Et si un patient relevant du « REB » était hospitalisé dans votre établissement

Thomas PERPOINT

Mars 2026 - CPias ARA

PLAN

1. **DE QUOI PARLE-T-ON AVEC LE REB?**
2. **QUE CRAINT-ON? EXEMPLES**
3. **LA CASCADE DE PRISE EN CHARGE**
    1. **ES première ligne**
    2. **ES de référence**

Aucun conflit d'intérêt

DE QUOI PARLE-T-ON?

- **RISQUE ÉMERGENT**
  - NOUVEAU (temps/lieux) et CROISSANT (dynamique/R0)
- **REB / MIE OU MIRÉE**
  - RISQUE EPIDEMIQUE ET BIOLOGIQUE
  - MALADIES INFECTIEUSES EMERGENTES
- **BIOTERRORISME**

→ Considérer contagiosité (R0) ET gravité (létalité)

BIOTERRORISME

Bioterrorisme = MIE

Lancet Infect Dis. 2018 Oct 16. pii: S1473-3099(18)30298-6. doi: 10.1016/S1473-3099(18)30298-6. [Epub ahead of print]

Confronting the threat of bioterrorism: realities, challenges, and defensive strategies.

Green MS[1], LeDuc J[2], Cohen D[3], Franz DR[4].

Author information

Abstract

Global terrorism is a rapidly growing threat to world security, and increases the risk of bioterrorism. In this Review, we discuss the potential threat of bioterrorism, agents that could be exploited, and recent developments in technologies and policy for detecting and controlling epidemics that have been initiated intentionally. The local and international response to infectious disease epidemics, such as the severe acute respiratory syndrome and west African Ebola virus epidemic, revealed serious shortcomings which bioterrorists might exploit when intentionally initiating an epidemic. Development of new vaccines and antimicrobial therapies remains a priority, including the need to expedite clinical trials using new methodologies. Better means to protect health-care workers operating in dangerous environments are also needed, particularly in areas with poor infrastructure. New and improved approaches should be developed for surveillance, early detection, response, effective isolation of patients, control of the movement of potentially infected people, and risk communication. Access to dangerous pathogens should be appropriately regulated, without reducing progress in the development of countermeasures. We conclude that preparedness for intentional outbreaks has the important added value of strengthening preparedness for natural epidemics, and vice versa.

Emerging and reemerging infectious diseases will continue to be a threat, but preparedness for bioterrorism is, in many ways, similar to preparedness for naturally emerging disease.

VARIOLE

J0 éruption après 2/4j fièvre macules

J2 éruption Papules

J3 éruption Vésicules

J4 éruption Vésicules

J5 éruption pustules

J7 éruption pustules

J8-9 éruption pustules

J10-14 croutes

J20 décrustation

ANTHRAX 4 FORMES CLINIQUES

Formes cliniques

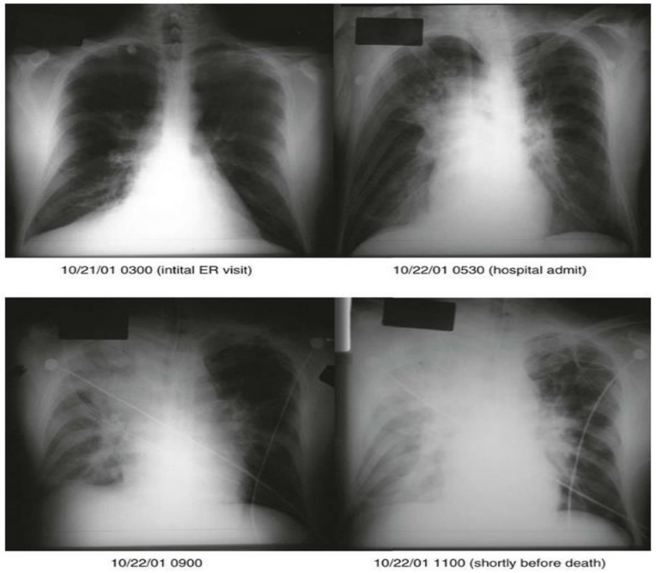
- **Charbon cutané** : contact des spores avec une peau lésée. Maladie naturelle après contact avec des animaux ou des produits d'animaux infectés.
- **Charbon d'inhalation**: aérosols de spores, intentionnel
- **Charbon digestif**: exceptionnel
- **Charbon d'innoculation**
- Sepsis, Toxine, Tropisme Méningé **gravissime** (50% des 42 charbons de Sverdlovsk avait une méningite autopsique)

Mohsen Esfandbod, M.D.
Mahdi Malekpour, M.D.
Tehran University of Medical Sciences
1419733141 Tehran, Iran
sfandbod@sina.tums.ac.ir

A 17-YEAR-OLD GIRL PRESENTED TO THE EMERGENCY DEPARTMENT WITH A black necrotic lesion on her left cheek and periorbital edema. She had been well until 15 days before presentation, when she noticed a small, painless, pruritic papule on her face that quickly enlarged and developed a central vesicle. The vesicle burst, leaving a painless necrotic ulcer with a black, depressed eschar. Extensive edema of the eyelids developed and progressed over a period of 7 days. At presentation, she was afebrile, and there was no lymphadenopathy. A diagnosis of cutaneous anthrax was made and confirmed by Gram's staining of the ulcer, which revealed gram-positive spore-forming bacilli consistent with *Bacillus anthracis*. The patient was from a northern Iranian village where exposure to contaminated soil and livestock products is common; no bioterrorism was suspected. Intravenous penicillin G (at a dose of 6 million units given every 6 hours for 10 days) was administered. On follow-up, the patient was well, and the eschar was healed, with very little skin atrophy.

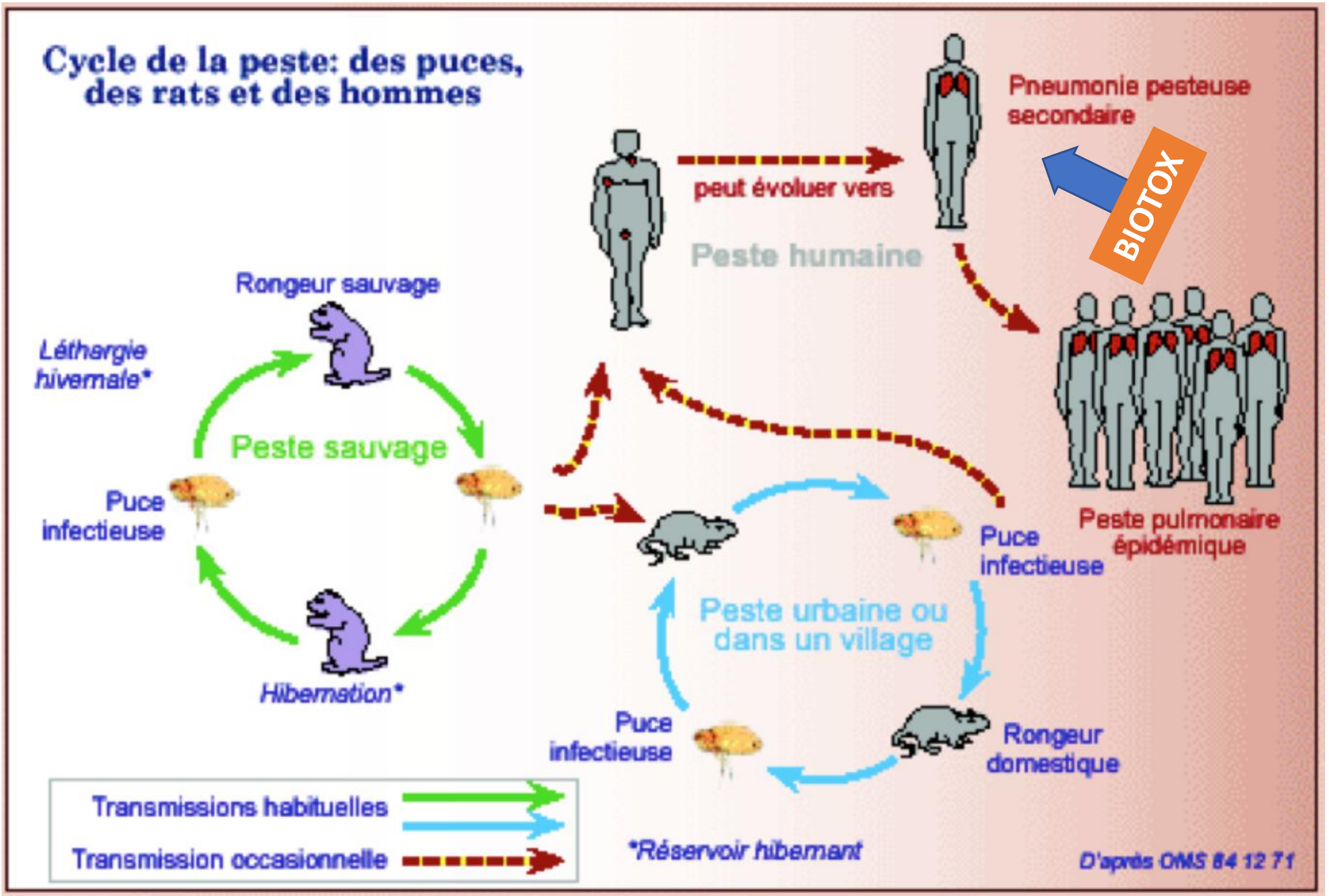
Antoine Ghossain, M.D.
Rizk Hospital
Beirut 1107-2130, Lebanon

A 25-YEAR-OLD MAN WAS ADMITTED FOR PAIN AND DISTENTION OF THE abdomen. He had a three-day history of dizziness, fatigue, myalgia, and mild fever. On physical examination, he was in shock, with ascites and oculofacial congestion. Bowel sounds were absent. A doughy mass in the right inferior fossa was palpable and slightly tender. The peripheral white-cell count was 16,000 cells per cubic millimeter (78 percent neutrophils), and the hematocrit was 40 percent. A radiograph obtained after the administration of a barium enema showed large edematous cecal folds (arrows, Panel A). The patient, a shepherd, was living in a remote, rural area of Lebanon. He first denied and later admitted having slaughtered a sick goat three days before the onset of his symptoms and eating the raw meat. Penicillin and tetracycline were started, with intensive supportive treatment. He had a poor response over the next 12 hours. He underwent surgery, during which massive ascites, an edematous and hemorrhagic cecum (Panel B), and enlarged ileocecal lymph nodes were found. Right hemicolectomy with primary repair was performed. After surgery, the patient rapidly improved, and he was discharged 10 days later. The direct staining and culture of a mesenteric lymph node showed gram-positive rods that were nonmotile, nonhemolytic, and spore-forming (arrows, inset in Panel A) and were confirmed in culture to be *Bacillus anthracis*. Among people who ate the diseased goat, one had anthrax of the upper lip (Panel C) and others had mild gastrointestinal symptoms that were successfully treated in the village with penicillin and tetracycline. This episode demonstrates two of the three (cutaneous and gastrointestinal, but not pulmonary) most important syndromes associated with anthrax.



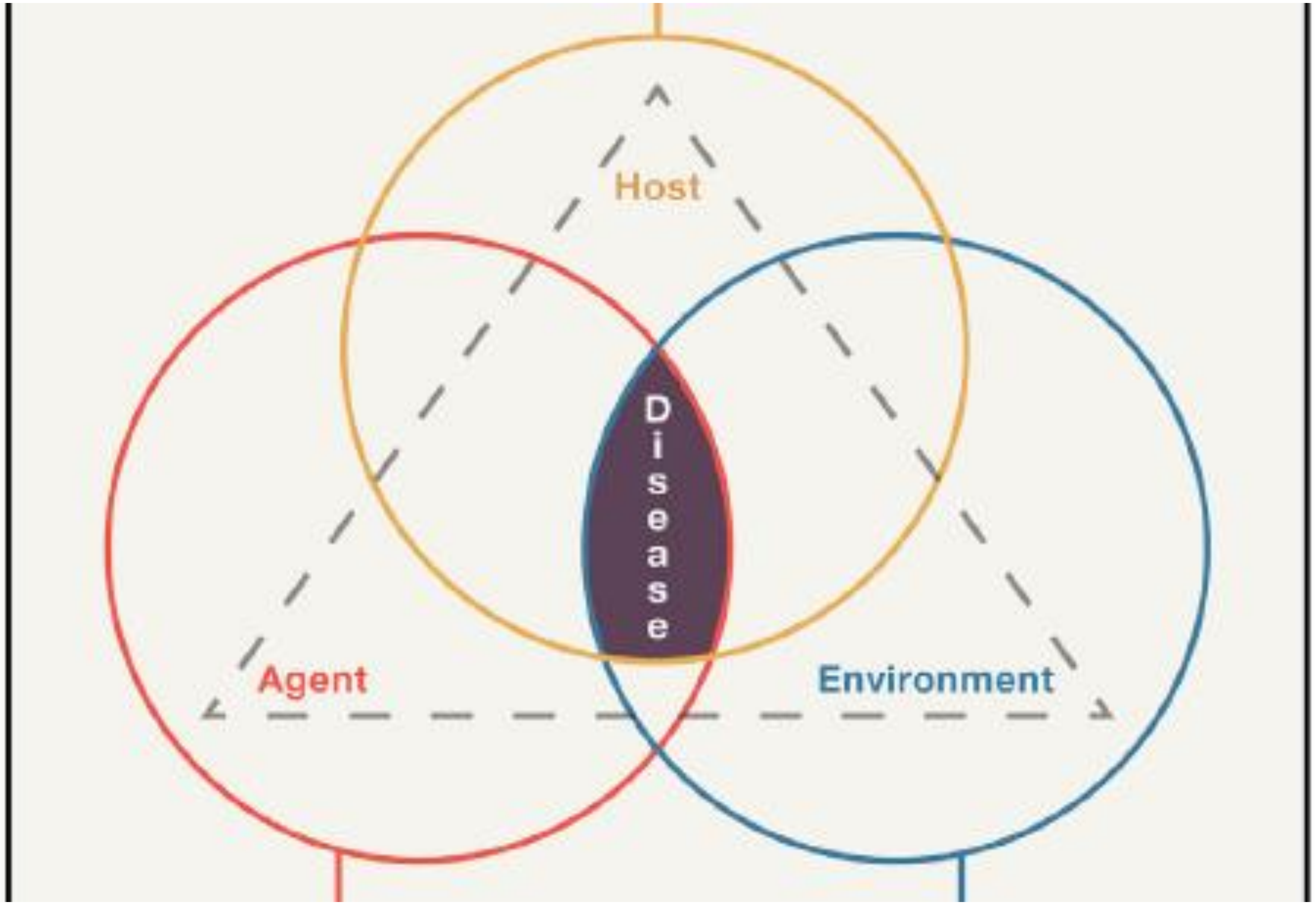
LA PESTE


ANTI PESTEUX


Cycle de la peste: des puces, des rats et des hommes
peut évoluer vers
Pneumonie pesteuse secondaire
BIOTOX
Peste humaine
Rongeur sauvage
Léthargie hivernale*
Peste sauvage
Puce infectieuse
Hibernation*
Peste pulmonaire épidémique
Puce infectieuse
Peste urbaine ou dans un village
Puce infectieuse
Rongeur domestique
Transmissions habituelles
Transmission occasionnelle
*Réservoir hibernant
D'après OMS 84 12 71

LA TRIADE

while infectious diseases themselves are necessarily
"caused" by microbial agents, emergences that produce epidemics
and pandemics are also significantly determined by
co-factors related to the host and to host-environmental interactions



Host-Switching, Spillover (débordement):
Process by which a pathogen adapted to one host species becomes adapted to another host species

ANTHROPOZOONOSE

AMPLEUR DU PROBLÈME. Il est estimé qu'environ 60 % des maladies infectieuses humaines sont d'origine animale. Environ 75 % des nouvelles maladies infectieuses humaines émergentes franchissent la barrière des espèces et sont transmises aux humains par d'autres animaux. La transmission de la plupart des zoonoses déjà décrites se fait de manière indirecte, par exemple au travers du système alimentaire.

ONU programme pour l'environnement · COVID-19 RIPOSTE · ILRI International Livestock Research Institute · CGIAR

PRÉVENIR DE PROCHAINES PANDÉMIES

Zoonoses et comment briser la chaîne de transmission

ISME www.nature.com/ismecomms

REVIEW ARTICLE OPEN

The one health perspective to improve environmental surveillance of zoonotic viruses: lessons from COVID-19 and outlook beyond

Mats Leifels[1,9], Omar Khalilur Rahman[2,9], I-Ching Sam[2,3], Dan Cheng[1], Feng Jun Desmond Chua[1], Dhiraj Nainani[1], Se Yeon Kim[1], Wei Jie Ng[1], Wee Chiew Kwok[1], Kwanrawee Sirikanchana[4,5], Stefan Wuertz[1,6], Janelle Thompson[1,7,8,9] and Yoke Fun Chan[2,9]

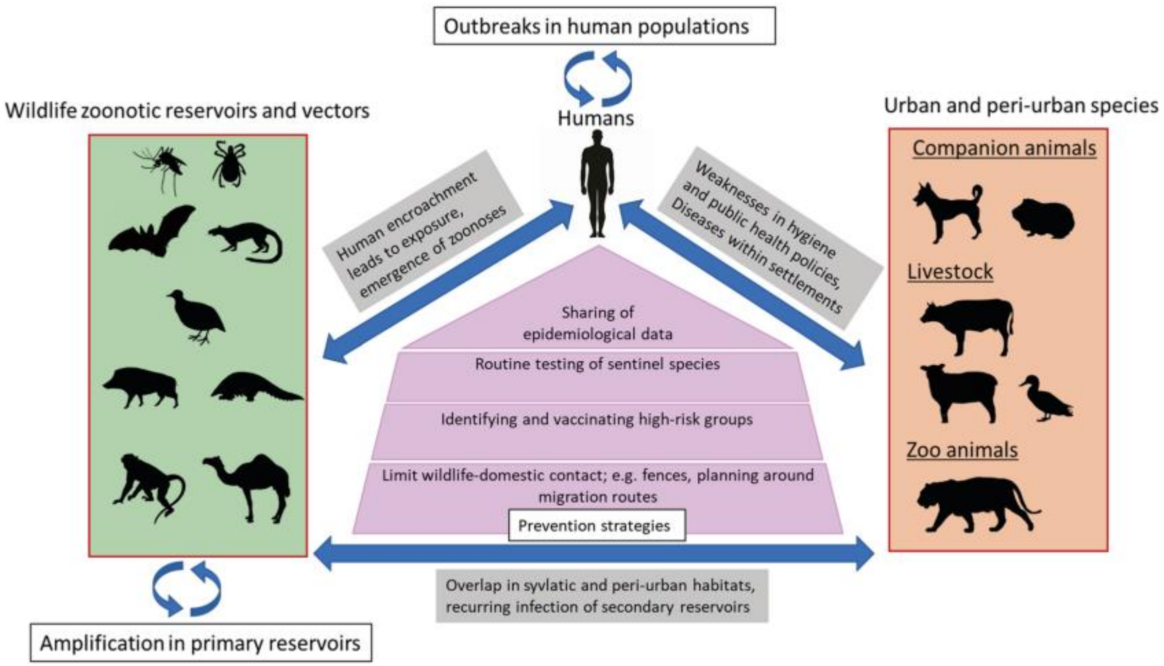


Fig. 1 Schematic overview of the circular interaction between wildlife (green box) and urban (orange box) zoonotic infection reservoirs and the human population. Overview of zoonotic infection pathways between domesticated and non-domesticated (i.e., wildlife) animals and humans (based on Lazarus, Fosgate [91]).

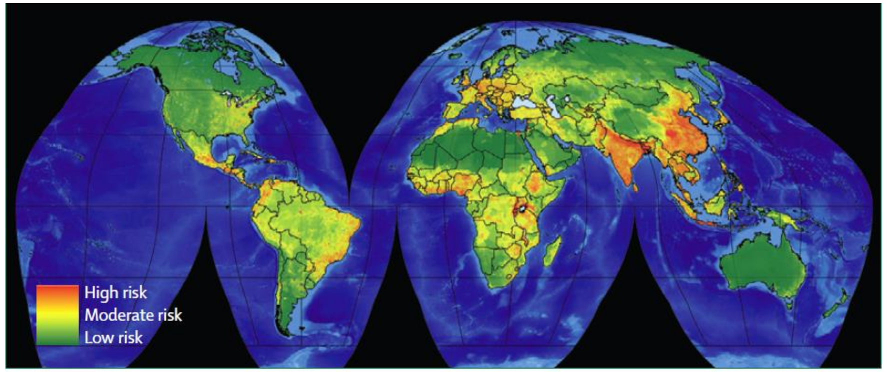
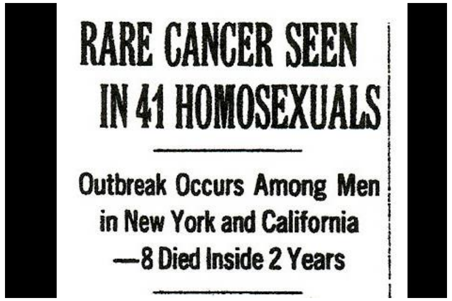


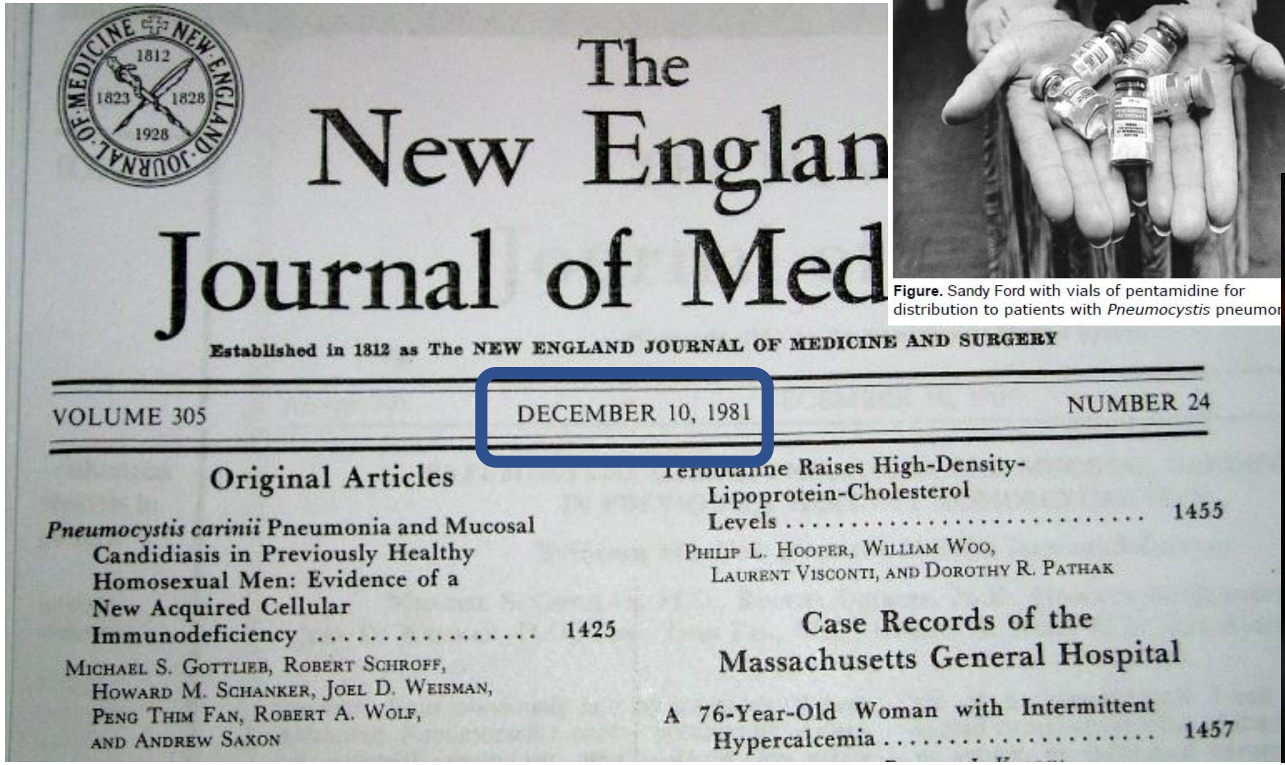
Figure 1: Global hotspots for emerging infectious diseases that originate in wildlife
A database of all known emerging infectious diseases[3] since 1940 was used to identify the most likely origins of each separate emergence event. Presence or absence of infections emerging from wildlife was analysed with logistic regression against a series of known drivers, including human population density, change in human population density, and wildlife diversity (mammalian species richness), gridded at 1 km² resolution. The global distribution of model outputs gives a measure of the likelihood of a region to generate a new zoonotic emerging infectious disease that originates in wildlife. Because previous pandemics have mainly originated in wildlife, these maps identify hotspots where the next pandemic is most likely to originate.

VIH


RARE CANCER SEEN IN 41 HOMOSEXUALS

Outbreak Occurs Among Men in New York and California —8 Died Inside 2 Years

G.R.I.D


The New England Journal of Med

Established in 1812 as The NEW ENGLAND JOURNAL OF MEDICINE AND SURGERY

VOLUME 305 | DECEMBER 10, 1981 | NUMBER 24

Original Articles

Pneumocystis carinii Pneumonia and Mucosal Candidiasis in Previously Healthy Homosexual Men: Evidence of a New Acquired Cellular Immunodeficiency 1425

Michael S. Gottlieb, Robert Schroff, Howard M. Schanker, Joel D. Weisman, Peng Thim Fan, Robert A. Wolf, and Andrew Saxon

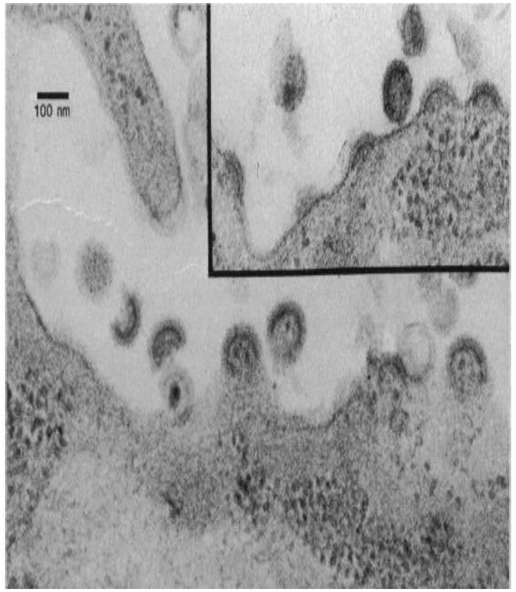
Terbutaline Raises High-Density-Lipoprotein-Cholesterol Levels 1455

Philip L. Hooper, William Woo, Laurent Visconti, and Dorothy R. Pathak

Case Records of the Massachusetts General Hospital

A 76-Year-Old Woman with Intermittent Hypercalcemia 1457


Figure. Sandy Ford with vials of pentamidine for distribution to patients with *Pneumocystis* pneumo




Les professeurs Jean-Claude Chermann (D), Françoise Barre-Sinoussi et Luc Montagnier, posent le 25 avril 1984 dans leur laboratoire
AFP/Archives - Michel Clement

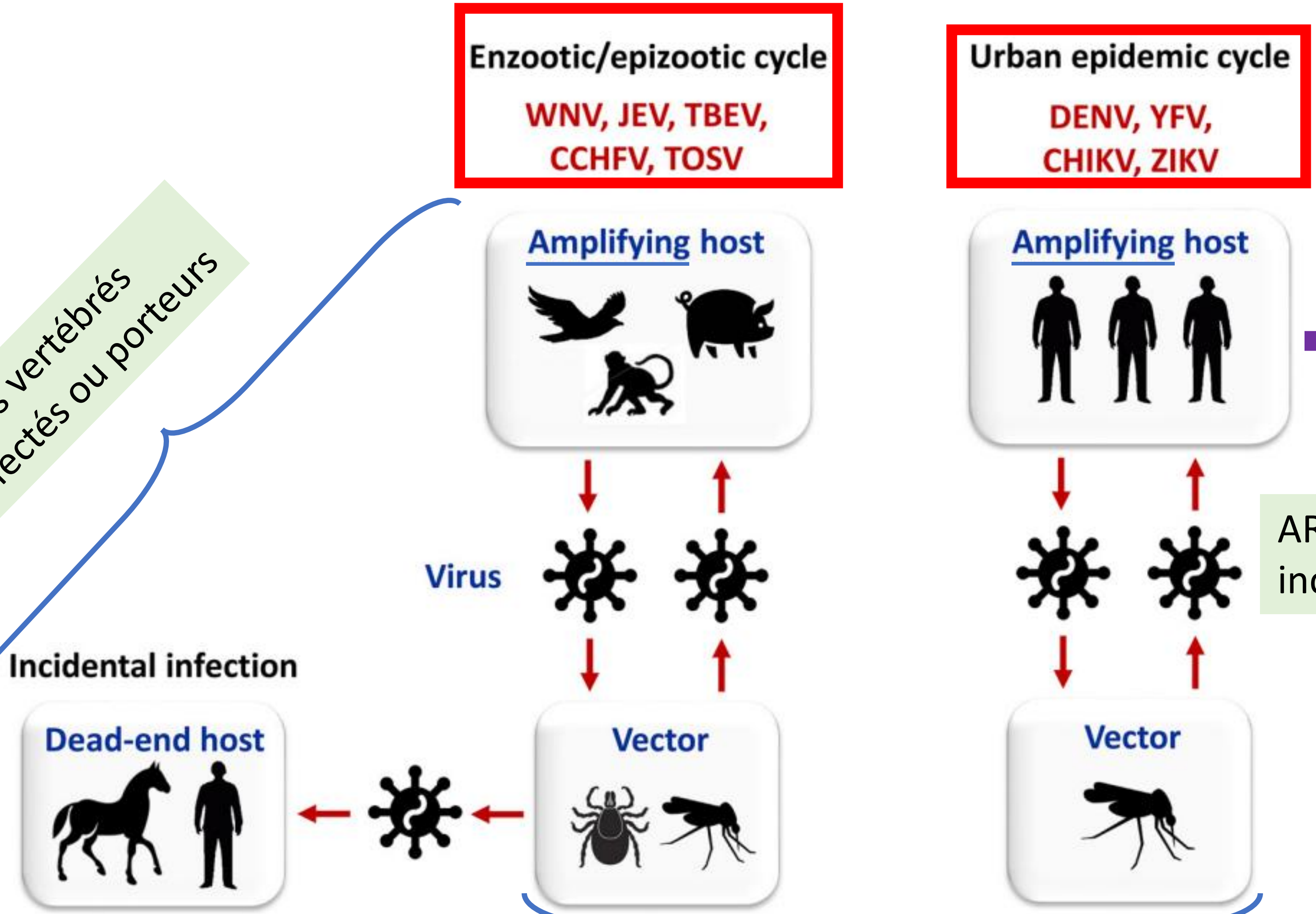
LE CHOLERA EN HAÏTI

LA PESTE À MADAGASCAR

ARBOVIROSES

EXPANSION TERRITORIALE

Hôtes vertébrés
Infectés ou porteurs



IMMUNITE POPULATION
EPIDEMIE/ENDEMIE

ARN
incubation courte < 15 jours

Vecteur intermédiaire hématophage

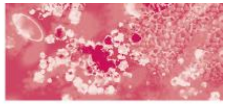
Journal of Clinical Virology 107 (2018) 38–47

MPox

MONKEYPOX - UK (03): LOCAL TRANSMISSION
****

A ProMED-mail post
http://www.promedmail.org
ProMED-mail is a program of the
International Society for Infectious Diseases
http://www.isid.org

[1]
Date: Mon 16 May 2022



Reviews

Human monkeypox: an emerging zoonosis

Daniel B Di Giulio and Paul B Eckburg

Human monkeypox is a rare viral zoonosis endemic to central and western Africa that has recently emerged in the USA. Laboratory diagnosis is important because the virus can cause disease that is clinically indistinguishable from other pox-like illnesses, particularly smallpox and chickenpox. Although the natural animal reservoir of the monkeypox virus is unknown, rodents are the probable source of its introduction into the USA. A clear understanding of the virulence and transmissibility of human monkeypox has been limited by inconsistencies in epidemiological investigations. Monkeypox is the most important orthopoxvirus infection in human beings since the eradication of smallpox in the 1970s. There is currently no proven treatment for human monkeypox, and questions about its potential as an agent of bioterrorism persist.

Lancet Infect Dis 2004; **4:** 15–25

Since the global eradication of smallpox in 1977, the World Health Assembly has consigned the maintenance of live variola virus to only two authorised facilities in the world.[1] Recent concerns about the potential of variola virus as an agent of bioterrorism have, however, brought the virus to the forefront of the public-health and scientific-research agendas of many countries. These concerns have translated into heightened implications for any outbreak that mimics smallpox clinically, particularly if it is caused by a novel or emerging agent. In the spring of 2003, an outbreak of a pox-like illness in people occurred in the central USA. This outbreak was attributed to the monkeypox virus (MPV), a rare zoonosis that can cause illness clinically indistinguishable from smallpox. Before that outbreak, human monkeypox had never been reported in the western hemisphere. This review focuses on the clinical and epidemiological features of human monkeypox, its emergence in the USA, the similarities to smallpox and chickenpox, the potential of MPV as an agent of bioterrorism, and considerations for diagnosis, treatment, and prevention.

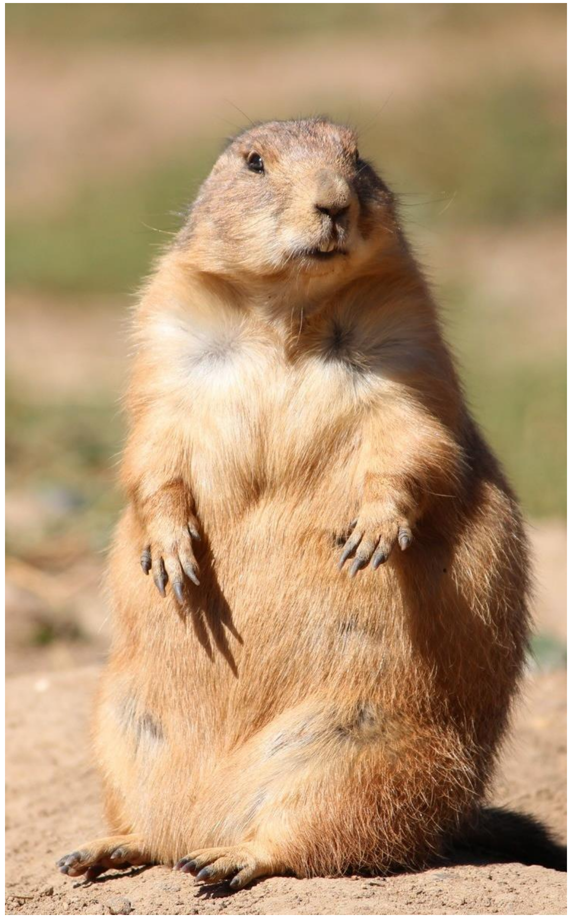
Figure 1. African child with disseminated monkeypox. Note postauricular adenopathy (courtesy of Leo Lanoie, Prince Albert Parkland Health Region, Saskatchewan, Canada).

however, MPV has a wide range of hosts,[4] which has allowed it to maintain a reservoir in wild animals while sporadically causing human disease, and has precluded global eradication

Figure 3. Human monkeypox lesions adjacent to the site of primary inoculation in a child during the 2003 US outbreak (courtesy of Marshfield Clinic, Wisconsin, USA).

Figure 2. African woman with smallpox (courtesy of Department of Infectious and Parasitic Disease Pathology, Armed Forces Institute of Pathology, Washington, DC, USA).

CE QU'ON SAIT



REVIEW ARTICLE

C. Corey Hardin, M.D., Ph.D., *Editor*

Monkeypox

Antoine Gessain, M.D., Emmanuel Nakoune, Ph.D.,
and Yazdan Yazdanpanah, M.D.

MONKEYPOX VIRUS WAS FIRST ISOLATED IN LATE 1958 IN COPENHAGEN during two outbreaks of a smallpox-like disease in a colony of cynomolgus monkeys.[1] No clinical signs were noted before the eruptive phase of the disease, which was characterized by a maculopapular rash. The virus was named monkeypox virus because of its close similarity to other known poxviruses.[1]

Between 1960 and 1968, several other outbreaks of monkeypox were reported in colonies of captive monkeys in the United States and the Netherlands.[2] No cases were detected in humans during these outbreaks, despite the deaths of many affected animals, which suggested that humans were not susceptible to monkeypox.[2]

The first case of monkeypox in a human was reported in 1970,[3] as part of the national smallpox surveillance and eradication program then under way in Africa. This case occurred in a 9-month-old boy, in whom fever developed, followed 2 days later by a centrifugal rash (i.e., a rash with the majority of lesions on the arms and legs). On September 1, 1970, he was admitted to a hospital in Basankusu, in the Democratic Republic of Congo (DRC). The patient presented with otitis, mastoiditis, and painful cervical lymph nodes, and monkeypox virus was isolated from his skin lesions. He recovered from monkeypox, but before discharge, measles developed, which led to his death.[3] Between September 1970 and March 1971, six additional cases of monkeypox were identified in humans in West African countries. Most of these patients were young children, and none had been vaccinated against smallpox.[4]

From Institut Pasteur, Université de Paris Cité, Centre National de la Recherche Scientifique, UMR3569, Unité d'Épidémiologie et Physiopathologie des Virus Oncogènes, Département de Virologie (A.G.), and Assistance Publique–Hôpitaux de Paris, Department of Infectious and Tropical Diseases, Bichat-Claude Bernard University Hospital, INSERM, ANRS Maladies Infectieuses Émergentes (Y.Y.) — both in Paris; and Institut Pasteur de Bangui, Bangui, Central African Republic (E.N.). Dr. Gessain can be contacted at agessain@pasteur.fr or at Unité d'Épidémiologie et Physiopathologie des Virus Oncogènes, CNRS UMR3569, Département de Virologie, Institut Pasteur, F-75015 Paris, France.

This article was published on October 26, 2022, at NEJM.org.

N Engl J Med 2022;387:1783-93.
DOI: 10.1056/NEJMra2208860

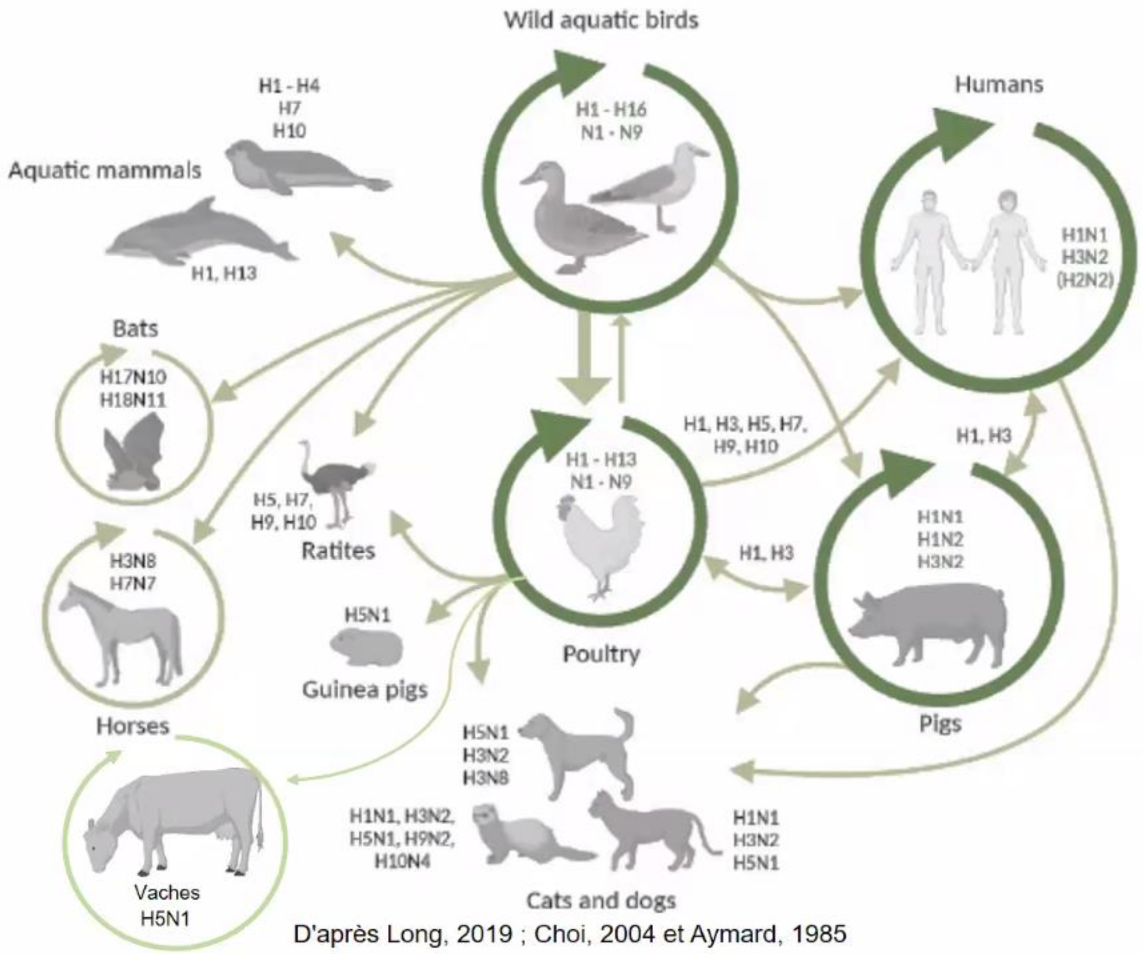
CE QU'ON VOIT

The NEW ENGLAND JOURNAL of MEDICINE

Figure 3. Characteristic Cutaneous and Mucosal Manifestations of Monkeypox.

Panel A shows numerous skin lesions with umbilicated papules on the left hand of a young girl with confirmed monkeypox infection in the Central African Republic. In Panel B, extensive, disseminated papular lesions are present on the hands, arms, and face of a young girl. Panel C shows disseminated skin lesions at different stages of evolution, including papules and crusts, on the abdomen of a young girl. In Panel D, numerous skin lesions with hyperpigmentation, crusts, and desquamation are evident on the left hand of a woman with confirmed monkeypox infection. Panel E shows synchronous skin lesions on the right hand of a man who had sex with a man with confirmed monkeypox infection. A fresh pustular lesion is present, as well as an umbilicated papule with progressive central ulceration. Panel F shows penile edema in a man who had sex with a man who had confirmed monkeypox infection; erythema and swelling extend to the left inguinal region. In Panel G, genital lesions, including scrotal and penile lesions, are present in a man who had sex with a man. Panel H shows pharyngitis in a man who had sex with a man.

Transmission inter-espèces de virus influenza A



D'après Long, 2019 ; Choi, 2004 et Aymard, 1985

- Risque élevé pour la santé publique lié aux animaux domestiques
- Tous les virus influenza porcin peuvent infecter l'homme
- Certains virus de l'influenza aviaire infectent l'homme : transmission par contact étroit sans protection, peut entraîner une mortalité élevée.

Emerging infections: a perpetual challenge

David M Morens, Gregory K Folkers, Anthony S Fauci

Lancet Infect Dis 2008;

Emerging and re-emerging infectious diseases, and their determinants, have recently attracted substantial scientific

Table 1. Some major factors that underlie disease emergence and reemergence [2,5].

The Microbial Agent	The Human Host	The Human Environment
Genetic adaptation and change	Human susceptibility to infection	Climate and weather
Polymicrobial diseases	Human demographics and behavior	Changing ecosystems
	International trade and travel	Economic development and land use
	Intent to harm (bioterrorism)	Technology and industry
	Occupational exposures	Poverty and social inequality
	Inappropriate use of antibiotics	Lack of public health services
		Animal populations
		War and famine
		Lack of political will

1. International trade and commerce
2. Human demographics and behaviour
3. Human susceptibility to infection
4. Poverty and social inequality
5. War and famine
6. Breakdown of public-health measures
7. Technology and industry
8. Changing ecosystems
9. Climate and weather
10. Intent to harm
11. Lack of political will
12. Microbial adaptation and change
13. Economic development and land use

En Russie, l'anthrax ressurgit avec le réchauffement climatique

La fonte des terres gelées a provoqué une épidémie de la bactérie pour la première fois depuis 1941.

Par Isabelle Mandraud(Moscou, correspondante)

Publié le 29 août 2016 à 06h44 - Mis à jour le 30 août 2016 à 07h59 · Lecture 4 min.

Figure 2: **The global aviation network**
Lines show direct links between airports, and the colour indicates passenger capacity in people per day (thousands [red]; hundreds [yellow]; tens [blue]). Routes linking regions at similar latitudes (in the northern or southern hemisphere) represent pathways that pathogens can move along to reach novel regions. Notably, air traffic to most places in Africa, regions of South America, and parts of central Asia is low. If travel increases in these regions, additional introductions of vector-borne pathogens are probable. Adapted from Hufnagal and colleagues.[30]

QUE CRAINT-ON?

inrs Santé et sécurité au travail

INRS | Actualités | Démarches de prévention | Risques | Métiers et secteurs d'activité

DOSSIER

RISQUES BIOLOGIQUES

articles R. 4421-1 à R. 4427-5 du Code du travail

classification réglementaire des agents biologiques

NATURE DU RISQUE	GROUPE 1	GROUPE 2	GROUPE 3	GROUPE 4
Susceptible de provoquer une maladie chez l'homme	Non	Oui	Grave	Grave
Constitue un danger pour les travailleurs	–	Oui	Sérieux	Sérieux
Propagation dans la collectivité	–	Peu probable	Possible	Risque élevé
Existence d'une prophylaxie ou d'un traitement efficace	–	Généralement oui	Généralement oui	Généralement non

HCID High-Consequence Infectious Diseases

- Clinical severity
  - Severe acute disease
  - High case fatality potential
  - Possible multi-organ involvement

- Transmission risk
  - Human to human transmission possible
  - Healthcare associated transmission risk
  - Potential outbreak amplification

- Limited medical countermeasures
  - Limited licensed antivirals
  - Limited vaccine availability
  - Supportive care often critical

- Public health impact
  - Requires specialized containment
  - Coordinated public health response
  - Major health system disruption possible

EID, 2025;31(8)

Preparedness and Response Considerations for High-Consequence Infectious Disease

EID, 2025

Justin Chan, Corri B. Levine, Jocelyn J. Herstein, Nicole Cloutier, Lauren Sauer, Aneesh K. Mehta, Jared Evans, on behalf of the Basic and Translational State of the Science Working Group of the National Emerging Special Pathogens Training and Education Center's Special Pathogens Research Network[1]

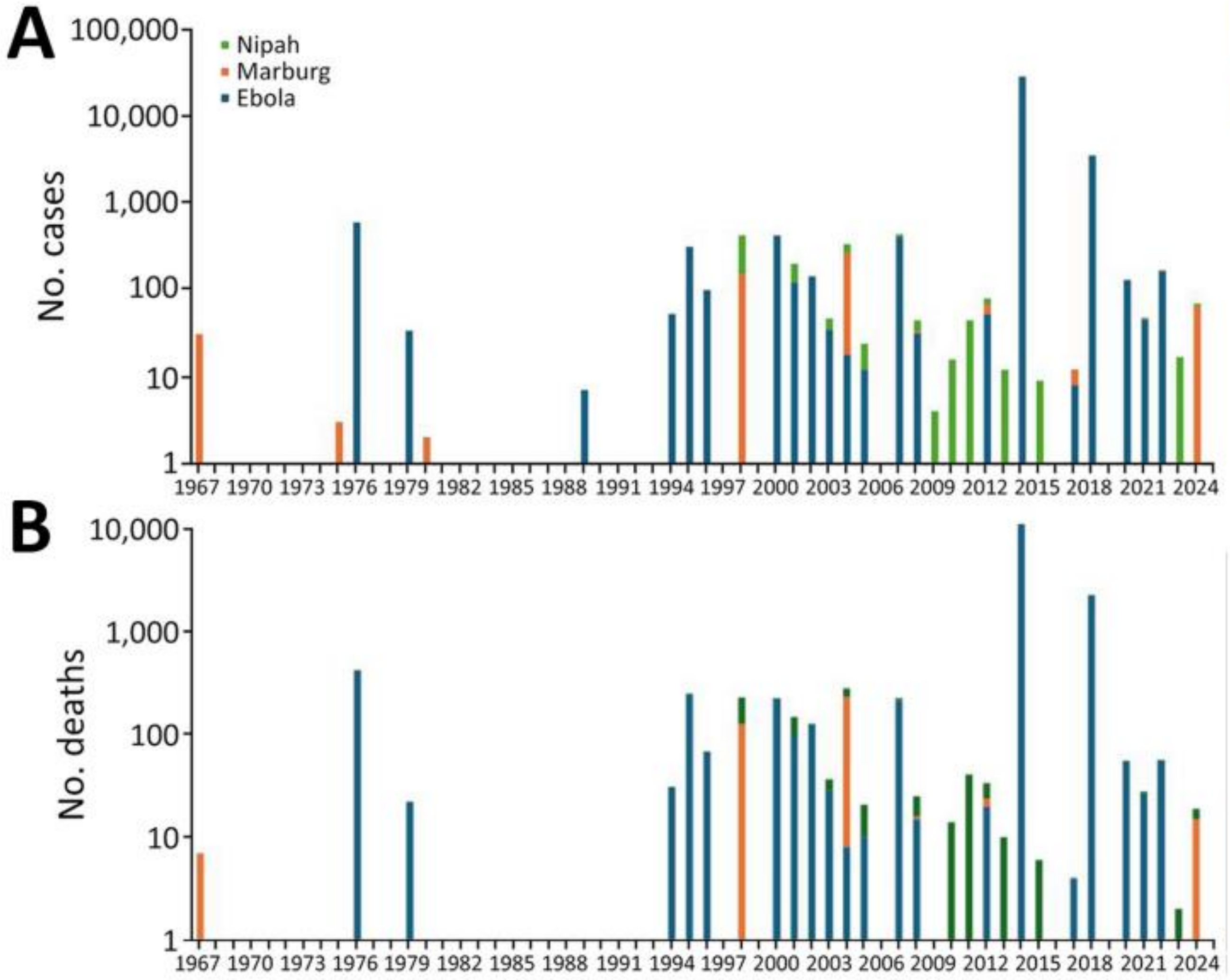


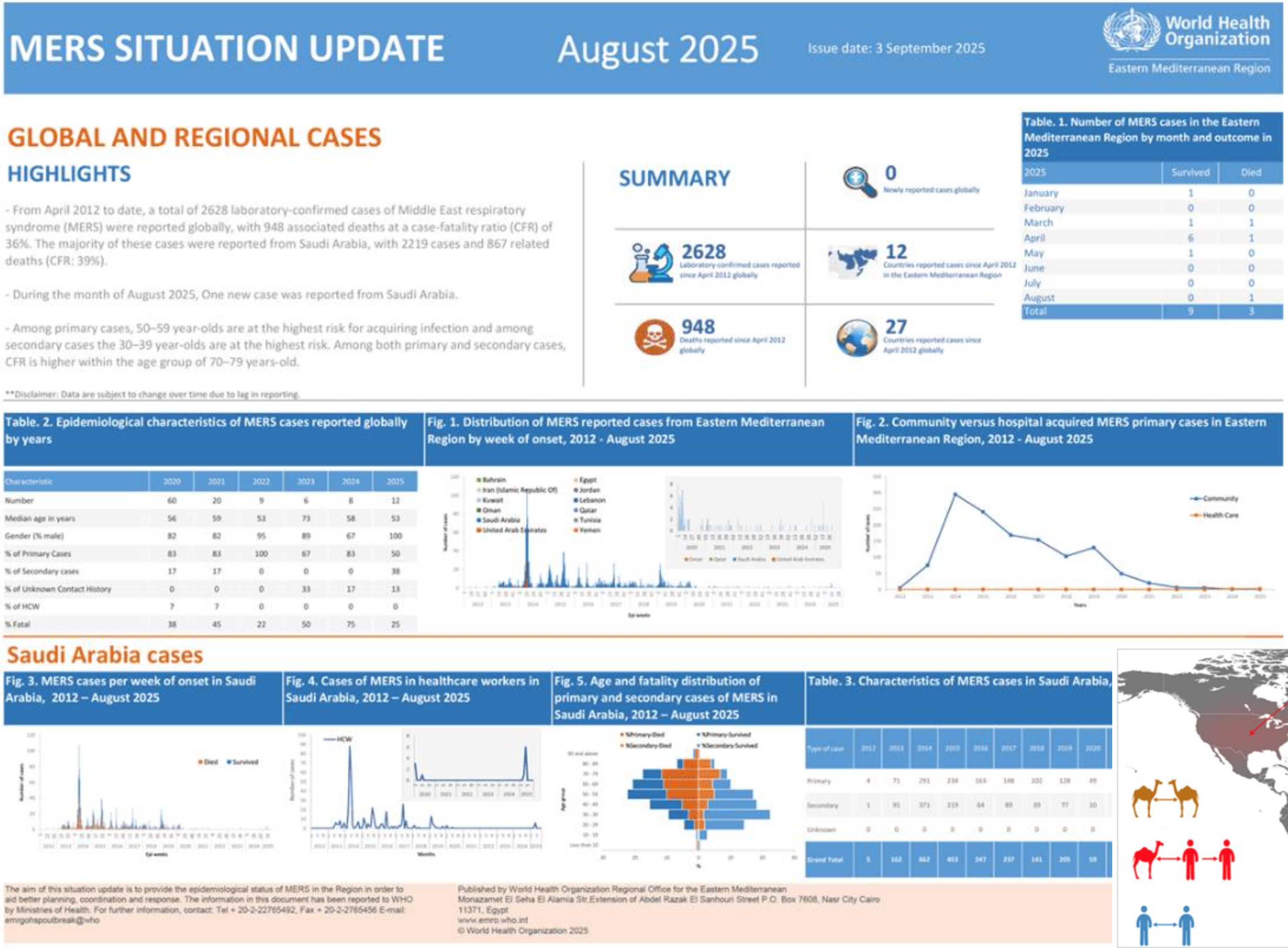
Figure. Global cases of infection with and deaths from Ebola, Marburg, and Nipah viruses, 1967–2024. A) No. cases; B) no. deaths.

Table 1. Most relevant virus-associated disease according to the corresponding pathogen, animal vector, annual case load (and fatality rate), global distribution and availability of treatment.

Disease	Associated pathogen	Detectable in the environment	Animal vector	Number of annual cases / Epidemiological relevance	Area	Treatment available	Reference
Crimean–Congo haemorrhagic fever (CCHF)	CCHF virus	Yes (shed in stool)	Tick bites or close livestock contact	Frequent outbreaks with 10–40% fatality rate	Europe (Balkans, Turkey), Asia, Middle East, and Africa	No	[109]
Filovirus disease	Filoviruses (particularly Ebola virus and Marburg virus)	Yes (e.g., Ebola virus is shed in stool and urine)	Primates, pigs, and bats	Frequent outbreaks with average 50% (up to 90% in the past) fatality rate for Ebola Virus, and up to 88% for Marburg Virus	Sub-Sahara Africa (Uganda, DR Congo, Kenya, and Angola), South America (Brazil)	Prevention via vaccination and treatment via approved monoclonal antibody treatment (Ebola)	[110]
Emerging coronavirus diseases (COVID)	SARS-CoV, MERS-CoV, SARS-CoV-2	Yes (shed in stool)	Bats and camels	607 million cases, 6.50 million fatalities for COVID-19 as of September 15th, 2022	Worldwide	Prevention via vaccination and treatment via licensed antivirals for SARS-CoV-2	[111]
Lassa fever	Lassa virus	Yes (shed in urine and stool)	Rat and mouse faeces	300,000–3,000,000 cases, 5,000 deaths	Western Africa (Guinea, Nigeria, Sierra Leone, and Liberia)	limited (experimental usage of ribavirin)	[112]
Nipah virus infection	Nipah virus	Yes (shed in stool and urine)	Fruit bats	Frequent outbreaks with 40–75% fatality rate	Malaysia, Singapore, Bangladesh, and India	Under development	[113]
Rift Valley fever	Rift Valley fever Virus	No (no shedding in urine or faeces in any species known)	Mosquitoes	Transmissions to humans are suspected but not confirmed	Sub-Sahara Africa	No	[114]

The WHO proposed seven virus-associated infections as most urgently needing research and development preparedness 2018

(7) "Disease X", a yet unknown or novel pathogen, most likely of zoonotic origin and capable of infecting the respiratory tract in humans and/or animals



MERS SITUATION UPDATE August 2025

Issue date: 3 September 2025

World Health Organization
Eastern Mediterranean Region

GLOBAL AND REGIONAL CASES

HIGHLIGHTS

- From April 2012 to date, a total of 2628 laboratory-confirmed cases of Middle East respiratory syndrome (MERS) were reported globally, with 948 associated deaths at a case-fatality ratio (CFR) of 36%. The majority of these cases were reported from Saudi Arabia, with 2219 cases and 867 related deaths (CFR: 39%).

- During the month of August 2025, One new case was reported from Saudi Arabia.

- Among primary cases, 50–59 year-olds are at the highest risk for acquiring infection and among secondary cases the 30–39 year-olds are at the highest risk. Among both primary and secondary cases, CFR is higher within the age group of 70–79 years-old.

**Disclaimer: Data are subject to change over time due to lag in reporting.

SUMMARY

0 Newly reported cases globally

2628 Laboratory-confirmed cases reported since April 2012 globally

12 Countries reported cases since April 2012 in the Eastern Mediterranean Region

948 Deaths reported since April 2012 globally

27 Countries reported cases since April 2012 globally

Table. 1. Number of MERS cases in the Eastern Mediterranean Region by month and outcome in 2025

2025	Survived	Died
January	1	0
February	0	0
March	1	1
April	6	1
May	1	0
June	0	0
July	0	0
August	0	1
Total	9	3

Table. 2. Epidemiological characteristics of MERS cases reported globally by years

Characteristic	2020	2021	2022	2023	2024	2025
Number	60	20	9	6	8	12
Median age in years	56	59	53	73	58	53
Gender (% male)	82	82	95	89	67	100
% of Primary Cases	83	83	100	67	83	50
% of Secondary cases	17	17	0	0	0	38
% of Unknown Contact History	0	0	0	33	17	13
% of HCW	7	7	0	0	0	0
% Fatal	38	45	22	50	75	25

Fig. 1. Distribution of MERS reported cases from Eastern Mediterranean Region by week of onset, 2012 - August 2025

Fig. 2. Community versus hospital acquired MERS primary cases in Eastern Mediterranean Region, 2012 - August 2025

Saudi Arabia cases

Fig. 3. MERS cases per week of onset in Saudi Arabia, 2012 – August 2025

Fig. 4. Cases of MERS in healthcare workers in Saudi Arabia, 2012 – August 2025

Fig. 5. Age and fatality distribution of primary and secondary cases of MERS in Saudi Arabia, 2012 – August 2025

Table. 3. Characteristics of MERS cases in Saudi Arabia,

Type of case	2012	2013	2014	2015	2016	2017	2018	2019	2020
Primary	4	71	291	234	163	148	102	128	49
Secondary	1	91	371	219	84	89	39	77	10
Unknown	0	0	0	0	0	0	0	0	0
Grand Total	5	162	662	453	247	237	141	205	59

The aim of this situation update is to provide the epidemiological status of MERS in the Region in order to aid better planning, coordination and response. The information in this document has been reported to WHO by Ministries of Health. For further information, contact: Tel + 20-2-22765492, Fax + 20-2-2765456 E-mail: emrgohspoutbreak@who

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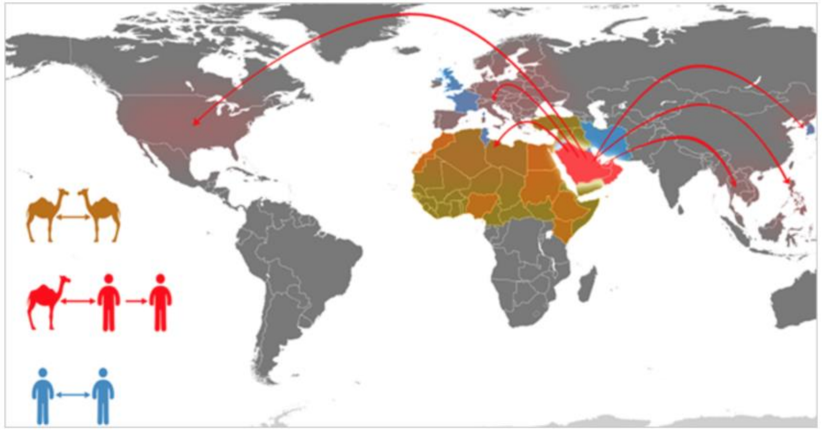
www.emro.who.int

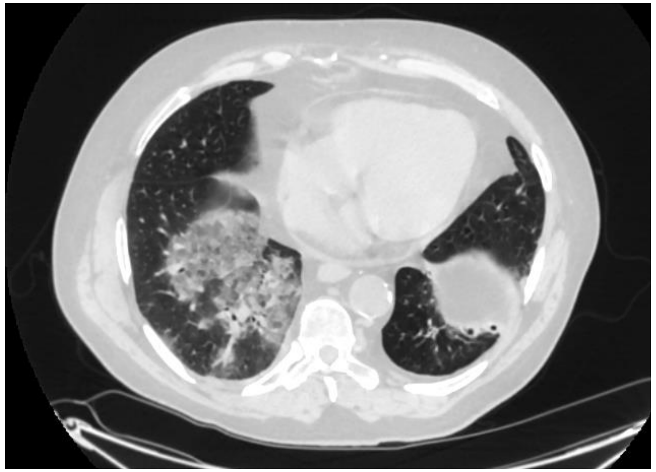


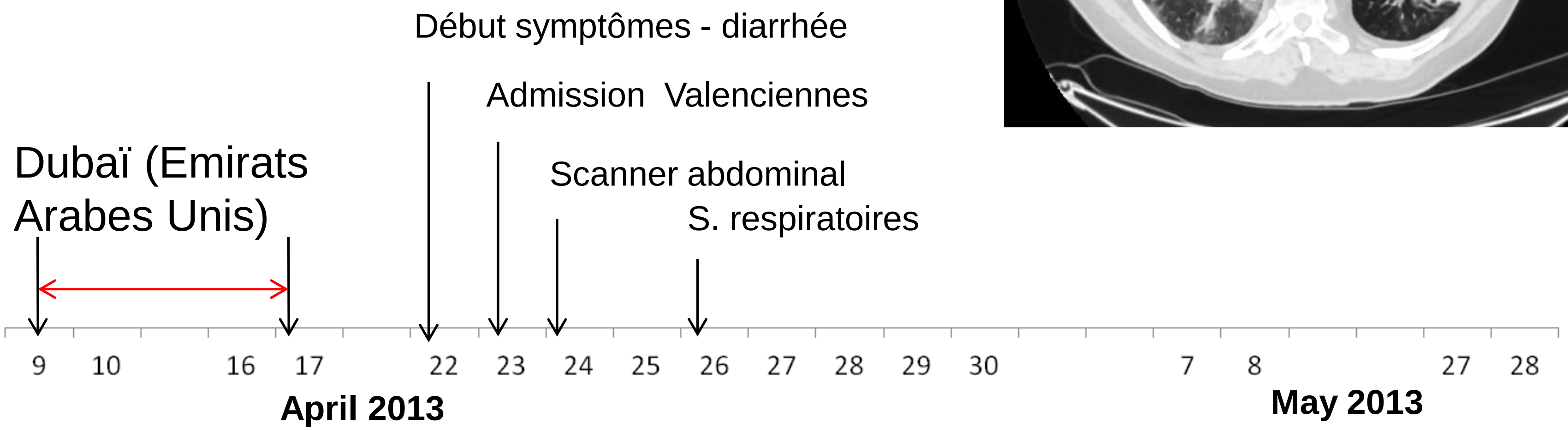
WHO

MERS CoV

Signes atypiques et exposition caractérisée : patient suspect REB ?

- 24 avril 2013: scanner abdominal : colon normal, infiltrats pulmonaires
- 26 avril 2013 : toux et dyspnée





Permission COREB

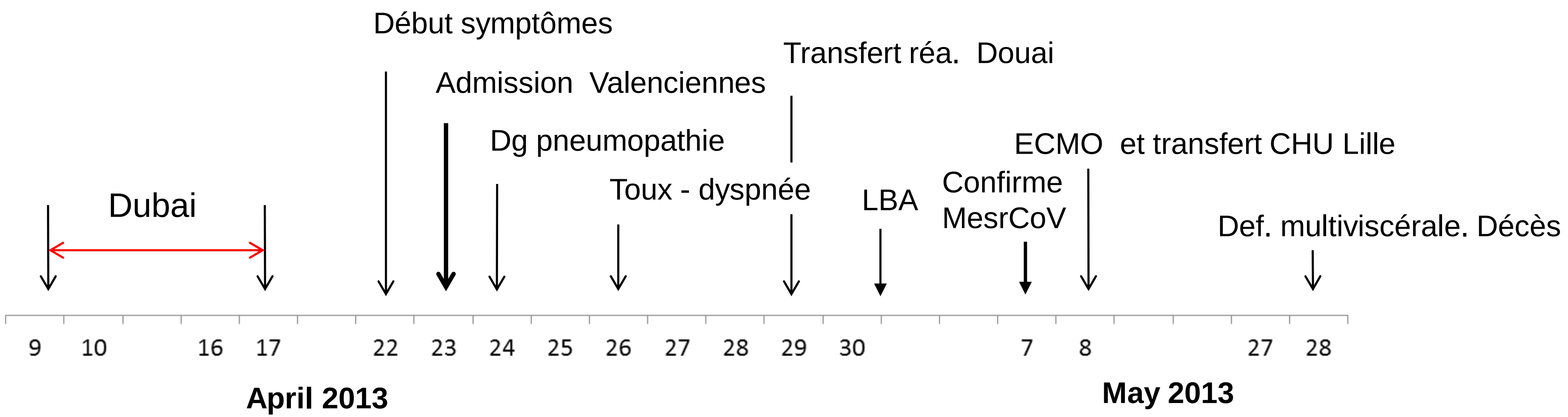
Signes atypiques et exposition caractérisée : patient suspect REB ?

SAU - Proximité
EXPERTISE
infectiologue –
référent COREB

Suspecter = isoler
conditions « sécurité standard »

Démarche diagnostique
Intégr. évolution hospitalisation
1ères heures

COREB interaction InVS :
évaluation ajustée enjeux individuels –collectifs pour indication prélèvement

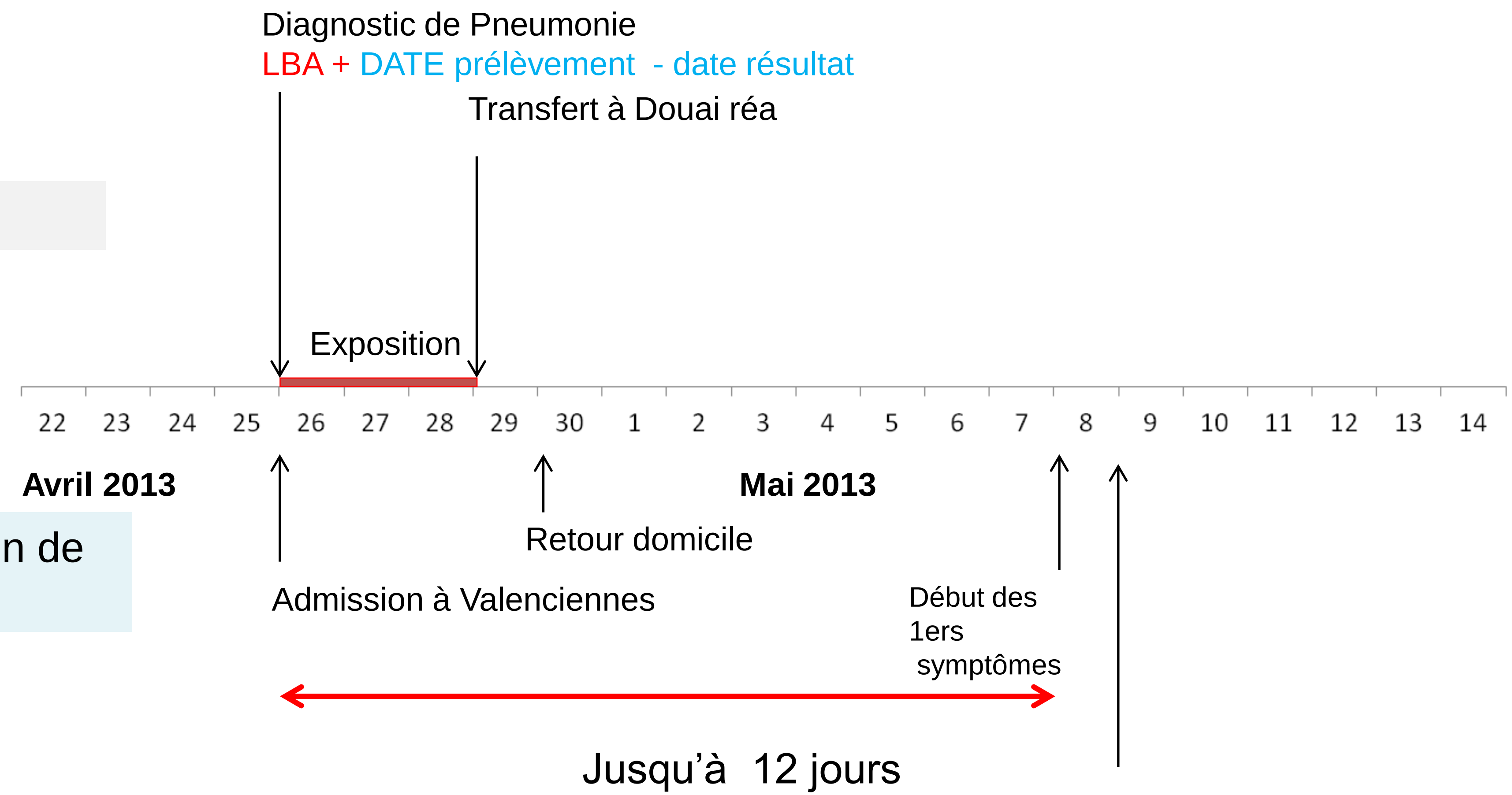


Permission COREB

Patient confirmé REB: infection à MERS-CoV - Transmission secondaire

Patient index

Patient voisin de chambre



Identifié voisin de chambre du patient index
Transfert pneumonie Lille

D'après Benoit Guery et al.

Permission COREB

J Korean Med Sci. 2018 Dec 31;33(53):e348
https://doi.org/10.3346/jkms.2018.33.e348
eISSN 1598-6357·pISSN 1011-8934

JKMS

Case Report
Infectious Diseases, Microbiology & Parasitology

Check for updates

An Atypical Case of Middle East Respiratory Syndrome in a Returning Traveler to Korea from Kuwait, 2018

Song Lee Bak, Kang Il Jun, Jongtak Jung, Jeong-Han Kim, Chang Kyung Kang, Wan Beom Park, Nam-Joong Kim, and Myoung-don Oh

Department of Internal Medicine, Seoul National University College of Medicine, Seoul, Korea

The Korean outbreak of MERS-CoV occurred in May, June, and July of 2015. There were 186 cases including 38 deaths, which is the largest outbreak outside the Arabian Peninsula.[4] Subsequently, there were no additional MERS cases in Korea until August 2018. Here, we report the first imported case of MERS-CoV infection in Korea since the end of the large outbreak in 2015.

Alerte

- Signalement samedi 29/11/2025
- Homme hospitalisé HCL, testé positif pour le MERS-CoV
- Groupe de 35 voyageurs (Oman et EAU),
  répartis dans 8 régions en France (+Belgique et Espagne)
- Contact tracing par CIRE SPF / ARS:
  interrogatoire, surveillance co-exposés et contacts, prélèvement des symptomatiques
- Signalement OMS / ECDC

ars Agence Régionale de Santé — Santé publique France — HCL HOSPICES CIVILS DE LYON

DÉROULÉ DU SÉJOUR ET EXPOSITIONS À RISQUE

- Groupe de 35 voyageurs
- 33 français, 2 belges
- Circuit Oman et EAU
- Du 12 au 23 novembre
- Réparties dans 8 régions
- Belgique et Espagne

14-15 nov

16-17 nov

12-19 nov. Oman

19-23 nov Dubai (EAU)

19-21 nov

21-23 nov

23 nov : retour en France / Belgique

RETOUR EN FRANCE

Santé publique France

1ère Cas confirmé – 29 nov

- Homme 77 ans
- DDS le 24/11
- Rhinite, toux, asthénie
- greffé cardiaque, insuffisance rénal
- Négatif prélèvement nasopharyngé
- Positif prélèvement profond
- Confirmé CNR le 29/11
- Positif Legionella et rhinovirus

- Hospitalisé pour suivi
- Consommation viande dromadaire
- Visite marché aux animaux
- Dattes

- CAR: épouse + taxi + fille + gendre
- CAR: contacts hospitaliers

DDS cas 1 · **hospitalisation** · **1ère MERS-CoV pos**

23 nov · 24 nov · 26 nov · 29 nov · 2 dec

DDS cas 2 · **2ème MERS-CoV pos**

Suivi international déclenché

2ème Cas confirmé – 2 déc

- Homme 70 ans, stent
- DDS le 23/11
- rhinite
- Négatif prélèvement NP
- Positif prélèvement profond confirmé le 02/12

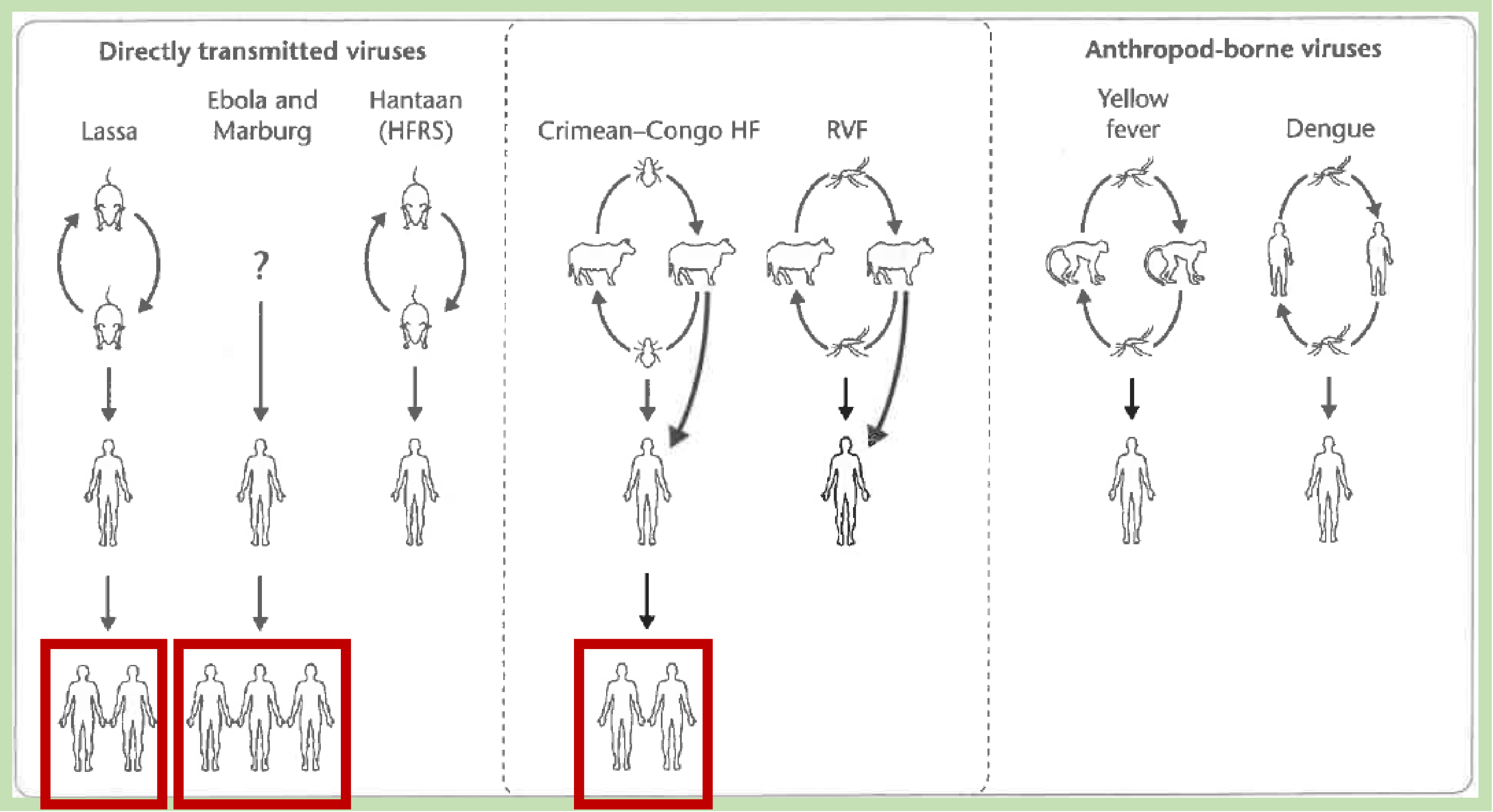
- Hospitalisé pour suivi
- Consommation viande dromadaire
- Visite marché aux animaux
- Dattes

- CAR: épouse + fille

FIEVRE VIRALE HEMORRAGIQUE
MALADIES HAUTEMENT TRANSMISSIBLES

Table 42.1 Overview of the major viral haemorrhagic fevers

Family	Genus	Virus	Disease	Geographical area	Natural cycle	Human disease
Arenaviridae	Arenavirus	Lassa	Lassa fever	Western Africa	*Mastomys* rodent	Direct transmission from rodent excreta and human-to-human spread. Mortality rate 2–15%. Treat with ribavirin
		Junin, Machupo, Guanarito	Argentine, Bolivian, Venezuelan haemorrhagic fevers	Localized areas in South America	*Calomys* and other rodents	Direct transmission from rodent excreta and human-to-human spread. Mortality rate 15–30%. Treat with ribavirin
Filoviridae	Filovirus	Ebola and Marburg	Ebola and Marburg haemorrhagic fevers	Sub-Saharan Africa	Unknown	Nosocomial spread common. Mortality rate 25–90%. No antiviral treatment
Bunyaviridae	Hantavirus	Hantaan, Dobrava, Seoul, Puumala	Haemorrhagic fever with renal syndrome	Far East, Europe	Various rural rodents	Direct transmission from rodent excreta. No human-to-human spread. Mortality rate 1–15%, depending on virus. Treat severe disease with ribavirin
	Nairovirus	Crimean–Congo haemorrhagic fever	Crimean–Congo haemorrhagic fever	Eastern Europe, Asia, Africa	*Hyalomma* ticks and livestock	Mosquito bites and direct transmission from blood of infected animals. Human-to-human spread. Mortality rate 15–30%. Treat with ribavirin
	Phlebovirus	Rift Valley fever	Rift Valley fever	Africa, Middle East	*Aedes* and other mosquitoes, and livestock	Tick bites and direct transmission from blood of infected animals. Human-to-human spread not documented, but possible. Most natural infections asymptomatic. Mortality rate 50% for VHF. Treat with ribavirin
Flaviviridae	Flavivirus	Dengue	Dengue fever, dengue haemorrhagic fever	Tropics and subtropics worldwide	*Aedes* mosquitoes and humans	Transmission from mosquito bites. No direct transmission. Mortality rate <1% with adequate fluid treatment. No antivirals
		Yellow fever	Yellow fever	Africa, South America	Various mosquitoes and monkeys	Transmission from mosquito bites. No direct transmission. Mortality rate 20–50%. No antivirals
		Omsk haemorrhagic fever	Omsk haemorrhagic fever	Western Siberia	Muskrats, other rodents, *Dermacentor* ticks	Direct contact with muskrats, and tick bites. Mortality rate 1–10%. No antivirals
		Kyasanur Forest disease	Kyasanur Forest disease	South-western India	*Haemaphysalis* ticks	Tick bites, no antivirals


Directly transmitted viruses
Lassa
Ebola and Marburg
Hantaan (HFRS)
?
Crimean–Congo HF
RVF
Anthropod-borne viruses
Yellow fever
Dengue

LASSA VIRUS

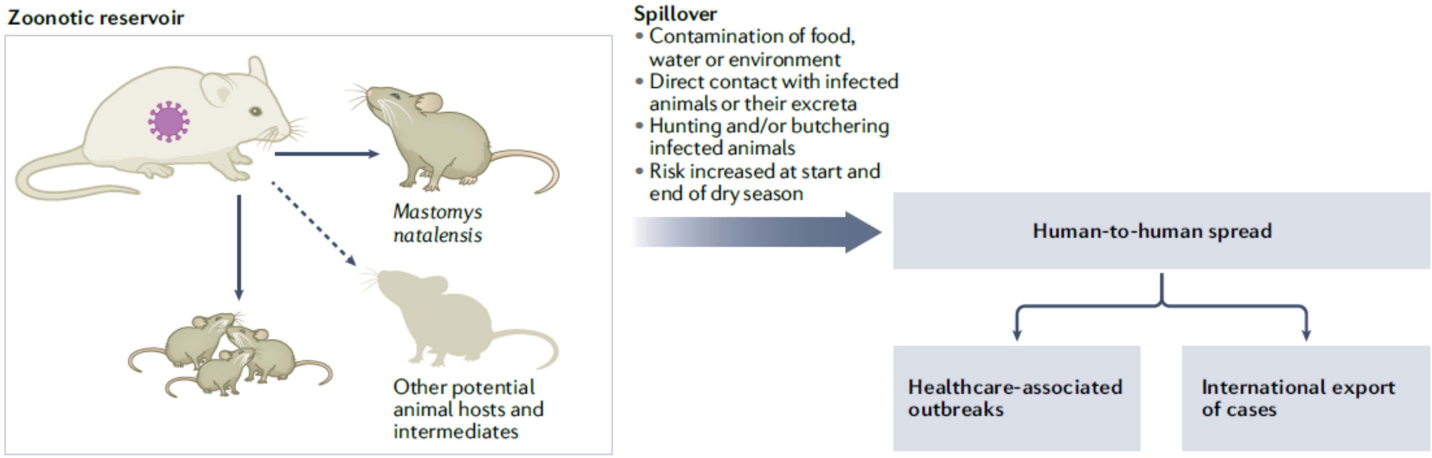
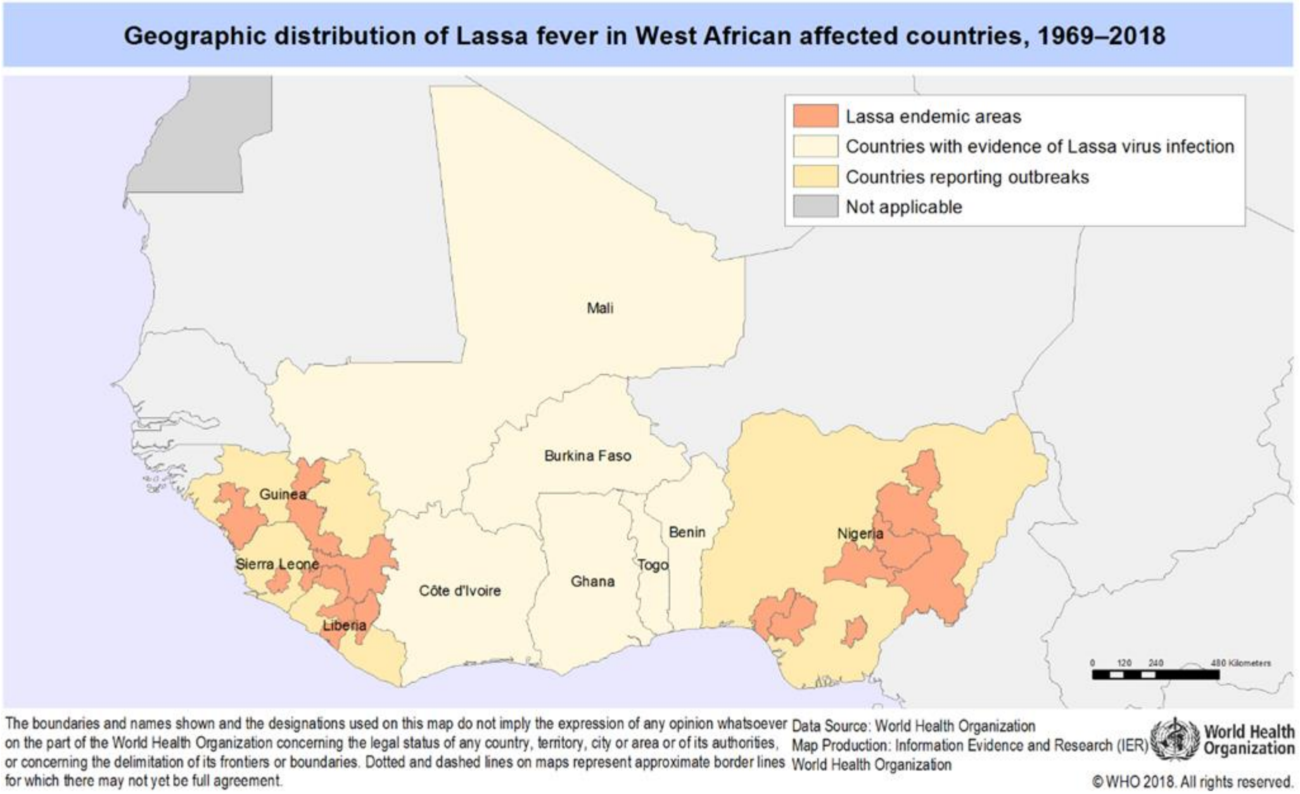
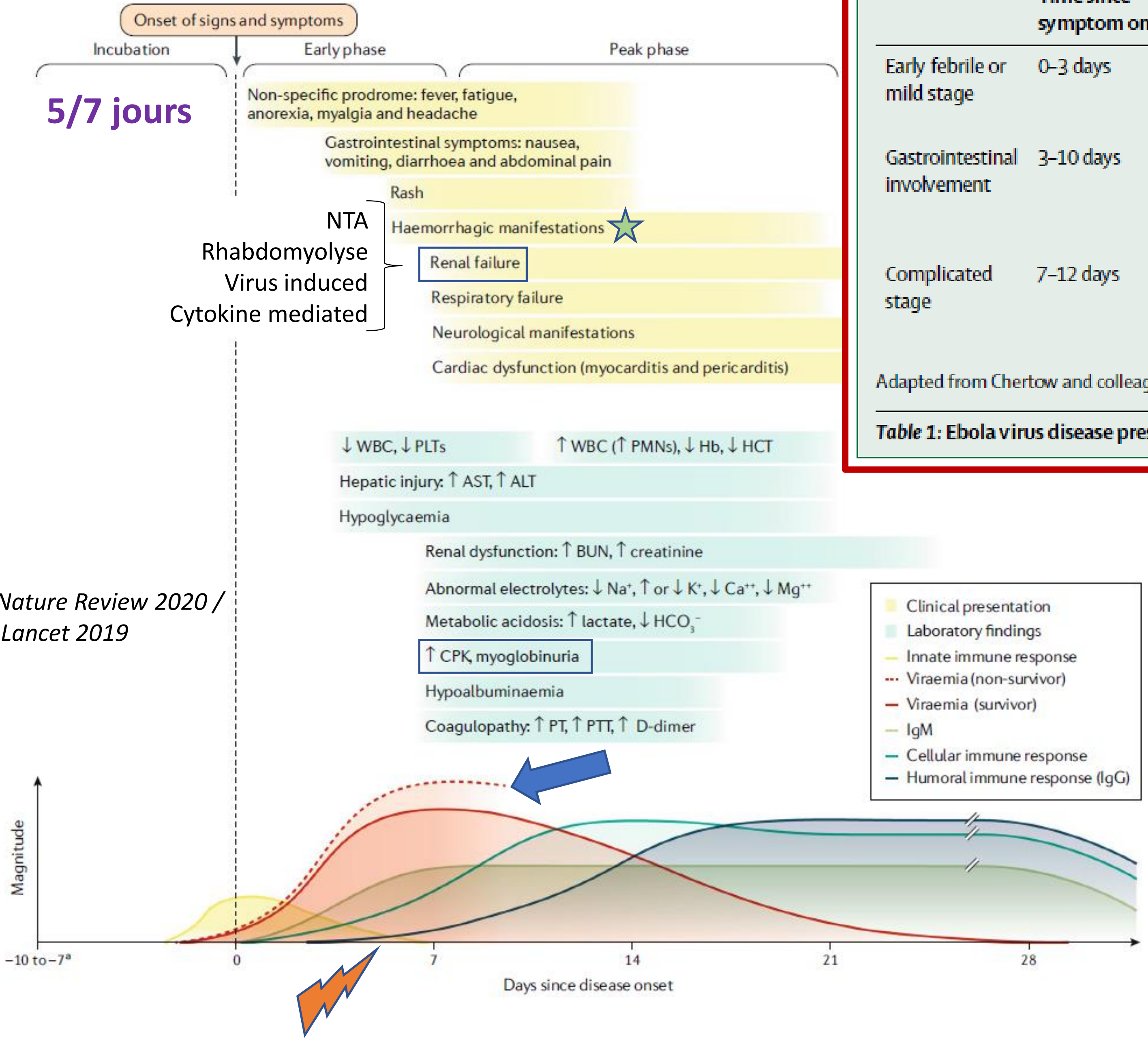


Fig. 2 | **Lassa virus transmission.** The major reservoir of Lassa virus (LASV) is *Mastomys natalensis*. LASV spreads among *Mastomys* via horizontal or vertical (congenital) routes. Other animal species can also be infected with LASV. Spillover of LASV occurs by exposure to excretions of *Mastomys* or intermediate hosts, or during preparation of infected animals for food. Human-to-human transmission can occur in the home or clinical setting.



Le taux de létalité global est de **1 %.** Parmi les patients hospitalisés présentant un tableau clinique sévère de fièvre de Lassa, **le taux de létalité est estimé à environ 15 %.** Des soins de soutien précoces avec réhydratation et traitement symptomatique améliorent la survie. Environ **80 % des personnes infectées par le virus de Lassa ne présentent aucun symptôme**. Une infection sur cinq entraîne une maladie grave.

MVE/ CLINIQUE / CFR



Jacob Nature Review 2020 / Malvy Lancet 2019

	Time since symptom onset	Clinical features	Typical patient
Early febrile or mild stage	0–3 days	Non-specific features: fever, weakness, lethargy, and myalgia	Ambulatory, able to compensate for fluid losses; no indication for intravenous fluid administration
Gastrointestinal involvement	3–10 days	Same as early stage plus diarrhoea, vomiting, or both, or abdominal pain	Unable to compensate for fluid losses because of emesis or large volume losses; indication for intravenous fluid administration
Complicated stage	7–12 days	Same as gastrointestinal involvement stage plus haemorrhage, shock, organ failure, and neurological complications	Critically ill, usually hypovolaemic, often with confusion or seizures

Adapted from Chertow and colleagues[63] and Hunt and colleagues.[64]

***Table 1:* Ebola virus disease presentation by stage**

CFR

Global environ **40%** ou plus et **diminue depuis 40 ans** *Izudi JIPH 2024*

the CFR of 27 patients with *EVD managed with aggressive supportive care measures in Europe and the US was only* ***18.5%*** *compared with the overall mean CFR of* ***39.5%*** *in Western Africa* *Uyezki NEJM 2016*

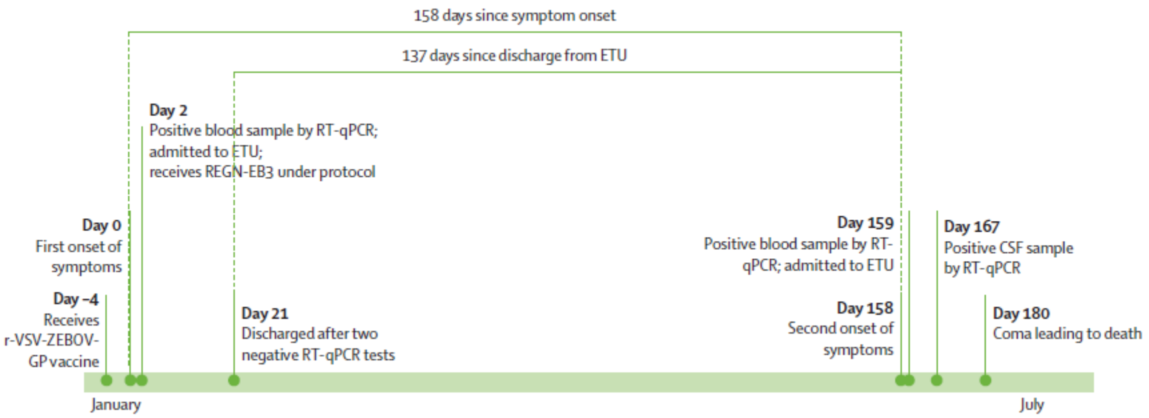
60% si CT ≤20 *Mulangu NEJM 2019*

FILOVIRUS IMMUNE EVASION/ CSQ?

• Persistance virale = Relapse

Méningoencephalite (second épisode, même virus)

EBOV persistance study Group Lancet Microb 2024



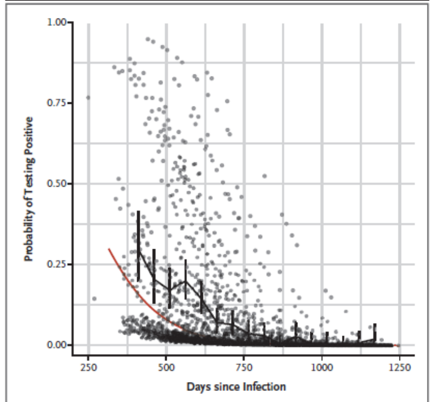


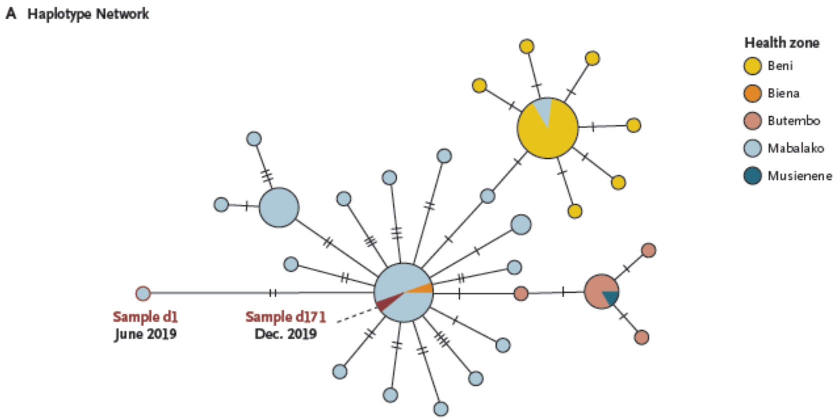
Figure 2. Frequency of Semen Samples Testing Positive for Ebola Virus RNA since the Time of Acute Infection.

Data points represent model-based estimates of the probability of testing positive for individual samples; vertical bars represent 95% confidence intervals for the probability of a sample being positive, based on samples grouped into 25-day bins; and the piecewise linear black curve shows the sample proportions in these bins. The red curve represents a model-based population trend for the probability of a sample testing positive for Ebola virus RNA.

Sperme

PREVAIL III NEJM 2019

• De Zoonose à une Maladie interhumaine / Résurgence



"… the patient had had a relapse of acute EVD that led to a transmission chain resulting in **91 cases across six health zones over 4 months**."

Mbala NEJM 2021

"From 1976 to 2022 there were 35 Ebola disease outbreaks with 48 primary/index cases. While the majority of outbreaks were associated with wildlife spillover, resurgence of **human-to-human transmission** could account for roughly **a quarter of outbreaks caused by Ebola virus"**

Judson JID 2023

• Traitement de la persistance / ou de l'aigu pour éviter la persistance?

- Remdesivir *PREVAIL IV remdesivir semen CID 2021*

FILOVIRUS EBOLA et MARBURG (MOT 4)

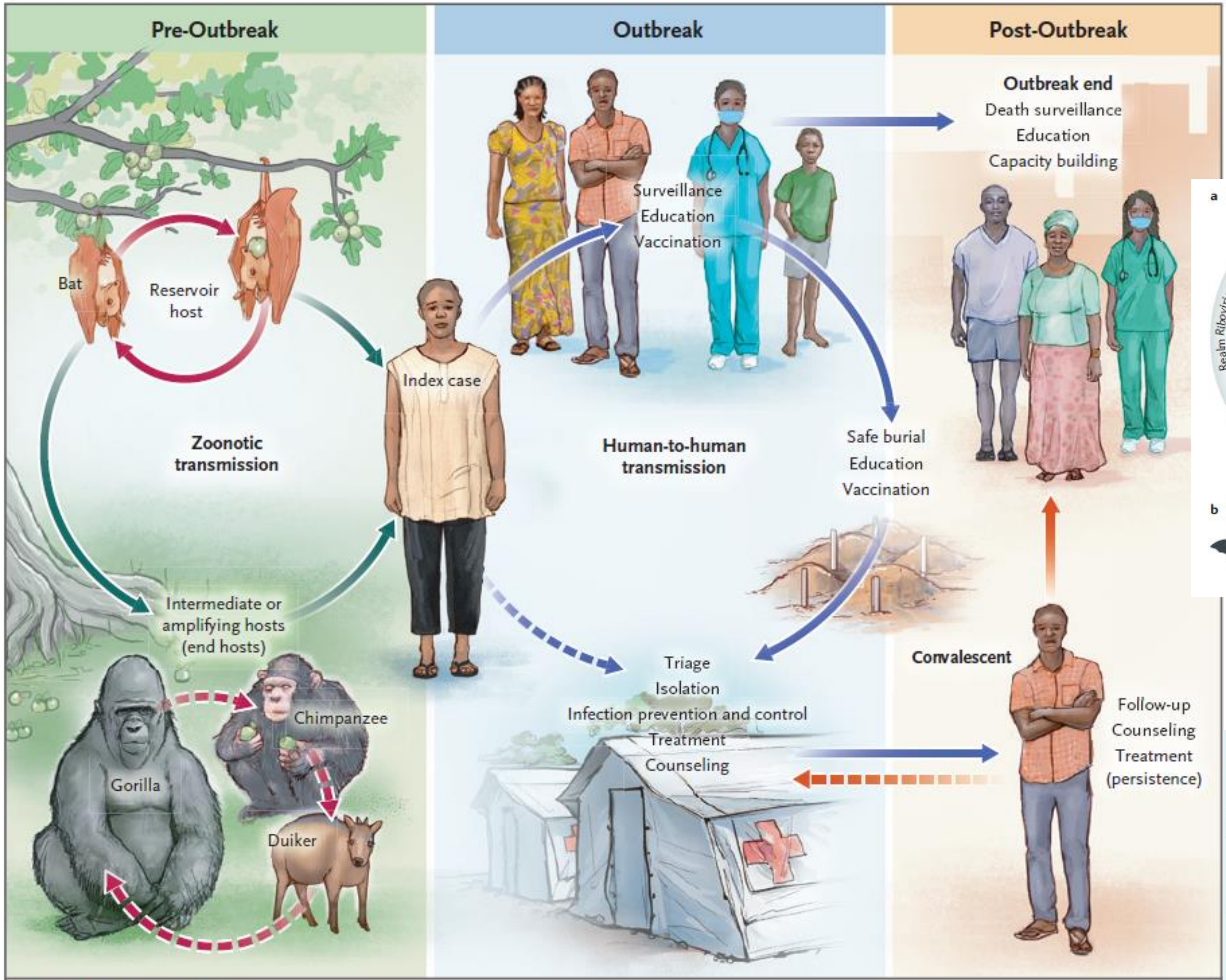
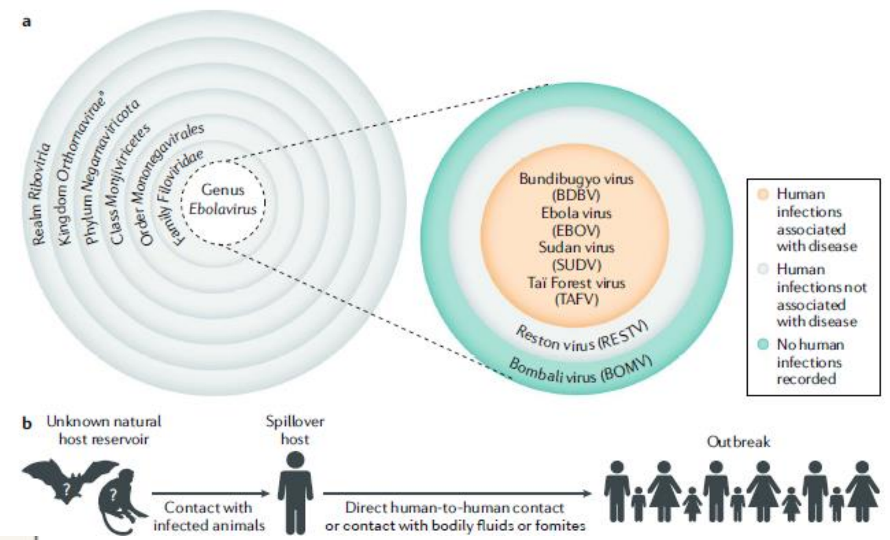
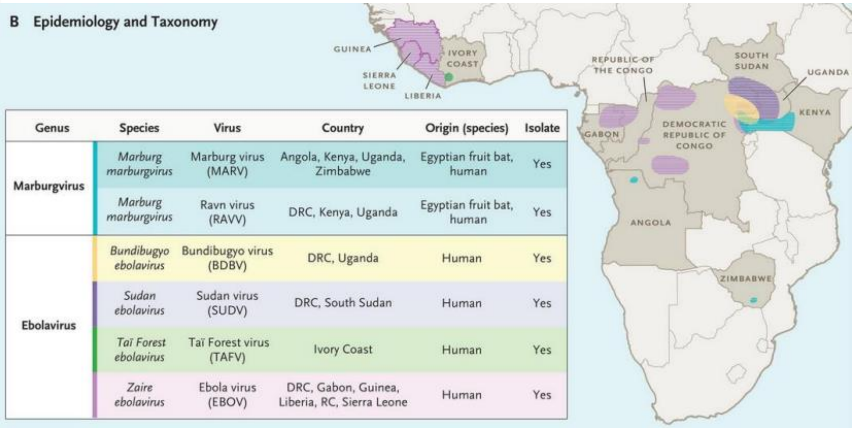


Figure 2. Outbreak Phases.
Shown are the key elements of the three phases of an Ebola virus outbreak, including control measures.





Genus	Species	Virus	Country	Origin (species)	Isolate
Marburgvirus	*Marburg marburgvirus*	Marburg virus (MARV)	Angola, Kenya, Uganda, Zimbabwe	Egyptian fruit bat, human	Yes
	Marburg marburgvirus	Ravn virus (RAVV)	DRC, Kenya, Uganda	Egyptian fruit bat, human	Yes
Ebolavirus	*Bundibugyo ebolavirus*	Bundibugyo virus (BDBV)	DRC, Uganda	Human	Yes
	Sudan ebolavirus	Sudan virus (SUDV)	DRC, South Sudan	Human	Yes
	Taï Forest ebolavirus	Taï Forest virus (TAFV)	Ivory Coast	Human	Yes
	Zaire ebolavirus	Ebola virus (EBOV)	DRC, Gabon, Guinea, Liberia, RC, Sierra Leone	Human	Yes

FILOVIRUS EBOLA et MARBURG (MOT 4)

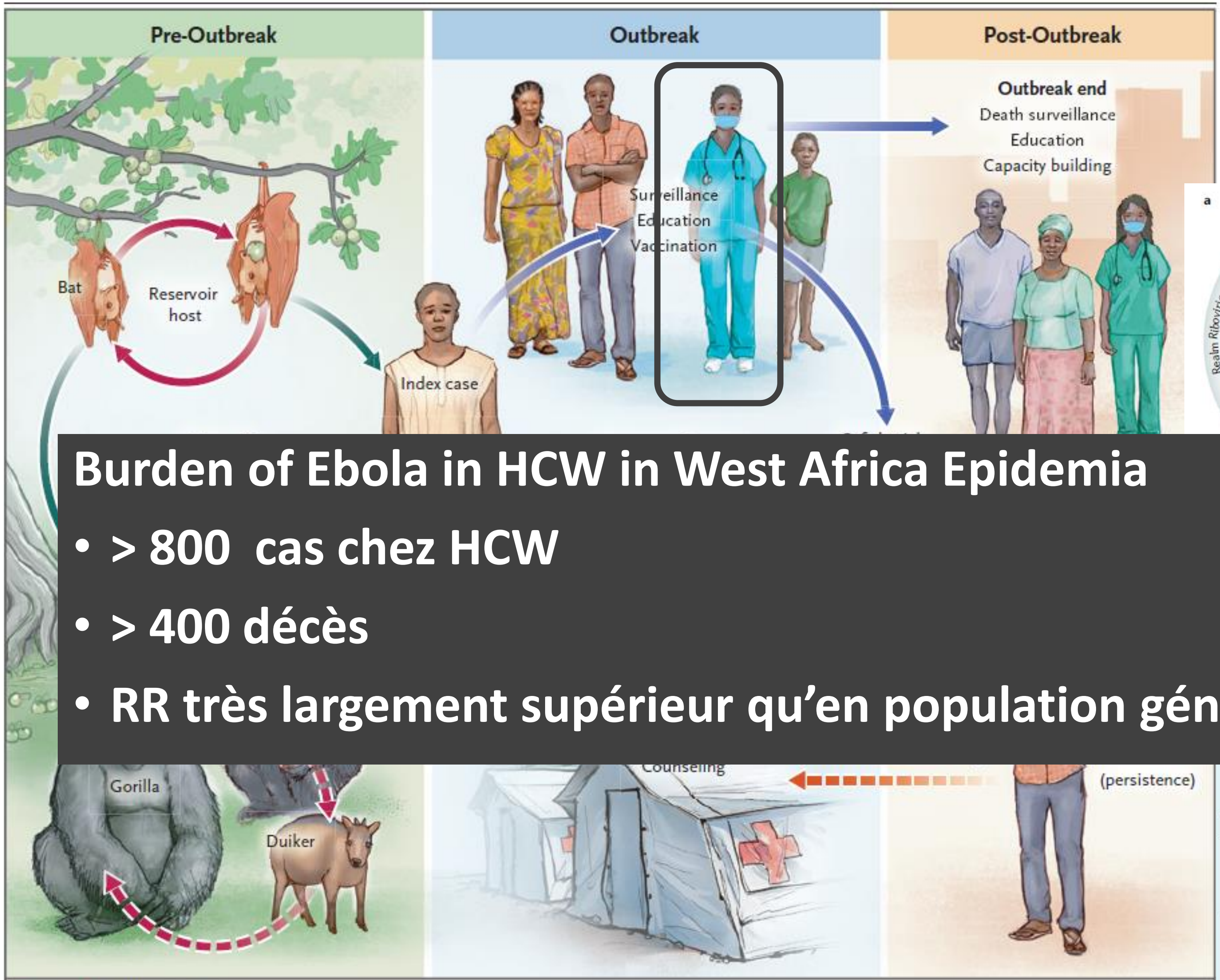
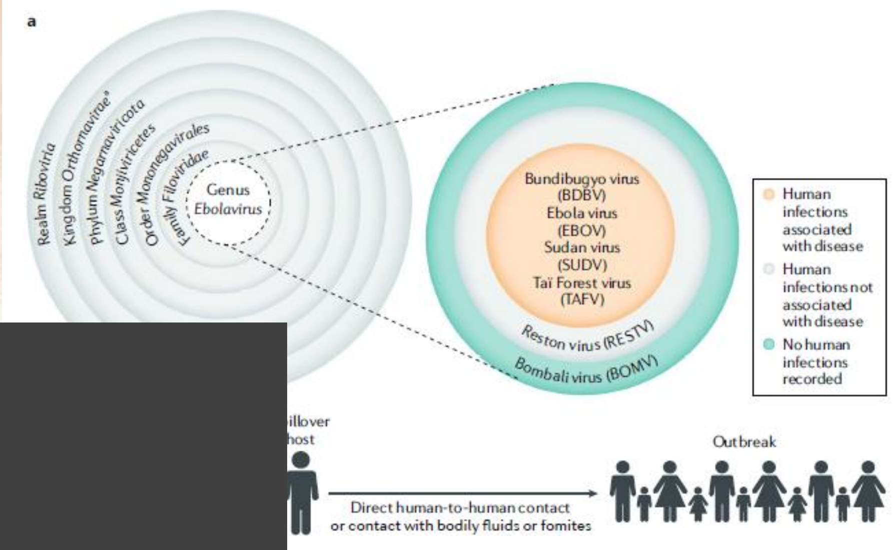
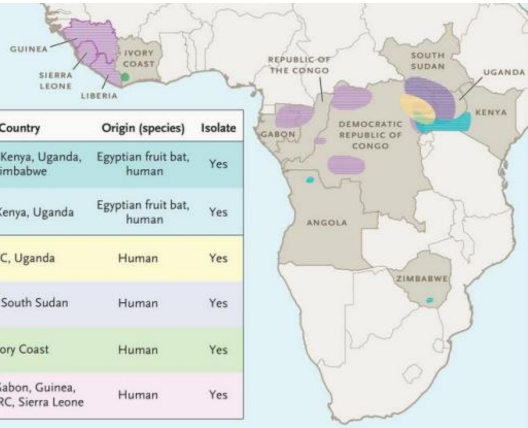


Figure 2. Outbreak Phases.
Shown are the key elements of the three phases of an Ebola virus outbreak, including control measures.

Burden of Ebola in HCW in West Africa Epidemia

- > 800 cas chez HCW
- > 400 décès
- RR très largement supérieur qu'en population général





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	Marburg marburgvirus	Ravn virus (RAVV)	DRC, Kenya, Uganda	Egyptian fruit bat, human	Yes
Ebolavirus	*Bundibugyo ebolavirus*	Bundibugyo virus (BDBV)	DRC, Uganda	Human	Yes
	Sudan ebolavirus	Sudan virus (SUDV)	DRC, South Sudan	Human	Yes
	Taï Forest ebolavirus	Taï Forest virus (TAFV)	Ivory Coast	Human	Yes
	Zaire ebolavirus	Ebola virus (EBOV)	DRC, Gabon, Guinea, Liberia, RC, Sierra Leone	Human	Yes

EBOLA USA

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

Morbidity and Mortality Weekly Report (*MMWR*)

Ebola Virus Disease Cluster in the United States — Dallas County, Texas, 2014

Please note: *An erratum has been published for this article. To view the erratum, please click here.*

Weekly

November 21, 2014 / 63(46);1087-1088

On November 14, 2014, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

Michelle S. Chevalier, MD[1,2], Wendy Chung, MD[3], Jessica Smith, MPH[3], Lauren M. Weil, PhD[3], Sonya M. Hughes, MPH[3], Sibeso N. Joyner, MPH[3], Emily Hall, MPH[3], Divya Srinath, JD[3], Julia Ritch[3] , Prea Thathiah, PhD[3] , Heidi Threadgill[4], Diana Cervantes, DrPH[4], David L. Lakey, MD[4] (Author affiliations at end of text)

Since March 10, 2014, Guinea, Liberia, and Sierra Leone have experienced the largest known Ebola virus disease (Ebola) epidemic with approximately 13,000 persons infected as of October 28, 2014 (1,2). Before September 25, 2014, only four patients with Ebola had been treated in the United States; all of these patients had been diagnosed in West Africa and medically evacuated to the United States for care.

On September 25, a man aged 45 years (patient 1), who had arrived in the United States from Liberia 5 days earlier, went to a Dallas County, Texas, emergency department with fever, initially 100.1°F (38.4°C) but increased to 102.9°F (39.4°C), abdominal pain, and headache (Figure). He was treated for possible sinusitis and discharged. On September 28, the man returned to the hospital by ambulance with persistent fever (101.4°F [38.6°C]), abdominal pain, and new onset diarrhea; he was placed in a private room under standard, droplet and contact precautions and was tested for Ebola. On September 30, real-time polymerase chain reaction (PCR) testing at the Texas Department of State Health Services and CDC confirmed that patient 1 was positive for Ebola virus, and this represented the first imported Ebola virus infection diagnosed in the United States. A CDC team arrived in Dallas later that night by invitation from the Texas Department of State Health Services to assist with its investigation. The objectives were to 1) identify potentially exposed contacts of the Ebola patient, 2) initiate monitoring of contacts, 3) review plans for triaging and testing suspected Ebola patients, and 4) review infection control practices.

MARBURG RWANDA

Of the 66 patients with confirmed MVD, 51 (77%) were health care workers.

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Marburg Virus Disease in Rwanda, 2024 — Public Health and Clinical Responses

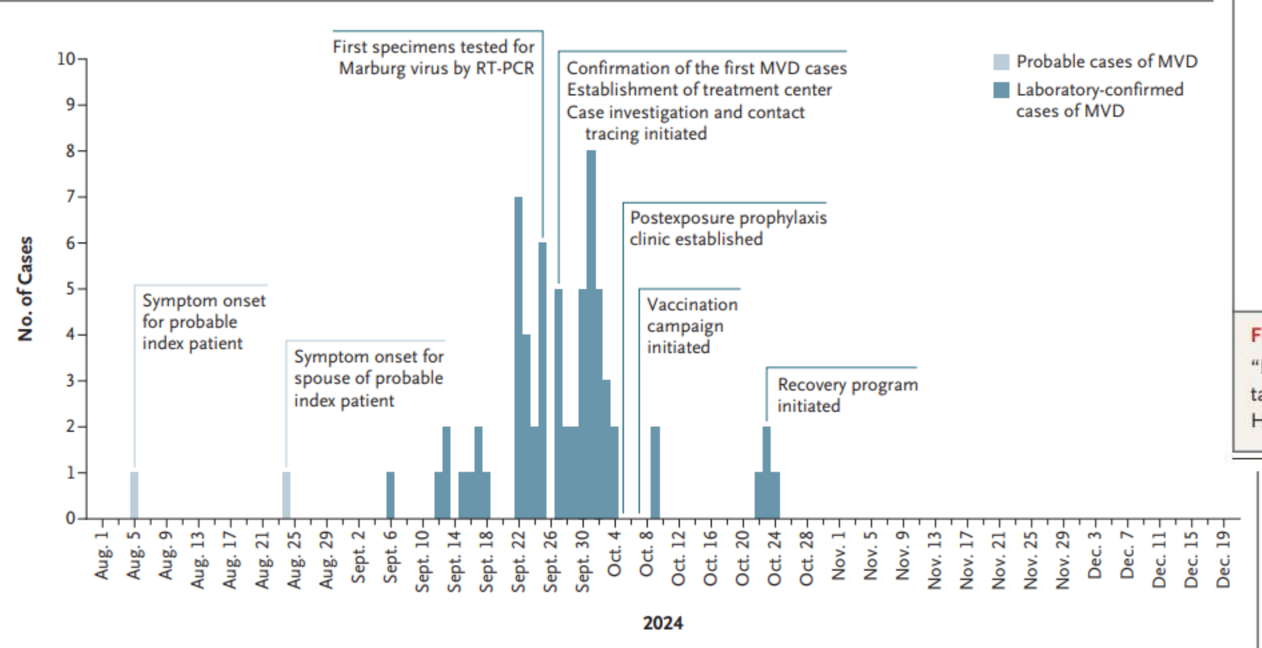


Figure 1. Timeline of Cases and Key Response Activities.
MVD denotes Marburg virus disease, and RT-PCR reverse-transcriptase polymerase chain reaction.

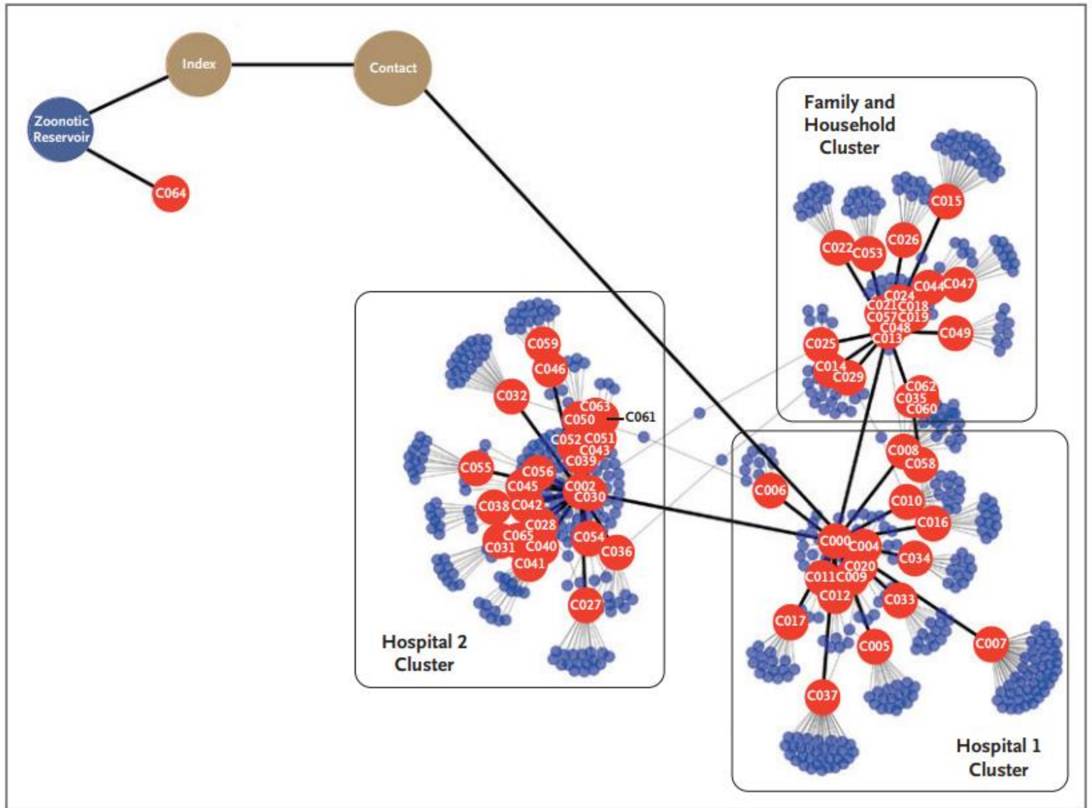


Figure 2. Transmission Clusters Linked to Probable Index Patient.
"Index" indicates the probable index patient, who had been exposed to Egyptian fruit bats at a mining site. "Contact" indicates the spouse of the probable index patient, who was the first patient with probable MVD admitted to Hospital 1. Patients with confirmed MVD are denoted by red circles.

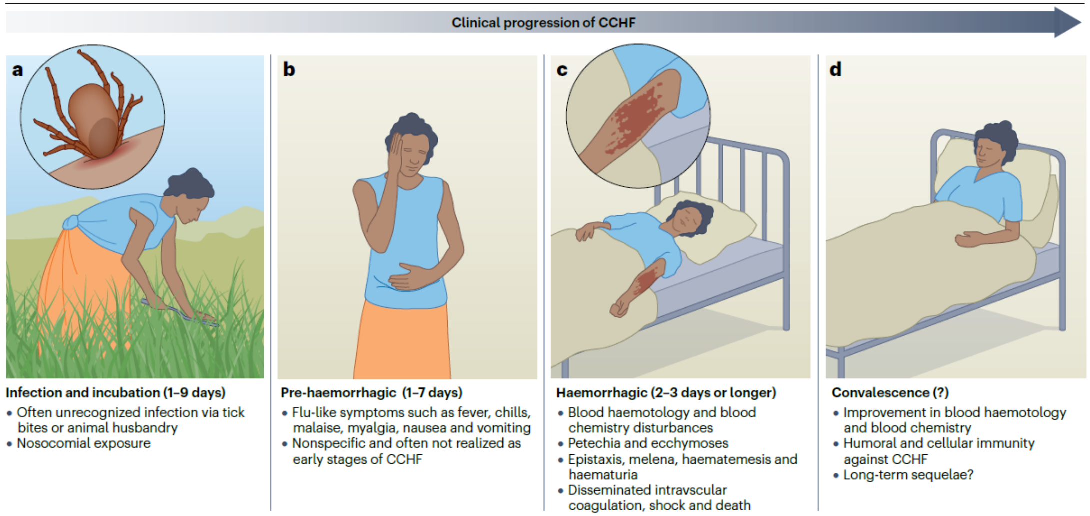
FIEVRE HEMORRAGIQUE DE CRIMEE CONGO

Clinique [1-4;14-18]**:**
Polymorphisme des présentations cliniques : de formes asymptomatiques aux formes symptomatiques voire sévères. Une étude de séroprévalence menée en Turquie par Bodur « et al » retrouve une séroprévalence de l'infection de 10 % au sein d'une région épidémique avec 88 % des infections pauci-symptomatiques.

J1 des symptômes : Phase pré-hémorragique aspécifique : fièvre (43-98%), céphalées(48-80%), myalgies (54-93%), dls abdominales, nausées/vomissements (46-83%), diarrhées (31-44%), hépatomégalie (30-37%), splénomégalie (14-37%), polyadenopathies (13%), vertiges, photophobie, rachialgies.

J3-J7 du début des symptômes : Phase hémorragique : sd hémorragique externe : pétéchies/ecchymoses/purpura (20-47%), épistaxis (17-52%), gingivorragies, hémorragie sous conjonctivale, hématurie (15-37%), hématémèse (8-31%), méléna (1-20%), hémoptysie (6-9%), métrorragies, …..+/-sd hémorragique interne : hémoragie intra cérébrale…

J10-J20 du début des symptômes : phase de convalescence : asthénie, tachycardie, labilité tensionnelle, alopécie, troubles de l'attention et de la mémoire, troubles somatoformes….



Incubation: (2-12) jours,
en moyenne à 5 jours,
Formes sécrétantes,
formes non sécrétantes

Crimean-Congo Hemorrhagic Fever, Spain, 2013–2021

Helena Miriam Lorenzo Juanes,[1] Cristina Carbonell,[1] Begoña Febrer Sendra, Amparo López-Bernus, Alberto Bahamonde, Alberto Orfao, Carmen Vieira Lista, María Sánchez Ledesma, Ana Isabel Negredo, Beatriz Rodríguez-Alonso, Beatriz Rey Bua, María Paz Sánchez-Seco, Juan Luis Muñoz Bellido, Antonio Muro, Moncef Belhassen-García

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 29, No. 2, February 2023

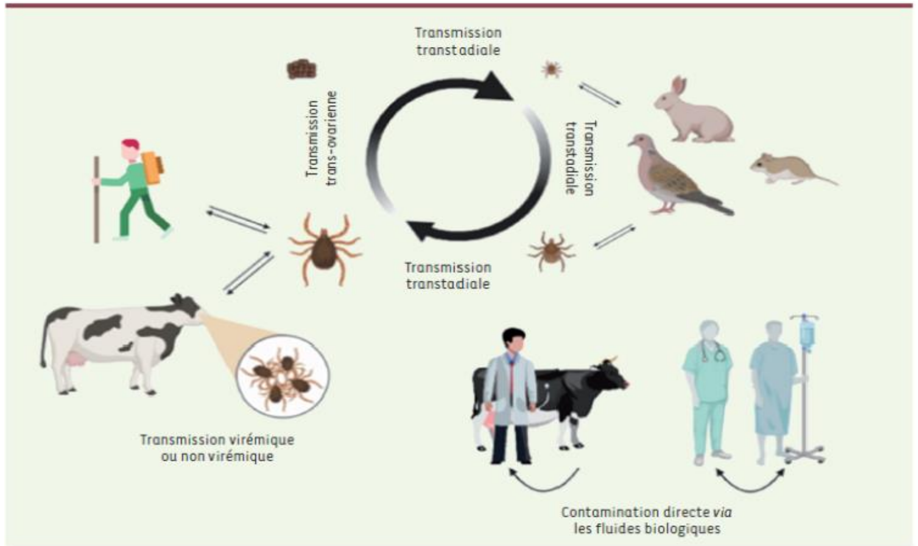
Table 1. Main epidemiologic data of patients with Crimean-Congo hemorrhagic fever, Spain, 2013–2021*

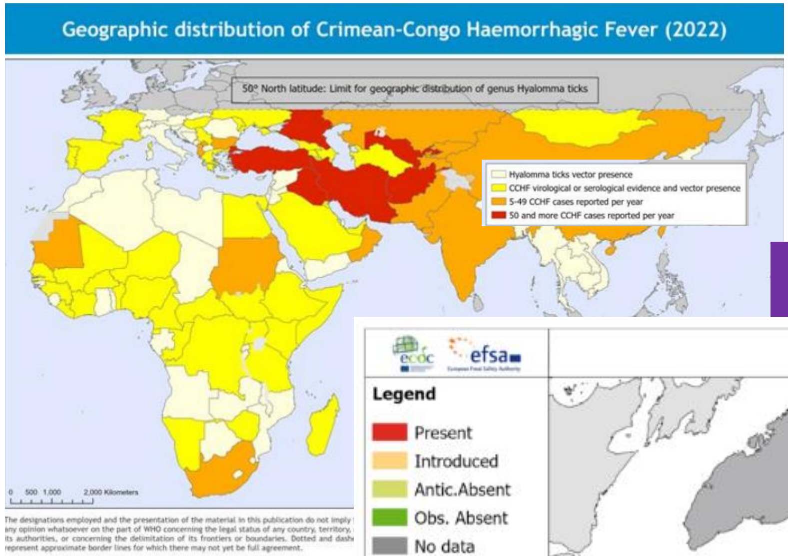
	Patient no. and source									
Characteristic	1 (*10*)	2 (*10*)	3 (*12*)	4 (*13*)	5	6	7	8 (*11*)	9	10
Age, y	62	50	74	53	70	54	69	32	59	30
Sex	M	F	M	M	M	M	M	F	M	F
Rural location	No	No	No	Yes	Yes	Yes	Yes	No	Yes	No
Date	2016 Aug	2016 Aug	2018 Jul	2018 Aug	2020 Jun	2020 Jul	2020 Aug	2013 May	2021 Apr	2021 Jun
Risk factors†	Leisure	Nurse	Hunting	Ag	Ag	Ag	Leisure	Leisure	Ag	Leisure
Comorbidities	HTN, OSA	None	None	Hepatic steatosis, active drinker	Tongue cancer	TB, brucellosis, active drinker	HTN	None	Diabetes mellitus, dyslipemia	Diabetes mellitus
Bakir scale at admission	7	0	7	6	6	4	8	5	2	5
Outcome	Died	Good	Died	Good	Good	Good	Died	Good	Good	Good

*Source is indicated if other than this study. Ag, agriculture; HTN, hypertension; OSA, obstructive sleep apnea.
†Risk factors include high-risk occupations; agriculture includes shepherding activities.

DYNAMIQUE EPIDEMIOLOGIQUE / FH CRIMEE CONGO

ARBOVIROSE EN CLIMAT TEMPERE





Retrospective Identification of Early Autochthonous Case of Crimean-Congo Hemorrhagic Fever, Spain, 2013

Before this report, 7 autochthonous human cases of Crimean-Congo hemorrhagic fever had been reported in Spain, all occurring since 2016. We describe the retrospective identification of an eighth case dating back to 2013. This study highlights that the earliest cases of an emerging disease are often difficult to recognize.

Expansion au delà du 50ième parallèle?

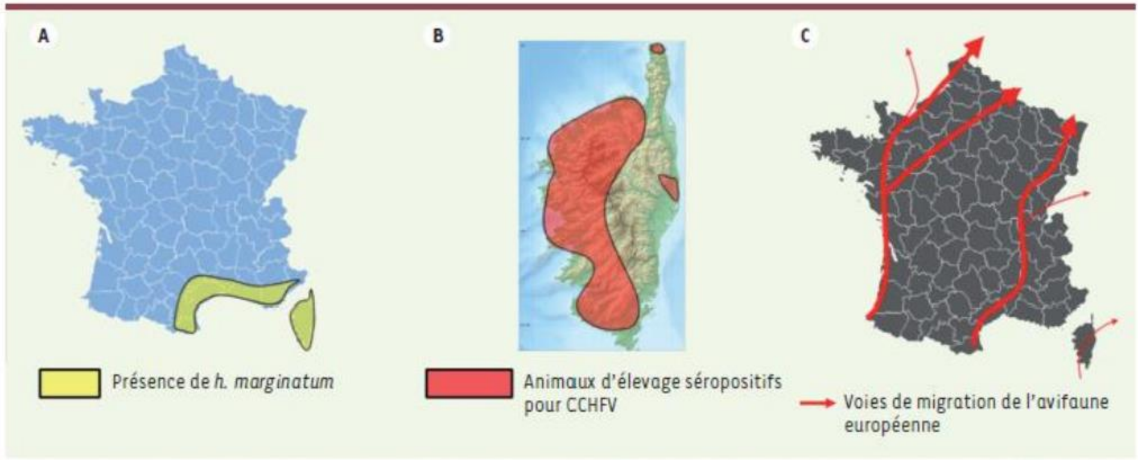
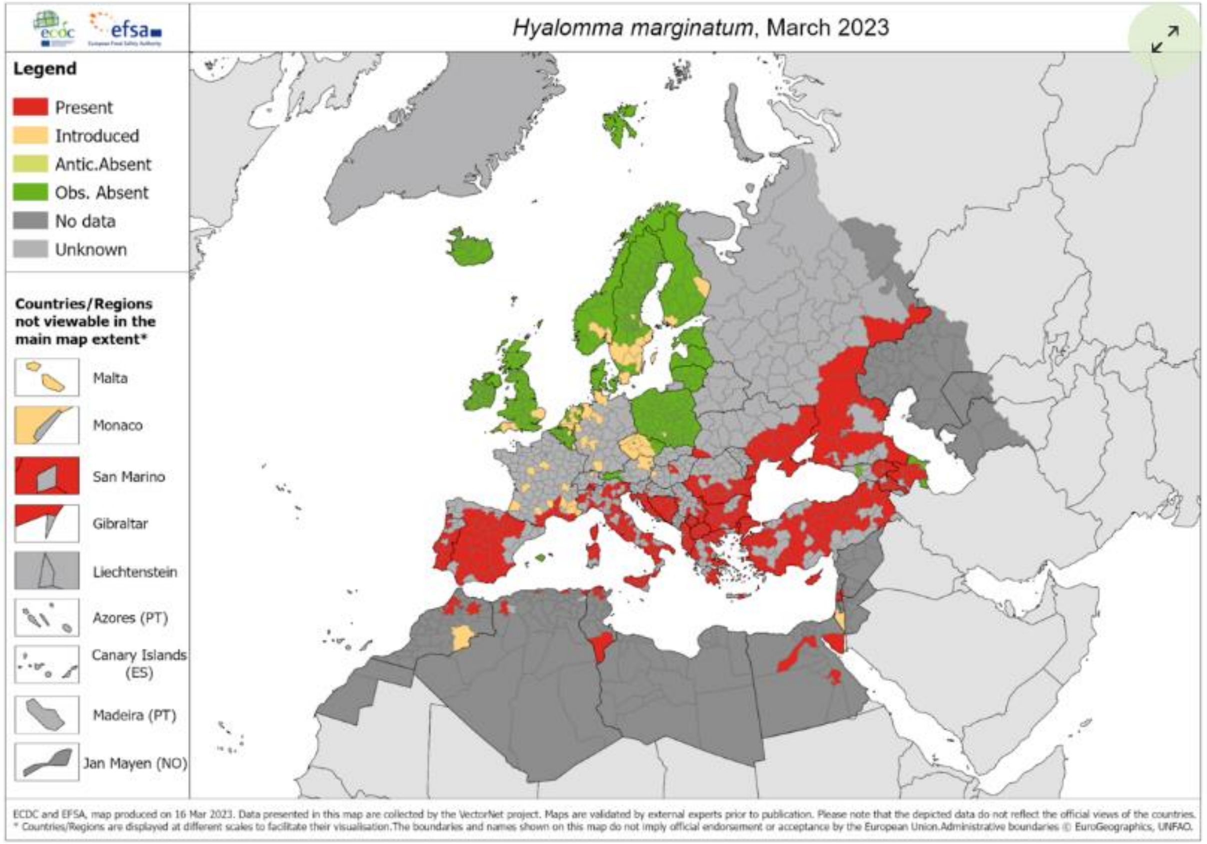


Figure 3. ***Distribution du vecteur et d'une sérologie positive pour le CCHFV en France.*** ***A.*** Les tiques *Hyalomma marginatum* sont connues depuis de très nombreuses années en Corse où elles constituent la deuxième espèce la plus importante sur ce territoire [40]. Des mentions de leur présence ont été faites dès 1965 dans les Bouches-du-Rhône, mais leur installation pérenne dans le pourtour méditerranéen est plus récente. ***B.*** Une étude parue en 2020 indique la présence étendue en Corse d'animaux d'élevage ayant une sérologie positive pour le virus CCHFV (9 % de l'ensemble des animaux testés) [39]. ***C.*** Principales voies de migration printanière des oiseaux (d'après *The scottish wildlife trust*).



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Review

Nosocomial infections caused by Crimean–Congo haemorrhagic fever virus

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From 1953 to 2016, 158 published cases of CCHFV nosocomial infection in 20 countries in Africa, Asia and Europe were found. Almost all cases were symptomatic (92.4%), with an overall CFR of 32.4%. The majority of cases occurred in hospital clinics (92.0%) and 10 cases (8.0%) occurred in laboratories. Most cases occurred among HCWs (86.1%), followed by visitors (12.7%) and hospitalized patients (1.3%). Nursing staff (44.9%) and doctors (32.3%) were the most affected HCWs, followed by laboratory staff (6.3%). The primary transmission route was percutaneous contact (34.3%). Cutaneous contact accounted for 22.2% of cases, followed by exposure to aerosols (proximity) (18.2%), indirect contact (17.2%) and exposure to patient environment (8.1%).

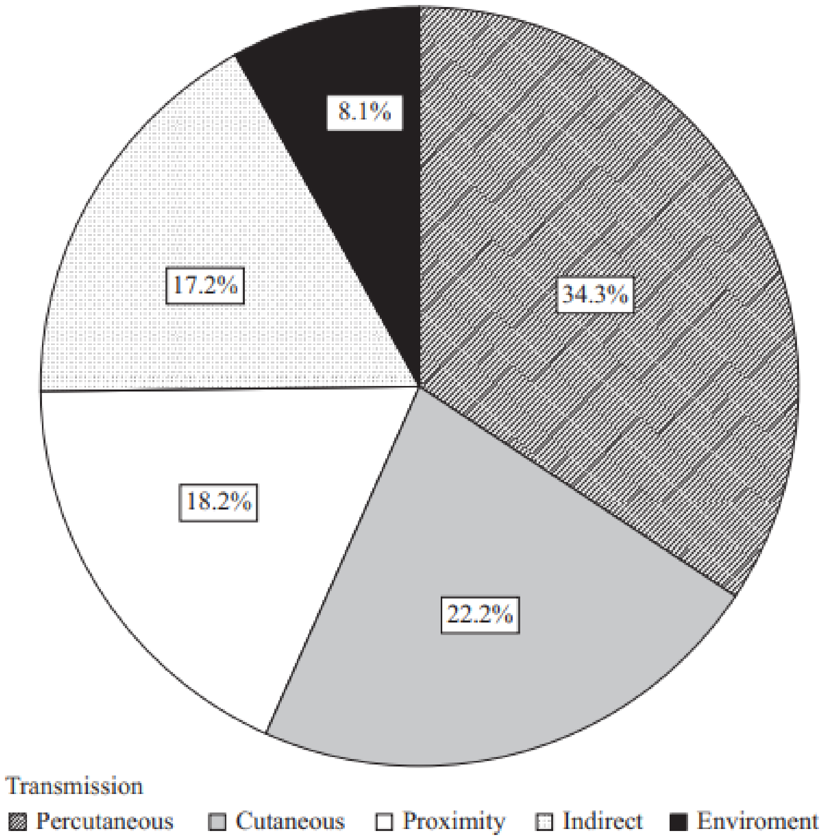

Figure 2. Pie chart of the transmission groups of nosocomial cases of Crimean–Congo haemorrhagic fever.

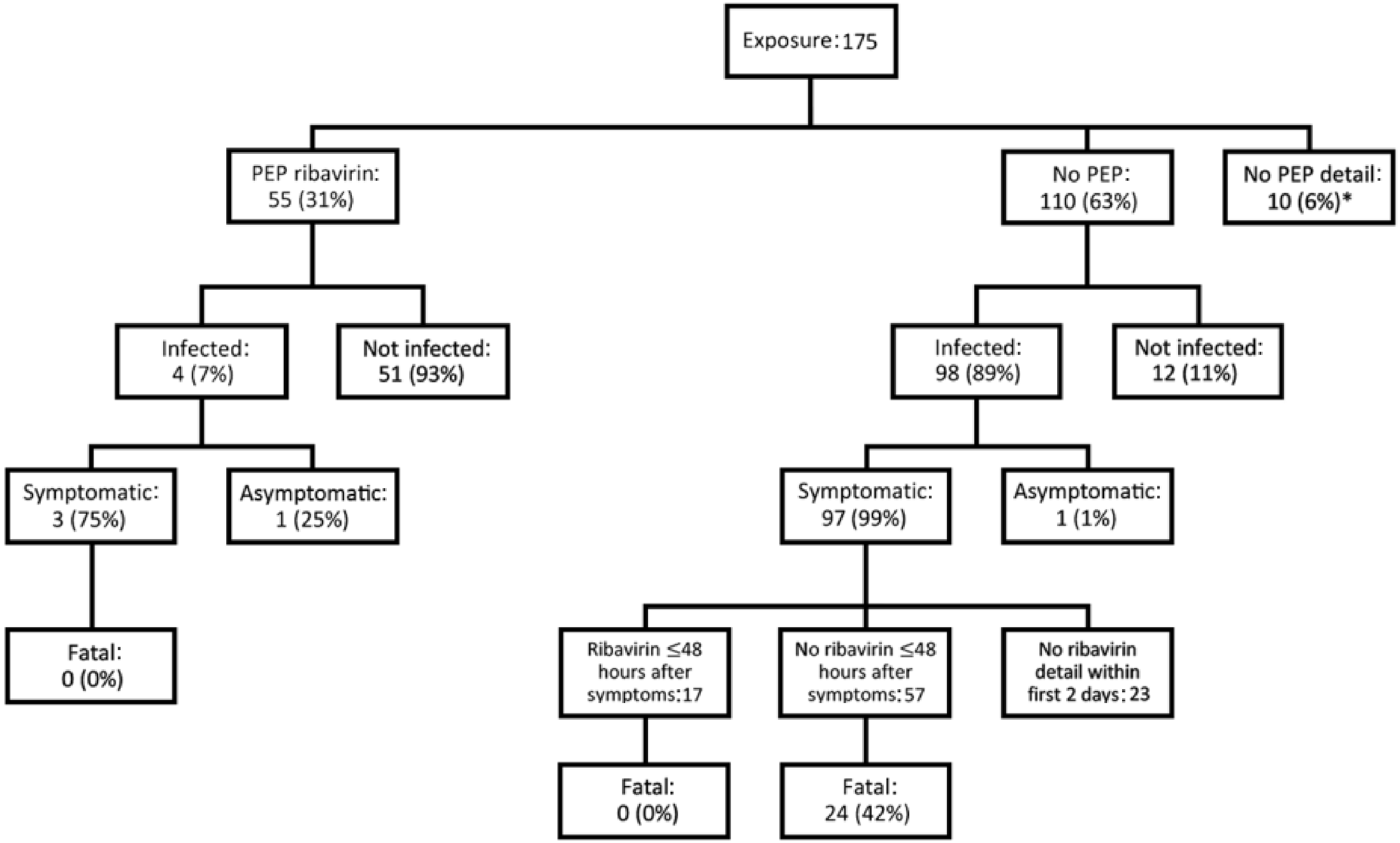

Figure 3. Flowchart of healthcare workers exposed to patients infected with Crimean-Congo hemorrhagic fever virus who did and did not receive PEP with ribavirin or early ribavirin treatment ≤48 hours after symptom onset, 1976–2017. *Healthcare workers for which PEP information was not included in the original report. PEP, postexposure prophylaxis.

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Correspondence

The largest reported outbreak of CCHF in hospital settings: lessons from Kandahar, Afghanistan

Alexandru Gaina [a] ✉, Mohamed Tahoun [a b], Omar Mashal [a], Hafizullah Safi [a], Fazal Alizai [d], Hizbullah Jalil [d], Alaa Abouzeid [a c]

	Suspected cases (n=49)	Confirmed cases (n=15)	Health-care worker (n=39)	Non-health-care worker (n=10)
Characteristics				
Age, years				
<20	2 (4%)	0	0	2 (20%)
20–30	38 (78%)	10 (67%)	33 (86%)	5 (50%)
31–40	6 (12%)	3 (20%)	5 (13%)	1 (10%)
≥41	3 (6%)	2 (13%)	1 (3%)	2 (20%)
Mean (SD)	27·1 (9·0)	28·7 (9·0)	25·7 (7·5)	32·4 (9·0)
Sex				
Male	30 (61%)	11 (73%)	28 (72%)	8 (80%)
Female	19 (39%)	4 (27%)	11 (28%)	2 (20%)
Occupation				
Health-care worker	39 (80%)	13 (87%)	..	..
Doctor	6 (12%)	2 (13%)	6 (15%)	..
Nurse	24 (49%)	8 (53%)	24 (62%)	..
Laboratory technician	1 (2%)	1 (7%)	1 (3%)	..
Administration	3 (6%)	1 (7%)	3 (8%)	..
Cleaner	5 (10%)	1 (7%)	5 (13%)	..
Housewife	8 (16%)	1 (7%)	..	8 (80%)
No job	1 (2%)	1 (7%)	..	1 (10%)
Farmer	1 (2%)	0	..	1 (10%)
Signs and symptoms*				

On April 20, 2023, a person with suspected Crimean–Congo haemorrhagic fever was admitted to a private hospital in Kandahar, Afghanistan. One week later, on April 27, 2023, an additional 48 cases were suspected from the same hospital, with 14 of these cases confirmed by laboratory testing as Crimean–Congo haemorrhagic fever. The confirmed cases included 13 hospital staff members (eight nurses, two medical doctors, a laboratory technician, a hospital administrative staff, and a cleaner) and one hospitalised patient. All cases were

and control protocol found during our visits: personal-protective equipment (including goggles, gowns, and respirators) were not used or used nominally. Similarly, clothes, contaminated objects, and biological liquids of patients were not handled properly. Furthermore, the patient's isolation was not strictly enforced and visiting was unrestricted.