

Virtual crisis management: an alternative to one single public emergency number and joint operation centres

Medical emergency teams collaborating in situations characterised by time constraints and long distances need to quickly establish a cooperative relationship based on trust and a shared understanding of the situation. When we established the Video-based Emergency Medical Interaction (VEMI, VAKe in Norwegian) system, our primary goal was clinical collaboration and support for decision-making. The system has so far been put to use in some hospitals and medical emergency centres in Northern Norway Regional Health Authority, although such «virtual teams» and «virtual medical emergency centres» may also be used in case of major crises and disasters as an adequate alternative to shared emergency telephone numbers and shared emergency response centres. Currently Norway has three public emergency numbers: 110 (fire), 112 (police), and 113 (medical emergencies).

Good general national crisis management is likely to affect the outcome of national crises and disasters. Good coordination between the emergency response centres involved, the police operation centres and the fire and rescue services could strengthen the inter-agency emergency response effort across agency boundaries. In the health services, the emergency medical dispatch centres play a key role. The local divisions as well as the four regional ones (located in Oslo, Stavanger, Trondheim and Tromsø) still use the telephone for coordination and management. In November 2011 we tested Video-based Emergency Medical Interaction (VEMI) system as a possible tool for interactive, dynamic crisis management in situations involving major accidents, mass injuries and disasters as a «virtual emergency response centre».

When using this new system, the teams can see and hear each other on large video screens in a «virtual conference room» while sharing a real-time picture of the patient and dynamic data from monitors attached to the patient locally (1, 2).

A simulated industrial explosion

We simulated a disastrous industrial explosion in Lenvik municipality in Troms county, where the 25 victims who had suffered serious burns far exceeded local and regional capacity for treatment and transport. Lenvik inter-municipal local primary health care medical emergency centre has used the VEMI system since 2009, and acted as a mustering point for the injured during the exercise. The exercise triggered an acute need for efficient collaboration between the municipal health services and national health resources to ensure life-saving treatment and evacuation of the numerous burn victims to various national hospitals. With these video-conferencing units pre-installed in the emergency medical



A «virtual medical emergency centre» and a new national management room are being demonstrated during a disaster exercise with numerous burn victims. The emergency doctor at the Lenvik medical emergency centre reports simultaneously to five medical emergency divisions (l to r: Trondheim, Tromsø, Stavanger, Tønsberg and Bergen) and the police operation centre. Photo: Medical Emergency Division, University Hospital of North Norway

dispatch centres in Stavanger and Trondheim, in the national treatment centre for burns in Bergen (Haukeland University Hospital) in the emergency medical dispatch centre in Tønsberg and in the police operation centre (the local rescue centre at Tromsø police headquarters) we could quickly establish a nationwide crisis management system. Nearly forty managers in seven different emergency medical dispatch centres could communicate and share information in real time.

The teams shared critical visual and verbal information on the number of injured, their clinical condition, the treat-

ment requirements, capacity and logistics. Everybody was able to see the «patients» when they arrived at the medical emergency centre, and could maintain an overview of local and regional ambulance resources (motor vehicle, boat and air-borne) as well as the treatment capacity of the hospitals. The Norwegian National Burn Centre (at Haukeland University Hospital) provided continuous advice on treatment on the basis of visual information and the patients' clinical status. The police addressed the need for further transport capacity and shared information on hazards and restrictions at the disaster site. In our

opinion, the communication functioned well, but required clear management. When one participant spoke, the video image from that centre automatically became the main image. The images from the other centres remained visible in a smaller format in the lowermost section of the screens.

An alternative to a single shared emergency telephone number

In the capacity of operation centres for the health services, the medical emergency divisions need to be able to quickly establish efficient communication with the police, who are charged with the general-level management of crises and disasters. We believe that the exercise showed that this can be solved with the aid of modern video conferencing systems without replacing the current well-functioning national public emergency medical number 113 with one shared public emergency number (type 911 or 112) for police, fire and medical emergencies as proposed by the Norwegian Government (3). The management room at Tromsø police headquarters could easily be linked to VEMI, and during this exercise we succeeded for the first time in Norway in establishing an inter-disciplinary, 'virtual crisis management room' where different emergency response services could be in charge from existing emergency response centres even from remote locations.

The proposal to replace the current national system in Norway (three public numbers, separate dispatch centres for fire, police and medical emergencies) with «one shared public emergency telephone number» and «shared emergency response centres» launched by the Government has met with strong resistance (4–7). If the government nevertheless pushes through its proposal, the medical emergency number 113 and the current emergency medical dispatch centres will disappear, and 112 will remain the only public emergency telephone number. New, joint operation centres must be built. They are unlikely to be located at hospitals as they currently are, and the emergency medical dispatch centres will close the close contact with the medical expertise in the hospitals. Only few actions require close operational coordination between the three emergency response services, and these are easily solved by means of a rapidly established conference link between fire, police and medical dispatch centres.

It has not been demonstrated that a change from three to one shared public emergency telephone number will improve the response to medical emergencies. On the contrary; when the police, fire and medical emergency public numbers and dispatch centre were merged to one number and joint centres in Finland, waiting time, total response time as well as misuse of ambulances all increased (8). The use of ambulances increased when compared to the reference period

prior to the reform. The number of erroneous assessments of clinical priorities also increased (8, 9).

The current pilot project initiated by the Ministry of Justice and Public Security involving «a single public emergency telephone number» and «a single emergency response centre» in Vestre Viken Health Trust is likewise quite controversial (10, 11). The project is based on an outdated concept, outdated technology and an inappropriate co-location of the emergency response services. No report published after the 22 July tragedy has indicated that a shared public emergency telephone number (112) or joint emergency response centres will be a solution to challenges in terms of disaster preparedness in Norway (12–14). Our assertion is that development of new methods for virtual co-location of management, tailored to each crisis situation, is a far better solution than a poorly planned and weakly based trial project. The national oil-company Statoil has already copied and established a system similar to VEMI for communication between 24 offshore installations, emergency medical dispatch centres in Bergen and Trondheim (15, 16).

A «virtual emergency medical dispatch centre» on the basis of the VEMI platform ought to be further developed into a modern tool for crisis management – as an alternative to a single public emergency telephone number and joint emergency response centres.

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