



Cross-sectional study of Ebola virus disease preparedness among National Health Service hospital trusts in England

T.C.S. Martin^{a,b,*}, M.A. Chand^{a,c}, P. Bogue^a, A. Aryee^{a,b}, D. Mabey^d, S.D. Douthwaite^a, S. Reece^c, P. Stoller^e, N.M. Price^a

^a Guy's and St Thomas' NHS Foundation Trust, London, UK

^b King's College London, London, UK

^c Public Health England, London, UK

^d London School of Hygiene and Tropical Medicine, London, UK

^e La Jolla Country Day, San Diego, CA, USA

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SUMMARY

Background: The largest outbreak of Ebola virus disease (EVD) is ongoing in West Africa. Air-travel data indicate that outside Africa, the UK is among the countries at greatest risk of importing a case of EVD. Hospitals in England were therefore instructed to prepare for the assessment and early management of suspected cases. However, the response of hospitals across England is undetermined.

Aim: To evaluate the readiness of acute hospitals in England, and to describe the challenges experienced in preparing for suspected cases of EVD.

Methods: A cross-sectional study using semi-structured telephone interviews and online surveys of all acute National Health Service (NHS) hospital trusts in England (hospital trusts are the vehicle by which one or more NHS hospitals in a geographical area are managed).

Findings: In total, 112 hospital trusts completed the survey. All interviewed hospital trusts reported undertaking preparedness activities for suspected cases of EVD, and 97% reported that they were ready to assess suspected cases. Most hospital trusts had considered scenarios in accident & emergency (97%). However, fewer hospital trusts had considered specific obstetric (61%) and paediatric scenarios (79%), the provision of ventilatory and renal support (75%), or resuscitation in the event of cardiorespiratory arrest (56%). Thirty-four hospital trusts reported issues with timely access to category A couriers for sample transportation. Challenges included the choice, use and procurement of personal protective equipment (71%), national guidance interpretation (62%) and resource allocation/management support (38%).

* Corresponding author. Address: Department of Infection, Guy's and St Thomas' NHS Foundation Trust, Westminster Bridge Road, London SE1 7EH, UK. Tel.: +44 (0) 20 7188 7188.

E-mail addresses: Thomas.martin@cantab.net, Thomas.martin@kcl.ac.uk (T.C.S. Martin).

Conclusion: English hospital trusts have engaged well with EVD preparedness. Although subsequent national guidance has addressed some issues identified in this study, there remains further scope for improvement, particularly in a practical direction, for acute care services encountering suspected cases of EVD.

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Introduction

The ongoing outbreak of Ebola virus disease (EVD) in West Africa is unprecedented. To date, over 10,000 deaths and in excess of 26,000 confirmed, probable and suspected cases have been reported.¹ Consistent with previous outbreaks of EVD, the case fatality rate during this outbreak is estimated at 70%.^{2–4}

In total, 24 cases have been confirmed outside West Africa.⁵ Of these, 18 were medical evacuations including a single case to the UK. The remaining six cases were diagnosed outside Africa: two returning travellers to the USA, one returning traveller to the UK, and three incidents of secondary transmission to healthcare workers (one in Spain and two in the USA).⁶ Although the overall risk of unintentionally importing a case is low, analysis of air-travel data suggests that outside Africa, the UK is among the countries at greatest risk of importing a case of EVD, possibly due to its position as an international travel hub.^{7–9} The risk may be further augmented by UK humanitarian workers returning from affected areas, as illustrated by recent cases in the UK, and the large number of West African communities originally from affected countries living in the UK but travelling frequently to epidemic zones.

As a consequence, on 2nd July 2014, the Chief Medical Officer and Public Health England (PHE), a government-associated body responsible for protecting and improving the public's health, advised all acute National Health Service (NHS) hospitals in England through the central alerting system to prepare for suspected cases of EVD. Hospitals were advised to implement existing guidance on the management of viral haemorrhagic fevers as published by the UK Department of Health's expert scientific committee on dangerous pathogens, the Advisory Committee on Dangerous Pathogens (ACDP).^{10–13} On 15th August 2015, PHE also published a patient pathway algorithm to facilitate the early identification, isolation, risk assessment and investigation of suspected cases of EVD.¹¹

As highlighted by the substantial number of healthcare workers infected during the outbreak, patient care requires meticulous training in the safe use of personal protective equipment (PPE) and observation of strict infection control procedures. However, the isolation and management of suspected cases should cause minimal disruption to the provision of normal clinical services. National exercises in October 2014 tested EVD preparedness at two hospitals in London and Newcastle, including a simulated transfer to the High Level Isolation Unit (HLIU) at the Royal Free Hospital in London; however, the response among other NHS hospitals in England is unknown. Therefore, this study was undertaken to evaluate the progress made by English hospitals in preparing for suspected cases of EVD, and to identify any challenges and obstacles.

Methods

A cross-sectional study was undertaken of all NHS acute hospital trusts in England with access points for suspected cases of EVD including: accident & emergency (A&E), acute admitting general medicine, paediatric or obstetric services (NHS hospitals in England are managed by hospital trusts, which represent one or more hospitals in a geographical area). Data collection was undertaken in the form of a semi-structured telephone interview with the hospital trust Ebola preparedness lead. Interviews were recorded, if permission was granted, to ensure factual accuracy. An online survey was offered as an alternative in the event that the hospital trust Ebola preparedness lead could not be contacted or the interview was declined.

Assessment of preparedness

Measures of preparedness were derived from the ACDP guidance (September 2014, Version 4) on the management of viral haemorrhagic fevers, PHE guidance for acute hospitals, and the authors' local experience.^{10,11} Questions were designed to cover a range of realistic clinical scenarios at initial presentation, and assess aspects of the patient pathway thereafter. Hospital trust EVD leads were asked to assess their preparedness on a scale of 1–5 (1 = poorly prepared, 5 = well prepared), and to estimate the number of patients assessed for suspected EVD to date.

Description of challenges

Interviewees were asked open-ended questions about internal and external challenges experienced in preparing for suspected cases of EVD. If the information was not volunteered spontaneously, interviewees were prompted to comment specifically on any difficulties experienced in choice and procurement of PPE, working with contracted services (e.g. waste/sewage, laundry, transport, couriers, ambulances), laboratory processing and procedures, senior management support, resource allocation, and interpretation and implementation of existing national guidance.

Additional data

Data concerning the number and location of cases referred for EVD detection were requested from the Rare and Imported Pathogens Laboratory (RIPL), PHE Porton Down, Salisbury, UK.

Analysis

Where hospital trusts had only partially completed a category of preparedness, the outcome recorded was decided through discussion between two of the study investigators.

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