

Bilimsel Araştırma Serüveni

“Kendim için Dersler”

Önder Ergönül

AGUH Haziran Buluşması

6 Haziran 2015, İstanbul

İçerik

- Çalışacağım konuyu nasıl seçmeliyim?
- Tutkum nereden geliyor?
- Çalışırken nelere dikkat etmeliyim?
 - Meslektaşlarla iletişim
- Çalıştığım konu bir gün biter mi?
- Türkiye’de bilim yapılır mı? Amerika’ya mı gitmeliyim?



Ormanda karřına iki yol çıktı,
hangisini seçersin?

***Kimsenin
ilgilenmediđi
bir konuyla uğraşın***

Edward Wilson



En Uygun Çalışma Alanı?

Gerçek sevgide olduğu gibi, sizin için uygun olan alan, ilginizi çeken, tutku uyandıran ve yaşam boyu kendinizi adamaktan doğacak hazzı vaat eden bir şeydir.



Merak: ilk adım (5nIk)

Ne

Neden

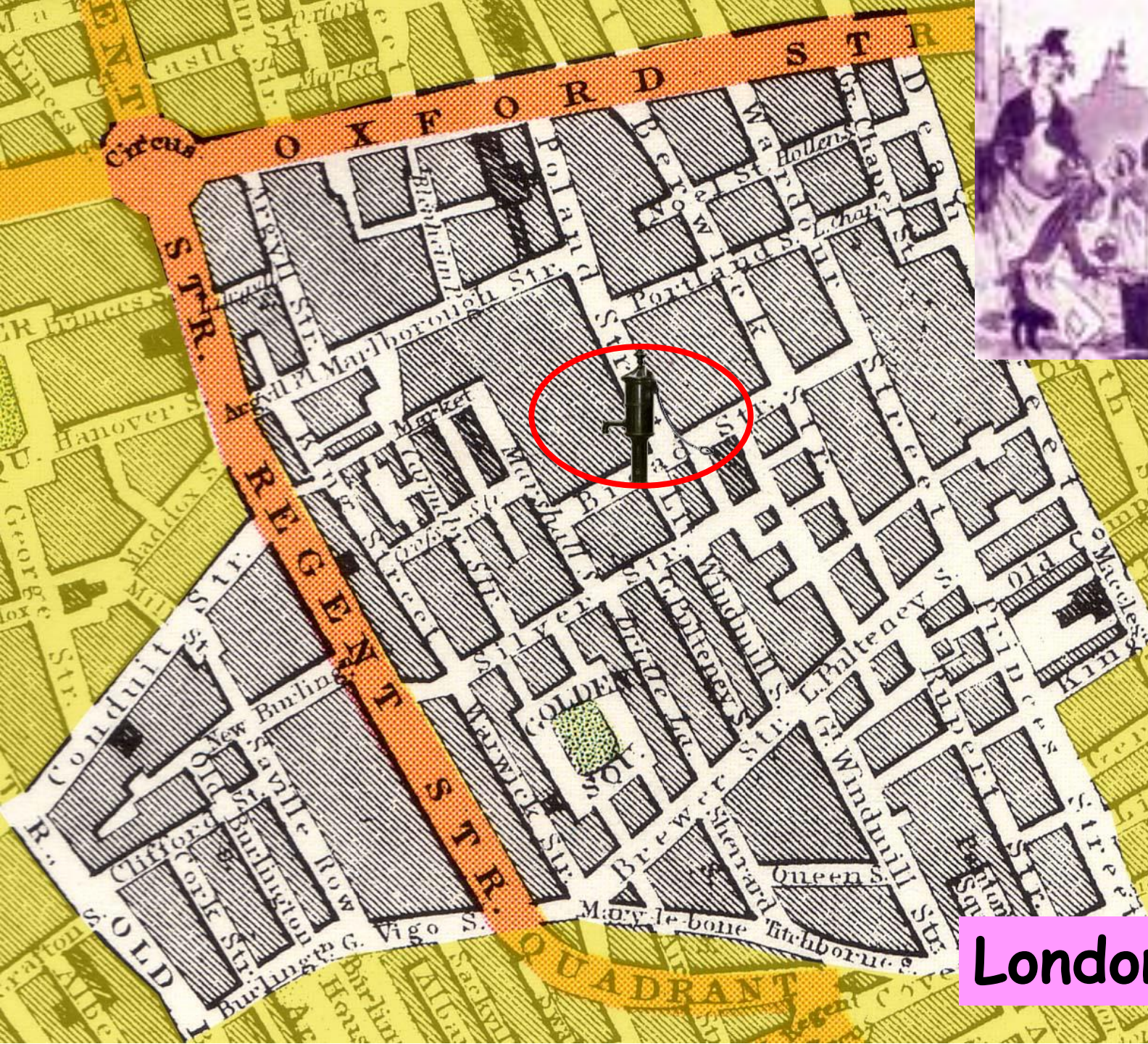
Ne zaman

Nasıl

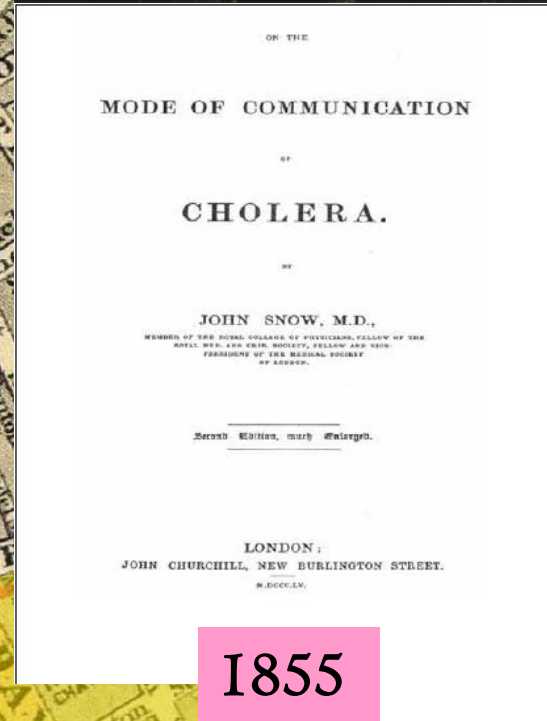
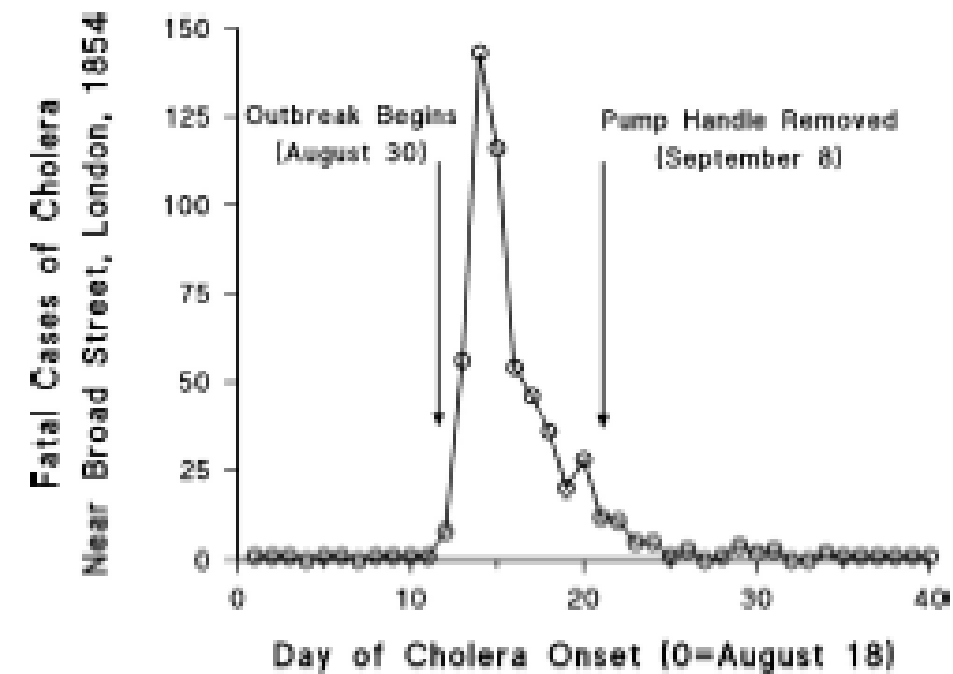
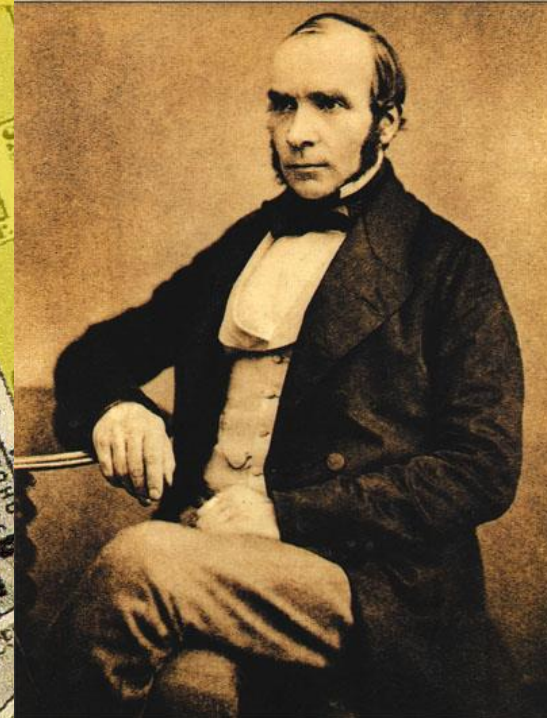
Nerede

Kim

Rudyard Kipling, 1865-1936

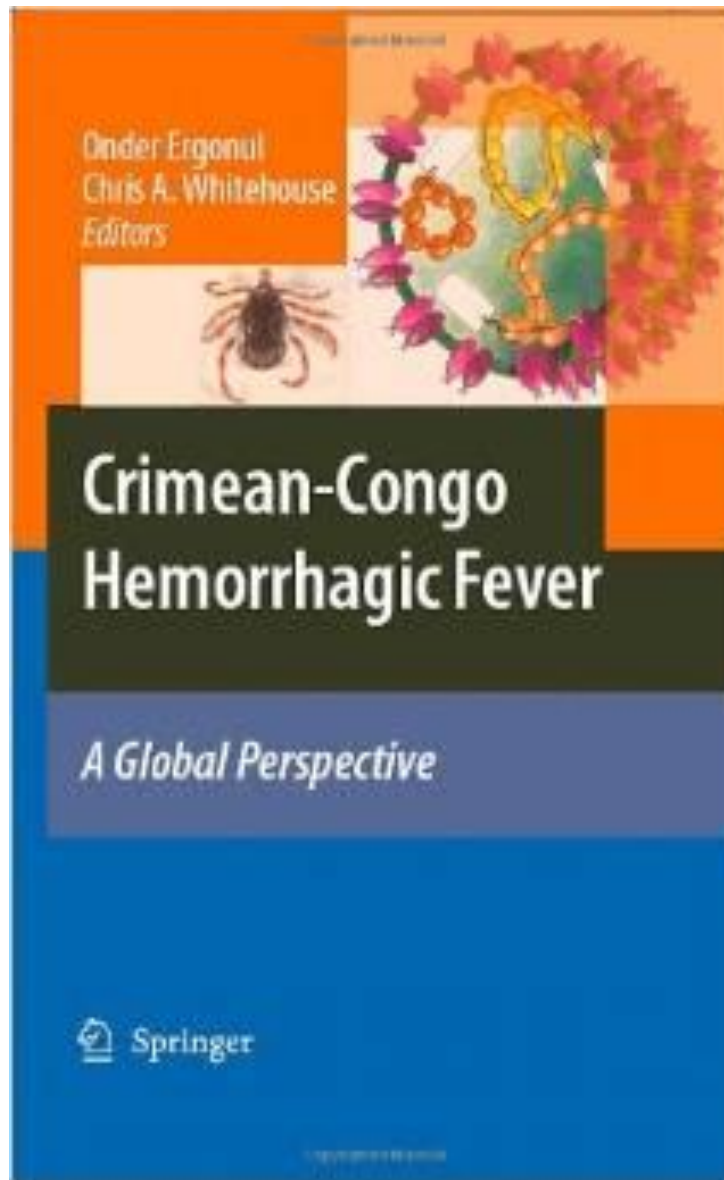


London 1843

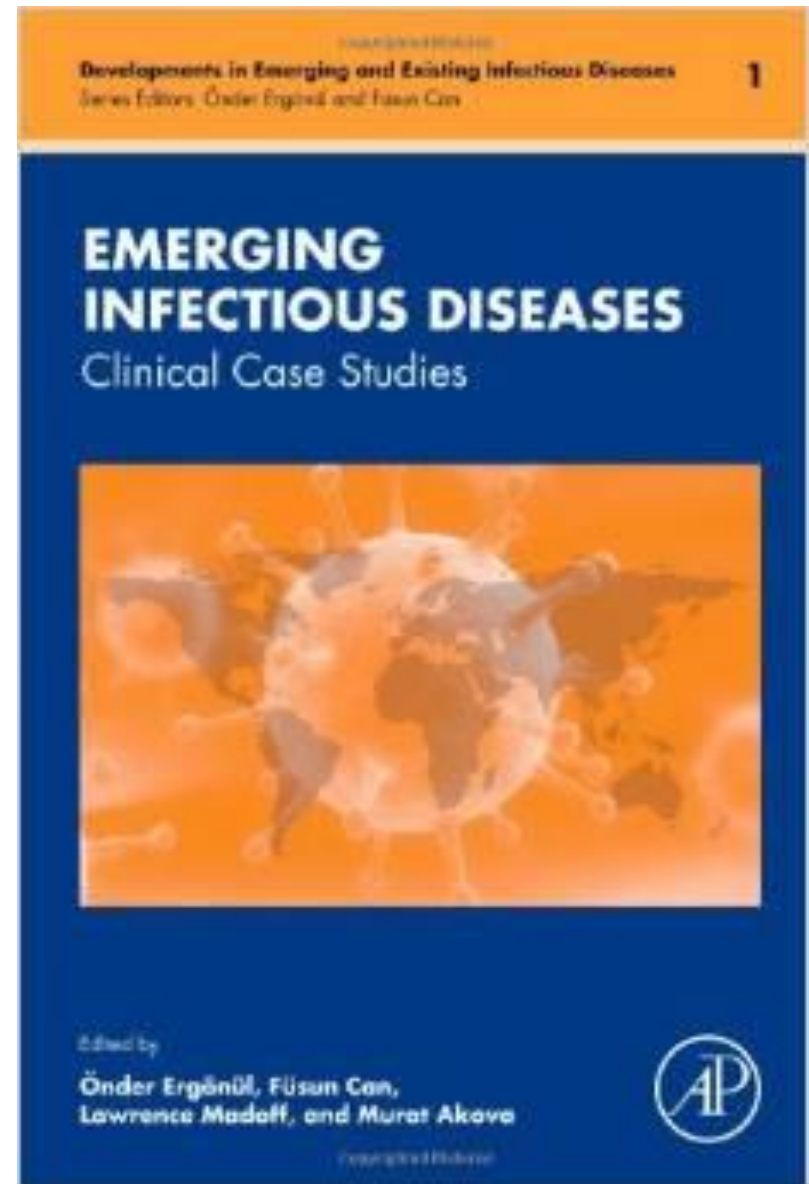


Bir Alanda Çalışmayı Sürdürmek

Onlarca şeyi yüzeysel olarak bilmektense bir şeyi derinlemesine bilmek daha iyidir.



2007, 2015

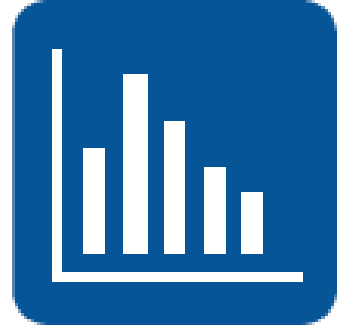
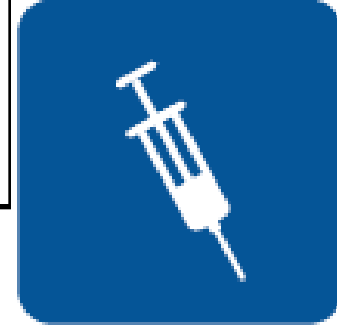
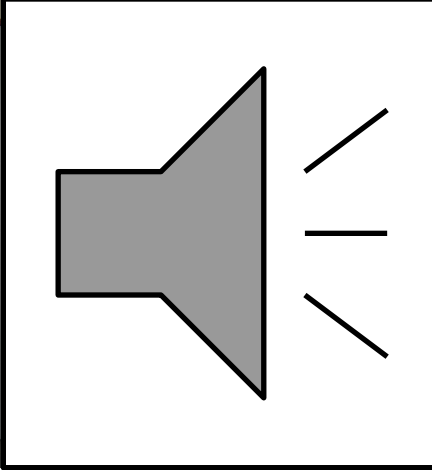


2014

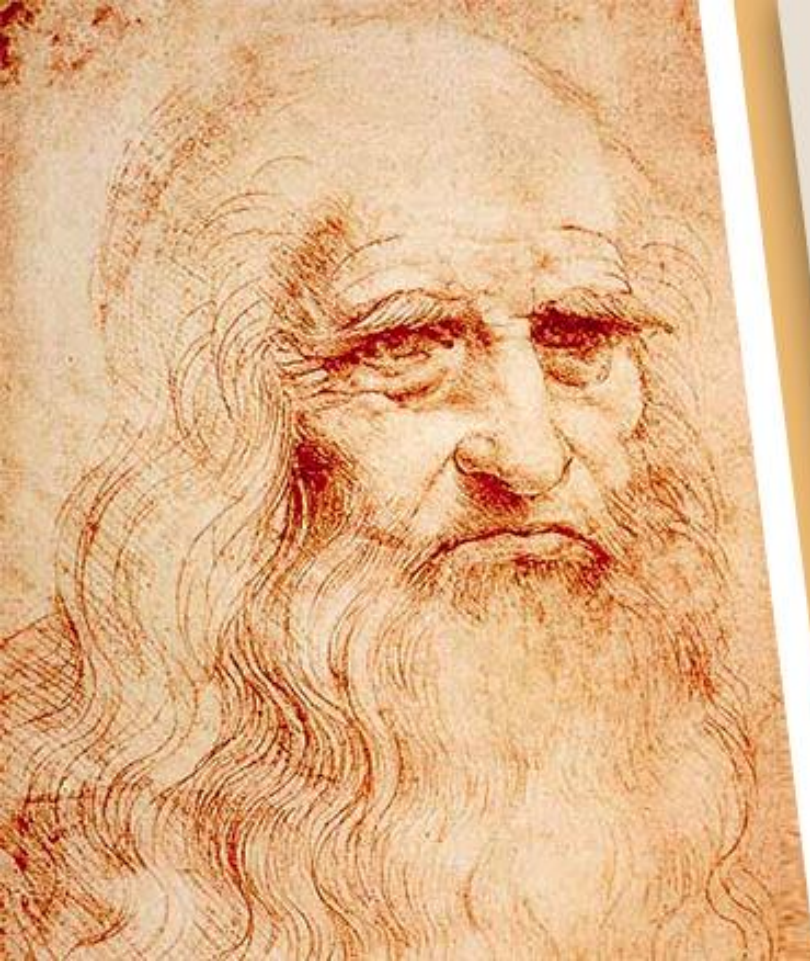


Ekip Çalışması: Üretmek, Keyif Almak, Gelişmek

Ekip Çalışmasını Nasıl Büyütebiliriz?



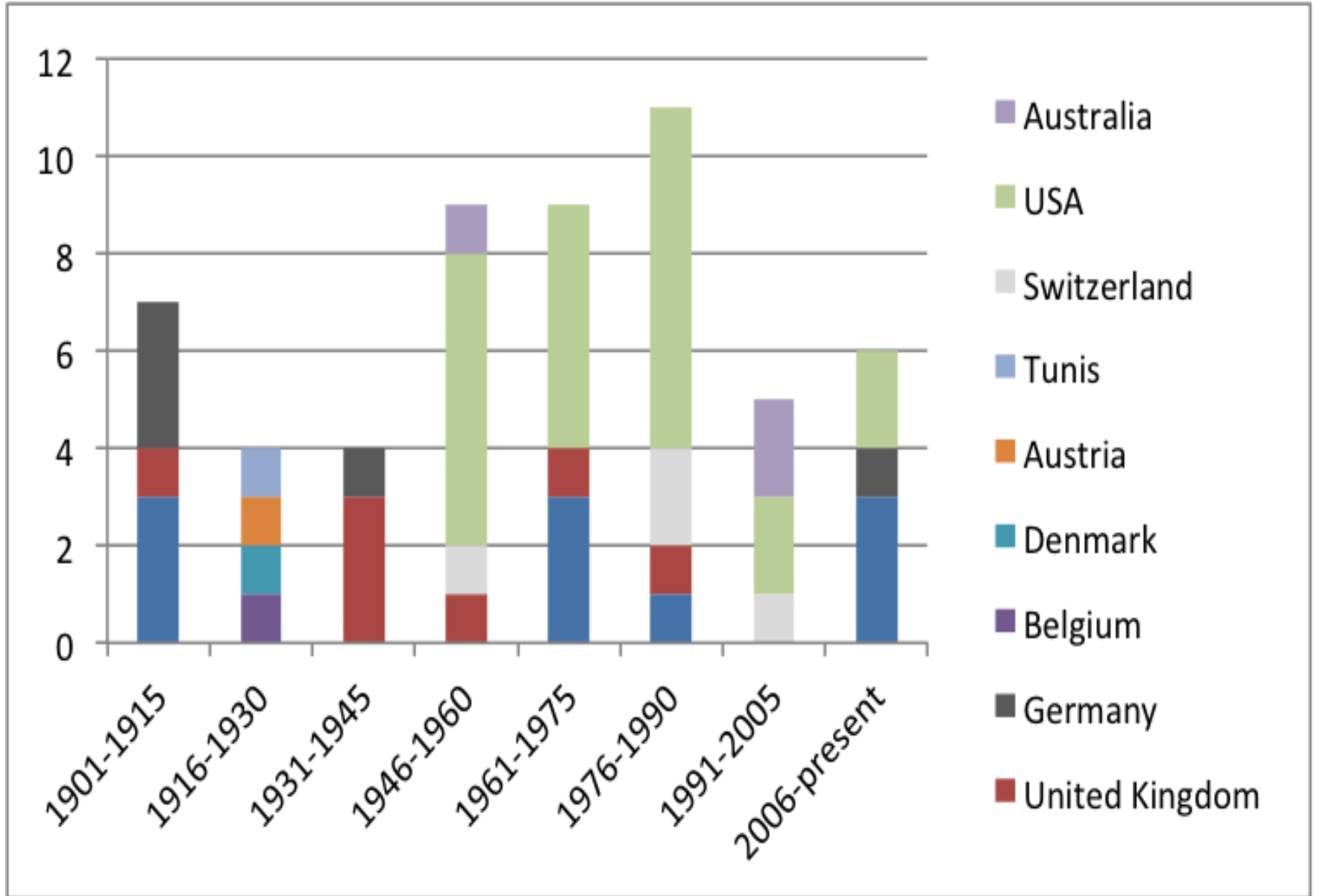
Büyük Resme Bakmak



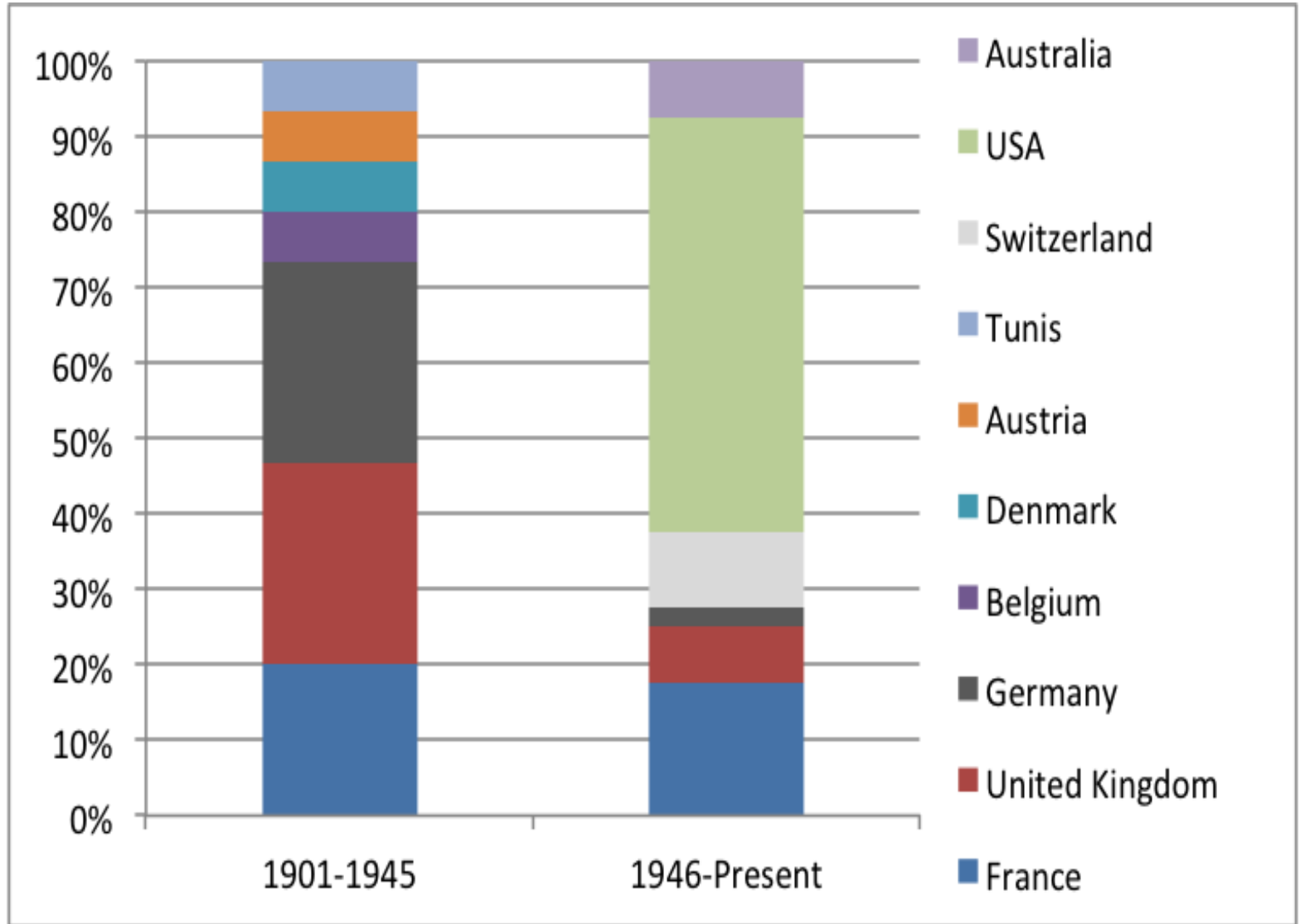
**GÖRMEYİ ÖĞRENİN.
HER ŞEYİN BİRBİRİYLE
BAĞLANTILI OLDUĞUNU
FARK EDECEKSİNİZ.**

**LEONARDO DA VINCI
(15 NİSAN 1452 - 2 MAYIS 1519)**

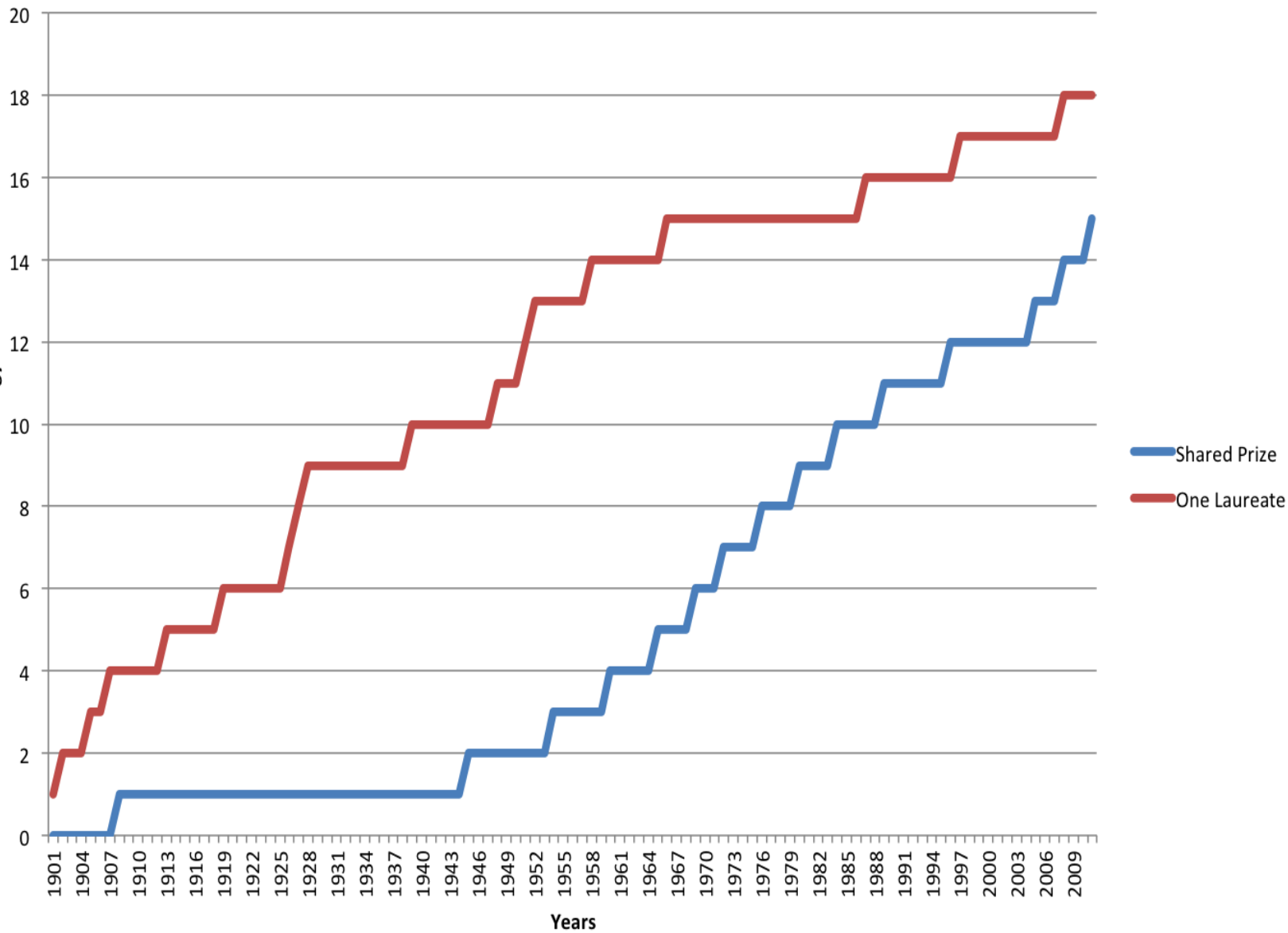
İnfeksiyon Hastalıkları, Klinik Mikrobiyoloji ve İmmünoloji Alanında Nobel Ödülleri



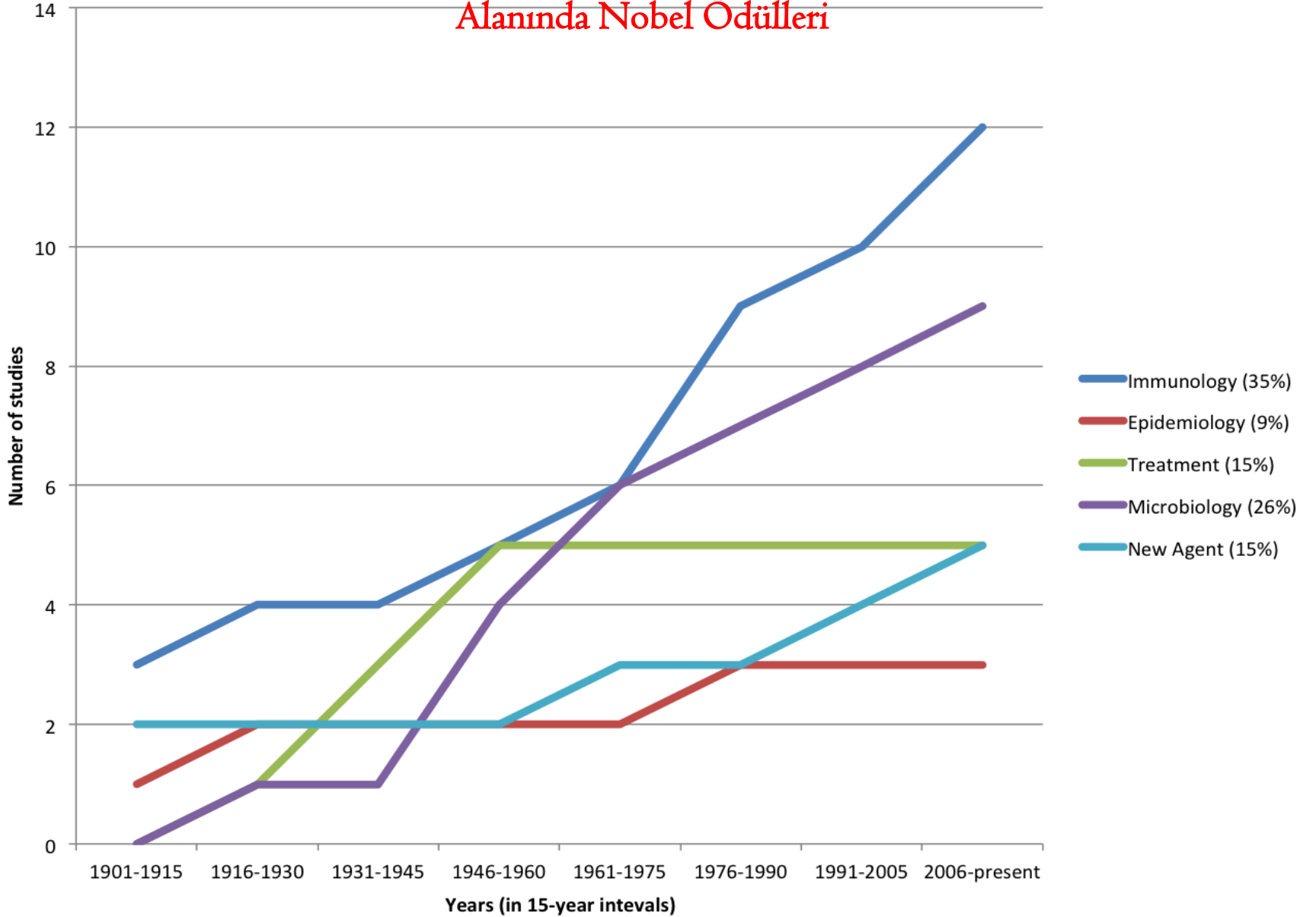
Bilimsel üretim, dünyadaki gelişmelerden, siyasetten etkilenir:
İnfeksiyon Hastalıkları, Klinik Mikrobiyoloji ve İmmünoloji
Alanında Nobel Ödülleri



Number of Nobel Prizes in Fields of Infectious Diseases, Clinical Microbiology and Immunology



Bilimsel üretim, dünyadaki gelişmelerden, siyasetten etkilenir:
İnfeksiyon Hastalıkları, Klinik Mikrobiyoloji ve İmmünoloji
Alanında Nobel Ödülleri



Kariyeriniz Nasıl Şekillenir?

- Hayatınızda Etki Yapan Faktörler
 - Matematik
 - Sosyal bilimler (sosyoloji, psikoloji)
 - Tıp
- Hepsinin kökeninde
 - Merak
 - İletişim
 - üretim

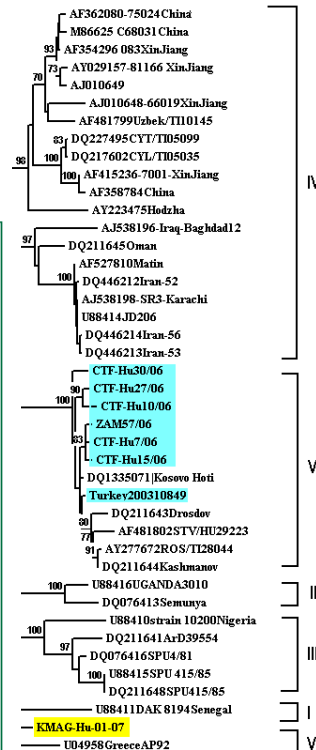
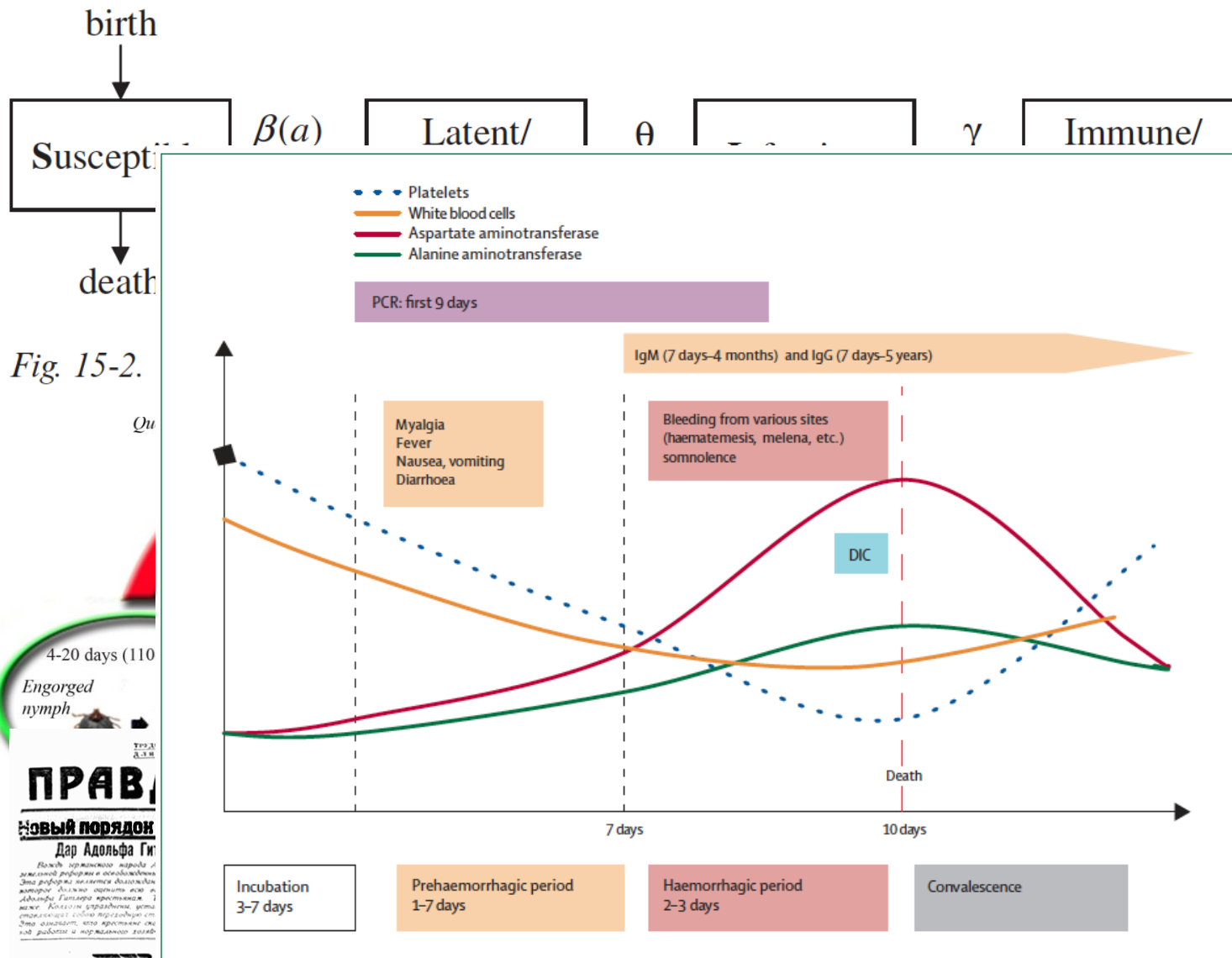


Figure 3: Clinical and laboratory course of CCHF
DIC=disseminated intravascular coagulation.

Tick Borne Diseases and Climate

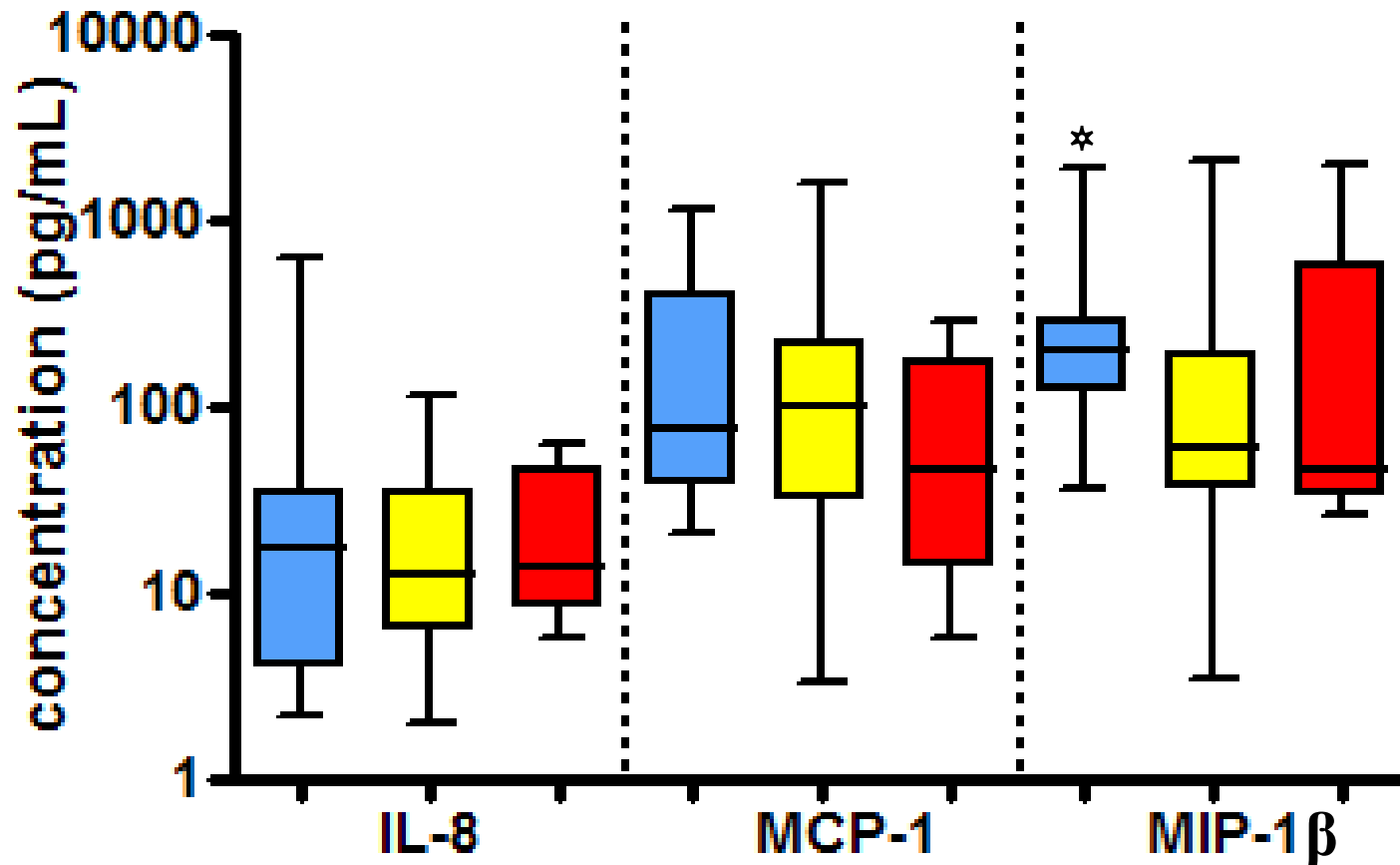
A complex network of environmental and human factors:
independently,
indirectly linked,
synergistically, or
antagonistically

Abiotic and biotic environmental changes: increase the abundance of infected ticks

Changes in human activities associated with increases in greater contact between people and tick-infested forests.

Results – group 1

chemokines



* Significant increase in mild cases.



Human RNA viruses

jointly sponsored by ICGEB

6 – 8 October 2014 | Istanbul, Turkey

Etik Değerlere Bağlı Kalmak

- Karşılaştığımız etik sorunlar nelerdir?
- Türkiye’de etik değerler, vicdan ve adalet
- Uzlaşma kültürü

Ribavirin: A Broad Spectrum Antiviral

Only Drug for VHFs

Arenaviridae
Lassa Fever
South America HF
Bunyaviridae
Hanta
Rift Valley
CCHF

Ribavirin is effective in vitro

Effective in vitro

Watts DM, et al. Am J Trop Med Hyg 1989

Inhibits viremia among rats

Tignor GH, et al. Antiviral Res 1993

The most effective among the alternatives

Paragas J, et al. Antiviral Res 2004

Clinical Observations: Case series, historical control

Author, year	Cases	Fatality in ribavirin group	Fatality in no ribavirin group
Fisher-Hoch 1995	3 SÇ	0/3 (0%)	-
Mardani 2003	69	42/139 (30%)	22/48 (46%)
Ergonul 2006	45	0/22 (0)	1/23 (4.3%)
Ozkurt 2006	26	2/22 (9%)	4/38 (10.5%)
Elaldı, 2009	218	126 (7.1%)	92 (11.9%)

DEBATE (see Elaldi N et al, Efficacy of oral ribavirin treatment in Crimean-Congo haemorrhagic fever: A quasi-experimental study from Turkey. *Journal of Infection* 2009; 58: 238–244)

Biases and misinterpretation in the assessment of the efficacy of oral ribavirin in the treatment of Crimean–Congo hemorrhagic fever

Nezaket Kurallarını Her Zaman Gözetiniz

Response to Ergonul: Scientific Evidence Versus Personal Beliefs In Crimean-Congo Haemorrhagic Fever Treatment

Dear editor,

We read Dr Ergonul's detailed letter with great interest, however, it is impossible to agree with any of his comments due to the reasons below.

P-value and sample size are completely different things than the author thinks

We would like to refer Dr. Ergonul to some basic statistics textbooks because he has a misunderstanding of the logic of calculation of sample size and power.¹⁻³ Using a statistical software does not replace theoretical knowledge, nowadays, any statistical software can easily crunch some numbers as a sample size or power whenever you provide the necessary information. However, a wrong interpretation can lead to misleading conclusions like in this letter. First, sample size is *not* the necessary number that would "make" a finding statistically significant as used in this letter.^{1,2} In our study,

to detect.^{3,4} When calculated correctly, our study has 80% power to detect a 10% difference between the study arms (or 94% power to detect a 20% difference), this 10% difference was deemed to be the minimum effect size by us to prove the efficacy of a drug in a non-randomized study like ours. It is well known that even a small amount of uncontrolled confounding (which is the case in most observational studies) can result in an effect size of 20%–30%.⁵

As we have replied in detail above, our study does not suffer from serious design problems as alleged by the author, our statistical results are consistent and our power is sufficient. Actually, we are adamant that our results should be a warning to clinicians that the author's claims of ribavirin's efficacy does not depend on any sound scientific evidence but biased personal views of the author which could result in harm to the patients.

Problems in Study Design: What We Learned?

A. Study Design

1. Inclusion criteria
 1. Severity
 2. Confounding by indication
2. Number of days from onset of symptoms
 1. Prehemorrhagic
 2. Hemorrhagic
3. Ineffective application:
GIS symptoms in oral use (hematemesis)
4. Duration of treatment

B. Statistical Analysis

1. P value is not everything; sample size is important
2. Meta-analysis: oranges & apples; early vs late

Doğruların Kabul Edilmesi Zaman Alır

Bilimciler sezerek, tahminler yürüterek, denemeler yaparak ve daha fazla bilgi toplayarak ellerinden geldiğince ilerlerler. Ta ki, sağlam açıklamalar bir araya getirilene ve bazen çabucak bazen de yalnızca uzun bir dönemden sonra, bir fikir birliği oluşana dek uğraşırlar.

Popper

The Logic of Scientific Discovery

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

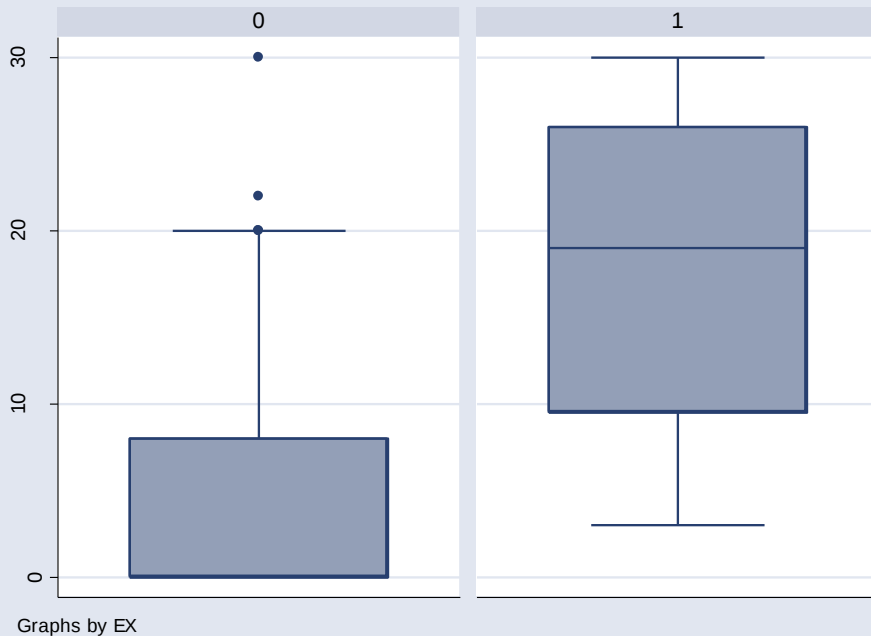
Abbreviations: CFR, case-fatality rate; CS, corticosteroid; RBV, Ribavirin; SSI, severity scoring index.

Confounding by indication

Fresh frozen plasma

Survived cases

fatal cases

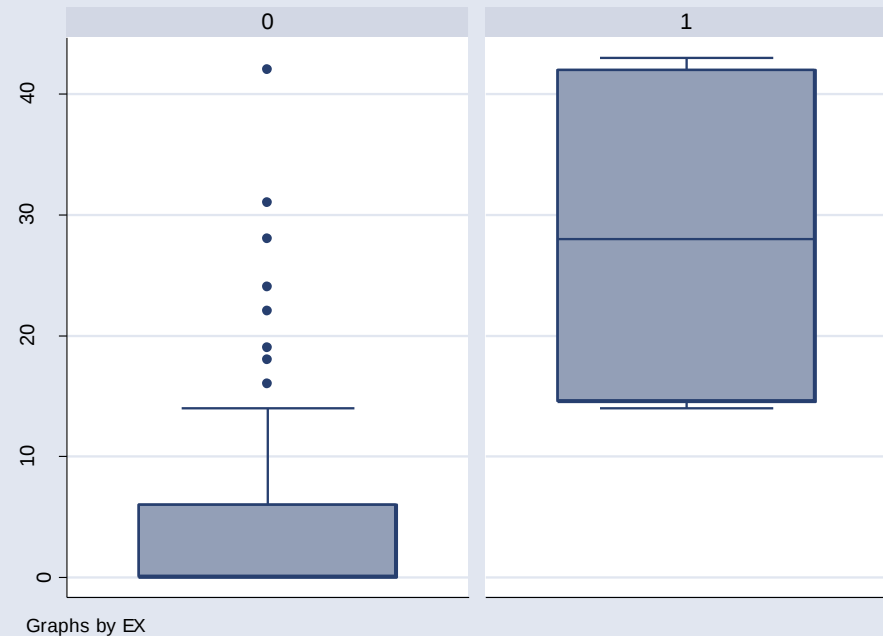


$p=0.002$

Thrombocyte suspension

Survived cases

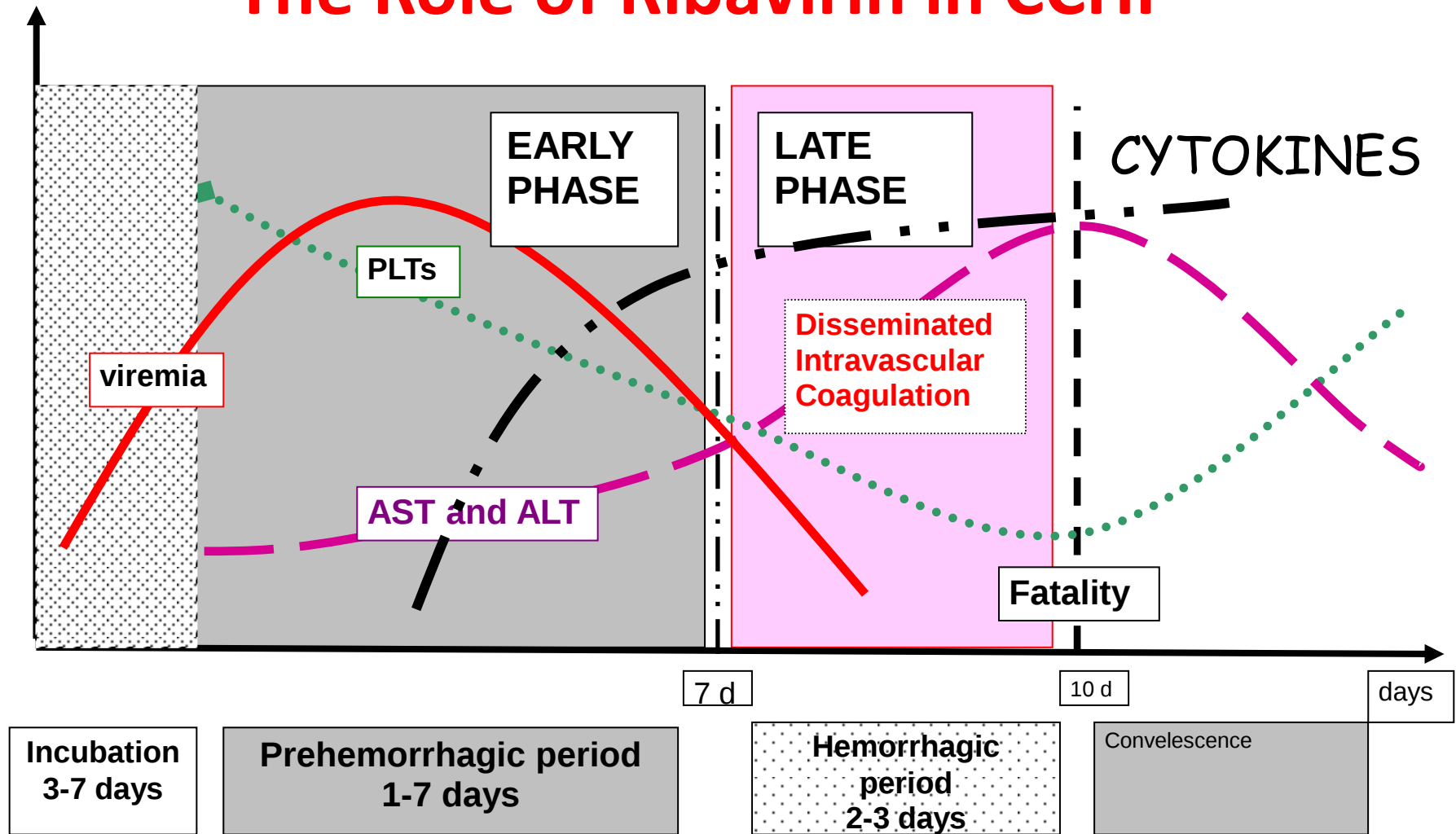
fatal cases



$p=0.001$

Ergonul, et al. *CMI* 2006

The Role of Ribavirin in CCHF



Ribavirin could be more effective in early phase

Early use of ribavirin is beneficial in Crimean-Congo hemorrhagic fever

The study included patients who were hospitalized between 2005 and 2010 at the Infectious Diseases Department of Kastamonu Dr. Münif İslamoğlu Hospital in the Kastamonu Province of Turkey. In total, 342 confirmed cases of Crimean-Congo hemorrhagic fever (CCHF) were included in the study.

The overall case fatality rate was 2.9%. In multivariate analysis, the patients that were admitted to the hospital within 2 days after onset of symptoms (odds ratio [OR]=5, confidence interval [CI] 0.31-0.86) and received oral ribavirin (OR=0.12, CI 0.05-0.26) were less likely to become more severe cases and less likely to be transferred to the tertiary care centers.

Etik Değerlere Bağlı Kalınız ve Bildiğiniz Konularda Söz Söyleyiniz

Perspective

Ribavirin is not effective against Crimean–Congo hemorrhagic fever: observations from the Turkish experience[☆]

Bahadır Ceylan, Aylin Calıca, Oznur Ak, Yasemin Akkoyunlu^{*}, Vedat Turhan

Faculty of Medicine, Department of Infectious Diseases and Clinical Microbiology, Bezmialem Vakıf University, Vatan Cad., Fatih 34093, Istanbul, Turkey

Table 1

CCHF-related mortality rate and ribavirin use in Turkey, 2004–2007

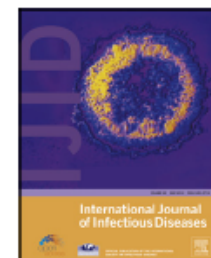
Year	Total number of CCHF patients	Number of patients using ribavirin	Mortality rate
2004	249	169 (67.9%)	5.2%
2005	266	58 (21.8%)	4.9%
2006	438	71 (16.2%)	6.2%
2007	717	85 (11.8%)	4.6%



Contents lists available at ScienceDirect

International Journal of Infectious Diseases

journal homepage: www.elsevier.com/locate/ijid



Letter to the Editor

Evidence supports ribavirin use in Crimean-Congo hemorrhagic fever



The Perspective “Ribavirin is not effective against Crimean-

the use of ribavirin were to be infected with the CCHF virus (which I sincerely hope never occurs), would they reject ribavirin treatment? Then, remember the Hippocratic Oath: *primum non nocere*. So, why not give this treatment to the patients?

Conflict of interest: No conflict of interest to declare.

If the physicians who are against the use of ribavirin were to be infected with the CCHF virus (which I sincerely hope never occurs), would they reject ribavirin treatment?

Galen: *primum non nocere*.

So, why not give this treatment to the patients?

- WHO**
- WHO Medicines**
- The WHO Essential Medicines Library**
- About
- List of Medicines**
 - in alphabetical order
 - by section
- WHO Model Formulary**
 - by section
- Selection of Essential Medicines**

ribavirin
[Go back to Medicine List](#)

MODEL LIST INFORMATION			
SECTION	FORMULATION	DISEASE/INDICATION	RATIONALE FOR INCLUSION
06.04.03.00 Other antivirals	Dosage form and strength Injection for intravenous administration: 1000 mg and 800 mg in 10-ml phosphate buffer solution. Oral solid dosage forms: 200 mg; 400 mg; 600 mg. ATC Code Type of List Core List		Date added: 2007.
MODEL FORMULARY INFORMATION			
GENERAL INFORMATION			

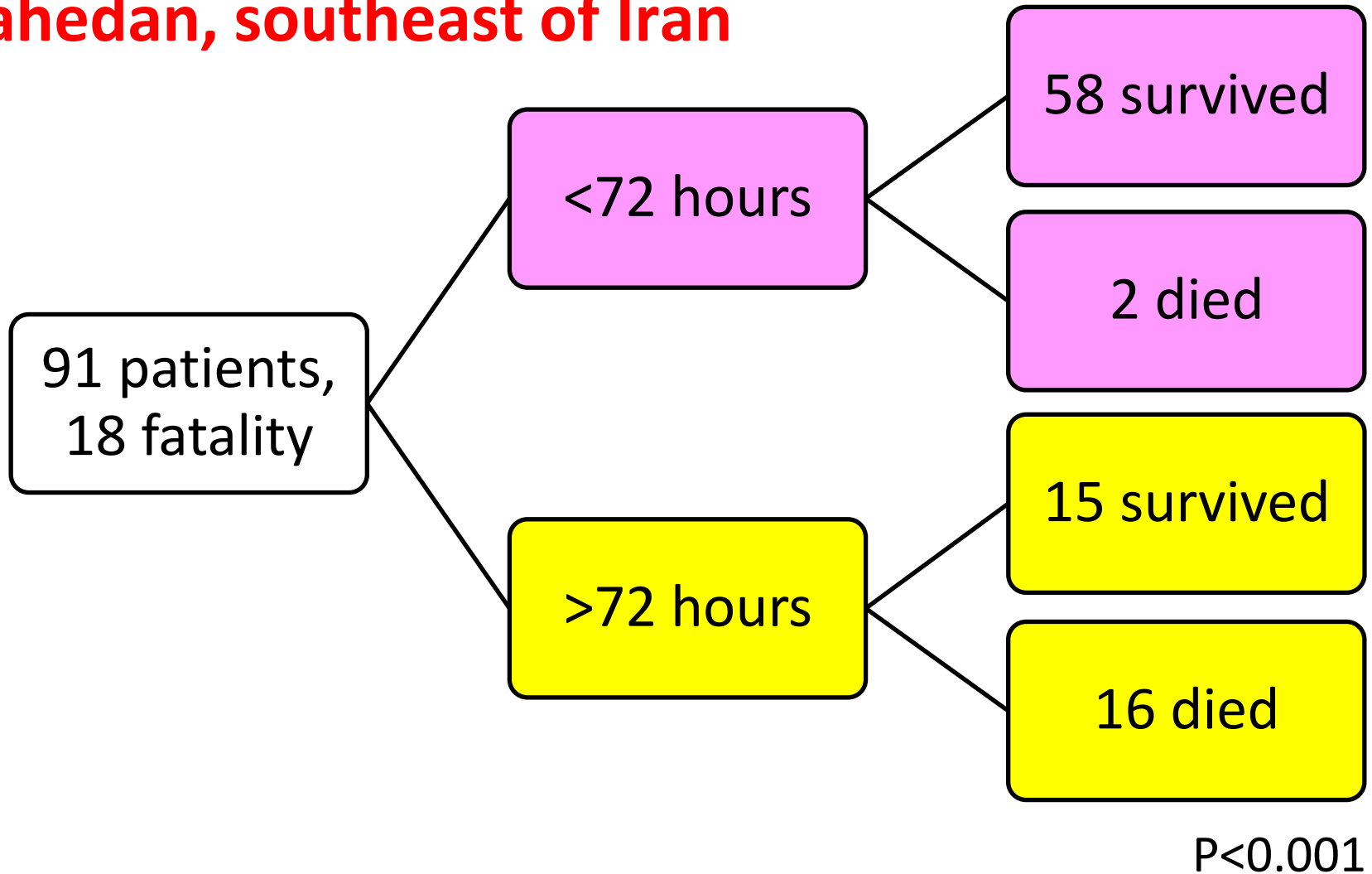
TABLE 14A – ANTIVIRAL THERAPY (NON-HIV)*

VIRUS/DISEASE	DRUG/DOSAGE	SIDE EFFECTS/COMMENTS
Adenovirus: Cause of RTIs including fatal pneumonia in children & young adults and 60% mortality in transplant pts (CID 43:331, 2006). Frequent cause of cystitis in transplant patients. Findings include: fever, ↑ liver enzymes, leukopenia, thrombocytopenia, diarrhea, pneumonia, or hemorrhagic cystitis.	In severe cases of pneumonia or post HSCT ¹ : Cidofovir • 5 mg/kg/wk x 2 wks, then q 2 wks + probenecid 1.25 gm/M ² given 3hrs before cidofovir and 3 & 9 hrs after each infusion • Or 1 mg/kg IV 3x/wk. For adenovirus hemorrhagic cystitis (CID 40:199, 2005; Transplantation. 2006; 81:1398): Intravesical cidofovir (5 mg/kg in 100 mL saline instilled into bladder).	Successful in 3/8 immunosuppressed children (CID 38:45, 2004) & 8 of 10 children with HSCT (CID 41; 1812, 2005). ↓ in virus load predicted response to cidofovir.
Coronavirus—SARS-CoV (Severe Acute Respiratory Distress Syn.) (see CID 36:1420, 2004) A new coronavirus, isolated Spring 2003 (NEJM 348:1953 & 1967, 2003) emerged from China & spread from Hong Kong to 32 countries. Effective infection control guidelines controlled the epidemic.	Therapy remains predominantly supportive care. Therapy tried or under evaluation (see Comments): Ribavirin —ineffective. Interferon alfa ± steroids—small case series. Pegylated IFN-α effective in monkeys. Value of corticosteroids alone unclear. Inhaled nitric oxide improved oxygenation & improved chest x-ray (CID 39:1531, 2004).	Other coronaviruses (HCoV-229E, OC43, NL63, etc.) implicated as cause of croup, asthma exacerbations, & other RTIs in children (CID 40:1721, 2005; JID 191:492, 2005). May be associated with Kawasaki disease (JID 191:489, 2005).
Enterovirus—Meningitis: most common cause of aseptic meningitis. PCR or CSF valuable for early dx (Scand J Inf Dis 34:359, 2002) but ↓ sensitivity >2 days of symptoms. PCR on feces pos. in 12/13 specimens, 5–16 days after clinical onset (CID 40:502, 2003).	No rx currently recommended; however, pleconaril (VP 63843) still under investigation.	No clinical benefit demonstrated in double-blind placebo-controlled study in 21 infants with enteroviral aseptic meningitis (PIDJ 22:335, 2003). Large Phase II study underway for enteroviral sepsis syndrome (www.NIH.gov).
Hemorrhagic Fever Virus Infections: For excellent reviews, see Med Lab Observer, May 2005, p. 16, Lancet Infectious Disease Vol 6 No 4. Congo-Crimean Hemorrhagic Fever (HF) (CID 39:284, 2004) Tickborne; symptoms include N/V, fever, headache, myalgias, & stupor (1/3). Signs: conjunctival injection, hepatomegaly, petechiae (1/3). Lab: ↓ platelets, ↓ WBC, ↑ ALT, AST, LDH & CPK (100%).	Oral ribavirin , 30 mg/kg as initial loading dose & 15 mg/kg q6h x 4 days & then 7.5 mg/kg x 6 days (WHO recommendation) (see Comment). Reviewed Antiviral Therapy 78:181, 2008.	3/3 healthcare workers in Pakistan had complete recovery (Ln 346:472, 1995) & 61/69 (89%) with confirmed CCHF rx with ribavirin survived in Iran (CID 36:1613, 2003). Shorter time of hospitalization among ribavirin treated pts (7.7 vs. 10.3 days), but no difference in mortality or transfusion needs in study done in Turkey (J Infection 52: 207-215, 2006)
Ebola/Marburg Virus (Ebolavirus) Severe outbreak of Ebola in Angola 308 cases with 277 deaths by 5/3/05 (NEJM 352:2155, 2005; LnID 5:331, 2005). Major epidemic of Marburg 1998-2000 in Congo & 2004-5 in Angola (NEJM355:866, 2006)	No effective antiviral rx (J Infect Dis 192: 2006).	Oral infected guinea pigs & chimps that came in contact with other dead animal carcasses (Science 303:387, 2004). Marburg reported in African Fruit Bat, <i>Rousettus aegyptiacus</i> (PLoS ONE, Aug 22, 2007).
With pulmonary syndrome: Hantavirus pulmonary syndrome, "sin nombre virus"	No benefit from ribavirin has been demonstrated (CID 39:1307, 2004).	Acute onset of fever, headache, myalgias, non-productive cough, thrombocytopenia and non-cardiogenic pulmonary edema with respiratory insufficiency following exposure to rodents.
With renal syndrome: Lassa, Venezuelan, Korean, HF, Sabia, Argentinian HF, Bolivian HF, Junin, Machupo	Oral ribavirin , 30 mg/kg as initial loading dose & 15 mg/kg q6h x 4 days & then 7.5 mg/kg x 6 days (WHO recommendation) (see Comment).	Toxicity low, hemolysis reported but recovery when treatment stopped. No significant changes in WBC, platelets, hepatic or renal function. See CID 36:1254, 2003, for management of contacts.

¹ HSCT = Hematopoietic stem cell transplant

* See page 3 for abbreviations. NOTE: All dosage recommendations are for adults (unless otherwise indicated) and assume normal renal function.

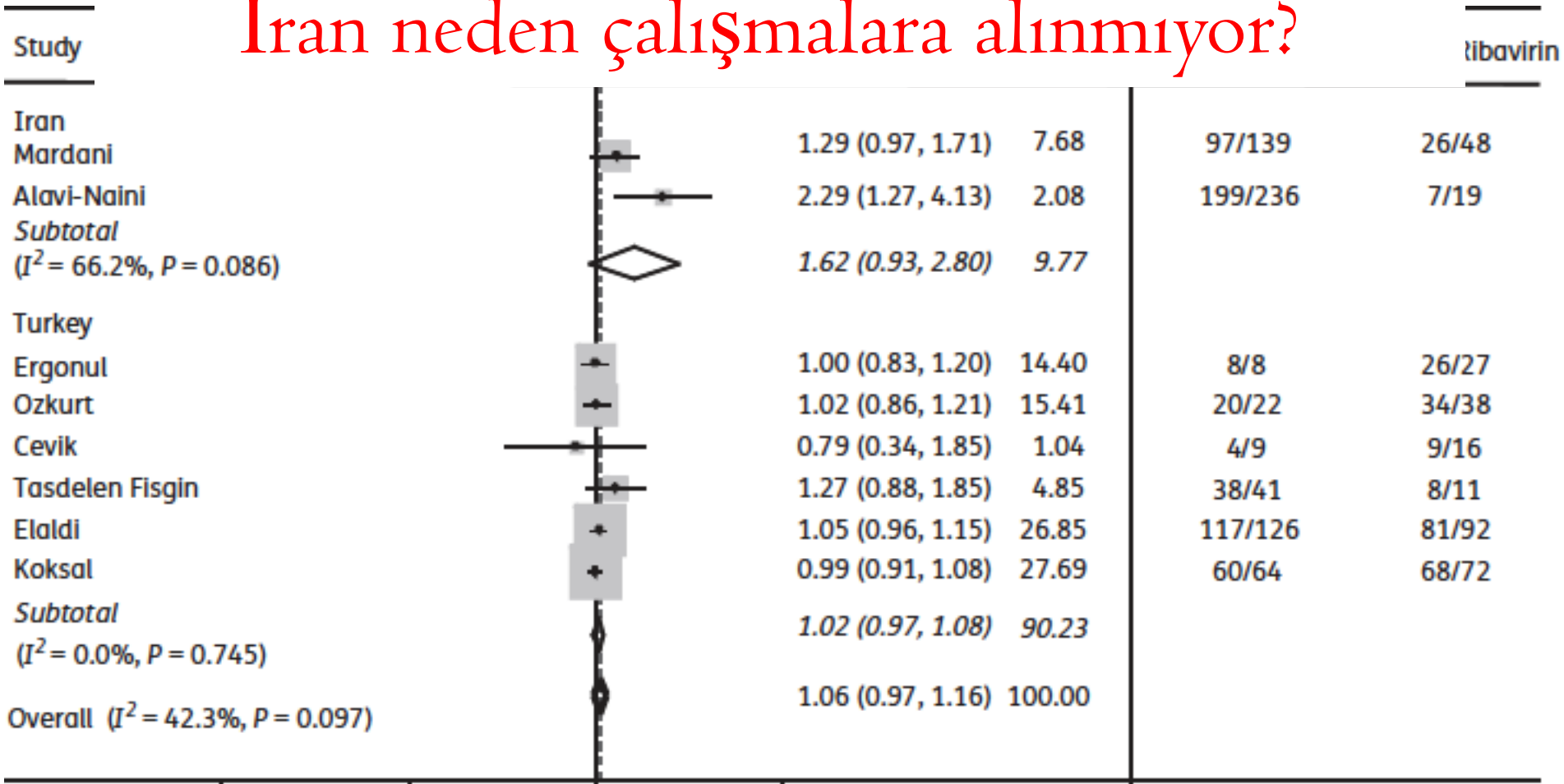
Early Ribavirin Use in CCHF: Zahedan, southeast of Iran



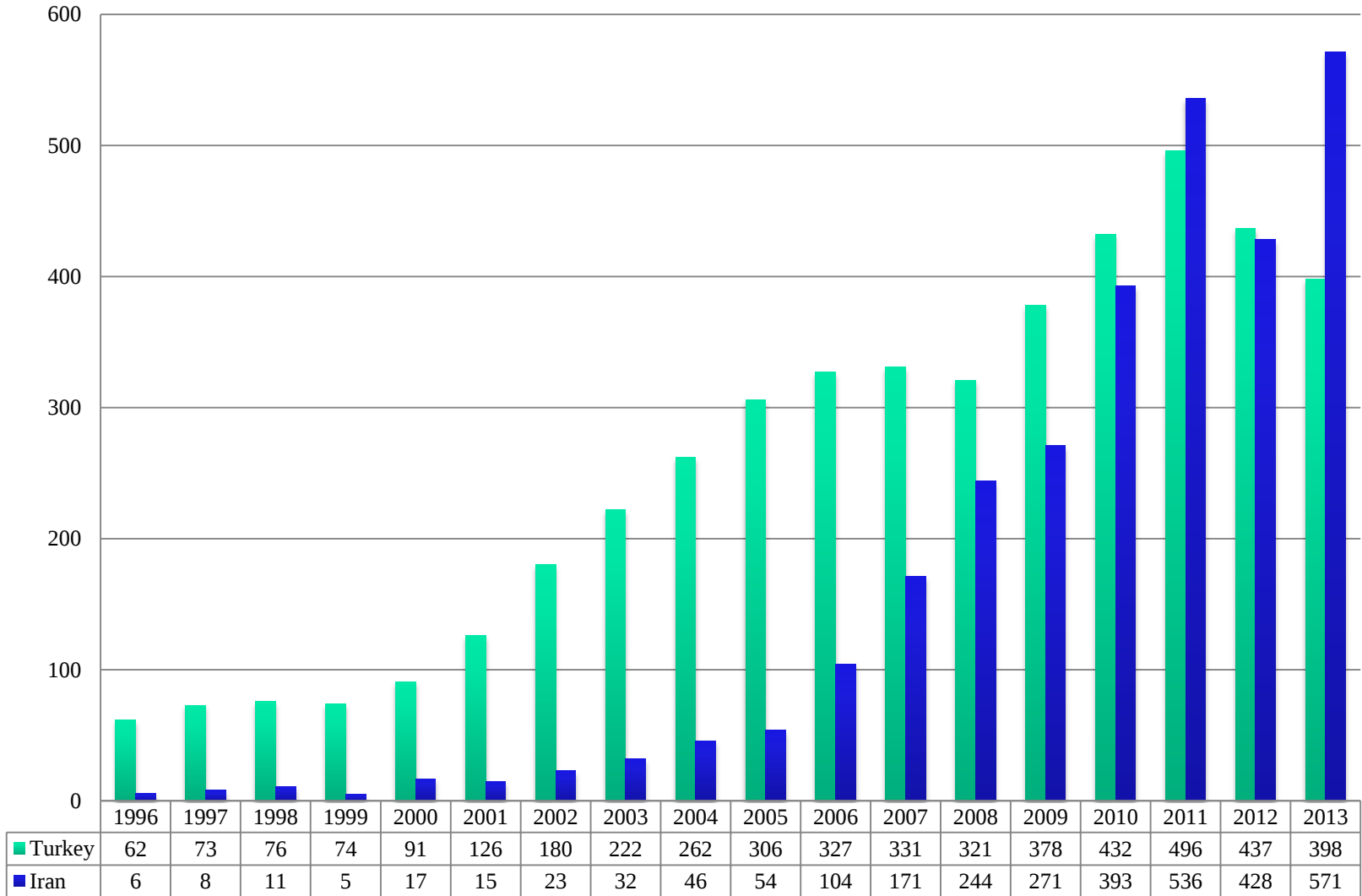
Ribavirin for patients with Crimean–Congo haemorrhagic fever: a systematic review and meta-analysis

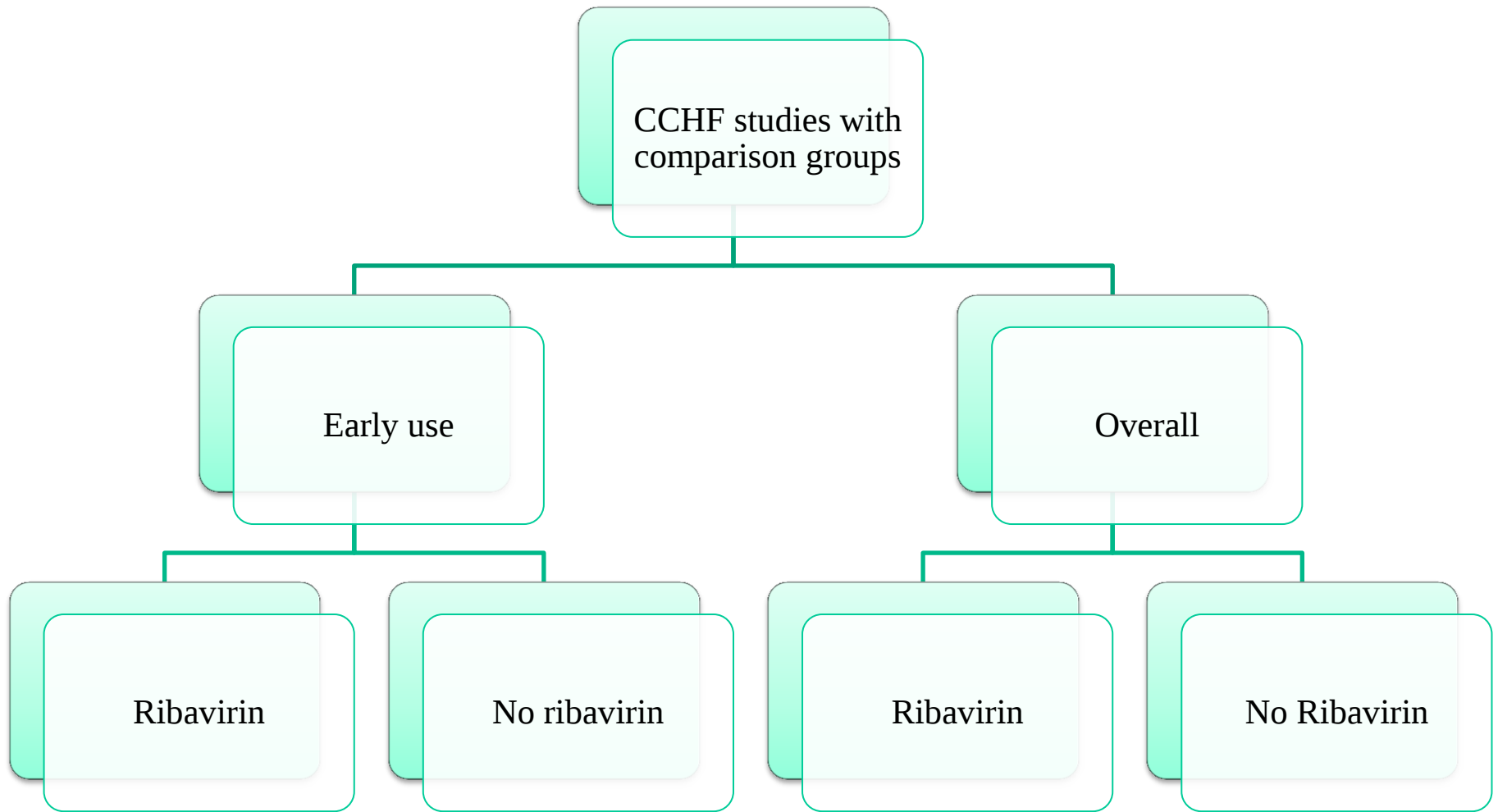
Önyargılardan arınmak:

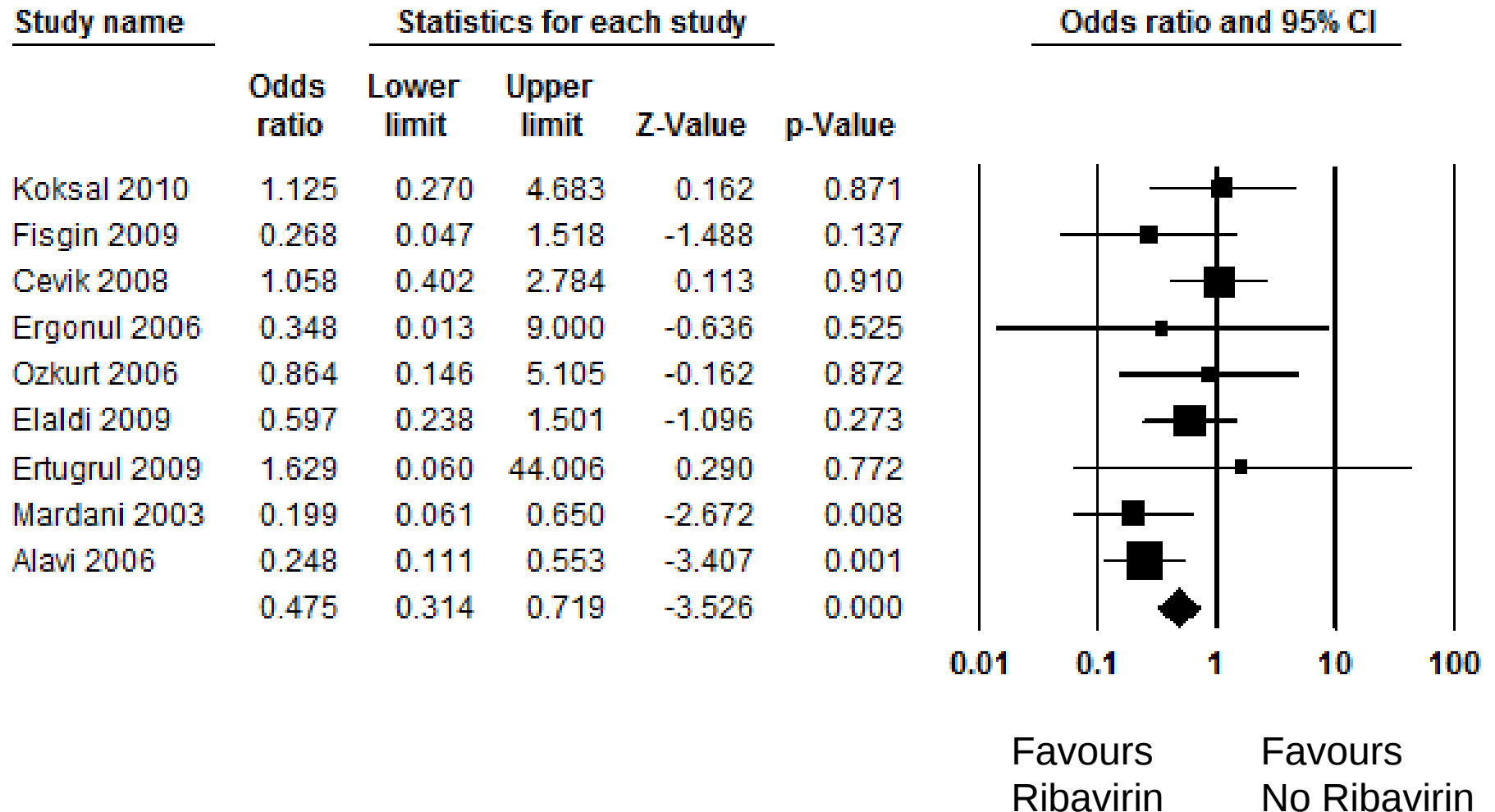
İran neden çalışmalara alınmıyor?



İnfeksiyon Hastalıkları Yayın Sayısında 2011 itibariyle İran Türkiye'yi geçti

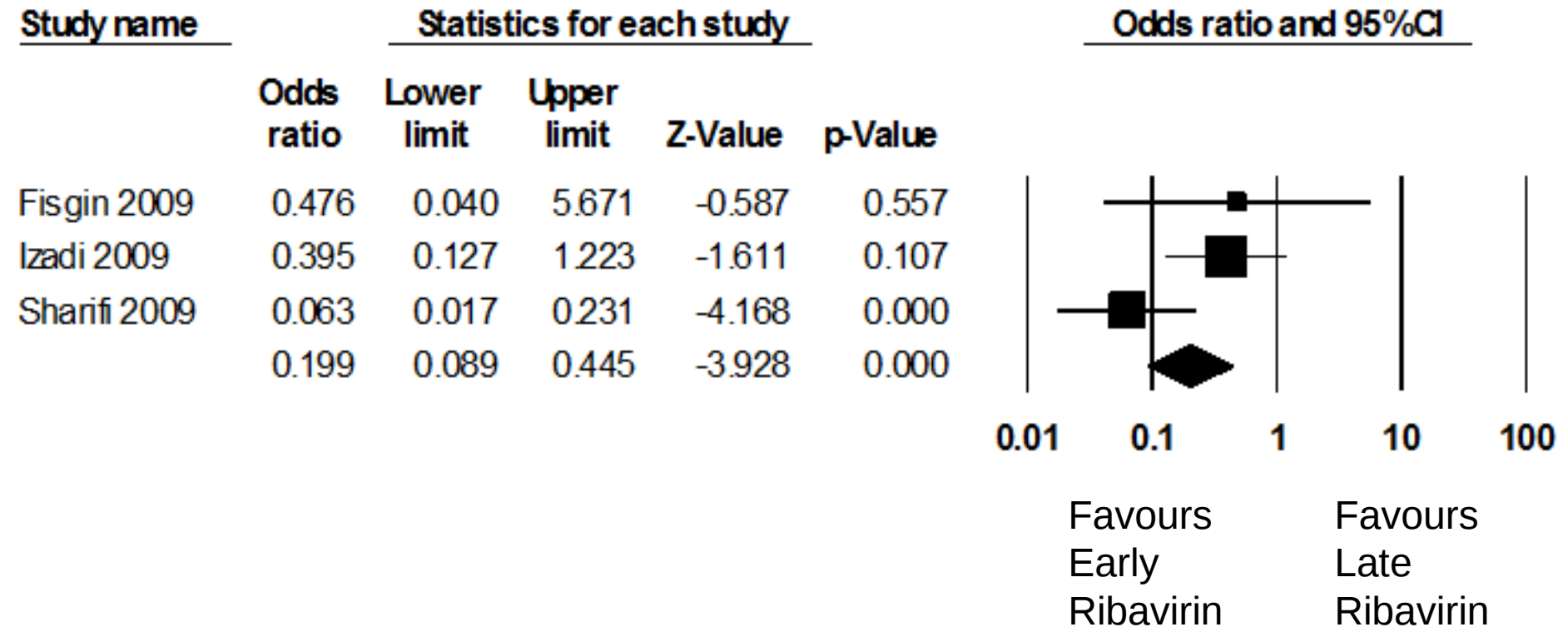






Ozturk and Ergonul, Klimik 2011 (abst)

Early Use is More Effective



A randomised controlled trial of ribavirin in Crimean Congo haemorrhagic fever: ethical considerations

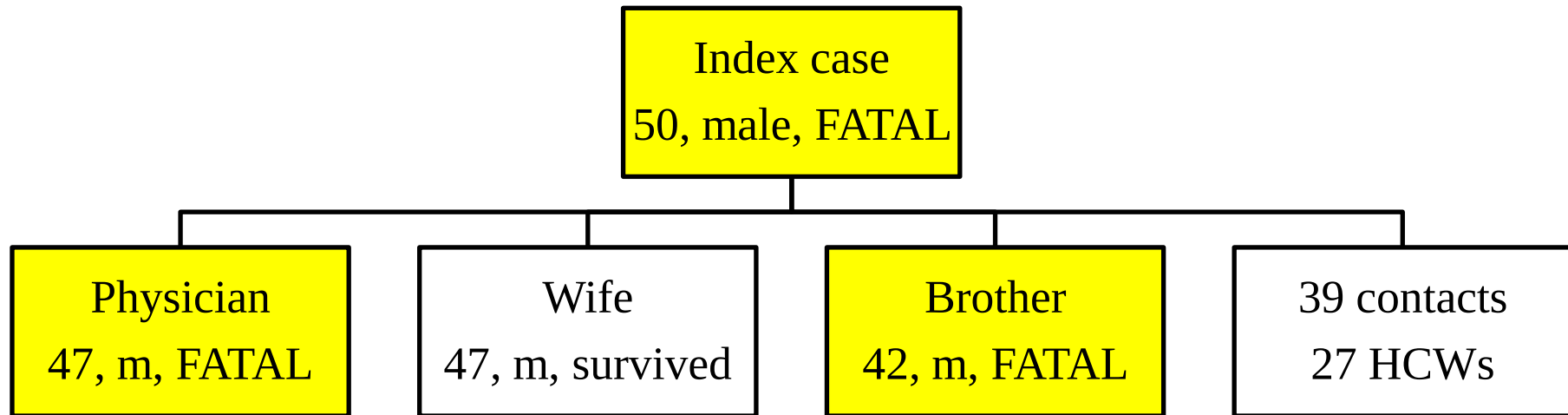
B Arda,¹ A Aciduman,¹ J C Johnston^{2,3}

CONCLUSION

There is universal agreement that placebo-controlled trials should be prohibited in life-threatening conditions if an existing treatment is effective at prolonging or preserving life. The available literature provides convincing evidence that CCHF may be effectively treated with prompt administration of ribavirin. It is the standard of care in several nations, and ratified by the Centers for Disease Control and WHO. Therefore, it would be decidedly unethical to conduct an RCT of ribavirin in patients harbouring this life-threatening disease.

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

Nosocomial Infection in Tajikistan, 2009





Eline iğne batan 18 yaşındaki Kübra KKKA'dan öldü

14/06/2009 02:00

A⁺ A⁻

Kırsal kesimde, 1200 köyde can alan KKKA bu kez genç sağlık teknikerini öldürdü. Hastayla ilgilenirken eline iğne batan Kübra Yazım kurtarılamadı

Haber: İSMAIL TEMİZ / Arşivi
MURAT SANDIKÇI / Arşivi



Kübra Yazım (solda), ilgilendiği hastanın öldüğü gün yüksek ateş, titreme ve halsizlik şikâyetleriyle yoğun bakıma kaldırılmıştı.



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Akdağ: Kübra Hemşire'nin ölümü araştırılacak

Sağlık Bakanı Recep Akdağ, Kırım Kongo Kanamalı Ateşi hastası bir kişiden kan alırken virüs kaparak yaşamını yitiren Kübra Hemşire'nin ölümü ile ilgili soruşturma başlatıldığını söyledi. Akdağ, "Sağlık çalışanlarının güvenliği bizim için çok önemli" dedi.

NTV

Güncelleme: 13:40 TSİ 16 Haziran, 2009 Salı

ANKARA - Sağlık Bakanı Recep Akdağ, NTV'den Nermin Yurteri'nin sorularını yanıtladı.

Sağlık Bakanı Akdağ, Samsun'da Kırım Kongo Kanamalı Ateşi hastası bir kişiden kan alırken eline iğne battığı için hastalanan Kübra Hemşire'nin yaşamını yitirmesinden üzüntü duyduğunu söyledi.

Akdağ, sunları söyledi: "Sağlık çalışanlarının



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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Türk Tabipleri Birliği

KIRIM KONGO KANAMALI ATEŞİ
BİLİMSEL DEĞERLENDİRME
RAPORU

Transmission of CCHF to HCWs

Clinical manifestations, demographic variables, risk factors and outcome of nosocomial and index cases of Crimean-Congo hemorrhagic fever, Iran*

Case	Age, years	Sex	Bleeding manifestations	Fever	Job	Contact type/details of exposure	Outcome	Incubation period, days†
Index 1	55	M	GI bleeding, epistaxis	Yes	Shepherd	Animal contact	Dead	NA
Secondary 1	32	M	Petechia	Yes	Physician	Physical contact without gloves, blood splashing into face, performing gastric lavage	Alive	14
Tertiary 1	26	F	Hematemesis, vaginal bleeding, epistaxis, hematuria	Yes	Physician	Physical contact without gloves, blood sampling, providing intravenous access, touching skin, contact with sweat and saliva, sexual contact	Dead	12
Index 2	65	M	GI and pulmonary hemorrhage	Yes	Farmer	Animal contact	Dead	NA
Secondary 2	32	M	Petechia, purpura	Yes	Physician	Physical contact without gloves, intubation, resuscitation, blood splashing into face	Alive	22

3 out of 5 (60%) died

No ribavirin use 10 years ago in Iran

Is Ribavirin Prophylaxis Effective for Nosocomial Transmission of Crimean-Congo Hemorrhagic Fever?

Rahmet Guner, Prof Dr,¹ Imran Hasanoglu,² Mehmet Akin Tasyaran,¹ Derya Yapar,³
Siran Keske,⁴ Tumer Guven,² and Gul Ruhsar Yilmaz

TABLE 1. SUMMARY OF EXPOSURE AND PROGNOSIS OF HEALTH CARE WORKERS AND PRECAUTIONS

<i>Case</i>	<i>Occupation</i>	<i>Age</i>	<i>Type of injury</i>	<i>Glove</i>	<i>Mask</i>	<i>Gown</i>	<i>Goggle</i>	<i>Bleeding in the index case</i>	<i>PCR of the index case</i>	<i>Survey of the index case</i>	<i>Post-exposure ribavirin</i>	<i>Adverse effect of ribavirin</i>	<i>PCR</i>
1	Doctor	27	Needlestick injury	Yes	Yes	Yes	Yes	Yes	+	Cure	Yes	None	—
2	Doctor	26	Needlestick injury	Yes	No	No	No	Yes	+	Cure	Yes	Fatigue	—
3	Doctor	34	Aerosolization of infected blood	Yes	No	No	No	Yes	+	Exitus	No	None	+
4	Nurse	30	Needlestick injury	Yes	Yes	Yes	Yes	No	+	Cure	Yes	None	—
5	Nurse	37	Needlestick injury	No	No	No	No	No	+	Cure	Yes	Fatigue, myalgia	—
6	Nurse	29	Contact of the skin and mucosal surfaces with infected blood	Yes	No	No	No	No	+	Cure	Yes	None	—
7	Doctor	27	Needlestick injury	Yes	Yes	Yes	Yes	Yes	+	Exitus	Yes	Fatigue, myalgia	—

Is Ribavirin Prophylaxis Effective for Nosocomial Transmission of Crimean-Congo Hemorrhagic Fever?

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Conclusions

In preventing the transmission of CCHF, it should always be kept in mind, especially in serious CCHF cases, that there can always be bleeding. Barrier precautions should never be neglected. Ribavirin is the drug of choice currently available and seems effective in cases of nosocomial transmission of CCHF.

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.

ÖZET

Bilimsel Serüven:

Kalıcıdır

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Merakla başlar

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