



Defibrillators

All-Party Parliamentary Group for Defibrillators

Inquiry into defibrillator access and sudden cardiac arrest survivorship in the UK

Concluding Report

20th March 2024

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EXECUTIVE SUMMARY & RECOMMENDATIONS

The All-Party Parliamentary Group (APPG) for Defibrillators has undertaken a detailed inquiry into the current policy and wider landscape surrounding defibrillator access and sudden cardiac arrest survival in the UK. The primary aim of the inquiry was to understand the impact of out-of-hospital sudden cardiac arrest on society and public services, as well as the need for improved access to defibrillators.

This final report is based on evidence which has been obtained through public inquiry sessions, and written submissions to the APPG from industry stakeholders and sudden cardiac arrest survivors. The APPG heard from a wide range of stakeholders including charitable organisations championing defibrillator access, to healthcare practitioners working in the field.

Our first APPG inquiry session, focused on defibrillator supply chain shortages and found that there were significant delays in the UK's defibrillator supply due to global supply chain issues. The evidence we received from defibrillator manufacturers indicated that the current cost of defibrillators is also impacting demand in the UK. Defibrillators costs around £750 to £2000 with inflation causing the prices of defibrillators to increase from 8-10%. It was evident that the industry was lacking entry level suppliers at lower prices, however the APPG has been made aware of promising technological developments in the field.

One of the most discussed topics throughout the inquiry was the need to increase defibrillator access, and to guarantee that they are placed in areas where they are most required. This should be achieved in tandem with greater first aid training, so the population is able to recognise a sudden cardiac arrest and have the confidence to take action. In an inquiry session, MPs were presented with data from a recent study by the East of England Ambulance Service which took place over a six-month period and found that public access defibrillators are being used in just one in ten cardiac arrests in the East of England. The research proved that people are lacking the fundamental CPR skills to respond to a sudden cardiac arrest, and that they are also hesitant to use a defibrillator.

The APPG also heard from first-aid providers who discussed the current CPR training environment. There have been great initiatives in this field to improve first aid training in communities but also in schools. MPs heard how first aid training, including incorporating CPR and defibrillators usage into the school curricula can be pivotal in ensuring younger generations have the skills needed to address sudden cardiac arrests. Furthermore, the APPG heard from first aid professionals who referenced international examples which have greatly improved first aid training. The United Kingdom can join nearly half of the countries in Europe who teach CPR training through the driving licence test. This public health initiative is low cost and provides a greater foundation of CPR knowledge among the UK population who may not otherwise be trained¹. For example, in Denmark, individuals have a legal requirement to complete an 8-hour course in traffic related first aid before they complete their driving test which has resulted in an exponential increase in the populations first aid skills and subsequently an improvement in out of hospital sudden cardiac arrest survival rates².

¹ European Resuscitation Council, '[Learn to Drive Learn CPR!': A lifesaving initiative for the next generation of drivers](#)', May 2023

² Gavin D Perkins, *et al* '[National initiatives to improve outcomes from out-of-hospital cardiac arrest in England](#)', June 2016

The Group also received evidence from sudden cardiac arrest survivors who shared their personal experiences. One of the main obstacles faced by survivors is the lack of support they receive following a sudden cardiac arrest. Unlike rehabilitations services for strokes or a heart attack, there is currently no national formal care pathway for cardiac arrest survivors across England. It is also important to note that sudden cardiac arrests can be traumatic for by-standers. With 80% of sudden cardiac arrest occurring in the home³, it is most likely that a family member will be the person having to perform CPR or use a defibrillator. MPs were made aware that many families suffer with post-traumatic stress and there is a lack of mental health services available for families and survivors. If there is an increase in sudden cardiac arrest survivorship, and if we are also able to increase first aid training, then it is likely that there will be more people performing by-stander CPR, therefore it is critical that there are mental health support pathways in place for both survivors and by-standers following a sudden cardiac arrest so that the population will be supported navigating the effects and impact of a sudden cardiac arrest.

The APPG hopes that through this inquiry and its wider campaigning efforts the chances of surviving an out of hospital sudden cardiac arrest will be greatly improved, through greater first aid training and increased defibrillator access.

We are very grateful to all those who have taken the time to participate in our inquiry, all of whom have added greatly to the knowledge of the group. We look forward to working with stakeholders to improve defibrillator access and sudden cardiac arrest survival rates. We hope that these recommendations will be carefully considered and acted upon.

From the findings of our inquiry, in this report we recommend the following:

Defibrillator Access

- **Mandate for defibrillators to be in every building in the same way as smoke alarms.** Use legislative levers such as the Building Safety Act to ensure defibrillators are mandated in every building or construction which are often used by the public, similar to the precedent set by the likes of Italy and Canada, making sure these have minimum accessible standards.
- **Consider mandating defibrillators in all new homes.** With the risk of death from out-of-hospital sudden cardiac arrests higher than those caused by fire, and the majority of these happening at home, the precedent that has been set with EV chargers in new builds should be replicated for defibrillators.
- **Mandating defibrillators in all emergency service vehicles.** With no guarantee on who can arrive to an incident of an out-of-hospital sudden cardiac arrest first, it is vital that all emergency services are equipped with the vital life-saving equipment.
- **Publish progress on the defibs4schools programme.** Ensuring there is transparency over the progress on how many defibrillators are in each school is vital to ensure all pupils are protected and the aims of the programme are realised.

³ Warwick University, '[Out of Hospital Cardiac Arrest Overview: English Ambulance Services 2022](#)', December 2022

- **Consider the criminalisation of damaging defibrillators.** As life-saving equipment, bad actors should be deterred and penalised from preventing people from having access. Considerations around insurance and who remains responsible for upkeep should be discussed within the same consultations.

First Aid Training

- **Comprehensive CPR Training and defibrillator use:** The Government should mandate defibrillator training as part of CPR training which is already included in the school curriculum. This training should not only impart practical skills but also instill the confidence to take action during a sudden cardiac arrest.
- **The inclusion of CPR training for primary school children.** Recognising the potential impact of early education on building life-saving skills, we advocate for the mandatory inclusion of CPR training in the curriculum for all school children and for this to be monitored in schools, as there is no current evidence to suggest it is being rolled out in an equitable fashion.
- **Early Initiation:** CPR and first aid training should be introduced at an age-appropriate level, starting from primary school. This will ensure that children grow up with the necessary knowledge and confidence to respond effectively during emergencies.
- **Integration with Driving License:** Similar to other countries, the Government should consider integrating first aid training, including CPR, into the process of obtaining a driving license. This would enable a wider reach of training and reinforce its importance in a person's life.

Sudden cardiac arrest survivorship support

- **Review care and treatment pathways for everyone affected by a Cardiac Arrest:** Establish a care programme for sudden cardiac arrest survivors following their cardiac arrest which GPs & other relevant medical practitioners, can refer to when advising patients.

Solution Providers

- **Encourage and welcome advancements in defibrillator technology:** through research grants and partnerships, the Government can accelerate the advancement and acceptance of pioneering defibrillator solutions. Additionally, revising regulatory frameworks can streamline the introduction of new defibrillator technologies into the market.
- **Promote and advance new technology in first aid assistance:** the Government should work leading organisations such as GoodSAM to promote new technologies in first aid assistance to improve the public's confidence in providing bystander CPR.
- **The Government to review the introduction of a targeted, national cardiac screening programme:** similar to countries such as Italy, the Government should consider introducing a cardiac screening programme which is focused on certain

population groups i.e. young competitive athletes or families with a history of heart disease.

CHAPTER 1: BACKGROUND

The APPG for Defibrillators was established in January 2023 by Chair, Jonathon Gullis MP, to raise awareness for out of hospital cardiac arrests and to increase access to defibrillators. It seeks to both explore the challenges patients face, champion organisations, and understand what government action is needed to overcome those issues. Since the establishment of the APPG, the Group has been able to provide a forum for parliamentary discussion on the issues surrounding sudden cardiac arrest (SCA) and defibrillators, whilst providing evidence-based solutions to improve the survival rate of SCA.

The APPG for Defibrillators felt the need to investigate this issue due to the concerning statistics surrounding sudden cardiac arrest in the UK. Every year, 160,000 deaths are a result of heart and circulatory diseases, equating to nearly a quarter of all deaths in the UK⁴. Out-of-hospital cardiac arrests (OHCA) affect over 100,000 people per year in the UK. A resuscitation attempt is carried out by the emergency services on approximately 34,000 people. Most (around 80%) out-of-hospital cardiac arrests (OHCAs) occur in the home, and around half are witnessed by another person. Early recognition, CPR and defibrillation significantly improves the chance of survival⁵.

More than 30,000 out-of-hospital cardiac arrests are reported each year whilst, as of 2021, the survival rate has remained persistently low at 8.5%⁶. It is clear, therefore, that more needs to be done by the Government to address this issue and to help improve survival rates of sudden cardiac arrest, particularly those that occur outside of hospital.

Throughout the inquiry sessions that have taken place, the APPG for Defibrillators have also learnt of the lack of defibrillator access in public places, schools and in vehicles of emergency services throughout the UK. In particular, the APPG was troubled to learn of the great regional disparities in defibrillator access and maintenance, that undoubtedly will have an impact on the low survival rates of sudden cardiac arrests that were mentioned above. Data has revealed that in some parts of the country, patients are twice or three times more likely to survive than in other areas⁷.

The APPG for Defibrillators would like to offer our appreciation and recognition to the invaluable efforts of The Oliver King Foundation, Resuscitation Council UK (RCUK), the British Heart Foundation (BHF) and SADS UK in campaigning on this issue. Collectively, these organisations have played a pivotal role in raising public awareness for sudden cardiac arrests and the vital need to improve defibrillator access in numerous environments.

Currently the Government has made two major announcements focused on improving access to defibrillators in the UK. First, on 22nd July 2022, the Department for Education (DfE) announced a new initiative that intends to provide all state-funded schools without a defibrillator across England with a device by the end of the 2022/23 academic year. Within its announcement, DfE referred to the crucial work that has been undertaken by the Oliver King Foundation to raise awareness for defibrillator access and to make them mandatory in all schools.

⁴ British Heart Foundation, [‘Facts and Figures’](#), December 2023

⁵ Brooks *et al* [‘Optimizing Outcomes After Out-of-Hospital Cardiac Arrest With Innovative Approaches to Public-Access Defibrillation: A Scientific Statement From the International Liaison Committee on Resuscitation’](#) February 2022

⁶ Warwick University, [‘Out-of-hospital cardiac arrest outcomes registry’](#) December 2023

⁷ Warwick University, [‘Out-of-hospital cardiac arrest outcomes registry’](#) December 2023

In addition, on the 28th June 2023, the Department of Health and Social Care (DHSC) announced the Government would be devoting £1 million to the Community Automated External Defibrillators Fund. As part of this initiative, DHSC said that it hoped the Fund would provide approximately 1,000 new defibrillators for public places. On September 22nd 2023, the portal for community organisations to begin bidding was opened. Within this, DHSC outlined that 100 applications will receive a fully funded AED whilst 1900 applications will receive partial DHSC funding for an AED.

Whilst the APPG for Defibrillators welcomes these positive measures announced by the Government so far, it is clear more needs to be done to improve defibrillator access, to increase survival rates of sudden cardiac arrest, and ultimately save lives. We hope that the following report will provide further clarity and guidance on how this can be achieved. Furthermore, as this report and its recommendations have been informed by extensive research and engagement with relevant stakeholders through evidence inquiry sessions, we feel this report represents a collective interest and alignment on key areas for further progress to be made.

CHAPTER 2: ACCESS TO DEFIBRILLATORS

There is currently no legislation in the UK which obliges certain businesses or premises to provide an AED under UK law. Recently the Government announced new plans to ensure state-funded schools across England receive defibrillators. Having met with the Oliver King Foundation, the APPG strongly welcomed this Government development. However, while there can be liability in negligence for failing to take appropriate safety precautions on your premises more broadly, access to a defibrillator is still too often scarce. There exists huge discrepancies in the availability and maintenance of defibrillators, to the detriment of survival rates from out-of-hospital sudden cardiac arrests, alongside limited accountability over who should be providing such access.

There have been a number of initiatives and programmes led by organisations such as the British Heart Foundation, Resuscitation Council UK, St John Ambulance and the Government to increase the provision of AEDs. These first concentrated on large transport centres such as airports and major railway stations. Later provision has started to include sports arenas, large shopping centres, and most recently a commitment to increase the provision of defibrillators in every state school. Even then, many defibrillators never get used in the instance of an out-of-hospital cardiac arrest because people and emergency services do not know where they are or how to access them. Such a delay contributes to low survival rates.

In response to this issue, the British Heart Foundation set up The Circuit in partnership with the Association of Ambulance Chief Executives, Resuscitation Council UK and St John Ambulance in an attempt to highlight access. This brings together each of the defibrillator databases from the 14 ambulance services across the UK into one. It also gives the opportunity for individuals, or ‘guardians’, to register their defibrillator with its location and status then instantly synchronised with the emergency services’ systems, keeping information up to date⁸. Many witnesses pointed to The Circuit as a useful resource in helping to direct people to their nearest defibrillator⁹.

This programme provides an important network that is crucial to understanding more about defibrillator access in the UK. There are still some teething problems in some information needing further updating, such as details around getting into a cabinet. However, the APPG heard reassurances that these issues are being ironed out and the Government could consider where it can provide support on this.

One of these areas includes highlighting The Circuit as a resource individuals can use and register their defibrillators. Many contributing to our inquiry noted that individuals should register their defibrillators on The Circuit and the importance of encouraging individuals to do so. The Government is aware of The Circuit, ensuring all AEDs funded by the Community Automated External Defibrillators fund are registered. It could then look to amplify messages to raise awareness of the option to register.

Another issue which was highlighted to the APPG by The Ashley Jolly SAD Trust, SADS UK, was the issue of returning a defibrillator back to its owner (guardian) following its use. As the defibrillator is often taken from the original site it can be lost or difficult to reunite the defibrillator with its Guardian (owner) and make rescue-ready again, leading to delays. The Group

⁸ British Heart Foundation, [‘Big push to pass milestone of 50,000 defibrillators on pioneering database’](#), July 2022

⁹ British Heart Foundation, [The Circuit](#), March 2024

recommends that defibrillator guardians consider the use of tags and stickers on defibrillators which give the contact details of their owner to ensure they can be found and re-used.

Postcode lottery for Defibrillator Access

While there have been such initiatives to have defibrillators in the most appropriate places, these have not led to lasting change. A study conducted by the National Institute for Health and Care Research highlighted inequalities in access to defibrillators. Of note, 45% of the most affluent areas had at least 1 device, compared with the most deprived areas where only 27% of those had at least 1 device. In fact, according to a pioneering study published in the *Journal Heart*, people living in the most deprived areas of England and Scotland are on average 99 and 317 metres further away from their nearest 24/7 defibrillator than those in the least deprived areas, respectively. Similarly, the average public access defibrillator is 726 metres away from the centre of any given postcode along the road network across Great Britain – a 19 minute walk there and back¹⁰. In addition, 64% of urban areas had at least 1 device compared with 36% of rural areas. Defibrillators were also more common in areas in which most people are white as well as being more common in places with fewer residents and more places of work¹¹.

This research highlights that there is no coordinated national strategy to ensure that automated defibrillators are placed in the areas where there is the highest need. Previous work has shown that most cardiac arrests occur in more deprived areas, yet these areas are less likely to have access. More affluent areas are more likely to be able to fundraise for more defibrillators, for example, there are nearly 4x more public defibrillators in the Southeast than Northeast registered on The Circuit¹². Additionally, further research has shown that 80% of out-of-hospital cardiac arrests occur in residential areas¹³, yet these areas are also less likely to have access to a defibrillator. This is exacerbated alongside the National Institute research showing rural areas are less likely to have access to a defibrillator, where it typically takes longer for a person experiencing a cardiac arrest to receive the emergency care they need.

This was also confirmed by a number of witnesses during the APPG's inquiry. In particular, Resuscitation Council UK noted that most people who survive a sudden cardiac arrest receive a postcode lottery of treatment and that there is a lack of consistency in provision¹⁴.

Further issues with this landscape

The APPG heard from a member of the public whose 18-year-old son fell victim to an out-of-hospital sudden cardiac arrest and tragically passed away. The Group heard his life was cut short because a defibrillator was not available when he collapsed at 2am while out with his friends, with the nearest device locked away inside their school. The Group also heard that the situation arose due to ambulance response times falling short of the target. Emergency services instead dispatched a police car that they believed to be equipped with a defibrillator. However, upon arrival, the Group heard that the defibrillator was not present in the police car after all, and consequently, the critical treatment he urgently needed was denied¹⁵.

¹⁰ British Healthcare Trades Association, Defibrillator APPG Q&A response, 2023

¹¹ National Institute for Health and Care Research, '[Public access defibrillation: challenges and new solutions](#)', April 2023

¹² British Healthcare Trades Association, Defibrillator APPG Q&A response, 2023

¹³ University of Warwick Clinical Trials Unit, '[Out-of-Hospital Cardiac Arrest Outcomes \(OHCAO\)](#)', November 2023

¹⁴ APPG for Defibrillators Inquiry Evidence Session, '[Defibrillator Access](#)', April 2023

¹⁵ APPG for Defibrillators Inquiry Evidence Session, '[Defibrillator Access](#)', April 2023

This story exemplifies a number of issues. First, while there are efforts to increase access to defibrillators, these can be inaccessible at times of need. Out-of-hospital sudden cardiac arrests happen at random and without any warning. And, in the same way that it should not be left to luck to be near a defibrillator, there should also not be a curfew on that access.

Secondly, the APPG heard from a number of witnesses, including former professional footballer David Ginola, who raised concerns around the general maintenance of defibrillators¹⁶. Currently, there is ambiguity around who is liable for a defibrillator that could be used by a member of the public. As such, there is a risk for defibrillators to go out of date or be faulty at the point of use.

Thirdly, emergency services play a significant role in providing the crucial treatment needed to save a life. Yet, too often they are not able to meet current needs with the limited number of defibrillators they have. Research has shown there are disparities in the spread of devices registered to each ambulance service with 20% of areas in the Northeast service having a device, while 64% of areas in the East Midlands had one¹⁷.

With limited access to defibrillators within the service and delayed wait times, other emergency services could bridge that gap. However, the APPG heard that only 1 in 11 police cars have access to a defibrillator. The Group since carried out a number of Freedom of Information requests on police forces across the UK to understand the number of vehicles that carried defibrillators. This investigation found that while some forces have the highest number of defibrillators, in 27% of their vehicles, a large number of forces have defibrillators in less than 1.5% of their vehicles. This renders police forces largely unable to successfully attend an out-of-hospital sudden cardiac arrest incident.

And finally, when considering the lack of physical access both publicly and within emergency services, this is exacerbated by the current cost of most defibrillators in the market and overall reliance from people on general provision of devices. With the average defibrillator costing up to £2,000, there is considerable friction in the ability for people to empower themselves and the communities around them to have the tools necessary to save a life. While the APPG was introduced to a few new and innovative devices which look to reduce this burden, alongside general perceptions of defibrillator prices and health provision in the UK, there is limited awareness of how individuals and community organisations can take accountability to be well prepared.

Schools

The APPG strongly welcomed the recent Government push to ensure every state-funded school across England has a defibrillator device on its premises. This initiative builds upon recommendations made a decade ago by key sector, which advised schools to include defibrillators as part of their essential First Aid Equipment. It is also a much-needed step building on existing requirements for schools to teach first aid and it is a clear signal for people to be well-prepared for any incident. The APPG received a large amount of evidence around this programme and how it can be rolled out most effectively. It heard discussions around ensuring the defibrillators are not locked inside the schools, the use of cabinets and that, for some schools which are significantly larger, one defibrillator would not be sufficient. The APPG would welcome engagement with the Government and team working on the programme's

¹⁶ APPG for Defibrillators Inquiry Evidence Session, '[Defibrillator Access](#)', April 2023

¹⁷ National Institute for Health and Care Research, '[More automated defibrillators are needed in deprived areas](#)', March 2022

rollout to share this evidence and ensure the desired results of the programme are fully realised.

Private versus public access

A national coordinated strategy to increase access to defibrillators would provide a number of benefits. Notably, it would ensure areas with a higher proportion of deprivation would have an equal level of access to the life-saving equipment, giving people in these areas an equal chance of survival. And, on top of that, it would signal to individuals that this should be a priority in any considerations around supporting their health and safety. As such, any strategy should build in principles which incentivise individuals to feel empowered to also purchase devices for themselves, supplementing the overall approach to increasing access.

Associated risks

Most Automated External Defibrillators (AEDs) situated in public areas are housed within protective cabinets, a measure taken due to understandable concerns regarding potential theft or vandalism¹⁸. However, securing these cabinets could inadvertently lead to delays in accessing the AED during emergencies. Organisations within the sector spoke to the APPG and emphasised the importance of swift access and recommended that cabinets are unlocked.

It was often flagged to the Group that bad actors target public access defibrillators for graffiti or damage. This is highly unacceptable with equipment that has the potential to save lives. Yet, incidents of theft or vandalism targeting AEDs, whether locked or unlocked, have been relatively rare. While any such occurrence renders the device useless, should there be a perceived risk of theft or vandalism, it's recommended to seek professional guidance, such as from the local police crime prevention service, to address the issue effectively. The priority should instead be on minimising delays in accessing the AED during critical moments. However, to strongly disincentivise such bad actors, the Government should consider holding people to account for how such equipment is treated in public places, whilst considering where liability sits for keeping defibrillators serviced to ensure that when people do find a defibrillator, they are not prevented from using it because it is broken.

Recommendations to Government

- **Mandate for defibrillators to be in every building in the same way as smoke alarms.** Use legislative levers such as the Building Safety Act to ensure defibrillators are mandated in every building or construction which are often used by the public, similar to the precedent set by the likes of Italy and Canada, making sure these have minimum accessible standards.
- **Consider mandating defibrillators in all new homes or carrying out campaigns which signal the benefits of personal empowerment.** With the risk of death from out-of-hospital sudden cardiac arrests higher than those caused by fire, and the majority of these happening at home, the precedent that has been set with EV chargers in new builds should be replicated for defibrillators.
- **Mandating defibrillators in all emergency service vehicles.** With no guarantee on who can arrive to an incident of an out-of-hospital sudden cardiac arrest first, it is vital that all emergency services are equipped with the vital life-saving equipment.

¹⁸ Resuscitation Council UK, [A guide to AEDs](#), December 2019

- **Publish progress on the defibs4schools programme.** Ensuring there is transparency over the progress on how many defibrillators are in each school is vital to ensure all pupils are protected and the aims of the programme are realised.
- **Consider the criminalisation of damaging defibrillators.** As life-saving equipment, bad actors should be deterred and penalised from preventing people from having access. Considerations around insurance and who remains responsible for upkeep should be discussed within the same consultations.

CHAPTER 3: AWARENESS AND PREVENTION

Current Scenario and Gaps in Knowledge

Out-of-hospital cardiac arrests affect over 100,000 people per year in the UK. A resuscitation attempt is carried out by the emergency services on approximately 34,000 people. Most (around 80%) out-of-hospital cardiac arrests (OHCAs) occur in the home, and around half are witnessed by another person¹⁹. Early recognition, CPR and defibrillation significantly improves the chance of survival. With low access to life-saving equipment survival rates are dismally low. This is exacerbated by the lack of skills and confidence to perform CPR amongst the UK population. During a sudden cardiac arrest, every moment counts, and a timely response from a bystander armed with CPR skills can be the difference between life and death. A poignant testament to this reality comes from David Ginola, the former French professional footballer, who, having experienced a sudden cardiac arrest seven years ago, passionately shared how his life was saved thanks to timely CPR intervention. Mr. Ginola, having collapsed and effectively "died" for eight minutes after his heart stopped, underscores the life-saving impact of CPR in such dire situations.

However, according to research commissioned by YouGov of over 4,000 adults across the UK, over a third of UK adults (33%) have never learned CPR²⁰. Nearly half of them (47%) cited a lack of awareness about where to learn, and a quarter (24%) expressing a lack of confidence in learning the skill. Astonishingly, only 51% of respondents believed they could perform CPR on a loved one during a sudden cardiac arrest, even though around 80% of out-of-hospital cardiac arrests occur at home²¹.

The statistics that only half of UK adults currently feel equipped to perform CPR is a stark reminder of the gaps in public preparedness. This pressing issue necessitates urgent measures to empower individuals with the skills and knowledge needed to intervene effectively during these critical moments.

Dr. Thomas Keeble, a Consultant Cardiologist at Essex CTC and Associate Professor at Anglia Ruskin University, presented additional insights to APPG. His research reveals a concerning statistic: defibrillators are employed in just one out of ten cardiac arrest cases where these life-saving devices are available²². The study's methodology involved data sourced from the East of England Ambulance Service and The Circuit.

The research delved into various other factors, including the density of defibrillators in different geographical areas, the number of cardiac arrests, and the frequency of defibrillator usage. The study's six-month analysis, covering April to September 2022, reported a total of 1,649 cardiac arrests in the East of England. Alarmingly, despite public access defibrillators being within 500 meters of the cardiac arrest location in 1302 cases (79%), they were employed in only 132 cases (10%)²³. The research reveals a dual challenge in our preparedness efforts –

¹⁹ Brooks et al [‘Optimizing Outcomes After Out-of-Hospital Cardiac Arrest With Innovative Approaches to Public-Access Defibrillation: A Scientific Statement From the International Liaison Committee on Resuscitation’](#) February 2022

²⁰ The British Heart Foundation, [‘Only half of UK adults confident they could perform CPR on a loved one’](#), February 2023

²¹ The British Heart Foundation, [‘Only half of UK adults confident they could perform CPR on a loved one’](#), February 2023

²² The British Heart Foundation, [‘Defibrillators used in just 10 per cent of out of hospital cardiac arrests study show’](#), June 2023

²³ The British Heart Foundation, [‘Defibrillators used in just 10 per cent of out of hospital cardiac arrests study show’](#), June 2023

not only are people inadequately equipped with CPR skills, but there is also a noticeable hesitancy in utilising defibrillators when they are accessible. This study also reiterates that fewer defibrillators were available in socioeconomically deprived areas, again necessitating a crucial conversation about equitable defibrillator placement within communities.

For every minute without CPR and defibrillation, a person's chance of survival drops by about 10%²⁴ and this research showcases the pressing need to improve awareness and education around CPR and defibrillation.

Empowering Through Education: The Role of Schools

An essential avenue to address this challenge lies within the education system. Integrating comprehensive first aid training, including CPR and defibrillator usage, into school curricula can play a pivotal role in equipping the younger generation with life-saving skills. The current state of confidence among adults to use a defibrillator highlights the necessity for early education on this front.

Mark King, Founder of the Oliver King Foundation, told the APPG for Defibrillators the importance of confidence when using a defibrillator. Mr King stated that during the training his Foundation currently provides in schools, removing the 'fear factor' is amongst one of the most important aspects of the training they provide to children.

In 2020, the Government took a significant step by mandating the inclusion of first aid education in the curriculum for all state-funded schools in England, targeting students aged 12 and above. However, Jonathan Gullis MP, Chair of the APPG for Defibrillators, told the Group that during his time as a teacher first aid training was solely reliant on individual teachers being committed to providing training. Additionally, he added, many viewed the task as a 'tick box' exercise rather than a potentially life-saving activity.

Primary school children are not offered CPR training. Several of our witnesses recommended that comprehensive CPR training, coupled with awareness of Automated External Defibrillators (AEDs), should be imparted to all students throughout the UK. The recent government announcement ensures that every state school is now equipped with a defibrillator, we believe this milestone should drive the requirement for CPR training across all age groups.

Furthermore, it is important to note that the current regulations do not mandate the presence of a defibrillator during CPR training sessions. Yet, the significance of this aspect cannot be understated. Given that sudden cardiac emergencies can affect individuals of all ages, including children, the need for familiarity and confidence in operating defibrillators is paramount. As the Government's initiative ensures the accessibility of defibrillators in schools, it is crucial to align CPR training with defibrillator usage. This integration not only empowers students with crucial life-saving skills but also ensures they are prepared to effectively respond to emergencies that may require defibrillation.

The disparity in survival rates following sudden cardiac arrests underscores the urgent need for a unified and effective approach to prevention. By teaching comprehensive CPR and first aid training from a young age and ensuring the availability of defibrillators during the trainings, we can bridge the gap in knowledge and empower individuals to become capable first responders. CPR training must be tailored to meet the language, cultural, and educational needs of learners, to create a generation of lifesavers in currently underserved communities.

²⁴ Kashef, M.A. and Lotfi, A.S. ['Evidence-Based Approach to Out-of-Hospital Cardiac Arrest'](#) May 2021.

This concerted effort can significantly improve survival rates and create a more prepared and responsive society in the face of sudden cardiac emergencies.

International Efforts to Strengthen the Chain of Survival

The implementation of effective strategies to enhance the chain of survival during sudden cardiac emergencies is a global endeavor. Numerous countries have recognised the pivotal role of driver's license training in equipping individuals with life-saving skills, thereby significantly contributing to increased survival rates. Drawing inspiration from successful models like Denmark, several nations are integrating CPR and defibrillator training into the driver's license process.

Denmark's approach to improving cardiac arrest survival rates stands out as a model to emulate. In Denmark, since 2007 individuals have been legally required to complete an 8-hour course in traffic-related first aid before undergoing the practical driving test. This innovative approach has yielded substantial results. The prevalence of basic life-saving skills in the population surged from 35,000 in 2005 to an impressive 239,160 in 2019, two years after it became mandatory to have first aid training to obtain a license²⁵. More critically, survival rates for out-of-hospital cardiac arrests (OHCA) witnessed a remarkable escalation, increasing from 2.1% per 100,000 inhabitants in 2005 to 10.6% per 100,000 inhabitants in 2019²⁶. Notably, this positive trend is attributed to the association between mass education in basic life support (BLS) and increased bystander CPR rates. A significant 39% of this association's impact on survival is attributed to higher bystander CPR engagement.

The success of the Denmark model highlights the critical role comprehensive education plays in saving lives. Although trends of rising survival rates were evident even before the full implementation of mandated BLS courses, the marked improvement post-implementation underscores the vital contribution of widespread education in enhancing survival outcomes during cardiac emergencies.

The impact of training for potential first responders extend beyond Denmark's borders. In the Czech Republic, learners must undergo obligatory first aid lessons as part of their driving school curriculum, showcasing a commitment to equipping new drivers with essential life-saving skills. This trend is mirrored in other countries such as Austria, Slovenia, Hungary, and the Baltic states, where first aid training is a prerequisite for obtaining a driver's license.

Empowering the Future Generation of Lifesavers

In the United Kingdom, around 66% of individuals aged between 21 and 29 hold driver's licenses²⁷. If we were to introduce mandatory first aid training within the driver's license process presents a remarkable opportunity to empower a significant portion of the population with life-saving capabilities. Far more drivers would feel confident enough to step forward in the event of a crash or any other emergency. First aid knowledge and skills would also align with broader road safety objectives and would equip drivers with the knowledge and skills making drivers more aware of the potential dangers on the road, and of the perils of speeding and reckless driving.

Recommendations to the Government

²⁵ Juul Grabmayr A *et al.* '[Contemporary levels of cardiopulmonary resuscitation training in Denmark](#)' July 2022

²⁶ Jensen TW, *et al.* '[Training in Basic Life Support and Bystander-Performed Cardiopulmonary Resuscitation and Survival in Out-of-Hospital Cardiac Arrests in Denmark, 2005 to 2019](#)' March 2023

²⁷ Statista, '[Share of full car driving license holders among all adults in England in between 1975 and 2019, by age](#)', December 2023

- **Comprehensive CPR Training and defibrillator use:** The Government should mandate defibrillator training as part of CPR training which is already included in the school curriculum. This training should not only impart practical skills but also instill the confidence to take action during a sudden cardiac arrest.
- **The inclusion of CPR training for primary school children.** Recognising the potential impact of early education on building life-saving skills, we advocate for the mandatory inclusion of CPR training in the curriculum for all school children.
- **Early Initiation:** CPR and first aid training should be introduced at an age-appropriate level, starting from primary school. This will ensure that children grow up with the necessary knowledge and confidence to respond effectively during emergencies.
- **Integration with Driving License:** Similar to other countries, the Government should consider integrating first aid training, including CPR, into the process of obtaining a driving license. This would enable a wider reach of training and reinforce its importance in a person's life.

CHAPTER 4: SUPPORT FOR SURVIVORS

Context to Sudden Cardiac Arrest Survivorship

Survivorship of sudden cardiac arrest (SCA) has seen a modest increase from 8.1% in 2017 to 8.5% in 2021²⁸, which can be partially attributed to campaign efforts leading to increased first aid and CPR training. However, the aftermath of surviving SCA presents a complex array of physical, neurological, cognitive, and emotional challenges. These effects may manifest in post-hospital discharge and, in many cases, persist in the long term for both the patient and their family who are often termed as the ‘forgotten patient’. Despite advancements in SCA aftercare, survivors encounter difficulties in returning to normal life, compounded by the absence of a formal treatment pathway, as highlighted by evidence presented to the APPG.

Current Challenges

Geographic variation in healthcare outcomes is both well documented and common across and within England. Outcomes in out-of-hospital sudden cardiac arrests are no different. Information collected by the Department of Health has shown large differences in the number of people that survive an OHCA depending on where they live. In simple terms people in some parts of the country are twice or three times more likely to survive than in other areas²⁹ and there are multiple factors which have contributed to this which has been discussed throughout the report. While formal care pathways are well-established for heart attack and stroke survivors³⁰, the same level of consistency is lacking for cardiac arrest survivors. Recognised guidelines for post-SCA care exist, but their application varies widely, leaving many survivors without essential treatments and support.

Critical neurological rehabilitation and psychological reviews, crucial for holistic recovery, are received by only a fraction of survivors. Although only a small percentage (<10%) of OHCA sufferers discharged alive from hospital experience a poor neurological outcome (defined as a Cerebral Performance Scale of ≥ 3), all survivors are at risk of experiencing long-term difficulties in their physical, cognitive and psychosocial recovery³¹.

During an evidence session with the APPG, SCA survivors shared their experiences. As we have noted, in the UK, 80% of sudden cardiac arrests happen at home³², which means that a family member will most likely witness the sudden cardiac arrest and call 999 who will likely advise them to perform CPR. This was true for Ryan Nelson, who experienced a sudden cardiac arrest on his doorstep which caused him to drop dead for 26 minutes. Ryan’s 15-year-old son Corey alerted the emergency services immediately and the controller at the Northern Ireland Ambulance Service talked Corey through lifesaving CPR. It took 14 minutes for Ryan to receive his 1st shock from a defibrillator and eventually his heart was brought back into rhythm. Paul Swindell, founder of Sudden Cardiac Arrest UK, also suffered a sudden cardiac arrest at home, and serendipitously, he was saved by his wife and the ambulance service who turned up with a defibrillator. Paul explained to the APPG, how he and his wife felt abandoned

²⁸ Warwick University, ‘[Out-of-hospital cardiac arrest outcomes registry](#)’ December 2023

²⁹ Warwick University, ‘[Out-of-hospital cardiac arrest outcomes registry](#)’ December 2023

³⁰ NHS England, ‘[NHS England’s work on stroke](#)’ December 2023

³¹ Ian G. Stiell, *et al*, ‘[Comparison of the Cerebral Performance Category Score and the Health Utilities Index for Survivors of Cardiac Arrest](#)’, February 2009

³² Warwick University, ‘[Out of Hospital Cardiac Arrest Overview: English Ambulance Services 2022](#)’. December 2022

after his incident and how his quality of life after the event suffered due to not having the right support. Ryan also spoke of the effect his cardiac arrest has had, not only on his mental health, but also for his family. There are charitable organisations which are bridging this gap. For example, the APPG also heard from Anne Jolly MBE that SADS UK organises BACP accredited counselling for cardiac arrest survivors and their families who contact the charity, but without government funding in the long term this is not sustainable.

A report, utilising Danish data, underscores the critical role of carefully structured follow-up care plans in enhancing recovery for SCA survivors³³. A recurring theme in survivors' experiences was the lack of guidance on managing daily life amidst evolving health demands. This gap is amplified by the absence of coordination and responsibility between hospital and GP services, underlining the need for a more integrated approach in sudden cardiac arrest survivorship recovery.

The UK faces a shortage of appropriate care for those needing continued neurological and physical rehabilitation and long-term care for patients with significant neurological impairment as well as their families. Urgent and emergency care centres should determine the current level of care and the demand that would be generated by providing optimal care, making appropriate plans to address any shortfall. By advocating for its implementation across all the UK's health boards & integrated care boards, equitable care can be achieved, granting every cardiac arrest survivor timely access to all the elements of aftercare they need for their recovery.

Systematic approach within healthcare

To address these challenges, a systematic approach is imperative. Recommendations include standardised functional assessments for impairments before discharge, enabling early rehabilitation referrals. A follow-up within three months of discharge should encompass screenings for cognitive and emotional issues, fatigue, and support for both survivors and their families. Primary care and ambulance clinicians should have the capacity to refer bystanders and family members to appropriate counselling or support services.

Optimal outcomes have been observed in clinics such as the Cardio Thoracic Centre at Basildon Hospital³⁴, which provides comprehensive support for survivors and their carers up to one year post-discharge. In this clinic, a senior intensive care nurse identifies patients on de-escalation from ITU to a cardiology ward and introduces them to the service. Every survivor is then offered by a clinical psychologist a cognitive and psychological assessment before discharge from hospital, with early interventions where appropriate (including early cognitive neurorehabilitation).

A follow-up call is initiated 48h after discharge by the senior ICU nurse to identify any early problems, and two follow-ups are offered by the clinical psychologist, at 3 and 9 months. A senior ICU nurse offers a review at 6 and 12 months to address any potential medical issue. The process of returning to normalcy involves specific considerations, such as driving restrictions depending on the cause of the cardiac arrest and ongoing symptoms.

Adherence to current guidelines, including functional assessments and post-discharge follow-ups, is vital in ensuring a smoother transition for survivors. Recovering patients should also be assessed by a cardiac rehabilitation team and offered a cardiac rehabilitation program suited to their needs in line with NICE and professional society guidance. There are currently

³³ Wagner *et al*, [Feeling understood for the first time: experiences of participation in rehabilitation after out-of-hospital sudden cardiac arrest](#), November 2021,

³⁴ NHS Mid and South Essex Foundation Trust, [Essex Cardiothoracic Centre](#), December 2023

no common standards for a dedicated follow-up pathway after OHCA in the UK, and little is known around current practice.

There is a need to standardise services to improve care for these patients addressing several areas, including referral criteria, optimal timing after discharge, topics to be covered and what assessment tools are used, invitation of family members, how these follow-up clinics fit in with existing pathways of care and how they can contribute to signpost patients, and whether they are designed with patient and family input.

While it is accepted that some OHCA survivors may not share risk factors or lifestyle issues with their peers (e.g. younger survivors, those with good functional recovery), they may still benefit from cardiac rehabilitation to access psychological support and lifestyle advice more tailored to their individual needs and peer-to-peer networks like SCA UK which was set up by Paul Swindell following his cardiac arrest.

Enhancing post-cardiac arrest care is critical for survivors' holistic recovery. A standardised approach, involving comprehensive assessments, follow-ups, and rehabilitation, is essential to mitigate the lasting impact of SCA and facilitate a successful return to daily life for survivors and their families. The Government should consider how they can ensure consistent support and rehabilitation pathways across the UK, ultimately improving outcomes and quality of life for SCA survivors.

Recommendations

- **Review of sudden cardiac treatment pathways so that there is an established care programme for sudden cardiac arrest survivors following their cardiac arrest which GPs & other relevant medical practitioners, can refer to when advising a patient in their practice.** This pathway should encompass specialised cardiac rehabilitation programs, mental health support, and access to appropriate healthcare professionals who understand the unique challenges faced by survivors and their families. A programme targeted to the individual's needs, can improve quality of life, be cost-effective, and reduce hospital readmissions. Health and care systems across the United Kingdom must work in partnership to identify and reduce the gaps in accessing cardiac arrest rehabilitation services.

CHAPTER 5: SOLUTIONS PROVIDERS

The APPG would also like to take an opportunity to acknowledge the evolving landscape of defibrillator technology highlighted during its inquiry sessions and how organisations are taking steps to reduce out of hospital cardiac arrest and improve defibrillator access through innovative solutions.

Advancements in Defibrillator Technology

The defibrillator market is driven by the increasing incidence of cardiovascular diseases, which can lead to sudden cardiac arrest, a life-threatening condition requiring immediate defibrillator treatment. Other factors driving the growth of the defibrillator market include the growing elderly population, increasing awareness about the importance of early detection and treatment of cardiac arrhythmias, and technological advancements in defibrillator devices.

To bolster access to these advancements, the Government can undertake various measures. First, initiatives like the £1 million defibrillator fund exemplify proactive steps towards technological accessibility. Secondly, fostering an environment conducive to innovation through research grants and collaborations can expedite the development and adoption of novel defibrillator solutions. Furthermore, regulatory frameworks can be reviewed to facilitate the entry of new, cost-effective technologies into the market.

The APPG heard from multiple stakeholders on the advancements in defibrillator technology, including discussions on innovations like CellaED. Advancements in defibrillator technology aim to target the challenges associated with defibrillator costs, as well as issues related to their portability and accessibility. These innovative solutions offer hope for broader access, potentially transforming emergency response practices and reducing intervention times, thus saving lives. By prioritising accessibility and incentivising innovation, the Government can significantly enhance the landscape of defibrillator technology accessibility, ultimately improve sudden cardiac arrest survival rates.

New Technology in First Aid Assistance

In addition to defibrillator accessibility, empowering bystanders to provide CPR is equally crucial. The APPG received evidence from GoodSAM, which is a video streaming platform designed for the emergency services, which allows members of the public to instantly share their location, as well as what they are seeing at the scene of an incident via the camera on their mobile phone. The GoodSAM service is initiated by sending an SMS text message or email containing a web link to a 999/101 caller, who on opening the link can allow the call handler to track their location and (depending on the type of invite sent) either view the live video footage of the scene in front of the caller, or upload images/videos already stored on their device. Not only will this increase the public's confidence and ability to perform CPR, but it will also reduce pressure off the NHS as the GoodSAM service were able to downgrade 24% of calls, therefore less people were using emergency resources³⁵. Additionally, the British Heart Foundation's initiative, RevivR, offers free online training, enhancing public awareness and readiness to respond to cardiac emergencies.

Cardiac Screening for Preventive Care

The APPG advocates for cardiac screening as a complementary strategy to identify individuals at risk of sudden cardiac arrests. Incorporating screening programs into public health

³⁵ Linderoth *et al*, '[Live video from bystanders' smartphones](#)' to medical dispatchers in real emergencies' November 2021

frameworks enables early detection and personalised interventions. Currently, in the UK, all adults over the age of 40 are encouraged to attend for a vascular risk check. However, charities like Cardiac Risk in the Young (CRY) and private companies like Heart for Life provide essential screening services for young adults. Their research has shown that 1 in 300 people screened are identified with potentially life-threatening cardiac conditions³⁶. Every week 12 apparently fit and healthy young (aged 35 and under) people in the UK die from a previously undiagnosed heart condition. In 80% of cases, there will have been no signs or symptoms, which is why CRY believes proactive screening is so vitally important³⁷. Sport itself does not cause young sudden cardiac death but it can exacerbate an underlying condition, if not identified.

In Italy, where screening is mandatory for all young people engaged in organised sport, they have reduced the incidence of young sudden cardiac death by 89%³⁸. Collaborative efforts with organisations like TOBE-Heartsafe, offering on-site screenings, CPR training, and defibrillators for schools and sports clubs, underscore the importance of expert cardiac assessment.

The Group is aware that there was a comprehensive review by the UK National Screening Committee in 2015 which found that there was not enough evidence to support screening due to uncertainties on how many young people each year were affected by sudden cardiac arrest. However, organisations such as CRY have refuted the report findings due to a gross underestimation of the incidence of young sudden cardiac arrest deaths, the tests used to identify people at risk, and the management strategies to reduce risks. The APPG looks forward to the UK National Screening Committee evidence review which is underway and expected to conclude later this year and would encourage them to consider a targeted screening programme (dependent on evidence).

We encourage the Government to promote public awareness campaigns and foster partnerships between public health agencies, private healthcare providers, and community organisations to enhance the efficiency and reach of both defibrillator distribution and cardiac screening initiatives.

Critical to success is government support, with policymakers allocating resources and providing incentives for healthcare providers to participate in screening programs. Integrating cardiac screening into broader strategies for sudden cardiac arrest prevention underscores the commitment to safeguarding the cardiovascular health of the population.

In conclusion, a comprehensive approach combining defibrillator accessibility, technological innovations, first aid empowerment, and proactive cardiac screening lays the foundation for a resilient and responsive cardiac emergency prevention strategy.

Recommendations:

- **Encourage and welcome advancements in defibrillator technology:** through research grants and partnerships the Government can accelerate the advancement and acceptance of pioneering defibrillator solutions. Additionally, revising regulatory

³⁶ Cardiac Risk in the Young, '[New international recommendations will pave the way for more routine cardiac screening in athletes](#)', February 2017

³⁷ Cardiac Risk in the Young, '[New international recommendations will pave the way for more routine cardiac screening in athletes](#)', February 2017

³⁸ Cardiac Risk in the Young, '[New international recommendations will pave the way for more routine cardiac screening in athletes](#)', February 2017

frameworks can streamline the introduction of new, defibrillator technologies into the market.

- **Promote and advance new technology in first aid assistance:** the Government should work with leading organisations such as GoodSAM to promote new technologies in first aid assistance in order to improve the public's confidence in providing bystander CPR.
- **The Government to review the introduction of a targeted, national cardiac screening programme:** similar to countries such as Italy an introduction of a cardiac screening programme which is focused on certain population groups i.e. young competitive athletes or families with a history of heart disease.

CONCLUSION

The evidence that we received during this inquiry and our findings clearly demonstrate that widespread action is needed across multiple spheres to improve defibrillator access and sudden cardiac arrest survival.

The APPG welcomes the Government's commitment to increase defibrillator access particularly in schools, however there is much more work to be done.

In this report we have considered what the Government and the relevant public bodies can do to vastly improve defibrillator access and sudden cardiac arrest survival rates.

With 30,000 sudden cardiac arrests happening out of hospital every year, and the majority of these taking place in home or workplace, it is essential that we address the clear barriers which are preventing lives being saved. It is evident that without defibrillation, the chances of surviving a cardiac arrest drop by 10% every minute and unfortunately, in the UK, the chances of surviving a sudden cardiac arrest outside of hospital is 1 in 10.

We are particularly concerned about the current regional and socio-economic disparities in relation to defibrillator access and sudden cardiac arrest survivorship support.

Despite recent government efforts to improve the supply of defibrillator access in schools, we hope it also considers the recommendations made in this report and takes decisive action to improve defibrillator access and sudden cardiac arrest survivorship. We look forward to working with them and the sector, as part of that process.

Annex A: List of Evidence Submissions Received

Ben Culff, Personal Testimony

British Healthcare Trade Association

British Heart Foundation (BHF)

British Red Cross

David Ginola, Personal Testimony

Dr Filip Zenmark, Consultant Cardiologist

Dr John Bingham, Consultant in Trauma, Resuscitation and Anaesthesia at University Hospitals of North Staffordshire NHS Trust

Dr Oliver Segal, Cardiologist at St Bartholomew's Hospital

Dr Steven Brooks, Emergency Physician and Chief Medical Officer for Rapid Response Revival

Dr Thomas Keeble, Consultant Cardiologist and Senior Clinical Lecturer

Dr Vicky Joshi, Glasgow Caledonian University

GoodSAM

Mark Wilson, Consultant Neurosurgeon at Imperial College NHS Trust

Naomi Issitt, Personal Testimony

National Ambulance Service Responder Managers' Group (NASRMG)

Paul Swindell, Founder of Sudden Cardiac Arrest UK

ProTrainings

Rapid Response Revival

Resuscitation Council UK

Ryan Nelson, Personal Testimony

SADS UK (Sudden Arrhythmic Death)

St John's Ambulance

Sudden Cardiac Arrest UK

The Oliver King Foundation

ToBe Heartsafe

Annex B: Witnesses at Public Inquiry Sessions

Session 1: Defibrillator Supply Chain Shortages

23rd January 2021

- James Cant, CEO Resuscitation Council
- Steve Fereday, Vice-Chair of the British Healthcare Trade Association
- Mark King, Founder of the Oliver King Foundation

Session 2: Sudden Cardiac Arrest – Personal Experiences

22nd February 2023

- Ryan Nelson, Sudden cardiac arrest survivor
- Paul Swindell, Founder Sudden Cardiac Arrest UK
- Dr Thomas Keeble, Consultant Cardiologist, Essex Cardiothoracic Centre

Session 3: Defibrillator Access

24th April 2023

- Ben Cuff, Sudden cardiac arrest survivor and defibrillator access campaigner
- David Ginola, Former Premier League footballer, sudden cardiac arrest survivor and defibrillator campaigner
- Anne Jolly MBE and John Jolly, The Ashley Jolly SAD Trust, SADS UK
- Naomi Issitt, Defibrillator campaigner

Session 4: First Responders and Medical Professionals

14th June 2023

- Dr Oliver Segal, Leading London Cardiologist at St Barts, specialising in Atrial Fibrillation, Arrhythmias and Heart Rhythm, Pacemakers, CRT Devices, Electrophysiology, Catheter Ablation and Left Atrial Appendage Occlusion Devices.
- Dr Thomas Keeble, Consultant Cardiologist and Senior Clinical Lecturer, with an expertise on Cardiac Arrest survivorship and rehabilitation.
- Dr John Bingham, Consultant in Trauma, Resuscitation and Anaesthesia at University Hospitals of North Staffordshire NHS Trust, but also works with Midlands Air Ambulance and a charity called AEDdonate
- Louise Walker, Vice Chair of the National Ambulance Service Responder Managers' Group (NASRMG)
- Anne Jolly MBE, The Ashley Jolly SAD Trust, SADS UK

Session 5: First Aid Training

12th September 2023

- Keith Sleightholm, Managing Director of ProTrainings
- Sam Richards, Founder of ToBe Heartsafe
- Dr Filip Zenmark, Consultant Cardiologist

Session 6: Solution Providers

24th October 2023

- Michael Bradfield, Director of Clinical and Service Development at the Resuscitation Council
- Dr Vicky Joshi, Glasgow Caledonian University, Physio and Expert in Cardiac Arrest Aftercare
- Dr Steven Brooks, Emergency Physician and Chief Medical Officer for Rapid Response Revival
- Mark Wilson- Consultant Neurosurgeon at imperial College NHS trust, Co-Founder and Medical Director of GoodSAM
- William Spencer, British Red Cross Product Manager

Annex C: About the APPG for Defibrillators

An All-Party Parliamentary Group (APPG) is a politically neutral cross-party group of Parliamentarians concerned about a particular issue – in this case, sudden cardiac arrest.

The APPG for Defibrillators was established in January 2023, by Chair Jonathan Gullis MP, to provide a forum for parliamentary discussion on the issues surrounding sudden cardiac arrest (SCA) and defibrillators, whilst providing evidence-based solutions to improve the survival rate of SCA.

Though they are run by and for Members of the Commons and Lords, many choose to involve outside organisations for advice and administration. The Defibrillator APPG has regular meetings within Parliament to discuss happenings within the industry, as well as listening to the thoughts of anybody with an interest in the sector. This may include receiving expert presentations and testimony from those working in sector, or those who have been impacted by it.

Meet the Parliamentarians:

- Jonathan Gullis MP – Chair
- Stephen Hammond MP – Vice Chair
- Lord Aberdare – Vice Chair
- Flick Drummond MP – Vice Chair
- Stephanie Peacock MP – Vice Chair
- Sara Britcliffe MP – Vice Chair
- Alun Cairns MP – Officer
- Lord Storey – Officer
- Lord Polak – Officer
- Margaret Ferrier MP – Officer
- Daisy Cooper MP – Officer
- Wendy Chamberlain MP – Officer
- Sir George Howarth MP – Officer
- Wayne David MP – Officer

The Secretariat for this APPG is run by Dentons Global Advisors with support from Rapid Response Revival, Resuscitation Council and SADS UK.

For further information about the APPG for Defibrillators please visit the Group's website [here](#) or Twitter [@APPG_Defibs](#)

This is not an official publication of the House of Commons or the House of Lords. It has not been approved by either House or its committees. All-Party Parliamentary Groups are informal groups of Members of both Houses with a common interest in particular issues. The views expressed in this report are those of the group. This report was researched by DGA and funded by Resuscitation Council UK, SADS UK and Rapid Response Revival.