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Qualitative analysis of the organisational response of a university hospital during the first wave of the COVID-19 crisis

Hakim Harkouk,[1] Patrick Castel,[2,3] Lucile Hervouët,[3] Dominique Fletcher [1,4]

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[1]Service d'anesthésie, Hôpital Ambroise Paré, Assistance Publique – Hopitaux de Paris, Boulogne Billancourt, France
[2]Centre de Sociologie des organisations, CNRS, Paris, Île-de-France, France
[3]Centre de Sociologie des organisations, Sciences Po, Paris, Île-de-France, France
[4]Health Sciences, Versailles Saint-Quentin-en-Yvelines University, Versailles, Île-de-France, France

Correspondence to
Dr Dominique Fletcher; dominique.fletcher@aphp.fr

ABSTRACT

Background The COVID-19 pandemic has required urgent organisational and managerial adaptation, with hospital medical and administrative leaders under considerable pressure.

Methods At a single French university hospital, we performed a sociological analysis of management adaptation by medical and administrative leaders during the first wave of the COVID-19 crisis. Two sociologists performed interviews with representative members of staff from all the structures involved in managing the crisis to analyse adaptation and the solutions found during this period.

Results The answers collected during interviews were classified into three main topics describing the organisational adaptations of the hospital staff during the COVID-19 crisis: (1) exceptional mobilisation and collaboration; (2) crisis management based primarily on the principle of subsidiarity; and (3) survival of the administrative structure with interventions to support caregivers.

Conclusion This study, focusing on a single hospital, identified a number of factors associated with successful mobilisation in the very specific conditions of this viral pandemic.

WHAT IS ALREADY KNOWN ON THIS TOPIC?

⇒ Efficient coordination and communication are key in crisis management.

WHAT THIS STUDY ADDS?

⇒ Inter-regional coordination is needed for resource allocation.
⇒ Significant flexibility must be allowed at operational level to enable adaptation to unknown and unavoidable situations that the plans cannot anticipate.
⇒ Multiprofessional collaboration should be promoted.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY?

⇒ In the preparation for future crises, comparative analyses are required to understand the conditions for cooperation between medical specialities and between doctors, head nurses and managers in different contexts.

INTRODUCTION

In December 2019, SARS-CoV-2 was recognised as the cause of a series of cases of pneumonia in Wuhan, China. A pandemic of the resulting respiratory illness, COVID-19, was declared by the WHO on 11 March 2020. The first cases in France were diagnosed on 24 January 2020. All non-essential institutions and shops were shut down on 14 March 2020, and the French population was confined at home, according to strict rules, from March to May 2021. On 1 April 2020, the number of patients hospitalised in intensive care units (ICUs) reached 6017, exceeding the estimated national maximum ICU capacity of 5000 patients.[1]

The influx of a larger number of patients than could be handled by ICUs led to an overflow during this first wave of the COVID-19 pandemic, necessitating adaptations to this unprecedented situation.[1] All components of hospital structures had to adapt, proposing and supporting medical reorganisations affecting the emergency department, infectious medicine wards, administrative support for equipment, human resources and finances, virology and palliative care.

Unlike the National Health Service in Great Britain, the French health system is not organised at national level. However, state institutions nevertheless play a major role in health insurance and healthcare provision. The French healthcare system is mixed in nature, with private and public sector involvement in both funding and the healthcare on offer.[2] However, public hospitals account for 67% of critical care capacity in normal circumstances, and it has been estimated that they took care of between 68% and 89% of patients with COVID-19 requiring critical care in 2020–2021. Our 390-bed university hospital is part of *Assistance Publique-Hôpitaux de Paris*, the largest group of university hospitals in Ile-de-France, a region severely affected by the

COVID-19 pandemic. The ICU, managed by intensive care specialists, has a usual capacity of 12 resuscitation beds and 14 intensive care beds. An additional 20 resuscitation and intensive care beds were created in hospital wards during the first wave of the COVID-19 pandemic, in the recovery room (RR) and operating rooms. For intensive care beds, the medical team comprised 14 senior anaesthetists, 6 intensive care specialists, 25 nurse anaesthetists, 13 RR nurses and 46 intensive care nurses. The medical and administrative community of our hospital faced extreme challenges in the development of urgent reorganisations to face up to this unprecedented health crisis. Published studies have mostly focused on the identification and evaluation of treatments and procedures for fighting this disease, or on the effectiveness of non-pharmaceutical interventions. These areas of knowledge are, of course, crucial, but the efficacy of the response to the pandemic also depends on the capacity of health professionals to mobilise rapidly in response to exceptional circumstances, in a context of limited resources. It is therefore also essential to understand the conditions in which this reorganisation occurred.

We therefore performed a sociological survey of organisational adaptations during this first wave of the COVID-19 epidemic at our hospital. Two sociologists performed interviews with representative members of staff from all the structures involved in managing the crisis to analyse adaptation and the solutions found during this period. This study, focusing on a single institution, identified a number of factors associated with successful mobilisation in these conditions. It should be extended and compared with other similar studies in the future.

METHODOLOGY

Population

In total, 24 professionals were identified and agreed to participate, and six agreed to be interviewed twice, resulting in a total of 30 interviews. The participating professionals were identified by the investigators (DF and HH) and contacted by email and/or telephone for presentation of the study and to invite them to participate in a telephone, web conference or face-to-face interview. The professionals selected were heads of department, head nurses, physicians or nurses for medical units and the directors of administrative departments. They were considered representative of the staff of the anaesthesia department (five individuals selected), the intensive care medicine department (5), the emergency department and local crisis coordination unit (1), the medical department (3), the hygiene department (1), the virology department (1), the pharmacy (2), management (1), the finance department (1), human resources (1) and the equipment department (2). Other professionals involved in regional management of the COVID-19 crisis were also interviewed; these individuals were involved in the regional coordination of intensive care, combining anaesthesiology and intensive care medicine (2).

Interview method

Two sociologists (PC and LH) met the professionals and performed the interviews. Data were collected through: (1) an analysis of the available documents describing crisis management strategies, including institutional documents (eg, regional health agency recommendations) and internal documents from the establishment (eg, protocols and minutes of crisis management meetings); and (2) semidirected interviews. We constructed a predefined questionnaire with five open-ended questions relating to: (1) epidemic-related events within the hospital (temporality), (2) internal organisation within the hospital and the interviewee's department (management of patient flow, human and material resources), (3) relationships with other care providers and stakeholders, both within and outside the hospital, (4) decision making (types of treatments and procedures, participation in clinical trials, information, learning, etc) and (5) a personal assessment of this experience. We intentionally left ample opportunity for free discussions with the people interviewed. Each interview lasted 40–120 min, with most lasting from 60 to 75 min. All but one of the interviews were recorded in full, transcribed and stored. We analysed all the interviews to identify the main common themes and subthemes. A final report of the results of these interviews was presented and discussed with the professionals interviewed in June 2021.

Patients and the public were not involved.

RESULTS

A number of quotes from the interviews illustrating the major findings presented further are shown in table 1.

Exceptional mobilisation and collaboration during the first wave

All the people we interviewed had paradoxical feelings about their experience of the first wave. On the one hand, they expressed feelings of fatigue, stress and the difficulty of being confronted with so many deaths or dramatic situations in such a short time; on the other hand, they testified to an extraordinary experience that was highly motivating and a source of considerable professional satisfaction and pride. They were surprised by the support they received from the outside. Nine of the 24 interviewees mentioned that local businesses had contributed resources: meals, pastries, protective gowns and masks. It had been necessary to organise the management of these donations and to check the reliability of the protective equipment in particular. Half the interviewees (12/24) mentioned the importance of external support from physicians and nurses working outside the institution. All the managers and health professionals also stressed that they had experienced an unusual degree of solidarity and cooperation within the hospital, between managers and health professionals, between physicians, between departments, between health executives and subordinates. There was also a shift in medical tasks. The ICU continued to manage intensive care patients,

Table 1 Excerpts from interviews illustrating the principal findings

Theme	Subtheme	Interview excerpts
Exceptional mobilisation	Ambivalent feelings: stress and pride	'There were sick colleagues, there were accidents, a lot of pressure. But overall, we managed to keep the shop running'. 'It was very stressful. I found it exciting in organisational terms, medically too. I admit that it was very interesting to get involved. We had a real sense of our profession. It was also fascinating to organise'.
	An unusual degree of internal solidarity	'The hospital has become a living space again. It's a bit weird saying that. (…) We needed to feel that we were useful and we didn't want to leave colleagues on their own'. 'There really was a kind of momentum that I've never known, a collective momentum of the people involved in COVID-19'.
	Task delegation and coordination	'There were surgeons who came in as reinforcements for COVID-19 teams saying, "I am willing to help, if we have to do stretcher work, I will!". An extremely effective spontaneous collaboration'. 'I was extremely surprised by the quality of care provided by my non-intensive care colleagues, who found themselves with frankly borderline patients, patients who should have been taken care of, in intensive care or in continuous care, with large doses of oxygen'.
	External help	'We had a lot of volunteers, especially clinical staff'. 'I have been in touch with the director of the nursing school several times, letting her know about the situation and that it was a real need, that it wasn't just to complain. The trainers arrived, they saw what was happening and they even worked at the weekend. They were there at weekends'.
	Reappearance of tensions at the end of the first wave	'At the end of May, it went back to a bit of everyone for themselves again. We've gone back to being the same again. I thought that we had had a bit of an impact on each other's mentality, but no! It lasted four or 5 weeks. By the end of May, beginning of June, it was everyone for themselves again, pettiness'. 'Some non-COVID services resumed scheduled activity before others, which made some sense. This created a bit of tension about when to resume scheduled activity. (…) The resumption of the hospital's polypathology activity was a bit complicated, with some tensions'.
Crisis management	APHP was effective at coordinating the opening of intensive care beds and purchasing key equipment	'The main role (that the APHP crisis unit) played was to organise the increase in intensive care bed capacity, and therefore to open beds at an ever faster rate, with all that that implies: human resources, ventilators, etc…'. 'Ordering several million gowns at once has more of an impact than ordering 10 000. It's the same for ventilators. For stocks that were in short supply, APHP made the purchases directly. It then made it possible to dispatch equipment afterwards, according to the needs of the hospitals'.
	A lot of autonomy was granted to local level	'Basically, we realised very quickly that care was local and that we would have to organise ourselves locally, even if there was central co-ordination'. 'It was never that easy in the hospital. It was discussed in the local crisis unit, a decision was made in the crisis unit. This decision was not discussed or debatable once it was made. Afterwards, it was just logistics'.
	Deviations from central orders	'We turned a blind eye to the generalisation of mask-wearing. I have no regrets because I think it helped us a lot'. 'The management of visits too, where we deviated a little. (…) the doctors knew that they could give authorisations to certain families, when the situation was really too difficult. (…) I think we have to trust collective intelligence a bit'.
Relationships between hospital managers and healthcare professionals	Tensions during the phase of alert	'In terms of administration, hospital group and hospital, the same thing, with a lag that was a bit stressful and painful to manage for a good week. They hit a bit late, a week behind schedule (…) We fell back on grotesque discussions that we used to have, outside of the health crisis. It created a bit of tension'. 'We have argued this before, but we were very surprised, there was really a discrepancy between the medical and paramedical position and the administration position, which was: "No, everything is going to be fine!" There was really a difference in the discourse'.
	Strong cooperation during the first wave	'It was going well (between management and health professionals). There was never any refusal from the administration concerning requests (…) for equipment, for organisation that we were going to put in place. Management adhered and followed completely'. 'What has changed is this famous crisis committee, that was a time when people met. It's something that got a bit lost'.
	The feeling that these smooth relations between managers and health professionals will not last	'It's a well-functioning crisis committee. We all had a bad time with the end of lockdown and the reappearance of all those who had served no purpose, except to hide during the crisis, and who came back to tell us how to do it, when we were on the verge of exhaustion! That, frankly, was the old world order to the power of 10!'. 'Has the routine organisation left traces? It doesn't feel like it yet'.

APHP, l'Assistance Publique Hôpitaux de Paris.

but intensive care patients were also admitted to what had previously been continuous care beds. Medical units equipped with pulse oximeters began to perform continuous monitoring. Intensive care specialists applauded the involvement of their colleagues, which made it possible to absorb the influx of patients. This collaboration concerned curative care and nursing care. Family visits to the hospital were forbidden, and the COVID-19 ward physicians needed to be focused on patient treatment and care. Other physicians and medical students helped to make this possible by offering to call the patients' families to keep them informed of the health status of their relatives.

After the peak of the first wave had passed, from mid-April onwards, tensions began to emerge, with the other physicians wishing to return to the management of non-COVID-19 patients. Even within the ICU unit, professionals disagreed about the pace at which other activities should be restarted. At the time, there was uncertainty about the consequences of the end of lockdown, and hospital authorities were concerned about a possible immediate recrudescence of the epidemic. They were

therefore unwilling to restart the treatment and management of non-COVID-19 patients too quickly. Six people (1/4) said that they were disappointed that this heightened cooperation between professionals did not continue after this period.

Crisis management based primarily on the principle of subsidiarity

Ambroise Paré Hospital belongs to a larger hospital group, *l'Assistance Publique Hôpitaux de Paris* (APHP), the largest hospital group in France. The general management of this group usually plays a key role in the development of organisational strategy (major priorities, resource allocation, etc). All the members of the Ambroise Paré crisis committee (four people) and departmental team leaders—four physicians and three head nurses—that we interviewed considered that, during the first wave, strategic decision making was largely decentralised, with many decisions made at hospital or departmental level, contrary to the usual centralised management culture of APHP. Nevertheless, the medical crisis centre of the APHP, including intensive care specialists and general management, took decisions for all its hospitals to open (and then close) additional intensive care beds. Decisions to purchase key medical equipment, such as respirators and masks, were also taken at central level. However, decisions about how best to organise patient admission and triage, which departments should specialise in the treatment of patients with COVID-19, and how many professionals should be assigned to these wards were made collegially by the crisis committees of the individual hospitals. Initially, it was decided centrally that the use of protective masks should be limited to the staff of departments treating patients with COVID-19. However, following the discovery of clusters in non-COVID-19 departments, it was decided by the departments of the hospital, with the tacit agreement of management, to generalise the use of masks to all departments. Two departments even told us that they had anticipated this generalisation locally, without waiting for tacit approval from the crisis committee. Tensions also arose when the crisis committee ratified the decision of the anaesthesia department to convert its RR into resuscitation beds,[1] while the resuscitation department, with the agreement of the central crisis unit of the APHP, had planned to open an additional 'extramural' resuscitation room. Finally, despite the ban on the families of patients with COVID-19 visiting hospitals, it was decided at Ambroise Paré Hospital to allow dying patients a visit from their relatives. Locally, departments were allowed considerable autonomy in the organisation of professional schedules and decisions about patient treatment, referral and discharge.

The administrative structure did not collapse and intervened to support caregivers

Nine interviewees said that the phase of alert was a time of tension between caregivers and administrators due to differences in the perception of the emergency. The caregivers wanted to recruit and train healthcare workers as early as the start of March—when public hospitals in Eastern France and other Parisian hospitals were already overwhelmed—but they had the impression that management wished to delay the decision. However, this phase did not last long, and the caregivers interviewed emphasised that they had received support from the administrative structures. Fourteen interviewees (three managers, four head nurses and seven physicians) expressed surprise that they found themselves able to work well with managers (for physicians and head nurses) and with hospital staff (for managers) during the crisis. This was particularly true for the members of the crisis committee, which brought together hospital management and doctors. Both managers and physicians felt that the physicians had made the major decisions regarding bed openings and patient transfers, whereas the managers had endorsed expenditure requests, provided they could be justified. Managers declared that this effective collaboration was facilitated by the declaration of the president of France during the announcement of the first lockdown that France would 'wage this war' against the virus 'whatever the cost'. However, six of the healthcare professionals (HCPs) interviewed (1/4) deplored the cessation of this collaboration at the end of the first wave, and criticised the rapidity with which management resumed control thereafter. They feared that nothing would be learnt from this improvement in relations between management and HCPs.

DISCUSSION

Good coordination and communication are key for the management of crises. However, published studies have anticipated a risk of organisational collapse in such contexts, which may impede such efforts.[3] No such organisation collapse happened at our hospital during the COVID-19 crisis. Our qualitative analysis of the organisational response of a university hospital during the first wave of the COVID-19 pandemic revealed the emergence of exceptional mobilisation and collaboration, with changes in management practices based on the principle of subsidiarity, and without collapse of the administrative structure, which intervened to support caregivers.

Management changes during the first wave of the COVID-19 pandemic

In France, the timing of the pandemic coincided with a particularly difficult period in hospitals. Many hospital staff had been expressing anger for several months about the managerial reforms of recent years, which they perceived as a transfer of power from HCPs to managers. Despite this unfavourable context, most of the HCPs interviewed spoke of a surprisingly unique momentum based on solidarity and mobilisation. Both HCPs and managers found themselves under considerable pressure and stress, but this crisis was also a period of great satisfaction for both groups. Our analysis highlights key changes

in management during the COVID-19 crisis, which made this coordination possible. First, the changes in management observed during the crisis were characterised by a change in leadership, based primarily on subsidiarity, with medical departments and their heads emerging as new leaders defining the roadmap for the institution. Thus, each decision was made at the most immediate or local level consistent with resolution of the problem concerned. This approach is diametrically opposite to recent hospital reforms in France, and in other healthcare systems, which have involved a movement towards a greater centralisation of decision making and the reinforcement of management prerogatives.[4 5] This major change in management and leadership during the crisis was basically accepted and validated by the administration, which did not collapse and instead collaborated actively with the new medical leaders in the definition of the roadmap for the institution. In the face of an external shock, such as the COVID-19 pandemic, this capacity of the administration to maintain its core functions was determinant for supporting the response to the shock.

Second, the emergence of this new leadership was not compromised by conflict between different medical departments. All the HCPs stressed that cooperation was smooth, with everyone focused on the unique objective of managing patients with COVID-19. This collaboration operated at institutional level, within the hospital (eg, the crisis committee bringing together various representatives from departments involved in management of the crisis), and at regional level, particularly as concerns coordination of the numbers and locations of intensive care beds (eg, regional coordination of intensive care requiring the cooperation of anaesthetists and intensive care specialists). The mutual assistance observed probably stemmed from a suspension of other activities. The various French regions were affected to different extents during the first wave, but non-emergency medical and surgical activities were suspended nationwide. Thus, physicians and nurses, both within the hospital and working elsewhere, whose activities were halted often, offered to help their colleagues in COVID-19 wards. The suspension of other activities, including surgery in particular, had another consequence. The tensions that usually exist between specialities and departments due to competition for access to scarce resources—especially beds—were also suspended. The excessive influx of patients with COVID-19 also meant that everyone was overloaded, and there was no competition between doctors managing these patients.

Comparison with other data obtained during the COVID-19 crisis or other crises

Other data were collected during the COVID-19 crisis, with different methodologies. In a qualitative review of the management of the crisis by APHP,[6] the importance of medical coordination was stressed, leading to the creation of a new post: central crisis medical director.[6] This medical coordination was replicated at the different levels of APHP institutions during the COVID-19 crisis (ie, in each hospital group and in each single hospital). This emergence of the importance of medical coordination materialised as a medically based orientation of the crisis management strategy. Conversely, this review also highlighted the efficiency of a single platform recruiting and training specialised staff and of a similarly centralised logistic organisation for the daily adjustment of quantities in response to supply shortages.[6] This centralisation of administration, providing efficient back-up for medical activities, is what we describe here as the 'non-collapse' of administration in this crisis. Finally, the review pointed out that all this was made possible by the extraordinary mobilisation and joint efforts of medical, paramedical and administrative staff, with reinforcements from other regions. In conclusion, the qualitative review by the APHP COVID-19 group highlighted management issues similar to those discussed here, such as medical leadership, back-up from powerful administration structures and the unprecedented efforts of all the professionals working at the hospital. In another qualitative review by the Ile-de-France Health Regional Agency, regional coordination involving all HCPs in the region regardless of their status (public or private) was found to be necessary for bed management, and the importance of the increase in ICU bed numbers (by more than 200%) and inter-regional patient transfers was also highlighted.[7] This review also stressed the outstanding human mobilisation as a crucial factor in the management of this crisis.[7] Despite this mobilisation, psychological suffering due to anxiety was observed in another study performed at this institution, confirming a previous report.[8]

Lessons learned from this crisis and recommendations for the future

Healthcare organisations can use the COVID-19 pandemic as an opportunity to transform themselves into more agile and resilient learning systems, particularly during the recovery and rebuilding stages. At our hospital, several permanent structures have emerged from this experience. It has been decided to maintain regular multiprofessional meetings of the heads of all medical department and to include senior physicians in these meetings, as a means of maintaining communication between various medical specialities and ensuring the joint development of hospital strategy. The regional coordination of intensive care, involving both anaesthetists and intensive care specialists, has been maintained and was reactivated during the successive waves of COVID-19 in 2020 and 2021. What can we learn from past crises? First, the concept of 'health system resilience' must be expanded beyond the confines of technical and biomedical knowledge and actions to engage with broader social, economic and political factors in society.[9 10] Another key lesson may be that the battle is usually won or lost in the myriad actions performed in the days, weeks and years before the crisis, and that, in preparing for the next emergency, we should expect the unexpected.[11] Sociological

studies have highlighted the value of analyses of managerial solutions and failures during crises as one of the most efficient ways to learn from previous crises.[12] Unfortunately, such a culture of feedback on concrete elements of crisis management is not widespread in administrations in general and in hospitals in particular.[12] Several feedback meetings have taken place at our hospital for debriefing and to allow lessons to be learnt from this crisis, but no definitive change to the management of the hospital institution has emerged. This sociological survey contributed to efforts to analyse the response to the crisis and to provide feedback, and its insights were appreciated by the medical community. A recent review on the handling of the COVID-19 crisis in six different healthcare institutions located in the USA, France and Germany highlighted a common experience of the importance of communication, collaboration and innovation.[13] It also found that the emergence of new leaders and the humility of existing leaders during the pandemic were consistent with the principles of flexible leadership in complex adaptive systems.[13] Multiple qualities are required for leadership in a crisis, but availability, collaboration, and communication between medical teams have been identified as the basis of appropriate adaptation.[14 15] Future crises, whatever their origins (sanitary, terrorism and climatic), are inevitable, and their frequency worldwide is likely to increase. The culture of effective crisis management, including an appreciation of the value of feedback on each episode, must be spread.[9] For the management of health crises, and of pandemics of viral diseases in particular, it should be borne in mind that evolving and pragmatic leadership from medical personnel is the cornerstone of the response, which should also include collaboration, communication and innovation, and reliable back-up from a powerful administration.

Strengths and limitations

Based on sociological expertise and interviews conducted shortly after the crisis, this qualitative analysis provides in-depth knowledge of the experience of the professionals. This allows us to focus on the relationships between professionals (managers, nurses and physicians) during the crisis, a crucial element in crisis management. As in all case study approaches, such analyses are subject to limitations. As this study is based on one case in a specific context, its results need to be compared with other similar situations in different contexts to test, refine and amend their generalisation and to build robust theories.[16]

In conclusion, our sociological analysis of the management of the first wave of the COVID-19 epidemic at our hospital sheds light on the management of this crisis. Several aspects common to other crises, such as flexible management, back-up from administrators with a high degree of expertise, and a tremendous motivation of healthcare staff, emerged as factors of considerable importance for crisis management.

Twitter Patrick Castel @PatrickCastel

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ORCID iD

Dominique Fletcher http://orcid.org/0000-0001-6157-1331

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