



## Ebola in pregnancy: information for healthcare workers

**This guidance is aimed at clinical staff undertaking direct care of pregnant patients. It is a supplement to guidance for acute trusts and primary care, which contain more specific information on assessing patients at risk of Ebola virus disease. Both the [Royal College of Obstetricians & Gynaecologists](#) and the [Royal College of Midwives](#) have been consulted on this document.**

Ebola virus disease (EVD) is a rare but severe infection caused by Ebola virus. Since March 2014, there has been a large outbreak of Ebola virus in West Africa, with widespread and intense transmission in Guinea, Liberia and Sierra Leone. This is the largest ever known outbreak of this disease prompting the [World Health Organization \(WHO\)](#) to declare a Public Health Emergency of International Concern in August 2014. Cases have also occurred in Mali, Nigeria, Senegal, Spain, the UK and the US.

There remains an expectation that a handful of further cases may occur in the UK in the coming months. Thus, although the risk of imported cases remains low, it is possible that further persons infected in Guinea, Liberia, or Sierra Leone could arrive in the UK while incubating the disease (the incubation period is 2-21 days) and develop symptoms after their return. While a fever in persons who have travelled to Ebola transmission areas is more likely to be caused by a common infection, such as malaria or typhoid fever, healthcare professionals in the UK should remain vigilant for those who have visited areas affected by this outbreak and subsequently become unwell.

### Ebola transmission

Unlike infections like flu or measles, which can be spread by virus particles that remain in the air after an infected person coughs or sneezes, Ebola is not spread through the airborne route. Ebola virus is transmitted among humans through close and direct physical contact with infected body fluids. This means that the body fluids from an infected person (alive or dead) have touched someone's eyes, nose or mouth, or an open cut, wound or abrasion. Infection can also occur if broken skin or mucous membranes of a healthy person come into contact with environments that have become contaminated with an Ebola patient's infectious fluids such as soiled clothing, bed linen or used needles.

People infected with Ebola can only spread the virus to other people once they have developed symptoms. In the early symptomatic phase, virus is present in the blood; however the level of virus in body fluids such as saliva is very low and unlikely to pose a transmission risk. In the late symptomatic phase, once vomiting and diarrhoea are present, all body fluids (such as blood, faeces, vomit, urine, amniotic fluid, saliva and semen) should be considered infectious, with blood, faeces and vomitus being the most infectious. The skin is almost certainly highly contaminated in late stage disease because of the impossibility of maintaining good hygiene with diarrhoea, vomiting, incontinence etc. Semen can remain infectious for at least three months after apparent recovery from the illness.

Ebola virus is not spread through routine, social contact (such as shaking hands) with asymptomatic individuals.

### Ebola risk and healthcare workers

The incubation period for Ebola ranges from two to 21 days. It remains unlikely that travellers infected in one of the affected countries could arrive in the UK while incubating the disease, and develop symptoms after their return. Although the likelihood of imported cases is low, healthcare staff in the UK need to remain vigilant.

Anyone who has close physical contact with a symptomatic person assessed as a high possibility of being infected with Ebola, or someone who handles blood or body fluid samples from such a patient, should be using suitable personal protective equipment (PPE). These precautions include wearing double gloves, fluid repellent disposable protective gowns/coveralls, full length plastic aprons over the gown, head covers (eg surgical cap), fluid repellent footwear (eg surgical boots or shoe covers), a full face shield or goggles, and a fluid repellent FFP3 respirator. The Advisory Committee on Dangerous Pathogens (ACDP) guidance [Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence](#) is the principal source of PPE guidance for clinicians managing suspected Ebola cases. Full guidance on PPE is in Appendix 8 of the ACDP document. Any patient confirmed to have Ebola would be transferred and managed in a high level isolation unit.

### Ebola symptoms

The illness usually begins suddenly with fever, headache, joint and muscle aches, sore throat and intense weakness. Stomach cramps, diarrhoea and vomiting may occur. Some individuals may develop a rash, red eyes, hiccups, and bleeding (such as from nose or mouth, blood in diarrhoea or vomit). In severe cases patients develop failure of the liver and kidneys.

## Ebola in pregnancy

Much of what we know about Ebola in pregnancy comes from previous outbreaks of Ebola virus disease (EVD) in Africa, which is a very different healthcare context to that in the UK. There is no evidence from these outbreaks to suggest that pregnant women are more susceptible to Ebola virus disease<sup>1</sup>.

The limited evidence from these outbreaks does suggest that pregnant women are at increased risk of severe illness, complications and death when infected<sup>1</sup>. Reported complications include spontaneous abortion<sup>1,2,3</sup> and pregnancy-associated haemorrhage<sup>1</sup>. Infants born to mothers who are in the terminal stage of disease are invariably infected<sup>3</sup>, with high neonatal mortality rates reported<sup>1</sup>.

## Assessing patients at risk of Ebola virus disease

Ebola should be suspected in patients presenting to healthcare services who have a **fever of  $\geq 37.5^{\circ}\text{C}$**  OR have a history of fever in the past 24 hours **AND** have recently visited any of the affected areas (as outlined previously) within the previous 21 days

**OR**

Have a **fever of  $\geq 37.5^{\circ}\text{C}$**  OR have a history of fever in the past 24 hours **AND** have cared for or come into contact with body fluids of or handled clinical specimens (blood, urine, faeces, tissues, laboratory cultures) from an individual or laboratory animal known or strongly suspected to have viral haemorrhagic fever (VHF).

It is important to remember that Ebola virus is one cause of VHF, and other viruses causing VHF are endemic in a number of countries. A fever in persons who have travelled to Ebola transmission areas is also more likely to be caused by a common infection, such as malaria or typhoid fever, than Ebola. Maps identifying VHF endemic areas can be found on the [PHE website](#). Guidance for these cases is the same as for the current Ebola outbreak.

The ACDP guidance on [Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence](#) is the principal source of guidance for clinicians risk assessing and managing suspected Ebola cases. This guidance is targeted at hospital-based healthcare staff (in emergency departments, infectious disease departments, infection control, microbiology/virology, acute medical units), as well as ambulance staff, laboratory staff, public health, and mortuary staff.

1 Jamieson DJ, Uyeki TM, Callaghan WM, Meaney-Delman D, Rasmussen SA. What Obstetrician-Gynecologists Should Know About Ebola: A Perspective From the Centers for Disease Control and Prevention. *Obstetrics and gynecology*. 2014

2 Finnegan LP, Sheffield J, Sanghvi H, Anker M. Infectious Diseases and Maternal Morbidity and Mortality [conference summary]. *Emerging infectious diseases*. 2004;10(11):e17

3 Howard CR. *Viral Haemorrhagic Fevers*. Zuckerman AJ, Mushahwar IK, editors. Amsterdam: Elsevier; 2005

As outlined in the ACDP guidance, the assessment of a patient's risk of Ebola (or other VHF) should be led by the **local infection specialist** (consultant microbiologist, virologist or infectious disease physician), in accordance with the **ACDP algorithm**, but may be done in conjunction with primary care (if that is where the suspected case initially presents) and with discussion with the local PHE centre.

## Treatment of a person with suspected or confirmed Ebola virus disease

Clinical management consists of supportive care, particularly fluid and electrolyte management, correction of coagulopathy, treatment of secondary infections, and management of other complications<sup>1</sup>. Treatment of an individual with suspected or confirmed positive Ebola virus disease should be managed in conjunction with the local infection specialist.

In the unlikely event that a pregnant woman in the UK is confirmed positive for Ebola virus disease, the clinical management would be similar to that for non-pregnant adults, with an emphasis on monitoring for, and early treatment of haemorrhagic complications. Amniotic fluid of an infected pregnant woman is likely to be highly infectious. A neonate of an Ebola-infected woman would be managed either as a high-risk contact or a case, depending on the outcome of initial testing of that neonate.

## Special considerations for breastfeeding women

Although Ebola virus has been detected in breast milk, that information is based on a single patient<sup>4</sup>, and it is unknown whether Ebola virus can be transmitted routinely from mothers to infants through breastfeeding<sup>1</sup>. People infected with Ebola can only spread the virus to other people once they have developed symptoms. It seems likely that mothers who are very ill (in the late symptomatic phase) would be at high risk for transmitting the virus to their infants through breast milk and close contact, including the act of suckling. Virtually nothing is known about the clearance of Ebola virus from breast milk in convalescing women<sup>1</sup>.

Given the potential risk of transmission through breastfeeding, advice to a breastfeeding woman who is being investigated as a suspected Ebola case should be to stop breastfeeding pending the test result, but this should be in context with an individual risk assessment on the likelihood of VHF (led by the **local infection specialist** following consultation with the Imported Fever Service), and the ability to provide alternative feeding to the infant. The infant should be managed as a high-risk contact, and investigated appropriately.

<sup>4</sup> Bausch DG, Towner JS, Dowell SF, Kaducu F, Lukwiya M, Sanchez A, et al. Assessment of the risk of Ebola virus transmission from bodily fluids and fomites. *The Journal of infectious diseases*. 2007;196 Suppl 2:S142-7

## Further guidance

Further information can be found on the Public Health England website at: [Ebola virus disease: clinical management and guidance](#); this webpage includes links to specific guidance for **acute trusts** ([identifying and managing patients who require assessment for EVD](#); [infection control and prevention for acute trust staff](#)) and for **primary care** ([managing patients who require assessment for EVD](#)).

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