

## LETTERS

# Letter to the editor: Management of patients with Ebola virus disease in Europe: high-level isolation units should have a key role

G Ippolito<sup>1</sup>, V Puro<sup>1</sup>, P Brouqui<sup>2</sup>, F N Lauria<sup>1</sup>, F M Fusco (francescomaria.fusco@inmi.it)<sup>1</sup>, on behalf of the EuroNHID Consortium<sup>3</sup>

1. National Institute for Infectious Diseases 'L. Spallanzani', Rome, Italy
2. Southern France referral center for EBOLA care, IHU Méditerranée Infection, Marseille, France
3. Members of the EuroNHID Consortium are listed at the end of the article

**Citation style for this article:**

Ippolito G, Puro V, Brouqui P, Lauria FN, Fusco FM, on behalf of the EuroNHID Consortium. Letter to the editor: Management of patients with Ebola virus disease in Europe: high-level isolation units should have a key role. *Euro Surveill.* 2014;19(50):pii=20993. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20993>

Article submitted on 09 December 2014 / published on 18 December 2014

**To the editor:**

We read with interest the article by de Jong and colleagues, who provide an initial insight into European hospital preparedness level for the admission of a patient with Ebola virus disease (EVD) [1].

In the past, the rare imported cases of Ebola and Marburg in western European countries and the United States were managed in high-level isolation units (HLIUs) [2]. Subsequently, reported experiences indicate that strict contact-droplet isolation is enough for preventing transmission. From this hypothesis, the idea may derive that HLIUs are not strictly necessary for the management of EVD patients, who may be safely managed in non-specialised hospitals, as suggested by some international recommendations elaborated during the current Ebola outbreak in West Africa [3,4]. Even if we concur that strict contact-droplet isolation is enough to prevent transmission during routine care, we believe that HLIUs should have a key role in EVD containment in countries where such facilities are available. An HLIU is a healthcare facility specifically designed to provide safe, secure, high-quality, and appropriate care, with optimal infection containment and infection prevention and control procedures, for a single patient or a small number of patients who have, or who may have, a highly infectious disease [5].

In hospitals, breaches in infection control may occur; many healthcare associated infections could be prevented by standard precautions and contact isolation measures, but despite this, they continue to hit thousands of patients and to increase health-related costs [6]; measures for preventing needlestick and sharp injuries are well-known, but many of these accidents occur every day; hand hygiene alone may prevent many infections, but this simple procedure is often poorly applied [6]. We believe that such breaches are not acceptable when managing a disease with 50% of case fatality rate such as EVD. Data from de Jong and

colleagues, reporting that practical exercises have been performed in 28.4% of responding hospitals only [1], as well as the secondary transmissions that occurred in Spain and the United States, reinforce this position.

Indeed, establishing precautions is not equal to their adherence. Well-trained staff, awareness about personal protective equipment and other infection control procedures, continuous practice, appropriate supervision, and adequate logistics are needed; in other words, an established 'infection control culture and practice'. Moreover, rooms with special technical air-handling features are necessary for aerosol-producing procedures [7].

We believe that this unique combination of technical and logistic equipment, well-trained and experienced staff, and long-term established and updated procedures, is available within HLIUs only, thereby representing the safest place to manage EVD.

In Europe, an assessment of isolation capabilities for the management of highly infectious diseases was performed in 2009–2010 within the European Network for Infectious Diseases/European Network for Highly Infectious Diseases (EUNID/EuroNHID) projects coordinated by the National Institute for Infectious Diseases 'Lazzaro Spallanzani' in Italy [8]. The EuroNHID Consortium currently includes 47 isolation facilities identified by the national health authorities as referral centres for highly infectious diseases (including EVD), in 20 countries (Austria, Bulgaria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Norway, Poland, Portugal, Spain, Slovenia, Sweden and the United Kingdom). The survey results are being updated in 2014: complete data are available from 12 countries; from the remaining eight countries, partial data are available. According to currently available data, among

the 47 isolation facilities 17 HLIUs are present in nine European countries, with at least 92 beds available, 57 of which with intensive care capacity. Additional capacity may be present in other countries not participating to EuroNHID Consortium. This bed capacity (not expected to change significantly after the collection of pending data) is surely enough to effectively manage Ebola patients in Europe, in the current epidemiological situation.

In conclusion, we strongly believe that HLIUs should play a crucial role in management of patients, and preparedness plans should include referral of EVD patients to these facilities as early as possible.

#### Other members of EuroNHID Consortium are:

Hans-Reinhard Brodt, Timo Wolf, Stefan Schilling, and René Gottschalk, Germany; Renaat Peleman, Belgium; Helena C. Maltezos, Greece; Barbara Bannister and Michael Jacobs, United Kingdom; Norbert Vetter, Austria; Mira Kojouharova and Kremena Parmakova, Bulgaria; Peter Skinhoej and Gitte Kronborg, Denmark; Heli Siikamaki, Finland; Christian Perronne, France; John Lambert, Republic of Ireland; Robert Hemmer and Therese Staub, Luxembourg; Michael Borg and Charles M. Azzopardi, Malta; Arne Broch Brantsæter and Anne Lise Fjellet, Norway; Andrzej Horban, Poland; Margarita Tavares, Portugal; Franc Strle, Slovenia; Antoni Trilla, Spain; Jens Raffelsberger and David Ekqvist, Sweden.

#### Acknowledgements

We acknowledge Dr. Gabriella De Carli for scientific advice and English editing and Ms. Ramona Iacovino for her administrative support during the project.

This work was supported by the EC grant EuroNHID (2006205) and by the Ministero della Salute, Italia-Ricerca Corrente, Istituti di Ricovero e Cura a Carattere Scientifico.

#### Conflict of interest

None declared.

#### Authors' contribution

All authors equally contributed to manuscript concept and writing. All authors gave their final approval to the manuscript contents.

#### References

1. de Jong MD, Reusken C, Horby P, Koopmans M, Bonten M, Chiche JD, et al. Preparedness for admission of patients with suspected Ebola virus disease in European hospitals: a survey, August-September 2014. *Euro Surveill.* 2014;19(48):pii=20980.
2. Kortepeter MG, Martin JW, Rusnak JM, et al. Managing potential laboratory exposure to Ebola virus by using a patient biocontainment care unit. *Emerg Infect Dis.* 2008;14:881-7. <http://dx.doi.org/10.3201/eid1406.071489>
3. Centers for Disease Control and Prevention (CDC). Assistant Secretary for Preparedness and Response. Health care provider preparedness checklist for Ebola virus disease. Atlanta: CDC. [Accessed 5 Nov 2014]. Available from: [www.cdc.gov/vhf/ebola/pdf/healthcare-provider-checklist-for-ebola.pdf](http://www.cdc.gov/vhf/ebola/pdf/healthcare-provider-checklist-for-ebola.pdf)
4. Centers for Disease Control and Prevention (CDC). Infection prevention and control recommendations for hospitalized patients with known or suspected Ebola virus disease in U.S. hospitals. Atlanta: CDC. [Accessed 5 Nov 2014]. Available from:

[www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html](http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html)

5. Bannister B, Puro V, Fusco FM, Heptonstall J, Ippolito G; EUNID Working Group. Framework for the design and operation of high-level isolation units: consensus of the European Network of Infectious Diseases. *Lancet Infect Dis.* 2009 Jan;9(1):45-56. [http://dx.doi.org/10.1016/S1473-3099\(08\)70304-9](http://dx.doi.org/10.1016/S1473-3099(08)70304-9)
6. Zimlichman E, Henderson D, Tamir O, Franz C, Song P, Yamin CK, et al. Health care-associated infections: a meta-analysis of costs and financial impact on the US health care system. *JAMA Intern Med.* 2013 Dec 9-23;173(22):2039-46.
7. Centers for Disease Control and Prevention (CDC). Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing). Atlanta: CDC. [Accessed 5 Nov 2014]. Available from: <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>
8. Schilling S, Fusco FM, De Iaco G, et al. Isolation facilities for Highly Infectious Diseases in Europe - a cross-sectional analysis in 16 countries. *PLoS One* 2014;9(10):e100401. <http://dx.doi.org/10.1371/journal.pone.0100401>