RSV, Mikoplazma ve Boğmaca Enfeksiyonları

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Hacettepe Üniversitesi Çocuk Enfeksiyon Hastalıkları Bilim Dalı

KLIMIK 2024, Antalya

Boğmaca Enfeksiyonları

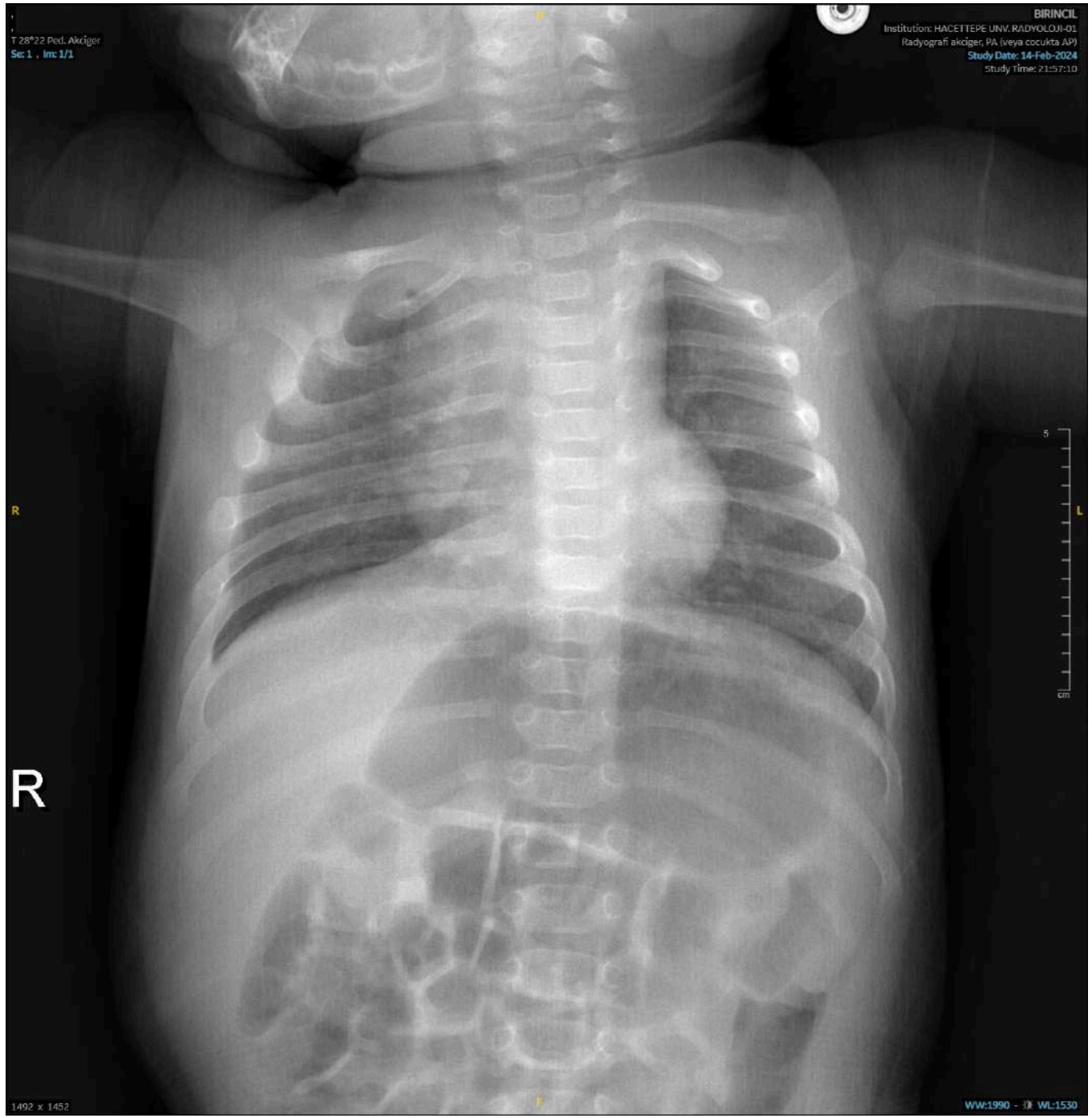
Örnek Vaka_HÜTF

Vaka_HUTF

- 2 ay 6 günlük K hasta
- **Şikayet:** Öksürük , morarma
- **Hikaye:** Bilinen bir hastalığı olmayan, düzenli devit 1x3 damla kullanan hasta 5 gündür öksürük şikayeti varmış. 2 gündür öksürüğünün şiddeti artmış. Dün geceden beri öksürürken morarma şikayeti olmuş. DMde klamer başlanmış, 2 gündür kullanıyormuş. Ateşi olmamış, burun tıkanıklığı olmuş.
- Evde şikayeti olan erişkin yok.

FİZİK MUAYENE

- **VİTAL BULGULAR:**
- **Nabız:** 150 /dk **Solunum:** 50/dk **Ateş:** 36.8 °C **O2 SAT:** %99
- **SOLUNUM SİSTEMİ:** Solunumu rahat. Ral - ronkus duyulmadı. Wheezing, stridor yok. Ek ses duyulmadı. Takipnesi çekilmesi yok. Solunumu rahat Her iki hemitoraks solunuma eşit katılmakta. **KARDİYOVASKÜLER SİSTEM:** S1+ S2+ doğal ve ritmik duyuldu. Ek ses üfürüm duyulmadı. Kapiller dolum zamanı <2
- **KARIN MUAYENESİ:** Batın rahat. Normal bombelikte. Hassasiyet yok. Barsak sesleri normoaktif.
- **NÖROLOJİK MUAYENE:** Doğal


T 28*22 Ped. Akciger
Se: 1 , Im: 1/1
BIRINCIL
Institution: HACETTEPE UNV. RADYOLOJI-01
Radyografi akciger, PA (veya cocukta AP)
Study Date: 14-Feb-2024
Study Time: 21:57:10
R
L
5
cm
R
1492 x 1452
WW:1990 - WL:1530

Laboratuvar

- HEMOGLOBİN - 11,1 gr/dL
- LÖKOSİT - 19,57 x10^3/µL
- NÖTROFİL# - 2,38 x10^3/µL
- TROMBOSİT - 515 x10^3/µL
- Sedimentasyon (ESR) - 2 mm/saat
- CRP (Acil) - < 3,11 mg/L
- Biyokimya: Normal

Laboratuvar

- HEMOGLOBİN - 11,1 gr/dL
- LÖKOSİT - 19,57 x10^3/µL
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- TROMBOSİT - 515 x10^3/µL
- Sedimentasyon (ESR) - 2 mm/saat
- CRP (Acil) - < 3,11 mg/L
- Biyokimya: Normal
- SYVP-SYBP**: Bordetella Pertussis (+)**

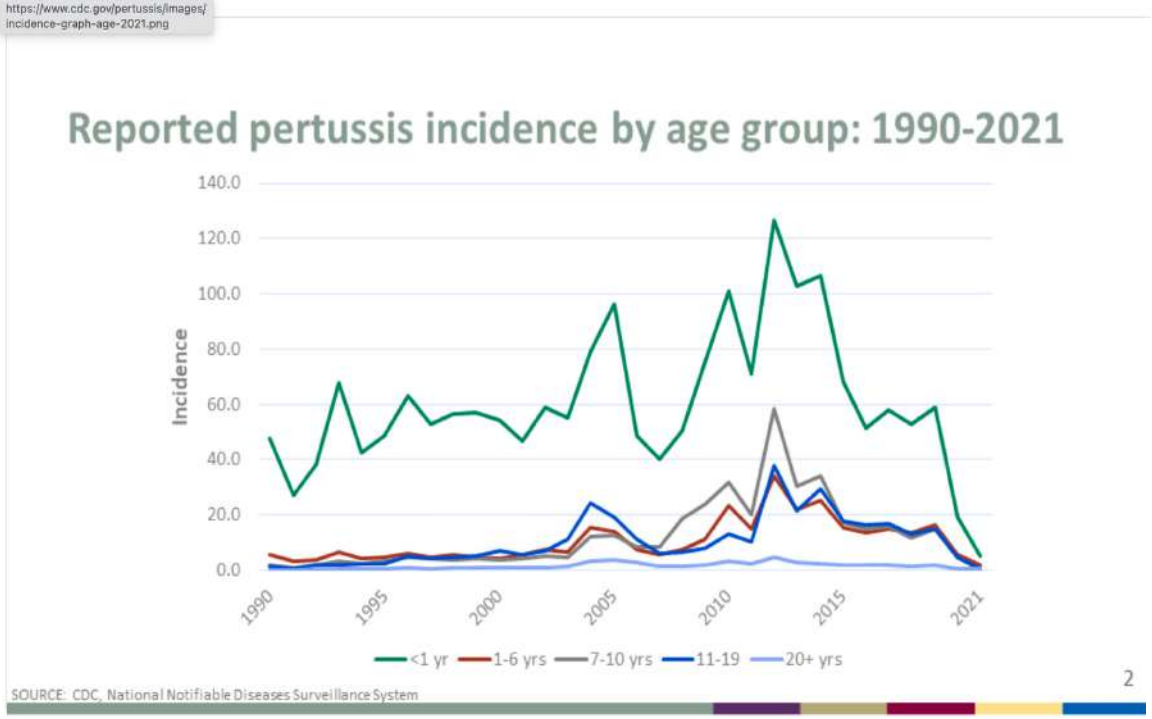
Klinik kriterler

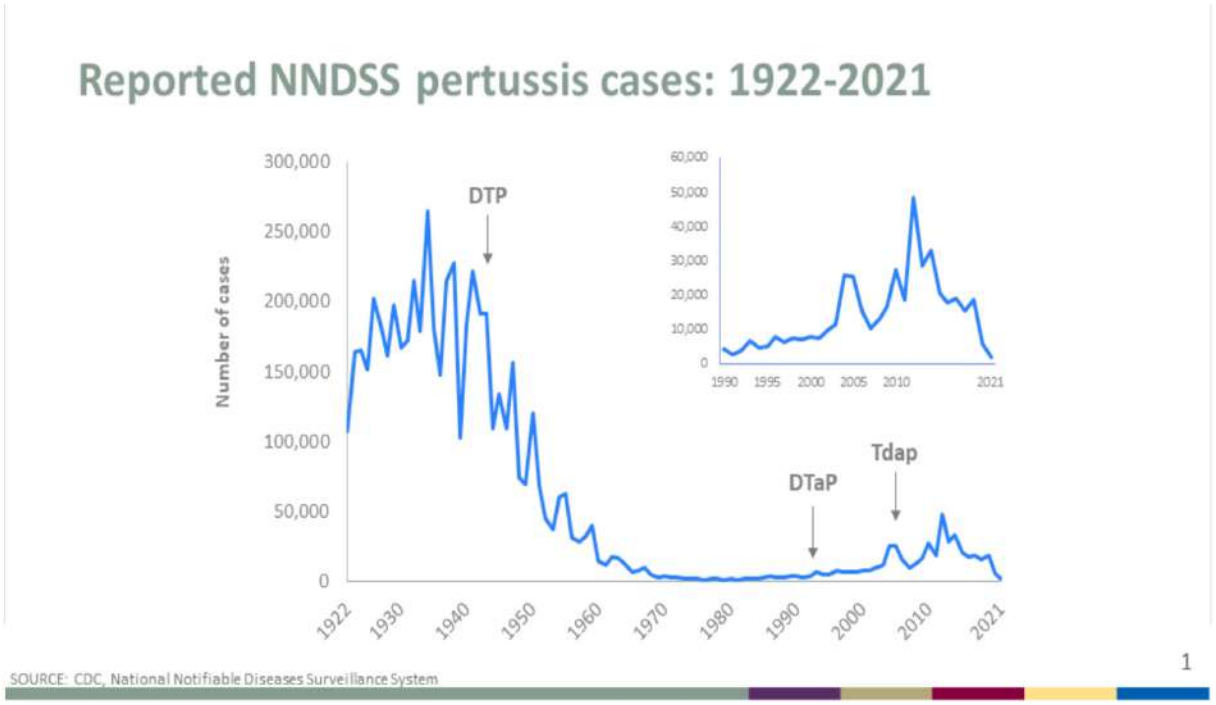
- Aşağıdaki belirti veya bulgulardan en az biri ile birlikte daha olası bir tanının yokluğunda ≥2 hafta süren öksürük,
  - ❖Öksürük nöbetleri VEYA
  - ❖İnspiratuvar boğmaca VEYA
  - ❖Öksürük sonrası kusma VEYA
  - ❖Apne (siyanozlu veya siyanozsuz)

https://www.cdc.gov/pertussis/surv-reporting.html#print (Access date: 8 February 2024)

Amerika’da Epidemiyoloji

Pertussis trends in the United States





https://www.cdc.gov/pertussis/surv-reporting.html#print (Access date: 8 February 2024)

Avrupa’da Boğmaca

SURVEILLANCE REPORT

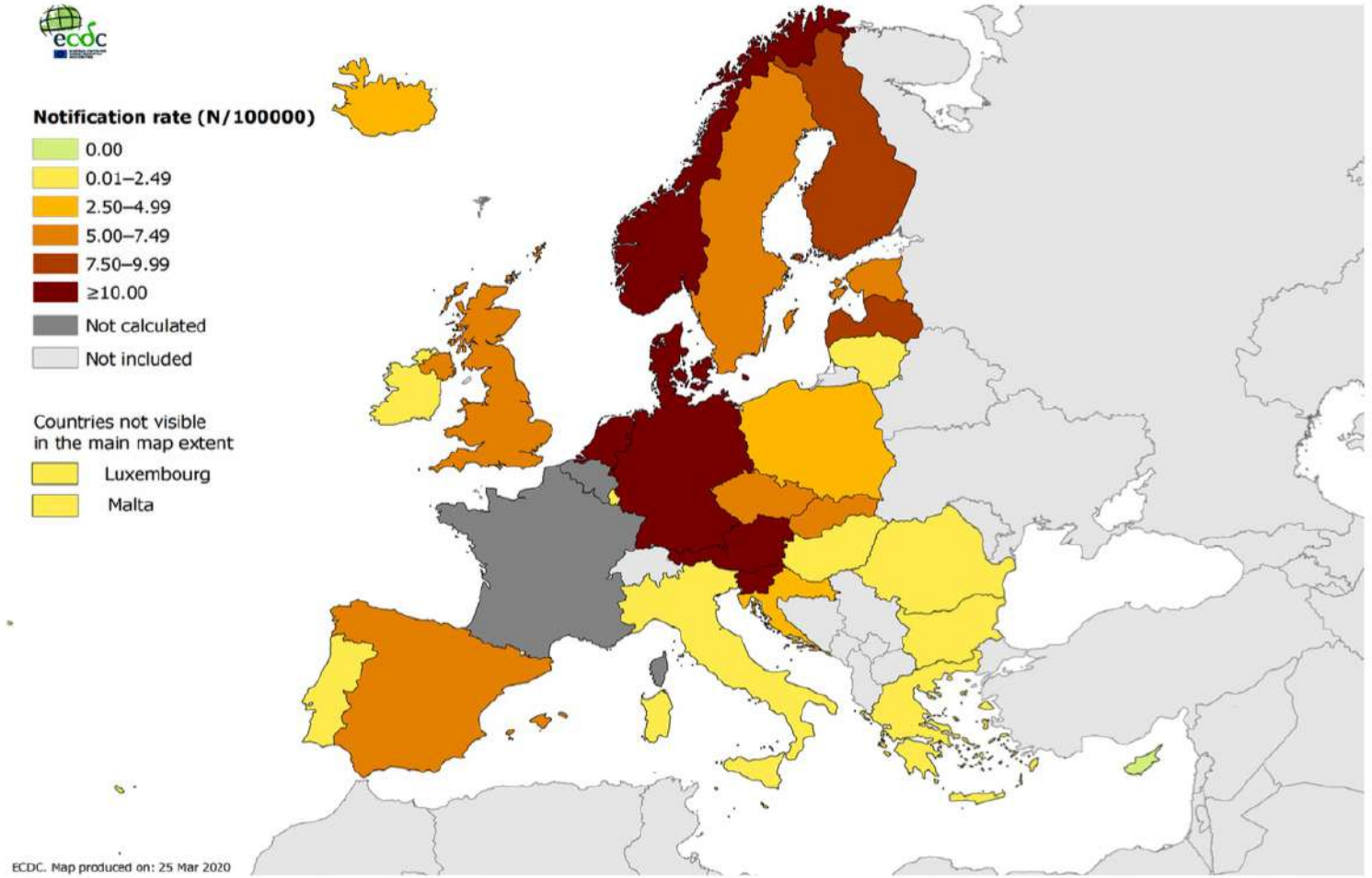
Pertussis

Annual Epidemiological Report for 2018

Key facts

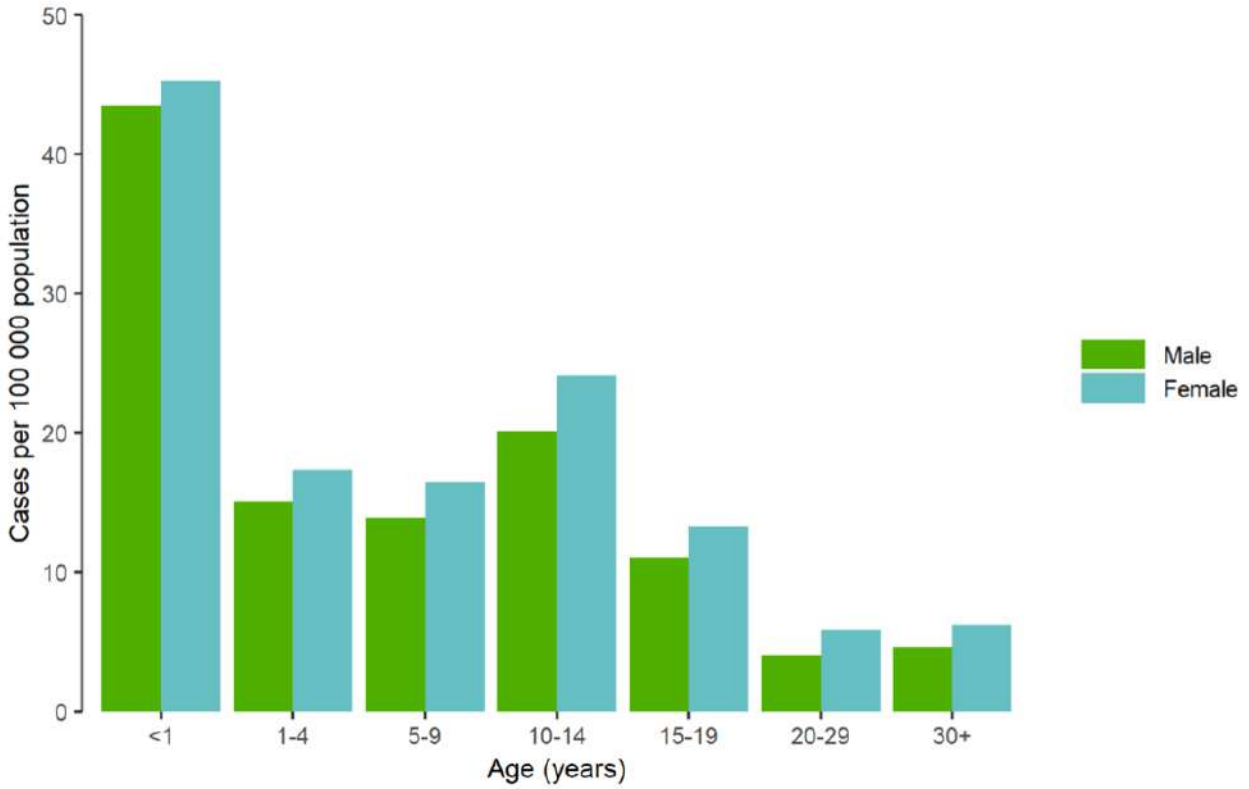
- In 2018, there were 35 627 cases of pertussis reported by 30 European Union/European Economic Area (EU/EEA) countries.
- Five countries - Germany, the Netherlands, Norway, Spain and the United Kingdom (UK) - accounted for 72% of all notified cases.
- The notification rate in 2018 was 8.2 cases per 100 000 population, which was similar to the previous four years but the lowest observed in this time period.
- Individuals ≥15 years of age accounted for 62% of all cases reported. Infants below the age of one year were the most affected age group, with the highest rate 44.4 per 100 000 population (and three deaths reported), followed by rates in 10–14-year-olds.
- The clinical presentation of pertussis in adolescents and adults may be mild and is often not recognised, which contributes to bacteria circulation in the population. This poses a transmission risk to infants who are too young to have completed the primary pertussis vaccination series.
- The objectives of pertussis prevention and control include prevention of severe disease and deaths among infants under six months through well-adapted and implemented vaccination programmes. As of August 2020, eight countries have implemented maternal immunisation programmes and five countries’ vaccination programmes include at least one booster – including the pertussis component – in individuals over the age of 18 years.

Figure 1. Distribution of pertussis cases per 100 000 population by country, EU/EEA, 2018



ECDC. Pertussis. Annual Epidemiological Report for 2018

Figure 2. Distribution of pertussis cases per 100 000 population, by age and gender, EU/EEA, 2018



ECDC. Pertussis. Annual Epidemiological Report for 2018

Epidemiol. Infect. (2014), **142**, 672–684.
doi:10.1017/S0950268812003093

REVIEW ARTICLE
Perplexities of pertussis: recent global epidemiological trends and their potential causes

D. W. JACKSON[1]* AND PEJMAN ROHANI[1,2,3]

[1] *Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, MI, USA*
[2] *Center for the Study of Complex Systems, University of Michigan, Ann Arbor, MI, USA*
[3] *Fogarty International Center, National Institutes of Health, Bethesda, MD, USA*

Received 16 October 2012; Final revision 10 December 2012; Accepted 10 December 2012; first published online 16 January 2013

SUMMARY

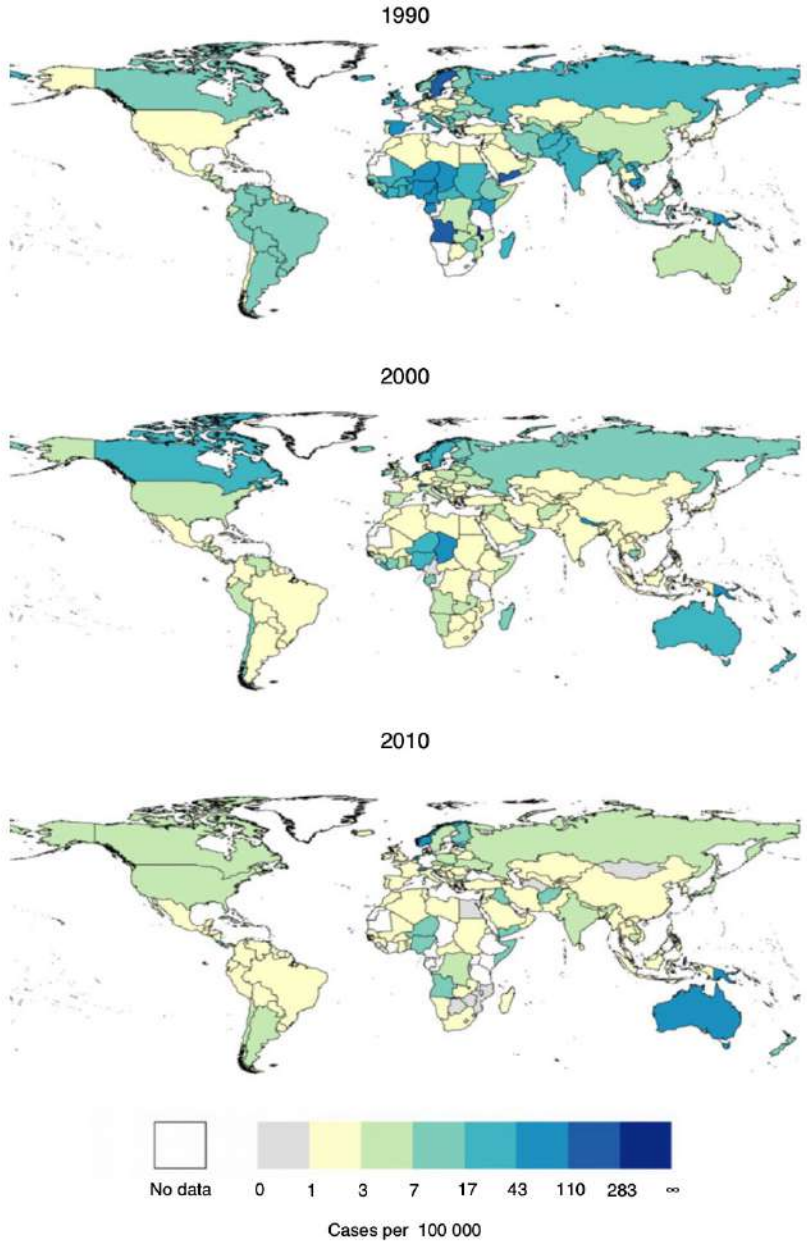


Fig. 2 [*colour online*]. Absolute incidence of pertussis per country for the years 1990, 2000, and 2010, binned logarithmically. Data are smoothed using 5-year moving averages to account for the known periodicity of pertussis.

Jackson DW, et al. Epidemiol Infect 2014;142:672-684.

Türkiye’de Durum

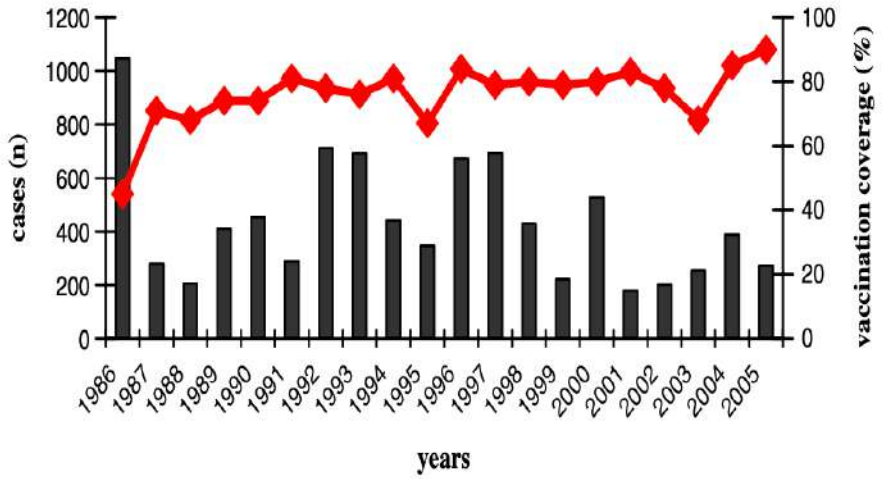
Eur J Clin Microbiol Infect Dis (2008) 27:335–341
DOI 10.1007/s10096-007-0442-x

ARTICLE

Recent findings on pertussis epidemiology in Turkey

D. Dilli · İ. Bostanci · Y. Dallar · T. Buzgan · H. Irmak · M. A. Torunoğlu

Fig. 1 Vaccination coverages among children <12 months of age (*red line*) and reported pertussis cases (*black bars*), Turkey, 1986–2005



- 1985 yılında aşı kampanyaları başlıyor.
- 2001 yılında DTP aşı kapsayıcılığı %20-30'dan %83'e çıkıyor.

Dilli D, at al. Eur J Clin Microbiol Infect Dis 2008;27:335-341.

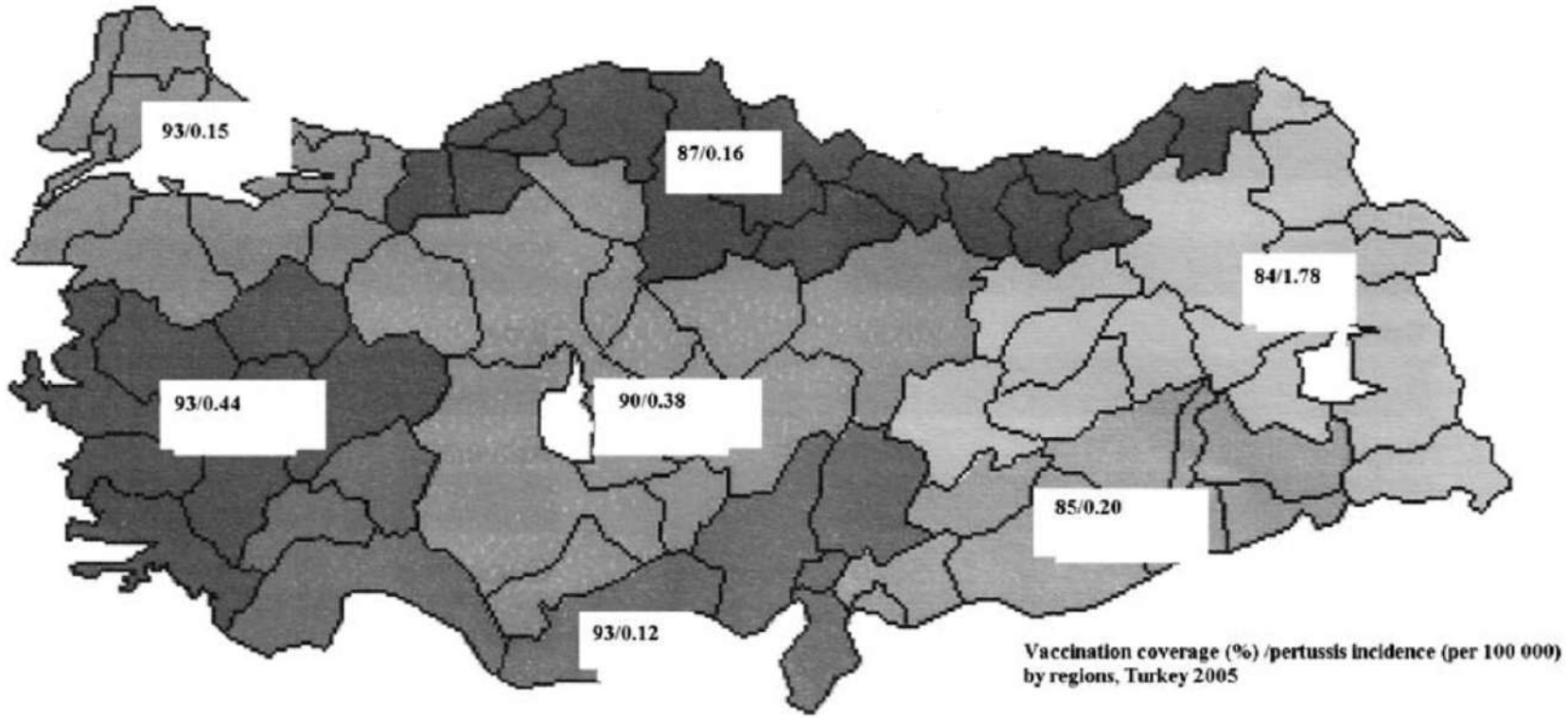


Fig. 4 Vaccination coverages (%) and pertussis incidence (per 100,000) by regions, Turkey, 2005

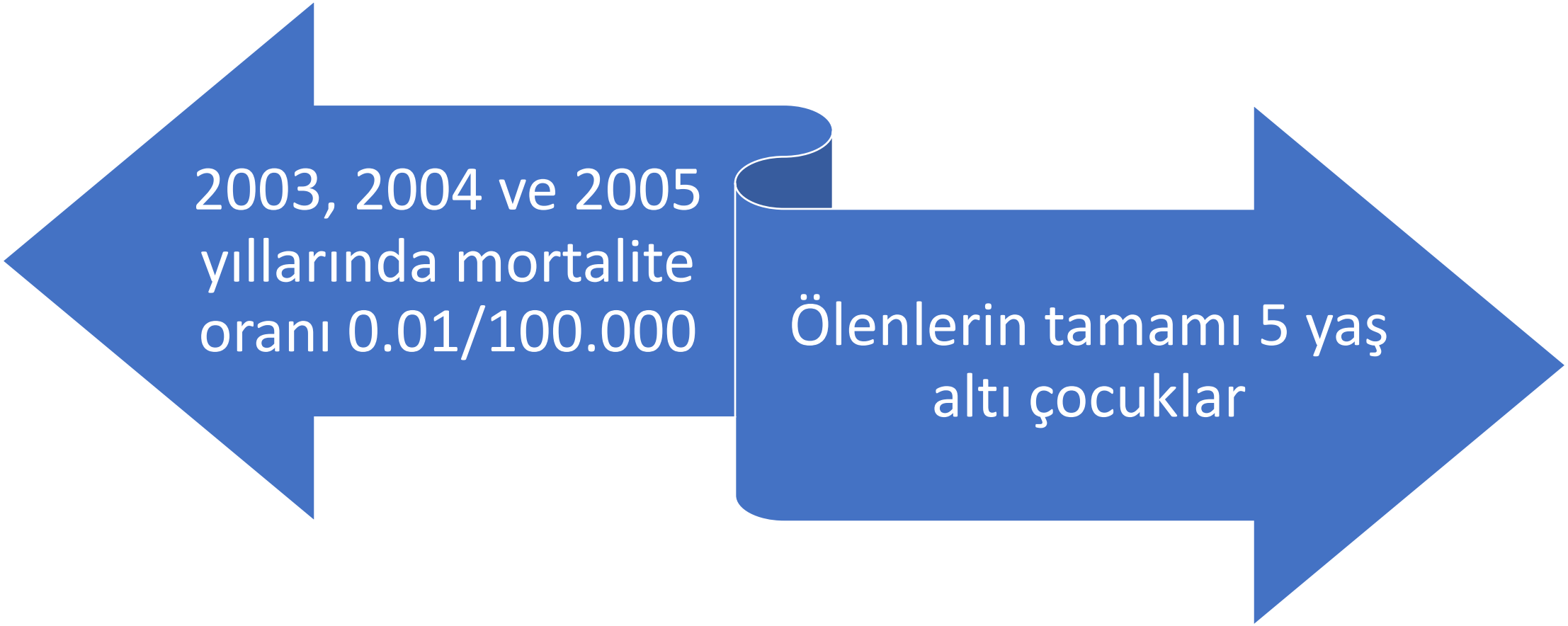
Dilli D, at al. Eur J Clin Microbiol Infect Dis 2008;27:335-341.

Aşılamalar ile değişen Türkiye Epidemiyolojisi

- 1970
  - 21/100.000
- 2000
  - 0.78/100.000
- 2005
  - 0.38/100.000

Dilli D, at al. Eur J Clin Microbiol Infect Dis 2008;27:335-341.

Mortalite



Dilli D, at al. Eur J Clin Microbiol Infect Dis 2008;27:335-341.

Korunma

T.C Sağlık Bakanlığı
Ulusal Çocukluk Dönemi
Aşılama Takvimi (2020)

	Doğumda	1.Ayın Sonu	2.Ayın Sonu	4.Ayın Sonu	6.Ayın Sonu	12.Ayın Sonu	18.Ayın Sonu	24.Ayın Sonu	48.ay[3]	13 yaş
Hep-B	I	II			III					
BCG			I							
KPA			I	II		R				
DaBT-İPA-Hib			I	II	III		R			
OPA					I		II			
[1]Suçiçeği						I				
KKK						I			II	
[2]Hep-A							I	II		
DaBT-İPA									R	
Td										R

https://asi.saglik.gov.tr/asi/images/yayinlar/Aslama_-_Brosur.pdf

Koza Stratejisi

Cocoon Vaccination Strategy

• Aim is to minimize the risk of the transmission of pathogens in the environment of a patient who is susceptible to an infection.

• Refers to vaccination in persons

- ✓who might develop an illness but cannot be vaccinated due to permanent or temporary medical contraindications to a vaccination (immunosuppressed patients)
- ✓who are too young to have a vaccination.

Nitsch-Osuch A, et al. Cocoon strategy of vaccinations: Benefits and limitations. Chapter 1. 2017

Vaccine 36 (2018) 2012–2019

Contents lists available at ScienceDirect

Vaccine

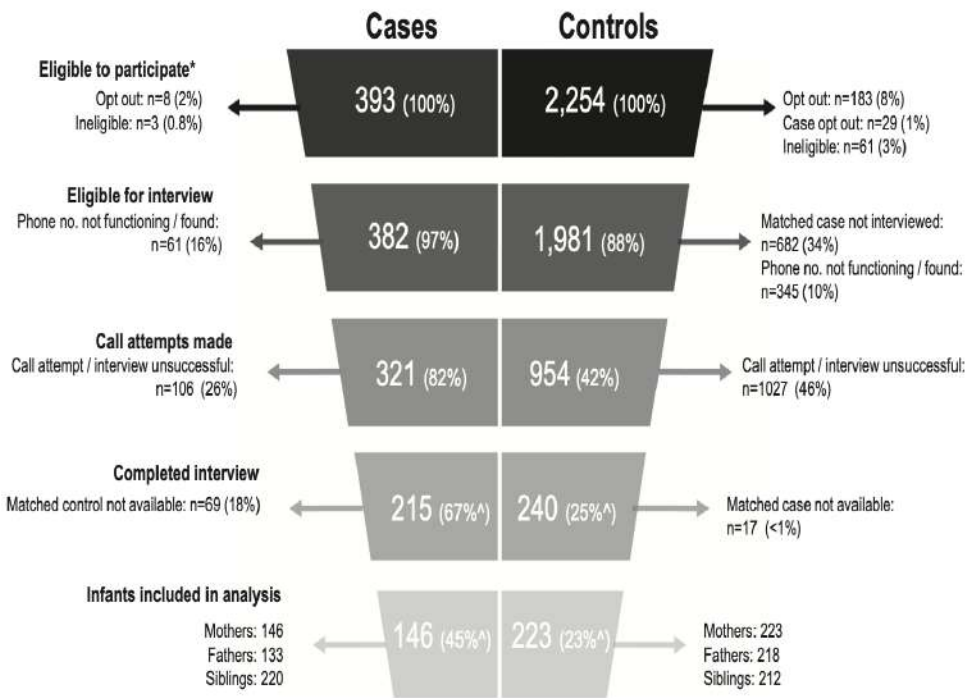
journal homepage: www.elsevier.com/locate/vaccine

Effectiveness of parental cocooning as a vaccination strategy to prevent pertussis infection in infants: A case-control study

Stacey L. Rowe [a,*], Ee Laine Tay [a], Lucinda J. Franklin [a], Nicola Stephens [a], Robert S. Ware [b,c], Marlena C. Kaczmarek [c,d], Rosemary A. Lester [a], Stephen B. Lambert [d]

[a] State Government Department of Health and Human Services, 50 Lonsdale Street, Melbourne, Victoria, Australia
[b] Menzies Health Institute Queensland, Griffith University, Brisbane, Queensland, Australia
[c] School of Public Health, The University of Queensland, Brisbane, Queensland, Australia
[d] UQ Child Health Research Centre, School of Medicine, The University of Queensland, Brisbane, Queensland, Australia

Koza immünizasyonu infantlarda boğmacayı %64 oranında azaltmaktadır.



* Ineligible case participants included two participants with incorrect date of birth and one participant with an incorrect address (non-Victorian resident); ineligible control participants included participants whose corresponding matched case was not eligible, or who were stillborn.

^ Denominator = Call attempts made (i.e. examined for eligibly)

Fig. 2. Study attrition.

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2024

Always use this table in conjunction with Table 1 and the Notes that follow. Medical conditions or indications are often not mutually exclusive. If multiple medical conditions or indications are present, refer to guidance in all relevant columns. See Notes for medical conditions or indications not listed.

VACCINE	Pregnancy	Immunocompromised (excluding HIV infection)	HIV infection CD4 percentage and count		Men who have sex with men	Asplenia, complement deficiency	Heart or lung disease	Kidney failure, End-stage renal disease or on dialysis	Chronic liver disease; alcoholism[a]	Diabetes	Healthcare Personnel[b]
			<15% or <200mm³	≥15% and ≥200mm³							
COVID-19		See Notes									
IIV4 or RIV4	1 dose annually										
LAIV4					1 dose annually if age 19–49 years		1 dose annually if age 19–49 years				
RSV	Seasonal administration. See Notes	See Notes				See Notes					
Tdap or Td	Tdap: 1 dose each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	*										
VAR	*			See Notes							
RZV		See Notes									
HPV	*	3 dose series if indicated									
Pneumococcal											
HepA											
Hep B	See Notes									Age ≥ 60 years	
MenACWY											
MenB											
Hib		HSCT: 3 doses[c]				Asplenia: 1 dose					
Mpox	See Notes				See Notes						See Notes

- Recommended for all adults who lack documentation of vaccination, **OR** lack evidence of immunity
- Not recommended for all adults, but recommended for some adults based on either age **OR** increased risk for or severe outcomes from disease
- Recommended based on shared clinical decision-making
- Recommended for all adults, and additional doses may be necessary based on medical condition or other indications. See Notes.
- Precaution: Might be indicated if benefit of protection outweighs risk of adverse reaction
- Contraindicated or not recommended *Vaccinate after pregnancy, if indicated
- No Guidance/ Not Applicable

https://www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf (Erişim tarihi: 22 Şubat 2024)

Tdap

- Tdap, hastanın daha önce Tdap alma geçmişine bakılmaksızın, tercihen 27-36. gebelik haftaları arasında, her hamilelik sırasında uygulanabilir. Aksi takdirde Tdap doğumdan hemen sonra uygulanmalıdır.

https://www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf (Erişim tarihi: 22 Şubat 2024)

RSV Enfeksiyonları

RSV Epidemiyolojisi

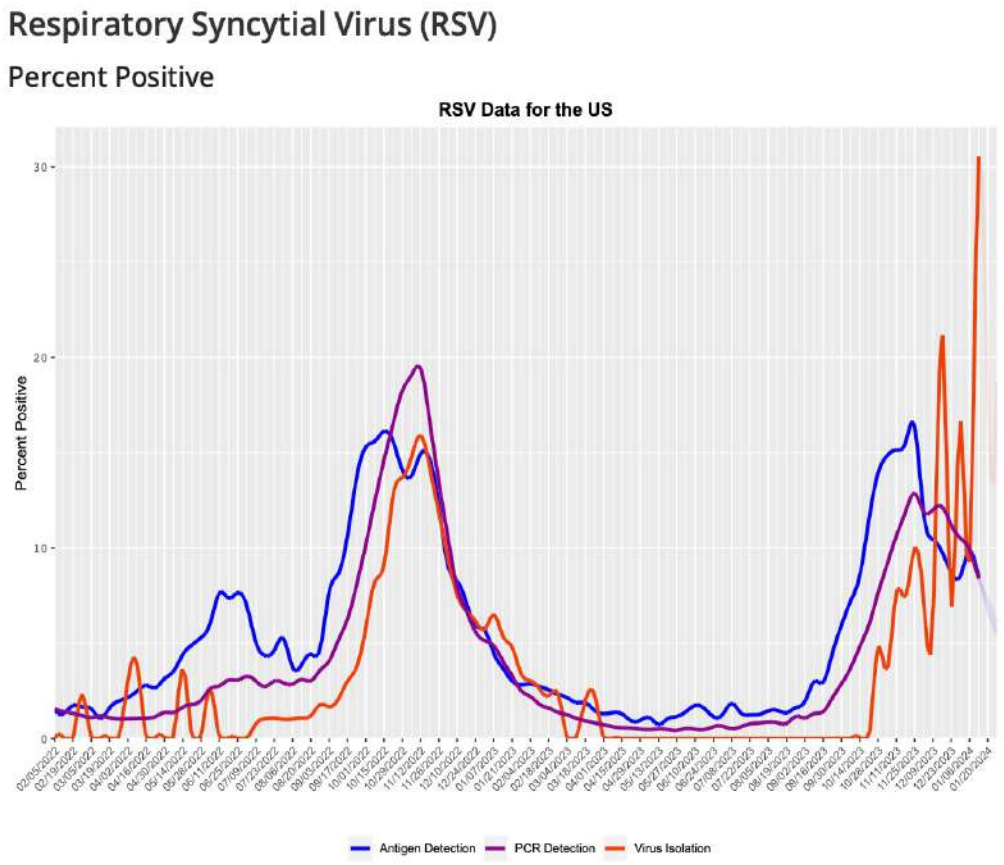
RSV dünya çapında tahmini 30 milyon vaka, 3.6 milyon hastaneye başvurusu ve 100.000 ölümle küçük çocuklarda akut solunum yolu enfeksiyonlarının önde gelen nedenlerinden biridir.

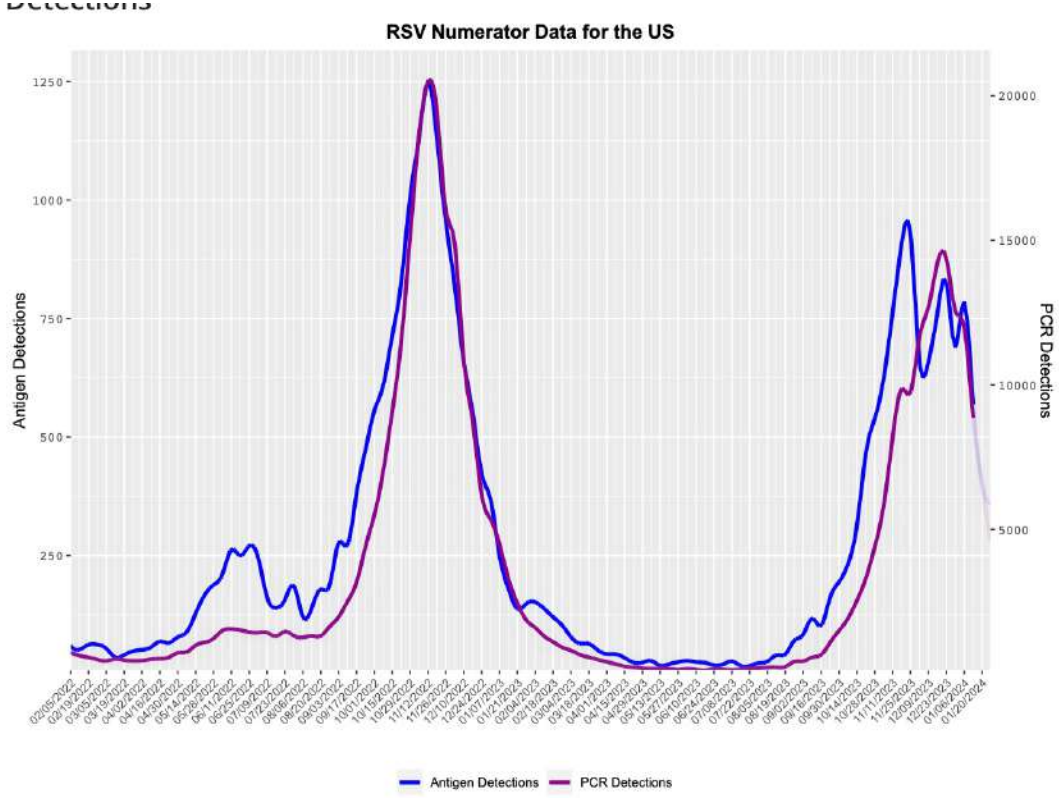
Altı aydan küçük bebekler özellikle prematüre doğanlar, kronik akciğer veya konjenital kalp hastalığı olanlarda ve nörolojik rahatsızlıkları veya bağışıklık yetersizliği olan çocuklarda ciddi hastalık riski daha yüksektir.

Çoğu çocuk birinci veya ikinci doğum günlerinde RSV ile enfekte olmuştur. Öte yandan yetişkinler RSV'ye yakalandıktan sonra sıklıkla asemptomatiktirler. Kronik rahatsızlıkları olan yetişkinlerde veya 65 yaş üstü kişilerde RSV, zatürre veya bronşit şeklinde kendini gösteren ciddi hastalıklara neden olabilir.

Li Y, Wang X, Blau DM, et al. Global, regional, and national disease burden estimates of acute lower respiratory infections due to respiratory syncytial virus in children younger than 5 years in 2019: a systematic analysis. *Lancet*. 2022;399(10340):2047-2064.

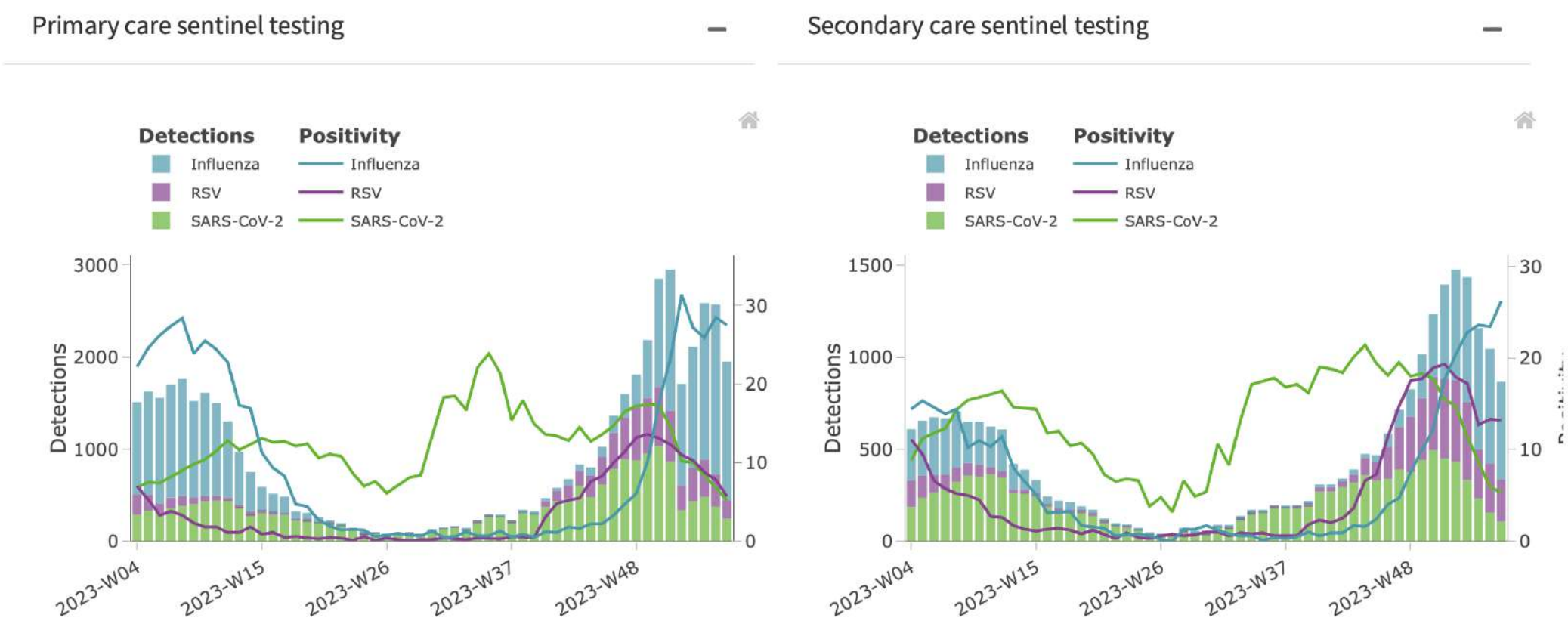
Amerika Epidemiyolojisi_Son durum (CDC)





https://www.cdc.gov/surveillance/nrevss/rsv/natl-trend.html#print (Updated 1 February, 2024 (Access date: 8 February 2024)

WHO_Avrupa Bölgesi Raporu



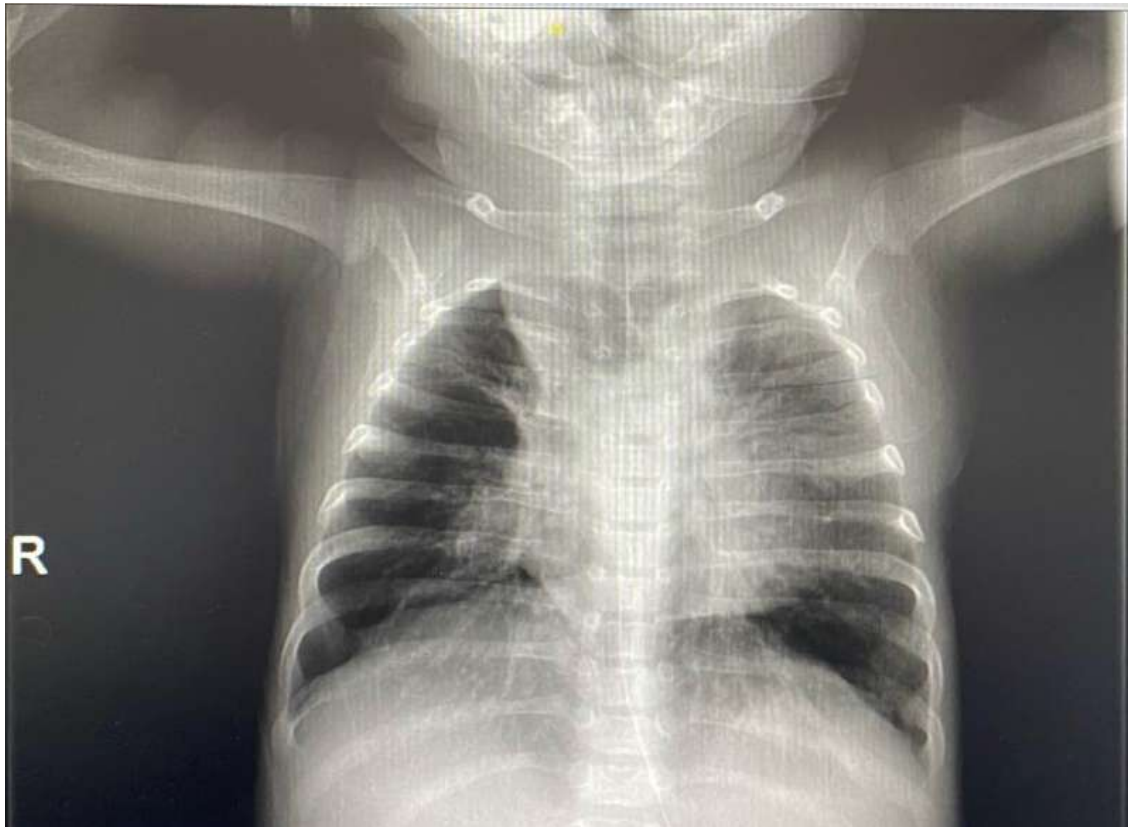
European Respiratory Virus Surveillance Summary. https://erviss.org/ (Access date: 8 February 2024)

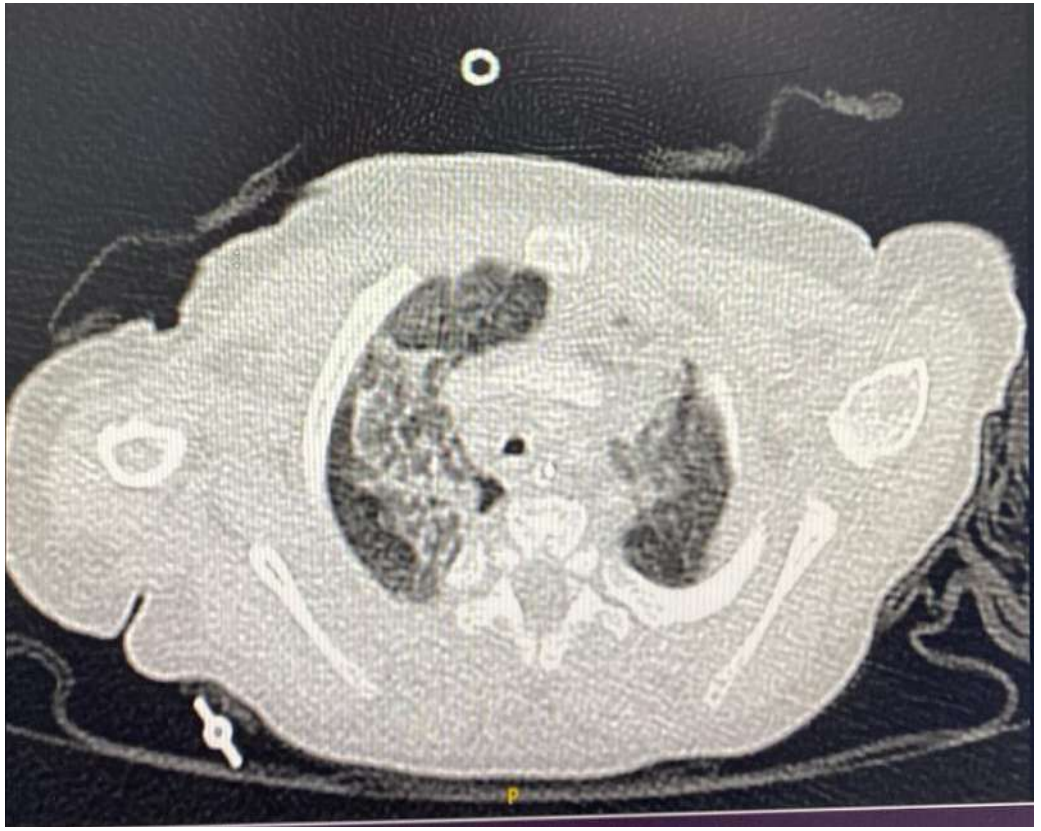
Vaka_1

- 5 ay 19 günlük K hasta

- Şikayet: Hipoksi,Solunum Sıkıntısı
- Solunum sıkıntısı, hırıltı, öksürük şikayetiyle ÇAP'a başvuran hastanın boğulacak kadar öksürmesi mevcutmuş. Hastanın acildeki izlemi sırasında solunum sıkıntısının artması, bradikardik olması üzerine high flowa alınmış. Takibinde retraksiyonu, subkostal interkostal çekilmeleri olmuş. Entübe edilerek yoğun bakımda izleme alınmış.
- **FM:** Solda raller mevcut

Vaka_1





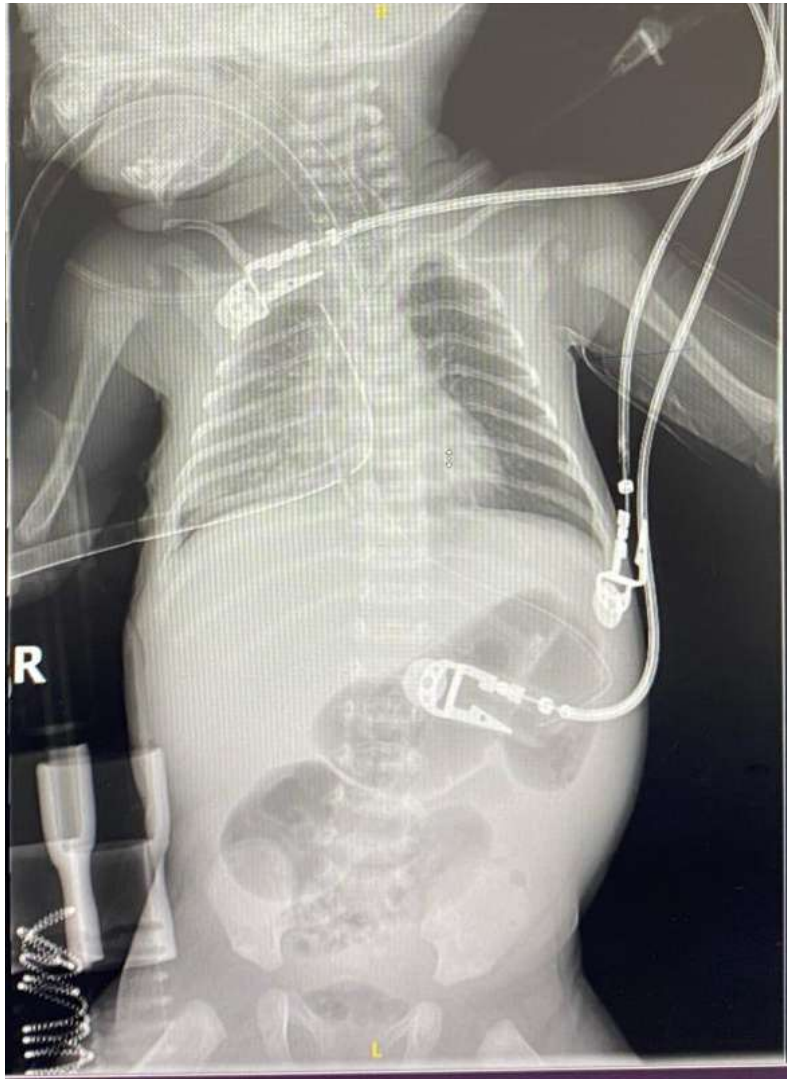
Vaka_1

- 5 ay 19 günlük K hasta

- Şikayet: Hipoksi,Solunum Sıkıntısı
- Solunum sıkıntısı, hırıltı, öksürük şikayetiyle ÇAP'a başvuran hastanın boğulacak kadar öksürmesi mevcutmuş. Hastanın acildeki izlemi sırasında solunum sıkıntısının artması, bradikardik olması üzerine high flowa alınmış. Takibinde retraksiyonu, subkostal interkostal çekilmeleri olmuş. Entübe edilerek yoğun bakımda izleme alınmış.
- **FM:** Solda raller mevcut
- **Solunum yolu viral paneli**: RSV Tip B

Vaka_2

- 1 ay 18 günlük K hasta
- Şikayet: Öksürük, hırıltılı solunum, ateş
- 12 gün önce öksürük, hırıltı solunum, ateş şikayetleri başlamış. Şikayetlerinde gerileme olmayınca hasta miyokardit ve septik şok öntanısıyla ÇAP'a sevk edilmiş. Başvurusunda yoğun bakıma yatışı yapıldı ve entübe edildi.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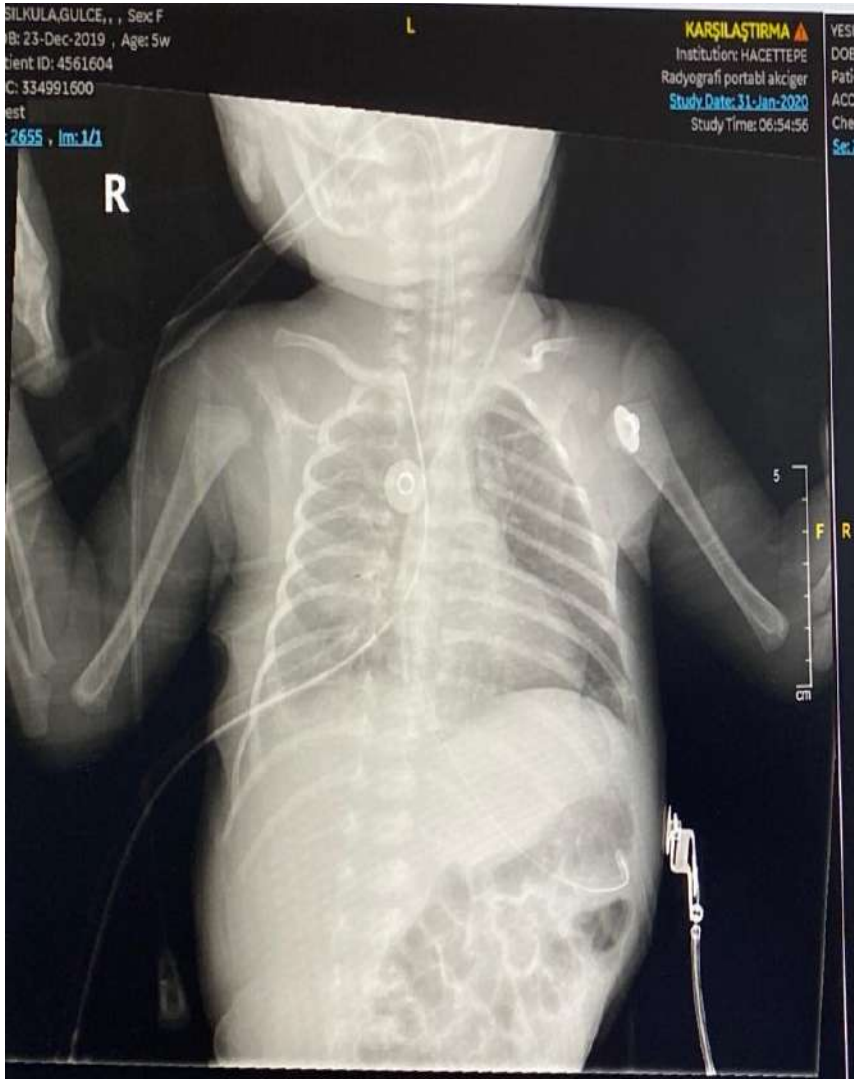
SILKULA,GULCE,, , Sex:F
B: 23-Dec-2019 , Age: 5w
ient ID: 4561604
C: 334991600
est
2655 , Im: 1/1
L
KARŞILAŞTIRMA
Institution: HACETTEPE
Radyografi portabl akciger
Study Date: 31-Jan-2020
Study Time: 06:54:56
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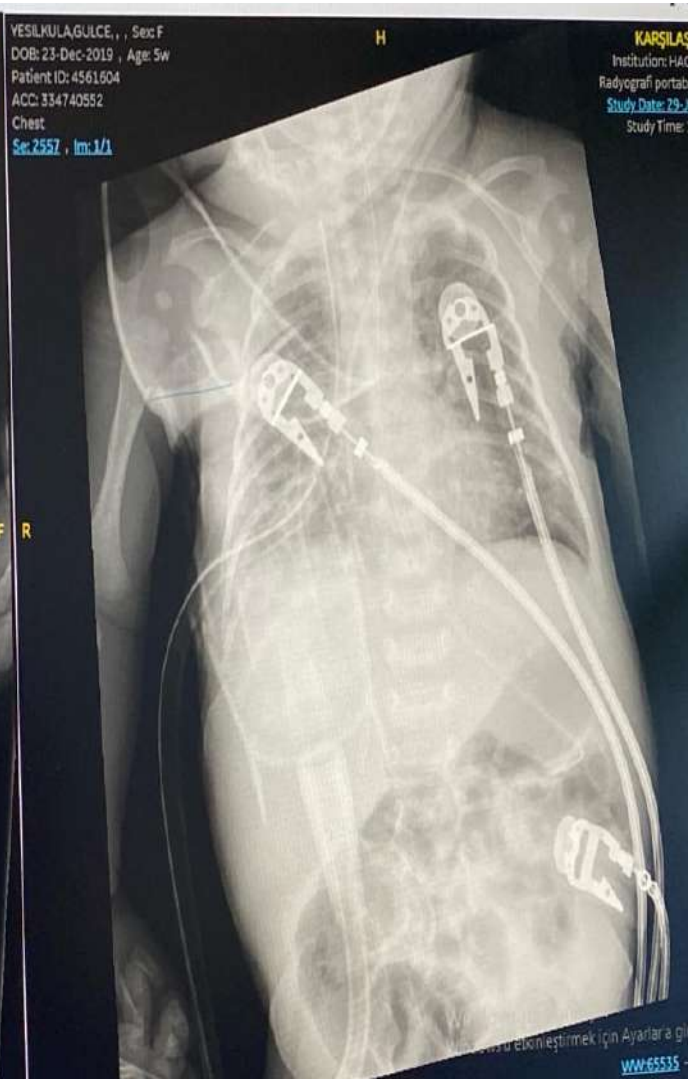

YESILKULA,GULCE, , Sex:F
DOB: 23-Dec-2019 , Age: 5w
Patient ID: 4561604
ACC: 334740552
Chest
Ser: 2557 , Im: 1/1
H
KARŞILAŞ
Institution: HA
Radyografi portab
Study Date: 29-
Study Time:
R

Vaka_2

- 1 ay 18 günlük K hasta
- Şikayet: Öksürük, hırıltılı solunum, ateş
- 12 gün önce öksürük, hırıltı solunum, ateş şikayetleri başlamış. Şikayetlerinde gerileme olmayınca hasta miyokardit ve septik şok öntanısıyla ÇAP'a sevk edilmiş. Başvurusunda yoğun bakıma yatışı yapıldı ve entübe edildi.
- Solunum yolu viral paneli: RSV Tip B

The Turkish Journal of Pediatrics 2018; 60: 642-652
DOI: 10.24953/turkjped.2018.06.004

Original

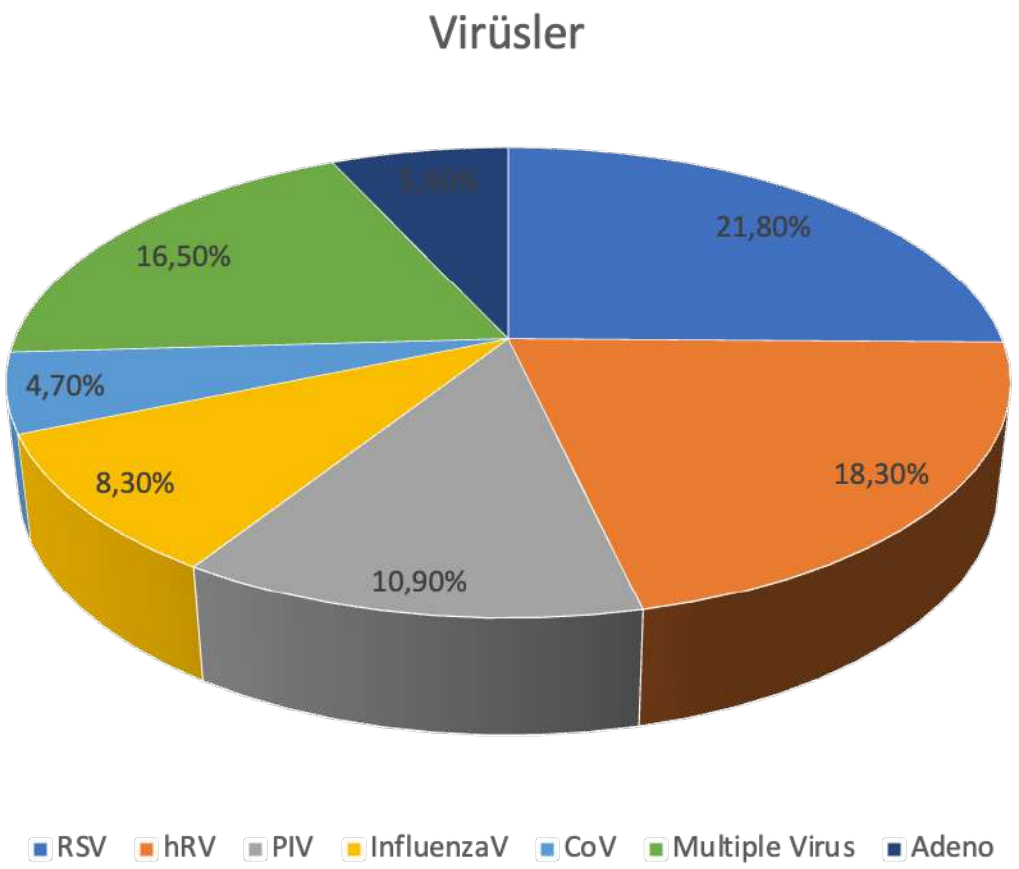
Prevalence and seasonal distribution of viral etiology of respiratory tract infections in inpatients and outpatients of the pediatric population: 10 year follow-up

Kübra Aykaç[1], Eda Karadağ-Öncel[1], Cihangül Bayhan[1], Sevgen Tanır-Başaranoğlu[1], Mustafa Şenol Akın[2], Yasemin Özsürekci[1], Alpaslan Alp[3], Ali Bülent Cengiz[1], Ateş Kara[1], Mehmet Ceyhan[1]

Division of [1]Pediatric Infectious Diseases [2]Department of Pediatrics and [3]Department of Microbiology and Clinical Microbiology, Hacettepe University Faculty of Medicine, Ankara, Turkey. E-mail: kubraklnc.kk@gmail.com

Received: 18th July 2017, Revised: 8th December 2017, 22nd January 2018, Accepted: 25th February 2018

HUTF Verisi: 10 yıllık (2006-2015)



Aykaç K, Karadağ-Öncel E, Bayhan C, et al. Prevalence and seasonal distribution of viral etiology of respiratory tract infections in inpatients and outpatients of the pediatric population: 10 year follow-up. *Turk J Pediatr*. 2018;60(6):642-652. doi:10.24953/turkjped.2018.06.004

RSV olgularının yaş ve mevsim dağılımı

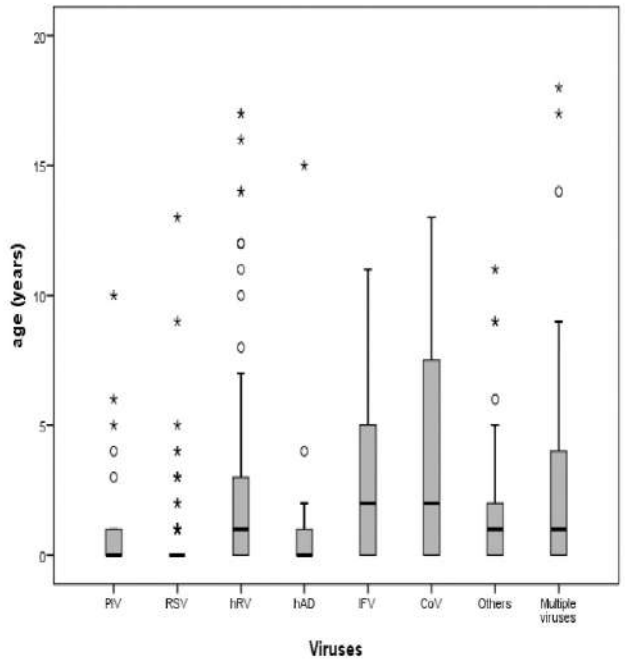


Fig. 2. Distribution of ages and viruses types
Human rhinoviruses (hRV), parainfluenza viruses (PIV), respiratory syncytial viruses (RSV), adenoviruses (hAD), influenza viruses (IFV), coronavirus (CoV)
Others: metapneumovirus, enteroviruses, bocavirus

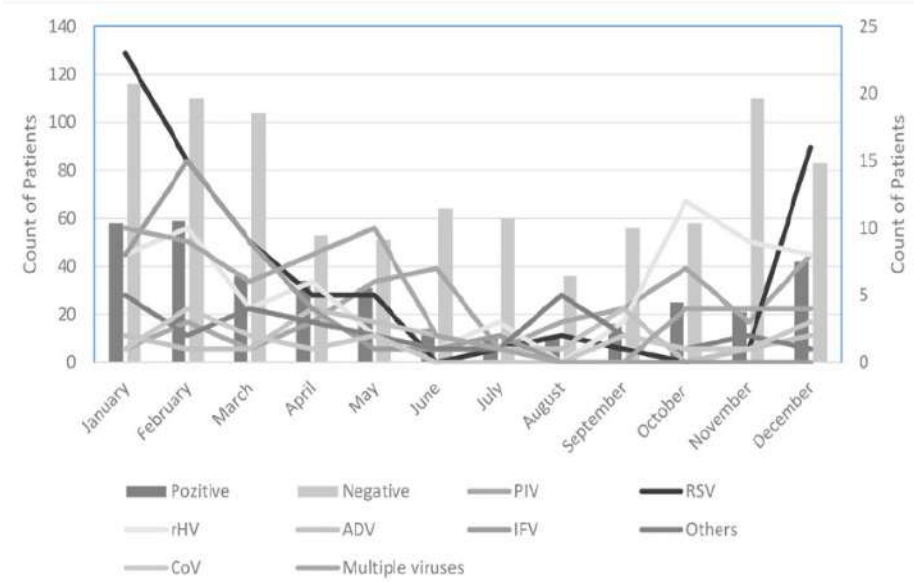


Fig. 3. Monthly distribution and detection rates of ARIs in cases

RSV hastalarının %77,4'ü akut respiratuvar yetmezlik ile prezente olmuş

Aykaç K, Karadağ-Öncel E, Bayhan C, et al. Prevalence and seasonal distribution of viral etiology of respiratory tract infections in inpatients and outpatients of the pediatric population: 10 year follow-up. *Turk J Pediatr*. 2018;60(6):642-652. doi:10.24953/turkjped.2018.06.004

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RESEARCH ARTICLE

WILEY JOURNAL OF MEDICAL VIROLOGY

Respiratory viral infections in infants with possible sepsis

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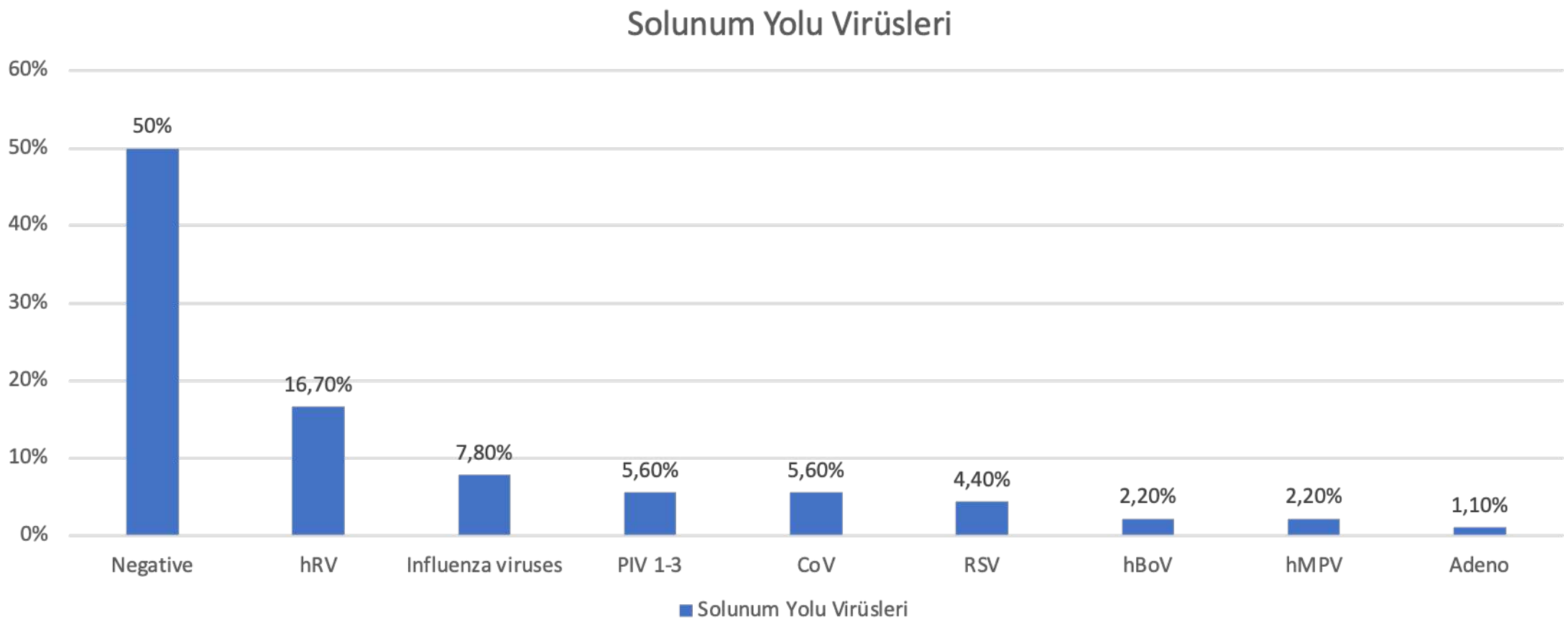
Background: Knowledge of infections leading to sepsis is needed to develop comprehensive infection prevention and sepsis, as well as early recognition and treatment strategies.The aim of this study was to investigate the etiology of sepsis and evaluate the proportion of respiratory viral pathogens in infants under two years

HUTF: Sepsisle başvuran 90 hasta verisi (2014-2016)



Aykac K, Karadag-Oncel E, Tanır Basaranoglu S, et al. Respiratory viral infections in infants with possible sepsis. *J Med Virol*. 2019;91(2):171-178. doi:10.1002/jmv.25309

Pandemi döneminde yaşanan epidemiyolojik kayma

Abu-Raya B, Viñeta Paramo M, Reicherz F, Lavoie PM. Why has the epidemiology of RSV changed during the COVID-19 pandemic?. *EClinicalMedicine*. 2023;61:102089.

Pandemide yaz dönemi, büyük yaş ve daha ciddi hastalık.

Popülasyonda RSV bağışıklığının azalması veya dokunulmazlık borcu teorisi (immunity dept theory)

SARS-CoV-2 ve RSV arasındaki potansiyel etkileşim

SARS-CoV-2 enfeksiyonunu takiben immündisregülasyon

Artan RSV virulansı: ABD'de Kasım 2022'deki artış sırasında semptomatik hastalardan alınan RSV dizileri, vakaların %90'ının RSV-A'dan, geri kalan %10'unun ise RSV-B'den kaynaklandığını gösterdi.

Abu-Raya B, Viñeta Paramo M, Reicherz F, Lavoie PM. Why has the epidemiology of RSV changed during the COVID-19 pandemic?. *EClinicalMedicine*. 2023;61:102089.

Epidemiology of respiratory syncytial virus in children younger than 5 years in England during the COVID-19 pandemic, measured by laboratory, clinical, and syndromic surveillance: a retrospective observational study

Megan Bardsley, Roger A Morbey, Helen E Hughes, Charles R Beck, Conall H Watson, Hongxin Zhao, Joanna Ellis, Gillian E Smith, Alex J Elliot

Lancet Infect Dis 2023; 23: 56–66

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See Comment page 3

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Summary

Background Seasonal epidemics of respiratory syncytial virus (RSV) cause a clinically significant burden of disease among young children. Non-pharmaceutical interventions targeted at SARS-CoV-2 have affected the activity of other respiratory pathogens. We describe changes in the epidemiology of RSV among children younger than 5 years in England since 2020.

Methods Surveillance data on RSV infections, comprising laboratory-confirmed cases, proportion of positive tests, hospital admissions for RSV-attributable illness, and syndromic indicators for RSV-associated disease (emergency department attendances for acute bronchitis or bronchiolitis, non-emergency health advice telephone service [NHS 111] calls for cough, general practitioner [GP] in-hours consultations for respiratory tract infections, and GP out-of-hours contacts for acute bronchitis or bronchiolitis) were analysed from Dec 29, 2014 to March 13, 2022, for children younger than 5 years. Data were extracted from national laboratory, clinical, and syndromic surveillance systems. Time-series analyses using generalised linear models were used to estimate the effect of non-pharmaceutical interventions targeting SARS-CoV-2 on RSV indicators, with absolute and relative changes calculated by comparing observed and predicted values.

Findings RSV-associated activity was reduced for all RSV indicators during winter 2020–21 in England, with 10 280 (relative change −99·5% [95% prediction interval −100·0 to −99·1]) fewer laboratory-confirmed cases, 22·2 (−99·6%) percentage points lower test positivity, 92 530 (−80·8% [−80·9 to −80·8]) fewer hospital admissions, 96 672 (−73·7% [−73·7 to −73·7]) fewer NHS 111 calls, 2924 (−88·8% [−90·4 to −87·2]) fewer out-of-hours GP contacts, 91 304 (−89·9% [−90·0 to −89·9]) in-hours GP consultations, and 27 486 (−85·3% [−85·4 to −85·2]) fewer emergency department attendances for children younger than 5 years compared with predicted values based on winter seasons before the COVID-19 pandemic. An unprecedented summer surge of RSV activity occurred in 2021, including 11 255 (1258·3% [1178·3 to 1345·8]) extra laboratory-confirmed cases, 11·6 percentage points (527·3%) higher test positivity, 7604 (10·7% [10·7 to 10·8]) additional hospital admissions, 84 425 (124·8% [124·7 to 124·9]) more calls to NHS 111, 409 (39·0% [36·6 to 41·8]) more out-of-hours GP contacts, and 9789 (84·9% [84·5 to 85·4]) more emergency department attendances compared with the predicted values, although there were 21 805 (−34·1% [−34·1 to −34·0]) fewer in-hours GP consultations than expected. Most indicators were also lower than expected in winter 2021–22, although to a lesser extent than in winter 2020–21.

Interpretation The extraordinary absence of RSV during winter 2020–21 probably resulted in a cohort of young children without natural immunity to RSV, thereby raising the potential for increased RSV incidence, out-of-season activity, and health-service pressures when measures to restrict SARS-CoV-2 transmission were relaxed.

Bardsley M, Morbey RA, Hughes HE, et al. Epidemiology of respiratory syncytial virus in children younger than 5 years in England during the COVID-19 pandemic, measured by laboratory, clinical, and syndromic surveillance: a retrospective observational study. *Lancet Infect Dis*. 2023;23(1):56-66. doi:10.1016/S1473-3099(22)00525-4

Pandemide Türkiye

Tablo. The comparison of clinical characteristics, frequency, and outcomes in pediatric patients with RSV during both pre-pandemic and pandemic periods.

Variables	Total (n=339)	Pre-Pandemic (2018-2019) (n=201)	Pandemic (2020-2021) (n=138)	p-Value
Age, months (median, IQR)	4 (1-18)	4 (1-14)	5 (1-23)	0.08
Age groups				0.3
0-6 months	206 (61)	130 (65)	76 (55)	
7-24 months	60 (18)	30 (15)	30 (22)	
3-5 years	44 (13)	24 (12)	20 (15)	
6-18 years	29 (9)	17 (9)	12 (9)	
Gender/Male	164 (48)	94 (47)	70 (51)	0.47
RSV type				
RSV-A	159 (47)	73 (36)	86 (62)	**<0.001**
RSV-B	180 (53)	128 (63)	52 (38)	**<0.001**
Years				
2018	104 (31)	104 (52)	-	
2019	97 (29)	97 (48)	-	
2020	83 (25)	-	83 (60)	
2021	55 (16)	-	55 (40)	
Season				0.7
Spring	72 (21)	50 (25)	22 (16)	**0.048**
Summer	1 (0.3)	1 (1)	0	
Fall	26 (8)	2 (1)	24 (17)	
Winter	240 (71)	148 (74)	92 (67)	0.17
Underlying diseases, n (%)	136 (40)			
Healthy	203 (60)	125 (62)	78 (57)	0.31
Prematurity	31 (9)	17 (9)	14 (10)	0.8
Neurologic	30 (9)	17 (9)	13 (9)	0.8
Immunodeficiency and malignacy	23 (7)	10 (5)	13 (9)	0.11
Pulmonary	10 (3)	5 (3)	4 (3)	
Allergic	6 (2)	4 (2)	2 (1)	
Cardiac	8 (2)	7 (4)	1 (1)	
Others	28 (8)	16 (8)	12 (9)	
Coinfection				0.3
Bacteremia	8/145 (5)	5/80 (6)	3/65 (5)	
UTI	5/145 (3)	1/80 (1)	4/65 (6)	
Virus	64/339 (19)	43/201 (21)	21/138	0.07
Rhinovirus	31	18	13	
Influenza	11	9	2	

Unpublished data

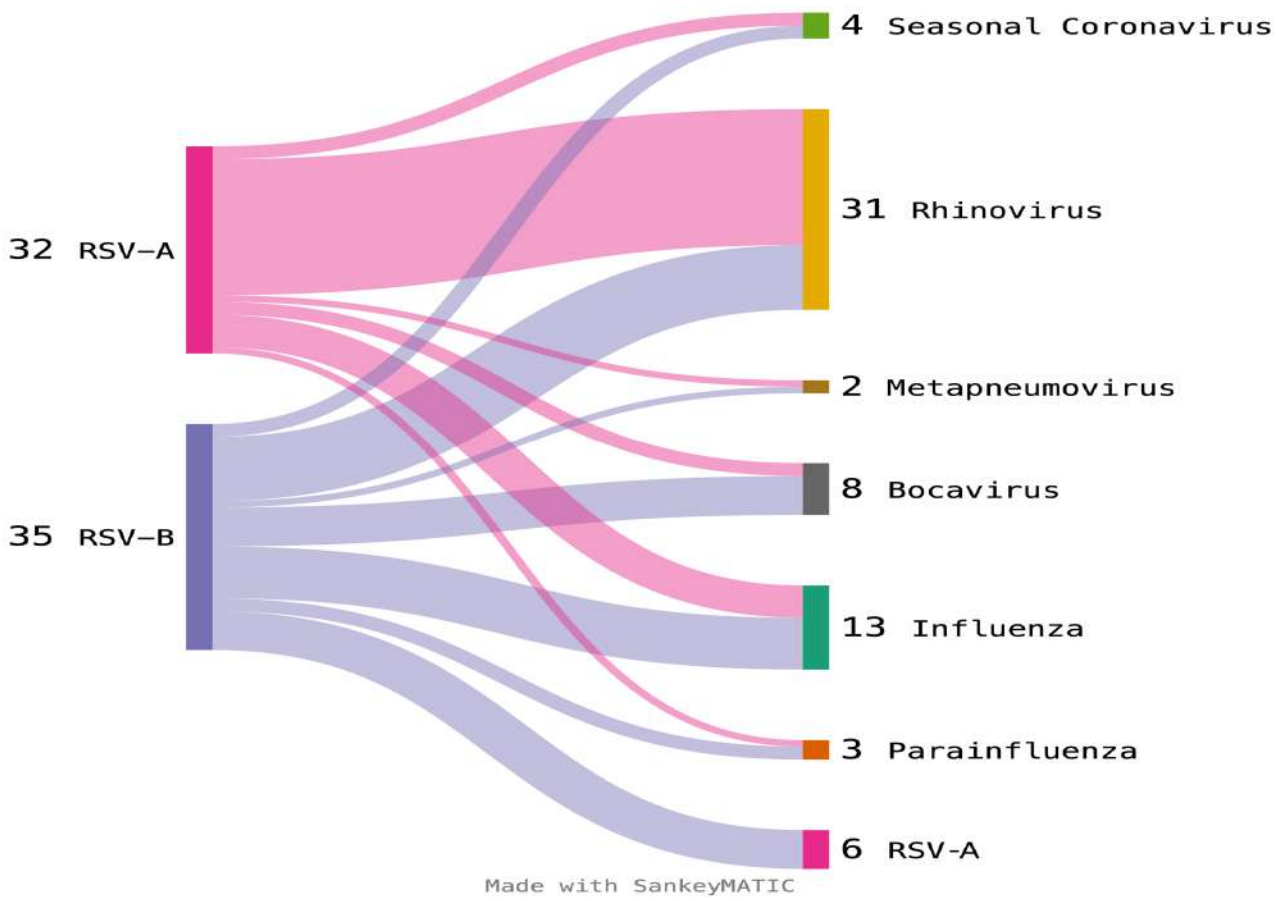
Tablo. The comparison of clinical characteristics, frequency, and outcomes in pediatric patients with RSV during both pre-pandemic and pandemic periods.

AST (U/L)	39 (31-52)	39 (32-55)	39 (31-47)	0.7
ALT (U/L)	19 (14-28)	20 (14-29)	18 (14-27)	0.2
Organ Involvement n (%)				0.34
Upper respiratory system inf.	9 (3)	6 (3)	3 (2)	NA
Bronchiolitis/Bronchitis	38 (11)	18 (9)	20 (15)	0.11
Pneumonia	274 (81)	168 (84)	106 (77)	0.12
Sepsis	6 (2)	4 (2)	2 (1)	NA
Myocarditis	2 (1)	2 (1)	0	NA
Others	10 (3)	3 (2)	7 (5)	NA
Chest of X-ray findings				

Infection related mortality	4 (1)	3 (2)	1 (1)	
Mortality	14 (4)	9 (5)	5(4)	

Unpublished data

Ko-enfeksiyonlar



Unpublished data

Korunma

Erişkinlerde Korunma (Aktif immünizasyon)

CDC Önerileri

Gebeler

Hamileliğin 32 ila 36. haftaları arasında Eylül'den Ocak'a kadar uygulanan 1 doz anneye yönelik RSV aşısı. Abrysvo hamilelik sırasında önerilen tek RSV aşısıdır.

60 yaş üstü

FDA onaylı 2 aşı var. RSVPreF3 (Arexvy) ve RSVpreF (Abrysvo) tek doz olabilirler

https://www.cdc.gov/vaccines/vpd/rsv/index.html#print (Access date: 8 February 2024

Çocuklarda Korunma (19 ay altı) (Pasif İmmünizasyon)

Bebeklerde ciddi RSV hastalığını önlemek için CDC ya anneye RSV aşısı yapılmasını ya da bebeğin RSV monoklonal antikoruyla aşılanmasını önermektedir.

8 ay altı çocuklar

İlk RSV sezonu sırasında veya bu sezona giren 8 aylık ve daha küçük tüm bebekler için 1 doz nirsevimab (im ve tek doz).

8-19 ay arası çocuklar

Şiddetli RSV hastalığı riski yüksek olan ve ikinci RSV sezonuna giren 8-19 aylık bebekler ve çocuklar için 1 doz nirsevimab.

https://www.cdc.gov/vaccines/vpd/rsv/index.html#print (Access date: 8 February 2024

Nirsevimab (Beyfortus)

Nirsevimab ciddi RSV hastalığı riskini yaklaşık %80 oranında azaltır

8 aydan küçük çoğu bebek, annelerinin RSV aşısı olmasından 14 veya daha fazla gün sonra doğmuşlarsa nirsevimab'a ihtiyaç duymazlar.

Şiddetli RSV hastalığı riski yüksek olan 8 ila 19 aylık bazı bebekler ve küçük çocuklar, ikinci RSV sezonunun başlangıcından kısa bir süre önce nirsevimab almalıdır:

Erken doğan ve kronik akciğer hastalığı olan çocuklar

Şiddetli bağışıklık yetersizliği olan çocuklar

Şiddetli hastalığı olan kistik fibrozlu çocuklar

Amerikan Kızılderili ve Alaska Yerlisi çocuklar

Palivizumab (Synagis)

Ciddi RSV hastalığı açısından yüksek risk altında olan 24 aylık ve daha küçük çocuklarla sınırlıdır.

RSV sezonunda ayda bir kez verilmesi gerekir.

https://www.cdc.gov/vaccines/vpd/rsv/index.html#print (Access date: 8 February 2024

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2024

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
COVID-19	1 or more doses of updated (2023–2024 Formula) vaccine (See Notes)			
Influenza inactivated (IIV4) or **Influenza recombinant** (RIV4)	1 dose annually			
or				
Influenza live, attenuated (LAIV4)	1 dose annually			
Respiratory Syncytial Virus (RSV)	Seasonal administration during pregnancy. See Notes.			≥60 years
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			For healthcare personnel, see notes
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (see notes)		2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal (PCV15, PCV20, PPSV23)				See Notes
				See Notes
Hepatitis A (HepA)	2, 3, or 4 doses depending on vaccine			
Hepatitis B (HepB)	2, 3, or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations			
	19 through 23 years			
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication			
Mpox				

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity

Recommended vaccination for adults with an additional risk factor or another indication

Recommended vaccination based on shared clinical decision-making

No recommendation/ Not applicable

https://www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf (Erişim tarihi: 22 Şubat 2024)

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2024

Always use this table in conjunction with Table 1 and the Notes that follow. Medical conditions or indications are often not mutually exclusive. If multiple medical conditions or indications are present, refer to guidance in all relevant columns. See Notes for medical conditions or indications not listed.

VACCINE	Pregnancy	Immunocompromised (excluding HIV infection)	HIV infection CD4 percentage and count		Men who have sex with men	Asplenia, complement deficiency	Heart or lung disease	Kidney failure, End-stage renal disease or on dialysis	Chronic liver disease; alcoholism[a]	Diabetes	Healthcare Personnel[b]
			<15% or <200mm³	≥15% and ≥200mm³							
COVID-19		See Notes									
IIV4 or RIV4	1 dose annually										
LAIV4					1 dose annually if age 19–49 years		1 dose annually if age 19–49 years				
RSV	Seasonal administration. See Notes	See Notes				See Notes					
Tdap or Td	Tdap: 1 dose each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	*										
VAR	*			See Notes							
RZV		See Notes									
HPV	*	3 dose series if indicated									
Pneumococcal											
HepA											
Hep B	See Notes									Age ≥ 60 years	
MenACWY											
MenB											
Hib		HSCT: 3 doses[c]				Asplenia: 1 dose					
Mpox	See Notes				See Notes						See Notes

- Recommended for all adults who lack documentation of vaccination, **OR** lack evidence of immunity
- Not recommended for all adults, but recommended for some adults based on either age **OR** increased risk for or severe outcomes from disease
- Recommended based on shared clinical decision-making
- Recommended for all adults, and additional doses may be necessary based on medical condition or other indications. See Notes.
- Precaution: Might be indicated if benefit of protection outweighs risk of adverse reaction
- Contraindicated or not recommended *Vaccinate after pregnancy, if indicated
- No Guidance/ Not Applicable

https://www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf (Erişim tarihi: 22 Şubat 2024)

Mycoplasma Enfeksiyonları

Genel Özellikleri

- Tahmini görülme sıklığı: Amerika Birleşik Devletleri'nde her yıl yaklaşık 2 milyon vakanın meydana geldiği tahmin edilmektedir. Ancak birçok enfeksiyona teşhis konulamadığından gerçek sayı muhtemelen daha yüksektir.
- Genellikle her 3 ila 7 yılda bir hastalıkta zirveler görülür. Salgınlar çoğunlukla okullar, üniversite yurtları ve bakımevleri gibi kalabalık ortamlarda ortaya çıkar
- M. pneumoniae enfeksiyonları yılın herhangi bir zamanında meydana gelebilir.
- M. pneumoniae'de makrolidlere karşı direnç ortaya çıkmış ve 2000'li yıllardan bu yana artış göstermektedir. Mevcut veriler, M. pneumoniae'de makrolid direncinin genel küresel prevalansının %28 civarında olabileceğini düşündürmektedir.

https://www.cdc.gov/pneumonia/atypical/mycoplasma/surv-reporting.html

Mycoplasma pneumoniae

- Bakteriler ilk kez "primer atipik pnömoni" (hücre duvarı olmaması nedeniyle penisilin veya sülfonamid tedavisine yanıt alınamaması) olarak adlandırılan klinik sendromun nedenini belirleme çabaları sırasında izole edilmiştir.
- Rinore, farenjit, orta kulak iltihabı, krup, bronşiolit ve pnömoniler yapmaktadır (Solunum yolu enfeksiyonları).

Long SS, Pickering LK, Prober CG. 4th ed. 2012.

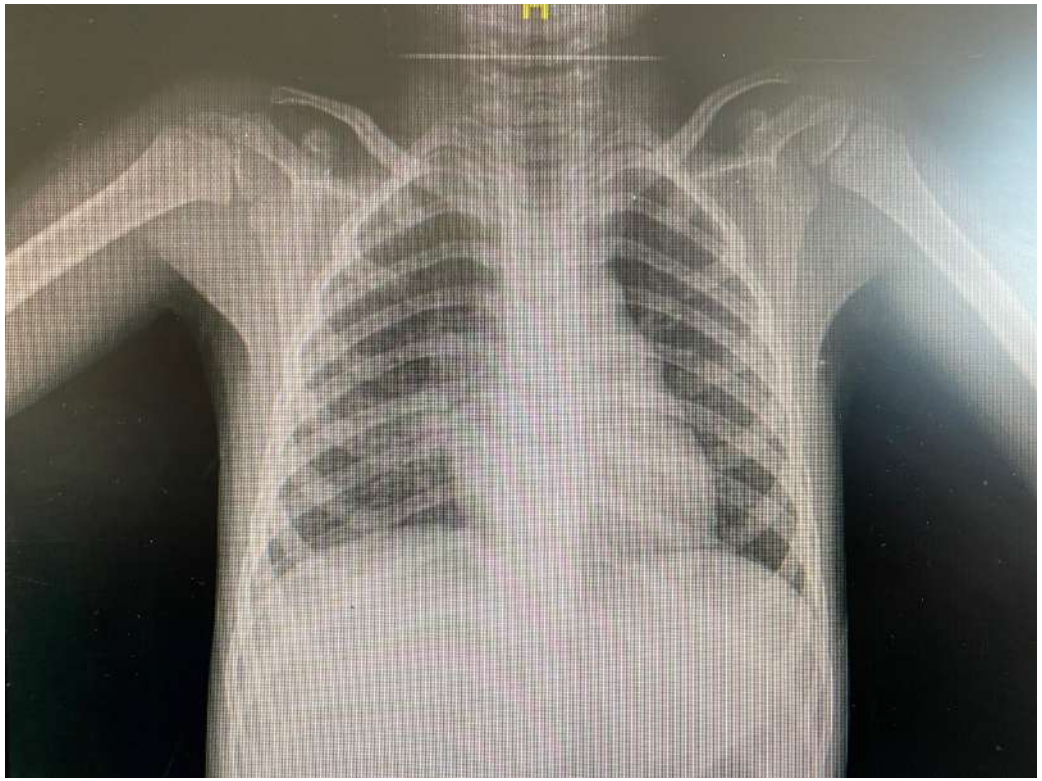
Pandeminin etkisi

VAKA_1_Pandemi Dönemi

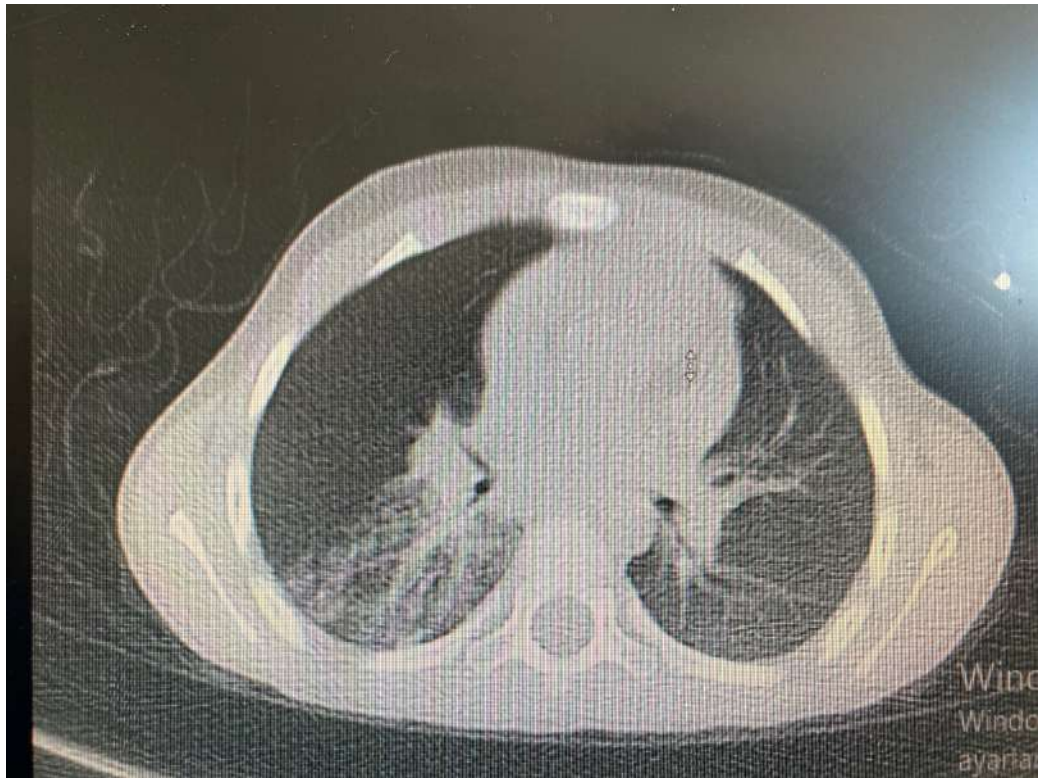
- 4 yaş erkek hasta
- Ateş ve öksürük ile başvurdu
- Fizik muayenede ral ve takipne mevcut.

VAKA_1_Görüntüleme

PAAG



Akciğer CT



VAKA_Pandemi Dönemi

- 4 yaş erkek hasta
- Ateş ve öksürük ile başvurdu
- Fizik muayenede ral ve takipne mevcut.
- Mycoplasma pneumoniae PCR (+)

Çin’de (Henan) Pandemi Sırasında Durum

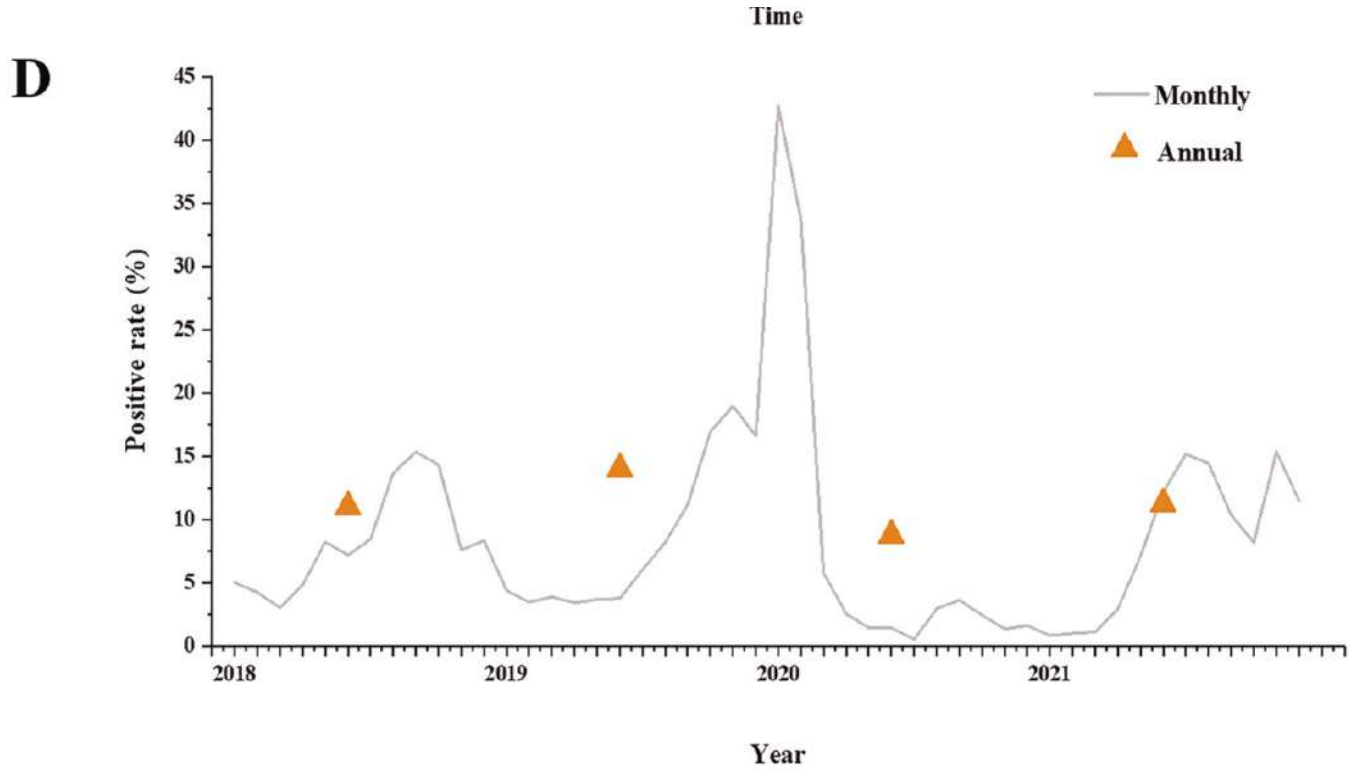


Fig. 2. Seasonally and monthly distribution of *Mycoplasma pneumoniae* infection among children from 2018 to 2021. ***M. pneumoniae*** positive number (A) and positive rate (B) in different seasons. General trend of *M. pneumoniae* positive rate from 2018 to 2021 in different seasons (C) and different months (D).

Ma J, Guo P, Mei S, Li M, Yu Z, Zhang Y, Shen A, Sun H, Li L. Influence of COVID-19 pandemic on the epidemiology of *Mycoplasma pneumoniae* infections among hospitalized children in Henan, China. Heliyon. 2023 Nov 10;9(11):e22213. doi: 10.1016/j.heliyon.2023.e22213. PMID: 38106667; PMCID: PMC10722323.

Çin’de (Wuhan) Pandemi Sırasında Durum

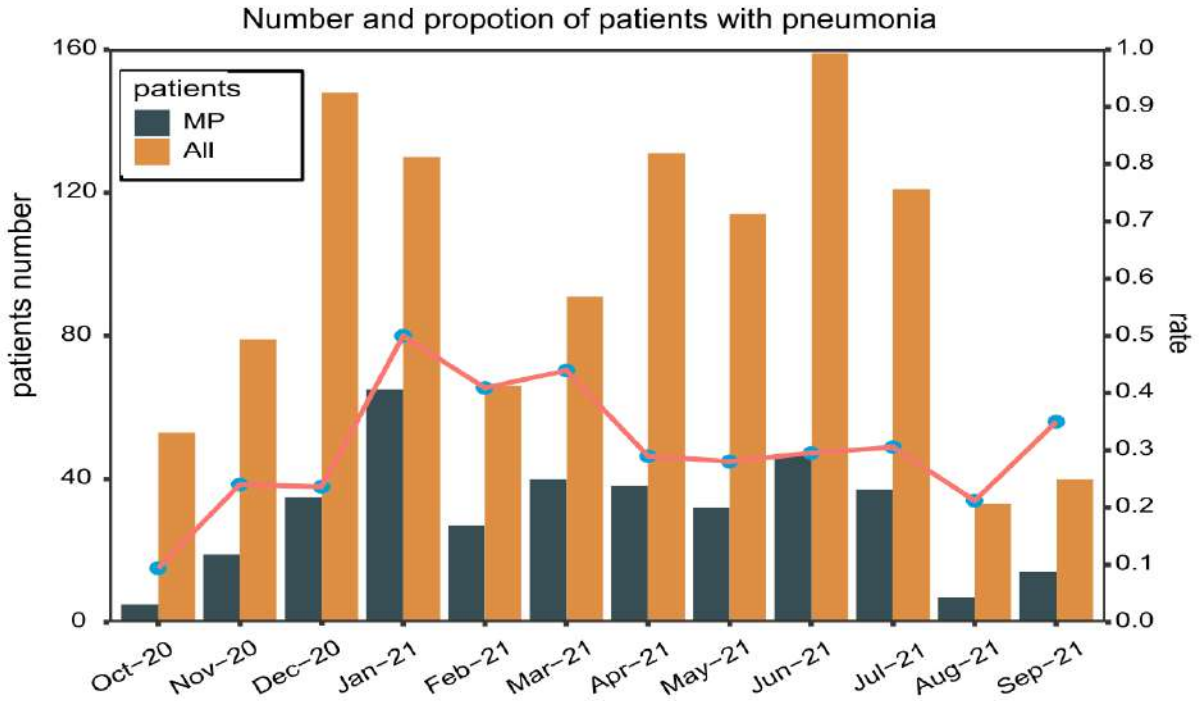


Fig. 1 Epidemiological data about *M. pneumoniae* pneumonia. "MP" refers to patients diagnosed with *M. pneumoniae* pneumonia, while "All" refers to all patients with pneumonia

Xu M, Li Y, Shi Y, Liu H, Tong X, Ma L, Gao J, Du Q, Du H, Liu D, Lu X, Yan Y. Molecular epidemiology of Mycoplasma pneumoniae pneumonia in children, Wuhan, 2020-2022. BMC Microbiol. 2024 Jan 17;24(1):23. doi: 10.1186/s12866-024-03180-0. PMID: 38229068; PMCID: PMC10792977.

Çin’de Pandemi Sonrasında Durum

- Bu kadar uzun vadeli bir NPI, bağışıklık borcu (immunity dept) olarak adlandırılan bir durum nedeniyle daha ciddi solunum yolu patojeni salgınları potansiyeline neden olmuştur.
- NPI politikasının kaldırılmasıyla Çin'de geçtiğimiz yıl influenza virüsleri, RSV ve M. pneumoniae vakalarında zirveler yaşanmıştır.
- Bu nedenle, solunum yolu hastalıklarında, özellikle de çocuklarda zatürrede yakın zamanda bildirilen ani artış çoğunlukla M. pneumoniae enfeksiyonundan kaynaklanmaktadır.

Zhang XB, He W, Gui YH, et al. Current Mycoplasma pneumoniae epidemic among children in Shanghai: unusual pneumonia caused by usual pathogen. *World J Pediatr*. 2024;20(1):5-10. doi:10.1007/s12519-023-00793-9

Çin’de Durum

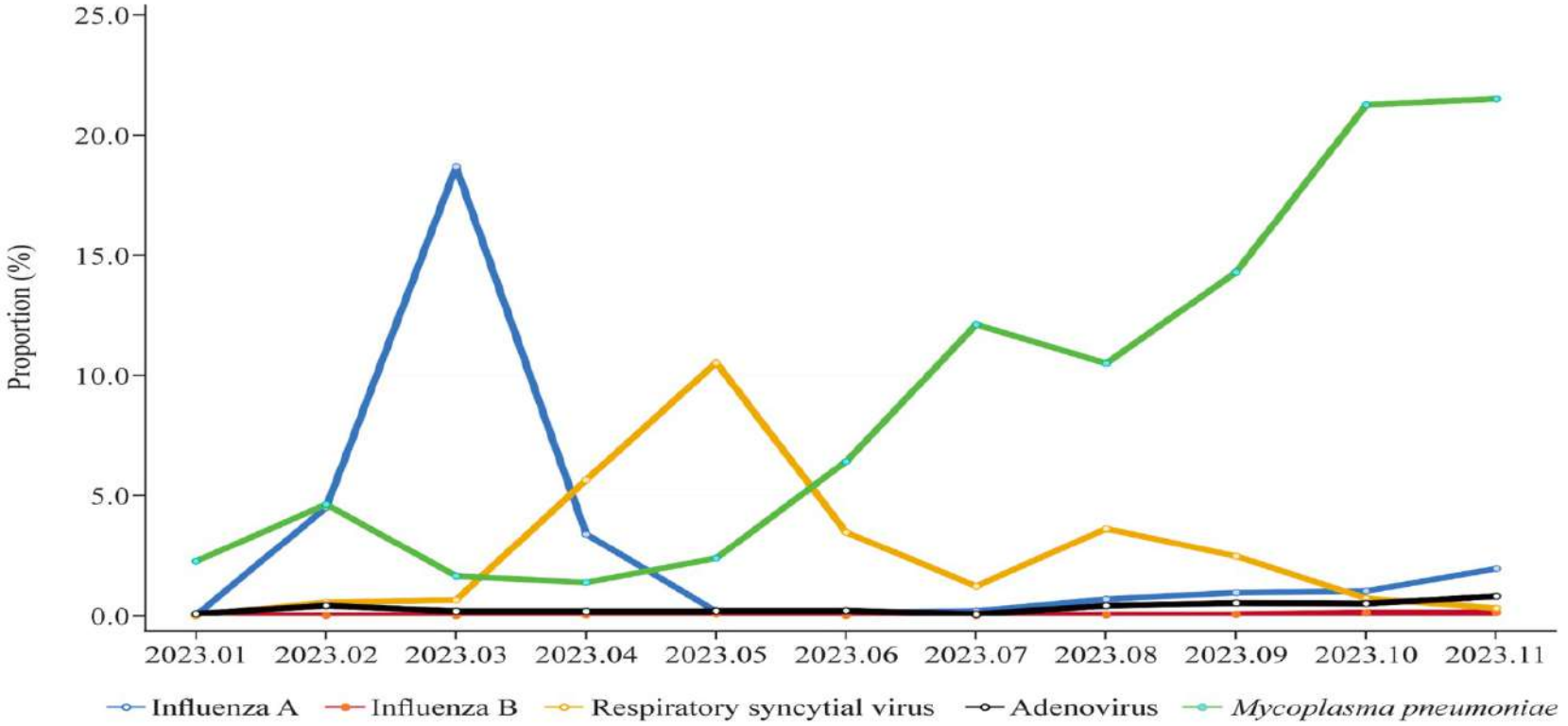


Fig. 2 Chart of trends in the prevalence of influenza A, influenza B, respiratory syncytial virus, adenovirus and *Mycoplasma pneumoniae* among children with pneumonia in Shanghai between January 2023 and November 2023. The data were collected from children’s specialized hospital in Shanghai

Zhang XB, He W, Gui YH, et al. Current Mycoplasma pneumoniae epidemic among children in Shanghai: unusual pneumonia caused by usual pathogen. *World J Pediatr*. 2024;20(1):5-10. doi:10.1007/s12519-023-00793-9

Hollanda verisi

- Birkaç yıldır düşük tespit oranlarından sonra, 2023'ün son aylarında Hollanda'daki bir hastanede M. pneumoniae ile ilişkili başvurularda yerel olarak keskin bir artış olduğu fark edilmiştir.

Bolluyt DC, Euser SM, Souverein D, et al. Increased incidence of *Mycoplasma pneumoniae* infections and hospital admissions in the Netherlands, November to December 2023. *Euro Surveill*. 2024;29(4):10.2807/1560-7917.ES.2024.29.4.2300724. doi:10.2807/1560-7917.ES.2024.29.4.2300724

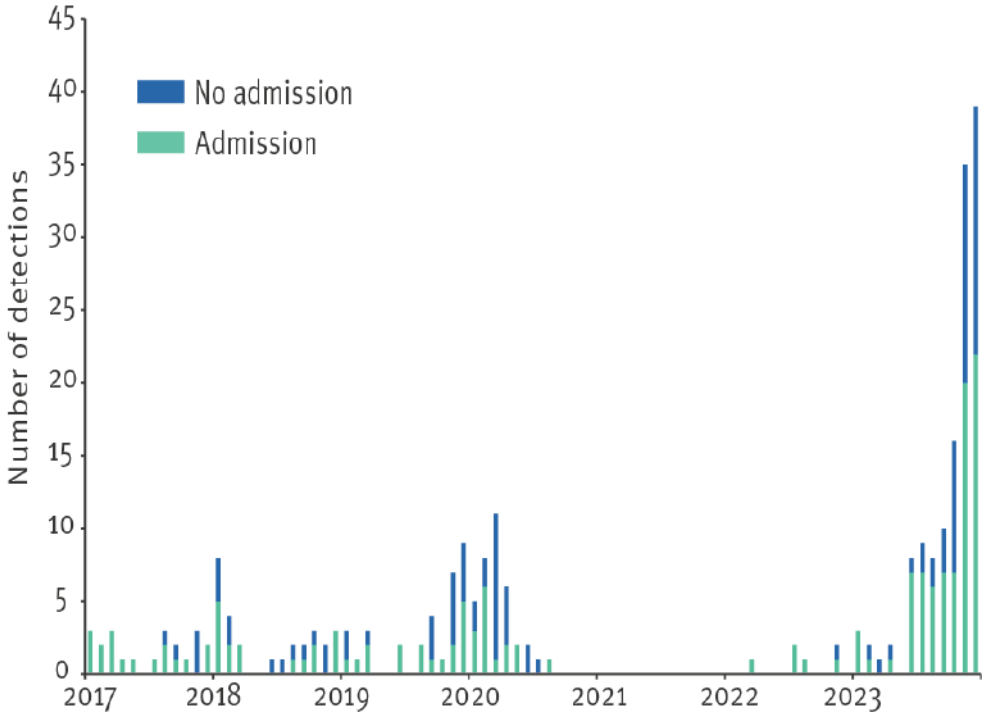


Figure 1. Mycoplasma pneumoniae detections in Spaarne Gasthuis hospital, Hoofddorp/Haarlem, the Netherlands, 2017–2023 (n = 257)

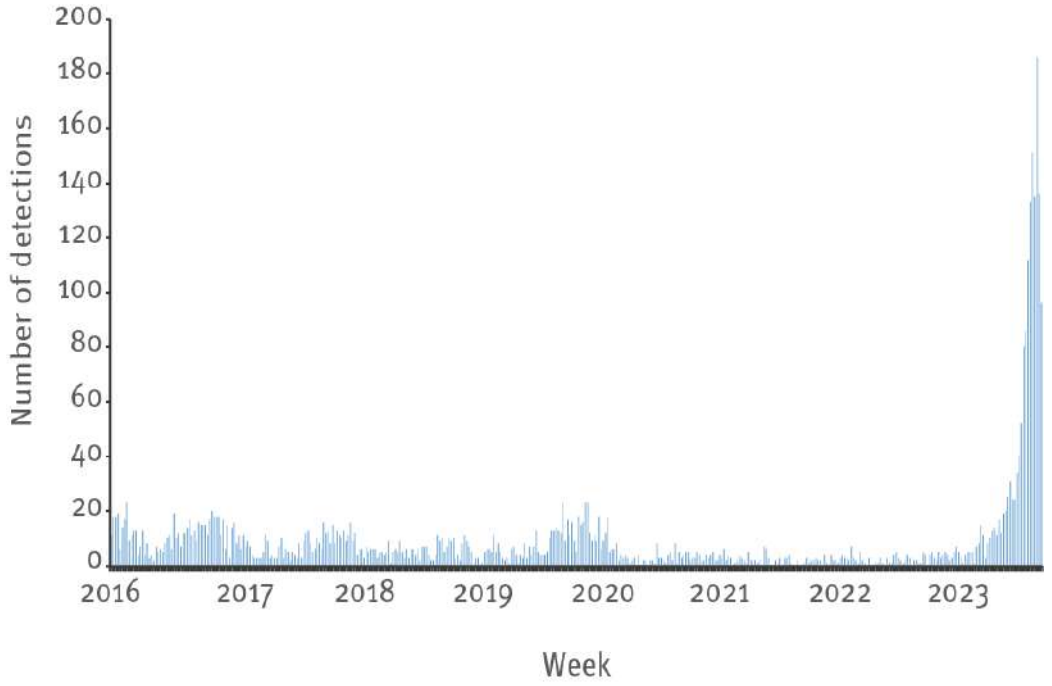


Figure 2. Mycoplasma pneumoniae detections, the Netherlands, 2016–2023 (n = 3,857)

Citation style for this article: Bolluyt Dita C, Euser Sjoerd M, Souverein Dennis, van Rossum Annemarie MC, Kalpoe Jayant, van Westreenen Mireille, Goeijenbier Marco, Snijders Dominic, Eggink Dirk, Jongenotter Femke, van Lelyveld Steven FL, van Houten Marlies A. Increased incidence of Mycoplasma pneumoniae infections and hospital admissions in the Netherlands, November to December 2023. Euro Surveill. 2024;29(4):pii=2300724. https://doi.org/10.2807/1560-7917.ES.2024.29.4.2300724 Received: 21 Dec 2023; Accepted: 24 Jan 2024

Ekstrapulmoner hastalık

- Merkezi sinir sistemi (CNS) en sık görülen ekstrapulmoner bölgedir (ensefalit/meningoensefalit, transvers miyelit, Guillain-Barre sendromu, vb.).
- Akut romatizmal ateşi taklit eden monoartrit/poliartrit/göçmen artrit
- Perikardit/miyokardit/kalp bloğu
- Hemolitik anemi, trombotik trombositopenik purpura, geçici antifosfolipid antikorları
- Konjonktivit, iritis, optik disk ödemi

Long SS, Pickering LK, Prober CG. 4th ed. 2012.

Ekstrapulmoner hastalık-Dermatolojik manifestasyonlar

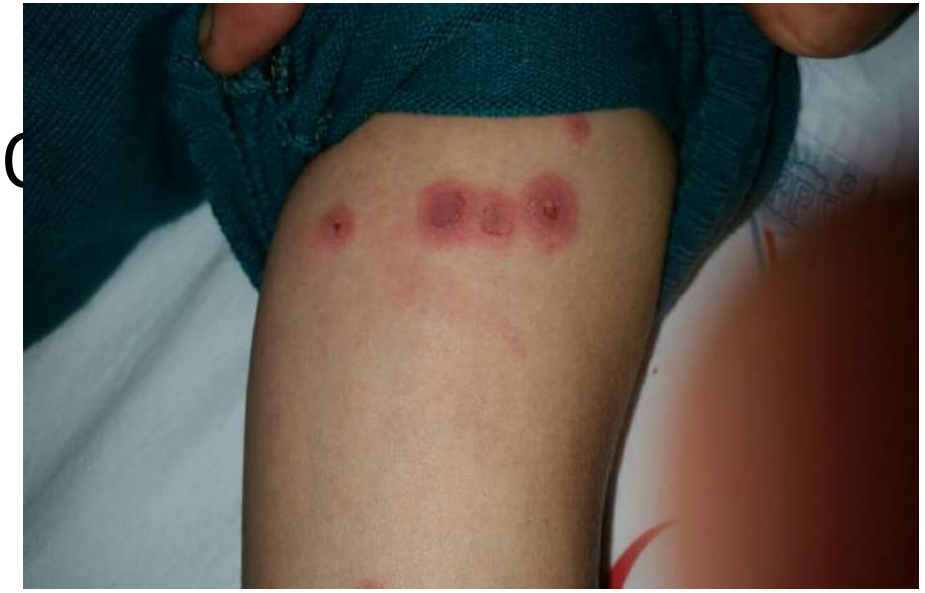
- Discrete maculopapules
- Erythema multiforme
- Steven-Johnson syndrome
- Gianotti-Crosti syndrome
- Urticaria/vesicles/bullae
- Morbiliform exanthem
- Erythema marginatum

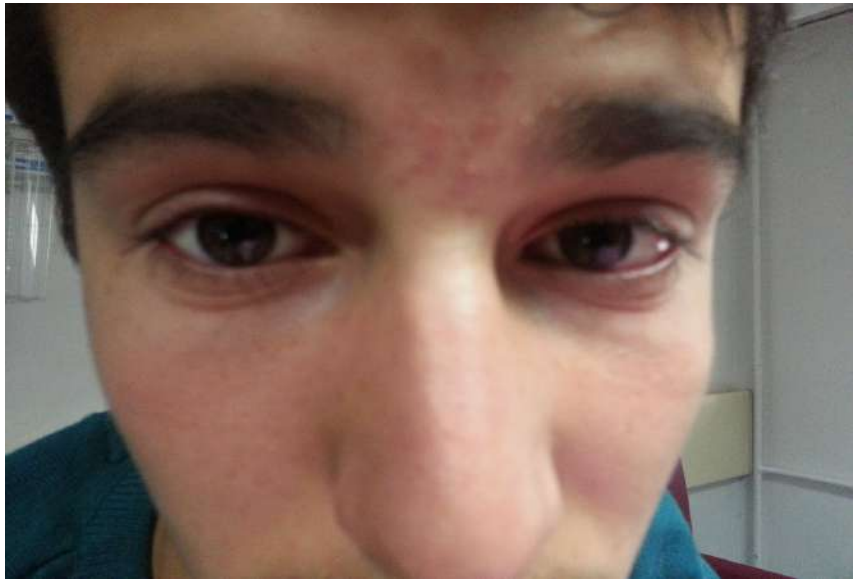
Long SS, Pickering LK, Prober CG. 4th ed. 2012.

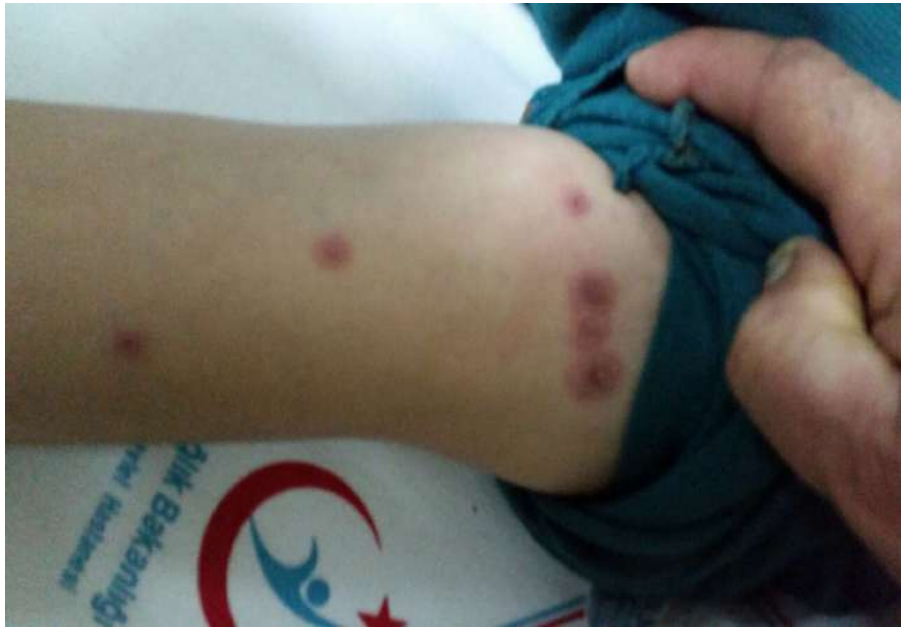
Vaka_2

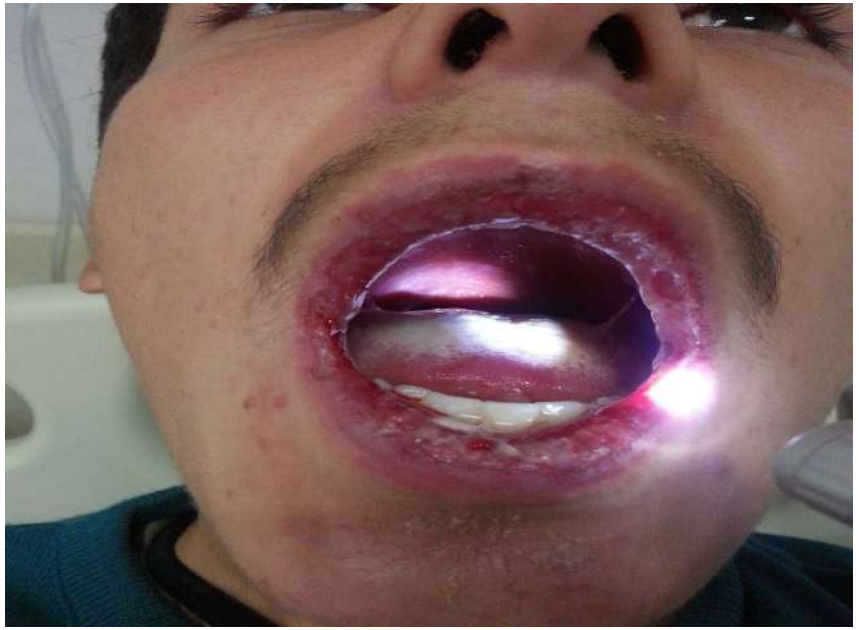
- Konya’dan ateş, döküntü şikayeti ile başvuran adölesan hasta
- Meningokoksemi ön tanısıyla danışıldı.

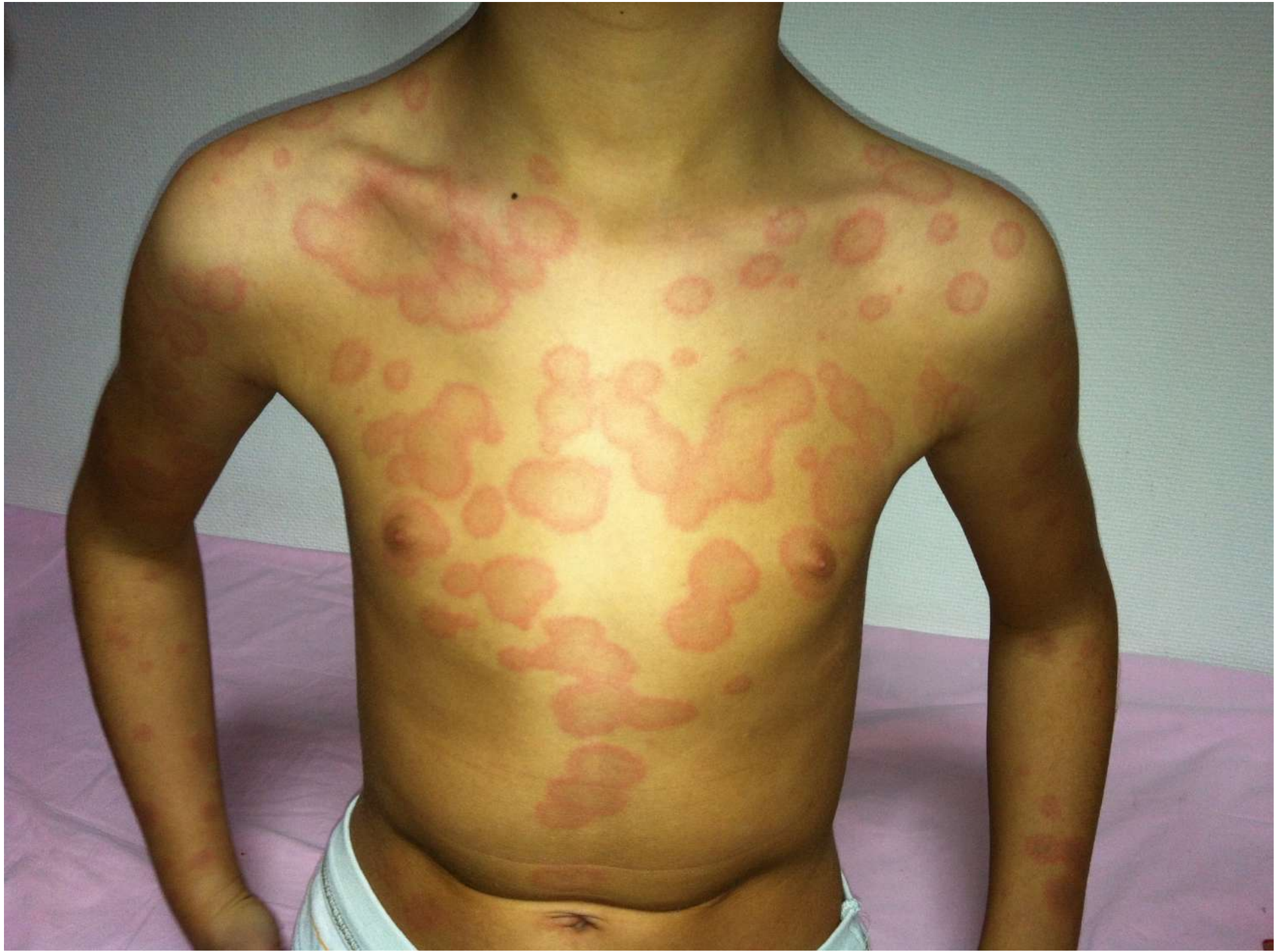
Myc









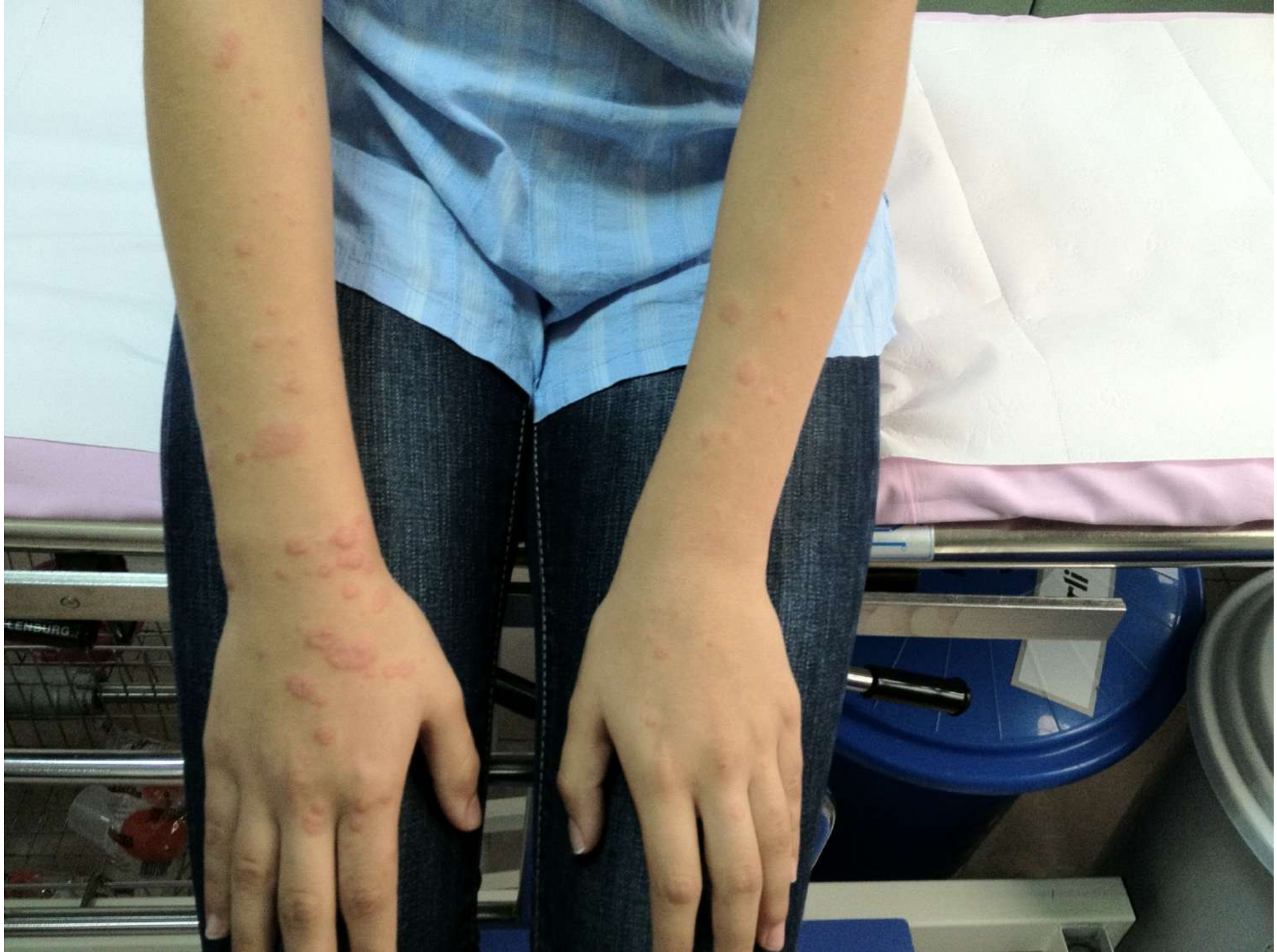


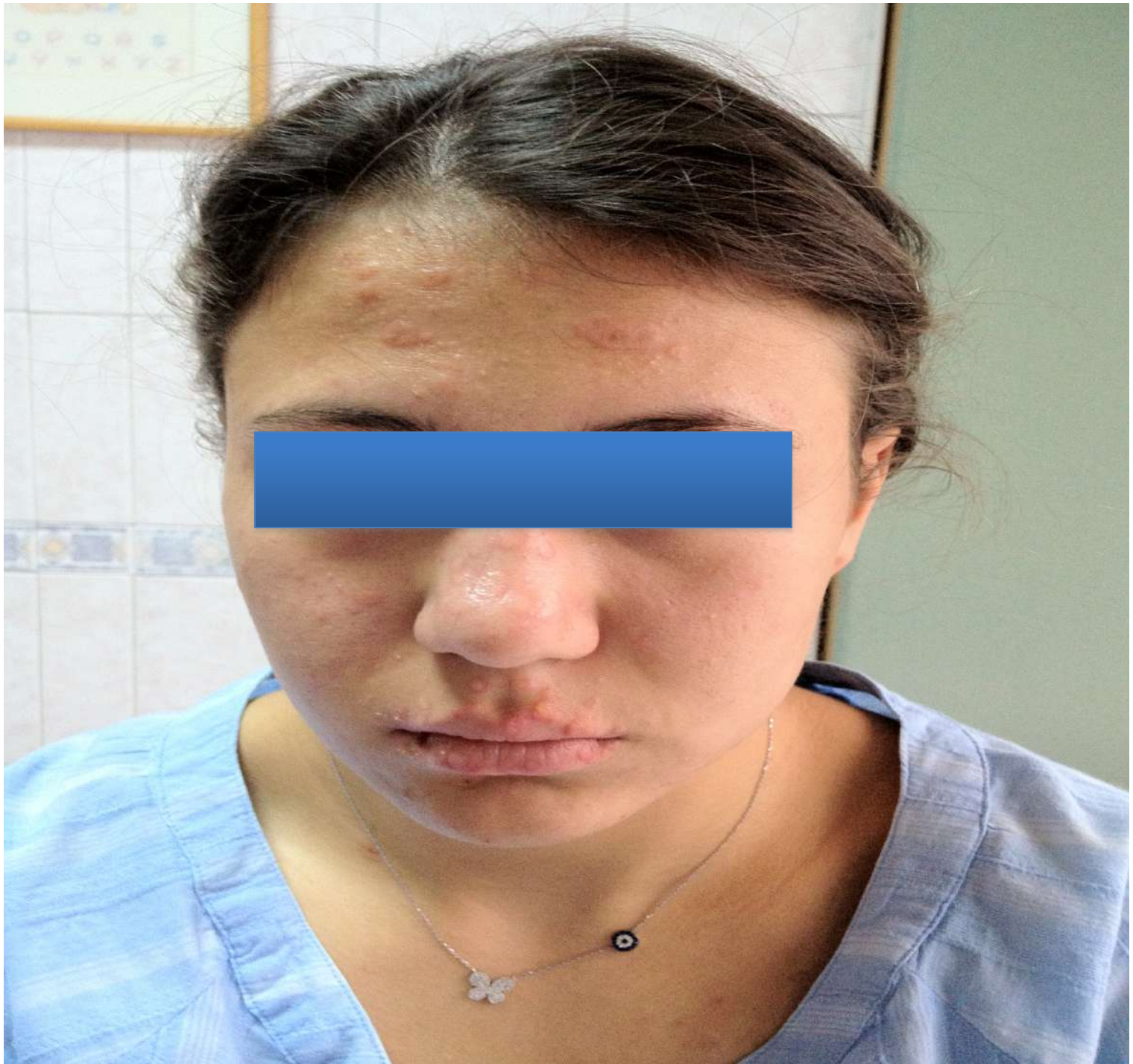
Vaka_2

- Konya’dan ateş, döküntü şikayeti ile başvuran adölesan hasta
- Meningokoksemi ön tanısıyla danışıldı.
- Mycoplasma pneumoniae PCR (+)

Vaka_3

- Ateş ve döküntü ile polikliniğimize başvuran adölesan hasta





Vaka_3

- Ateş ve döküntü ile polikliniğime başvuran adölesan hasta
- Mycoplasma pneumoniae PCR (+)

Teşekkürler