

Epidemiology and Risk Profile of Ebola Cases Outside Africa, 1976–May 2026

Kevin van Zandvoort^{1,*}, Simon R. Procter^{1,*}, James Azam^{1,*}, Kath Sherratt^{1,*}, Nick Davies^{1,2,3,†}

CMMID Bundibugyo Working Group

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1. Centre for Mathematical Modelling of Infectious Diseases, London School of Hygiene and Tropical Medicine, London, UK.

2. FCDO Multi-Hazard Research Network, UK.

3. UK Public Health Rapid Support Team, UK.

* Equal contribution

† Corresponding author: nicholas.davies@lshtm.ac.uk

Background An outbreak of *Bundibugyo ebolavirus* in Ituri, Democratic Republic of the Congo was reported in May 2026. Neighbouring countries in Africa are at the greatest risk of cross-border spread, but the severe nature of Ebola virus disease has raised concerns globally around the risk of international transmission. Decision-makers outside Africa may be considering policies of varying stringency ranging from watchful waiting to border closures, and therefore need to understand the risks of Ebola importation in the context of previous epidemics.

Methods We conducted manual and AI-assisted searches to find all known Ebola cases that have occurred outside of the African continent and manually reviewed all identified case reports, public health bulletins and news articles to understand the risk of Ebola importation due to travel from Africa to other continents. We collected epidemiological data, including key dates, and analysed the historical risk of Ebola importation as well as the time-varying risk of Ebola importation during the 2014-2016 West African Ebola epidemic.

Results From the first recognised Ebola outbreak in 1976 to May 2026, there have been 28 confirmed cases of Ebola virus disease outside of Africa caused by epidemic-linked transmission of *Zaire ebolavirus*, *Sudan ebolavirus*, or *Bundibugyo ebolavirus*. Among these 28 cases, 21 (75%) were in individuals medically evacuated from Africa due to confirmed Ebola virus infection, three (11%) were in front-line health care workers returning from an Ebola outbreak whose symptoms were detected after border screening, one (4%) was in a traveller with no responsive role, and three (11%) were secondary cases in health care workers who treated another Ebola patient outside Africa. Based on Ebola epidemics since 2000, we estimated a crude overall risk of 0.81 Ebola cases outside Africa per 1,000 reported Ebola cases in Africa. Focusing on non-medically evacuated cases only, the crude overall risk is 0.17 Ebola cases outside Africa per 1,000 reported Ebola cases in Africa.

Interpretation The risk of undetected Ebola transmission outside Africa is low. Nearly all (27 of 28) confirmed Ebola cases reported outside Africa were linked to known occupational exposures, with reasons for travel specific to outbreak response. Our results suggest that the risk of case exportations could be substantially mitigated by infection prevention measures at the outbreak source and among outbreak response workers, in concert with enhanced travel screening and monitoring for returning response workers.

Introduction

An outbreak of *Bundibugyo ebolavirus* in the Democratic Republic of the Congo (DRC) was confirmed in May 2026, with additional confirmed cases subsequently detected in Uganda. While neighbouring African countries are at the greatest risk of cross-border spread, some countries outside of Africa have already imposed movement restrictions, including Canada, which has temporarily instituted a 21-day quarantine policy for travellers from DRC [1], and the United States of America (USA), which has temporarily closed its borders to visitors and legal permanent residents who have recently visited DRC, Uganda or South Sudan [2]. There is a need for scientific evidence to support decisions around what measures should be considered regarding travel outside of Africa.

Methods

Descriptive analysis of exported cases

We conducted Internet searches for details of all Ebola cases presenting outside Africa, performing: (i) manual Internet searches cross-referenced to publicly-available data on Ebola cases imported into Europe from ECDC, (ii) an AI-assisted Internet search for all Ebola cases outside Africa using Claude Opus 4.8, and (iii) an AI-assisted Internet search for all Ebola cases outside Africa using OpenAI's GPT-5.2 Thinking model.

We focused on collecting: (i) age, sex, nationality, and name (for cross-referencing) of each case; (ii) source outbreak and country, destination country, exposure details, frontline worker status, medical evacuation status, and key dates for each case; and (iii) virological confirmation and clinical outcome (recovered or died) of each case. Initial manual searches were split across all authors, and the results of the manual searches were then double-checked by another author. In order of preference, peer-reviewed academic articles, public health bulletins (e.g. from WHO, ECDC, or national public health bodies) and news articles were consulted. The results of the manual search were then checked against the AI-assisted searches, which found no additional cases meeting our inclusion criteria. The AI-assisted searches were used only to identify cases that may have been missed by manual searching; all extracted data were manually entered by the authors based on identified sources.

In our main analysis, we included all confirmed cases of *Zaire ebolavirus*, *Sudan ebolavirus*, and *Bundibugyo ebolavirus* outside of Africa due to direct transmission from an ongoing outbreak in humans. This included both cases with exposure in Africa and subsequent travel outside the continent, as well as cases with exposure outside of Africa. We did not include suspected cases with no confirmed test results. We excluded three confirmed Ebola cases due to needle-stick injuries in laboratory workers handling infected material (one identified in the UK, two identified in Russia), and a confirmed case of *Tai Forest ebolavirus* in a Swiss scientist who was exposed to an infected chimpanzee. We excluded infections with *Reston ebolavirus* due to contact with animals, because Reston virus does not cause symptomatic disease in humans [3].

Crude risk analysis

We calculated the crude risk of an exported Ebola case by dividing the number of exported cases by the reported number of cases in each source outbreak, and across all outbreaks. Reported case numbers for each outbreak were obtained from reports released by US CDC for historic outbreaks [4] and the DRC National Institute of Public Health for the current Bundibugyo virus outbreak [5].

Time-varying risk analysis

For all exported cases identified in the 2014–2016 West African epidemic, we carried out a time-varying risk analysis using Poisson regression of the number of exported cases for a given epidemiological week and country (across Guinea, Liberia, and Sierra Leone, including weeks with zero exported cases, from 6 January 2014 to 20 December 2015) against (i) the number of cases reported for that epidemiological week and country and (ii) the number of weeks since 6th January 2014 as a linear predictor of time-varying risk. To verify the robustness of the time-trend incidence, we verified residual autocorrelation in exported cases by inspection of residual autocorrelation function plots and by calculating Driscoll-Kraay panel heteroskedasticity and autocorrelation-consistent standard errors across 2-6 week bandwidths [6]. For the number of epidemic cases by source country and epidemiological week, we used amalgamated data from WHO patient databases [7] up to 23 August 2014, and data extracted from the WHO Ebola Response Roadmap Situation Report for cases from 24 August 2014 onwards [8]. We applied a 4-week smoothing window to reported cases by week to adjust for clustered reporting artifacts.

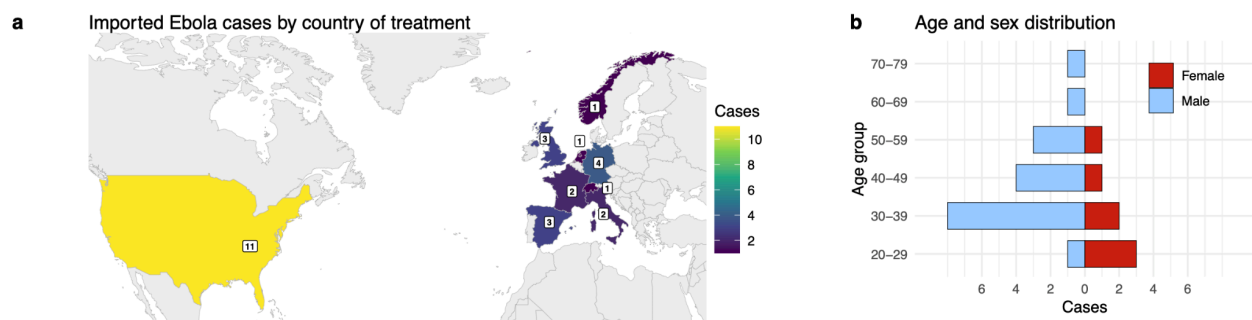


Fig. 1. Ebola cases exported outside of Africa. (a) Geographical distribution of 28 confirmed Ebola cases exported from outbreaks in Africa, 1976 to May 2026. (b) Age and sex distribution of exported cases; three cases with unknown age and/or sex are omitted.

Results

Descriptive summary

We identified 28 confirmed Ebola virus cases outside of Africa: 25 primary imported cases, and 3 secondary cases that were transmitted from a patient in the US or Europe (**Table 1, Fig. 1**). Of these, 27 occurred during the 2014–2016 West African Ebola epidemic and one has occurred so far during the ongoing 2026 Bundibugyo virus epidemic. No other historical Ebola outbreak led to exportation of cases from Africa. In our analysis, we distinguish between two types of primary exported cases: medically evacuated cases, who were securely transported by air ambulance for treatment outside Africa following a confirmed infection, and latent cases, who developed symptoms during or after their return from the outbreak region on a commercial flight.

In Europe, we identified 17 confirmed Ebola cases since 1976, including 16 imported primary cases and one secondary case in a health worker treating a medically evacuated Ebola patient in Spain. All 16 primary cases were in frontline responders, including: 12 health care workers, one UN peacekeeper, one laboratory technician, one epidemiologist, and one UNICEF official. Of the 16 primary cases, 14 were medically evacuated due to confirmed Ebola virus infection; among the remaining two latent cases, one case was in a UK nurse who was only identified as a case after returning to the UK, and one case was in a Spanish health worker who was only identified as a case after returning to Spain. Of all 17 cases in Europe, 16 occurred during the 2014–2016 West African Ebola epidemic and one occurred during the 2026 Bundibugyo outbreak.

In North America, we identified 11 confirmed Ebola cases since 1976, including 9 imported primary cases and two secondary cases in health workers treating an Ebola patient in the USA. Of the 9 primary cases, 7 were in frontline healthcare workers, one case was in a photojournalist reporting on the epidemic, and one case was in a traveller who was exposed while helping a neighbour in Liberia and who did not have a responsive role in the epidemic. Of the same 9 primary cases, 7 were medically evacuated due to confirmed Ebola virus infection, while two were latent cases, one in the aforementioned traveller and one in a health care worker who developed symptoms after returning to the USA. All 11 cases occurred during the 2014–2016 West African Ebola epidemic.

We identified no confirmed Ebola cases in South America, Asia, or Oceania.

Overall, of the 28 confirmed Ebola cases, five died. All three secondary cases were due to nosocomial infection of health care workers treating a known Ebola patient: one in Spain, two in the USA.

Crude risk calculation

As a crude measure of risk, we calculated for past Ebola outbreaks the number of cases occurring outside Africa per 1,000 reported cases in the originating epidemic (**Table 2**). Across

all Ebola outbreaks since the year 2000, there have been 34,362 reported Ebola cases. This gives a crude risk estimate of 0.81 Ebola cases outside Africa, including secondary cases, per 1,000 Ebola cases in the source outbreak. This risk estimate includes both medically evacuated and latent cases. When considering latent cases only (and their secondary cases), there have been 0.17 Ebola cases outside Africa per 1,000 Ebola cases in the source outbreak. Note that this represents the empirically observed risk of importation (and onward transmission) across all countries not on the African continent; per-country risks are smaller. For example, focusing only on the UK, there has been one latent Ebola case since 2000 and 34,362 Ebola cases in the source region, giving a risk estimate of 0.03 latent UK cases for every 1,000 Ebola cases in a source outbreak.

Time-varying risk in the 2014–2016 epidemic

To better quantify how the risk of Ebola importation may vary over the course of an epidemic, we analysed how the rate of exported primary cases varied during the 2014–2016 West African epidemic (**Fig. 2**). The rate of exported cases (both medically evacuated and latent) closely scaled with the number of cases in the source country over time, with no significant deviation from linear scaling with the time-varying number of cases (estimated scaling 0.98 [95% CI 0.60–1.36; $P = 0.86$]). Over the course of the epidemic, the case exportation risk per reported source-outbreak case decreased by 4.6% per week (1.7–7.4%, $P = 0.0097$). More generally, the case exportation risk was substantially lower after the epidemic peak, in the week commencing 27 October 2014 (0.46 [0.17–0.73] exported cases per 1,000 source cases), than it was prior to the epidemic peak (1.7 [0.95–2.7] exported cases per 1,000 source cases). This represents a 73% reduction in exportation risk per outbreak case after the peak compared to before the peak.

Note that the majority of exported primary cases during this epidemic (20 of 24) were medical evacuations. With only four latent exported cases, there is not enough information to estimate a reduction in the risk of exported latent cases over the course of the 2014–2016 epidemic. Accordingly, the finding of decreasing risk over time is likely to be most consistent with improvement in infection prevention and control measures coinciding with the stepping-up of response efforts in late 2014, as further evidenced by decreasing transmission after the peak of the epidemic.

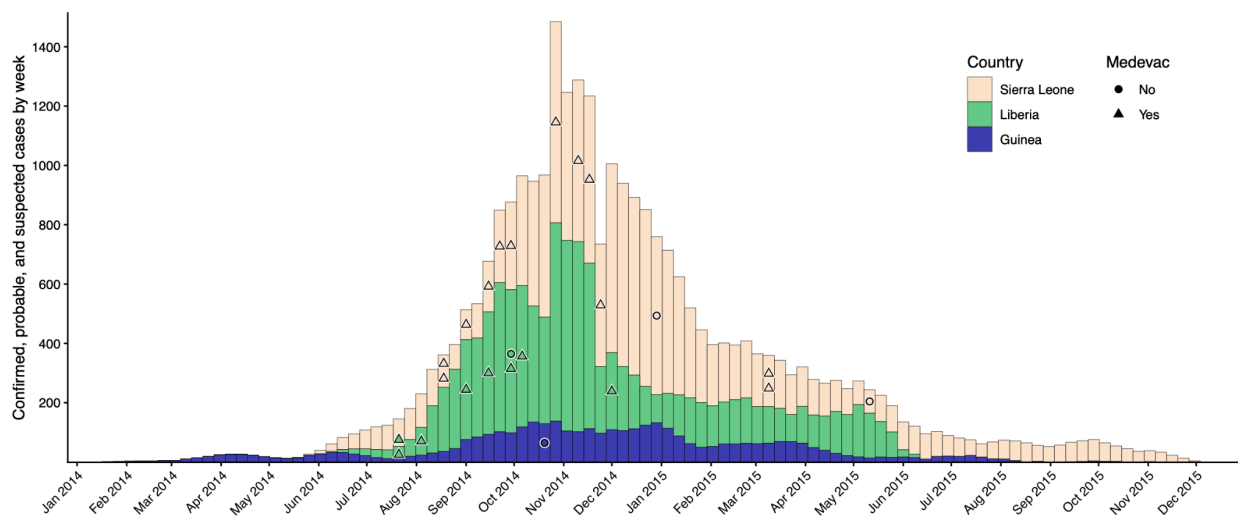


Fig. 2. Timeline of Ebola importation cases from the 2014-2016 West African epidemic. Weekly count of new confirmed, probable, and suspected cases by week and country for Sierra Leone, Liberia, and Guinea. Overlaid points show the date of importation (x-axis), source country (colour) and medical evacuation status (triangles for medevac cases, circles for latent cases) of primary exported cases.

Discussion

We identified 28 confirmed Ebola cases reported as presenting in countries outside of Africa. Given our inclusion criteria, the list of Ebola cases identified is probably complete. In particular, we identified the same 27 cases resulting from the 2014–2016 West African Ebola epidemic as an existing review of clinical symptoms and case management in Ebola cases in Europe and the USA [10]. Nonetheless, our case ascertainment may be incomplete, as national health authority bulletins published in non-English languages were under-represented despite targeted native-language searches, and web-based search tools may have returned geographically biased results.

A key distinction in our analysis of exported Ebola cases is between medically evacuated and latent cases. While medically evacuated cases represent known risks that can be mitigated with strict biosecurity measures, latent cases arriving via commercial flights need to be diagnosed before they can be isolated. We identified four latent cases, all of which were exported during the 2014–2016 Ebola epidemic. The earliest such case was in a traveller from Liberia, who was exposed on 15 September 2014 while helping his pregnant neighbour in Monrovia to obtain medical assistance [11]. After returning home to the United States, he presented to an emergency room with fever and was discharged, before eventually being readmitted and diagnosed with Ebola virus disease on 30th September. This case prompted enhanced screening measures at five US airports that were designed to provide greater protection against similar cases [9,12].

The other three latent cases were in returning health care workers responding to the epidemic. An American doctor developed fever, rapid breathing and fatigue several days after returning to the USA from Guinea and immediately self-isolated and reported to health authorities for testing on 23 October 2014 [13]; a British nurse developed fever and malaise on her return flight from Sierra Leone, was initially passed through screening at Heathrow airport after six normal temperature readings, and notified local health services after her symptoms worsened at home on 28 December 2014 [14]; and an Italian nurse returned home from Sierra Leone on 9 May 2015, commenced self-monitoring of his temperature as per protocol [15], and immediately self-isolated and contacted health authorities upon developing fever, chills, muscle pain and weakness [16,17].

Notably, the four latent cases we identified occurred among 300,000 travelers screened by the US CDC-supported exit screening programmes in Guinea, Liberia, and Sierra Leone, and all were asymptomatic (and hence undetectable) at the point of both exit screening [9] and entry screening [11, 13, 14, 15]. Screening protocols included clear guidance on procedures for self-monitoring of symptoms [15], which ultimately led to rapid confirmation and isolation among the three latent cases in medical workers.

Our findings can be contextualised with previous work evaluating the role of interventions in global mobility patterns to detect or reduce the risk of case exportations outside of Africa. In model-based analyses of the 2014 outbreak, implementing exit screening in affected countries was likely more cost-effective compared to entry screening among all incoming travelers at risk [20]. However, any screening is limited due to non-specificity of early symptoms [9]. Other work has considered restriction of movement [19, 21], finding limited effectiveness that depends on timing relative to epidemic growth [22] while potentially hampering outbreak response and control in the source region [9].

We have focused on cases presenting outside the African continent, but noted that Ebola virus transmission to non-neighbouring countries within Africa is historically rare. Within the continent, neighbouring countries immediately bordering the outbreak are at highest risk. While we did not assess the risk to neighbouring countries systematically, we note that the 2014–2016 epidemic largely affected 3 neighbouring African countries (Guinea, Liberia, Sierra Leone). Three further African countries saw imported cases, only one of which (Nigeria) did not share a land border with the other countries [24].

Overall, we assess that the risk of Ebola cases being exported outside Africa is low. Crucially, the vast majority of Ebola cases reported outside Africa (27 of 28 cases) have been either (i) primary cases in individuals with a known responsive or occupational exposure to an Ebola epidemic (24 cases, including 20 health workers, three UN employees, and one journalist, among whom 20 were medically evacuated) or (ii) secondary cases in health workers treating an Ebola patient outside of Africa (3 cases). There was only one reported confirmed case outside Africa in a traveller with no responsive or occupational exposure. The one identified non-occupational case is a concern, especially as it led to two subsequent secondary cases. However, our results suggest overall that the risk of case exportations is low and could be

substantially mitigated by infection prevention measures at the outbreak source and among outbreak response workers, in concert with enhanced travel screening and monitoring for returning response workers, as recommended in WHO border and travel guidance for the current outbreak [23].

A proportionate approach with multiple options for managing travel-related risk may be the most appropriate response [9]. In particular, as exit screening in an outbreak-affected country aims to reduce case importations in other countries, it is a shared international responsibility. This may be best supported by strengthening local capacity for such screening [19]. We emphasise the role of local, community-based case management and infection control as the most effective strategy for managing outbreak risks both overall and outside the source region.

Data and code

Search results and analysis code may be found at <https://github.com/cmmid/ebola-importation>.

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References

1. Canada GA. Travel advice and advisories for Democratic Republic of Congo (Kinshasa). In: Travel.gc.ca [Internet]. 16 Nov 2012 [cited 7 Jun 2026]. Available: <https://travel.gc.ca/destinations/congo-kinshasa>
2. CDC. Information for Travelers Returning from Ebola-Affected Areas. In: Ebola [Internet]. 29 May 2026 [cited 7 Jun 2026]. Available: <https://www.cdc.gov/ebola/situation-summary/returning-travelers.html>
3. Rollin PE, Knust B, Nichol S. Ebola-Marburg Viral Diseases. Control of Communicable Diseases Manual. American Public Health Association; 2015.
4. CDC. History of Ebola Outbreaks. In: Ebola [Internet]. 4 Jun 2026 [cited 7 Jun 2026]. Available: <https://www.cdc.gov/ebola/outbreaks/index.html>
5. SitRep N°021/MVE BUNDIBUGYO. [cited 7 Jun 2026]. Available: <https://insp.cd/sitrep-n021-mve-bundibugyo/>
6. Driscoll JC, Kraay AC. Consistent Covariance Matrix Estimation with Spatially Dependent Panel Data. *The Review of Economics and Statistics*. 1998;80: 549–560.
7. GitHub - cmrivers/ebola: Data for the 2014 ebola outbeak in West Africa. In: GitHub [Internet]. [cited 7 Jun 2026]. Available: <https://github.com/cmrivers/ebola>
8. Website. Available: <https://data.humdata.org/dataset/ebola-cases-2014>
9. Cohen NJ. Travel and Border Health Measures to Prevent the International Spread of Ebola. *MMWR Suppl*. 2016;65. doi:10.15585/mmwr.su6503a9
10. Uyeki TM, Mehta AK, Davey RT Jr, Liddell AM, Wolf T, Vetter P, et al. Clinical Management of Ebola Virus Disease in the United States and Europe. 2016 [cited 7 Jun 2026]. doi:10.1056/NEJMoa1504874
11. Onishi N. U.S. Patient Aided Pregnant Liberian, Then Took Ill. *The New York Times*. 1 Oct 2014. Available: <https://www.nytimes.com/2014/10/02/world/africa/ebola-victim-texas-thomas-eric-duncan.html>. Accessed 7 Jun 2026.
12. Brown CM, Aranas AE, Benenson GA, Brunette G, Cetron M, Chen T-H, et al. Airport exit and entry screening for Ebola--August-November 10, 2014. *MMWR Morb Mortal Wkly Rep*. 2014;63: 1163–1167.
13. Spencer C. Having and Fighting Ebola — Public Health Lessons from a Clinician Turned Patient. 2015 [cited 7 Jun 2026]. doi:10.1056/NEJMp1501355
14. Crook P, Smith-Palmer A, Maguire H, McCarthy N, Kirkbride H, Court B, et al. Lack of Secondary Transmission of Ebola Virus from Healthcare Worker to 238 Contacts, United Kingdom, December 2014 - Volume 23, Number 12—December 2017 - *Emerging Infectious Diseases journal - CDC*. [cited 7 Jun 2026]. doi:10.3201/eid2312.171100
15. Italy confirms case of Ebola Virus Disease (EVD) in healthcare worker. In: European Centre for Disease Prevention and Control [Internet]. 12 May 2015 [cited 7 Jun 2026]. Available:

<https://www.ecdc.europa.eu/en/news-events/italy-confirms-case-ebola-virus-disease-evd-healthcare-worker>

16. Bertoli G, Mannazzu M, Madeddu G, Are R, Muredda A, Babudieri S, et al. Ebola virus disease: Case management in the Institute of Infectious Diseases, University Hospital of Sassari, Sardinia, Italy. *J Infect Dev Ctries*. 2016;10: 537–543.
17. Chinello P, Petrosillo N, Pittalis S, Biava G, Ippolito G, Nicastri E. QTc interval prolongation during favipiravir therapy in an Ebolavirus-infected patient. *PLOS Neglected Tropical Diseases*. 2017;11: e0006034.
18. Ebola and Marburg: returning workers scheme (RWS). In: GOV.UK [Internet]. [cited 7 Jun 2026]. Available: <https://www.gov.uk/guidance/ebola-returning-workers-scheme>
19. Lo TQ, Marston BJ, Dahl BA, De Cock KM. Ebola: Anatomy of an Epidemic. *Annual Review of Medicine*. 2017;68: 359–370.
20. Bogoch II, Creatore MI, Cetron MS, Brownstein JS, Pesik N, Miniota J, et al. Assessment of the potential for international dissemination of Ebola virus via commercial air travel during the 2014 west African outbreak. *Lancet*. 2015;385: 29–35.
21. Cope RC, Cassey P, Hugo GJ, Ross JV. Assessment of the risk of Ebola importation to Australia. *PLoS Curr*. 2014;6. <https://pmc.ncbi.nlm.nih.gov/articles/PMC4323413/>
22. Gomes MFC, Pastore Y Piontti A, Rossi L, Chao D, Longini I, Halloran ME, et al. Assessing the international spreading risk associated with the 2014 west african ebola outbreak. *PLoS Curr*. 2014;6. <https://pmc.ncbi.nlm.nih.gov/articles/PMC4169359/>
23. World Health Organisation. Implementation of border health and international travel-related temporary recommendations issued by the Director-General of WHO to States Parties not sharing land borders with areas with documented Bundibugyo virus detection. [cited 8 Jun 2026]. Available: <https://www.who.int/publications/i/item/B09769>
24. Coltart CEM, Lindsey B, Ghinai I, Johnson AM, Heymann DL. The Ebola outbreak, 2013–2016: old lessons for new epidemics. *Philos Trans R Soc Lond B Biol Sci* 2017; 372 (1721): 20160297. <https://doi.org/10.1098/rstb.2016.0297>

Table 1. Summary of imported cases

ID	Exposure in	Imported to	Case	Exposure	Age	Sex	Outbreak responder	Medevac	Died	Importation date	Discharge / death date
1	Liberia	France	nurse	Nosocomial	Unclear	Female	Yes	Yes	No	19 Sept 2014	4 Oct 2014
2	Sierra Leone	France	UNICEF official	Community	Unclear	Unclear	Yes	Yes	No	1 Nov 2014	23 Nov 2014
3	Sierra Leone	Germany	epidemiologist	Community	36	Male	Yes	Yes	No	27 Aug 2014	26 Sep 2014
4	Sierra Leone	Germany	doctor	Nosocomial	38	Male	Yes	Yes	No	3 Oct 2014	19 Nov 2014
5	Liberia	Germany	laboratory technician	Lab	56	Male	Yes	Yes	Yes	9 Oct 2014	14 Oct 2014
6	DRC	Germany	doctor	Nosocomial	39	Male	No	Yes	No	20 May 2026	6 Jun 2026
7	Sierra Leone	Italy	doctor	Nosocomial	50	Male	Yes	Yes	No	25 Nov 2014	2 Jan 2015
8	Sierra Leone	Italy	nurse	Nosocomial	37	Male	Yes	No	No	9 May 2015	10 Jun 2015
9	Liberia	Netherlands	UN peacekeeper	Community	Unclear	Male	No	Yes	No	6 Dec 2014	22 Dec 2014
10	Sierra Leone	Norway	doctor	Nosocomial	30	Female	Yes	Yes	No	7 Oct 2014	20 Oct 2014
11	Liberia	Spain	missionary / hospital worker	Nosocomial	75	Male	Yes	Yes	Yes	7 Aug 2014	12 Aug 2014
12	Sierra Leone	Spain	missionary / hospital worker	Nosocomial	69	Male	Yes	Yes	Yes	22 Sep 2014	25 Sep 2014
13	Spain†	Spain	nurse	Nosocomial	44	Female	No	No	No	N/A	5 Nov 2014
14	Sierra Leone	Switzerland	doctor	Nosocomial	43	Male	Yes	Yes	No	21 Nov 2014	6 Dec 2014
15	Sierra Leone	UK	nurse	Nosocomial	29	Male	Yes	Yes	No	24 Aug 2014	3 Sep 2014
16	Sierra Leone	UK	nurse	Nosocomial	39	Female	Yes	No	No	28 Dec 2014	24 Jan 2015
17	Sierra Leone	UK	military health worker	Nosocomial	25	Female	Yes	Yes	No	12 Mar 2015	27 Mar 2015
18	Liberia	US	doctor	Nosocomial	33	Male	Yes	Yes	No	2 Aug 2014	21 Aug 2014
19	Liberia	US	nurse	Nosocomial	59	Female	Yes	Yes	No	5 Aug 2014	19 Aug 2014
20	Liberia	US	doctor	Nosocomial	51	Male	Yes	Yes	No	5 Sep 2014	25 Sep 2014
21	Sierra Leone	US	doctor	Nosocomial	44	Male	Yes	Yes	No	9 Sep 2014	19 Oct 2014
22	Liberia	US	civilian	Community	41	Male	No	No	Yes	20 Sept 2014	8 Oct 2014
23	USA†	US	nurse	Nosocomial	26	Female	No	No	No	N/A	24 Oct 2014
24	USA†	US	nurse	Nosocomial	29	Female	No	No	No	N/A	28 Oct 2014
25	Liberia	US	photojournalist	Community	33	Male	No	Yes	No	6 Oct 2014	22 Oct 2014
26	Guinea	US	doctor	Nosocomial	33	Male	Yes	No	No	17 Oct 2014	11 Nov 2014
27	Sierra Leone	US	doctor	Nosocomial	44	Male	Yes	Yes	Yes	15 Nov 2014	17 Nov 2014
28	Sierra Leone	US	physician associate	Nosocomial	34	Male	Yes	Yes	No	13 Mar 2015	9 Apr 2015

All cases linked to the 2014-2016 West African ebola epidemic, except case 6 which is linked to the 2026 DRC Bundibugyo outbreak.

Europe: No cases reported in Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Georgia, Greece, Hungary, Iceland, Ireland, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, North Macedonia, Poland, Portugal, Romania, Russia, San Marino, Serbia, Slovakia, Slovenia, Sweden, Turkey, Ukraine, Vatican City

North America: No cases reported in: Canada, Mexico

Asia, South America, Oceania: No cases reported

† Secondary transmission cases. Case 13 was infected while caring for case 12; cases 23 and 24 were infected while caring for case 22.

Table 2. Crude risk calculation of cases exported outside the African continent by Ebola outbreak and overall, 2000–2026

Year	Country	Virus species	Outbreak size†	Medically evacuated cases (including onward transmission)	Crude risk: medically evacuated cases per 1,000 Ebola cases	Latent exported cases (including onward transmission)	Crude risk: latent exported cases per 1,000 Ebola cases	All exported cases (including onward transmission)	Crude risk: all exported cases (including onward transmission)
2000	Uganda	sudanese	425	0	0	0	0	0	0
2001	Congo, Gabon	zairese	124	0	0	0	0	0	0
2003	Congo	zairese	35	0	0	0	0	0	0
2003	Congo	zairese	143	0	0	0	0	0	0
2004	Sudan	sudanese	17	0	0	0	0	0	0
2005	Congo	zairese	12	0	0	0	0	0	0
2007	Uganda	bundibugyoense	131	0	0	0	0	0	0
2007	DRC	zairese	264	0	0	0	0	0	0
2008	DRC	zairese	32	0	0	0	0	0	0
2011	Uganda	sudanese	1	0	0	0	0	0	0
2012	Uganda	sudanese	6	0	0	0	0	0	0
2012	DRC	bundibugyoense	38	0	0	0	0	0	0
2012	Uganda	sudanese	11	0	0	0	0	0	0
2014	DRC	zairese	69	0	0	0	0	0	0
2014	Sierra Leone, Liberia, Guinea, Nigeria, Mali	zairese	28646	21	0.73	6	0.21	27	0.94
2017	DRC	zairese	8	0	0	0	0	0	0
2018	DRC	zairese	3470	0	0	0	0	0	0
2018	DRC	zairese	54	0	0	0	0	0	0
2020	DRC	zairese	130	0	0	0	0	0	0
2021	DRC	zairese	11	0	0	0	0	0	0
2021	DRC	zairese	12	0	0	0	0	0	0
2021	Guinea	zairese	23	0	0	0	0	0	0
2022	Uganda	sudanese	164	0	0	0	0	0	0
2022	DRC	zairese	1	0	0	0	0	0	0
2022	DRC	zairese	5	0	0	0	0	0	0
2025	DRC	zairese	64	0	0	0	0	0	0
2025	Uganda	sudanese	14	0	0	0	0	0	0
2026	DRC, Uganda	bundibugyoense	452*	1	2.6	0	0	1	0
All since 2000	Various	Various	34362	22	0.64	6	0.17	28	0.81

† Historical number of reported cases from US CDC [4]

* Ongoing outbreak; confirmed cases as of 5 June 2026, DRC INSP [5]

Supplementary Table 1. Full extracted data, sources, and data dictionary

Case ID	Claude	OpenAI	Include	Complete	Imported to	Source outbreak	Exposure country	Exposure place	Primary	Year	Travel	Who?	Exposure	Nationality
1	24	6	Yes	Yes	France	2014-16 West Africa	Liberia	Paynesville	NA	2014	Medevac to Paris	Unnamed nurse (MSF)	Nosocomial	French
2	28	12	Yes	Yes	France	2014-16 West Africa	Sierra Leone	Unclear	NA	2014	Medevac to Paris	Unnamed official (UNICEF)	Community	Unclear
3	15	5	Yes	Yes	Germany	2014-16 West Africa	Sierra Leone	Unclear	NA	2014	Medevac to Hamburg	Unnamed epidemiologist (WHO)	Community	Senegal
4	16	10	Yes	Yes	Germany	2014-16 West Africa	Sierra Leone	Lakka	NA	2014	Medevac to Frankfurt-am-Meinz	Unnamed paediatrician	Nosocomial	Uganda
5	23	11	Yes	Yes	Germany	2014-16 West Africa	Liberia	Monrovia	NA	2014	Medevac to Leipzig	lab tech (UN)	Lab	Sudan
6	33	19	Yes	Yes	Germany	2026 DRC Bundibugyo	DRC	Bunia	NA	2026	Medevac to Berlin	doctor, medical missionary (Serge)	Nosocomial	US
7	27	14	Yes	Yes	Italy	2014-16 West Africa	Sierra Leone	Lakka	NA	2014	Medevac to Rome	doctor	Nosocomial	Italy
8	34	18	Yes	Yes	Italy	2014-16 West Africa	Sierra Leone	Goderich	NA	2015	Freetown - Casablanca - Fiumicino - Alghero	nurse	Nosocomial	Italy
9	NA	15	Yes	Yes	Netherlands	2014-16 West Africa	Liberia	Unclear	NA	2014	Medevac to Utrecht	Unnamed peacekeeper (UN)	Community	Nigeria
10	19	8	Yes	Yes	Norway	2014-16 West Africa	Sierra Leone	Bo	NA	2014	Medevac to Oslo	medical doctor (MSF)	Nosocomial	Norway
11	10	3	Yes	Yes	Spain	2014-16 West Africa	Liberia	Monrovia	NA	2014	Medevac to Madrid	missionary and hospital worker	Nosocomial	Spain
12	14	7	Yes	Yes	Spain	2014-16 West Africa	Sierra Leone	Lunsar	NA	2014	Medevac to Madrid	missionary and hospital worker	Nosocomial	Spain
13	18	9	Yes	Yes	Spain	Local transmission	Spain	Madrid	6	2014	NA	nurse	Nosocomial	Spain
14	26	13	Yes	Yes	Switzerland	2014-16 West Africa	Sierra Leone	Kerry Town	NA	2014	Medevac to Geneva	doctor	Nosocomial	Cuba
15	11	4	Yes	Yes	UK	2014-16 West Africa	Sierra Leone	Kenema	NA	2014	Medevac to London	nurse	Nosocomial	UK
16	30	16	Yes	Yes	UK	2014-16 West Africa	Sierra Leone	Kerry Town	NA	2014	Freetown - Casablanca - Heathrow - Glasgow	nurse and aid worker	Nosocomial	UK
17	31	17	Yes	Yes	UK	2014-16 West Africa	Sierra Leone	Kerry Town	NA	2015	Medevac to London	military health worker	Nosocomial	UK
18	8	20	Yes	Yes	US	2014-16 West Africa	Liberia	Paynesville	NA	2014	Medevac to Atlanta, GA	physician (Samaritan's Purse)	Nosocomial	US
19	9	21	Yes	Yes	US	2014-16 West Africa	Liberia	Paynesville	NA	2014	Medevac to Atlanta, GA	nurse and missionary worker (SIM USA)	Nosocomial	US
20	12	22	Yes	Yes	US	2014-16 West Africa	Liberia	Paynesville	NA	2014	Medevac to Omaha, NE	obstetrician and missionary worker (SIM USA)	Nosocomial	US
21	13	23	Yes	Yes	US	2014-16 West Africa	Sierra Leone	Kenema	NA	2014	Medevac to Atlanta, GA	physician (WHO)	Nosocomial	US
22	21	24	Yes	Yes	US	2014-16 West Africa	Liberia	Monrovia	NA	2014	Monrovia - Brussels - Dulles - Dallas Ft Worth	civilian	Community	Liberia
23	20	25	Yes	Yes	US	Local transmission	USA	Dallas, TX	22	2014	NA	nurse	Nosocomial	US
24	22	26	Yes	Yes	US	Local transmission	USA	Dallas, TX	22	2014	NA	nurse	Nosocomial	US
25	17	27	Yes	Yes	US	2014-16 West Africa	Liberia	Monrovia	NA	2014	Medevac to Omaha, NE	photojournalist (NBC)	Community	US
26	25	28	Yes	Yes	US	2014-16 West Africa	Guinea	Guéckédou	NA	2014	Conakry - Brussels - JFK	physician (MSF)	Nosocomial	US
27	29	29	Yes	Yes	US	2014-16 West Africa	Sierra Leone	Freetown	NA	2014	Medevac to Omaha, NE	surgeon	Nosocomial	Sierra Leone
28	32	30	Yes	Yes	US	2014-16 West Africa	Sierra Leone	Port Loko	NA	2015	Medevac to Bethesda, MD	physician associate (Partners in Health)	Nosocomial	US
Excluded cases identified in initial searches in Europe and North America														
101	1	1	No	Yes	UK	1976 DRC outbreak	UK	Porton Down	NA	1976	NA	lab tech (Porton Down)	Lab	UK
102	5	2	No	Yes	Switzerland	Animal exposure	Côte d'Ivoire	Taï National Park	NA	1994	Medevac to Basel	Unnamed ethologist	Dead chimpanzee	Switzerland
103	2	NA	No	No	6 animal handlers in Pennsylvania, seroconversion only									
104	3	NA	No	No	4 animal handlers in Texas, seroconversion only									
105	4	NA	No	No	Infection detected in macaques only, Italy									
106	6	NA	No	No	Infection detected in macaques only, USA									
107	7	NA	No	No	Germany 2009 needlestick, never confirmed									
108	35	NA	No	No	Russia 1996 needlestick									
109	36	NA	No	No	Russia 2004 needlestick									
Further searches outside Europe and North America														
201					Asia	6 Reston cases in Philippines, 2008; no confirmed human cases ever								
202					S. America	No confirmed human cases ever								
203					Oceania	No confirmed human cases ever								

Supplementary Table 1, cont. Full extracted data, sources, and data dictionary

Case ID	Onward transmission	Secondary cases	Scientific articles and case reports	Bulletins and news articles	Other sources
1	No	0		News News News	
2	No	0		News News	
3	No	0	Article Abstract		
4	No	0	Article Article	News	
5	No	0	Article	News News	
6	TBC	TBC		Bulletin News News News	News
7	No	0	Article	News News News	
8	No	0	Article Article	News News News News News News	
9	No	0	Article	Bulletin Information News News News	
10	No	0		News News	
11	No	0		News News News News News	Wikipedia
12	Yes	1	News	Bulletin Bulletin News News News	Wikipedia
13	No	0	Article	News News News	
14	No	0	Article	News News News	
15	No	0	Article	Bulletin News News	Wikipedia
16	No	0	Article Article	Bulletin News News News News	Wikipedia Wikipedia
17	No	0		News News News News News	Wikipedia
18	No	0	Article	Information News News News News News	
19	No	0	Article	News News News	
20	No	0	Article	News News News News	
21	No	0		News News	Wikipedia
22	Yes	2	Article	News	Wikipedia
23	No	0	Article	News News	
24	No	0	Article	News	
25	No	0		News News News News	
26	No	0	Article	News News News	
27	No	0		News News News	Wikipedia
28	No	0		News News News News	
Excluded cases identified in initial searches in Europe and North America					
101	No	0	Article	News	Wikipedia
102	No	0	Article		
103					
104					
105					
106					
107			Article		
108					
109					
Further searches outside Europe and North America					
201			Article Article		
202			Article	Bulletin	
203				Bulletin Bulletin	

Supplementary Table 1, cont. Full extracted data, sources, and data dictionary

Case ID	Case ID from manual searching
Claude	Case ID from AI search (Claude)
OpenAI	Case ID from AI search (ChatGPT)
Include	Yes if case meets inclusion criteria
Complete	Is record complete
Imported to	Country where case was treated
Source outbreak	Outbreak source of transmission
Exposure country	Country where exposure occurred
Exposure place	City / settlement where exposure occurred
Primary	If non-NA, case ID (manual) of infector
Year	Year occurred
Travel	Travel history of case
Who?	Occupation of case
Exposure	"nosocomial" indicates the case was infected while working in an Ebola treatment centre or hospital; "community" indicates community transmission; "lab" indicates transmission from infected material
Nationality	Nationality of case
Age	Age of case
Sex	Sex of case
Responder	Yes if case was responding to the epidemic as a health or aid worker
Medevac	Yes if case was medically evacuated
Where treated	Where case was treated in destination country
Confirmed	Yes for virological confirmation
Died	Yes if case died
Death date	Date of death if case died
Exposure date	Date of exposure if known
Onset date	Date of symptom onset if known
Admission date	Date of hospital admission if known. Note that this is the first inpatient admission, regardless of whether that occurred in the outbreak country or in the destination country. "Unclear" signifies it is not clear if the case was admitted to hospital before their evacuation
Diagnosis date	Date of clinical diagnosis (usually equal to confirmation date)
Confirmation date	Date of virological confirmation
Departure date	Date the case left the source country
Arrival date	Date the case arrived in the destination country
Discharge date	Date the case was discharged from hospital, if survived
Onward transmission	Yes if there was any onward transmission
Secondary cases	Number of secondary cases
Sources	Sources used to populate table. Article = scientific article, Bulletin = health or government bulletin, News = news article, Information = information page