



Current Practice and Prospects for  
FRS Co-responding  
**Fire Research Series 14/2008**





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**Fire Research Series 14/2008**

**ORH Limited**

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The findings in this report are those of the authors and do not necessarily represent the views of Communities and Local Government.

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# 1. Introduction

## 1.1 Background

- 1.1.1 The Ambulance Service has the statutory responsibility in England for pre-hospital emergency patient care. Traditionally it was the sole organisation responding to such emergency calls. However Government has encouraged other agencies and volunteer groups to work with ambulance in this area under initiatives for 'joined-up government' and 'customer-focused' services. New more demanding response performance targets for Ambulance Services have encouraged them to use such support too, especially in rural areas.
- 1.1.2 Developments in technology have allowed automated external defibrillators (AEDs) to be operated successfully by lay people with limited training. These provide a new tool to encourage community-based volunteer groups to provide a 'first response' to cardiac arrests. Leading medical charities and voluntary aid societies, including the British Heart Foundation and the Resuscitation Council (UK) have encouraged, and often funded, their deployment.
- 1.1.3 The 1999 White Paper *Saving Lives – Our Healthier Nation* prompted the government to establish a National Defibrillator Programme to encourage their wider availability. Each Ambulance Service has a Community Defibrillation Officer who assists with identification of suitable schemes or sites for defibrillators, and with training. Over 3000 defibrillators have been purchased by the government through the programme. About 200 have been allocated to Fire Services.
- 1.1.4 The potential for Fire Services to play a role in first response has been recognised for some time. The first UK Fire co-response schemes were established in Wales in 1996. In the US and Canada Fire Service response to medical emergencies has been around for much longer, in part because Fire Services also provide a local ambulance service in many communities.
- 1.1.5 The Bain Report on the UK Fire & Rescue Service in 2002 and the 2005/6 Fire & Rescue Service National Framework encouraged Fire Services to participate with Ambulance Services in co-responder schemes. However, when the Chief Fire Officers Association undertook a survey of defibrillators and co-responder schemes in Fire Services in 2005, only a third had co-responding schemes in place (although nearly all were planning them).
- 1.1.6 The Select Committee Report on the Fire & Rescue Service in 2006 also supported the growth of co-response. It said (recommendation 46, paragraph 123):

*We are convinced of the life-saving benefit of co-response schemes and are concerned at the reluctance of some in the FRS to participate*

*in them. We recommend that the Government, in conjunction with the Department of Health, develop a national co-response protocol which includes guidance on how co-response should be paid for.*

In response, the Government said:

*The Government is also fully supportive of co-responder schemes and would wish to see all FRAs working in partnership with their local Ambulance Service NHS Trusts to introduce such schemes if that is appropriate locally.*

1.1.7 Progress since then has been slow, with uncertainties over funding and with opposition from the Fire Brigades Union to the implications of co-responding on the contractual obligations, training and workload of their members. This FBU opposition has culminated in a High Court decision, confirmed on appeal in February 2007, that a Fire Service has no right to compel a fire officer to participate in co-responding schemes. Fire co-responding will remain a voluntary activity.

1.1.8 In his judgement in October 2006, Mr Justice Butterfield noted:

*... I express the earnest hope that there will be no triumphalism after this judgement. Rather I hope there will begin yet further determined efforts to find a way in which the benefits of co-responding by the Fire & Rescue Services can be achieved in a spirit of co-operation between all parties ...*

1.1.9 At this watershed in the development of Fire Service co-responding, a stock-take of current activity is timely. Therefore, the Department for Communities and Local Government has commissioned Operational Research in Health Ltd (ORH) to examine current Fire & Rescue Service co-responding with Ambulance Services in England, and its future prospects. This is the Final Report for the study.

## 1.2 Co-responding

1.2.1 *Co-responding* is defined in this study as a response to a medical emergency by Fire & Rescue Services using trained personnel (and by other emergency services such as police and armed forces likewise), at the request of Ambulance Services.

1.2.2 Ambulance Services use co-responding as one of a number of *first responder* mechanisms to extend the coverage and speed of the traditional ambulance response to medical emergencies. These mechanisms include *community first responding*, where trained volunteers in local communities are mobilised to respond to such emergencies, using their own vehicle. They include *service responders*, where off-duty ambulance and medical personnel make themselves available to be mobilised to such emergencies. They include *static site responders*, where staff employed at a particular location (typically



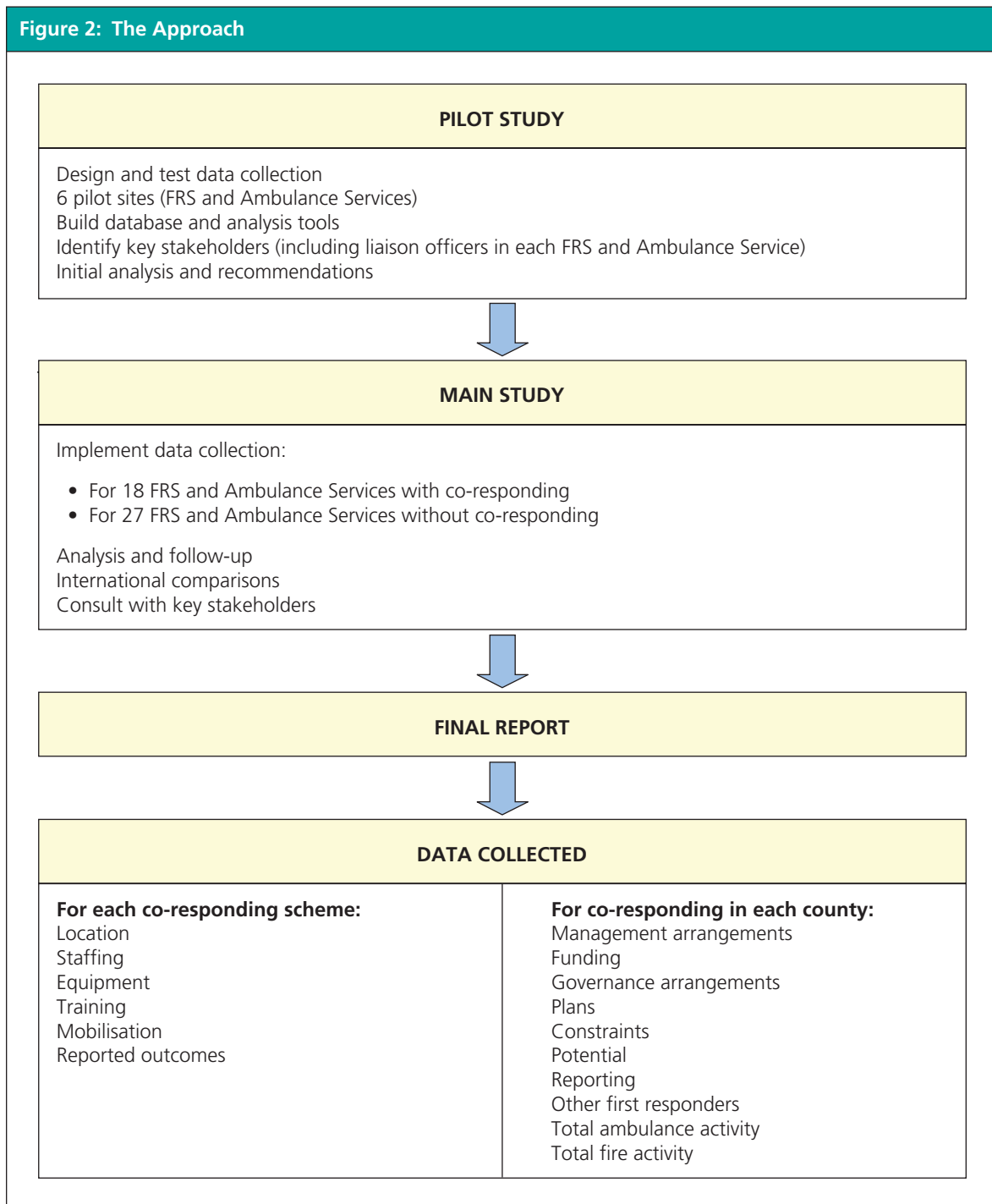
a transport terminal, shopping centre, or tourist attraction) are trained to provide a first response to medical emergencies occurring on their premises.

- 1.2.3 All these response mechanisms are supplementary to an ambulance response. Once the ambulance arrives, the crew take over treatment of the patient from the first responder, transporting them to hospital when necessary. The definition of co-responding and other terms used in this report can be found in the lexicon at **Appendix 1**.

## 1.3 The study

- 1.3.1 The study has collected information on co-responding in 2007 from Fire & Rescue Services across England and from their partner Ambulance Services. Co-responding schemes were operating in 18 Services then, as **Figure 1** opposite illustrates.
- 1.3.2 The study has also collected some information from the remaining Fire & Rescue Services, and Ambulance Services, who were not operating schemes.
- 1.3.3 This information has been supplemented by published information from Fire & Rescue Services, from Ambulance Services and from other organisations involved in co-responding and first responding generally. These include the Resuscitation Council who provide guidelines and training on resuscitation; the Healthcare Commission who published a report on community first responding in 2007; CIPFA who publish Fire Service statistics; the Department of Health who publishes annual reports on the use of defibrillators by Ambulance Services; and the British Heart Foundation who manages the allocation of funding under the National Defibrillator Programme. A full list of references is included in **Appendix 2**.
- 1.3.4 The study has been undertaken in two phases: a pilot study to test the approach to data collection, completed in October 2007; and the main data collection and analysis phase, completed in March 2008. The key elements of each phase are outlined in **Figure 2** overleaf along with the major data items collected.
- 1.3.5 The study team has been advised by a project board led by Communities and Local Government with membership drawn from Fire Services, Ambulance Services, the Department of Health and the Local Government Association. The composition and role of the project board is outlined in **Appendix 3**.
- 1.3.6 The study team has relied on information and opinions in relation to co-responding provided by liaison officers in each Fire & Rescue Service and each Ambulance Service in England in the second half of 2007. The findings need to be interpreted accordingly.

**Figure 2: The Approach**



## 1.4 The scope and contents

1.4.1 The full scope of the study, as originally proposed, is included at **Appendix 4**. On advice from the project board and in response to external developments, some changes in emphasis have been made, and reflected in the final report. The major changes are:

- Add specific tasks to assess the potential for co-responding
- Make use of the new Healthcare Commission report on community first responding to reduce the data collection from Ambulance Services on this topic
- Reframe work on the potential benefits of co-responding in terms of the opportunities for improved patient outcomes (rather than 'lives saved').

## 2 Fire and Rescue Service co-responding – current arrangements

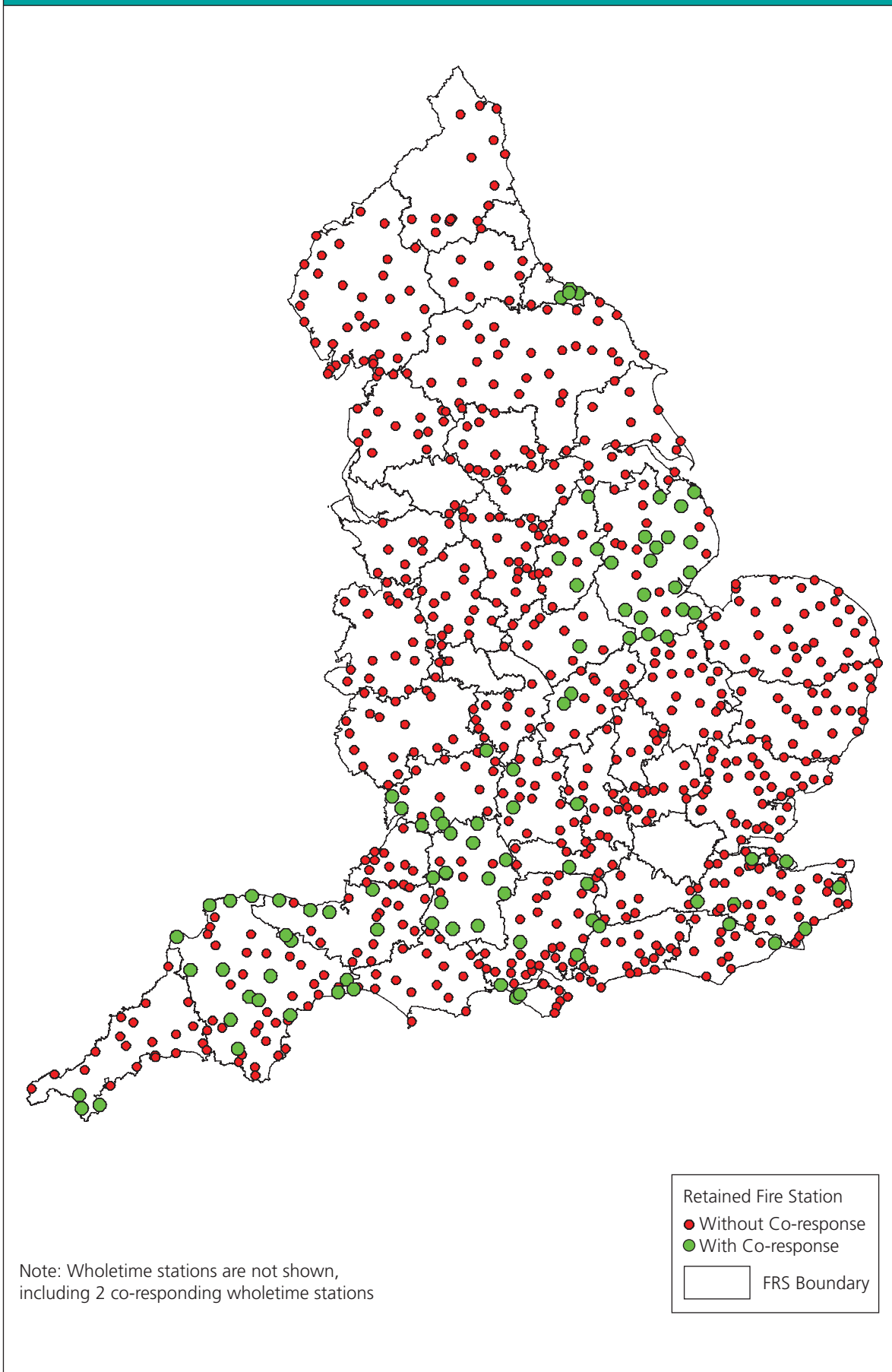
### 2.1 The coverage and staffing of co-responding schemes

- 2.1.1 In the second half of 2007, there were 99 fire stations operating co-response in 18 Fire & Rescue Services (FRS). Ninety-seven of the schemes were at retained duty system fire stations; two at stations staffed by whole-time fire-fighters.
- 2.1.2 Over half the co-responding stations were in three counties: Lincolnshire, Devon and Wiltshire. In Lincolnshire, the majority of retained duty system fire stations operate co-response. **Figure 3** shows the distribution of retained duty system fire stations in England, highlighting those that have co-response schemes. About 5 per cent of retained stations nationally operate a co-response scheme.
- 2.1.3 The number of fire stations operating co-response has been growing. In 2000, there were 10; at the end of 2005 there were 62; now there are 99.
- 2.1.4 The Services with co-responding schemes estimate that 600 retained staff and 70 whole-time staff are currently trained and qualified as co-responders. They represent 5 per cent of total retained fire staff and 0.5 per cent of whole-time staff respectively in England.
- 2.1.5 The number of fire staff supporting each co-responding scheme at each station varies from as little as four, in a retained station with few co-responder volunteers, to as many as 48 in one metropolitan whole-time co-responder scheme.
- 2.1.6 By comparison, there are now more than 1300 community first response schemes in England, supported by about 10,000 volunteers. There are a few counties where fire co-response schemes are in the majority but in most, community first response schemes predominate, as the graph in **Appendix 8.1** illustrates.

#### Commentary

- 2.1.7 About 40 per cent of England's Fire & Rescue Services now operate co-response in at least one of its stations. These are predominantly retained duty system fire stations. Despite growth over the last few years, the

Figure 3: Retained Duty System Fire Stations Providing Co-Response



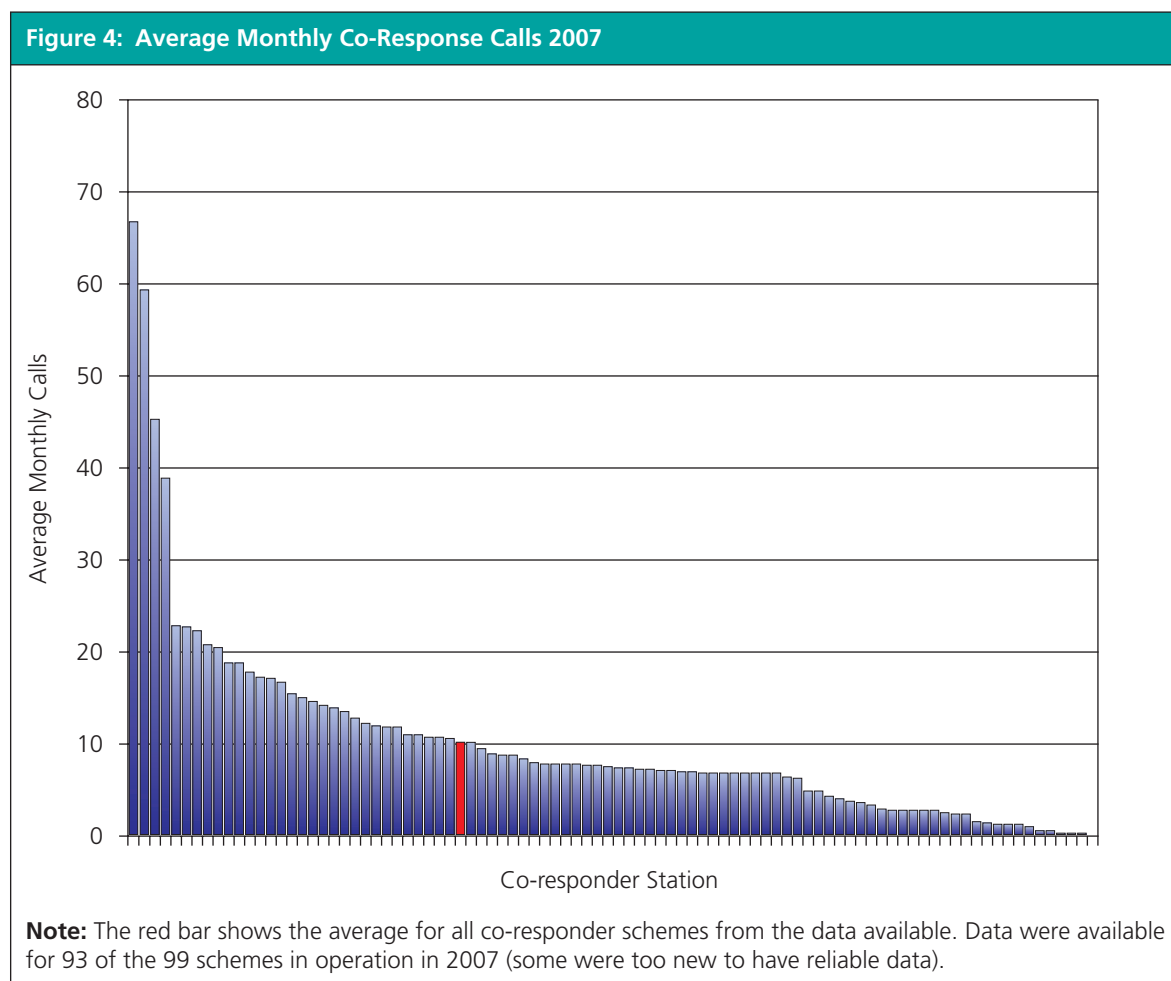
coverage of these schemes remains small in relation to the total number of fire stations and to population.

2.1.8 The number of co-response schemes is also small in comparison with community first response schemes. There are 13 community first response schemes for every one fire co-response station.

## 2.2 Co-responding activity in these schemes

2.2.1 In an average month in 2007, the 99 co-responding stations in England were mobilised by Ambulance Services to about 1000 emergency medical incidents, an average of 10 per station per month.

2.2.2 Some stations have much higher activity than this; some much lower, as **Figure 4** illustrates. The range is from over 30 calls per month to less than one. In a few fire stations, the number of 'co-responses' exceeds that of all other types of fire incidents. In most, they form less than a third of station response activity.



- 2.2.3 On average, a fire-fighter in a co-responding scheme can be expected to be called out between two and three times per month. However in co-response stations where fire crews of more than three are mobilised, an individual fire-fighter may go to more than eight co-response calls per month. In a quieter station, with a one-person or two-person co-response regime, a fire-fighter may go to less than one call every 4 months. The graph in **Appendix 8.2** shows the range.
- 2.2.4 Co-response activity overall is a small part of both FRS and Ambulance Service activity. As **Figure 5** indicates, co-response forms 1.4 per cent of total Fire & Rescue Service emergency response activity in England, and 0.7 per cent of the total ambulance response to Category A life-threatening incidents. These proportions double if co-responses are compared with Fire & Rescue or Ambulance activity for non-metropolitan counties alone (where co-response is concentrated at present).

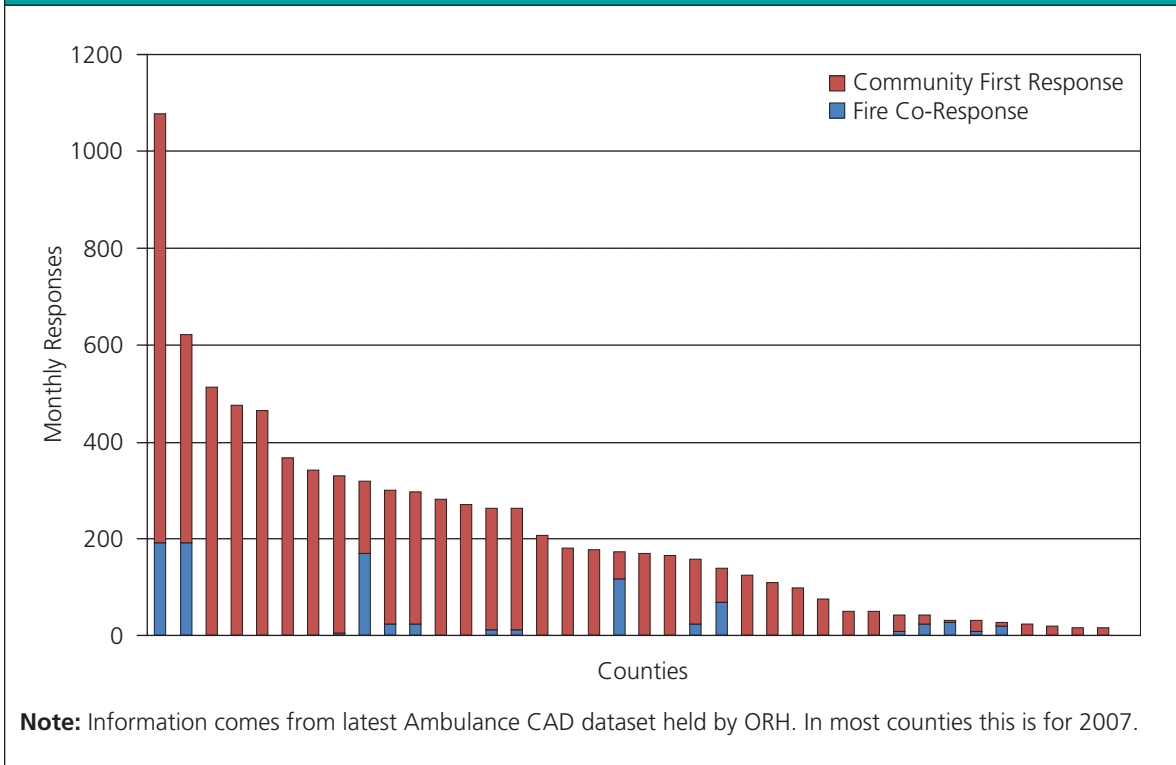
**Figure 5: Co-Responding in the Context of all Fire & Rescue and Ambulance Activity**

<i>In an average month in 2007 in England</i>	Number	Percentage
<b>Co-Response</b> mobilisations by 99 Fire Service Co-Responding Schemes	1,000	n/a
Co-responses as % of all 72,000 <b>Fire</b> emergency responses by English FRS	1,000	1.4%
Co-responses as % of 40,000 <b>Fire</b> emergency responses in non-metropolitan FRS only	1,000	2.5%
Co-Responses as % of all 150,000 <b>Ambulance</b> Category A (life-threatening) responses in England	1,000	0.7%
Co-Responses as % of 63,000 <b>Ambulance</b> Category A (life-threatening) responses in non-metropolitan counties only	1,000	1.6%
<b>Community First Responses</b> as % of all 150,000 Ambulance Category A (life-threatening) responses in England	8,000	5.0%
<b>Community First Responses</b> as % of all 63,000 Ambulance Category A (life-threatening) responses in non-metropolitan counties only	8,000	12.0%

Note: Numbers are rounded to the nearest 100.

- 2.2.5 Like co-response schemes, community first response schemes have a wide range of activity. Overall, the average community first response scheme has about half the activity as the average co-response station. However the far larger number of community first response schemes mean they contribute more, about 5 per cent, to the total ambulance response to Category A incidents. In all but a few smaller counties, the response contribution of community first response schemes in total exceeds that of the fire co-response scheme, as **Figure 6** overleaf indicates.

**Figure 6: Co-Response & Community First Response Activity in Non-Metropolitan Counties in England**



**Commentary**

- 2.2.6 Co-response is a small proportion of overall Fire & Rescue Service activity and of Ambulance Service activity. Co-response forms 1.4 per cent of total FRS response activity in England, and 0.7 per cent of the total ambulance response to Category A incidents.
- 2.2.7 The average level of co-responding mobilisations across the 99 participating stations is about 10 per month, but there is wide variation. Some stations have very little activity; a few have more co-responding activations than fire activations. Nationally, the average co-response station has nearly twice the activity of the average community response scheme.
- 2.2.8 The variation in activity level across schemes is accentuated at the level of the individual fire-fighter, because of variations in the number of co-responding staff at the fire station and the number of staff mobilised to each co-responding call.
- 2.2.9 Low levels of activity have implications for maintaining the skills and competencies of co-responders (and therefore for training and re-assessment). High levels of activity have cost implications, but also implications for retained fire-fighters and their employers, balancing work and their Fire Service commitments.

## 2.3 Types of calls to which a response is given

2.3.1 Ambulance Services classify emergency calls into three categories for response purposes:

- Category A: immediately life threatening
- Category B: serious but not immediately life-threatening
- Category C: not serious or life-threatening.

All Ambulance Services use computer-aided call-taking and despatch systems that help to identify presenting condition and location as well. Together, these determine whether a co-response (or community first response) would be appropriate in addition to the ambulance response.

2.3.2 Co-response schemes define the calls they will respond to in relation to these factors and to some other criteria or exclusions. Most do so in the Memorandum of Understanding agreed between the Fire & Rescue Service and Ambulance Service. These vary in detail but most stipulate mobilising co-response if the following criteria are satisfied:

- only when response to fire calls would not be compromised
- only within a short distance of the fire station
- not for young children, maternity or dangerous situations (violent patient, unsafe location)
- for Category A calls only, with Category B calls limited to those where there is potential for heart attacks
- for types of calls where co-response skills and treatment options can provide benefit: mainly heart attacks (including chest pains); breathing difficulties (including choking, drowning, convulsions and fitting); and severe haemorrhage.

Similar response criteria are adopted by co-responders and most community volunteer responder schemes in each county.

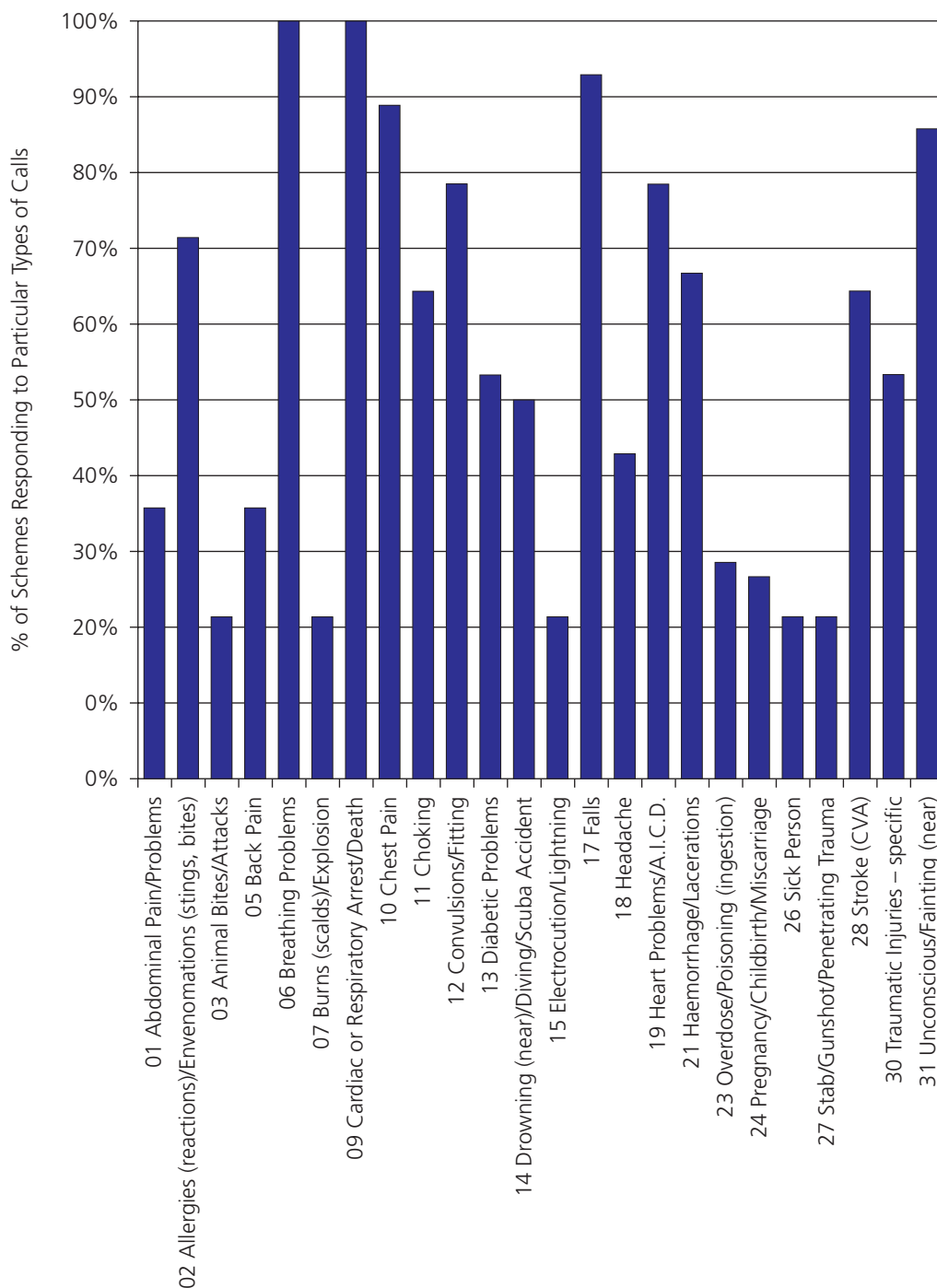
2.3.3 In practice, all co-responders go to calls reported as chest pains, heart attacks, breathing difficulties and haemorrhage. But some go to a much wider range of call-types, as **Figure 7** overleaf indicates.

2.3.4 Nationally, about 70 per cent of calls to which co-responders are sent are classified as Category A. Some schemes have 100 per cent Category A; a few less than 50 per cent. **Appendix 8.3** provides more details of the variations between schemes.

2.3.5 These differences between Services are accounted for by a number of factors, including:

- Differences in the treatment options and training provided to co-responders (and community responders)

Figure 7: Types of Calls Responded to by Community and Co-responders



**Notes:**

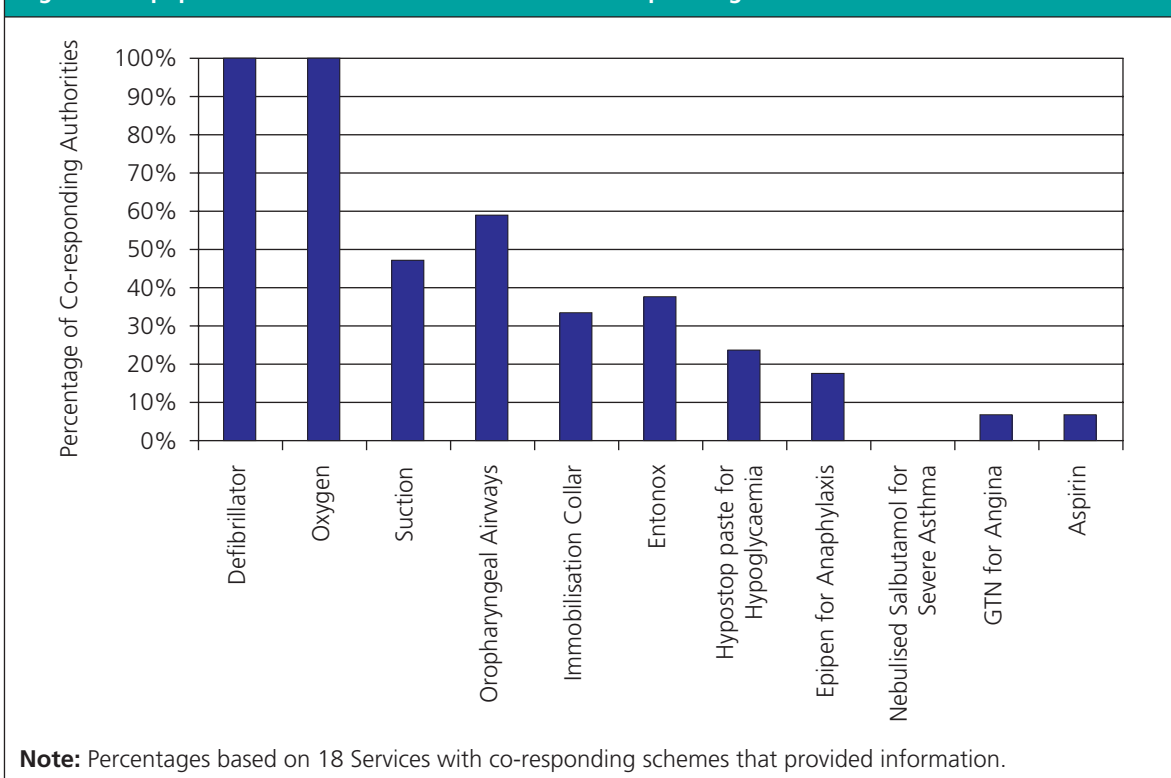
Percentages based on a total of 18 Services with co-responding schemes who provided information. Information sourced from Memorandum of Understanding and Procedures documentation from the Services with co-responding schemes, supplemented by analysis of ambulance CAD data in those counties and advice from liaison officers in FRS and Ambulance Services. The description of types of call includes the Advanced Medical Priority Dispatch System (AMPDS) code used to classify calls in most Ambulance Services in England.

- A response is activated before full details of the call are known, to provide the speediest response possible, and incidents may be re-classified as less urgent later (and the co-response/community response vehicle stood-down)
- Some Fire Service co-response managers review all mobilisations and question Ambulance Control over any that do not fit the criteria, to ensure inappropriate call-outs are minimised; others do not
- Some co-responder schemes have fewer exclusions than others, and than community first responders generally, (eg, they will go to road traffic incidents, rescue sites and industrial injuries; young children, maternity cases, etc)
- Some community first responders who are included in **Figure 7**, like GPs and off-duty nursing/ambulance staff, may have wider capabilities and treatment options available to them, and so respond to a wider range of calls.

2.3.6 The range of equipment used by co-responders is summarised in **Figure 8**. All have defibrillator, oxygen therapy equipment and a general first aid kit with dressings. Some have other diagnostic and support equipment (suction, collars, airways). A few have drugs such as entonox (for pain relief), hypostop (for diabetics), GTN for angina and aspirin.

2.3.7 Most co-responder schemes do not report on the usage of this equipment. The estimates collected from Ambulance and Fire & Rescue Services for this study suggest that oxygen is used most frequently, with defibrillators used in less than 5 per cent of responses.

**Figure 8: Equipment and Treatment Available in Co-Responding Schemes 2007**



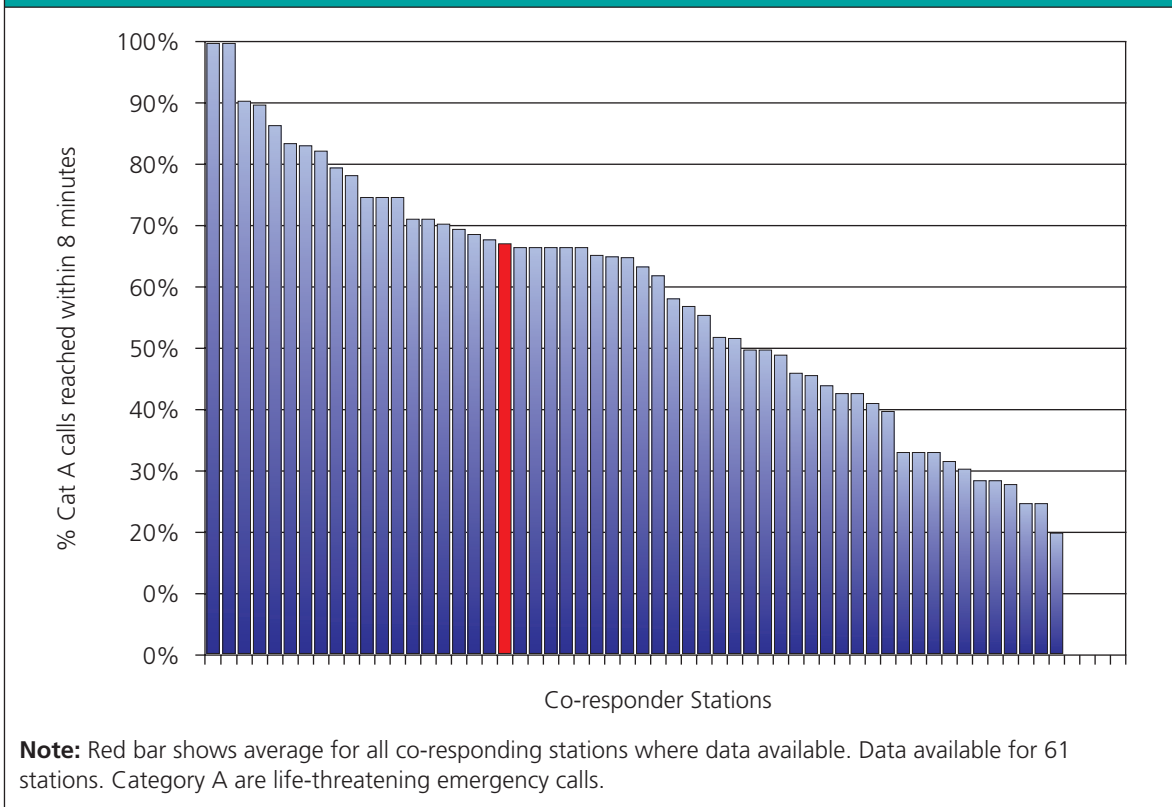
### Commentary

- 2.3.8 There are some differences between co-responder schemes in the types of calls they respond to; and the types of equipment/treatment they are allowed to use. However, all have a focus on life-threatening heart and breathing-related conditions.
- 2.3.9 Although defibrillators are often considered the centrepiece of clinical equipment for co-response schemes (and the focus for Lotteries funding to such schemes through the British Heart Foundation), they are used in only about 5 per cent of co-response activations. Oxygen therapy and general first aid are used more frequently.

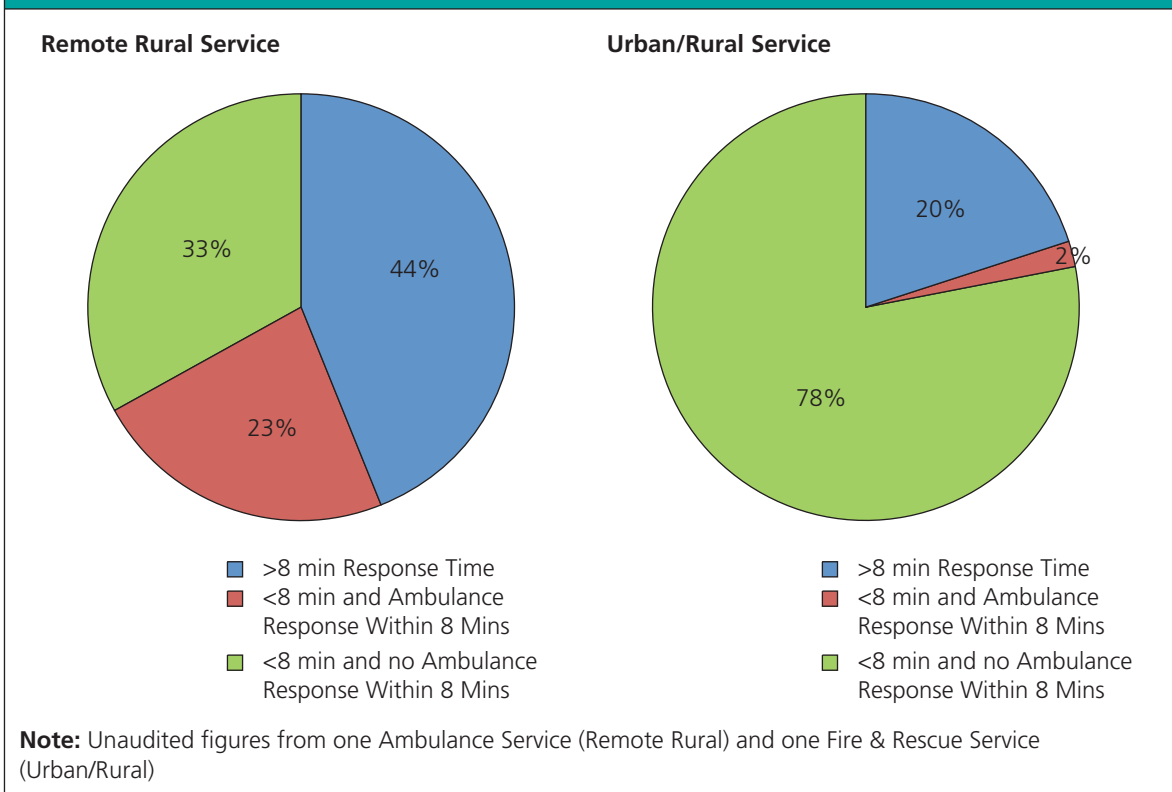
## 2.4 Vehicle, crewing, mobilisation and response

- 2.4.1 Ambulance Services use co-response to help improve outcomes for patients with life-threatening conditions (Category A) by providing an early and local response. Research shows that the shorter the response time before treatment starts, the better the outcomes for patients. **Appendix 5** provides more details of this research.
- 2.4.2 For nearly 70 per cent of the Category A calls they respond to, co-responders nationally reach the patient within 8 minutes – the target that Ambulance Services set for such life-threatening cases. As **Figure 9** indicates, there is a wide variation between schemes. Some reach all within 8 minutes; others only 20 per cent of such calls. This is partly to do with geography and the distribution of calls, partly about differences in mobilisation and crewing arrangements.
- 2.4.3 Of particular interest to Ambulance Services is the number of these calls where the co-response (or other first responder) reaches the patient within eight minutes, and the ambulance takes longer than eight minutes to arrive. These responses contribute to the Ambulance Service's key emergency response performance target.
- 2.4.4 **Figure 10** illustrates the range of contributions that co-response can make, with examples from two Services with different geographies. In the remote rural Service on the left, 33 per cent of co-responses contribute to Ambulance Service response performance because they reach the patient within eight minutes and the ambulance does not. In the urban/rural Service on right, 78 per cent of co-responses contribute. **Appendix 8.4** provides another perspective: the different contributions to the response performance target that different types of first responders can make.
- 2.4.5 Fire & Rescue Services use two main vehicle and crewing arrangements for co-response. Approximately half use their fire appliances for co-response. This usually involves a crew of three or more.
- 2.4.6 The remainder use dedicated co-response vehicles, generally vans. These can be operated as solo response vehicles, but most Fire & Rescue Services

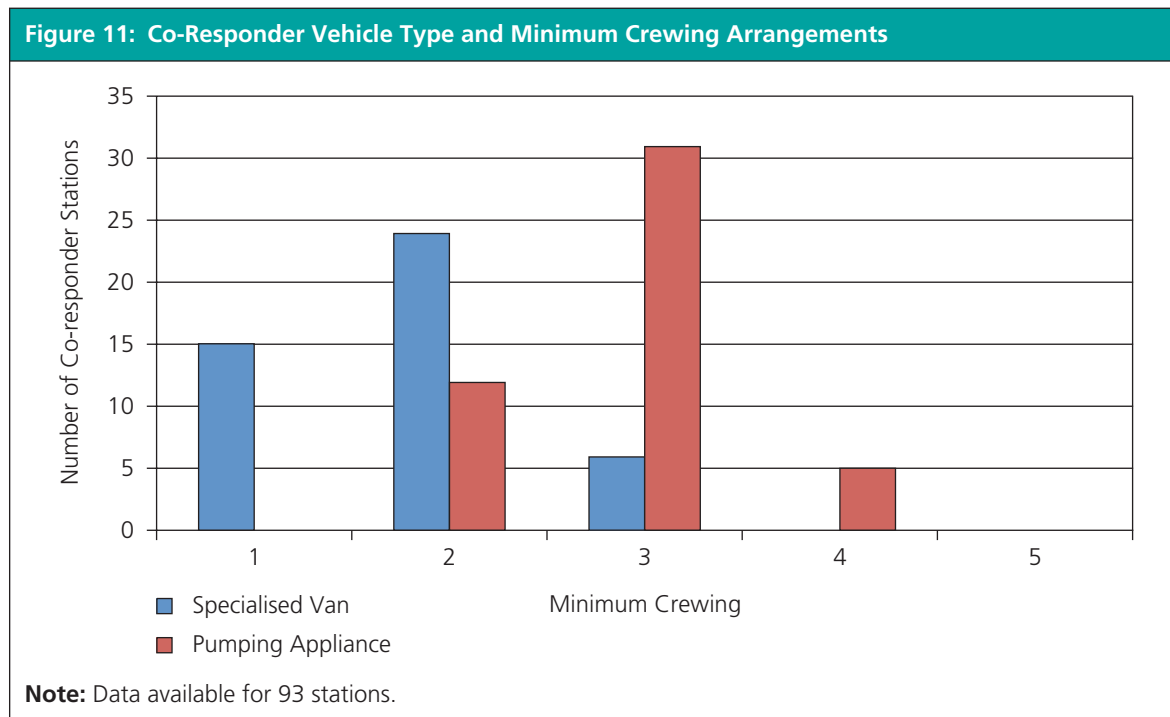
**Figure 9: Co-Responders' Time to Reach Category A Calls**



**Figure 10: Fire Co-Responder Contribution to Ambulance Emergency Response**

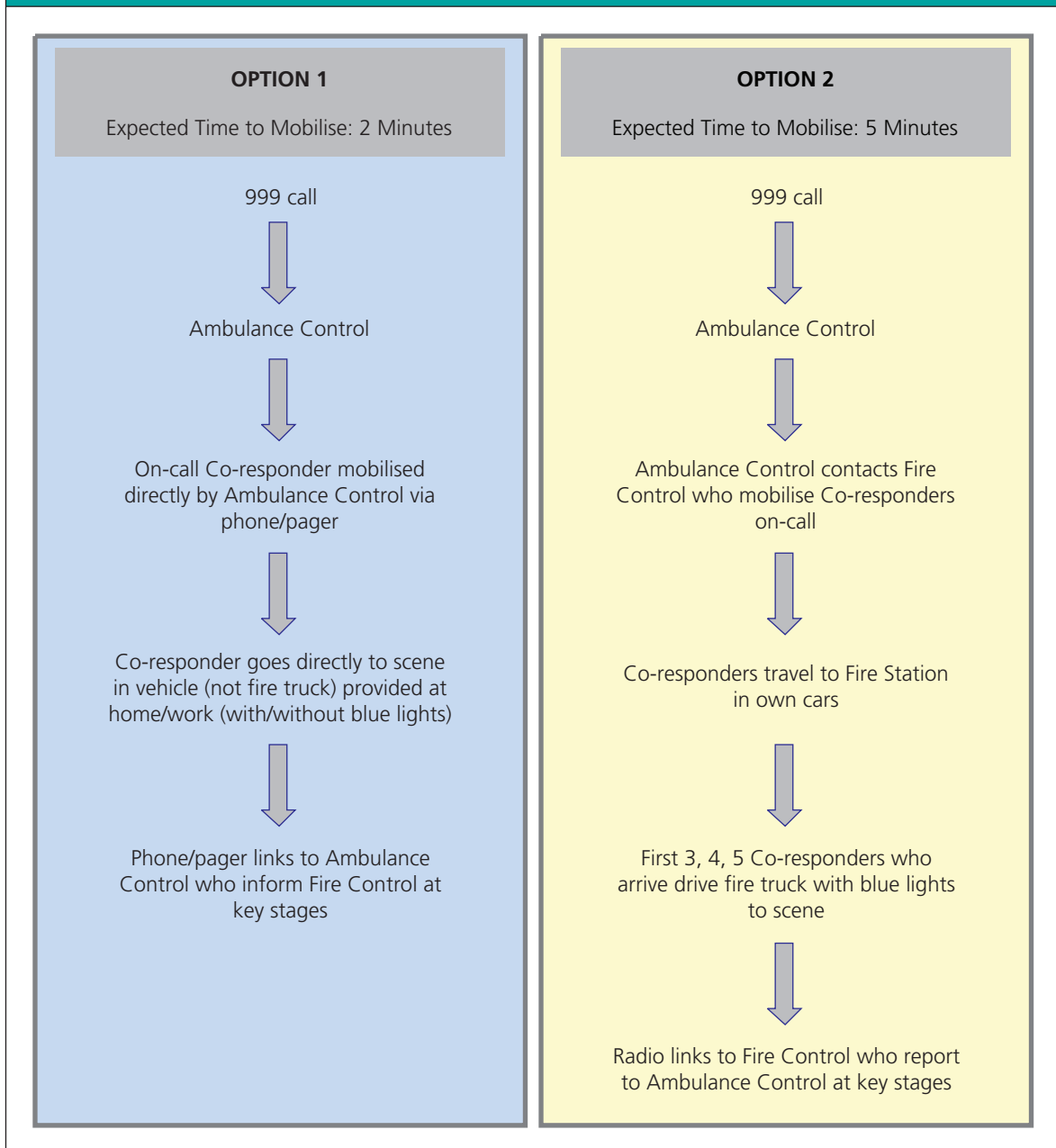


have a minimum of two crew deployed. Nevertheless, in general they involve smaller crews than using fire appliances, as **Figure 11** indicates. (Note: a solo responder is the norm in most other community first responder and service responder schemes.)



- 2.4.7 These different arrangements have implications for the speed of mobilisation and response in co-response from retained stations, which form the great majority of co-responding schemes. (In whole-time fire-stations there should be no difference in mobilisation times between these two approaches.) Where a fire appliance is used, staff on-call are paged and come to the fire station. Once a sufficient number of staff has arrived, the co-responding fire appliance can go out.
- 2.4.8 In general, this activation process takes three to five minutes longer to mobilise a response than one in which a solo responder has the dedicated co-responder vehicle at his/her on-call location and responds to the scene directly from there. **Appendix 8.5** illustrates this with mobilisation and response time data from two Services, one that uses a fire appliance and one a dedicated co-response vehicle.
- 2.4.9 The mobilisation process for the two approaches is summarised in **Figure 12** opposite. There are some variations; for example where the dedicated co-responder vehicle is stored at the fire station; or where the co-responder mobilising from home has to pick up a colleague. Some schemes also involve Fire Control as well as Ambulance Control in the initial activation and subsequent management of the response. The key point is that the longer the activation and response time, the more the patient is at risk in time-critical emergencies.

Figure 12: Fire Co-Responder Mobilisation – Major Alternatives Currently in Operation

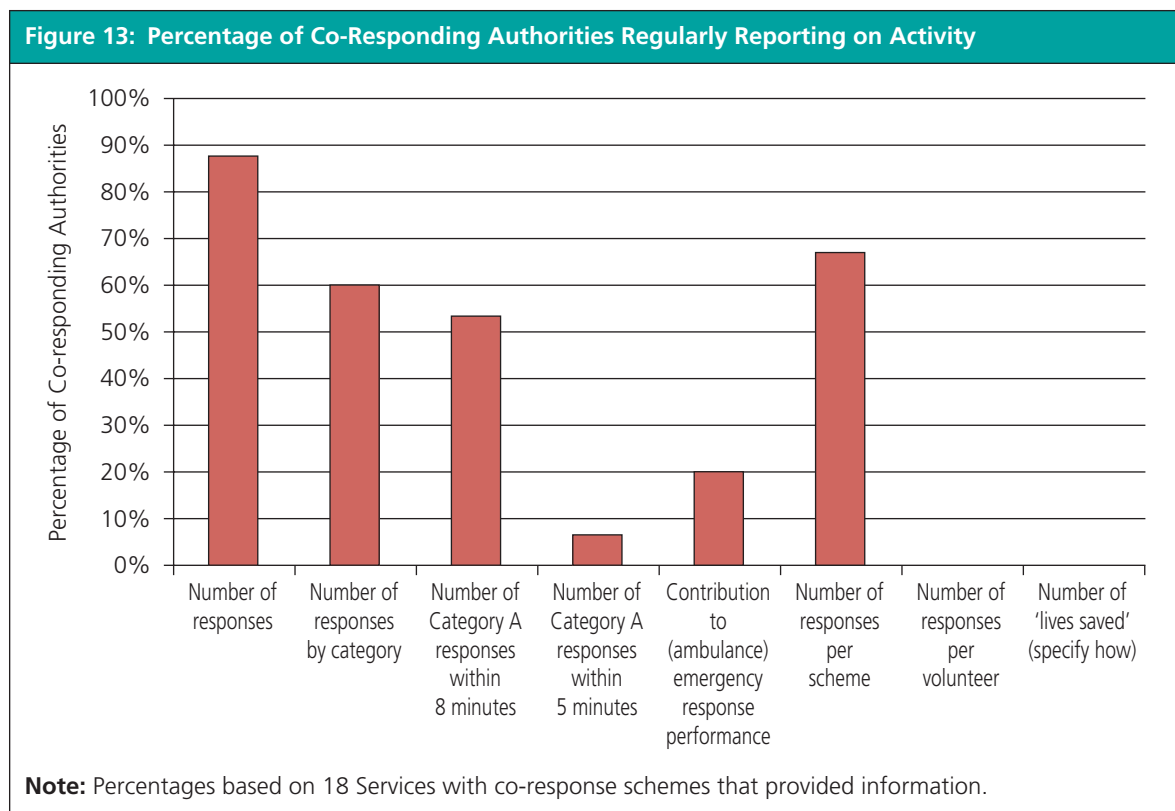


### Commentary

- 2.4.10 There are differences in vehicles, crewing and mobilisation used by Fire & Rescue Services for co-response schemes. These have implications for response performance (and so potentially for patient outcomes) and also for costs.
- 2.4.11 The recently-established and busier schemes have tended to adopt the dedicated vehicle approach with smaller co-responding crews and more direct links to Ambulance Control for faster mobilisation and response times.

## 2.5 Reported outcomes from co-response

- 2.5.1 Reporting of co-response activity and outcomes varied widely between counties and between Fire and Ambulance Services within each county/Trust area.
- 2.5.2 In general, Fire Services relied on Ambulance Services for information on the number of co-response mobilisations and the outcomes of the response. A minority of Fire Services maintained separate records (patient report forms, control room logs) of co-response calls. (This tended to be where Fire Control was involved in mobilising co-response, see Option 2 in **Figure 12**.)
- 2.5.3 The responsible officer in most Fire & Rescue Services received details from Ambulance Control of the number of co-response mobilisations on a regular basis; some monthly; some daily. The details were generally limited to the time and place of the call; the type/category of call and the response time, as **Figure 13** below indicates.



- 2.5.4 Some reviewed these details closely to check the appropriateness of the call, and of the response; to provide debriefing and support to the responder concerned if necessary; and to cross-check with call-out claims for pay purposes or cost-recovery.
- 2.5.5 Ambulance Services sampled also reported such details to their own managers (to Community Defibrillation Officers or First Responder Managers) for all community first responder activity, not just co-responders. Some of

them too would review these details closely to identify responses where debriefing and support to the responder concerned might be necessary.

- 2.5.6 Those with substantial community first responder activity would also report monthly on its contribution to the Ambulance Service key performance target (response within eight minutes to Category A incidents).
- 2.5.7 One Fire & Rescue Service included in their regular management reports on co-responding a summary of every incident responded to. The information includes response times of both co-responder and ambulance, and details of equipment used at the scene. This is the only Fire or Ambulance Service that reports on the number of times co-response defibrillators are applied and/or used to shock.
- 2.5.8 No Fire & Rescue or Ambulance Service sampled reports regularly on patient outcomes from the use of defibrillators (either in terms of Return of Spontaneous Circulation (ROSC) or of successful discharge from hospital) by co-responders. The occasions were sufficiently rare and the outcomes often uncertain or unknown, to make such regular reporting of little value and unreliable in the view of Ambulance Services contacted for this study. They pointed to the wider, but less headline-catching, benefits from early application of oxygen therapy and first aid by co-responders and other community first responders.

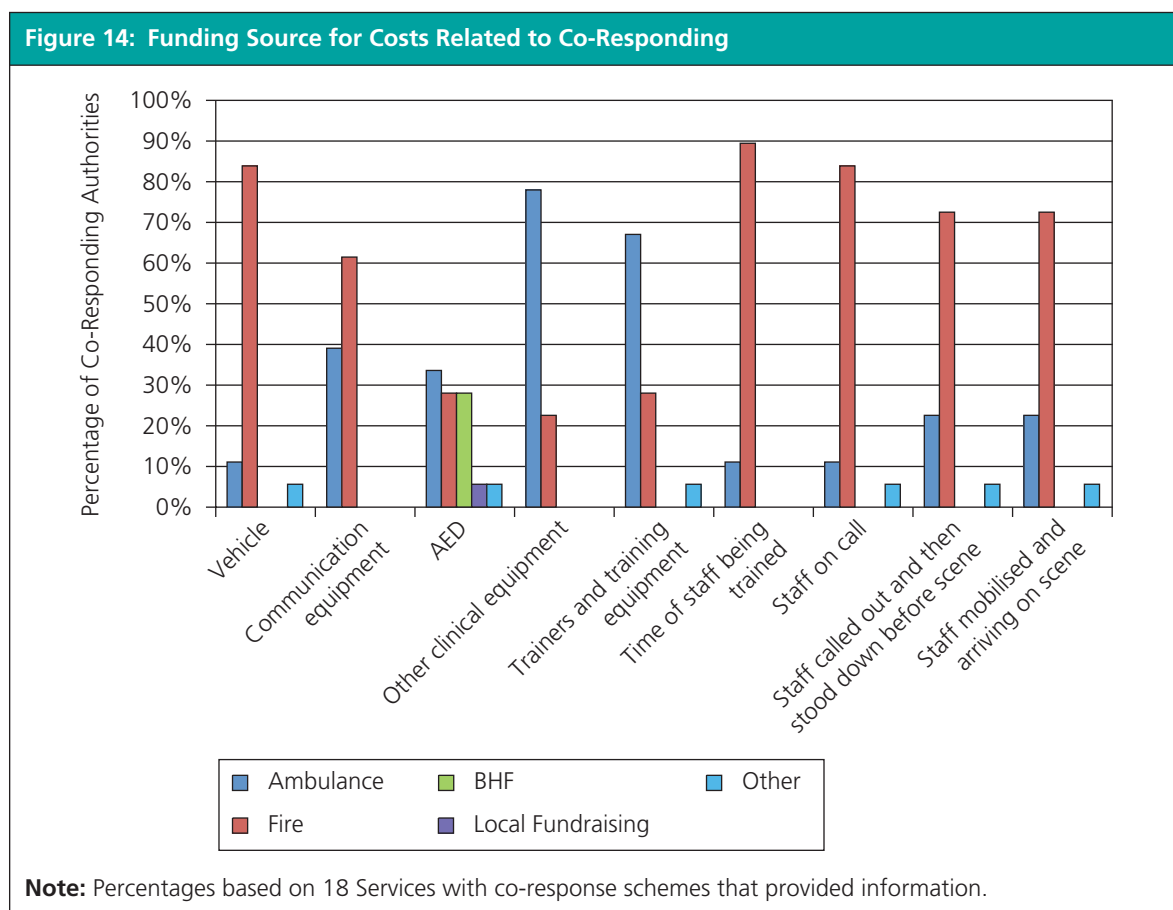
### **Commentary**

- 2.5.9 Fire & Rescue Service management reporting on co-response is limited in most Services with such schemes. It generally focuses on co-response activity and staff mobilised, for operational and pay purposes. Reporting is more developed in Ambulance Services, especially in those where co-response, and community first response generally, make a significant contribution to response performance targets.
- 2.5.10 There is no regular internal reporting to Fire & Rescue Service management on patient outcomes from co-response, although some quoted anecdotal evidence of 'lives saved'.
- 2.5.11 Ambulance Services do contribute to the national Out-of-Hospital Cardiac Arrest (OHCA) project which reports annually on patient outcomes from responses to cardiac cases. These include responses where co-responders and community first responders arrived first, although these are not identified separately.
- 2.5.12 The latest report for 2006 notes continuing difficulty in Ambulance Trusts obtaining outcome data from hospital acute trusts for 'out of hospital survived event' information for cardiac arrests (op cit para 3.4). It also notes different interpretations of ROSC amongst Ambulance Services. The report estimates (op. cit. page v) 5 per cent of patients whose OHCA received an emergency ambulance (or first responder) response survived to discharge at hospital (8 per cent had circulation restored at some time).

- 2.5.13 Supplementing the ambulance response, with co-response and community first response, should improve the chances of survival overall (see **Appendix 8.5**). However, the contribution of co-responders to improved survival will tend to be reduced by the fact that they are currently located mainly in rural rather than urban areas where distances to travel are generally longer and mobilisation times generally greater. Survival rates decrease sharply with time from cardiac arrest (see **Appendix 5**).
- 2.5.14 ORH has been informed by the (Ambulance) National First Responder Forum that it is seeking to establish a common basis for reporting all first responder activity.

## 2.6 Funding arrangements for co-response

- 2.6.1 The major costs associated with operating Fire co-response schemes fall into three groups: vehicles and equipment; training time; operational time. There is also a significant investment of management time by both Fire & Rescue and Ambulance Services whenever a Service establishes co-response for the first time.
- 2.6.2 These costs are shared between Fire & Rescue and Ambulance Services, and some other sources, in different ways, as **Figure 14** indicates.



- 2.6.3 Fire Service **co-responder staff costs** are paid entirely by the Fire Service in 12 schemes. In 5 of 18 schemes, Ambulance Services pay the costs of staff called-out and mobilised, or make a contribution towards these costs. In one scheme, the fire-fighters do not seek payment.
- 2.6.4 Where Ambulance Services pay a contribution, some will pay wages costs for all fire-fighters called out and mobilised; some will pay a flat amount per call; some will pay a variable amount depending on whether the co-response arrives on scene within the 8 minute target for emergency response that Ambulance Services work to.
- 2.6.5 Services have estimated the cost of a retained fire-fighter being called out on co-response at around £15 per hour. On that basis, ORH estimates the operating costs of call-out on the current level of co-response activity at between £300,000 and £350,000 per annum.
- 2.6.6 The Ambulance Service takes responsibility for **clinical equipment and training costs** in most schemes (in all schemes where Ambulance Service staff provide the training). The Ambulance Service also takes responsibility for maintaining defibrillators (including replacing pads after each use and batteries at the end of their life). However the purchase costs for most current co-response defibrillators have been met by the National Defibrillation Programme managed by BHF. Some Services now expect local fund-raising to pay for all new and replacement co-responding equipment.
- 2.6.7 The **cost of vehicles** for Fire co-response is entirely borne by FRS when they use fire appliances. Some schemes have dedicated vehicles for co-response supplied by Ambulance Services; some by Fire & Rescue Services; others are using (or plan to use) local sponsors to supply dedicated co-response vehicles.
- 2.6.8 When dedicated co-responder vehicles are used, and radio/phone contact provided directly to Ambulance Control, then the Ambulance Service generally supplies the communication equipment. If co-response uses a fire appliance, then the communication costs are borne by FRS.

### **Commentary**

- 2.6.9 The costs of co-responding are currently shared between participating Ambulance and FRS in each county. The arrangements vary. Most Ambulance Services pay the greater portion of the set-up cost for clinical equipment and training. Most FRS pay the greater portion of the operating cost for staff called out to each incident. But there are exceptions on both sides and there are efforts to revise the arrangements in a number of schemes.
- 2.6.10 With the amalgamation of county Ambulance Services into regional Ambulance Trusts, the basis for cost-sharing is being reviewed in a number of regions, to provide greater consistency within Trust areas. The arrangements reported here are those in place in counties in 2006/2007, before most of these reviews had completed. Liaison officers from both FRS and Ambulance Services commented that funding issues are a major constraint on further growth of co-response, at least in retained duty system fire stations.

## 2.7 Governance arrangements

- 2.7.1 Co-response schemes involve collaboration between Fire & Rescue and Ambulance Services in their initial planning and subsequent operation. Fifteen of the nineteen Services with schemes reported having a Memorandum of Understanding (MoU) between the two organisations, or similar document, defining how the collaboration will operate and the responsibilities of each party. Of the four Services that did not have such an MoU, two preferred informal agreements because of union opposition to (and required involvement in) more formal arrangements.
- 2.7.2 The MoUs that exist vary in scope, content and currency. At their most detailed they define the types of calls that co-responders will go to, and exclusions, in detail, with estimates of the numbers of calls expected. They define which organisation will fund and provide each element of the co-response scheme, with details of the equipment, clothing, communications and vehicles to be used. They outline the selection, training (re-training) and assessment process for staff to qualify as co-responders. They describe the process for identifying areas with co-responding potential and the joint agreement needed before any new scheme goes ahead. They specify the clinical reporting, supervision, support and counselling available to co-responders; and the complaint and incident reporting processes to be used for any adverse events. They detail evaluation and audit processes (and the information supporting them) to review the operation of the scheme in the light of experience.
- 2.7.3 Over half of the Services contacted had MoUs that were in draft form or were no longer current; some because of changes to the Ambulance organisation structure (with changes of staff, the advent of new Trust structures); others because of more substantial changes agreed or proposed. The latter were generally in relation to funding, vehicles, equipment and the types of calls to be referred. Both sets of organisations commented that changing agreements was difficult, hence the delays.
- 2.7.4 Clinical guidance, clinical equipment and training for co-responder schemes were the responsibility of the Clinical Directors of Ambulance Services in all but one scheme (where it was undertaken by a doctor-led community-based charity). Most Ambulance Services provided training themselves for co-responders using course material adapted from that used in courses for ambulance officers. Four used training courses provided and accredited by external bodies (viz. First-Person-on-Scene Award).
- 2.7.5 All Ambulance Services assessed trainees at the end of the course. Some used more formal testing than others, both at initial training and in subsequent refresher training. All co-responders received formal refresher training with refresher intervals varying from three months to two years.
- 2.7.6 All MoUs referred to processes for supervision and monitoring by Fire & Rescue and Ambulance Services; and for clinical audit and review by Ambulance Services. Evidence of the use of these processes specifically for

co-response schemes was limited. A minority had close review of all co-response calls for appropriateness, response and outcome, with follow-up where necessary by supervisors.

### Commentary

- 2.7.7 Governance arrangements for co-response schemes are largely defined by MoUs, and by the training and management arrangements they contain, although four jurisdictions operate without such formal agreements. More than half of MoUs in existence are in draft form or under review.
- 2.7.8 Whether there are agreements or not, there appear to be significant variations between jurisdictions in the level of attention to governance issues, particularly in relation to monitoring co-response activity, performance and continuing competence.
- 2.7.9 For Fire & Rescue Services, the governance focus is on controlling the workload falling on fire-fighters and the associated costs. For Ambulance Services, the governance focus is more on clinical competence and performance, including response performance.
- 2.7.10 With the amalgamation of Ambulance Services, there has been increasing attention in the past year on developing common guidance for co-responding and other first responding schemes, through the National Ambulance Service Chief Executives Group, the National First Responders Forum and (in relation to clinical governance) through regular meetings of the Directors of Clinical Care from each Trust. The recent Healthcare Commission reports on the management of community first responders nationally, and in Staffordshire specifically, make recommendations that add weight to these initiatives.
- 2.7.11 There are parallel developments on clinical governance in the Fire & Rescue Service nationally through the work of the Chief Fire Officers' Association (CFOA) in relation to casualty care. **Appendix 6** provides more details.

# 3 Fire and Rescue Service co-responding – future possibilities

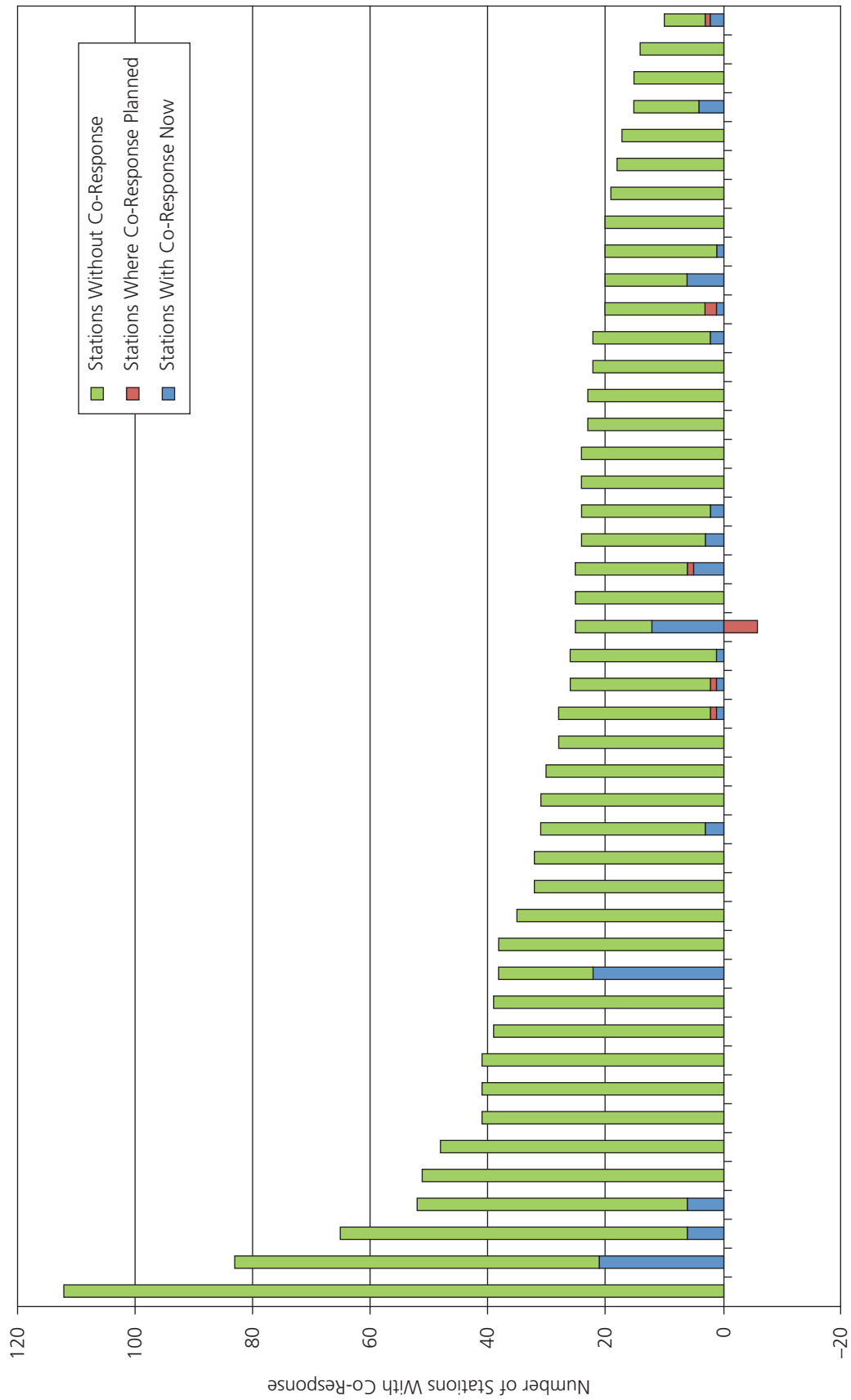
## 3.1 Introduction

- 3.1.1 This section of the report considers the future possibilities for Fire co-response. It does so based on the opinions of FRS liaison officers, rather than detailed analysis. The assessment is set in the context of the current coverage on co-response and wider developments, including the international experience of Fire co-responding.
- 3.1.2 FRS liaison officers provided information on current plans for extending co-response to more stations, on current constraints limiting the development of more schemes and on possibilities for future growth assuming such constraints could be reduced.
- 3.1.3 They were also asked for information on related developments in relation to Fire Service casualty care training and equipment, including defibrillators, that are not associated with co-response schemes.
- 3.1.4 This information was cross-checked with Ambulance Service liaison officers where appropriate.

## 3.2 Plans for new co-response schemes

- 3.2.1 Across England, FRS reported firm plans for seven new co-response stations, all in Services that already had experience of co-responding. One Service also reported plans to reduce by six the number of existing stations operating co-response, as **Figure 15** indicates.
- 3.2.2 So, no significant increase in co-response is planned over the next two years. This is in contrast to the rapid growth in the number of co-response stations between 2000 and 2007.
- 3.2.3 Of the major constraints on the development of additional co-response referred to by FRS liaison officers, two stood out: the costs involved and the FBU opposition to such schemes (see para 1.1.6 above). They also referred to Ambulance Service concerns about the relatively slow mobilisation to life-threatening calls that many such schemes achieve, compared with community first responders.

Figure 15: Total Stations and Co-Response Schemes Current and Planned 2007



Fire and Rescue Services

### 3.3 The longer-term prospects for co-responding

- 3.3.1 With only 5 per cent of retained stations nationally operating co-response, in theory there are substantial possibilities for expansion in rural areas, let alone in urban and metropolitan fire stations with full-time staff, as **Figure 15** illustrates.
- 3.3.2 In practice, there has been little progress on developing co-responding in full-time stations; and prospects here remain doubtful, according to many of the FRS liaison officers contacted for this study, unless the barriers for greater engagement there can be overcome.
- 3.3.3 Even within rural areas, the potential for co-response depends on a number of factors beyond funding issues and union opposition. Ambulance and Fire Services want any station that takes on co-response to be located within a community that has sufficient cardiac-related activity to repay the effort in training and maintaining the skills of the volunteers involved. There has to be a strong local commitment in both Ambulance and Fire Services for any scheme to get off the ground.
- 3.3.4 With the mixed success of some existing co-response schemes it is therefore not surprising that there was a wide range of views amongst Fire & Rescue Service liaison officers contacted for this study on the possibilities for more co-response, even if the funding and union constraints referred to above could be reduced.
- 3.3.5 Some could see co-responding schemes extending to all retained stations (a few to cover whole time stations as well). Some saw the potential limited to a smaller number of retained duty system fire stations that were not close to ambulance stations or to community response schemes, and only in communities with a greater risk of cardiac arrest. (A number of Fire & Rescue Services and Ambulance Services already use information on cardiac risk to assess locations for co-response potential.) Others saw little or no potential, or saw little likelihood that the constraints could be reduced sufficiently to encourage such growth.
- 3.3.6 Overall, FRS liaison officers were of the opinion that, in favourable funding circumstances and without union opposition, co-response might be worth considering in up to 650 stations nationally, nearly half the total. **Appendix 8.6** shows that liaison officers in nearly all Services saw some possibility. A few suggested that all stations could be considered for co-response.
- 3.3.7 It should be stressed that these are the opinions of Fire & Rescue Service liaison officers, based on the assumption that funding constraints and FBU resistance to co-responding were to be substantially reduced. Other stakeholders, including the Ambulance Services concerned, may have other opinions. The estimates should be interpreted accordingly.

## 3.4 Related developments in FRS clinical capability

3.4.1 FRS views on the prospects for co-response need to be set in the context of wider developments in FRS casualty care. With their expanded role in rescue, major incidents and at the scene of road traffic accidents, many Fire & Rescue Services are increasing their clinical capabilities.

3.4.2 The Chief Fire Officers Association has supported such developments with the establishment of a Casualty Care Working Group (see **Appendix 6**). In its latest progress report (November 2007), the Group notes:

*... to fulfil the role map of the fire-fighter and to effectively undertake co-responder duties (where appropriate), a higher level of skill and training in Casualty Care is required for operational personnel than the standard applied by Health and safety at Work training introduced under the Fire Service Circular 9/1993.*

*This has resulted in varied standards existing across the [Fire] Service, with only the very basic standards of First Aid Training for fire fighters being recognised nationally.*

*The aim of the [Casualty Care Group] project is to develop national FRS standards for 'Immediate Emergency Care' ... <sup>1</sup>*

3.4.3 All fire crews are already trained in basic first aid and life-saving. All fire appliances have equipment to match, including oxygen and a first aid kit. With the expanded role in casualty care, an increasing number have equipment and training comparable to co-responding crews, including the use of defibrillators, immobilisation collars, spine boards, etc.

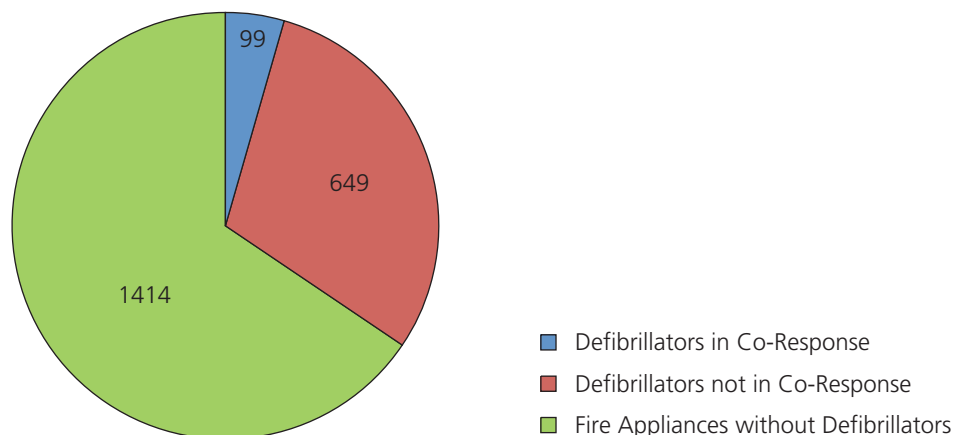
3.4.4 To illustrate the extent of this development, **Figure 16** overleaf compares the number of FRS defibrillators used for co-response with the total number of Fire & Rescue Service defibrillators and fire appliances across England. The number of defibrillators outside co-response schemes is now six times the number in co-response schemes. Over one-third of fire appliances now have a defibrillator (and other clinical equipment) on board, and crews trained in their use.

3.4.5 **Figure 17** overleaf shows the distribution of these defibrillators by Service. Most Fire & Rescue Services now have defibrillators on at least some fire appliances, only eight do not, and a similar number have them on all appliances. These include both metropolitan and non metropolitan Services.

3.4.6 The rapid increase in the number of such defibrillators recently is set to continue. By the end of 2008/9, Fire & Rescue Service liaison officers anticipate that over 50 per cent of all appliances nationally will have defibrillators on board and crews trained, with further expansion possible beyond that, as **Appendix 8.7** illustrates.

<sup>1</sup> Chief Fire Officers Association – Board Meeting 20 November 2007. Progress Report of the Casualty Care Group, p1.

Figure 16: Fire Service Appliances with Defibrillators 2007



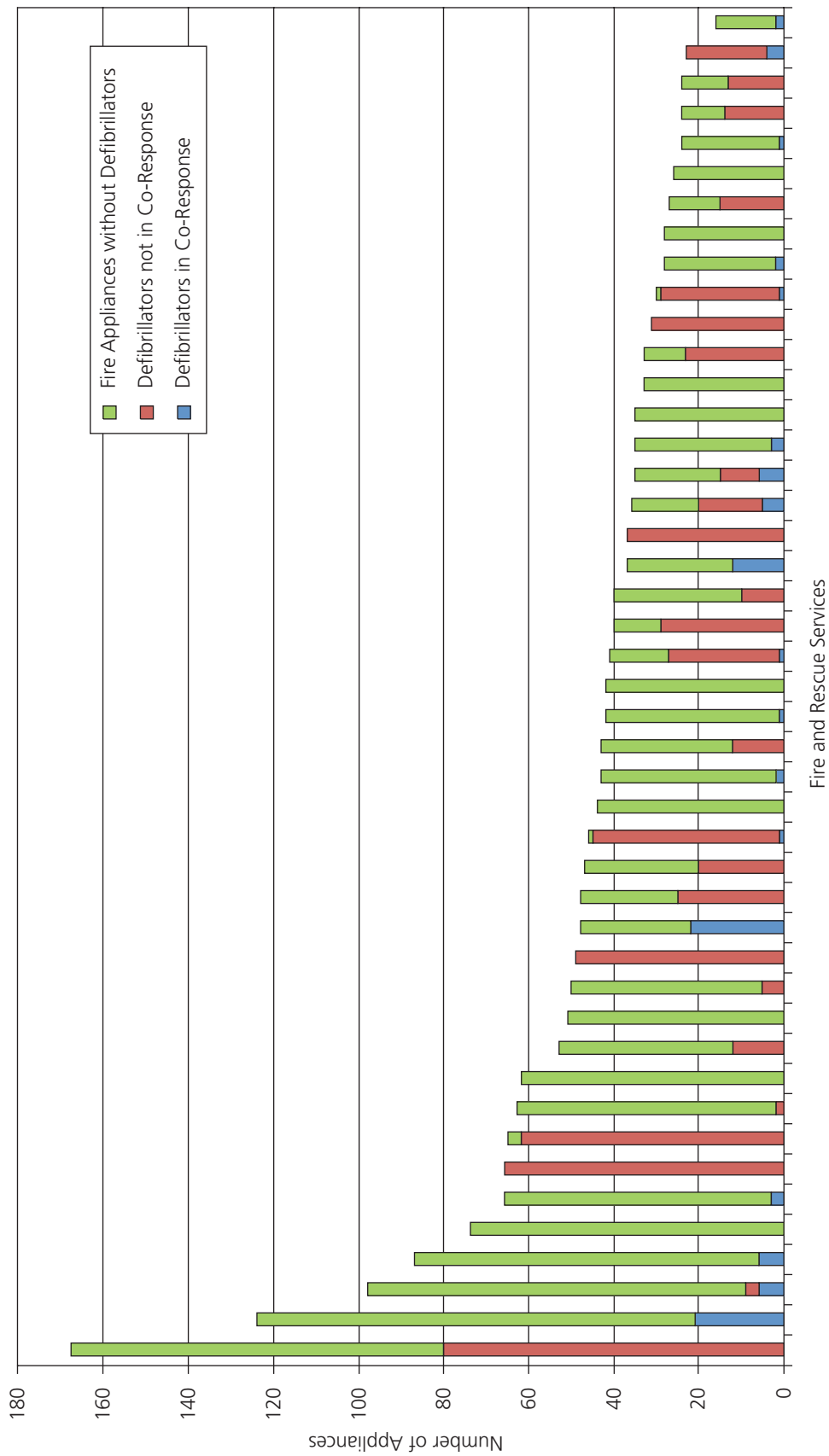
**Note:** Information from liaison officers in each FRS.

3.4.7 Information on the usage of these defibrillators is very limited, but they appear to be used less frequently than in co-response schemes.

## 3.5 Future prospects for fire co-response – the international context

- 3.5.1 To inform this examination of the potential for co-response, ORH has undertaken a review of the Fire Service role in emergency response and pre-hospital patient care across North America, Europe and Australia. The full details are included in **Appendix 7**.
- 3.5.2 In countries where there has been no statutory ambulance organisation, Fire Services are commonly the organisation that provides the primary emergency ambulance response, in addition to their response to fires and rescues. The US, France, Holland and Germany are in this category.
- 3.5.3 In metropolitan areas in these countries, Fire Services may have full-time clinical staff and vehicles dedicated to the ambulance response role. In rural areas they often use fire-fighters in a dual role, including volunteer fire-fighters.
- 3.5.4 In countries with a statutory ambulance service, like Australia and Canada, Fire Services may play a supplementary role as co-responders, but this is not universal.
- 3.5.5 There are examples of Fire Services in major cities having a co-response role in support of the statutory ambulance service – Melbourne in Australia, Montreal and Toronto in Canada, for example. But other cities in these countries have not followed suit. Accountability, funding and union issues are common explanations for the lack of wider take-up there, as they are in England.

Figure 17: Distribution of Defibrillators on Fire Service Appliances by FRS 2007



**Note:** Information from liaison officers in each FRS.

- 3.5.6 In these countries there are fewer examples of Fire Services co-responding in rural areas – only in Canada is this well-established, not in Australia and Ireland where community responders or ambulance volunteers are a more common supplement to ambulance service cover in rural areas.
- 3.5.7 These international comparisons indicate that the spread of co-responder schemes is partly a function of the history and organisation of emergency services, particularly of Fire and Ambulance Services, and the characteristics of the communities they serve. The international examples also suggest that fire co-response can operate in both metropolitan areas and rural areas. However, they raise the same constraints of funding, accountability and union opposition as in the UK.

## 3.6 Conclusions on the prospects for co-response

- 3.6.1 Most Fire & Rescue Service liaison officers interviewed for this study saw the possibility for growth in co-response in the right circumstances, particularly in rural/retained stations. However, in the sensitive climate following the High Court decision on co-response, few had plans for expansion.
- 3.6.2 The constraints on such expansion were described mainly in terms of funding and union opposition. The funding issues centre on the share of funding for co-response call-outs in retained stations that is to be met by Fire & Rescue Services versus Ambulance Services, and related issues to do with crewing levels, mobilisation times, the frequency of call-out and skills maintenance.
- 3.6.3 Concerns about union opposition were most frequently expressed by metropolitan Services and in connection with full-time stations, where FBU members are concentrated, but this was a constraint for some rural Services as well. In a few places, FRS liaison officers also referred to Ambulance Service preference for community first response amid concerns about slow mobilisation times in co-response and limited population at risk. Against this, others referred to the new more stringent ambulance response time targets for life-threatening calls (from April 2008) as an added impetus for Ambulance Services to consider co-response, particularly in rural areas.
- 3.6.4 The slowdown in planned co-response is in contrast to the recent expansion of casualty care skills generally in FRS. As an indicator of this expanding capability, there are now six times as many defibrillators on front-line fire appliances than on co-responding fire appliances; and this number is increasing rapidly. Soon most fire appliances will have defibrillators and fire-fighters trained in their use. At present their usage appears limited, given they are only deployed at fire incidents. However this does offer a resource capable of wider response to certain types of medical emergencies, should the need arise or circumstances change.
- 3.6.5 The availability of trained staff and defibrillators in both rural and urban fire stations means that life-saving equipment and trained staff are available now in the full range of FRS environments, albeit under different operating

regimes and clinical accountability structures. This suggests that there is no problem in principle with fire-fighters having the skills and equipment to provide emergency medical assistance. It is the circumstances, funding and frequency under which they would use these in a co-response role that are at issue.

- 3.6.6 This mirrors the international experience with fire co-response. There are examples of fire co-response schemes in the most rural and the most urban environments in Canada, Australia and the USA. But other municipalities in these countries have not always followed suit. Accountability, funding and union issues are common explanations for the lack of wider take-up there, as they are here.
- 3.6.7 In addition to such constraints on the input/cost side, the expansion of co-response schemes may also be held back by the lack of clear statistical evidence of their output/benefits in current practice.

## 4 Summary

### 4.1 Co-response now

- 4.1.1 In the second half of 2007, there were 99 **co-responding stations** in 18 Fire & Rescue Services in England. They were located predominantly at retained duty system fire stations. About 5 per cent of retained stations nationally operate a co-response scheme using about 600 fire-fighters who volunteer for such work.
- 4.1.2 By comparison, there are now more than 1300 community first response schemes in England, supported by about 10,000 volunteers.
- 4.1.3 **Co-response activity** is a small proportion of overall Fire & Rescue Service activity and of Ambulance Service activity. Co-response forms 1.4 per cent of total Fire & Rescue Service activity in England, and 0.7 per cent of the total ambulance response to Category A incidents.
- 4.1.4 The average level of co-responding mobilisations across the 99 participating stations is about 10 per month, but there is wide variation. Some stations have very little activity; a few have more co-responding activations than fire activations. There are wide variations too across (the much larger number of) community first response schemes. On average a co-response station has nearly twice the activity of the average community response scheme.
- 4.1.5 There are some differences between co-responder schemes in the **types of calls** they respond to; and the **types of equipment/treatment** they are trained to use. However, all have a focus on life-threatening heart and breathing-related conditions. On average 70 per cent of calls attended by co-responders turn out to be immediately life-threatening (category A) calls.
- 4.1.6 Although defibrillators are often considered the centrepiece of clinical equipment for co-response schemes, they are used in only about 5 per cent of co-response activations. Oxygen therapy and general first aid are used most often.
- 4.1.7 In terms of **response times**, co-responders reach the patient within eight minutes – the target that Ambulance Services work to for such life-threatening cases – on about 70 per cent of calls overall, but there are wide variations. This is partly to do with geography and the distribution of calls, partly about differences in mobilisation and crewing arrangements.
- 4.1.8 Fire & Rescue Services use two main vehicle and crewing arrangements for co-response. Approximately half use their fire appliances for co-response. This usually involves a minimum crew of three. The remainder use dedicated co-response vehicles, generally vans. These can be operated as solo response

vehicles, but most Fire & Rescue Services have a minimum of two crew deployed.

- 4.1.9 In general, the activation process for the fire appliance takes three to five minutes longer to mobilise a response than one in which a solo responder has the dedicated co-responder vehicle at his/her on-call location and responds to the scene directly from there.
- 4.1.10 These differences in vehicles, crewing and mobilisation have implications for response performance (and so potentially for patient outcomes) and also for costs.
- 4.1.11 The recently-established and busier schemes have tended to adopt the dedicated vehicle approach with smaller co-responding crews and more direct links to Ambulance Control for faster mobilisation and response times.
- 4.1.12 Fire & Rescue Service **management reporting** on co-response is limited. It generally focuses on co-response activity and staff mobilised, for operational and pay purposes. Reporting is more developed in Ambulance Services, especially in those where co-response, and community first response generally, make a significant contribution to response performance targets.
- 4.1.13 Only one Fire & Rescue Service included in their regular management reports on co-responding a summary of every incident responded to. The information includes response times of both co-responder and ambulance, and details of equipment used at the scene. This is the only Fire or Ambulance Service that reports on number of times defibrillators are applied and/or used to shock.
- 4.1.14 There is no regular internal reporting to FRS or Ambulance Service management on patient outcomes from co-response, although some quoted anecdotal evidence of 'lives saved'. Ambulance (and Fire) Services have considerable difficulties in tracing patients and their outcomes after they have left their care.
- 4.1.15 The **costs** of co-responding are currently shared between participating Ambulance and Fire Services in each county. The arrangements vary. Most Ambulance Services pay the greater portion of the set-up cost for clinical equipment and training. Most Fire Services pay the greater portion of the operating cost for staff called out to each incident. But there are exceptions on both sides and there are efforts to revise the arrangements in a number of schemes.
- 4.1.16 **Governance arrangements** for co-response schemes are largely defined by MoUs, and by the training and management arrangements they contain, although four jurisdictions operate without such formal agreements. More than half of MoUs in existence are in draft form or under review.
- 4.1.17 Whether there are agreements or not, there appear to be significant variations between jurisdictions in the level of attention to governance issues, particularly in relation to monitoring co-response activity, performance and continuing competence.

- 4.1.18 For Fire & Rescue Services, the governance focus is on controlling the workload falling on fire-fighters and the associated costs. For Ambulance Services, the governance focus is more on clinical competence and performance, including response performance.
- 4.1.19 With the amalgamation of Ambulance Services, there has been increasing attention in the past year on developing common guidance for co-responding and other first responding schemes, through the National Ambulance Service Chief Executives Group, the National First Responders Forum and (in relation to clinical governance) through regular meetings of the Directors of Clinical Care from each Trust. The recent Healthcare Commission reports on community first responders nationally, and in Staffordshire specifically, make recommendations that add weight to these initiatives.
- 4.1.20 There are parallel developments on clinical governance in the Fire & Rescue Service nationally through the work of the Chief Fire Officers' Association (CFOA) in relation to casualty care.

## 4.2 Future possibilities

- 4.2.1 Most FRS liaison officers interviewed for this study saw the possibility for growth in co-response, particularly in rural/retained stations. However, in the sensitive climate following the High Court decision, few had plans for expansion.
- 4.2.2 The slowdown in planned co-response is in contrast to the recent expansion of casualty care skills generally in the Fire & Rescue Service. As an indicator of this expanding capability, there are now six times as many defibrillators on front-line fire appliances than on co-responding fire appliances; and this number is increasingly rapidly. Soon most fire appliances will have defibrillators and fire-fighters trained in their use. The usage of this capability appears limited at present, given that it is only deployed at fire incidents.
- 4.2.3 The constraints on expansion of co-response were described by FRS liaison officers mainly in terms of funding and union opposition. The funding issues centre on the share of funding for co-response call-outs in retained stations that is to be provided by Fire & Rescue versus Ambulance Services, and related issues to do with crewing levels, mobilisation times and the frequency of call-out.
- 4.2.4 The union opposition was most frequently expressed by metropolitan Services and in connection with full-time stations, where FBU members are concentrated, but this was a constraint for some non-metropolitan Services as well. However the growth of defibrillators on fire appliances, and fire fighters trained in their use, suggests that such opposition is not to the capability itself, but more to the frequency of, and remuneration for, its use in co-response schemes.

- 4.2.5 International comparisons suggest that fire co-response can operate in both metropolitan areas and rural areas. However, they raise the same constraints of funding, accountability and union opposition as in the UK. The expansion of co-response globally as well as in the UK may also be held back by the lack of clear evidence of its cost-benefit in current practice.
- 4.2.6 From the perspective of FRS, the increasing coverage of fire-fighters trained in casualty care, and defibrillators installed on front line fire appliances, means that the basic infrastructure is in place for operating co-response schemes more widely than at present.
- 4.2.7 From the perspective of Ambulance Services, the potential for co-response to make a larger contribution to emergency response is probably greatest in rural areas (from retained duty system fire stations). However, the speed of mobilisation from such stations is a concern, and so is the maintenance of clinical skills where responses are infrequent.
- 4.2.8 From the patient perspective, the potential of fire co-response in such areas depends heavily on quick mobilisation times to maximise the number of life-threatened conditions that can be reached in time to improve patient outcomes; and on clinical capabilities to deliver those improvements.

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# Appendix 1 Lexicon of Terms

Category	Term	Description	Document	Web link
Broad context where term used	Designation (the actual term)	Explanation of the term/acronym	Name of a published document where this term has been used	URL of this document or reference to it
Clinical Apparatus	AED	Automated External Defibrillator	Resuscitation Council UK. The use of automated external defibrillators. <i>In: Resuscitation Guidelines 2005.</i>	<a href="http://www.resus.org.uk/pages/aed.pdf">http://www.resus.org.uk/pages/aed.pdf</a>
	Oxygen	Refers to all the equipment needed to administer oxygen including cylinders, bags, valve, mask	Greaves I, Porter K, Hodgetts T, Woollard M. <i>Emergency Care: a textbook for paramedics.</i> Edinburgh: Elsevier, 2006. pp 58, 151, 76, 108–109	None
	Pulse Oximeter	A medical device used by some ambulance and responders that indirectly measures the saturation of oxygen in a patient's blood (as opposed to measuring oxygen tension directly through a blood sample)	Greaves I, Porter K, Hodgetts T, Woollard M. <i>Emergency Care: a textbook for paramedics.</i> Edinburgh: Elsevier, 2006. pp 147–148	None
	Entonox	Entonox, referred to colloquially as <i>gas and air</i> , is an analgesic made up of 50% oxygen and 50% NO <sub>2</sub> . It is used by some ambulance and responders to ease pain.	Greaves I, Porter K, Hodgetts T, Woollard M. <i>Emergency Care: a textbook for paramedics.</i> Edinburgh: Elsevier, 2006. pp 100	None
	Oropharyngeal & Nasopharyngeal Airways (often just called 'airways')	Devices used to open and maintain clear mouth and nose airways respectively	Greaves I, Porter K, Hodgetts T, Woollard M. <i>Emergency Care: a textbook for paramedics.</i> Edinburgh: Elsevier, 2006. pp 56, 57	None
	Epipen for Anaphylaxis	Anaphylaxis is a rapidly progressing, life-threatening allergic reaction. An Epipen is an auto-injector that administers epinephrine, the emergency treatment for severe allergic reactions.	Referred to as 'devices' in The Emergency Medical Treatment of Anaphylactic Reactions for First Medical Responders and for Community Nurses. Revised May 2005 <i>In: Resuscitation Guidelines 2005.</i>	<a href="http://www.resus.org.uk/pages/reaction.htm">http://www.resus.org.uk/pages/reaction.htm</a>

Category	Term	Description	Document	Web link
<i>Broad context where term used</i>	<i>Designation (the actual term)</i>	<i>Explanation of the term/acronym</i>	<i>Name of a published document where this term has been used</i>	<i>URL of this document or reference to it</i>
	Hypostop paste for Hypoglycaemia	Hypoglycaemia or low blood glucose is a condition in which the level of glucose (sugar) in the blood drops below a certain point (about 2.5mmol/l). Hypostop paste can be administered to increase glucose levels in patients.	Greaves I, Porter K, Hodgetts T, Woollard M. Emergency Care: a textbook for paramedics. Edinburgh: Elsevier, 2006. pp 104–105	None
	Suction	Refers to suction equipment used to clear blocked airways (preferred is manually operated with wide-bore suction catheters)	Greaves I, Porter K, Hodgetts T, Woollard M. Emergency Care: a textbook for paramedics. Edinburgh: Elsevier, 2006. pp 54–56	None
	Collars	Refers to cervical collars used to protect neck and head from further damage	Greaves I, Porter K, Hodgetts T, Woollard M. Emergency Care: a textbook for paramedics. Edinburgh: Elsevier, 2006. pp 320–321	None
	GTN	Glycerol trinitrate used to treat and prevent angina pain	Royal Berkshire Hospital, Department of Cardiology, June 2006, Managing chest pain using your GTN tablets or spray	<a href="http://www.royalberkshire.nhs.uk/download/cardiology.pdf">http://www.royalberkshire.nhs.uk/download/cardiology.pdf</a>
	Spineboards	A board similar in shape to a coffin lid that is primarily used as an extrication device for patients in road traffic collisions. Sometimes used for the transportation of patients with suspected spinal injuries, although this is no longer recommended.	Greaves I, Porter K, Hodgetts T, Woollard M. Emergency Care: a textbook for paramedics. Edinburgh: Elsevier, 2006. pp 323–325	None
<b>Clinical Terms</b>	CVD and CHD	Cardio-vascular diseases (CVD) are diseases of the heart and circulatory system of which 'angina and acute coronary syndromes (including myocardial infarction) and stroke are the main forms. The terms Coronary Heart Disease (CHD) and Ischaemic Heart Disease (IHD) may also be used in this context.	Department of Health. National Service Framework for Coronary Heart Disease –modern standards and service models. London, DH, 2000	<a href="http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4094275">http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4094275</a>

Category	Term	Description	Document	Web link
Broad context where term used	Designation (the actual term)	Explanation of the term/acronym	Name of a published document where this term has been used	URL of this document or reference to it
	Cardiac Arrest	The cessation of cardiac mechanical activity as confirmed by the absence of signs of circulation.	Cardiac arrest and cardiopulmonary resuscitation outcome reports (Resuscitation 63 (2004) 233–249)	<a href="http://circ.ahajournals.org/cgi/reprint/110/21/3385">http://circ.ahajournals.org/cgi/reprint/110/21/3385</a>
	CPR	Cardio-Pulmonary Resuscitation – the support methods used to provide an artificial circulation of oxygenated blood until the heart can be restarted using defibrillation and/or drug therapy	Resuscitation Council UK. Adult Basic Life Support. <i>In: Resuscitation Guidelines 2005</i>	<a href="http://www.resus.org.uk/pages/bls.pdf">http://www.resus.org.uk/pages/bls.pdf</a>
	Resuscitation	A resuscitation attempt is defined as the act of attempting to restore life by establishing and/or maintaining airway, breathing, and circulation through CPR, defibrillation, and other related emergency care.	Cardiac arrest and cardiopulmonary resuscitation outcome reports (Resuscitation 63 (2004) 233–249)	<a href="http://circ.ahajournals.org/cgi/reprint/110/21/3385">http://circ.ahajournals.org/cgi/reprint/110/21/3385</a>
	Emergency Medical Services (EMS)	EMS personnel respond to a medical emergency in an official capacity as part of an organised medical response team. By this definition, physicians, nurses or paramedics who witness a cardiac arrest and initiate CPR but are <i>not</i> part of the organised rescue team are characterised as bystanders and not part of the EMS system.	Cardiac arrest and cardiopulmonary resuscitation outcome reports (Resuscitation 63 (2004) 233–249)	<a href="http://circ.ahajournals.org/cgi/reprint/110/21/3385">http://circ.ahajournals.org/cgi/reprint/110/21/3385</a>
	Resuscitation Guidelines	Guidelines provided by the Resuscitation Council (UK), the latest in 2005, for the treatment of cardiac and breathing arrest, plus choking and unconsciousness	Resuscitation Council UK. Resuscitation Guidelines 2005	<a href="http://www.resus.org.uk/pages/guide.htm">http://www.resus.org.uk/pages/guide.htm</a>
	HeartStart	A national programme of the British Heart Foundation (BHF) to encourage members of the community to be trained in CPR.		<a href="http://www.bhf.org.uk/living_with_heart_conditions/how_can_we_help_you/heartstart_uk_training.aspx">http://www.bhf.org.uk/living_with_heart_conditions/how_can_we_help_you/heartstart_uk_training.aspx</a>

Category	Term	Description	Document	Web link
Broad context where term used	Designation (the actual term)	Explanation of the term/acronym	Name of a published document where this term has been used	URL of this document or reference to it
	Defibrillation	Defibrillation, using an electric shock generated by a defibrillator (which may be an AED), is the primary treatment along with CPR to correct Ventricular Fibrillation, a chaotic heartbeat that does not circulate blood, which is the most common rhythm in cardiac arrest	Resuscitation Council UK. The use of automated external defibrillators. <i>In: Resuscitation Guidelines 2005.</i>	<a href="http://www.resus.org.uk/pages/aed.pdf">http://www.resus.org.uk/pages/aed.pdf</a>
	Chain of Survival	A description of the 4 pre-requisites for successful treatment of cardiac arrest: early access to help; early CPR; early defibrillation; early advanced cardiac life support (ALS)	Cummins RO, Ornato JP, Thies WH, Pepe PE. Improving survival from sudden cardiac arrest: the "chain of survival" concept. A statement for health professionals from the Advanced Cardiac Life Support Subcommittee and the Emergency Cardiac Care Committee, American Heart Association. <i>Circulation</i> . 1991; <b>83</b> (5):1832–47.	None
	Utstein Templates	Guidelines published by the International Liaison Committee on Resuscitation (ILCOR) aimed at providing a uniform approach to the reporting of out-of-hospital cardiac arrests and their treatment	Ian Jacobs, MD, Co-Chair; Vinay Nadkarni, MD, Co-Chair; and the ILCOR Task Force on Cardiac Arrest and Cardiopulmonary Resuscitation Outcomes. Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports Update and Simplification of the Utstein Templates for Resuscitation Registries. <i>Circulation</i> 2004; <b>110</b> :3385–3397	<a href="http://circ.ahajournals.org/cgi/reprint/110/21/3385">http://circ.ahajournals.org/cgi/reprint/110/21/3385</a>

Category	Term	Description	Document	Web link
Broad context where term used	Designation (the actual term)	Explanation of the term/acronym	Name of a published document where this term has been used	URL of this document or reference to it
	Return of Spontaneous Circulation (ROSC)	A measure of initial success in CPR and defibrillation. ROSC is defined for all rhythms as the restoration of a spontaneous perfusing rhythm that results in more than an occasional gasp, fleeting palpated pulse, or arterial waveform, evidenced by breathing (more than an occasional gasp), coughing, or movement. For healthcare personnel, signs of ROSC also may include evidence of a palpable pulse or a measurable blood pressure. This is not the preferred outcome measure of survival, which is discharge from hospital. However it is sometimes used as an intermediate measure in the absence of information on long-term survival of cardiac patients treated by ambulance and community responders.	Ian Jacobs, MD, Co-Chair; Vinay Nadkarni, MD, Co-Chair; and the ILCOR Task Force on Cardiac Arrest and Cardiopulmonary Resuscitation Outcomes. Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports Update and Simplification of the Utstein Templates for Resuscitation Registries. <i>Circulation</i> 2004; <b>110</b> :3385–3397	<a href="http://circ.ahajournals.org/cgi/reprint/110/21/3385">http://circ.ahajournals.org/cgi/reprint/110/21/3385</a>
<b>Fire &amp; Rescue Services</b>	Co-responder	Firefighter dispatched to a clinical emergency on the request of the ambulance service and as part of a co-responding scheme. (Note: some Fire and Rescue Service Units have defibrillators but these are not part of co-responder schemes, and the staff would not be called co-responders because they are not called out by ambulance for their first aid and defibrillator training alone)	Bain et al. The Future of the Fire Service: reducing risk, saving lives. The Independent Review of the Fire Service. London: Home Office, December 2002	<a href="http://www.frsonline.fire.gov.uk/publications/article/17/306">http://www.frsonline.fire.gov.uk/publications/article/17/306</a>
	Chief Fire Officers Association (CFOA)	The representative body for senior management of the Fire Service		<a href="http://www.business-streams.cfoa.org.uk">http://www.business-streams.cfoa.org.uk</a>
	Fire & Rescue Services	UKSAR – United Kingdom Search and Rescue	Umbrella body overseeing whole spectrum of search and rescue services: maritime, aeronautical and inland	<a href="http://www.mcga.gov.uk/c4mca">http://www.mcga.gov.uk/c4mca</a>

Category	Term	Description	Document	Web link
<i>Broad context where term used</i>	<i>Designation (the actual term)</i>	<i>Explanation of the term/acronym</i>	<i>Name of a published document where this term has been used</i>	<i>URL of this document or reference to it</i>
	Immediate Emergency Care (IEC)	The term given to the new Fire Service casualty/trauma care training and standards under development by the CFOA		<a href="http://www.business-streams.cfoa.org.uk">http://www.business-streams.cfoa.org.uk</a>
<b>Ambulance Service</b>	Co-responder	Refers to emergency response provided in support of the ambulance services by professional organisations as part of the paid duties of their staff. The organisations providing co-response can include fire, police, military, prison, airport fire. <i>Doctors and St Johns Ambulance response may also be included in this category in some ambulance reporting.</i>	Bain et al. The Future of the Fire Service: reducing risk, saving lives. The Independent Review of the Fire Service. London: Home Office, December 2002	<a href="http://www.frsonline.fire.gov.uk/publications/article/17/306">http://www.frsonline.fire.gov.uk/publications/article/17/306</a>
	Community responder or community first responder	Refers to emergency response provided by responder schemes operated by volunteers. These may be staffed by trained members of the public as well as off-duty ambulance, fire, nursing, surf life-saving, mountain rescue and medical staff. <i>May include 'public access static site' defibrillators, if part of an official community response scheme and prepared to go off site?</i>	Resuscitation Council (UK) – "First Responder" and other terms (November 2003)	<a href="http://www.resus.org.uk/pages/FirstRsp.htm">http://www.resus.org.uk/pages/FirstRsp.htm</a>
	First Responder, Fast responder, Solo responder	Refers to ambulance officers on duty in fast response vehicles designed to reach the scene quickly but not generally to carry patients to hospital.	Department of Health. Taking Healthcare to the Patient Transforming NHS Ambulance Services. London: Department of Health, 2005	<a href="http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4114269">http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4114269</a>
	First Responder	A person, trained as a minimum in basic life support and the use of a defibrillator, who attends a potentially life-threatening emergency. This response may be the statutory ambulance service or complementary to it.	Resuscitation Council (UK) – "First Responder" and other terms (November 2003)	<a href="http://www.resus.org.uk/pages/FirstRsp.htm">www.resus.org.uk/pages/FirstRsp.htm</a>

Category	Term	Description	Document	Web link
Broad context where term used	Designation (the actual term)	Explanation of the term/acronym	Name of a published document where this term has been used	URL of this document or reference to it
	Community First Responder	A First responder, usually a lay person, who makes himself available to be dispatched by the ambulance control to attend an incident.	Resuscitation Council (UK) – “First Responder” and other terms (November 2003)	<a href="http://www.resus.org.uk/pages/FirstRsp.htm">www.resus.org.uk/pages/FirstRsp.htm</a>
	Public Access Defibrillation	Use of an automated external defibrillator (AED) that is made available to members of the local workforce or members of the public or both.	Resuscitation Council (UK) – “First Responder” and other terms (November 2003)	<a href="http://www.resus.org.uk/pages/FirstRsp.htm">www.resus.org.uk/pages/FirstRsp.htm</a>
	Call Connect and Clock Start	Terms referring to the new, more demanding, emergency response time performance standards for ambulance services based on starting the clock at the time that a call is first connected to ambulance control (call connect), not a later time.	Department of Health. Improving ambulance response times – call connect performance improvement sign-off. October 2007.	<a href="http://www.dh.gov.uk/en/Policyandguidance/Organisationpolicy/Emergencycare/DH_4139143">http://www.dh.gov.uk/en/Policyandguidance/Organisationpolicy/Emergencycare/DH_4139143</a>
	AMPDS and CBD	Advanced Medical Priority Dispatch System (AMPDS) and Criteria Based Dispatch (CBD) are two systems used by ambulance control rooms to elicit information from callers in a structured way to determine priority of response to emergency calls and the content of information on the emergency patient and their condition. Ambulance control rooms use AMPDS and/or CBD codes as part of the decision-making on whether to send a co-responder or community responder, along with information on the risks at the scene and the type of patient.	Greaves J, Porter K, Hodgetts T, Woollard M. Emergency Care: a textbook for paramedics. Edinburgh: Elsevier, 2006. pp 587–588	<b>None</b>

Category	Term	Description	Document	Web link
<i>Broad context where term used</i>	<i>Designation (the actual term)</i>	<i>Explanation of the term/acronym</i>	<i>Name of a published document where this term has been used</i>	<i>URL of this document or reference to it</i>
<b>Training and Governance</b>	First Person on Scene Award (FPOS)	A training and assessment process for community and co-responders when they are 'first-on-scene'. Developed by the Faculty of Pre-Hospital Care at the Royal College of Surgeons of Edinburgh and the Institute of Health Care Development (IHCD) a private health service training and awards body	IHCD. FPOS First Person on Scene. London: Edexcel, 2006	<b>None</b>
	Basic Award	Basic Life Support skills including defibrillation and CPR, but not oxygen treatment, use of airways, suction or movement of patients	IHCD. FPOS First Person on Scene. London: Edexcel, 2006	<b>None</b>
	Intermediate Award	Intermediate Life Support skills including oxygen treatment, use of oropharyngeal airways, suction and movement of patients, as well as defibrillation and CPR.	IHCD. FPOS First Person on Scene. London: Edexcel, 2006	<b>None</b>
	Clinical Adverse Events	A clinical adverse incident is a sub-optimal care outcome that results from a clinical intervention or failing to provide an intervention	Department of Health. Chapter 3: A blueprint for the new national system for learning from adverse events and near misses. <i>In: Building a safer NHS for patients: Implementing an organisation with a memory.</i> London: Department of Health, 2002	<a href="http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/Browsable/DH_4916527">http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/Browsable/DH_4916527</a>
	Operational Adverse Event	An adverse incident that is operational in character (e.g. co-responders didn't arrive on scene for 50 mins, defib didn't work)	Health. Chapter 3: A blueprint for the new national system for learning from adverse events and near misses. <i>In: Building a safer NHS for patients: Implementing an organisation with a memory.</i> London: Department of Health, 2002	<a href="http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/Browsable/DH_4916527">http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/Browsable/DH_4916527</a>

Category	Term	Description	Document	Web link
Broad context where term used	Designation (the actual term)	Explanation of the term/acronym	Name of a published document where this term has been used	URL of this document or reference to it
	Incident reporting System	The Incident Reporting System is used to report such events internally for review and action as appropriate	Health. Chapter 3: A blueprint for the new national system for learning from adverse events and near misses. <i>In: Building a safer NHS for patients: Implementing an organisation with a memory.</i> London: Department of Health, 2002	<a href="http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/Browsable/DH_4916527">http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/Browsable/DH_4916527</a>
	Clinical audit	Process for reviewing the application of clinical training and procedures in practice for compliance with standards and to determine if interventions had anticipated benefits. Included as part of clinical governance procedures to reduce the risk of adverse events.	Greaves I, Porter K, Hodgetts T, Woollard M. Emergency Care: a textbook for paramedics. Edinburgh: Elsevier, 2006. pp 603–607	None

# Appendix 2 Bibliography for Literature Survey

## 1) Co-Responding Schemes

- a) Review of the Arrangements to Support the UK Fire & Rescue Service Implement Co-Responder Schemes  
*Summary Report of the Chief Fire Officers' Association Task and Finish Group, April 2006 (including status report on deployment and use of defibrillators in mid 2005)*
- b) Local Government Association Fire Co-Responding Survey, March 2007  
*Summary information provided in personal communication by David Williams of LGA, August 2007*
- c) Proposal for Improving the Response Times of Fire Co-Responders  
*Ivybridge and Crediton Co-Responder Trial January-March 2007, South West Ambulance Service NHS Trust*
- d) Proposal for Improving the Response of Fire Co-Responders  
*N Spence, Westcountry Ambulance Services NHS Trust, November 2002*
- e) Guidance on Establishment of Co-Responding Schemes  
*Chief Fire Officers' Association, undated (2004?)*
- f) Fire Brigades Union Policy on First Responder and Co-Responder Schemes as Agreed by Annual Conference 2001  
*<http://www.fbu.org.uk/newspress/circulars/circ2004>*
- g) Memorandum of Understanding – Co-Responding, Retained Firefighters Union and the Chief Fire Officers Association 2007.  
*[www.rfuonline.co.uk](http://www.rfuonline.co.uk)*
- h) Report on Government Service Provision 1006/7, Emergency Management Volume  
*[www.pc.gov.au/data/assets/pdf\\_file/0018/61803/chapter08.pdf](http://www.pc.gov.au/data/assets/pdf_file/0018/61803/chapter08.pdf)*
- i) Cardiac Arrests treated by Ambulance Paramedics and Fire Fighters,  
*Smith K, McNeil J: Medical Journal of Australia Vol 177, 2002, p305–309*
- j) Firefighter Emergency Medical Response Reports 2004/5 and 2005/6  
*Metropolitan Fire Brigade, Melbourne, Australia, [www.mfb.org.au](http://www.mfb.org.au)*
- k) Survey of EMS in US Cities 2005, Williams, D. *Journal of Emergency Medical Services, February 2006, p44 [www.jems.com](http://www.jems.com)*

- l) The Role of Law Enforcement Agencies in Out-of-Hospital Emergency Care, *Resuscitation* (2007), 72, p386–393
- m) A National Census of Ambulance Response Times to Emergency Calls in Ireland: *J. Accidental Emergency Medicine*, 2000, v17, p392–395
- n) Ireland Health Service Executive Corporate Plan 2006 – Ambulance Services
- o) International EMS: the Nordic Countries, Langhelle A; Lossius HM et al. *Resuscitation* v61, 2004, p9–21
- p) Monitoring Intervention Programmes for Out-of- Hospital Cardiac Arrest in a Mixed Urban and Rural Setting, *Resuscitation* v71, 2006, p180–18
- q) Cost-effectiveness analysis of a Rural/Urban First Responder Defibrillation Program, *Jermyn B, Prehospital Emergency Care*, Jan/March 2000, p43–47

## 2) Community First Response

- a) Proposed Governance Framework for Responders Ambulance Service NHS Trusts, September 2007
- b) Community Responders Manual  
*South Central Ambulance Service NHS Trust, August 2006*
- c) Community First Responder Personal Handbook  
*South Western Ambulance Service NHS Trust, July 2007*
- d) Investigation into Staffordshire Ambulance NHS Trust  
*Healthcare Commission, April 2008*
- e) The Role and Management of Community First Responders, Findings from a National Survey of Ambulance Services in England  
*Healthcare Commission, December 2007*

## 3) Impact of Emergency Response Times on Patient Outcomes

- a) The Relationship Between Distance to Hospital and Patient Mortality in Emergencies  
*J Nicholl, J West, S Goodacre, J Turner, Emergency Medical Journal* 2007, 24, p665–668

- b) Heartstart Scotland – Initial Experience of a National Scheme for Out of Hospital Defibrillation  
*Stuart M Cobbe, Mary J Redmond, Janice M Watson, Jennifer Hollingworth, David J Carrington, BMJ volume 302, 22nd June 1991*
- c) Effect of Reducing Ambulance Response Times on Deaths from Out of Hospital Cardiac Arrest: Cohort Study  
*Jill P Pell, Jane M Sirel, Andrew K Marsden, Ian Ford, Stuart M Cobbe, BMJ volume 322: 1385–1388, 9th June 2001*
- d) Potential Efficacy of Public Access Defibrillation may be Underestimated  
*Malcolm F Woollard, BMJ volume 326: 162, 18th January 2003*
- e) The Costs and Benefits of Changing Ambulance Service Response Time Standards  
*Janette Turner, Colin O’Keefe, Simon Dixon, Kate Warren, Jon Nicholl, Final Report May 2006*
- f) The Eight-minute Defibrillation Response Interval Debunked: or is it?  
*David C Cone MD Annals of Emergency Medicine Vol 42, 2003*
- g) Optimal Defibrillation Response Intervals for Maximum Out-of-Hospital Cardiac Arrest Survival Rates  
*Valerie J D Maio MD MSc, Ian G Stiell MD MSc, George A Wells PhD, Daniel W Spaite MD*

#### 4) Other Relevant Papers

- a) Report on the British Heart Foundation’s National Defibrillator Programme  
*British Heart Foundation, June 2007*
- b) National Out of Hospital Cardiac Arrest Project, 2004 Report  
*ASA/JRCALC Clinical Effectiveness Committee, August 2005*
- c) Myocardial Infarction National Audit Project (MINAP), Sixth Public Report 2007  
*National Institute for Clinical Outcomes Research, Royal College of Physicians, HCC*
- d) IHCD “First Person on Scene” Award Manual  
*January 2006*
- e) Skill Acquisition and Retention in AEC Use and CPR by Lay Responders  
*M Woollard, R Whitfield, A Smith, M Colquhoun, R Newcombe, N Vetter, D Chamberlain Resuscitation 2004 60(1) 17–28*

- f) The Department of Health National Defibrillator Programme: Analysis of Downloads from 250 Deployments of Public Access Defibrillators  
*R Whitfield, M Colquhoun, D Chamberlain, R Newcombe, S Davies, R Boyle*  
*Resuscitation 64 (2005) 269–277*
- g) Defibrillators in Public Places: The Introduction of a National Scheme for Public Access Defibrillation in England  
*S Davies, M Colquhoun, S Graham, T Evans, D Chamberlain*  
*Resuscitation 52 (2002) 13–21*
- h) Sudden Cardiac Death and Resuscitation – The Shocking Truth  
*D Birnie, J R Coll Physicians Edinb 2002: 32: 93–98*
- i) Ontario Pre-Hospital Advanced Life Support (OPALS) Study  
*Ian G Stiell, February 2005*

# Appendix 3 Board Terms of Reference

## ***COMMUNITIES AND LOCAL GOVERNMENT FIRE AND RESILIENCE DIRECTORATE***

### ***Co-Responding Investigation and Analysis on Current Practice and Potential***

#### **Advisory Board**

#### **REVISED TERMS OF REFERENCE**

*Including changes in board membership during the life of the project*

## Introduction

- 1 Community responding schemes have been supported for some time by the Ambulance Service. These schemes have been staffed by volunteer members of the public with appropriate knowledge and experience of time-critical first aid and defibrillation. They include ambulance paramedics, technicians and registered health care professionals, responding outside their normal working hours, as well as people from other walks of life. The schemes are managed by the Ambulance Service and individual community responders are called out where appropriate by Ambulance Service control rooms.
- 2 Ambulance Trusts have also supported the development of the co-responding concept, where the response is provided by members of other professional emergency organisations like fire, police, the military or the Royal National Lifeboat Institute (RNLI), during on-duty (or on-call) hours.
- 3 The 2005/06 Fire and Rescue Service National Framework Consultation Response<sup>2</sup> acknowledges that co-response could be a part of the role of the Fire and Rescue Services (FRSs) due to the benefits that could accrue to the community through the greater involvement of Fire and Rescue Authorities (FRAs) in emergency clinical response.
- 4 The Select Committee Report on The Fire and Rescue Service<sup>3</sup> (2006) states in Recommendation 46 (paragraph 123):

*We are convinced of the life-saving benefit of co-response schemes and are concerned at the reluctance of some in the FRS to participate in them. We recommend that the Government, in conjunction with the Department of Health, develop a national co-response protocol which includes guidance on how co-response should be paid for.*

- 5 In response,<sup>4</sup> the Government said:

*The Government is also fully supportive of co-responder schemes and would wish to see all FRAs working in partnership with their local Ambulance Service NHS Trusts to introduce such schemes if that is appropriate locally. We are working closely with the Department of Health to consider what can be done to encourage the two emergency services to pursue co-responder schemes and the increased use of defibrillators by firefighters. To assist in this consideration, a research project will be commissioned to gather and present information on co-responding, trauma care<sup>5</sup> and community first responding, including information on the current co-responding equipment being employed both inside and outside the FRS and on the funding arrangements between Ambulance Service NHS Trusts and FRSs for call outs.*

<sup>2</sup> See ([http://www.communities.gov.uk/index.asp?id=1123838#P496\\_61351](http://www.communities.gov.uk/index.asp?id=1123838#P496_61351)) Chapter 3 – Effective Response Paragraph Comment Response

<sup>3</sup> See <https://www.tsoshop.co.uk/bookstore.asp?FO=1159966&ProductID=0215029704&Action=Book>

<sup>4</sup> See paragraph 152 in <http://www.official-documents.gov.uk/document/cm69/6919/6919.pdf> for this response.

<sup>5</sup> Any reference to *trauma care* should be taken to refer to *time-critical advanced first aid* only.

- 6 The purpose of the Advisory Board referred to in these terms of reference is to support and guide the research project. It will assist CLG and its consultants to gather and present information on co-responding and community responding in an efficient and effective way.
- 7 The research project will gather information, for England only, on the nature and extent of:
- Assets currently held by, used and available to co-responders
  - The nature and scope of agreements held by co-responders with Ambulance Trusts together with information on other signatories to such agreements
  - Deployment history and procedures
  - Issues concerning clinical governance of co-responders
  - Funding arrangements and the associated costs of co-responding
  - Training needs for co-responding, particularly in comparison to the training needs for time-critical advanced first aid
  - Additional equipment, components, training and practices to develop and enhance FRS co-responding good practice where shortfalls may exist.
- 8 The project is designed to gather, collate and analyse information and opinion on current co-responding activities, apparatus and practices in order to update and enhance present levels of CLG information. Its aim is not directed towards devising a national strategy for co-responding.
- 9 The project has 2 phases:
- **a pilot phase**, to assess the extent of information available on community and co-responding. This will examine recent information held in national data collections, including those on the location and use of defibrillators. It will also sample information from a small number of ambulance, fire and other community responding services on the operation of their schemes.
  - **The main survey phase** will build on the pilot to assemble information in a consistent way on the extent and nature of community and co-responding activity across all ambulance and fire services in England.
- 10 The first phase is planned to be completed by October 2007. ORH is undertaking this work. The second phase data collection is due to take place before the end of 2007 and be reported in early 2008.

## The Role of CLG and ORH

- 11 CLG is responsible for the overall management of the project and for the delivery of its findings.

- 12 It has appointed Operational Research in Health Ltd (ORH) to undertake the research, data collection and analysis on the Department's behalf and subject to the Department's project management and quality assurance.
- 13 The Department will chair the Advisory Board.
- 14 ORH will provide the secretariat for the Advisory Board.
- 15 The Department will be the final arbiter on what advice from the Advisory Board is incorporated into the methodology and consultation framework for the research. It will also have final approval on the reports produced at the end of Phase 1 and Phase 2.
- 16 ORH will only undertake work, or adjust its contracted work programme, if approved by the Department.

## The Role of the Advisory Board

- 17 The Advisory Board will advise CLG and ORH on:
  - Literature and case studies relevant to the research.
  - Data specifications, data sources, the interpretation of data and terminology relevant to the study. This will include both primary data in ambulance, fire and co-responding organisations; and secondary information collected and analysed nationally on related activities (eg surveys by CFOA, ASA, ACPO, National Defibrillator Programme, the British Heart Foundation and the Resuscitation Council).
  - Risks and risk management associated with the project.
  - The project methodology and timetable proposed.
  - The project consultation and communication arrangements proposed.
  - Specific individuals and organisations who have information and opinions relevant to the research.
  - The range of co-responding and community-responding arrangements in operation and the best pilot sites to capture this range in Phase 1 of the project.
  - How to gain the commitment of key information providers (Ambulance, Fire co-responding and community-responding organisations) to providing the information required in Phase 2 promptly, consistently and completely.
  - Any other matter that the Department deems appropriate.
- 18 The Department will also seek comment from Advisory Board members on draft reports for Phase 1 and 2 before finalisation.

## The Composition of the Advisory Board

Chair	Cath Reynolds CLG, Fire Statistics & Research Division
Members	<p>Ian Hayton, Cleveland Fire Brigade</p> <p>Ken Wenman, South West Ambulance Trust, <i>replaced by Tim Lynch, Greater Western Ambulance Trust in 2008</i></p> <p>Hayden Newton, Ambulance Services Association, Dept of Health, <i>replaced by Clare Sandling, Department of Health in late 2007</i></p> <p>David Williams, Local Government Association, <i>replaced by Emma Varley in 2008</i></p> <p>Dr Rafal Pisula, CLG</p> <p>Martin Webb, CLG</p> <p>Nick Couchman, CLG</p>
ORH Secretariat	<p>Rob Mathie, Project Manager</p> <p>Mike Vicary, Quality Assurance</p> <p>Paul Murray, Analysis Manager</p> <p>Diane Garbutt, Administration</p> <p>Professor Malcolm Woollard, Clinical Advisor</p>

## The Meetings of the Advisory Board

The Advisory Board will meet as follows, with changes or additional meetings at the Department's discretion.

Date	Subject
<i>PHASE 1</i>	
July 6	Project initiation Project governance arrangements
End August	Pilot proposals
Mid October	Draft report and recommendations on Phase 1
<i>PHASE 2</i>	
Late October	National data collection proposal
Early December	Progress report on data collection and analysis
Early February	Draft report on Phase 2

# Appendix 4 Statement of Requirements (SOR)

## Investigation and Analysis on the Current Practices and Potential for Co-Responding

### 1. Introduction and scope

- 1.1 The 2005/06 Fire and Rescue Service National Framework Consultation Response<sup>6</sup> acknowledges that co-response could be a part of the role of the Fire and Rescue Services (FRSs) due to the benefits that could accrue to the community through the greater involvement of Fire and Rescue Authorities (FRAs) in emergency clinical response.
- 1.2 This Consultation Response also reports that FRAs should actively review the opportunities for improving community safety by implementing co-responder schemes in partnership with other agencies.
- 1.3 The Select Committee Report on The Fire and Rescue Service<sup>7</sup> (2006) states in Recommendation 46 (paragraph 123):

*We are convinced of the life-saving benefit of co-response schemes and are concerned at the reluctance of some in the FRS to participate in them. We recommend that the Government, in conjunction with the Department of Health, develop a national co-response protocol which includes guidance on how co-response should be paid for.*

- 1.4 The Government's response<sup>8</sup> to this recommendation:

*The Government is also fully supportive of co-responder schemes and would wish to see all FRAs working in partnership with their local Ambulance Service NHS Trusts to introduce such schemes if that is appropriate locally. We are working closely with the Department of Health to consider what can be done to encourage the two emergency services to pursue co-responder schemes and the increased use of defibrillators by firefighters. To assist in this consideration, a research project will be commissioned to gather and present information on co-responding, trauma care<sup>9</sup> and community first responding, including information on the current co-responding equipment being employed both inside and*

<sup>6</sup> See Chapter 3 – Effective Response Paragraph Comment Response ([http://www.communities.gov.uk/index.asp?id=1123838#P496\\_61351](http://www.communities.gov.uk/index.asp?id=1123838#P496_61351))

<sup>7</sup> See <https://www.tsoshop.co.uk/bookstore.asp?FO=1159966&ProductID=0215029704&Action=Book> to purchase this report.

<sup>8</sup> See paragraph 152 in <http://www.official-documents.gov.uk/document/cm69/6919/6919.pdf> for this response.

<sup>9</sup> See Appendix A in this SOR for definitions of this term.

*outside the FRS and on the funding arrangements between Ambulance Service NHS Trusts and FRSs for call outs.*

- 1.5 A joint letter<sup>10</sup> was also sent by the Department of Health (DH) and the Office of the Deputy Prime Minister (ODPM, now the Department for Communities and Local Government – DCLG) to the Chief Fire Officers Association (CFOA) and the Ambulance Service Association (ASA).
- 1.6 Attachment A of this Statement of Requirements (SOR) contains a short glossary of key words that have been used within this SOR. Definitions are provided for terms such as: first-responder, co-responder, community responder and trauma care.
- 1.7 This SOR is for the provision of a contract for the Research Statistics Professional Advice Division (RSPAD) of the Fire and Resilience Directorate (FRD) at the Department for Communities and Local Government (DCLG). This contract is for research and analysis into the involvement of FRA/FRS first responders and other co-responders and community first-responders in co-responding activities in England only. Information is desired to establish the nature and extent of:
- Map number of co-responder schemes in operation by location
  - Assets currently held by, used and available to co-responders
  - The nature and scope of agreements held by co-responders with Ambulance Trusts together with information on other signatories to such agreements
  - Deployment history and procedures
  - Clinical governance arrangements for co-responder schemes
  - Funding arrangements and the associated costs of co-responding
  - Training needs for co-responding, particularly in comparison to other clinical training of fire fighters, for example in the management of injuries sustained in Road Traffic Collisions (RTCs) and burns
  - Additional equipment, components, training and practices to develop and enhance FRS/FRA co-responding good practice where shortfalls may exist
- 1.8 The aim of this contract is not directed towards devising a national strategy for FRS/FRA co-responder activity. The project is designed to gather, collate and analyse information and opinion on current first-, community- and co-responding activities, apparatus and practices in order to update and enhance present levels of CLG information on these themes.
- 1.9 This contract has split the project work into two phases.

<sup>10</sup> Copies of this letter can be obtained on request.

- 1.10 Phase 1 is the initial scoping phase of the project as defined within this SOR. This phase would seek to:
- Confirm and recruit stakeholders, participating FRSs, FRAs and Trusts. The Nominated Officer would assist the contractor during this activity by making preliminary contact with an appropriate individual within the stakeholder organisation in order to introduce the contractor to the stakeholder and briefly apprise the stakeholder of the nature of the project
  - Undertake a literature review to find out what work has already been done that is similar in nature and scope to the remit of Phase 2 of this SOR
  - Establish the nature, format and scope of requisite data and opinions (as detailed in Phase 2 of this SOR) in conjunction with its sources, availability and accessibility. Attachments B and C provide some examples of sources for some of this information
  - Devise, validate and pilot a methodology for the collection and analysis of this data and opinions
  - Define the reporting structure for the findings from Phase 2
  - Specify the structure and operational aspects of a Steering/Advisory panel for Phase 2
  - Provide project plan details of the deliverables, milestones, firm price quote and payment schedules for the work described by Phase 2. The contractor can suggest alternative payment schedules for consideration by the Department should the structure described in Section 9.2 be deemed impracticable
- 1.11 Phase 2 is the collection, collation, analysis and reporting activities as defined within this SOR for this second phase. This would be based on the output of Phase 1. The information required from this predominantly field – working exercise would encompass:
- Empirical data
  - Procedural or qualitative data
  - Factual and opinionative data
  - Recommendations
- 1.12 The Department would evaluate the output from Phase 1 before deciding whether to proceed further with the project and instruct the contractor to commence Phase 2 of the project. An option to extend the contract for the work on Phase 2 is subject to a separate and additional agreement at the written request of the Department. There is no obligation on the Department to proceed with Phase 2 and the Department may elect to break the contract at any time which includes after the outputs of Phase 1 have been delivered to and considered by the Nominated Officer.

## 2. Research Statistic & Professional Advice Division (RSPAD)

- 2.1. RSPAD is responsible for the planning and management of the Department's fire and resilience research programme. RSPAD is located in Allington Towers, Victoria, London; with two outstations at the Fire Experimental Unit (FEU) (which is co-located with the Fire Service College in Moreton-in-Marsh, Gloucestershire) and at Garston, Hertfordshire.

## 3. Co-Responding Overview

- 3.1 Clinical training for firefighters typically occupies four days during their initial training with periodic two-day retraining/refresher courses. A firefighter engaged in a co-responding scheme receives a greater amount of clinical training, including training on the use of an Automated External Defibrillator (AED).
- 3.2 Co-responding schemes are designed to support the activities of the ambulance service, particularly during busy periods and in rural areas. The scheme requires firefighters to be dispatched to specific clinical emergencies (see Appendix D for a list of conditions that FRS/FRA co-responders could be dispatched to attend, although this may vary across the country). Similar schemes are operated by NHS Ambulance Trusts with other professional groups, and with volunteers. These schemes, including co-responding schemes, are known collectively as first responder schemes.
- 3.3 The dispatch of trained firefighters to a clinical emergency would be in addition to the dispatch of dedicated clinical staff. First responders are not a substitute for an emergency ambulance response. Rather, both the first responder (in this instance FRS/FRA crew) and ambulance service are generally simultaneously dispatched; and where first on scene, the first responder would administer essential first-aid and basic life support. Dedicated clinical staff (such as paramedics and other ambulance clinicians) would take over responsibility for the patient and their care upon their arrival.
- 3.4 As with other first responders, FRS/FRA co-responders are deployed by, and accountable to, the ambulance trust and would not therefore be notified at the same time as the ambulance service, but may be dispatched at the same time as the ambulance response.
- 3.5 Current ambulance response standards require a crew to reach 75% of Category A (immediately life-threatening) calls within eight minutes. The chances of a successful survival outcome diminish by about 10% for every minute that passes following a cardiac arrest<sup>11</sup>. However, it should be borne in mind that divergence of opinion exists in the literature as to a universally

<sup>11</sup> See R. M. Lyon *et al*, *Emerg. Med. J.* 2004, **21**, 619–624.

adopted definition for *survival* of such incidents as cardiac arrest. An internationally recognised measure is the Utstein<sup>12</sup> algorithm for surviving a defined number of days after discharge.

- 3.6 It is because of this “window of opportunity” that co-responder and other first responder schemes give a desirable intervention. A reduced response time implies that resuscitative efforts, particularly chest compressions and defibrillation, can begin earlier thereby enhancing the probability of patient survival and recovery.
- 3.7 The types of reported incidents to which co-responders would be called upon to attend should be defined in an agreement between the respective FRS/FRA and Ambulance Trust. (See Attachment D for some of the clinical emergencies which this could include.)
- 3.8 The number of co-respondance calls that a FRS/FRA would take would be small in comparison to the total number of calls received by the ambulance service. Specifically, only time-critical incidents (for example chest pain, choking), for which appropriate training had been undertaken would be selected for FRS/FRA co-respondance.
- 3.9 The recent legal judgement<sup>13</sup> on whether co-responding forms part of a firefighters’ contract of employment has been acknowledged by the Judge responsible to have “far-reaching” ramifications.
- 3.10 An Advisory Group will be formed consisting of relevant stakeholders for the purposes of overseeing this project.
- 3.11 The Stakeholders that have direct interest in this project include:
  - Communities and Local Government
  - Department of Health
  - Health and Safety Executive
  - Chief Fire Officers Association
  - Fire and Rescue Services and Authorities
  - Fire Brigades Union
  - Retained Firefighters Union
  - Ambulance Trusts
  - Ambulance Service Association
  - Community Defibrillation Officers
  - Community First Responders
  - Resuscitation Council

<sup>12</sup> See *Recommended guidelines for uniform reporting of data from out-of hospital cardiac arrest: the ‘Utstein style’*. Prepared by a task force of representatives from the European Resuscitation Council, American Heart Association, Heart and Stroke Foundation of Canada, Australian Resuscitation Council. *Resuscitation* 1991, **22**, 1–26.

<sup>13</sup> See *Time for Dialogue in Firefighter*, Jan/Feb 2007, pp. 12–13 for a brief overview of this case. See also *Co-responding – the case for and against* in *Fire Prevention & Fire Engineers Journal*, February 2007, pp. 12–17.

- General Medical Council
- British Heart Foundation
- Clinical Governance Support Team
- Local Government Association
- British Paramedic Association

The contractor would be expected to identify contacts, recruit and liaise with these and other potential stakeholders. The contractor would be assisted by the Nominated Officer in this activity as described in Section 1.10.

## 4. Aims and Objectives of the Contract Work

- 4.1 The aim of this contract is directed primarily at FRS and FRA co-response activity, but should also encompass the activity of other first responders in order to:
- Establish the nature and scope of specific information and opinion derived from, or associated with current first responder activity in England
  - Collate and analyse this information and opinion concerning first response activity and resources
  - Identify the current practices of first-responders
  - Identify relevant stakeholder views on first-response
  - Identify and summarise guidance relevant to first-response and the project stakeholders and to make recommendations to enhance co-responding good practice for FRSs/FRAs and crews
- 4.2 The objective of the contract is to produce full reports containing the information outlined in Section 5 of this SOR in order to gain a high quality, in-depth picture of the current situation regarding FRS/FRA co-responder activities in context with first-responder activities in England as a whole.

## 5. Contract Work Outline

- 5.1. The work has been divided into two phases, as described by sections 1.9 to 1.12 of this SOR and outlined in more detail below. The contractor is expected to undertake the work specified by the requirement of Section 6 of this SOR.

### **Phase 1**

- 5.2. With reference to the field work of Phase 2 (see below), the contractor should: establish contact with the stakeholders listed in Section 3.11 of this SOR; identify other potential stakeholders, recruit and apprise them all of the

nature of this research. The Nominated Officer will assist with this task, as described in Section 1.10.

- 5.3. The contractor should undertake a literature survey to identify any work that has been undertaken or is already underway that is similar in scope to that of some or all elements of Phase 2 of this SOR.
- 5.4. The contractor should establish the nature, format and scope of the requisite data and opinion (as detailed in Phase 2 of this SOR) in conjunction with its sources, availability and accessibility. This information could be interpreted as *metadata* (data on data).
- 5.5. The contractor should devise and recommend a methodology for the collection, collation and analysis of this opinion and data. The contractor should pilot this procedure to evaluate and validate their strategy and the timeliness and quality of response to their probing.
- 5.6. The contractor should make a start on identifying the terminology used by first responders and associated professionals as described in Sections 5.13 and 5.14 of this SOR.
- 5.7. The reporting structure and content for the expected findings from Phase 2 (as outlined in the Deliverables section of this SOR) should be specified in detail by the Contractor. This should include identification of any likely shortfalls or additional pertinent data that could potentially arise from the field work of Phase 2.
- 5.8. The contractor should provide a detailed project plan containing the information described by Section 13 of this SOR for the work outlined by Phase 2 of this requirement and a firm price should be provided.
- 5.9. The structure and operational aspects of a Steering/Advisory panel should be specified. The panel should be populated by members from: the Contractor's team; selected stakeholder bodies and appropriate CLG staff. The Nominated Officer will seek to recruit two stakeholder representatives for this panel.

## **Phase 2**

- 5.10. The contractor will be expected to undertake appropriate research and fieldwork to establish the following for all English FRAs and FRSs currently engaged in, or considering involvement in a co-responder scheme:
  - 5.10.1 Asset mapping of equipment held by or available for use by the co-responders.
    - 5.10.1.1 Distribution of defibrillator ownership.
    - 5.10.1.2 The source of funding used to purchase the defibrillators in 5.10.1.1.
    - 5.10.1.3 A summary showing how many defibrillators were funded by each funding source identified in 5.10.1.2.

- 5.10.1.4 Listing of other clinical equipment carried by or available for use by the co-responders.
- 5.10.1.5 The source of funding used to purchase the items identified in 5.10.1.4.
- 5.10.2 Co-responding crew mapping.
  - 5.10.2.1 Numbers and distribution of firefighters trained as co-responders.
  - 5.10.2.2 Mapping of clinical training provided to FRS/FRA crews
- 5.10.3 Deployment procedures.
  - 5.10.3.1 The types of agreements held with the Ambulance Trust. For example, does a Memorandum of Understanding (MOU) exist?
  - 5.10.3.2 What other organisations are signed up to these agreements.
  - 5.10.3.3 Details of what these agreements state, particularly to what incidents the co-responder will and will not be deployed. Copies of these agreements to be obtained from the respondents.
  - 5.10.3.4 The Advanced Medical Priority Dispatch System (AMPDS) prioritisation codes to which first responders are dispatched when a co-responder is mobilised.
  - 5.10.3.5 Deployment procedures to emergency ambulance incidents. This could be represented by mobilisation flowcharts where possible.
  - 5.10.3.6 The priority allocated to co-responding calls by the FRA/FRS in the event of multiple and/or simultaneous incidents.
  - 5.10.3.7 How and by whom deployment costs are funded.
- 5.10.4 History of deployment, treatment and lives saved<sup>14</sup>.
  - 5.10.4.1 Frequency of deployment, treatment given and lives saved<sup>14</sup>:
    - 5.10.4.1.1 For incidents to which the FRS/FRA have been dispatched by the Ambulance Trust as co-responders.

<sup>14</sup> Consideration of *lives saved*, associated statistics and their confidence limits could prove problematical. Lives saved would need to be defined in a manner consistent with the clinical research interpretation. See footnote 7.

- 5.10.4.1.2 For incidents to which the FRS/FRA have not been dispatched by the Ambulance Trust as co-responders.
        - 5.10.4.1.3 The number of co-responding incidents compared to the total number of ambulance incidents
      - 5.10.4.2 How the number of lives saved<sup>14</sup> was calculated. This should include details of any assumptions made in deriving this figure.
      - 5.10.4.3 Provide details of the audit trail following a co-response event.
    - 5.10.5 Clinical governance.
      - 5.10.5.1 What training was provided and who the provider was.
      - 5.10.5.2 How often retraining is required and what it consists of.
      - 5.10.5.3 Procedures and oversight: details on expert oversight of service provision.
  - 5.11 The contractor should assess all first-responder activity in England in order to establish the proportion of FRS and FRA deployment compared to other agencies used by Ambulance Trusts in this way.
  - 5.12 The contractor should establish the following for all agencies involved in first-responder activities, however, depending on the output of 5.11, it may prove sensible to restrict this exercise to a sample review:
    - 5.12.1 Data mapping: the data that is held by various organisations that could inform further research on this topic (some suitable sources for this data are provided in Attachments B and C). This should include data mapping on:
      - 5.12.1.1 Defibrillators.
      - 5.12.1.2 Treatment given using defibrillators (including effectiveness of treatment).
      - 5.12.1.3 Condition of patients prior to the responders arriving at the scene and after the responder has arrived.
      - 5.12.1.4 Crewing and clinical training.
      - 5.12.1.5 Costs.
      - 5.12.1.6 Benefits.
      - 5.12.1.7 Mobilisation and response times.

- 5.13 Incident classifications and terminology used by FRS, FRA and other co-responders; community first responders, Ambulance Trust and health care professionals (medical and clinical staff) may be significantly different. The contractor should produce a lexicon of terminology comprising:
- 5.13.1 Terminology used by first-responders, health care professionals and the Ambulance Trust as used or encountered throughout first-response activities.
  - 5.13.2 Definitions for each incident classification and terms identified in section 5.13.1.
  - 5.13.3 Differentiation in usage and/or meaning of terminology between the users as identified in Sections 5.13.1 and 5.13.2.
- 5.14 The lexicon of terminology described above will be expected to integrate with an earlier CLG project on risk terminology and definitions. The contractor will be provided with a suitable template to assist with this integration.
- 5.15 The contractor should reference and provide a summary of any guidance documents issued by the UK and European Governments and Stakeholders that have relevance to this project.
- 5.16 The contractor should establish a firm basis, with stakeholder agreement, of existing clinical governance standards for FRS and FRA co-responsance.
- 5.17 The contractor should make recommendations for additional clinical apparatus, training and procedures that would support good practice in FRS and FRA co-responding activities.
- 5.18 The contractor should conduct a literature review that surveys current experiences around the world of first-responding with due emphasis on respective Fire Service involvement.

## 6. The Requirement

- 6.1 The requirement covered by this SOR is for a study as described in Section 5 of this SOR.
- 6.2 The contractor will be expected to start work on Phase 1 only, immediately upon award of contract.
- 6.3 The contract for Phase 1 will be firm price. You should provide a quote to cover all of the work required for the delivery of Phase 1 of the contract, including travel and expenses. You should also provide an estimate quote to cover all of the work required for the delivery of Phase 2 of the contract, including travel and expenses.
- 6.4 Requirements for reporting will be discussed at the project initiation meeting. This initiation meeting will be scheduled shortly after the award of the

contract. It is anticipated that this meeting will be held on the 4 April 2007; the contractor will be advised at the earliest opportunity of any changes to this date.

- 6.5 Reports shall be produced in standard CLG format (see Sections 8.3 to 8.5 of this SOR).

## 7. Management

- 7.1 The contract will be managed in accordance with the Department's Standard Conditions of Contract for Research and Services (attached). An official of the Department, who will act as the Nominated Officer responsible for the day-to-day management of the contract, will supervise the contractor.

- 7.2 An Advisory Group will be established for the purposes of this research. The Department will chair the group. Tenderers will be expected to provide the Secretariat for this group. Time should be allocated during the project for at least 2 meetings of the Advisory Group for the contractor to report progress. The contractor will be advised of the details of these meetings in due course, however, it is anticipated that the first meeting will be held on 16 May 2007, and should the contractor be instructed to proceed with Phase 2, the second meeting is anticipated to be held on 17 October 2007.

## 8. Project Deliverables

- 8.1 Key outputs required from the contractor:

- An interim report containing preliminary information and emergent findings for Phase 1. This report and accompanying presentation is to be delivered by the contractor at the Advisory Board meeting scheduled to be held on 16 May 2007. The contractor will be advised at the earliest opportunity of the precise time and location of this meeting
- A full report satisfying the requirement for Phase 1 of Section 5 of this SOR. This is to be delivered to the Nominated Officer by 12:00 noon on 11 July 2007
- A firm price for the work to cover all of the work required for the delivery of Phase 2 of the contract, including travel and expenses should be provided with the report for Phase 1
- Should the Department wish to proceed with Phase 2 of the work; the contractor will be instructed accordingly upon acceptance of the firm price quote for this portion of the work. It is anticipated that a decision will be made by the Department on whether to proceed with Phase 2 on 1 August 2007. The contractor will be instructed accordingly
- Provided that the contractor has been instructed to proceed with Phase 2 of the work, then an interim report containing preliminary information

and emergent findings for Phase 2 is expected. This report and an accompanying presentation are to be delivered by the contractor at the Advisory Board meeting scheduled to be held on 17 October 2007. The contractor will be advised at the earliest opportunity of the precise time and location of this meeting.

- Provided that the contractor has been instructed to proceed with Phase 2 of the work, then a full report satisfying the requirement for Phase 2 of Section 5 of this SOR is to be produced. This is to be delivered to the Nominated Officer by 12:00 noon on 13 February 2008

#### 8.2 Ancillary outputs required:

- The contractor will be expected to report progress on a basis to be agreed at the project initiation meeting. It is envisaged that the contractor will provide brief written checkpoint reports on a regular basis to the Nominated Officer as a means of monitoring progress. A template for the checkpoint reports will be provided.

#### 8.3 The contractor will be required to:

- Supply to the Nominated Officer, twenty (20) printed copies of the interim and full reports together with electronic copies in Microsoft Word™ format
- Data submitted in support of the reports should be in Microsoft Excel™, Access™ or in SPSS™ or SAS™ compatible format
- Ensure all reports are comprised of uniformly word-processed text and graphics
- Be responsible for proof-reading the reports prior to their submission
- Allow a minimum of 20 working days for the Nominated Officer to consider the interim and full reports after delivery to the Department

#### 8.4 The format and content (the latter insofar as it relates to the presentation of results of the research and interpretation of relevant policy) of all working papers, reports and papers shall be subject to the agreement of the Nominated Officer.

#### 8.5 The interim and full reports should include an abstract of no more than 500 words and an executive summary of no more than 4 pages.

## 9. Budget

#### 9.1 It is the policy of the Department not to give specific budget details in project specifications.

#### 9.2 Payments of:

- 40% of the contracted firm price for Phase 1 will be made on acceptance of the interim report of this phase.
- 60% of the contracted firm price for Phase 1 will be made on acceptance of the full report of this phase.
- 40% of the contracted firm price for Phase 2 will be made on acceptance of the interim report of this phase.
- 60% of the contracted firm price for Phase 2 will be made on acceptance of the full report of this phase.

## 10. Mandatory Skills and Experience

10.1 The mandatory skills and experience required to be demonstrated by the tenderers' team undertaking this work are the following:

- Comprehensive clinical knowledge and experience, particularly in the realms of first responder schemes for clinical emergencies
- At least one member of the contractor's team must be a recognised health professional, with practical experience of cardiac care and management
- A sound knowledge of the operation of the Fire and Rescue Service and the Ambulance Service
- The ability to collect and collate appropriate information from both CLG and non-CLG data sources
- A proven ability to extract pertinent information from these sources and to render this information in documentary form for it to be clear and easily understood

10.2 Tenderers can state additional relevant skills and experiences depending on the precise nature of the work programme proposed.

## 11. Confidentiality

11.1 The contractor must safeguard the confidentiality of any data supplied for the purposes of this contract. Any results obtained during the course of the research may not be used for purposes other than this project unless prior written permission is obtained from the Department.

## 12. Location of Work

12.1 It is envisaged that the majority of this work will be carried out in the Tenderers' own premises. However, visits to the offices of the Department in London and Moreton-in-Marsh may be necessary. Visits to appropriate FRS/FRA, hospital and ambulance premises may be required.

## 13. Format of Proposals

- 13.1 The Tenderer should submit their proposals in accordance with the format set out below (Section 13). Failure to conform to this format or an incomplete submission may result in the proposal being rejected. Any additional information provided should be annexed to the proposal.
- 13.2 The Tenderer must:

### **Staff**

- Provide details, including CVs, of all members of the team proposed to undertake this work (including sub-contractors and/or all consortia members if applicable). Tenderers should give details of the relevant qualifications and experience of all staff being proposed for the work, together with the proposed number of person-days each will contribute. Tenderers must provide confirmation that the proposed staff possess the mandatory skills and experience for the work (see Section 13.3). The Secretariat described in Section 7.2 must be constituted from these proposed members of staff
- Confirm that any proposed consultant/consultants will be available for the duration of the work
- Give details of a named Project Manager who will be the main contact with the Nominated Officer on a day-to-day basis for the duration of this contract

### **Management**

- Describe their project plans and management arrangements and provide details of the quality control procedures to be adopted in order that the project aims, objectives and requirements are met. These should be specified in detail for Phase 1 of the work together with the proposed arrangements for Phase 2 of the work.
- Provide a timetable (e.g. a Gantt chart) showing the activities and milestones for achieving Phase 1 of the project's aims, objectives and deliverables. A proposed timetable for Phase 2 should also be provided.

### **Methodology**

- Address the research objectives and present a sound methodology for carrying out the work for achieving the deliverables of Phase 1 and Phase 2. The tenderer should provide:
  - Sufficiently detailed information describing the methodology to be adopted for Phase 1
  - A high-level overview of the proposed methodology to be adopted for Phase 2

### Risks

- Identify risks associated with both Phases of the project and management strategies to mitigate these risks

### Costs

- Provide full details of the following costs for Phase 1 of the work within a summary chart. The estimated quote for the work of Phase 2 must consider these points as well. The contractor will also need to consider this section when calculating a firm price value for the Phase 2 work:
  - Staff, including number of days to be spent by each member of the team, their grade and daily rate (or pro-rata for full-time salaried staff)
  - Analysis and reporting
  - Travel and subsistence
- Should provide costings exclusive of VAT and state whether VAT will be charged. Tenderers should include a fully costed project plan for the work that identifies the main tasks and key milestones that will be used to monitor progress. Invoicing arrangements will be based on key stages of the work programme, and staged payments will be made on acceptance of specified outputs (see Section 9)
- Provide a daily rate for the consultants and other staff for use if any amendments to the contract are required

13.3 The Tenderer should also provide evidence that satisfies the requirements given in Section 10 of this SOR.

13.4 The Tenderer should also provide any other information that they consider particularly relevant.

## 14. Evaluation Approach

14.1 Proposals will be evaluated against the following criteria:

- Evidence demonstrating an understanding of the requirements
- Experience of the project manager; qualifications and experience of team members particularly in relation to the requirements of this project and possession of the mandatory skills and experience
- Description and suitability of the proposed methodologies for Phase 1 and Phase 2 of the work
- Proposals for communicating and working with the Department. Procedure for planning, programming and managing delivery. Management proposals for sub-contractors and suppliers
- Timetable for completing project, including milestones for achieving the objectives, the requirements and the deliverables

- Risk management strategies
- Quality of the proposal and confidence in tenderer to deliver
- Value for money

To determine the successful bid.

## 15. CLG Contacts

Further information regarding this SOR can be obtained from:

### **Nominated Officer**

Dr Rafal Pisula  
Research and Statistics Division  
Fire and Resilience Directorate  
Fire Experimental Unit  
c/o Fire Service College  
Moreton-in-Marsh  
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GL56 0RH

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# Attachment A. Glossary of Terminology

A1. The following is a description of some key terms used within this SOR:

## **Community Responder**

Volunteer first responders who are organised into geographical schemes in order to serve communities. They are managed by Ambulance Trusts and operate as agents of the Trust, while acting on its behalf. An example of community responders would be a group of volunteers in a particular town or village who respond to episodes when activated.

## **Co-responder**

Ambulance Trusts have also developed responder systems with other associated professional organisations or support services in order to develop first responder initiatives. The training and operation of these groups depends on their existing remit and the way in which they interact with the Trust. An example of a co-responder group would be the responding arrangements which exist with the police, fire or military services or specialist support services such as the Royal National Lifeboat Institute (RNLI). This would also include clinically practicing ambulance paramedics, technicians and registered health care professionals with appropriate knowledge and experience, responding outside their normal working hours.

## **Department, The**

Unless specified otherwise, this should be taken to refer to the Department for Communities and Local Government (DCLG), herein referred to as CLG.

## **First responder**

Any individual or agency outside the Ambulance Trust that is deployed by the Ambulance Trust to provide time-critical first aid.

## **Trauma care**

Trauma care is the care of patients who have suffered serious and life-threatening physical injury potentially resulting in secondary complications such as shock, respiratory failure and death. It covers the whole care pathway from the actions of the bystander to first aider to trained individuals, including ambulance clinicians, A&E doctors, nurses and surgeons right through to rehabilitation and psychological support.

Pre-hospital trauma care has three levels: basic, intermediate and advanced. Fire and Rescue Service crews, depending on training and the individual situation, may be involved in the provision of basic trauma care, including interventions beyond first aid, but not including invasive procedures.

## Attachment B. Additional Information

- B.1 The nature of this project would require the contractor to consult various sources of information. These sources should include, but not be restricted to:
- B1.1 FDR1, FSEC, IRS and NeSS data<sup>15</sup>.
  - B1.2 FRSs Integrated Risk Management Plans (IRMPs)
  - B1.3 The Chief Fire Officers Association (CFOA) "Interim status report of defibrillator deployment within the Fire and Rescue Service".
  - B1.4 External subject matter as listed in Appendix C of this SOR.
- B.2 The contractor, upon undertaking this research project, may wish to consult various parties for information. It is suggested that the following be a useful starting point:
- B2.1 The Research and Statistics Division (RSD).
  - B2.2 Department of Health (DH).
  - B2.3 The Ambulance Service Association (ASA)
  - B2.4 Co-responding FRSs.
  - B2.5 Community first responders working in collaboration with the FRS/FRA.
  - B2.6 British Heart Foundation.
  - B2.7 Resuscitation Council.
  - B2.8 National Lottery.
  - B2.9 British Medical Council.
  - B2.10 General Medical Council
  - B2.11 British Paramedic Association

<sup>15</sup> FDR1 (Fire Damage Report 1) forms contain information on fire incidents. They are collated from FRSs and analysed by CLG statisticians. FSEC (Fire Service Emergency Cover) is a CLG issued software package that uses incident and census data to model risk scenarios by FRSs.

## Attachment C. External Subject Matter

C1. The following sources of information may be of relevance to this project:

- J. Turner, C. O’Keefe, S. Dixon, K. Warren and J. Nicholl. *The costs and benefits of changing ambulance service response time performance standards*. Medical care research unit, University of Sheffield.
- Department of Health, *Taking Healthcare to the Patient*  
<http://www.dh.gov.uk/assetRoot/04/11/42/70/04114270.pdf>
- R. M. Lyon, S. M. Cobbe, J. M. Bradley and N. R. Grubb. *Surviving out of hospital cardiac arrest at home: a postcode lottery*.
- J. P. Pell, J. M. Sirel, A. K. Marsden, I. Ford, N. L. Walker and S. M. Cobbe. *Potential impact of public access defibrillators on survival after out of hospital cardiopulmonary arrest: a retrospective cohort study*.
- A. Walker, J. M. Sirel, A. K. Marsden, S. M. Cobbe and J. P. Pell. *Cost effectiveness and cost utility model of public place defibrillators in improving survival after pre-hospital cardiopulmonary arrest*.

## Attachment D. Clinical Conditions for Co-response

D1. The following list outlines possible reported conditions to trigger co-response:

- Cardiac arrest
- Respiratory arrest
- Diabetic collapse
- Unconscious
- Central chest pain
- Chest pain radiating into neck/jaw/left arm
- Severe difficulty with breathing
- Cold and clammy with cardiac history
- Cyanosed (peripherally blue)

# Appendix 5 Response Time Survival Literature

## **Time, survival from out of hospital cardiac arrest, and the impact of first responders: a literature review**

### Background

Survival from out-of-hospital cardiac arrest in the UK is poor. Only 14% of such patients have a pulse on arrival at hospital, defined as return of spontaneous circulation (ROSC).<sup>1</sup> Unfortunately no evidence exists that demonstrates a linear relationship between ROSC and the true headline figure for outcome from cardiac arrest – the proportion of patients surviving to hospital discharge who are neurologically intact. Survival to discharge data is not routinely collected by UK ambulance services, but it has been reported as being 4.5% in a mixed urban/suburban/rural population in Wales<sup>2</sup> and as 4.4% in Leicestershire.<sup>3</sup> This review examines the impact of time to treatment on the prognosis of cardiac arrest victims.

### Literature review

A study of 118 cardiac arrest cases in an urban setting has reported that although the response time of the first medical responders, and the age and sex of patients had no predictive value for survival, shorter intervals from collapse to cardiopulmonary resuscitation (CPR) (1.7 versus 5.2 minutes) and to defibrillation (7.4 versus 9.5 minutes) were significantly associated with increased survival ( $p < 0.05$  for both).<sup>4</sup> Further research has demonstrated that increased survival is associated with decreased time to basic life support interventions (5.5 versus 6.8 minutes,  $p = 0.047$ ).<sup>5</sup>

Others have suggested that time to defibrillation is a specific key variable, reporting that even small differences in call-to shock times of 5.8 and 6.4 minutes for survivors and non-survivors respectively have an important effect ( $p = 0.02$ ).<sup>6</sup> Additional research using data from a state-wide Australian cardiac arrest register has supported this finding, indicating that short response times only have a survival benefit when the patient has a shockable rhythm.<sup>7</sup> Although bystander CPR increases survival threefold, early defibrillation by first responders has a considerably greater effect, increasing survival ninefold.<sup>8</sup>

Arguably the most useful study on the relationship between time to defibrillation and survival has plotted this relationship based on data from 9,273 cardiac arrests in the Ontario area. The authors calculated that the corrected decrement in the odds of survival was 0.77 for each additional minutes delay to defibrillation from collapse. This gives the following relationship between time to shock and survival, which can be used to calculate the numbers of patients with a shockable rhythm likely to survive in an emergency medical service given the numbers of cardiac arrest cases for a defined period over a range of defibrillation response intervals, as the table below indicates.

Defibrillation response interval	Calculated survival rates
9 minutes	4.6%
8 minutes	5.9%
7 minutes	7.5%
6 minutes	9.5%
5 minutes	12.0%

The authors noted that this relationship did not apply to the initial five minutes post cardiac arrest, during which interval survival decreased steeply.<sup>9</sup>

In addition to improving the probability of a positive outcome, early CPR and defibrillation are associated with reduced costs to the health service. A study in a large urban setting has reported that both CPR (odds ratio 0.44; 95% CI: 0.24 to 0.77;  $p=0.004$ ) and time to first defibrillation (odds ratio 1.08; 95% CI: 1.03 to 1.13;  $p=0.001$ ) were significantly correlated with good neurologic outcome. However, it was also reported that the cost of caring for patients with a good neurological outcome who did *not* receive basic life support and had delayed defibrillation was significantly higher ( $p<0.001$ ).<sup>10</sup> This finding has been replicated in the Netherlands: If a shock was delivered within seven minutes, the survival rate was 46% and the average cost of caring for these patients was €20,253; 26% of patients shocked within a seven to twelve minute interval survived with a cost of care of €31,467; and 13% of patients shocked after more than 12 minutes survived with healthcare costs of €27,781.<sup>11</sup>

First responder schemes can produce a reduction in response and time to first shock intervals, and therefore have a positive effect on survival. An evaluation of police first responders reported a reduction in mean time to defibrillation from 11.8 to 8.7 minutes compared with a traditional ambulance response ( $p<0.0001$ ). Although this had no effect on survival to discharge in the group of all cardiac arrests, if the first shock was given by police rather than ambulance staff survival was 12/46 cases (26%) versus 1/29 (3%),  $p=0.01$ .<sup>12</sup> Other police first responder schemes have had similar successes. In one scheme 14 of 44 patients in VF were treated initially by police officers: 10 of these survived to discharge. Time to defibrillation appeared to have an important effect: of these patients the 7/14 that regained a pulse following treatment by police had an average call-to-shock interval of 4.9 minutes,

and for the remaining 7 this interval was 6.1 minutes ( $p=0.035$ ).<sup>13</sup> In another police scheme, time to first responder arrival fell from 7.6 to 4.9 minutes ( $p<0.001$ ) compared with a standard ambulance provision, and survival from shockable rhythms increased from 9.0 to 17.2%.<sup>14</sup>

Combined police and fire service first responder schemes have also been evaluated. A scheme in the Netherlands treating 469 patients reduced the collapse to first shock interval from 12.8 minutes to 11.1 minutes ( $p<0.001$ ), resulting in an increase in the proportion of patients with ROSC from 48 to 57% (odds ratio 1.5,  $p=0.05$ ) and who were admitted to hospital (33 versus 42%, odds ratio 1.5,  $p=0.02$ ). Although the difference in survival to discharge rates was not significantly different (15 versus 18%,  $p=0.33$ ) this may be due to a type II error (sample size too small to detect a real difference) and even though it was reduced the time to first shock may still have been too long to save most patients.<sup>15</sup> A fire service first response scheme in Melbourne has reported reductions in response time since its launch of 1.6 minutes in the first 12 months of operation ( $p<0.001$ ).<sup>16</sup> Survival to discharge rates in this combined ambulance and fire response service for bystander witnessed cases of VF were 21.8% following a mean time to defibrillation of 8.8 minutes.<sup>17</sup>

A small number of studies have suggested that there is no benefit from implementing first responder programmes. However, this may be due to confounding factors – in one study bystander CPR was started in only 12% of cases (itself an important and independent predictor of outcome) and it appears that survival was reported for all cardiac arrest cases, rather than just those in shockable rhythms as is the recommended standard of reporting.<sup>18</sup> Another reported that although the call to shock interval was shortened by 4.8 minutes by police responders compared with EMS, survival to hospital discharge rates were not significantly better (15 versus 10%, relative benefit 0.63,  $p=0.45$ ). However, this study was set in a rural area, itself an independent predictor of poor outcome, and the sample size was small, risking a type II error.<sup>19</sup>

In one first responder scheme in Italy, it was decided not to teach first responder CPR skills but to restrict their intervention to use of an AED. Their response time was 4.8 minutes compared with 6.2 minutes for the emergency medical services ( $p=0.05$ ) resulting in survival to hospital discharge rates increasing from 3.3 to 10.5% (all cardiac arrests,  $p=0.006$ ). The proportion of patients with shockable rhythms surviving following treatment by first responders was 44.1 versus 21.2% of those treated by EMS ( $p=0.046$ ). The proportion of all survivors who were neurologically intact was also higher for first-responders' patients (8.4 versus 2.4%,  $p=0.009$ ).<sup>20</sup> Importantly it has been demonstrated that short response intervals are a major predictor of survival, regardless of who provides initial treatment (CPR and/or defibrillation), be they a doctor, a paramedic, or a first responder.<sup>21</sup>

## Conclusion

Shorter intervals from collapse to defibrillation are positively correlated with increased rates of survival to discharge with good neurological function and reduced costs to the healthcare system. Early defibrillation is considerably more effective than early CPR, although the latter adds value. A collapse-to-defibrillation interval of less than five minutes, whilst difficult to achieve, appears to maximise the probability of a positive outcome. This may explain the very poor performance of UK ambulance services in influencing survival from cardiac arrest, since they are contracted to reach only 75% of such cases within 8 minutes, whether they utilise first responders or not. Fire and police service first responder schemes result in reduced collapse to defibrillation intervals and make a significant contribution to improving survival rates from out-of-hospital cardiac arrest. The introduction of these programmes will have maximum benefit if response time targets of less than eight minutes are set.

**Prof. Malcolm Woollard**

**Co-director, Pre-hospital, Emergency and Cardiovascular Care Applied Research Group, Coventry University**

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# Appendix 6 Guidance and Standards for Co-Responder Clinical Care and Clinical Governance

## Guidance Standards for Co-Responding (Statement of Requirement 5.15 and 5.16)

Guidance and standards for co-responding can be classified in two major groups:

Clinical and Managerial.

### Clinical

On the clinical side, there are formal guidelines established for Ambulance Services (and for ambulance officers with different levels of training/equipment/scope of practice). The guidance for co-responders (and community responders) forms a sub-set of this national guidance, with techniques limited to those that their level of co-responder training (basic life support, intermediate, etc) allows them to perform.

Figure I outlines how local guidelines for co-responders are distilled out of national guidelines for Ambulance Services and for specific conditions/treatments from JRCALC, NICE and the Resuscitation Council (UK). More details are provided in Attachments A and B.

<b>Figure I: Guidance Documents Supporting Co-responding</b>			
<b>CLINICAL GUIDANCE</b>			
Original source material	NICE Clinical Guidelines (online)	JRCALC UK Ambulance Clinical Practice Guidelines 2006	European and UK Resuscitation Guidelines 2005
Forums to synthesise guidance specifically for co-response	Chief Fire Officers Casualty Care Group	JRCALC Joint Royal College Ambulance Service Liaison Guidelines Sub-committee	Ambulance Service Directors of Clinical Care (DOCC) Group Ambulance First Responders Forum
Training material for co-responders	Fire Service-specific casualty care training (Fire Service Manual of Immediate Emergency Care, in preparation)	Institute of Health Care Development (IHCD) First Person on Scene Award	Ambulance Service-specific co-response training Resuscitation Council (UK) guidelines and algorithms

Until recently, this was undertaken by the Medical Directors and Training Departments of each Ambulance Service. It remains their responsibility today, but further support is being provided by two new national committees:

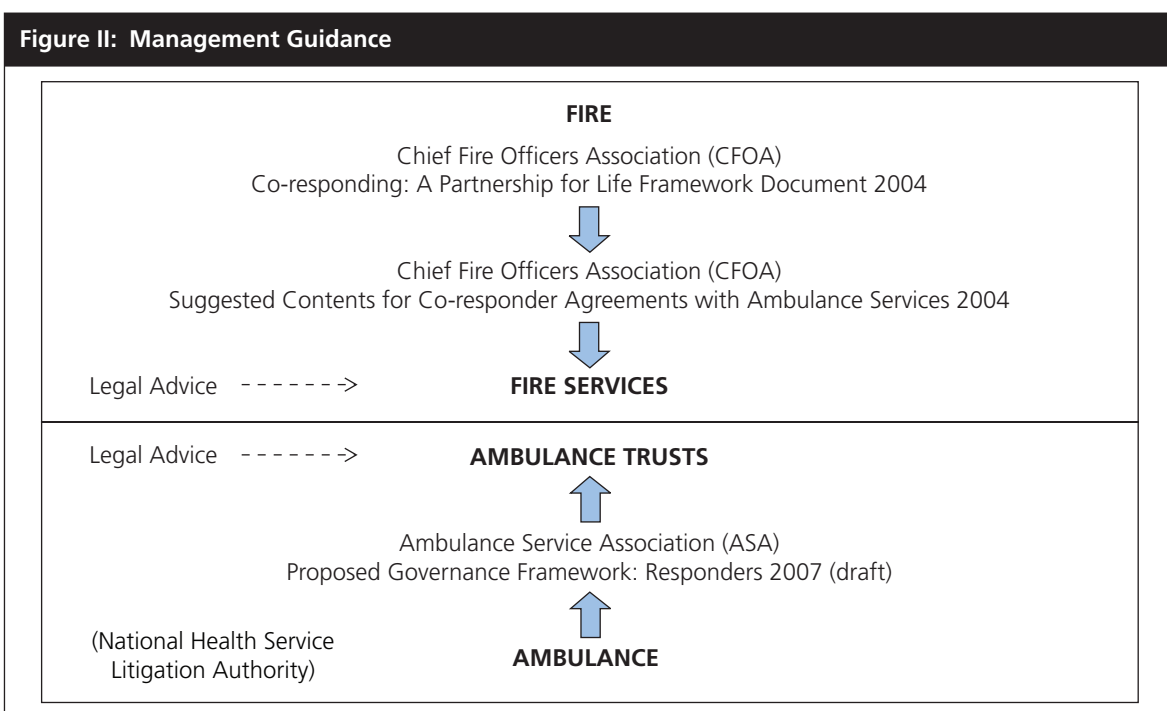
- the Ambulance Services Directors of Clinical Care Committee;
- the Chief Fire Officers Casualty Care Group.

In establishing the latter, the Chief Fire Officers Association (CFOA) noted the varied levels of training provided currently to firefighters, including fire co-responders, engaged in trauma/casualty care situations. Some use the First Person on Scene (FPOS) training and assessment scheme, but there are concerns that this is not fit for purpose on its own. CFOA has therefore begun the development of a *Fire Service Manual of Immediate Emergency Care* as a single set of national standards appropriate for firefighters in emergency care (for example with clear guidance on common situations firefighters face in the treatment of burns, asphyxiation, etc).

These Groups will provide clinical advice in the development of such standards and guidelines, for co-responding as well as for emergency care generally. They have interlocking membership to strengthen coordination across the Ambulance/FRS divide.

### Managerial

There is less formal direction in management guidance than in clinical guidance. However, both FRS and Ambulance Service national representative bodies (CFOA and ASA) have issued suggested guidance on the management arrangements for Services considering co-responding schemes (and community responding), as Figure II indicates.



# Attachment A

## Summary of Clinical Guidance Documents for Ambulance, Fire (and Co-Responding)

### **UK National Institute for Health and Clinical Excellence (NICE) Clinical Guidelines, on-going**

- The National Institute for Health and Clinical Excellence (NICE) is the independent organisation responsible for providing national guidance on the promotion of good health and the prevention and treatment of ill health
- NICE produces guidance in three areas of health:
  - public health – guidance on the promotion of good health and the prevention of ill health for those working in the NHS, local authorities and the wider public and voluntary sector
  - health technologies – guidance on the use of new and existing medicines, treatments and procedures within the NHS
  - clinical practice – guidance on the appropriate treatment and care of people with specific diseases and conditions within the NHS
- The last two are particularly relevant to Ambulance Services and co-responders.
- NICE does not provide advice specifically for ambulance paramedics or co-responders but will reference them in guidance for particular treatment of particular conditions. So, for example, in guidance on *Pre-hospital initiation of fluid replacement therapy in trauma* it includes the following recommendation:
- It is recommended that only health care professionals who have been trained in advanced life- support techniques and pre-hospital care should administer intravenous fluid therapy to trauma patients in the pre-hospital setting.
- The Clinical Directors of Ambulance Services are expected to tailor the NICE and JRCALC clinical guidelines into the specific clinical training and scope of practice for ambulance staff, for co-responders and for community responders in their respective Ambulance Trusts.
- The two National Ambulance Forums: the Director of Clinical Care; and the First Responders Forums are intended to provide some national coordination on these issues at the policy and operational level.

### **JRCALC Clinical Practice Guidelines for Ambulance, October 2006**

- Produced by the Joint Royal Colleges Ambulances Service Liaison Committee in association with The Ambulance Service Association, the Department of Health, Social Services and Public Safety, NHS, NHS Scotland and NHS Wales.
- Outlines guidelines for clinical care provided by Ambulance Services in the UK.

- Consists of following key topics:
  - Ethical issues
  - Pain management
  - Trauma Emergencies
  - Paediatric Guidelines
  - Specific Treatment Options
  - Drugs
  - Treatment and Management of Assault
  - Obstetrics & Gynaecological Emergencies
  - Cardiac Arrest & Arrhythmias
  - Medical Emergencies in Adults
- Guidelines are specifically aimed at paramedics, but treatment pathways excluding the administration of drugs and the use of invasive techniques are also intended to be the basis for care provided by other pre-hospital care providers, as many of the assessment skills and general principles will remain the same.

### **Resuscitation Guidelines 2005**

- Published by the Resuscitation Council (UK).
- 2005 Guidelines are based on the Guidelines of Resuscitation and Emergency Cardiovascular Care that were published in 2000.
- These Guidelines were adopted internationally with only minor modifications required by local custom, practice, or availability of drugs.
- A review process was undertaken during 2004/5. It was led by the International Liaison Committee on Resuscitation (ILCOR) and culminated in the 2005 International Consensus Conference on Emergency Cardiovascular Care (ECC) and Cardiopulmonary Resuscitation (CPR) Science with Treatment Recommendations, hosted by the American Heart Association (AHA).
  - The summary science statements and treatment recommendations from this conference have been published: *2005 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations (CoSTR)*.
- CoSTR document formed the scientific basis for resuscitation guidelines worldwide and specifically for the European Resuscitation Council (ERC) Guidelines for Resuscitation 2005. The Resuscitation Council (UK) Guidelines 2005 in this document are an abbreviated version of the ERC guidelines and differ from other international organisations only in minor ways.
- These latest Guidelines contain some treatment recommendations and changes in practice based on new scientific evidence that has accrued since 2000.

- Major headings within the Guidelines are:
  - Adult Basic Life Support
  - The Use of Automatic External Defibrillators
  - Prevention of in-hospital cardiac arrest and decisions about cardiopulmonary resuscitation.
  - In-Hospital Resuscitation.
  - Advanced Adult Life Support
  - Peri-Arrest Arrhythmia
  - Pediatric Basic Life Support
  - Pediatric Advanced Life Support
  - Newborn Life Support
- The Resuscitation Council (UK) provide some guidance on their website regarding training standards for CPR and AED use by lay persons such as first responders (<http://www.resus.org.uk/pages/faqAED.htm>), and this includes recommendations on learning outcomes and assessment criteria (<http://www.resus.org.uk/pages/lrnOutcm.htm>). They have recently published an educational text addressing these issues: *Cardiopulmonary Resuscitation and Automated External Defibrillation – A Training Manual*. The Resuscitation Council (UK) state on their website that

*“The recommendations in this training manual have been set by the Resuscitation Council (UK) to ensure training is delivered to an optimum standard. This publication provides both the trainer and candidate with standardised training material for a CPR/AED course. The manual outlines the learning outcomes that should be achieved by the candidate and gives advice to trainers on the essential information required during the course, an assessment tool and certificate. It is suitable for those who wish to train in CPR and the use of an AED, whether they are healthcare providers, lay community responders or members of the public.”*

### **IHCD First Person on Scene Awards, Draft Syllabus May 2001**

- This is a training course, not a nationally agreed set of guidelines.
- Developed by the faculty of Pre-Hospital Care (Edinburgh) and arranged by Institute of Health Care Development (IHCD).
- Purpose of First Person on Scene (FPOS) Awards is develop skills necessary to provide immediate life support to the patient pending the arrival of definitive pre-Hospital care.
- Two levels:
  - Basic
    - 3 hours pre-study; 10 hours contact time; 2 hours of assessment.
    - Designed for: Community Responders; other emergency services; cabin crew.

- Intermediate
  - 3 hours pre-study; 30 hours contact time; 2 hours of assessment.
  - Designed for: Co-Responders; other emergency services; cabin crew; industrial First Aiders.
- Syllabus for both basic and intermediate covers following topics:
  - Pre-Hospital Environment
  - Patient Assessment
  - Airway management
  - Respiration and Ventilation
  - Basic life support
  - Defibrillation
  - Circulation and shock
  - Medical related emergencies
  - Trauma related emergencies
- Assessment and accreditation through the Faculty of Pre-Hospital Care (Edinburgh).
- Achievement of units does not imply 'license to practice'.
- Units will only be valid for a limited period and there will be re-training and reassessment of both skills and knowledge.

# Attachment B

## Major Committees and Consultation Groups Involved in Guidance

The Directors of Clinical Care Committee (DOCC) of the English Ambulance Services brings together the Clinical Directors of all the 11 new Ambulance Trusts in regular meetings to discuss clinical issues and agree national approaches to those issues where appropriate, including potentially, on co-response.

The Joint Royal Colleges Ambulance Liaison Committee (JRCALC) was set up in 1989 to provide a national forum to support the UK Ambulance Service with a particular focus on its interactions with other professional healthcare groups.

JRCALC is a large Committee with representatives from the Ambulance Service Network (formally the ASA), the Royal Colleges of Physicians, Surgeons, Anaesthetists, Obstetricians & Gynaecologists, General Practitioners, Nursing, Paediatric and Child Health, the British Paramedic Association, the College of Emergency Medicine and observers from the British Military, the Department of Health, The Scottish Ambulance Service, the NHS Training Executive and The Institute of Healthcare Development.

### **National First Responders Forum**

- The National First Responder Forum is an Ambulance Service Association (ASA) Clinical Effectiveness Committee sub group. (South Western Ambulance Service Chief Executive Mr Ken Wenman is President of the Forum).
- It was established on 2006/7 to provide a nationally coordinated approach to the management of voluntary Community Responders by Ambulance Services across the UK.
- It is open to Responder Managers, Community Defibrillation Officers or others who have responsibility for the running of Community Responder schemes within the NHS Ambulance Services.

### **Group proposed to report to Chief Fire Officers Association in 2006, to be established in 2008**

- Report identifies that 'to fulfil the role of fire-fighter and to effectively undertake Co-Responder duties, a higher level of skill and training in Casualty Care than the standard applied by Health & Safety First Aid at Work training introduced under the Fire Service Circular 9/1993 guidance is required'.
- Identifies that 'very varied standards [of trauma care] now exist across the service'.

- Proposes Group should be chaired by CFOA, with individuals drawn from:
  - FRS Medical Advisors
  - JRCALC
  - Royal College of Surgeons
  - Ambulance Service Network (ASA as was)
  - DH Emergency Care Advisors
  - British Paramedic Association
  - BASICS
  - Pre Hospital Care Clinicians and Specialists
  - UKSAR
  - Representatives nominated from FRS's
- Anticipates that one of the first tasks of the group would be the endorsement of a 'Fire Service Manual for Casualty Care'.
- Contains brief assessment of Financial and Risk Implications.

# Attachment C

## Summary of Guidance Documents on Management of Co-Responding Schemes

### **Co-Responder: A Partnership For Life, CACFOA Framework Document, 2004**

- Developed by a Sub Committee of the Chief and Assistant Chief Fire Officers' Association (CACFOA) Operations Committee. The Sub Committee membership included representatives from the Ambulance Service Association (ASA), the British Heart Foundation (BHF), CACFOA and practitioners with experience in the field of Co-Responding.
- The document aims to advise the CACFOA Operations Committee on the proposed policy and strategy for the implementation of Co-Responder Schemes into the UK Fire Service (p. 3).
- The document is also part of CACFOA's aim of improving the community safety role in its widest definitions through the application of the Integrated Risk Management Plan (p.5).
- Specifically, the document aims:
  - To provide a national framework that provides guidance for Fire Authorities establishing new or revised Co-Responder Schemes with Ambulance Trusts.
  - To promote and encourage dialogue between Fire Authorities and Ambulance Trusts, on the issue of Co-Responder.
  - To consider the achievable outcomes and benefits that may emanate from the Fire Service involvement in Co-Responder Schemes.
  - To identify the Fire Service as a potential partner in Co-Responder Schemes.
  - To provide a benchmark for good practice in relation to the implementation of Co-Responder Schemes.
  - To provide a document that will form the basis for agreement on any future MOU between Fire and Ambulance Services. (p.1–2)
- The document acknowledges that involvement in Co-Responder Schemes may not be appropriate for all Authorities, Brigades and individuals (p.5).

### **Chief Fire Officer's Association: Suggested Contents for Co-Responder Agreements with Ambulance Services (2004?)**

- Document builds on CACFOA Framework Document. It seeks to provide more detailed guidance for Fire Services in establishing Co-Responder Agreements with Ambulance Services. These agreements aim to develop an integrated approach which supports but does not undermine the Ambulance Service, and enables all the Emergency Services to work more effectively to form one cohesive team working for the best interests of the patient' (p. 1).

- Stipulates that the underlying requirements of Fire Service involvement in Co-Responder Schemes are:
  - They are at the invitation of the Ambulance Trusts so that the scheme is incorporated appropriately with other initiatives to improve patient chances of survival.
  - In developing the partnership between Ambulance Trusts and Fire Authorities it is recognised that the Fire Authority act as an agent of the Ambulance Trust. (p. 2)
- Covers Practical Guidance (Fire Service Role) and Operating Practices, which includes the following topics:
  - Clinical Governance
  - Legal Considerations
  - Consent
  - A Claim for Negligence
  - Corporate Killing
  - Mitigating Liability
  - Police Checks
  - Training, Development and Competence
  - Health, Safety & Welfare
  - Public Relations
  - Funding

### **Ambulance Service Trusts, Proposed Governance Framework: Responders, September 2007 (Draft)**

- This draft framework is being developed by the Ambulance Services' National First Responders Forum as a basis for future agreements between Ambulance Services and First Responder organisations.
- The objective of the document is 'to reduce the risk within responder groups and to establish arrangements that provide a safe and supportive environment for responders to deliver appropriate and effective patient care' (p. 3).
- It responds to the requirements of 'The National Health Service Litigation Authority (NHSLA) is a special Health Authority responsible for handling negligence claims made against NHS bodies in England. The NHSLA requires that ambulance trusts have in place appropriate arrangements for the inclusion of voluntary responder schemes within its service delivery' (p. 3).
- The document outlines the major components to be included in a governance framework for First Responder Groups, which include Community First Responders (CFR's), Establishment Responders (EBR's) and Co-Responder Groups (CRG's).

- Major sections included are:
  - Management
  - Recruitment
  - Code of Conduct
  - Activation Criteria
  - Data/Records management
  - Liability
  - Risk Management
  - Logistics/Asset management
  - Performance Effectiveness
  - Clinical Governance (by definition, this includes initial and ongoing training, clinical audit, clinical effectiveness, risk management, and patient and public involvement)
  - Media
  - Finance
  - Driving/Vehicles
  - Investigations/Interviews/Complaints
  - External Regulations

An important issue here is that Ambulance Trusts do have the ultimate responsibility for clinical governance for these schemes. It does not matter that co-responders are not their employees – the ambulance service has the statutory responsibility for responding to 999 call for medical assistance, and although they can utilize other organizations in meeting this obligation the responsibility stays with them – the patients ‘belong’ to the ambulance service.

# Appendix 7 International Literature Review

## Literature Review on First Responding around the World, with an emphasis on Fire Service Involvement (SoR 5.18)

### Introduction

1. The Resuscitation Council defines a First Responder (in the UK context) as *'a person trained as a minimum in basic life support and the use of a defibrillator who attends a potentially life-threatening emergency. This response may be by the statutory ambulance service or complementary to it'* [www.resus.org.uk/pages/FirstRsp.htm](http://www.resus.org.uk/pages/FirstRsp.htm)
2. In that context, this survey covers literature on fire services that provide both the primary ambulance service and those that provide first responding as a complementary service. The latter in the UK is generally called co-responding.
3. The survey covers jurisdictions similar to the UK with well-developed fire and/or ambulance services. It covers Australia, Canada, USA and Europe.

### First Responding in Australia

4. There is a single Ambulance Service in each of the 8 States and Territories in Australia, except Victoria which has 2 services, one for Metropolitan Melbourne; one for the rest of the State. *Reference: Report on Government Service Provision 2006/7, Emergency Management Volume*, [www.pc.gov.au/data/assets/pdf\\_file/0018/61803/chapter08.pdf](http://www.pc.gov.au/data/assets/pdf_file/0018/61803/chapter08.pdf)
5. Each State also has at least one statutory fire service. Most have separate services covering rural areas and metropolitan areas.
6. Rural fire services are staffed substantially by volunteers who are called out when needed. Metropolitan Fire Services are staffed substantially by salaried full-time fire fighters.
7. Rural ambulance services also use volunteers but the proportions of volunteers and salaried ambulance officers vary substantially, with high proportions of volunteers in South Australia and virtually none in NSW.

Volunteers may provide a response on their own after appropriate training, or with a salaried employee.

8. Only one Fire Service has a substantial first responder role – The Metropolitan Fire and Emergency Services Board (MFB) in Melbourne. (Individual fire fighters elsewhere may volunteer as first responders in community schemes when off-duty, but not under the auspices of their Fire Service or on Fire Service time).
9. The MFB's Emergency Medical Response Program was established in 1998 by the State's Department of Health to help the Metropolitan Ambulance Service (MAS) improve response times and increase survival rates for cardiac arrest patients. MFB firefighters were trained in CPR and their firetrucks installed with defibrillators, oxygen and other medical equipment to allow them to respond to cardiac arrest calls at the same time as the MAS ambulance.
10. The initial pilot suggested improved response times and time to defibrillation for cardiac patients as a result of this. The EMS program was extended to all parts of the metropolitan area, all fire stations and all firefighters. In 2001, the Victorian Government confirmed the program as part of MFB core business.
11. For the latest year that data are reported (2005/6), the MFB EMS fire crews were mobilised for emergency medical calls on about 2400 occasions and arrived first on scene to provide care on nearly 500 of these occasions (21%). In 150 of these cases, defibrillators were used (6% of total calls). In only 40 of these uses did the defibrillator indicate a shock was appropriate (1.7% of all cases), and a shock given. The EMS annual report shows 15 cardiac patients surviving to discharge in cases where the firefighters were first on scene.
12. MFB has trained over 90% of its 1300 fire-fighters to participate in the EMS program and continues to invest over 10,000 hours per year in refresher training and recertification. With a crew of 4 on each firetruck, a firefighter might expect to be mobilised to an average of 8 emergency medical calls per year; and an average station would be mobilised to 40 such calls per year (although some stations will be much busier than this).
13. The evaluation reported in the MJA (see ref. below) noted the challenge of maintaining skills and confidence of firefighters when the use of defibrillators was as low as this (viz. 1 occasion of defibrillator use per trained firecrew every 3 years on average, assuming a crew of 4; and 1 shock applied per trained firecrew every 30 years likewise).
14. Although this scheme has been operating for nearly 10 years now, no other Fire Service in Australia has taken on such a first responder role, even in Queensland where Ambulance and Fire Services are both part of the State Department of Emergency Services. (In other states, they are in different Government Departments: generally *Health* for Ambulance and *Emergency Services* for Fire)

**References:**

Cardiac Arrests treated by Ambulance Paramedics and Fire Fighters, Smith K, McNeil J; Medical Journal of Australia Vol 177, 2002, p305–309

First Responder Program details and annual report are on MFB public website [www.mfb.org.au/default.asp?casid=585](http://www.mfb.org.au/default.asp?casid=585)

Firefighter Emergency Medical Response Report 2005/6 et al. [www.mfb.org.au/asset/PDF/EMRReportFINAL\\_27Jan.pdf](http://www.mfb.org.au/asset/PDF/EMRReportFINAL_27Jan.pdf)

## First Responding in Canada

15. As in Australia, the statutory ambulance response for medical emergencies is provided by provincial government-funded organisations.
16. In some provinces, like British Columbia and Nova Scotia, a single province-wide ambulance service operates. In others, like Ontario and Quebec, the province provides funding, coordination and regulation for local operators of ambulance or Emergency Medical Services (EMS).
17. Fire Services are local authority funded in Canada, unlike the Ambulance Service. They were frequently a part of the former patchwork of ambulance service provision. So, in British Columbia for example, 40 metropolitan Fire Services provided ambulance services before the 1974 introduction of the statewide ambulance service. They continued to do so until 1980 when the statewide ambulance service was fully implemented.
18. In **British Columbia** in 1989, as a result of a coroner's report, a first responder program was created to complement and supplement the statutory ambulance service's response capability. Local Fire Services and Police Services were encouraged to participate in this program, although it is not a legal requirement for them to do so. (Fire Services are responsible for paying firefighters when called out as first responders; the ambulance service pays for their training)
19. Now there are over 5000 fire and police personnel trained as first responders in British Columbia (compared with 3000 ambulance paramedics in the 191 stations of the statewide ambulance service).
20. In **Nova Scotia**, the introduction of a province-wide ambulance service came later, in 1995. As in British Columbia, previous first response for medical emergencies came from a patchwork of 50 private and public ambulance operators, including fire services.
21. Now there are about 1000 ambulance officers in the statewide ambulance service. They are supported in rural areas by volunteer 'medical first responders'. There are 2700 of these volunteer responders currently. Most of these responders are members of volunteer fire services in rural areas, and fire trucks are used for response. Some, but not all, have defibrillators.

22. In **Alberta, Saskatchewan, Manitoba, Ontario and Quebec**, the larger municipalities provide the statutory ambulance service, with funding and regulation from the provincial government. The larger municipalities also run their own Fire Services. In Winnipeg (Manitoba) the Fire Service provides the ambulance service through its (separate) *Fire Paramedic Service*.
23. With the exception of Winnipeg, these city Fire Services now provide a 'first response' capability to support the work of the city ambulance service. In Toronto, for example, half the incidents the Fire Service responds to are medical calls. In Montreal, where the Fire Service first response capability was only introduced in 2007, the authorities anticipate it will respond to 45,000 medical calls and save 90 lives annually when fully operational.
24. Elsewhere in these provinces, there is a patchwork of local ambulance services with local volunteer fire services providing an additional first response capability in some places, as in Nova Scotia.

Refs:

[www.ehsmfr.ca](http://www.ehsmfr.ca)

[www.health.gov.on.ca/providers/progra,/ambul/ehs](http://www.health.gov.on.ca/providers/progra,/ambul/ehs)

[www.fcabc.bc.ca/FR.htm](http://www.fcabc.bc.ca/FR.htm)

[www.hlth.gov.bc.ca/bcas/overview](http://www.hlth.gov.bc.ca/bcas/overview)

[www.cbc.ca/canada/montreal/story/2007/02/01qc-firstreponder](http://www.cbc.ca/canada/montreal/story/2007/02/01qc-firstreponder)

[www.content.calgary.ca](http://www.content.calgary.ca)

[www.winnipeg.ca/fps](http://www.winnipeg.ca/fps)

## First Responding in the USA

25. The evolution of ambulance services in the USA differed from that of Canada, Australia, and the UK. Before it became a statutory requirement in the USA that ambulance services were made available, they were provided by a wide range of organisations including private ambulance services, undertakers, garages, fire services and the police. Consequently, when provision of ambulance care became mandatory a large number of different models of service provision were implemented. Although these included the 'third emergency service' model familiar in the UK, many municipalities elected to continue to fund ambulance provision through their fire departments.
26. Now the statutory ambulance service is most commonly provided by Fire Departments in metropolitan areas (90% of cities surveyed in 2006), using fire trucks or purpose-built ambulances. Fire service ambulances will also transport patients to hospital in nearly 40% of these municipalities, with private or hospital ambulances transporting most of the remaining patients.

27. Even where the fire service is the mandated provider, a number of different models of provision exist. Some operate their ambulance division as a separate entity – the ambulances are staffed by career paramedics, not firefighters who are also qualified as paramedics, and there is little exchange between the two sectors of the organisation. In others, a proportion of staff rotate through ambulance and firefighting roles. In either approach, paramedic level ambulances may be supplemented by firefighters on fire trucks providing a first response – some or all of the individuals on fire appliances may be trained to first responder, emergency medical technician (ambulance technician), or paramedic grades.
28. The most extreme example of tiered response is in Salt Lake City, where an apparently serious medical emergency will attract the response of the nearest fire engine staffed by emergency medical technicians, *and* the nearest fire engine staffed by at least one paramedic, and a private ambulance which may be staffed by emergency medical technicians or paramedics.
29. Community responder organisations and other agencies provide a first responder service that complements the primary ambulance response role of the Fire Service in many cities. A third of law enforcement agencies routinely respond to medical emergencies (but with little more than a third of these equipped with defibrillators).
30. In smaller municipalities, fire services are largely volunteer. Most of them also provide a medical first response, with private or hospital-based ambulance services providing transport.

Refs:

[www.jems.com](http://www.jems.com) February 2006 Survey of EMS in US Cities

[www.metrokc.gov/health/ems](http://www.metrokc.gov/health/ems)

Hawkins, S, Shapiro, A, Sever, A, Delbridge, T, Mosesso, V,  
The Role of Law Enforcement Agencies in Out-of-hospital Emergency care,  
Resuscitation (2007) 72, 386–393.

## First Responding in Europe

31. The primary responsibility for provision of an ambulance response to medical emergencies in Europe varies. In Germany, Austria, Sweden, France and Finland the responsibility lies with municipal or provincial governments. In Ireland, Denmark and Holland, the National Health Service Executive provides the primary ambulance coverage through regional structures. In Greece, Spain and Norway, ambulance services are less universal and rely more on hospital, private or non-profit services, especially outside metropolitan areas.
32. Where municipalities or provincial governments have primary responsibility, the organisation most often charged with providing an ambulance service is the Fire Service, although non-profit companies and private ambulance services are also important. Thus in Germany, the primary ambulance

response is the responsibility of Municipal Fire Departments who may sub-contract to St Johns Ambulance, other non-profit organisation or private companies, depending on the municipality. (There are over 25,000 such municipalities, each with its own fire brigade.) In the large cities, the fire service paramedics are supported by mobile emergency physicians ( called *Notarzt*).

33. In France, provision of ambulance services is the responsibility of the 100 provincial *Departments*, who each have a SAMU (a hospital-based Emergency Medical Assistance Service) that can deploy either a Fire Service ambulance or a mobile specialist team including a doctor, for life-threatened cases. Over 60% of calls answered by Fire Services in France are for such medical emergencies. In Paris, this function is taken over by the national government: the Fire Brigade de Paris (BSPP), is a branch of the Army, and includes emergency response for national government officials in its role, as well as first responding to fire and medical emergencies involving the general public.
34. In Sweden, ambulance services are provided by 21 county councils, often sub-contracted to private operators, with increasing central government regulation of skills and training standards.
35. Where national governments have established organisational structures for ambulance provision, they have generally been free-standing ambulance services. Thus in Ireland, the national ambulance service is organised in eight health regions. In the Netherlands, the government established the regulatory framework but the 25 regional ambulance services may be provided by either public or private organisations. In Denmark, one private company, Falck, is contracted to provide 85% of all emergency ambulance services.
36. Secondary organisations that supplement or complement the statutory provider of ambulance services are uncommon in most European countries. Dublin, Ireland is an exception – it has two ambulance services, one run by Dublin Fire Brigade and the other under the National Government's Health Executive. All Dublin firefighters rotate through the fire brigade ambulance service as part of their career progression, providing a large pool of staff available to respond to major incidents or rescues. Ireland is also developing community first responders to supplement the statutory ambulance response in rural area. This has not involved Fire Services to date.

Refs;

[www.ambulancezorgnederland.nl/publiek/english](http://www.ambulancezorgnederland.nl/publiek/english)

[www.irishambulance.net](http://www.irishambulance.net)

[www.irishfireservices.com/pages/dfambulance](http://www.irishfireservices.com/pages/dfambulance)

Breen, N; Woods, J, et al, A national census of ambulance response times to emergency calls in Ireland; J. Accidental Emergency Medicine, 2000, v17 p392–395

Ireland HSE Corporate Plan 2006 – Ambulance Services  
[www.hse.ie/en/publications/HSE](http://www.hse.ie/en/publications/HSE)

[En.wikipedia.org/wiki/emergency\\_medical\\_services\\_in\\_germany](http://En.wikipedia.org/wiki/emergency_medical_services_in_germany)

[En.wikipedia.org/wiki/SAMU](http://En.wikipedia.org/wiki/SAMU)

[www.amspp.org/smu](http://www.amspp.org/smu)

Langhelle, A; Lossius, HM, et al, International EMS: the Nordic Countries Resuscitation v61, 2004 p9–21

Fabbri, A; Marchesini, G et al Monitoring Intervention programmes for out-of-hospital cardiac arrest in a mixed urban and rural setting. Resuscitation, v71, 2006 p 180–187

## Synthesis of Findings on First Responding Around the World

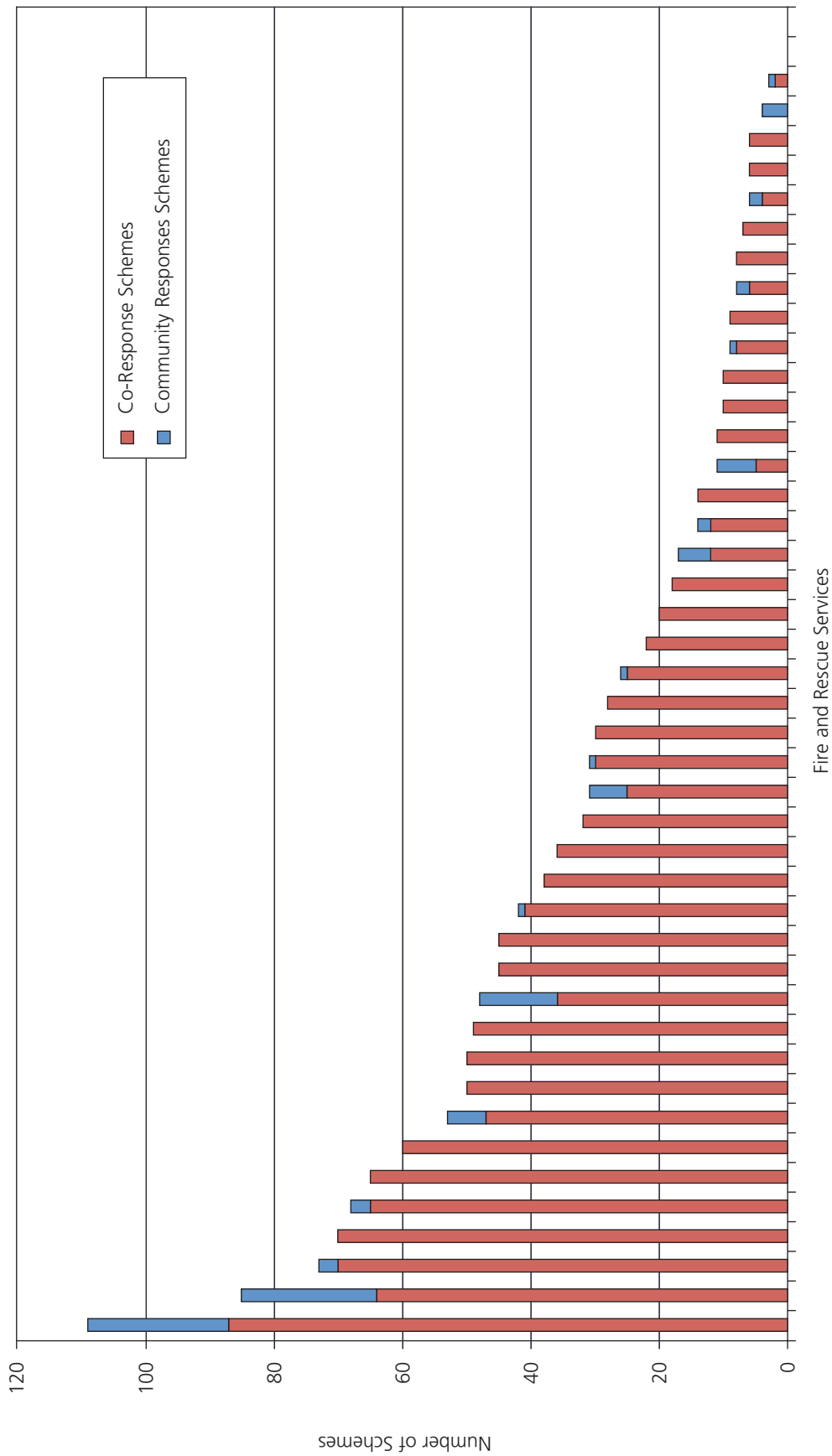
37. There is a wide variety of ambulance service provision across North America, Europe and Australia. In parts of each country, Fire Services play a role, sometimes as the statutory provider of ambulance services with full-time staff dedicated to such medical emergency work, as in the USA, France, Holland and in Germany; sometimes in a supplementary role to the statutory ambulance service, as in Dublin; and often in a complimentary role as first responders supporting a separate statutory ambulance service, as in Canada and other parts of the USA and Europe.
38. The supplementary response role that Fire Services play in parts of the USA, Canada and Australia, equivalent to the co-response role in UK is most commonly a feature of rural areas. However there are some notable metropolitan exceptions, some long-standing, like Melbourne and Montreal; some more recent, like Toronto.

# Appendix 8 Supporting Analysis

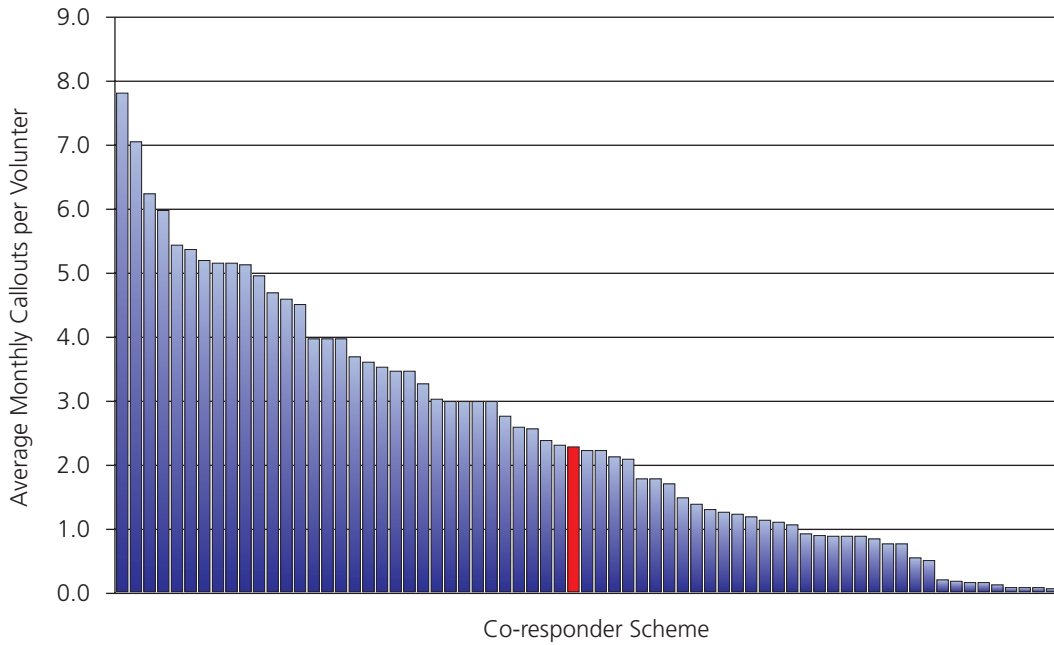
Information in the supporting analysis comes from three major sources:

- FRS liaison officers contacted in each Service
- Ambulance Service CAD data for each county
- Ambulance Service and FRS liaison officers for each Service for details of co-response call-outs and community first response schemes.

Appendix 8.1: Co-Response & Community First Response Schemes by County



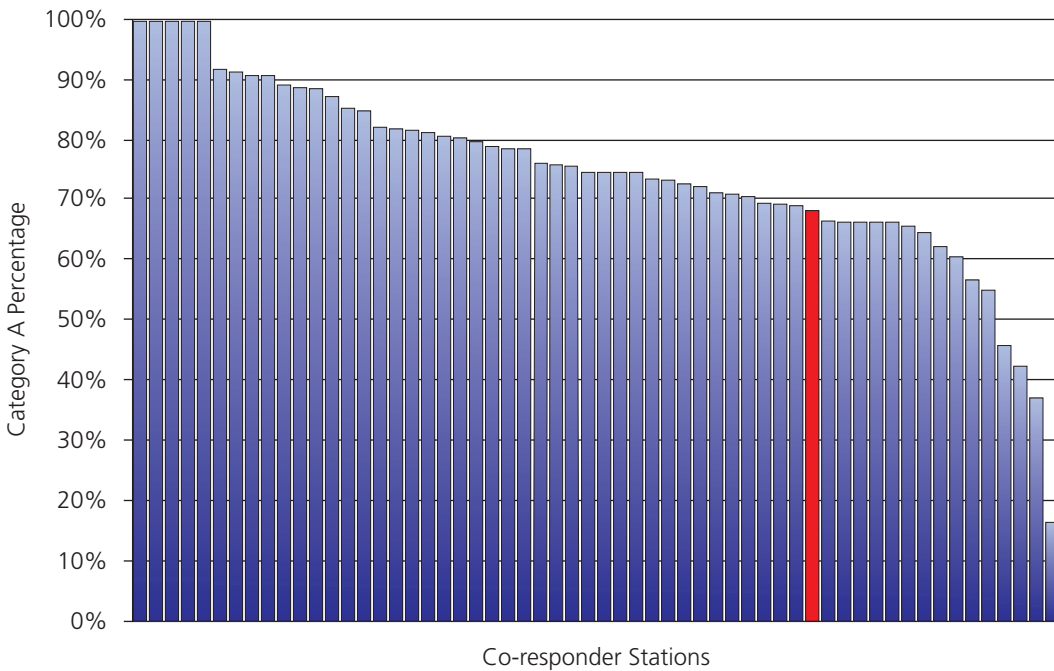
**Appendix 8.2: Average Monthly Callouts per Trained Officer/Volunteer**



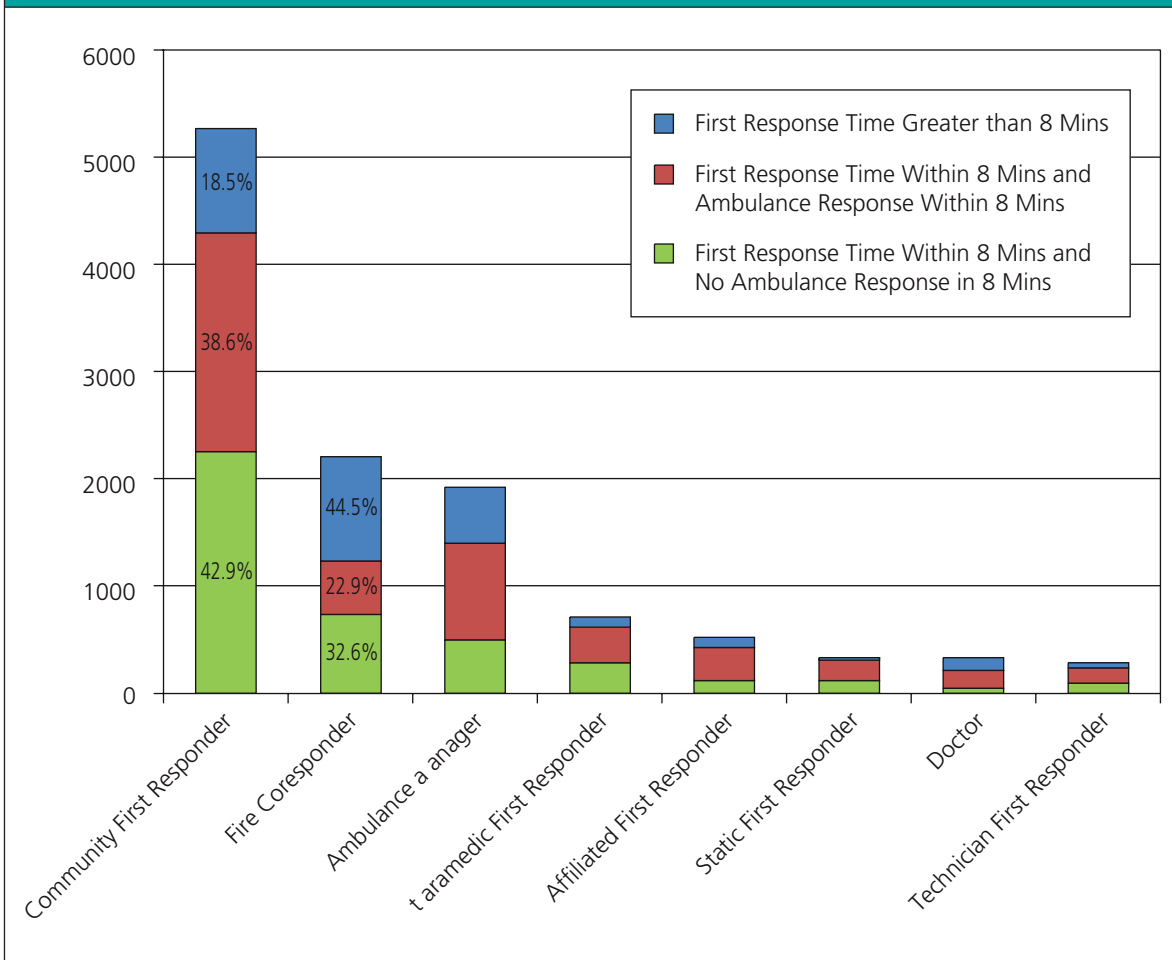
**Notes:**

Based on information supplied by FRS liaison officers from 19 counties with co-responding schemes. Data on number of call-outs and trained staff in 70 schemes. Red bar shows average for those 70 schemes.

**Appendix 8.3: % Co-response Calls Classified as Category A**

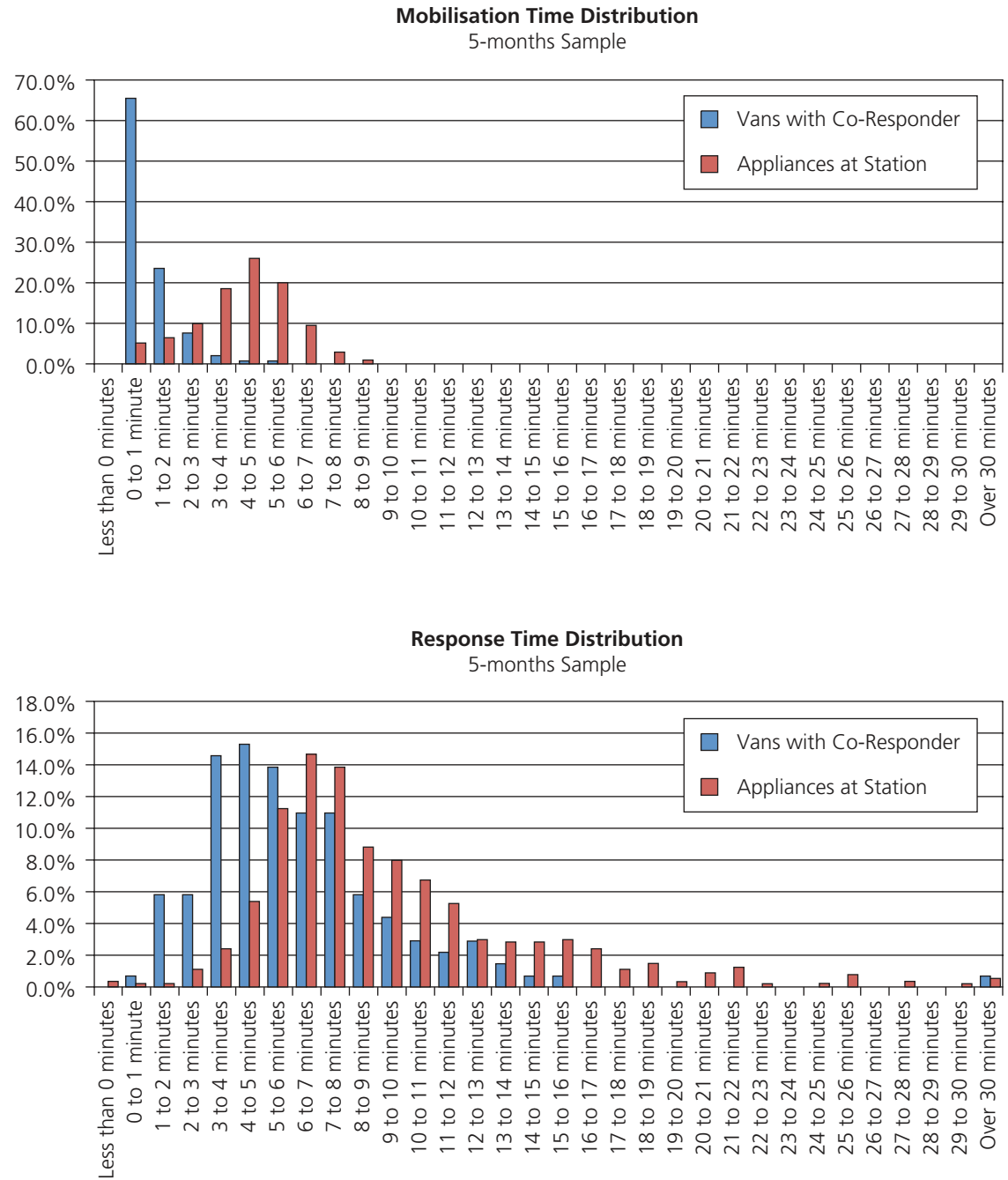


Appendix 8.4: First Responder Contribution To Ambulance Response in One Service 2006/7



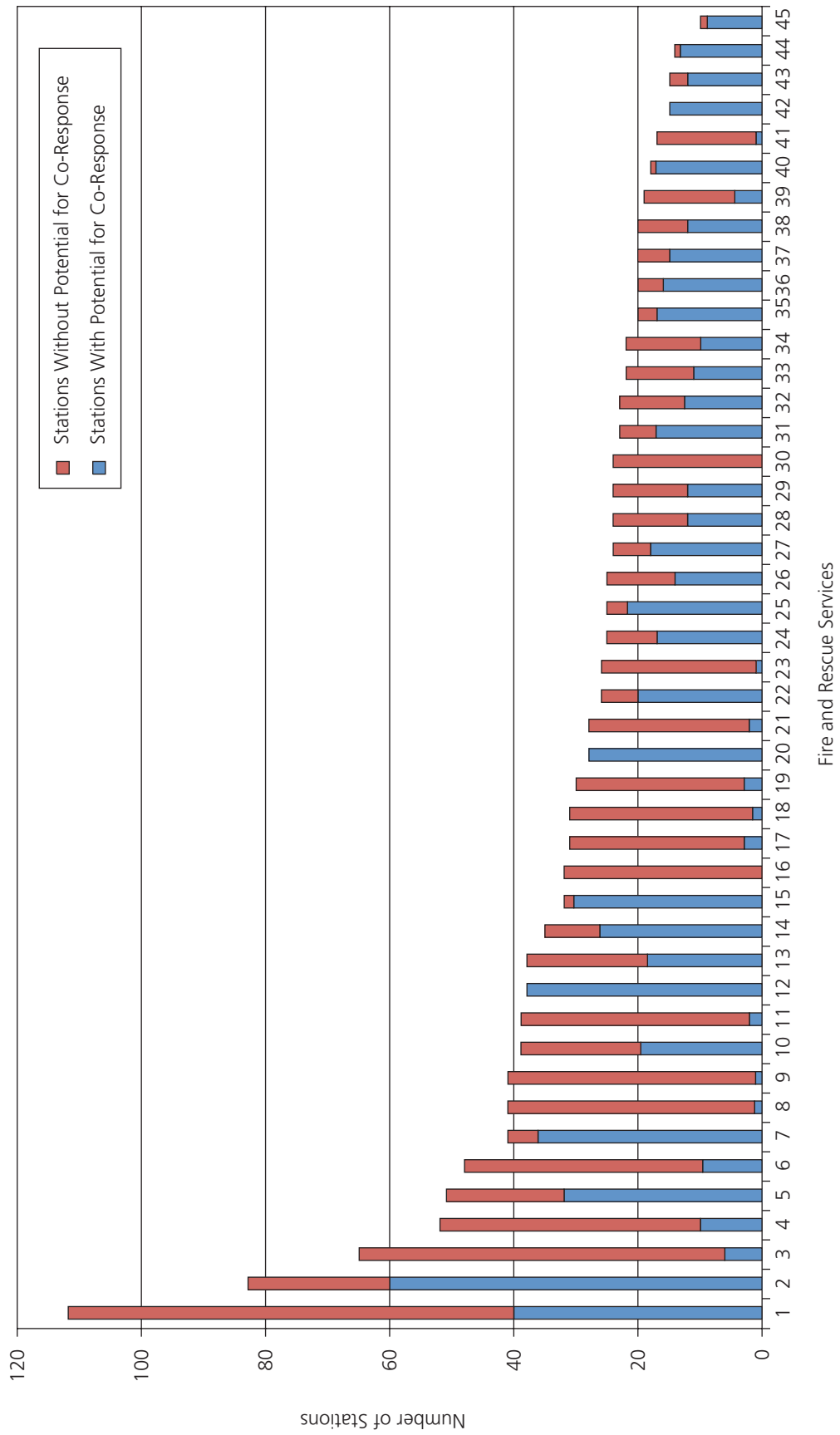
**Appendix 8.5: Co-Response Using Vans with Co-Responder at Home versus Fire Appliances at Stations**

**Comparison of Mobilisation & Response Times**

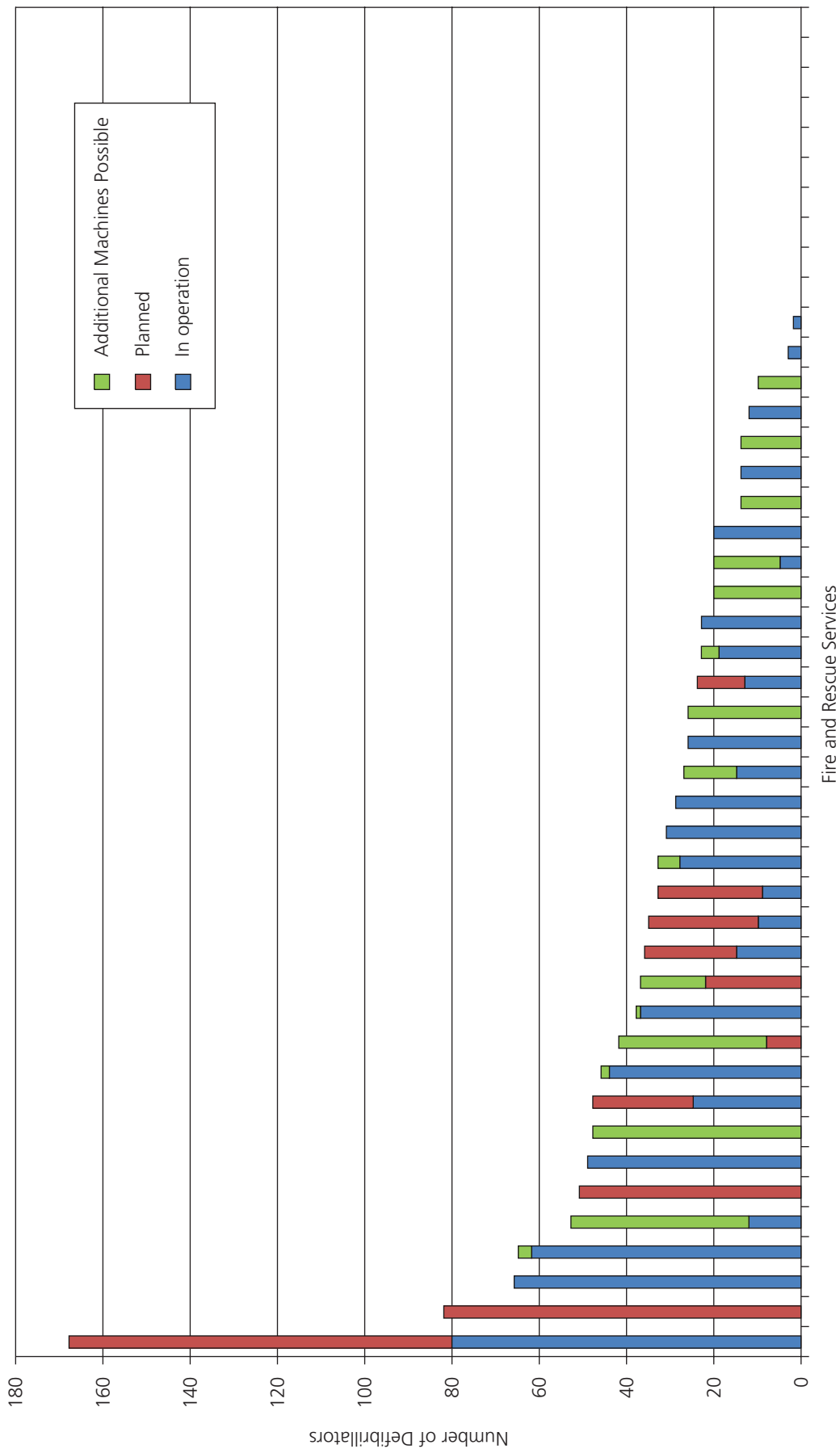


**Note:** Based on ambulance CAD information from two counties with different mobilisation arrangements.

Appendix 8.6: FRS Liaison Officers' Opinion On Stations Where Co-Response Could Be Considered



Appendix 8.7: Fire Service Defibrillators Not Part of Co-Response



**Note:** Information and opinions provided by liaison officers in each FRS.



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