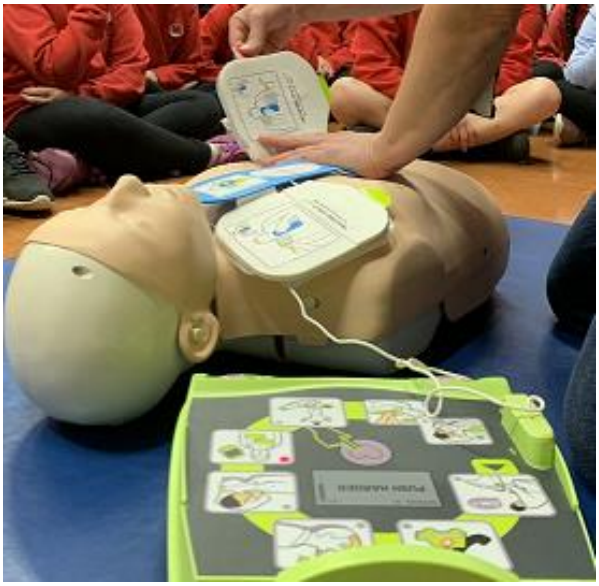
# The North Wales Community Out of Hospital Cardiac Arrest Project



JULY 2018 – MARCH 2022

**The North Wales Partnership**

# The Team

## Project Lead:

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|---|---|
| Julie Starling | Advanced Arrhythmia Clinical Nurse Specialist, Betsi Cadwaladr University Health Board |

## Project Support:

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| Susan Goodfellow | Clinical Improvement Adviser NHS Collaborative (April-May 2022) |
| Tomos Hughes, BEM | Public Access Defibrillator Support Officer |
| Anne Jolly, MBE | Founder of the Cardiac Charity SADs UK (Registered Charity No. 1113681) |
| John Jolly, MBE | Co-Founder of the Cardiac Charity SADS UK |
| Greg Lloyd | Head of Clinical Operations, Welsh Ambulance Services NHS Trust |
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| Kirsty Thomson | Head of Charitable Partnerships and Fundraising – Awyr Las: The North Wales NHS Charity (Registered Charity No. 1138976) |

## Project:

Betsi Cadwaladr University Health Board Community Out of Hospital Cardiac Arrest Project

## Sponsor:

SADS UK Cardiac Charity & Awyr Las: The North Wales NHS Charity

## Last Revised: March 2022

# Contents

# Key Findings

At the beginning of this project, the survival rate for patients suffering an out of hospital cardiac arrest (OHCA) in Wales was believed to be around half the survival rate of those recorded in England. North Wales, having exceptionally rural areas, needed to employ a strategy to improve this survival rate. With nearly 80% of cardiac arrests happening within the home, there was potential for communities to be taught lifesaving skills and for defibrillators to be based in the community to help improve the survival rate for people experiencing an OHCA. Teaching in schools would also provide children with lifesaving skills that could contribute towards effective community change and improved bystander engagement rates.

The need for defibrillators in the locality had been recognised and organisations and charities were putting Community Public Access Defibrillators (CPADs) in place. However, there was not a coherent approach and it was discovered that the minimal activity for looking after the defibrillator (by changing pads and batteries) was sometimes being overlooked, or communities had not been made aware of this ongoing maintenance requirement. The Welsh Ambulance Services NHS Trust (WAST) also needed to be informed of changes to the cabinet code, to direct bystanders to open the cabinets. Furthermore, cardiopulmonary resuscitation (CPR) training in the community, as well demonstrating how to use the defibrillator, had not always been carried out.

Betsi Cadwaladr University Health Board (BCUHB), WAST, and the cardiac charity SADS UK (Sudden Arrhythmic Death Syndrome), formed a North Wales Partnership recognising the above findings and SADS UK funded a Public Access Defibrillator Support (PADS) Officer for an initial two years.

The PADS Officer was responsible for delivering CPR training in the community (though this has been significantly affected by the SARS Covid-19 pandemic), educating people to recognise a cardiac arrest, ensuring defibrillators were highly visible and always rescue ready, and that the defibrillator locations were put on the ambulance despatch system. Therefore, if a person suffered a cardiac arrest, the rescuer was able to be signposted to their nearest defibrillator which would be rescue ready, and they would have knowledge on how to use the equipment.

The role of the PADS Officer proved to be effective in co-ordinating the installation of defibrillators in the community and being the person that communities liaised with if they had any problems with their defibrillator. The management of the CPAD was therefore made easier for the involved communities.

In order to discover CPADs that hadn't been registered prior to the PADS Officer employment, a heat map project in the form of a treasure hunt for children helped to discover unregistered CPADs in the community. This enabled them to be registered and tracked for maintenance in the future.

There has been a steady increase in the use of CPADS by the community, which has resulted in the need for replacement pads, suggesting a greater awareness and willingness to retrieve and use a defibrillator.

At the time of writing the report, of the 1,618 CPADS within the BCUHB catchment area, there are only 26 defibrillators offline and not rescue ready. 13 of these are pending pads and batteries which are currently in short supply due to significant challenges to the global supply chain.

# The Project

## Identified Problem:

The Welsh Government published their OHCA Plan for Wales in 2017. This document states that every 60 minutes, someone in Wales suffers a cardiac arrest; further reading highlights that the success rate of an OHCA varies significantly between countries.

Norway have OHCA survival rates of 25%. In England, the survival rate is only 8% and in Wales, survival rates are thought to be lower than other parts of the UK.

## Project Description:

The North Wales Project is a partnership supported by the WAST, BCUHB and the National Cardiac Charity, SADS UK. Collectively they aim to:

1. Increase survival rates from OHCA within North Wales
2. Decrease the problem of Community Public Access Defibrillators (CPAD) sites becoming dysfunctional.

SADS UK was the sole funder for the North Wales PADS Officer post in the first 2 years of the project. The PADS Officer role continued to be employed by SADS UK in years 3 and 4, with the role being fully funded through Awyr Las' Cardiology funds during this time. The funding of this role throughout the four years was only made possible thanks to the support of SADS UK and Awyr Las' Trustees, staff and of course the many different funders, fundraisers and volunteers who support the two organisations.

## Rationale:

Improvement in the first three links of the Chain of Survival i.e. Early Recognition and Call for Help, Early CPR, and Early Defibrillation, is evidenced to improve OHCA survival rates. Early CPR and defibrillation within 3-5 minutes of a person's collapse can potentially improve the chance of survival and survival outcomes by as much as 70%. Improving the first three links in the Chain of Survival was set out as one of the main aims in the Welsh Government OHCA Plan (2017) and was linked to the

BCUHB cardiac priorities when the project began in 2018-2019. The character of rural North Wales is a challenge to any service, including the emergency services, and with nearly 80% of cardiac arrests happening within the home, community CPR and the use of a CPAD enables early defibrillation to be delivered in rural areas, giving the patient the best chance of survival.

## Outcome and benefits:

If successful, the project should see an increase in survival outcomes from OHCA within the North Wales area and will help to reduce the problem of CPADs becoming dysfunctional.

## Aims statement:

Increased survival outcomes from an OHCA in North Wales by 2% and a reduction of 95% in the problem of CPADs becoming dysfunctional.

## Outcome measures:

- Increase in bystander CPR and use of a defibrillator;
- Increased public awareness of the first three links in the Chain of Survival;
- Community awareness of the importance of CPAD sites;
- Community awareness of the ongoing needs and management of a CPAD site.

## Process measures:

- Increased use of CPAD sites by the community;
- Increased number of CPADs purchased and installed within the community;
- Increased number of defibrillators registered on the 'Circuit' National Defibrillator Network;
- Significantly reduced amount of dysfunctional CPAD sites.

## Balance measures:

- Increased volume of CPAD sites requiring new pads post-use;
- Increased request for support to install new CPAD sites;
- Increased request for CPR training.

## Initial Activities

Existing published research on best practice to improve the Chain of Survival, assisted learning and adaption of work from those who had made progress in this area was reviewed. Initial assessment to find contributing factors to a low survival rate were undertaken in the form of a project plan, which then allowed a driver diagram to be completed to guide the work to initially be undertaken. As part of this process three primary drivers were highlighted;

- Increase bystander CPR and use of a defibrillator
- Community awareness and engagement
- Reduction in the volume of dysfunctional defibrillators

There is an evolving evidence base around what affects and influences the public to want to be trained in CPR and to feel confident in performing it.

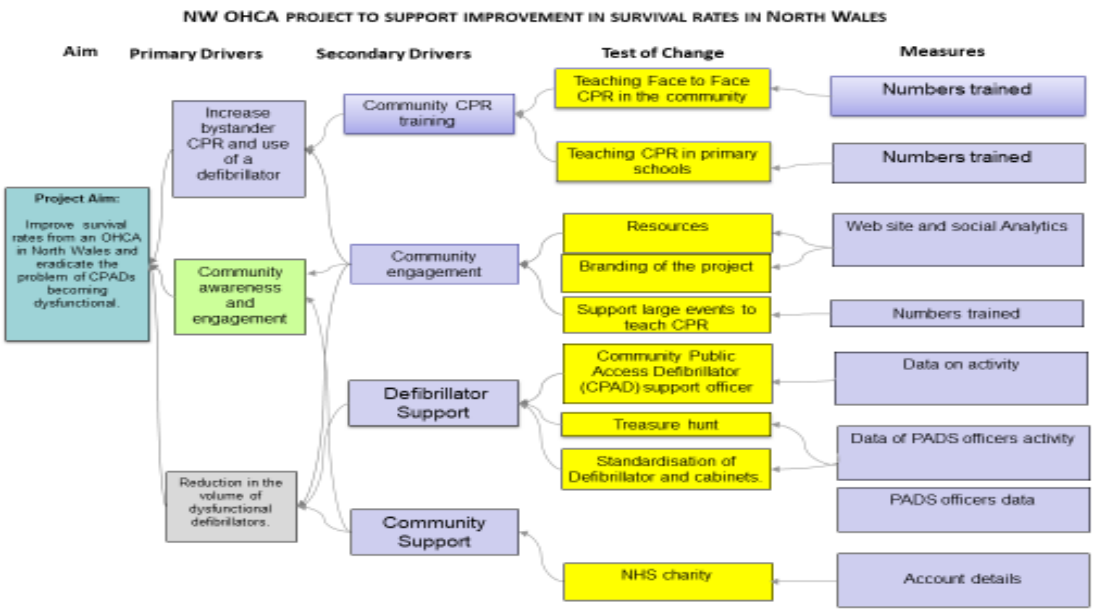



Figure 1: Driver Diagram for North Wales Community OHCA project

The Driver Diagram for North Wales Community OHCA Project (Figure 1) highlights the outline of the project, including the main aims and objectives. The primary and secondary drivers define what needs to change to achieve the aim, with tests of change demonstrating the improvements that have been tested. The measures then ensure a change is an improvement.

# Change Ideas

The Plan-do-study-act (PDSA) cycle was used as the management method to aid control and continuous improvement of the project. During the project multiple tests of change occurred. The below sets out the Tests of Change processes that formed part of the project and the outcomes as a result of each of the changes.

## Test of Change 1

### Primary Driver: Increase bystander CPR

Within the primary driver of Increase bystander CPR, there are two secondary drivers; Community CPR training and Community engagement. The Community CPR training will be presented first.

#### Secondary Driver: Community CPR training

*Test of change:* Teaching Face to Face CPR in the community.

The first test of change was to support CPR training in the community. The first thing to note was a lack of a basic standard of training to be able to teach CPR or guidance on what to teach, duration of the session, class sizes or resources. With no standard requirement to teach CPR, it was agreed that BCUHB staff could teach CPR to the community if they held an Immediate Life Support (ILS) certificate and their mandatory ILS training was up to date. Staff would also undergo a period of support to develop their teaching skills prior to performing a teaching session on their own.

##### *Collaborative working/CPR Training*

With collaborative support of WAST, BCUHB and local organisations such as Achub Calon Y Dyffryn and St John Cymru, 4,017 people in the community received face to face CPR training between 2018 and March 2020, but many more have received online education via social media posts and videos. In addition to this each year up until the pandemic in March 2020, the project team co-ordinated “Shocktober” in North Wales on behalf of WAST, teaching some 2,000 children CPR during the month of October. With the support of WAST and the Welsh Government group, Save A Life Cymru (SaLC), 40

Primary schools had a defibrillator donated to them and a collaborative partnership with St John Cymru ensured that every school was offered free CPR/AED/First Aid training.

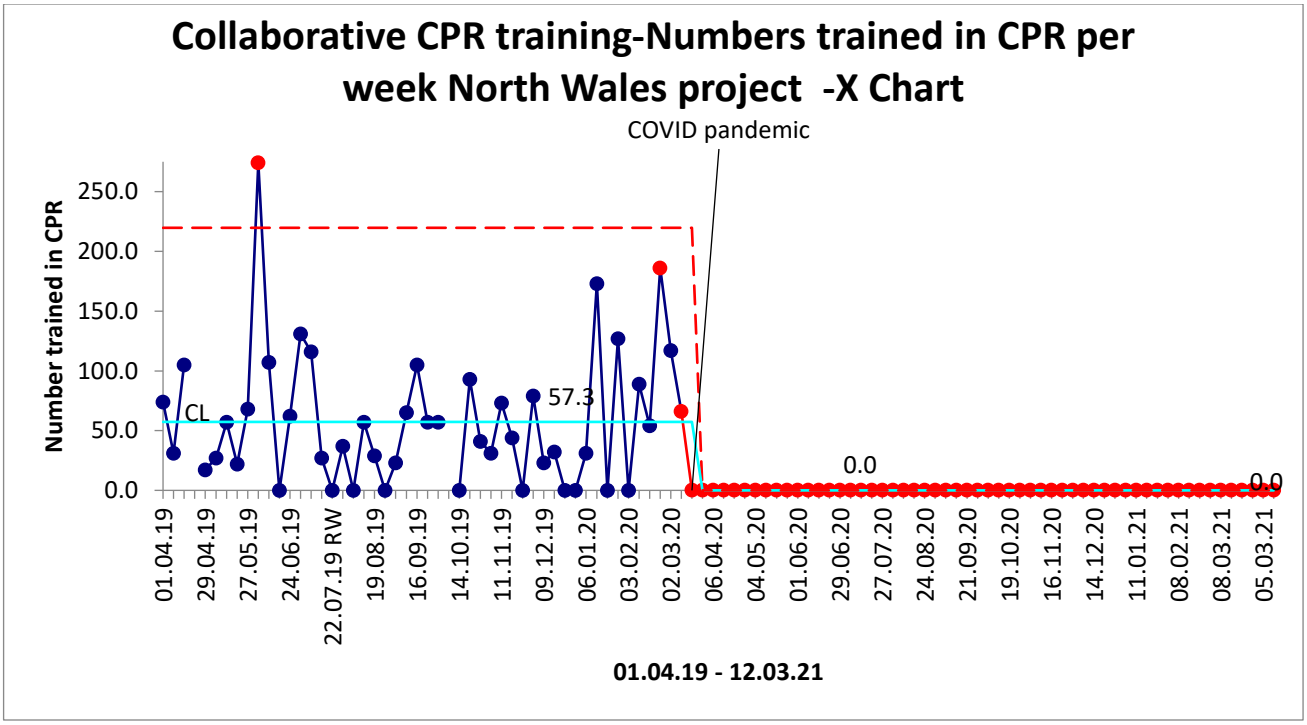



Figure 2: SPC chart showing CPR training activity by PADs officer before and during COVID pandemic (Chart courtesy of Dr Susan Goodfellow - Improvement Adviser)

### *Outcome measure:*

CPR training was hindered significantly due to the pandemic which prevented face to face CPR being undertaken. With a population of just under 1 million, this test of change highlighted that to achieve face to face annual CPR training for the population of North Wales, a large group of trainers would be needed and a suite of educational training resources is required.

This test of change also highlighted that there was a lack of a national minimum standard qualification required by instructors to teach Basic Life Support (BLS).

There wasn't an agreed standard of training offered, course content covered, or national learning objectives. This resulted in below the required standards of training being provided by some organisations and charities. If a further test of change at a national level were to take place, a standard level of CPR would need to be agreed and delivered to make a significant cultural change.

## Secondary Driver: Community CPR training

*Test of change:* Teaching CPR in Primary Schools.

The project was launched during WAST "Shocktober" campaign with the intention to increase awareness of the need for bystander CPR, by offering school children the opportunity to learn basic lifesaving skills in CPR and defibrillation. SADS UK held a school competition, enabling children to discuss, write articles and produce videos about the importance of CPR and defibrillators. CPR training in schools has been highlighted as key to improving success rates of OHCA so a rolling programme of free CPR training on an annual basis has been attempted to be offered to all primary schools with the support of WAST and the BCUHB resuscitation team. Working in collaboration with other voluntary groups and charities, such as St John Cymru and Achub Calon Y Dyffryn, has encouraged a swift roll out of this programme. A lack of resources and trainers has significantly hindered this part of the project to move forward. The British Heart Foundation (BHF) introduced this concept in Secondary schools, with the introduction of 'Heart Start' some years ago, and in September 2022, CPR will become part of the Welsh curriculum, encouraging in the long term a nation of lifesavers. To support the introduction of CPR in schools a suite of resources would significantly aid the transition.

### *Outcome measure:*

To implement teaching face-to-face CPR in schools on an annual basis would require an inordinate number of instructors, making this impracticable.

It was also noted that the BHF provide secondary schools but not primary schools with free CPR mannequins, which meant that resources for primary schools were noted to be lacking. This first test of change was therefore not recognized as good practice and highlighted that a further test of change was required that did not involve the need for face-to-face CPR instructors or mannequins.

*Second Test of Change (Underway with the support of SaLC, RCUK and Healthy School's coordinator):*

Development of a resource for primary school teachers that supports CPR training in primary schools and allows them to be self-sufficient in teaching CPR.

The CPR Song will teach children the sequence of CPR in the form of music and dance. It will be supported by a lesson plan that allows the children to practice CPR on a teddy, ball or cushion. A workbook will support the children's learning of CPR and will ask them to learn how to use a QR code at home to access The CPR Song web site www.thecprsong.co.uk. The children will then be encouraged to demonstrate The CPR Song to their family members.

The CPR resource package will be bilingual, and can also be used by Welsh learners as part of their Welsh lessons. The CPR Song launch is being planned for August 2022.

## Secondary Driver: Community engagement

*Test of change:* Resources

With an inability to be able to teach face-to-face training on a large scale due to resources and the pandemic, a suite of educational resources had to be developed to educate the public. Educational videos were written and produced, designed to teach CPR and bust myths about CPR and defibrillation. A web page was also produced to house research-based information and resources for the community to use, with both Facebook and Twitter offering more information and support.

### *Outcome measure:*

| **Resource accessed** | **Number of public views** |
|---|---|
| Does CPR really work? | 9K Views |
| How did you die? | 17K Views |
| Treasure Hunt video. | 16K Views |
| Don't ignore Chest pain it could be a heart attack. | 28K Views |

Combined with the bilingual educational videos including; 'Performing CPR at home', 'What is a Heart Attack?' 'What is a Cardiac Arrest?' 'How to perform CPR,' the resources have been viewed over 300K

times. The use of social media has played a massive role in developing community engagement and education within North Wales and this has been enhanced by the support of the NHS and local businesses who have both shared our posts and supported the project playing an invaluable role in the project development.

### Secondary Driver: Community engagement

*Test of change:* Branding


To aid with raising the profile of the North Wales project and PADs Officer, the project was branded 'Cadwch Curiadau Keep the Beats (KTB)' and a designated KTB fund was set up within Awyr Las. A KTB logo was designed together with KTB material such as pop up banners and selfie boards etc. to be used during CPR/AED familiarisation training to aid with promotion and community engagement. Advertisement on buses also helped raise the KTB profile.

KTB web pages were set up:

www.awyrlas.org.uk/keepthebeats

www.awyrlas.org.uk/cadwchcuriadau


Regular social media posts have been issued in relation to cardiac arrest survivors, CPR/AED's on KTB, BCUHB, WAST, Awyr Las and SADS UK social sites, and regular press releases about Cardiac Arrest Survivors have been released by BCUHB, WAST and Awyr Las.

## Secondary Driver: Community engagement

*Test of change:* Support large events to teach CPR

Community engagement was an extremely important part of the project with many large local events attended.

- Zip Rock
- Eisteddfod
- Royal Welsh Show
- Shocktober/Defibuary
- Save a life September
- Community events
- Annual sporting events such as marathons etc.

## Primary Driver: Reduction in the volume of dysfunctional defibrillators

Within the primary driver of 'reduction in the volume of dysfunctional defibrillators', there are two secondary drivers namely; 'Defibrillator support' and 'Community support'.

### Secondary Driver: Defibrillator Support

*Test of change:* CPAD Support Officer

In 2018, an assessment of available community services and support was undertaken. The assessment highlighted a number of issues including:

- No single point of contact in North Wales for communities to seek researched-based advice or sign posting to appropriate authorities with regard to purchasing an AED/ cabinet or receiving CPR training
- CPADs were not always being registered with the National Defibrillator Network (therefore not always identifiable to EMS call handlers during a cardiac arrest call)
- Communities left without support if their AED detect a malfunction
- No community support following an out of hospital cardiac arrest
- No data collection from AEDs following cardiac arrest
- Incompatible pads were being left with CPADs
- CPADs were not being made 'rescue ready' after being used for a cardiac arrest, including having incompatible pads left
- CPADs left with low batteries
- AEDs that were non compatible with WAST supplies were being placed within the community
- Many charities were working independently within communities in North Wales to put CPADs in place and teach CPR, without agreed standards in place or collaboration between organisations
- CPADs were being put into the community without a plan to continue their maintenance to keep them operational in the event of a cardiac arrest emergency.

The issues identified were sufficient to justify the development of a new role to assist communities in the management and upkeep of community defibrillators. As the community defibrillators were being utilised by WAST, a collaborative approach was needed to develop and support this new role. It was only by thoroughly understanding the problem in the community that it was possible to establish an effective solution.

The CPADs Officer was required to manage new and existing CPAD sites within BCUHB and be available to teach the community CPR. Their role included leading on the AED project as it rolled out across North Wales and striving to gain better communications and collaborative working in partnership with charities working in the area. The CPADs Officer also advised and sign posted communities to purchase AEDs/ cabinets /receive CPR training in the area, ensured all CPAD sites were registered on the National Defibrillator Network, helped to ensure that AEDs remained 'rescue ready', and support WAST with red call responses, data collection and information debriefing following a cardiac arrest. The CPADs Officer was very engaging with social media, local media, BCUHB staff, schools and Councils in addition to the local communities throughout the project.

### *Outcome measures:*

At the time of writing this report, North Wales has 1,618 CPADs within BCUHB catchment area. This is a 131% increase in CPADs from when the project began in 2018, with only 26 not available at the end of March 2022 as they have recently been used or are pending replacement pads or batteries.
This test of change has been seen as good practice and continues within BCUHB.

**New CPAD sites**

Thanks to the North Wales Project, 813 extra CPAD sites have been made available to WAST. This has been achieved by placing:

- 518 new CPADs in North Wales;
- 194 CPADs in South Wales;
- 56 CPADs on the computer aided dispatch (CAD) system with WAST that were highlighted as unregistered thanks to the "Treasure Hunt" and;
- a further 45 also found to be unregistered at a later stage;
- Every Secondary school within BCUHB's catchment area now has an AED on site.

**CPADS made rescue ready**

In all, 687 CPAD sites have been reinstated and made rescue ready. This has been achieved by finding 88 non-rescue ready CPADs during the "Treasure Hunt" and a further 132 at routine checks. 251 AEDs have been re activated following a cardiac arrest and 216 CPAD sites have had out of date pads replaced.

**Information update to CAD and National Defibrillator Network**

Thanks to the "Treasure Hunt" a staggering 667 pre-existing CPAD sites have had their information updated onto the National Defibrillator Network. In this last year, significant work has been undertaken to continue this vital work with a further 847 CPAD sites being updated, making a total of 1,514 updates completed to date.

**Cardiac Arrests attended**

Remembering that early CPR and defibrillation is the key to return of spontaneous circulation (ROSC) following a cardiac arrest, the North Wales PADS Officer has attended 124 cardiac arrests during their working day.

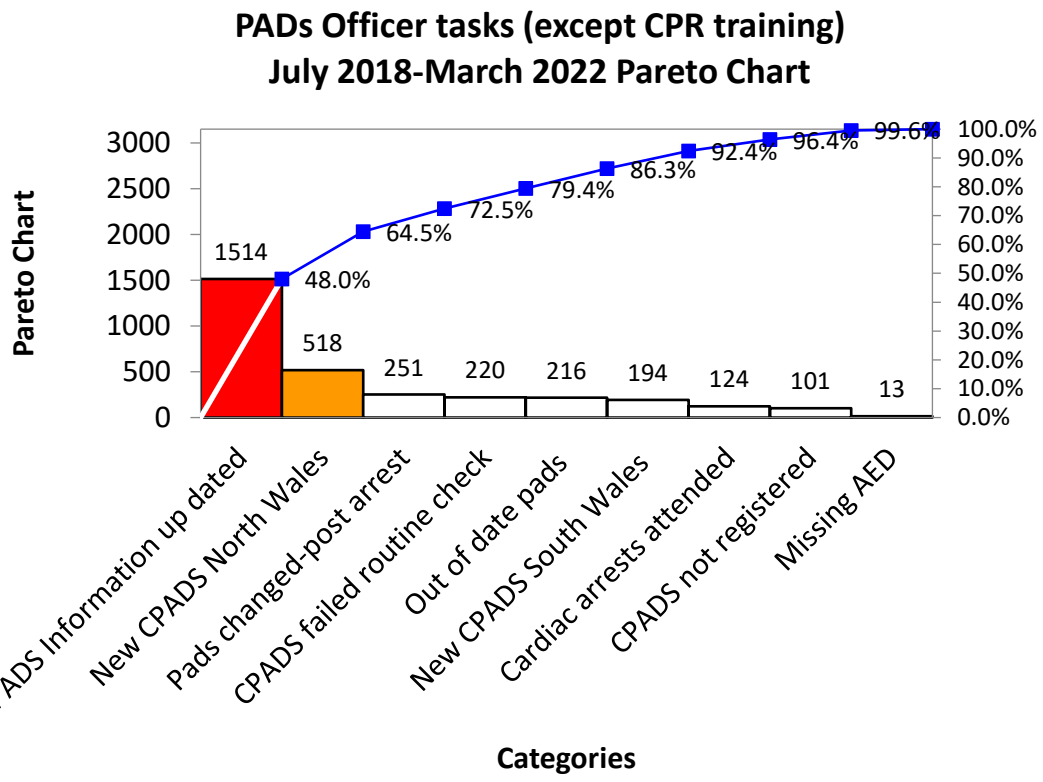



Figure 3: Pareto Chart illustrating the activities of the PADs Officer in order of magnitude (Courtesy of Dr Sue Goodfellow – Improvement Adviser)

**Lost AEDs**

The data has highlighted missing AEDs, the majority of which have been taken by the emergency services following an OHCA. The North Wales PADs Officer is currently piloting a system to ascertain the most effective way of managing an AED once it has been utilised in the community.

## Secondary Driver: Defibrillator Support

*Test of change:* Treasure Hunt

If an AED is to be available with 24hr access as a CPAD, it needs to be on an exterior wall in a heated cabinet to keep the AED battery and electrodes at an operational temperature during the winter months. When someone dials 999, the ambulance call handler will direct the rescuer to their nearest registered defibrillator if there is one available within a 500m radius and there is more than one rescuer at scene. The defibrillator can then be removed from the cabinet and taken to the patient; no training is needed to use a defibrillator as it tells you what to do.

Defibrillators need a certain amount of maintenance; the electrodes are single use and have to be replaced every three to five years as the gel that adheres to the patient degrades over this time. The battery in the AED needs to be replaced every 3 to 4 years, but some consumables such as the pads need to be replaced ever time the device is used.

An initiative was undertaken in the form of a “Treasure Hunt” to ensure all local AEDs were registered on the National Defibrillator Network. Community First Responder (CFR) teams and NHS staff visited all known AED sites within North Wales, updating information about the CPADs on the Network and applying a green tick to checked CPAD cabinets.

A bilingual video hosted by the Project Manager and PADS Officer was sent to communities and all primary schools within North Wales, inviting them to join in the Treasure Hunt to find unregistered CPADs that did not host a green tick.

### *Outcome measure:*


The Treasure Hunt was a huge success in highlighting unregistered CPADs and those not rescue-ready; it also allowed a significant amount of data to be uploaded to the National Defibrillator Network system. The Treasure Hunt video was also aimed at educating the general public about defibrillators, their location and how to use them. The video has helped to raise the profile of CPADs in the area and has had over 16,000 views.


The initiative also highlighted a multitude of other problems with the CPAD sites including: lack of awareness by the community that CPADs need to be registered and maintained; lack of registered guardians; malfunctioned defibrillators due to inappropriate storage; and expensive on-costs for some makes of defibrillators. The Treasure Hunt highlighted the need for a further test of change - Standardization of Defibrillators and Cabinets.

## Secondary Driver: Defibrillator Support

*Test of change:* Standardisation of Defibrillators and Cabinets

The Treasure Hunt highlighted that some defibrillators malfunction and are not rescue ready because they are not being kept in a warm, dry environment as recommended by the manufacturer. CPAD sites were found offline and not rescue ready as communities struggled financially to replace consumables as and when required. With some defibrillators this maintenance can be very costly.

With a lack of knowledge and absence of advice in relation to the different types, makes and models of defibrillators and their ongoing costs, communities were not provided with the information they needed to make an informed decision on purchases. This was leading to hidden ongoing costs and lifesaving equipment being abandoned and unused.

Further investigation highlighted a similar problem with defibrillator cabinets. With no minimum manufacturing standard required for a defibrillator cabinet, multiple defibrillator cabinets were being used outdoors, but not all are offering a warm, dry environment for the defibrillator in the long term. It was found that some materials struggle to withstand either the environment they are placed in or appear to struggle with adverse Welsh weather conditions, with some plastic cabinets degenerating and cracking thus allowing moisture in. It was therefore decided that a standard cabinet should be used and this was influenced by cost and the most robust material available at the time of assessment, which was metal.



The cabinets required a second test of change as some metal cabinets were beginning to rust. Even marine-grade stainless steel cabinets with powder coating against corrosion appeared to struggle to withstand the elements, especially in Wales' coastal areas. On assessment, the new polycarbonate cabinets appeared robust and with a 10-year warranty, gave the community reassurance towards the product.

### *Outcome measure:*

The ability to recommend one make of defibrillator, which was supported with free replacement pads and batteries, enabled CPAD sites to be made rescue ready without delay. This change was clearly visible on the National Defibrillator Network with minimum CPADs offline in the area. This was therefore accepted as good practice and continues.


The polycarbonate cabinets have since been used by the Project and with no complaints from the community or visible degeneration in these cabinets. This type of cabinet has been accepted as good practice, but the need for change is assessed annually.

## Secondary Driver: Community Support

*Test of change:* NHS Charity

It was noted that some communities lacked the funding required to replace broken equipment or out of date pads and batteries and had limited resources available to them to aid with fundraising. This was having a direct impact on CPADS being left not rescue ready. Being part of the North Wales NHS Charity, Awyr Las, KTB was able to offer financial support to its community by:

- Financially supporting the PADS Officer's role from 2020-2022
- Offering financial support for CPAD sites
- Obtaining funding via grant application from Awyr Las for new CPAD sites
- Applying for outside grants for community projects
- Negotiating reduced cost of defibrillators and cabinets from suppliers
- Providing 'Just Giving' pages for communities to raise money for their equipment.

### *Outcome measure:*

Over the last two years, over £100,000 in donations and grants have been received by KTB, all of which has been put back into the North Wales' community to help support the purchase of educational videos, cabinets, defibrillators, pads and batteries.


KTB has secured funding for rural defibrillators in high-risk areas to be made available with 24hr access, including places like Snowdon and Moel Famau. It has worked with large companies like Tata Steel, placing 20 AEDs on site, Brenig Wind farm placing 8 CPAD in high-risk areas, and Menter Mon placing 40 CPAD sites along the North Wales coastline.

As a charity, KTB has also gained support and funding for a KTB Educational trailer/ outdoor classroom. This facility will allow for outside teaching of CPR to the community, as well as being an educational resource. This facility will also support screening of the general public for atrial fibrillation, a heart rhythm often associated with cardiac arrest, with the facility to perform an electrocardiogram (ECG).


# Final data assessment

The North Wales OHCA Project has been assessed against its original outcome measures set out in 2018.

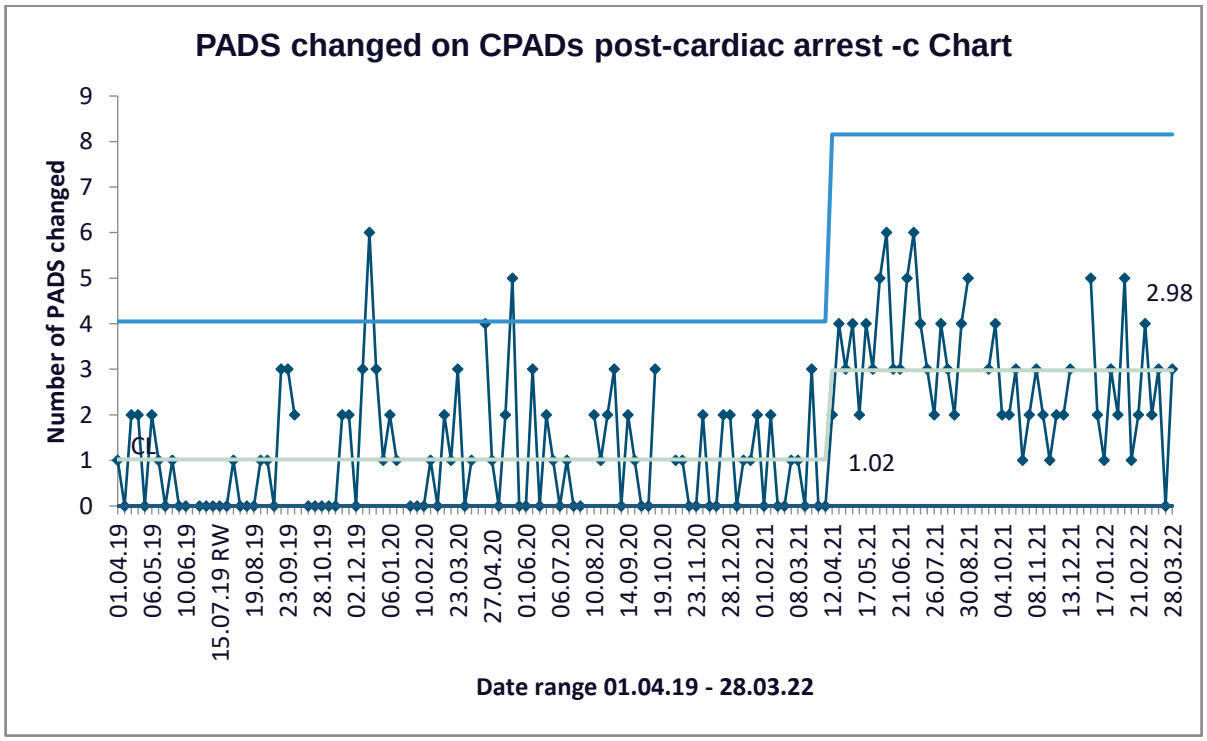
### Increase in survival rates from OHCA

WAST are currently undertaking processes to confirm the validity of OHCA data for Wales and much behind the scenes work is ongoing to verify the accuracy of this important measure. Once this data set is available, it will be a useful resource in measuring any improvement in the survival rates from OHCA in the area. Without the measurable data in the form of an OHCA Registry for Wales, the North Wales Community OHCA project success has had to be measured on its activity and the presumption that this has had a positive impact on OHCA survival outcomes in the area until there is evidence to support this.

### Increased use of CPAD sites by the community

There has been a steady increase in the use of CPADs by the community, resulting in the need for replacement pads. This suggests that there is a greater awareness of the Chain of Survival and willingness to retrieve and use a defibrillator for emergencies.

Figure 4: Illustration of the increased use of CPAD sites (Courtesy of Dr Sue Goodfellow – Improvement Adviser)



## Increased number of CPADs within the Community

There has been a steady increase in the understanding of the importance of CPADs and willingness in the community to support the purchase and installation of them. This has been supported by the assistance of the PADs Officer.

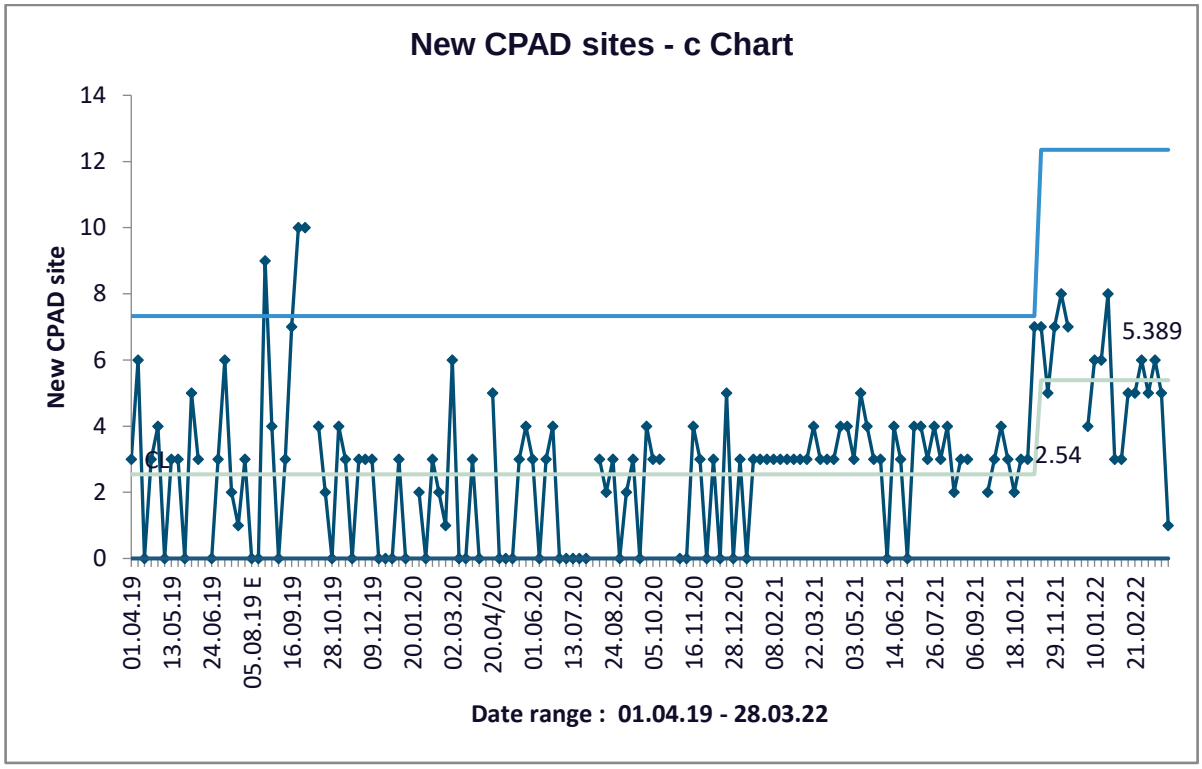
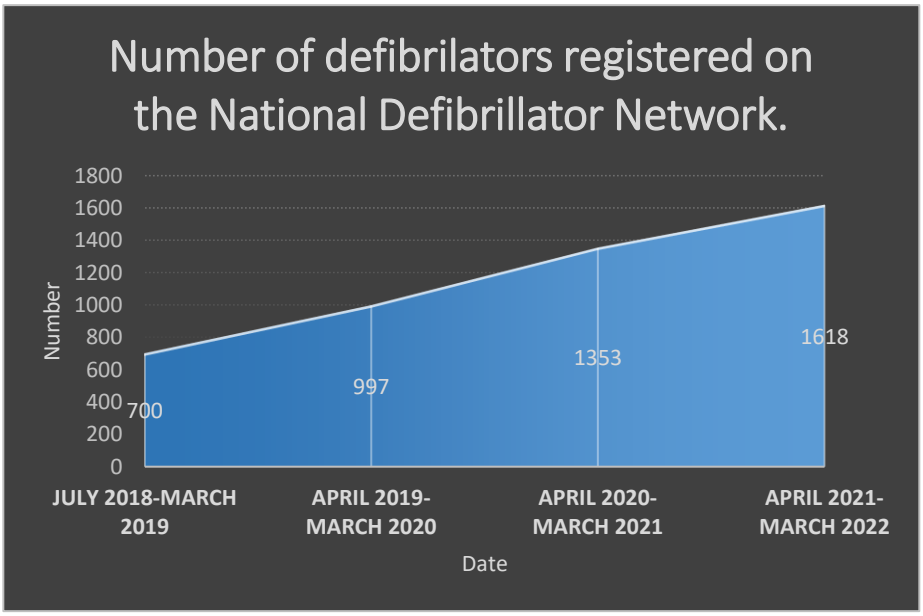



Figure 5: Increased number of CPADS installed (Courtesy of Dr Sue Goodfellow – Improvement Adviser)

## Number of registered defibrillators on the National Defibrillator Network




A significant amount of work has been undertaken to raise the profile and register defibrillators on the Network within the BCUHB area and this is clearly visible with the amount of defibrillators that have been registered, especially within the last year.

Figure 6: Number of CPADS registered within BCUHB

## Reduced number of dysfunctional CPAD sites

At the time of writing the report, of the 1,618 CPADS within the BCUHB catchment area, there are only 26 defibrillators offline and not rescue ready, 13 of which are pending pads and batteries, which are currently in short, supply due to global demand. The North Wales Project has highlighted that the National Defibrillator Network is extremely proficient at managing CPADs, ensuring that non-rescue ready CPADs are removed from the system and only re-instated once the problem has been resolved. Unfortunately, the guardians (allocated person responsible for each CPAD) are not always quick to respond to a request to assess their CPAD site once it has been used to address any issues, leaving the CPAD unusable and offline. For this reason, a future recommendation could be to explore the possibility of compiling a database of volunteer emergency care staff, who understand the urgency of reinstating CPAD sites and can offer support to the PADs Officer and ensure that CPAD sites are offline for the shortest period of time possible.

## Report Conclusion

Driven by enthusiasm and dedication, this is an exemplary demonstration of cross service collaboration, which has improved accessibility to CPAD's, more than doubling the volume of lifesaving equipment available, as well as providing support to ensure they remain operational and rescue ready. Assessed against the outcome measures set back in 2018, there is now a greater awareness and willingness within the community to retrieve and use a community defibrillator, improving the chance of survival from an OHCA suggesting the educational programme within North Wales has been a success. With the support of the Welsh Government, SaLC are now utilising the achievements gained in north Wales to aid in the development an all Wales strategy.

We would like to take this opportunity to thank supporters of the Project, including those who have supported Cadwch Curiadau Keep the Beats, and hope you are as proud as we are, of what we have achieved together.