

Insights Into French Emergency Planning, Response, and Resilience Procedures From a Hospital Managerial Perspective Following the Paris Terrorist Attacks of Friday, November 13, 2015

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ABSTRACT

On Friday, November 13, 2015, Paris was subjected to a multiple terrorist attack that caused widespread carnage. Although French emergency planning, response, and resilience procedures (*Plan Blanc*) anticipated crisis management of a major incident, these had to be adapted to the local context of Pitié-Salpêtrière University Teaching Hospital. Health care workers had undergone *Plan Blanc* training and exercises and it was fortunate that such a drill had occurred on the morning of the attack. The procedures were observed to work well because this type of eventuality had been fully anticipated, and staff performance exceeded expectations owing to prior in-depth training and preparations. Staff performance was also facilitated by overwhelming staff solidarity and professionalism, ensuring the smooth running of crisis management and improving victim survival rates. Although lessons learned are ongoing, an initial debriefing of managers found organizational improvements to be made. These included improvements to the activation of *Plan Blanc* and how staff were alerted, bed management, emergency morgue facilities, and public relations. In conclusion, our preparations for an eventual terrorist attack on this unprecedented scale ensured a successful medical response. Even though anticipating the unthinkable is difficult, contingency plans are being made to face other possible terrorist threats including chemical or biological agents. (*Disaster Med Public Health Preparedness*. 2016;10:789-794)

Key Words: emergency planning, response, and resilience (EPRR), hospital crisis management, terrorist attack, Paris

The tragic events of the Friday, November 13, 2015, terrorist attacks in Paris shocked and awed the world by the intensity of violence rarely seen in a European capital since the end of the Second World War. While many were stunned into disbelief at the magnitude of the carnage caused, French emergency services and first responders had no time to grieve and reacted with determined professionalism honed by years of training and previous emergency planning, response, and resilience (EPRR) experiences.^{1,2} A number of authors have observed that contingency planning cannot always anticipate every emergency situation and that preparedness does not always guarantee an effective crisis management response.³

This article discusses the French EPRR procedures (*Plan Blanc*) in place at Pitié-Salpêtrière University Teaching Hospital in Paris that were adapted to deal with the mass casualties caused by multiple terrorist attacks and that ensured a successful medical response. The article is based on an initial debriefing of operating theater and surgical ward managers conducted the day after a formal end to this major incident was

declared and succinctly conveys draft proposals of lessons learned from a strategic managerial perspective. Organizational improvements to contingency plans were discussed and included the activation of EPRR procedures, alerting staff about being requisitioned to work, bed management, emergency morgue facilities, and public relations. However, lessons to be learned are currently ongoing because the debriefing process is fastidious and occurred simultaneously at different levels of the crisis management chain. Different parties involved with EPRR within our hospital (emergency room staff, paramedics, the crisis management team, intensive care unit, etc) were debriefed separately to improve their internal contribution to the medical response with findings collated holistically for improvements to be made to general contingency plans at a later date.

THE ATTACK

An explosion (which turned out later to be a suicide bomber) at the *Stade de France* Stadium, St Denis, on the outskirts of Paris on Friday, November 13, 2015,

TABLE 1

Timeline of Events Following an Explosion at the *Stade de France* Football Stadium and the Coordinated Terrorist Attacks on Paris on Friday, November 13, 2015^a

Date and Time	Event
Friday, November 13, 2015	
2120	First explosion caused by a suicide bomber at the <i>Stade de France</i> football stadium on the outskirts of Paris. Friendly match between France and Germany interrupted.
2125	Attack on rue Alibert, Paris. Multiple shootings at the <i>Petit Cambodge</i> restaurant and <i>le Corillion</i> bar.
2130	Second explosion caused by a suicide bomber at the <i>Stade de France</i> football stadium on the outskirts of Paris.
2132	Multiple shootings on rue <i>Fontaine au Roi</i>
2136	Rue Charonne, Paris. Multiple shootings at the <i>Belle equipe</i> Bar
2140	Bataclan concert Hall, Paris: hostage siege begins. Simultaneously at Boulevard Voltaire, Paris, suicide bomber attacks Le <i>Comptoir Voltaire</i> restaurant.
2153	Third explosion caused by a suicide bomber at the <i>Stade de France</i> football stadium on the outskirts of Paris.
2234	Major incident declared by authorities, and APHP managing director implements the <i>Plan Blanc</i> .
Saturday, November 14, 2015	
0020	Police storm the Bataclan concert Hall, Paris: ending a 3-hour hostage siege.
1400	APHP press communiqué: 300 wounded (of which 80 are serious casualties) cared for at different hospitals in Paris.
Sunday, November 15, 2015	
1700	APHP press communiqué: of the 80 seriously wounded 42 remain in intensive care and 3 casualties had died of their injuries.
Monday, November 16, 2015	
1700	APHP managing director declares a formal end to this major incident and deactivates the <i>Plan Blanc</i> . Return to normal business operations.

^aAbbreviation: APHP, Assistance Publique-Hôpitaux de Paris.

at 9:20 PM triggered the beginning of mayhem on an unprecedented scale for the following 48 hours.¹ While French security services went on alert to combat further threats and the entire country was paralyzed by fear, Parisian hospitals were inundated with mass casualties caused by the aftermath of a series of assaults and explosions. Consequently, health emergency contingency plans were activated (the *Plan Blanc* and *Plan ORSAN*, *organisation de la réponse de système de santé en situations sanitaires exceptionnelles*) with the French Ambulance Service (SAMU, *service d'aide médicale d'urgence*) liaising with the Centralized Parisian Hospitals Authority (APHP, *Assistance Publique-Hôpitaux de Paris*) crisis management center to coordinate the medical response.^{1,4} They decided to orientate the majority of serious and life-threatening casualties to Pitié-Salpêtrière University Teaching Hospital because of its geographic proximity to the wounded and the facilities and medical expertise available to deal with a major incident on this scale.^{1,2,4} Pitié-Salpêtrière University Teaching Hospital is equipped with a dedicated Level 1 trauma center in addition to being internationally renowned in a number of medical and surgical specialities (cardiology, neurology, organ transplantation, specialized intensive care units, dialysis, urology, etc). Consequently, several different types of trauma can be managed by the following facilities. There are 8 operating rooms equipped to deal with abdominal and vascular trauma, 4 theaters for heart surgery, and a further 18 reserved specifically for spinal cord injuries and cephalic trauma.

PITIÉ-SALPÊTRIÈRE UNIVERSITY TEACHING HOSPITAL EMERGENCY PLANNING AND RESPONSE

As illustrated in Table 1, it was almost 1 hour after the first explosions that a major incident was declared by the authorities and the APHP director announced the implementation of the *Plan Blanc*, composing the APHP crisis management team to coordinate medical rescue efforts of the 40 hospitals serving Paris and orientating patient care according to needs and resources available.¹ Pitié-Salpêtrière University Teaching Hospital management then enacted procedures in place, rapidly composing a local crisis management team and implementing the *Plan Blanc* adapted to Pitié-Salpêtrière University Teaching Hospital's local context to deal with the mass number of casualties that arrived. The *Plan Blanc* forms part of French Civil Contingency legislation (similar to other countries) and was last modified in 2004 to cover general major emergencies, legally stipulating that every hospital adapt its contents to their local context.^{1,5} Consequently, Pitié-Salpêtrière University Teaching Hospital's *Plan Blanc* contains 10 main sections as outlined in Table 2. The final section of the *Plan Blanc* is dedicated to "standing down": debriefing staff and performing a procedure quality improvement process. Emergency planning is a cyclical process that evolves with each incident or exercise to improve preparedness, responses, and resilience.^{1,2} The utilization of *Plan Blanc* is in the event of an extreme emergency; the *Plan Blanc* has not been used since its inception in Paris.¹

TABLE 2

Outline of the Plan Blanc and a Brief Explanation of How it Was Adapted to the Events on Friday, November 13, 2015^a

Outline of the <i>Plan Blanc</i>	What happened on Friday, November 13
The alert and implementation of the <i>Plan Blanc</i>	Information received from a variety of sources and dispatched to the APHP director's office. A message alerting all Parisian hospitals that activation of the <i>Plan Blanc</i> is imminent. On-call administrator informs Pitié-Salpêtrière University Teaching Hospital senior management. APHP managing director activates the <i>Plan Blanc</i> . Text message and e-mail sent to Pitié-Salpêtrière University Teaching Hospital senior management that the Plan Blanc has been activated.
The crisis management team	Consists of the following permanent members: - Pitié-Salpêtrière University Teaching Hospital senior management (managing director, human resources director, director of logistics, commercial director, director of maintenance and general works, director of quality and risk assessment, director of computer services, nursing services director) - President of the medical advisory board - Chief of security - Department head of anesthesiology and intensive care - Department head of the emergency room - Nursing manager of anesthesiology and intensive care
Organizing the medical response: emergency rooms and intensive care unit	Organized according to the anesthesiology and intensive care <i>Plan Blanc</i> procedure in correlation with their mass casualty action plan.
Hospital security	Hospital is "locked down." Extra security personnel stationed at key locations.
Patient management and victim identification	Patients in intensive care managed according to the mass casualty action plan. Provisions made to facilitate patient transfers and discharges and manage beds available. Access to lab and imaging services prioritized. Pharmacy distribution accelerated.
Human resources	Victims identified according to information available and data collected on a secure database. Key personnel are alerted by text messaging. Staff present are requisitioned to continue working. Overtime hours are collated on a central database. Kindergarten and childcare provision provided. Resting area and meals distributed.
Logistics	Logistic reserves are mobilized.
Informing patients and family	Information given to friends and family on site in the staff restaurant. News not given over the phone and relatives calling had their details recorded. Medical details given by a doctor.
Emergency works/maintenance	Installation of signposts and extra telephone lines by the emergency works crew.
Internal and external communications	Internal communications via telephone, text messaging, and e-mail. External communications with media and family filtered by the centralized APHP media unit. Communiqués made on social media.
Formal end of major incident and debriefing	Formal end of the major incident made by the APHP director and communicated by text messaging and fax. Emergency reserves restocked for future use. Debriefings occur simultaneously at different levels of the medical response. One week after the incident a general analysis of the response is made at APHP headquarters where logs are studied and improvements suggested.

^aAbbreviation: APHP, Assistance Publique-Hôpitaux de Paris.

According to procedures, staff members were requisitioned to remain at their posts (the incident occurred during handover between evening and night staff) while the crisis management team contacted staff that lived in the vicinity. In addition, health care workers voluntarily and spontaneously provided support throughout the night and throughout the duration of the unfolding events, with a total of 120 personnel (medical and ancillary staff) reporting for duty.

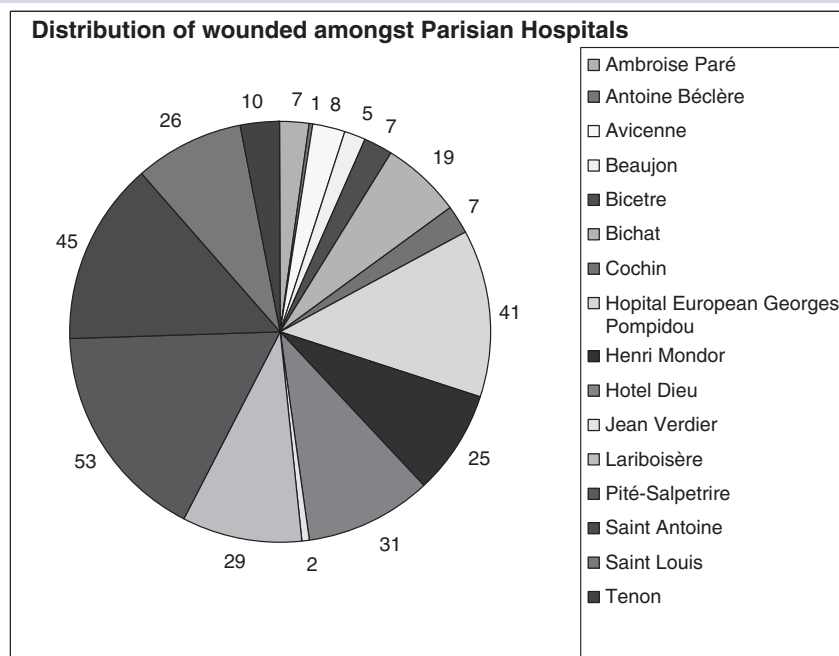
However, staff started to report for duty before being requisitioned because of the initial explosion occurring in the middle of a football match between France and Germany and the extensive live news coverage. It was coincidental and fortunate that on the morning of Friday, November 13, a simulation exercise had been carried out. Because of the extent of the news coverage, personnel were well informed that this was not another drill.¹ Consequently, staff members

were informed through training drills how to manage a serious incident and equipment was stocked and ready for use. There was no doubt about this being a real emergency situation because of extensive media coverage and heightened awareness of the possibility of an amplified terrorist attack following the *Charlie Hebdo* incident in Paris in January 2015.

Over the course of events that lasted over the weekend, a total of 30 surgical theaters were prepped and manned. Although only 10 operating rooms were required and continuously used throughout the crisis period, it was decided in advance by contingency plans that some surgical theaters were to be deliberately kept in reserve because of the unknown number of wounded caused by a sustained and prolonged terrorist attack and also to maintain continuity of patient care the following Monday.¹ However, the precise

FIGURE 1

Distribution of Severely Wounded Patients Among Parisian Hospitals 24 Hours After the Attack.



Data from Hirsch et al, 2015.¹

number of theaters to be kept in reserve was not determined beforehand and it was decided to adapt plans to the situation on an ad hoc basis. Furthermore, the entire hospital blood bank reserves of AB and O blood groups were dispatched directly to operating rooms for immediate use when necessary. Although this situation did not present itself, in the event that services were saturated at our hospital, patients could be cared for at 4 other Level 1 trauma centers located in Paris kept also in reserve (explaining why certain hospitals received more casualties than others).

The coordinated terrorist attacks caused 130 fatalities and 352 casualties (99 of which were seriously wounded). However, as Figure 1 illustrates, despite the ferocity of this major incident, service provision could have been scaled up to manage escalating numbers of casualties. In total 53 seriously wounded patients were operated on at Pitié-Salpêtrière University Teaching Hospital immediately after the initial incident and staff of all categories must be commended for their efforts.¹ It must be noted that the professionalism and dedication of the health care workers certainly played an essential role in improving survival rates of the injured. In addition, pre-incident plans, intra- (enabling the transfer of patients between emergency room, theater, and postoperative care) and inter- (enabling the transfer of patients between hospitals) hospital teamwork, centralized coordination, and good professional communication assisted in the smooth running of crisis management.¹

INITIAL DEBRIEFING AND RESILIENCE

A debriefing of operating theater and surgical ward middle-level managers (part of the surgical grouping of different specialities) occurred on Tuesday, November 17, with the deactivation of *Plan Blanc* and a return to “normality.” It was agreed that procedures worked well and staff performed exceedingly well despite the enormous amount of pressure and duress of the situation. However, a number of issues were raised to improve contingency plans and performance further. These included the following points:

Activation of *Plan Blanc* and Informing Staff (Communications)

According to the procedures, once the *Plan Blanc* was activated by the Parisian Hospitals Managing Director, Pitié-Salpêtrière University Teaching Hospital management were immediately contacted by text message and then mobilized a crisis management team composed of senior managers and department heads of different sectors vital to resolving the incident. Within the crisis management team was a human resources manager responsible for contacting and requisitioning staff. All categories of staff needed to assist the medical response were then contacted by text message.

The debriefing found that staff contact details were not always up-to-date and the logic involved in which members of staff were contacted by the crisis management team was

not understood by middle-level managers. Consequently, senior managers without any contact with the staff concerned plucked staff details at random according to their place of residence and proximity to Pitié-Salpêtrière University Teaching Hospital. As a result, staff shortages would have occurred over the weekend and beyond because of roster changes made by the crisis management team without notifying middle-level managers. In addition, because the crisis management team consisted mainly of senior managers without frontline clinical experience, the categories of personnel contacted were “top-heavy,” which mainly included doctors and nurses to dispense critical patient care. However, other categories of staff (health care assistants, cleaners, porters, etc) essential for the logistics of care provision were not requisitioned, which delayed care while operating theaters were disinfected and patients waited to be portered.

Fortunately, the impact of this oversight was minimal because large numbers of staff of all categories (including managers) spontaneously came into work on their own accord (either from listening to media reports or being contacted by colleagues in situ) and it was this solidarity and deontological professionalism that enabled the smooth running of care provision. However, the debriefing observed that managerial personnel could have been deployed to greater use during this emergency and this aspect of human resources could have been improved. Another weakness of contingency plans was the dependence on telecommunications, which are an essential part of modern lifestyles. Had the terrorists additionally targeted mobile phone networks, the capacity to mobilize health care workers quickly would have been limited and future EPRR needs to address this shortfall. It was recognized that staff contact details should be updated regularly and have since been remediated by reminding staff during their annual performance review to inform the human resources department of telephone number changes.

The timing of the events and their sporadic nature also avoided a surcharge of telephone calls from anxious friends and family enquiring about loved ones. Live media reports during the night of Friday, November 13, were vague and sometimes confusing (perhaps deliberately to prevent widespread panic). It was only the following Saturday morning that the true extent of the horror became public knowledge and headline news. Consequently, the interval between the attack and full public disclosure gave the authorities time to set up centralized telephone numbers for relatives and friends to obtain information about their loved ones. Had the attack occurred during the daytime, communication systems would undoubtedly have been affected by a surge in calls causing a system failure due to circuits being overloaded.

Internally, for managers it was sometimes difficult to contact the crisis management team because they were saturated with incoming and outgoing calls. Thankfully, the Internet played

a significant role and contact was maintained throughout via e-mail and text messaging.

Bed Management

Although the timing of the terrorist attacks was aimed at causing as many casualties as possible on a bustling Friday night, the aftercare of patients was facilitated by this fact. This was because of the weekend; almost the entire orthopedic postoperative care ward was empty at the time of the incident. November being generally speaking a lull in programmed surgical activity, most of the patients operated on during the week had already been discharged. This enabled the management of critically ill patients to flow rapidly into postoperative care immediately after surgery. However, the debriefing observed that in the event beds were not available, care would have been delayed while hospitalized patients were discharged or transferred to noncritical units. In this situation, the crisis management team would not have the competency or local knowledge about bed management, although this is the daily duty of middle-level theater and surgical ward managers, which is another argument for their inclusion on the crisis management team.

Emergency Morgue Facilities

The *Plan Blanc* is a thorough document dealing with most aspects of managing a major incident from a hospital perspective.⁴ However, as a result of concentrating on dispensing and managing care, emergency mortuary facilities were not accounted for. Consequently, the morgue manager was not contacted until the following Saturday morning and in the meantime it was up to emergency department staff to store cadavers in a consultation box, exacerbating their psychological trauma.⁶ Part of the resilience process was also psychological support given to staff and families. Once staff who participated in this major incident were “stood down,” psychological support was immediately available to help prevent or alleviate the effects of post-traumatic stress (the procedure fully described in detail in the *Plan Blanc*). The importance of preserving cadavers in correct conditions would also be required in the forensic criminal investigation by the police and judiciary to determine the cause of events and eventually identify the perpetrators.

Public Relations

Family of the victims were gathered in the staff canteen into the early hours of Saturday, November 14, where refreshments were available, psychologists were on hand to assist with bereavement, and medical officers were available to provide detailed personalized information directly to those concerned. This initial reception area was well organized although unfortunately available for a short period and should have been opened throughout the weekend for loved ones to convene and be consoled. Victim identification was also praised and made possible by 2 senior managers taking victim

photos while in theater. However, their firsthand account indicated that they should have been assisted in this task. As with other past disasters, conveying information to family and identifying victims is a sensitive issue and not easily resolved despite advances in technology (Facebook's victim alert, mobile phone text messaging, etc). This task was made equally difficult by the ongoing criminal investigation and had to be coordinated with the Paris Attorney General's office.

SUMMARY OF RECOMMENDATIONS

1. Staff details need to be accurate and up-to-date. It is recommended that during annual staff performance reviews managers remind staff to notify the human resources department of any changes.
2. It is recommended that middle-level managers be included in the crisis management team for the following reasons:
 - To enable the mobilization and requisitioning of the correct categories of staff to avoid the medical response being "top-heavy."
 - To provide a holistic vision of bed capacity available and the number of patients that need to be discharged or transferred rapidly.
 - To assist with auxiliary managerial tasks, for example, victim identification and public relations.
3. It is recommended that the morgue manager be included on the contact list of key personnel to be contacted in the event of a serious incident. This would enable the morgue to be opened and operated so that cadavers can be stored and cared for under optimal conditions.
4. It is recommended that the staff canteen be available throughout the duration of any serious incident for friends and family of victims to convene.

CONCLUSION

Following the atrocities of the Friday, November 13, Paris terrorist attacks, it was observed that the EPRR procedures worked well in Pitié-Salpêtrière University Teaching Hospital as the result of thorough emergency planning consolidated by regular training and exercises.¹ Patient care and survival rates were improved by the solidarity and professionalism of the health care workers.¹ In addition, mass public empathy to donate blood also assisted the medical efforts of professionals working under extreme duress. Despite thorough planning, no contingency plan is entirely foolproof and lessons to be learned are still ongoing, requiring further analysis.³ However, it can be generally observed that the response dealt immediately with the short-term effects of crisis management, and greater resources should have been channelled into a sustained or prolonged reaction mobilizing on-call duty middle-level managers to provide reinforcements to the overextended crisis management team. Changes in geopolitical forces since the 9/11 World Trade Center attacks

in 2001 have increased the risk of terrorist attack in the West.⁷⁻⁹ Consequently, emergency planning has evolved with each incident contributing to improving preparedness and response assisted by technological improvements to simulate possible scenarios.^{1,2} As normality slowly returns, nothing will ever be the same in Paris. Emergency draconian civil liberty restrictions may not entirely deter future assailants, and intelligence sources have indicated a renewed possibility of chemical or biological agents being used.^{4,7-9} However, no matter the contingency, the public and visiting tourists should be reassured that French EPRR authorities are prepared and have the capacity to react efficiently and effectively.⁴ Although thorough planning cannot always guarantee a successful crisis management response, EPRR procedures are constantly reviewed and modified drawing on past experiences to complete the learning cycle.^{4,8,9} Fear is the worst enemy dispelled by planning and training.⁴ The mind set of "*Semper Paratus*: always ready" empowers us to not be afraid!

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