

COVID-19: A disaster

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Catherine Bertrand
Eric Lecarpentier

SAMU 94, CHU d'Henri-Mondor, AP-HP, 51,
avenue du Maréchal-de-Lattre-de-Tassigny,
94010 Créteil, France

SUMMARY

Natural and technological disasters have now been joined by the COVID-19 pandemic, which has affected all countries since 2020. This article shows the extent to which the pandemic fulfils the definition of a disaster in the light of the situation facing Martinique and other islands. This article illustrates the value of the lessons learned from the experiences shared between the partners of the European Horizon 2020 No Fear project during the first waves. It also demonstrates that the pandemic interferes with the appropriate response to other parallel disasters: the explosion in Beirut, heat waves, fires, floods, earthquakes, hurricanes, confrontations and crowd movements, migratory flows from Afghanistan, etc. Thoughts on ways of better preparing and anticipating, as well as fostering cooperation and international aid are presented, as they may be discussed on a national level, within the European Commission or NATO.

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RÉSUMÉ

Aux catastrophes naturelles, technologiques, il faut ajouter la pandémie COVID-19 qui impacte tous les pays depuis 2020. L'article montre en quoi la pandémie répond à la définition d'une catastrophe au regard de la situation à laquelle la Martinique et d'autres îles sont confrontées. L'article montre l'intérêt des leçons issues des expériences partagées entre les partenaires du projet européen Horizon 2020 No Fear pendant les premières vagues. Il montre également que la pandémie interfère avec la réponse à apporter à d'autres catastrophes co-existantes : explosion à Beyrouth, vagues de chaleur, incendies, inondations, tremblements de terre, ouragans, affrontements et mouvements de foule, flux migratoires depuis l'Afghanistan, etc. Des réflexions pour mieux se préparer et anticiper, favoriser la coopération et l'aide internationale sont présentées telles qu'elles peuvent être discutées au plan national, au sein de la commission européenne ou de l'OTAN.

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INTRODUCTION

"We need to jointly prepare for the unexpected", Patrick Lagadec (28th October 2003, les Echos.fr). The question is how to cope with future crises.

The pandemic caused by the spread of the SARS-CoV-2 virus caught the world unaware in terms of its suddenness, duration and global impact, albeit affecting countries differently in time and intensity. Indeed, assessment of the healthcare situation and of the abilities to respond depends on the intricately linked medical, cultural, economic and political issues specific to each country. Lack of awareness or even ignorance of the pathophysiological mechanisms of the disease gave rise to erratic therapeutic approaches during the first

waves. Moreover, the disease may not resolve and may progress as long COVID (coronavirus disease), with no therapeutic solution or pathophysiological rationale.

This level of scientific uncertainty is unsettling for doctors and their patients and is a source of anxiety, fuelling rumours propagated by communities and social networks, giving rise to behavioural problems. Against this background, it comes as no surprise that the health recommendations and political decisions are being challenged, which are sometimes questionable since there are out of step with the unpredictable evolution of the disease and therefore contested, leading to mistrust and social unrest.

This article shows in what sense this pandemic is a disaster, a term infrequently used

KEYWORDS

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Corresponding author:

C. Bertrand,
SAMU 94, CHU d'Henri-Mondor,
AP-HP, 51, avenue du Maréchal-
de-Lattre-de-Tassigny, 94010
Créteil, France.
E-mail address:
catherine.bertrand@outlook.com

up to now. It shows how useful it is to share experiences among clinicians from neighbouring countries as part of an European Horizon 2020 project No Fear (Network Of practitioners For Emergency medicAl systems and cRitical care), when the lack of scientific work or the work currently in progress cannot produce validated recommendations. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 78 66 70.

Owing to its duration, this disaster interferes with the operational response to combat other disasters and diseases. Reflections concerning the improvements to be envisaged in order to better anticipate such an event are presented within the context of collaboration on a European level in particular.

STATEMENT OF THE FACTS

This pandemic meets the definition of a disaster. Right from the outset of the spread of the virus, daily healthcare resources were overwhelmed or proved inadequate in view of the flow of patients requiring hospitalisation and the constraints in terms of the number of beds available, in particular critical care and resuscitation beds. The human and material resources have been inadequate, forcing the training of healthcare personnel to acquire new skills, an increase in the number of respirators and measures to deal with the shortage of medicines. Foresight, which is paramount in any disaster, was found lacking, highlighting the problem of strategic stocks, as there was a repeated lack of material resources: personal protective equipment (PPE) for healthcare personnel, barrier protection materials for nursing staff initially followed by the entire population, PCR (polymerase chain reaction) tests, oxygen delivery capacities (up to 60 litres per minute for a patient) and logistics resources to allow mass vaccination.

Emergency plans are designed to ensure that day-to-day care is maintained while coping with the disaster. However, episodes of containment and prioritisation in addition to isolation of COVID areas in health institutions severely penalise and prevent the treatment of non-COVID-19 patients.

The warning signals for anticipating the crisis are better known. B. Riou showed in particular during the first wave that the peak of number 15 calls was followed one week later by admissions to intensive care and this indicator confirms the validity of the SAMU (emergency rescue service) centres 15 number allowing any citizen to obtain an immediate medical advice [1,2]. These achievements did not make it possible to anticipate the dire situation encountered in August 2021, particularly in Martinique as well as in Guadeloupe, Polynesia and French Guiana, a genuine disaster with unprecedented problems hitherto unknown in mainland France.

The harsh health repercussions of this island disaster are evidenced by the rapid saturation of the mortuaries, accompanied by a shortage of stocks of coffins forcing on-site dispatch of mobile refrigerated units and simplification of funeral rites. At the same time, and unlike in mainland France where deaths at home are not counted, the list of obituary notices broadcast by Radio Caraïbes International is growing by the day.

The island location and remoteness increase the consequences of the disaster and highlight the lack of foresight, as all the human, material and logistic reinforcements originating from mainland France are provided by long-haul flights lasting

several hours. Major constraints apply to aeromedical patient evacuations. Should patients with severe COVID who are sufficiently stabilised to withstand the journey be transported, hoping for successful resuscitation treatment in mainland France, or should non-COVID patients be transferred in order to release beds that can be converted to critical care on site? The management of patients whose cases are serious since they present risk factors and are poorly covered by vaccination puts doctors in a situation where they are required to make ethical choices concerning treatment levels, according to criteria which, although recognised by learned societies, nevertheless bear no comparison with their clinical practice up to now [3,4].

Overall patient management is compromised by the lack of critical care beds and their human and logistic support, as well as by the lack of hospital space, forcing the Army to deploy a field hospital during hurricanes. The caregivers dispatched as reinforcements from mainland France must be familiar with the local culture, beliefs and religion. One should take account of the local culture and abstain from any value judgements regarding reluctance to vaccinate. The population is still suspicious, let down by the government's false promises following the use of pesticides on banana trees. The disaster situation requires restoration of a comprehensive care chain. Patients who cannot be admitted to hospital should be treated at home. Patients who fail to progress favourably after a few days of treatment in hospital and patients who could be hospitalised, should receive palliative care and end their lives in dignity. Remarkably, the shortage of oxygen, which could be predicted rather than conceivable in 2021, has led the Army to send large quantities of oxygen by sea. The oxygen issue is, however, known to be a limiting factor in disaster plans in case of a large number of victims with respiratory distress. Continuity of supply chains including medical supplies is an area which NATO (North Atlantic Treaty Organization) sees as vitally important. Without reiterating the data from the many reports published on COVID-19 and the flaws observed in its management, we will insist on two specific points:

- the need to identify the requirements for critical care and intensive care beds for adults and children, as well as the relevant staff quotas and qualifications. Associated with this issue is a reflection on the training of caregivers during the acute period and on the sustainability of this training through innovative formats and media. A harmonised European definition of a resuscitation bed would make comparisons more relevant, especially between neighbouring countries such as France and Germany;
- the need to anticipate oxygen requirements, delivery capacities in health care facilities and at home, delivery in different aircraft with regard to aeronautical standards and safety aspects.

DISCUSSION

The contribution of the No Fear project

The No Fear project coordinated by the UNIVERSITA DEGLI STUDI DEL PIEMONTE is based on three cornerstones and brings together 18 partners, including a large number of practitioners in charge of COVID patients in their countries, including France, Italy, Spain, Austria, Ireland, Romania, Norway and Israel. The organisation of monthly remote seminars has

allowed exchanges of views on common issues: clinical practices, scientific advances, logistics and, of course, ethical aspects.

A point that immediately came to light during the webinars was the difference in timescale in the progression of the disease and the solutions provided depending on the country: confinement or curfew, closure of schools, instructions on barrier measures, etc. From the very first exchanges, the Italian colleagues raised awareness to the severity of the clinical cases, the vulnerability of the elderly and the risk of saturation of hospital resources, as well as to the exponential need for non-invasive and invasive ventilatory assistance.

All clinicians are faced with the same scientific uncertainties, but these exchanges made it possible to show at a very early stage the benefits of non-invasive ventilation, particularly in Italy. The needs for high-flow oxygen make it possible to postpone intubation and overcome the delicate stage of the 7th day where there is a risk of sudden deterioration in vital functions.

The need to monitor oxygen saturation in order to detect desaturation prior to the onset of clinical signs in patients described as "happy hypoxic" has been highlighted. At the beginning of the pandemic, French clinicians were reluctant to use non-invasive ventilation methods, pointing to the risk of aerosolisation. The SFMC (French Society of Disaster Medicine) was subsequently able to recommend the Boussignac valve to European colleagues and to initiate a schedule of conditions for a multipurpose ventilator.

The issue of institutions housing elderly people has been widely shared, emphasising their vulnerability and the dilemma between hospitalisation or graded care within the institution [5]. These institutions are by definition not places of care but places of residence, and advancing age is necessarily associated with multiple morbidities. The consequences of the isolation of the elderly, the difficulty in obtaining advance instructions when the family is not allowed to visit and the additional needs for nursing and non-nursing staff, particularly to assist with meals in each room, have been unanimously recognised [6,7]. The rationale for continually setting up COVID and non-COVID areas in these institutions has not been substantiated.

Common logistic requirements have been highlighted, especially for pre-hospital teams needing anti-infectious PPE that is less restrictive in a hot environment. An international seminar has also emphasised the importance of having secure devices for transporting infected patients.

The discrepancies between the capacities of PCR and sequencing tests, whether they are free or not, and the protective measures at the borders are political decisions, considered beyond the scope of clinicians.

Remarkably, collated as part of the project: countless tools, platforms, telemedicine resources and e-health applications have been produced in each country and are available on the No Fear website (<https://no-fearproject.eu>). One such example is syndromic surveillance by COVIDOM (<https://www.covidom.fr>) allows daily patient self-monitoring and targeting of individuals to be recalled.

As regards vaccination, a specific organisation in each country has made it possible to gradually cover the population. Difficulties in convincing the public emerged at a very early stage, with some countries having to face a strong anti-vax movement.

The lines of work identified in France include:

- standardisation of non-invasive ventilation equipment in terms of better quantification of the risks of aerosolisation and less oxygen-consuming ventilatory assistance for transferring patients requiring high-flow oxygen;
- the creation of new anti-infectious personal protective equipment for caregivers;
- standardisation of masks and creation of transparent masks so that children in particular can recognise language and emotions on the face;
- the need to leak-test devices for land, sea and air transfers of conscious (seated) or intubated infected patients that are compatible with the various stretchers and do not require caregivers to wear PPE;
- the status of the institutions for the elderly, in order to maintain the balance between place of residence and need for care, in addition to a dignified and supportive end of life.

The impact of the pandemic on the international response to other disasters

- the dispatch of French Civil Security rescuers at the time of the explosion in the port of Beirut took account of the health conditions, which were stable at that time. The peak of infection in the Lebanon occurred later;
- the Army has several roles: protect its population, which is certainly young and in good health; provide human and logistic assistance to its country, particularly for the surveillance of specific sensitive sites and the transport of strategic stocks. This activity impacts the deployment possibilities to deal with other disasters;
- rescue resources must respect the quarantines imposed at the borders.

The ability to engage in a civilian-military context is complicated, as it becomes difficult to rely on a local infrastructure that may already be impacted by COVID-19.

There are many risks and operational capability must nevertheless be maintained through field exercises [8,9]. Within the context of the pandemic, NATO held a civilian-military exercise in North Macedonia, coordinated by the Euro-Atlantic Disaster Response Coordination Centre (EADRCC) in September 2021, dealing with realistic scenarios such as floods, earthquakes and migrant flows, not forgetting CBRN (chemical, biological, radiological and nuclear) risks, during the on-going COVID restrictions.

These disaster situations encourage European cooperation and strengthen collaborative work towards promoting a common Modular Field Hospital that came after the first Haiti earthquake and a fleet of multipurpose airborne vehicles, following the Norwegian and Swedish experience. The need for medium and long distance air evacuation facilities is a reality. They identified the need to have common facilities so that medical teams from different countries could rotate more easily and efficiently without wasting time getting to know different facilities and techniques.

The importance of communication

The COVID-19 pandemic is characterised by its unpredictability and the difficulties in communicating dispassionately. Media saturation in France, with the display of figures and statistics that are difficult to understand (number of deaths, infections, etc.) and that cannot be transposed from one country to

another, in addition to the succession of instructions that are overly prescriptive and lacking in pedagogical support, maintain an anxiety that is increased by isolation. It is desirable that a uniqueness of information and language as well as pictorial information and guidance for international audiences should be developed and tested, if only with simple language elements to explain and demystify what messenger RNA (Ribonucleic acid) is. It is commonplace to say that the abundance of information and its relays is harmful to the quality of the message. It is however a principle in disaster medicine to ensure the legitimacy of the communicator, the terms used, their clarity, transparency and sobriety by being prepared to say: "we do not know" at this stage. The successive instructions must have a constructive logic and not deconstruct each other as any inconsistency will be quickly exploited by those looking to spread both misinformation and disinformation which is now common practice during any disaster. The result is a major societal fact with a sudden outbreak of mood disorders and suicidal acts, all the more so as children are affected. Political decisions on maintaining schooling in the classroom, anticipation of children's vaccination status and medical means for paediatric treatment are the challenges of tomorrow.

CONCLUSION

The pandemic, like any disaster, forces us to prepare for the unexpected, especially as there is still no scientific rationale applied to it and no specific treatment. It is therefore difficult to foresee and plan. Thinking in terms of past events causes a bias in reasoning and leads to repetition of former patterns that are inappropriate to the current situation. However, within the context of the disaster experienced in the islands, three focuses of attention need to be highlighted:

- cooperation on long-distance air evacuation capacities;
- the availability and use of large quantities of oxygen;
- the anticipation of the medical management infrastructures.

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Disclosure of interest

The authors declare that they have no competing interest.

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