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Perspective

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THE LONDON ATTACKS — A CHRONICLE

Improvising in an Emergency

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Thursday, July 7, 2005. A hot, humid day for London, and all the windows on the third floor of the British Medical Association (BMA) building are open. A last-minute change of plans at 9 a.m.

leaves me working at BMA House, preparing for a meeting. This is to prove fateful.

9:20 a.m. Colleagues begin arriving. There is more than the usual commotion from emergency-services vehicles. Ten minutes later, an emergency medical helicopter from the Royal London Hospital is hovering overhead. Newsflashes on our computer screens report power surges and incidents on the London Underground. We turn on the television: clearly, a major incident is unfolding. A chill runs down my spine. I sat in the same place watching the events of 9/11.

Suddenly, around 9:50, every-

thing momentarily appears pale pink. There is an enormous bang. Some of my colleagues have looks of terror on their faces. We can see white smoke and debris raining down in the square. The fire alarms are sounding.

Although staff members leave, the doctors stay, and we lower the blinds to give a modicum of protection from flying glass from any further explosion. After several minutes, we gingerly make our way to the front of the building and look down onto the stricken bus.

Within a second, I recognize that we are dealing with multiple blast injuries. I grab some surgi-

cal gloves and my ambulance service physician identity card — without it, we will be ignored by the London Ambulance Service.

On arrival downstairs, I meet the deputy chairman of the BMA Council, who is coordinating the first aid response. Knowing of my prehospital emergency care experience, he asks me to take over the direction of clinical operations while he requisitions and gathers resources. My assets are a building offering protection from all but a direct hit and 14 doctors, most of them experienced general practitioners with some training in emergency medicine. But we have no equipment, no communications, and no personal protective clothing. Armed with nothing, we set about maximizing the victims' chances of survival.

I have trained for such a situation for 20 years — but on the

assumption that I would be part of a rescue team, properly dressed, properly equipped, and moving with semimilitary precision. Instead, I am in shirtsleeves and a pinstripe suit, with no pen and no paper, and I am technically an uninjured victim. All I have is my ID card, surgical gloves, and my colleagues' expectation that I will lead them through this crisis.

I gather my thoughts, try to remember the rules of triage and the principles of running a casualty clearing station (CCS). As specified by "The Plan," there are prompt sheets, but they are in my car 80 miles away. Until supplies arrive, we have nothing except bandages, chin lift, jaw thrust, and c-spine control.

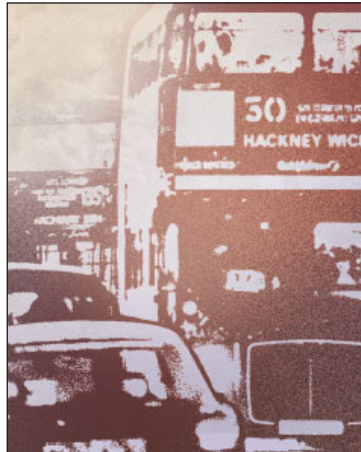
My objectives are command, control, communication, coordination, and cooperation. Fail to achieve these, and we will have chaos — and lives will be lost needlessly. The aim is to get each patient to the right hospital in the right time frame. Our function is to triage, resuscitate, prioritize for transport, and feed patients into the rescue chain in an orderly fashion.

Gridlock means that it is 10:15 before we obtain limited ambulance service, supplies of oxygen, cervical collars, and IV-fluid sets. I find the most senior ambulance person present, since he should become the ambulance liaison officer, but he is occupied with clinical care and has no radio anyway. I can't communicate with the outside world.

I visit the nonwalking wounded, each of whom is being attended by a physician. Each physician is briefed to "remember the AcBCD [airway, cervical spine, breathing,

circulation, disability] priorities, do the most for the most." Most of my colleagues have not cared for a casualty in 20 years. They accept my instruction without a murmur. Astonishingly, I have established command.

When I took over, I was told that there were eight priority 1, six priority 2, and seven priority 3 patients. I request that everyone be



moved into the courtyard: some victims are within 15 yards of the bus, and we still don't know whether there is a secondary device waiting to explode. I move to the gate to see whether there are more casualties to be brought in, but the police send me back inside until a controlled explosion has taken place.

I recount patients and find only 8 priority 1s and 2s and 7 priority 3s — a total of 15. Supplies are beginning to arrive in adequate quantities, and my colleagues are feeling less helpless, competently executing skills some have not practiced for decades. I ask someone to open the rear entrance and to arrange a one-way system around the courtyard so that ambulances can load and depart. The

fire alarms are driving us crazy. They are disabled at my insistence, and a whiteboard is produced to chart patients' transition through the CCS. Control achieved.

Around 10:20, colleagues from the Royal London Hospital helicopter service arrive by car, and I give them a situation report that they communicate to their hospital. They give me various contact telephone numbers. I task them with looking at a victim who is being resuscitated, but their efforts are unproductive; the victim is pronounced dead at 10:40. Yet communications have been established.

An ambulance operations manager arrives. I give him a report, but already there is a discrepancy between my latest count and the one we reach as we jointly review the scene. Two priority 2 patients have been moved from the courtyard, and some priority 3 patients left when the rear doors were opened. This is not good news. I ask the helicopter medical crew to look at two priority 1 patients whose condition I have not reviewed and whose assigned physicians have, I suspect, reached the end of their skill repertoire. Coordination is evolving.

Triage labels arrive at 11:10. I brief colleagues on their use and assign one person to collect basic data on each victim and chart it on the whiteboard. Over the next 40 minutes, the remainder of our initial casualties are transported to hospitals in order of clinical priority.

At 11:45, the ambulance operations manager indicates that there are six casualties in the neighboring County Hotel awaiting transport. I suggest that they be

transferred by way of BMA House in order to avoid the potential danger of unexploded devices in Upper Woburn Place. Cooperation achieved.

We barely have time to triage the patients before transportation to hospitals becomes available. Our CCS is cleared of all casualties by 12:10 p.m. Chaos averted.

Over sandwiches from the staff canteen, I brief my colleagues on the overall situation in the city and our specific situation and achievements. All but one victim who entered BMA House have left alive and in better shape than on arrival. I talk individually with colleagues, many of whom have

nagging doubts about their performance.

Homeward transportation or overnight accommodation is arranged for all. I walk three miles to the nearest functioning train station. The train is air-conditioned, but there is no coffee. Normally, I would complain, but today's events have reminded me of what matters.

Many soon come to believe that the bombs were the work of religious extremists. I had counted at least eight different nationalities among the victims. My team consisted of Jews, Muslims, Christians, humanists, and agnostics, who all served humanity irrespec-

tive of race, color, or creed and regardless of personal danger. We had created a CCS in the shadow of a memorial to the physicians who served in the Second World War. I hope we did them proud.

On July 21, a memorial service is held in the courtyard, drawing an audience of 800. Members of the team are able to lay some of their ghosts to rest.

An interview with Dr. Holden can be heard at www.nejm.org

Dr. Holden is a family physician in Matlock, United Kingdom, a member of the BMA Council, and a medical aircrew member on the Lincolnshire and Nottinghamshire Air Ambulance.

THE LONDON ATTACKS — PREPAREDNESS

Terrorism and the Medical Response

Jim Ryan, M.Ch., D.M.C.C., and Hugh Montgomery, M.B., B.S., M.D.

Although Britain is no stranger to terrorist attacks, the pattern of activity has changed in recent years. Irish bombers first attacked London in 1867, but bombings peaked between 1969 and 2000, with 1972 alone seeing 1500 separate incidents — and 5005 casualties — in the United Kingdom. With the recent accessibility of information over the Internet have come new risks: in 1999, a single person used such information to construct and deploy three devices in central London, killing 3 people and injuring more than 120. The London attacks of July 7, 2005, however, represent a shift to a new scale and a new modus operandi.

At approximately 8:50 a.m. on that day, simultaneous explosions

occurred below ground on three subway trains (see map). The first occurred some 100 m from the station platform at Edgware Road, killing seven persons at the scene. Within three hours, the nearest hospital had received 4 critically injured patients, 8 who were seriously hurt, and 14 with minor injuries. By the time the scene was cleared, at least 80 casualties had been triaged close to the scene, and the hospital had received 38. Of these, 24 were in critical or serious condition.

The second device exploded on the floor of the third carriage of a train, 200 m from the Aldgate station platform. More than 100 persons were wounded, 16 of them severely, and 7 died at the scene. Patients were triaged and trans-

ported (by ambulance and three buses) to the nearest hospital, which received 208 casualties from this and other sites, of whom 27 were admitted.

A third device exploded in the front carriage of a subway train between the King's Cross and Russell Square stations, through both of which evacuation occurred. Staff from two nearby specialist hospitals (the National Hospital for Neurology and Neurosurgery and Great Ormond Street Hospital for Sick Children) attended at the scene. Approximately 236 persons (36 of them severely injured) were transferred to local hospitals. Two adults were admitted to the Children's intensive care unit. Twenty-five people died at the scene.