

II. VİRAL İNFEKSİYONLAR VE BAĞIŞIKLAMA SİMPOZYUMU

18-20 EYLÜL 2025

THE ANKARA HOTEL/ ANKARA



KLİMİK

TÜRK KLİNİK MİKROBİYOLOJİ VE
İNFEKSİYON HASTALIKLARI DERNEĞİ

**BİR KORUNMA
KALKANI OLARAK
AŞILAR**



Dr. Elif Nur Özbay Haliloğlu
Sincan EAH

Koruyucu Tıp Biliminin En Etkili Silahı

Bir Koruma Kalkanı olarak aşılar...

**Hepimizin hayatında en az bir kez aşı olduysak,
aslında görünmez bir kalkan taşıyoruz.**

Dünya Sağlık Örgütü'ne göre aşılar her yıl yaklaşık 4
milyon hayat kurtarıyor

Aşının Tarihçesi

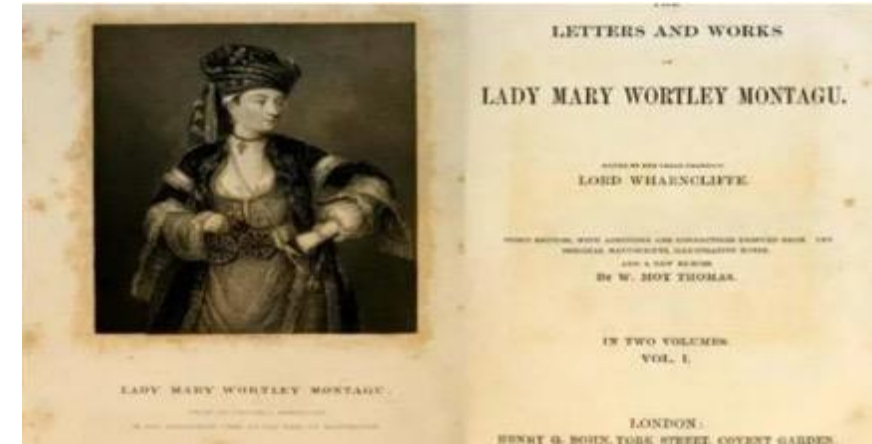
Variolasyon

11. yüzyılın başlarında Çin

1718: Lady Montagu

1719: Londra'da 3229 ölüm (nüfus 300.000)

1723: İnokülasyonun İngiltere'de yaygınlaşması





Vaksinasyon

1774: Benjamin Jesty

1796: Edward Jenner- Çiçek aşısı

1879-1885: Louis Pasteur: kuduz)

1927: BCG asisi

20. yüzyıl: Difteri, boğmaca, çocuk felci, kızamık aşıları

Günümüz: COVID-19 aşıları, mRNA teknolojisi

Mikroplara Karşı İnsanlık Tarihi

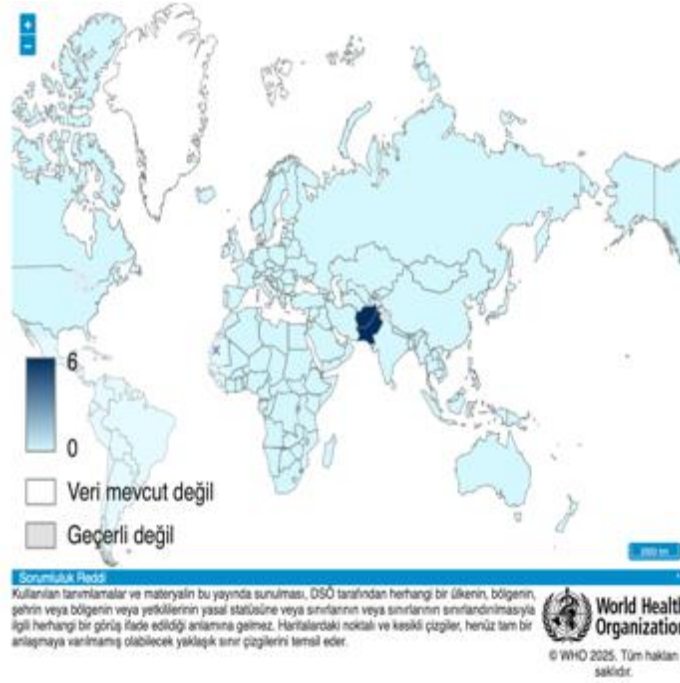
Başlıca Aşı Devrimleri:

Mayıs 1980'de Çiçek hastalığının eradikasyonu



Çiçek hastalığına tutulmuş bir bebek. (Centers for Disease and Prevention Public Health Image Library; by Dr. Noble, 1966.)

Çiçek hastalığından ölen son olgu (1978), Janet Parker



Kızamık, difteri ve tetanozun
dramatik şekilde azalması

Difteri, 1940

Kızamık, 2000

Salk ve ark 1955 yılında inaktif polio

Albert Sabin 1962 yılında attenüe
poliovirus

Polio eliminasyon 1979

Melik Minas 1998 Türkiye

Afganistan ve Pakistan

2002'den itibaren Türkiye'nin de
içinde bulunduğu DSÖ Avrupa
Bölgesi poliodan arınmış bölge
haline gelmiştir

Vaccine-preventable diseases in the US

Shown is the reduction of cases and deaths after the introduction of the vaccine

Our World
in Data

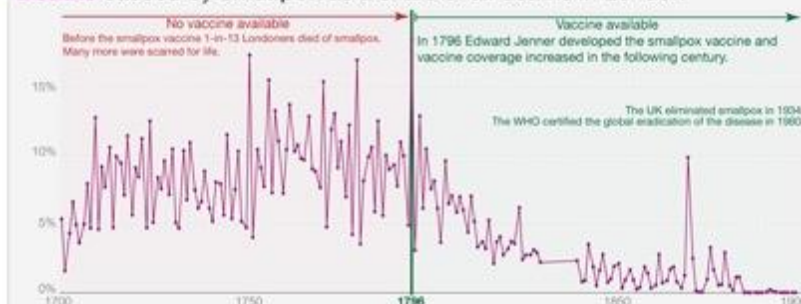
	Cases	Deaths
Diphtheria	Pre-vaccine: 158 cases per million per year (1936-45) 100% reduction Post-vaccine: 0 cases per million per year	Pre-vaccine: 13.7 deaths per million per year (1936-45) 100% reduction Post-vaccine: 0 deaths per million per year
Measles	Pre-vaccine: 3844 cases per million per year (1953-62) 99.99% reduction Post-vaccine: 0.2 cases per million per year	Pre-vaccine: 2.5 deaths per million per year (1953-62) 100% reduction Post-vaccine: 0 deaths per million per year
Mumps	Pre-vaccine: 830 cases per million per year (1963-68) 97.4% reduction Post-vaccine: 23 cases per million per year	Pre-vaccine: 0.2 deaths per million per year (1963-68) 100% reduction Post-vaccine: 0 deaths per million per year
Pertussis	Pre-vaccine: 1334 cases per million per year (1934-43) 96.6% reduction Post-vaccine: 52 cases per million per year	Pre-vaccine: 30.6 deaths per million per year (1934-43) 99.7% reduction Post-vaccine: 0.09 deaths per million per year
Acute poliomyelitis	Pre-vaccine: 141 cases per million per year (1941-50) 100% reduction Post-vaccine: 0 cases per million per year	Pre-vaccine: 10 deaths per million per year (1941-50) 100% reduction Post-vaccine: 0 deaths per million per year
Paralytic poliomyelitis	Pre-vaccine: 103 cases per million per year (1951-54) 100% reduction Post-vaccine: 0 cases per million per year	Pre-vaccine: 11.6 deaths per million per year (1951-54) 100% reduction Post-vaccine: 0 deaths per million per year
Rubella	Pre-vaccine: 242 cases per million per year (1966-68) 99.98% reduction Post-vaccine: 0.04 cases per million per year	Pre-vaccine: 0.09 deaths per million per year (1966-68) 100% reduction Post-vaccine: 0 deaths per million per year
Congenital rubella syndrome	Pre-vaccine: 0.76 cases per million per year (1966-69) 99.6% reduction Post-vaccine: 0.003 cases per million per year	Pre-vaccine: no data no data Post-vaccine: 0 deaths per million per year
Smallpox	Pre-vaccine: 250 cases per million per year (1900-49) 100% reduction Post-vaccine: 0 cases per million per year	Pre-vaccine: 2.9 deaths per million per year (1900-49) 100% reduction Post-vaccine: 0 deaths per million per year
Tetanus	Pre-vaccine: 4 cases per million per year (1947-49) 96.6% reduction Post-vaccine: 0.14 cases per million per year	Pre-vaccine: 3.2 deaths per million per year (1947-49) 99.6% reduction Post-vaccine: 0.01 deaths per million per year
Hepatitis A	Pre-vaccine: 465 cases per million per year (1986-95) 89% reduction Post-vaccine: 51 cases per million per year	Pre-vaccine: 0.5 deaths per million per year (1986-95) 88.7% reduction Post-vaccine: 0.06 deaths per million per year
Acute hepatitis B	Pre-vaccine: 273 cases per million per year (1982-91) 83.9% reduction Post-vaccine: 44 cases per million per year	Pre-vaccine: 1 death per million per year (1982-91) 83.6% reduction Post-vaccine: 0.16 deaths per million per year
Haemophilus influenzae type B	Pre-vaccine: 84 cases per million per year (1980s) 99.8% reduction Post-vaccine: 0.17 cases per million per year	Pre-vaccine: no data no data Post-vaccine: 0.02 deaths per million per year
Pneumococcal disease	Pre-vaccine: 233 cases per million per year (1997-99) 40.5% reduction Post-vaccine: 139 cases per million per year	Pre-vaccine: 24 deaths per million per year (1997-99) 31.3% reduction Post-vaccine: 16.5 deaths per million per year
Varicella	Pre-vaccine: 16018 cases per million per year (1990-94) 87.2% reduction Post-vaccine: 2046 cases per million per year	Pre-vaccine: 0.41 deaths per million per year (1990-94) 84.3% reduction Post-vaccine: 0.06 deaths per million per year

Battling Infectious Diseases in the 20th Century: The Impact of Vaccines

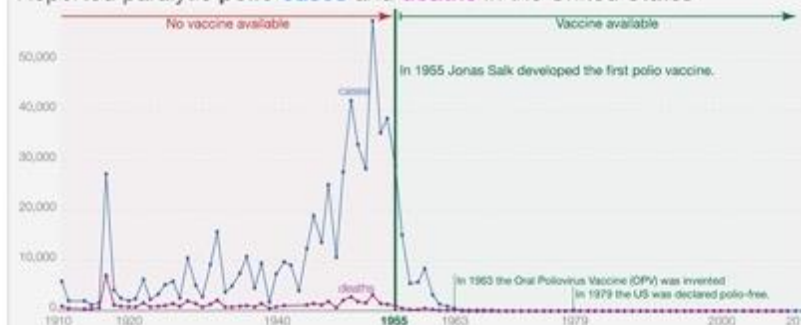
By Tynan DeBold and Dov Friedman

Published Feb. 11, 2015 at 3:45 p.m. ET

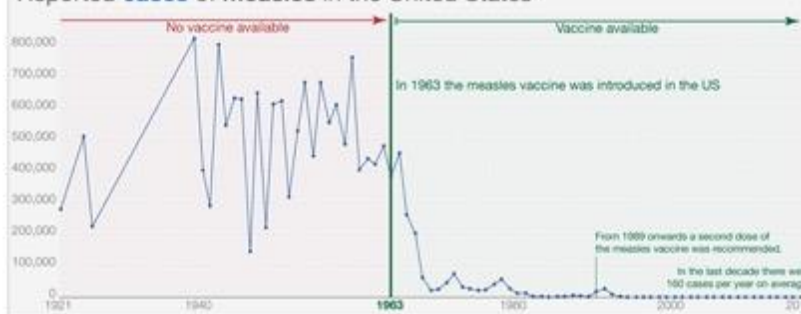
Deaths caused by smallpox as a share of all deaths in London



Reported paralytic polio cases and deaths in the United States



Reported cases of measles in the United States



Data sources: Smallpox: Our World in Data based on Our 1980s and several publications of the Registrar General between 1896 and 1903
Polio: Our World in Data based on US Public Health Service (1910-1971) and US Center for Disease Control (1980-2015)
Measles: Our World in Data based on vaccine publications from the Public Health Reports, the US Public Health Service's Morbidity and Mortality Weekly Report Annual Supplements, and the US Census's Annual Statistical Abstracts

OurWorldinData.org - Research and data to make progress against the world's largest problems

Licensed under CC-BY by the author Max Roser



Aşı öncesi dönem

Çocuk felci, kızamık, difteri, boğmaca gibi hastalıklar her yıl **milyonlarca çocuk ve gencin ölümüne** neden oluyordu. Sakatlık, felç, körlük gibi **kalıcı sekeller** yaygındı.

Günümüzde birçok insan, aşıların ne kadar büyük bir fark yarattığını unutmuş durumda. Aşı öncesi dönemin ne kadar tehlikeli olduğunu hatırlamak gerekiyor.

Contribution of vaccination to improved survival and health: modelling 50 years of the Expanded Programme on Immunization



Andrew J Shattock, Helen C Johnson, So Yoon Sim, Austin Carter, Philipp Lambach, Raymond CW Hutubessy, Kimberly M Thompson, Kamran Badizadegan, Brian Lambert, Matthew J Ferrari, Mark Jit, Han Fu, Sheetal P Silal, Rachel A Hounsell, Richard G White, Jonathan F Mosser, Katy A M Gaythorpe, Caroline L Trotter, Ann Lindstrand, Katherine L O'Brien, Naor Bar-Zeev



50 yıl boyunca tahminen 154 milyon ölüm önlenmiş ortaya koyuyor (101 milyon bebek)

Kızamık aşılması bebek ölümlerinin % 60 azaltmakta

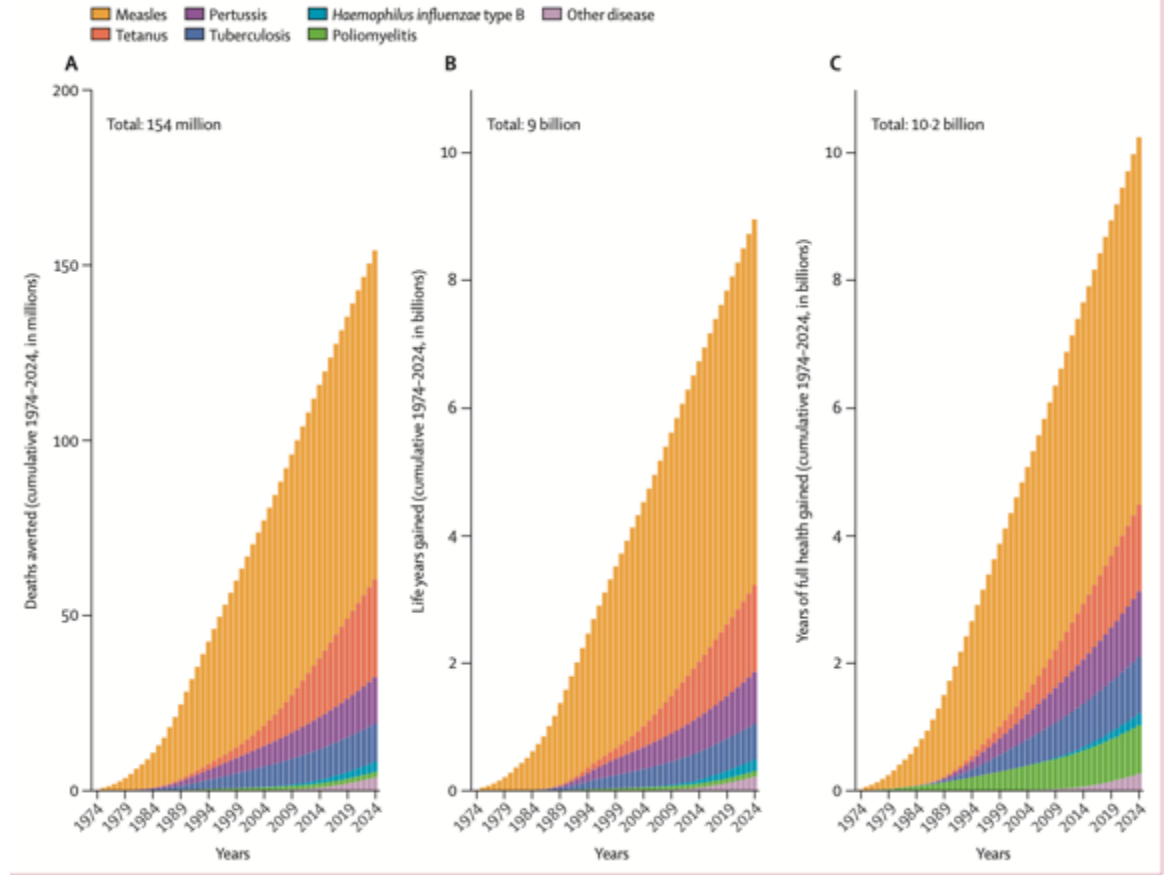
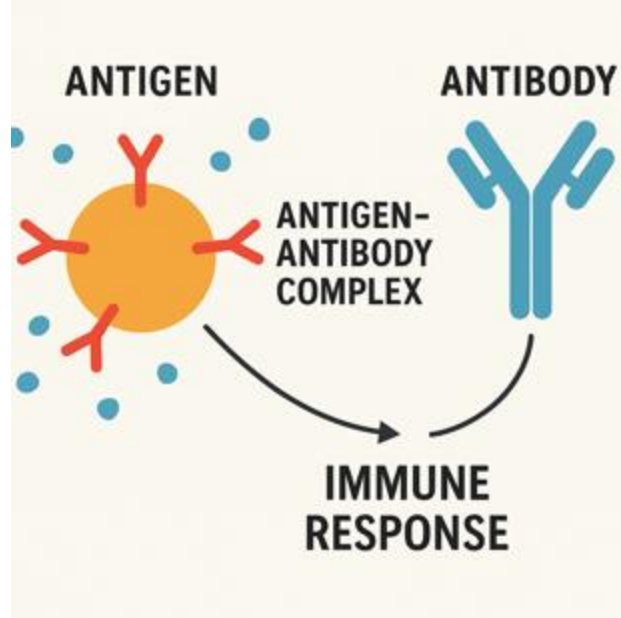


Figure 1: Deaths averted, years of life saved, and years of full health gained due to vaccination

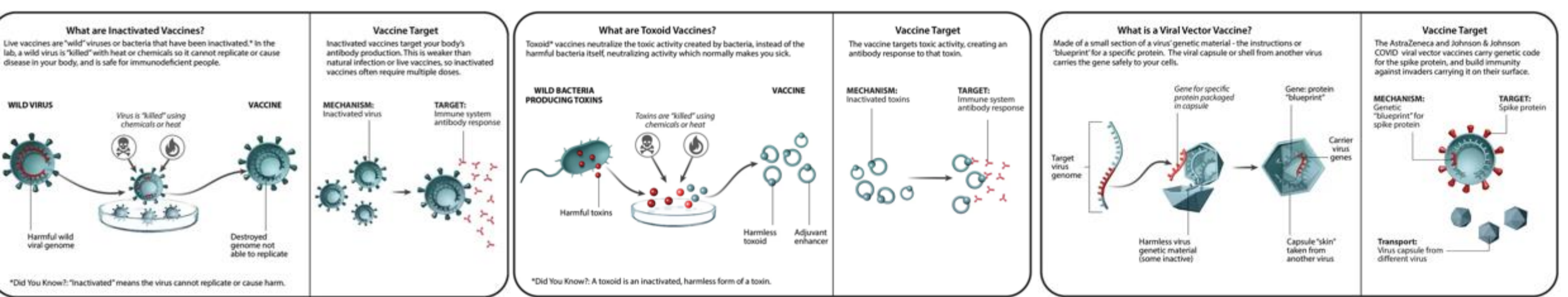
Aşıların Etki Mekanizması



- Aşılanan bireyde hastalık gelişimini önleme
- Komplikasyon ve ölüm riskini azaltma
- Uzun süreli immün hafıza



- Aşılanan bireyde hastalık gelişimini önleme
- Komplikasyon ve ölüm riskini azaltma
- Uzun süreli immün hafıza



What are Toxoid Vaccines?

Toxoid* vaccines neutralize the toxic activity created by bacteria, instead of the harmful bacteria itself, neutralizing activity which normally makes you sick.

WILD BACTERIA PRODUCING TOXINS

Harmful toxins

Toxins are "killed" using chemicals or heat

VACCINE

Harmless toxoid
Adjuvant enhancer

*Did You Know?: A toxoid is an inactivated, harmless form of a toxin.

Vaccine Target

The vaccine targets toxic activity, creating an antibody response to that toxin.

MECHANISM: Inactivated toxins

TARGET: Immune system antibody response

What is a Viral Vector Vaccine?

Made of a small section of a virus' genetic material - the instructions or "blueprint" for a specific protein. The viral capsule or shell from another virus carries the gene safely to your cells.

Target virus genome

Gene for specific protein packaged in capsule

Harmless virus genetic material (some inactive)

Gene: protein "blueprint"

Carrier virus genes

Capsule "skin" taken from another virus

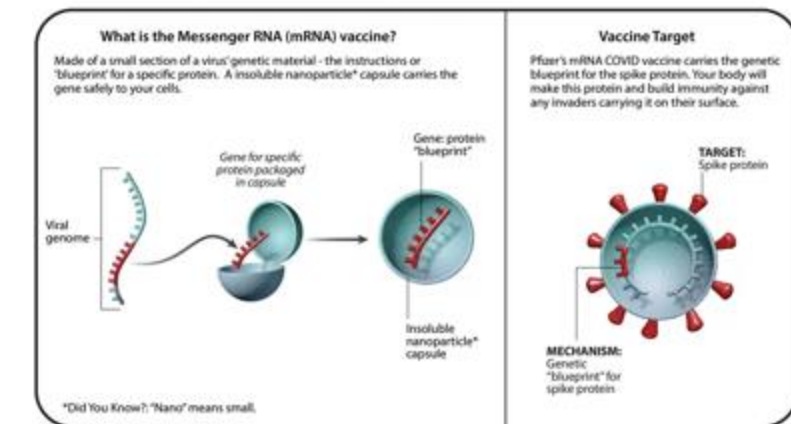
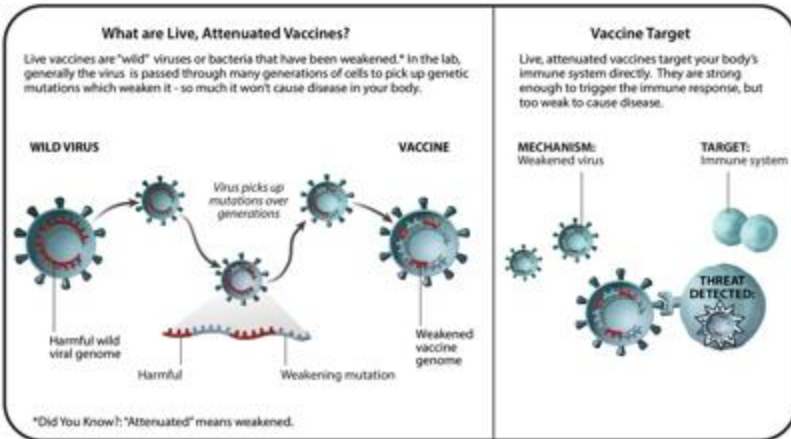
MECHANISM: Genetic "blueprint" for spike protein

TARGET: Spike protein

Transport: Virus capsule from different virus

Vaccine Target

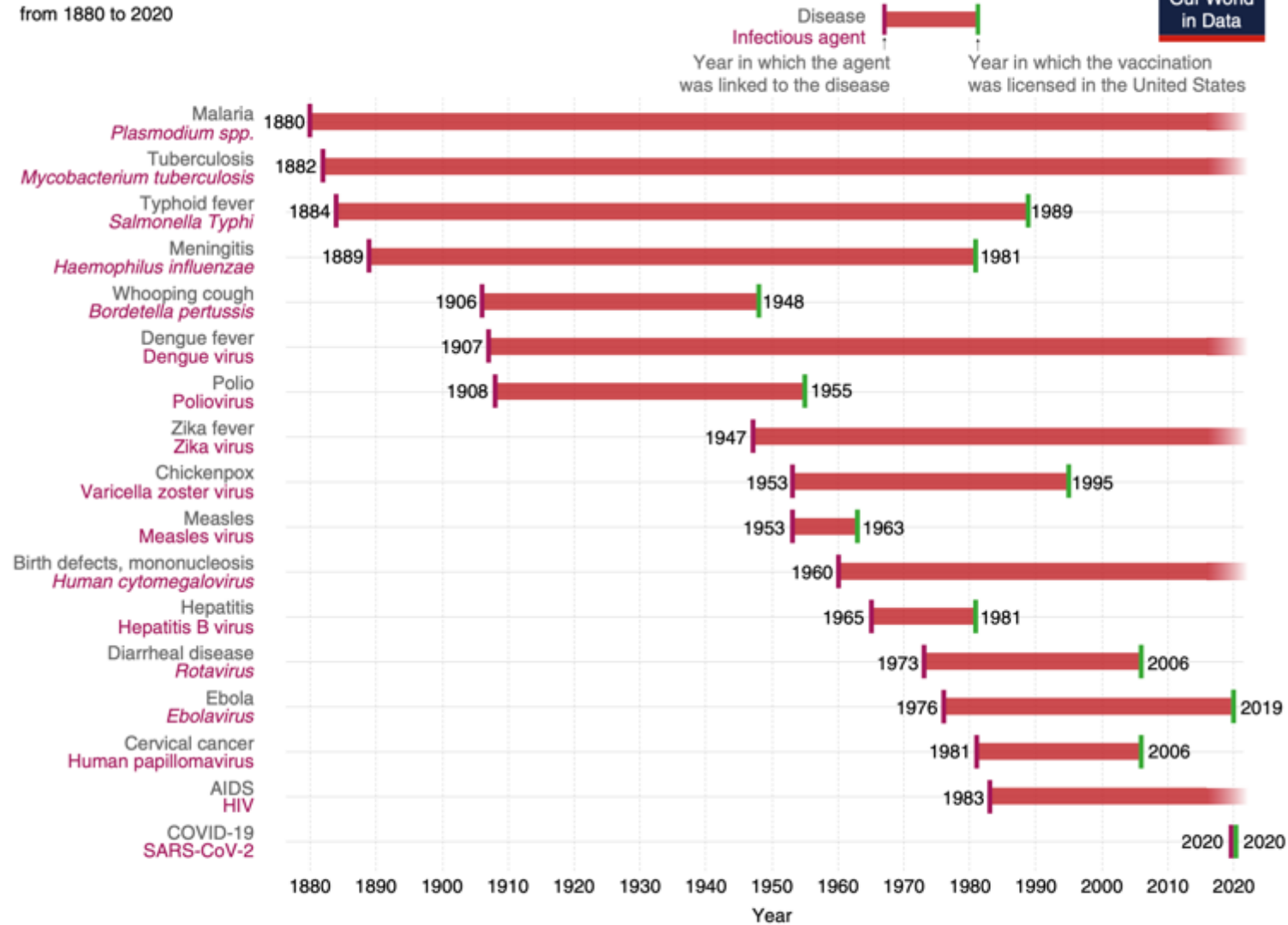
The AstraZeneca and Johnson & Johnson COVID viral vector vaccines carry genetic code for the spike protein, and build immunity against invaders carrying it on their surface.



- Canlı zayıflatılmış aşılar
- İnaktive aşılar
- Toksoid aşılar
- Subunit ve rekombinant aşılar
- mRNA ve viral vektör aşıları

Vaccination innovation
from 1880 to 2020

Our World
in Data

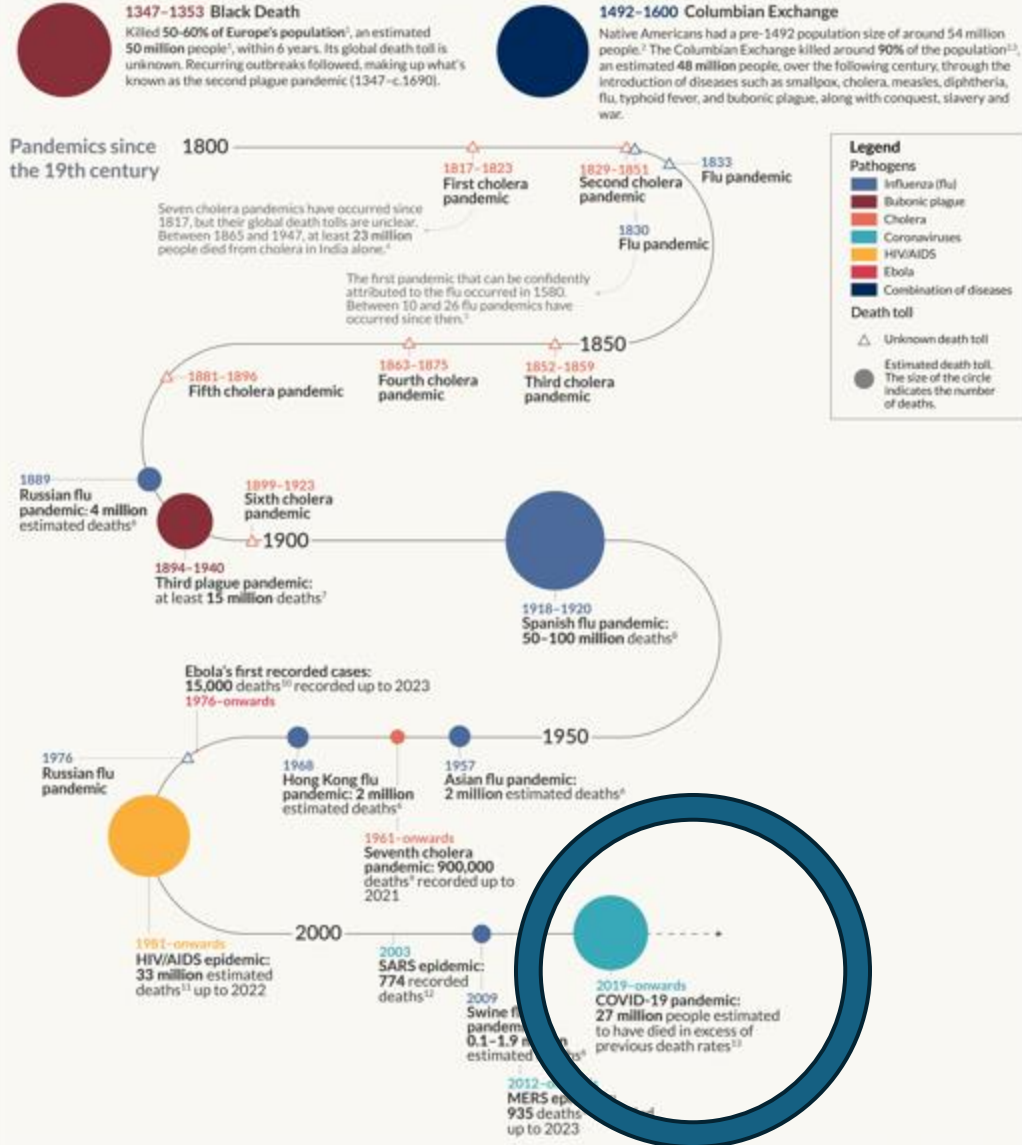


Timeline of innovation in the development of vaccines. Each bar begins in the year in which the pathogenic agent was first linked to the disease

Time and again, humanity suffered through large pandemics

Historical knowledge about many pandemics in the past is sparse. Pandemics with unknown death tolls are shown as triangles, while those with an estimated death toll are shown as circles.

Pandemics before the 19th century, with an estimated death toll



Source: Our World in Data Historical Pandemics Database (2023). 1) Ole Benedictow, 2021; John Alarich, 2021. 2) Alexander Koch et al., 2019; Russell Thornton, 1990 & 1991. 3) Nobel David Cook, 1998; Alexander Koch et al., 2019. 4) David Arnold, 1986. 5) Sven Erik Mørland, 2008. 6) Peter Spreenewberg, 2018. 7) Estimates for India and China alone sum to around 15 million deaths, but global estimates are unavailable. Myron Echenberg, 2002; WHO, 1999; Barbara Bramanti et al., 2016. 8) Hull Johnson & Joergin Mueller, 2002. 9) WHO, 2022. 10) UNHSA, 2023. 11) UNAIDS, 2020. 12) WHO, 2023. 13) Excess mortality model for COVID-19 by The Economist, 2023.

More details at OurWorldinData.org/historical-pandemics

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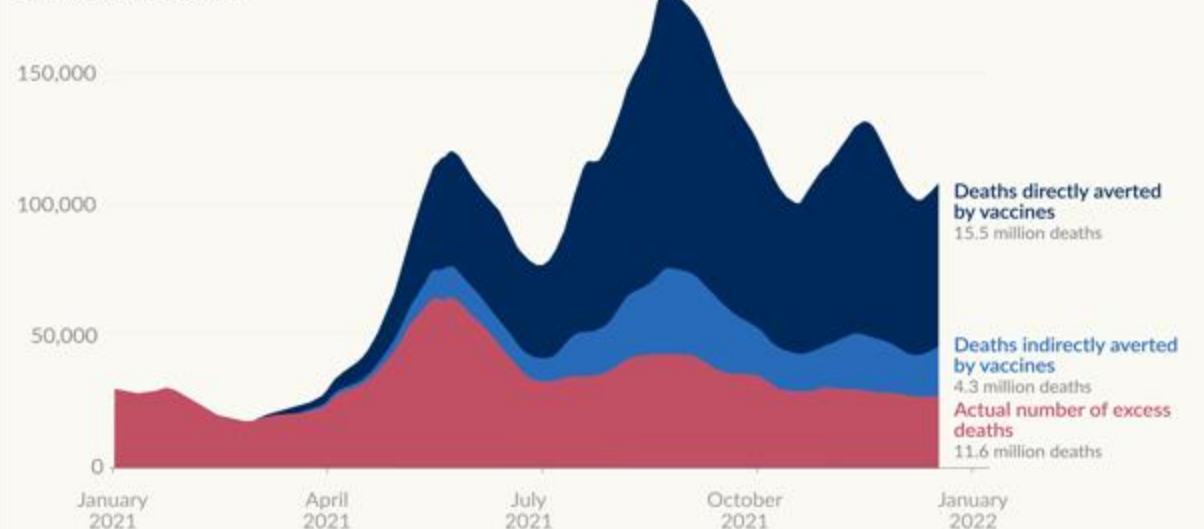
COVID-19 aşılıarı

- Hastaneye yatışlar ve ölümler , ciddi hastalık olasılığını azaltmada oldukça etkili
- Sadece ilk yılında dünya çapında yaklaşık 20 milyon hayat kurtardığını tahmin edilmekte

COVID-19 vaccination saved millions of lives worldwide

Estimated global number of deaths averted by COVID-19 vaccination, between January 2021 and December 2021. This compares the number of excess deaths to the number of averted deaths in people directly protected by vaccination and those indirectly protected by lower infection rates.

Daily number of deaths



Note: These estimates don't account for possible policies that might have been implemented to control COVID-19 if vaccines hadn't been available. They are based on models that consider COVID-19 spread, vaccination rates, demographics, healthcare capacity, excess mortality, and vaccine efficacy.

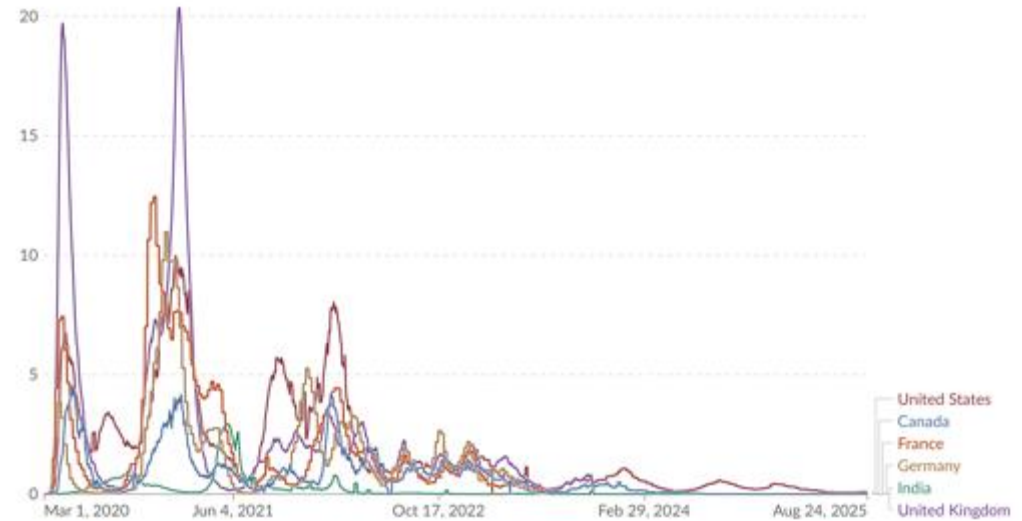
Source: Oliver J. Watson et al. (2022) Global impact of the first year of COVID-19 vaccination: a mathematical modelling study. *Lancet Infectious Diseases*. OurWorldinData.org — Research and data to make progress against the world's largest problems. Licensed under CC-BY by the author Saloni Dattani



Daily new confirmed COVID-19 deaths per million people, Mar 1, 2020 to Aug 24, 2025

Our World in Data

7-day rolling average. Due to varying protocols and challenges in the attribution of the cause of death, the number of confirmed deaths may not accurately represent the true number of deaths caused by COVID-19.



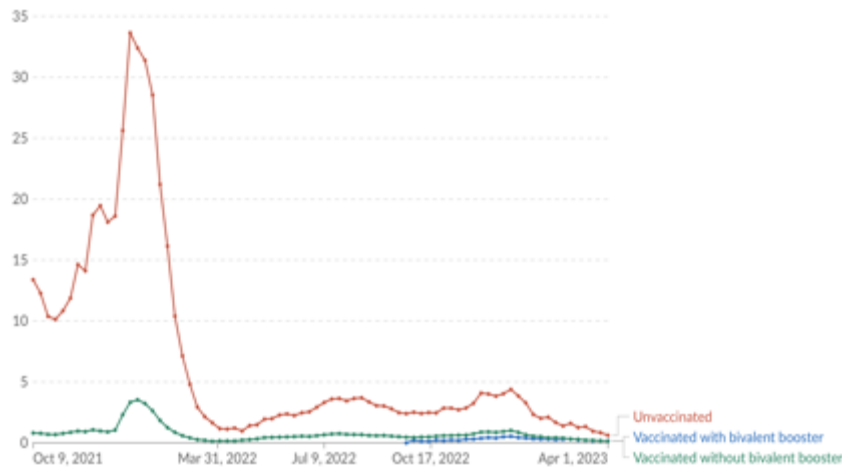
Data source: World Health Organization (2025); Population based on various sources (2024)

CC BY

United States: COVID-19 weekly death rate by vaccination status, All ages

Our World in Data

Death rates are calculated as the number of deaths in each group, divided by the total number of people in this group. This is given per 100,000 people.



Data source: Centers for Disease Control and Prevention (2023)

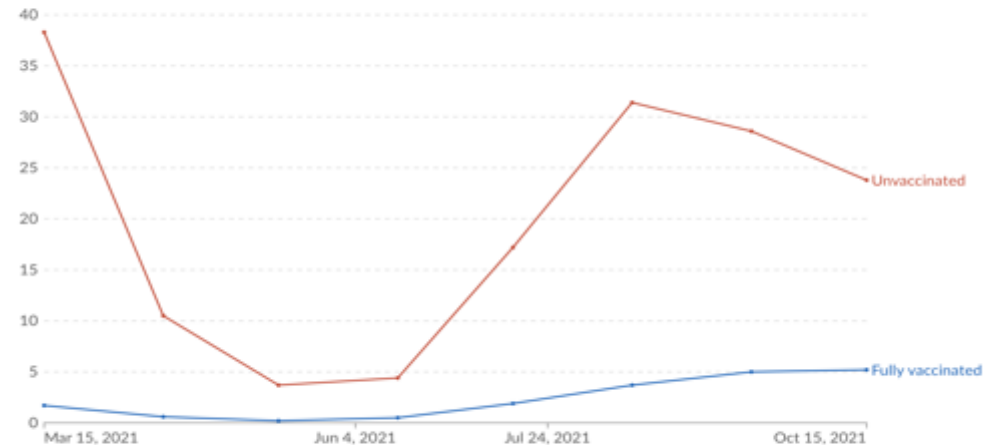
OurWorldinData.org/coronavirus | CC BY

Note: The mortality rate for the 'All ages' group is age-standardized to account for the different vaccination rates of older and younger people.

England: COVID-19 monthly death rate by vaccination status, All ages

Our World in Data

Death rates are calculated as the number of deaths in each group, divided by the total number of people in this group. This is given per 100,000 people.



Data source: Office for National Statistics (2023)

OurWorldinData.org/coronavirus | CC BY

Note: Unvaccinated people have not received any dose. Partially-vaccinated people are excluded. Fully-vaccinated people have received all doses prescribed by the initial vaccination protocol. The mortality rate is age-standardized to account for the different vaccination rates of older and younger people.

COVID-19 salgını, aşılarla erişim...



2024'te DTP (difteri, tetanoz toksoid ve boğmaca içeren aşı) bağışıklama kapsamı artık 2019 seviyelerine geri dönmeye yakın

20,6 milyon çocuk rutin ilk kızamık dozlarını kaçırdı

Aşıların Temel Koruyuculuęu

Primer Kazanımlar:

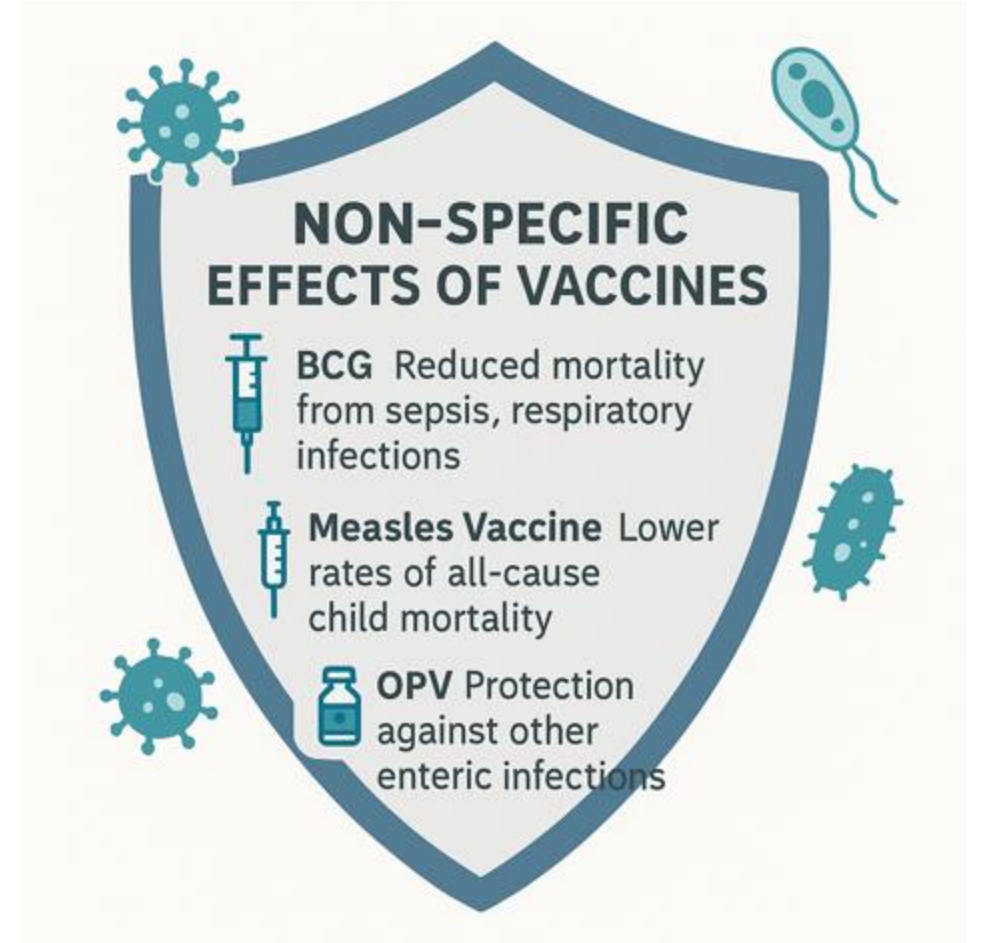
- Hedef hastalıęa karşı spesifik baęışıklık
- Mortalitede ve morbiditede azalma
- Ağır hastalık ve komplikasyonların önlenmesi



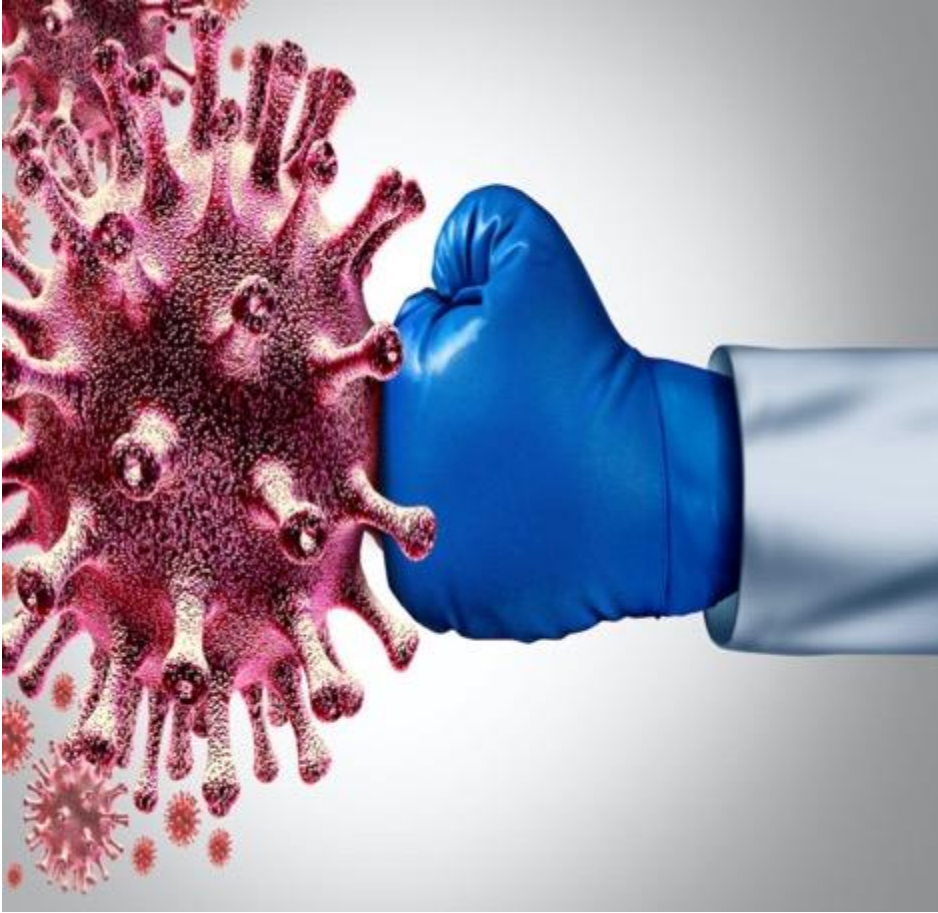
Sekonder / Heterolog Etkiler



- Tüm Nedene Bağlı Mortalite Azalması
- Toplum Düzeyinde
- Ekonomik Boyutu
- Enfeksiyon Dinamiklerinde Değişim
- Antibiyotik Kullanımında Azalma ve Direnç

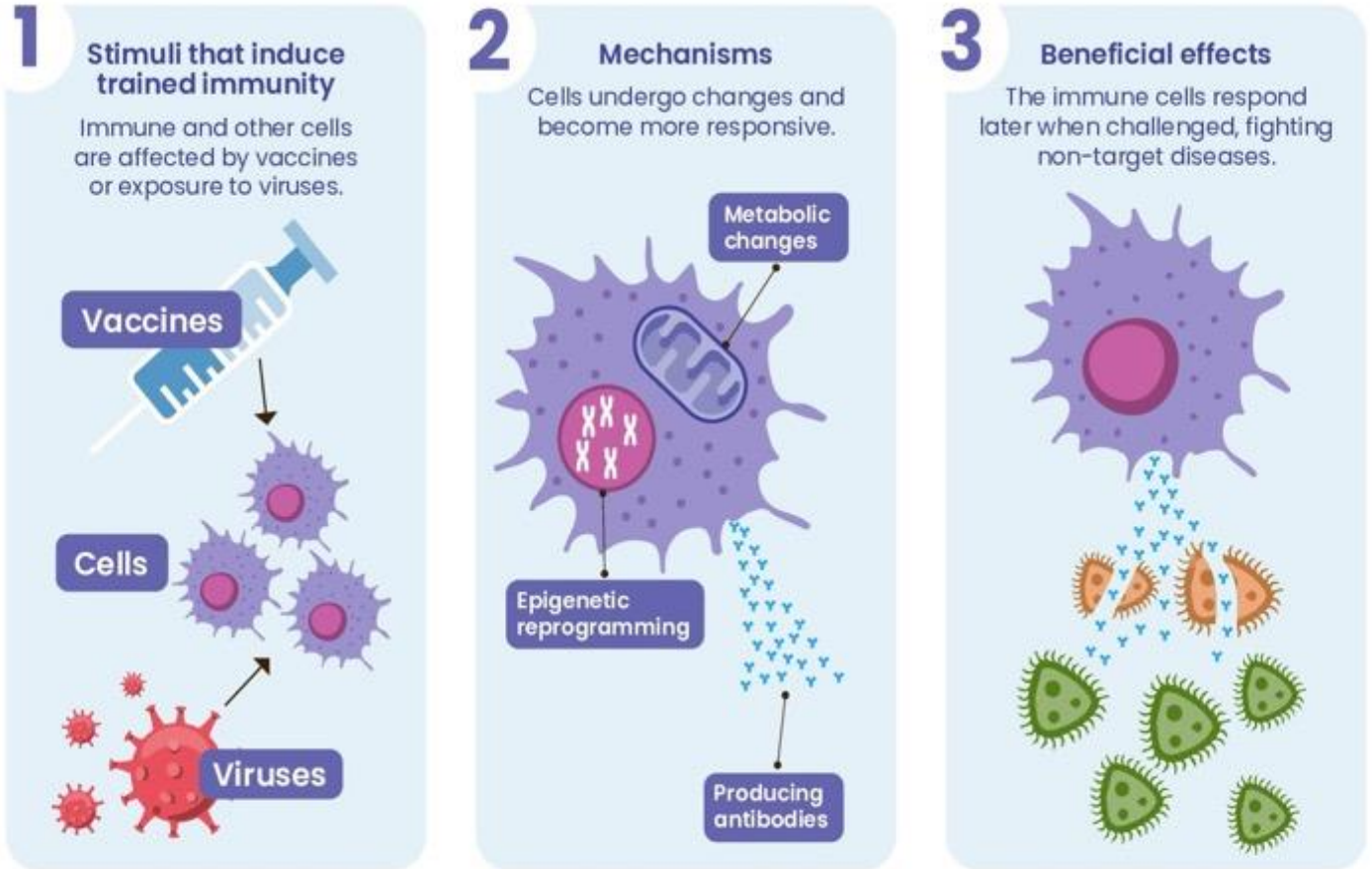


Eğitilmiş Bağışıklık



Trained Immunity: Innate Immune Memory

How vaccines can offer non-specific effects, or protection beyond the diseases that they were meant to target



Learn more: parsemus.org/NSE

> [JAMA](#). 2014 Feb 26;311(8):826-35. doi: 10.1001/jama.2014.470.

Live vaccine against measles, mumps, and rubella and the risk of hospital admissions for nontargeted infections

Signe Sørup¹, Christine S Benn², Anja Poulsen³, Tyra G Krause⁴, Peter Aaby⁵, Henrik Ravn⁵

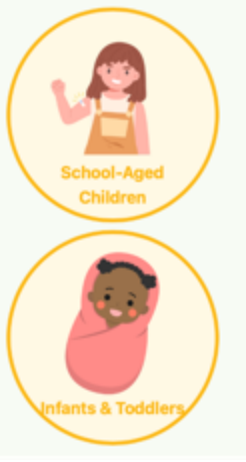
• Canlı aşılar

- Hedef olmayan hastalıklarla mücadele ederek yararlı etkilere sahiptir.
- Kızamık /BCG aşısı ---sepsis

• Canlı olmayan aşılar

- Tam tersi bir etkiye sahip olabilir.
- DTP aşısı, hepatit B aşısı, inaktif çocuk felci aşısı, sıtma aşısı, H1N1 hedef hastalıklara karşı etkilidir ancak diğer enfeksiyonların olasılığını artırabilir

Baęışıklama Yöntemleri



1. Ulusal baęışıklama programları kapsamında çocuklarda ve ergenlerde yapılan rutin aşılar

2. Halka aşılama stratejisi (ring vaccination)



3. Koza aşılama stratejisi (cocoon vaccination strategy)





- **Grip (influenza)** 6 ay altı bebekler en büyük risk grubudur, ancak aşı olamazlar.
- **Boğmaca (pertussis)** Ebeveynlere, aile üyelerine ve yeni doğan bebekle düzenli olarak temas edecek tüm bireylere [DTaP/Tdap](#)

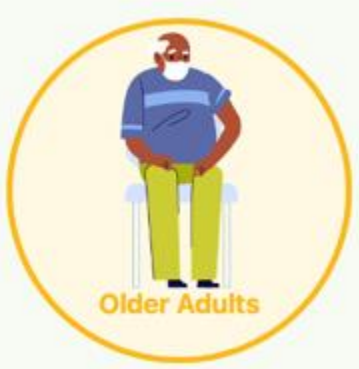
**Koza stratejisi tek başına yeterli değil;
anne aşılması + aile bireylerinin
aşılması birlikte uygulanmalı**



İmmünsupresif Hastalarla Temasta Olanlarda Aşılamada Koza Stratejisi

- **Grip (influenza)**
- **Boğmaca (pertussis)**
- **Suçiçeği (varisella)**

4. Yetiřkinlerde ařılar – risk gruplarına gre ařılama



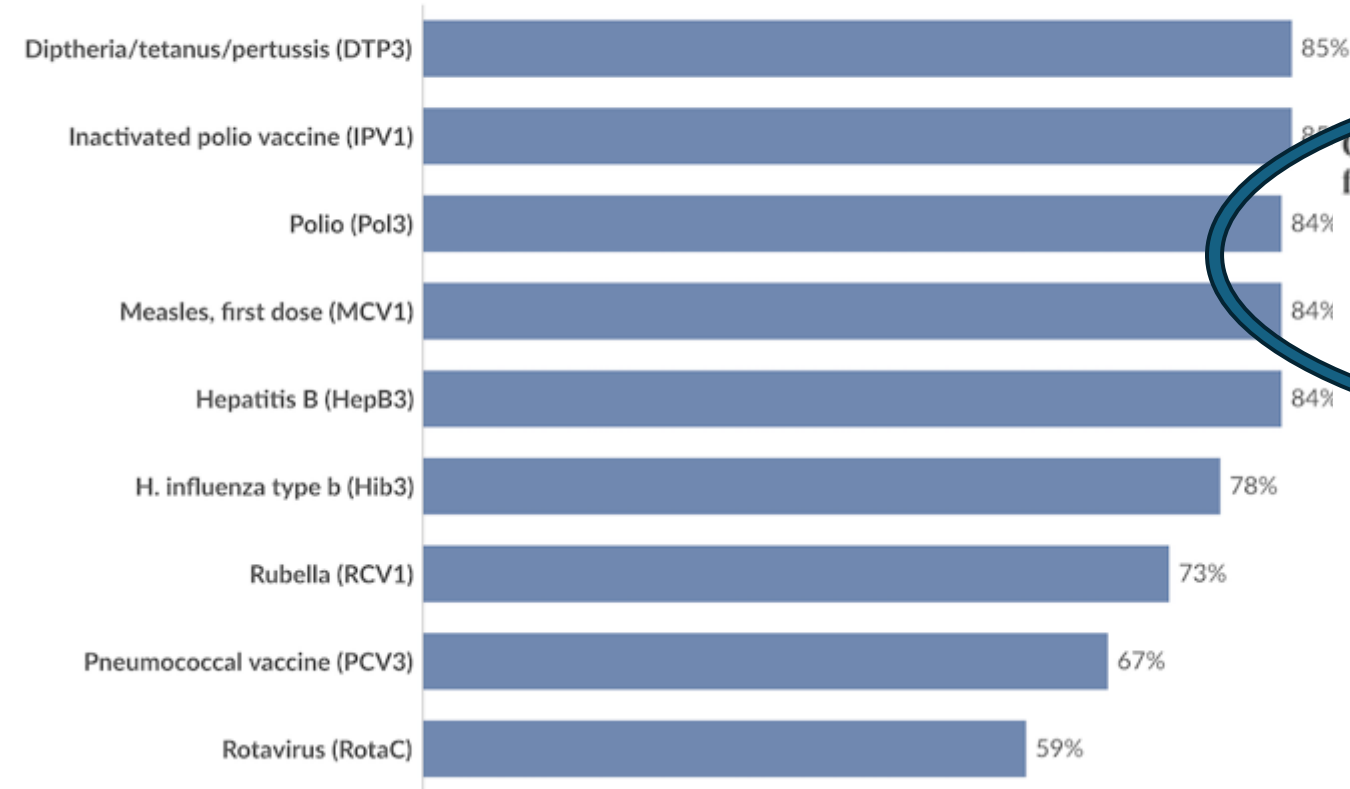
İleri yař
Kronik hastalıklar
Gebelik
İmmun yetmezlik
Mesleki risk
Seyahatler ařılamaları



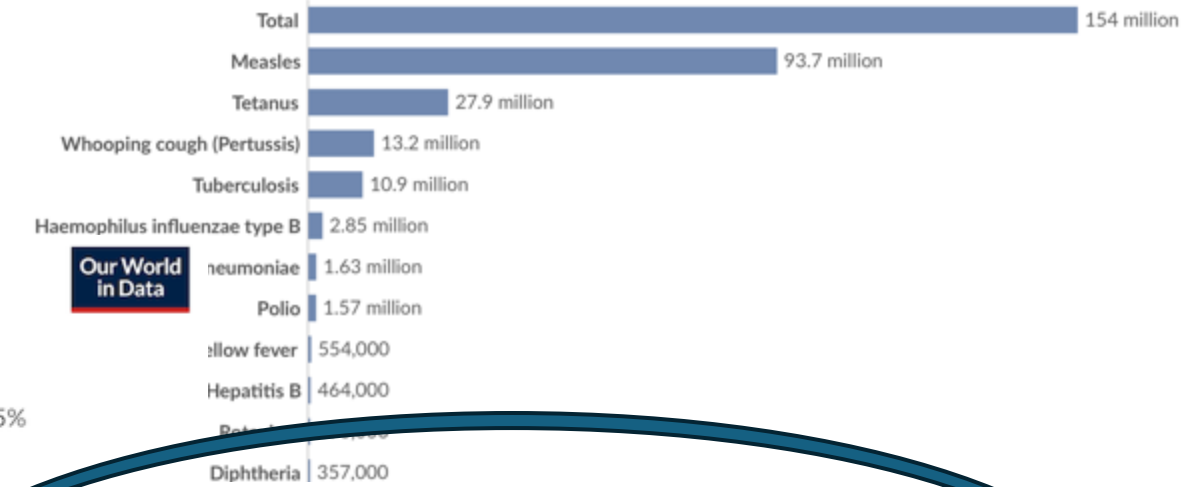
Dünya'da Aşılama

Vaccination coverage, World, 2024

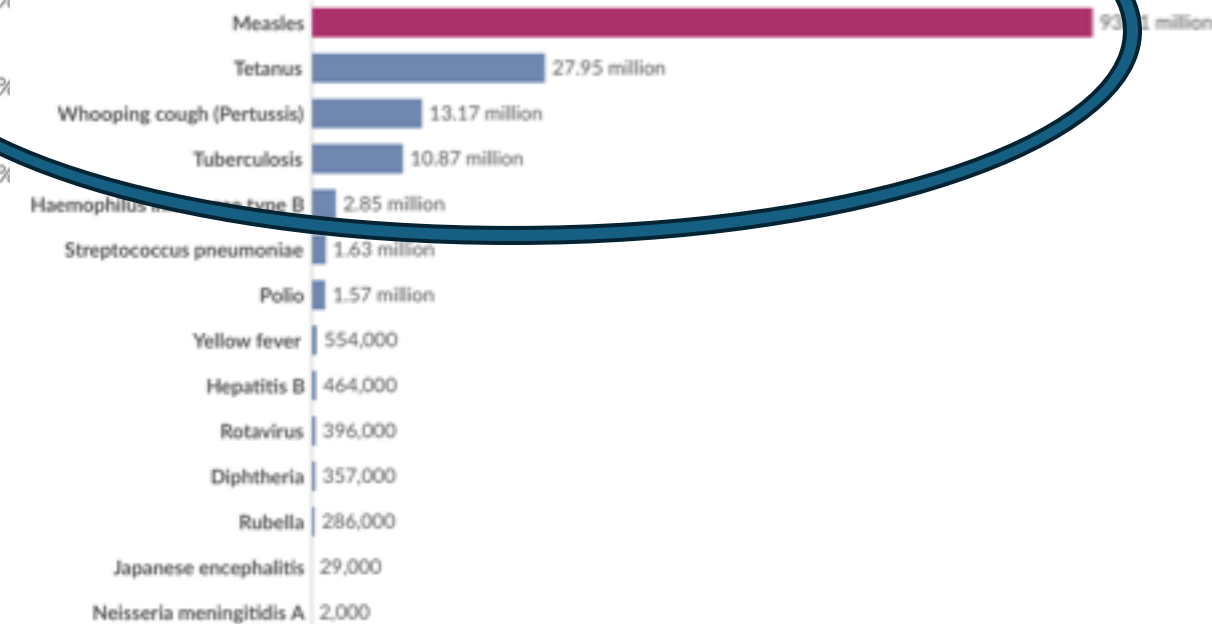
Share of one-year-olds who have been immunized against a disease or a pathogen.



Number of lives saved by childhood vaccinations from 1974 to 2024, World



Cumulative global number of lives saved by childhood vaccinations from 1974 to 2024



Data source: Shattock et al. (2024). Contribution of vaccination to improved survival and health: modelling 50 years of the Expanded Programme on Immunization.

OurWorldinData.org/vaccination | CC BY

- Genişletilmiş Bağışıklama Programı (GBP).
- Çocukluk çağı aşıları ücretsiz.
- Erişkin bağışıklaması (grip, pnömokok, hepatit, HPV).

ERİŞKİN DÖNEMİ AŞI UYGULAMALARI



TÜRKİYE CUMHURİYETİ
SAĞLIK BAKANLIĞI

Sağlıklı Erişkinlere Önerilen Aşılar	Risk Grubunda Yer Alan Erişkinlere Önerilen Aşılar
➢ Td: Erişkin Tetanos difteri GEBELER ➢ Tdab: Erişkin Tetanos, difteri, asellüler boğmaca ➢ Td: Erişkin Tetanos difteri ➢ Grip 65 YAŞ ve ÜZERİ ➢ Pnömonik ➢ Grip	➢ Hepatit B ➢ Hepatit A ➢ Pnömonik ➢ Grip ➢ Meningokok ➢ Süççengi ➢ KKK: Kızamık, Kızamıkçık, Kabakulak

Bilgi için doktorunuza başvurunuz.

asi.saglik.gov.tr

Türkiye’de Aşılama

- Ulusal aşı programı

Tablo 5.1. Yıllara Göre Aşılama Hızları, (%)

	2002	2019	2020	2021	2022	2023
DaBT 3	78	99	98	95	99,5	98,8
BCG	77	96	96	95	98,1	96,0
HBV 3	72	99	98	96	99,3	99,0
KKK	82	97	95	96	95,2	95,2
KPA Rapel*	-	-	95	96	95,3	95,2

Kaynak: Halk Sağlığı Genel Müdürlüğü

*1 Temmuz 2019 tarihinden itibaren KPA'nın 3. doz uygulaması kaldırılıp yerine KPA Rapel uygulamasına geçildi. 2018 yılı ve öncesindeki değerler KPA 3 uygulamasına aittir.

Not: MERNİS ve aile hekimliği kaydı farklı illerde olan kişiler, bölgeler arası aşılama hızlarına etki etmektedir.

Aşılama

Ulusal programlardaki tüm aşılar ile kapsanan hedef nüfusun %'si, 2023



*2019 yılında KPA Rapel uygulanmaya başlanmıştır.



What would happen if we stopped vaccination?

Heikki Peltola



Aşılar yalnızca bireyi değil, tüm toplumu koruyan bir **“koruma kalkanı”**

- **Yüksek aşılama oranlarının sürdürülmesi şart**
 - Güncel kızamık epidemileri
 - Aşılama oranlarındaki uzun süreli düşüşün ardından 2022 yılında kızamıktan ölenlerin sayısı 2021'e göre %43 artarak yaklaşık 136 bin oldu

Aşı Kararsızlığı

Risk Algısı ve Yan Etkiler

Comparative Study > JAMA. 2007 Nov 14;298(18):2155-63. doi: 10.1001/jama.298.18.2155.

Historical comparisons of morbidity and mortality for vaccine-preventable diseases in the United States

Sandra W Roush¹, Trudy V Murphy; Vaccine-Preventable Disease Table Working Group

Affiliations + expand

PMID: 18000199 DOI: 10.1001/jama.298.18.2155

Koruma Yanılsaması (Complacency): Hastalıklar görülmediğinde, aşılamanın faydası unutulur; bazı bireyler "hastalık artık yok", "aşı gerekmez" düşüncesine kapılabilir.



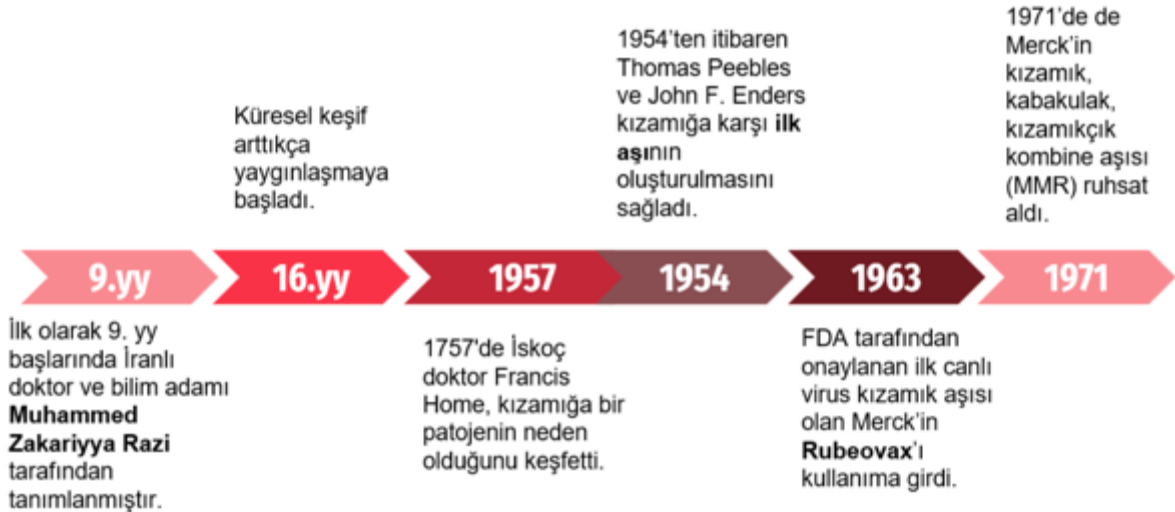
KIZAMIK

- **Spesifik amacı:** Kızamık virüsüne karşı koruma
- **Spesifik olmayan etkisi:**
 - Çocuk ölümlerinde anlamlı azalma (WHO verileri)
 - Enfeksiyon sonrası immün baskılanmanın önlenmesi
 - Diğer solunum yolu enfeksiyonlarının insidansında azalma

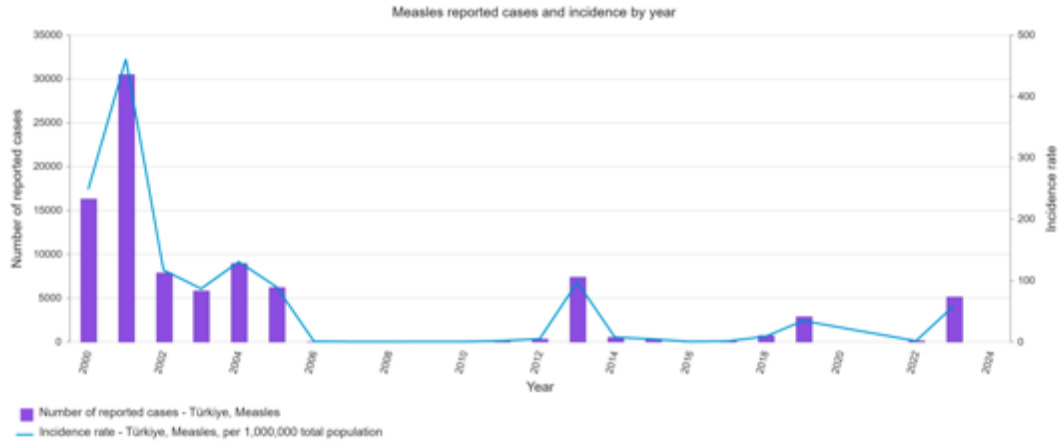
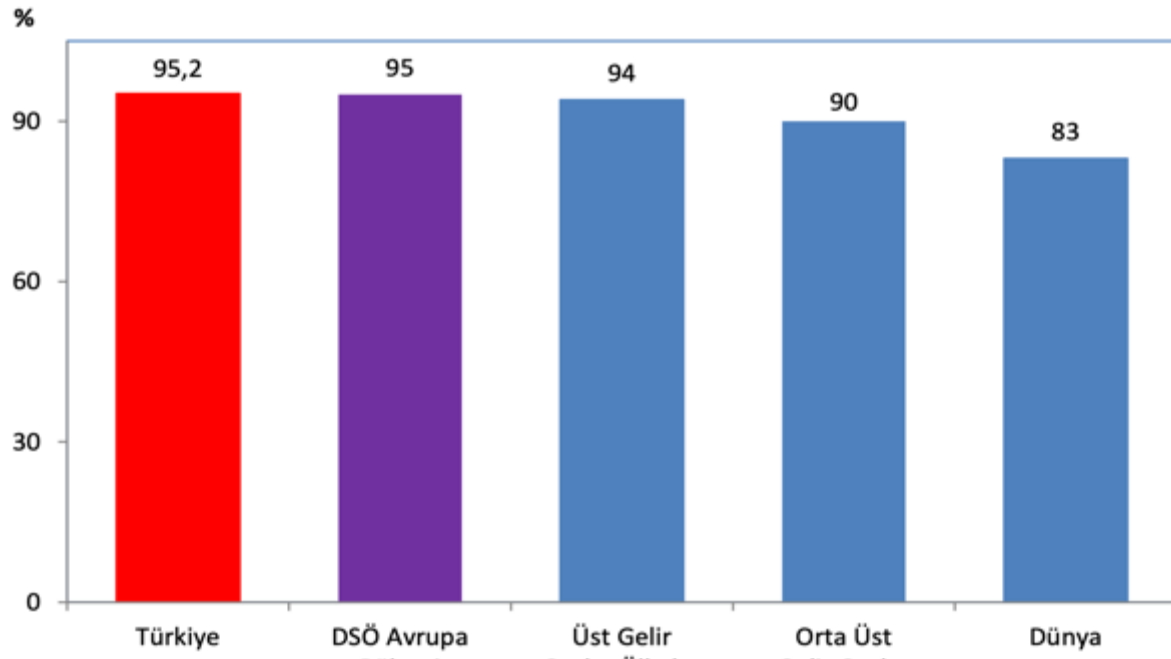
İnsanlık tarihinin karşılaştığı en bulaşıcı hastalıklardan biridir.

Volume 74, Supplement 1S10-S17 June 2017

Barbara H Bardenheier et al. Clin Infect Dis. 2017



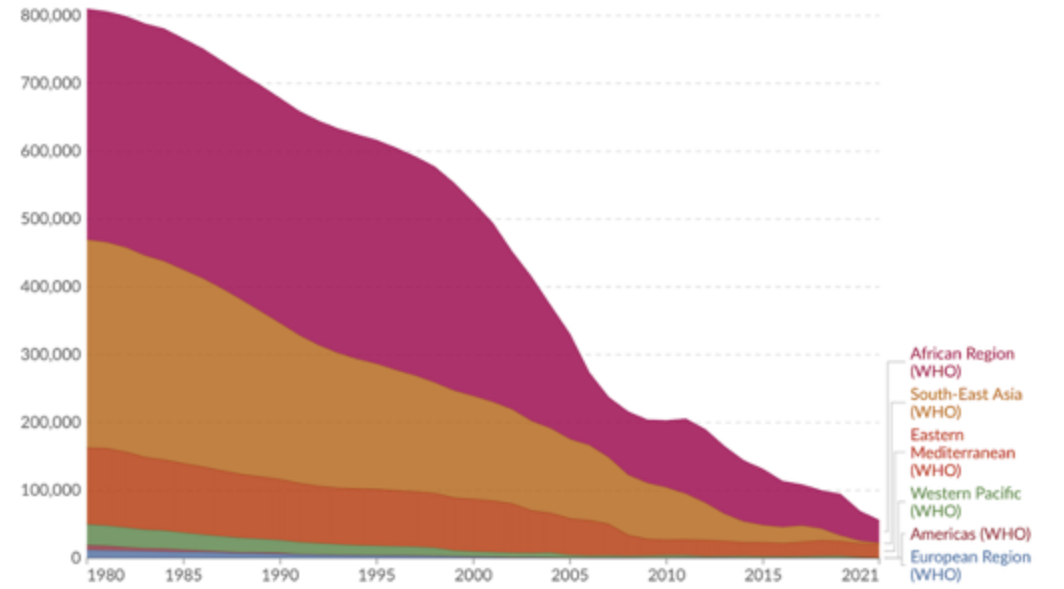
Şekil 5.5. KKK Aşılama Hızlarının Uluslararası Karşılaştırması, (%), 2023



Source: WHO Immunization Data portal
World Health Organization, WHO, 2025. All rights reserved

Deaths due to measles by region, 1980 to 2021

Estimated annual number of deaths due to measles¹.



Data source: IHME, Global Burden of Disease (2024)

OurWorldinData.org/vaccination | CC BY

1. Measles Measles is an infectious disease caused by the measles virus. It is spread via the air by coughing or sneezing and is highly contagious. Its symptoms and complications include fever, cough, a red rash and it can lead to pneumonia or less commonly seizures and infection of the brain. Vaccines against measles have been available since 1963. Read more on our page on [eradicating diseases](#).

Azalan aşılama oranları nedeniyle canlanma

Country / Region	Disease	2024	2023	2022	2021	2020	2019	2018
Türkiye	Measles		5 088	103			2 904	716

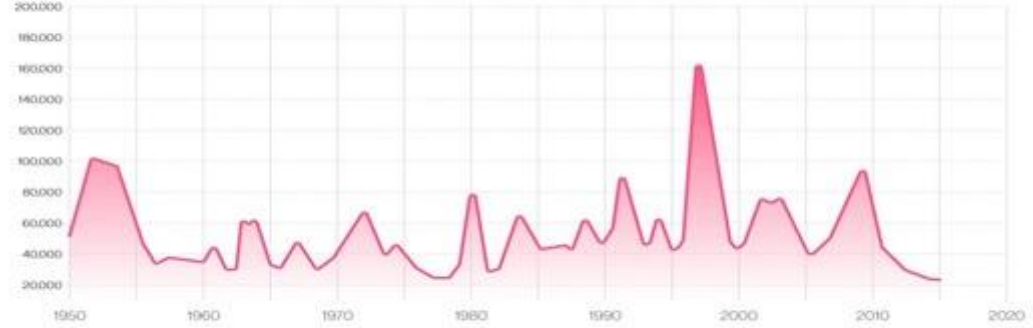
TABLE 1. Estimates of regional immunization coverage with the first and second doses of measles-containing vaccine administered through routine immunization services, reported measles cases, and reported measles incidence, by World Health Organization region — worldwide, 2000–2023

WHO region/Year (no. of countries in the region)*	Percentage				No. of reported measles cases [†] (% of total cases)	Measles incidence ^{†,‡,††}
	MCV1 coverage [†]	Countries with ≥95% MCV1 coverage [§]	MCV2 coverage [†]	Reporting countries with fewer than five measles cases per 1 million population ^{‡,‡‡}		
Total (all regions)						
2000 (191)	71	28	17	33	853,479 (100.0)	144.6
2016 (194)	85	42	67	65	132,490 (100.0)	18.0
2019 (194)	86	44	71	44	873,373 (100.0)	118.8
2020 (194)	83	30	71	58	159,073 (100.0)	21.2
2021 (194)	81	30	71	68	123,171 (100.0)	16.4
2022 (194)	83	34	73	61	205,173 (100.0)	28.0
2023 (194)	83	35	74	47	663,795 (100.0)	91.0

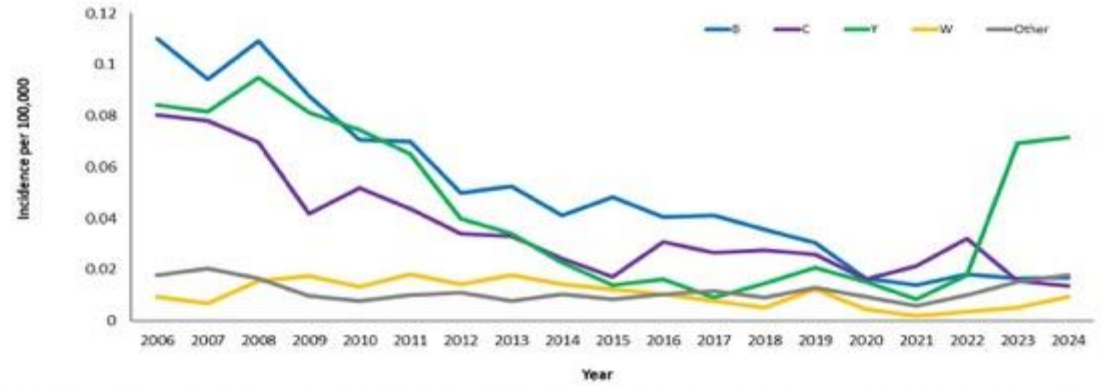
- Kızamık aşısı, 2000 ile 2023 yılları arasında 60 milyondan fazla ölümü önledi.
- 2023 yılında ilk doz kızamık aşısı olan çocukların oranı %83; bu oran
- 2019'daki %86 seviyesinin çok altında.



Reported cases of group A meningococcus in the African Belt countries between 1948 and 2015



Trends in Meningococcal Disease Incidence by Serogroup – United States, 2006–2024*



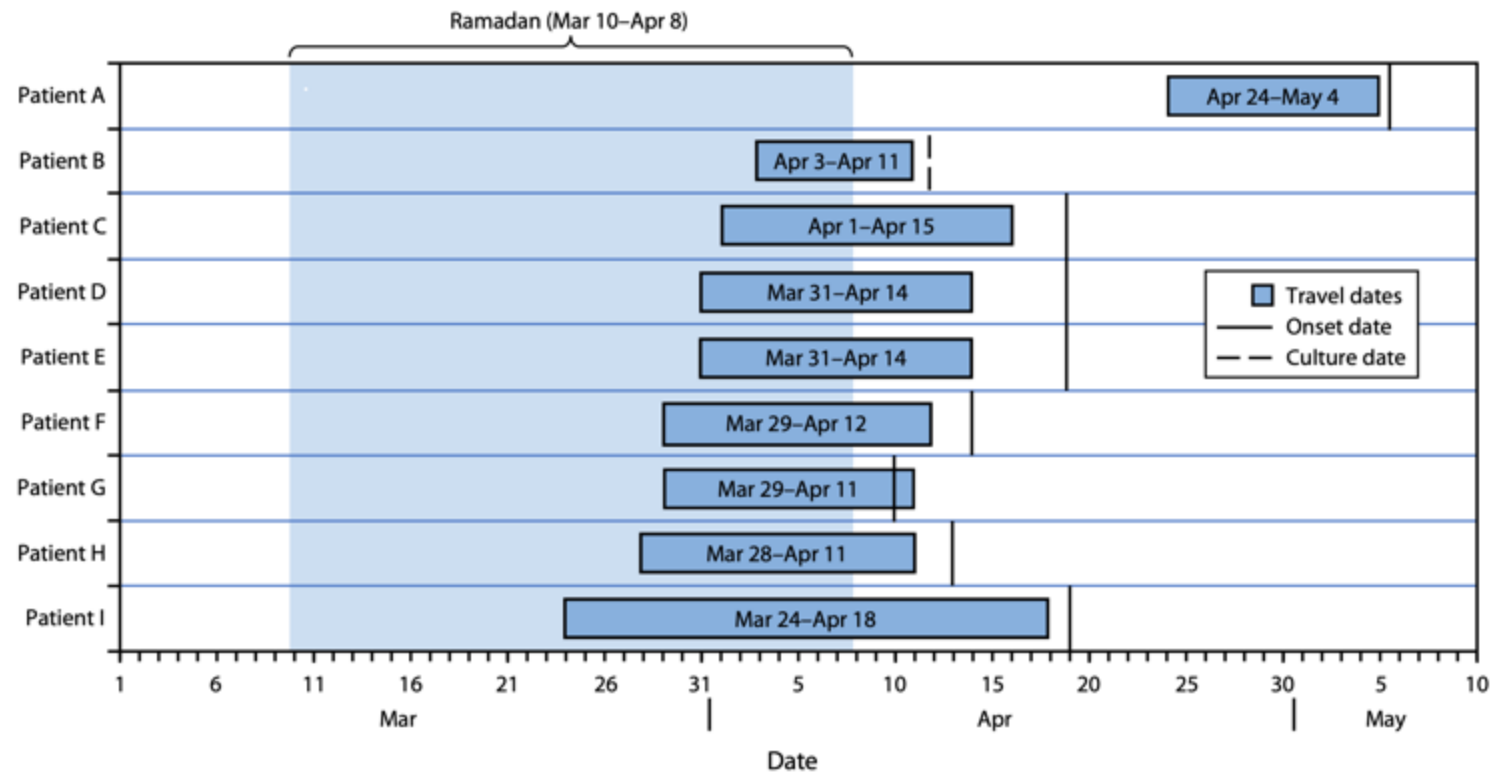
Source: NNDSS data with additional serogroup data from Active Bacterial Core surveillance (ABCs), state health departments, and isolates received and tested by the Bacterial Meningitis Laboratory at CDC
*2024 data are preliminary

Serogrup Y'ye baęlı hastalık insidansı 2022'de artmaya bařladı.

MENINGOKOK

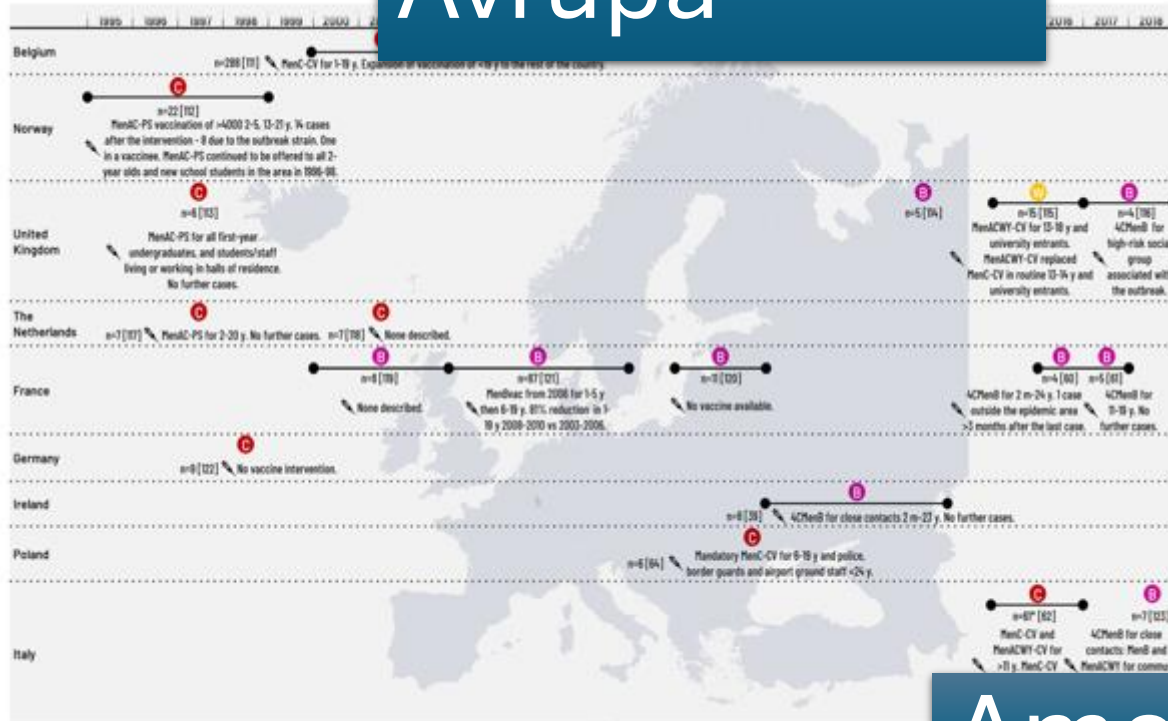


FIGURE. Dates of symptom onset* and Umrah-related travel among nine patients† who had received positive test results for invasive meningococcal disease after travel to Saudi Arabia — United States, United Kingdom, and France, March–May 2024

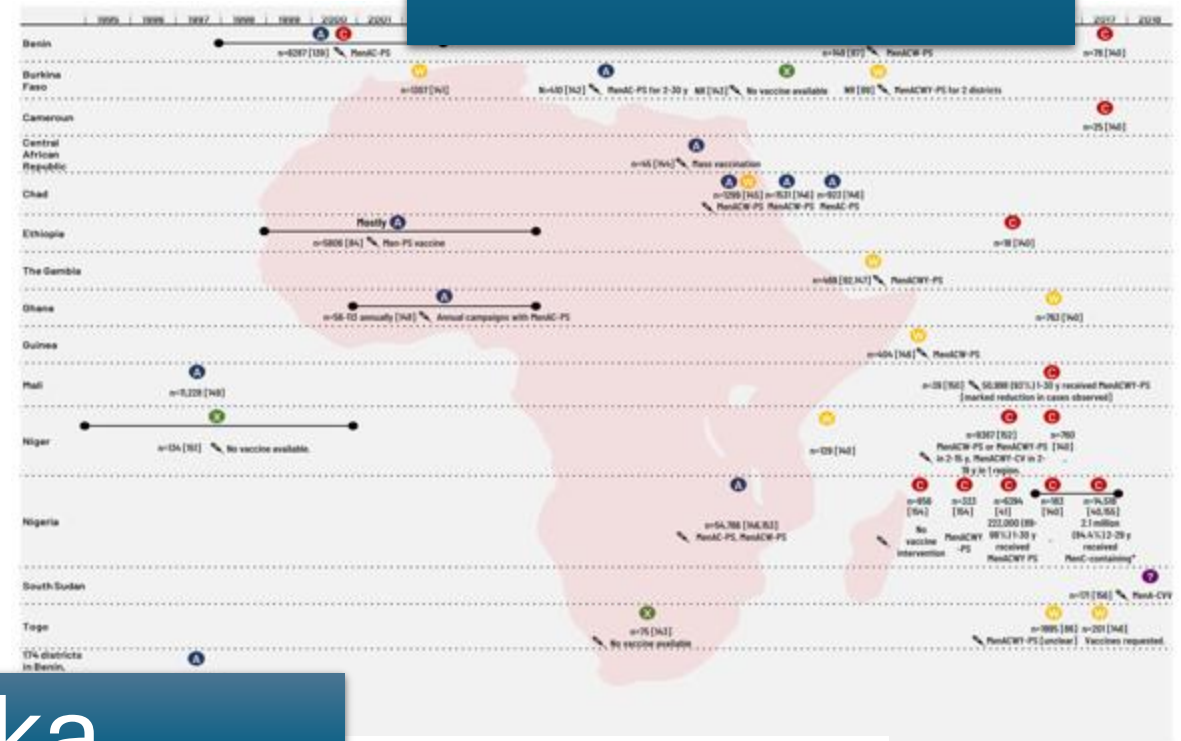


United States, United Kingdom, and France, 2024.
MMWR Morb Mortal Wkly Rep 2024;73:514–516

Avrupa



Afrika

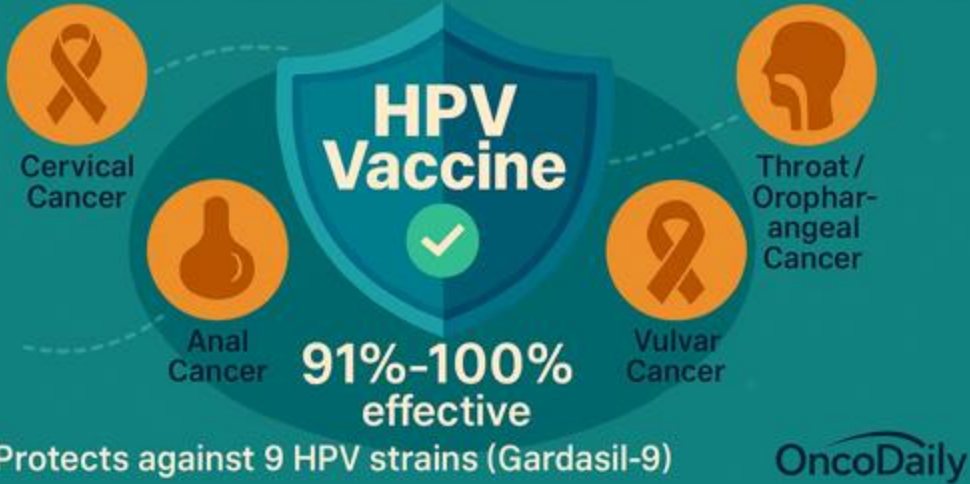


Amerika



HPV VACCINE

A Shield Against Multiple Cancers

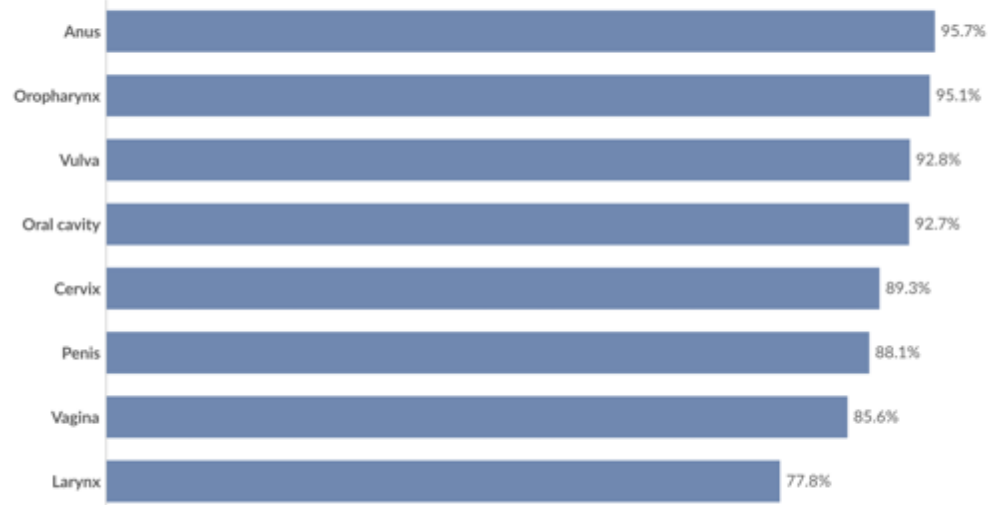


HPV

Share of cancers attributed to nine HPV types, World, 2019

Our World
In Data

Certain types of human papillomavirus (HPV)¹ can cause a range of different cancers. This shows the estimated share of HPV-related cancers globally that are directly caused by the nine types (6, 11, 16, 18, 31, 33, 45, 52 and 58) targeted by some HPV vaccines.



Data source: De Sanjosé et al. (2019)

OurWorldinData.org/cancer | CC BY

Serviks kanseri, CIN lezyonları ve genital siğillerin önlenmesi

Diğer HPV tiplerine kısmi koruma, orofaringeal ve anal kanserlerde uzun vadeli azalma, sağlık maliyetlerinin düşmesi

%90

15 yaşına kadar
olan kız
çocuklarının
%90'ını aşılama

HPV

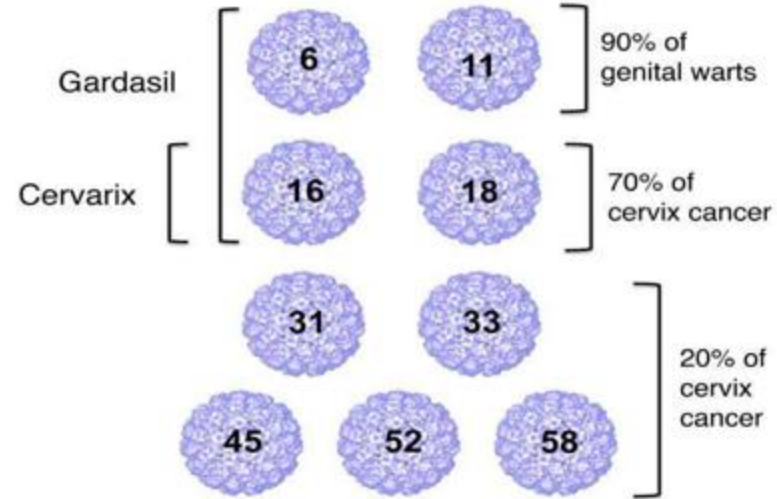


%70

Kadınların
%70'inin
taranmasını
sağlama

%90

Pre-kanseröz
lezyonu veya
kanseri tanısı
konmuş kadınların
%90'ının tedavi
edilmesi



HPV

ABSTRACT · Volume 35, Issue 2, Supplement 1, 101307, February 2025

EVALUATING THE COST-EFFECTIVENESS OF SINGLE-DOSE HUMAN PAPILLOMAVIRUS (HPV) VACCINATION FOR GIRLS IN TÜRKİYE

[Esra Bilir](#)^{1,2} · [Xezal Derin](#)^{3,4} · [Joanna Kacperczyk-Bartnik](#)⁵ · [Özge Karanfil](#)^{6,7}



En maliyet-etkin halk sağlığı önlemlerinden biri
Tek doz HPV aşılama, ülke için maliyet-etkin bir strateji

► [Hum Vaccin Immunother](#). 2025 Dec;21(1):2474891. doi: 10.1080/21645515.2025.2474891. Epub 2025 Mar 17.

A cost-effectiveness analysis of adult human papillomavirus vaccination strategies in Italy

[Alhaji Cherif](#)¹, [Cody Palmer](#)¹, [Francesca Senese](#)², [Angela Bechini](#)³, [Cristina Salvati](#)³, [Paolo Bonanni](#)³, [Sara Boccalini](#)³

Affiliations + expand

PMID: 40094352 PMID: [PMC11917173](#) DOI: [10.1080/21645515.2025.2474891](#)

► [Emerg Infect Dis](#). 2003 Jan;9(1):37–48. doi: [10.3201/eid0901.020168](#) [↗](#)

Cost Effectiveness of a Potential Vaccine for *Human papillomavirus*

[Gillian D Sanders](#)^{*,90}, [Al V Taira](#)^{*}

► [Author information](#) ► [Copyright and License information](#)

PMCID: PMC2873748 PMID: [12533280](#)

ARTICLES · Volume 56, 101499, March 2025 · [Open Access](#)

[Download Full Issue](#)

Cost-effectiveness analysis of switching from a bivalent to a nonavalent HPV vaccination programme in China: a modelling study

[Meng Gao](#)^{a,b,c,g} · [Shangying Hu](#)^{a,g} · [Xuelian Zhao](#)^a · [Tingting You](#)^d · [Yuting Hong](#)^a · [Yang Liu](#)^e · et al.

[Show more](#)

[Affiliations & Notes](#) [Article Info](#)

Boğmaca

Gebelikte Tdap → yenidoğanda
pertussis hospitalizasyon ve
mortalitesinde %90'a varan azalma

People of all ages need WHOOPING COUGH VACCINES



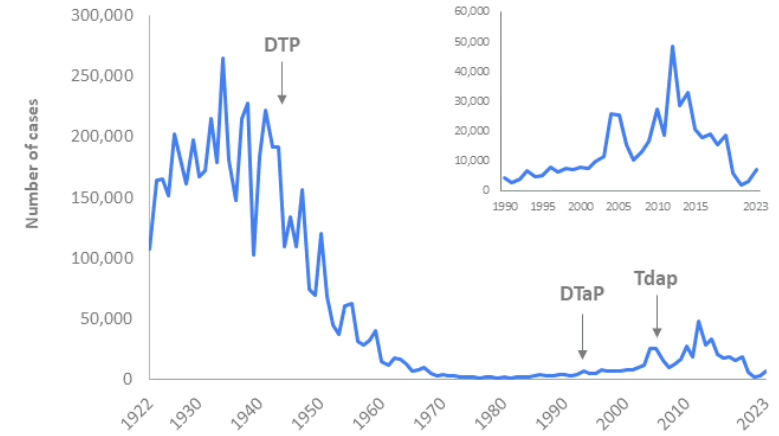
DTaP for young children	Tdap for preteens	Tdap for pregnant women	Tdap for adults
✓ 2, 4, and 6 months ✓ 15 through 18 months ✓ 4 through 6 years	✓ 11 through 12 years	✓ During the 27-36th week of each pregnancy	✓ Anytime for those who have never received it

www.cdc.gov/whoopingcough

CDC

CS956221-A

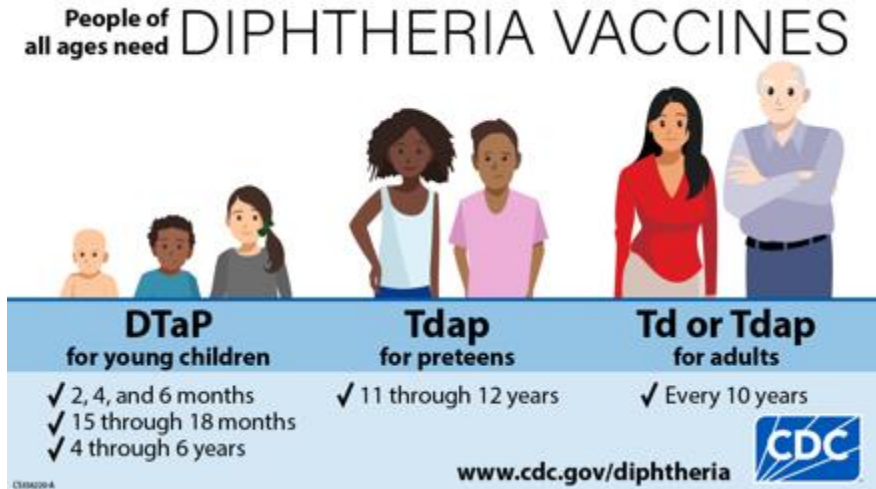
Reported NNDSS pertussis cases: 1922-2023



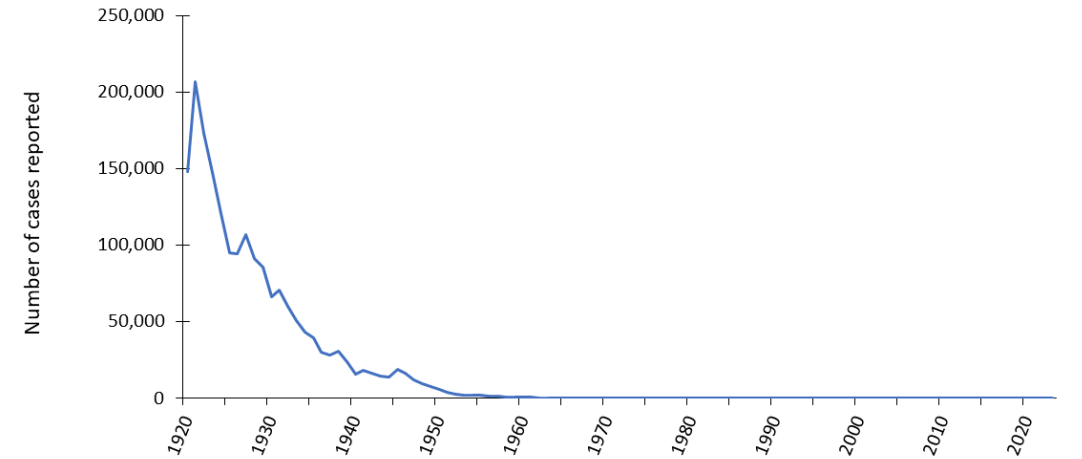
SOURCE: CDC, National Notifiable Diseases Surveillance System

Difteri

- 1920'li yıllarda ABD'de çocuklarda hastalık ve ölüm nedenlerinin en önemlilerin- 1921 yılında 206.000 olgu ve 15.520 ölüm bildirilmişti.
- 1923 yılında aşının üretimiyle birlikte azalan olgu sayıları 1998 yılında bir olguya kadar düşmüştür.



Reported Diphtheria, 1920–2023, NNDSS, United States



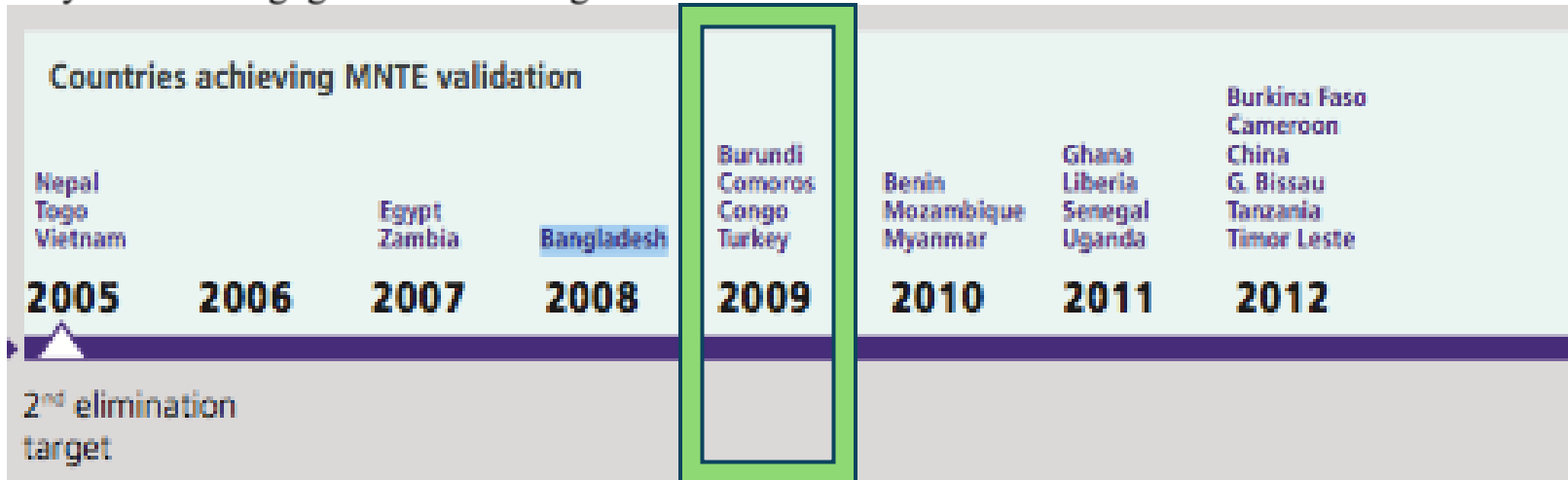
SOURCE: CDC, National Notifiable Diseases Surveillance System

Tetanoz

Tablo 5.1. Yıllara Göre Aşılama Hızları, (%)

	2002	2019	2020	2021	2022	2023
DaBT 3	78	99	98	95	99,5	98,8
BCG	77	96	96	95	98,1	96,0
HBV 3	72	99	98	96	99,3	99,0
KKK	82	97	95	96	95,2	95,2
KPA Rapel*	-	-	95	96	95,3	95,2

Kaynak: Halk Sağlığı Genel Müdürlüğü



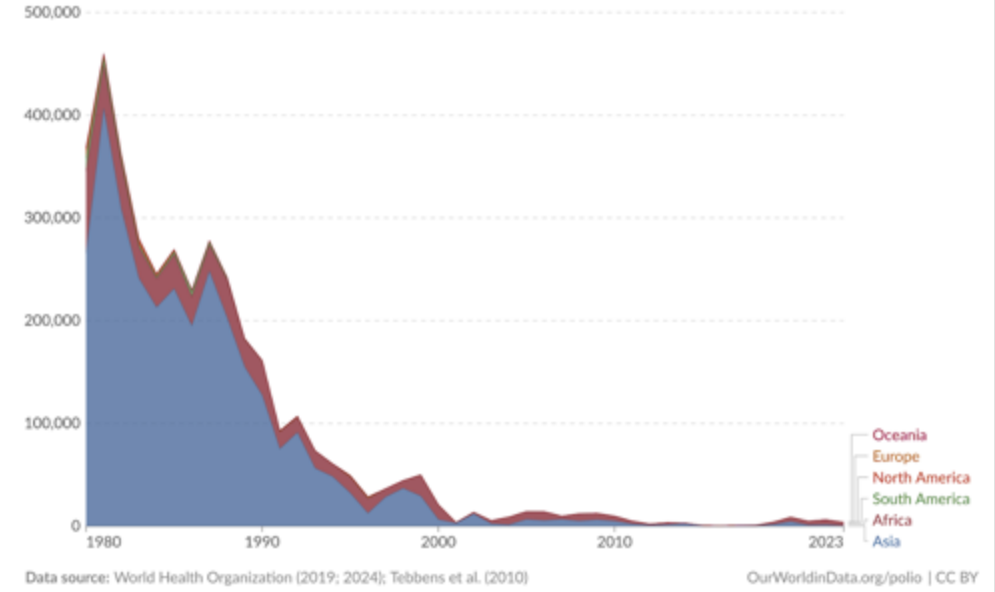
Türkiye’de maternal ve neonatal tetanozun elimine edildiği 24 Nisan 2009 tarihinde DSÖ tarafından duyurulmuştur.



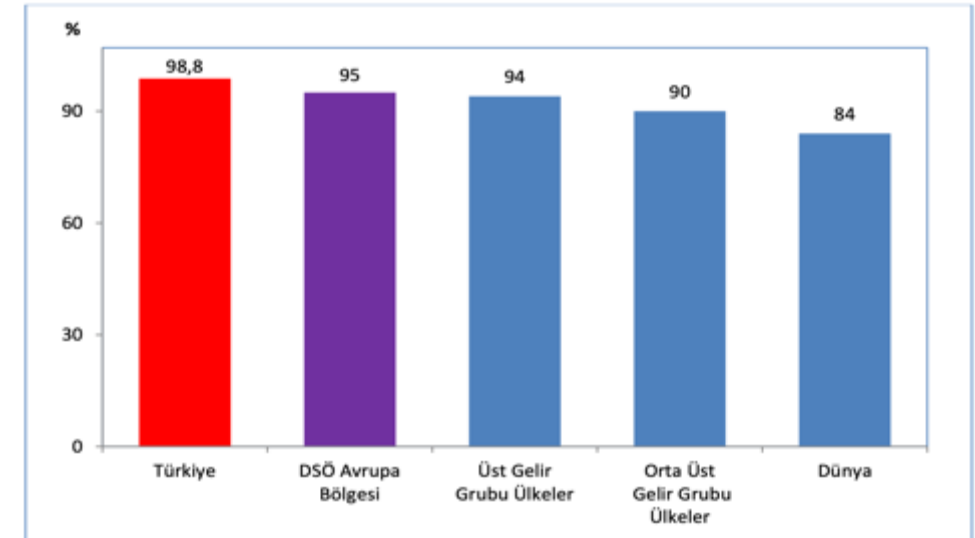
- Eradikasyon
- **Spesifik amacı:** Polio virüsüne karşı koruma
- **Spesifik olmayan etkisi:**
 - Enterik patojenlere karşı kısmi çapraz koruma
 - Çocuklarda diğer enfeksiyonlardan kaynaklı mortaliteyi azaltmakta

Paralytic polio: estimated cases by world region, 1980 to 2023

Estimates of the total number of paralytic polio¹ cases, due to wild poliovirus² and vaccine-derived polioviruses³.



Şekil 5.2. (DaBT+İPA+Hib) Üçüncü Doz Aşılama Hızlarının Uluslararası Karşılaştırması, (%), 2023



Kaynak: Halk Sağlığı Genel Müdürlüğü, DSÖ Global Health Observatory Veri Tabanı

RSV(Respiratory syncytial virus)



60 yaşın üzerindeki kişilerde hastane yatışı RSV alt solunum yolu hastalığı insidansını %80 oranında azaltır.



Her 39 saniyede bir çocuk pnömoni ölüyor

PNÖMOKOK AŞISI KALKANI

PRİMER KAZANIMLAR

- İnvaziv pnömokok hastalıklarına karşı koruma
- Pnömoni insidansında azalma
- Orta kulak enfeksiyonu önleme



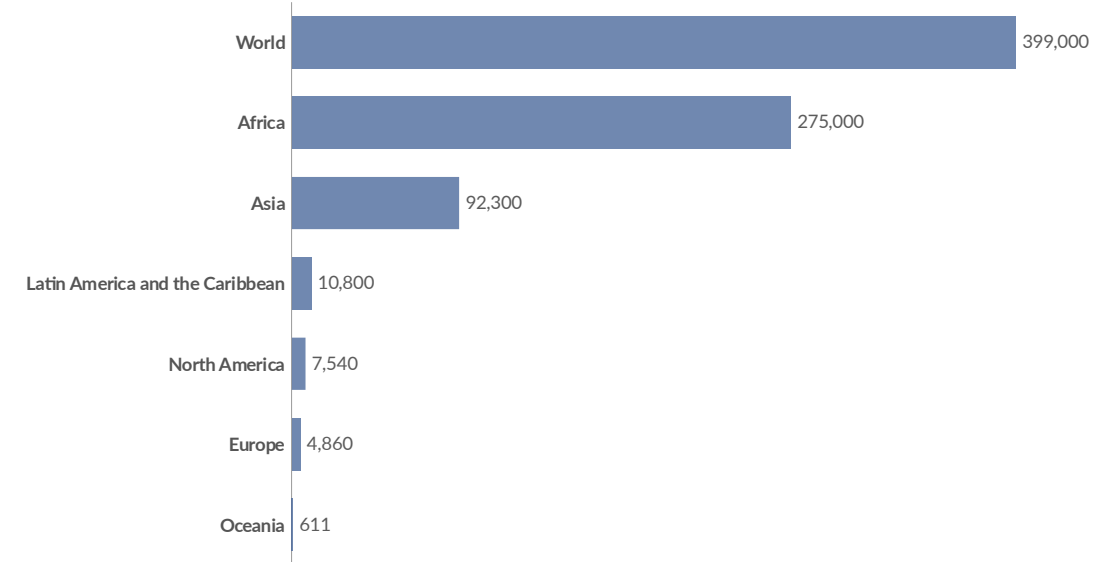
SEKONDER KAZANIMLAR

- Sürü bağışıklığı
- Ekonomik fayda
- Eşitlik & erişim

Estimated annual deaths that could be averted by pneumococcal vaccination

Our World
in Data

Estimated number of annual child deaths averted by the PVC13 vaccine. Modeled for 180 countries, with an estimated PVC13 coverage equal to DTP3 vaccine.



Data source: Chen et al. (2019)

OurWorldinData.org/vaccination | CC BY



Tüberküloza karşı koruma
Mortalite ve sekellerin azaltılması
Erken Bağışıklık kalkanı

- **Yenidoğanlarda tüm nedenli mortaliteyi azaltması**
- **Sepsis, solunum yolu enfeksiyonları gibi TB dışı enfeksiyonlara karşı azalmış risk**
- Kas invazyonu göstermeyen mesane kanserlerinde primer immünoterapi ajanı



Her yıl ortalama olarak
solunum yolu hastalıkları
ve kardiyovasküler
hastalıklardan toplam
700.000 ölüm

Global death toll from influenza pandemics

Shown are global mortality estimates from different research publications

Our World
in Data

Russian flu (1889–90)

Spreeuwenberg et al. (2018)

3.7 to 5.1 million

Spanish flu (1918–20)

Johnson and Mueller (2002)

low estimate: 50 million

high estimate: 100 million

Patterson and Pyle (1991)

low estimate: 24.7 million high estimate: 39.3 million

global mortality rate:
between 2.7% and 5.4%

Spreeuwenberg et al. (2018)

17.4 million

global mortality rate:
between 1.3% and 2.1%

Asian flu (1955–57)

Spreeuwenberg et al. (2018)

1.7 to 2.7 million

Hong Kong flu (1968–69)

Spreeuwenberg et al. (2018)

2 to 3.8 million

Swine flu (2009)

Spreeuwenberg et al. (2018)

130,000 to 1.87 million

Dawood et al. (2012)

151,700 to 575,500

Simonsen et al. (2013)

175,000 to 203,000

Typical flu season

Paget et al. (2019)

294,000 to 518,000 respiratory deaths

Chaves et al. (2023)

200,000 to 300,000 cardiovascular deaths

Flu can lead to severe complications with respiratory disease and cardiovascular disease. Researchers have estimated how many deaths they cause through each disease separately.

OurWorldinData.org — Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the authors Saloni Dattani and Max Roser.

A. Ciszewski et al. Vaccine 2018A. Ciszewski et al. Vaccine 2018

İNFLUENZA ve PNÖMOKOK AŞILARI: KARDİYOVASKÜLER HASTALIKLARAK KORUMA KALKANI



İNFLUENZA AŞISI

-  % 40–60 kardiyovasküler olay azalması
-  Yaşlı ve yüksek riskli hastalarda daha belirgin
-  Yıllık yapılması önerilir

PNÖMOKOK AŞISI

-  Mortalitede % 20–23 azalma (az sayıda çalışma) 
-  Kalp yetmezliği ve komorbiditesi olanlarda faydalı ipuçları
-  Risk gruplarında ≥ 65 yaşta önerilir (1 doz)

> [EClinicalMedicine](#). 2025 Aug 21;87:103449. doi: 10.1016/j.eclinm.2025.103449. eCollection 2025 Sep.

Estimating cardiovascular effects of influenza vaccination in older adults: a target trial emulation using proximal causal inference

Jinxin Guo¹, Tiansheng Wang², Zhike Liu¹, Weihong Zeng³, Peng Shen⁴, Yexiang Sun⁴, Siyan Zhan^{1 5 6}, Yang Xu³

Affiliations + expand

PMID: 40896461 PMCID: [PMC12398818](#) DOI: [10.1016/j.eclinm.2025.103449](#)

[Review](#) > [Vaccine](#). 2018 Jan 4;36(2):202–206. doi: 10.1016/j.vaccine.2017.11.078. Epub 2017 Dec 6.

Cardioprotective effect of influenza and pneumococcal vaccination in patients with cardiovascular diseases

[Andrzej Ciszewski](#)¹

Affiliations + expand

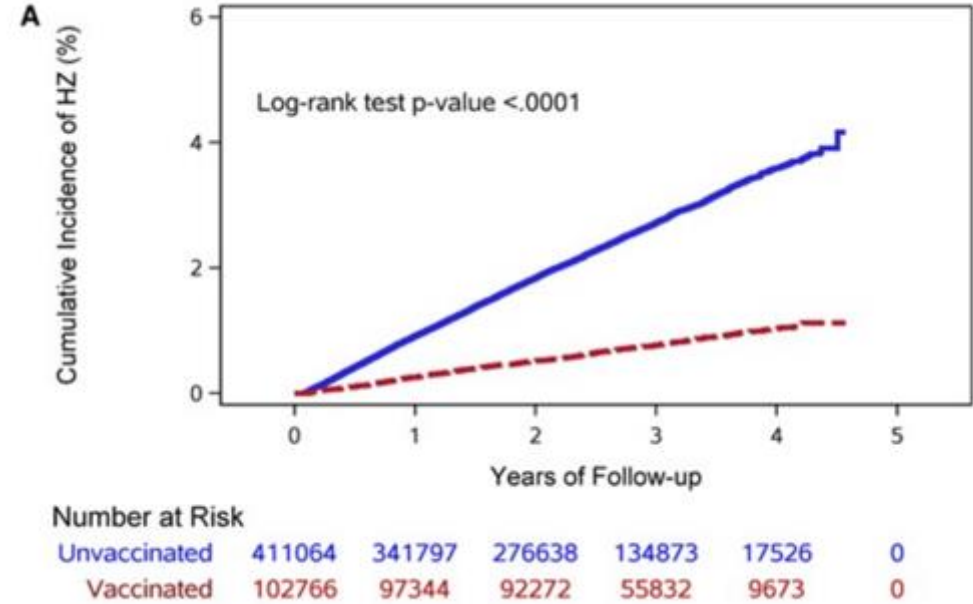
PMID: 29221893 DOI: [10.1016/j.vaccine.2017.11.078](#)

Herpes zoster

Zona zoster aşısı “yaşlanan bağışıklık sistemine karşı koruma kalkanı”

“Doğru yaşta, doğru bireye” aşı önerisinin önemi

- Virüs reaktivasyonunu önlemek
- Postherpetik nevralji gelişimini önlemek
- Ekonomik ,yaşam kalitesi üzerindeki etkileri



Canlı zayıflatılmış VZV aşısı (CZA)
Rekombinant VZV aşısı (RZV) Shingrix

%90+ (≥50 yaş)
≥10 yıl (uzun vadeli veriler)

COVID-19 vaccination coverage for half a million non-EU migrants and refugees in England

Rachel Burns¹, Sacha Wyke², Max T Eyre³, Yamina Boukari⁴, Tina B Sørensen⁵, Camille Tsang⁵, Colin N J Campbell⁵, Sarah Beale^{4 6}, Dominik Zenner^{7 8}, Sally Hargreaves⁹, Ines Campos-Matos^{2 10}, Katie Harron¹¹, Robert W Aldridge⁴

Affiliations + expand

PMID: 38049560 PMCID: PMC10896718 DOI: 10.1038/s41562-023-01768-6

JOURNAL ARTICLE EDITOR'S CHOICE

Defining drivers of under-immunization and vaccine hesitancy in refugee and migrant populations

Anna Deal, MPhil, Alison F Crawshaw, MPhil, Jessica Carter, MD, Felicity Knights, MD, Michiyo Iwami, PhD, Mohammad Darwish, MD, Rifat Hossain, PhD, Palmira Immordino, MD, Kanokporn Kaojaroen, MPH, Santino Severoni, MD ... Show more



Mülteci ve göçmen nüfusların düşük, orta ve yüksek gelirli ülkelerin ulusal aşılama planlarına dahil edilmesi



Gelecek Perspektifi



Yeni nesil aşılar: mRNA tabanlı,
kişiselleştirilmiş aşılar

Kanser aşıları

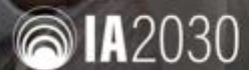
Küresel ölçekte daha yüksek aşılama
oranları hedefleniyor

Aşılar sadece geçmiş değil, geleceği de koruyan bir
kalkandır

KİMSEYİ GERİDE BIRAKMA

IMMUNIZATION AGENDA 2030

A global strategy to leave no one behind



- Siz de bu kalkanın bir parçası olun.”

