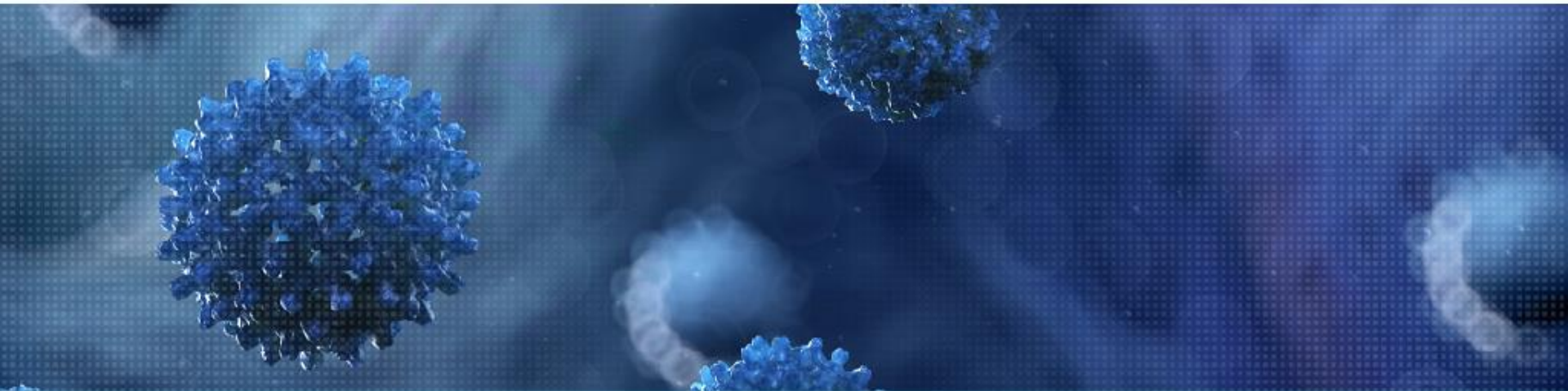


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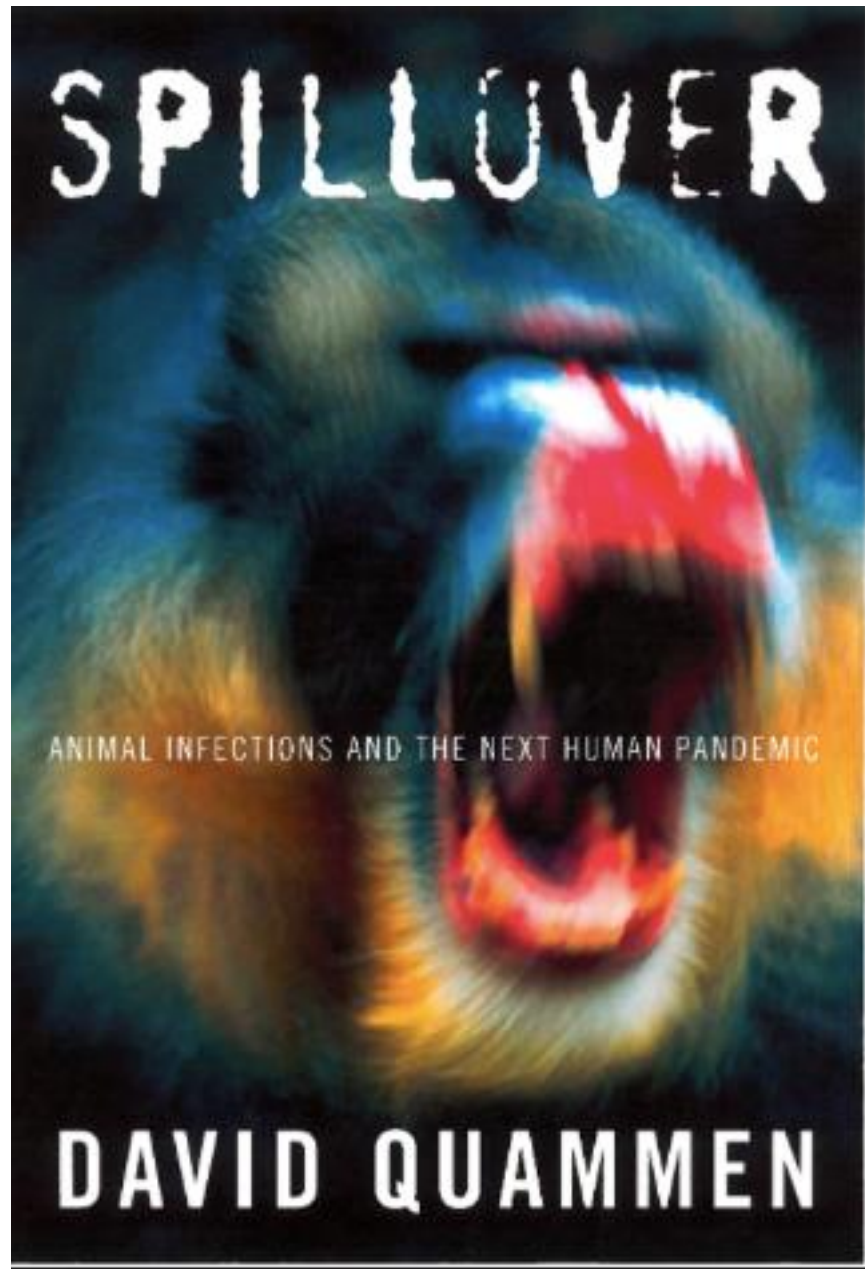
Viroscience lab

WHERE SKILLS MEET TO STUDY & PROTECT



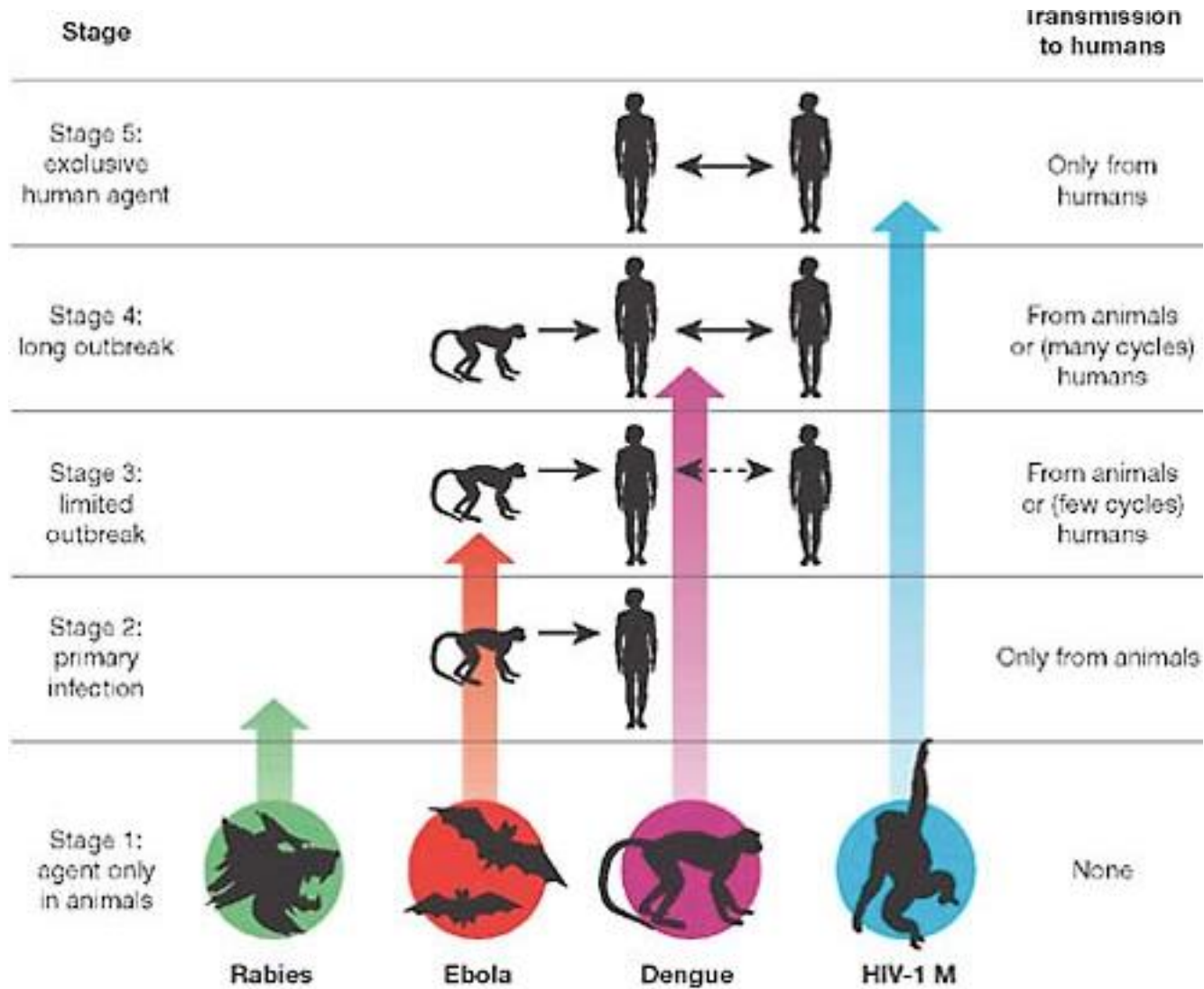
Emerging zoonoses

m.koopmans@erasmusmc.nl; @MarionKoopmans



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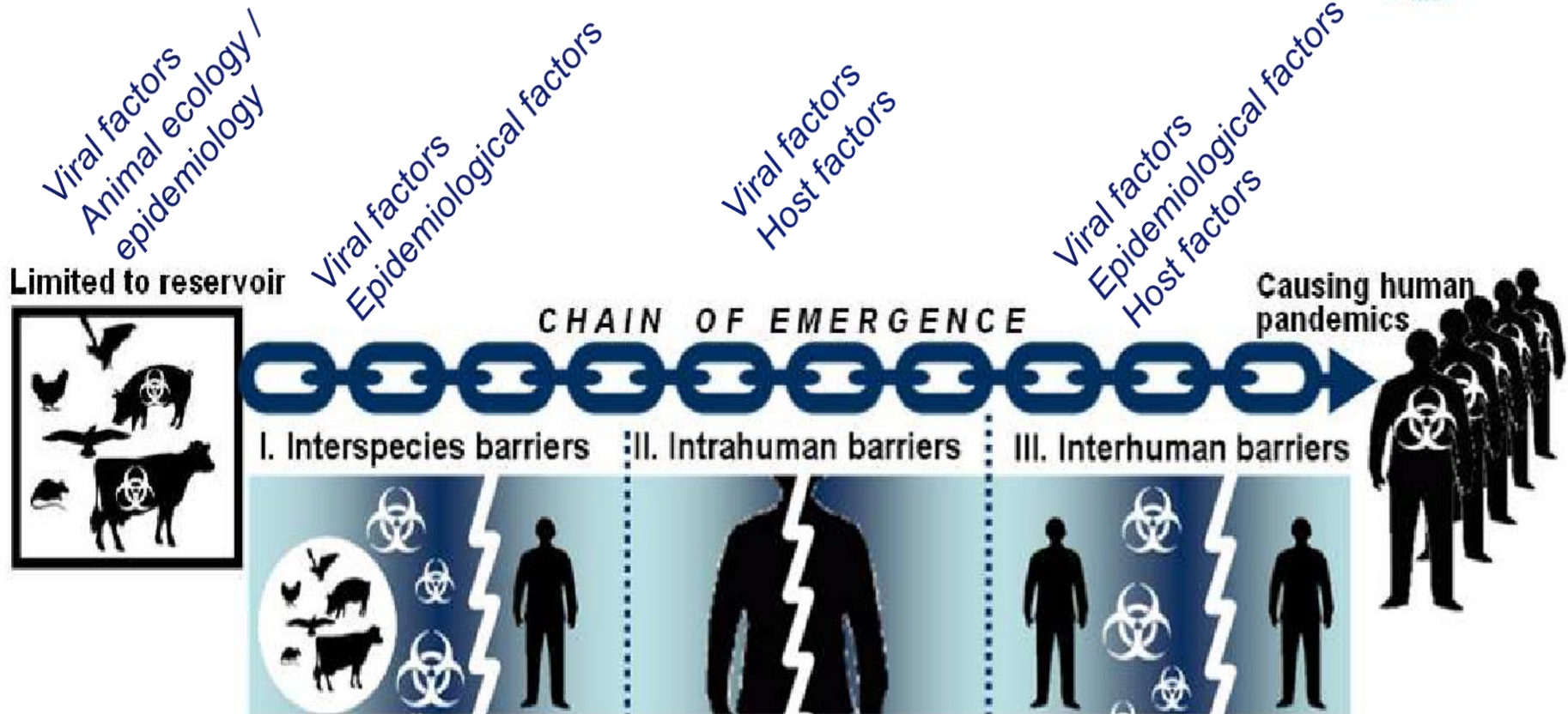
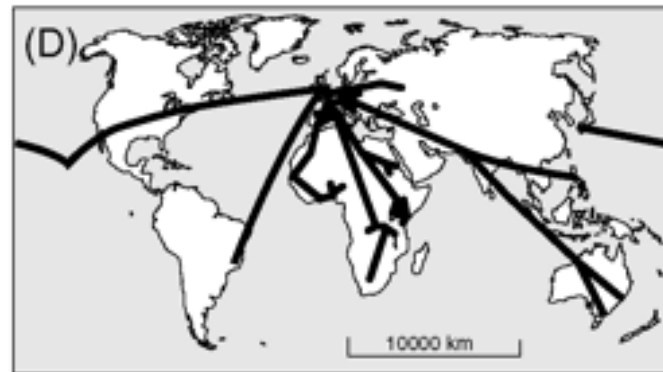
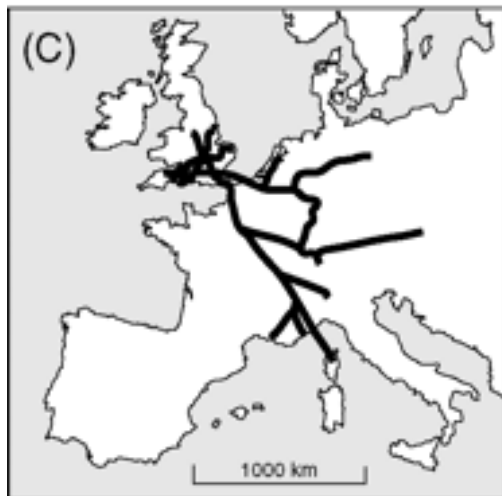
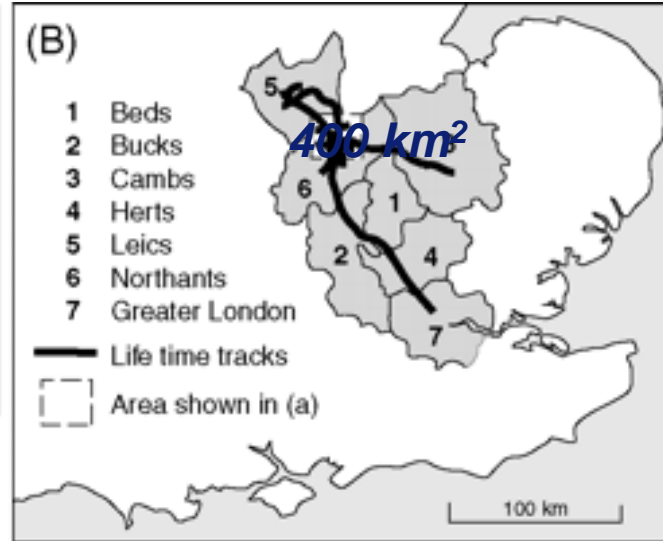
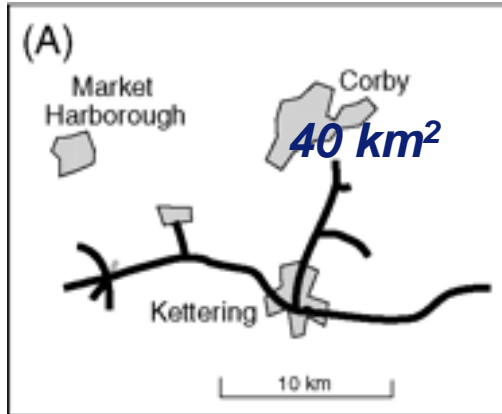


Figure 2: The three main conceptual barriers in the Chain of Emergence, comprising the species



chikungunya virus (CHIKV)



Aedes Albopictus



Figuur 1: Geografische verspreiding van Chikungunya

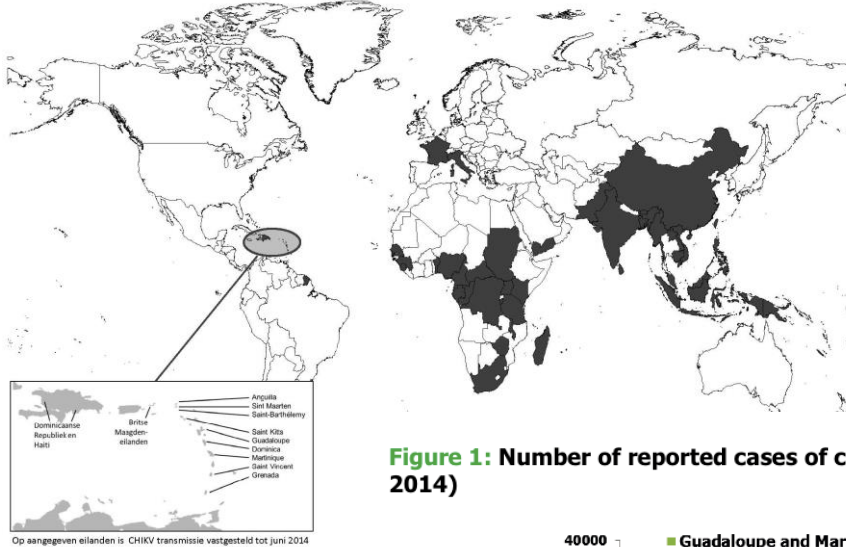
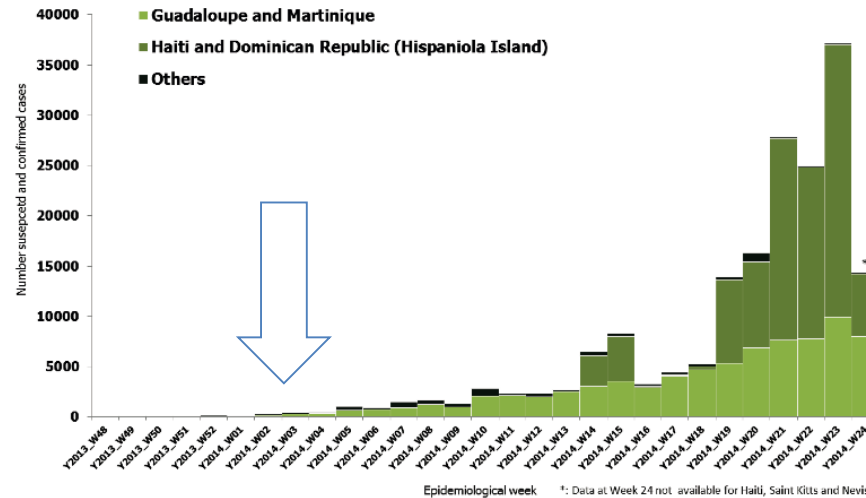


Figure 1: Number of reported cases of chikungunya by week in the Caribbean region (as of 20 June 2014)

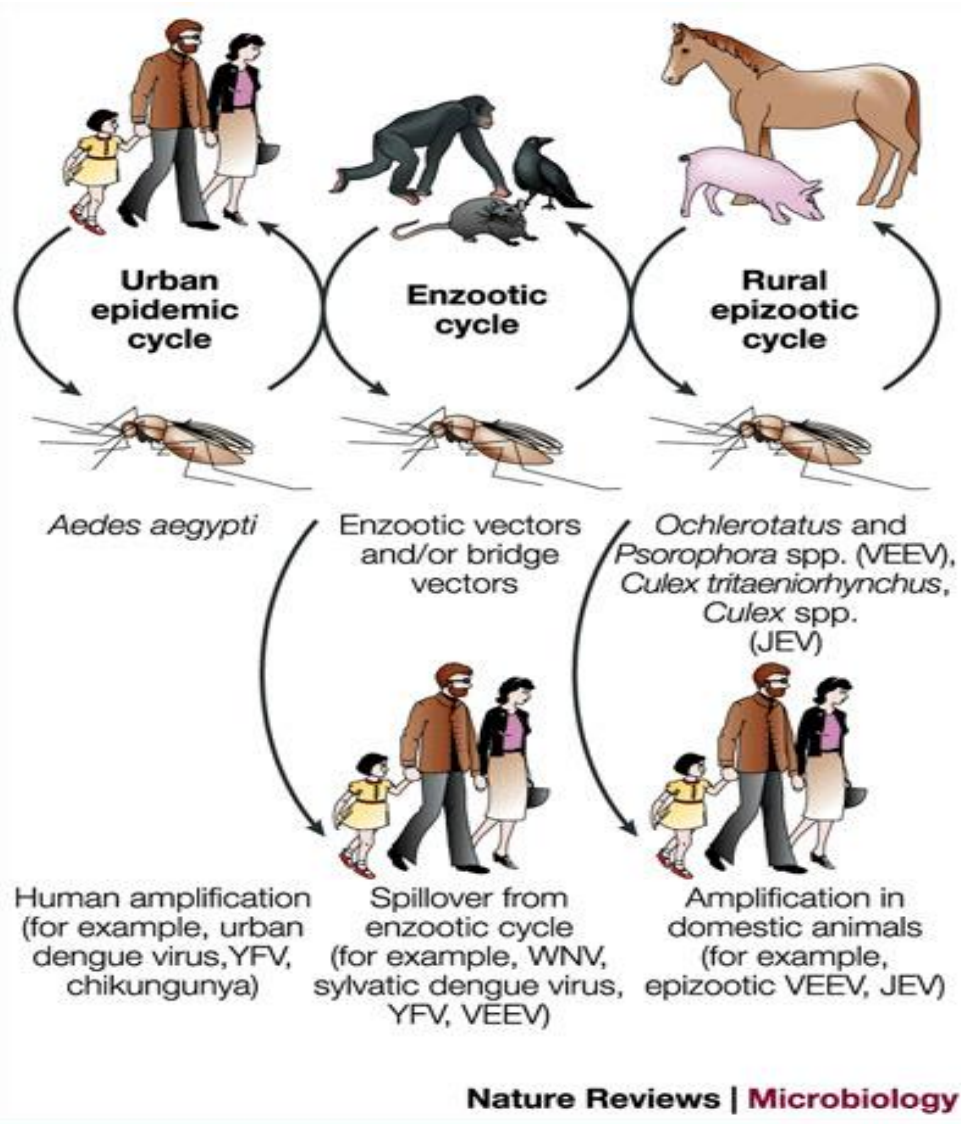


December 2013



*: Data at Week 24 not available for Haiti, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines and Dominica. Adapted from the following sources: PAHO, CARPHA and INVS.

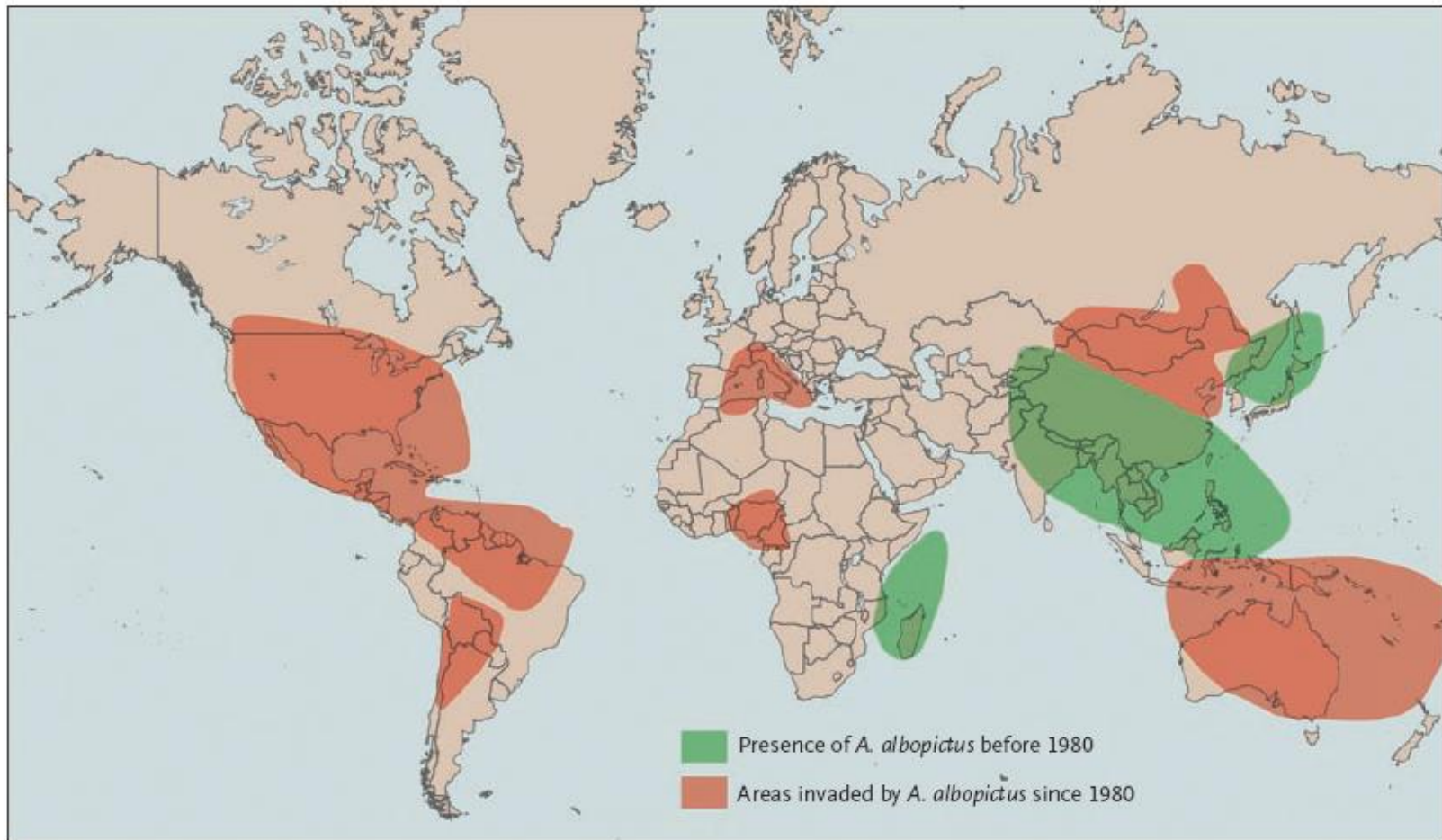
Lifecycle



(Weaver and Barret, 2004)

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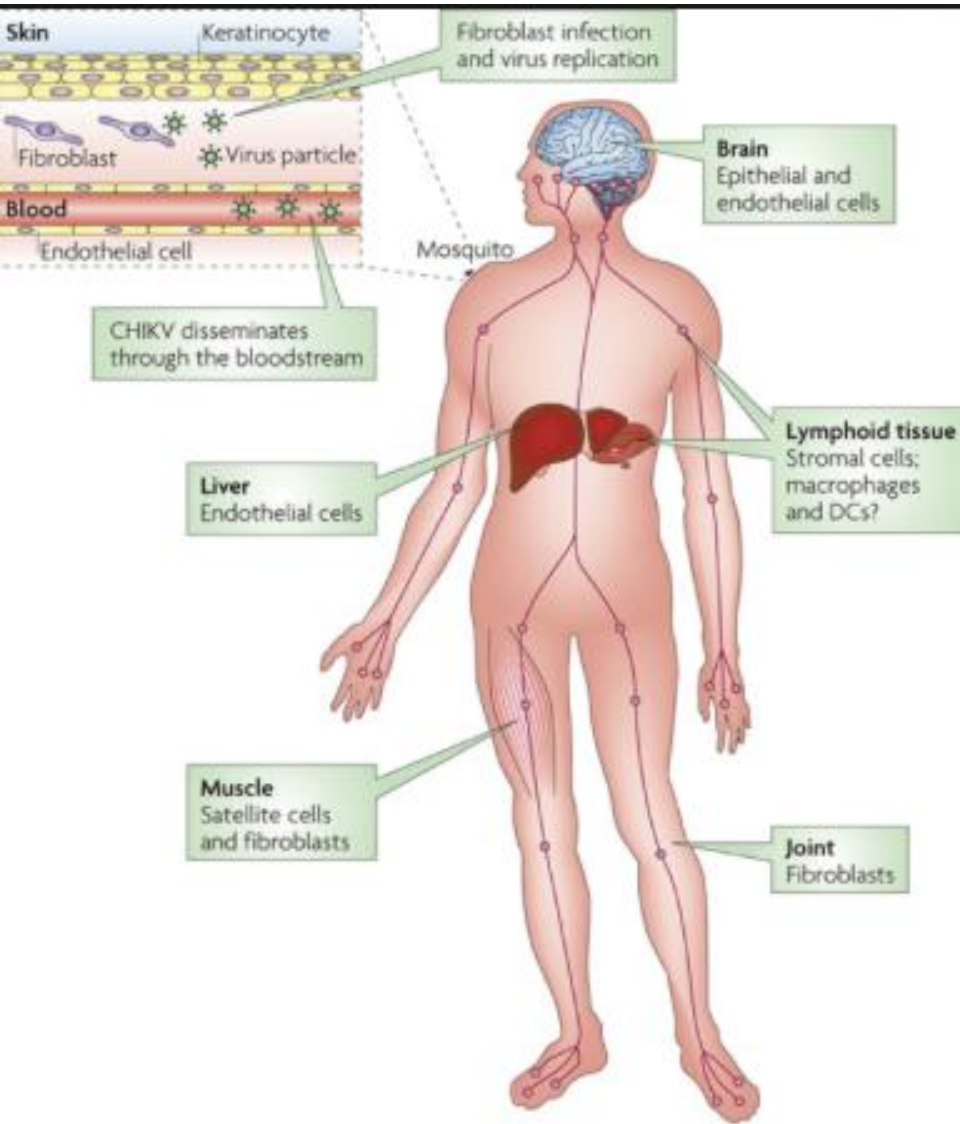


World Distribution of the *Aedes albopictus* Mosquito.



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Trade in used tires and lucky bamboo



Nature Reviews | Microbiology



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**Countries/territories with
autochthonous transmission or imported cases
of Chikungunya in the Americas, EW 2, 2015**



Middle Eastern Respiratory syndrome Coronavirus (MERS)

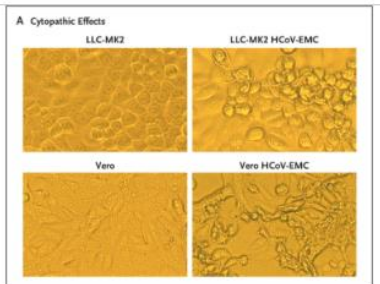


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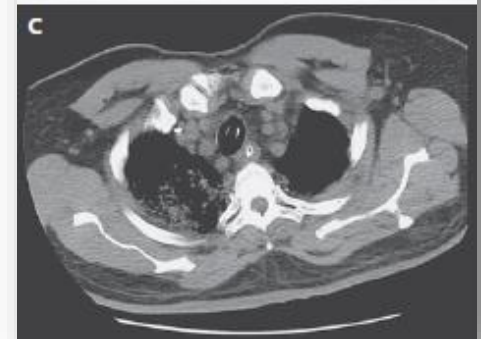
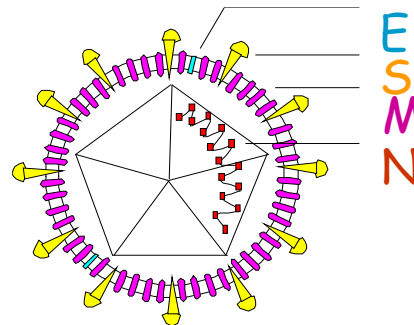
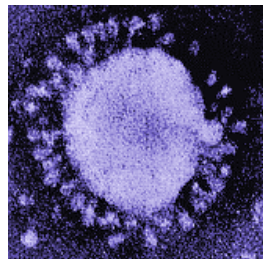


Case report

- 60 year-old Saudi male
- Fever, cough, expectoration, shortness of breath
- Body temperature 38,3 °C
- Pneumonia
- Impairment of renal function
- ARDS, death

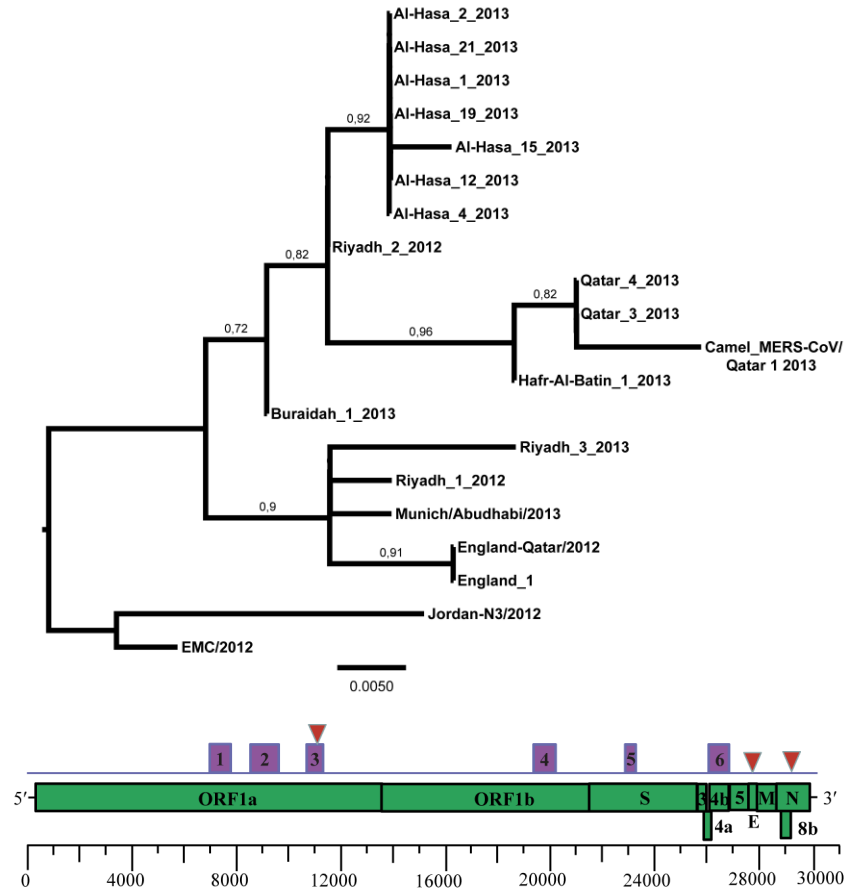


Zaki et al NEJM 2012



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Raj et al. 2014

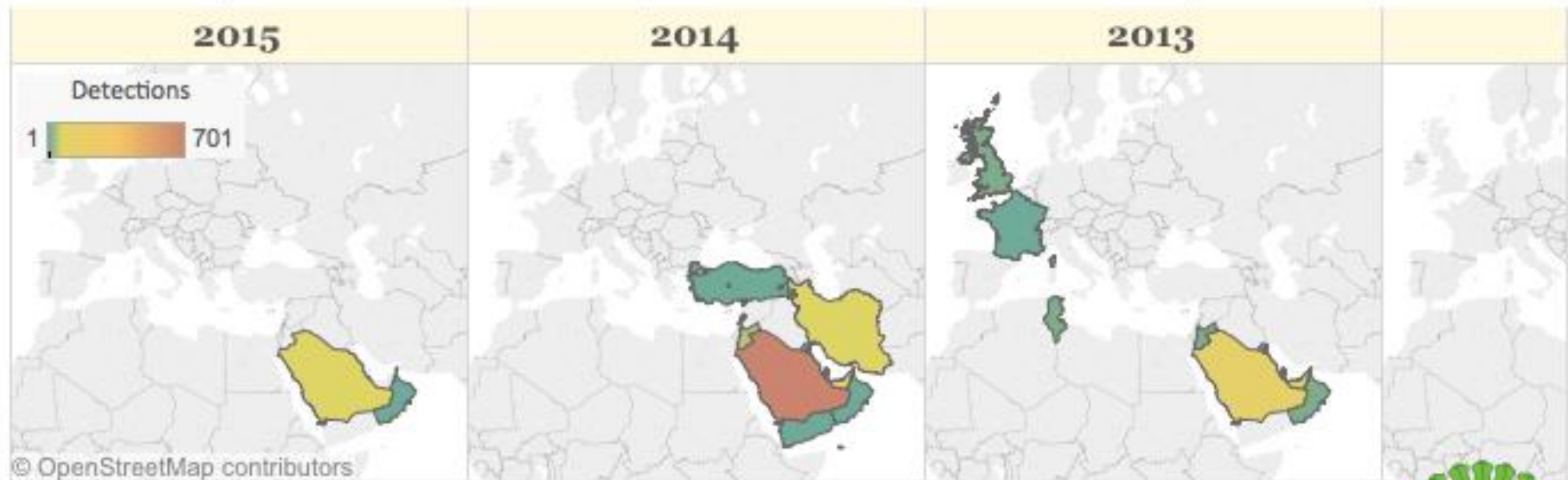
15-1-2015:
837 laboratory confirmed cases of



REGION OF LIKELY MERS-CoV ACQUISITION

Last Updated: 19 JAN 2015

Global situation (does not include countries with imported cases but without local transmission)

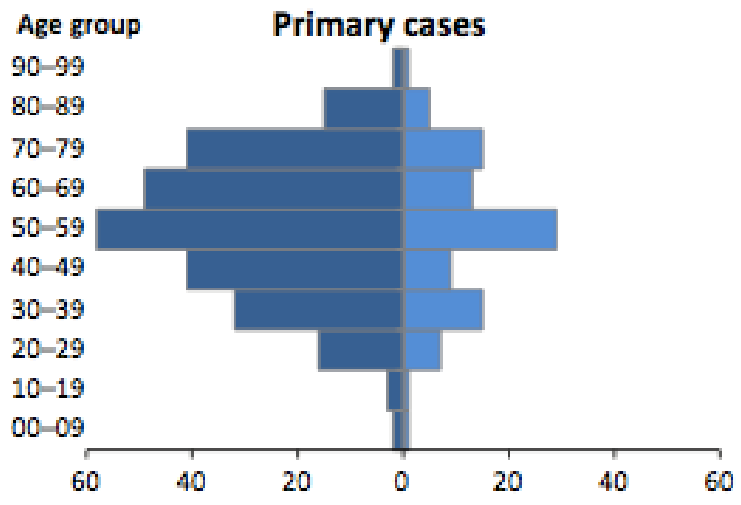


https://public.tableausoftware.com/profile/ian.m.mackay#!/vizhome/MERS-CoV_0/MAP

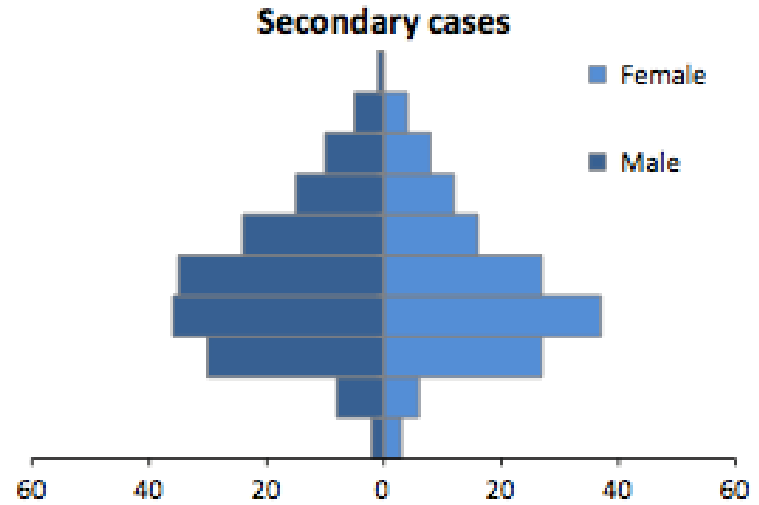
http://epidemic.bio.ed.ac.uk/coronavirus_background

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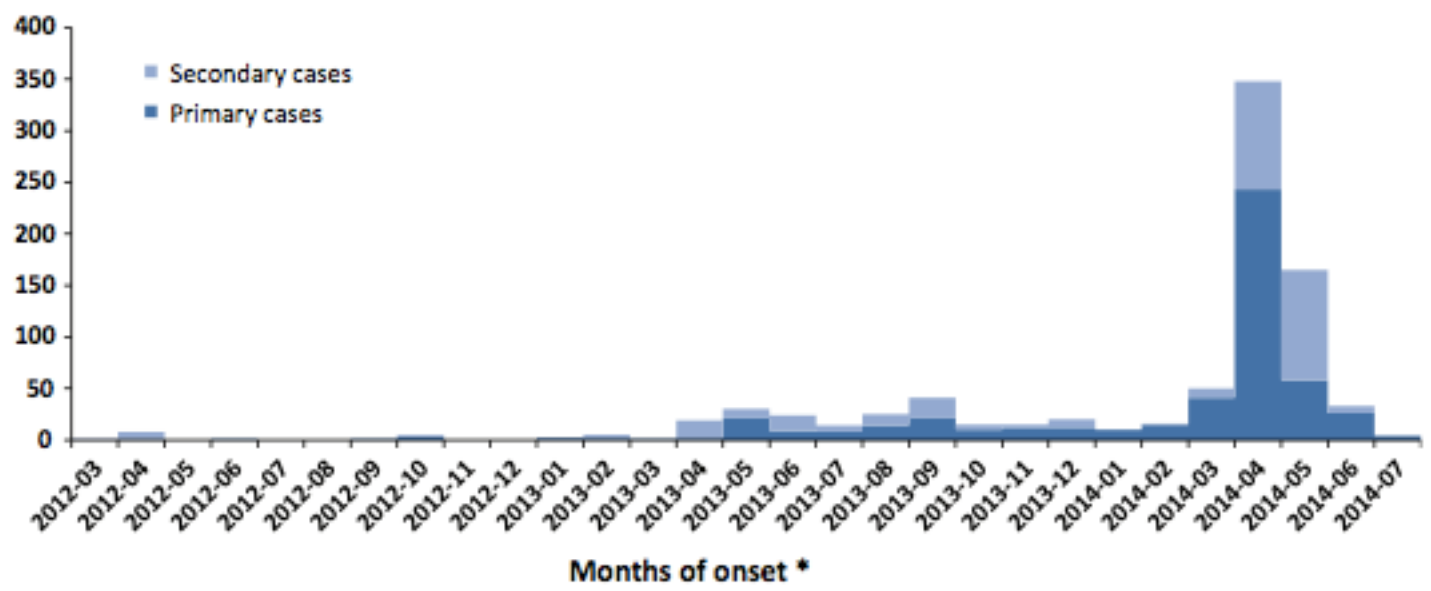




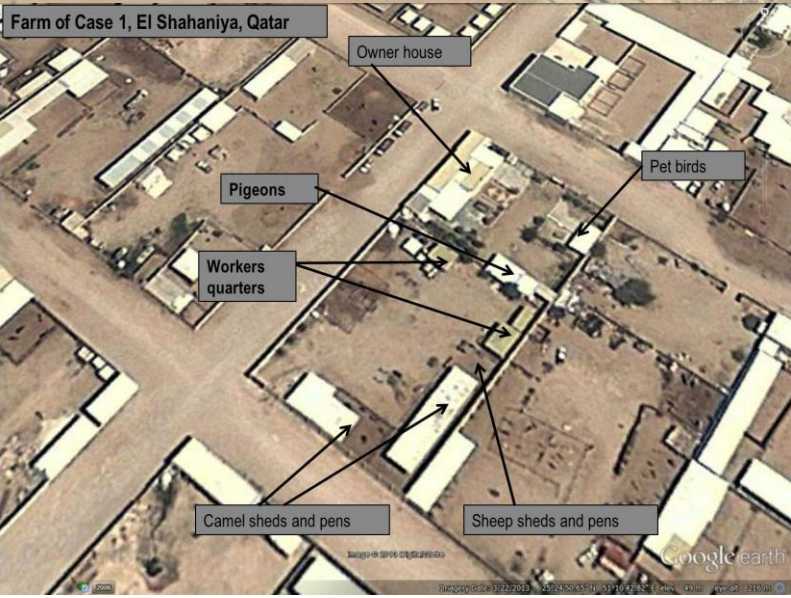
*162 cases were excluded due to missing age or sex data



**26 cases were excluded due to missing age or sex data



*Where the month of onset is missing the month of reporting has been used



© 2013 Google
Image © 2013 DigitalGlobe

Google earth

Imagery Date: 3/22/2013 25°24'43.13" N 51°11'48.37" E elev 42 m eye alt 6.68 km

Small private farms



FIGURE

Milking camels according to local customs, Al Shahaniya barn complex, Qatar, April 2014



Milk production is triggered by the calf: the calf is then set aside and the milk is collected.
Photographs by E. Farag.

> *Virus positive milk, potential for transmission?*

Reusken et al., 2014



Start outbreak EBOV

- March 10, 2014 notification unknown disease characterized by fever, severe diarrhea, vomiting and high fatality rate in Guéckédou and Macenta in Guinea.
- March 22, EVD reported by Guinea to WHO.
- March 27, EVD suspected cases in Liberia and Sierra Leone related to outbreak in Guinea.







Gastro-enteritis syndrome at clinical presentation

Hemorrhagic symptoms not common

High case fatality rate

April 3, diagnosis Zaire ebolavirus (EBOV).

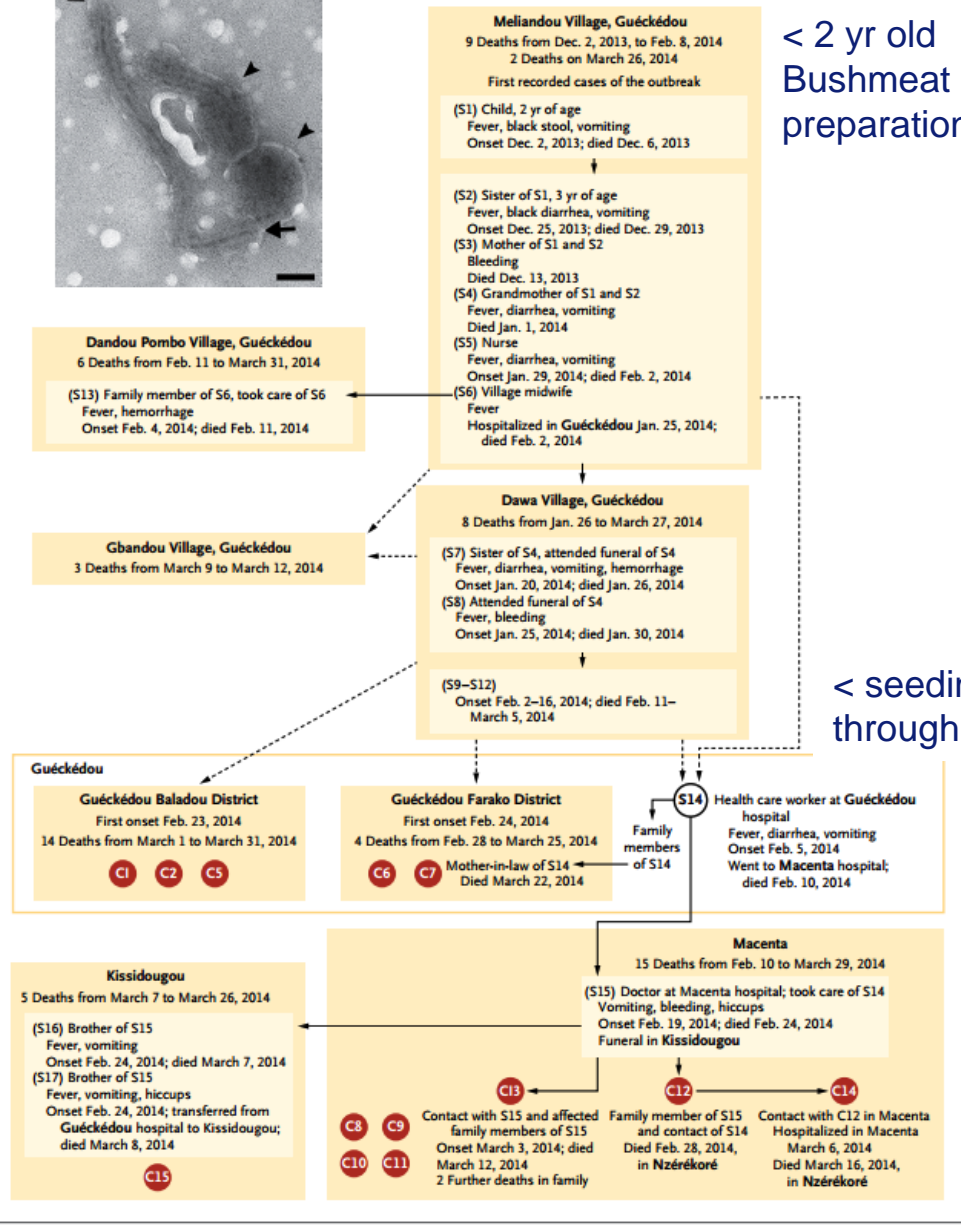
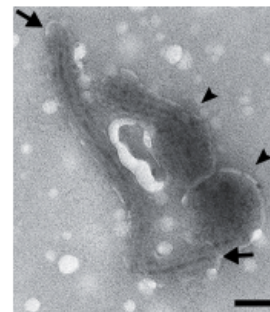
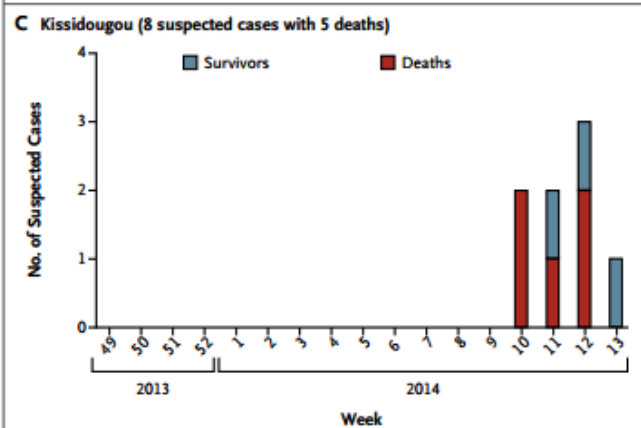
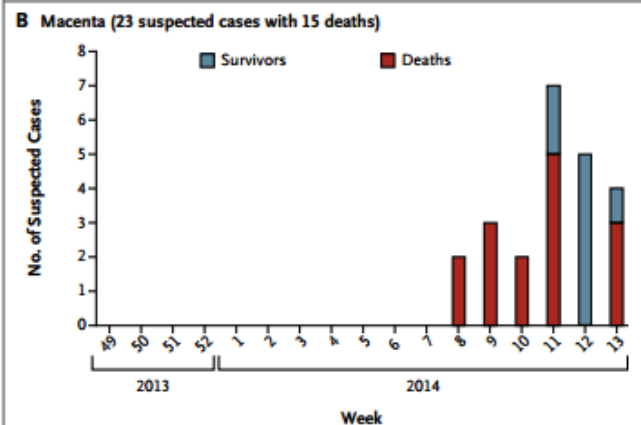
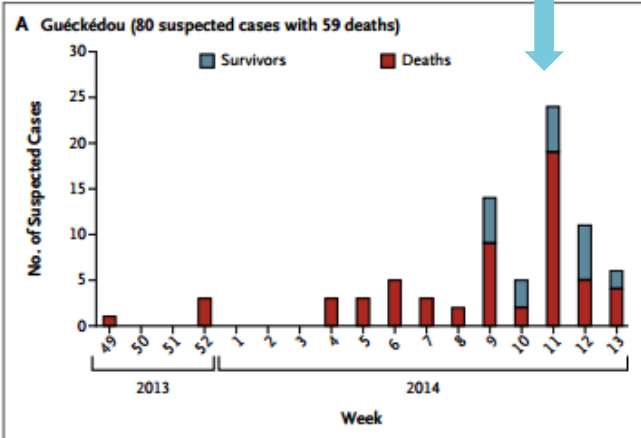
First outbreak in West Africa

Table 1. Demographic, Clinical, and Virologic Characteristics of 15 Patients with Confirmed Ebola Virus Disease during the 2014 Outbreak in Guinea.*

Patient No.	Age (yr)	Sex	Hospital	Date of Sampling	Symptoms	Outcome	Date of Death	Virus Isolation	GenBank Accession No.
C1	20	F	Guéckédou	March 12	Fever, diarrhea, vomiting	Died	March 18	No	ND
C2	25	F	Guéckédou	March 13	Fever, diarrhea, vomiting	Died	March 25	No	ND
C3	35	M	Guéckédou	March 13	Fever, vomiting	Died	March 17	No	ND
C4	25	M	Guéckédou	March 18	Fever, diarrhea, vomiting, hemorrhage	Died	March 18	No	ND
C5	16	F	Guéckédou	March 19	Spontaneous abortion	Survived	—	Yes	KJ660348
C6	27	F	Guéckédou	March 20	Fever, diarrhea, vomiting	Died	ND	No	ND
C7	47	F	Guéckédou	March 20	Fever, diarrhea, vomiting	Died	March 22	Yes	KJ660347
C8	29	M	Macenta	March 16	Fever, hemorrhage	Died	March 16	No	ND
C9	55	F	Macenta	March 16	Fever, diarrhea, vomiting	Died	March 19	No	ND
C10	17	M	Macenta	March 16	Fever, diarrhea, vomiting	ND	ND	No	ND
C11	7	M	Macenta	ND	Fever, diarrhea, vomiting	Died	March 26	No	ND
C12	30	M	Macenta, Nzérékoré	February 28	Fever, vomiting	Died	February 28	Yes	ND
C13	50	M	Macenta	March 12	Fever, diarrhea, vomiting	Died	March 12	Yes	ND
C14	41	M	Macenta, Nzérékoré	March 13	Fever, diarrhea, vomiting, hemorrhage	Died	March 16	No	ND
C15	28	F	Kissidougou	March 17	Fever, diarrhea, vomiting, hemorrhage	Survived	—	Yes	KJ660346

* All sampling and recording of patients' status were performed in 2014. ND denotes not determined.

Diagnose



< 2 yr old Bushmeat preparation

< seeding through HCW

Family *Filoviridae*
 genus *Marburg viruses*
 Genus *Ebolaviruses*.
 Genus *Cueva viruses*
 (Spain, New)

5 species:

- *Sudan (SUDV)*
- *Zaire (EBOV)*
- *Tai Forest (TAFV)*
- *Bundibugyo (BDBV)*
- *Reston (RESTV)*

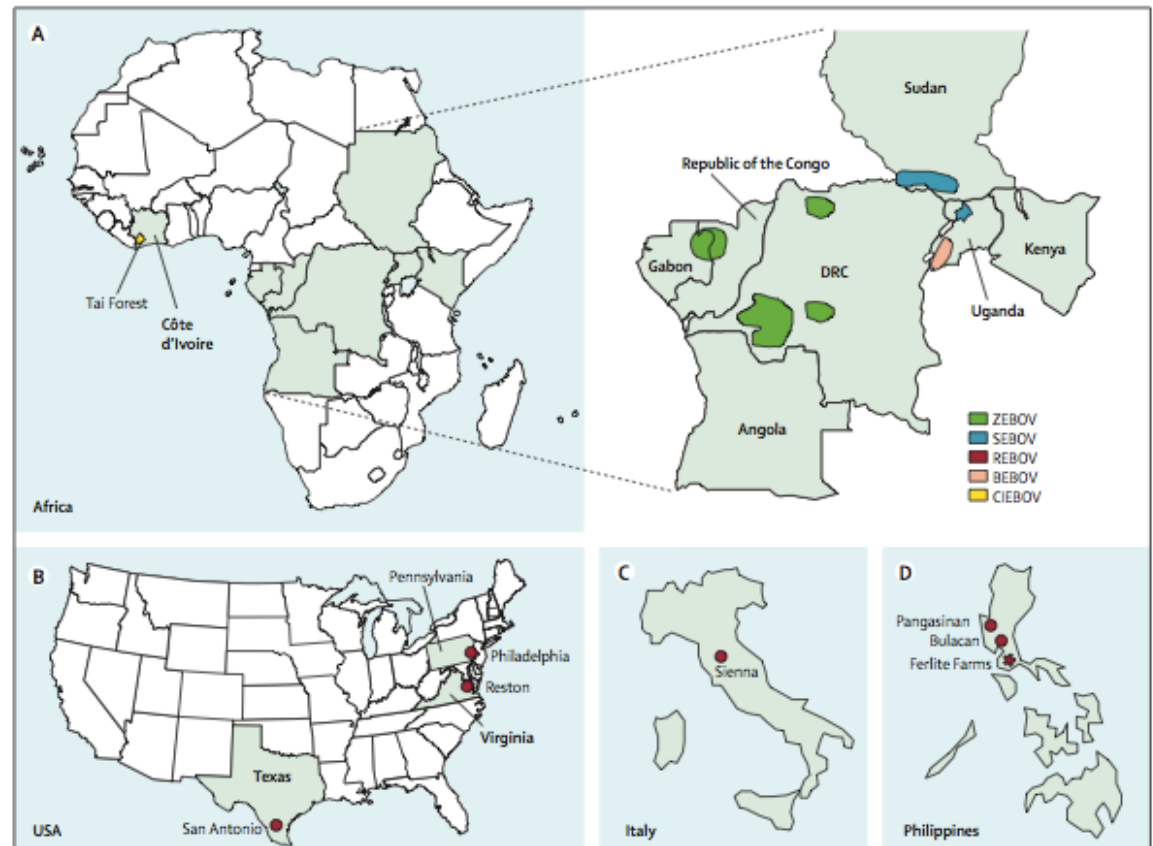
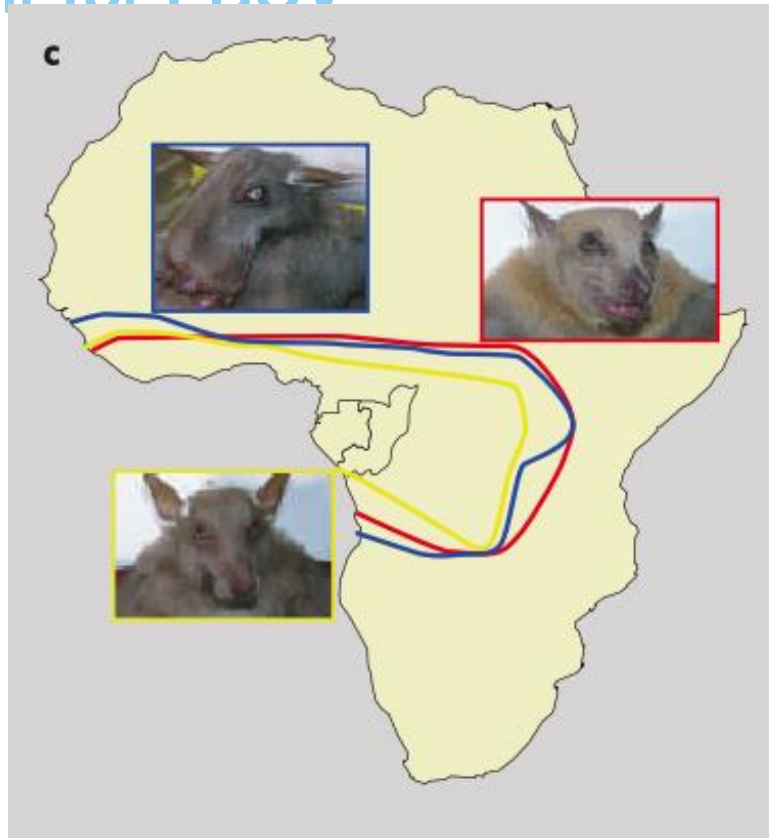
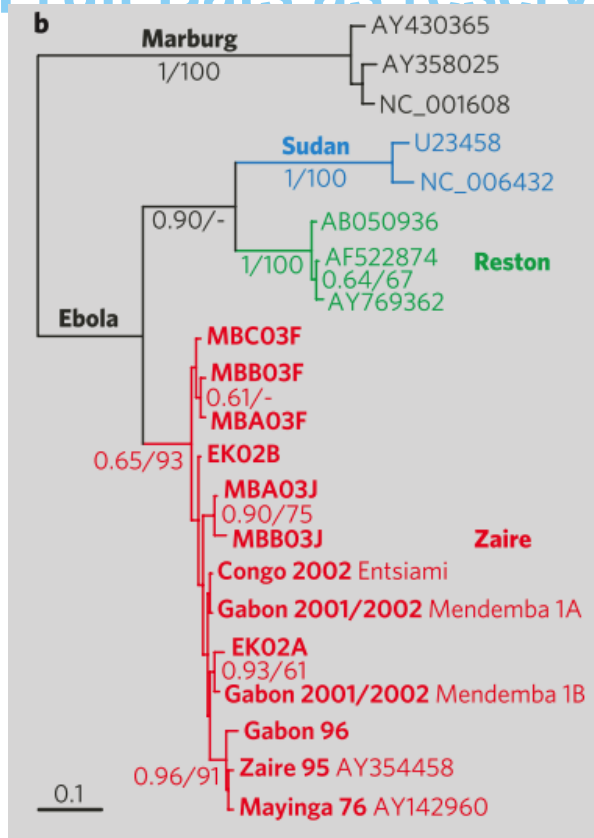
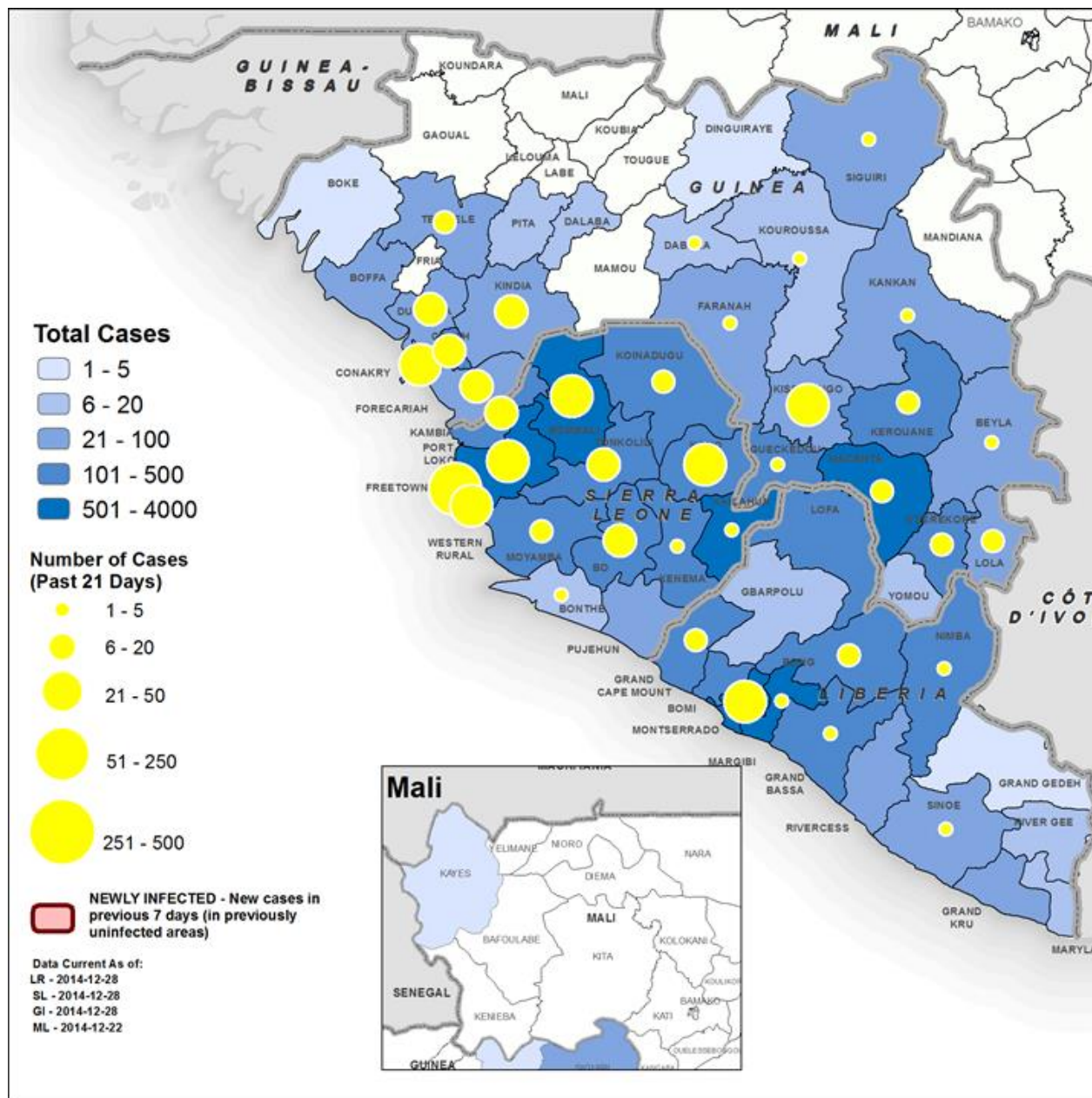


Figure 1: Locations of Ebolavirus infections and outbreaks
 (A) Regions in Africa (approximate distribution 10° north and south of the equator) with reported outbreaks of Ebola haemorrhagic fever caused by the three central African species of Ebola virus, Zaire Ebola virus (ZEBOV), Sudan Ebola virus (SEBOV), and Bundibugyo Ebola virus (BEBOV). The Tai Forest region in Côte d'Ivoire reported the only case so far of Ebola virus in western Africa caused by the species Côte d'Ivoire Ebola virus (CIEBOV). (B) Reston ebolavirus REBOV has been introduced several times through imported macaques into USA from 1989 to 1996 (Philadelphia, PA; Reston, VA; San Antonio, TX) and into Italy (Siena) in 1992 (C). The source of the introduction in all cases of REBOV has been a primate export facility in the Philippines (Ferlite farm) (D). Animals of this farm have been diagnosed with REBOV infection several times in the 1990s. REBOV has been detected in pigs on two farms in the Philippines (Pangasinan, Bulacan). DRC=Democratic Republic of the Congo.

Fruit Bats as reservoir for FBOV



- Overlapping ecological niche
- No symptoms
- Infection cyclical
- Potential source of introduction into West Africa







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marion koopmans
To: Koopmans
Fwd: WhatsApp afbeelding

13 Jan 2015 22:34
[Hide Details](#)



Download vandaag nog WhatsApp voor uw iPhone, Android, Nokia, BlackBerry of Windows Phone : <https://www.whatsapp.com/dl/>



Verstuurd vanaf mijn iPhone



- Uitbraken van (exotische) infecties zijn onvoorspelbaar
- Informeren naar mogelijke risico's voor vertrek is belangrijk
- Veel infecties zijn met basale hygiene maatregelen en andere leefregels te voorkomen

THE EBOLA FIGHTERS

