centre of resuscitation. For the first time, this report includes measures of the quality of CPR delivered by our paramedics - the rate and depth of chest compressions, the proportion of time that hands stay on the chest, and the pauses around each defibrillation, all drawn from the Corpuls cardiac monitors our frontline crews carry. We report it because what we can measure, we can improve.

Our commitment to excellence took us further afield in 2025. In October, St John WA Medical Director Dr Gayle Christie and Resuscitation Improvement Specialist Jason Belcher travelled to the Resuscitation Academy in Seattle, home of the system that has led the world in cardiac arrest survival for decades and where much of modern resuscitation was pioneered. They returned encouraged that WA is already doing a great deal well, and with a clear priority: closing the loop, getting honest and useful feedback back to the dispatchers and crews whose decisions and hands save lives, so that



measurement becomes better care for the next patient. It is work we have started and will keep building.

No one saves a life alone, and the places that do it best here and abroad work as a system. A system made up of a bystander and a community responder, the dispatcher, the ambulance crew, the hospital team, and the partner agencies and organisations that help an early response reach the patient. The progress of the past decade has come from strengthening each of these links; the next chapter is about connecting them. In the year ahead we look forward to working even more closely with our partners across the system, and to helping shape a more coordinated, statewide approach to OHCA, so that wherever a cardiac arrest happens in WA, and whoever it happens to, the whole system is prepared to respond.

Above all, 2025 was a year of 151 people returned to the dinner table, back at work, training for the footy and holding their grandchildren. They are not a data point in a report but family members, teammates and friends. We celebrate every one of them. We also acknowledge the Western Australians who could not be saved, and the families and communities who grieve them. They are why we continue to seek to improve everything we do.

If this report moves you to do one thing, let it be this: become the prepared person. Learn CPR. Find your nearest defibrillator. Register the one at your workplace or club, and download the First Responder App. A cardiac arrest will happen, somewhere, near someone. In WA, we are working to make sure everyone is prepared.

CONTENTS

Survivor stories 4
About St John WA's response to cardiac arrest 10
Community First Responder program 11
Ambulance Response 13
Introduction 14
2025 Out of Hospital Cardiac Arrest Key Statistics 18
Work with community to support response to OHCA 20
First Aid Focus: A critical community engagement tool for OHCA 24
Summary and benchmarking 26
Incidence and case characteristics 28
Location of arrest 29
Precipitating causes — adults (16+ yrs) 30
Precipitating causes — children (<16 yrs) 30
Presenting rhythms 31
Recognition of OHCA during the Triple Zero (000) call 32
Pre-ambulance community response (Bystander CPR and AED activity) 33
Bystander CPR 33
Community AEDs 34
Community response by location and region 35
Community First Responder program 36
SJWA response times 38
Resuscitation Quality Snapshot 39
Outcomes 40
Adult outcomes according to initial presenting rhythm 40
Utstein comparator group 41
Outcomes according to rurality 42
Survival per 100,000 population 42
Outcomes at Scene 43
Outcome by destination hospital 43
Neurological outcomes after OHCA 43
Appendices 44
The Registry 44
Utstein OHCA flowcharts 46
Research 48
Acknowledgements 48
Abbreviations 49
Definitions 49
References 51

LIST OF FIGURES

Figure 1: Breakdown of all OHCA attended 26
Figure 2: Benchmarking survival rates nationally and internationally (Utstein comparator group) 27
Figure 3: Location of arrest 29
Figure 4: Frequency of adult initial arrest rhythms 31
Figure 5: Growth of the State Defibrillator Network 36
Figure 6: Growth of registered responders on First Responder App 37
Figure 7: Survival by initial arrest rhythm for adults 41
Figure 8: Comparative outcomes — metropolitan Perth vs regional WA 42
Figure 9: Number of survivors, and survival per 100k population (metro Perth) 42
Figure 10: Utstein OHCA flowchart for system effectiveness (attempted resuscitation) 46
Figure 11: Utstein OHCA flowchart for system efficacy (Utstein comparator) 47

LIST OF TABLES

Table 1: Key figures for all-cause events where EMS attempted resuscitation 27
Table 2: Overview of OHCA cases attended by St John WA 28
Table 3: Missing Data 28
Table 4: Aetiology — adults (16+ yrs) 30
Table 5: Aetiology — children (<16 yrs), five-year aggregate 30
Table 6: Initial arrest rhythm for adults 31
Table 7: Recognition of OHCA on a Triple Zero (000) call 32
Table 8: Bystander CPR, witnessed vs unwitnessed 33
Table 9: Bystander CPR among cases with an EMS resuscitation attempt 33
Table 10: 30-day survival in relation to bystander CPR 33
Table 11: Bystander use of AED and number of survivors (all of WA) 34
Table 12: Survival statistics based on who delivered the first defibrillation shock 34
Table 13: Community response and outcomes based on location of arrest 35
Table 14: Community response and outcomes by region 35
Table 15: State Defibrillator Network activations 37
Table 16: Metropolitan response times (minutes) 38
Table 17: Regional and remote response times (minutes) 38
Table 18: Paramedic-attended CPR metrics 39
Table 19: Percentage survival (of resuscitation-attempted cases) 40
Table 20: Number of survivors by initial arrest rhythm, for adults 40
Table 21: Utstein comparator group survival by year 41
Table 22: Outcomes at scene 43
Table 23: 30-day survival by direct transport to a PCI hospital 43
Table 24: Neurological outcomes on hospital discharge 43
Table 25: SJWA OHCA database inclusion criteria 44
Table 26: SJWA OHCA database exclusion criteria 44

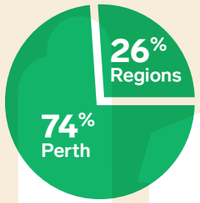
2025 OUT OF HOSPITAL CARDIAC ARREST
KEY STATISTICS

1306

patients treated by St John WA for OHCA in 2025 (3.6 per day)

1265 were adults, **41** were children
157 already being treated by ambulance crew (EMS-witnessed)

68% in private homes
24% in public places
8% in other locations





94%
of OHCA recognised on **Triple Zero (000) call**

89 seconds – median time to recognise cardiac arrest



82% of patients received bystander CPR

10% of patients survived when they received bystander CPR

4% survived with no bystander CPR



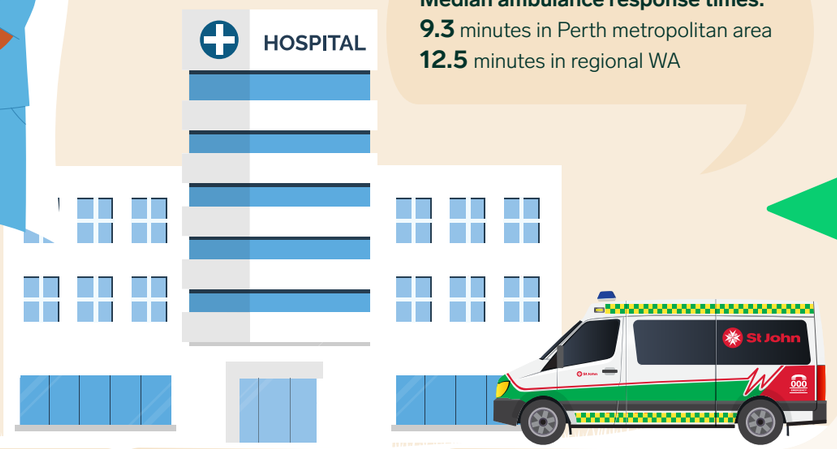
57,572
registered Community First Responders on St John First Responder app





151
people survived

Median ambulance response times:
9.3 minutes in Perth metropolitan area
12.5 minutes in regional WA



24% of patients had a pulse on arrival at hospital

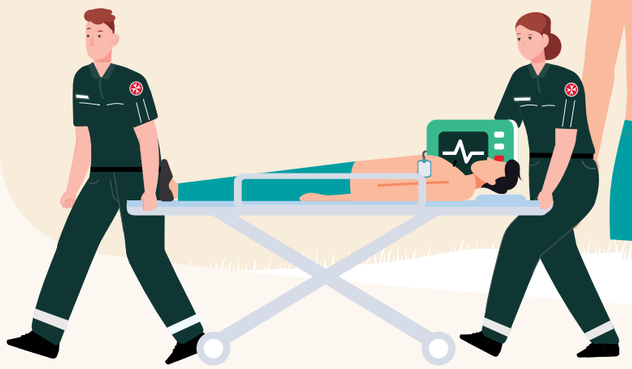
12% survived

33% of patients in the Utstein comparator group survived*

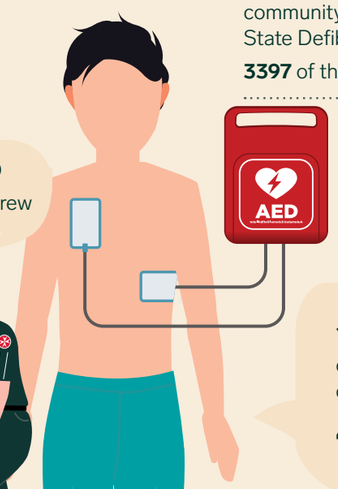
95% of survivors discharged from hospital with a good neurological outcome

83 patients had a shock from a community AED prior to ambulance arrival

46% survived when first shocked by community AED
23% survived when first shocked by an ambulance crew



12,592
community AEDs registered on State Defibrillator Network
3397 of these are available 24/7



17%
of patients had a community AED applied

48% in public places

Notes: All data for cases where SJWA attempted resuscitation. Data for type of location, recognition, bystander CPR, AED use, community response and response times exclude EMS-witnessed arrests. Survival refers to 30-day survival.

Registration data for First Responder app and State Defibrillator Network as at 31 December 2025.
*Utstein Comparator Group refers to patients who experience OHCA witnessed by a bystander, present in a shockable rhythm, and EMS attempted resuscitation.



WORK WITH COMMUNITY TO SUPPORT RESPONSE TO OHCA

St John Ambulance Australia and Western Australia are calling for AEDs to become as common place as fire extinguishers in communities, workplaces and homes.

Almost all Australian adults – (96%) – believe AEDs are important to have in public locations, according to a survey commissioned by St John Ambulance Australia.[5]

St John collectively continues to actively advocate with governments, workplaces and communities, to improve public access defibrillators, but there is still a long way to go.

St John WA's Community First Responder program enables first responders to get registered AEDs to a cardiac arrest and continues to grow, with more than 12,000 defibrillators registered and more than 57,000 first responders across WA.

The support of corporate partners and generous donors makes possible investment in publicly accessibly AEDs, while local councils and community organisations collaborate with St John to establish the legacy of those community defibrillators and where need is being best met. Strengthening the Chain of Survival in the community through grassroots support – including small businesses – is vital to saving lives. It takes a system to save a life.

TRAVEL SAFETY

Perth Airport travellers were demonstrated lifesaving skills to mark Restart a Heart Day, October 16, and Airport Safety Week, from Monday October 12.

Travellers and visitors at the Virgin Australia terminal were invited to observe or participate in CPR demonstrations, learn how to operate an AED, and speak directly with St John WA and Perth Airport representatives about the importance of community readiness.

Perth Airport Chief Operating Officer Scott Woodward said the partnership with St John WA was an important part of the airport's commitment to safety.

"We were proud to partner with St John WA for Restart a Heart Day to raise awareness of the simple actions that can save a life — Call. Push. Shock." he said.

"Our frontline terminal teams are often the first to respond in an emergency, and these life-saving skills are essential to their roles.

"We're committed to supporting our staff and the wider community with the knowledge and tools to act confidently in critical moments like these."

ALL HALE FARMERS

Hale Boarding Farmers' Market raised $10,000 for St John WA (SJWA) to help rural and remote communities increase their emergency response, particularly in the event of sudden cardiac arrest.

At an assembly celebrating National Boarding Week on May 12, Hale boarding student Jack Hallam reflected on volunteering and a strong sense of shared responsibility growing up in rural communities.

"Giving back isn't just encouraged, it's expected," he told a senior assembly of his peers, which included 178 boarders – 63 per cent from farming-related families.

"Whether it's driving hours to another town for rural footy, umpiring games, putting out neighbours' fires or helping cook the Saturday night barbecues in the boarding house, volunteering becomes second nature."

He said St John's country ambulance service being run almost entirely by volunteers was "a cause close to home".

"Ordinary people trained to do extraordinary things," Jack said.

"Funds raised help support these volunteers with essential medical equipment, vehicles and ongoing training, ensuring that communities, no matter how isolated, receive the care that they need when it matters most."



BUMPER HARVEST

Western Australian grain growers have again demonstrated their commitment to regional communities, donating a record-breaking $575,000 to WA charities through the Harvest Mass Management Scheme (HMMS).

A $60,000 donation to St John WA was used to help maintain and grow a strong Community First responder and State Defibrillator Network in the grain growing region.

“To date HMMS donations have enabled St John WA to install 222 AEDs across grain-growing communities and funds from this year will be used to install a further 20 more and provide funding to ensure the defib network in the Wheatbelt region is maintained and accessible to the community,” Social Sustainability Manager Angel Robins said.

“St John WA is so grateful for the generosity of the community.”

The HMMS, a collaborative effort between CBH and Main Roads WA, aims to mitigate the incidence of overloaded grain trucks during harvest season. Growers are given the option to forfeit grain from overloaded trucks, which is then sold, and the resulting proceeds directed to WA charities nominated by growers and employees.

Since it began, the HMMS has donated to St John WA, which has ensured almost 60 per cent of AEDs in the Wheatbelt are accessible 24/7.





DEFIB DONATIONS

Northam oval

Sports fans and football players at Northam’s Henry Street Oval are now much safer thanks to CBH Group and HMMS.

Inspired by Wade Hunter’s cardiac arrest survival story, CBH has distributed funds from the scheme towards a publicly accessible AED metres from the Henry Street Oval and can be accessed 24/7 using a lock box code supplied by dialling Triple Zero (000).

In July 2023, Wade, a fit father and footy player, collapsed from cardiac arrest in the second quarter of his game.

CBH Head of Health, Safety and Environment Tim Manning said having a publicly accessible defibrillator can mean the difference between life and death in regional communities.

“We’re proud to support this initiative and hope this AED provides peace of mind for the Northam community, knowing that lifesaving help is close by when it’s needed most,” he said.

Waroona

Five new AEDs have been installed in Waroona thanks to the St John Waroona Sub Centre.

This brings the total to 24 in the area and will extend to 29 by the end of the year.

As part of the driving force behind the flurry of installations, Jenny McNamara, Waroona Sub Centre Chairperson, is passionate about ensuring public defibrillators are readily available.

They can be found at key locations including the skate park, football oval, Waroona Memorial Hall and Drakesbrook Weir.

Narrogin

An organisation supporting First Nations communities across the Wheatbelt is the latest recipient of life-saving equipment from St John WA (SJWA).

Keedac (Kaata-Koorliny Employment and Enterprise Development Aboriginal Corporation) was identified as needing an AED after the SJWA Yarning team delivered training in Narrogin and found that the organisation did not have one at either of their locations.

The St John Dawesville Sub Centre had a surplus device which they requested be given to a First Nations-focused organisation in Western Australia.

Keedac’s mission to improve the lives of Aboriginal families in the Wheatbelt through work-related training and qualifications, along with mental health and wellbeing support, made them the ideal recipient.



FIRST AID FOCUS: A CRITICAL COMMUNITY ENGAGEMENT TOOL FOR OHCA

Western Australia faces unique challenges in responding to out-of-hospital cardiac arrest (OHCA), particularly across regional and remote communities where ambulance response times can be longer and community members often become the first link in the chain of survival. St John WA's First Aid Focus program has emerged as a distinctive and highly effective engagement tool, building community capability by teaching life-saving first aid, CPR awareness, and emergency response skills to school-aged children across the state.

At its core, First Aid Focus is more than a school education program. It is a long-term public health and community resilience initiative that develops confidence, preparedness, and the willingness to act during medical emergencies. Delivered through St John WA's Youth and Community Engagement (YCE) program, the team reaches more than 150,000 school students annually and provides charitably-funded, curriculum-aligned, age-appropriate first aid education from pre-kindy to Year 10.

The program's effectiveness is demonstrated through St John WA's community engagement model, which combines practical learning with real-world relevance. Students learn practical skills such as identifying dangers, seeking help, placing a casualty in the recovery position, and responding appropriately while waiting for emergency services. These skills directly support the early links in the OHCA chain of survival, where rapid recognition of an emergency and immediate action can significantly influence outcomes.



ORIENTATING ONSLOW

In November 2025, First Aid Focus was delivered to 147 students at Onslow School, marking the first time the program had been offered in the region. Supported through funding from the Woodside-operated Macedon Joint Venture, the initiative brought St John WA YCE educators into the North West to provide vital first aid training. Students learned skills ranging from hazard identification to casualty management while awaiting emergency assistance.

The Onslow project demonstrates how First Aid Focus can extend emergency preparedness into remote communities where community capability can be especially important. The program was part of a broader package that also supported volunteer Emergency Medical Responders and local St John volunteer recruitment, creating a comprehensive community resilience approach.



EQUIPPING NORTH MIDLANDS

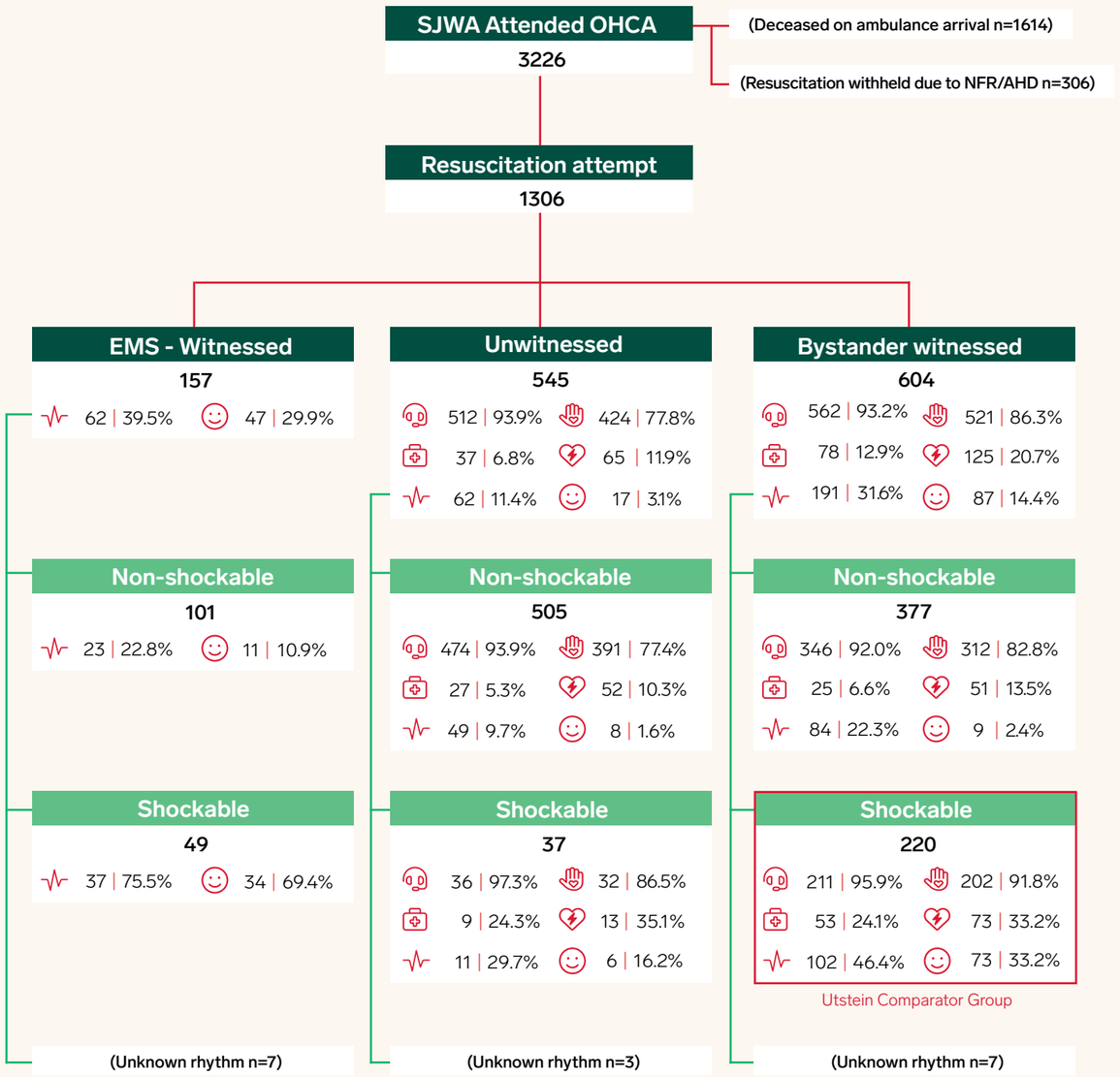
More than 400 students across five schools in the North Midlands engaged in First Aid Focus thanks to funding from Beach Energy and Mitsui E&P Australia. The funding also supported accredited adult first aid courses focused on CPR and cardiac arrest response, serviced 86 AEDs across the region, and installed four additional publicly accessible AEDs in Dongara.

Dongara, Mingenew, Three Springs, Carnamah and their surrounds received free first aid education at three primary schools and two high schools.

OHCA preparedness is the integration of First Aid Focus with broader cardiac arrest readiness initiatives such as accredited adult training and defibrillator access to better connect schools, families, volunteers, businesses, and emergency services.

SUMMARY AND BENCHMARKING

FIGURE 1: BREAKDOWN OF ALL OHCA ATTENDED



LEGEND:

- RECOGNITION ON EMERGENCY CALL
- COMMUNITY FIRST RESPONDER ACTIVATION
- RETURN OF SPONTANEOUS CIRCULATION (ROSC) AT ED
- BYSTANDER CPR
- COMMUNITY AED APPLIED
- SURVIVED TO 30 DAYS

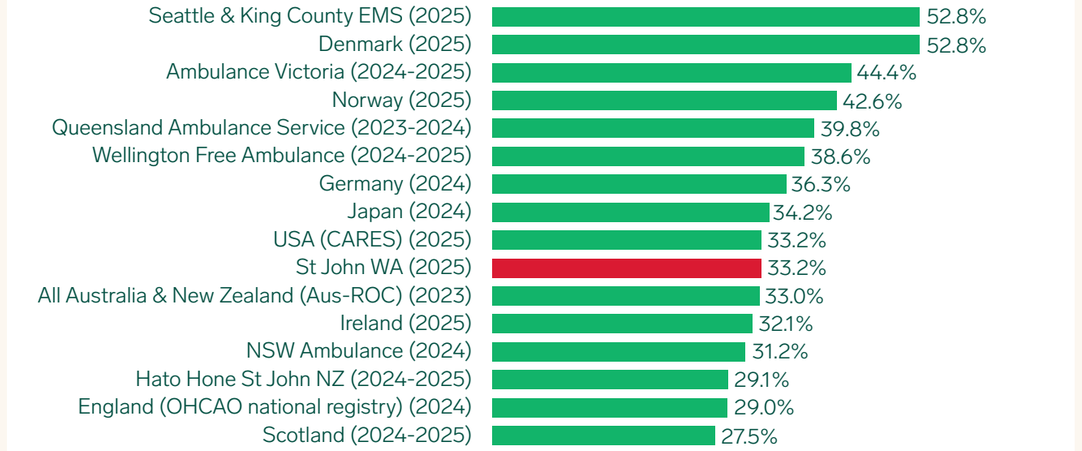
TABLE 1: KEY FIGURES FOR ALL-CAUSE EVENTS WHERE EMS ATTEMPTED RESUSCITATION

Year	Number of cases	Bystander CPR %[a]	Bystander AED use %[a]	Median metro response (min)[a]	Median rural response (min)[a]	% ROSC at ED	% 30-day survival	Utstein % ROSC at ED	Utstein % 30-day survival
2021	1116	81.6%	13.6%	9.4	12.4	20.6%	10.5%	47.7%	33.5%
2022	1182	81.5%	14.5%	9.6	15.0	19.7%	10.8%	42.8%	32.8%
2023	1271	81.9%	15.6%	9.2	12.1	21.8%	10.9%	47.7%	39.1%
2024	1239	80.5%	14.8%	9.5	13.6	23.0%	10.7%	50.6%	35.9%
2025	1306	82.2%	16.5%	9.3	12.5	24.1%	11.6%	46.4%	33.2%

(a) Excludes EMS-witnessed arrests

The Utstein Comparator Group is an international standard used for benchmarking. It refers to survival among patients who experience OHCA witnessed by a bystander, present in a shockable rhythm, and receive a resuscitation attempt. See page 41 for more information on the Utstein comparator group.

FIGURE 2: BENCHMARKING SURVIVAL RATES NATIONALLY AND INTERNATIONALLY (UTSTEIN COMPARATOR GROUP)



NOTES:

See references 6–19 (page 51) for original registry reports.

Outcome measures: Seattle & King County EMS, Ambulance Victoria, CARES and Ireland National Ambulance Service report Survival to Hospital Discharge. Japan Fire and Disaster Management Agency reports 1-month survival. Aus-ROC and German Resuscitation Registry report a mixture of survival to hospital discharge and 30-day survival based on data contributed by participating ambulance services. All others report 30-day survival. The measures are considered equivalent.[20]

Aetiology: Seattle & King County EMS, CARES and Scottish Ambulance Service exclude arrests with traumatic aetiology. NSW Ambulance and Japan Fire and Disaster Management Agency report presumed cardiac aetiology only. Ireland National Ambulance Service reports medical aetiology only.

Coverage: CARES collects data from participating emergency medical services and hospitals covering 56% of the population of the United States. The German Resuscitation Registry reports comparator survival only for a 56-service reference group (of 208 participating services) with sufficiently complete hospital-outcome data. In 2024 the English OHCAO national registry did not include data from the North West Ambulance Service.

Age: Ireland National Ambulance Service reports on patients aged ≥17 years. Seattle & King County EMS reports on patients aged ≥2 years.

INCIDENCE AND CASE CHARACTERISTICS

SJWA attended 3226 OHCA cases in the calendar year 2025 (1 January – 31 December), a 0.7% increase on 2024 (n=3204). The majority of cases (n=3,175) were classified as adults (16 years and above) compared to those aged under 16 years of age (n=51).

Of all OHCA cases, 67.4% were recorded as male and 32.6% as female by SJWA clinicians.

The crude incidence of OHCA decreased slightly from 2024 to 2025, from 108.1 to 106.0 per 100,000 population. In 2025 for adults, crude incidence was 129.0 per 100,000 population, and for children was 8.8 per 100,000. By comparison, in 2024 OHCA incidence was 131.9 per 100,000 for adults, and for children was 9.8 per 100,000.

In 2025, SJWA attempted resuscitation on 40.5% (n=1306) of OHCA patients.

TABLE 2: OVERVIEW OF OHCA CASES ATTENDED BY ST JOHN WA

	Num. of cases	% of all OHCA	Incidence rate[a]	Num. resus attempted	% resus attempted
Adults (≥16 yrs)	3175	98.4%	129.0	1265	39.8%
Children (<16 yrs)	51	1.6%	8.8	41	80.4%
Total	3226	100.0%	106.0	1306	40.5%

[a] per 100,000 population

All ambulance-attended OHCA cases in WA are recorded in the SJWA OHCA registry maintained by PRECRU. Detail about the registry is included in the appendices. The utility of the SJWA OHCA registry relies on completeness of data capture. Missing data are relatively rare for all core variables (see Table 3).

TABLE 3: MISSING DATA

Variable	No. of Cases
Sex	0
Age	0
Aetiology	0
Witness Status	0
Location Type	0
Response Time	8
Initial Arrest Rhythm	30
Bystander CPR	0
Bystander shock given	0
30-day survival	0
Neurological outcome	1

Number of records with missing data for select SJWA OHCA database variables in 2025 (from total of 3226 cases)

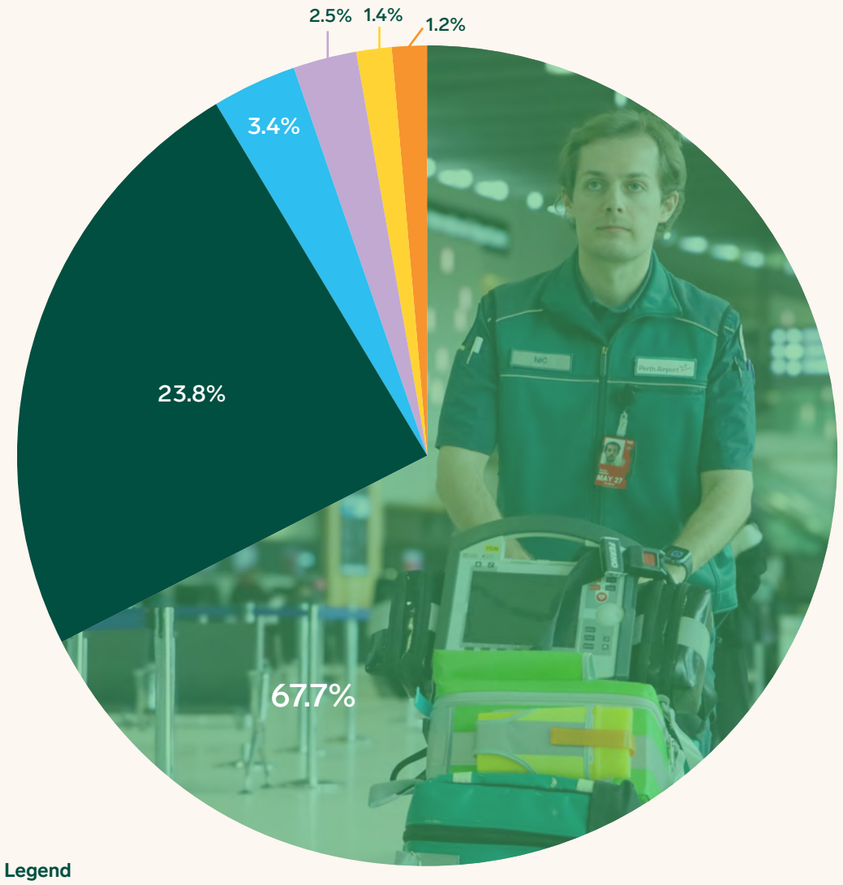
LOCATION OF ARREST

Similar to previous years, the majority of patients (67.7%) suffered a cardiac arrest at a private residential address, which is similarly observed in other systems.

If the cardiac arrest occurs in a public place, the likelihood of a bystander witnessing the collapse is greater and is associated with improved outcomes as the chain of survival is activated sooner. In 2025, 23.8% of patients suffered a cardiac arrest in a public place, compared to 20.9% in 2024.

These figures exclude EMS-witnessed arrests and cases where resuscitation was not attempted.

FIGURE 3: LOCATION OF ARREST



Total = 1149

Criteria: Excludes EMS-witnessed arrests, and cases where resuscitation was not attempted.

PRECIPITATING CAUSES – ADULTS (16+ YRS)

Of adult OHCA cases in 2025 where SJWA attempted resuscitation, 76.4% had a presumed cardiac cause (n=967), with the next most common causes being trauma (7.1%, n=90), hanging (6.1%, n=77), drug overdose (5.5%, n=70), respiratory pathology (2.3%, n=29) and drowning (1.7%, n=21).

TABLE 4: AETIOLOGY – ADULTS (16+ YRS)

Cause	2021	2022	2023	2024	2025	Total
Presumed cardiac	851	898	945	904	967	4565
Respiratory	19	34	25	33	29	140
Drowning	17	16	22	22	21	98
Trauma	73	78	83	95	90	419
Hanging	74	56	85	80	77	372
Drug overdose	43	53	63	51	70	280
Electrocution	≤4	≤4	≤4	0	≤4	7
Malignancy/Palliative	10	11	6	7	5	39
Other	0	0	0	0	≤4	≤4
Total	1089	1147	1230	1192	1265	5923

Criteria: Excludes cases where resuscitation was not attempted.

PRECIPITATING CAUSES – CHILDREN (<16 YRS)

Among the 41 paediatric OHCA cases where SJWA attempted resuscitation in 2025, a presumed cardiac aetiology was recorded in 12 cases. For reporting on other aetiologies, results are presented as a five-year aggregate (2021–2025) rather than by individual year, because of the small number of paediatric cases and to align with ABS best practice for very small cell counts.[21]

TABLE 5: AETIOLOGY – CHILDREN (<16 YRS), FIVE-YEAR AGGREGATE

Cause	2021–2025
Presumed cardiac	70
Respiratory	10
Drowning	23
Trauma	22
Hanging	14
Drug overdose	≤4
Malignancy/Palliative	≤4
SUDI	50
TOTAL	191

Criteria: Excludes cases where resuscitation was not attempted.
SUDI: Sudden Unexpected Death in Infancy.

PRESENTING RHYTHMS

Of the 1265 adult OHCA cases receiving a resuscitation attempt, 302 (23.9%) presented in a shockable rhythm — Ventricular Fibrillation (VF) or Ventricular Tachycardia (VT).

A total of 947 cases presented in non-shockable rhythms; the most common was asystole, which recorded 667 cases (52.7%). Pulseless electrical activity (PEA) featured in 206 cases (16.3%). Of note, 74 cases (5.8%) had an unspecified non-shockable rhythm, where a SJWA cardiac monitor-defibrillator in AED mode performed a rhythm analysis with no shock advised. Data on presenting rhythm was missing for 16 cases.

FIGURE 4: FREQUENCY OF ADULT INITIAL ARREST RHYTHMS

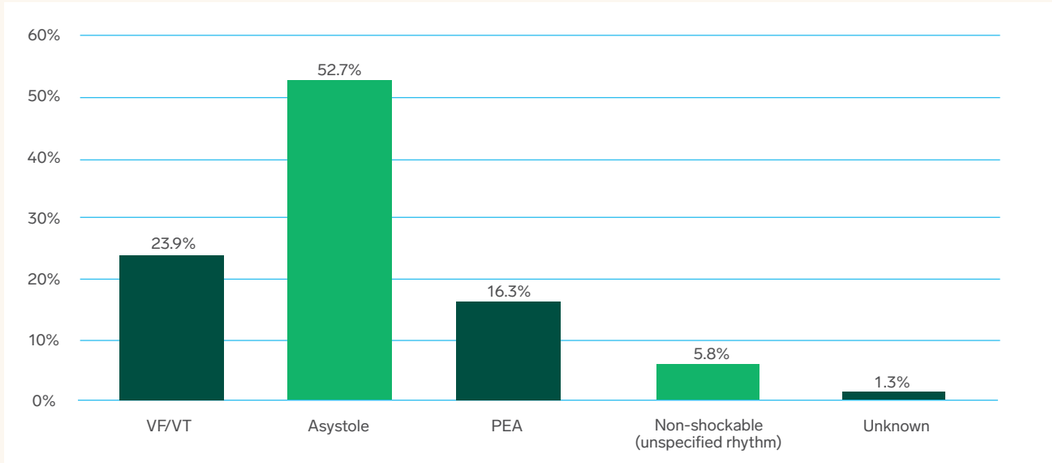


TABLE 6: INITIAL ARREST RHYTHM FOR ADULTS 2021-2025

Rhythm	2021	2022	2023	2024	2025	Total
Shockable	258	286	289	266	302	1401
Non-shockable	819	854	931	914	947	4465
Unknown	12	7	10	12	16	57
TOTAL	1089	1147	1230	1192	1265	5923

Criteria: Excludes cases where resuscitation was not attempted, and cases where the patient was <16 years old.

RECOGNITION OF OHCA DURING THE TRIPLE ZERO (000) CALL



All incoming Triple Zero (000) emergency calls to St John WA are handled and triaged through the Medical Priority Dispatch System (MPDS)[22] by specialist EMDs. Calls to Triple Zero (000) handled by the State Control Centre (SCC) totalled 324,191 in 2025.

Calls for suspected cardiac arrest are treated as the highest priority response above other Priority 1 cases. These cases generate a multiple-asset response. Other community responses may also be activated to cardiac arrest cases if available through the Community First Responder program.

Recognition of cardiac arrest during the Triple Zero (000) call is vitally important to ensure that an appropriate ambulance dispatch is allocated to maximise a fast response. In 2025, 93.9% of cardiac arrest cases (excluding EMS-witnessed arrests) were recognised as such during the Triple Zero (000) call-taking process and dispatched accordingly.

In 2025, the median time to recognise OHCA during the Triple Zero (000) call was 89 seconds. This is measured from the time the call was first answered, to the time the call was given a cardiac arrest dispatch code during triage, inclusive of the time at the start of the call to ascertain the patient's location. This is a new measure introduced in 2025, recognising the importance of early recognition for initiating telephone CPR instructions, and activating Community First Responders or giving directions to the nearest publicly accessible defibrillator if another bystander can retrieve it.

TABLE 7: RECOGNITION OF OHCA ON A TRIPLE ZERO (000) CALL

Measure	2021	2022	2023	2024	2025
OHCA recognised on emergency call	878	956	1051	997	1074
OHCA not recognised	80	81	68	86	70
% recognised	91.6%	92.2%	93.9%	92.1%	93.9%
Median time to recognition (seconds) [a]					89

Criteria: Excludes EMS-witnessed arrests, cases where resuscitation was not attempted, and cases where the ambulance response was activated by a method other than a Triple Zero (000) call (such as an ambulance being flagged down).
[a] Time to recognition also excludes traumatic cardiac arrest and calls where the caller was not present with the patient at the time of the emergency call.

PRE-AMBULANCE COMMUNITY RESPONSE (BYSTANDER CPR AND AED ACTIVITY)

BYSTANDER CPR

The percentage of all OHCA patients in 2025 (regardless of resuscitation attempt by SJWA) who received bystander CPR prior to the arrival of SJWA was 70.2% among bystander-witnessed arrests, and 31.0% among unwitnessed arrests.

TABLE 8: BYSTANDER CPR, WITNESSED VS UNWITNESSED

% receiving bystander CPR	2021	2022	2023	2024	2025
Bystander-witnessed	69.8%	71.0%	69.0%	69.5%	70.2%
Unwitnessed	27.4%	29.5%	32.1%	31.6%	31.0%

Amongst cases where SJWA attempted resuscitation, the percentage of OHCA patients receiving bystander CPR prior to the arrival of SJWA was 82.2%.

TABLE 9: BYSTANDER CPR AMONG CASES WITH AN EMS RESUSCITATION ATTEMPT

Measure	2021	2022	2023	2024	2025
CPR provided	785	850	920	877	945
No evidence of bystander CPR	177	193	203	212	204
TOTAL	962	1043	1123	1089	1149
% where CPR provided	81.6%	81.5%	81.9%	80.5%	82.2%

Criteria: Excludes EMS-witnessed arrests, and cases where resuscitation was not attempted.

Patients who received bystander CPR were more than twice as likely to be 30-day survivors than those who did not.

TABLE 10: 30-DAY SURVIVAL IN RELATION TO BYSTANDER CPR

	% 30-day Survival
For all non-EMS witnessed arrests	
Bystander CPR	10.1%
No bystander CPR	4.4%
For bystander-witnessed arrests only	
Bystander CPR	15.7%
No bystander CPR	6.0%

Criteria: Excludes EMS-witnessed arrests, and cases where resuscitation was not attempted

COMMUNITY AEDS

Community AEDs are strongly associated with improved chances of survival.[23] AEDs were used by bystanders (pads applied) on 190 OHCA patients in 2025, with a defibrillation shock delivered in 83 cases. Of those 83 patients, 48 (57.8%) had a pulse on arrival at ED and 38 (45.8%) survived to 30 days.

TABLE 11: BYSTANDER USE OF AED AND NUMBER OF SURVIVORS (ALL OF WA)

Measure	2021	2022	2023	2024	2025
Pads applied	131	151	175	161	190
Shock delivered	56	74	78	65	83
ROSC at ED	30	34	43	34	48
Survived 30 days	26	29	38	31	38
% ROSC at ED	53.6%	45.9%	55.1%	52.3%	57.8%
% 30-day survival	46.4%	39.2%	48.7%	47.7%	45.8%

Criteria: Excludes EMS-witnessed arrests, and cases where resuscitation was not attempted.

For patients in an initial shockable rhythm, when the first defibrillation shock is delivered by a community AED rather than by an EMS (ambulance) response, the patient is 1.8 times more likely to be a 30-day survivor (5-year average).

TABLE 12: SURVIVAL STATISTICS BASED ON WHO DELIVERED FIRST DEFIBRILLATION SHOCK

First shock by	2021	2022	2023	2024	2025	Total
% ROSC at ED						
Community AED	53.6%	45.9%	55.1%	52.3%	57.8%	**53.1%**
EMS	37.3%	37.4%	39.3%	39.6%	37.0%	**38.1%**
% 30-day survival						
Community AED	46.4%	39.2%	48.7%	47.7%	45.8%	**45.5%**
EMS	23.4%	24.1%	29.4%	23.5%	23.1%	**24.7%**

Criteria: Excludes EMS-witnessed arrests and cases where resuscitation was not attempted.

COMMUNITY RESPONSE BY LOCATION AND REGION

Patients who had an OHCA in a public place were significantly more likely to receive bystander CPR and community AED application. Survival was also higher amongst OHCA in public places.

TABLE 13: COMMUNITY RESPONSE AND OUTCOMES BASED ON LOCATION OF ARREST

Location type	% Bystander witnessed	% Bystander CPR	% Community AED applied	% ROSC to ED	% Survived to 30 days
For all non-EMS witnessed arrests					
Private residence	45.8%	77.8%	2.6%	19.5%	6.0%
Public place	67.4%	89.4%	48.0%	29.3%	17.6%
Other	65.3%	98.0%	39.8%	21.4%	9.2%
Total	**52.6%**	**82.2%**	**16.5%**	**22.0%**	**9.1%**
For bystander-witnessed arrests only					
Private residence		80.6%	1.4%	29.2%	9.3%
Public place		92.4%	52.7%	38.0%	24.5%
Other		100.0%	35.9%	26.6%	14.1%
Total		**86.3%**	**20.7%**	**31.6%**	**14.4%**

Criteria: Excludes cases where resuscitation was not attempted.

Bystander CPR and community AED use were higher in regional WA compared to metropolitan Perth.

TABLE 14: COMMUNITY RESPONSE AND OUTCOMES BY REGION

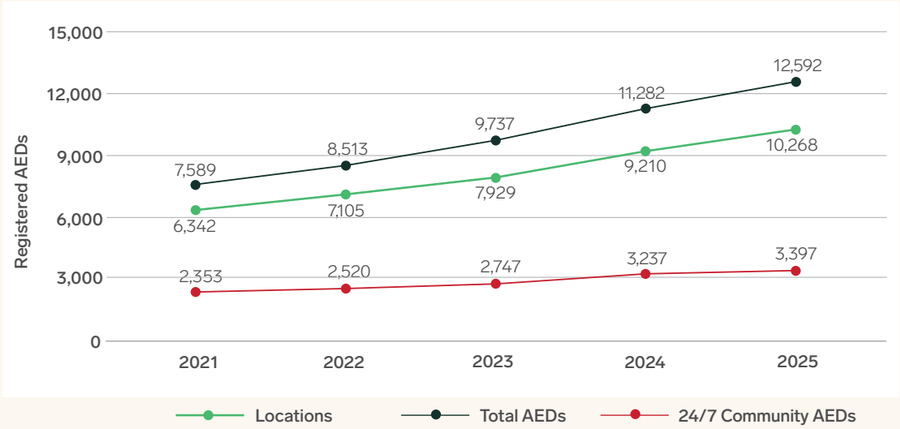
Region	% Bystander witnessed	% Bystander CPR	% Community AED applied	% ROSC to ED	% Survived to 30 days
For all non-EMS witnessed arrests					
Metro	52.4%	81.2%	14.0%	24.9%	9.5%
Regional	53.1%	85.2%	23.6%	14.1%	7.9%
Total	**52.6%**	**82.2%**	**16.5%**	**22.0%**	**9.1%**
For bystander-witnessed arrests only					
Metro		85.1%	18.3%	36.7%	15.4%
Regional		89.5%	27.2%	17.9%	11.7%
Total		**86.3%**	**20.7%**	**31.6%**	**14.4%**

Criteria: Excludes cases where resuscitation was not attempted.

COMMUNITY FIRST RESPONDER PROGRAM

As of 31 December 2025, the State Defibrillator Network had 10,268 locations across WA where a total of 12,592 AEDs are registered, making it one of the biggest networks of registered AEDs in the country. Of these, 3397 AEDs are available 24/7 to the community.

FIGURE 5: GROWTH OF THE STATE DEFIBRILLATOR NETWORK





Since 2021, registered locations have grown by 61.9%, total registered AEDs by 65.9%, and AEDs available 24/7 to the community by 44.4%.

During 2025, there were 115 State Defibrillator Network activations to a patient in cardiac arrest. Of those 115 activations, an AED shock was delivered in 58 cases. In relation to the 83 OHCA cases to receive a community AED shock, 69.9% received their shock from a State Defibrillator Network activation.

Out of 1149 non-EMS-witnessed OHCA cases that had a resuscitation attempt, 26.1% survived to 30 days where there was a defibrillator network activation, compared to 7.2% where there was no activation.

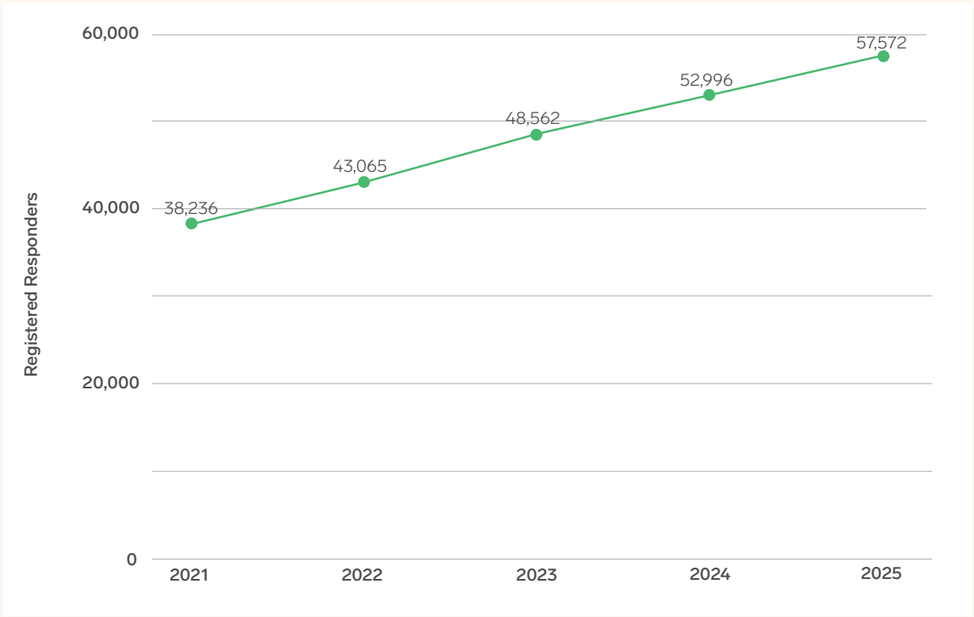
TABLE 15: STATE DEFIBRILLATOR NETWORK ACTIVATIONS

Measure	2022	2023	2024	2025
Total State Defibrillator Network activations	79	92	81	115
(% of all OHCA)	7.6%	8.2%	7.4%	10.0%
Shock delivered	39	49	37	58
Outcomes associated with Defibrillator Network activation				
% survival (activated)	22.8%	27.2%	30.9%	26.1%
% survival (not activated)	7.9%	8.3%	6.7%	7.2%

Criteria: Excludes EMS-witnessed arrests, and cases where resuscitation was not attempted.

Registered community first responders on St John WA's First Responder app grew to 57,572 by 31 December 2025, an 8.6% increase from 52,996 12 months prior.

FIGURE 6: GROWTH OF REGISTERED RESPONDERS ON FIRST RESPONDER APP



SJWA RESPONSE TIMES

In cases where resuscitation was attempted, the median response time in 2025 in metropolitan Perth was 9.3 minutes, compared to 9.5 minutes in 2024. In regional and remote WA, the median response time in 2025 was 12.5 minutes, compared to 13.6 minutes in 2024.

TABLE 16: METROPOLITAN RESPONSE TIMES (MINUTES)

Statistic	2021	2022	2023	2024	2025
Median	**9.4**	**9.6**	**9.2**	**9.5**	**9.3**
10th centile	5.6	5.6	5.1	5.4	5.5
25th centile	7.2	7.4	6.8	7.2	7.1
75th centile	12.2	12.4	11.8	12.2	12.2
90th centile	15.9	16.6	15.3	15.5	15.7

Criteria: Excludes EMS-witnessed arrests and cases where resuscitation was not attempted.

TABLE 17: REGIONAL AND REMOTE RESPONSE TIMES (MINUTES)

Statistic	2021	2022	2023	2024	2025
Median	**12.4**	**15.0**	**12.1**	**13.6**	**12.5**
10th centile	6.3	6.9	6.3	6.8	6.5
25th centile	8.2	9.3	8.1	8.8	8.8
75th centile	18.0	23.1	20.0	20.8	19.0
90th centile	29.1	33.1	29.5	28.9	28.8

Criteria: Excludes EMS-witnessed arrests and cases where resuscitation was not attempted.



RESUSCITATION QUALITY SNAPSHOT

In 2025, for the first time, this report includes a summary of chest compression metrics. Cardiac monitors carried by ambulance crews record measures of compressions delivered. St John WA reports a snapshot of aggregated measures against guideline targets as a baseline for measuring and improving, not to grade frontline crews.

Compressions delivered at an appropriate rate and depth (in accordance with ANZCOR guidelines), along with the proportion of resuscitation time spent performing chest compressions (compression fraction) and the length of compression pauses, can affect patient outcomes. These, along with the pauses around defibrillation shocks which can affect defibrillation success, are reported across all paramedic-attended (manual resuscitation) cases for 2025. For a first baseline, St John WA paramedics achieved a median compression fraction above the 80 per cent target recommended by the Resuscitation Academy. [24]

TABLE 18: PARAMEDIC-ATTENDED CPR METRICS

Compressions at target depth (>5 cm)	90.5%
Compressions at target rate (100–120/min)	90.9%
Compression fraction (median)	81.1%
Pre-shock pause (median seconds)	5.3
Post-shock pause (median seconds)	2.3
Longest individual pause (median seconds)	15.3
Number of pauses longer than 10 seconds per case (median)	2

Includes 870 resuscitation-attempted cases for adults (age 16 and older), managed in manual defibrillation (not AED) mode – i.e. paramedic-attended, and compression data captured.



OUTCOMES

The total number of patients who survived their OHCA at 30 days in 2025 was 151 (148 adults and 3 children). This represents 11.6% of the 1306 OHCA patients who had resuscitation attempted. As shown in Table 19, of the 1306 resuscitation-attempted cases, 315 patients had ROSC at ED (24.1%).

Excluding EMS-witnessed cases, survival among resuscitation-attempted cases in 2025 was 22.0% for ROSC at ED and 9.1% for 30-day survival.

TABLE 19: PERCENTAGE SURVIVAL (OF RESUSCITATION ATTEMPTED CASES)

Measure	2021	2022	2023	2024	2025
% ROSC at ED	20.6%	19.7%	21.8%	23.0%	24.1%
% 30 Day Survival	10.5%	10.8%	10.9%	10.7%	11.6%

ADULT OUTCOMES ACCORDING TO INITIAL PRESENTING RHYTHM

Those OHCA patients who presented in shockable rhythms were most likely to have a favourable outcome. Of the adult patients who survived to 30 days, 75.7% were initially in a shockable rhythm (VF/VT) (n=112).

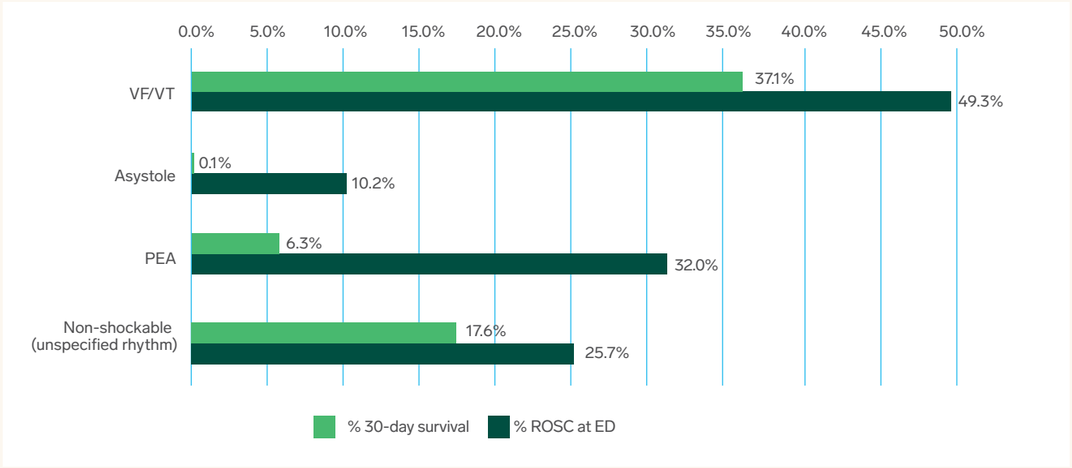
Asystole as a presenting rhythm is associated with poorer outcomes. A total of 68 adult patients in this group were recorded as ROSC at ED, with 1 survivor to 30 days. Other non-shockable rhythms had higher 30-day survival than asystole, however much lower than survival for shockable (VF/VT) patients. See Table 20 and Figure 7.

TABLE 20: NUMBER OF SURVIVORS BY INITIAL ARREST RHYTHM, FOR ADULTS

Rhythm	Total number of patients	ROSC at ED	30-day survivors
VF/VT	302	149	112
Asystole	667	68	1
PEA	206	66	13
Non-shockable (unspecified rhythm)	74	19	13
Unknown	16	9	9
TOTAL	1,265	311	148

Criteria: Excludes cases where resuscitation was not attempted, and cases where the patient was <16 years old.

FIGURE 7: SURVIVAL BY INITIAL ARREST RHYTHM FOR ADULTS



UTSTEIN COMPARATOR GROUP

The Utstein comparator group is defined as all-cause cardiac arrest in the community where the patient is witnessed to collapse by bystanders, presents with an initial shockable rhythm, and receives an EMS resuscitation attempt; it is the international standard for benchmarking system efficacy.[25]

TABLE 21: UTSTEIN COMPARATOR GROUP SURVIVAL BY YEAR

	2021	2022	2023	2024	2025
All of WA					
% ROSC at ED	47.7%	42.8%	47.7%	50.6%	46.4%
% 30 Day Survival	33.5%	32.8%	39.1%	35.9%	33.2%
Metropolitan Perth					
% ROSC at ED	49.3%	45.6%	49.3%	53.8%	50.9%
% 30 Day Survival	34.3%	35.4%	36.6%	37.7%	35.8%
Regional and Rural WA					
% ROSC at ED	42.9%	32.6%	43.6%	40.0%	34.4%
% 30 Day Survival	31.0%	23.3%	45.5%	30.0%	26.2%

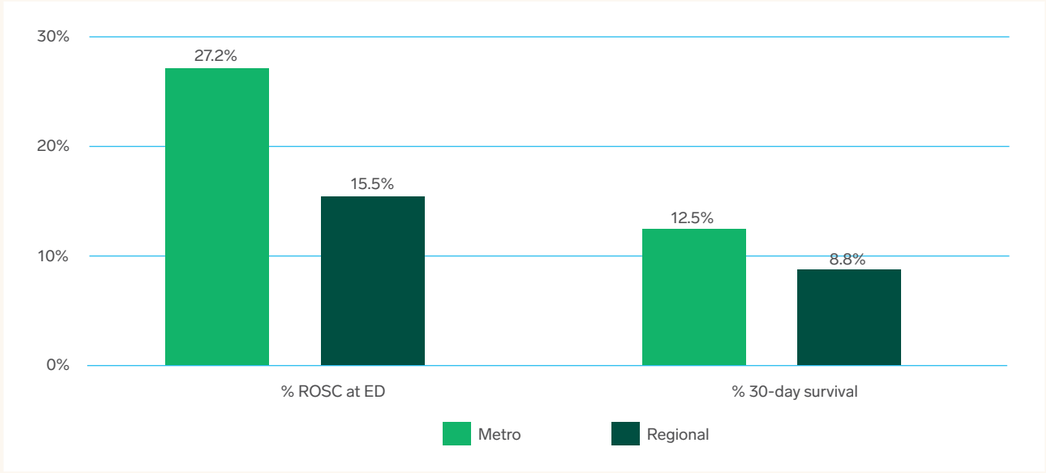
Resuscitation was attempted in 1306 patients, 604 (46.2%) of whom were witnessed (or heard) to collapse by a bystander. A shockable rhythm (VF/VT) was recorded in 220 (36.4%) of those cases. Of the 220 patients who had a bystander-witnessed arrest with an initial shockable rhythm, 202 (91.8%) received bystander CPR, 102 (46.4%) had ROSC at ED and 73 survived to 30 days (33.2%).

While the Utstein comparator group represented only 16.8% (220/1306) of patients with an EMS resuscitation attempt, they comprised 48.3% of all 30-day survivors (73/151).

OUTCOMES ACCORDING TO RURALITY

As of mid-2025, the Australian Bureau of Statistics recorded 3.0 million people living in WA, with 80.6% (2.5 million) in metropolitan Perth, and approximately 592,000 in regional WA. The majority of OHCA cases with attempted resuscitation occurred in metropolitan Perth (965/1306 = 73.9%).

FIGURE 8: COMPARATIVE OUTCOMES – METROPOLITAN PERTH VS REGIONAL WA

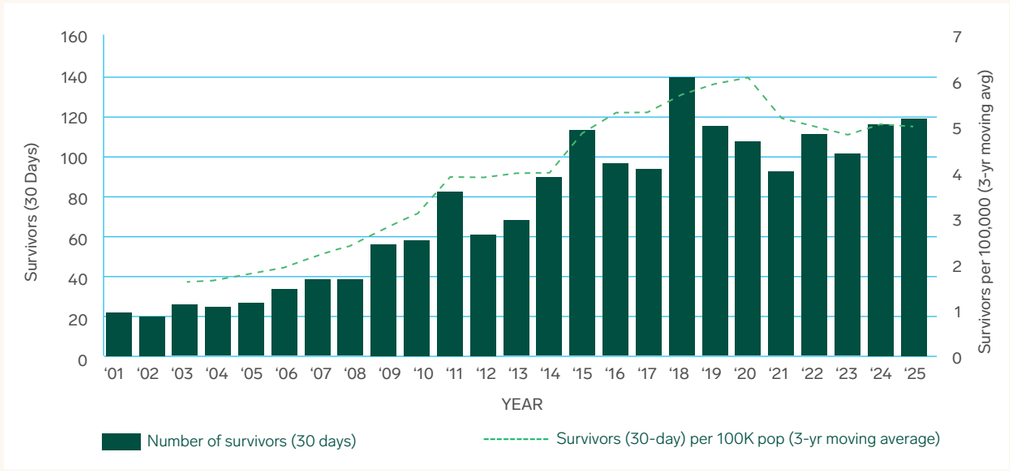


Criteria: Excludes cases where resuscitation was not attempted.

SURVIVAL PER 100,000 POPULATION

From 2023 to 2025 in the Perth metropolitan area, there was an average of 4.8 OHCA survivors (30-day survival) per 100,000 population per year. This metric is independent of differences between services (or over time) in the propensity for attempting versus withholding resuscitation.

FIGURE 9: NUMBER OF SURVIVORS, AND SURVIVAL PER 100K POPULATION (METRO PERTH)



OUTCOMES AT SCENE

TABLE 22: OUTCOMES AT SCENE

Outcome	Cases	%
Transported with ROSC	323	24.7%
Transported without ROSC	354	27.1%
Ceased at scene	629	48.2%
TOTAL	1306	100.0%

Criteria: Excludes cases where resuscitation was not attempted.

Among patients in 2025 where resuscitation was attempted, just over half were transported from the scene, either with or without ROSC. In the remainder of cases (48.2%), efforts were ceased on scene following a resuscitation attempt. St John WA's clinical practice is to prioritise high-quality resuscitation at the scene before considering transport.

OUTCOME BY DESTINATION HOSPITAL

All of WA's large tertiary teaching hospitals are located in Perth. Given that a large proportion of OHCA cases have a presumed cardiac cause, the odds of 30-day survival are much increased when patients are transported to a hospital with an on-site 24-hour primary percutaneous coronary intervention (PCI) service. In 2025, a total of 151 OHCA patients in Perth who had ROSC at the time of scene departure were transported directly to a PCI-capable hospital, of which 53.6% survived to 30 days. This contrasts with 27.8% 30-day survival in the 54 OHCA patients in Perth who had ROSC at scene departure and were transported to a non-PCI-capable hospital.

TABLE 23: 30-DAY SURVIVAL BY DIRECT TRANSPORT TO A PCI HOSPITAL

Transported to	2021	2022	2023	2024	2025	Total
PCI hospital	50.0%	58.6%	52.9%	51.6%	53.6%	53.3%
Non-PCI hospital	36.4%	39.2%	25.0%	29.3%	27.8%	31.9%

Criteria: Includes adult OHCA cases of presumed cardiac aetiology in metropolitan Perth, where EMS resuscitation was attempted, and the patient had ROSC at the time of being transported from the scene to hospital.

NEUROLOGICAL OUTCOMES AFTER OHCA

A vast majority of OHCA survivors in Western Australia are discharged with a favourable neurological outcome, defined as Cerebral Performance Category (CPC) 1 or 2 (or the same level as their pre-arrest baseline). CPC on discharge is collected by research nurses at PRECRU for patients admitted to a Perth metropolitan hospital.

TABLE 24: NEUROLOGICAL OUTCOMES ON HOSPITAL DISCHARGE

	2024	2025
All OHCA survivors		
30-day survivors	133	151
Favourable neurological outcome	116	142
Unknown neurological outcome	6	1
% favourable (of known outcome)	91.3%	94.7%
Utstein comparator group		
30-day survivors	61	73
Favourable neurological outcome	57	69
Unknown neurological outcome	3	0
% favourable (of known outcome)	98.3%	94.5%

APPENDICES

THE REGISTRY

In 1996, the SJWA out-of-hospital cardiac arrest database was established. It is maintained by the PRECRU team at Curtin University in Perth, WA, and includes all ambulance-attended OHCA cases in Western Australia.

The data is compiled from:

1. Computer aided dispatch data;
2. Pre-hospital clinical care and management data through ambulance patient records (electronic records became available from around mid-2011); and
3. Date of death, as well as hospital outcome data.

In 2014, a more comprehensive ability to capture state-wide data commenced, with research nurses manually reviewing hospital medical records to determine survival to hospital discharge. In addition, survival to 30 days is confirmed by checking the WA State Registry of Births, Deaths and Marriages.[26]

The database contains more than 55,000 OHCA records (as of 31 December 2025). De-identified data is shared with the Australasian Resuscitation Outcomes Consortium (Aus-ROC) OHCA Epistry (Epidemiological Registry)[27], which enables unique insights to be gained regarding OHCA patients across Australia and New Zealand.

All data is subject to ongoing quality improvement; with changes being incorporated and updated, including historical data, as needed.

DEFINITION OF OHCA

The database defines an OHCA patient as someone with no signs of circulation — specifically the absence of a carotid pulse, in combination with unconsciousness, and agonal or absent breathing; with the event occurring outside of hospital.

ELIGIBILITY

TABLE 25: SJWA OHCA DATABASE INCLUSION CRITERIA

	SJWA OHCA database inclusion criteria (all of the following):
1	All patients, of any age who suffer a cardiac arrest in an out-of-hospital setting. This includes residential aged care facilities.
2	Occurred in the state of Western Australia and were attended by SJWA.
3	a. All unconscious patients who are pulseless and not breathing (or have "agonal", gasping breaths) on arrival of SJWA; OR b. All patients who become unconscious, pulseless and stop breathing (or have initial "agonal", gasping breaths) in the presence of SJWA (i.e., EMS-witnessed arrests); OR c. Patients who have a pulse on arrival of SJWA having been successfully defibrillated by a bystander prior to the arrival of SJWA.

TABLE 26: SJWA OHCA DATABASE EXCLUSION CRITERIA

	SJWA OHCA database exclusion criteria (any of the following):
1	Any patient who suffers a cardiac arrest in a hospital facility where SJWA may be in attendance but are not the primary care providers.
2	Any patient who suffers a cardiac arrest during an inter-hospital transfer where SJWA may be providing transport but are not the primary care providers.
3	Any patient where the bystander or lay person suspected a cardiac arrest, but the patient is not in cardiac arrest on arrival of SJWA, and no defibrillation has occurred.
4	Patients with brief episodes of pulselessness who DO NOT receive CPR or defibrillation from SJWA.

DATA CAPTURE

The data fields in the SJWA OHCA database are based on the internationally agreed definitions that are outlined in the Utstein template from the International Liaison Committee on Resuscitation (ILCOR).[25]

Several data sources are used to capture OHCA cases in WA:

1. Computer aided dispatch (CAD) system database

CAD is an organisational database with comprehensive geographical and operational information collected by the SJWA State Control Centre. Specifically, the database includes date and incident location. The system timestamps key points such as the receipt time of the Triple Zero (000) emergency call, the dispatch time of the first ambulance, as well as the time of arrival at scene of the first ambulance. This data enables response time data to be accurately calculated.

2. Electronic patient care record (ePCR)

The ePCR records multiple data fields, including patient demographics, clinical assessment and management. Importantly, this includes identification of the cardiac arrest heart rhythms, defibrillation delivery (including bystander use of AED), as well as the administration of any cardiac arrest medicines. The ePCR was introduced in SJWA in 2011, with paper-based records used previously.

A sensitive but not specific electronic search strategy is conducted to identify potential cases from the CAD database to ensure the capture of all OHCA cases in WA attended by SJWA. A research nurse carefully scrutinises the results manually, and only those cases meeting the criteria for OHCA (Tables 25 and 26) are included in the SJWA OHCA database.

Presenting arrest rhythms and probable causes of OHCA are determined by manual review of the ePCR records.

Survival outcomes of 'return of spontaneous circulation' (ROSC) and 'ROSC on arrival at hospital' (i.e. event survival) are also obtained from the ePCR records.

3. Survival follow up

The 2020 OHCA report onwards reports the 30-day survival as the primary survival outcome, whereas previous reports outlined survival to hospital discharge. These two measures are almost 100 per cent equivalent in WA, with less than one in every 200 cases being discordant between the two measures among initial survivors to hospital.[20]

ETHICS APPROVAL

SJWA has given approval for the SJWA OHCA database to be managed at PRECRU (Curtin University) — under strict data access and security protocols. The Human Research Ethics Committee (HREC) at Curtin University has given approval for the SJWA OHCA database to be used for specific research purposes (Curtin HREC approval HRE2025-0301).

PRECRU has standing ethics approval, granted by individual hospital HRECs, to access relevant hospital medical records for the purposes of determining OHCA patient outcomes. The Registrar of Births, Deaths and Marriages in WA has approved PRECRU researchers to access the WA Death Registry for HREC-approved studies.

All data relating to the SJWA OHCA database is securely stored by PRECRU at Curtin University as per the PRECRU Data Access and Security Policy.

UTSTEIN OHCA FLOWCHARTS

In 2024, a revised Utstein reporting standard for out-of-hospital cardiac arrest (OHCA) was released.[25] This edition introduced standardised flowcharts designed to present patient and survival data in a consistent way to enable direct comparison between systems worldwide. The following flowcharts present St John WA's 2025 OHCA data in this format.

FIGURE 10: UTSTEIN OHCA FLOWCHART FOR SYSTEM EFFECTIVENESS (ATTEMPTED RESUSCITATION)

Population served

Population Served
3,044,382

Cardiac arrest treated

Cardiac arrest attended
3226

Cardiac arrest not treated	
NFR/AHD	306
Obviously deceased	1614

Cardiac arrest treated
1306

Population Characteristics

Patient characteristics	
Male sex	905
Initial shockable rhythm	306
Medical aetiology	1015
Witnessed by bystander	604
Witnessed by EMS	157
Bystander CPR	945
Public location	302 (incl. 29 EMS-witnessed*)

Patient Outcomes

Patient outcomes	
Any ROSC	415
Survived event (ROSC to ED)	315
Survived to 30 days	151
Favourable neurological outcome at discharge	142 (1 unknown)

* Location for EMS-witnessed arrests based on original location patient found

FIGURE 11: UTSTEIN OHCA FLOWCHART FOR SYSTEM EFFICACY (UTSTEIN COMPARATOR)

Population served

Population Served
3,044,382

Cardiac arrest treated

Cardiac arrest attended
3226

Cardiac arrest not treated	
NFR/AHD	306
Obviously deceased	1614

Cardiac arrest treated
1306

Bystander witnessed
604

Other witness	
Unwitnessed	545
EMS witnessed	157

Population Characteristics

Initial shockable rhythm
220

Initial non-shockable rhythms	
Asystole	234
PEA	107
Non-shockable (unspecified)	36
Unknown rhythm	7

Patient Outcomes

Patient outcomes	
Any ROSC	123
Survived event (ROSC to ED)	102
Survived to 30 days	73
Favourable neurological outcome at discharge	69 (0 unknown)

RESEARCH

SJWA and PRECRU are committed to research to understand and improve outcomes from OHCA. Along with our own internationally recognised research, we contribute data to the Aus-ROC registry[27] to enable wider epidemiological research. The following OHCA-related research outputs were published in 2025 by SJWA and/or PRECRU, or used SJWA OHCA data.

Aldridge ES, Perera N, Ball S, Whiteside A, Bray J, Finn J. Breaking down barriers: Call-taker strategies to address caller perception of inappropriateness of cardiopulmonary resuscitation during the emergency ambulance call. Resuscitation. 2025;206:110459.

Howell S, Nehme Z, Ball S, Doan T, Finn J, Bosley E, Faddy S, Dicker B, Swain A, Cameron P, Thorrowgood M, Thomas A, Perillo S, McDermott M, Green M, Packham N, Dantanarayana A, Cuthbertson J, Bray J, AUS-ROC Epistry Management Committee. The impact of the COVID-19 pandemic on resuscitation attempts, bystander CPR and survival outcomes in Australia and New Zealand: A binational population-based, Epistry study. Resusc Plus. 2025;22:100894.

Perera N, Riou M, Birnie T, Finn J, Whiteside A, Majewski D, Ball S. How likely is the patient to be in cardiac arrest? Caller breathing descriptors in ambulance calls that were dispatched as cardiac arrest. Resuscitation Plus. 2025;24:100990.

Perera N, Riou M, Birnie T, Whiteside A, Ball S, Finn J. Language barriers in emergency ambulance calls for cardiac arrest: Cases of missing vital information. Soc Sci Med. 2025;365:117623.

Talikowska M, Belcher J, Golling E, Majewski D, Ball S, Birnie T, Finn J. The quality of CPR delivered by EMS personnel wearing enhanced personal protective equipment during the COVID-19 pandemic: a retrospective cohort study from Perth, Australia. Resusc Plus. 2025;26:101062.

ACKNOWLEDGEMENTS

We acknowledge the following people who contributed to this report and the OHCA registry.

St John WA:
Jason Belcher
Caitlyn Pavey-Smith
Angelina Robins
Aja Styles
Megan Currie
Louise Biggs
Mikayla Collins
Carl Madigan
Nathan Nguyen
Prof Ian Jacobs (late)

PRECRU:
Prof Judith Finn
Dr Stephen Ball
Sheryl Gallant
Alani Morgan
Lyndall Finn
Tanya Birnie
Dr David Majewski

We also acknowledge the hospital site leads who participated in the *Functional status of survivors of out-of-hospital cardiac arrest in Western Australia project.*

ABBREVIATIONS

ABS	Australian Bureau of Statistics
AED	Automated External Defibrillator
AHD	Advance Health Directive
ANZCOR	Australian and New Zealand Committee on Resuscitation
Aus-ROC	Australasian Resuscitation Outcomes Consortium
CAD	Computer Aided Dispatch
CARES	Cardiac Arrest Registry to Enhance Survival
CFR	Community First Responder
CPC	Cerebral Performance Category
CPR	Cardio-Pulmonary Resuscitation
ED	Emergency Department
EMD	Emergency Medical Dispatcher
EMS	Emergency Medical Service
ePCR	Electronic Patient Care Record
HREC	Human Research Ethics Committee
ILCOR	International Liaison Committee on Resuscitation
MPDS	Medical Priority Dispatch System
NFR	Not for Resuscitation
OHCA	Out of Hospital Cardiac Arrest
PCI	Percutaneous Coronary Intervention
PEA	Pulseless Electrical Activity
PRECRU	Pre-hospital, Resuscitation and Emergency Care Research Unit
ROSC	Return of Spontaneous Circulation
SCC	State Control Centre
SJWA	St John Western Australia
SUDI	Sudden Unexpected Death in Infancy
VF	Ventricular Fibrillation
VT	Ventricular Tachycardia
WA	Western Australia

DEFINITIONS

30-day Survival
Where a patient is recorded as being alive 30 days after their out-of-hospital cardiac arrest.

Adults
Patients aged 16 years or greater, or where the age is missing/unknown (in the absence of the patient being described as a child).

Aetiology
The precipitating cause of a cardiac arrest (e.g. trauma, overdose/poisoning, asphyxia, presumed cardiac)

All-cause
Referring to OHCA cases of all aetiologies.

Asystole
Absence of any cardiac electrical activity.

Bystander witnessed
An out-of-hospital cardiac arrest that is witnessed by a bystander (seen or heard).

Community AED
Any AED that is, or has the ability to be, used to defibrillate a patient outside of a hospital setting prior to ambulance arrival.

Compression Fraction
The proportion of time during active resuscitation attempts where chest compressions are being performed.

Defibrillation
Providing an electrical shock to a patient in a shockable heart rhythm.

EMS attempted resuscitation
Cases where trained ambulance clinicians attempted to revive a patient in cardiac arrest using CPR and/or defibrillation, as well as any patients who received a defibrillator shock from bystanders.

EMS attended
Cardiac arrest events attended by trained ambulance personnel regardless of whether treatment was provided.

EMS response time
The time from the start of the emergency call to arrival of an ambulance crew on scene.

EMS witnessed
An out-of-hospital cardiac arrest that occurs in the presence of on-duty Emergency Medical Service personnel (paramedics and/or volunteer ambulance officers)

Event survival
Patients who have ROSC (a palpable pulse) on arrival at hospital as documented on the ePCR.

Metropolitan/Metro
Denotes the Perth metropolitan area (based on the Australian Bureau of Statistics classification for Greater Capital City Statistical Areas, 2016).

Non-shockable rhythm
Cardiac electrical rhythms which are not appropriate to receive a defibrillation shock. These rhythms include asystole and PEA.

Out of Hospital Cardiac Arrest
Where the patient has no signs of circulation. Specifically, when there is an absence of a detectable carotid pulse, the patient is unconscious/unresponsive, and has agonal/ absent breathing; with the event occurring outside of hospital.

Paediatrics/Children
Patients aged less than 16 years.

Paramedic
A healthcare professional registered with the Paramedicine Board of Australia as per the Health Practitioner National Law Act (WA) 2010. In the WA ambulance service context, career ambulance crews consist of registered paramedics who provide cardiac arrest care consistent with the ANZCOR Advanced Life Support algorithm.

Presumed cardiac
Cases where the cause of arrest is not due to a known precipitator (e.g., trauma, overdose/poisoning, asphyxial), as determined from the ePCR.

Priority 1
High priority emergency ambulance response, with immediate vehicle dispatch responding with lights-and-sirens to the scene.

Pulseless Electrical Activity
The absence of a palpable pulse, with organised electrical activity on an electrocardiogram (other than ventricular tachycardia).

Regional/Rural WA
Denotes areas outside the Perth metropolitan area.

Resuscitation attempted
See EMS attempted resuscitation.

Return of Spontaneous Circulation (ROSC)
Return of circulation to the body with a detectable pulse.

State Defibrillator Network activation
An event where an AED registered on the State Defibrillator Network is applied to a patient prior to ambulance arrival.

State Control Centre (SCC)
SJWA call centre for emergency ambulance Triple Zero (000) and non-urgent calls.

Shockable Rhythm
Cardiac electrical rhythms which are appropriate to receive defibrillation by ambulance clinicians, or from a bystander with a public AED. These rhythms include ventricular fibrillation and pulseless ventricular tachycardia.

Survival
May refer to Event Survival (ROSC on arrival at hospital) or 30-day Survival.

Triple Zero (000)
The Australian emergency telephone number used by the public to activate EMS (or other emergency services). In WA, Triple Zero (000) callers who request ambulance are connected to SJWA SCC.

Utstein comparator group
Patients who are witnessed to arrest by a bystander, present in a shockable rhythm, and receive EMS attempted resuscitation. This includes any patient who receives a bystander AED shock, as these patients are known to have a shockable initial rhythm.

Volunteer Ambulance Officer
Unpaid ambulance officer with relevant training and skill, volunteering ambulance services to their community. Volunteers provide cardiac arrest resuscitation consistent with the ANZCOR Basic Life Support standard.

REFERENCES

1. Australian Bureau of Statistics. Estimated Resident Population by SA2 and above (ASGS Edition 3) [Internet]. [cited 2025 Aug 22]. Available from: https://explore.data.abs.gov.au
2. American Heart Association in Collaboration with the International Liaison Committee on Resuscitation. ECC Guidelines. Part 4: The Automated External Defibrillator. Circulation. 2000;102(suppl_1).
3. Marijon E, Narayanan K, Smith K, Barra S, Basso C, Blom MT, et al. The Lancet Commission to reduce the global burden of sudden cardiac death: a call for multidisciplinary action. The Lancet. 2023;402(10405):883–936. doi:10.1016/S0140-6736(23)00875-9
4. Australian and New Zealand Committee on Resuscitation. ANZCOR guidelines [Internet]. 2025. Available from: https://www.anzcor.org
5. St John Ambulance Australia. Call to make automated external defibrillators (AEDs) as common place as fire extinguishers to save lives [Internet]. 2024. Available from: https://stjohn.org.au/assets/uploads/Media_Release_Call_for_AEDs_to_be_as_common_place_as_fire_extinguishers_14th_October_2024_Embargoed_2.pdf
6. Ambulance Victoria. Victorian Ambulance Cardiac Arrest Registry (VACAR) Annual Report 2024/25 [Annual report] [Internet]. Ambulance Victoria; 2026. Available from: https://www.ambulance.vic.gov.au/sites/default/files/2026-03/VACAR-Annual-Report-2024-2025.pdf
7. Australian Resuscitation Outcomes Consortium (Aus-ROC). Aus-ROC Australian and New Zealand OHCA Epistry: 2023 Data [Data report (infographic)] [Internet]. Aus-ROC, Monash University; 2026. Available from: https://www.ausroc.org.au/aus-roc-2023-data/
8. Cardiac Arrest Registry to Enhance Survival (CARES). CARES 2025 Non-Traumatic National Utstein Report [Annual report] [Internet]. CARES, Emory University; 2026. Available from: https://mycares.net/sitepages/uploads/2026/CARES%202025%20Non-Traumatic%20National%20Utstein%20Report.pdf
9. Sundhedsvæsenets Kvalitetsinstitut. Dansk Hjertestop Register Årsrapport 2026 [Internet]. Aarhus, Denmark: Sundhedsvæsenets Kvalitetsinstitut; 2026. Available from: https://www.sundk.dk/digital-aarsrapport/dansk-hjertestopregister-2026/
10. Deutsches Reanimationsregister. Ausserklinische Reanimation 2024 (Deutsches Reanimationsregister, Jahresbericht). Anaesthesiol Intensivmed. 2025;66:V99–109.
11. Fire and Disaster Management Agency (FDMA). Reiwa 7 Edition: Current State of Emergency and Rescue Services (Kyukyu-Kyujo no Genkyo) [Annual statistical report] [Internet]. Ministry of Internal Affairs and Communications, Fire and Disaster Management Agency; 2025. Available from: https://www.fdma.go.jp/publication/rescue/post-7.html
12. Hato Hone St John, Wellington Free Ambulance. Out-of-Hospital Cardiac Arrest in Aotearoa New Zealand: National Report 2024/25 [Annual report] [Internet]. Hato Hone St John; 2026. Available from: https://www.stjohn.org.nz/globalassets/documents/hq4782a-2025-ohca-all-nz_feb26_lq.pdf
13. NSW Ambulance. NSW Ambulance Out-of-Hospital Cardiac Arrest Registry 2024 Report [Annual report] [Internet]. NSW Ambulance; 2026. Available from: https://www.ambulance.nsw.gov.au/__data/assets/pdf_file/0008/1059236/DE1061-OHCAR-2024-Report_V5.pdf
14. University of Warwick Out-of-Hospital Cardiac Arrest Outcomes (OHCAO) Registry. OHCAO Epidemiological Report 2024: England Overview [Annual epidemiological report] [Internet]. University of Warwick, Warwick Clinical Trials Unit; 2025. Available from: https://warwick.ac.uk/fac/sci/med/research/ctu/trials/ohcao/publications/epidemiologyreports/ohcao_epidemiological_report_2024_england_overview_v1.0_09.09.2025.pdf
15. Queensland Ambulance Service. Queensland Ambulance Service Out-of-Hospital Cardiac Arrest and Prehospital STEMI Annual Report 2023/24 [Annual report] [Internet]. Queensland Ambulance Service; 2025. Available from: https://www.ambulance.qld.gov.au/__data/assets/pdf_file/0033/477519/Cardiac-Arrest-Report-202324.pdf
16. Scottish Ambulance Service. Scotland's Out-of-Hospital Cardiac Arrest Report 2024-25 [Annual report] [Internet]. Scottish Ambulance Service; 2025. Available from: https://www.scottishambulance.com/media/1h1dlfqj/ohca-report-2024-25-v2.pdf
17. Tjelmeland IBM, Kramer-Johansen J, Yusuf F, Olsen S, Andersson LJ, Arild J, et al. Norsk hjertestansregister Årsrapport for 2025 (Norwegian Cardiac Arrest Registry Annual Report for 2025) [Internet]. Data year 2025. Oslo, Norway: Oslo University Hospital / NAKOS (Norwegian Institute of Public Health); 2026 Jun. Available from: https://kvalitetsregistre.fnsp.nhn.no/49dd5e/siteassets/dokumenter/arsrapporter/hjertestansregisteret/1.0-arsrapport-norsk-hjertestansregister-for-rapporteringsaret-2025.pdf
18. Public Health – Seattle & King County. Emergency Medical Services Division 2026 Annual Report [Internet]. Seattle, WA, USA; 2026. Available from: https://cdn.kingcounty.gov/-/media/king-county/depts/dph/documents/health-safety/health-programs-services/emergency-medical-services/reports/2026-annual-report.pdf
19. National Ambulance Service Out-of-Hospital Cardiac Arrest Register (OHCAR). Out-of-Hospital Cardiac Arrest Register (OHCAR) 18th Annual Report 2025 [Internet]. Data year 2025. Ireland: Health Service Executive (HSE) National Ambulance Service; 2026 Sep. Available from: https://about.hse.ie/publications/out-of-hospital-cardiac-arrest-register-ohcar-annual-report-2025/
20. Majewski D, Ball S, Bailey P, McKenzie N, Bray J, Morgan A, et al. Survival to hospital discharge is equivalent to 30-day survival as a primary survival outcome for out-of-hospital cardiac arrest studies. Resuscitation. 2021;166:43–8. doi:10.1016/j.resuscitation.2021.07.023
21. Australian Bureau of Statistics. Treating aggregate data [Internet]. 2021. Available from: https://www.abs.gov.au/about/data-services/data-confidentiality-guide/treating-aggregate-data
22. International Academies of Emergency Dispatch. Medical Priority Dispatch System (MPDS) | Emergency Dispatch - IAED [Internet]. Available from: https://www.emergencydispatch.org/what-we-do/emergency-priority-dispatch-system/medical-protocol
23. Bækgaard J, Viereck S, Møller T, Ersbøll A, Lippert F, Folke F. The Effects of Public Access Defibrillation on Survival After Out-of-Hospital Cardiac Arrest. Circulation. 2017;136(10):954–65.
24. Resuscitation Academy. 10 Steps for Improving Survival from Cardiac Arrest [Internet]. Available from: https://static1.squarespace.com/static/5f74bfd9d36c8e051d674096/t/5fa45d26fdac785ba7122783/1604607278614/10_steps_2019.pdf
25. Bray JE, Grasner JT, Nolan JP, Iwami T, Ong MEH, Finn J, et al. Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports: 2024 Update of the Utstein Out-of-Hospital Cardiac Arrest Registry Template. Circulation. 2024;150(9):e203–23. doi:10.1161/CIR.0000000000001243
26. WA Department of Justice. The Registry of Births, Deaths and Marriages [Internet]. Available from: https://www.wa.gov.au/organisation/department-of-justice/the-registry-of-births-deaths-and-marriages
27. Australasian Resuscitation Outcomes Consortium. Aus-ROC [Internet]. Available from: https://www.ausroc.org.au/

ST JOHN WA

209 Great Eastern Highway,
Belmont WA 6104
T 08 9334 1222

stjohnwa.com.au

St John