Caring for Critically Ill Patients Infected With the Ebola Virus

Logistic and Human Challenges

To the Editor:

We read with great interest the article by Torabi-Parizi et al¹ in *CHEST* (June 2015) that gives valuable perspectives on the ethical and practical considerations in providing critical care to patients infected with the Ebola virus. As part of France's contribution to the international response to the Ebola outbreak, a 10-bed military Ebola virus disease treatment unit has been deployed since January 2015 in Conakry, Guinea, where the epidemic remains active. The unit comprises a multidisciplinary team of senior physicians combined with nurses, laboratory technicians, pharmacists, and administrative and command elements. Our medical team is composed of two intensivists, four internists, one neurologist, one cardiologist, one psychiatrist, two biologists, and one epidemiologist. The structure has been designed and equipped as an ICU, with permanent video monitoring of the Ebola patient room and capacity for central venous access, urinary catheter, mechanical ventilation, and vasopressors administration in the "red zone," which is the Ebola patients' hospitalization unit. However, no hemodialysis is available.

We do agree with the authors that the main factor that might improve the care provided to critically ill patients with Ebola is the permanent presence of competent personnel in the "red zone." However, we have to keep in mind that the ability to spend time in protective personal equipment in the red zone is limited, especially in epidemic zones, because of the high temperature and moisture (Fig 1). Some teams deployed in Sierra Leone reported that 40 min was the maximal time that personnel could spend in protective personal equipment.² In our experience, and in the local Guinean climatic conditions, it is not bearable to spend > 60 min. And it is physically testing for nonacclimatized personnel to enter the red zone several times in 1 day. To limit the risk of contamination, at least two people have to be in the red zone: Each person is responsible for his or her colleague. As a consequence, a permanent presence in the red zone would require a great number of health-care workers, 48 per day if we consider the need for two workers each

Figure 1 – A, Medical team in personal protective equipment admitting a patient in the French Military Ebola Virus Disease Treatment Center. B, French health-care workers (a physician and a nurse) after having removed the personal protective equipment.

hour. This staff need is not compatible with the means of a deployed unit such as ours. We also think that this goal is difficult to reach in a developed country, especially if several patients infected with Ebola are hospitalized at the same time. Finally, staff resources are the main limiting factor to improving critical care for patients with Ebola.

Julien Bordes, MD

Nicolas Gagnon, MD

Jean Cotte, MD

Thierry de Greslan, MD

Claire Rousseaul, MD

Magali Billhot, MD

Jean Marie Cournac, MD

Ludovic Karkowski, MD

Sophie Moroge, MD

Sandrine Duron, MD

Benoit Quentin, MD

Gilles Cellarier, MD

Conakry, Guinea

AFFILIATIONS: From the French Military Ebola Virus Disease Treatment Centre (Drs Bordes, Gagnon, Cotte, de Greslan, Rosseaul, Billhot, Cournac, Karkowski, Moroge, Duron, Quentin, and Cellarier); Sainte Anne Military Teaching Hospital (Drs Bordes, Cotte, and Cellarier), Toulon, France; Legouest Military Teaching Hospital (Drs Gagnon and Karkowski), Metz, France; Val De Grâce Military Teaching Hospital (Drs de Greslan and Billhot), Paris, France; Clermont Tonnerre Military Teaching Hospital (Dr Rosseaul), Brest, France; Percy Military Teaching Hospital (Dr Cournac), Paris, France; Laveran Military Teaching Hospital (Dr Moroge), Marseille, France; and French Military Health Service Headquarter (Drs Duron and Quentin), Paris, France.

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CORRESPONDENCE TO: Julien Bordes, MD, Intensive Care Department, Sainte Anne Military Teaching Hospital, Blvd Sainte Anne, 83000 Toulon, France; e-mail: guiluxe.cts.cky@gmail.com

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Response

To the Editor:

In their letter, Dr Bordes and colleagues highlight some of the challenges of providing care for seriously ill patients with Ebola virus disease (EVD) in a resource-limited setting. They describe an Ebola treatment unit in West Africa with capacity to provide higher levels of care, yet emphasize challenges associated with environmental conditions and excessive staffing needs. Because of the need for extensive personal protective equipment use in an environment with high ambient temperature and humidity, and in the absence of a facility with adequate climate control, compromises must be made to balance the care of patients with the safety of health-care workers. The authors rightly question the feasibility of providing a continual presence of competent staffing for critically ill patients under such conditions.

In the high-level containment units in the European Union and United States, where climate factors are less restrictive, robust staffing needs remain a significant although not insurmountable challenge. Other challenges in the provision of critical care to patients with EVD include lack of availability of specialized imaging studies, including CT scan and MRI, and limited access to microbiologic or other specialized non-point-of-care laboratory testing. We agree, based on our own experience as well as that described by others in US and European Union

centers, that caring for patients with EVD presents multiple logistic and human challenges.¹ The decision to provide continuous intensivists coverage for critically ill patients with EVD must be addressed in the context of available resources, human and otherwise, at any given facility. The geographic location and environmental conditions in a treatment facility are among the many factors that must be taken into account when deciding what level of care is feasible and safe. Lessons learned from this epidemic should guide ongoing activities for present and future outbreaks to maximize the level of quality care delivered to patients with EVD.

Parizad Torabi-Parizi, MD

Richard T. Davey Jr, MD

Anthony F. Suffredini, MD

Daniel S. Chertow, MD

Bethesda, MD

AFFILIATIONS: From the Critical Care Medicine Department (Drs Torabi-Parizi, Suffredini, and Chertow), Clinical Center, National Institutes of Health; and the Clinical Research Section (Dr Davey), Laboratory of Immunoregulation, National Institute of Allergy and Infectious Diseases, National Institutes of Health.

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CORRESPONDENCE TO: Parizad Torabi-Parizi, MD, Critical Care Medicine Department, National Institutes of Health, 10 Center Dr, 2C145, Bethesda, MD 20892; e-mail: torabiparizi@cc.nih.gov

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