Experience of a major incident alert at two hospitals: ‘The Soho Bomb’

K. N. Williams* and S. Squires

Guy’s and St Thomas’ Hospitals, London, UK and McIndoe Burns Centre, Queen Victoria Hospital, East Grinstead, UK

*Corresponding author: Anaesthetic Department, 1st Floor, East Wing, St Thomas’ Hospital, Lambeth Palace Road, London SE1 7EH, UK

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At 18:37 h on Friday 30 April 1999, a nail bomb exploded without warning in the Admiral Duncan public house in Soho, London; two victims died at the scene. At 19:05 h the London Ambulance Service issued Major Incident Alerts or Standbys at six London Hospitals, including Guy’s Hospital and St Thomas’ Hospital (STH).

The Guy’s and St Thomas’ experience

The first ambulance arrived at STH at 19:15 h and the last of 36 patients arrived at 21:00 h. The telephone switchboard contacted anaesthetists from 19:21 h onwards. Guy’s Hospital received 23 patients, none of whom required admission. At STH, 27 patients with minor injuries were treated and discharged from the Accident and Emergency (A&E) department, four patients were admitted directly to the operating theatre, four were admitted to the wards and one was transferred from the A&E department to the Burns Unit of the Queen Victoria Hospital, East Grinstead. Physical injuries included burns, macerated and fractured limbs, an acute abdomen and multiple shrapnel wounds. All patients were presumed to be an infection risk and suitable precautions were taken.

A total of 70 medical staff attended A&E and the operating theatres; 36 were consultants, of whom 12 were anaesthetists; countless other staff appeared, mainly on their own initiative. Surgery at STH started at 21:00 h (day 0) and ended at 03:30 h the following morning; four operating tables worked throughout this period (sufficient staff were available to have opened two more operating theatres if needed).

Operative procedures on day 0 included: extensive debridement of soft tissue wounds; a colostomy for blast injury to the sigmoid colon; two completion below-knee amputations; one above-knee amputation; external fixation of a right and a left ulnar fracture (on different patients); and a completion amputation of the left middle finger. One patient narrowly avoided a thoracotomy when a nail, clearly visible on chest x-ray, was removed from subcutaneous tissues by an alert thoracic surgeon.

Two patients (patients 1 and 4 in Table 1) were transferred after their operation to the 15-bed Intensive Therapy Unit (ITU; which also admitted two cardiac arrests from medical wards during this period), and two patients (patients 3 and 5) were ventilated in our nine-bed Overnight Intensive Recovery facility (OIR; normally used by patients after cardiac surgery).

On day 1, three patients were re-anaesthetized: patient 4 for a CT scan of the cervical spine, patient 5 for suture of a previously identified penetrating eye injury, and patient 1 for further debridement, removal of nails and grafting of wounds. Extensive cavitation wounds beneath trivial skin punctures were particularly evident. Patient 3 had extensive burns and a tibial fracture treated by external fixation on day 0; on intubation the anaesthetist observed laryngeal oedema, and therefore on day 1 a bronchoscopy was performed; this showed no evidence of smoke inhalation. The patient was extubated and, after 16 h of uneventful spontaneous ventilation on air, he was transferred on day 2 to East Grinstead (see below).

By the end of the 4-day Bank Holiday weekend, 36.5 h of operating had been performed on five patients during 12 procedures. A total of 71 units of blood, 40 units of FFP and
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Table 1 Course of events for five patients up to day 63. AKA = above-knee amputation; BKA = below-knee amputation; L, left; R, right

<table>
<thead>
<tr>
<th>Patient</th>
<th>Main injuries</th>
<th>Number of days on</th>
<th>Number of operations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>OIR</td>
<td>ITU</td>
</tr>
<tr>
<td>1</td>
<td>25% burns, L ulnar fracture, L AKA</td>
<td>1</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>R arm fracture, burns</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>30% burns, R tibial fracture</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>(4+ operations at East Grinstead)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Perforated colon, bilateral BKA, 25% lesion</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>R radial fracture, shrapnel R leg and arm, R global perforation of eye</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
<td>50</td>
</tr>
</tbody>
</table>

thirteen 250-ml bags of platelets were transfused over this period; blood and blood products were provided without delay. On Day 4, three of the patients in Table 1 returned to the operating theatre together with one of the ward patients. Patient 5 remained in the OIR for 10 days before returning to a High Dependency Unit (HDU); he was shortly thereafter admitted to the ITU with Klebsiella pneumonia. He and patient 1 subsequently developed severe respiratory and cardiovascular problems requiring a variety of interventions, including inotropes, prone ventilation, inhaled nitric oxide and percutaneous tracheostomy; neither patient required haemofiltration. None of our patients sustained head injuries. The clinical course of the patients operated upon at STH is summarized in Table 1; all survived.

These five patients required continuing care. Patient 3 underwent a below-knee amputation on day 188 (7 months later); on that day, four of the five patients listed in Table 1 were still in-patients at STH, although none had been resident continuously since day 0.

The lessons to be learned

Overall, the Major Incident Procedure at STH worked well, but improvements could be made.

Communication

A well-attended debriefing held on day 6 revealed a number of communication failures and exposed our failure to plan adequately for the subsequent load on the operating theatres, which continued for many days after the incident.

- Bleeps were a hopeless means of contact since the switchboard (which received 1500 calls in 1 h) could not possibly keep track of who had or had not answered.
- Our automated call-routing system enables callers with touch-tone telephones to dial the extension they require themselves and handles up to 12 calls simultaneously; this proved adequate.
- The anaesthetic staff list held by the switchboard was 18 months out of date, and new consultants were thus left undisturbed whilst those long-since retired were invited to attend.
- Several anaesthetists asked to be put through to A&E to confirm the Incident Alert, which blocked external and internal lines, probably without a successful connection; we have since arranged for a direct line to the operating theatres for anaesthetists.
- Those in A&E had difficulty contacting the operating theatres, and vice versa, and a more direct link between the surgeon in A&E and the anaesthetist in the operating theatres has now been established.
- A&E staff commented that, in the mêlée, anaesthetists were difficult to identify and clearer marking was requested (purple baseball caps?).

Staffing

- The four resident anaesthetic trainees, the on-call general and the on-call cardiac consultant coped adequately with the operating theatre load on day 0 with the help of one extra consultant volunteer. Calling in as many as ten...
further consultants was probably unnecessary, though their efforts were greatly appreciated in A&E and for inter-hospital transfers. However, additional help was needed after day 0 to cover anaesthetic services over a long weekend.

- At 11:00 h on day 1, the resident staff and the on-call general anaesthetic consultant were all anaesthetizing patients simultaneously when a patient with ‘acute epiglottitis’ was admitted to A&E. Coincidentally, the same consultant who volunteered to help in the operating theatre on day 0 arrived, and he was instantly despatched to sort out what transpired to be a quinsy that responded, at least initially, to medical treatment. We needed reminding that resources to deal with ‘ordinary’ emergencies are still needed, regardless of Major Incident Alerts.

**Facilities**

- ITUs are often at their busiest on a Friday so, if the word can be used in such a context, it is fortunate that this event occurred on this particular Friday of a Spring Bank Holiday weekend when beds happened to be available and three consultant ITU staff were still in the hospital. Simultaneous provision of intensive care for five extra critically ill patients might have been impossible at other times, particularly in the winter, when bed occupancy is supramaximal.

- The clinical courses of the patients at STH and East Grinstead were punctuated with episodes of systemic sepsis, possibly secondary to infected shrapnel fragments, which required intense supportive measures. All patients were young and previously healthy, and eventually made a reasonable physical recovery.

Peripheral specialist units such as the Queen Victoria Hospital at East Grinstead can only accept patients with conditions appropriate to their facilities. This requires careful consideration before patients from major incidents who might require intensive care are referred.

- Long-term psychological and social support is deemed essential for both victims and carers.\(^1\) Counselling was offered to all involved, though uptake was patchy amongst the staff. The five patients listed (Table 1) required extensive psychological and social support and 16 of the ‘walking wounded’ were counselled.

**Conclusions**

We found that, in such an obvious emergency, staff availability was not a problem. Communication within and without the receiving hospital can be improved; bleeps, both internal and air-call, are unreliable, and direct telephone lines should be established. Anaesthetic and other resources must be provided for several days after such an incident. Patients with potential multi-organ failure should not be referred to specialist units without due consideration and consultation.

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**Reference**