

Viral Kanamalı Ateşler

Dr. Önder Ergönül
Koç Üniversitesi Tıp Fakültesi

13 Şubat 2018

Yeni Enfeksiyonlar (Emerging and Re-emerging Infections)

Son 20 yılda insidansları artan veya yakın gelecekte artış gösterebilecek olan; yeni, yeniden ortaya çıkan veya ilaçlara dirençli enfeksiyonlar

Institute of Medicine, 1992

Yeni (emerging) Enfeksiyon Nedir?

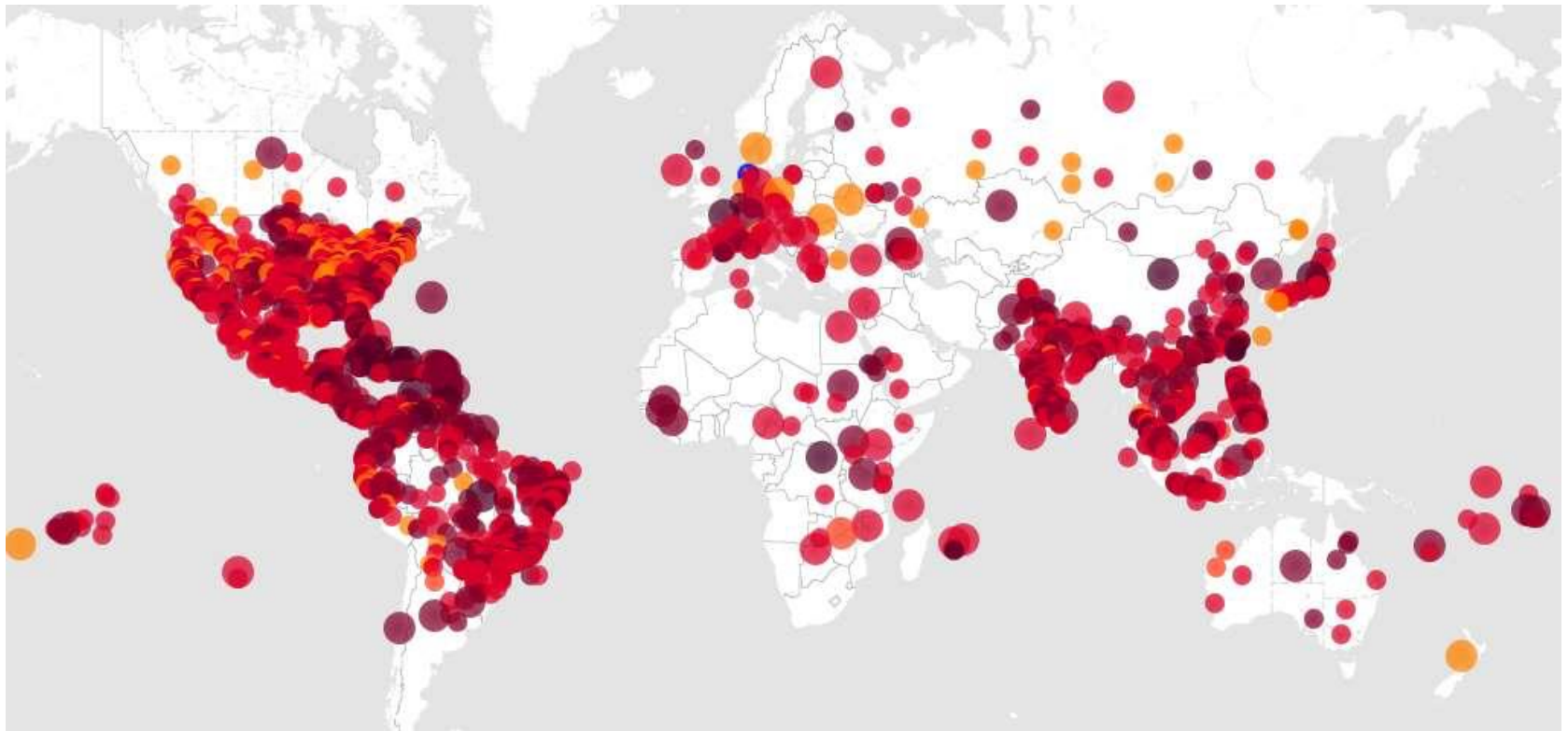
- Son 20 yıl (?)
- Yeni bir etken
- Yeni bir bölge
- Yeni direnç gelişimi
- Yeniden önem kazanan



Distribution

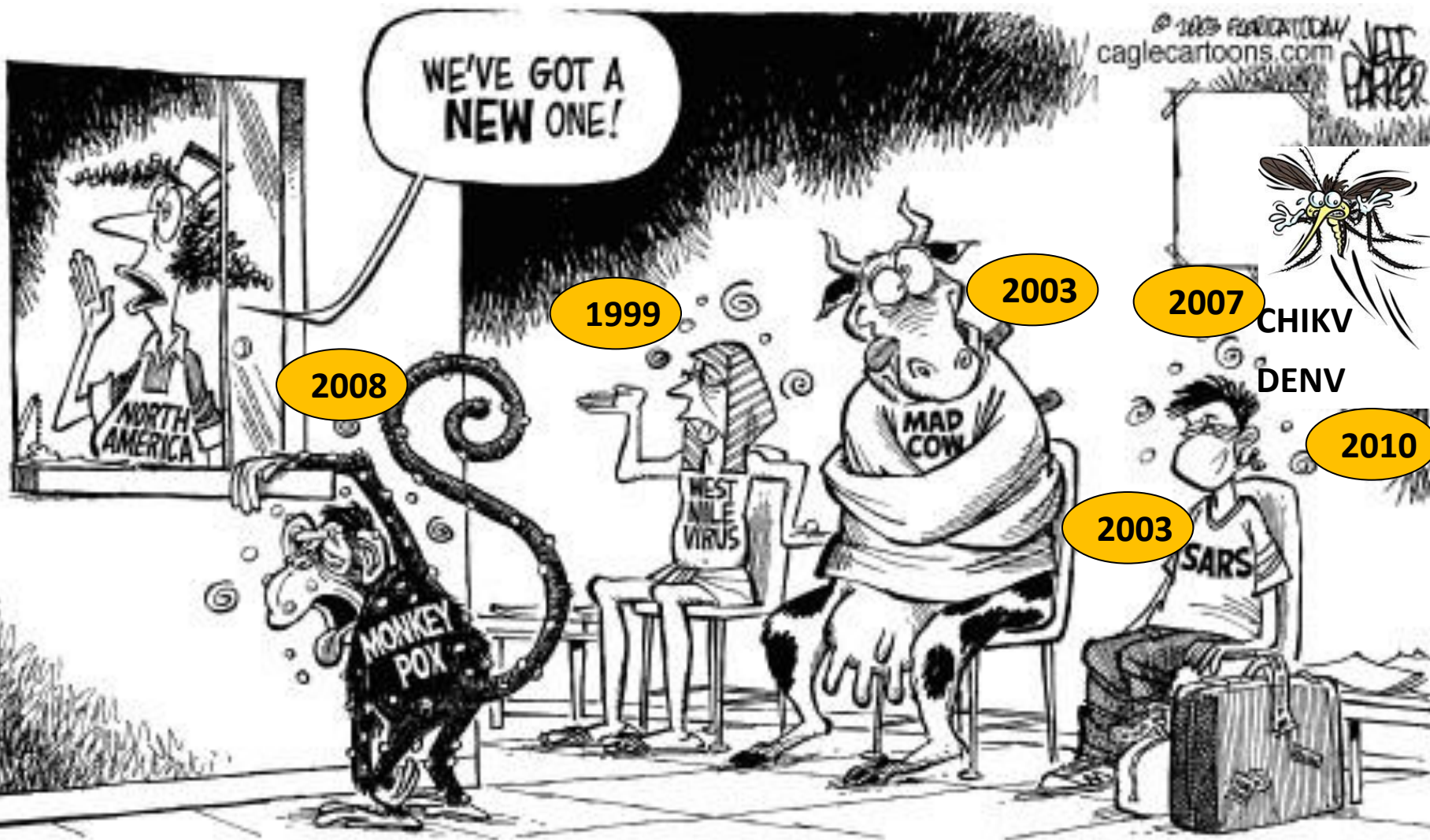


Arboviruses with public health impact have a global and ever changing distribution



Notifications of vector-borne diseases in the last 6 months on Healthmap.org

© 1999 PUBLICATION/ DAY
caglecartoons.com



2008

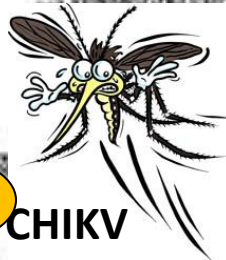
1999

2003

2007

2010

2003



CHIKV
DENV

1973'den itibaren Yeni Virüsler

1973	Rotavirus
1976	Ebola virus
1977	Hanta virus
1983	HIV
1988	Hepatit E
1989	Hepatit C
1990	Guanarito

1993	Sin Nombre
1994	Sabia
1994	Hendra
1995	Hepatit G
1995	Herpes 8
1997	H5N1
1999	Nipah

2000'den itibaren Yeni Virüsler

2001	Metapnömovirus
2003	Maymun çiçeği
2003	SARS
2004	Bocavirus
2008	Merkelcell polyoma virus
2009	İnfluenza H1N1
2012	MERS-CoV
2013	H7N9
2015	H5N6



Syndromes of arboviral diseases



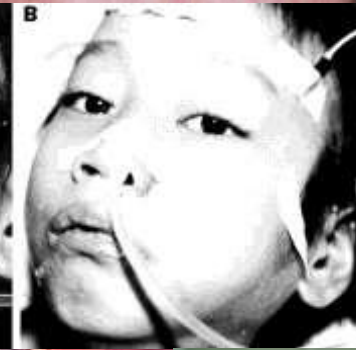
1) Febrile syndrome:

- Fever & Malaise
- Headache & retro-orbital pain
- Myalgia



2) Neurological syndrome:

- Meningitis, encephalitis & myelitis
- Convulsions & coma
- Paralysis



3) Hemorrhagic syndrome:

- Low platelet count, liver enlargement
- Petechiae
- Spontaneous or persistent bleeding
- Shock



4) Arthralgia, Arthritis and Rash:

- Exanthema or maculopapular rash
- Polyarthralgia & polyarthritis



Testing algorithm and Information provided



Travel history



General symptoms



Vaccination history



Days post onset



Information provided to LIMS

75%



42%



0.5%



0.5%

?

EMERGING THREATS

The size and severity of disease outbreaks depends on where the causal agent sits in an evolutionary spectrum, ranging from animal viruses that have yet to leap to humans, to pathogens that have evolved to spread easily between humans.



1. Animals only

Potential threats, including pathogens from families that have caused human disease in the past.

Examples:
poxviruses, paramyxoviruses.



2. Limited spread

Pathogens that pass from animals to humans but do not spread further.

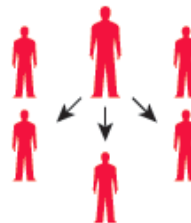
Examples:
H5N1 flu, Nipah, rabies.



3. Small outbreaks

Pathogens that spill over and then spread between just a few people.

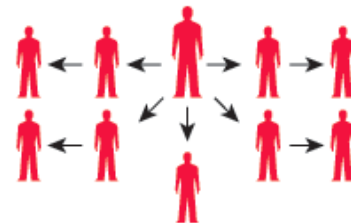
Examples:
MERS, Marburg.



4. Large outbreaks and epidemics

Pathogens that spill over into large numbers of people, or spread between many people.

Examples:
Chagas disease, cholera, Ebola.



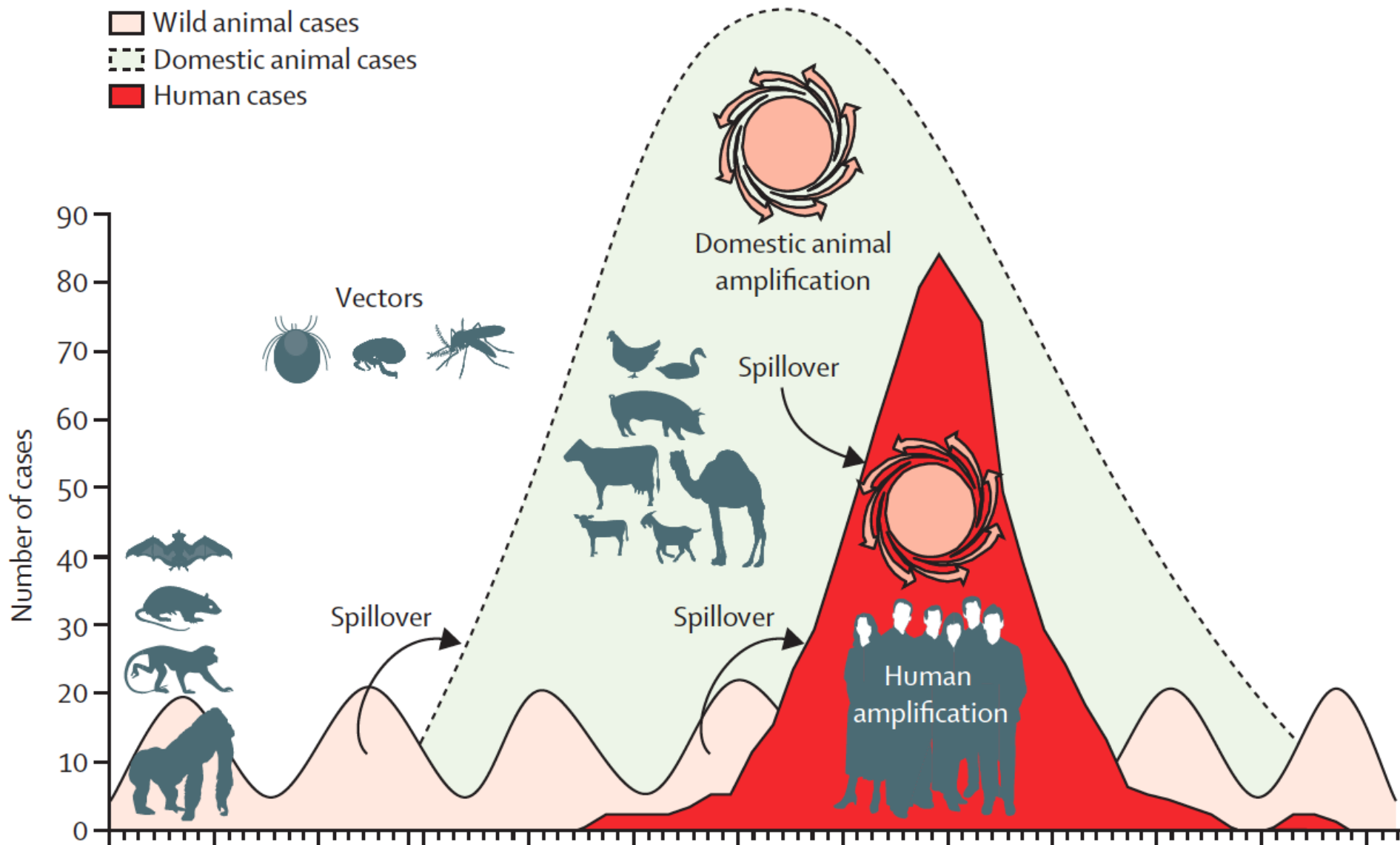
5. Human only

Animal pathogens that have evolved to become human viruses.

Examples:
HIV/AIDS, measles, tuberculosis.

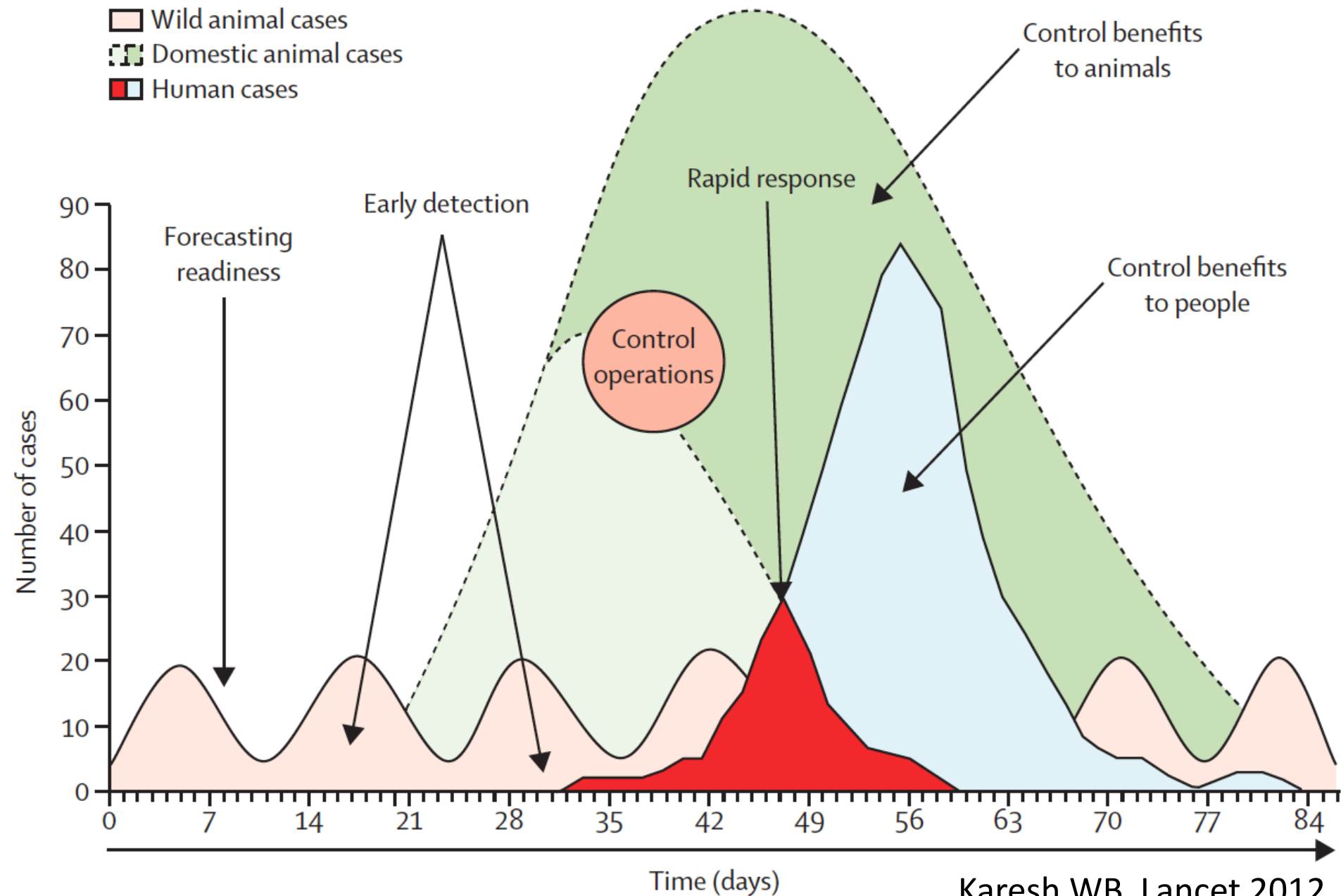
A

- Wild animal cases
- Domestic animal cases
- Human cases



B

- Wild animal cases
- Domestic animal cases
- Human cases



Karesh WB, Lancet 2012

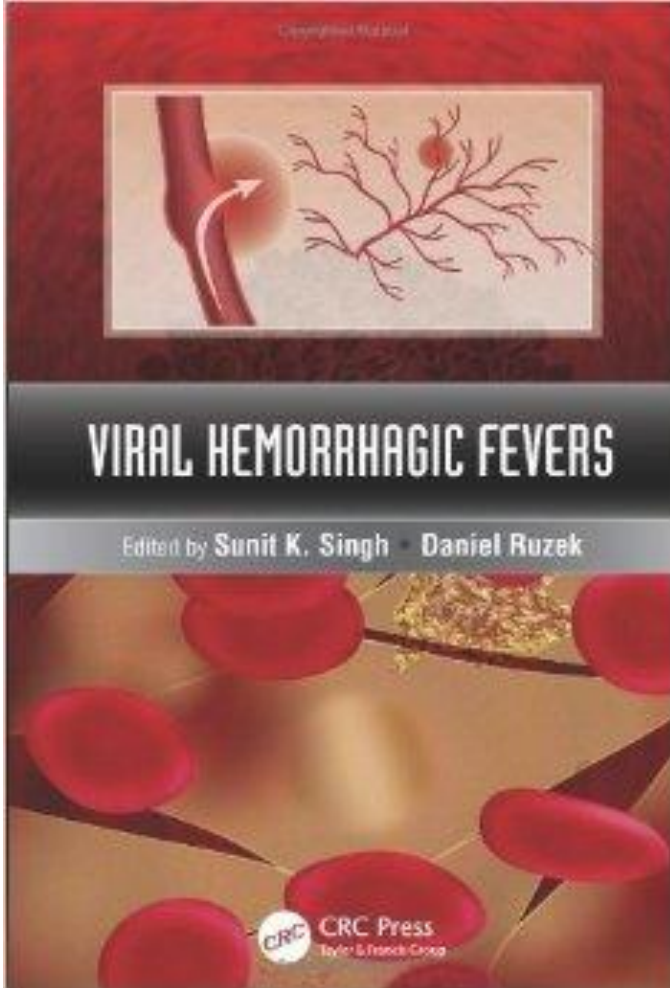
Viral Kanamalı Ateşler

4 Genus, 12 Viruses

Filoviridae	Arenaviridae	Bunyaviridae	Flaviviridae
Ebola	Lassa	Hanta	Yellow F.
Marburg	S.America	Rift Valley	Dengue
		CCHF	Omsk
			Kyasanur
			Alkhumra

Viral Kanamalı Ateşler

Ortak Özellikler



- Tek iplikli RNA viruslarıdır
- Acil infeksiyonlardır
- Küresel tehdit oluştururlar
- Yerel isimler alırlar
- Patogenezi yakındır
- Aşıları yoktur
- Tedavileri zayıftır
- Kontrolü güçtür

Viral haemorrhagic fevers

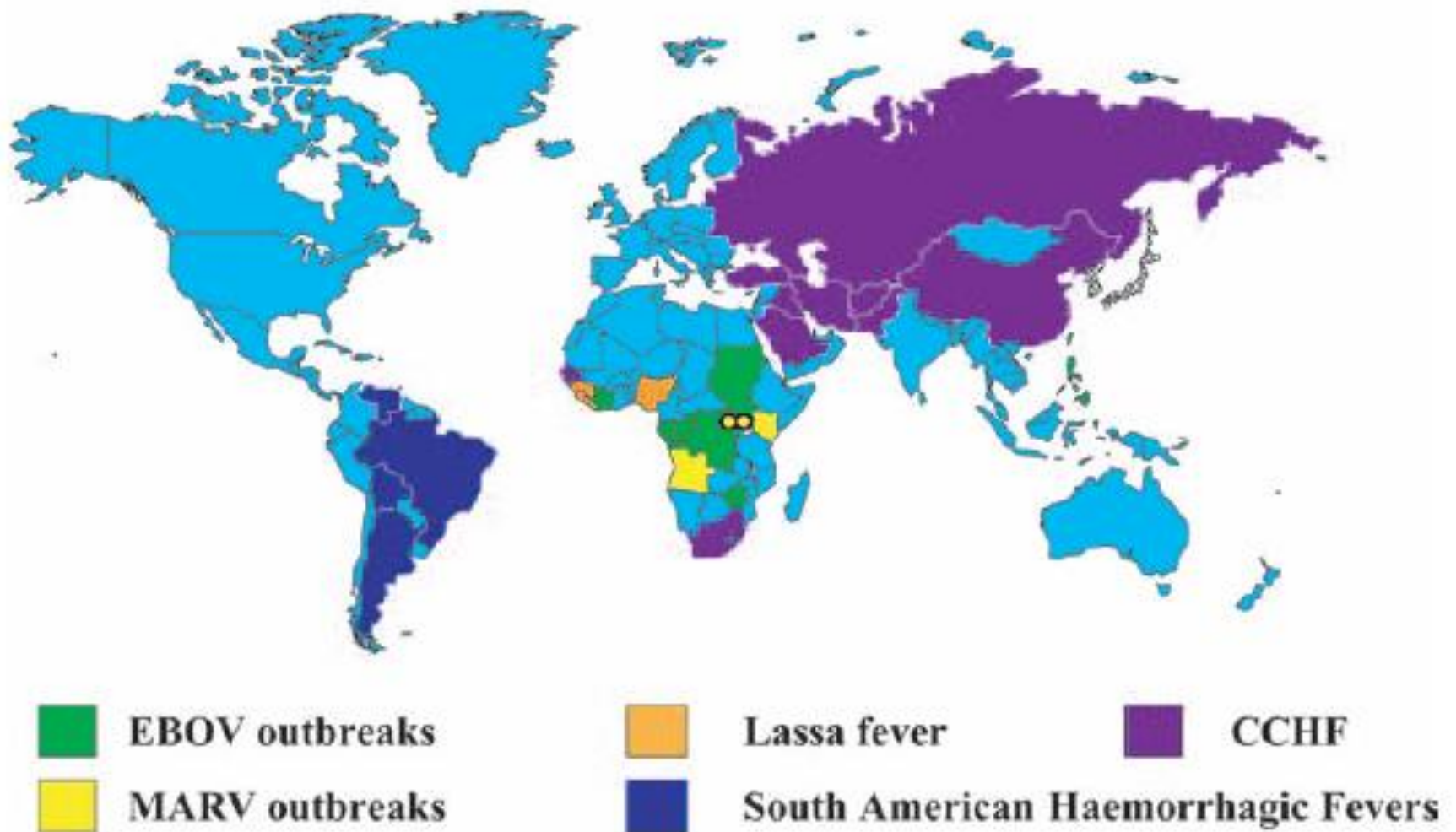


Fig. 1 Map of the world showing those countries known in 2005 to be affected by viral haemorrhagic fever (VHF) viruses. All those marked produce nosocomial outbreaks, with the exception of the South American haemorrhagic fever viruses. CCHF, Crimean–Congo haemorrhagic fever; EBOV, Ebola virus; MARV, Marburg virus.

VHF virus	Geographic Distribution	Annual Cases
Ebola	Africa	<500; >30 000 in 2014
Marburg	Africa	<300; increasing
Lassa	Africa	100,000-300,000
S.America	Argentine pampas	~300
Hantaan	Asia, Europe	50,000-150,000
Rift Valley	Africa	100-100,000
CCHF	Euroasia, Africa	> 2000
Yellow F	Africa, South America	5,000-200,000
Dengue	Tropics, worldwide	DF: 100 million, DHF: 100,000-200,000
Omsk	Siberia	100-200
Kyasanur	Karnataka state, India	400-500
Alkhumra	Saudi Arabia	<50

Ebola Virus Disease

Pierre Formenty

Emerging and Epidemic Zoonotic Diseases Team (CED/EZD), World Health Organization

CASE PRESENTATION

5 Kasım 2015

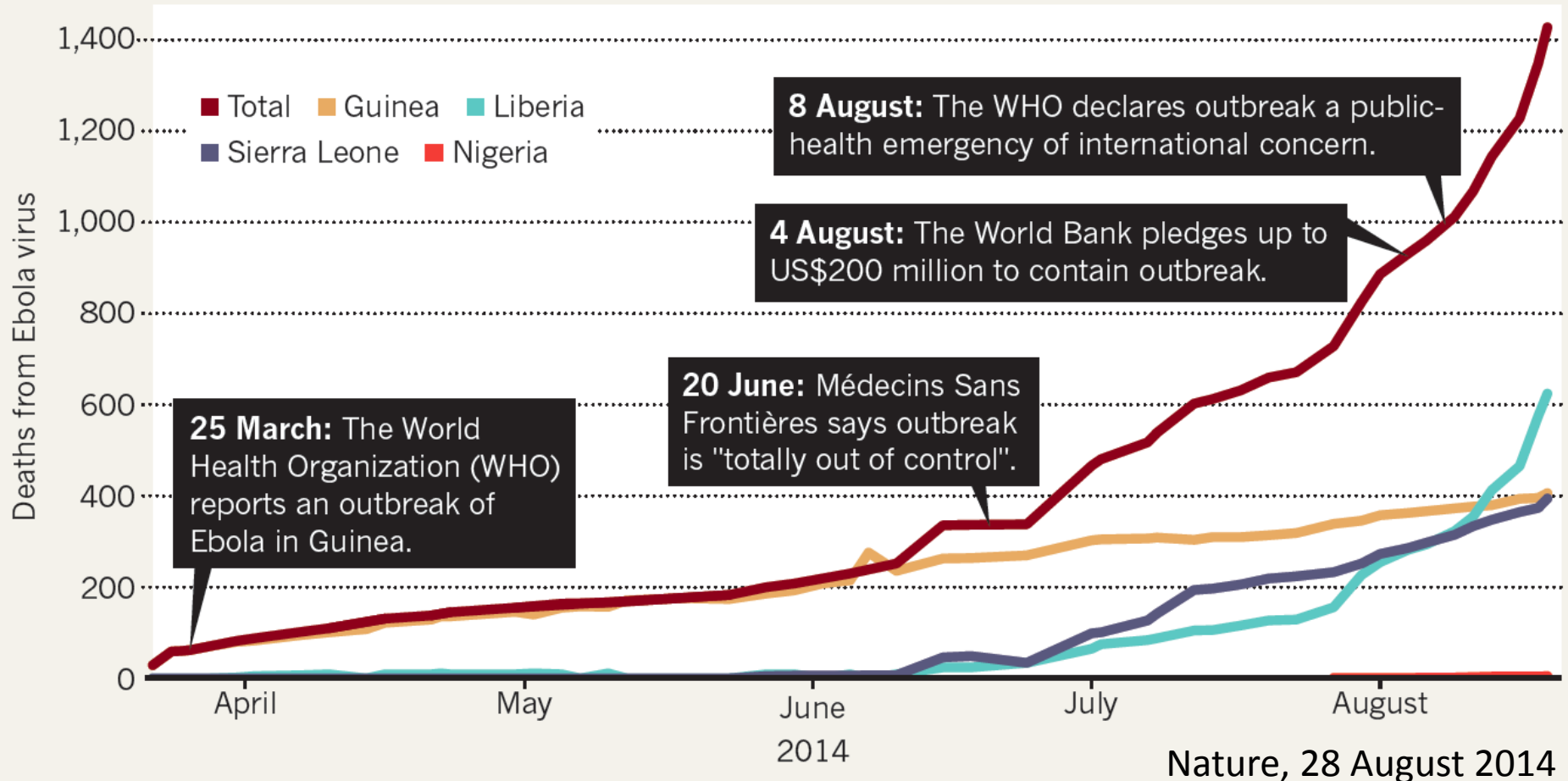
Toplam Olgu sayısı : 14098

Lab onaylı : 8715

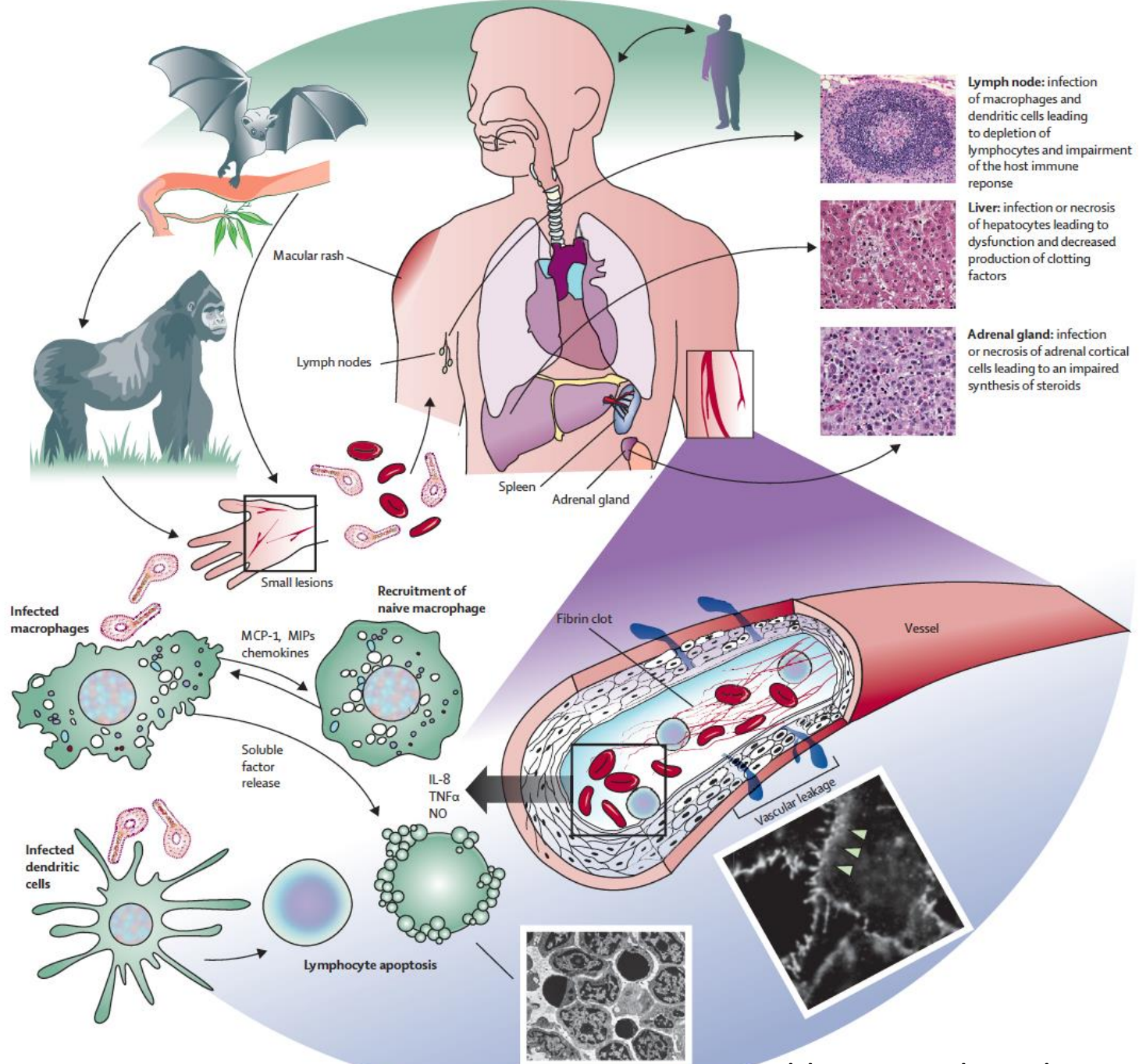
Ölüm : 5160

OUT OF CONTROL

The death toll from Ebola virus in West Africa continues to rise. Infectious-disease experts say that more health-care workers are needed to contain the outbreak.



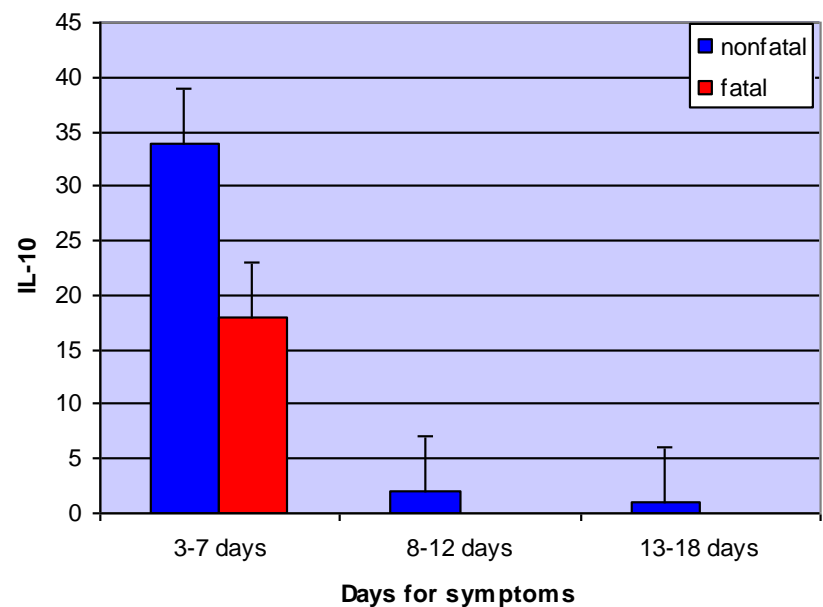
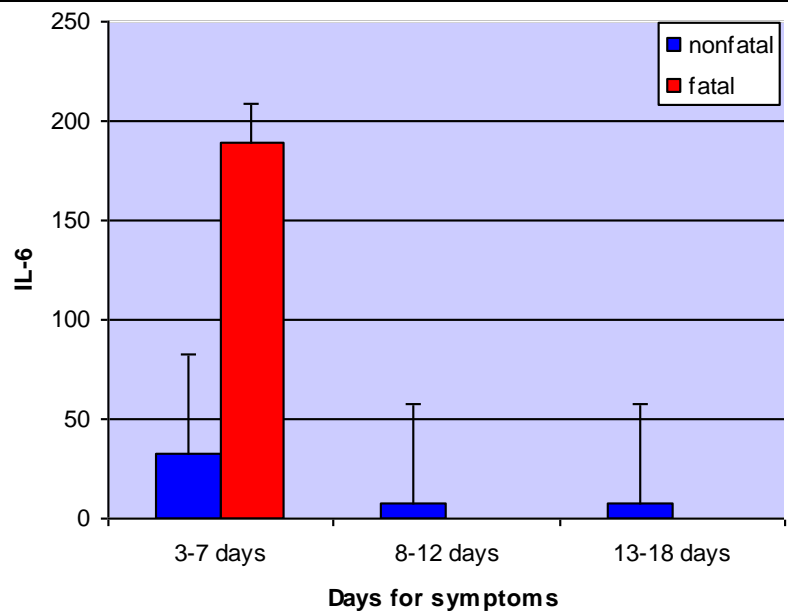
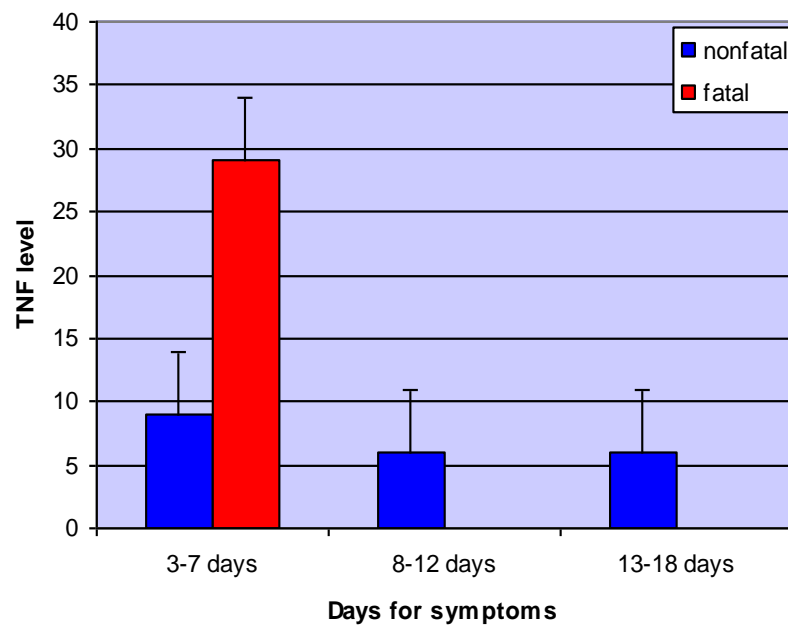


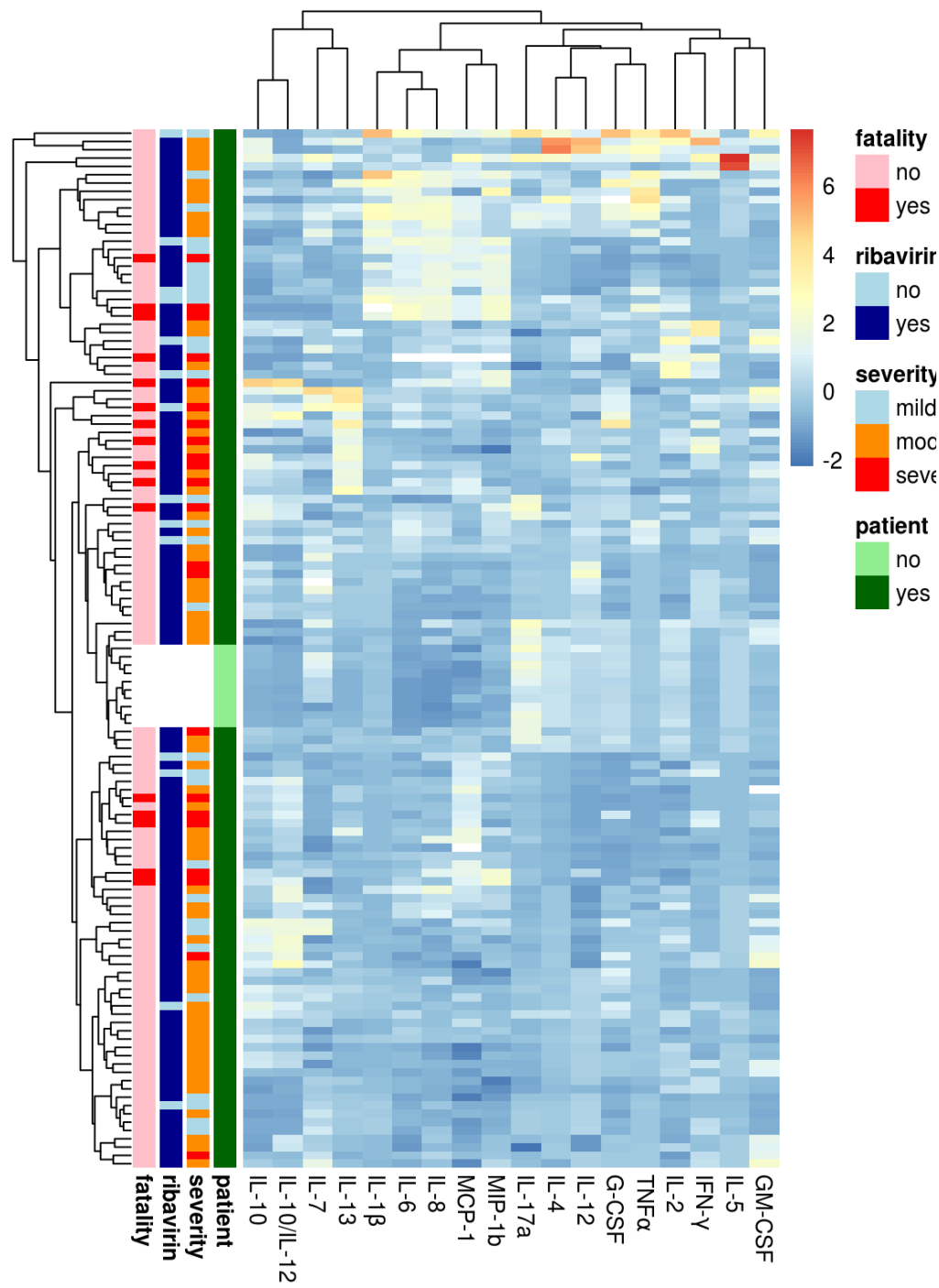


Evaluation of Serum Levels of Interleukin (IL)–6, IL-10, and Tumor Necrosis Factor– α in Patients with Crimean-Congo Hemorrhagic Fever

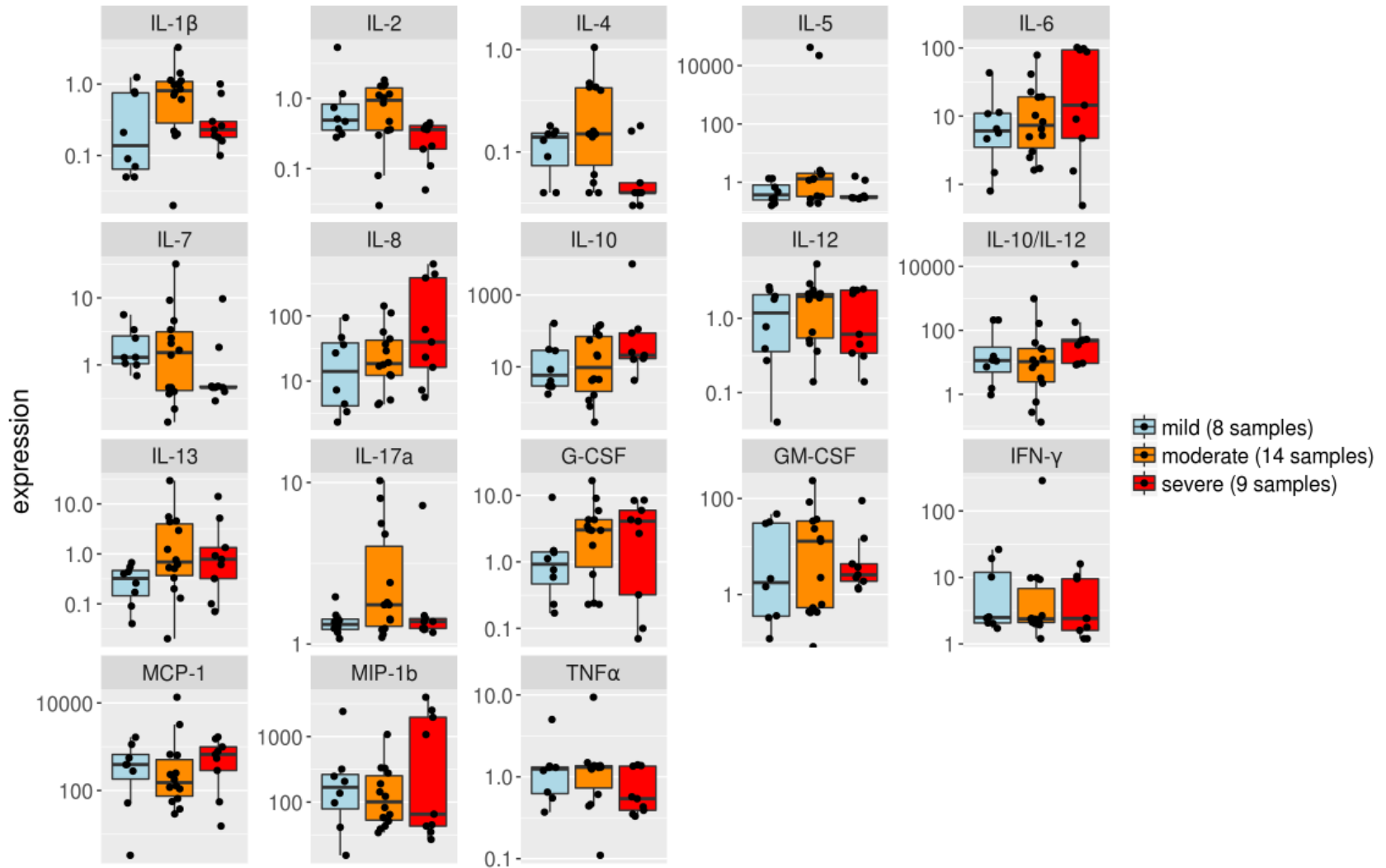
Onder Ergonul,¹ Semra Tuncbilek,² Nurcan Baykam,¹ Aysel Celikbas,³ and Basak Dokuzoguz⁴

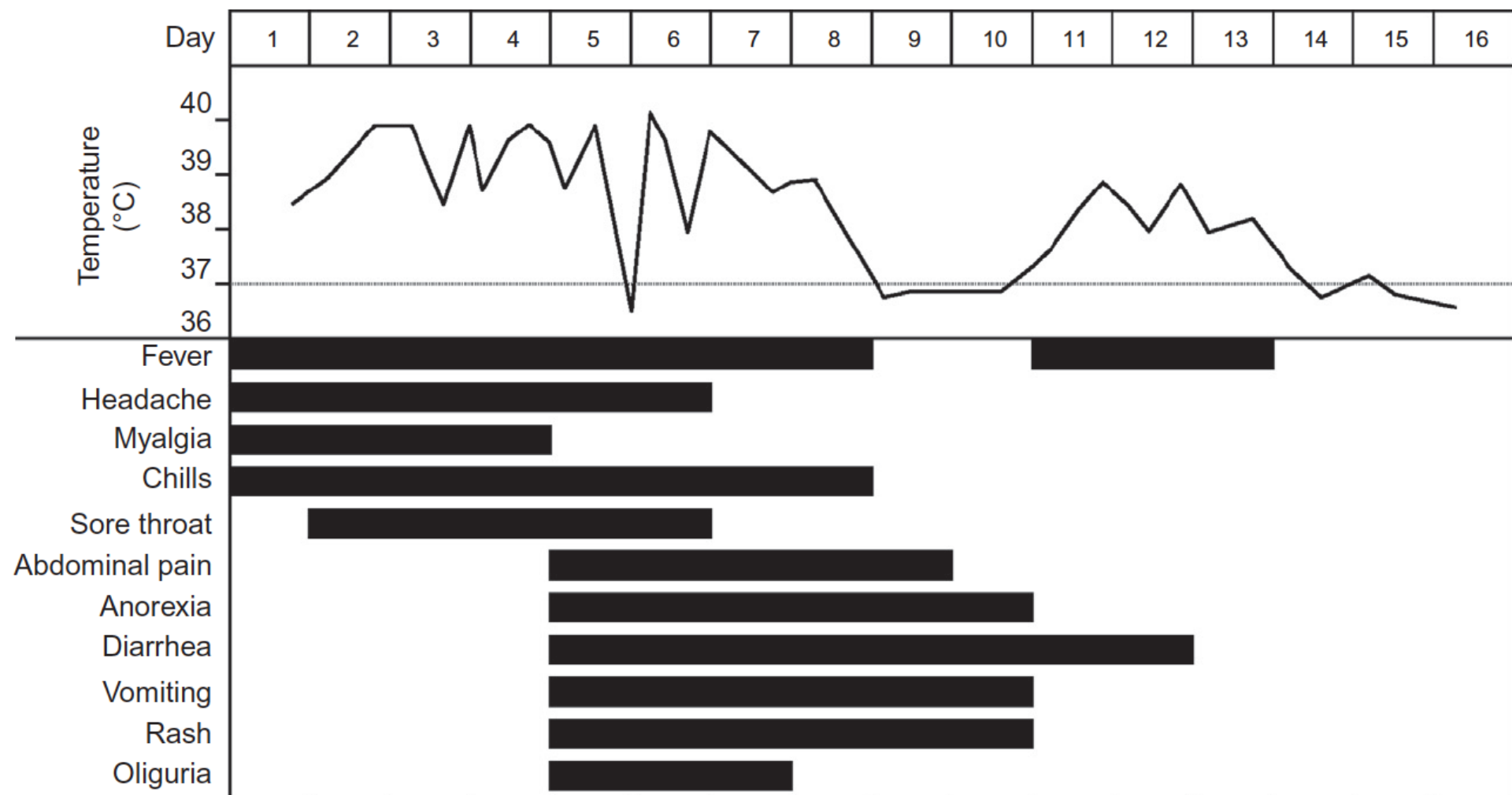
¹Infectious Diseases and Clinical Microbiology Clinic, Ankara Numune Education and Research Hospital, and ²GENOM Laboratories, Ankara, Turkey





Cytokine Levels of Different Severity Groups for First Five Days





BRIEF REPORT

Clinical Care of Two Patients with Ebola Virus Disease in the United States

G. Marshall Lyon, M.D., M.M.Sc., Aneesh K. Mehta, M.D., Jay B. Varkey, M.D.,
Kent Brantly, M.D., Lance Plyler, M.D., Anita K. McElroy, M.D., Ph.D.,
Colleen S. Kraft, M.D., Jonathan S. Towner, Ph.D.,
Christina Spiropoulou, Ph.D., Ute Ströher, Ph.D.,
Timothy M. Uyeki, M.D., M.P.H., M.P.P., and Bruce S. Ribner, M.D., M.P.H.,
for the Emory Serious Communicable Diseases Unit*

1. OLGU

33 yaşında, hekim, 2013 den itibaren Liberya'da çalışıyor.

Sıtma profilaksisi altında.

23 Temmuz 2014; ateş, yorgunluk, A: 37.8° C.

Semptomlarını arkadaşlarına bildiriyor, evinde dinleniyor.

Sıtma, Lassa, Ebola araştırılıyor, sonuç negatif.

Ringer laktat, empirik antibiyotik

4. gün: Ateş halen yüksek, sıtma, sarı humma, Lassa, Ebola yeniden çalışılıyor, Ebola saptanıyor.

6. gün: peteşiyal döküntü, A: 40 C, karın ağrısı, ishal. Melena, makulopapuler dokuntu

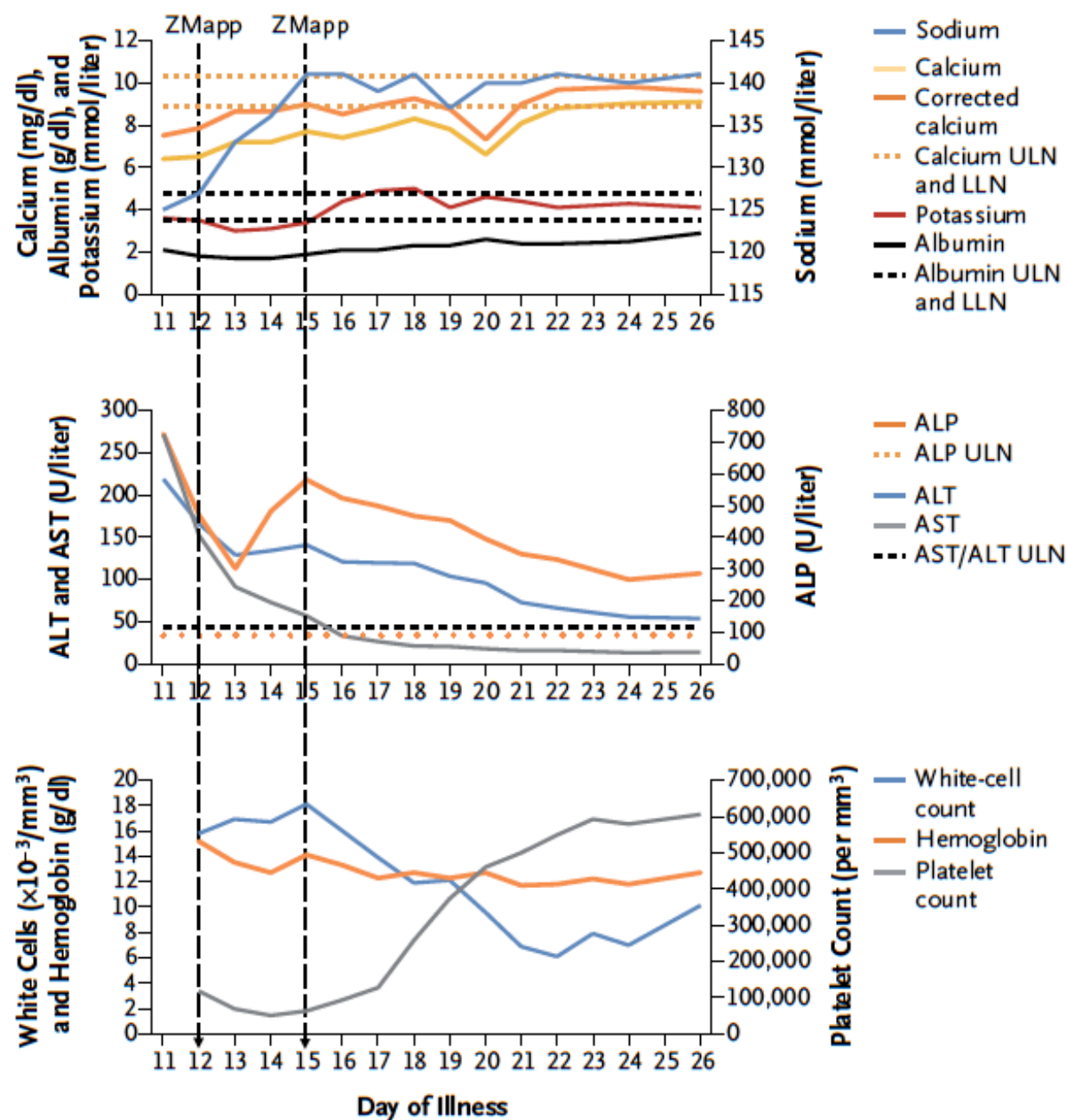
7. gün: hematemez, 1 U kan, 1 U konvalesan serum. Kötüleşme. Acetaminofen, Hidrasyon

9. gün: iv of Zmapp: deneysel EBOV glycoprotein-specific monoclonal antibodies

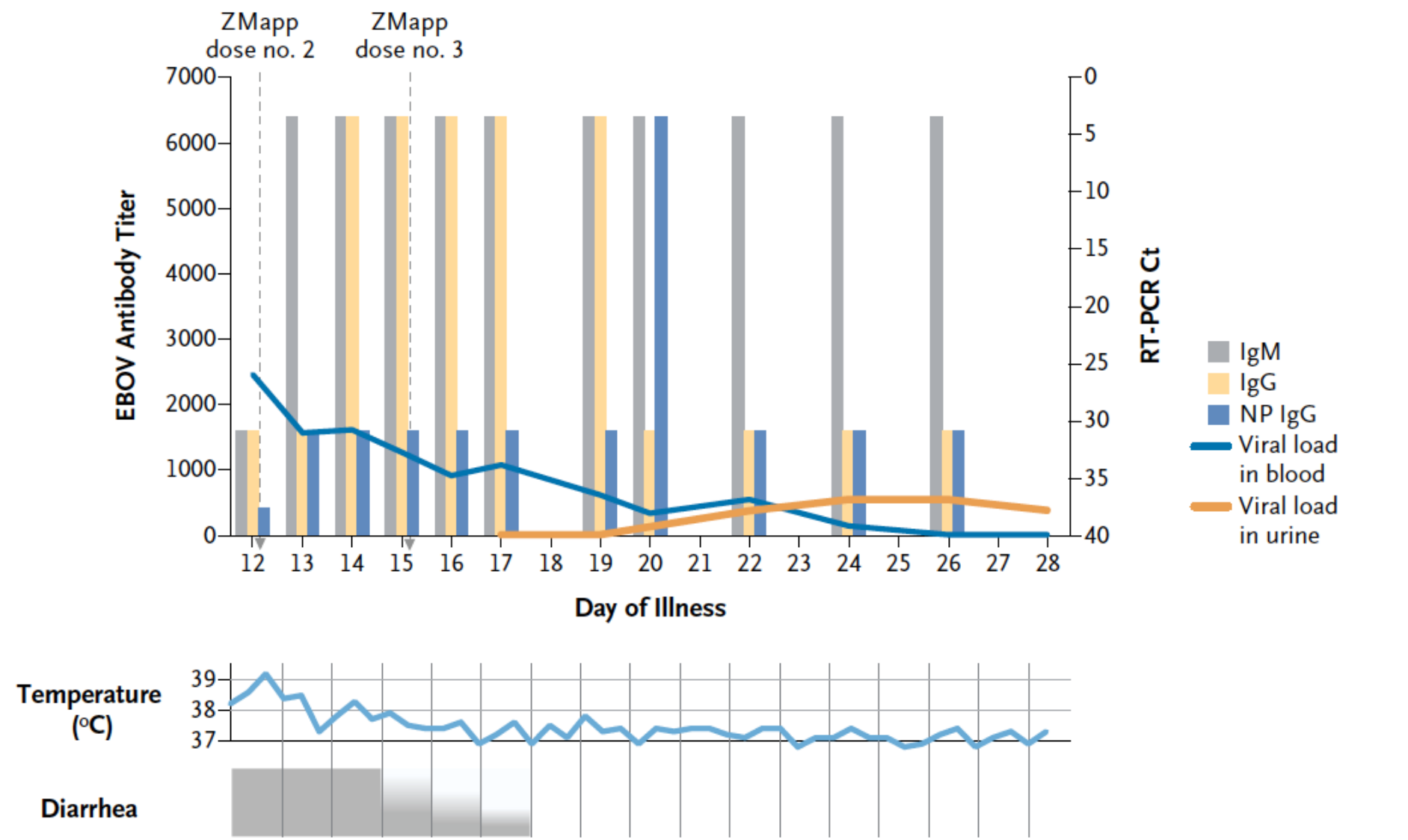
(Mapp Biopharmaceutical and LeafBio).

8 saat sonra iyileşme: döküntü azaldı. 10. gün transfer

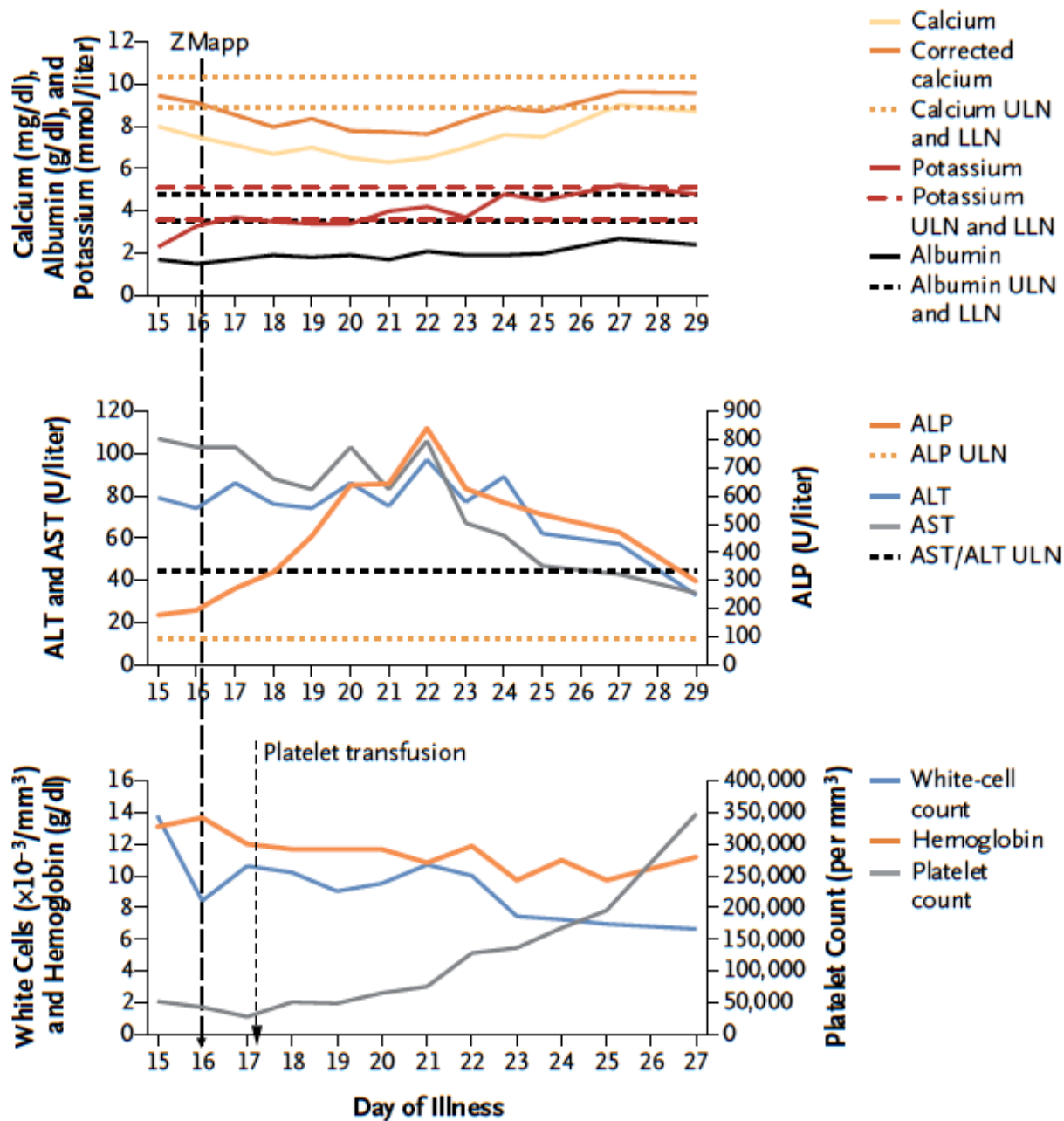
A Patient 1



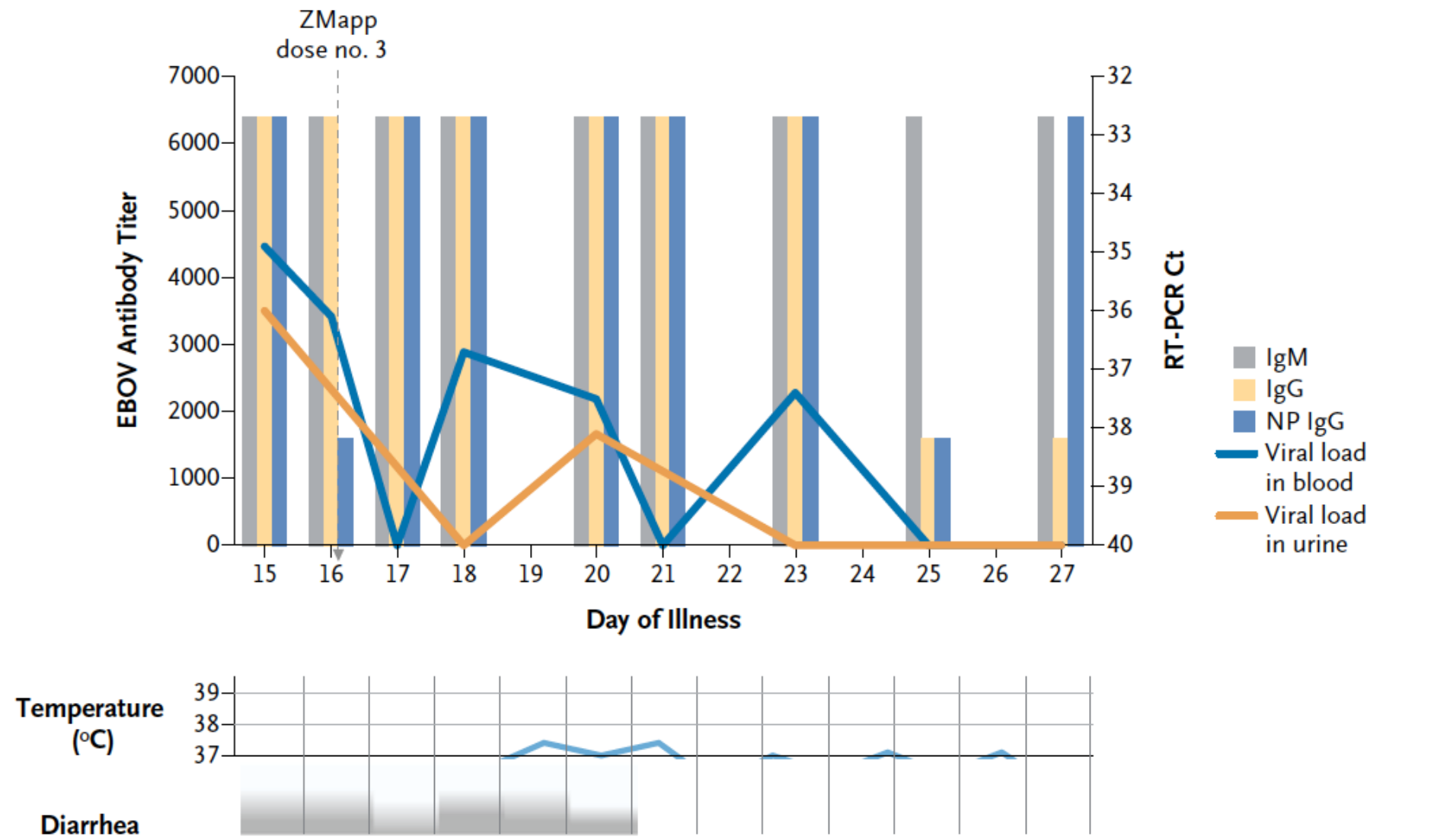
A Patient 1



B Patient 2



B Patient 2



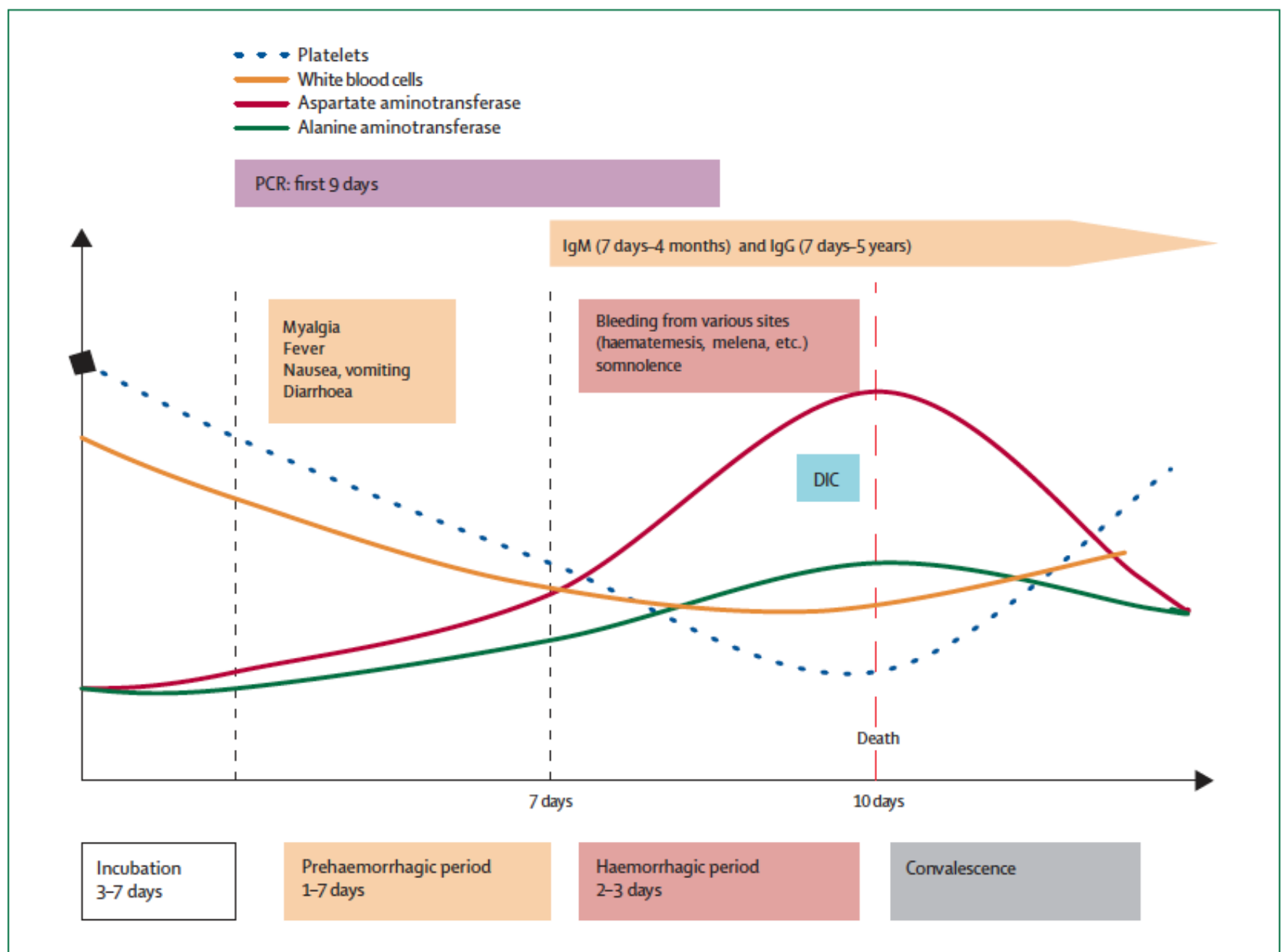


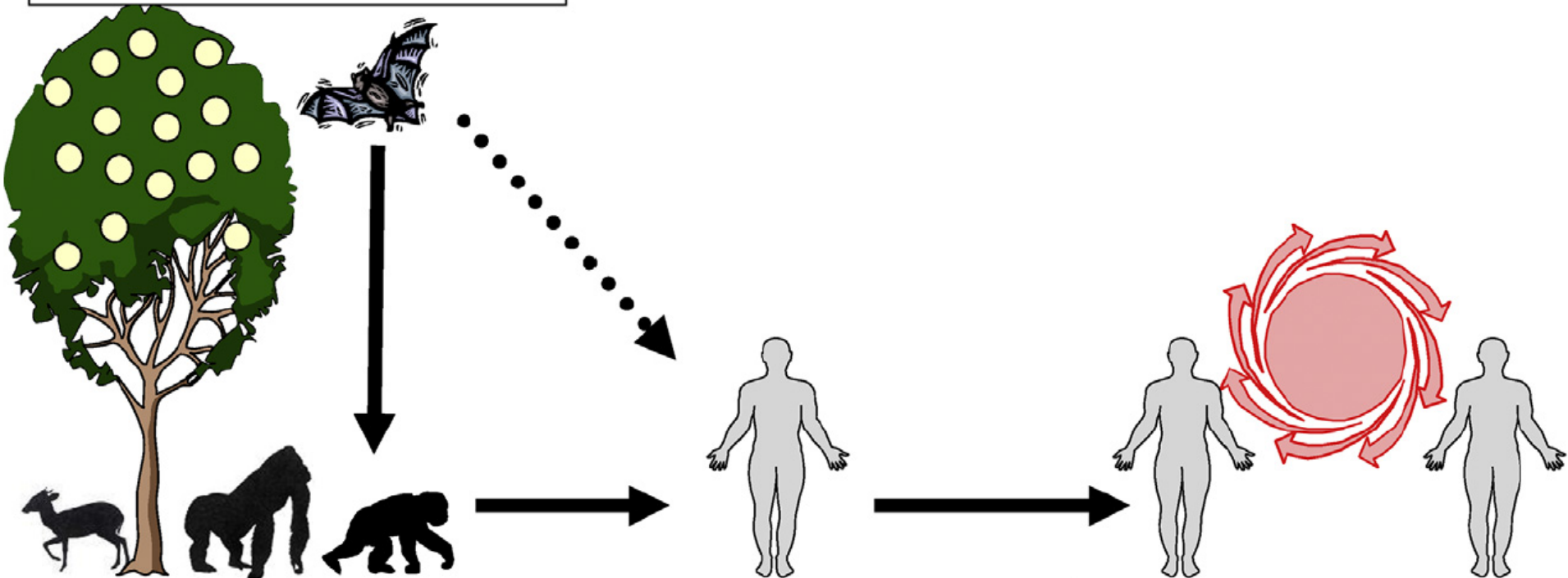
Figure 3: Clinical and laboratory course of CCHF
DIC=disseminated intravascular coagulation.



MSF Staff Members Lead a Young Patient with Suspected Ebola into the Case-Management Center.

1. Virus reservoir : Fruit bats

The virus maintains itself in fruit bats. The bats spread the virus during migration.



2. Epizootic in primates

Infected fruit bats enter in direct or indirect contact with other animals and pass on the infection, sometimes causing large-scale epidemics in gorillas, chimpanzees and other monkeys or mammals (e.g. forest antelopes).

3. Primary human infection

Humans are infected either through direct contact with infected bats (rare event), or through handling infected dead or sick animals found in the forest (more frequent)

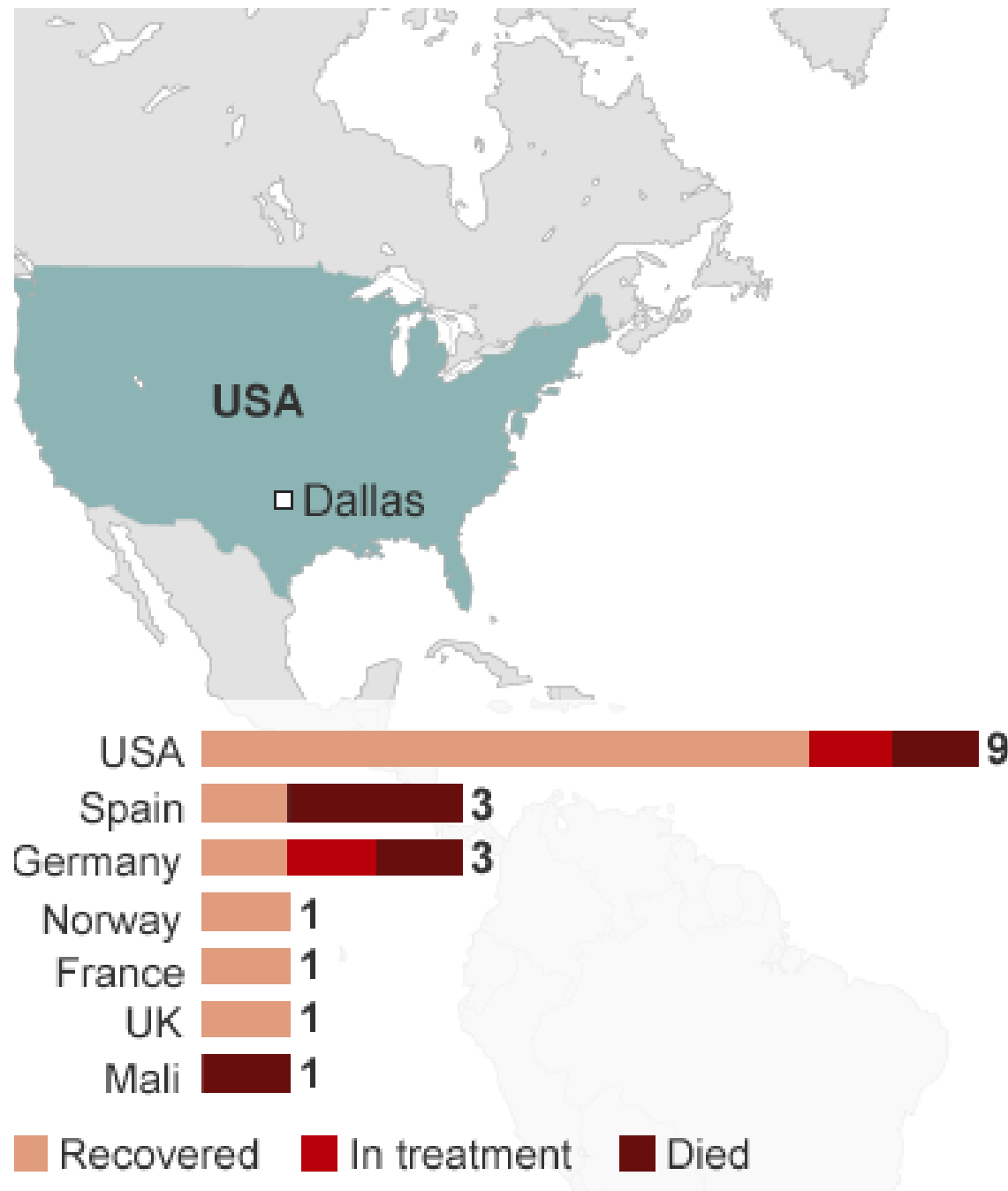
4. Secondary transmission

Secondary human-to-human transmission occurs through direct contact with the blood, secretions, organs or other body fluids of infected persons. High transmission risk when providing direct patient care or handling dead bodies (funerals).

Bushmeat: yabani hayvan eti

The term **bushmeat**, also called **wildmeat** and **game meat**, refers to meat from non-domesticated mammals, reptiles, amphibians and birds hunted for food in tropical forests





31 Ekim 2014

BRIEF REPORT

Molecular Evidence of Sexual Transmission of Ebola Virus

S.E. Mate, J.R. Kugelman, T.G. Nyenswah, J.T. Ladner, M.R. Wiley, T. Cordier-Lassalle, A. Christie, G.P. Schroth, S.M. Gross, G.J. Davies-Wayne, S.A. Shinde, R. Murugan, S.B. Sieh, M. Badio, L. Fakoli, F. Taweh, E. de Wit, N. van Doremalen, V.J. Munster, J. Pettitt, K. Prieto, B.W. Humrighouse, U. Ströher, J.W. DiClaro, L.E. Hensley, R.J. Schoepp, D. Safronetz, J. Fair, J.H. Kuhn, D.J. Blackley, A.S. Laney, D.E. Williams, T. Lo, A. Gasasira, S.T. Nichol, P. Formenty, F.N. Kateh, K.M. De Cock, F. Bolay, M. Sanchez-Lockhart, and G. Palacios

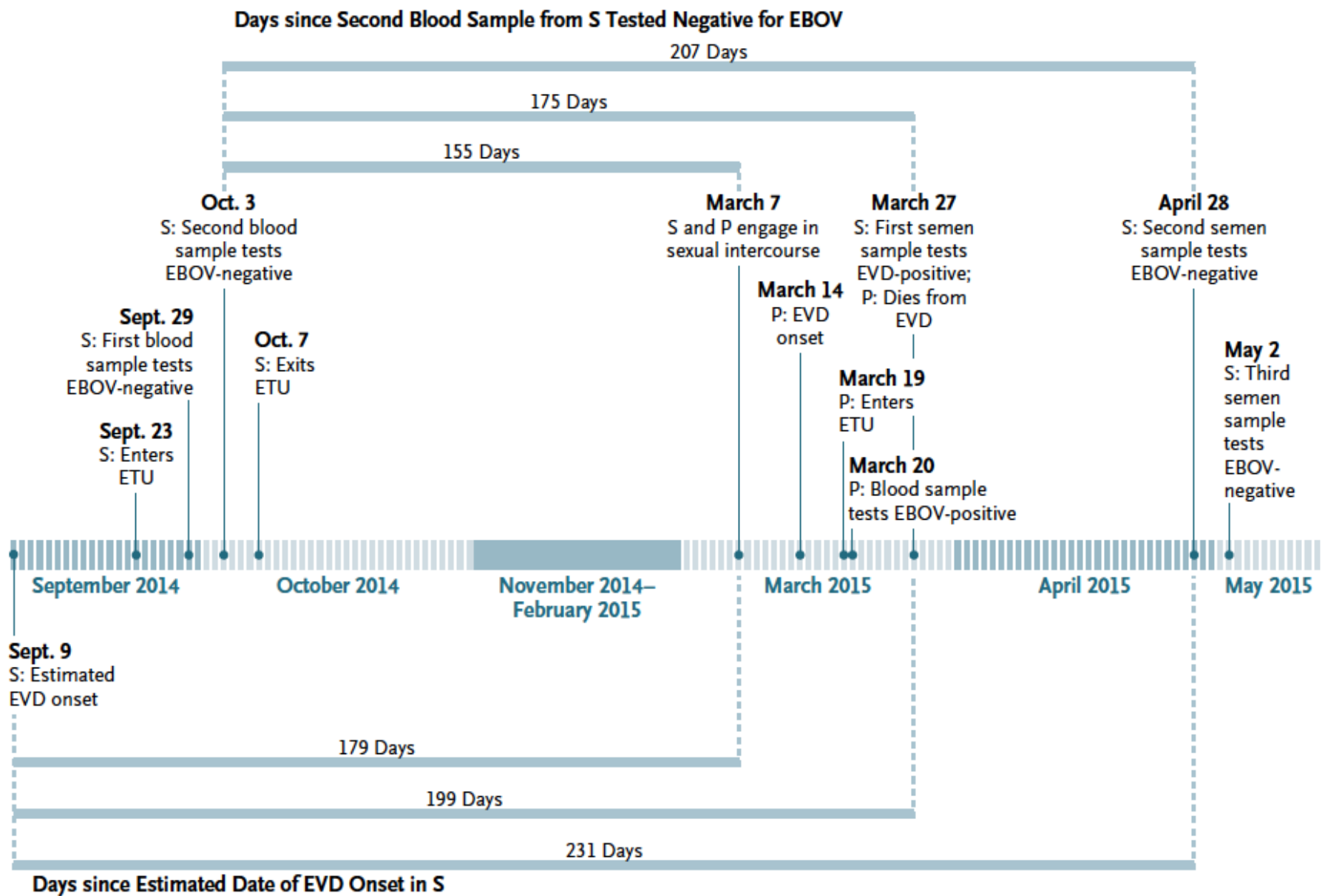


Figure 1. Clinical Timelines for the Patient and the Survivor, from September 2014 through May 2015.

Shown are key dates regarding the Ebola virus disease (EVD) presentation, diagnostic tests, and outcomes for the survivor (S) and the patient (P). Horizontal bars estimate the number of days of persistence of the Ebola virus (EBOV) since the date of disease onset and since the date of clearance from blood. ETU denotes Ebola treatment unit.

Jpn. J. Infect. Dis., 67, 137-138, 2014

Laboratory and Epidemiology Communications

Potential Sexual Transmission of Crimean-Congo
Hemorrhagic Fever Infection

Onder Ergonul^{1*} and Ismet Battal²

¹Infectious Diseases Department, School of Medicine, Koc University, Istanbul; and

²Viral Hemorrhagic Fever Unit, Zoonotic Diseases Department, Public Health Institute, Ankara, Turkey

ORIGINAL ARTICLE

Ebola RNA Persistence in Semen of Ebola Virus Disease Survivors — Preliminary Report

G.F. Deen, B. Knust, N. Broutet, F.R. Sesay, P. Formenty, C. Ross, A.E. Thorson, T.A. Massaquoi, J.E. Marrinan, E. Ervin, A. Jambai, S.L.R. McDonald, K. Bernstein, A.H. Wurie, M.S. Dumbuya, N. Abad, B. Idriss, T. Wi, S.D. Bennett, T. Davies, F.K. Ebrahim, E. Meites, D. Naidoo, S. Smith, A. Banerjee, B.R. Erickson, A. Brault, K.N. Durski, J. Winter, T. Sealy, S.T. Nichol, M. Lamunu, U. Ströher, O. Morgan, and F. Sahr

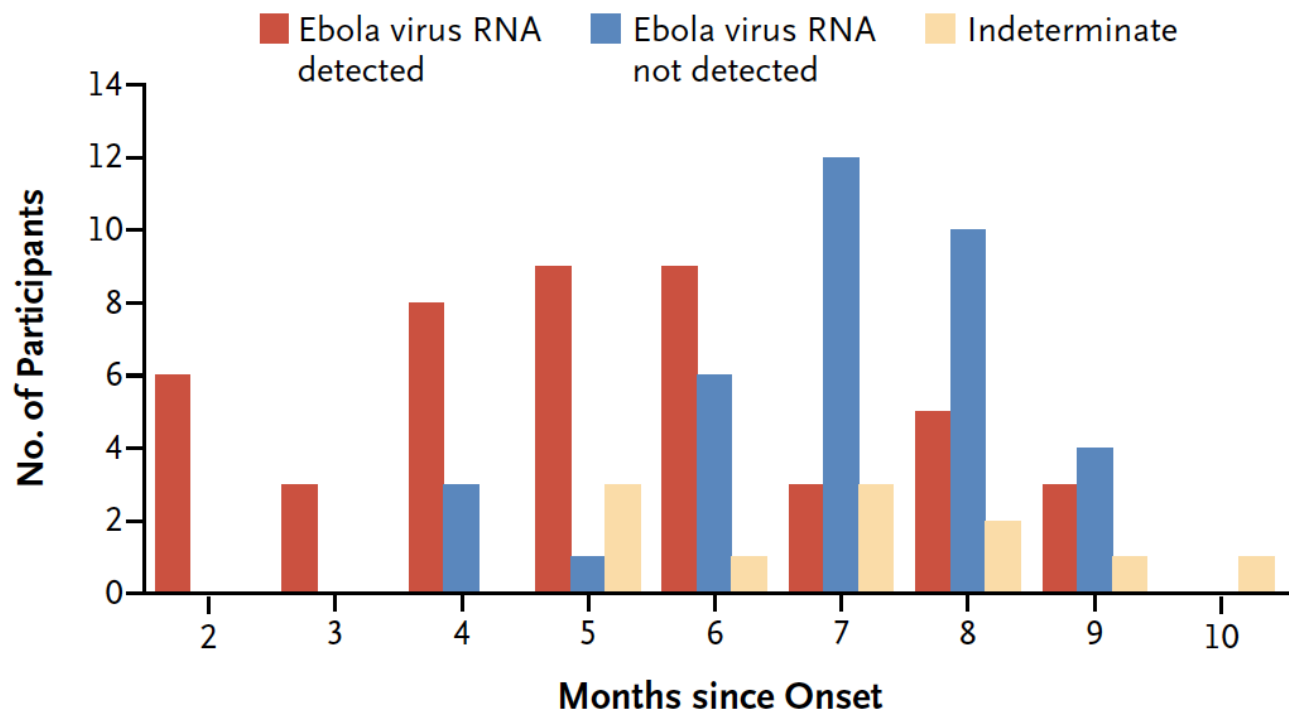


Figure 1. Results on Quantitative RT-PCR in Initial Semen Specimens Obtained from Survivors of Ebola Virus Disease, According to Time after Symptom Onset.

We performed quantitative reverse transcriptase–polymerase chain reaction (RT-PCR) testing using Ebola virus–specific gene targets (NP and VP40) and the human β_2 -microglobulin (*B2M*) gene, as described previously.^{14,15} We considered the findings to be positive if the VP40 and the NP gene targets were both detected within 40 cycles of replication. The findings were considered to be negative if neither Ebola virus gene target was detected and the findings regarding *B2M* status were positive. The findings were ruled to be indeterminate if either the VP40 or the NP gene target was detected but not both.



KLİMİK

TÜRK KLİNİK MİKROBİYOLOJİ VE
İNFEKSİYON HASTALIKLARI DERNEĞİ

DERNEK

YETERLİK
KURULU

ÇALIŞMA
GRUPLARI

TOPLANTILAR

HABERLER »

EBOLA HASTALIĞI 10 AY SONRA NÜKS EDEN İSKOÇ HEMŞİRE İYİLEŞİYOR



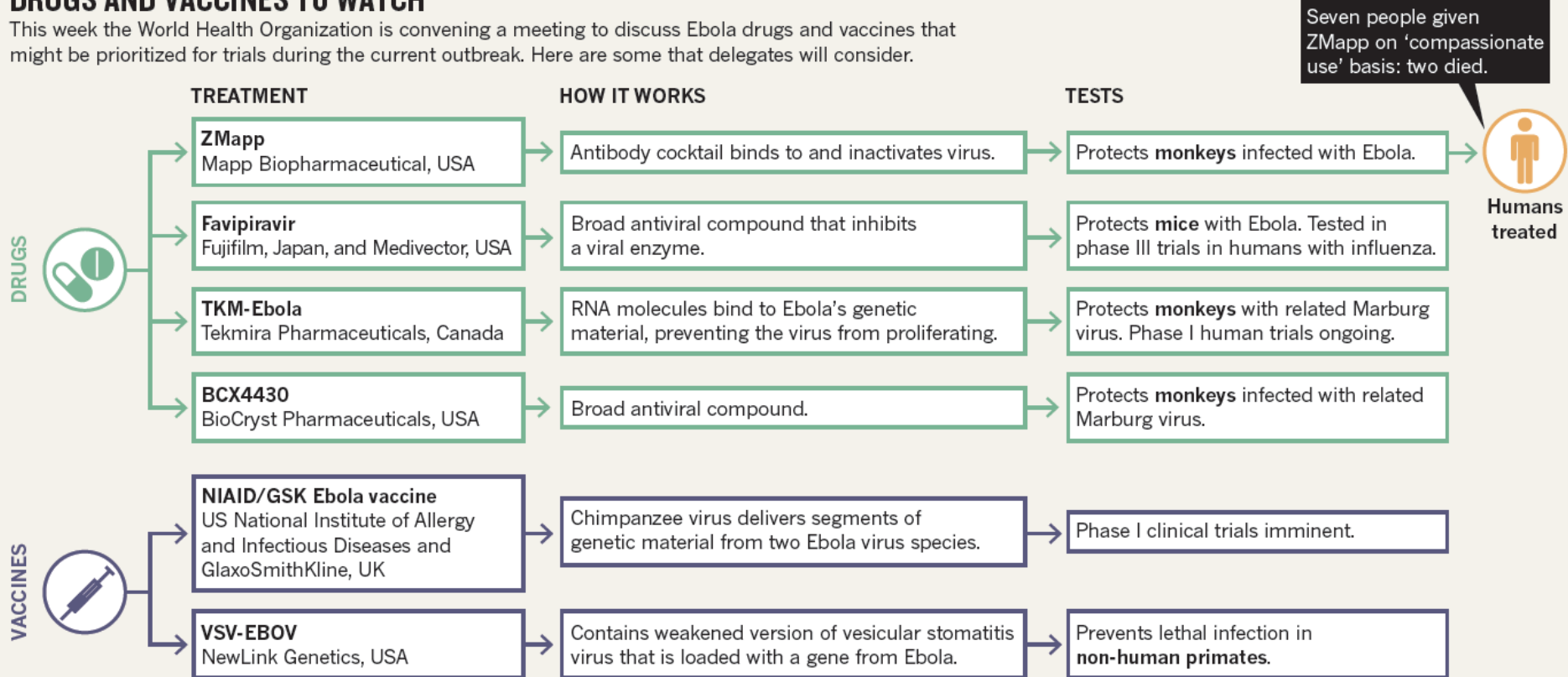
*Ebola Hastalığı
10 Ay Sonra Nüks Eden
İskoç Hemşire İyileşiyor*

Batı Afrika'da çalıştığı sırada Ebola virusu hastalığına yakalanıp iyileşen ve hastalığı 10 ay sonra bir viral menenjit biçiminde nüks eden İskoç hemşire Pauline Cafferkey'in durumu, izolasyon uygulanarak tutulduğu Londra'daki Royal Free Hospital'dan verilen bilgiye göre, deneysel bir ilaç olan GS-5734'in de olası etkisiyle iyiye gidiyor.

İlaçlar ve Aşılar

DRUGS AND VACCINES TO WATCH

This week the World Health Organization is convening a meeting to discuss Ebola drugs and vaccines that might be prioritized for trials during the current outbreak. Here are some that delegates will consider.



HEALTH EBOLA

Ebola Healthcare Workers Are Dying Faster Than Their Patients

Jack Linshi @jacklinshi | Oct. 3, 2014



The bulk of healthcare workers are locals who don't have enough resources or training to treat not only their patients, but also each other



Ameyo Stella Adadevoh

Abraham Borbor

Re

died

Courtesy of Niniola Soley



Lead consultant and endocrinologist at First Consultants Medical Center in Lagos, Nigeria. She was born in Lagos on Oct 27, 1956, and died there, aged 57 years, on Aug 19, 2014.



Courtesy of Dr Saye Dahn Baawo

Internal medicine physician and Deputy Chief Medical Officer at John F Kennedy Medical Center in Monrovia, Liberia. Born on April 27, 1960, in Lofa County in northern Liberia, he died on Aug 25, 2014, in Monrovia, aged 54 years.

Godfrey George



Courtesy of Joseph Kamara

Medical Superintendent at Kambia Government Hospital in northwestern Sierra Leone. Born in Freetown, Sierra Leone, on July 9, 1960, he died there on Nov 3, 2014, aged 54 years.

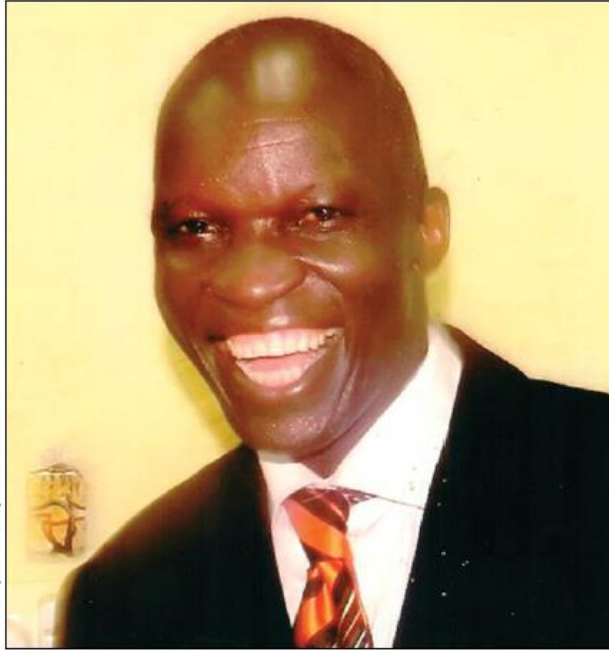
Samuel Muhumuza Mutoro



Courtesy of Mutooro Philip

Surgeon at Redemption Hospital in New Kru Town, Liberia. He was born in Uganda's Kasese district on Aug 24, 1969, and died in Monrovia, Liberia, on July 1, 2014, aged 44 years.

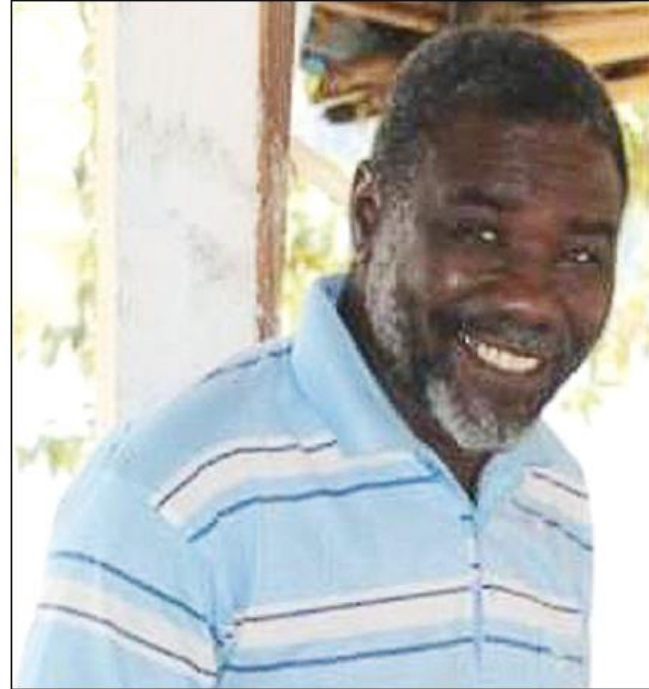
John Taban Dada



Courtesy of Dr Saye Dahn Baawo

Gynaecologist and surgeon who was Medical Director of Monrovia's Redemption Hospital and taught postgraduate medical education at the Liberia College of Physicians and Surgeons in Monrovia. He was born in Koboko, Uganda, on Dec 27, 1958, and died in Monrovia, Liberia, on Oct 9, 2014, aged 55 years.

AbdelFadeel Mohammed Basheer



Courtesy of Awadallah Arbab

Medical Laboratory Technician with the UN in Liberia. Born in El Obeid, Sudan, on Jan 1, 1958, he died in Leipzig, Germany, after being flown there for treatment, on Oct 14, 2014, aged 56 years.

Martin Maada Salia



United Methodist News Service

Surgeon and Chief Medical Officer of the Kissy United Methodist Hospital in Freetown, Sierra Leone. Born in Kenema, Sierra Leone, on Sept 6, 1970, he died on Nov 17, 2014, in Omaha, NE, USA, aged 44 years.

Sheik Humarr Khan



Dr Pardis Sabeti

Expert in the clinical care of viral haemorrhagic fevers. Born in Lungi, Sierra Leone, on March 6, 1975, he died in Kailahun, Sierra Leone, on July 29, 2014, aged 39 years.

Olivet Buck



PRIME-Partnerships in International Medical Education

The Medical Superintendent of Lumley Government Hospital, Freetown, Sierra Leone. Born on Dec 28, 1954, in Freetown, she died there on Sept 13, 2014, aged 59 years.

Thomas Scotland



Courtesy of Scotland family

A recent graduate of the University of Liberia's A M Dogliotti College of Medicine, he was completing a medical internship when he volunteered to help with the country's Ebola response. He died in Monrovia, Liberia, on Oct 18, 2014.

SPECIAL ARTICLE

SHATTUCK LECTURE

The Future of Public Health

Thomas R. Frieden, M.D., M.P.H.

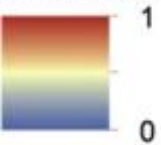
Ebola Salgınından Dersler:

1. Ülke düzeyinde tehdit ve önlem için yapılması gerekenler:
 - a. Epidemiyologlar
 - b. Yüksek kaliteli laboratuvar
 - c. Sürveyans sistemi
 - d. Hızlı yanıt ekipleri
2. Uluslararası düzeyde yardım/destek: WHO, Global Salgın Alarmı
3. Hastaneler ve sağlık merkezlerinde enfeksiyon kontrol alt yapısı.
Son dönem salgınları: Ebola, MERS, MDR-TB, C.diff., Kızamık

Aedes aegypti and Dengue Fever

Environmental suitability for

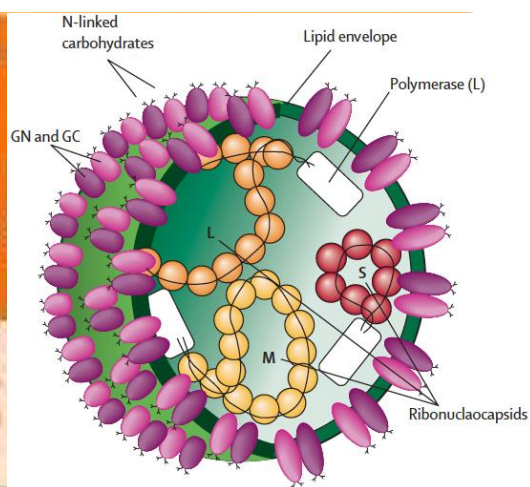
Aedes aegypti



(b)



Onder Ergonul
Chris A. Whitehouse
Editors



Crimean-Congo Hemorrhagic Fever

A Global Perspective

 Springer

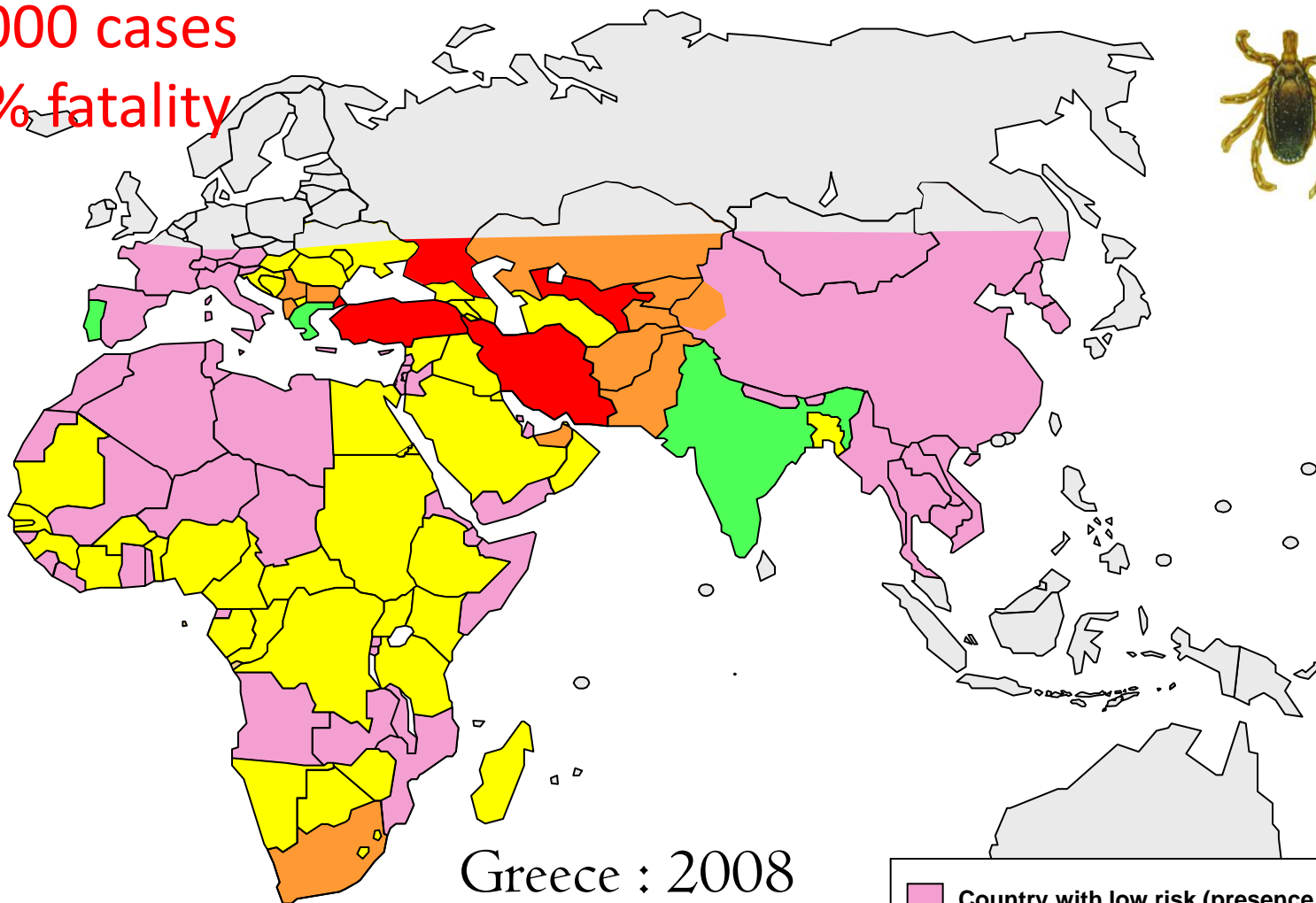
Copyright Material

Crimean-Congo Haemorrhagic Fever Geographic Distribution

50° North limit for the geographic distribution of genus *Hyalomma* ticks

>20 000 cases

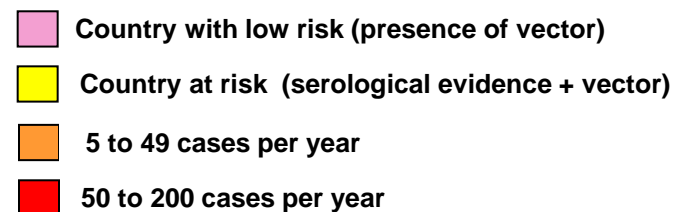
2-40% fatality



Greece : 2008

India : 2011

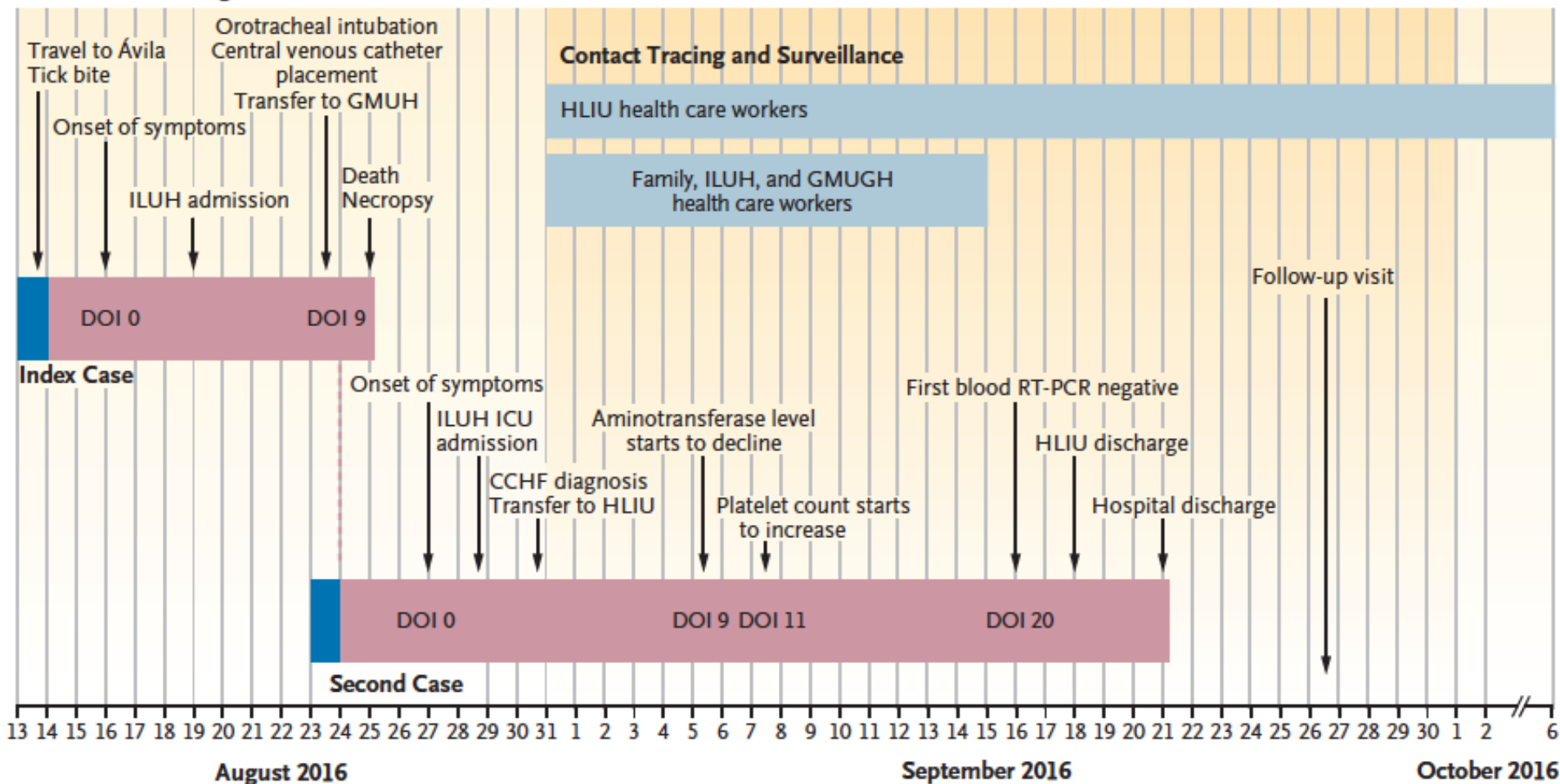
Spain : 2016



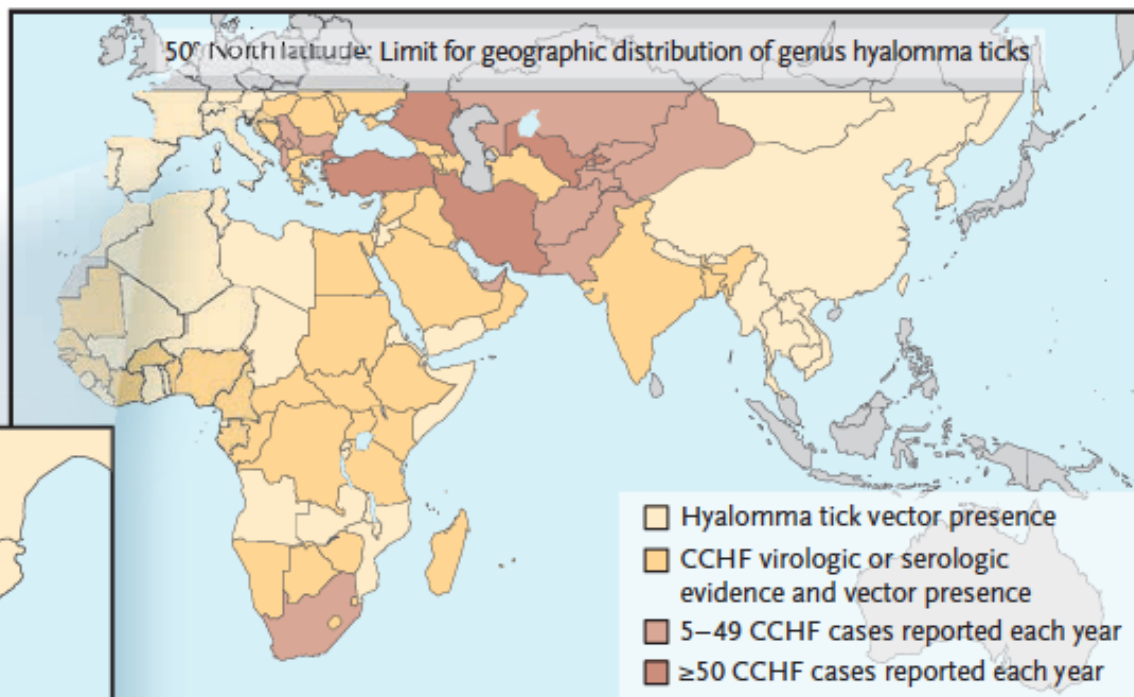
BRIEF REPORT

Autochthonous Crimean–Congo Hemorrhagic Fever in Spain

A Timeline Involving Patients and Contacts



B Locations of CCHF Worldwide



Strong evidence for the presence of the tick *Hyalomma marginatum* Koch, 1844 in southern continental France



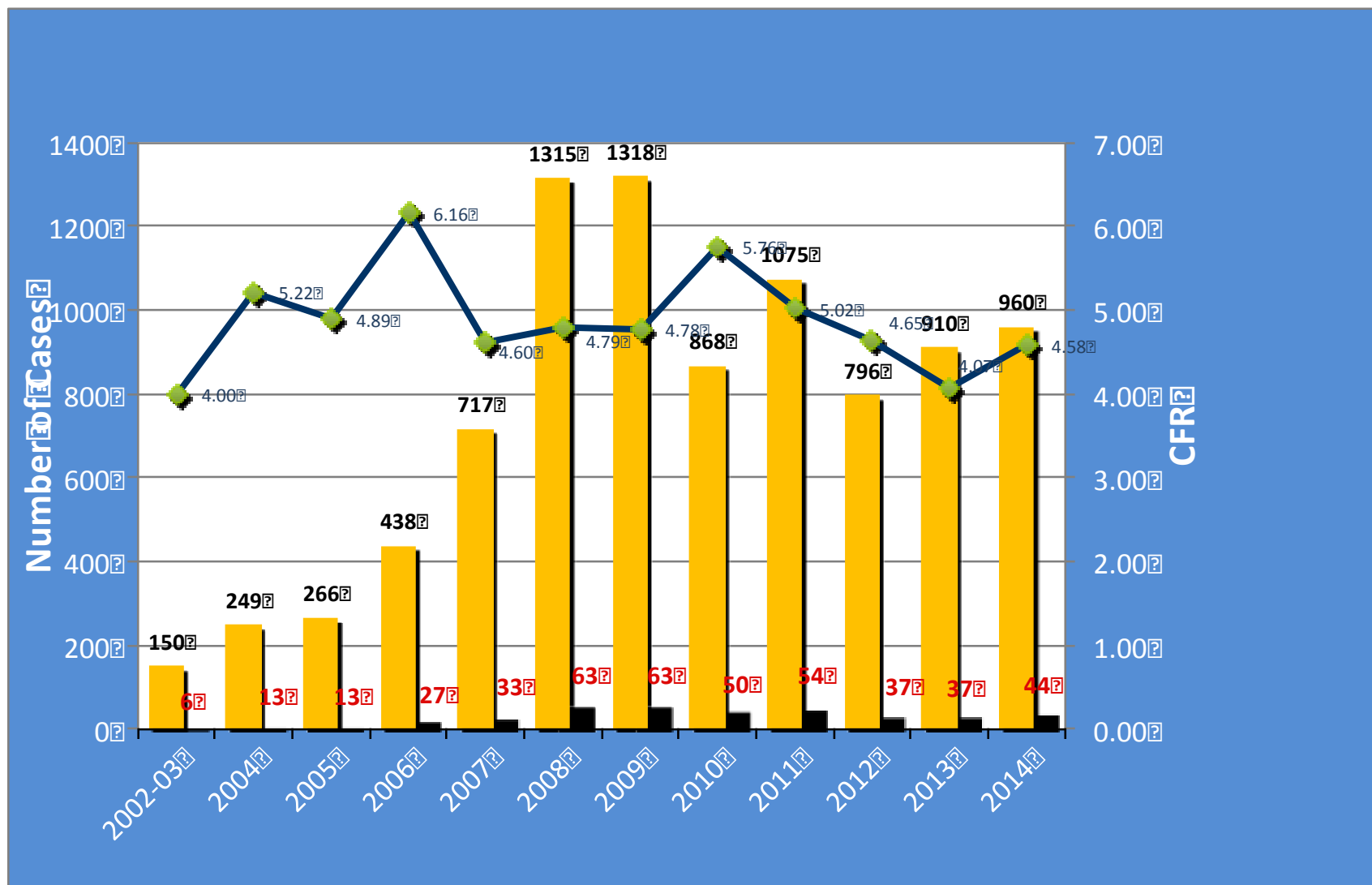
Tick sampling campaigns conducted on horses and birds from 2007 to 2016,

Introduction of *H. marginatum*, as well as *H. rufipes*, into France probably through trans-Mediterranean bird migrations.

Vial L, TTBD, 2016

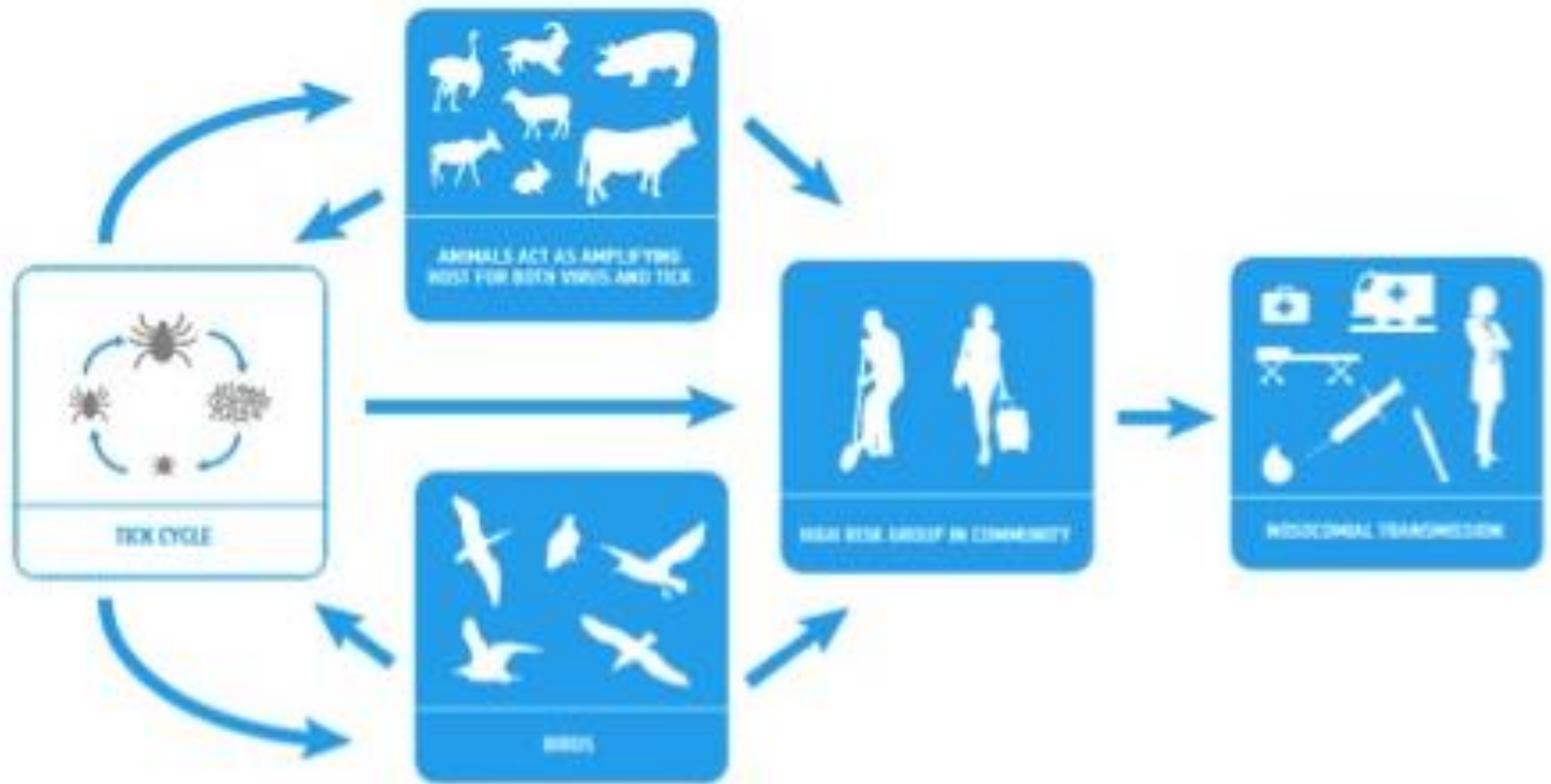


Cases and Case Fatality Rate: 2002-2014



MoH, Public Health Institute, Turkey

Crimean-Congo Hemorrhagic Fever



VHF	Human to human transmission
Ebola	High
Marburg	High
Lassa	Moderate
S.America	Low
Hantaan	No
RV	No
CCCF	High
Yellow fever	No
Dengue	No
Omsk	Not reported
Kyasanur	Not reported
Alkhumra	Not reported

Characteristics of Patients with Crimean-Congo Hemorrhagic Fever in a Recent Outbreak in Turkey and Impact of Oral Ribavirin Therapy

Önder Ergönül, Aysel Çelikbaş, Başak Dokuzoğuz, Şebnem Eren, Nurcan Baykam, and Harika Esener

Infectious Diseases and Clinical Microbiology Department, Ankara Numune Education and Research Hospital, Ankara, Turkey

patients infected with CCHF virus is suggested, which will be helpful for future outbreaks.

Patients and methods. Ankara Numune Education and Research Hospital (Ankara, Turkey) is one of the largest referral-based tertiary care community hospitals in Turkey. Patients with acute febrile syndrome characterized by malaise, bleeding, leukopenia, and thrombocytopenia were admitted to our clinic during the spring and summer of 2002 and 2003. Patients who had IgM antibodies or PCR results positive for CCHF virus in blood or tissue specimens were included to the study. Written informed consent was obtained from patients

Clin Infect Dis 2004

Table 3. Univariate and Adjusted Analysis for Prediction of Death

Factor	Univariate Analysis		Adjusted Analysis	
	OR (95% CI)	P Value	OR (95% CI)	P Value
SSI	2.49 (1.82–3.41)	<.001	3.27 (2.09–5.13)	<.001
Ribavirin use	0.68 (.23–1.93)	.470	0.04 (.004–.48)	.01
Corticosteroid use	5.65 (2.31–13.77)	<.001	0.22 (.039–1.27)	.092

Abbreviations: CI, confidence interval; OR, odds ratio; SSI, severity scoring index.

Clin Infect Dis 2013

Severity Scoring Index for Crimean-Congo Hemorrhagic Fever and the Impact of Ribavirin and Corticosteroids on Fatality

Başak Dokuzoguz,¹ Aysel Kocagül Celikbas,¹ Şebnem Eren Gök,¹ Nurcan Baykam,¹ Mustafa Necati Eroglu,¹ and Önder Ergönül²

¹Clinical Microbiology and Infectious Diseases Clinic, Ankara Numune Education and Research Hospital, Ankara, and ²Infectious Diseases and Clinical Microbiology, Koç University, School of Medicine, Istanbul, Turkey

Table 2. Effects of RBV and Additional Therapy on CFRs Among Patients With Crimean-Congo Hemorrhagic Fever, Stratified by SSI

SSI, Disease Severity	CFR, % (Proportion of Patients), by RBV Status			CFR, % (Proportion of Patients), by CS Status		
	RBV	No RBV	PValue	CS	No CS	PValue
0–2, mild	0 (0/77)	0 (0/26)		0	0 (0/103)	
3–9, moderate	1.49 (2/134)	17 (3/18)	.001	4 (1/28)	1 (1/106)	.308
10–13, severe	67 (16/24)	100 (2/2)	.326	50 (8/16)	100 (8/8)	.014

Abbreviations: CFR, case-fatality rate; CS, corticosteroid; RBV, Ribavirin; SSI, severity scoring index.

İğneyi yanlışlıkla kendine batıran doktor öldü

Ondokuz Mayıs Üniversitesi (OMÜ) Sağlık Araştırma ve Uygulama Merkezi acil servisine başvuran Kırım Kongo Kanamalı Ateşi (KKKA) hastasında kullanılan iğneyi yanlışlıkla kendine batıran doktor Mustafa Bilgiç, tedavi gördüğü yoğun bakım servisinde müdahalelere rağmen kurtarılamadı.

AA | 22 EYLÜL 2012, 11:42

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Crimean-Congo Hemorrhagic Fever among Health Care Workers, Turkey

Aysel Kocagul Celikbas, Başak Dokuzoğuz,
Nurcam Baykam, Sebnem Eren Gok,
Mustafa Necati Eroğlu, Kenan Midilli,
Herve Zeller, and Onder Ergonul

Table 1. Clinical and laboratory findings of HCWs in whom Crimean-Congo hemorrhagic fever developed after occupational exposure, Turkey, 2004–2011*†

HCW, outcome	Body temperature, °C	Bleeding	Leukocytes/mm ³	Platelets/mm ³	AST	ALT	APTT	Fibrinogen	SSI
1, survived	38.5	No	800	42,000	425	346	44	225	Moderate
2, survived	37.2	No	1100	53,000	145	81	43	270	Mild
3, died	40.5	Ecchymosis, hematemesis, melena, hematuria	11,100	40,000	251	277	90	171	Severe
4, survived	40.5	No	2,900	78,000	150	110	37.4	250	Mild
5, survived	39	Epistaxis	1,800	58,000	167	129	64	218	Moderate
6, survived	40.5	No	1,800	44,000	123	216	40.5	165	Moderate
7, survived	39.1	No	3,100	13,000	418	132	40.9	170	Moderate

*HCW, health care worker; AST, aspartate aminotransferase; ALT, alanine aminotransferase; APTT, activated partial thromboplastin time; SSI, severity score index.

†Reference values: leukocytes, 4,000–11,000/mm³; platelets, 150,000–450,000/mm³; AST, <50 IU/L; ALT, <50 IU/L; APTT, 24–36 sec; fibrinogen, 200–400 mg/dL.

Table 2. Demographic features of HCWs with occupational exposure to Crimean-Congo hemorrhagic fever virus, Turkey, 2004–2011*

Episode, outcome†	HCW age, y/sex/profession	Procedure	Transmission route	Ribavirin for postexposure prophylaxis	Ribavirin for therapy (no. d after symptom onset)	Fatal
Episode 1; survived, her baby died	36/M/nurse	Wound care	Contact with surgical wound without protective equipment	No	Yes (0)	No
	31/F/nurse	Intubation, aspiration	Aerosol and droplet and contact without protective equipment	No	No	No
Episode 2; died	28/F/nurse	Phlebotomy	Needlestick	No	Yes (3)	Yes
Episode 3; died	41/M/physician	Resuscitation	Aerosol and droplet	–	Yes (0)	No
	26/M/physician	Nasal tamponade	Indirect contact	–	Yes (0)	No
	29/M/physician	Nasal tamponade	Indirect contact	–	Yes (0)	No
Episode 4; survived	30/M/nurse	Phlebotomy	Needlestick	No	Yes (1)	No
Episode 5; survived	30/F/nurse	Phlebotomy	Needlestick	Yes	–	No
Episode 6; survived	24/F/physician	Phlebotomy	Needlestick	Yes	–	No

*HCW, health care worker; –, ribavirin not necessary.

†Outcome for the index case-patient in each episode.



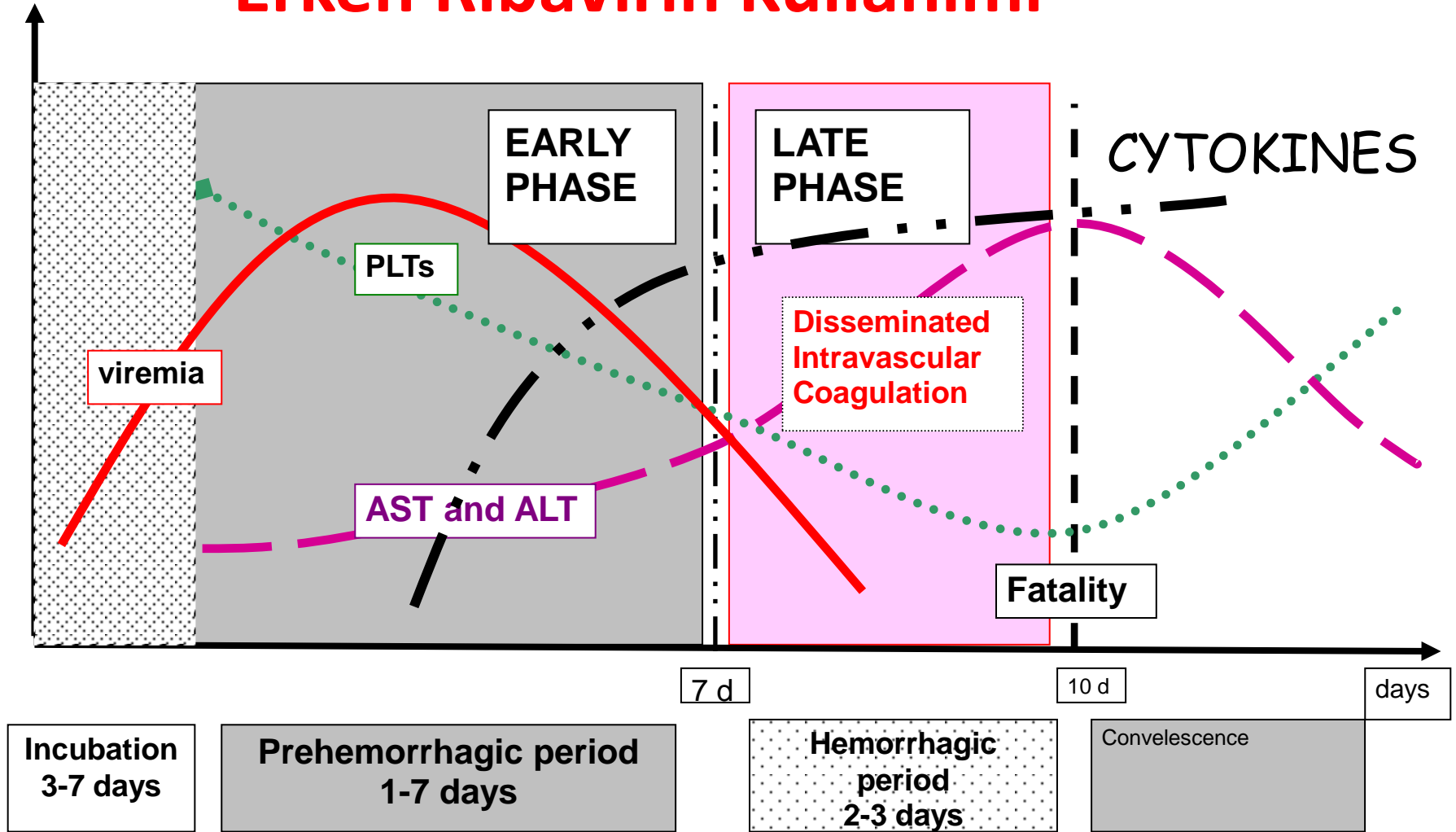
Yöntem

- PubMed, Google, Ulakbim, ProMED
- Anahtar kelimeler:
 - “Crimean Congo Hemorrhagic Fever”
 - “Nosocomial”
 - “Health care worker”, “health care personnel”
 - “Ribavirin”

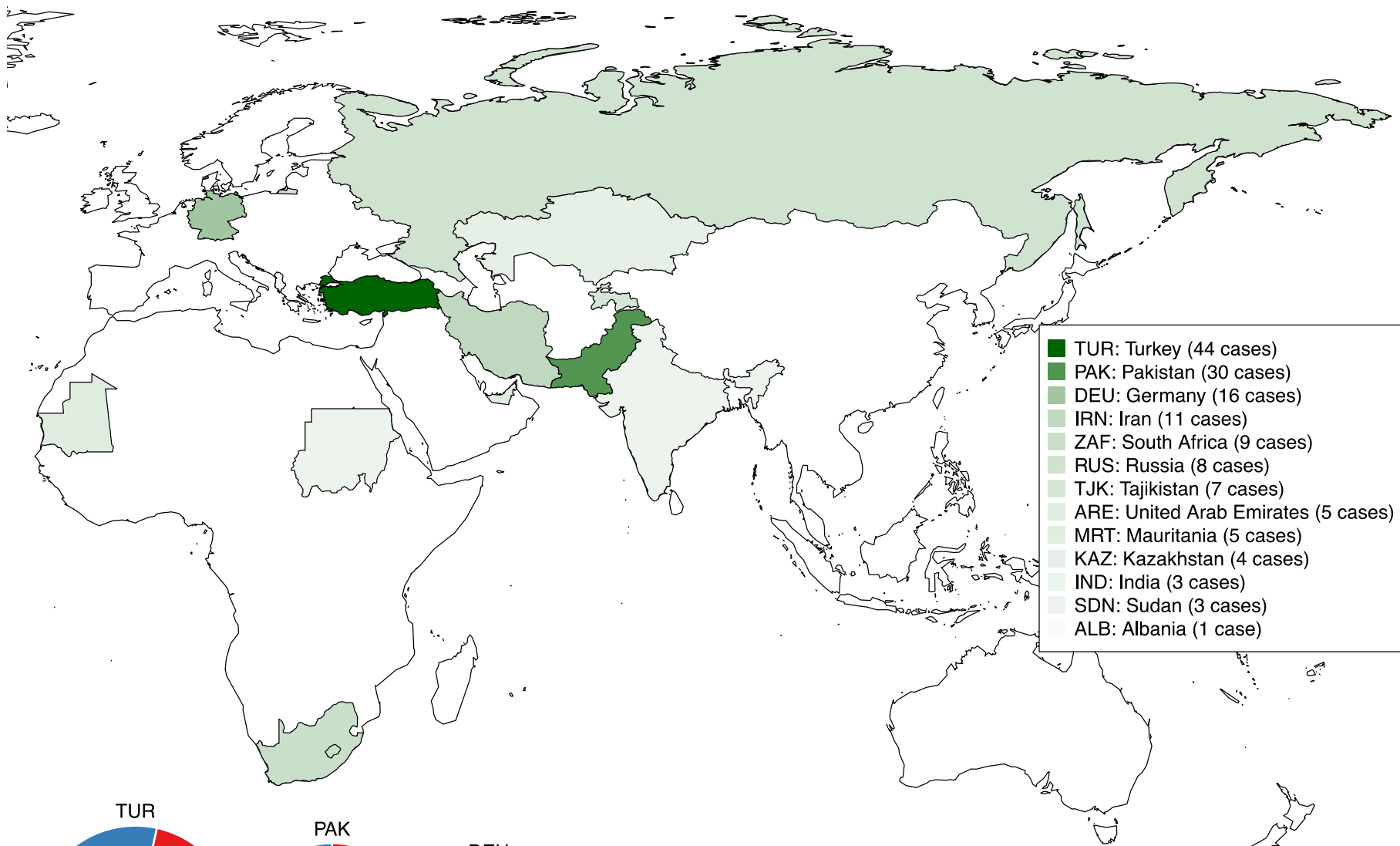
Bulgular

- 1099 rapora ulaşıldı
- Uygun olan 30 makale çalışmaya dahil edildi.
- Yeni bir veri tabanı oluşturuldu.
- Veri tabanında, demografik, epidemiyolojik, klinik, profilaksi ve tedaviye dair veriler girildi.
- STATA 14v (ABD) kullanıldı
 - Ki kare, t test ve logistik regresyon kullanıldı

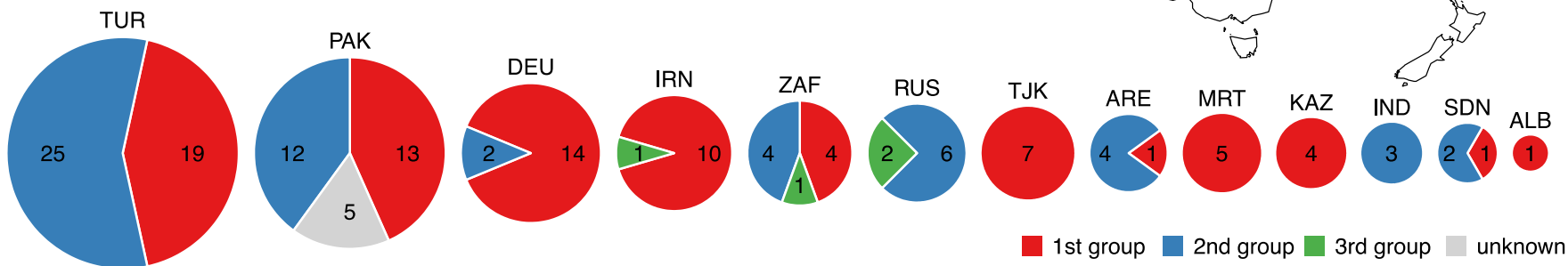
Erken Ribavirin Kullanımı



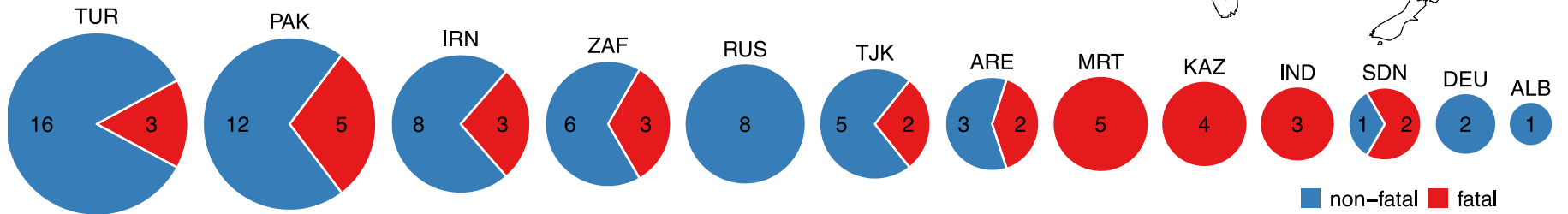
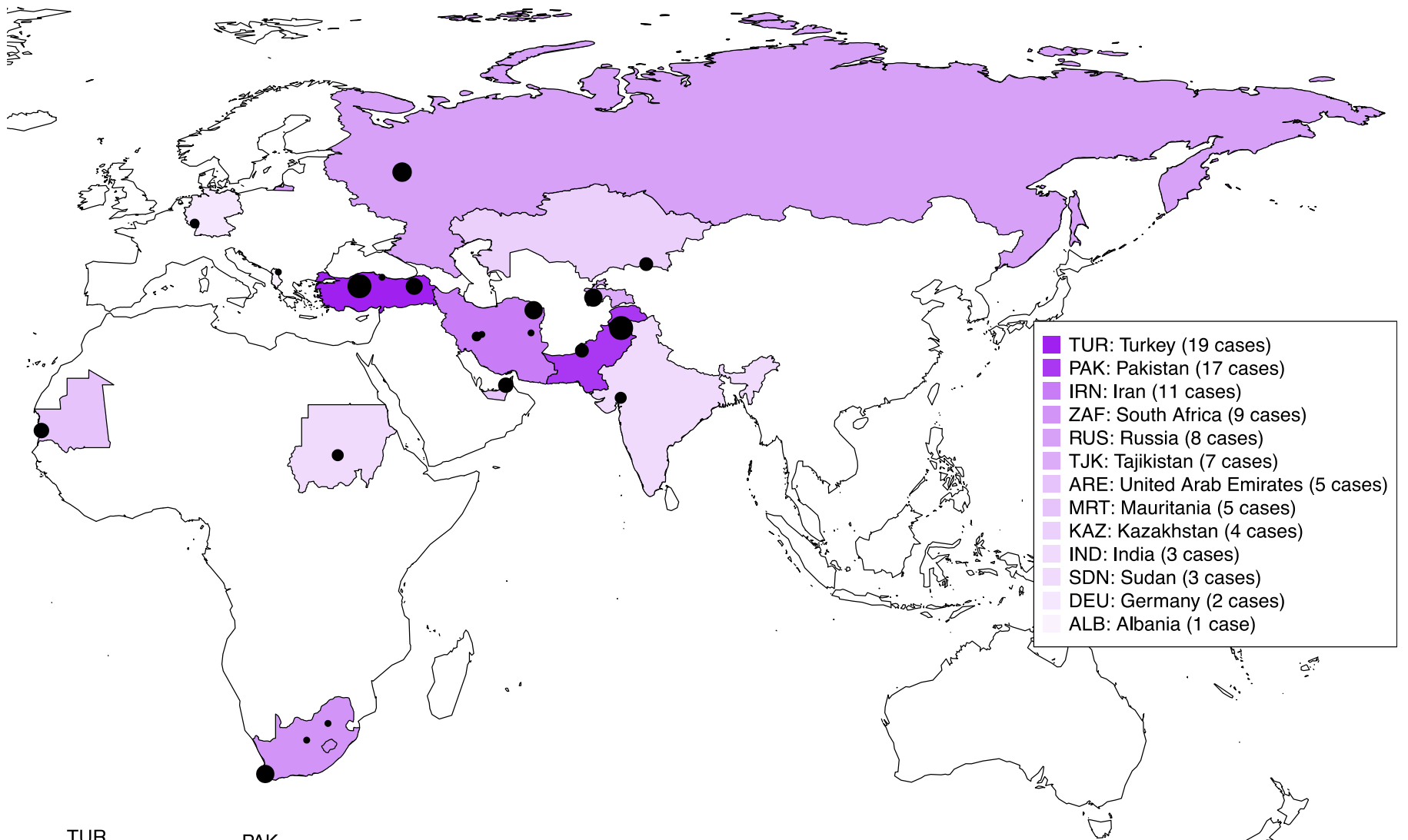
Ribavirin erken dönemde başlanırsa etkilidir

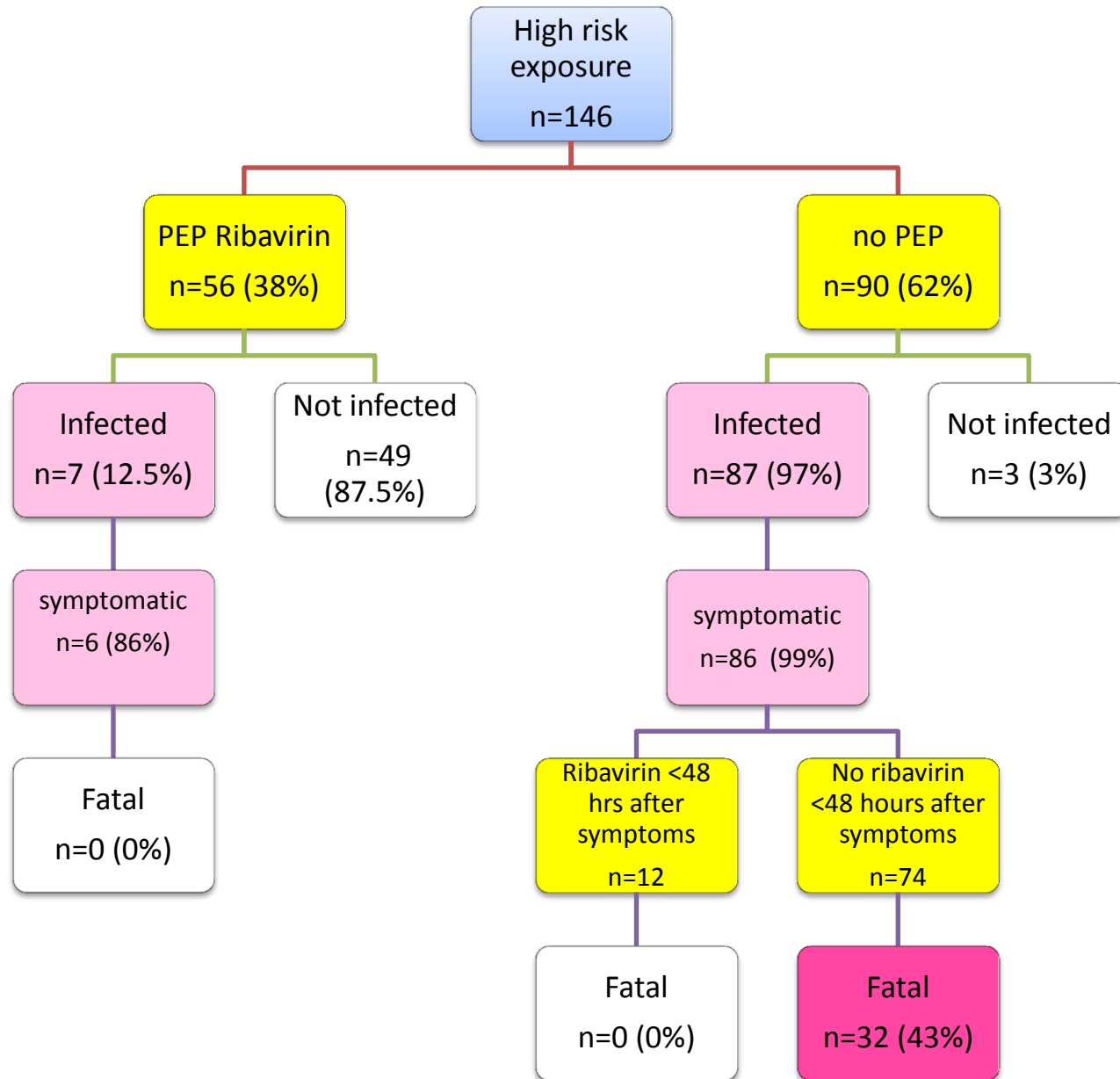


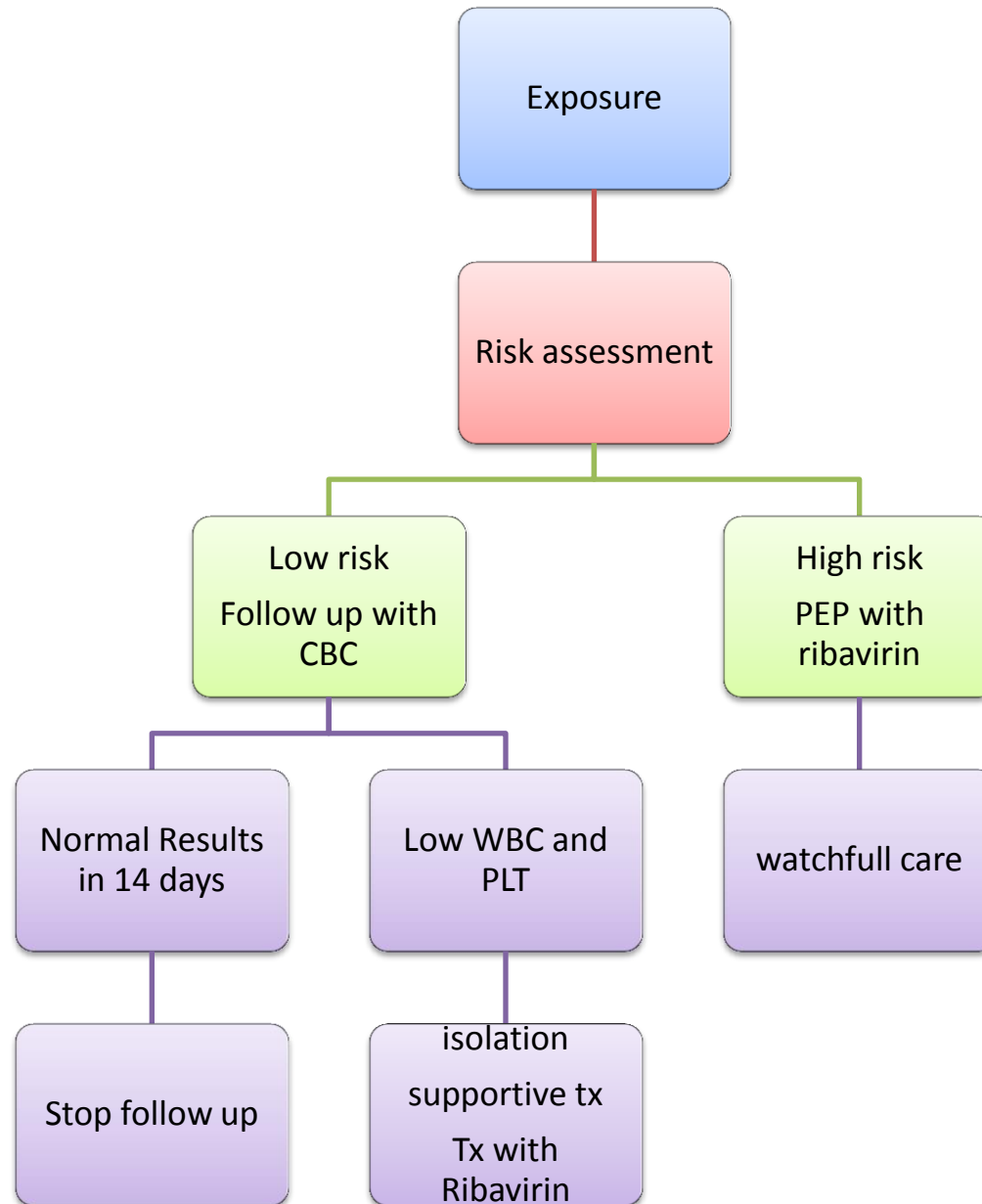
- TUR: Turkey (44 cases)
- PAK: Pakistan (30 cases)
- DEU: Germany (16 cases)
- IRN: Iran (11 cases)
- ZAF: South Africa (9 cases)
- RUS: Russia (8 cases)
- TJK: Tajikistan (7 cases)
- ARE: United Arab Emirates (5 cases)
- MRT: Mauritania (5 cases)
- KAZ: Kazakhstan (4 cases)
- IND: India (3 cases)
- SDN: Sudan (3 cases)
- ALB: Albania (1 case)



● 12 cases ● 8 cases ● 7 cases ● 6 cases ● 5 cases ● 4 cases ● 3 cases ● 2 cases ● 1 case







Sonuçlar

- Maruziyet sonrası yüksek riskli gruplarda ribavirin mutlaka başlanmalıdır.
- Tedavi amaçlı olarak semptomlar başladıktan sonra 48 saat içinde ribavirin başlanmalıdır.

Korunmak için Özet

- Temas ve damlacık önlemlerinin sıkı takibi
- Standart önlemler; kan ve vücut sıvılarının sıkı takibi
 - Entegre strateji
 - El hijyeni
 - Kişisel koruyucu malzeme
 - Kesici ve delici alet kutularının kullanımı
 - Emniyetli enjektör ve benzeri aletler
 - Maruziyet sonrası takip
 - Yönetsel önlemler: protokoller, planlamalar