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Ebola Virus Disease in Pregnancy: Evidence Gaps and Preparedness for Bhutan

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Ebola Virus Disease (EVD) continues to re-emerge as a public health emergency and the most recent outbreak in the Democratic Republic of the Congo (DRC) is attributed to the Bundibugyo viral strain. As of 24 May 2026, there were reported 906 suspected cases, 105 laboratory confirmed cases, and 223 deaths reported from DRC. In addition, 7 confirmed cases and 1 death reported from Uganda[1] . One person from the United States of America who was treating Ebola patient also got infected and currently under medical treatment in Germany[2] . Bundibugyo viral strain neither has an approved vaccine nor a targeted therapy..Given the potential risk of international spread, World Health Organization (WHO) declared EVD a Public Health Emergency of International Concern (PHEIC) on 17 May 2026[3] . In this context, it is timely and important to examine the implications of EVD caused by Bundibugyo strain in pregnancy.

EVD has a particularly deleterious impact on pregnant women, with severe outcomes including maternal mortality, spontaneous abortion, still birth and neonatal death[4] . To date, only a handful of neonates born to women infected with Ebola have survived[5] . Cases of EVD in pregnancy are predominantly reported from some of the world's most vulnerable and least resourced countries[6] . With increasing international connectivity through diplomacy, travel and trade, Bhutan faces a potential risk of importing EVD. Therefore, strengthening awareness and preparedness is the need of the hour.

First identified in 1976, EVD is caused by multiple filovirus species, including Zaire, Sudan, and Bundibugyo ebolaviruses, among others, and has caused recurrent outbreaks in sub-Saharan Africa[7] . The largest outbreak occurred in West Africa in 2014-2016, resulting in over 28600 confirmed cases and 11325 deaths[8] . The DRC has since experienced several further outbreaks, with the most recent, caused by the Bundibugyo strain, remaining of particular concern given the absence of an approved vaccine for this species[3] . The ongoing risk of international spread, highlighted by the WHO, underscores the need for preparedness in non-endemic countries[9]).

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Pregnant women are uniquely vulnerable to EVD due to physiological and immunological adaptations that predispose them to severe disease and multi-organ failure. Following infection, Ebola virus exhibits placental tropism, enabling vertical transmission to the fetus[10] . The clinical presentation of EVD during pregnancy is similar to non-pregnant adults, including fever, vomiting, myalgia, loose stools, and bleeding manifestations, which may overlap with obstetric emergencies such as miscarriage or antepartum hemorrhage[4] . This overlap may delay diagnosis and increase occupational exposure risk among healthcare workers.

There is limited literature on EVD in pregnancy. Between 1976 and 2020, only 354 cases were reported with an absolute risk of maternal mortality of 67.8%, and risk of fetal loss of 76.9% and neonatal death of 98.5%[4] . Although data from the West African epidemic reported a lower maternal mortality of 39-64%, the 2018-2020 outbreaks in the DRC reported similar mortality compared to non-pregnant women, however, more than half of the survivors experienced pregnancy loss [11-13].

Vertical transmission of Ebola virus during pregnancy, delivery, and lactation results in poor fetal and neonatal outcomes[14]). Congenital Ebola infection is almost universally fatal. Management of labor and delivery in infected women poses significant occupational risk to healthcare workers due to exposure to blood, amniotic fluid and body fluid of newborns[14] . This highlights the critical importance of advanced preparedness, including adequate personal protective equipment and infection prevention protocols.

Despite the high maternal mortality and poor fetal outcomes, there are currently no robust, evidence-based management guidelines for EVD in pregnancy. Pregnant women have largely been excluded from therapeutic trials due to ethical concerns and potential fetal risks, resulting in a critical evidence gap during clinical decision-making[15] . The underlying mechanisms of adverse fetal and neonatal outcomes remain poorly understood, and it is unclear whether the adverse outcomes result from direct viral cytopathic effects or secondary to maternal complications. Key aspects of care such as optimal mode of delivery, anesthetic approaches, and intrapartum

infection prevention strategies remain insufficiently defined.

In this context, WHO, Society of Obstetricians and Gynaecologists of Canada (SOGC), and Centers for Disease Control and Prevention (CDC) guidance remains largely supportive, emphasizing strict infection prevention and control measures, supportive maternal care, avoidance of labour induction, avoidance of intensive fetal monitoring, cesarean delivery only for obstetric indications, avoidance of invasive procedures, avoidance of breastfeeding and immediate separation of the newborn from the mother. In addition, vaccination with Ervebo (Merck) during an active Zaire EBOV outbreak in affected areas is recommended only in the context of rigorous research purpose or a compassionate use protocol. Management of EVD in pregnancy by a multidisciplinary team using full PPE is recommended, and pregnant health workers should not manage EVD patients[16-18].

Despite the absence of reported EVD cases in Bhutan, preparedness remains essential given growing international travel, deployment of peacekeepers, and movement of healthcare volunteers, all of which increase the risk of importation. A comprehensive national preparedness framework should begin at points of entry, with robust travel-history screening and alert protocols linked to the Royal Centre for Disease Control (RCDC), which must coordinate real-time surveillance and laboratory confirmation capacity. Suspected cases should trigger clearly defined referral and isolation pathways at Jigme Dorji Wangchuck National Referral Hospital and regional referral hospitals, supported by dedicated isolation facilities and unambiguous escalation procedures. For obstetric care specifically, preparedness must extend beyond general infection control to include standardized protocols for safe labour and delivery, neonatal management, breastfeeding avoidance, and safe disposal of biological waste and contaminated materials. Regular simulation drills and structured personal protective equipment (PPE) training for obstetric teams are essential, given the heightened exposure risk during labour, delivery, and newborn care. Critically, effective preparedness requires seamless coordination across obstetric, emergency, infectious disease, laboratory, ambulance, and public health teams, as a fragmented response significantly amplifies both clinical risk and transmission potential. While physicians and infectious disease specialists may be familiar with emerging infections, this awareness must be systematically extended to obstetric practice through interdisciplinary training and jointly developed contingency plans. Bhutan's engagement in regional and global health security networks will further strengthen its capacity to respond rapidly and effectively should an imported case occur.

Although EVD in pregnancy carries high maternal mortality and near-universal fetal loss, evidence remains critically limited, partly due to the exclusion of pregnant women from therapeutic trials-a gap that must be addressed by including them in future studies within a supervised ethical framework. The current PHEIC, the absence of an approved vaccine for the Bundibugyo strain, and this persistent evidence deficit collectively underscore that preparedness cannot wait for an imported case. For Bhutan, this means proactive investment in obstetric training, standardized isolation protocols, and engagement in global research collaborations and WHO surveillance networks. Pregnant women bear the gravest burden of EVD yet remain the least protected by existing evidence-making both national readiness and international research engagement not merely strategic priorities, but moral imperatives. The cost of preparedness will always be less than the cost of response.

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