Dear Convener,

Thank you for your letter of 26th March 2019 and to members of the Health and Sport Committee for their interest in the development of the Scottish Ambulance Service following our appearance at the Committee’s 26 February meeting.

Emergency demand continues to increase and the role of the SAS is changing. We welcome the opportunity to engage with members to explain these changes and seek their input into further service improvement.

As requested, answers to your specific questions are set out below:

**NEW TRIAGE SYSTEM AND RESPONSE TIMES**

**Q. Can you provide further information on the standards for the amber and yellow categories, what is their current target and how often is it being met?**

The current time based response standard for the amber response category is a median response of 15 minutes and 90th percentile of 30 minutes. For the yellow response category the median response time standard is 20 minutes and the 90th percentile is 60 minutes. Since the implementation of the new response model, the amber standard has been met each month and the yellow standard met in all but two months (due to excessive demand in these two months).

**Q. You stated that just before winter 2018, you looked at how to re-categorise those patients who are particularly vulnerable and who may be outside with fractures. You said that “those types of patients have not waited as long as they did in previous winters”. (Official Report, Col 6) Can you elaborate further on this point? What does the Scottish Ambulance Service deem as an acceptable time for vulnerable patients to wait outside for an ambulance to arrive?**

The New Clinical Response Model (NCRM) triages patients using multiple sources of information - providing the most appropriate response to save lives. As part of this, we also consider more complex factors such as the humanitarian needs of our patients.

Following detailed review, in December 2018 we started to re-triage a cohort of patients who were identified as vulnerable from their injury and environment status – for example, potential fracture in an outside location. As is explained above, the current time based response standard for the amber response category is a median response of 15 minutes and 90th percentile of 30 minutes.

The re-triage of these patient groups has shown improvements in the median and 90th percentile response as presented in the table below. The NCRM triage process is designed to respond to these patients with the closest resource that is not being used to respond to a higher priority incident.
### Table: Call Started Calendar Year, Call Started Calendar Month, Incident Count. This refers to a despatch code for falls patients, Incident Count, Median, 90th Percentile

<table>
<thead>
<tr>
<th>Call Started Calendar Year</th>
<th>Call Started Calendar Month</th>
<th>Incident Count. This refers to a despatch code for falls patients</th>
<th>Median</th>
<th>90th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>December</td>
<td>1199</td>
<td>20.38</td>
<td>77.99</td>
</tr>
<tr>
<td>2018</td>
<td>January</td>
<td>885</td>
<td>17.27</td>
<td>50.09</td>
</tr>
<tr>
<td>2018</td>
<td>February</td>
<td>926</td>
<td>16.86</td>
<td>45.58</td>
</tr>
<tr>
<td>2018</td>
<td>December</td>
<td>1690</td>
<td>12.28</td>
<td>28.09</td>
</tr>
<tr>
<td>2019</td>
<td>January</td>
<td>1386</td>
<td>12.15</td>
<td>27.57</td>
</tr>
<tr>
<td>2019</td>
<td>February</td>
<td>1339</td>
<td>11.97</td>
<td>26.09</td>
</tr>
</tbody>
</table>

### Q. What is the longest time a patient with non-life-threatening injuries (amber and yellow category) has waited on an ambulance in each of the past three, six, nine and twelve month periods?

The longest response times to the amber and yellow response categories in the requested time frames are outlined in the table below. These incidents need to be considered with further background, to allow for a fuller understanding of the context of the response and our continual focus on patient safety. All of these patients receive ongoing triage and safety netting. Under these safety net procedures, if the patient condition worsened, the call would be upgraded and a faster response sent when necessary.

There are multiple factors related to longer response times. These can be related to the geography and the situation of the incident, surges in demand for crews to attend other patients with immediately life threatening conditions and hospital turn-around times. There can, for example, be instances where a GP in a rural location is with a patient and is content for the only SAS resource to attend when finished with another ongoing incident in the location. There are also occasions when identified low acuity patients are passed to partner agencies for further assessment and then passed back to SAS to respond for a face to face assessment. These patients receive continual additional triage until the face to face assessment is possible, with the outcome that these patients may not require further treatment or hospital care. By introducing the new measurement system of 90th percentile response times, we are now able to better scrutinise and analyse our longest waiting patients and the factors which may have led to these waiting times so that improvements can be considered to our approach.

SAS reviews the circumstances where patients experience delays in response, such as these, in order to identify learning for improvement in practice. All of these individual circumstances have been reviewed and the reasons for the delays are multi-factorial. Although no clinical harm has been identified in any of these cases, the patient experience was below that which we endeavour to provide. As has been stated previously in response to questions from the committee about delays in response, SAS has already taken a number of steps to reduce long delays and further initiatives are being progressed currently.

The committee will recollect that delays to yellow calls were significantly less in winter 18/19 than in the previous year despite increases in demand for high acuity emergency response. Though some patients whose lives are not in any immediate danger can wait longer for a response (often because an ambulance despatched to them will be diverted to a life-
threatening emergency), this new model is enabling us to save more lives as the recently published evaluations by the University of Stirling and the Scottish Ambulance Service demonstrate. As was highlighted, there was a 43% increase in survival for our sickest patients in the first year of the pilot alone. We have observed no increase in mortality (at 24 hours or 30 days) in the yellow or amber code groups.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Amber</td>
<td>116.00</td>
<td>112.00</td>
<td>680.00</td>
<td>515.00</td>
</tr>
<tr>
<td>Yellow</td>
<td>767.40</td>
<td>375.00</td>
<td>724.00</td>
<td>487.00</td>
</tr>
</tbody>
</table>

**Q. Is the board planning to look at the overall care experience of people with non-life-threatening calls?**

The NCRM project has used a considerable (predominantly quantitative) evidence base to support its changes and benefits. The evaluation reports no statistical changes in morbidity for non life threatening patients.

The NCRM changes are part of a five year programme of investment and reform and we are on track to recruit and train an additional 1000 paramedics by 2021 which will help to reduce delays for non life threatening calls. The service engages with a range of stakeholder groups regarding a wide range of service issues including the care experience and the NCRM.

As part of this work, and to seek patient, carer and public input to our future improvement plans we are engaging directly with patients through our growing network of patient and public representatives through a series of workshops across the country, as well as working in partnership with around 50 third sector organisations to access the views of their membership. We are also working with the Scottish Health Council to utilise their national ‘Our Voice Citizens' Panel' to examine the care experiences of the public when using the Scottish Ambulance Service and this direct engagement over the summer months will enable us to collect valuable feedback.

**Q. Who do you consider is responsible for taking care of patients when they are waiting up to three hours for an ambulance to arrive?**

Within the Ambulance Control Centre (ACC) there are a team of clinical advisors from a paramedic or nurse background. Their role is to provide additional clinical lead triage to patients, either to provide them with potential access to alternative care pathways, or during times of high emergency incident demand, the clinical advisors will provide a safety net ensuring patients with a prolonged response time are provided with ongoing secondary triage and regular check-in calls to ensure there has been no deterioration in their condition, and to ensure patient safety. If there is any deterioration, the response is upgraded and if required, an immediate response sent.
CLASSIFICATION OF 999 CALLS

Q. Can you provide further information on whether changes to the new model have had a positive impact on response times and how incorrect classifications of patients are currently dealt with?

Response times to response categories Purple, Red and Amber have been stable since the introduction of NCRM. Formal clinical governance structures and reporting procedures are in place to continually review our performance. These processes ensure that as an organisation, we are continually analysing internal clinical data to identify any trends in patient deterioration or patient harm. This process is currently developing to regularly use linked NHS Scotland patient outcome data, which is ground breaking work internationally within the Ambulance service community. We are not aware of any ambulance service in the UK or internationally that has this level of continual review and scrutiny of their response model.

SAS is committed to responding in both a time – appropriate manner and with the correctly configured resource based on an accurate understanding of the clinical needs of the patient. The model that we have developed has a clearer focus on outcomes and we have refreshed our measurement framework. Rather than focusing solely on an 8 minute measure which was developed in the 1970s based on minimal evidence, and which has now been replaced elsewhere in the UK, we also report median and 90th percentile for all of our categories alongside a wider suite of clinical outcome indicators. These enhanced measures are based on expert evidence and we will continue to refine these and benchmark our performance with other Ambulance Services.

Q. 10 per cent of calls in the biggest category are not provided an ambulance within 50 minutes. Please provide further information on how long this substantial number of patients is waiting and detail on the steps taken to eradicate this figure.

SAS reaches 90% of yellow coded calls in less than 60 minutes. We look at every case where a patient has waited longer than 90 minutes in order to identify factors to improve response. Any clinical concerns regarding the impact of delays are robustly reviewed through our incident reporting systems which report through our Clinical Governance processes. Any clinical concerns regarding the impact of delays are covered by our adverse event reporting systems which report through our Clinical Governance processes.

More widely, we are training 1,000 more paramedics up to 2021 and plan to continue to develop and grow our workforce to respond to the demands made for our services.

The Service last year commissioned a national review of existing A&E resources and those required to meet both current and projected future call demand within agreed performance targets and safe utilisation rates for crews.

The recommendations of this demand and capacity review have been accepted by the Service and detailed work is now underway to develop a business case for funding from the Scottish Government to deliver the recommended staff numbers, required crew skill mix and working patterns for each location.
Q. How many front-line staff have experienced aggressive and abusive behaviour from patients and members of the public following a lengthy wait for an ambulance in the past reporting year? Do the figures vary across the regions?

The following table shows the number of times frontline staff have been subjected to aggressive/abusive behaviour during 2018 – this is divided into physical and verbal abuse. Our data does not record whether this abuse is happening because an ambulance has arrived later than expected. There are many reasons why a patient can be abusive.

No one region stands out and assaults against staff are consistent across each region/area. The number of assaults remained steady; however the number of days taken off as a result of assault went down from 502 days lost in 2015/16 to 216 in 2017/18.

<table>
<thead>
<tr>
<th>Date</th>
<th>Assault Physical</th>
<th>Assault Verbal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2018</td>
<td>14</td>
<td>8</td>
<td>22</td>
</tr>
<tr>
<td>Apr 2018</td>
<td>12</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>May 2018</td>
<td>9</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Jun 2018</td>
<td>15</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>Jul 2018</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Aug 2018</td>
<td>13</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Sep 2018</td>
<td>13</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>Oct 2018</td>
<td>12</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Nov 2018</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Dec 2018</td>
<td>17</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td>Jan 2019</td>
<td>11</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Feb 2019</td>
<td>11</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113</strong></td>
<td><strong>89</strong></td>
<td><strong>222</strong></td>
</tr>
</tbody>
</table>

Q. What training and support mechanisms are in place for front-line staff experiencing this type of behaviour?

We take any assaults or aggressive behaviour towards our staff very seriously and we have a range of support mechanisms in place to support any staff member who has suffered in this way. In our answer to one of the latter questions below, we have provided more detail on what these are – for example, counselling services, therapeutic services, mindfulness resources and training, and the extensive training we give to managers to support staff suffering stress.

Currently our violence and aggression training involves the delivery of conflict resolution training. This is delivered to all clinical staff, both as part of their studies in training to become clinicians and as part of their annual continuing professional development training.

The Police can accompany Scottish Ambulance frontline staff when a crew attends an address which has been flagged because of the risk posed to staff on a previous occasion.

Staff are taught to carry out a full risk assessment when arriving to assist a patient – if a particular environment is unsafe, they radio control for further advice and support.
PUBLIC ENGAGEMENT

Q. Can you provide further information on the current engagement strategy to communicate the new model to members of the public?

A public engagement strategy around the New Clinical Response Model has been ongoing since the introduction of the model in November 2016. Most recently, we announced the results of our analysis of the New Clinical Response Model, and that of Stirling University’s, in February 2019.

This announcement received UK wide coverage in national and local newspapers and radio stations, including feature items on BBC TV News, STV News and Bauer Radio stations.

This was supplemented with a full digital engagement strategy on the results of the evaluations as well as the aims and objectives of the NCRM, which received very positive feedback from the public and our staff. We also received interest through our digital channels from other ambulance services from across the world interested in our approach.

We are currently implementing the next stage of our engagement strategy, which will focus on community and patient engagement around the NCRM and the services the Scottish Ambulance Service provide.

Q. Do you believe members of the public are likely to understand the process when they call 999 and are they aware they may not receive an ambulance in eight minutes? What is the level of public acceptance and satisfaction with the new protocol? How does the future engagement strategy address this?

The number of complaints the Scottish Ambulance Service receives about the services we provide for patients represents around 0.07% of the 1.5 million calls we answer each year. As such, and combined with the large number of compliments our staff regularly receive, we believe that the majority of patients we help are happy with the services we provide and the care given to them. However, we are currently implementing the next stage of our engagement strategy to look at this in more detail, which will focus on community and patient engagement around the NCRM and the services the Scottish Ambulance Service provide. One of the aims is to raise public awareness and determine their priorities when they require the assistance of our services.

As part of this work, we will be targeting local newspapers, hosting focus groups with patient representatives across the country, working with third sector organisations and their memberships, holding community engagement events in selected local hospitals and holding staff engagements events in selected stations and ambulance control centres in Scotland.

We are planning to utilise these focus groups to analyse public awareness, views and experiences.

We also plan to gauge public knowledge via the Citizen’s Panel which will benchmark levels of understanding. After gathering this data across a range of sources, we will consider if further action is needed.

We are also planning more Parliamentary events and engagement opportunities to inform all MSPs of current activity and provide them with regular information to allow them to keep constituents informed through their regular surgeries and local newspaper articles.
We believe there is a general acknowledgement amongst the public that they may have to wait longer in a non-life-threatening condition, if our crews are diverted to priority life threatening incidents. However, we are keen to test this further through the direct engagement work we will be undertaking.

**RESPONSE TIMES IN RURAL AREAS**

Q. You mentioned in the evidence session that in remote and rural areas, there is a network of first responders who work closely with ambulance crews and are a vital resource. “Our new wildcat responders for patients who have had cardiac arrests have been in place for more than a year. That programme has been evaluated as doing “very well”. (Official Report, Col 15). You confirmed that this is part of a five-year programme of investment and reform. Can you further elaborate on “very well” and provide further evidence from this evaluation? Is there a target for the five-year programme?

During the first year (2017/18) of the Sandpiper WILDCAT project, the team successfully trained and equipped over 500 cardiac arrest community responders. These volunteers have been ‘live’ on the Scottish Ambulance Service Computer Aided Dispatch system ever since.

During the first year of the project, Sandpiper WILDCAT responders have been dispatched to 171 calls, and are arriving at an average of 5 minutes before the first ambulance and delivering demonstrably high quality basic life support.

The first ever regional deployment of the Zoll Automated External Defibrillator (AED) 3 has allowed real time CPR guidance, multi-factor analysis of responder resuscitation performance and detailed individual feedback and support. The project has gained significant momentum and is demonstrating improved resuscitation after an Out of Hospital Cardiac Arrest (OHCA).

Q. Given that the eight-minute target for immediately life-threatening cases is still used, can you provide further evidence on how this target is reached within large rural areas and provide a regional breakdown of response times across Scotland? Are there particular postcode areas where response times are often missed and if so, which ones?

Please see the table below (covering the last three financial years 2016/17, 2017/18 & 2018/19), which outlines the way in which area affects our response times.

<table>
<thead>
<tr>
<th>Urban_Rural_6_Fold (NRS_NEW)</th>
<th>Urban / Rural Split</th>
<th>Incident Count</th>
<th>Median</th>
<th>90th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Large Urban</td>
<td>108820</td>
<td>6.27</td>
<td>11.50</td>
</tr>
<tr>
<td>2</td>
<td>Other Urban Areas</td>
<td>93808</td>
<td>6.17</td>
<td>13.30</td>
</tr>
<tr>
<td>3</td>
<td>Accessible Small Town</td>
<td>16791</td>
<td>9.75</td>
<td>17.80</td>
</tr>
<tr>
<td>4</td>
<td>Remote Small Towns</td>
<td>8445</td>
<td>4.95</td>
<td>20.38</td>
</tr>
<tr>
<td>5</td>
<td>Accessible Rural</td>
<td>21003</td>
<td>10.28</td>
<td>19.35</td>
</tr>
<tr>
<td>6</td>
<td>Remote Rural</td>
<td>9883</td>
<td>12.17</td>
<td>28.60</td>
</tr>
<tr>
<td>7</td>
<td>Unknown</td>
<td>4967</td>
<td>6.45</td>
<td>13.64</td>
</tr>
</tbody>
</table>

In those rural areas where median response times are beyond 8 minutes, we seek to work with local communities and other partners to develop first responders who can provide vital life saving tasks whilst the ambulance is on its way.

POLICE SCOTLAND

Q. Recent press reports state a significant proportion of Police Scotland’s resource is being taken up by Officers escorting patients with mental health and other issues to hospital. Vice Chairman of the Scottish Police Federation, David Hamilton, was quoted as saying, “Our Members are telling us that they are now regularly left escorting people to hospital or waiting around because there is nobody else to do it.”

We are unclear how this is occurring and what categorisation is given to such patients. Are the claims of the Scottish Police Federation borne out by the experience of the ambulance service?

Has the new response system inadvertently had a detrimental effect on the Police Service?

The Scottish Ambulance Service has a close working relationship with other emergency services in Scotland. We continue to triage and respond to emergency calls for assistance from Police Scotland following well established arrangements and are jointly considering whether these need further examination. We are currently working closely with Police Scotland and NHS 24 to ensure that we provide the optimal care and access to alternative care pathways to patients in a mental health crisis.
Q. You mentioned a pilot scheme in Lanarkshire with Police Scotland and NHS 24, stating that “research around the UK has indicated triage from police and ambulance into more appropriate and robust referral pathways is sustainable and evaluates well”. (Official Report, Col 11). The Committee are concerned to ensure successful pilot schemes are rolled out. Please provide further detail on the evaluation of this pilot and provide a date for implementation across the country.

The work to develop the pathway is progressing and has now been firmly linked into the wider development of an NHS24 Mental Health Hub.

We are currently testing the concept with calls being transferred from SAS to the NHS24 Mental Health hub. Plans are in place for a further exercise between SAS control staff and NHS24 to identify any additional calls which may be clinically safe and appropriate for the pathway.

During the test of concept phase the hub is online from 18:00 until 02:00 on Fri, Sat and Sunday. NHS24 are currently recruiting a second cohort of staff to expand the service in early summer. The hub will take calls on a national basis, Lanarkshire will then, by default, become the test area for the Police Scotland component.

In terms of timescales, the test of concept with SAS is currently ongoing and has been running for the last 4 weeks. We will be seeking external evaluation of the test of concept, and aim to extend to cover all of Scotland building on the learning from the tests.

**NUMBER OF INAPPROPRIATE CALLS**

Q. Please provide statistics on the number of inappropriate calls received out of hours in the past three years and the impact this has on the overall service.

SAS does not label calls as inappropriate. We respond based on clinical triage. This ensures that we are able to refer callers to the most appropriate pathway.

Patients may experience high levels of anxiety or misunderstand symptoms which means that what was initially considered as an emergency turns out not to be the case. In such circumstances SAS has a role in providing reassurance, excluding serious illness and signposting people to other sources of support.

Where a SAS response is determined to be required, it is prioritised by our call handlers using the triage system. Based on the clinical acuity of each patient, the most appropriate resource is sent to the scene.

**STAFFING**

Q. What measures are being taken to eradicate bullying from the organisation and how are staff being encouraged to communicate their concerns?

We take all reports of bullying very seriously and we investigate all reports fully. Staff are encouraged to raise their concerns and we have raised awareness of this issue via our Dignity at Work survey and through a series of workshops.

Dignity at Work survey results for the Scottish Ambulance Service were widely publicised across the Service through briefings, the Chief Executive’s Update and through Directorate reports across each of the business areas.
The results recognised that whilst improvements had been made, there was still work to be done including rolling out our values toolkit with supplementary workshops; the promotion of the revised Whistleblowing policy and work to support and encourage more staff to report instances of unfair discrimination and bullying and harassment.

A series of eight workshops were put in place across Scotland to discuss the results of the Dignity at Work survey (and the stress survey) and how these compared with the responses to the survey in 2015. This provided an opportunity to encourage staff to challenge behaviours and report incidents of bullying and harassment.

At the workshops staff were asked for their suggestions as to how improvements could be made. These included more face to face time with staff to deliver important messages including the creation of regular station visits for operational managers, a greater understanding of organisation values and efforts being made to reduce the perceived negativity around staff absent from work due to ill health.

Following on from these workshops, we are encouraging our managers, through their iMatter action plans, to take forward these actions and make these improvements.

Q. How is progress being monitored by the Scottish Ambulance Service?

We continue to report the number of dignity at work cases through our National Partnership Forum and Staff Governance Committee in order to provide enhanced governance. These cases are closely monitored by Managers with support from HR Department to ensure they are appropriately investigated and action is taken, including putting support in place for managers and staff as necessary. Effort has been made locally to work with managers, staff side and staff in order to manage Dignity at Work concerns initially informally, in line with NHS Scotland policies, to deal with these quickly and avoid the need for more formal process.

Q. Is this issue consistent nationally or specific to certain regions?

Whilst the responses to the Dignity at Work survey do vary across the regions it is recognised that the questions scoring lower in the survey are similar nationally.

We routinely review our leadership development activities, to up skill our people. This year we are picking up the theme of Compassionate Leadership (Reported by Kings Fund) and incorporate this theme in our Development work.

Q. What support is available for staff if they are being bullied or experiencing harassment in the organisation?

Through the Promoting Dignity at Work policy staff are supported to raise issues. Staff are encouraged to consider informal ways of resolving issues: in the first instance, line managers, the Human Resources team and staff side partners can provide advice.

Individuals can also contact a Confidential Harassment Adviser who, whilst not having a formal role as a professional counsellor, can provide support through the provision of information in order to enable the individual to decide how they wish to proceed.

Complainants may access a Confidential Harassment Adviser from a different area of the organisation from that in which they are employed, if they would find this more helpful. Contact details of the Confidential Harassment Advisers are available on the Scottish Ambulance Service intranet.
Employee Counselling is also available for all staff who wish to speak to a person independent of the organisation that can provide advice and support or can make arrangements for an appointment or structured counselling session.

It is recognised that there may be circumstances whereas member of staff feels that they need to report a concern to an outside body and they can do so through the Whistleblowing Alert and Advice Service – this is promoted through the Whistleblowing policy, should this be required.

SICKNESS LEVELS

Q. You also highlighted the top two reasons for sickness absence in the Scottish Ambulance Service; musculoskeletal illness and mental health illnesses including anxiety, stress and depression. Can you provide a breakdown of what proportion of sickness absence is down to musculoskeletal problems and what proportion is accounted for by mental health?

The following table provides the total absence rates both musculoskeletal and mental health illnesses for the 12 month period to the end of Feb 19:

<table>
<thead>
<tr>
<th>Absence Type</th>
<th>Number of Occasions</th>
<th>Adjusted Lost Days (7.5 Hr)</th>
<th>Lost Days Per Occasion</th>
<th>Percentage of Lost Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Health</td>
<td>585</td>
<td>20826</td>
<td>35.6</td>
<td>25.67</td>
</tr>
<tr>
<td>Musculoskeletal</td>
<td>1226</td>
<td>24404</td>
<td>19.9</td>
<td>30.08</td>
</tr>
<tr>
<td>All Absence</td>
<td>6452</td>
<td>81121</td>
<td>12.6</td>
<td></td>
</tr>
</tbody>
</table>

Q. With the sickness rate remaining at 7.6% for the second year running, it would appear that new initiatives are having minimal impact on reducing staff sickness levels. What further measures are you undertaking to address this important issue? Are you introducing any initiatives to address mental health and wellbeing?

Promoting attendance and managing absence is a key priority for the Service. Our target areas of focus are around the top reasons for absence, namely Musculoskeletal and Anxiety/Stress/Depression issues.

Managers, working with the HR Department, continue to establish/maintain a work environment that encourages attendance at work including ensuring staff have a healthy workplace, promoting and supporting health and wellbeing initiatives, recognising and managing potential stress factors and continuing to be approachable and considerate.

We have a Wellbeing Implementation Plan and there is an established attendance management policy, procedure and guidance supported by manager training. Absences related to mental health are tracked and monitored. We conduct individual stress risk assessments as required. The Service also provides Occupational Health and Employee Counselling Services as well as providing access to therapeutic mental health interventions by manager referral.
Our auditors carried out an internal audit of sickness absence in SAS which was completed in October 2018. The key findings show they are assured that SAS procedures reflect good practice in a number of areas; they also provided recommendations which would strengthen our framework. These recommendations are included in the Promoting Attendance Action Plan 2019/20, to be delivered by 31st March 2020.

In addition, we are increasing manager awareness of mental health issues to support staff; this includes Mentally Healthy Workplace Training undertaken by all managers which focuses on managers being able to recognise and manage potential stress factors which may be related to mental health issues.

Training has also been provided to all managers on the use of the Individual Stress Risk Assessment tool, which highlights the level of stress an individual is facing in relation to their work and the support that is offered and can be put in place to reduce these levels. This tool is now in regular use and feedback from managers and staff is positive with a view that it is assisting employees currently at work who are suffering from stress and assisting employees who are off with work related stress; and better enabling them to return to the workplace with appropriate support in place.

During 2019 Mindfulness (Stress Resilience) training will be delivered to our staff. In addition to the four day intense programme we have developed a one day Mindfulness Awareness training module.

We have signed up to Scotland’s national programme ‘See Me’ to raise awareness and tackle mental health stigma and discrimination in our workplace. We are currently surveying staff to assess our knowledge, attitudes and experiences of mental health topics in relation to key aspects of work. An action plan will follow based on the results.

The Service is also rolling out Listening and Support groups across all regions and for our staff. An example of this is the West Lothian Listening and Support Service (WELLS). This is an informal group meeting for frontline staff in the West Lothian area. It was created to support staff who may have attended an incident that has had an adverse effect on that individual and is a platform where the staff member can talk openly and frankly about an incident without fear of judgement or bias.

Feeling Good App: As part of the Service’s aim to improve mental health amongst staff, we have purchased access to the Feeling Good App for all staff. The app contains an evidence based self-help programme for increasing wellbeing and recovery from stress, worry and low mood.

The app contains a mind/body programme derived from sports psychology, which takes the user through a set of 12 physical and mental exercises.

TRiM (Trauma Risk Incident Management) pilot: we have launched (TRiM) pilot. TRiM provides support to colleagues who have suffered traumatic stress at work. It is peer delivered and looks to support individuals, signpost them to appropriate resources and assist them in returning to work. Once evaluated any recommendation(s) from the pilot will be taken forward.
Q. You also agreed staff sickness has impacted on your budget. Please provide the Committee with the accurate figure for this additional cost.

We have estimated that every 1% of the total working year lost to absence costs us £1.3m.

Q. Please provide details of the comparative sickness rates for the other organisations mentioned. Has any investigation been undertaken to understand why this is the case?

For comparative absence studies we looked at the report, published in September 2018, which noted that ambulance trusts in England had the highest absence rates in the NHS sector which equated to 20 working days per annum, per employee. In SAS the equivalent of 14.4 days per annum, per employee were lost to sickness absence.

The Scottish Ambulance Service is actively involved with the Project A collaboration of all UK Ambulance Services on the wellbeing of staff. Representatives from the service contributed to the #ProjectA Wellbeing Accelerated Design Event on the 5th March in London in which the RUOK? Campaign within the SAS was shared and show cased. The day focused on how we can create safe spaces and ensure wellbeing is embedded across all the ambulance services in the UK. Different approaches were presented and shared including examples from other emergency service sectors. It was noticeable that all ambulance services were represented on the day, signifying the importance of the subject matter.

We are also engaging in a multi-agency Scottish public sector group to look at absence rates – this includes the SFRS, Police Scotland, Scottish Government and the Scottish Prison Service.

**STAFF TURNOVER**

Q. Statistics obtained from the ISD Workforce Data indicate that staff turnover in the Ambulance Service was the second highest of all specified staff groups in 2017/2018 (10.9%). However, in the evidence session, you stated that “staff turnover was 4.1% with 25 vacancies”. (Official Report, Col 17). Can you provide statistics to confirm the staff turnover for the Ambulance Service and explain this discrepancy? Also, is staff turnover linked to specific regions across the country?

What steps are you taking to retain staff, particularly those most affected by turnover, and ensure they feel valued?

We note your reference to the 10.9% turnover rate for 2017/18, however this is a misinterpretation of the ISD data. The 10.9% turnover rate referred to the turnover rate for the Job Family 'Ambulance Services' and not for the full service. Ambulance Services represents just over half of our workforce, including Ambulance Control Centre staff and Technicians, with the rest of our workforce spread across Allied Health Professionals (Paramedic staff), Medical & Dental, Nursing & Midwifery, Support Services and Administrative Services job families. Please note that last year we agreed with ISD that the Ambulance Services job family should be renamed ‘Ambulance Support Services’ in an attempt to reduce the risk of the job family being misconstrued as representing the whole organisation.

The 10.9% turnover rate for this job family is entirely consistent with our workforce strategy as it reflects the progression of Technician staff training to become Paramedics through our current main Paramedic recruitment pipeline. It does not reflect leavers to the service, but represents the internal movement between job families as Technicians qualify and become HCPC registered Paramedics and transfer to the AHP job family.
The 4.1% turnover rate we provided as part of our submission reflects the present turnover level for all Scottish Ambulance Service staff i.e. the 12 month rolling rate for staff leaving the service. This turnover rate has been on a reducing trend over the last two years which commenced around the time of the banding changes for Paramedic and Technician staff in 2017. This level of turnover is well within our workforce modelling tolerances (originally set at 6% in 2015, but revised downwards in the last 12 months) although we continue to monitor and adjust as required. There are no regional variations of concern at present within this overall organisation level turnover, and we do not have any significant retention challenges within our core operational workforce, but continue to monitor these trends at executive and board level.

**PRIMARY CARE**

Q. When asked if treating patients at home instead of hospital is cost effective, you stated, “for every £1 that is invested in community paramedics and the wider reform programme, there is a £4 return to the wider health and social care economy.” (Official Report, Col 22). Can you provide the committee with further information on how this evaluation is made and to whom the benefits accrue? Please also indicate, if possible, how this is reflected in budgeting across the NHS.

This evaluation used a technique called the Monte Carlo simulation to model potential benefits that could be accrued by SAS treating more patients in their homes and communities, rather than conveying to hospitals. This technique involves running a large number of scenarios (10,000 in this case) to produce a range of estimates. In this case, the median estimate was that we might see a benefit accrual of c. £660m over a 10 year period, based on the assumptions made at the time.

At the time, our best understanding of the additional investment (over and above our baseline operating costs) required to enable the changes to make that happen would be in the region of £15m per year – or c. £150m over 10 years.

There has been additional work done outside of SAS, notably by the Nuffield Trust in March 2017, which validates the assumption that community paramedics and ambulance services can make a cost-effective contribution to shifting the balance of care.

Q. Tom Steele also reiterated the need to “start working closely with the integration joint boards and the health and social care partnerships as they are increasingly developing new pathways for patients”. (Official Report, Col 23). He also indicated that the Scottish Ambulance Service is in early discussions with IJBs in that regard. Can you provide any further detail on the areas covered by those discussions, progress being made, and if any targets have been established?

We want to continue to shift the balance towards providing patients with more care in their communities in a safe and effective way. Good progress is being made in a number of areas with enhanced see and treat of patients for patients at home or in a homely setting using alternative pathways of care.

We will for example continue to work closely with health and care teams to access safe and alternative pathways of care for patients with long term conditions who do not require to be admitted to hospital. There are a number of areas being progressed such as falls and frailty pathways, mental health, COPD etc.
One of the limiting factors for SAS to provide patients with effective non-Emergency Department care pathways is the physical access to these care pathways for paramedics. To develop these opportunities, there are ongoing discussions with SAS sub-divisions and their IJB partners to share tangible patient data, allowing for regional understanding and development.

In addition to discussions around alternative pathway development, there are significant other areas of ongoing discussion with IJBs. These include:

- GP utilisation of SAS resources and associated variation.
- Joined up efforts to improve survival from Cardiac Arrest e.g., CPR training for Local Authority staff, placements of AED, CPR training in schools.
- Utilisation of local communication processes to improve SAS local communications.
- Understanding of PTS requirements and changes in local out-patient pathway utilisation.
- Joined up record keeping and clinical audit activity.
- SAS clinicians taking a higher profile role in primary care teams to benefit the whole health and care system.

Q. What are the benefits you see for the Scottish Ambulance Service from such close working and can you identify any areas where they are already being realised?

There are several examples of patients benefitting from the Scottish Ambulance Service working with IJBs. For example:

- Primary Care practices in Fife, Borders, Lothian and Forth Valley are getting more support in their GP surgeries with SAS supporting local GPs in the delivery of local primary care services.
- Patients are benefitting from the joint development of Out of Hours Services in Forth Valley and Tayside with Specialist Paramedics augmenting existing services taking care to the patients’ home.
- SAS is involved in the joint development of falls and COPD clinical pathways to improve the quality of care to these patients, including enhanced patient referral pathways.
- We are involved in the early development of a patient liaison function for high volume attendance patients in Tayside and Lothian to improve appropriate care for this patient group and reduce the volume of attendance to hospital.

FINANCIAL SUSTAINABILITY AND PERFORMANCE

Q. What is the current figure for overtime?
The total cost of overtime for the Scottish Ambulance Service is for the 12 months to February 2019 is £12 million.

Q. Given the scale of the financial challenges outlined above, what enables you to provide reassurance that core services will not be affected?

Our three year financial plan forecasts a balanced budget over this period. Savings plans are all risk assessed to ensure there are no adverse core service impacts. The Best Value Programme oversees the delivery of these plans with input across all services, Non
Executive Directors and includes partnership working. There are also key performance measures put in place which are reviewed on a weekly basis.

We would like to thank the Health and Sport Committee for their ongoing scrutiny and support of our work and we look forward to ongoing positive engagement. We are fully committed to receiving feedback to help improve our services – this thread runs through all of our engagement activity and is embedded in all of our work-streams.

The New Clinical Response Model is proving a success and we want to raise awareness and understanding of it – we would therefore like to offer the Committee a Parliamentary event for MSPs and local communities.

The Service would also be pleased to welcome members of the committee to visit our ambulance control rooms to see how we manage all calls and to speak with staff about their experiences. Alternatively, our staff would welcome any visits you might like to make to your local ambulance station. Please do contact my office if you wish to take up this offer.

Pauline Howie, OBE
Chief Executive Officer
Scottish Ambulance Service
Acknowledgements

Thanks to all those who have raised funds to support the Sandpiper WILDCAT project, thanks also to the Sandpiper Trust without whom this project would not have got off the ground. We wish to give special recognition to all those who have volunteered with the project, thank you for your willingness to give your time and energy to make a life saving difference.

Gareth Clegg and Keri Fickling on behalf of the Sandpiper WILDCAT project team

Report Summary

The Sandpiper WILDCAT project is testing the feasibility and effectiveness of the deployment of volunteer cardiac arrest community responders to improve resuscitation after OHCA in rural Grampian.

During the first year of the Sandpiper WILDCAT project, the team have successfully trained and equipped over 500 cardiac arrest community responders. These volunteers have been 'live' on the Scottish Ambulance Service Computer Aided Dispatch system for twelve months from February 2017 up to February 2018. During this time Sandpiper WILDCAT responders have been dispatched to 171 calls, arriving an average of 5 minutes before the first ambulance and delivering demonstrably high quality basic life support. The first ever regional deployment of the Zoll AED 3 has allowed real time CPR guidance, multi-factor analysis of responder resuscitation performance and detailed individual feedback and support. Despite initial technical challenges, the project has gained significant momentum and is demonstrating improved resuscitation after OHCA for the people of Grampian. The learning from this project offers exciting possibilities for wider application.
INTRODUCTION TO THE WILDCAT PROJECT
The Problem of Out-of-Hospital Cardiac Arrest:

Around 65 people have resuscitation attempted every week in Scotland after an out-of-hospital cardiac arrest (OHCA) [1]. OHCA occurs when the heart suddenly stops pumping blood around the body. It can affect people of all age groups and can strike at any time. OHCA is difficult to treat as it is the most time critical of all medical emergencies and chances of survival decrease by around 10% for every minute that passes without treatment. Although currently in Scotland only around 1 in 20 victims survive there are centres internationally with much higher survival rates. In 2015 Scotland launched it’s national strategy for OHCA which aims to increase survival by 10%, resulting in 300 additional lives saved each year across the country [1]. This can be achieved by optimising the ‘chain of survival’ after cardiac arrest (figure 1). This means that the crucial ‘links’ which need to happen quickly:

- Call for help,
- Early CPR,
- Early defibrillation and
- Post resuscitation care

would be performed consistently well across all of the communities in Scotland.

What About Rural Areas?

Recent analysis of Scottish data suggests a significantly higher risk of death after OHCA for patients who lived in rural areas compared with urban areas [2]. This difference persists even after adjusting for the person’s sex, age and multiple index of deprivation (SIMD). Whilst is is not yet entirely clear why this should be the case, it is likely that methods for optimising the ‘Chain of Survival’ in rural areas will differ somewhat from the tactics used in more densely populated centres.

What about Grampian?

Grampian is a region of Scotland situated in the north east of the country and covers an area of 8700 sq KM. It is formed by the council areas of Aberdeenshire, City of Aberdeen, and Moray. As an indicator of the spread of population - the density in Grampian is 42 per square km, with (Moray 42/sq km) and Aberdeenshire (41/sq km) in the bottom third of the Scottish Councils population density league table in 2016.

Health data from 2011 - 2015 shows that Grampian has an incidence of OHCA which is similar the rest of Scotland (41/100,000/year) [3]. Overall, survival rates are also consistent with those in the rest of the country. Particular challenges emerge, however, in the areas of Grampian outside of the city of Aberdeen. Figure 2 shows that outside of Aberdeen there is a greater proportion of OHCA incidents with long ambulance response times, there are fewer Ambulance Service responders at OHCA and the rate of return of spontaneous circulation (or ‘ROSC’ = getting a pulse back before arrival in hospital) is lower than for OHCA in the city of Aberdeen. It appears that there is room to improve survival after OHCA in rural Grampian.

<table>
<thead>
<tr>
<th>Location</th>
<th>Population density (per sq KM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grampian</td>
<td>42</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>1925</td>
</tr>
<tr>
<td>Falkirk</td>
<td>535</td>
</tr>
<tr>
<td>Angus</td>
<td>53</td>
</tr>
<tr>
<td>Scotland</td>
<td>65</td>
</tr>
<tr>
<td>Germany</td>
<td>236</td>
</tr>
<tr>
<td>Denmark</td>
<td>133</td>
</tr>
</tbody>
</table>

Table 1 shows the population density of Grampian with other areas for comparison.
Figure 2: Baseline Out-of-Hospital cardiac arrest data for Grampian comparing the city of Aberdeen with rural areas.
### OVERVIEW SANDPIPER WILDCAT FIRST YEAR ACTIVATIONS

<table>
<thead>
<tr>
<th></th>
<th>All Grampian (%)</th>
<th>Rural Grampian (%)</th>
<th>Calls with SPW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of suspected OHCA calls</td>
<td>787</td>
<td>470</td>
<td>181</td>
</tr>
<tr>
<td>Not OHCA</td>
<td>220 (28.0)</td>
<td>117 (24.9)</td>
<td>49 (27.1)</td>
</tr>
<tr>
<td>Confirmed OHCA</td>
<td>563 (71.5)</td>
<td>350 (74.5)</td>
<td>132 (72.9)</td>
</tr>
<tr>
<td>Stood Down</td>
<td>4 (0.5)</td>
<td>3 (0.6)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Number of confirmed OHCA which were worked by SAS</td>
<td>260 (46.2)</td>
<td>155 (44.3)</td>
<td>86 (65.2)</td>
</tr>
<tr>
<td>Male Worked</td>
<td>174</td>
<td>111</td>
<td>67</td>
</tr>
<tr>
<td>Female Worked</td>
<td>86</td>
<td>44</td>
<td>19</td>
</tr>
<tr>
<td>Confirmed OHCA where SAS PLE without Intervention</td>
<td>303 (53.8)</td>
<td>195 (55.7)</td>
<td>(46 (34.8)</td>
</tr>
<tr>
<td>Calls where patient Conveyed to Hospital</td>
<td>103 (13.1)</td>
<td>50 (10.6)</td>
<td>30 (16.6)</td>
</tr>
<tr>
<td>Number of worked arrests with ROSC</td>
<td>45 (17.3)</td>
<td>24 (15.5)</td>
<td>17 (19.8)</td>
</tr>
<tr>
<td>ROSC Conveyed to hospital</td>
<td>44 (16.9)</td>
<td>23 (14.8)</td>
<td>17 (19.8)</td>
</tr>
<tr>
<td>Mean age all confirmed OHCA in years</td>
<td>65.5</td>
<td>66</td>
<td>67.5</td>
</tr>
<tr>
<td>Mean age worked OHCA in years</td>
<td>63.0</td>
<td>62.0</td>
<td>67.0</td>
</tr>
<tr>
<td>Mean (median) response - all calls - in minutes</td>
<td>11 (8)</td>
<td>13 (11)</td>
<td>9.5 (7.5)</td>
</tr>
<tr>
<td>Mean (median) response - OHCA - in minutes</td>
<td>11.5 (9)</td>
<td>12 (10)</td>
<td>10.5 (9)</td>
</tr>
</tbody>
</table>

The tables above show a summary of Sandpiper Wildcat responder activity in Grampian from 1st February 2017 to 31st January 2018 in the context of all Scottish Ambulance Service response to out-of-hospital cardiac arrest in Grampian.
The Sandpiper WILDCAT Project

The Sandpiper WILDCAT project is an Action Research programme focussed on saving lives after out of hospital cardiac arrest (OHCA) by optimising the chain of survival in rural Grampian. The project was instigated by The Sandpiper Trust, Basics Scotland, and the Resuscitation Research Group at the University of Edinburgh in collaboration with the Scottish Ambulance Service (SAS). The project recognises that the challenges of OHCA in a rural context are significantly different to those in an urban setting, and seeks to find a sustainable way of delivering timely and effective community resuscitation in rural Scotland. The work is funded entirely by the Sandpiper Trust as part of their ongoing commitment to ‘Saving Lives in rural Scotland’ (www.sandpipertrust.org).

The driving hypothesis is: Training and equipping a cadre of community OHCA responders targeted to specific areas where providing a timely and numerically optimal Scottish Ambulance Service response can be challenging will mean earlier effective resuscitation resulting in improved patient outcomes.

Figure 3: Each Sandpiper on the map represents one of the 50 locations the project identified as locations that could benefit from cardiac responders.
SANDPIPER WILDCAT
MODELLING HISTORIC DATA TO INFORM THE PROJECT
Modelling Historic Data to Inform the Project

Initial project planning centred around determining which areas of Grampian have significant numbers of OHCA but longer response times and fewer SAS resources available to attend. Global Positioning System (GPS) data for all ambulance journeys in Scotland during the 12 months from 1st April 2011 to 31st March 2012 were obtained from SAS. One GPS data point is recorded for every 13s of ambulance journey. Additionally, operational data for all calls dispatched as 'OHCA' during the same period (n=approx 7,000 incidents, some with multiple vehicles involved) was collated. Bespoke software was developed by the Resuscitation Research Group at the University of Edinburgh to link SAS dispatch data to GPS data and plot ambulance journeys (figure 4).

Initial assessment of the ‘Blue Light’ Accessibility of Datazones

Scotland can be described by 6,505 geographical areas called datazones - each containing approximately 500-1000 inhabitants. The Scottish government supply detailed census data on these zones, and use them as a basis for policy development. The dataset of OHCA ‘blue light’ journeys was used to create a datazone ‘heat map’ of ambulance response times (Figure 5). Response times ranged from a few seconds (blue) to several minutes(red) and indicate the ‘real world’ blue-light response times for a given area based on the large historical dataset.

Modelling Data to Find the Optimum Locations for Sandpiper WILDCAT Responders

To simplify this picture, datazones were colour coded according to their ‘real world’ response time for a ‘blue light’ ambulance travelling to ‘category A’ calls (i.e. all ‘blue light’ calls - including OHCA). The mean time taken from allocation of a SAS resource by ambulance control, to it’s arrival anywhere in the destination datazone (measured by GPS) was coded as follows: Green = < 8mins, Amber = 8-15 mins, Red > 15mins. The resulting maps were then overlaid with the historic locations of OHCA during the same time period and colour coded to show both the allocation to arrival time of SAS resources (Figure 6, top right panel) and the number of resources in attendance at each OHCA (Figure 6, bottom left).

These maps show the areas in rural Grampian where OHCA occur, but where response times are longer and the number of rescuers in attendance is fewer than is optimal. These are the areas where a suitably trained and equipped responder could be deployed at OHCA before the arrival of SAS to effect early CPR and defibrillation thereby improving survival. A small panel consisting of the study research team, and invited prehospital medicine experts with detailed local knowledge translate these findings into 50 locations for Sandpiper WILDCAT responder teams (figure 7).

Figure 4: A representative incident response plotted using bespoke software. Starting point is shown as a blue circle, destination is red.
Figure 5: Scotland Datazone heatmap. Blue and darker green represent shorter response times with red areas having the longest response times.

Figure 6: Top left panel shows datazones in NE Scotland colour coded according to category A allocation to arrival times (Green < 8mins, Amber 8-15 mins, Red >15 mins). Coloured dots (top right) show locations of OHCA. Each OHCA incident dot is colour coded according to the same allocation to arrival scheme. The OHCA incident dots on the bottom left panel are coloured differently, to show the number of ‘pairs of hands’ arriving at the scene (Green: ≥3 rescuers in 5mins, Amber: ≥3 rescuers in 10-15 mins, Red: ≥3 rescues in >15 mins, Black: only 2 rescuers attended). The bottom right panel shows the location of Sandpiper WILDCAT responder teams as blue sandpipers.
SANDPIPER WILDCAT
PHASE I - PREPARATION: RECRUITMENT AND TRAINING
The Sandpiper WILDCAT Project Team

The first step in initiating the project was to recruit the project team. Project planning and oversight is provided by a three person team representing the organisations involved in the project. This team report to the Sandpiper Trustees, to the Scottish Ambulance Service, locally and nationally, via the SAS Research, Development and Innovation Group. All aspects of recruitment and training of responders, data collection and post-event follow up are performed by the Sandpiper WILDCAT Project team.

It was determined that the project team should be recruited from within the Scottish Ambulance Service in order to capitalise on existing expertise (resuscitation and training), local area knowledge and to facilitate interface with SAS frontline staff, ambulance control and existing community first responder groups in Grampian. Additionally, it was recognised that integrating closely with the Scottish Ambulance Service would help ensure that outcomes from the project could be evaluated and incorporated effectively.

Oversight: Dr Colville Laird (Medical Director for Basics, Scotland), David Bywater (Consultant Paramedic for OHCA, Scottish Ambulance Service), Dr Gareth Clegg (Resuscitation Research Group, University of Edinburgh)

Initially the team consisted of a project manager and two project trainers, this worked well for the first year and almost 400 of responders were recruited and trained in this period.

In September 2017 SAS operational challenges forced a team change, given that by this time the majority of the required volunteer recruitment and training was complete the dynamic of the team was shifted and an administration support, with the ability to support training was brought in to develop training records and communication links with responders.

Sandpiper WILDCAT Project Team:

Keri Fickling (project management, recruitment/training), Lorna Donaldson (recruitment/training), Keith Jensen (recruitment/training), Shona Gray (Admin/Support).

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**Figure 8. An outline of the selection and training process for Sandpiper WILDCAT responders**
Planning Recruitment

The Sandpiper WILDCAT project is dependent on recruitment and training of volunteer responders. Our intention was to recruit individuals willing to undergo training in basic life support techniques (CPR and automated defibrillator use) to become Cardiac Community Responders. Responders operate in small teams - sharing resuscitation and communication equipment and taking turns being ‘active’ in order to maximise 24 hour coverage of an on-call rota. A lower age limit for volunteers was set at 18 years, and all responders were also required to join the national Protection of Vulnerable Groups (PVG) scheme. This is a programme run by Disclosure Scotland protecting vulnerable groups i.e. children and protected adults.

When planning recruitment, there was much discussion about whether areas should be targeted incrementally, or if a broader approach should be taken. As there had already been some publicity surrounding the project creating a waiting list of interested parties we decided train in several different locations simultaneously, and build teams over time. This approach was successful, and we are now targeting areas where an increase in volunteer numbers is required.

Existing Community First Responder Schemes

Prior to initiating the Sandpiper WILDCAT project, there were already a number of Scottish Ambulance Community First Responder (CFR) Schemes in operation across Grampian forming an important part of the Scottish Ambulance Service response to OHCA. Although there was a degree of anxiety amongst existing first responders, overall the reaction to Sandpiper WILDCAT was positive. The project team worked closely with existing CFR schemes and many have been integrated into the project while also retaining their existing extended responder role.

Main factors attracting existing CFR to become involved with the Sandpiper WILDCAT project:

1. The use of the ZOLL AED3 - The CFRs preferred the defibrillator to the one they were currently using and liked the idea of getting not only improved real time feedback from the puck and the option for post incident review and debrief.
2. The inclusion of response to paediatric OHCA - Current SAS CFR protocol does not include Paediatric incidents. A common theme was that CFRs wanted to be able to assist with a paediatric emergency in their communities - even if it was a difficult event.

Active Recruitment in Rural Communities

The Sandpiper WILDCAT project team organised a number of presentation evenings in local community venues, which were well attended. Potential volunteers were introduced to how the whole project would fit into not only the operation of the Scottish Ambulance Service and also play a key role in Scotland’s Strategy for OHCA. Use of equipment was demonstrated. At these meetings it was also made clear to potential volunteers what level of training and time commitment would be involved - a key to reducing ‘dropouts’ later in the training process.

<table>
<thead>
<tr>
<th>Previous relevant training</th>
<th>Number of volunteer responders (% of all 365 volunteers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor</td>
<td>19 (5)</td>
</tr>
<tr>
<td>Nurse</td>
<td>35 (10)</td>
</tr>
<tr>
<td>Scottish Fire and Rescue Service</td>
<td>21 (6)</td>
</tr>
<tr>
<td>Scottish Ambulance Service employee</td>
<td>34 (9)</td>
</tr>
<tr>
<td>Existing Community First Responder</td>
<td>48 (13)</td>
</tr>
</tbody>
</table>

Table 2 shows the previous relevant training of Sandpiper WILDCAT volunteers
Interface with the Scottish Ambulance Service - the Training Process

Throughout the process of recruitment the project team worked in conjunction with the SAS Community Resilience department to ensure all procedures were compatible with those already in place for other Community First Responders. An outline of the selection and training process is shown in figure 8.

Responder Backgrounds

Between project launch and the end of February 2018, 364 individuals were trained as responders, with an additional 142 volunteers within 23 GP surgeries, giving a total number of over 500 responders trained. The mean responder age is 43 (mode 39). There is an even gender split of 49% male and 51% female. Those who had no previous medical or resuscitation experience accounted for (207) 57% of all volunteers. [See Table 2]

Responder Confidence

Before starting training, all volunteers were asked to fill in a short questionnaire to gauge their level of confidence in dealing with OHCA (Appendix A). When asked ‘How confident would you feel about attending an out-of-hospital cardiac arrest?’, those who had previous health care or first-aid organisation experience self-rated an average of score of 7.5/10 (where 10 is perfectly confident), those without 6.5/10 and those who had previously attended an OHCA 8/10.

Volunteers had the opportunity to list their concerns, which included:

- “Nervous”,
- “physically doing CPR”,
- “committing enough time”,
- “fear of unknown”,
- “not wanting to attend alone”

Responder Retention

To date there have been 25 (7%) resignations from the project. The reasons given for this are detailed in Table 3. There is also a small number of responders who have currently placed their responding ‘on hold’ due a change of personal circumstances. Reasons for this range from pregnancy/childbirth to work sabbatical or living in another country for 6 months. This involves a further 9 (2%) responders.

Developing Responder Remit and the Training Content

The Sandpiper WILDCAT responder training package was designed in collaboration with SAS Clinical team, SAS Community Resilience team and the Ambulance Control Centre. This group then assessed the likely expectations

<table>
<thead>
<tr>
<th>Reason given for leaving the project</th>
<th>Number of volunteer responders (% of all 25 leavers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in personal circumstances</td>
<td>10 (40)</td>
</tr>
<tr>
<td>Work Commitments increased</td>
<td>6 (24)</td>
</tr>
<tr>
<td>Asked to leave CFR scheme by the Scottish Ambulance Service</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Health Reasons</td>
<td>4 (16)</td>
</tr>
<tr>
<td>Moved away from area</td>
<td>2 (8)</td>
</tr>
<tr>
<td>Change of heart</td>
<td>2 (8)</td>
</tr>
</tbody>
</table>

Table 3 shows the reasons given by volunteers who left the Sandpiper WILDCAT project during the first year after going live.
of volunteer responders (frequency of calls, complexity of clinical presentations) and identified the range of calls that they would be sent to. This resulted in the following series of key operational decisions.

Sandpiper WILDCAT responders would:

- Respond to OHCA only (see Appendix B for the list of Advanced Medical Priority Dispatch System codes used to trigger a Sandpiper WILDCAT activation).
- Attend OHCA involving ALL ages of Patient (including under 16 years which existing CFRs do not attend).
- Carry out Basic Life Support using 30:2 compression to ventilation ratios.
- Carry a bag-valve mask and simple airway adjuncts, but would not carry Oxygen.
- Carry and utilise the Zoll AED3 defibrillator - including real time CPR quality feedback and audio recording - unless a public access defibrillator had already been deployed prior to Sandpiper WILDCAT responder arrival, or the Ambulance Service arrived first and deployed their own equipment.
- Use the Terrafix VLS to receive calls and alert the Ambulance Control Service of their intention to respond and arrival at the scene of an incident.

Content of Training

Content of training was consistent with current Scottish Ambulance Service CFR guidelines and approved by SAS Clinical and Community Resilience teams prior to any training being undertaken. The project team crafted a course that matched the likely requirements of a Cardiac Responder including:

- Getting to an incident safely (the importance of staying safe, driving carefully, contacting ACC if any issues)
- Airway management
- Basic Life Support (Adult)
- Basic Life Support (Paediatric)
- Defibrillator (using and maintenance)
- ROSC
- Scenarios (covering all topics)
- Keeping Well - explaining the importance of looking after yourself as a responder and speaking to a member of the team about any issues that may affect you. We also recommend responders complete online course by Lifelines Scotland in their own time following on from the course (http://lifelinesscotland.org). This is a Scottish Government funded project supporting the health and wellbeing of emergency responders, including community volunteers.

Delivery of Training

The course was designed for individuals who had never carried out CPR before and take them to a level where they felt confident to respond to an OHCA. Whilst there was no formal examination at the end of training, the instructors carried out continuous assessment throughout the course and gave additional help when required to ensure all responders were deemed safe and competent by the end of the course.

Volunteers who were already trained, e.g. medical professionals, found this course at times could be a little slow and time consuming. Therefore a condensed course was developed for those with previous resuscitation training that covered the same topics, but moved through some elements at a quicker pace. Some volunteers were grateful for this option (typically paramedics and the doctors with more pre hospital experience), however many of the nurse volunteers opted to complete the full one day course to build confidence prior to going out on their own.

Written feedback after the courses was excellent. Scoring of the instructors’ performance was consistently very high with every course participant marking the course and trainers either a 8, 9 or 10 out of 10. Refresher training was rotated through 12 locations throughout the region. A training calendar was sent to all responders on a regular basis with an open invitation to attend any session they wished. This allowed volunteer responders to mix not only with the local team they were working with, but also with responders from other areas. Ways of working and coordinating the exchange of equipment were often discussed and best practice shared. It was important to vary the day of the week as well as training location in order to maximise accessibility for volunteers.

Training records are kept for every responder with a minimum training requirement of one session every 3 months, each session covers VLS, Adult BLS, Child BLS, choking, airway management and AED, the session is then open to the group to focus on one or more areas of training with each responder completing at least one full scenario at each session.

Any responder who falls out with the 3 monthly training is contacted and asked if there is a reason for non-attendance, often this is due to work commitments or family situations, where we can assist in the resolution of this we do so and this has on occasions meant training is delivered to smaller groups of 2 or 3 at peoples home address. Whilst this is time consuming to the team it gets positive results in both building responder confidence and participation at events outwith responding.
Responders Equipment

A full list of equipment given to each Sandpiper WILDCAT responder can be found in Appendix E. There are 2 key pieces of equipment deployed by Sandpiper WILDCAT Responders which are distinct from many other responder schemes and they are the ZOLL AED3 and the Terrafix Vehicle Locator System (VLS). The ZOLL AED3 was chosen for the project by the project team because of the following key features:

1. The AED3 has an accelerometer puck built into its pads enabling real-time feedback to responders about the depth and rate of compressions, allowing fine tuning of CPR during resuscitation.
2. All data (including audio recording) is recorded during each OHCA incident allowing post event audit of BLS quality to inform responder feedback and training.
3. Equipped with WiFi, the AED3 is able to send management information about its internal state, along with post incident data, to the cloud to facilitate administration of the widely geographically distributed responder scheme.

The Terrafix Vehicle Locator System was already integrated with the Scottish Ambulance Service computer aided dispatch system and in use by existing Community First Responder Schemes. For these reasons the project chose to adopt the Terrafix VLS for the Sandpiper WILDCAT project. The system has the following components:

1. A Samsung Galaxy mobile phone (no capacity to make calls) with 2 pre installed applications: the ‘Responder’ app and the ‘Co-pilot’ app.
2. The ‘Responder’ app is a miniature version of the unit used within SAS front line Ambulances. Upon a call to 999 the SAS dispatcher is able to send all details of the incident (location, problem, patient details) to the responder app, and the responder can see and acknowledge the information. Once the responder has ‘accepted’ the incident then the second app opens.
3. The ‘Co-pilot’ app then acts as a satellite navigation system, preloaded with the incident location, and directs the responder to the incident.

The remaining equipment was selected in order to give responders what they were likely to need at an OHCA incident, but also minimise unnecessary clutter, complexity and expense.

A key decision point was the agreement that Sandpiper WILDCAT responders would be trained to perform compression/ventilation CPR. Although there is robust evidence, and justification for encouraging the general public to do compression only bystander CPR, it was decided that Sandpiper WILDCAT responders could be trained to carry out ventilations using a bag valve mask in a manner which would not compromise the effectiveness of chest compressions. This position is also in line with the training given to existing SAS CFRs.

It was decided to include adult and paediatric sized Bag Valve Masks as part of the Sandpiper WILDCAT equipment, along with 4 sizes of Oropharyngeal Airways. After some discussion the decision was taken not to include Oxygen - it was felt that ventilation with oxygen would not carry significant benefit to OHCA patients compared to ventilation with room air but it was recognised that there is a range of practical difficulties associated with the carriage, storage and maintenance of oxygen cylinders by community responders.

In addition to these items, each responder was supplied with a High Visibility jacket, Gloves, Pocket Mask and an ID Badge with their unique Sandpiper WILDCAT number.

Following feedback from the first few volunteer training courses the addition of some simple algorithm sheets were included; one for Adult BLS, Child BLS and Choking. Responders felt more comfortable having these sheets in their bag to refer to between courses but none of the responders has yet reported using them at the time of an actual call out.

Integration of the Sandpiper WILDCAT Responders with Ambulance Control

The Sandpiper WILDCAT project was subject to an initial delay in it’s official ‘Go Live’ with Ambulance Control. This was due to a number of factors relating to the addition of 500 new responders to the system.

The way in which ‘alternative resources’ are visible to dispatchers on the SAS computer aided dispatch (CAD) system was the same as any other ambulance service resource. For every incident the system would list all available resources, starting with the closest meaning that Sandpiper WILDCAT would appear as an available resource for a large portion of jobs that they would not be suitable to attend - this would be distracting for dispatchers. This was overcome by the introduction of a ‘whiteboard feature’ on the CAD system whereby available resources are only shown for calls which are suitable to their response remit. Sandpiper WILDCAT responders would now only appear as available resources if the incident type was coded with one of the OHCA codes listed in Appendix B. This work improved the dispatch of all ‘alternative responder’ groups i.e. BASICS Scotland responders, Scottish Fire and Rescue Co-responders and SAS CFR in addition to Sandpiper WILDCAT. The implementation of this system was delayed by the implementation of the Scottish Ambulance Service’s new clinical response model (NCRM) resulting in an eventual ‘go-live’ of the Sandpiper WILDCAT project in Feb 2017.
CAR SPONSORSHIP

Following the initial launch and recruitment of volunteers, a local garage; Gillanders Motors of Peterhead, approached the project and generously offered to sponsor a car. They offered to give a car which was painted with both their logo and the Sandpiper Wildcat Logo. The addition of this car saved the project a significant amount of money and has allowed the team great flexibility to getting out and supporting the responders. In addition the garage has also volunteered their staff as responders during their opening hours.

Mark Stevenson is the Manager at Gillanders Ltd Garage in Peterhead and after hearing about the project through the car sponsorship he decided along with two other members of staff that they wished to train as responders and would be available during the hours the garage is open. Mark has been enjoying his time with the project so much that he now also responds in his own time, which has recently made him one of our busiest responders! Mark can be seen in the car presentation picture alongside Keri and Lorna.

Pictured with his bike in this picture is responder Ian Hendry. Ian joined the project following an incident where he witnessed a Sudden Out of Hospital Cardiac Arrest where he felt compelled to assist even though he had never done CPR before, whilst sadly this incident did not have appositive outcome it made Ian realise he wanted to do more in his community, he joined the Sandpiper Wildcat Project and has now been involved in a number of incidents including a Cardiac Arrest where the patient is known to have survived and is back home living a normal life with his family. In addition to his responding Ian also does a lot of cycling to raise money for charity as seen here taking part in Ride the North.
SANDPIPER WILDCAT
PHASE II - THE FIRST TWELVE MONTHS AFTER ‘GO-LIVE’
Sandpiper WILDCAT Activations

In total, there were 784 activations for OHCA in Grampian during the report period from Feb 1st 2017 to Jan 31st 2018, with 469 (60%) of these in a Sandpiper WILDCAT area. There were 378 attempted dispatches of responders with 196 marked as ‘non-attendance at scene’. There were a range of reasons for Sandpiper WILDCAT non-attendance, listed in the table below.

The most common reason for non-attendance was that the responder was issued a Stand Down message by SAS ACC. This was usually due to the patient being ‘obviously deceased’ or the identification that the incident was not in fact an OHCA.

Other common causes were Failed transmission and timed out messages. This meant that the responder booked on did not receive the message that was sent by SAS ACC. Working with Terrafix, the suppliers of the projects vehicle locator system (VLS) - the identification was made that much of the time that a ‘transmission failed’ message was received was due to poor mobile phone signal in the area. The reasons behind the ‘time out’ messages are more difficult to identify from historic data. Moving forward a plan of action has been agreed that if a dispatcher receives a ‘failed transmission’ or ‘time out’ message back into the CAD system they will attempt to contact the responder directly on their personal mobile.

<table>
<thead>
<tr>
<th>Reason for Sandpiper WILDCAT non attendance</th>
<th>Number of cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responder Stood Down by SAS ACC</td>
<td>99 (51)</td>
</tr>
<tr>
<td>Failed Transmission of Request to Responder</td>
<td>47 (24)</td>
</tr>
<tr>
<td>Request Timed Out</td>
<td>20 (10)</td>
</tr>
<tr>
<td>Out of Surgery Hours (for GP practice based responders)</td>
<td>12 (6)</td>
</tr>
<tr>
<td>Did Attend but no arrival time logged</td>
<td>15 (8)</td>
</tr>
<tr>
<td>Out of responders area</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Attendance resulted in SAS Stand Down</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

*Table 4 shows reasons for Sandpiper WILDCAT non-attendance at OHCA in the overall project area during the first year after go live.*

Response Times

The Sandpiper WILDCAT project is predicated on the idea that responders based in rural communities will be able to respond to OHCA more rapidly than the Ambulance Service. In untreated OHCA probability of survival drops by around 10% per minute meaning that a small improvement in response time is potentially life saving.

Of the 182 occasions where a Sandpiper WILDCAT responder attended OHCA the Scottish Ambulance Service response times were between 0 and 52 minutes. The difference between Sandpiper WILDCAT and Scottish Ambulance Service arrival times was recorded, with volunteers arriving a median of 5 minutes earlier than SAS. This is illustrated graphically in figure 7.

Characteristics of Patients Attended Where Resuscitation was Attempted

Adult patients ranged in age from 28 to 89 years, the mean age was 67 years. The ratio of male to female patients was 3:1. In addition, there were 2 male paediatric patients, both under the age of 1.

In addition to establishing that Sandpiper WILDCAT responders were able to arrive early enough to make a difference to resuscitation of OHCA we also wished to provide evidence that they were able to deliver appropriate basic life support - including high quality chest compressions and early defibrillation where appropriate.
A key feature of the Zoll AED 3 defibrillators chosen for the project is that they have an accelerometer puck built into the defibrillator pads. This means rescuers are not only given real time feedback on the quality of their chest compressions - allowing immediate ‘course correction’ but this data is also available for audit. The panel of metrics shown in figure 9 demonstrate that responders were able to deploy their AED very rapidly and deliver CPR - in some cases for over 30 minutes. Whilst there is some room for improvement, the majority of CPR was delivered at the target rate (100-120 per min), although a significant proportion of incidents had a mean compression depth a little below the ideal (5-6 cm).

Sandpiper Wildcat Call Outs That on Arrival Were Not OHCA

On 24% of occasions where Sandpiper WILDCAT responders arrived at scene the nature of the problem was not an OHCA. The range of presentations which had been initially thought to be OHCA and precipitated Sandpiper WILDCAT activation are listed in table 5.

Responder Experience - Post Event Debriefing

After attending OHCA responders contacted a member of the Sandpiper WILDCAT team by call or text and arrangements were made to meet and debrief within 48 hours of the incident. At this meeting the responder had the opportunity to ask questions and where possible receive an update on the condition of the patient. During this debrief they were asked to rate how they felt about the incident. Results of these post-event debrief questions are shown in table below. The overall message is very positive - indicating that responders felt well prepared, and that they had made a positive difference. Further exploration with those who indicated lower scores for the ‘felt of value’ question revealed that it was often related to an incident where a patient did not survive and the responder felt they could have done more. The debrief process was very valuable in allowing the team to explain that many patients don’t survive despite optimal resuscitation efforts, and to affirm where responders had in fact done a good job.

Figure 7: The frequency distribution shows the difference between SAS and Sandpiper WILDCAT responder response times to the scene of OHCA calls. The dotted red line shows simultaneous arrival. Bars to the left of this line represent incidents where SAS were first on scene (negative values), to the right of this line, Sandpiper WILDCAT were first on scene.
Figure 8: A representative screenshot showing the resuscitation quality dashboard information available from the Zoll AED 3 using 'CaseReview' for audit and feedback.
Table 1: Summary of quarterly mean values for selected CPR metrics downloaded from the Sandpiper WILDCAT AED3 defibrillators during the first 12 months of the project.

<table>
<thead>
<tr>
<th>Quarterly CPR Mean</th>
<th>Targets</th>
<th>Q1 2017</th>
<th>Q2 2017</th>
<th>Q3 2017</th>
<th>Q4 2017</th>
<th>Q1 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average CPR Depth</td>
<td>5.00 - 6.00 cm</td>
<td>5.14</td>
<td>5.14</td>
<td>5.13</td>
<td>5.00</td>
<td>4.69</td>
</tr>
<tr>
<td>Average CPR Rate</td>
<td>100 - 120 cpm</td>
<td>112.29</td>
<td>116.45</td>
<td>121.59</td>
<td>114.76</td>
<td>124.10</td>
</tr>
<tr>
<td>Average Compression Fraction</td>
<td>≥ 60%</td>
<td>67.88%</td>
<td>72.27%</td>
<td>72.81%</td>
<td>78.34%</td>
<td>83.72%</td>
</tr>
</tbody>
</table>

Figure 10: Summary showing quarterly mean values for selected CPR metrics downloaded from the Sandpiper WILDCAT AED3 defibrillators during the first 12 months of the project.

Vehicle Locator System

The most significant negative signals from the debrief questionnaire was that the system being utilised to get responders to the incidents is not working as effectively as we would have hoped. Urgent work is underway with Terrafix to try and improve the usability of the system (see the ‘Challenges’ section below).
Media Impact of the Sandpiper WILDCAT Project

Since registering on social media in June 2016, there have been 1150 followers on Facebook and over 600 followers on Twitter.

The official launch of the Sandpiper WILDCAT project took place on 31st January 2017. It attracted a lot of attention on social media and was covered in the local press (Banffshire Journal, Inverurie Herald, The Press and Journal). When a new team was set up in Peterculter, the Deeside Piper covered it on their website (August 2017). Support from the local press has been very positive and assisted with further recruitment of more volunteers, after each story there has always been a spike in enquiries in that location, usually resulting in one or two additional responders. One successful resuscitation that took place in Stonehaven open air swimming pool was covered in the media in August 2017.

Community Impact, Interface with Other Services and Save a Life for Scotland

The Sandpiper WILDCAT Team has attended a number of CPR training events and demonstrations as part of the national Save a Life for Scotland (SALFS) partnership and is working with other organisations as part of Scotland’s Strategy for Out-of-hospital Cardiac Arrest (www.savealife.scot).

In total they have given over 80 talks and presentations to community groups, schools and workplaces with some of the highlights being:

- Training the whole of Keith Primary in a single Day
- Teaching all staff members at Deans Shortbread Factory (where one session was translated into Lithuanian!)
- Training 260 staff from St Fergus Gas Plant in a single working Day
- Speaking to many of the local SWI groups (and sampling the delicious homebakes)

Sandpiper WILDCAT contributes actively to the Save a Life for Scotland (SALFS) campaign - they are listed as CPR training contact on the website and have advertised offering CPR training to local schools and businesses in Grampian through social media. This work is crucial to strengthening the initial bystander CPR link in the Chain of Survival.
<table>
<thead>
<tr>
<th>Nature of Call</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intoxication (Drugs, Alcohol etc)</td>
<td>8</td>
</tr>
<tr>
<td>Hanging</td>
<td>1</td>
</tr>
<tr>
<td>Mental Health/Behavioural issues</td>
<td>2</td>
</tr>
<tr>
<td>Respiratory problems (including Choking)</td>
<td>12</td>
</tr>
<tr>
<td>Seizures</td>
<td>3</td>
</tr>
<tr>
<td>Chest Pain</td>
<td>2</td>
</tr>
<tr>
<td>Collapse</td>
<td>6</td>
</tr>
<tr>
<td>Hypoglycaemia</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 5 shows the range of presentations attended by Sandpiper WILDCAT responders which were initially thought to be OHCA during the first year after go live.

<table>
<thead>
<tr>
<th>Post-Event Debrief Question</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>WILDCAT training prepared me for the incident</td>
<td>10</td>
</tr>
<tr>
<td>The information recieved from control about the incident</td>
<td>8</td>
</tr>
<tr>
<td>The usability of the VLS</td>
<td>4</td>
</tr>
<tr>
<td>Confidence in my CPR</td>
<td>8</td>
</tr>
<tr>
<td>Using the AED3</td>
<td>9</td>
</tr>
<tr>
<td>Communicating with family</td>
<td>8</td>
</tr>
<tr>
<td>Communicating with other responders</td>
<td>8</td>
</tr>
<tr>
<td>Communicating with the ambulance crew</td>
<td>8</td>
</tr>
<tr>
<td>Felt of value at the scene</td>
<td>7</td>
</tr>
<tr>
<td>Feel I made a difference</td>
<td>7</td>
</tr>
<tr>
<td>Would be willing to do it again</td>
<td>10</td>
</tr>
<tr>
<td>A debrief after the event from the WILDCAT team is beneficial</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 6: Responders were asked to indicate how they felt on a 1-10 scale. (1=poor, 10=excellent). The results shown in this table are the mean scores.
Great night launching Cardiac Responder! Fantastic to see so many! Tomorrow we GO LIVE with @Scotambulance.

Big THANKS to the lovely ladies of Turriff and district ladies circle for their kind donation of £200. Met Nacel, Steff & Moira tonight while they were helping out 'Friends of Turriff cemetery'.
Great work, thank you 💜

Raising awareness at Scotstown Schools fayre today alongside the SFRS. Never too young to learn. Special thanks to John Grant, Wildcat from Blackburn for making it all happen.
Humbled by the generosity of the S3 PDA Group. Mackie Academy for raising a fantastic £633.20. Special thanks to Christine Ward and Jack MacDougall for making it all happen. Awesome❤️

Sandpiper Trust

Hiya, I just wanted to let you know how grateful I am for your charity and your work. You saved my dad when he was having a heart attack at Turriff games a year and a bit ago. I just wanted to let you know how grateful I am for all of your team!❤️

Sandpiper Wildcat

Well done to all at Mortlach Primary for a fun filled and educational safety day! You all now have the power to save a life! And keep yourselves safe! Thanks to all involved in organising and volunteering too!❤️

Sandpiper Wildcat

Thanks to Westhill Academy for inviting us along today to raise awareness to the importance of early CPR. An amazing 95 pupils and some staff trained today in CPR. Special thanks to Wildcat responders Linda and Mark for all your help today.❤️

Sandpiper Wildcat is at Westhill Academy.

message received by the project on the facebook page
Demand for Training

Training significant numbers of responders across a large geographical area with a small team has been stretching, particularly matching availability of responders with that of trainers and facilities. Additionally, responders come from a wide range of backgrounds and during the initial roll out of training it quickly became apparent that two courses were required: one for those who had previous medical experience (and were suitable for a shorter course) and those who had little or no medical experience who needed to complete a longer full day course. Recruitment and training will continue for the duration of the project. While the retention rate has been high, we will allow for expansion of geographic coverage and turnover of responders that may occur over the coming months.

Existing CFR Schemes

Careful integration of the project with current CFR schemes operating within Grampian has been required to ensure joint working partnership between all local responders. Initially there was concern among some groups that the Sandpiper WILDCAT project would render their work redundant - we have been careful to emphasise the fact that our project is an addition to existing community resources, not a replacement.

Dispatch Criteria

It has been important to collate data from ACC to determine both the suitability of incidents to which Sandpiper WILDCAT responders have been sent, and also the proportion of appropriate OHCA incidents Sandpiper WILDCAT responders actually attend. Routine collection of this data has required the development of new reporting mechanisms in conjunction with SAS.

Integration with ACC Computer Aided Dispatch

The initial go live date of the project was delayed by technical factors relating to ACC. This meant some responders were trained for some weeks before going live. Maintenance of interest and engagement with these responders whilst awaiting the go live date was achieved via refresher training nights and inviting responders to assist with community CPR teaching sessions.

Terrafix VLS Performance

The usability of the Vehicle locator systems in particular the continued plotting, tracking and signal coverage of the units continues to be a problem. Work is underway to assess whether these units are fit for purpose or if there are alternative more robust methods for dispatching responders. To date we have worked to simplify the application that Terrafix use and are looking at utilising signal booster boxes to ensure that the VLS units are getting the best signal possible when in responders' homes.

Measure of Coverage

At the present time there is no formal way of measuring the proportion of 24/7/365 availability being provided by responders in a given area, or to look back and determine whether or not a responder was booked on and potentially available at the time of a particular OHCA call. The current SAS and Terrafix reporting systems are not able to provide sufficient information though potential solutions are being sought with both SAS Ambulance Control Centre and Terrafix.
SANDPIPER WILDCAT
FUTURE DEVELOPMENT

Future development

Body Camera Audit: The use of Body Cameras on a small number of responders to audit the initial minutes of resuscitation after arrival of Sandpiper WILDCAT responders. We hope to gain a unique insight into the challenges facing first responders as they manage the scene of an incident before arrival of the ambulance service. In addition, the handover to SAS personnel and subsequent team resuscitation will be analysed. This will inform training and skills maintenance programmes.

Test of WiFi workflow: The AED3 has WiFi capability which to date has not been fully tested. Work is underway with ZOLL to develop a workflow to allow this functionality to be explored in the context of the Sandpiper WILDCAT use model.

Airwave: Since the initiation of the Sandpiper WILDCAT project SAS have begun to transition the national Community First Responder programme from a VLS activation system to using an Airwave radio system - in common with frontline SAS personnel and other emergency services. We are pursuing a limited test of the Airwave system with Sandpiper WILDCAT responders.

Applying the lessons learned: The Sandpiper WILDCAT project has demonstrated the appetite in rural Grampian for volunteer responding to OHCA. In a relatively short time 500 responders have been trained, equipped, and integrated with the Scottish Ambulance Service to provide an effective cardiac first responder scheme in 50 strategic locations. In May 2017 a project group was assembled to begin to consider the lessons being learned from the project and how they might be applied elsewhere in the country in order to improve outcomes from OHCA across rural Scotland.

References

3. Resuscitation Research Group, University of Edinburgh, Unpublished Data

Pictured here alongside Project Manager Keri Fickling, Trustee Claire Maitland and Head of Service (North) for Scottish Ambulance Service Euan Esslemont is Keith Cruickshank. Keith suffered an OHCA in 2012, thanks to the quick thinking of his neighbour beginning CPR and the timely arrival of an Ambulance, meant that Keith was defibrillated and regained a pulse and breathing, he was transported to hospital where he made a full recovery......... Part of that Ambulance Crew was Keri Fickling, the next time Keri and Keith were to meet was at an information session for Sandpiper Wildcat where Keith offered to volunteer in order to help others as he had been helped. An emotional reunion for all involved and fantastic to have OHCA survivors as part of the project.
### Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMPDS</td>
<td>Advanced Medical Priority Dispatch System (used by ambulance control to guide)</td>
</tr>
<tr>
<td>ACC</td>
<td>Ambulance Control Centre</td>
</tr>
<tr>
<td>AED</td>
<td>Automated Electronic Defibrillator</td>
</tr>
<tr>
<td>CRP</td>
<td>Cardio-pulmonary Resuscitation (chest compressions with or without rescue breaths)</td>
</tr>
<tr>
<td>CFR</td>
<td>Community First Responder</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiograph</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>OHCA</td>
<td>Out-of-Hospital Cardiac Arrest</td>
</tr>
<tr>
<td>RAG</td>
<td>Red Amber Green</td>
</tr>
<tr>
<td>RRG</td>
<td>Resuscitation Research Group, University of Edinburgh</td>
</tr>
<tr>
<td>ROSC</td>
<td>Return of Spontaneous Circulation (getting a pulse back)</td>
</tr>
<tr>
<td>SALFS</td>
<td>Save a Life for Scotland</td>
</tr>
<tr>
<td>SAS</td>
<td>Scottish Ambulance Service</td>
</tr>
<tr>
<td>SFRS</td>
<td>Scottish Fire and Rescue Service</td>
</tr>
<tr>
<td>SIMD</td>
<td>Scottish Index of Multiple Deprivation</td>
</tr>
<tr>
<td>VLS</td>
<td>Vehicle Locator System</td>
</tr>
</tbody>
</table>
Sandpiper Wildcat Cardiac Responder Questionnaire – Before Training and Responding

1. How old are you?
   [18-29/30-39/40-49/50-59/60-69/70-79]

2. Are you Male/Female?

3. Are you currently a Healthcare Professional?
   [Nurse, GP, DR, Paramedic, etc]

4. Are you (or have you been) a member of another organisation?
   [SFRS, CFR, Red Cross, St Andrews]

5. Have you ever attended an Out of Hospital Cardiac Arrest? (if yes Q6 if no Q7)
   [yes/no]

6. On a scale of 1-10. How confident did you feel?
   [1 - not at all, 10 = very]

7. On a scale of 1-10 How confident do you feel if you were required to attend an Out of Hospital Cardiac Arrest?
   [1-not at all, 10 -very]

8. Do you have any concerns about being an OHCA responder for Sandpiper Wildcat?
<table>
<thead>
<tr>
<th>AMPDS Code</th>
<th>Description</th>
<th>Call Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>09D00</td>
<td>Cardiac Arrest/Death Delta Override</td>
<td>RED</td>
</tr>
<tr>
<td>09D01</td>
<td>Respiratory Arrest - Ineffective Breathing</td>
<td>RED</td>
</tr>
<tr>
<td>09D02</td>
<td>Obvious/expected Death questionable</td>
<td>RED</td>
</tr>
<tr>
<td>09E00</td>
<td>Cardiac/Respiratory/Arrest Override</td>
<td>RED</td>
</tr>
<tr>
<td>09E01</td>
<td>Cardiac Arrest - Not Breathing At All</td>
<td>PURPLE</td>
</tr>
<tr>
<td>09E02</td>
<td>Cardiac Arrest - Breathing Uncertain (agonal)</td>
<td>PURPLE</td>
</tr>
<tr>
<td>09E03</td>
<td>Cardiac Arrest - Hanging</td>
<td>PURPLE*</td>
</tr>
<tr>
<td>09E04</td>
<td>Cardiac Arrest - Strangulation</td>
<td>PURPLE</td>
</tr>
<tr>
<td>09E05</td>
<td>Cardiac Arrest - Suffocation</td>
<td>PURPLE</td>
</tr>
<tr>
<td>33D01</td>
<td>Cardiac/Respiratory Arrest call from Health Care Professional</td>
<td>PURPLE</td>
</tr>
</tbody>
</table>

Appendix B: Table Showing AMPDS codes and Call Priority for Sandpiper WILDCAT responders
When someone suffers a cardiac arrest, every second counts
Can you help?

Sandpiper Wildcat will save lives in Grampian
When a Cardiac arrest strikes, every second Counts

The Sandpiper Wildcat project will create a network of volunteers across Grampian.
Trained to give on the spot life saving care for those who have suffered a cardiac arrest.
Every minute after a cardiac arrest without intervention the patients chance of survival decreases by 10%.
Sandpiper Wildcat responders arriving at the patient quickly, starting CPR and giving early access to a defibrillator will save minutes and SAVE LIVES!!!

Fact:
We will have 100 defibrillators available with responders in Grampian

Why do we need Sandpiper Wildcat?
Grampian covers an area of 3,000 square miles and a population of 600,000 people.
This means that an ambulance is not always near by when it is needed.
The work of Sandpiper Wildcat Volunteers in their community will mean that people suffering cardiac arrest will get early treatment even if there is not an ambulance around the corner.

The Chain of Survival
When a Cardiac Arrest happens, the series of events that follow determine the patients chance of survival. This is sequence of events is known as the chain of survival.
Every link in the chain is vital for a positive patient outcome.
Sandpiper Wildcat concentrates on two elements;

1. Early CPR
2. Early Defibrillation

Fact:
More than 440 Out of Hospital Cardiac arrests happen in Grampian each year

Sandpiper Wildcat Cardiac Responders will save lives in Grampian by contributing to the chain of survival of Cardiac Arrest Patients
How will Sandpiper Wildcat Work?

A series of events......

- Person Collapses
- 999 Call made
- Cardiac Arrest Recognised
- Ambulance Dispatched
- Sandpiper Wildcat Cardiac Responder activated
- Responder arrives on scene
- Responder begins CPR and applies AED
- Ambulance Arrives
- Responder assists Ambulance Crew
- Patient is taken to hospital
- Responder alerts Wildcat Facilitator
- Facilitator visits Responder
- Incident de-brief
- CPR data gathered and reviewed with responder
- Wildcat Facilitator will feedback to responder on patient outcome
- RRG collate all data from Sandpiper Wildcat activations to look to future improvements in OHCA care

What do I need to be a Cardiac Responder?

- Over 18
- Full driving licence
- Part of the PVG Scheme (we will do this for you)
- Attend regular training sessions
- Have a willingness to make a difference in your own community

What will Sandpiper Wildcat give Responders?

- Latest in Defibrillator Technology
- Regular Training
- Regular meetings/updates
- Support/Personal Contact/Feedback
- De-brief after every event
- Be part of a world first project

Fact: Sandpiper Wildcat is the first time defibrillators have been strategically located based on historic cardiac arrest data

Interested in becoming a Sandpiper Wildcat Cardiac Responder?

Drop us an email on: admin@sandpiperwildcat.co.uk

or call us on: 01764 660 447

Fact: We need volunteers in Your Community

We would love to have you on board

Appendix C: The Information leaflet sent out to interested Sandpiper WILDCAT volunteers
APPENDICES: APPLICATION FORM

APPLICATION FORM

<table>
<thead>
<tr>
<th>Sandpiper Wildcat Cardiac Responder</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Surname</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Address</th>
</tr>
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<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Phone Number</th>
<th>Email</th>
</tr>
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<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Date of Birth</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you currently work as a healthcare professional?</th>
</tr>
</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>How did you hear about the Sandpiper Wildcat project?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you have a driving licence? If not, how do you anticipate responding to incidents?</th>
</tr>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Why do you want to be a Sandpiper Wildcat Cardiac Responder?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>What qualities do you have that you feel you can bring to the role of Cardiac Responder?</td>
</tr>
<tr>
<td>Do you have any previous experiences that you feel will have prepared you for this role?</td>
</tr>
<tr>
<td>How often will you be able to hold the AED for responding? (Approximation)</td>
</tr>
<tr>
<td>Are you a member of any of the following? SAS/SFRS/First Responder Scheme? Please detail?</td>
</tr>
</tbody>
</table>

If you are not a member of one of these groups please supply the name and address of two references:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>Address:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Number:</th>
<th>Contact Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email Address:</td>
<td>Email Address:</td>
</tr>
</tbody>
</table>

Once completed please submit this form to admin@sandpiperwildcat.co.uk or post to;

Sandpiper Wildcat Project, Sandpiper House, Aberuthven Enterprise Park, Main Road, Aberuthven, PH3 1EL.

On receipt of your application we will write to your references and once these have been returned we will be in touch to progress your application to the next stage.

Appendix D: The application form to become a Sandpiper Wildcat Responder
APPENDICES: RESPONDER KIT LIST

Individual issued Responder Equipment

1. ID badge (with unique ID number)
2. HiViz Jacket (with SPW logo)
3. Kit Bag containing:
   - Adult Bag Valve Mask
   - Paediatric Bag Valve Mask
   - Pocket Mask
   - 4 x Oropharyngeal Airways (different sizes)
   - Alco gel
   - Gloves
   - Algorhythm Sheets
4. Zoll AED3
5. VLS phone and apps.

APPENDICES: ZOLL/SANDPIPER WILDCAT PROJECT COLLABORATION

The relationship between ZOLL® Medical and the team managing the Sandpiper Wildcat project can be viewed as a true partnership, with both parties gaining significant benefit over the course of the project to-date. ZOLL engaged with the team during the procurement process to define the combination of product, accessories, and software solutions that would most optimally meet the requirements of the Wildcat project. During several initial meetings, the ZOLL development team gained an understanding of the proposed use-case of the devices and collected several recommendations on further product enhancements prior to the go-live date. Given the need for real-time feedback to the responder on the quality of their CPR, the need for device management via a dedicated app and finally post-event debriefing software, the Sandpiper Wildcat team selected the ZOLL AED 3™ BLS as their preferred device, ZOLL Online RescueNet® CaseReview as the platform to manage and view case data, and PlusTrac™ to help the Wildcat team better manage their fleet of over 100 devices. Once the AEDs were deployed with the community responders, ZOLL used feedback gained from various initial meetings with both the Wildcat leadership team and the responder groups themselves to drive a number of enhancements to each of these three platforms.

Of course, the collaboration did not stop once the Sandpiper/Wildcat team made the decision to partner with ZOLL. Both teams agreed from the outset to continue regular and frequent contact between the two groups throughout the project. The ZOLL R&D and Product Management teams viewed the opportunity as a way to gain valuable user insights and an avenue for product development and enhancements. Moreover, the ZOLL team has a genuine interest in seeing the project succeed both from the perspective of safeguarding the residents of the areas which Wildcat covers, as well as serving as a potential blueprint for other such schemes both in the UK and overseas. From the standpoint of the Sandpiper Wildcat team, this direct access to the ZOLL R&D engineers responsible for the development of the ZOLL AED 3, CaseReview and PlusTrac meant that their ideas could be evaluated and implemented much more quickly than is normally possible with product development of a medical device.

Due to direct feedback from the Wildcat leadership team and responders, the ZOLL development team made several changes to the clinical operation of the ZOLL AED 3. Prime examples of this are:

- Refinement of prompting in paediatric mode and ability to configure certain prompts (on/off)
- Changes to the non-clinical mode of operation of the device
- Areas identified for continued battery-life enhancement
- The implementation of multi WiFi network access

Through the partnership and communication process, ZOLL has been able to implement changes put forward by the Sandpiper Wildcat team in every new software release to-date. ZOLL is greatly appreciative of the opportunity to work with the Wildcat Sandpiper team in the implementation of a high-performing first responder programme in a rural area. The feedback we have received has been invaluable, helping us to define the most comprehensive first responder AED solution available. This unique approach has benefited the residents of the Grampian region and other first responders, both in the UK and overseas. We are grateful for this opportunity and greatly value the collaboration.
For more information contact Keri Fickling, Sandpiper Wildcat Project Manager:

keri@sandpiperwildcat.co.uk

The Sandpiper Trust

sandpipertrust.org
info@sandpipertrust.org
01764 660 447

The Sandpiper Trust
c/o BASICS Scotland
Sandpiper House
Aberuthven Enterprise Park
Main Road, Aberuthven
PH3 1EL