SDO Protocol – project ref: 09/1005/01
Version: 01
Date: 17/08/2010

A Scoping Study of Emergency Planning in Health Care R&D Needs

Chief investigator: Professor Simon French

Sponsor: University of Manchester

Funder: SDO Programme

NIHR Portfolio number:

ISRCTN registration (if applicable):

A Scoping Study of Emergency Planning in Health Care R&D Needs

Research Protocol: Version 1.1

Overall Project Aims

The overall aims of the project are to conduct a state of the art review of emergency preparedness in health care, drawing in learning and experiences from the local, regional, national and international contexts, particularly in health care but extending into other forms of crisis. The review will identify good practice, gaps in current knowledge and concerns about current practices and produce a prioritised R&D agenda for addressing these. The perspectives and needs of a wide range of stakeholders will be drawn into the analysis.

Methods

The project will use a range of methods to survey current research and best practice in emergency planning in healthcare, being careful to explore the wider context of more general crisis response and management both in the UK and overseas. Because this is an exploratory study this protocol recognises that the research plan is necessarily flexible, allowing us to target some of our later investigations on those areas of emergency management that seem to be of greater concern. While our initial literature review and exploration of current practices will be broad and based on as few preconceptions as is possible, given that we are an experienced research team with acknowledged expertise in emergency planning, management, response and recovery, our later researches will acknowledge our early findings and focus in part on issues and concerns as they emerge. Thus the detailed list of questions for, e.g., the later semi-structured interviews and development of case studies, will seek to elucidate and better identify such issues and concerns.

We note that one of the roles of our advisory group will be to challenge our evolving thinking throughout the project so that our research reflects and addresses broadly agreed issues and concerns and not those that particularly interest the research team.

Under our project plan we shall

- conduct a systematic literature review covering both academic research and professional practice,

- conduct a range of interviews to gather a variety of relevant perspectives,

- examine documentary evidence gathered in debriefing several past events,

- identify and explore in much greater depth responses to 3 or 4 major events and issues, building detailed case studies,

- analyse all these to identify a list of potential gaps and R&D needs,

- run a prioritisation workshop to rank these in rough importance for our final report to NIHR SDO and other interested bodies,

- results will be submitted to the NIHR SDO in a range of interim reports and a full summary report at the end of the study,

- all further publications will be in accordance with NIHR procedure.

Details of each of these are described in greater depth below.

Systematic Literature Review

We will design our literature search by working with the advisory group by agreeing the keywords, databases to be used, how and when we the search should be broadened as we identify further seams of research, etc. Such decisions will be clearly documented. An early task to inform this process will be to search for existing literature reviews relevant to the topic, using a broad set of search terms. The search strategies of such reviews will be used to inform our search strategy. We may also analyse various corpuses of papers, e.g. online conference proceedings to identify potential keywords from word frequencies, and citation searches of selected key citations will also be conducted, using Scopus because of its advanced facilities (if time allows then Google Scholar will also be used for citation searching, because of its broad coverage, including grey literature) (Bosman *et al.*, 2006). Pilot searches will be conducted in order to test out the likely specificity and sensitivity of keyword-based searches, and that the volume of citations found will be manageable. Citations will be saved in Endnote databases and exported to an Access database to facilitate analysis and reporting (Gear, 2002).

The primary data to be extracted from each article obtained will be that which relates to context-sensitive causal explanations (what works for whom in what circumstances) of what constitutes good (or bad) emergency planning (Pawson *et al.*, 2005). This data could be theoretical ideas, or evidence regarding the validity of theories. Background information about the research described in the article will also be extracted (E.g. year, country, subjects etc.) to facilitate mapping of the research (E.g., the year data will enable mapping of the development of theories over time). Since the later stages of the project move into prioritisation, but we shall tag every paper found with how it was found. Those found by systematic searches of databases such as Web of Science or MEDLINE will be so tagged; those found by, e.g., personal but possibly not impartial knowledge of the investigators, but which are not in one of the databases used will be tagged as such. And so forth. This can be done efficiently using the Endnote "change and move fields" facility. When we reach the later stages of our project, we shall use all papers to generate the list of R&D needs or good practice; and we will use our tags to identify the reasons that each has been identified so that we can see the provenance of each. In short, we shall be scrupulous in creating and using an audit trail.

Turning to the literature available to us, we note that Manchester University John Ryland's Library[1] provides outstanding access to electronic and hard copy journals, literature databases and cross referencing materials with strong coverage in the sciences, management and medicine. Moreover, not only do Professors Simon French and Duncan Shaw have a very wide knowledge of the literature and where it exists, they are both currently programme chairs for international conferences in the area: ISCRAM 2010 – Information Systems for Crisis Response and Management in Seattle, May 2010; and InterCEPt – International Conference on Emergency Preparedness in Birmingham, September 2010. Thus they will have access to the latest thinking in the area and pointers to a range of literatures. In addition, during 2010 Professor Shaw is travelling to ten

---

[1] http://www.library.manchester.ac.uk/

countries and during each visit will be meeting ten to thirty emergency managers to provide feedback for another project and data and preprints on emerging results can be made available to this project.

Our literature review will not be limited to emergency planning in health care; we shall survey other relevant material in emergency planning, management and recovery in other domains. One aspect that we believe may be of increasing relevance is the use of social networking tools on the part of members of the public to share information during an emergency. There have been many papers on this topic at previous ISCRAM conferences[2], discussing, e.g., how Twitter and Facebook has been used by students during crises on campus in the US to build and maintain an awareness of what is happening. In addition to the literatures on emergency planning, we also expect to draw in relevant material on human reliability (Adhikari *et al.*, 2008; Maule, 1997; Reason, 1990, 1995) and high reliability organisations (Busby and White, 2008; La Porte, 1996; Roberts, 1990), risk management (Griffiths and Newman, 1996; Horlick-Jones *et al.*, 2001; Hrudey *et al.*, 2006; Shepherd *et al.*, 2006), risk perception and communication (French *et al.*, 2005; Maule, 2004) as well as other literatures suggested by our advisory group.

As our literature review progresses alongside our other research activities such as interviews and critical debriefing of past events, we expect that we shall focus some of our effort on specific literature that elucidates the emerging issues and concerns. We will maintain a timeline and audit trail of our literature review so that it is clear what issues and concerns were apparent at the time that a paper was identified, read and reviewed.

Interviews

We aim to interview some 20 people with key perspectives on emergency management in health care. As will be seen from our advisory group we have already recruited some important 'gate-keepers' to the project; and, of course, one of us, Russell King, was the inaugural chair of the Greater Manchester Acute Trust emergency planners and has many contacts in his own right, both in the Northwest and now in London. Gill Harris is a director level professional nurse with considerable operational experience and has an even wider range of NHS contacts. As risk managers we recognise the need to have further routes to gain access to appropriate individuals and would note that Manchester Business School has many current and recent health care management projects, most notably being part of the NIHR Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester.

We shall select the interviewees to span local emergency managers and responders in London and the North West, both in urban and rural contexts. We shall ensure that we gain input from frontline medical staff in the hospitals, ambulances and general practice, with the option of organising a focus group to gain coverage without extending the number of interviews too far. We shall also seek a public health perspective in the region. Nor shall we limit ourselves to the NHS; we shall seek views from the private sector and NGOs. Further afield we shall seek to interview relevant people in the Department of Health, the Health Protection Agency and the Cabinet Office UK Resilience Unit, ideally in person but if necessary by phone. We will also seek to interview one or more people who understand the differences between the organisation of emergency planning in Scotland, Wales and Northern Ireland. Some of our later interviewees will be selected because they have relevant knowledge of one or more of our case studies, along with more general knowledge of emergency planning and management.

The selection of all interviewees will be made in accordance with the relevant HR procedures of their employers. Once identified, interviewees will be contacted by a senior researcher, and sent an information sheet (Version 1.1, 28th July 2010; enclosed) about the project along with the consent form (Version 1.1, 28th July 2010; enclosed). The form of the

---

[2]   Proceedings of these may be found at www.iscram.org.

interview will be discussed with them, consent requested and the form signed, before the interview is scheduled and conducted. They will be entirely free to decline the invitation to participate. Interviews will be at a location convenient to the interviewee, perhaps their workplace or nearby. We are aware that we need to timetable these interviews flexibly since the interviewee or perhaps Russell King may be called to handle an emergency at the appointed time.

Professors Simon French and Duncan Shaw have many international contacts, as does Prof Bartel van de Walle who will sit on the advisory group. We will identify some interviewees in the Netherlands, which has many parallels with the UK, perhaps Belgium and the US[3] to interview via a teleconference who may provide important comparators.

For all our interviews we shall draft a general list of questions in advance of all the meetings and in advance of each we shall consider carefully how it should be tailored for experience and responsibility of the person concerned. The interview questions and areas to be discussed will be entirely in line with in line with University of Manchester Ethics Procedures and Practice. The interviews will be semi-structured, allowing us to follow up on interesting points that come up. We shall consider using one or more hypothetical scenarios as a potential event or issue to challenge thinking. For instance, we might ask them how they would manage a temperature spike such as occurred in Paris a few years back. For the initial interviews we will address a broad range of issues that span the entire process of emergency planning, management, response and recovery. These issues will be identified by the project team in their initial meetings and further discussed and clarified with the advisory group. As the range of issues and concerns take shape in the early stages of the project we will focus part of each interview on these to clarify and challenge our evolving thinking. We may return to some early interviewees towards the end of the project to gather their perspectives on some of the emerging set of issues and concerns that may not have come up during their initial interview.

While the interviews will not be transcribed verbatim, they will be recorded to allow us to refer back to the primary data during analysis. We will also maintain an audit trail of how the interviewees were identified so that evidence from this stage of the project is 'tagged' in a similar way to that accumulated in the literature review. All data and findings will be anonymised in all published reports and communications from the project.

Critically Debrief on Past Events

In parallel to our literature review we shall examine a selection of internal reports on past events and how they were handled: Gill Harris and Russell King have access to these and will use their contacts across the North West and London to access further ones. Subject to issues of confidentiality, we will use these to identify good practice, on the one hand, and potential issues with current emergency management, on the other. These will provide an alternative perspective on current practices and provide a third[4] base of evidence from which we may triangulate our views (Blaikie, 1991).

We shall arrange that in most cases two investigators read the debriefing material independently and that they do so guided by the 'keywords', issues and concepts identified in planning the literature review. Thus we shall attempt to provide checks that our reading is not partial and that we identify learning points and potential issues in a systematic manner. Again we will maintain an audit trail of how the events were identified and selected. The

---

[3] E.g. at the George Washington University Institute of Crisis, Disaster and Risk Management in Washington DC or the Centre for Technology, Security and Policy at VirginiaTech, Blacksburg, VA, both of which have academics with high level contacts into FEMA and other US emergency planning centres.

[4] Although we realise that triangulation in social science research does not demand precisely *three* independent sources, nor as Blaikie (1991) suggests, is it a perfect counter to some of the risks of qualitative research.

audit trail will necessarily acknowledge the timeline of our research so that it will be clear if such events were identified before or after a particular concern or issue arose.

Case Studies

Guided by our literature review, interviews and reading of documentary material on past events, we shall select three or four events or health issues that have occurred in the recent past in the North West and the London regions, and build case studies on these from a range of sources and maybe conducting one or more further interviews. In some cases we may have extant interview material: e.g. a current doctoral student supervised by Professor Simon French has been studying the Carlisle Floods of 2004 and has interviewed several people, both those who handled the emergency and those who suffered their house flooding. The selection of these case studies will be made in the early months of the project. However, our current thinking includes

- pandemic flu (swine flu);
- Cumbrian floods (accidents then health risk from contamination);
- Cumbrian rail accident;
- sports events;
- a small event for an urban health system but one that is relatively large for a rural health economy;
- a confidence issue in which the physical health issue is either minor or non-existent but the public are substantially concerned.

We are aware that the handling of emergencies at sports events will be of importance in the 2012 Olympics and Manchester does have experience in such events (Commonwealth games, international football matches, etc.). Moreover, Manchester Business School hosts the World Academy of Sport[5] which access to many documents relating to good practice in managing the risks and emergencies at such events.

For all case studies we will use a common approach, which we will design in the early stages of our project. While we do not expect our research to be amenable to tightly stated research hypotheses and questions – emergencies almost inevitably have some aspect that is unique and defies categorisation into simple generalisations – we do expect common themes and ideas to emerge in early study and we will explore the case studies in a way which illuminate or maybe challenge these. Thus we design a common reporting format for each case study and seek to assess, usually qualitatively, the emergency response across a range of common dimensions. As in the earlier stages of our project we will maintain an audit trail of how material was identified and selected. Confidentiality and anonymity will be respected in all reports and publications arising from this work.

Analysis

It is difficult at this stage to predict in precise detail the form that our analysis will take. We expect to build idiographic causal maps out of interviews, literature, practice etc, which will allow the themes to emerge, a process akin to grounded theory in its philosophical approach. Then the themes will be forensically examined in the wider body of data to define their boundary clearly. Within each theme we will seek to build a detailed understanding from the data and from this identify items of good practice that need promulgating and gaps for future R&D work to address. Within operational research and decision analysis there are many discussions of such issue and problem formulation processes (French *et al.*, 2009; Rosenhead and Mingers, 2001). Both Professors Shaw and French have reputations for exploring messes[6] and drawing some sense out of them. Duncan Shaw has an

---

5   http://www.was-executivecentre.org/

6   'Mess' is term introduced by Russell Ackoff to indicate a complex and ill-defined set of factors into which management need to bring order.

international reputation for research in problem structuring (Franco *et al.*, 2006, 2007) or 'sense-making' (Weick, 1995). Simon French used a range of such methods along with decision analysis to draw out the major factors driving decision making after the Chernobyl Accident (French *et al.*, 1992; French *et al.*, 2009; International Atomic Energy Agency, 1991).

Our aim from this stage is to arrive at a list of gaps in the evidence base, in our understanding and readiness to handle health care emergencies and to identify a range of potential R&D projects and potential changes in practice. At this stage we will not attempt to evaluate and prioritise these, but simply identify them.

We would also emphasise more positively that, while the brief from the NIHR SDO call focuses our intention on finding R&D needs and gaps in the evidence base, we also expect to find and document many examples of good practice.

Prioritisation Workshop

The final stage of our project, other than writing up and disseminating the results, will be to hold a prioritisation workshop. This will be based upon best practice in facilitated decision conferencing (French *et al.*, 2009; Goodwin and Wright, 2003; Phillips, 1982, 1984; Phillips and Phillips, 1993) and will use multi-criteria decision analysis to prioritise the long list of potential R&D projects and changes to practice (Belton and Stewart, 2002; French *et al.*, 2009; Keeney and Raiffa, 1976; Keeney, 1992). Both Professors French and Shaw are experienced facilitators of decision conferences, but we shall seek to involve an independent facilitator in the event too, lest we bias the results. One possibility is Professor Theo Stewart who holds joint appointments at MBS and Cape Town and is arguably 'the' world expert in multi-criteria decision analysis for such prioritisation.

We will design the organisation of and detailed agenda for the event in detail nearer the time, but we would expect the general format to be as follows.

1. Working with our advisory group, we will identify a representative range of participants at the workshop who can articulate an appropriate range of stakeholder interests. These will include

   – local emergency planners in the North West, both from the NHS and from other emergency services[7];

   – front line responders;

   – regional health care management;

   – national bodies such as the Health Protection Agency;

   – the Department of Health and/or national level NHS management;

   – academic researchers in emergency planning, response and management;

   – NIHR SDO programme;

   – health care consumers/public, particularly those who come from disadvantaged communities and/or have had direct experience of a major disruptive event.

2. Before the workshop we will circulate participants with a summary of out research and the list of potential R&D projects and changes to practice. In developing this summary we will use our literature tagging and audit trail of how interviewees were selected, etc. to avoid bias in any evidence we offer suggesting the importance of an item in the list.

3. At the workshop the programme will take (roughly) the form:

---

[7] Here and elsewhere we have specifically identified emergency planners and managers 'in the North West'. This is natural given the time and input that they are providing. However, we will do all possible to situate the project's results in the UK more generally.

    i. A short presentation which in a purely descriptive way summarises our research results.

    ii. Identification of the criteria on which the group wish to evaluate the importance of each of the R&D project and changes in practice.

    iii. The building of a multi-criteria decision analytic model to explore perspectives on the ranking of these.

    iv. Drawing out qualitative conclusions and R&D imperatives.

After the event we will produce a summary of the conclusions to add to our reports from earlier in the study.

Ethics, Reporting and Data Protection

We take our professional responsibilities as researchers seriously. In managing the project, designing the detailed questions for interviews, maintaining the databases and reporting our findings, we shall respect all requirements of ethical review and data protection. All personally identifiable data will be kept confidential and secure during the study. Such data will be destroyed once reports have been peer reviewed and published, certainly no later than five years after the final completion date of the project. The contact database may be maintained longer, but only with the individual permission of each contact as agreed on their consent form. All consent forms will be filed and stored in accordance with the data protection act and the University's IT security code.
All reports and publications will be made in accordance with NIHR procedures.

References

S. Adhikari, C. Bayley, T. Bedford, J. S. Busby, A. Cliffe, G. Devgun, M. Eid, S. French, R. Keshvala, S. Pollard, E. Soane, D. Tracy and S. Wu (2008). *Human Reliability Analysis: A Review and Critique*, Manchester Business School, Booth Street West, Manchester M15 6PB.

V. Belton and T. J. Stewart (2002). *Multiple Criteria Decision Analysis: an Integrated Approach*. Boston, Kluwer Academic Press.

P. G. Bennett, S. French, A. J. Maule, D. G. Coles and A. McDonald (1999). "Improving risk communication: a programme of work in the Department of Health." *Risk, Decision and Policy* **4**: 47-56.

N. W. H. Blaikie (1991). "A critique of the use of triangulation in social research." *Quality and Quantity* **25** (2): 115-136.

J. Bosman, I. van Mourik, M. Rasch, E. Sieverts and E. Verhoeff (2006). *Scopus reviewed and compared: The coverage and functionality of the citation database Scopus, including comparisons with Web of Science and Google Scholar. .* Utrecht, Utrecht University Library.

J. S. Busby and I. White (2008). "High reliability organization and multiple interpretations of reliability." *in press*.

E. Carter and S. French (2006). "Are current processes for nuclear emergency management in Europe adequate?" *Journal of Radiation Protection* **26**: 405-414.

J. Ehrhardt and A. Weiss (2000). *RODOS: Decision Support for Off-Site Nuclear Emergency Management in Europe. EUR19144EN*. Luxembourg, European Community.

A. Franco, D. Shaw and M. Westcombe (2006). *Problem Structuring Methods I*. Journal of the Operational Research Society. **57:** 757-878.

A. Franco, D. Shaw and M. Westcombe (2007). *Problem Structuring Methods II*. Journal of the Operational Research Society. **58:** 545- 682.

S. French (1986). *Decision Theory: an Introduction to the Mathematics of Rationality*. Chichester, Ellis Horwood.

S. French, G. N. Kelly and M. Morrey (1992). "Decision conferencing and the International Chernobyl Project." *Radiation Protection Dosimetry* **12**: 17-28.

S. French and A. J. Maule (1999). Improving risk communication: scenario based workshops. *Risk Communication and Public Health: Policy Science and Participation*. P. G. Bennett and K. C. Calman. Oxford, Oxford University Press**:** 241-253.

S. French, J. Bartzis, J. Ehrhardt, J. Lochard, M. Morrey, K. N. Papamichail, K. Sinkko and A. Sohier (2000). RODOS: Decision support for nuclear emergencies. *Recent Developments and Applications in Decision Making*. S. H. Zanakis, G. Doukidis and G. Zopounidis. Dordrecht, Kluwer Academic Publishers**:** 379-394.

S. French and D. Rios Insua (2000). *Statistical Decision Theory*. London, Arnold.

S. French, A. J. Maule and G. Mythen (2005). "Soft Modelling in Risk Communication and Management: Examples in Handling Food Risk." *Journal of the Operational Research Society* **56**: 879-888.

S. French and C. Niculae (2005). "Believe in the Model: Mishandle the Emergency." *Journal of Homeland Security and Emergency Management* **2** (1).

S. French, E. Carter and C. Niculae (2007). "Decision Support in Nuclear and Radiological Emergency Situations: Are we too focused on models and technology?" *Int. J. Emergency Management* **4** (3): 421–441.

S. French, A. J. Maule and K. N. Papamichail (2009). *Decision Behaviour, Analysis and Support*. Cambridge, Cambridge University Press.

R. W. Gear (2002). *Exporting EndNote Records to MS Access and Importing Endnote Records From Access Using Tab Delimited Files in Both Directions.* . San Francisco, University of California.

P. Goodwin and G. Wright (2003). *Decision Analysis for Management Judgement*. Chichester, John Wiley and Sons.

C. Griffiths and M. Newman (1996). *Risk Management*. Journal of Information Technology. **11**: 273-378.

T. Horlick-Jones, J. Rosenhead, I. Georgiou, J. R. Ravetz and R. Lofstedt (2001). "Decision support for organisational risk management by problem structuring." *Health, Risk and Society* **3** (2): 141-165.

S. E. Hrudey, E. Hrudey and S. J. T. Pollard (2006). "Risk management for assuring safe drinking water." *Environment International* **32**: 948-995.

International Atomic Energy Agency (1991). *The International Chernobyl Project: Technical Report*. Vienna, IAEA.

R. L. Keeney and H. Raiffa (1976). *Decisions with Multiple Objectives: Preferences and Value Trade-offs*. New York, John Wiley and Sons.

R. L. Keeney (1992). *Value-Focused Thinking: a Path to Creative Decision Making*, Harvard University Press.

T. R. La Porte (1996). "High reliability organizations: unlikely, demanding and at risk." *Journal of Contingencies and Crisis Management* **4**: 60-71.

N. Lunt and C. Fouche (2009). "Action research for developing social workers' research capacity." *Educational Action Research* **17** (2): 225 — 237.

A. J. Maule (1997). Strategies for adapting to time pressure. *Decision Making under Stress: Emerging Themes and Applications*. R. Flin, E. Salas, M. Strub and L. Martin. Aldershot, Ashgate.

A. J. Maule (2004). "Translating risk management knowledge: the lessons to be learned from research on the perception and communication of risk." *Risk Management* **6** (2): 15-27.

R. Pawson, T. H. Greenhalgh, G and K. Walshe (2005). "Realist review – a new method of systematic review designed for complex policy interventions." *Journal of Health Service Research Policy* **10** (Supplement 1): S1-S22.

L. D. Phillips (1982). "Requisite Decision Making: A Case Study." *Journal of the Operational Research Society* **33**: 303-311.

L. D. Phillips (1984). "A theory of requisite decision models." *Acta Psychologica* **56**: 29-48.

L. D. Phillips and M. C. Phillips (1993). "Facilitated Work Groups - Theory and Practice." *Journal of the Operational Research Society* **44** (6): 533-549.

J. Reason (1990). "Human error: models and management." *British Medical Journal* **320** (7237): 768-770.

J. Reason (1995). "Understanding adverse events: human factors." *Quality Health Care* **4**: 80-89.

K. H. Roberts (1990). "Some characteristics of one type of high reliability organisation." *Organization Science* **1** (2): 160-176.

J. Rosenhead and J. Mingers, Eds. (2001). *Rational Analysis for a Problematic World Revisited*. Chichester, John Wiley and Sons.

R. Shepherd, G. Barker, S. French, A. Hart, J. Maule and A. Cassidy (2006). "Managing food chain risks: integrating technical and stakeholder perspectives on uncertainty " *Journal of Agricultural Economics* **57** (2): 313-327.

K. E. Weick (1995). *Sensemaking in Organisations*. Thousand Oaks, CA, Sage.

Disclaimer

09/1005/01 – French protocol version: 01
07 December 2010