

Role of networks in supporting emergency medicine research: findings from the Wessex emergency care research network (WECReN)

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This paper reports on the activities and experiences of the network and makes recommendations for the role of such networks in emergency medicine research.

The importance of evidence based medicine in improving clinical care has been emphasised significantly in recent years.¹ Opportunities to conduct research within emergency care, however, have been restricted by time and financial constraints as well as a lack of a research tradition.² Research networks in primary care have enabled healthcare professionals to conduct research despite similar difficulties.³ Recognising this as a possible approach to developing and providing support for research in emergency care, funding was sought to develop a local emergency care network. With funding from the Southampton University Hospitals' Trust Strategic Research Fund, the Wessex Emergency Care Research and Development Network (WECReN) was launched in October 2001. This paper reports on the activities and experiences of the network in its first year. Reflections and recommendations on the role of networks in the support of research in emergency medicine are provided.

THE NEED FOR RESEARCH IN EMERGENCY MEDICINE

The organisation and delivery of emergency services has been the subject of much scrutiny and change in recent years. Reports such as the Audit Commission's review on accident and emergency departments⁴ and the Department of Health's publications on Reforming Emergency Care⁵ further emphasise the need for high quality research on current service provision and mechanisms for service development and improvement. In addition, clinical governance necessitates effective dissemination of evidence to ensure that clinicians access the most up to date evidence from research.⁷

While emergency medicine research has been successfully developed in the

USA, it is still in its infancy in the UK.⁸ Funding is increasingly being awarded to emergency care research, but it is still some way from being a research discipline in its own right. This is attributable not only to a lack of research tradition, but also to a series of constraints and obstacles to emergency care research in the UK.

LIMITATIONS FOR RESEARCH IN EMERGENCY MEDICINE

As commentators have highlighted, the nature of emergency medicine presents certain challenges that restrict the potential for engaging in research. Many of these difficulties are generic to health research (such as time and education), while others are specific to emergency care. From a US perspective, Aghababian *et al* cited limited funding, a lack of institutional support, and little experience or training in research methods as being significant barriers to emergency medicine research.⁹ Similar issues have been noted within the UK,^{2, 8} particularly with the "high pressured, immediate, emotional, and often overburdened" environment of emergency medicine.²

Research in emergency medicine in the UK has also been affected by a centralisation of research expertise. Opportunities to obtain research advice and support in academic centres are comparatively high while emergency departments not in academic centres are unable to utilise the same level of expertise.² Despite this, a pressure still exists to have research publications to gain a "right of passage" for promotion to clinical posts. This often results in a "quick and dirty" style of research that is lower in quality and proffers fewer opportunities for learning from the research experience. It also perpetuates an image of emergency medicine

research as being less developed than that of other disciplines.²

Ethical difficulties associated with emergency care research also limit the potential for conducting research. Given the nature of emergency department setting, many patients are not in a position to give consent in the traditional way.¹⁰ In particular, where emergencies occur, they require rapid decision making and interventions that do not permit time for explanation and deliberation on taking part in research.¹¹ These factors cumulatively serve to restrict the potential for conducting research in emergency care.

ROLE OF NETWORKS IN EMERGENCY MEDICINE RESEARCH

It has been suggested that conducting research as part of a collaborative team rather than as a sole researcher can effectively overcome many of these practical difficulties.¹² In particular, networks can generate a sufficient "critical mass" to permit high quality research. The concept of "networking" is inherent in clinical governance, necessitating the sharing of professional experiences and the dissemination of knowledge.⁷ Similarly, networking is also integral to emergency care reforms:

'Each Emergency Care lead will form part of an Emergency Care Network. This will help co-ordinate all aspects of the local emergency care system. Emergency care collaboratives will be introduced to cascade knowledge and to spread best practice throughout the service' (DOH, 2001:6)

Networks encouraging and supporting health research are familiar in primary care. Presently, over 40 primary care research networks (PCRN) exist in the UK, which vary considerably in terms of organisation, location, specified aims, and membership (unpublished report Evans D, *et al*, 1997). Some networks are uni-professional and are based in one specified region (such as EyeNet for optometrists practising in London) while others seek to engage with members across disciplines and across broader geographical areas (such as the Wessex Primary Care Research Network that supports all forms of primary care research in Hampshire, Wiltshire, Dorset, and the Isle of Wight). These networks represent a shift in the production of knowledge away from the "natural science research" typified by a lone researcher undertaking research in a linear manner (that is, from generation of hypothesis

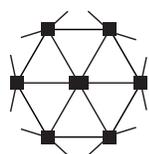
through to dissemination) within a single discipline.³ Rather, networks signify a move towards a multi-professional form of research characterised by a combination of heterogeneous skills and experience. Evaluations of networks have illustrated that they are successful in increasing research capacity and promoting evidence based learning, particularly where there is a low base of research experience.¹³

As emergency medicine is defined by acuity and time rather than specific disease type, the research questions generated are often complex and relate more to service delivery, organisational, social, and economic issues. These questions pose particular challenges necessitating a variety of research methods and disciplines within emergency medicine research¹⁴: a requirement that may be effectively facilitated by a network approach to research. While the concept of networks in emergency care have been welcomed, Foëx *et al* have warned that collaborative working necessitates significant organisation and may be undermined by varying degrees of enthusiasm of those involved.⁸ Similarly, networks can become overly dependent on key people confident in undertaking research such that were they to leave, the network would be at risk from folding.

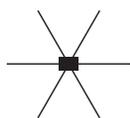
ESTABLISHING A RESEARCH NETWORK

Evans *et al* identified four models of research networks in a review of networking strategies conducted in 1997 (unpublished report Evans D, *et al*, 1997) (fig 1):

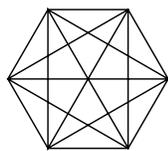
- The crystal model (lacking a defined centre, but characterised by multiple informal relationships)



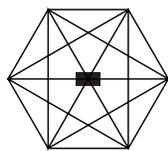
Orbital model



Bicycle wheel model



Crystal model



Carousel model

Figure 1 Four models of research networks (reproduced with permission Evans *et al*, 1997).

- The carousel model (having a defined central unit as well as complex interactive relationships)
- The orbital model (including a centre with coordinated satellite units)
- The bicycle wheel model (being more centralised with little collaboration at the periphery).

The two emergency medicine research networks currently based in the UK (the Emergency Medicine Research Group (EMeRG) based in Birmingham and the Leeds Emergency Medicine Research Group) operate as centralised networks, representing the research expertise located within a few academic centres. In October 2001, a team from the emergency department in Southampton received £35 000 funding to establish a research network. An "orbital" model was adopted as it was felt that such a model would be the most effective in decentralising research activity and resources and in promoting relevant research in each of the "outlier" centres (unpublished report, Evans *et al*, 1997). The desire to decentralise was to encourage local ownership and participation in research activity.

The funding was used to employ a full time research assistant for one year to develop and manage the network and facilitate grant applications for funding. Some of the funding was also used to establish a network web site.

The boundary of the network reflected the former NHS region, including Hampshire, Wiltshire, Dorset, and the Isle of Wight. This included A&E departments situated in Southampton, Portsmouth, Basingstoke, Winchester, Swindon, Bournemouth, Poole, Salisbury and Newport, Isle of Wight. Although the network was funded by the Southampton University Hospital Trust and was managed and coordinated through Southampton General Hospital, it was deemed optimal to establish "outlier centres" to encourage research activity throughout the region.

The principles of the network were to encourage and support research beyond academic centres and to ensure that a wide range of experience was represented in the network. It was felt that an inclusive membership, extending to primary care providers and other secondary care departments, would increase the collaborative component of the network and the diversity of skills and expertise represented.

The network aimed to identify members from different multi-professional backgrounds based in the former Wessex region who were interested in emergency care research. This would facilitate research by assisting collaboration and recruitment in research

projects. In addition, the network aimed to determine members' research priorities and use this to guide future funding applications. The network would therefore promote multi-centre research projects as well as supporting and assisting members' own individual projects. The network would also serve as a means of disseminating current knowledge and best practice to members as well as providing one to one advice to members on appropriate funding sources and where to access educational support.

Advertising for the network was undertaken by writing and distributing leaflets to all emergency departments in the former Wessex region and by establishing a WECReN web site.

FINDINGS FROM THE FIRST YEAR Membership

Within 12 months of establishing the network, WECReN had been able to involve representatives from nine hospitals in the former Wessex region. Involving a variety of departments meant that the network consisted of a diverse range of emergency departments in terms of size, structure, and experience. In addition, representatives from local emergency departments would potentially provide an effective means for recruiting participants in research projects.

The network recruited in excess of 60 members, 42 of whom work within an emergency setting as nurses, consultants, registrars, etc. Other members included primary care health professionals and related professions, such as paramedics and ambulance staff. However, the degree to which people have actively participated in the network has varied considerably. It became apparent that only certain core members with an active interest in research and development consistently participated with the network.

Three grant applications were completed over the first 12 months, none of which were successful. However, these funding applications would not have occurred without the network. Several A&E departments collaborated with these projects by agreeing to recruit participants from their department upon a successful outcome to the funding application. The success of one of these applications may have focused the activities of the network and help bind it together. All the lead investigators on the proposals were based in Southampton, thus undermining the "orbital" approach that was desired. More successful were the local network projects, including an assessment on the research priorities of professionals working within six emergency care departments and a pilot study into user

perceptions and experiences of A&E services, the results of which will be published in the near future.

Administration

Three steering meetings were established involving representatives from each of the member departments and from primary care. Because of constraints of time and financial resources, it was evident that regular face to face meetings were not the most effective means of steering the group. Consequently, it was decided that a more "virtual" format for the network would be preferable, establishing two web sites: one to advertise WECReN and the other to provide online discussion. The aim of the discussion site was to discuss research problems, share research ideas, and provide a means of disseminating evidence to answer specific queries.

Challenges

In the network's first year, certain challenges were experienced. Firstly, research remained centralised to those institutions and people with particular research experience and interests. There was an expectation therefore among members that research active people would lead the research, which was at a variance to the initial intentions of the network to decentralise research activity and encourage research among those with less experience. The support required to develop research questions, formulate ideas, and develop proposals had been underestimated and was not realistic in the time frame available. Other groups seeking to establish networks should consider a two year time frame for establishment and securing sustainable funding.

Insufficient time was also a considerable limiting factor that discouraged involvement in research. Many health professionals were unable to take the necessary time out of their work to attend meetings or take a greater role in research projects. Similarly, certain health professionals could not commit to attending research events because of the possibility of last minute change of clinical rotas. However, members were happy to be involved in data collection as they could fit this within their usual work routine. Finally, remuneration for research activities was also important. For staff to get involved in research and attend research related events, it became apparent that funding had to be available for their time and travelling expenses. When seeking funding for research networks, consideration should be given to sessional release of network members to conduct research and participate in network opportunities.

DISCUSSION

While the orbital model was the ideal of the network, in reality the network never effectively moved beyond a "bicycle wheel" (see fig 1) approach (unpublished report Evans D, *et al*, 1997). In other words, while the intention was to maintain a centralised coordinating unit and to support satellite units at each participating hospital, members' liaised with the Southampton team only and not with other health professionals in their immediate area. Active involvement in research, as Good and Driscoll warned, remained focused in those departments who were situated in close proximity to academic centres.² It was evident that the reasons for limited involvement from other departments were related to those factors discussed earlier: namely, a lack of finance, minimal education and training opportunities, a lack of enthusiasm, and little available time to undertake research restrict opportunities to get involved in research.^{2,8,9}

Networks, as Griffiths *et al* highlight, offer a supportive framework in which high quality research can be undertaken and disseminated, permitting a sharing of experience and expertise, facilitating recruitment, and making professionals more research aware.¹³ However, for networks to be as successful, there needs to be a "critical mass" of enthusiasm, energy and research ideas emanating from network members. It was evident from WECReN, however, that this critical mass was not attained and thus the network was too dependent on a few research active people. This placed the network in a vulnerable situation for when these people were not present. The ability of the network to support and encourage research was severely affected.

It was also evident that for networks to be successful, sufficient funds have to be made available to provide appropriate educational events. Furthermore, the working practices of health professionals need to be restructured to enable staff to take "time out" to conduct research and to attend research events. This may usefully be incorporated into the development of emergency care networks⁶ ensuring that practice developments and service redesigns are subjected to rigorous evaluation and testing and that we prevent the situation of re-inventing wheels where some of the answers lie in previously published work.

More generally, for research networks to run effectively, a "maturation" process is needed to allow members to accrue sufficient confidence and experience in research, and thus to contribute more actively in the network. Only then

would the sharing of heterogeneous skills and experience that is described by Fenton *et al* as a hallmark of effective research networks, be possible.³

CONCLUSION

Networks provide an important means of promoting and supporting research in emergency care as well as facilitating dissemination of evidence based practice, but by themselves do not deliver research. A network provides the potential benefit of dividing workload and multiplying opportunities and expertise. However, this needs to be supported by sufficient enthusiasm, energy, and a research agenda. Educational and financial resources also need to be available to encourage research among health professionals with little research experience. Two ways of developing research networks emerge from our experience. Firstly, the establishment of a network on a needs basis—that is, around a specific research project—seeking out interested clinicians and academics. Secondly, establishing a network of research interested people, who use it regularly to collaborate on research projects. Using discrete short projects, with the latter approach, may be beneficial in the research maturation process and help to build confidence in participating departments, creating a culture of independence from a central department.

Our experience suggests that research networks are more likely to get up and running if there is a committed multi-professional group who already have an existing research agenda that a network would help to achieve. Networks lacking such an agenda and hoping it will emerge from within the network may be less likely to succeed.

We would welcome communication from other groups about their experiences.

CONTRIBUTORS

RC and MC conceived the idea, sought funding for and worked with DW to develop WECReN. DW drafted the paper, both RC and MC critiqued and developed the paper. RC and MC act as guarantors.

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