Australian Hearts

Submission to the 2018 Review of the Model WHS Laws

30 April 2018

Executive Summary

30,000 Australians die every year from sudden cardiac arrest and many of these deaths would be preventable if an Automatic External Defibrillator (AED) was in reach.

That's why Australian Hearts is calling on governments across the country to work together to improve access to AEDs and save more Australian lives.

This Review of model Work Health and Safety Laws presents an opportunity to make workplaces safer for workers, and in many cases, for members of the public, through the mandating of AEDs at work.

We want to see an Australia where, if a friend or workmate has a cardiac arrest, you'll be able to find an AED within 3 minutes. We know if it can be done that fast, your friend has a real chance of making a full recovery.

Just like first aid kits and fire extinguishers, AEDs can save lives and we need them in the workplace.

With 30,000 Australians dying every year from sudden cardiac arrest, the Australian Hearts campaign is calling on government to amend workplace health and safety laws and mandate AEDs in the workplace.

This submission outlines the current deficiencies in the workplace health and safety arrangements and how they can be improved.

To find out more about the campaign visit: www.australianhearts.com

Introduction

Australian Hearts welcomes this opportunity to make a submission to assist Ms Marie Boland's review of how the model WHS laws are operating in practice, whether they are achieving the objects stated in the model WHS Act or if they have resulted in unintended consequences.

The submission focuses only on the issue of cardiac arrests which occur in the workplace, irrespective of whether or not the arrest has been caused by the workplace activity. Cardiac arrest is the number one killer in Australia.

Workplaces have become safer through the activities of all stakeholders including mandating access to First Aid kits and trained First Aiders who must be able to undertake CPR.

Australian Hearts submits that the model Act, Regulations and Codes need to be updated to reflect the latest developments in responding to cardiac arrests by mandating Automatic External Defibrillators (AEDs) and training in their use.

This submission outlines the nature and size of the issue, the many significant benefits that come with addressing the issue and the required changes to the model WHS regime needed to address the issue.

Background - Sudden Cardiac Arrest

Sudden cardiac arrest is a sudden loss of blood flow resulting from the failure of the heart to effectively pump. Some 30,000 Australians die from SCA each year, making it Australia's biggest killer. Survival of SCA in Australia is estimated to be 12%, or 25% is the SCA is witnessed by a by-stander. Survival in other parts of the world is as high as 65% for witness SCA.

SCA can occur in any circumstance, from sleeping to working to playing sport. There are many contributing factors to SCA. These include but are not limited to diet, weight, exercise or lack of exercise, stress, genetic factors, though it is important to note that many SCA occur to young and otherwise healthy Australians.

Case Study – Brett Orpwood is a SCA survivor

In February 2018, 39 year old father of two, Brett Orpwood suffered an SCA despite being slim, otherwise healthy and highly active.

"I owe my life to the spontaneous actions and courage of the first responders and the defibrillator granted by Maroondah Council."

Doctors have since confirmed to Brett, a rare survivor that they have no idea why he suffered a SCA.

https://www.gofundme.com/defibrillators-for-parkrun

The McKell Institute's 2013 Report, *AEDs on Australian worksites: A low cost proposal to save lives* articulates the case for improving access to AEDs in Australian workplaces.

SCA deaths are occurring in Australian workplaces. Unfortunately data is not available to quantify how many, though it is likely to be a larger number than all other causes of workplace death put together.

W. www.australianhearts.com E. [redacted]

Is SCA a workplace health and safety issue?

A SCA can happen at anytime and anywhere, and do routinely occur in Australian workplaces.

NSW data from 2012 shows that for cardiac arrest calls to Ambulance NSW some 59% were deceased when the ambulance arrived[1]. Approximately a third of calls occurring during working hours and 25% were from a workplace[2] (where location was recorded or assigned based on land use of census cell for address).

Work-related traumatic injury fatalities from injuries caused by work-related activity have commendably continued to decline year on year over the last decade[3]. The definition of work-related fatalities includes those that result from an injury sustained during a work activity (worker fatality) and because of someone else's work activity (bystander fatality). The definition excludes certain fatalities which might occur in the workplace because they are due to:

- iatrogenic injuries—the worker died due to medical intervention;
- natural causes such as heart attacks and strokes, except where a work-related injury was the direct cause of the heart attack or stroke;
- diseases, such as cancers; or
- self-inflicted injuries (suicide).

In other words, fatalities from cardiac arrest that take place in a workplace are not recorded as workplace fatalities by Safe Work Australia. But as the Ambulance NSW data discussed above outlines, workplaces across Australia see a significant number of treatable cardiac arrests. Whilst the workplace may indeed have contributed to the timing of the event (due to activities undertaken in the workplace), the absence of reporting these deaths as workplace fatalities is indeed failing to identify a need for improvement under the model Act, Regulations and Codes present structure

Do workplaces cause Sudden Cardiac Arrest?

The Victorian Government has acknowledged stress is often work related[4]. The Victorian government has stated that

> *"It is important for employers to recognise work-related stress as a significant health and safety issue."*

Stress has been demonstrated to contribute to SCA. One study published in 2013[5], examining 7268 people over an 18 year period found that people reporting higher levels of stress had a 49% higher risk of coronary heart disease (leading cause of SCA) than those who were not stressed.

Coronary Heart Disease has been demonstrated to be the leading cause of SCA. A study by Myerburg and Junttila[6] found that coronary heart disease is present in about 80% of SCA victims.

---

[1] NSW Health *Epidemiology of out-of-hospital cardiac arrests, NSW, 2012: Time, place and person* Table 2, pg.5. This study was done specifically to inform AED policy.
[2] Ibid. Table 3, pg.6
[3] Safe Work Australia *Work-related Fatalities* https://www.safeworkaustralia.gov.au/statistics-and-research/statistics/fatalities/fatality-statistics visited 2 April 2018.
[4] https://www.betterhealth.vic.gov.au/health/healthyliving/work-related-stress visited 10 April 2018
[5] Nabi, Herman et al *Increased risk of coronary heart disease among individuals reporting adverse impact of stress on their health: the Whitehall II prospective cohort study* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3766148/
[6] Robert J. Myerburg, M. Juhani Junttila *Sudden Cardiac Death Caused by Coronary Heart Disease* Circulation. 2012;125:1043-1052 http://circ.ahajournals.org/content/125/8/1043

W. www.australianhearts.com E [redacted]

There is not one factor that is the sole causal factor that accounts for the some 30,000 SCA deaths annually in Australia. There is clear evidence that workplaces contribute to the disease state that is present in SCA victims and also to triggering the actual SCA event.

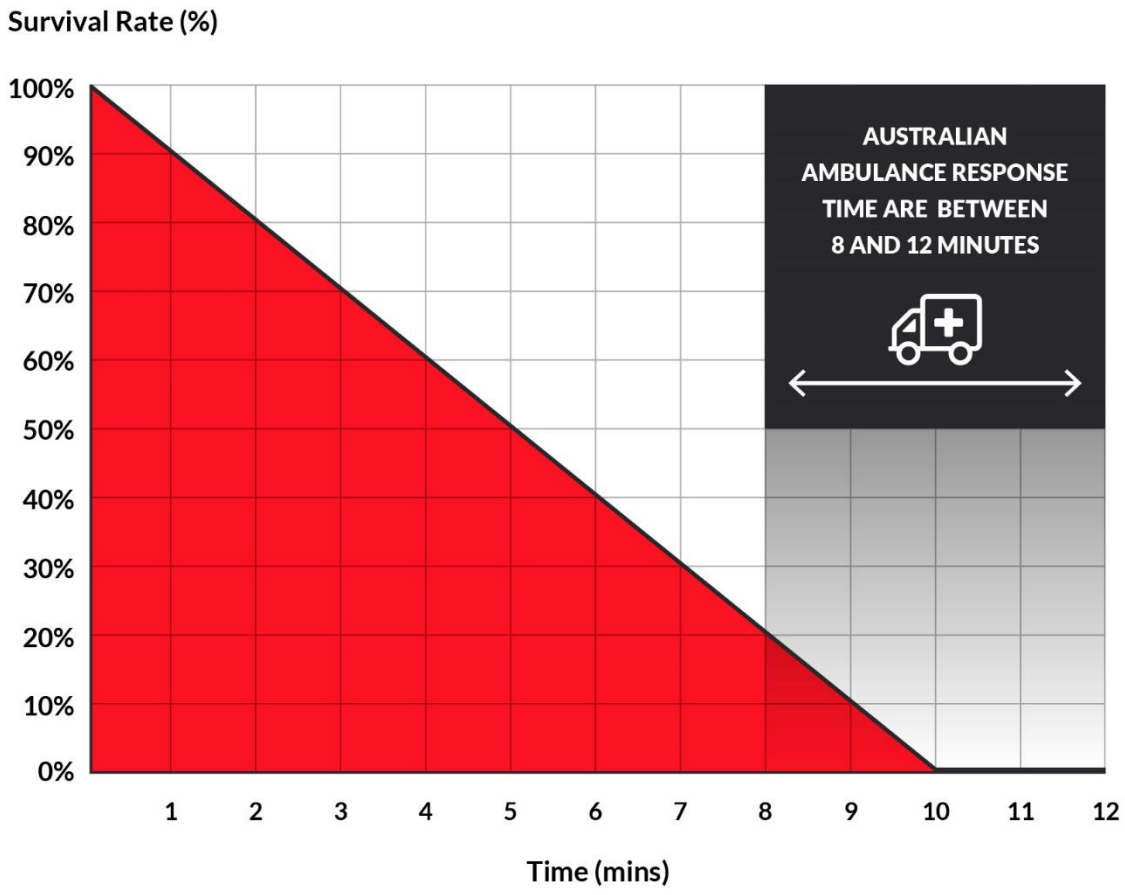
Is death from Sudden Cardiac Arrest preventable?

If you have a cardiac arrest and it is not witnessed or you are not found shortly after the event, then you will not receive lifesaving treatment and you will die.

Fortunately for many, SCA occur in various locations where the victim is surrounded by other people. This includes public spaces, sporting facilities and workplaces to name a few. To focus on workplaces specifically, for a victim to have the best chance of survival three things need to happen. Firstly someone needs to call 000, secondly someone needs to start CPR and thirdly the victim needs defibrillation.

Australian Ambulance response times are between 8-12 minutes. The cruel reality of a cardiac arrest is your heart is on a deadline like no other. The sooner it receives a shock from a defibrillator the higher the chance that the victim will survive.

Figure One: Survival from a SCA is time dependent



In Australia, recent Ambulance data shows witnessed SCA survival is around 27%. This translates into only 1 in 4 SCA's in Australian workplaces having a positive outcome.

W. www.australianhearts.com E. [redacted]

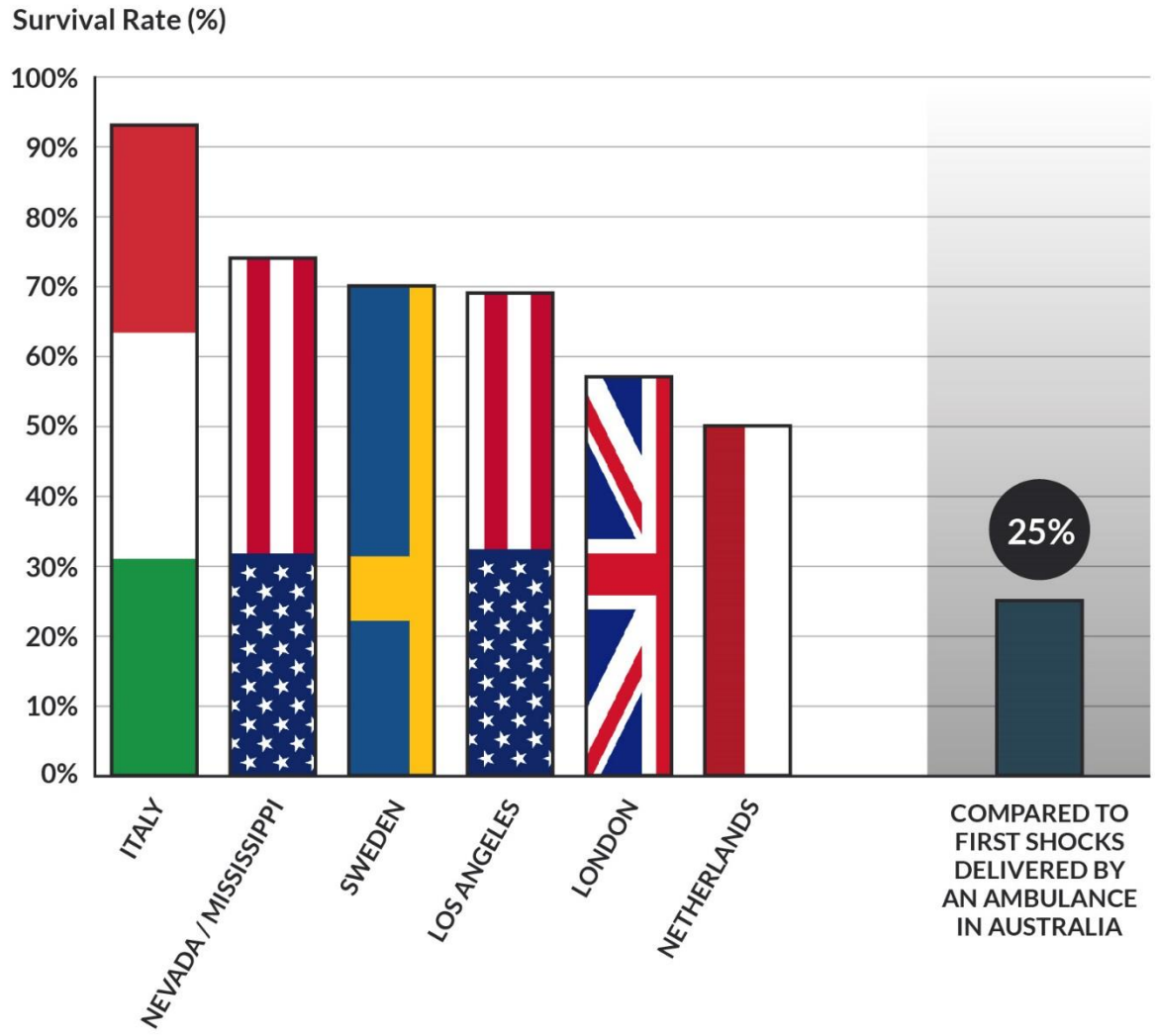
What will save more workplace SCA victims?

Ambulance Victoria have demonstrated that Victorian SCA victims that receive their first shock from an by-stander who utilises an AED have a 1.96x higher change of surviving the event (55%) than those that wait for a Victorian Ambulance (28%).

Global studies over the past 20 years have provided similar outcomes. These studies have repeatedly demonstrated the link between AEDs and surviving a SCA. In addition these studies have demonstrated that higher survival outcomes are achieved when the first shock is delivered within 3 mins.

The chart below demonstrates a small number of these studies and focuses on studies that published data on first shock being delivered within 3 – 4 minutes.

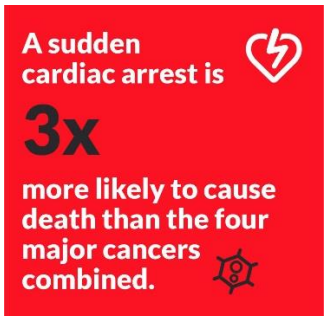
Figure Two: Australian survival rates compare badly with global rates

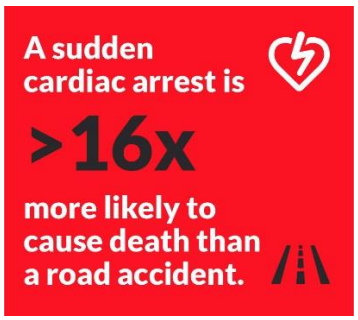


If Australian workplaces made AEDs available to their workforces, either within 5 mins through a shared AED, or within 3 minutes through an onsite AED the evidence suggests Australian workers would be protected from death in the workplace either twice or three times as effectively as today.

Size of the issue v. other causes of death

There is a lack of data around exactly where SCA occurs. Considering the time we spend at home, either sleeping or recovering from work, it is not surprising that most SCAs occur at home. In terms of time, second to home for most people is work. On average Australians spend about 20% of their time at work (7.5 hours per day, 5 days per week, 48 weeks per year). It is reasonable to assume that thousands of SCA deaths are occurring in workplaces just based on time people spend at work.





It is estimated that **56** people die annually from fire related events. Whilst still too high, Australia should be applauded for a huge focus on early identification of fire (smoke alarms) and empowering Australian's to deal with fire by making fire extinguishers mandatory.

In 2015 the national road toll was a horrible **1209**. Between 2006 and 2015, Australia's road toll declined 33.4 per cent[7]. Mandatory changes to road safety, driver education and other factors have all come together to save lives.

In 2018 there will be more than **30,000** deaths from SCA.

SCA is the single largest health issue facing Australian workplaces.

[7] International Road Safety Comparisons—Annual https://bitre.gov.au/publications/ongoing/international_road_safety_comparisons.aspx visited 10 April 2018

Current Protection in the Act or available to workplace victims of SCA

The current model *Code of Practice for First Aid in the Workplace*[8] reflecting Regulation 42 states that businesses must provide access to sufficient number of people trained to administer first aid. The Code continues:

> *First aiders should hold nationally recognised Statement/s of Attainment issued by a Registered Training Organisation (RTO) for the nationally endorsed first aid unit/s of competency. Provide First Aid - provides competencies required to recognise and respond to common life-threatening injuries or illnesses, including life-support using cardiopulmonary resuscitation (CPR), and to manage the casualty and incident until the arrival of medical or other assistance.*
>
> *In low risk workplaces, first aiders are sufficiently trained if they can perform CPR and treat minor illnesses and injuries.*

In other words, every workplace must provide access to a person trained in CPR. In fact, during the accredited first aid training, each student is exposed to the importance and use of an AED in responding to a cardiac arrest. AEDs are recognised as a key part of delivering first aid and yet are not mandatory. This would be like training fire wardens on how to use fire extinguishers but then not having fire extinguishers in the workplace or perhaps training truck drivers on seat belts but then not requiring them in trucks.

To be clear, workplace First Aid is ineffective in protecting Australian workplaces from SCA because accredited personal are not provided the equipment to treat the most common and most serious health event that occurs and is in part caused by the workplace.

A first-aider with an AED is literally the best protection possible for a workplace SCA victim.

Case Study – McKell Institute's AEDs on Australian worksites: A low cost proposal to save lives

The McKell Institute's 2013 Report, *AEDs on Australian worksites: A low cost proposal to save lives* articulates the case for improving access to AEDs in Australian workplaces. [9]

The report highlights the case of Harri Paananen, who suffered a cardiac arrest at Redfern train station in 2010.

In 2009-10, the NSW Government installed 104 fully monitored AEDs in 45 CityRail stations, 14 CountryLink stations, all CountryLink trains, the Emergency Response Unit, seven maintenance depots and other corporate locations.

It was due to this rollout of AEDs that Mr Paananen, a member of the public, was given a second chance at life.

After collapsing on the floor of the station manager's office, RailCorp staff used an AED from a nearby room and placed it on Mr Paananen. Doctors said he died seven times throughout the ordeal before ultimately being brought back to life.

[8] Available at https://www.safeworkaustralia.gov.au/doc/model-code-practice-first-aid-workplace
[9] Available at http://etunsw.asn.au/HealthAndSafety/aeds

This example also highlights the benefits to the public of mandating AEDs in work environments that are exposed to the public.

Automatic External Defibrillators are not mandatory in Australian Workplaces

The government authority *Safe Work Australia* leads the development of national policies to improve Workplace Health and Safety (WHS) arrangements across Australia including since 2011, a single set of model WHS laws.

In 2017 the State, Territory and Federal Government Ministers responsible for WHS agreed to review the content and operation of the model WHS laws. Led by Marie Boland, the review will be evidence-based and propose actions that may be taken by WHS Ministers to improve the model WHS laws or identify areas of the model WHS laws that require further assessment and analysis following the review.

The inquiry commenced in February 2018 and is due to report by year end.

The model WHS Act, model WHS Regulations and Model Codes of Practice, which have been implemented across Australia set the rules for safe workplaces and the training, kit and technology that must be available such as a First Aid Kit.

The model WHS Act currently states that its object, among other things, is:

> "*protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work*".

Further, the model Act states in achieving the object that the principle must be:

> "*that workers and other persons should be given the highest level of protection…as is reasonably practicable."*[10]

But without AEDs and the required training being mandated in the Codes of Practice, Australian Hearts submits that this worthy objective is not being met in many workplaces. Both the object and principle is not being met, as AED's aid to minimise the risk of death from SCA in the workplace, and mandating their presence in the workplace is absolutely reasonably practicable to do so, however they are not presently mandated and therefore the risk is not being treated.

The current model *Code of Practice for First Aid in the Workplace*[11] states only that businesses:

> "*should consider whether any other first aid equipment is necessary to treat the injuries or illnesses that could occur as a result of a hazard at your workplace*,"

This includes AEDs, meaning they are currently not mandated. The Code only mandates First Aid Kits and trained First Aiders. It is argued that workplaces do not possess sufficient skills to identify if their workplace and cohort of employees are indeed statistically more susceptible to sudden cardiac arrest, and from that determine if they should have an AED. Stronger leadership from the model Act, Regulations and Codes design is required to assist workplaces with this decision and move to protect all working Australians at risk of SCA.

[10] 2018 Review of the model WHS laws: Discussion Paper pg.45
[11] Available at https://www.safeworkaustralia.gov.au/doc/model-code-practice-first-aid-workplace

W. www.australianhearts.com E. [redacted]

Specifically, regarding AEDs the Code states that:

> "p*roviding an automated external defibrillator can reduce the risk of fatality from cardiac arrest. It is a* ***useful addition*** *for workplaces where there is a risk of electrocution or where there are large numbers of members of the public."* (emphasis added).

As AEDs are not mandated, only some forward-thinking employers and organisations have made them available in their workplaces. The above Code reference does in fact go so far as to potentially misguide workplaces that they should only be considering AED's under the two stated conditions (electrocution and large numbers of members of public). In order for survival rates to materially increase relating to SCA in the workplace, the AED needs to become mandatory and easily accessible by Australian workers in any work environment.

According to St John NSW research, just one in five workplaces in NSW have an AED installed, with less than 30% of employees having received training in how to use one[12].

Stakeholders in the area agree that

> *"A number of stakeholders believed that survival rates from sudden cardiac arrest could be improved by saturation of AEDs in public areas. These stakeholders believed that the installation of AEDs should become part of a standard duty of care for public liability and workplace safety for larger organisations, and other developments such as regulation and incentive schemes were identified as important drivers of a shift to non-government funded PAD.*
>
> *The quantitative findings confirmed that government guidelines for safety in the workplace would be a greater driver for organisations to purchase AEDs, compared to concern for the general health and safety of the public."*[13]

AED training needs to be incorporated into standard first aid training.

The ad hoc approach to AED regulation and provision across the country prevents them from being rolled out in a methodical and comprehensive way, resulting in inequitable access to this life saving technology.

We all agree that First Aid Kits and fire extinguishers plus training in their use must be mandatory in workplaces because they save lives. AEDs do the same, however much like a fire extinguisher or first aid kit, if they are not there when required the consequences are disastrous and Australian worker lives will be lost.

Currently, the model WHS Code does not go far enough and that must change.

This is a critical opportunity to reform the WHS laws, regulations and codes to remove the inequitable access to AEDs and training; and reduce the number of avoidable deaths from 41 per day.

Would mandating AEDs be an unreasonable cost on business?

No. AED's have become very affordable over the past decade. Published prices before negotiation for single units range between $1999 and $2999. We are aware of large volume AED purchases

[12] St John NSW, *St John hammers home workplace safety* (4 October 2017) http://www.stjohnnsw.com.au/st-john-nsw-hammers-home-workplace-safety/ visited 2 April 2018.
[13] Department of Health. 2008 p.10

W. www.australianhearts.com E. [redacted]

being made for less than $1500 a device though suspect that prices are even lower than that in many situations.

AED's last for approximately 8 years, and often require a battery and electrode pad replacement at the 4 year mark. This replacement costs a further one off $150 - $300.

Considering that Australian workplaces are a contributor to SCA in Australia, and these SCA's are occurring in workplaces it seems reasonable to ask employers to invest between $1999 and $2999 in providing protection for workers.

Response to Question 3: Have you any comments on whether the model WHS Codes adequately support the object of the model WHS Act?

Australian Hearts submits that the current model *Code of Practice for First Aid in the Workplace* does not adequately support the object of the model WHS Act.

It fails to do this by not mandating AEDs nor requiring training in their use by persons trained in first aid, to support the mandatory requirement of CPR training and thereby enhance the chances of survival from a cardiac arrest which might occur in the workplace.

In no circumstance are AEDs mandatory under the model *Code of Practice for First Aid in the Workplace*, even if there is a risk of electrocution or large numbers of the public present in a particular workplace. In such circumstances it is advisory only, and this therefore becomes misleading to all other workplace environments when considering AED's. This could not be said to represent the model WHS Code adequately supporting the objectives of the Act.

AEDs are now so reasonably and practically available for all circumstances and in all workplaces that mandating them in the Code would ensure compliance with the objectives of the model Act in ensuring the highest level of protection.

Response to Question 9: Are there any remaining, emerging or re-emerging WHS hazards or risks that are not effectively covered by the model WHS legislation

Australian Hearts submits that cardiac arrest which occurs in the workplace, and is not caused by the work, is a remaining risk of fatality that is not being effectively addressed in the model WHS legislation. The current situation is inequitable and is a lottery.

The current requirement, that if there is a risk to a bystander of the work causing a cardiac arrest, then an AED should be present, is a lottery. In such a workplace, if a bystander suffers a cardiac arrest (not because of the work being undertaken there) they are more likely to survive as a result of the business having provided an AED. Inequitably, if that bystander steps next door into a business without an AED as the risk of the work undertaken there causing a cardiac arrest is deemed low, survival is less certain.

It is also clear that many workplaces are public spaces, so the population at risk from a cardiac arrest increases. The Code makes tentative recognition of this risk and obligation to consider only.

In regards to cardiac arrest which occurs in the workplace, and is possibly caused by the work, Australian Hearts submits that this is also an emerging risk not effectively covered by the model

W. www.australianhearts.com E. [redacted]

WHS legislation. There is a growing body of work which connects workplace stress and sudden cardiac arrest. For example, and as mentioned previously, the Victorian Government has acknowledged stress is often work related[14]. The Victorian government has stated that:

> *"It is important for employers to recognise work-related stress as a significant health and safety issue."*

Stress has been demonstrated to contribute to SCA. One study published in 2013[15], examining 7268 people over an 18 year period found that people reporting higher levels of stress had a 49% higher risk of coronary heart disease (leading cause of SCA) than those who were not stressed.

Coronary Heart Disease has been demonstrated to be the leading cause of SCA. A study by Myerburg and Junttila[16] found that coronary heart disease is present in about 80% of SCA victims.

It is these remaining and emerging WHS hazards that Australian Hearts submits are not effectively addressed by the model WHS laws.

About Australian Hearts

Australian Hearts is a campaign involving ordinary Australians, doctors, emergency service organisations, AED manufacturers and suppliers, not-for-profits, marketers and others who are all united by a desire to make AEDs easily accessible to all Australians to save lives. The campaign is committed to working together with and a long side any individual or organisation that shares our objective.

As of today, 1,360 members of the public have signed our petition to mandate AEDs in the workplace, a petition that has only been in effect for a short number of weeks.

Australian Hearts is not a commercial operation. It doesn't supply, sell, service or provide training in the use of AEDs.

We are applying to be a registered charity.

[14] https://www.betterhealth.vic.gov.au/health/healthyliving/work-related-stress visited 10 April 2018
[15] Nabi, Herman et al *Increased risk of coronary heart disease among individuals reporting adverse impact of stress on their health: the Whitehall II prospective cohort study* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3766148/
[16] Robert J. Myerburg, M. Juhani Junttila *Sudden Cardiac Death Caused by Coronary Heart Disease* Circulation. 2012;125:1043-1052 http://circ.ahajournals.org/content/125/8/1043

Attachment One: What is a cardiac arrest?

Cardiac arrest is a sudden loss of blood flow resulting from the failure of the heart to effectively pump. Symptoms include loss of consciousness and abnormal or absent breathing. Some individuals may experience chest pain, shortness of breath, or nausea before cardiac arrest. If not treated within minutes, it usually leads to death.

The most common cause of cardiac arrest is coronary artery disease. Less common causes include major blood loss, lack of oxygen, very low potassium, heart failure, and intense physical exercise.

The initial heart rhythm is most often ventricular fibrillation. The diagnosis is confirmed by finding no pulse. While a cardiac arrest may be caused by heart attack or heart failure, these are not the same.

Prevention includes not smoking, physical activity, and maintaining a healthy weight. Treatment for cardiac arrest include immediate cardiopulmonary resuscitation (CPR) and, if a shockable rhythm is present, defibrillation.

What is the heart doing when it's in 'fibrillation'?

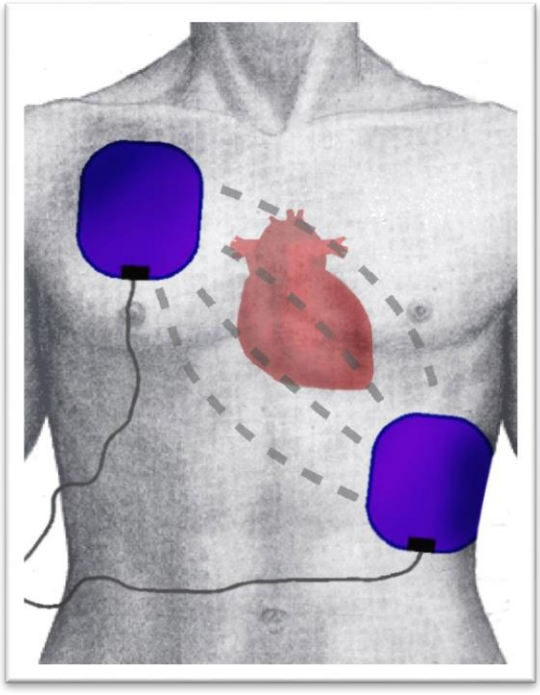
Cardiac fibrillation is an irregular and uncoordinated contraction of the heart muscle. In this condition the normal electrical pulses coming from the sinoatrial node are overwhelmed by disorganized electrical impulses from within the heart. This makes the heart look like a quivering 'bowl full of jelly' and ineffective pumping of blood.

Treatment is defibrillation.

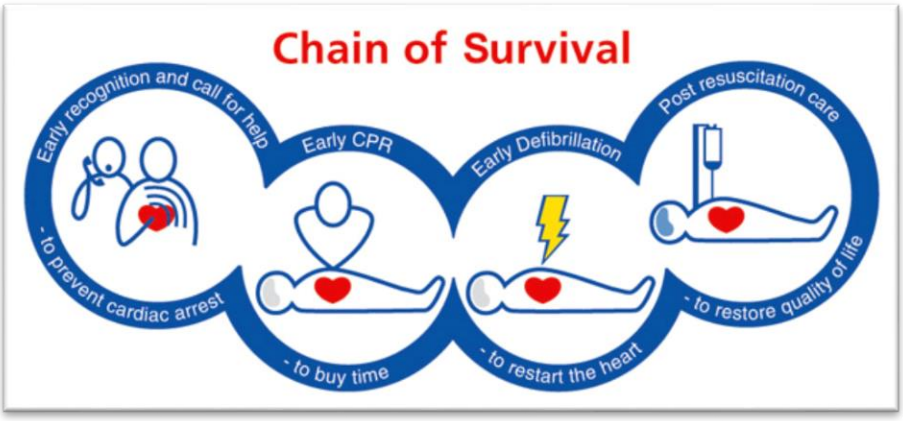
What is defibrillation

A defibrillator delivers a dose of electric current to the heart. This depolarizes a large amount of the heart muscle, ending the fibrillation. Subsequently, the body's natural pacemaker in the sinoatrial node of the heart is able to re-establish normal sinus rhythm and heart beat.

Figure Three: Defibrillation



Attachment Two: Pre-Hospital Chain of Survival



1: Early recognition and '000' call for help

If untreated, cardiac arrest occurs in a quarter to a third of patients with myocardial ischaemia (Heart Attack) within the first hour after onset of chest pain.

Once cardiac arrest has occurred, early recognition is critical to enable rapid activation of the ambulance service and prompt initiation of bystander CPR.

2: Early bystander CPR

The immediate initiation of bystander CPR can double or quadruple survival from out-of-hospital cardiac arrest. Despite this compelling evidence, only 50%-60% of victims receive bystander CPR in Australia.

3: Early defibrillation

Defibrillation within 3–5 minutes of collapse can produce survival rates as high as 50–75%. This can be achieved through public access defibrillation, when a bystander uses a nearby AED to deliver the first shock. Each minute of delay to defibrillation reduces the probability of survival to hospital discharge by 10%. In the Australia, fewer than 20% of victims receive early defibrillation by an AED.

4: Early advanced life support and standardised post-resuscitation care

Advanced life support with airway management, drugs and the correction of causal factors may be needed if initial attempts at resuscitation are unsuccessful. The quality of treatment during the post-resuscitation phase affects outcomes.