Initial experience in setting up a medical student first responder scheme in South Central England

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ABSTRACT
Prehospital emergency medicine (PHEM) is a recently recognised subspecialty of emergency medicine, and anaesthetics, intensive care and acute medicine, in the UK, and yet it receives little to no mention in many undergraduate medical curricula. However, there is growing interest in PHEM among medical students and junior doctors. Several programmes are in existence across the UK that serve to provide teaching and exposure of prehospital care to medical students and junior doctors. However, relatively few students are able to gain significant first-hand experience of treating patients in the prehospital phase. In this short report, we discuss our experience of launching the student first responder (SFR) scheme across three counties in the Thames Valley. Medical students are trained by the regional ambulance service and respond to life-threatening medical emergencies in an ambulance response vehicle. The scheme is likely to benefit the ambulance service by providing a wider pool of trained volunteer first responders able to attend to emergency calls, to benefit patients by providing a quick response at their time of need, and to benefit medical students by providing first-hand experience of medical emergencies in the community. In its first 15 months of operation, SFRs were dispatched to 343 incidents. This scheme can serve as a training model for other ambulance services and medical schools across the UK.

INTRODUCTION
Prehospital emergency medicine (PHEM) is a medical subspecialty to which it has been suggested some medical students and junior doctors would like to receive greater exposure.1–3 A novel prehospital care programme was introduced in London in 2008.4 However, few programmes exist specifically for medical students providing the opportunity to deliver hands-on care in the prehospital setting.

We describe a novel scheme providing medical students with direct exposure to prehospital care. The student first responder (SFR) scheme is a partnership between the University of Oxford Medical School and South Central Ambulance Service NHS Foundation Trust (SCAS) wherein medical students volunteer for the ambulance service as SFRs. In this role, medical students respond to life-threatening medical emergencies in the Oxfordshire, Berkshire and Buckinghamshire communities.

In this short report, we describe our initial experience in setting up the SFR scheme and present initial service evaluation audit data.

From community first responders to SFRs
Ambulance services introduced community first responder schemes initially to improve outcomes in out-of-hospital cardiac arrest. Given appropriate training, however, members of the community can also provide interventions to patients suffering other medical emergencies.

Collaboration between medical schools and their local ambulance services is mutually beneficial. By training medical students as first responders, ambulance services are likely to benefit from having an additional pool of trained volunteers, patients should benefit by increasing the chances of their receiving the care they require in their time of greatest need and students may benefit through first-hand exposure to prehospital care. While only a limited number of medical students will become PHEM doctors, the experience of ‘arriving first’ to critically ill patients may prepare students well as they graduate to become doctors. Recent research has shown that few medical school graduates feel confident in the management of acutely unwell patients.5 Having been tasked with managing acutely unwell patients out-of-hospital previously, graduates of the SFR scheme may be better prepared when these situations occur in-hospital, provided that appropriate debriefing and clinical governance procedures are in place. By attending clinical governance meetings at which cases are discussed and further education provided, students will also be expected to take a more active role in clinical governance activities that underpin modern practice in the NHS than they would have if not part of such a scheme.
responders and patients. The algorithm shown in figure 1 aids dispatchers in assessing whether or not to deploy SFRs.

On arrival, the SFRs provide immediate medical care to support patients until the arrival of a SCAS clinician. The primary role of the SFRs is to undertake a primary medical assessment and initiate basic treatment. Information may also be fed back to ambulance control Clinical Support Desk to help inform prioritisation of emergency ambulance dispatch when onward patient transport is required. SFRs are always backed up by another SCAS resource and no autonomous decision-making about patient disposition or treatment is made other than initiating basic life support or defibrillation (see table 1).

Once another ambulance service resource arrives, students continue to assist the clinicians as well as speaking to relatives or bystanders on-scene.

After each patient contact, SFRs receive a telephone call from the Emergency Operations Centre to check on their welfare, verbally confirm running times and availability for further dispatch and to thank them for their assistance. In the event that the SFRs have attended a serious and/or distressing emergency, the Community Liaison and Training Officer will also make contact with the SFRs to arrange appropriate debriefing.

METHODS

Data on the number of students participating in the SFR scheme were obtained from SCAS records. SCAS data were also obtained to determine the number and type of incidents to which SFRs were being dispatched. These data were obtained as part of an audit of clinical service development and ethics approval was therefore waived after discussion with senior members of SCAS Clinical Directorate.

RESULTS

Thirty-four SFRs were initially trained in June 2013, with a further 64 trained in the following 12 months. Also, 15 out of the pool of 98 (15%) SFRs in this period proved unable to meet the minimum shift commitment per month (one 4 h shift per month) and are, therefore, no longer active on the rota. Therefore, the size of the SFR group as of August 2014 was 72.

In the first 15 months of operation (June 2013–August 2014), SFRs were dispatched to 343 incidents (see figure 2).

In order to evaluate the impact that being an SFR has had on junior doctors who have now graduated from the scheme, an electronic survey was carried out in April–May 2015 of all Foundation Doctors who had been members of this SFR scheme during their time at medical school.

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Table 1 Equipment carried by the SFRs

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<tr>
<th>Equipment</th>
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<tbody>
<tr>
<td>Airway</td>
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<td>Oropharyngeal airways</td>
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<tr>
<td>Nasopharyngeal airways</td>
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<td>Suction</td>
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<tr>
<td>Breathing</td>
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<tr>
<td>Oxygen saturation sensor</td>
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<tr>
<td>Oxygen delivery (including bag-valve-mask ventilation)</td>
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<tr>
<td>Circulation</td>
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<td>Automated sphygmomanometer</td>
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<tr>
<td>Automated external defibrillator</td>
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<tr>
<td>Aspirin (for cardiac chest pain)</td>
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<td>Disability and exposure</td>
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<td>Blood glucose sensor</td>
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<tr>
<td>Temperature sensor</td>
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<td>Basic wound care kit (bandages and dressings)</td>
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<td>Nitrous oxide (Entonox) analgesia</td>
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SFR, student first responders.
**Figure 2** Bar chart showing categories of calls to which student first responders were dispatched between June 2013 and August 2014.

**Figure 3** Column chart showing 15 student first responder (SFR) graduates’ opinions on various statements asked in an electronic questionnaire sent in April 2015 (1=strongly disagree; 5=strongly agree; mean values presented).
It is worth noting, however, that the students will have been ‘stood down’ from a proportion of these calls.

Electronic surveys were sent to 32 graduates of the SFR scheme currently working as Foundation Doctors. Complete responses were received from 15 (47%). The results are shown in figure 3.

DISCUSSION
The SFR scheme has proved a popular addition to medical school with successful recruitment and retention of students.

The results of the electronic survey suggest that students benefit from participation in the scheme. Indeed, 93% of respondents ‘strongly agreed’ with the statement that the experience they gained as SFRs helped them manage acute medical emergencies in hospital. In addition, 87% and 93% of respondents ‘strongly agreed’ with the statements that their prehospital SFR experience has helped develop their communication skills with patients’ relatives and other healthcare professionals, respectively.

Overall, 100% of medical students surveyed ‘strongly agreed’ with the statement that they would recommend the SFR scheme to current and future medical students.

The General Medical Council, indeed, in its 2014 quality assurance inspection of Oxford University Medical School, identified the SFR scheme as an area of ‘good practice’ and suggested that the model should be shared with other medical schools.

Further development of the SFR scheme will bring additional benefits
The possibility of training preclinical students to be mentored by senior clinical students is being explored. This would allow senior students to gain experience of teaching and mentoring as well as increasing the size of the SFR volunteer pool. In addition, collaboration with other higher education institutions and their healthcare students will provide the opportunity for medical students to learn from paramedic and nursing students and vice versa. Prehospital care is increasingly being delivered in multiprofessional clinical teams, and introducing multidisciplinary working at an early formative stage in medical student training, in a well-governed and established system, is likely to be of benefit in helping to shape professional development and inform future medical career choices.

CONCLUSION
We have described a scheme providing medical students with hands-on exposure to prehospital care in a safe and well-governed system. Having been in operation for >1 year, SFRs have been tasked to 343 patients suffering possible life-threatening emergencies with several patients receiving successful out-of-hospital defibrillation. As well as benefiting patients, the scheme also helps the ambulance service to deliver a timely response for time critical emergencies such as cardiac arrest, especially in more rural locations and at times of high demand. Our results also suggest that the scheme is benefiting medical students in terms of preparation for managing emergencies in hospital, as well as providing significant prehospital exposure for those interested in considering PHEM as a future career option within the ambulance service.

Contributors The student first responder scheme was conceived by DE, WHS and SG in 2013 and has been managed by these authors since its inception with the active support of JJMB and all of South Central Ambulance Service NHS Foundation Trust. JJMB conceived this article. WHS wrote the first draft, which was subsequently reviewed by all authors. JJMB is the guarantor of the article.

Competing interests WHS, SG, DE and JJMB were all involved in the conception and launch of the student first responder scheme.
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REFERENCES