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Prof Dr. Aysel Kocagül Çelikbaş

Hitit Üniversitesi Tıp Fakültesi
Enfeksiyon Hast. ve Klinik Mikrob. AbD



**Deprem ve
Solunum Yolu
İnfeksiyonları**



Review

The Impact of Earthquakes on Public Health: A Narrative Review of Infectious Diseases in the Post-Disaster Period Aiming to Disaster Risk Reduction

Maria Mavrouli ^{1,*}, Spyridon Mavroulis ² , Efthymios Lekkas ² and Athanassios Tsakris ¹ 

¹ Department of Microbiology, Medical School, National and Kapodistrian University of Athens, 11527 Athens, Greece

² Department of Dynamic Tectonic Applied Geology, Faculty of Geology and Geoenvironment, School of Sciences, National and Kapodistrian University of Athens, 15784 Athens, Greece

* Correspondence: mmavrouli@med.uoa.gr

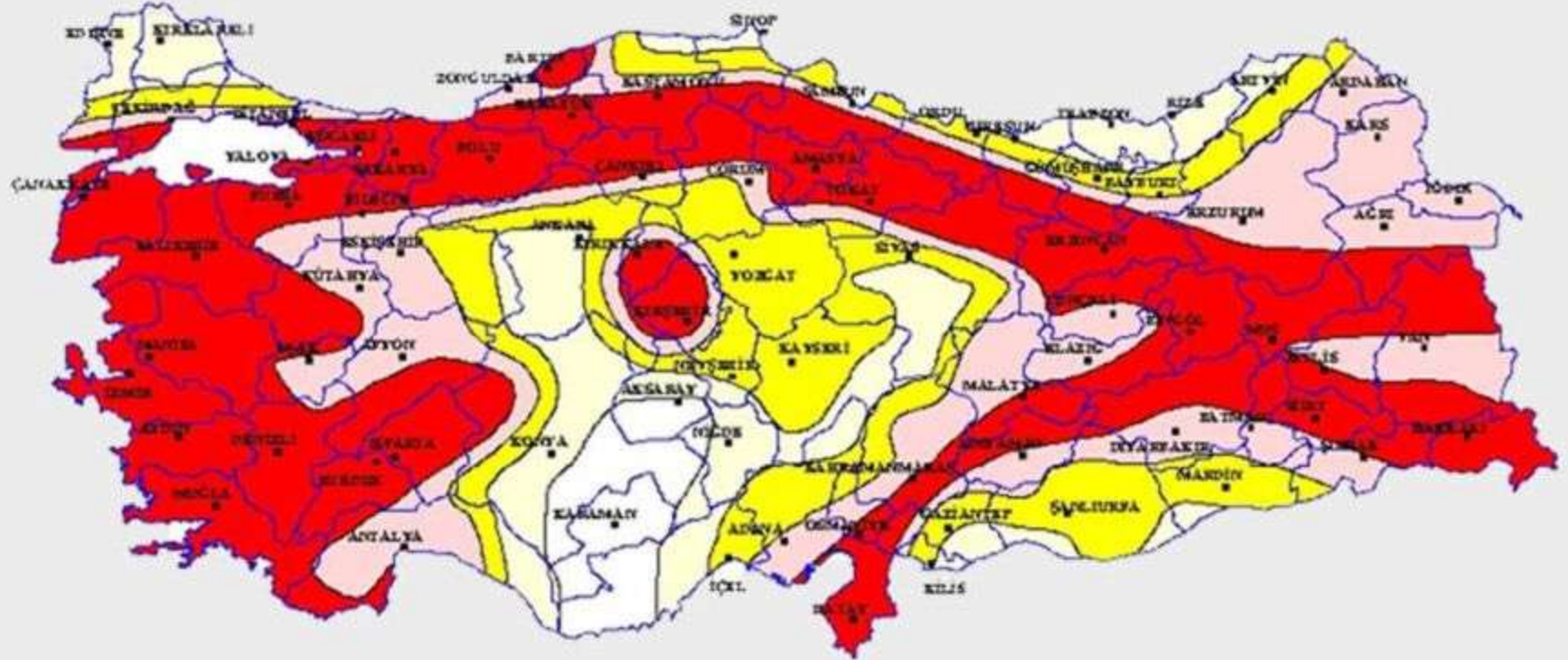
- Son 20 yıllık içinde dünyada 552 deprem meydana gelmiş
- Dünya çapındaki tüm afetlerin %8'ini oluşturmuş
- Sel (3254 olay, toplamın %44'ü) ve kasırgalardan (2043 olay, toplamın %28'i) sonra deprem üçüncü sırada yer alıyor

Son 20 yılda > 6 şiddetinde 19 Deprem

Rank	Fatalities	Magnitude	Location	Event	Date						
						9	8,964	7.8	 Nepal	2015 Nepal earthquake	April 25, 2015
							5,782	6.4	 Indonesia	2006 Yogyakarta earthquake	May 26, 2006
1	227,898	9.1–9.3	 Indonesia, Indian Ocean	2004 Indian Ocean earthquake and tsunami	December 26, 2004		4,340	7.5	 Indonesia	2018 Sulawesi earthquake and tsunami	September 28, 2018
2	160,000 ^[3]	7.0	 Haiti	2010 Haiti earthquake	January 12, 2010		2,698	6.9	 China	2010 Yushu earthquake	April 13, 2010
3	87,587	7.9	 China	2008 Sichuan earthquake	May 12, 2008		2,266	6.8	 Algeria	2003 Boumerdès earthquake	May 21, 2003
4	87,351	7.6	 India,  Pakistan	2005 Kashmir earthquake	October 8, 2005		2,248	7.2	 Haiti	2021 Haiti earthquake	August 14, 2021
5	52,781	7.8	 Turkey,  Syria	2023 Turkey–Syria earthquake	February 6, 2023		2,000 ^[5]	6.1	 Afghanistan	2002 Hindu Kush earthquakes	March 25, 2002
6	34,000 ^[4]	6.6	 Iran	2003 Bam earthquake	December 26, 2003		1,313	8.6	 Indonesia	2005 Nias–Simeulue earthquake	March 28, 2005
7	20,085	7.7	 India	2001 Gujarat earthquake	January 26, 2001		1,163	6.0	 Afghanistan,  Pakistan	June 2022 Afghanistan earthquake	June 21, 2022
8	19,759	9.0–9.1	 Japan	2011 Tōhoku earthquake and tsunami	March 11, 2011		1,126	7.5	 Turkey	2023 Turkey–Syria earthquake	February 6, 2023
							1,115	7.6	 Indonesia	2009 Sumatra earthquakes	September 30, 2009

TÜRKİYE'DEKİ DİRİ FAY HATLARI

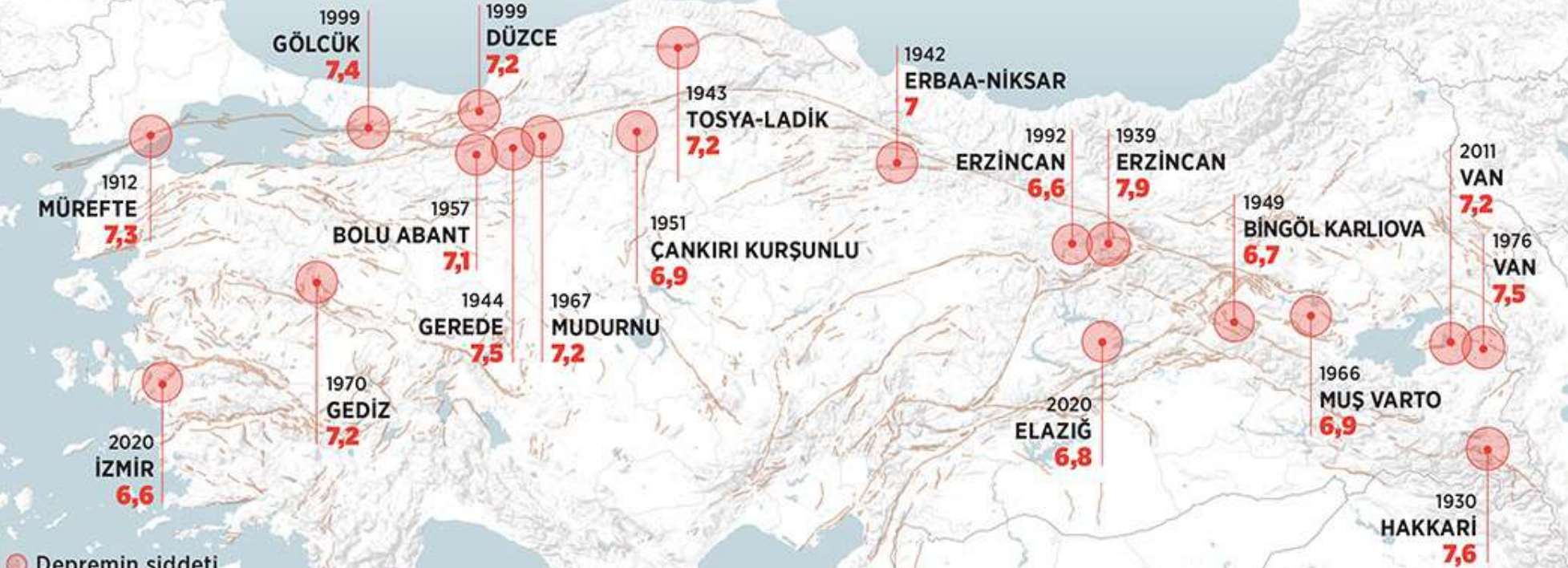
(Tüm İller Ve İlçeler)



1900 Yılından İtiberen Kaydedilen 226 Deprem

Türkiye'de 122 yılda meydana gelen 6 ve üzeri büyüklükteki depremler

Türkiye ve çevresi, aletsel ölçümlemeyle deprem kaydı yapılmaya başlanan 1900'den itibaren çeşitli zamanlarda 6 ve üzeri büyüklükteki 226 depremle sarsıldı



○ Depremin şiddeti
— Diri fay hatları

Earthquake-Triggered Respiratory Infectious Diseases

Subjects: Public, Environmental & Occupational Health

Contributor: Maria Mavrouli, Spyridon Mavroulis, Efthymios Lekkas, Athanassios Tsakris

Earthquakes are among the most impressive natural phenomena with very high potential to set off a chain of effects that significantly affects public health. Related disasters are attributed not only to the strong ground motion and coseismic phenomena but also to secondary effects, comprising mainly landslides and tsunamis, among others. All these can create harsh conditions favorable for the emergence of infectious diseases.

infectious diseases

earthquakes

landslides

respiratory infection

- Depremler sadece coğrafyayı etkileyip can kaybına neden olmuyor
- İnfeksiyon riskini de beraberinde getiriyor

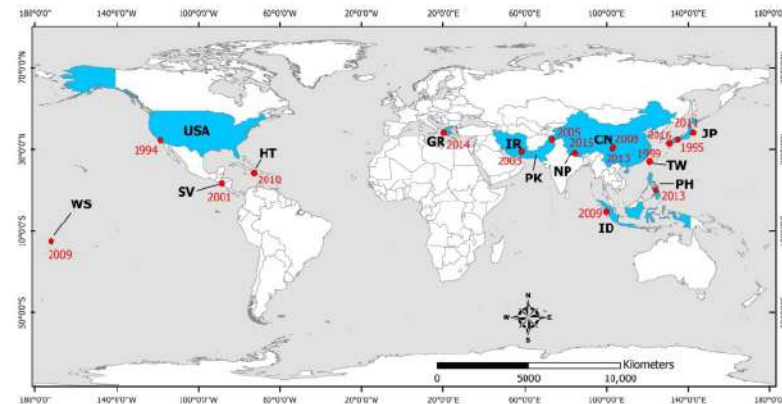


Figure 1. Distribution of countries affected by earthquakes that triggered the occurrence of respiratory tract infections. WS: Samoa, USA: United States, SV: El Salvador, HT: Haiti, GR: Greece, IR: Iran, PK: Pakistan, NP: Nepal, CN: China, JP: Japan, TW: Taiwan, PH: Philippines, ID: Indonesia. The epicenters of the studied earthquakes are also illustrated (red dots) along with the occurrence year (red numbers).

Infectious diseases following natural disasters: prevention and control measures

Expert Rev. Anti Infect. Ther. 10(1), 95–104 (2012)

Isidore K Kouadio*¹,
Syed Aljunid¹,
Taro Kamigaki²,
Karen Hammad³ and

Natural disasters may lead to infectious disease outbreaks when they result in substantial population displacement and exacerbate synergic risk factors (change in the environment, in human conditions and in the vulnerability to existing pathogens) for disease transmission. We reviewed risk factors and potential infectious diseases resulting from prolonged secondary effects of major natural disasters that occurred from 2000 to 2011. Natural disasters including floods

2000-2011 arasında doğal afetler
öncesi gelişen salgınlar değerlendirilmiş
142 makaleden
21'i dahil edilmiş

- Doğal afetlerden sonrası meydana gelen ölümlerle ilişkili olarak bir salgın çıkacağı korkusu zaman zaman gündeme gelmiş
- Ancak deprem örneği üzerinden düşünülürse göçük altında hayatını kaybedenlerden kaynaklanan bir salgına ait bildirim yok bu güne kadar
- Bu nedenle, akut enfeksiyonların kaynağı hayatta kalanlar

Negligible Risk for Epidemics after Geophysical Disasters

Nathalie Floret,*† Jean-François Viel,*† Frédéric Mauny,*† Bruno Hoen,*† and Renaud Piarroux*†

- Deprem,
 - Volkan patlaması,
 - Tsunami
- gibi doğal afetlerden sonra
- Kümelenmeler var ama epidemi değil

1985 - 2004

>600 kayıtlı doğal afet var 3 salgın bildirilmiş

Philippines/ Pinatubo yanardağı patlaması

Kızamık

California depremi

Coccidioidomycosis

Costa Rica deprem ve aşırı yağmur

Plasmodium vivax sıtması

Earthquake and the Lung

Ege GÜLEÇ BALBAY

- İlk dönemde toz ve partiküllerin solunması, enkaz kaldırma döneminde aspest maruziyeti
- Pulmoner tromboemboli
- Kot kırıkları
- Pnömotoraks
- Hemotoraks, hemopnömotoraks
- Diafragma rüptürü
- İnfeksiyonlar

TRAUMA

Drowning

Bierens, Joost J. L.M. MD, PhD¹; Knape, Johannes T.A. MD, PhD²; Gelissen, Harry P. M.M. MD¹

Author Information[Ⓞ]

Current Opinion in Critical Care 8(6);p 578-586, December 2002.

The Sri Lanka Tsunami Experience

Seiji Yamada, MD, MPH, Ravindu P. Gunatilake, MD, Timur M. Roytman, MD, Sarath Gunatilake, MD, DrPH, Thushara Fernando, MPH, MD, and Lalan Fernando, MD

The Indian Ocean tsunami of 2004 killed 31,000 people in Sri Lanka and produced morbidity

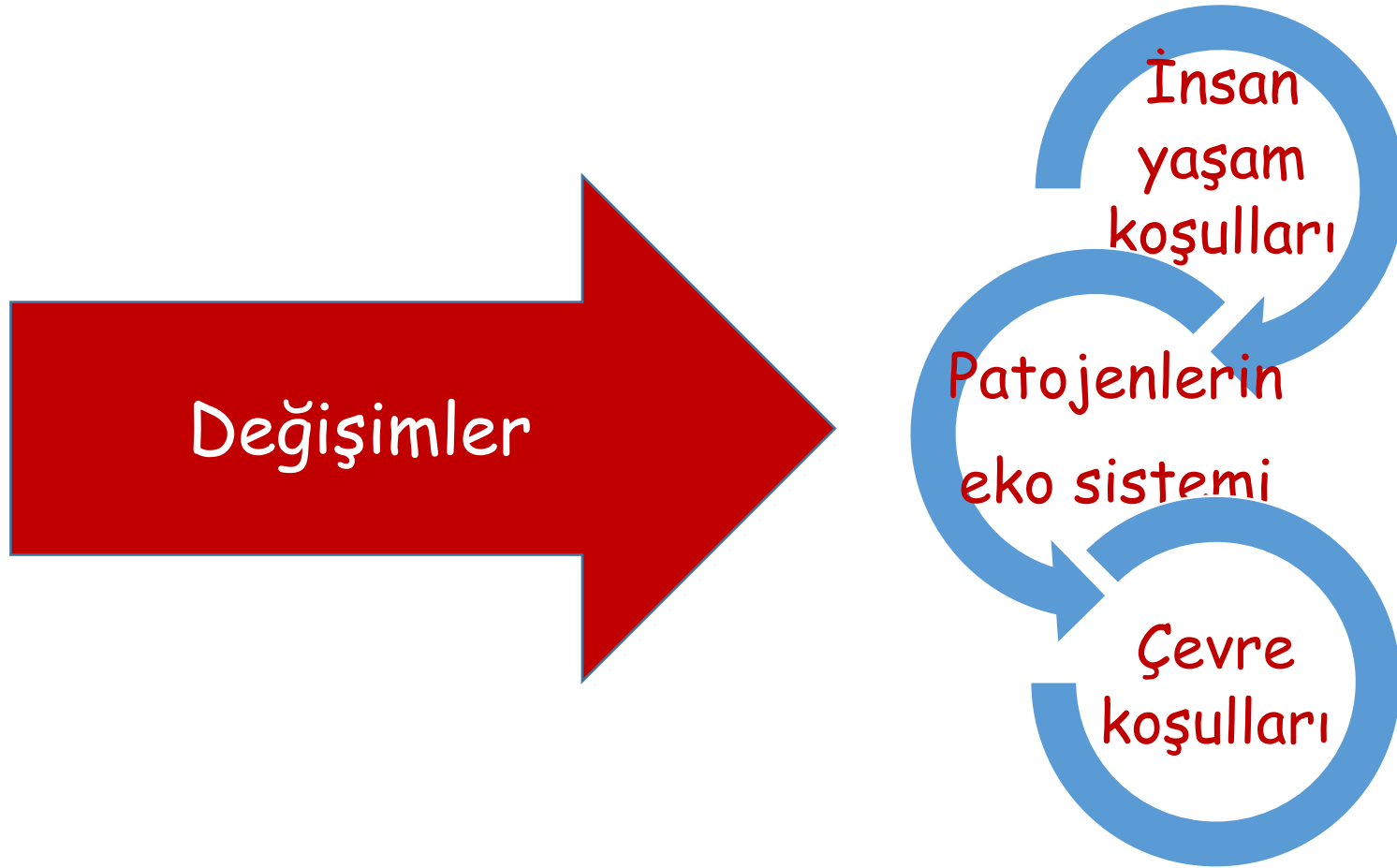
On the morning of Sunday, December 26, 2004, a 9.0-magnitude earthquake off the coast of Sumatra sent several tsunami waves

Deprem sonrası gelişen tsunamilerden etkilenenlerde, boğulma riski

Su aspirasyonu;

- Alveoler sürfaktan kaybına,
- Pulmoner ödem
- Akut solunum sıkıntısı sendromuna (ARDS) neden olabilir
- Bilinç kaybı ve hava yolu koruyucu reflekslerinin baskılanması nedeniyle yutulan suyun kusulması durumunda mide içeriği de aspire edilebilir
- İnfeksiyonlar

İnfeksiyonlar için Hazırlayıcı Faktörler



İnfeksiyonlar için Hazırlayıcı Faktörler

- Afet bölgelerinde sağlık tesislerinin ve sağlık sistemlerinin çökmesi, sağlık hizmetlerindeki yetersizlik,
- Sağlık hizmeti vermesi istenen çalışanların da afetzede olması,
- Sürveyans ve sağlık programlarının (aşılama ve vektör kontrol programları) aksaması,
- Devam eden tedavilerin kesintiye uğraması ve ilaçların temininde güçlükler,

İnfeksiyonlar için Hazırlayıcı Faktörler

- Sağlıklı suya erişim zorluğu (içme ve kullanma suyu),
- Alt yapının iflas ettiği ortamlarda kişisel hijyene uyum zorluğu,
- Güvenli gıdaya ulaşım zorluğu ve yetersiz beslenme,
- Kalacak yer problemi, kalabalık çadır ve konteynırlarda barınma
- Soğuk hava koşulları, ısıtma ekipmanının yetersizliği

İnfeksiyonlar için Hazırlayıcı Faktörler




International Journal of
*Environmental Research
and Public Health*



Review

Respiratory Infections Following Earthquake-Induced Tsunamis: Transmission Risk Factors and Lessons Learned for Disaster Risk Management

Maria Mavrouli ^{1,*}, Spyridon Mavroulis ², Efthymios Lekkas ² and Athanassios Tsakris ¹ 


Söylenenlere ek olarak

- İnfeksiyonların mevsimsel döngüsü (influenza)
- Bölgesel endemisite (kızamık, tüberküloz, kolera)
- Düşük aşılama oranları (COVID, tetanoz, kızamık)



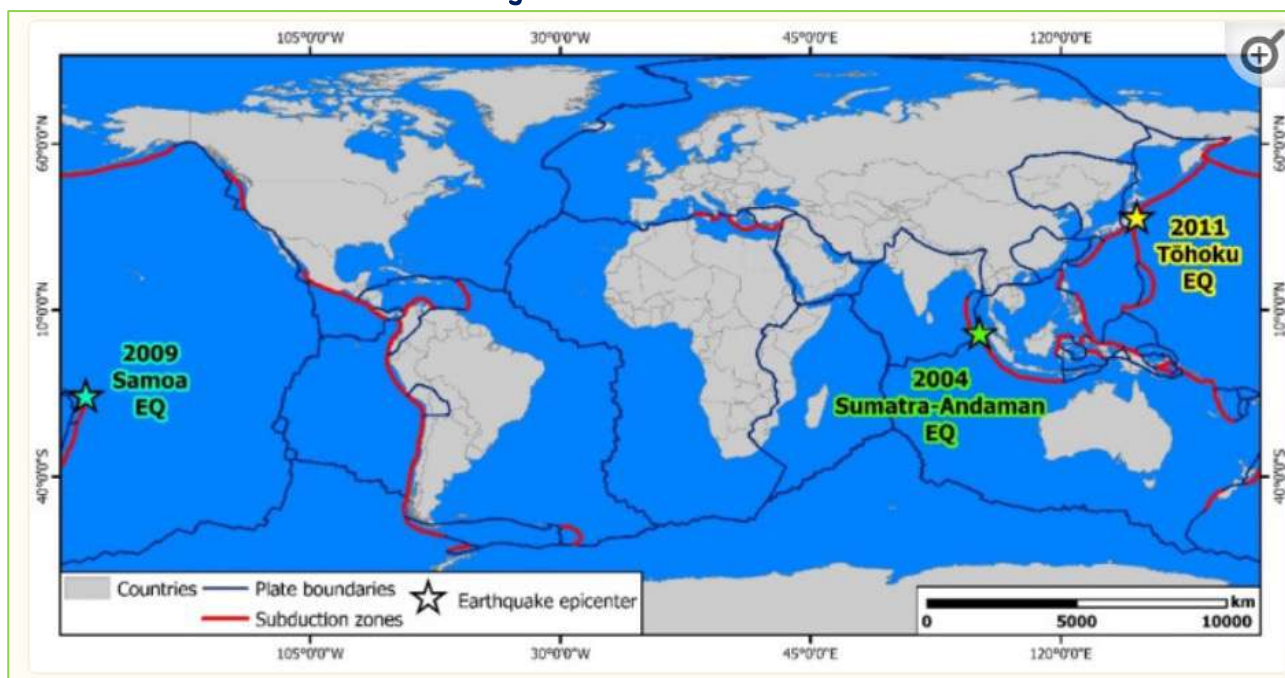
Review

Respiratory Infections Following Earthquake-Induced Tsunamis: Transmission Risk Factors and Lessons Learned for Disaster Risk Management

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Deprem ve depremin tetiklediği Tsunamiler ardından görülen solunum yolu infeksiyonlarını konu alan 47 makale dahil edilmiş


- 2004 Sumatra-Andaman,
- 2009 Samoa
- 2011 Japonya





Review

Respiratory Infections Following Earthquake-Induced Tsunamis: Transmission Risk Factors and Lessons Learned for Disaster Risk Management

Maria Mavrouli ^{1,*}, Spyridon Mavroulis ², Efthymios Lekkas ² and Athanassios Tsakris ¹ 

- Deprem ve tsunami influenza sezonunda meydana geldiği dönemlerde influenza salgınları yaşanmış
- Toplanma alanlarındaki kalabalık ve uygunsuz toplu yaşam koşulları bağlı olarak akut solunum yolu enfeksiyonlarının yanısıra kızamık ve tüberküloz bulaşında da artışlar gözlenmiş
- Tsunamide boğulma tehlikesi atlatanlarda genellikle polimikrobia solunum sistemi enfeksiyonları görülmüş

Table 2. Risk factors and onset of communicable diseases following natural disasters[†].

Major risk factors following natural disasters	Water-borne diseases		Air-borne/droplet diseases				Vector-borne diseases		Contamination from wounded injuries		Clinical phase of natural disasters			
	<i>Diarrhea (cholera; dysentery)</i>	<i>Leptospirosis</i>	<i>Hepatitis</i>	<i>ARI (pneumonia/ influenza)</i>	<i>Measles</i>	<i>Meningococcal meningitis</i>	<i>TB</i>	<i>Malaria</i>	<i>Dengue fever</i>	<i>Tetanus</i>	<i>Cutaneous mucormycosis</i>	<i>Impact phase (0–4 days)</i>	<i>Postimpact phase (4 days– 4 weeks)</i>	<i>Recovery phase (>4 weeks)</i>
Population displacement from nonendemic to endemic areas								✓	✓					✓
Overcrowding (close and multiple contacts)	✓			✓	✓	✓	✓						✓	
Stagnant water after flood and heavy rains	✓	✓						✓	✓					✓
Insufficient/contaminated water and poor sanitation conditions	✓		✓										✓	
High exposure and proliferation to disease vectors		✓						✓	✓					
Insufficient nutrient intake/ malnutrition	✓			✓	✓		✓							✓
Low vaccination coverage				✓										
Injuries										✓	✓		✓	✓

[†]Disasters do not carry diseases/epidemics. Disease risk factors need to be in place and exacerbated as a result of the after effects of the disaster.
ARI: Acute respiratory infection.

Türkiye 5. Şubat 2023



6 ŞUBAT KAR TATİLİ OLAN İLLER

Okulların 6 Şubat 2023 Pazartesi günü kar tatili olup olmayacağı ile ilgili **MEB**'ten herhangi bir resmi açıklama henüz gelmedi. Okulların Pazartesi günü tatil olup olmayacağı konusunda açıklama yapıldığında haberimizde yer vereceğiz.

Liste şu şekilde: Muş ve Bingöl'de 2 gün; Diyarbakır, Şanlıurfa, Gaziantep, Malatya, Bitlis, Adıyaman, Kahramanmaraş, Sivas, İstanbul ve Ankara'da ise eğitime 1 günlük ara verildiği duyuruldu.

6 Şubat 2023

Saat 04.17, 7.7 şiddet, 100 saniye

Saat 13.24, 7.5 şiddet, 45 saniye



6 Şubat 2023

Saat 04.17, 7.7 şiddet, 100 saniye

Saat 13.24, 7.5 şiddet, 45 saniye



Deprem Bölgesinde Yaşam



COVID 19 Sürüyor, İnfluenza, RSV ve Diğer Solunum Virüsleri ile İnfeksiyonlar Yaygın



Deprem Bölgesinde Yaşam



TRT HABER

• Gündem Türkiye Dünya Ekonomi Spor Yaşam Çocuk Özel Haber Diğer >

Gündem Haber Giriş 17 Şubat 2023 Cuma 20:21 | Son Güncelleme: 17 Şubat 2023 Cuma 20:23 | Kaynak: TRT Haber

Çadır ve konteyner kentler için aile sağlığı merkezleri kurulacak



Son Haberler

[Tümü](#)

- 15:28 Deprem bölgesinde 13 bin 753 artçı sarsıntı oldu
- 15:16 Hatay'daki depremzedelere su sevkiyatı aralıksız sürüyor





Review

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Maria Mavrouli ^{1,*}, Spyridon Mavroulis ², Efthymios Lekkas ² and Athanassios Tsakris ¹

¹ Department of Microbiology, Medical School, National and Kapodistrian University of Athens, 11527 Athens, Greece

² Department of Dynamic Tectonic Applied Geology, Faculty of Geology and Geoenvironment, School of Sciences, National and Kapodistrian University of Athens, 15784 Athens, Greece

* Correspondence: mmavrouli@med.uoa.gr

Depremden sonra görülen infeksiyonlar için;

- İlk 4 günle 4 hafta arasındaki periyod riskli
- Yara kaynaklı deri ve yumuşak doku infeksiyonları
- Hava yolu kaynaklı (solunum ve damlacık), su kaynaklı, veya vektör kaynaklı hastalıklar



All sections

Media centre

Earthquakes in Türkiye and Syria: infectious diseases expected to be a concern in two to four weeks

News

20 Feb 2023

Food and water-borne diseases, respiratory infections and vaccine-preventable infections are a risk in the upcoming period, with the potential to cause outbreaks, particularly as survivors are moving to temporary shelters.

The damaged utility infrastructure, including water and electricity, causing limited access to clean water, inadequate sanitation and hygiene facilities, improper refrigeration, and cooking systems, may increase the occurrence and transmission of food-and waterborne illnesses.

A surge of cholera cases in the affected areas is a significant possibility in the coming weeks. Cholera is a concern in war-torn North-Western Syria, where authorities have reported thousands of cases as the country has been trying to control an outbreak since September 2022. A planned vaccination campaign disrupted by the earthquakes should be accelerated.

Additionally, other food and or waterborne diseases can cause outbreaks in camps: viral infections such as hepatitis A, norovirus and rotavirus, infections caused by parasites or bacterial infections. The Availability of clean water and control of food handling are among the top measures to avoid the spread of these diseases.

Respiratory infections are a particular concern, especially in cold weather, and the risk of outbreaks increases as survivors are moved to temporary settlements or campsites, where crowding cannot be avoided.

COVID-19, seasonal influenza and other respiratory viruses are circulating in moderate to high levels in the area. The very young and the elderly are more vulnerable to complications from these infections and in case of outbreaks,

Similar to respiratory viral infections, crowding conditions in temporary settlements can increase the risk of transmission of vaccine-preventable diseases such as measles, varicella, meningitis, or poliomyelitis.

Rescuers are at increased risk of tetanus from injuries and open wounds caused by contact with debris. Tetanus prophylaxis should be offered as per existing national guidelines.

Ensuring continuity of routine vaccinations and addressing prior vaccination gaps is essential in the affected regions from Türkiye and Syria.

Providing access to healthcare for trauma and other urgent care, shelter, potable water, and adequate sanitation and hygiene facilities will mitigate the risk of infectious disease threats.

Setting up health surveillance systems by public health staff will facilitate the early warning and detection of outbreaks. International organizations are planning to deploy mobile laboratories in the affected areas and they can also provide expert assistance to both affected countries.

Risk communication and community engagement interventions are particularly important to communicate and engage with individuals and communities to help them stay protected against infectious diseases.

Review Paper

Incidence of infectious diseases after earthquakes: a systematic review and meta-analysis



Sara Najafi ^{a, f}, Arash Akahavan Rezayat ^{a, b, f}, Seyyedeh Faezeh Beyzaei ^a, Zahra Shahriari ^a, Mahdieh Taheri tabar ^a, Mohammad Ghasemi Nour ^a, Reza Mosaed ^{c, d}, Majid Khadem-Rezaiyan ^e, Ramin Hamidi Farahani ^{b, *}

Table 2
Meta-analysis of the incidence of infectious diseases in 18 studies. The analysis was conducted based on two subgroups¹: prevalent diseases in each disease category² and distribution in continents for each disease category.

Disease Category	Subgroup	Number of Studies	Event Rate (Cases/100,000)	Lower Limit (Cases/100,000)	Upper Limit (Cases/100,000)	P-value
Prevalent diseases						
Respiratory	Acute respiratory infection	3	328.5	133.3	807.2	0.000
	Tuberculosis	2	0.7	0.0	258.6	0.000
	Pneumonia	10	7.0	2.1	22.8	0.000
	Pertussis	3	0.7	0.2	3.1	0.000
	Valley fever	2	58.7	16.1	214.1	0.000
	Others	2	23.1	0.0	93476.2	0.137
	Total	22	9.9	3.5	27.7	0.000
GIT	Viral hepatitis	4	456.6	118.5	1743.4	<0.001
	Diarrhoea & GIT infections	4	56.8	5.6	572.3	0.000
	Total	8	163.4	31.0	858.1	0.000
CNS	Meningococcal meningitis	4	0.4	0.1	1.4	0.000
	Others	3	0.5	0.1	2.9	0.000
	Total	7	0.5	0.2	1.1	0.000
Dermal	Cutaneous leishmaniasis	6	471.7	142.8	1546.6	0.000
	Others	3	0.5	0.0	1.1	<0.001
	Total	9	84.5	27.1	262.8	0.000
Others	Malaria	8	6.2	0.3	131.0	<0.001
	German measles	2	1.4	0.0	53.0	0.000
	Typhoid fever	3	7.4	1.9	29.9	0.000
	HIV	2	1.6	0.0	4393.4	0.007
	Others	5	2.2	0.9	5.2	0.000
	Total	20	4.4	1.9	9.9	0.000

Table 1. Breakdown of natural disasters recorded from 2000 to 2011 and potential secondarily-associated infectious diseases[†].

Country	Disaster event	Year(s)	Infectious disease outbreak following natural disaster	Ref.
USA	Tornado	2011	Cutaneous mucormycosis	[25]
Japan	Earthquake	2011	Diarrhea (norovirus), influenza	[109]
Haiti	Earthquake	2010	Cholera	[108]
Cote d'Ivoire	Flood	2010	Dengue	[113]
Brazil	Flood	2008	Dengue	[112]
USA	Hurricane (Katrina)	2005	Diarrhea, TB	[18,24]
Pakistan	Earthquake	2005	Diarrhea, hepatitis E, ARI, measles, meningitis, tetanus	[11,21]
Dominican Republic	Flood	2004	Malaria	[110]
Bangladesh	Flood	2004	Diarrhea	[8]
Indonesia	Tsunami	2004	Diarrhea, hepatitis A and E, ARI, measles, meningitis, tetanus	[13,22]
Thailand	Tsunami	2004	Diarrhea	[14]
Iran	Earthquake (Bam)	2003	Diarrhea, ARI	[12]
Indonesia	Flood	2001–2003	Diarrhea	[9]
USA	Hurricane (Allison)	2001	Diarrhea	[17]
Taiwan	Typhoon (Nali)	2001	Leptospirosis	[20]
China	Typhoon (Nali)	2001	Leptospirosis	[20]
El Salvador	Earthquake	2001	Diarrhea, ARI	[15]

REVIEW ARTICLE

**Pulmonary Rehabilitation for Chronic Obstructive Pulmonary Disease
in Natural Disaster Setting**

Siti Chandra Widjanantie

Department of Physical Medicine and Rehabilitation, Persahabatan General Hospital, University of
Indonesia, Jakarta, Indonesia

- Endonezya deprem, yanardağ patlaması, tsunami, sel, toprak kayması, ve orman yangını gibi doğal afetlerin sık görüldüğü bir bölge
- Doğal afetlerden sonra pulmoner rehabilitasyona ihtiyaç duyan solunum yolu ile ilgili hastalıkların verilerini bulmak için son on yıldaki literatür taramış
- Doğal afetlerin görüldüğü dönemlerde kronik obstruktif akciğer hastalarının başvurularında 1.5 kat artış olduğu gözlenmiş



Original article

The impact of a large-scale natural disaster on patients with chronic obstructive pulmonary disease: The aftermath of the 2011 Great East Japan Earthquake

Seiichi Kobayashi^{a,*}, Masakazu Hanagama^a, Shinsuke Yamanda^a, Hikari Satoh^a, Shinsaku Tokuda^{a,1}, Masakazu Kobayashi^{a,2}, Shinsaku Ueda^b, Satoshi Suzuki^b, Masaru Yanai^a

- 100 KOAH'lı hasta 112 hastane başvurusu
- Depremden sonra ilk birkaç günde evde oksijen alan hastalar oksijen almak için hastanelere başvurmuş
- 3- 5. haftalar arasında supakut dönemde KOAH alevlenmesi ile gelen hastalarda deprem öncesi döneme göre anlamlı artış saptanmış ($p < 0.05$)
- Depremden 6 hafta sonra KOAH alevlenme sıklığı deprem öncesindeki sayılara inmiş

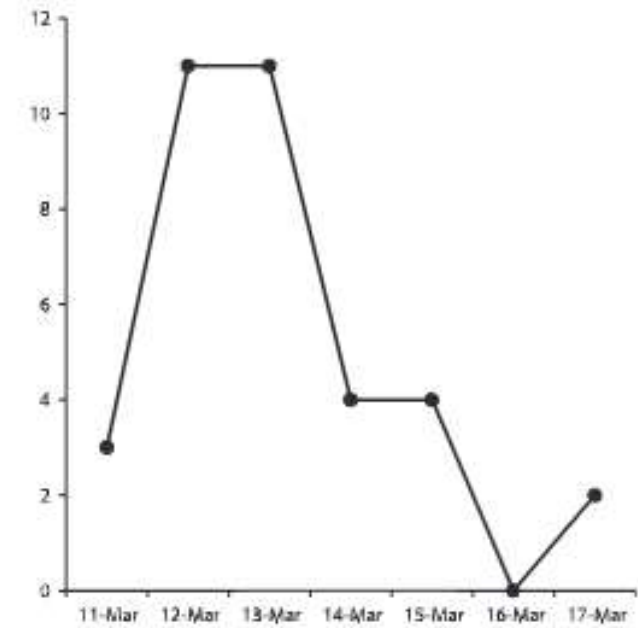


Fig. 1 – Number of oxygen-dependent patients who visited the hospital after the earthquake.

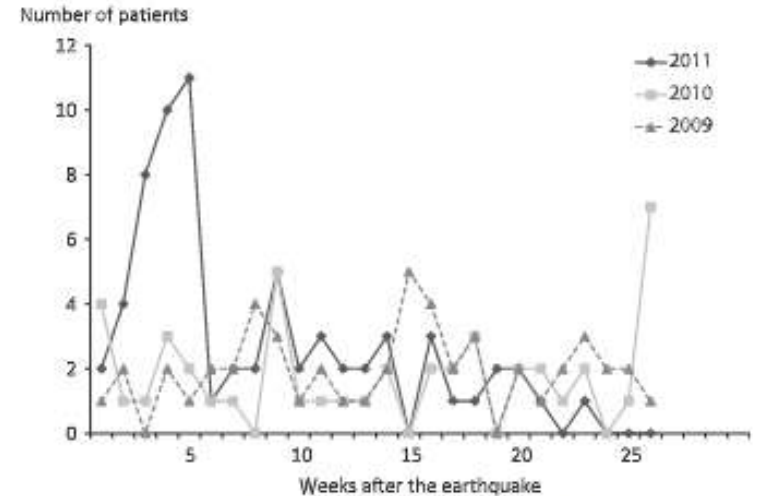


Fig. 2 – Numbers of patients hospitalized due to COPD exacerbations per week for 6 months after the disaster, and during the corresponding periods in 2010 and 2009.

The impact of the 2011 Great East Japan Earthquake on hospitalisation for respiratory disease in a rapidly aging society: a retrospective descriptive and cross-sectional study at the disaster base hospital in Ishinomaki

Shinsuke Yamanda,¹ Masakazu Hanagama,¹ Seiichi Kobayashi,¹ Hikari Satou,¹ Shinsaku Tokuda,² Kaijun Niu,³ Masaru Yanai¹

- Pacific okyanusunda Japonyanın doğusunda Tohoku' da 9 şiddetinde deprem ve tsunami
- Japanese Red Cross Ishinomaki Hospital
- Deprem ve tsunaminin ardından yaşlılar arasında kronik solunum yolu hastalığının alevlenmesi ve pnömoni nedeniyle hastane başvuruları ve yatış oranları arttı

Hospitalizasyon sayısı
11 Mart- 9 Mayıs
2009- 99
2010-105
2011- 322

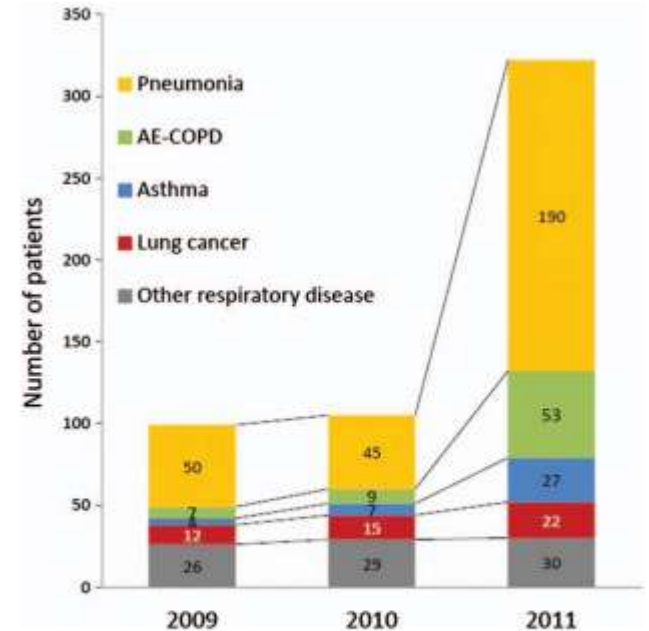


Figure 2 Number and proportion of patients hospitalised for respiratory disease pooled from 11 March to 9 May in 2009, 2010 and 2011. AE-COPD, acute exacerbation of chronic obstructive pulmonary disease.

*COVID 19 sürüyor

* Maske zorunlu değil

* Hava soğuk

* Barınma kalabalık mekanlarda, mesafeyi korumak mümkün değil

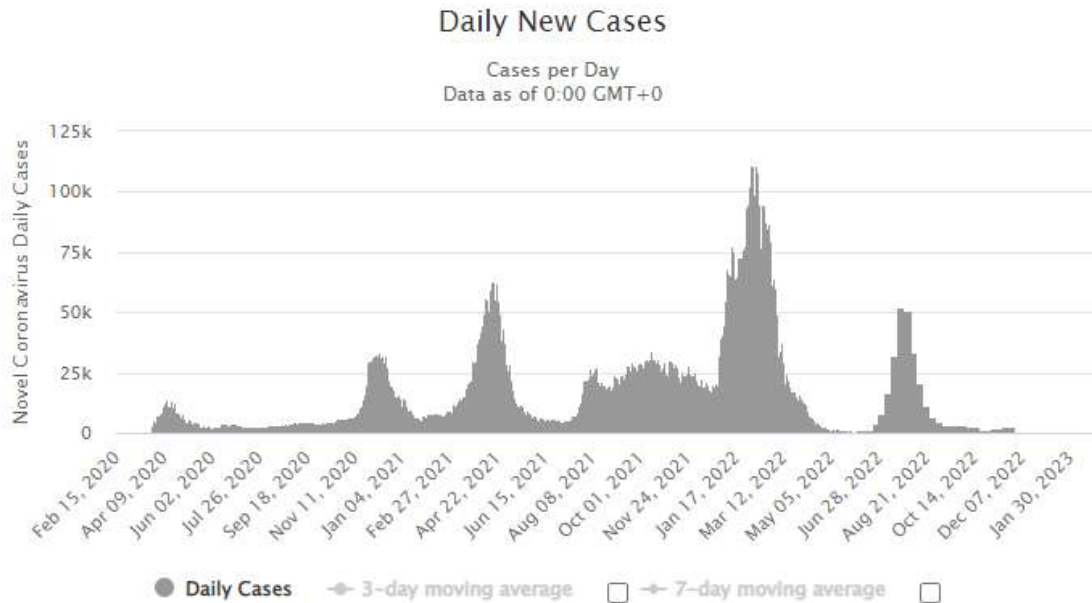
* Hasta ve sağlam ayırımı yapmak zor

- Bu kapsamda 26 Nisan 2022 tarihli COVID19 Bilimsel Danışma Kurulu önerileri doğrultusunda; Açık ve kapalı alanlar dahil olmak üzere tüm alanlarda, tüm okullarda maske zorunluluğunun tümüyle kaldırılması, ancak ülkemizdeki günlük vaka sayısı 1000'in altına düşene kadar bir müddet daha toplu taşıma araçları ile sağlık kuruluşlarında maske kullanımına devam edilmesi, kapalı alanlarda maske kullanıma dair usul ve esasların aşağıdaki şekilde değiştirilmesi bildirilmektedir. hususları Bakanlığımıza iletilmiştir.




Coronavirus Cases:
17,042,722

Daily New Cases in Turkey



Potential impact of earthquakes during the 2020 COVID-19 pandemic

Earthquake Spectra
2021, Vol. 37(1) 73–94
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DOI: 10.1177/8755293020950328
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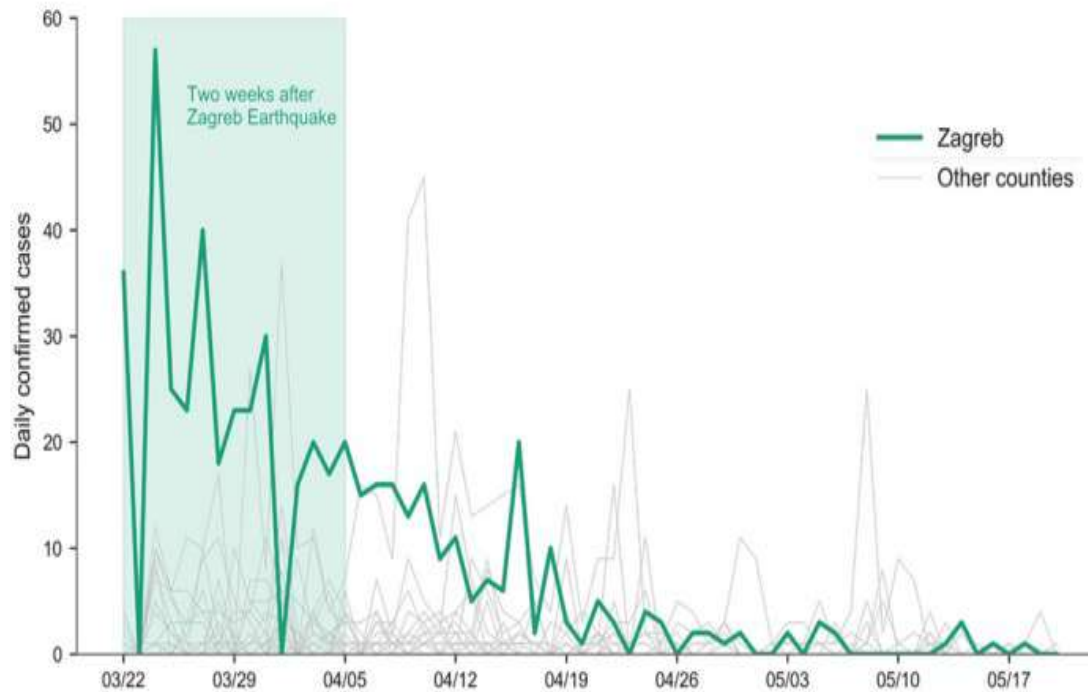


Figure 1. Daily confirmed cases in Croatia by county according to the Croatian Institute of Public Health.

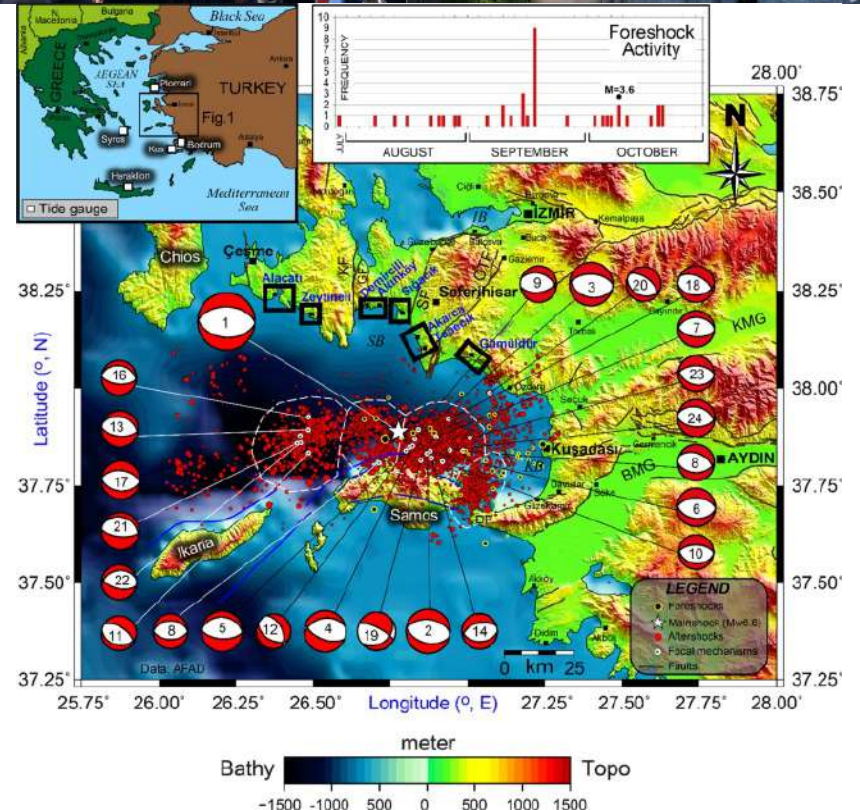
THE IMPACT OF THE 30TH OCTOBER EARTHQUAKE ON THE COVID-19 PANDEMIC IN IZMIR AND ITS VICINITY

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF APPLIED MATHEMATICS
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

TUĞBA ARU

30.10.2020
İzmir
Şiddet 6.9
79 can kaybı



THE IMPACT OF THE 30TH OCTOBER EARTHQUAKE ON THE COVID-19
PANDEMIC IN IZMIR AND ITS VICINITY

TUĞBA ARU

- Depremden ağır etkilenen bölgedeki çeşitli klinikler, ASM'ler ve ilçe sağlık müdürlükleri hasar gördü
- Hastanelerde takip edilen COVID-19 hastalarının panik içinde oradan ayrıldı
- Deprem öncesi COVID-19 tanısı alan hastaların, hasarlı ASM (Aile Sağlığı Merkezi) ve TSM (Toplum Sağlığı Merkezi) binalarına girişi mümkün olmadığından takipleri ertelendi

THE IMPACT OF THE 30TH OCTOBER EARTHQUAKE ON THE COVID-19
PANDEMIC IN IZMIR AND ITS VICINITY

TUĞBA ARU

- İzmir çevresinde yaklaşık 20 alanda çadırlar kuruldu.
- Özellikle en büyüğü olan Aşık Veysel Mesire Yeri'nde bulunan çadır siyasi temsilciler tarafından yoğun bir şekilde ziyaret edildi ve pandemi ülkede önemli bir risk olarak devam etmesine rağmen fiziki mesafe kurallarına uyulmadı
- Çadırların bazılarının girişinde HES kodu istenirken bazılarında gerekmedi

THE IMPACT OF THE 30TH OCTOBER EARTHQUAKE ON THE COVID-19
PANDEMIC IN IZMIR AND ITS VICINITY

TUĞBA ARU

- Çadır kentlerde kalanların hijyen koşulları kötüydü
- Yardım toplama ve dağıtım merkezleri de fiziksel mesafe kurallarına uygun değildi
- Çeşitli derneklerin gıda ve yardım malzemeleri dağıtmak için stant açmaları başta COVID-19 olmak üzere birçok hastalık için risk taşıyor

THE IMPACT OF THE 30TH OCTOBER EARTHQUAKE ON THE COVID-19
PANDEMIC IN IZMIR AND ITS VICINITY

TUĞBA ARU

- Değerlendirilmiş 522 kişiden
- 15'inde Deprem sırasında COVID-19 varmış,
- 3'üne deprem sırasında tanı konmuş
- 12 kişiye depremden sonraki 14 gün içinde COVID-19 tanısı konmuş
- 22 kişi de 14 günden sonraki iki hafta içinde COVID-19'a yakalanmış

Güncel durum



COVID 19

52/522

%10

Table 5.1: Gender distribution of research part

Gender	Freq.	Pct. %
Female	342	65.5
Male	178	34.1
Not Specified	2	0.4
Total	522	

Table 5.2: Age distribution of research participants

Age	Freq.	Pct. %
18-34	145	27.8
35-44	142	27.2
45-54	120	23.0
55+	115	22.0
Total	522	

Influenza

Source	Tsunami	Patients	Clinical Presentation—Causative Pathogens
[71]	3	<ul style="list-style-type: none"> 33-year-old female 2-year-old female 	Severe pneumonia potentially caused by <i>L. pneumophila</i> , 2 deaths
[73]	3	<ul style="list-style-type: none"> 105 confirmed influenza cases in five ECs 	An outbreak of influenza A (H3N2) occurred in the ECs after the Great East Japan Earthquake of 2011
[77]	3	<ul style="list-style-type: none"> 25 patients diagnosed with influenza (Kesennuma City Gymnasium, Kesennuma) 20 individuals diagnosed with influenza (Tatekoshi Elementary School, Natori) 	Two post-tsunami outbreaks of influenza A in evacuation centers in Miyagi Prefecture, Japan
[78]	3	277 samples tested for influenza virus from Sendai City and evacuation centers in Miyagi Prefecture	Influenza A (H3N2) ($n = 112$ cases), influenza A (H1N1) 2009 ($n = 1$ case), influenza B ($n = 92$ cases)
[79]	3	15 individuals found positive for Influenza A in the Kesennuma City General Gymnasium (K-Wave)	The design of the K-wave gymnasium and the separation of evacuees from the patients prevented any further spreading of the influenza epidemic
[83]	3	93 pulmonary TB patients (tsunami-affected areas 25, non-tsunami areas 68)	<p>Risk factors for prognosis of TB after the earthquake: advanced age, low serum albumin level, functional status at admission, and oxygen requirement.</p> <p>Most of the cases with pulmonary TB experienced reactivation of latent TB infection</p>
[84]	3	Monitoring of TB and LTBI patients in coastal and inland shelters of Northern Miyagi Prefecture, Japan	The numbers of TB patients and of patients with LTBI significantly increased in the post-disaster period, especially among evacuees staying in crowded shelters in coastal regions of Northern Miyagi Prefecture

Post-Tsunami Outbreaks of Influenza in Evacuation Centers in Miyagi Prefecture, Japan

Patients and Methods

Two outbreaks of influenza A occurred at different evacuation centers in Miyagi Prefecture. The first outbreak occurred at the Kesennuma City Gymnasium in Kesennuma, a large-scale evacuation center with 1360 persons (outbreak 1), and the



Kesennuma şehri Gymnasium 1360 kişi



Natori'de Tatekoshi Elementary School 200 kişi

RESEARCH ARTICLE

Open Access

Investigation of an Influenza A (H3N2) outbreak in evacuation centres following the Great East Japan earthquake, 2011

Taro Kamigaki^{1*}, Jin Seino², Kentaro Tohma¹, Nao Nukiwa-Soma¹, Kanako Otani¹ and Hitoshi Oshitani¹

- 23 Mart ile 11 Nisan 2011
- 5 yerleşim yerinde 105 doğrulanmış influenza vakası
- Atak hızı %5.3 saptanmış
- Vakaların çoğu <15 - >65 yaş
- %88.5'i aynı odayı paylaşan aile bireyleri ve kurtarma çalışmalarına katılan kişiler

Table 1 Basic profiles of five evacuation centres and influenza cases, Yamamoto town

Evacuation centres	No. of evacuees*	% of ≤ 15 years in evacuees	% of ≥ 65 years in evacuees	No. of influenza case	M/F ratio	Index case (age, sex)	Mean age of influenza cases	AR** (%)
Evacuation centre A	130	NA	NA	10	4/6	60s, M	54.4	7.7
Evacuation centre B	702	12.1	36.3	60	27/33	48, M	51.0	8.6
Evacuation centre C	606	10.1	28.7	31	16/15	54, M	50.7	5.1
Evacuation centre D	121	NA	NA	2	0/2	46, F	31.5	1.7
Evacuation centre E	251	NA	NA	2	2/0	10s, M	21.5	0.8

Note: *The numbers of evacuees in Evacuation Centre A, D, and E were reported on March 25, 2011. The number of evacuees in Evacuation Centre B and C were reported on March 21, 2011. **AR, attack rate.

Short Communication

**Monitoring of Influenza Viruses in the Aftermath
of the Great East Japan Earthquake**

Kentaro Tohma¹, Akira Suzuki^{1*}, Kanako Otani¹, Michiko Okamoto¹, Nao Nukiwa¹,
Taro Kamigaki¹, Kazuhisa Kawamura², Hiroshi Nakagawa³, and Hitoshi Oshitani¹

¹*Department of Virology, Tohoku University School of Medicine, Sendai 980-8575;*

²*Kawamura Pediatric Clinic, Sendai 981-0907; and*

³*Sendai Emergency Medical Service Foundation, Sendai 984-0806, Japan*

(Received June 11, 2012. Accepted August 6, 2012)

- İlk 14 haftada influenza A (H3N2 -112 olgu)
- 14- 18. haftalar arasında İnfluenza B (92 olgu) artış göstermiş
- 17. haftada 1 tane H1N1 olgusu saptanmış

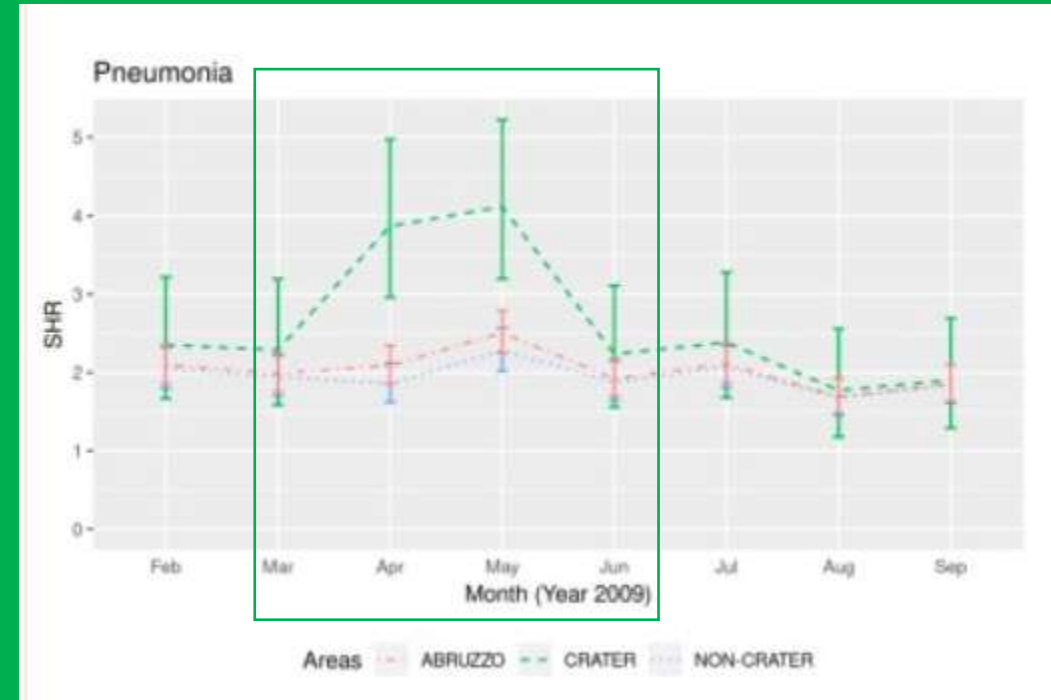


Article

Hospitalization Rates for Respiratory Diseases After L'Aquila Earthquake

Francesco D'Aloisio ^{1,*}, Pierpaolo Vittorini ¹, Anna Rita Giuliani ¹, Maria Scatigna ¹, Jacopo Del Papa ², Mario Muselli ², Giorgio Baccari ² and Leila Fabiani ¹

- 2009 yılında İtalya L'Aquila bölgesinde meydana gelen ve 300 den fazla ölüm ile sonuçlanan deprem sonrasında
- Solunum yolu enfeksiyonları nedeniyle hospitalizasyon oranları değerlendirilmiş ve pnömonilerde belirgin artış olduğu gözlenmiş





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ORIGINAL ARTICLE

Impact of the Tohoku earthquake and tsunami on pneumonia hospitalisations and mortality among adults in northern Miyagi, Japan: a multicentre observational study

Hisayoshi Daito,^{1,2} Motoi Suz
Konosuke Morimoto,³ Masay
Masahiro Hashizume,⁸ Watar
Shoji Okinaga^{1,9}

- Deprem öncesi d
- Deprem sonrası i
- Haftalık hospital
- (95% CI 3.9 - 8.4)
- Ölüm oranı 8.9 kat artmış

A 2010

2011

Table 1 Characteristics of confirmed pneumonia cases by residence, before and after the 2011 Tohoku earthquake and tsunami, Kesenuma City, Miyagi, Japan

Characteristics	Pre-disaster period (1 March 2010–10 March 2011)†			Post-disaster period (11 March–30 June 2011)†				Pre-disaster vs post-disaster period p Value‡
	Residential category*			Residential category**				
	Total (n=225)	Home (n=193)	Nursing home (n=32)	Total (n=217)	Home (n=117)	Nursing home (n=40)	Evacuation shelter (n=60)	
Female sex (%)	98 (43.6)	77 (39.9)	21 (65.6)	93 (42.9)	46 (39.3)	26 (65)	21 (35)	0.882
Age category (%)								
18–49 years	13 (5.8)	12 (6.2)	1 (3.1)	4 (1.8)	3 (2.6)	0 (0)	1 (1.7)	0.161§
50–64 years	21 (9.3)	20 (10.4)	1 (3.1)	18 (8.3)	10 (8.6)	3 (7.5)	5 (8.3)	
65–79 years	61 (27.1)	56 (29)	5 (15.6)	67 (30.9)	32 (27.4)	6 (15)	29 (48.3)	
≥80 years	130 (57.8)	105 (54.4)	25 (78.1)	128 (59)	72 (61.5)	31 (77.5)	25 (41.7)	
Duration of symptoms before admission (%)								
≤2 days	109 (48.4)	91 (47.2)	18 (56.3)	114 (52.5)	59 (50.4)	25 (62.5)	30 (50)	0.434
3 days or more	109 (48.4)	96 (49.7)	13 (40.6)	98 (45.2)	54 (46.2)	14 (35)	30 (50)	
Antibiotics prescribed before admission (%)	32 (14.2)	23 (11.9)	9 (28.1)	29 (13.4)	7 (6)	10 (25)	12 (20)	0.794
With underlying conditions (%)	129 (57.3)	107 (55.4)	22 (68.7)	121 (55.8)	64 (54.7)	30 (75)	27 (45)	0.739
CURB65 score (%)								
3–5 (severe)	26 (11.6)	23 (11.9)	3 (9.4)	27 (12.4)	10 (8.6)	13 (32.5)	4 (6.7)	0.916
0–2 (less severe)	186 (82.7)	159 (82.4)	27 (84.4)	179 (82.5)	97 (82.9)	26 (65)	56 (93.3)	
Deceased (%)	39 (17.3)	31 (16.1)	8 (25)	52 (24)	28 (23.9)	18 (45)	6 (10)	0.085
Microbiological tests performed	145 (64.4)	129 (66.8)	16 (50)	139 (64.1)	74 (63.3)	22 (55)	43 (71.7)	0.932
Positive for <i>Streptococcus pneumoniae</i> ¶	15 (6.7)	13 (6.7)	2 (6.3)	22 (10.1)	9 (7.7)	4 (10)	9 (15)	0.402
Positive for <i>Haemophilus influenzae</i>	3 (1.3)	3 (1.5)	0 (0)	14 (6.5)	7 (6)	0 (0)	7 (11.7)	0.013§
Positive for <i>Klebsiella pneumoniae</i>	8 (3.6)	6 (3.1)	2 (6.2)	11 (5.1)	5 (4.3)	4 (10)	2 (3.3)	0.698

*The characteristics differed by residential categories for gender (p=0.007) and pre-hospital antibiotic treatment (p=0.015).

†The pre-disaster and post-disaster cases were categorised according to the date of onset. The near-drowning-related cases were excluded.

‡Characteristics were compared between the pre-disaster and post-disaster cases. χ^2 tests were performed unless otherwise indicated.

§Fisher's exact test.

¶Either a bacterial culture was isolated or a rapid urinary antigen test was positive.

**The characteristics differed by residential categories for gender (p=0.006), age group (p=0.012), pre-hospital antibiotic treatment (p=0.002), presence of underlying conditions (p=0.012), clinical severity (p<0.001) and fatality (p<0.001).

t-disaster period



20

week of the year




20

week of the year



Review

Respiratory Infections Following Earthquake-Induced Tsunamis: Transmission Risk Factors and Lessons Learned for Disaster Risk Management

Maria Mavrouli ^{1,*}, Spyridon Mavroulis ², Efthymios Lekkas ² and Athanassios Tsakris ¹ 

[65]	3	A total of 550 pneumonia hospitalizations were identified, including 325 during the pre-disaster period and 225 cases during the post-disaster period.	A marked increase in the incidence of pneumonia was observed during the 3-month period following the disaster. Leading causative pathogens: <i>S. pneumoniae</i> , <i>H. influenzae</i> and <i>K.pneumoniae</i> . The positivity of <i>H.influenzae</i> increased by 4-fold after 11 March, especially among patients from evacuation shelters.
[66]	3	6603 participants died of pneumonia during 1 year after the earthquake.	An earthquake increased the risk of pneumonia death and tsunami additionally increased the risk.
[67]	3	49 adults with pneumonia (controls): within 6 weeks before the earthquake 172 adults with community-acquired or health care-associated pneumonia: within the 9 weeks after the earthquake	The number of patients with pneumonia peaked in the first 3 weeks after the earthquake, followed by a gradual decrease starting from 4 weeks after the earthquake. <i>H. influenzae</i> and <i>M. catarrhalis</i> were more predominant than <i>S. pneumoniae</i>
[70]	3	75-year-old female	Pulmonary co-infection with Legionella and multiple antibiotic-resistant <i>E. coli</i>

>5 yaş, yaşlılar, immünsupressifler ciddi risk altında

Table 2. Included studies referring to the occurrence of acute respiratory infections clustered by event and disease/pathogen reported. 1: the 2004 Indian Ocean tsunami, 3: the 2011 Great East Japan tsunami.

Source	Tsunami	Patients	Clinical Presentation—Causative Pathogens
[55]	1	37,492 ARIs cases (WHO) during first five months after the tsunami	The highest percentage of ARI cases occurred within 2 months after the 2004 tsunami.
[57]	1	4710 patients in southern Sri Lanka	1374 (29.2%) patients: trauma-related illnesses 1310 (27.8%) patients: ARIS
[68]	1	324 internally displaced persons in 3 different tsunami disaster evacuation camps of Sri Lanka	ARIs caused by various types of <i>H. influenza</i> and <i>S. pneumoniae</i> were prevalent and some of them, including resistant isolates, were potentially transmitted from person to person in tsunami disaster evacuation camps in Sri Lanka.
[80]	1	101 measles cases	Measles virus circulated in Cuddalore district following the tsunami, although there was no association between the two events.
[82]	1	35 measles cases	The cluster occurred in a susceptible community living in unplanned and crowded camps in Aceh Utara district, Indonesia
[85]	1	2 patients	Multiple infection (tuberculosis and melioidosis)
[56]	3	1167 patients, 6 shelters	Outbreaks of ARI and acute gastroenteritis occurred in evacuation shelters.
[58]	3	7439 patients from 44 shelters	Increased ARI incidence rate in crowded shelters
[61]	3	322 patients with respiratory diseases (11 March–9 May 2011), 99 and 105 patients (corresponding periods in 2009 and 2010)	Increase in the absolute numbers of admissions was highest for pneumonia, followed by acute exacerbation of chronic obstructive pulmonary disease (AE-COPD) and asthma attacks
[62]	3	17 individuals	Pneumonia in older refugees (possible causes: impaired oral hygiene, frequent aspiration, undernutrition, cold temperatures under unfavorable circumstances)
[63]	3	1577 patients	Pneumonia comprised 43% of cases (<i>Streptococcus pneumoniae</i> , <i>Moraxella catarrhalis</i> , <i>Haemophilus influenzae</i>)
[64]	3	inpatients in respiratory medicine departments of regional core hospitals in Miyagi Prefecture	The number of patients diagnosed with CAP was 2.2 times greater in 2011 than in 2010

Pneumonia Associated with Near-Drowning

Peter T. Ender* and Matthew J. Dolan

Clinical Infectious Diseases 1997;25:896–907

From the Department of Infectious Diseases, Wilford Hall Medical Center Lackland AFB, Texas

Drowning and near-drowning can abruptly devastate the lives of both the affected victims and their families. In addition to the complications directly caused by the submersion, several indirect causes of morbidity exist. Infection is one of the complications associated with near-drowning, and pneumonia is the most severe of these infectious complications. The risk factors, microbiological causes, diagnostic approach, and appropriate therapy for pneumonia associated with near-drowning are not well described in the literature. Herein, we review the epidemiology and pathophysiology associated with near-drowning, discuss the potential mechanisms of infection, and describe the likely risk factors for pneumonia related to near-drowning. We also detail the microbiological causes of this entity and provide important clinical and epidemiological information associated with specific pathogens. Finally, we summarize an appropriate diagnostic and therapeutic approach to pneumonia associated with near-drowning.

Table 2. Type of environmental exposure related to organisms causing near-drowning-associated pneumonia.

Organism	Freshwater	Saltwater	Contaminated, stagnant water
Aerobic gram-negative bacteria			
<u><i>Aeromonas</i> species</u>	+++	+	+
<u><i>Burkholderia pseudomallei</i></u>	++		+
<i>Chromobacterium violaceum</i>	++		++
<i>Francisella philomiragia</i>	?	++	
<u><i>Klebsiella pneumoniae</i></u>		+	
<u><i>Legionella</i> species</u>	+		
<i>Neisseria mucosa</i>		+	
<u><i>Pseudomonas aeruginosa</i></u>	+	?	++
<i>Shewanella putrefaciens</i>		+	
<i>Vibrio</i> species	?	+	
Aerobic gram-positive bacteria			
<i>Streptococcus pneumoniae</i>	++	+	
<i>Staphylococcus aureus</i>	?	?	
Fungi			
<i>Aspergillus</i> species	?	+	+
<i>Pseudallescheria boydii</i>	?	?	+++

- Boğulma riski geçiren ve aspirasyon hikayesi olan kişilerde çok Gram negatifler pnömoni etkeni oluyor

BMJ Open Characteristics of pneumonia deaths after an earthquake and tsunami: an ecological study of 5.7 million participants in 131 municipalities, Japan

Yosuke Shibata,¹ Toshiyuki Ojima,¹ Yasutake Tomata,² Eisaku Okada,¹ Mieko Nakamura,¹ Miyuki Kawado,³ Shuji Hashimoto³

Table 1 Characteristics of the population in Miyagi, Iwate and Fukushima Prefectures in coastal and inland municipalities

Characteristics	All municipalities	Coastal municipalities	Inland municipalities
Population	5 725 977	1 801 324	3 924 653
Sex			
Female (%)	2 948 873 (51.5)	925 551 (51.4)	2 023 322 (51.6)
Male (%)	2 777 104 (48.5)	875 773 (48.6)	1 901 331 (48.4)
Age, years			
–14 (%)	766 815 (13.4)	241 192 (13.4)	525 623 (13.4)
15–64 (%)	3 579 121 (62.5)	1 123 719 (62.4)	2 455 402 (62.6)
65+ (%)	1 380 041 (24.1)	436 413 (24.2)	943 628 (24.0)
Pneumonia deaths			
N			
One year before	5 776	1760	4016
One year after	6 603	2115	4488

- 1. ve 12. haftalar arasında ölümlerde artış var.
- İlk haftada bölge 2 de ölüm oranı 2.49 (95% CI 2.02 - 7.64) bölge 1 de ölüm oranı 1.48 (95% CI 1.24 - 2.61),

Factors	Infection cases	Proportion (%)
Age (years)		
≤60	39	33.9
> 60	76	66.1
Gender		
male	53	46.1
female	62	53.9
Length of stay (days)		
≤20	41	35.7
> 20	74	64.3
Mechanical ventilation		
Yes	25	21.7
No	90	78.3
Underlying disease		
Yes	58	50.4
No	57	49.6
Torso trauma		
Yes	71	61.7
No	44	38.3
Traumatic brain injury		
Yes	23	20.0
No	92	80.0

Organism	Isolates number	Proportion (%)
Kinds of bacterium		
<i>Pseudomonas aeruginosa</i>	24	16.8
<i>Klebsiella oxytoca</i>	3	2.1
<i>Enterobacter cloacae</i>	4	2.8
<i>Haemophilus influenzae</i>	1	0.7
<i>Acinetobacter baumannii</i>	34	23.8
<i>Klebsiella pneumoniae</i>	14	9.8
<i>Escherichia coli</i>	6	4.2
<i>Stenotrophomonas maltophilia</i>	6	4.2
<i>Burkholderia cepacia</i>	3	2.1
<i>Enterobacter aerogenes</i>	2	1.4
<i>Proteus mirabilis</i>	3	2.1
Other gram-negative bacilli	3	2.1
<i>Bacillus prodigiosus</i>	2	1.4
<i>Staphylococcus aureus</i>	11	7.7
Kinds of fungi		
<i>Candida albicans</i>	11	7.7
Yeast-like fungus	4	2.8
<i>Aspergillus</i>	5	3.5
<i>Candida tropicalis</i>	4	2.8
<i>Candida glabrata</i>	3	2.1
Total	143	100.0

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Melioidozis

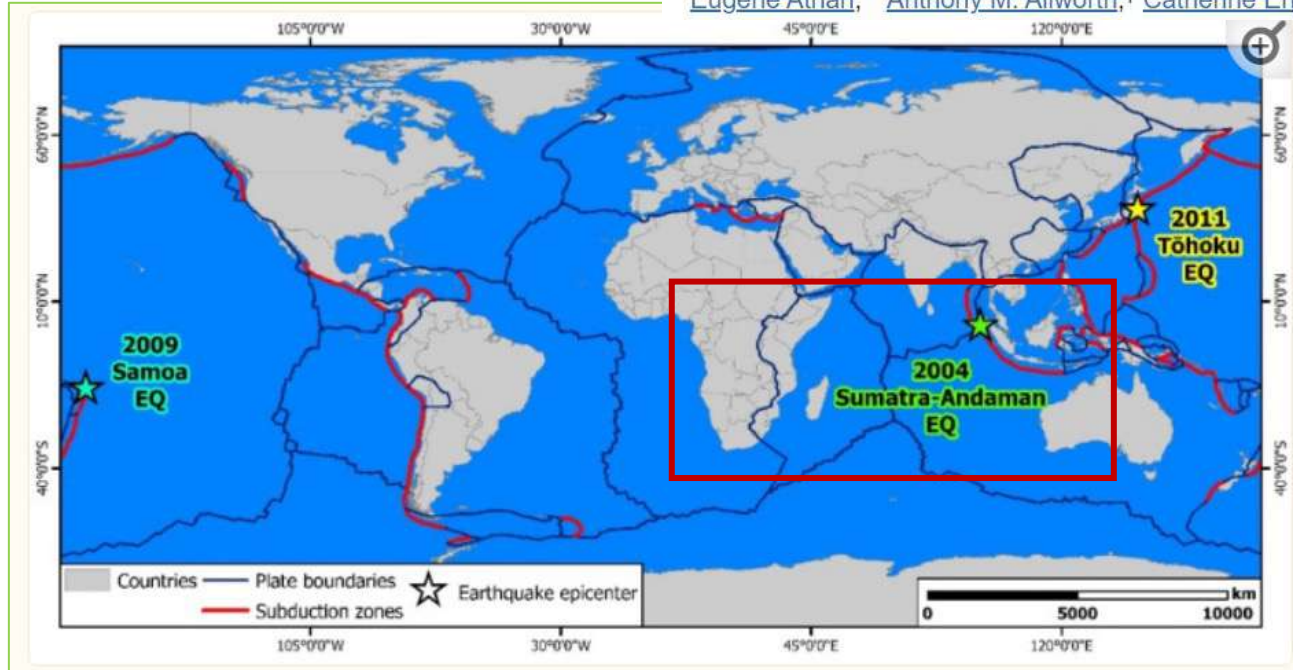
Burkholderia pseudomallei

[Emerg Infect Dis.](#) 2005 Oct; 11(10): 1638–1639.

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Melioidosis in Tsunami Survivors

[Eugene Athan](#),^{✉*} [Anthony M. Allworth](#),[†] [Catherine Engler](#),[‡] [Ivan Bastian](#),[§] and [Allen C. Cheng](#)^{*}



- Kontamine tuzlu su teması, aspirasyon
- İnfiltrasyon ve kavitasyonlarla giden 10 pnömonisi olgusu
- 4 olguda balgamda *B. pseudomallei* üremesi
- Arama kurtarma çalışanları

INFECTIONS IN POST-TSUNAMI VICTIMS

Othman, Norlijah MBBS, MRCP^{*}; Ismail, Intan H. MD^{*}; Yip, Rosalie MBBS, MRCP^{*}; Zainuddin, Zurina MBBS, MRCPCH[†]; Kasim, Sham Mohd MBBS, DCH, MRCP, MAM, FAMM^{*}; Isa, Rahizzan MSc, PhD[‡]; Noh, Lokman Mohd MBBS, DCH, MRCP, FIBCI^{*}

Author Information 

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Çocuklarda
Melioidosis,
Atipik mikobakteriyal,
Polimikrobiyal,
Nadir Fungal İnfeksiyon

İki çocuk hastada pnömoni ile
seyreden melioidoz
Bir olguda akciğer, bir olguda SSS tüberküloz
koenfeksiyonu mevcut

Tüberküloz

Source	Tsunami	Patients	Clinical Presentation—Causative Pathogens
[71]	3	<ul style="list-style-type: none"> • 33-year-old female • 2-year-old female 	Severe pneumonia potentially caused by <i>L. pneumophila</i> , 2 deaths
[73]	3	<ul style="list-style-type: none"> • 105 confirmed influenza cases in five ECs 	An outbreak of influenza A (H3N2) occurred in the ECs after the Great East Japan Earthquake of 2011
[77]	3	<ul style="list-style-type: none"> • 25 patients diagnosed with influenza (Kesennuma City Gymnasium, Kesennuma) • 20 individuals diagnosed with influenza (Tatekoshi Elementary School, Natori) 	Two post-tsunami outbreaks of influenza A in evacuation centers in Miyagi Prefecture, Japan
[78]	3	277 samples tested for influenza virus from Sendai City and evacuation centers in Miyagi Prefecture	Influenza A (H3N2) ($n = 112$ cases), influenza A (H1N1) 2009 ($n = 1$ case), influenza B ($n = 92$ cases)
[79]	3	15 individuals found positive for Influenza A in the Kesennuma City General Gymnasium (K-Wave)	The design of the K-wave gymnasium and the separation of evacuees from the patients prevented any further spreading of the influenza epidemic
[83]	3	93 pulmonary TB patients (tsunami-affected areas 25, non-tsunami areas 68)	<p>Risk factors for prognosis of TB after the earthquake: advanced age, low serum albumin level, functional status at admission, and oxygen requirement.</p> <p>Most of the cases with pulmonary TB experienced reactivation of latent TB infection</p>
[84]	3	Monitoring of TB and LTBI patients in coastal and inland shelters of Northern Miyagi Prefecture, Japan	The numbers of TB patients and of patients with LTBI significantly increased in the post-disaster period, especially among evacuees staying in crowded shelters in coastal regions of Northern Miyagi Prefecture

Tuberculosis Exposure among Evacuees at a Shelter after Earthquake, Japan, 2011

Hajime Kanamori, Noboru Aso, Satoko Tadano, Miyoko Saito,¹ Hiroo Saito, Bine Uchiyama, Noriomi Ishibashi, Shinya Inomata, Shiro Endo, Tetsuji Aoyagi, Masumitsu Hatta, Mitsuhiro Yamada, Yoshiaki Gu, Koichi Tokuda, Hisakazu Yano, Hiroyuki Kunishima, Yoichi Hirakata, Takao Saijyo,² Miho Kitagawa, and Mitsuo Kaku

The Study

The index case-patient was an 87-year-old woman with congestive heart failure who was referred from a disaster medical assistance team and admitted to our hospital on April 6. She reported leg edema starting at the end of February and a cough beginning in early March. On March 11, the day of the earthquake and resulting tsunami, she spent a night in a shrine near her home, which had been completely destroyed. She had also lost all of her daily medications. She stayed at a disaster shelter with family members and other evacuees on March 12–15 (3 days) and then moved to her daughter's home. She reported that she experienced fever, headache, general malaise, appetite loss, "terrible" cough, sputum, and dyspnea on April 4; on April 6, she visited the disaster medical assistance team.

Chest radiograph and computed tomography scan were performed, and results revealed extensive infiltrative shadows with air bronchograms in the right lung; results were normal for the left lung. Pneumonia was diagnosed, and an empirical therapy of intravenous antimicrobial

- 2011 Büyük Doğu Japonya depreminden sonra 3 gün sığınakta kalan bir kişide 1 ay sonra aktif akciğer tüberkülozu teşhisi kondu.
- Temaslı araştırması, 3 kişiye ppd, 57 kişiye quantirefon testi yapılmış,
- 2 ppd testi, 9 quantiferon testi pozitif saptanmış
- Barınakta temaslı olan diğer kişiler arasında latent tüberküloz enfeksiyonu sıklığı %20 saptanmış. Bu durum doğal afetlerden sonra tüberkülozdan korunma ve kontrolün önemini vurgulamaktadır.

Clinical and molecular epidemiological features of tuberculosis after the 2011 Japan earthquake and tsunami

H. Kanamori,^{*†‡} T. Hatakeyama,[§] B. Uchiyama,^{*} D. J. Weber,[‡] M. Takeuchi,^{*} S. Endo,[†] Y. Hirakata,^{*} M. Kaku[†]

^{*}Miyagi Cardiovascular and Respiratory Center, Kurihara, Miyagi, [†]Department of Infection Control and Laboratory Diagnostics, Internal Medicine, Tohoku University Graduate School of Medicine, Sendai, Miyagi, Japan; [‡]Division of Infectious Diseases, University of North Carolina School of Medicine, Chapel Hill, North Carolina, USA;

[§]Department of Microbiology, Miyagi Prefectural Institute of Public Health and Environment, Sendai, Miyagi, Japan

- 2011-2012
- 93 pulmoner tüberküloz,
- %90 semptomatik
- %20 eşlik eden bir hastalık var(diyabet, kalp, malignite)
- Kötü koşullarda latent tüberküloz aktive oluyor olabilir
- Yaşlılarda daha ağır seyrediyor ve ölüm daha fazla

Latent Tuberculosis Infection in Nurses
Exposed to Tuberculous Patients Cared for
in Rooms without Negative Pressure after
the 2011 Great East Japan Earthquake

Tüberküloz vakalarındaki artış **sağlık çalışanlarını da etkiliyor**

2'si smear pozitif, 25 tüberküloz vakasının takip edildiği bir merkez

Bu hastalara bakım veren 15 hemşirenin 3'ünde quantiferon test pozitif

Negatif basınçlı odalardaki elektrik kesintileri ve sistemin hasarlanması

Odaların soğuk hava nedeniyle havalandırılmaması

Tuberculosis in the aftermath of the 2010 earthquake in Haiti

Serena P Koenig,^a Vanessa Rouzier,^a Stalz Charles Vilbrun,^a Willy Morose,^b Sean E Collins,^c Patrice Joseph,^a Diessy Decome,^a Oksana Ocheretina,^a Stanislas Galbaud,^a Lauren Hashiguchi,^a Julma Pierrot^a & Jean William Pape^a

Table 1. **Outcomes of active case finding for tuberculosis in a camp for internally displaced persons and a slum in Port-au-Prince, Haiti, 2010–2013**

Location	Time period	Residents identified with cough \geq 2 weeks, No.	Patients receiving sputum microscopy, No. (%)	Cases of pulmonary tuberculosis, ^a No.	Sputum smear-positive cases, ^a No. (%)	Incidence of tuberculosis/100 000 person-years
Internally displaced persons camp	1 July 2010 to 30 June 2011	282	176 (62%)	34	22 (65)	693
Cité de Dieu Slum	17 August 2011 to 16 August 2013	1420	unknown ^b	233	183 (79)	1165

^a Tuberculosis cases were either smear-positive, or diagnosed by a combination of symptoms and chest radiograph findings.

^b It is unknown how many of the 1420 coughing patients had smear microscopy. Of the 233 patients with active TB, 212 had a sputum smear.

CASE REPORT

Combined *Legionella* and *Escherichia Coli* Lung Infection after a Tsunami Disaster

Kei Ebisawa, Norihiro Yamada, Shinji Okada, Yasuko Suzuki, Asami Satoh,
Makoto Kobayashi and Naoto Morikawa



Figure 1. Chest X-ray on admission to our hospital. Infiltrations and atelectasis in right middle and lower lung field were observed.

İdrar ve plevral efüzyonda
Legionella antigen pozitif

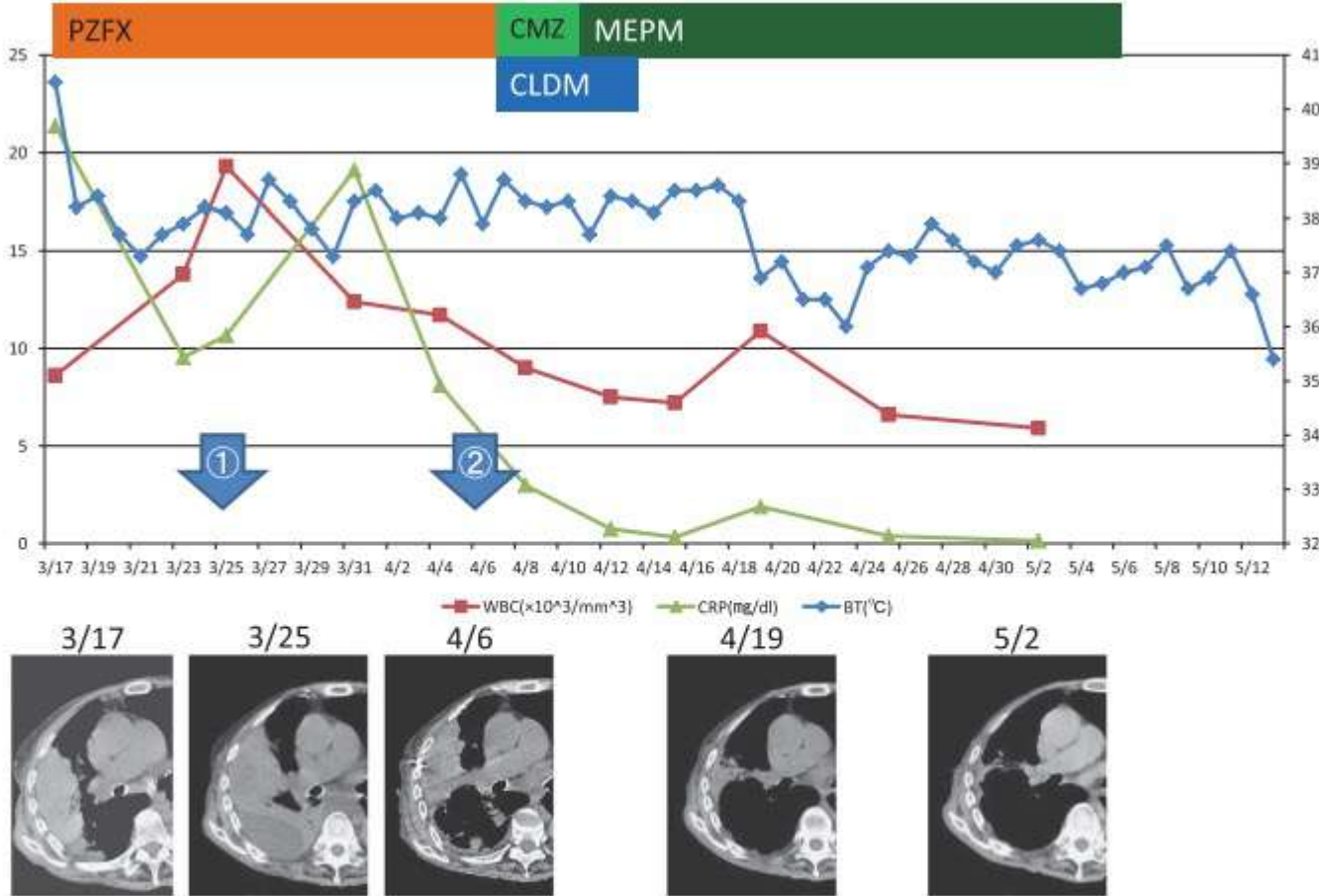


Figure 3. Clinical course. Arrow ① indicates the drainage to the pleural effusion at the end of March, and arrow ② indicates the drainage to the abscess inside the right lower lobe in early April. On follow-up CT in mid-April, both the pleural effusion and the abscess had disappeared, although her fever remained until mid-May.

Two cases of severe pneumonia after the 2011 Great East Japan Earthquake

Toshihide Nakadate,^a Yutaka Nakamura,^a Kohei Yamauchii^a and Shigeatu Endo^a

Severe pneumonia after the 2011 Great East Japan Earthquake

Nakadate et al.

Figure 1. 33-year-old woman's chest X-ray showed alveolar infiltrate with air bronchogram in left upper lobe, and showed multifocal, bilateral nodular opacities



Legionella
Scedosporium prolificans

Figure 2. Two-year-old girl's chest X-ray showed right upper lobe consolidation and infiltrative shadow in left upper lobe



Legionella

Table 2. Included studies referring to the occurrence of acute respiratory infections clustered by event and disease/pathogen reported. 1: the 2004 Indian Ocean tsunami, 3: the 2011 Great East Japan tsunami.

Source	Tsunami	Patients	Clinical Presentation—Causative Pathogens
[55]	1	37,492 ARIs cases (WHO) during first five months after the tsunami	The highest percentage of ARI cases occurred within 2 months after the 2004 tsunami.
[57]	1	4710 patients in southern Sri Lanka	1374 (29.2%) patients: trauma-related illnesses 1310 (27.8%) patients: ARIS
[68]	1	324 internally displaced persons in 3 different tsunami disaster evacuation camps of Sri Lanka	ARIs caused by various types of <i>H. influenza</i> and <i>S. pneumoniae</i> were prevalent and some of them, including resistant isolates, were potentially transmitted from person to person in tsunami disaster evacuation camps in Sri Lanka.
[80]	1	101 measles cases	Measles virus circulated in Cuddalore district following the tsunami, although there was no association between the two events.
[82]	1	35 measles cases	The cluster occurred in a susceptible community living in unplanned and crowded camps in Aceh Utara district, Indonesia
[85]	1	2 patients	Multiple infection (tuberculosis and melioidosis)
[56]	3	1167 patients, 6 shelters	Outbreaks of ARI and acute gastroenteritis occurred in evacuation shelters.
[58]	3	7439 patients from 44 shelters	Increased ARI incidence rate in crowded shelters
[61]	3	322 patients with respiratory diseases (11 March–9 May 2011), 99 and 105 patients (corresponding periods in 2009 and 2010)	Increase in the absolute numbers of admissions was highest for pneumonia, followed by acute exacerbation of chronic obstructive pulmonary disease (AE-COPD) and asthma attacks
[62]	3	17 individuals	Pneumonia in older refugees (possible causes: impaired oral hygiene, frequent aspiration, undernutrition, cold temperatures under unfavorable circumstances)
[63]	3	1577 patients	Pneumonia comprised 43% of cases (<i>Streptococcus pneumoniae</i> , <i>Moraxella catarrhalis</i> , <i>Haemophilus influenzae</i>)
[64]	3	inpatients in respiratory medicine departments of regional core hospitals in Miyagi Prefecture	The number of patients diagnosed with CAP was 2.2 times greater in 2011 than in 2010

Sonuç

Deprem ve depremin tetiklediđi tsunami sonrası

- Solunum yolu infeksiyonları sık görülür
- Mevsimsel döngüde viral infeksiyonlar (influenza vb)
- İlk haftalarda toplu yaşam ve hava koşullarından kaynaklanan toplum kaynaklı pnömoniler sık görülür

Sonuç

- Travma vb. nedenlerle hospitalize edilen olgularda hastane kaynaklı enfeksiyonlar gelişecektir
- Endemisiteye bađlı olarak melioidoz, fungal enfeksiyonlar ve legionella enfeksiyonları görülebilir
- İlerleyen dönemlerde yeni tüberküloz enfeksiyonları ve latent tüberküloz aktivasyonları saptanabilir