Disaster plan education: how we made and tested a video

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Abstract
Objective—To describe the making and testing of a 40 minute video to educate staff about a hospital's disaster plan.

Methods—A disaster scene was created and 30 staff volunteers took part in the simulation of a major accident. The simulation was used to explain and demonstrate disaster triage. A multiple choice questionnaire was used to compare information recall in a group who had seen the video and a group who had read the written plan.

Results—Large numbers of hospital staff voluntarily watched the video. The video group scored significantly higher than the reading group (P < 0.01), with mean scores of 72% and 45% respectively.

Conclusions—Videos have an impact lacking in written disaster plans and improve recall of emergency procedures.


Key terms: disaster; education; video.

The need for an innovative approach for educating staff on a hospital disaster plan was identified when a new simplified disaster plan was introduced to our 400 bedded hospital in Saudi Arabia by the author. Copies of the plan were distributed to staff, but because of lack of interest or other priorities very few read the plan or attended the well advertised teaching sessions. A hospital disaster practice in the near future could not be relied upon to stimulate interest either. It was therefore decided to make and test an educational video.

Methods
The video was made by the author and a colleague with an interest in video filming. Equipment used was a video camera of the type commonly owned by laymen, and basic editing was done using two standard VCR's connected together. The objectives of the video were to educate all hospital staff on how the plan worked, and to make it interesting and enjoyable to watch.

Filming took about 10 hours and editing about 15 hours. A disaster scene was created away from the hospital, portraying two cars crashed into a bus queue. We used two cars pushed together, 30 staff volunteers and a basic moulage kit to good effect. The disaster scene was used to explain and demonstrate disaster triage. Casualties were then followed through the hospital from the accident and emergency (A&E) department to the wards. Thus each department's role was portrayed, including radiography, pharmacy, laboratories, and so on. Brief sections on the control room, the staff call-out system, and where staff should report were also included. The role of the field team was explained, and field equipment and protective clothing was demonstrated.

The text for the video was adapted from the written plan. This was then voiced over scenes or the author was filmed during demonstrations, such as performing triage. Diagrams and flow charts were also used. We found that short scenes of about 15 seconds were easier to execute than longer scenes and equally effective. Factually less interesting sections were interspersed with more captivating scenes to hold audience attention, and short clips from commercial videos were included for dramatic effect. On completion the video was shown in the hospital auditorium twice daily for two weeks to ensure several convenient viewing opportunities for all staff. Posters advertised the video and all staff were encouraged to attend one of the viewing sessions. Copies of the video were also made available through the hospital video library.

To evaluate information recall after viewing the video, we compared a group of 20 staff who saw the video with a group of 20 staff who had read the plan, using a multiple choice questionnaire (MCQ). Nine of the subjects had otherwise been exposed to the information in the plan before their tests. Subjects were ward nurses and paramedical staff matched into pairs and then each pair split randomly into either group. The MCQ test was applied immediately after seeing the video or reading the plan. The MCQ was designed by an independent examiner and consisted of 25 questions on the plan, each with four options, one being correct. Wrong answers scored zero marks. Statistical analysis of MCQ results was done using the Mann-Whitney U test.

Results
At the end of the two week viewing period over 500 staff had voluntarily seen the video. Those who viewed the video included the vast majority of those who would be involved in a disaster response. The hospital employs a total of about 1200 staff. Those who did not see the video were mainly employees such as gardeners, mechanics, recreation staff, and so on, and would not be directly involved in any response.

The test group who had seen the video scored a mean of 72% (range 6–92%), which was significantly better (P < 0.01) than the test
The fundamental importance of education and training as part of good disaster planning is well known.1-3 Familiarity with even the simple basics of a disaster plan, such as where to find equipment and how to don protective clothing, is of great importance.4 In British hospitals, however, the lack of staff training for major incidents was reflected in a 1992 survey by Cooke.5 He found that of the 88 hospitals he surveyed, less than half had given any specific training, even to their Incident medical officers, key persons in a response.6 Clearly this is unsatisfactory and falls well short of the Department of Health guidelines.7

Little appears to have been published on how best to convey a hospitals disaster plan to staff. However my study indicates that the use of a video such as ours has advantages over reading a written plan. A video may have other advantages; for example (1) a video allows staff actually to see items of equipment such as triage tags being used, and to see where equipment is stored, how to don protective equipment, etc; (2) a video may give staff an insight into what it would be like to be faced with mass casualties; (3) a video is convenient – it can be viewed by groups or individuals and it requires little preparation; (4) viewing of a video is easy to supervise; in contrast, giving staff a plan to read does not mean they will read it or even part of it.

Disaster practices have long been recognised as having great value in education and training. However, practices are often missed by individual staff, are not seen in their entirety by most participants, and occur infrequently.8 Therefore practices cannot be relied upon as the sole educational tool in most hospitals, and other educational methods must be used.

Our video has proved to be an efficient, convenient, and enjoyable way for staff to learn about our plan. Since most of the staff involved in our disaster plan were from western hospitals, it is reasonable to assume that a similar video would also be successful in a British hospital. I would therefore recommend those faced with the challenge of disaster plan education, and who have access to basic equipment and expertise, to make a video such as ours.

Although we created a disaster scene specially for our video, a disaster practice could also be used as a basis for a similar video. Lack of video expertise and equipment can be overcome by pooling resources or by using the resources of a specialised unit such as a university medical illustration department. Furthermore, hospitals could share and copy parts of an educational video which are not specific to their plan, such as a crash scene and triage, then adding scenes specific to their hospital plan. Perhaps a central library could hold these communal videos.

5 Cook M. Arrangements for on scene medical care at major incidents. BMJ 1992;305:748.
8 Goodwin C. Disaster drills. Topics Emerg Med 1986;7:20–33.