

Rotavirus Gastroenteriti ve Ülkemizdeki Durum

Dr. Zafer Kurugöl

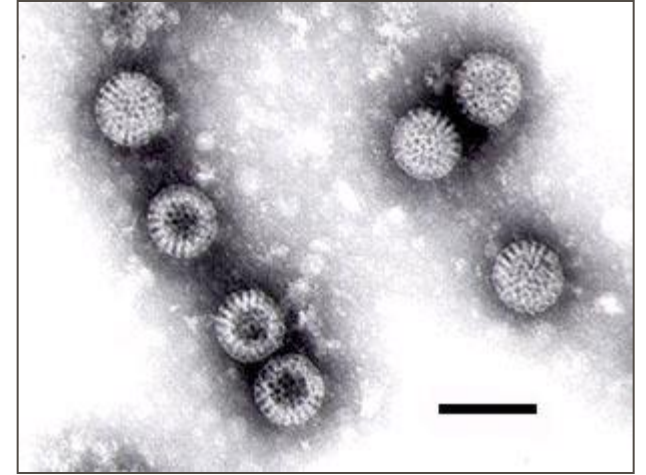


3. Ulusal Aşı Sempozyumu
29 Eylül- 3 Ekim 2009, Ankara



Dr.Ruth Bishop

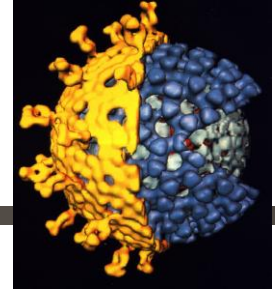
Rotavirus



Elektron mikroskopunda yuvarlak görünümlü, Reoviridae ailesinin bir üyesidir, zarfsız, ikozahedral yapıda, 11 segmentli, çift-sarmallı RNA virusu, yarı çapı 65-75 nm'dir.

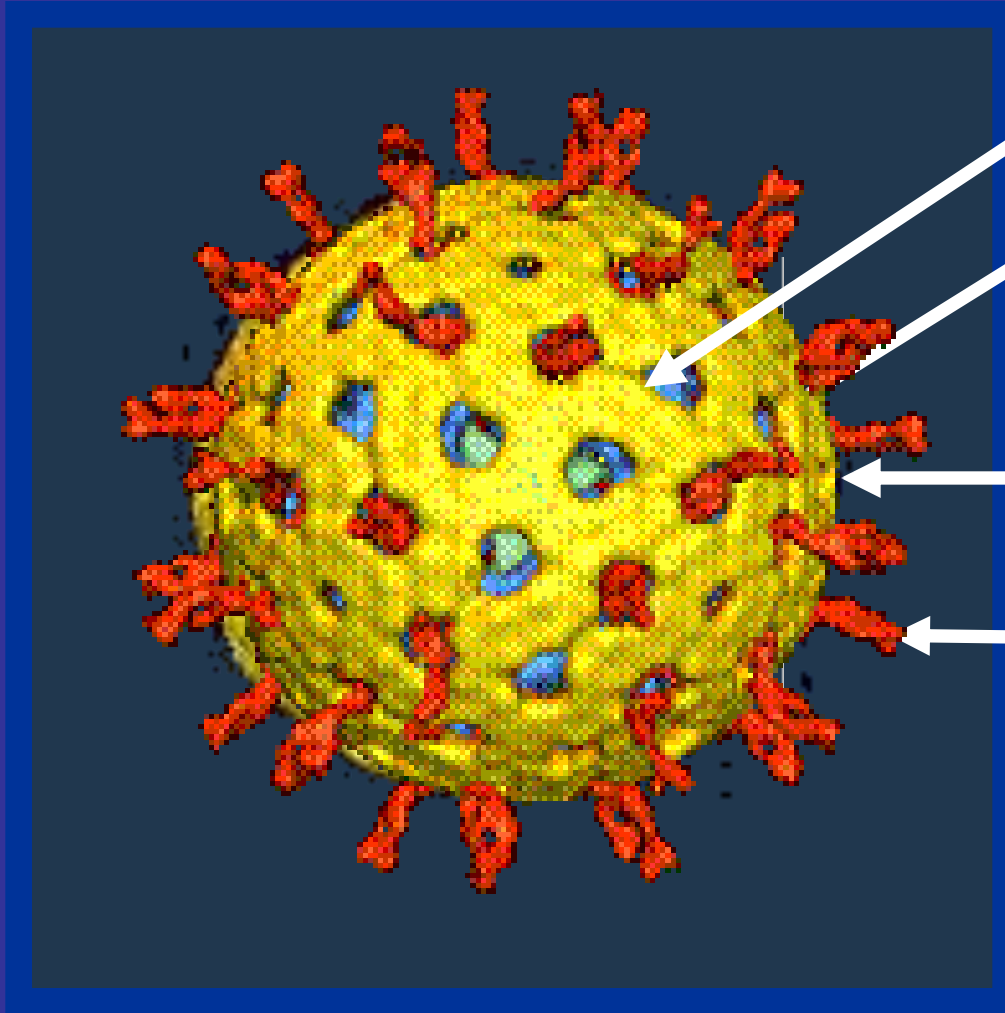
Virus çevre şartlarına dayanıklıdır.

Rotavirus-bulaş



- ❖ Genel kullanımdaki kimyasal dezenfektanlara, sıcaklık değişimine dayanıklıdır.¹
- ❖ Kuru yüzeylerde 6-60 güne kadar canlı kalır.²
- ❖ 1 ml dışkı → 100.000.000.000 virus partikülü³
- ❖ Temiz su, hijyenik gıda kullanımı RV bulaşını çok az etkiler.
- ❖ Bakteriyel gastroenteritlerden korunmada önemli olan toplumsal ve kişisel hijyen kuralları, rotavirus enfeksiyonlarının önlenmesinde etkili değildir.^{4,5}

Rotavirus Yapısı



Viral genom

Orta kapsid (VP6, subgrup)
(A, B, C, D, E, F, G)

Dış Kapsid:

VP7 (G serotipi, 1-14)

VP4 (P serotipi, 1-20)

G1P1A[8]

G2P1B[4]

G3P1A[8]

G4P1A[8]

G9P1A[8]

} %96



Klinik Tablo

- **Enkübasyon süresi 1-3 gün**
- **Kusma (%80-90)**
- **Ateş (%50)**
- **24-48 saat sonra ishal**
- **Günde 10-20, kan yok**
- **3-8 gün sürer.**
- **İlk enfeksiyon en ağır**

ROTAVİRUS ENFEKSİYONU



- ❖ İlk doğal rotavirus enfeksiyonu, (3-24 ay bebeklerde görülür) ve ağır seyreder. Ciddi ishal ve kusma → dehidratasyon gelişir.

Doğal enfeksiyon, sonraki enfeksiyonların sıklığı ve şiddetini anlamlı olarak azaltır.

Dođal rotavirus enfeksiyonunun sađladıđı korunma

Enfeksiyondan sonra etkinlik (%)		
	ilk	
RV enfeksiyonu	38	
RVGE	73	
Ciddi RVGE	87	

Dođal rotavirus enfeksiyonunun sađladıđı korunma

Enfeksiyondan sonra etkinlik (%)			
	İlk	İkinci	Üçüncü
RV enfeksiyonu	38	62	74
RVGE	73	75	99
Ciddi RVGE	87	100	-

Önceden 2 enfeksiyon geçiren hiçbir çocukta ağır rotavirus ishali gelişmez.



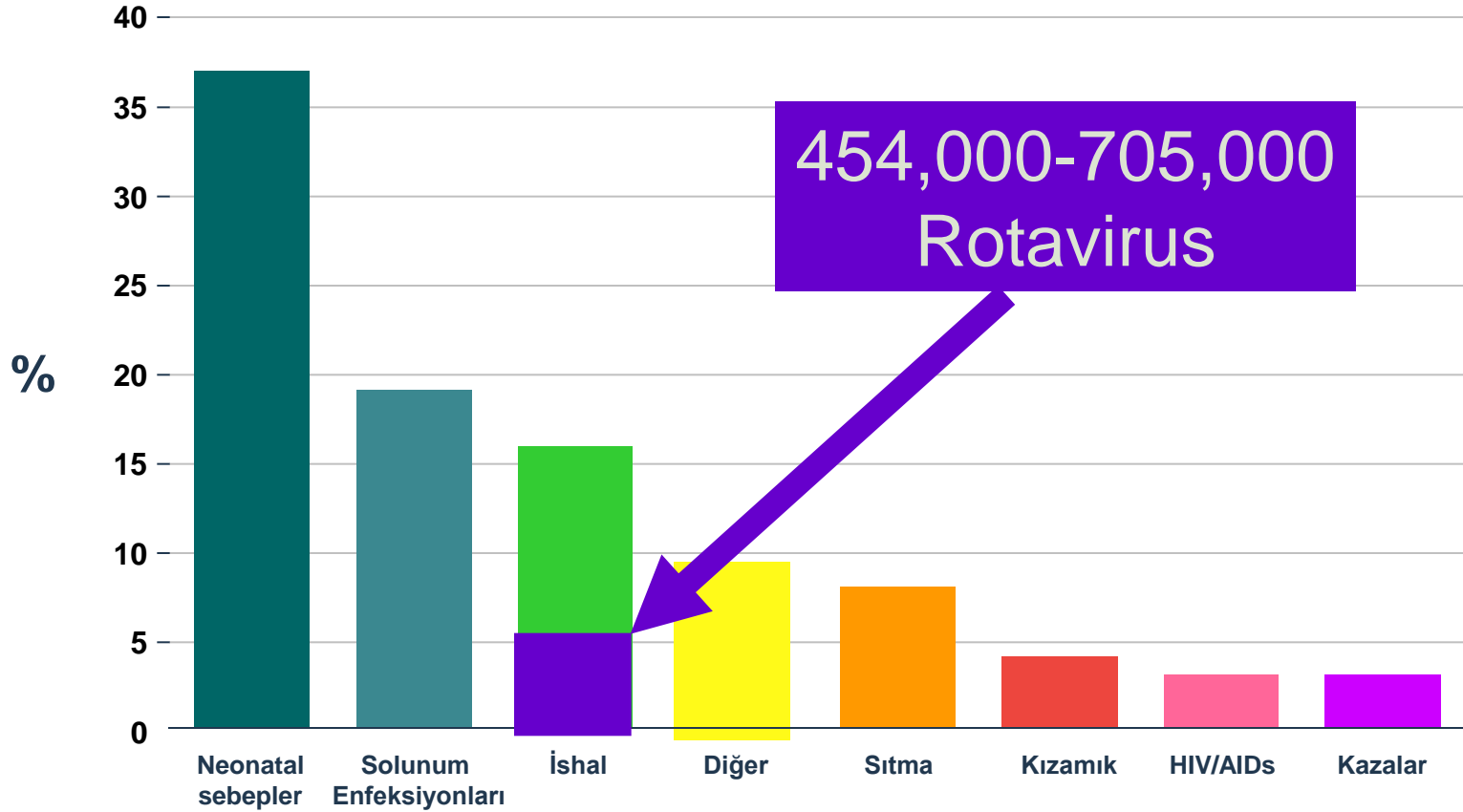
Rotavirus aşılamaında amaç,

Dođal enfeksiyona benzer immünite oluşturarak,

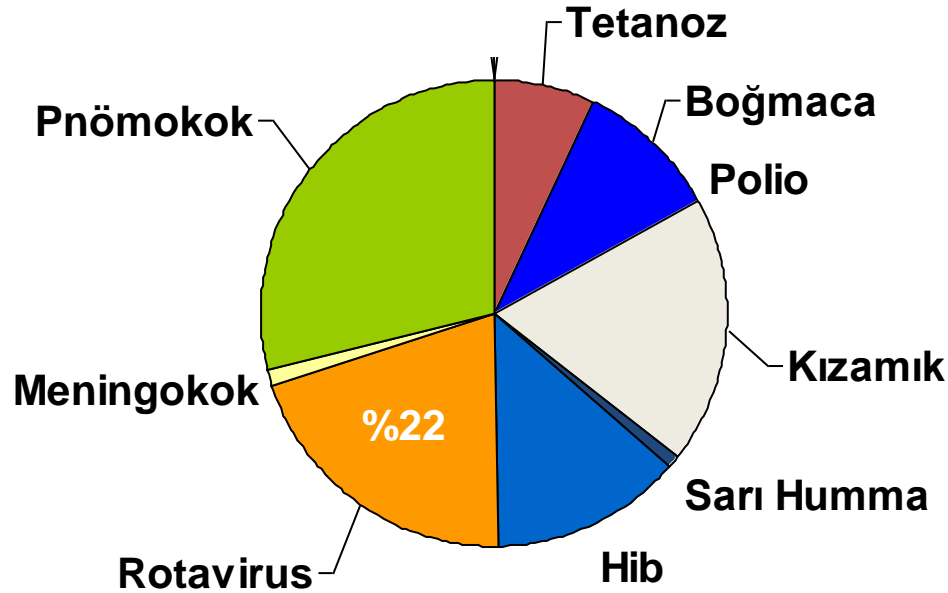
- **Orta/ciddi enfeksiyona karşı korunmak,**
- **Hastane yatışları ve ölümleri önlemek,**
- **Morbidite ve ekonomik kayıpları azaltmaktır.**

Velazquez, et al. J Infect Dis 2000;182:1602-9.

5 yaş altı çocuklarda ölüm nedenleri (2005, DSÖ)



Aşı ile önlenebilen çocuk ölümleri (2006)



Poliomyelit	<1000
Difteri	4000
Sarı humma	15,000
Tetanoz	198,000
Boğmaca	294,000
H. influenzae tip b	386,000
Kızamık	540,000
Rotavirus	600,000
Pnömokok hastalığı	850,000
Toplam	2.703,000

Epidemiyoloji

Dünyada rotavirus hastalık yükü

	Gelişmekte Olan Ülkeler	Gelişmiş Ülkeler
İnsidans		
İlk enfeksiyon yaşı ortanca		
Mevsimsellik		
Serotipler		
Maliyet		
Mortalite	Yüksek: 610 000 ölüm/yıl ⁷	Düşük: <1000 ölüm/yıl ⁷

¹Linhares and Bresee, *Pan Am J Public Health* 2000 8(5) 305-331; ²Cook et al, *Bull WHO* 1990 68 171-177;
³Parashar et al, *Emerg Infect Dis* 1998 4(4) 561-570; ⁴Ramachandran et al, *J Clin Microbiol* 1996 34 436-439;
⁵Leite et al, *Arch Virol* 1996 141 2365-2374; ⁶Bresee JS, et al. *Pediatr Infect Dis J* 2005;
⁷Parashar et al, *Emerg Infect Dis*. 2006;12:304-6.

Epidemiyoloji

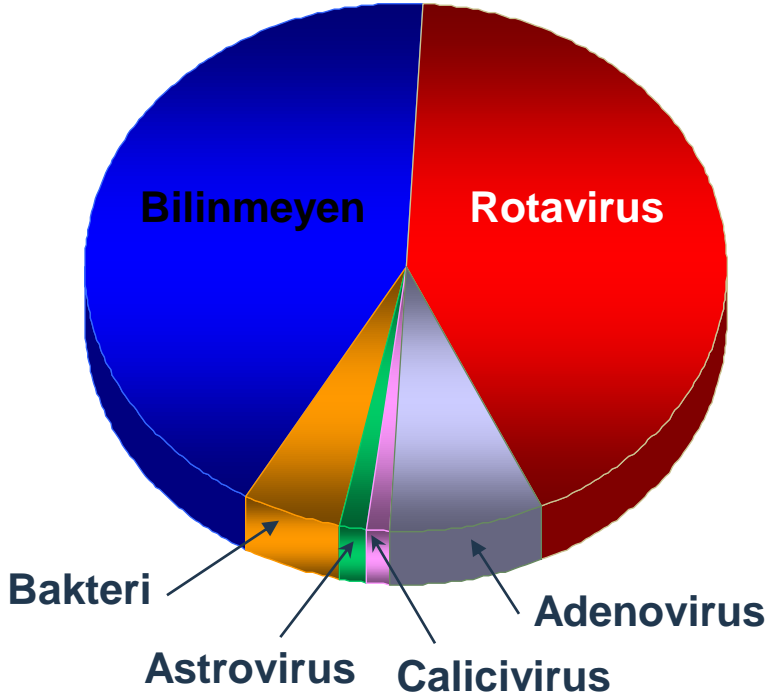
Dünyada rotavirus hastalık yükü

	Gelişmekte Olan Ülkeler	Gelişmiş Ülkeler
İnsidans	Evrensel	Evrensel ¹
İlk enfeksiyon yaşı ortanca	Daha küçük 6-8 ay ¹	Daha büyük 9-18 ay ¹
Mevsimsellik	Yıl boyu enfeksiyon ²	Ilıman iklimlerde kış hastalığı ²
Serotipler	G1–G4 ³ ama aynı zamanda ortaya çıkan/ daha az yaygın suşlar, G9, G8 ^{4,5}	G1–G4 ³
Maliyet	Çoğunlukla belirlenmemiştir ⁶	Yüksek (1 milyar ABD \$) ⁶
Mortalite	Yüksek: 610 000 ölüm/yıl ⁷	Düşük: <1000 ölüm/yıl ⁷

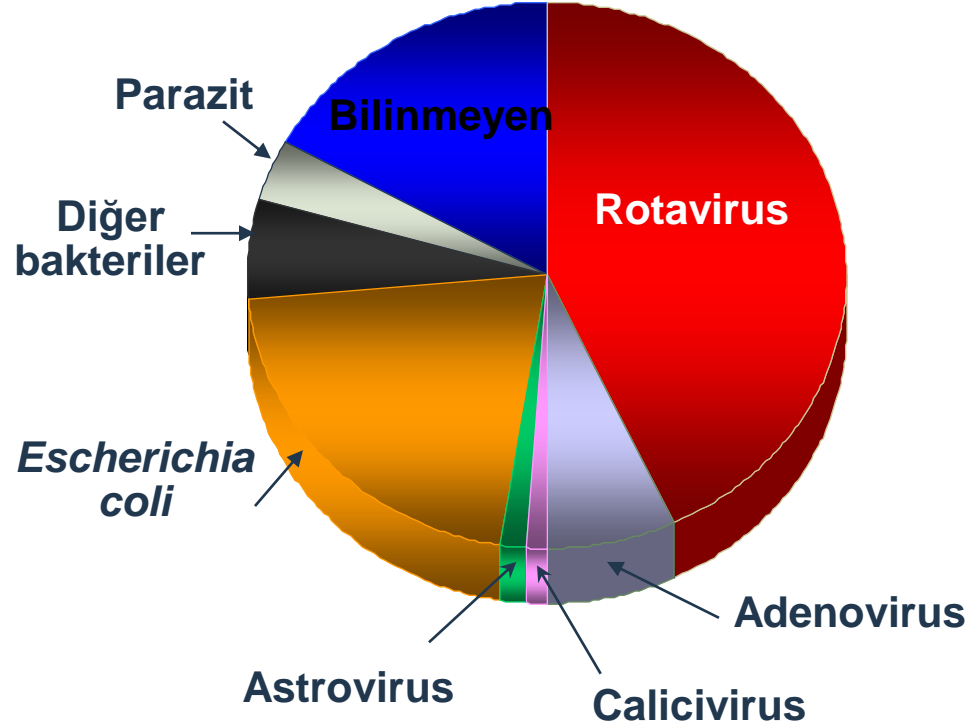
¹Linhares and Bresee, *Pan Am J Public Health* 2000 8(5) 305-331; ²Cook et al, *Bull WHO* 1990 68 171-177;
³Parashar et al, *Emerg Infect Dis* 1998 4(4) 561–570; ⁴Ramachandran et al, *J Clin Microbiol* 1996 34 436–439;
⁵Leite et al, *Arch Virol* 1996 141 2365–2374; ⁶Bresee JS, et al. *Pediatr Infect Dis J* 2005;
⁷Parashar et al, *Emerg Infect Dis*. 2006;12:304-6.

Gelişmiş ve gelişmekte olan ülkelerde benzer sıklıkta görülür.

Gelişmiş olan ülkeler

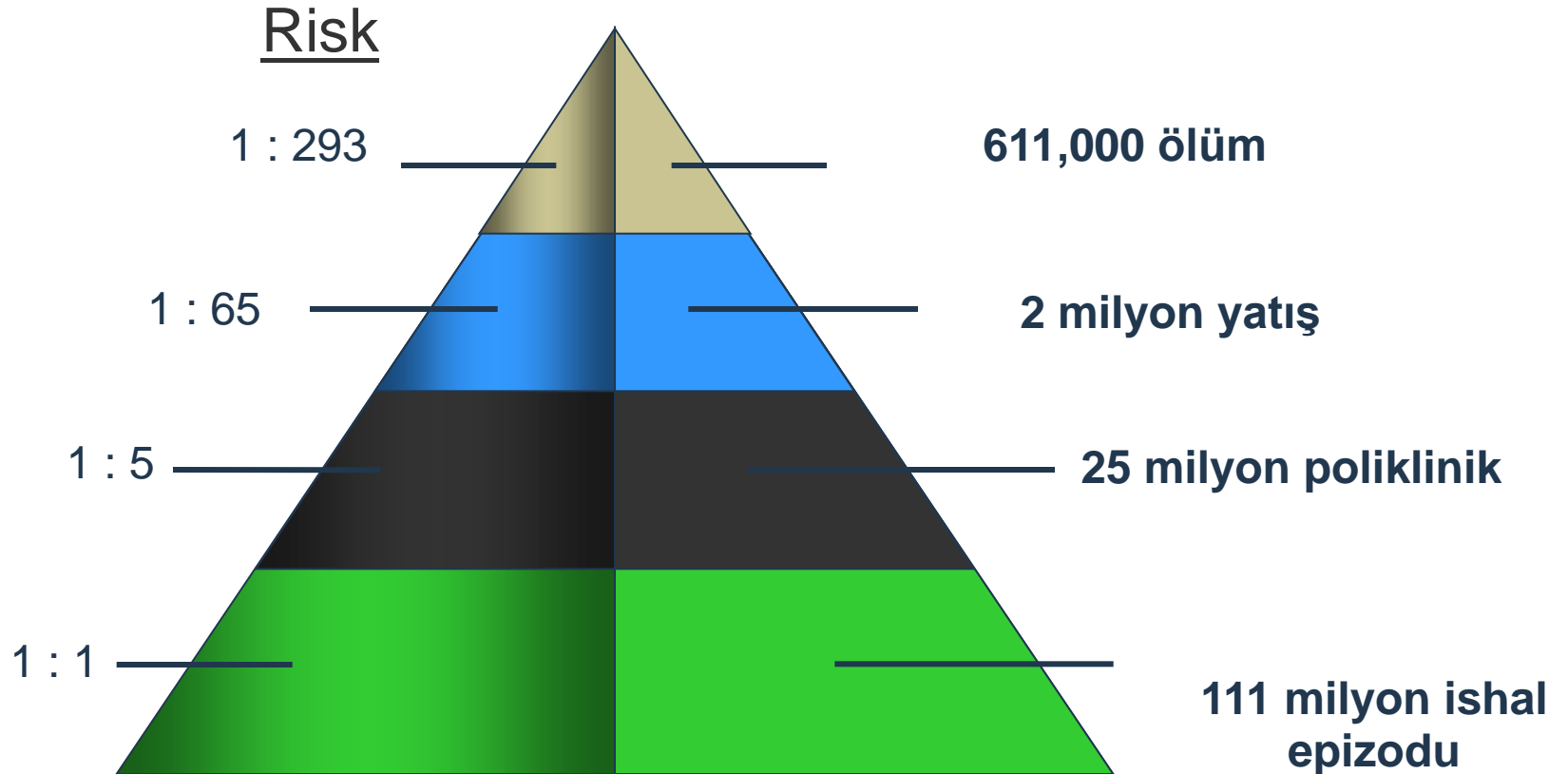


Gelişmekte olan ülkeler



Tüm dünyada %40 (%29-%45). (DSÖ 2000-2004 verisi)

Rotavirus hastalık yükü



Soriano-Gabborra M, et al. Ped Infect Dis J 2006

Parashar UD, et al. Emerg Infect Dis 2006.

1 milyar ABD \$



Türkiye'de rotavirus hastalık yükü

5 yař altı çocuklarda ölüm nedenleri TÜRKİYE

1. Perinatal nedenler
2. Pnömoni
3. Kalp hastalıkları
4. Menenjitler
5. Doğumsal anomaliler
6. Semptomlar, iyi tanımlanmayan haller
7. İshal
8. Doğum travmaları
9. Kazalar ve diğerleri

DiE, Ölüm İstatistikleri, 1996.



Tablo 2.4: Türkiye Ulusal Düzeyde Ölüme Neden Olan İlk 20 Hastalığın 0-14 Yaş Grubunda Cinsiyete Göre % Dağılımı

	Toplam	%	Erkekler	%	Kadınlar	%
1	Perinatal Nedenler	37,6	Perinatal Nedenler	37,2	Perinatal Nedenler	38,1
2	Alt Solunum Yolu Enfeksiyonları	14,0	Alt Solunum Yolu Enfeksiyonları	13,7	Alt Solunum Yolu Enfeksiyonları	14,4
3	Konjenital Anomaliler	10,3	Konjenital Anomaliler	10,7	Konjenital Anomaliler	10,0
4	İshalle Seyreden Hastalıklar	8,4	İshalle Seyreden Hastalıklar	8,3	İshalle Seyreden Hastalıklar	8,6

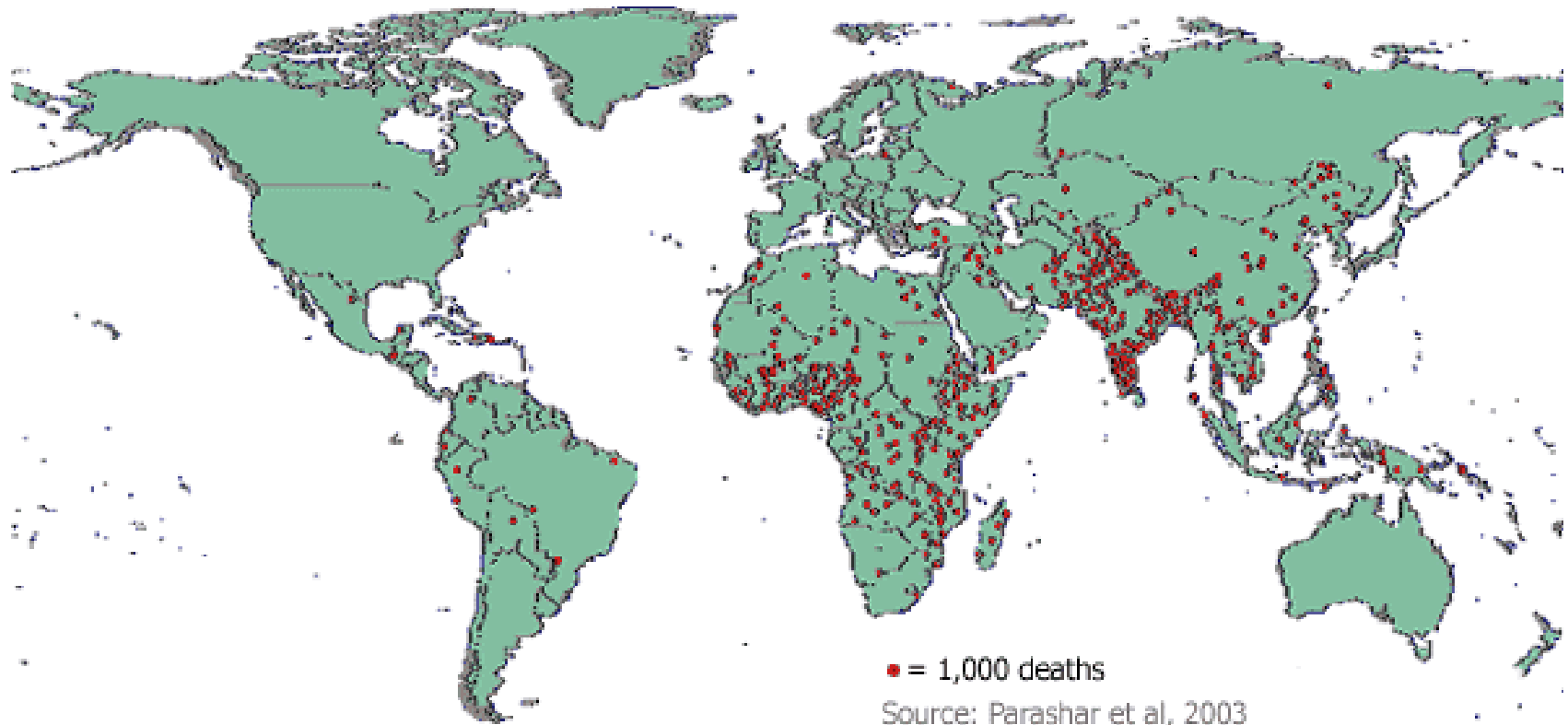
5 yaş altı çocuk ölümlerinin %12.2 si ishal

8	Tüberküloz	1,4	Tüberküloz	1,5	Üst Solunum Yolu Enf.	1,4
9	Üst Solunum Yolu Enf.	1,2	Lösemi	1,3	Protein Enerji Malnütrisyonu	1,3
10	Protein Enerji Malnütrisyonu	1,2	Üst Solunum Yolu Enf.	1,1	Tüberküloz	1,2
11	Lösemi	1,2	Protein Enerji Malnütrisyonu	1,1	Lösemi	1,1
12	Serebrovasküler Hastalıklar	0,9	Serebrovasküler Hastalıklar	1,0	Kişinin kendini yaralaması	1,0
13	Kişinin Kendini Yaralaması	0,7	Lenfoma ve Multiple Myeloma	0,6	Serebrovasküler Hastalıklar	0,8
14	Lenfoma ve Multiple Myeloma	0,5	Kişinin Kendini Yaralaması	0,5	Lenfoma ve Multiple Myeloma	0,5
15	Demir Eksikliği Anemisi	0,4	Boğulmalar	0,4	Yanıklar	0,3
16	Hepatit B	0,3	Demir Eksikliği Anemisi	0,4	Hepatit B	0,3
17	Boğulmalar	0,3	Düşmeler	0,3	Zehirlenmeler	0,3
18	Düşmeler	0,3	Hepatit B	0,3	Demir Eksikliği Anemisi	0,3
19	Yanıklar	0,3	Yanıklar	0,2	Epilepsi	0,3
20	Zehirlenmeler	0,2	Astım	0,2	Düşmeler	0,3

Kaynak: UHY-ME Hastalık Yükü Çalışması, 2003

Rotavirus isheline bađlı lmler

Global Distribution of Rotavirus Mortality



REVIEW ARTICLE

Estimated mortality and hospital admission due to rotavirus infection in the WHO European region

C. J. WILLIAMS^{1,2*}, A. LOBANOV³ AND R. G. PEBODY¹

¹ *Health Protection Agency Centre for Infections, London, UK*

² *European Programme for Intervention Epidemiology Training (EPIET), ECDC, Stockholm, Sweden*

³ *WHO Regional Office for Europe, Copenhagen, Denmark*

(Accepted 11 November 2008; first published online 12 January 2009)

SUMMARY

In 2006 two rotavirus vaccines were licensed for use in young children in Europe. This study aimed to estimate the mortality and hospital admissions due to rotavirus in children aged <5 years in the WHO European region using data from routine sources and published literature. We grouped 49/52 countries in the region by their World Bank Gross National Income (GNI) *per capita*. We obtained for children aged <5 years: populations, hospital discharges for diarrhoeal disease, estimated mortality rates and the percentage of deaths attributable to diarrhoeal disease, from WHO data sources or published literature, and combined them to estimate country-specific diarrhoeal disease mortality. Rotavirus-attributable percentages of hospital admissions due to diarrhoeal disease were obtained through a literature search, and an income-group median applied to countries in each GNI category. In the countries we studied in the WHO European region, rotavirus infection causes an estimated 6550 deaths (range 5671–8989) and 146 287 (range 38 374–1 039 843) hospital admissions each year in children aged <5 years. Hospital admission rates were similar across income groups (medians 2·0, 2·8, 4·2 and 1·9/1000 per year in low-, lower-middle-, upper-middle- and high-income countries, respectively). Seven countries, mostly in the low- and lower-middle-income groups, accounted for 93% of estimated deaths. Disease burden varied dramatically by income level in the European region. Rotavirus vaccination in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and Turkey could potentially prevent 80% of all regional rotavirus deaths. Data from low-income countries is still sparse, and improved disease burden studies are required to better inform regional vaccine policy.

REVIEW ARTICLE

Estimated mortality and hospital admission due to rotavirus infection in the WHO European region

C. J. WILLIAMS^{1,2*}, A. LOBANOV³ AND R. G. PEBODY¹

¹ Health Protection Agency Centre for Infections, London, UK

² European Programme for Intervention Epidemiology Training (EPIET), ECDC, Stockholm, Sweden

³ WHO Regional Office for Europe, Copenhagen, Denmark

In the WHO European region, we found that rotavirus infections cause an estimated 6550 deaths and 146 287 hospital admissions each year in children aged <5 years.

capita. We obtained for children aged < 5 years: populations, hospital discharges for diarrhoeal disease, estimated mortality rates and the percentage of deaths attributable to diarrhoeal disease, from WHO data sources or published literature, and combined them to estimate country-specific diarrhoeal disease mortality. Rotavirus-attributable percentages of hospital admissions due

Most (93%) of the deaths occur in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and **Turkey.**

Turkey could potentially prevent 80% of all regional rotavirus deaths. Data from low-income countries is still sparse, and improved disease burden studies are required to better inform regional vaccine policy.

REVIEW ARTICLE

Estimated mortality and hospital admission due to rotavirus infection in the WHO European region

C. J. WILLIAMS^{1,2*}, A. LOBANOV³ AND R. G. PEBODY¹

¹ Health Protection Agency Centre for Infections, London, UK

² European Programme for Intervention Epidemiology Training (EPIET), ECDC, Stockholm, Sweden

³ WHO Regional Office for Europe, Copenhagen, Denmark

The largest single contribution to the AGE and rotavirus deaths was from Turkey, a country in the upper-middle-income group, with an estimated **1700 deaths** due to rotavirus (26% of the total).

Estimated mortality rate of 2.2/100 000 per year.

rates were similar across income groups (medians 2.0, 2.8, 4.2 and 1.9/1000 per year in low-, lower-middle-, upper-middle- and high-income countries, respectively). Seven countries, mostly in the low- and lower-middle-income groups, accounted for 93% of estimated deaths. Disease burden varied dramatically by income level in the European region. Rotavirus vaccination in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and Turkey could potentially prevent 80% of all regional rotavirus deaths. Data from low-income countries is still sparse, and improved disease burden studies are required to better inform regional vaccine policy.

TÜRKİYE - İshal



- ✓ Ülkemizde ishal mortalitesi batı illerinde, üniversite hastanelerinde çalışan bizlerin düşündüğünden daha fazladır.
- ✓ İshal mortalitesinde azalma olmuş olabilir ama batı bölgelerimizde bile ishal insidansında gerileme olmamıştır.
- ✓ İshalli hastalıklar önceki yıllara benzer sıklıkta görülmeye devam etmektedir.

Türkiye'de rotavirus çalışmaları-I

İsim	Yapıldığı yer	Süre	Yaş grupları	Hasta sayısı	Olgu sayısı	Sıklık	Yöntem	Yıl
Ceyhan	Ankara	12 ay	0-2	333	61	16.30%	RNAelektroforez	1984
Çelebi	Erzurum		0-2	200	48	✓ % 24.0	ELISA	1992
Şıklar	Ankara	10 ay, Nisan-ocak	0-2	88	20	✓ % 22.4	ELISA	2000
Gökay	Istanbul		0-2	125	58	✓ % 46.4	ELISA	1995
Yıldırım	Ankara	12 ay	0-2	106	31	✓ % 29.0	ELISA	1992
Akbulut	Istanbul		0-3	120	38	✓ % 31.6	ELISA	1994
Ulukanlıgil	Ş.Urfa	12 ay	0-5	218	17	✓ % 7.8	LA	2001
Hilmioğlu	İzmir	6 ay yaz-sanbahar	0-5	57	13	✓ % 23.0	ELISA	1994
Öztürk			0-5	187	39	✓ % 21.2	ELISA / LA	1995
Çoşkun	İzmir		0-5	39	7	✓ % 20.5	ELISA	1993
Kanra	Ankara	12 ay	0-5	187	40	21.50%	ELISA	1992
Karlıgil	Gaziantep	18 ay (2 kış)	0-6	46	9	✓ % 19.6	Stat-Pak	1999
Aşçı	Elazığ		0-6	200	59	✓ % 30.0	ELISA	1996
Gültekin	Sivas		0-6	111	14	✓ % 13.0	LA	1993
Akdoğan	Kayseri	12 ay	0-6	217	71	✓ % 32.0	ELISA / LA	1999
Başustaoğlu	Ankara	yaz-kış	0-14	368	62	✓ % 16.8	ELISA	1995
Kükner	Ankara	12 ay	0-14	110	28	✓ % 25.0	ELISA	1993
Bora	Istanbul		0-14	56	28	✓ % 50.0	LA	1992
Baysallar	Ankara		0-14	80	17	✓ % 21.2	ELISA	1995
Ergüven			0-14	519	110	✓ % 21.2	ELISA	1994
Türkoğlu	Istanbul	6 yıl	0-14	826	210	✓ % 25.4	ELISA / LA	1993
Göçmen	Istanbul		0-14	160	21	✓ % 13.1	ELISA	1995
Özsan	Ankara	kış-ilkbahar	0-14	86	18	✓ % 22.0	Jel Elektroforez	1997

Türkiye'de rotavirus çalışmaları-II

İsim	Yapıldığı yer	Süre	Yaş grupları	Hasta sayısı	Olgu sayısı	Sıklık	Yöntem	Yıl
Kurugöl	İzmir	12 ay	0-5	920	366	%39.8	ELISA	2003
Çataloluk	Gaziantep	18 ay	0-5	508	119	%32.1	ELISA	2004
Karadağ	Ankara	3 yıl	0-5	1099	404	%36.8	Immunokr.	2005
Şimşek	Ankara	2 yıl	0-5	127	37	%29.1	ELISA	2005
Kurugöl	İzmir	18 ay	0-5	219	107	%48.9	Hücre kültür	2006
Rota-Epi	Türkiye	1 yıl	0-5	333	196	%57.0	ELISA	2006

Ortalama: %39.6

Rota-Epi çalışması

Rotavirus ag positivity with ELISA method in stool samples among hospitalized children under 5 years of age- February 2005-February 2006

Center	ELISA (%)		Grand Total
	-	+	
Capa (Istanbul)	32 (34.0)	62 (66.0)	94
Çukurova (Adana)	57 (61.0)	37 (39.0)	94
Ege (Izmir)	14 (15.0)	32 (85.0)	46
HUTF (Ankara)	34 (33.0)	65 (67.0)	99
Grand total	137 (43.0)	196 (57.0)	333

REVIEW ARTICLE

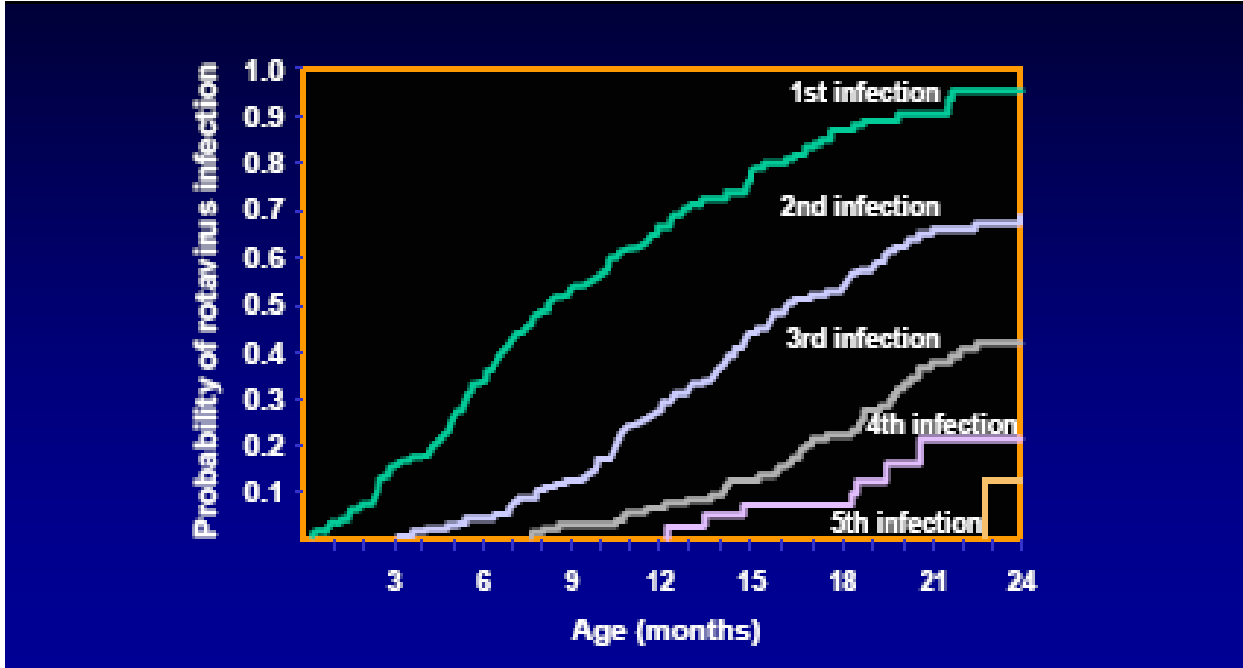
Estimated mortality and hospital admission due to rotavirus infection in the WHO European region

Rotavirus mortality in WHO-EURO 611

Table 1. Literature estimates of the percentage of acute gastroenteritis admissions attributable to rotavirus infection (children aged 0–4 yr)

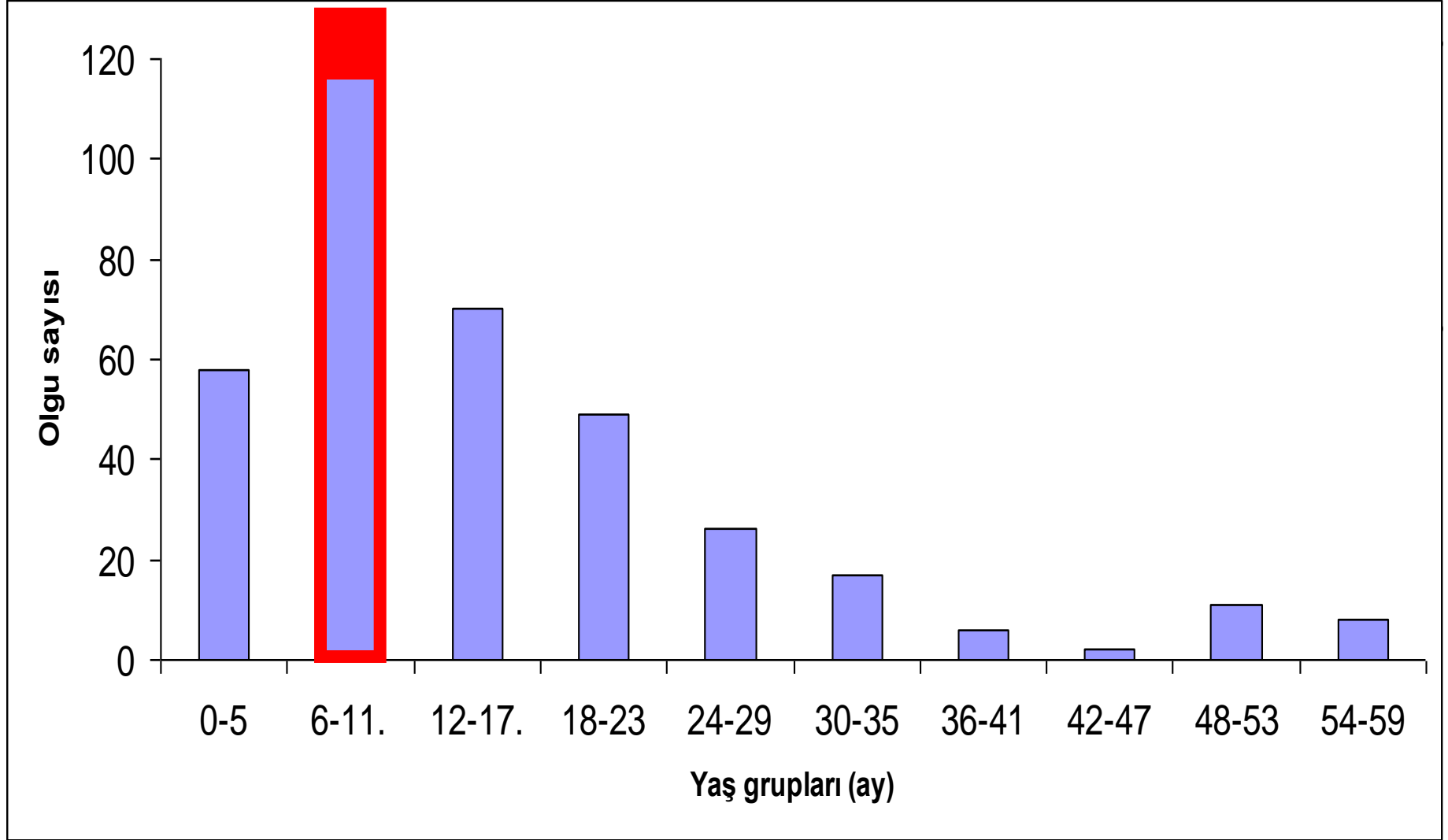
Country	Percentage of acute gastroenteritis admissions attributable to rotavirus (ages 0–4 yr, unless specified)	Median percentage of acute gastroenteritis admissions attributable to rotavirus (ages 0–4 yr, unless specified)
Low-income countries (n = 3)		26.4 %
Tajikistan	26 % [33] (ages 0–14)	25.8 %
Uzbekistan	27 % [34]	27.0 %
Kyrgyzstan		No data
Lower-middle-income countries (n = 10)		21.3 %
Bosnia & Herzegovina	24 % [35] (ages 6 mo.–14 yr)	24.0 %
Albania	12 % [36], 25 [37] (ages 0–3)	18.6 %
Turkmenistan, Republic of Moldova, Georgia, Azerbaijan, Armenia, Ukraine, FYR of Macedonia, Belarus		No data
Upper-middle-income countries (n = 12)		31.7 %
Romania	25.6% [38] (ages 0–5)	25.6%
Turkey	59 % [39], 55 % [40] (ages 0–15)	57.0 %
Poland	41.6% [41], 26.6% (ages 1 mo.–11 yr)	29.2%
Hungary	21 % [42] (ages 0–14), 27 % [43]	24.0 %
Kazakhstan, Serbia & Montenegro*, Bulgaria, Russian Federation, Lithuania, Latvia, Croatia, Slovakia		No data
High-income countries (n = 24)		39.5 %
Estonia	26 % [44]	25.8 %
Czech Republic	21 % [45] (ages 0–3), 23 % [46] (ages 0–2)	22.0 %
Slovenia	42 % [47]	42.0 %
Greece	11 % [48] (ages 0–14)	11.0 %
Spain	53 % [49], 15 % [50], 21 % [51] (ages 0–14), 25 % [52], 31 % [53]	25.3 %
Italy	69 % [49], 36 % [54], 35 % (ages 0–9) [55]	36.0 %
France	56 % [49]	55.6 %
Germany	65 % [48], 41 % [56] (ages 0–3), 25 % [57]	41.0 %
Belgium	58 % [49]	58.2 %
United Kingdom	61 % [49], 39 % [58]	50.0 %
Finland	54 % [59]	54.0 %

Yaş dağılımı

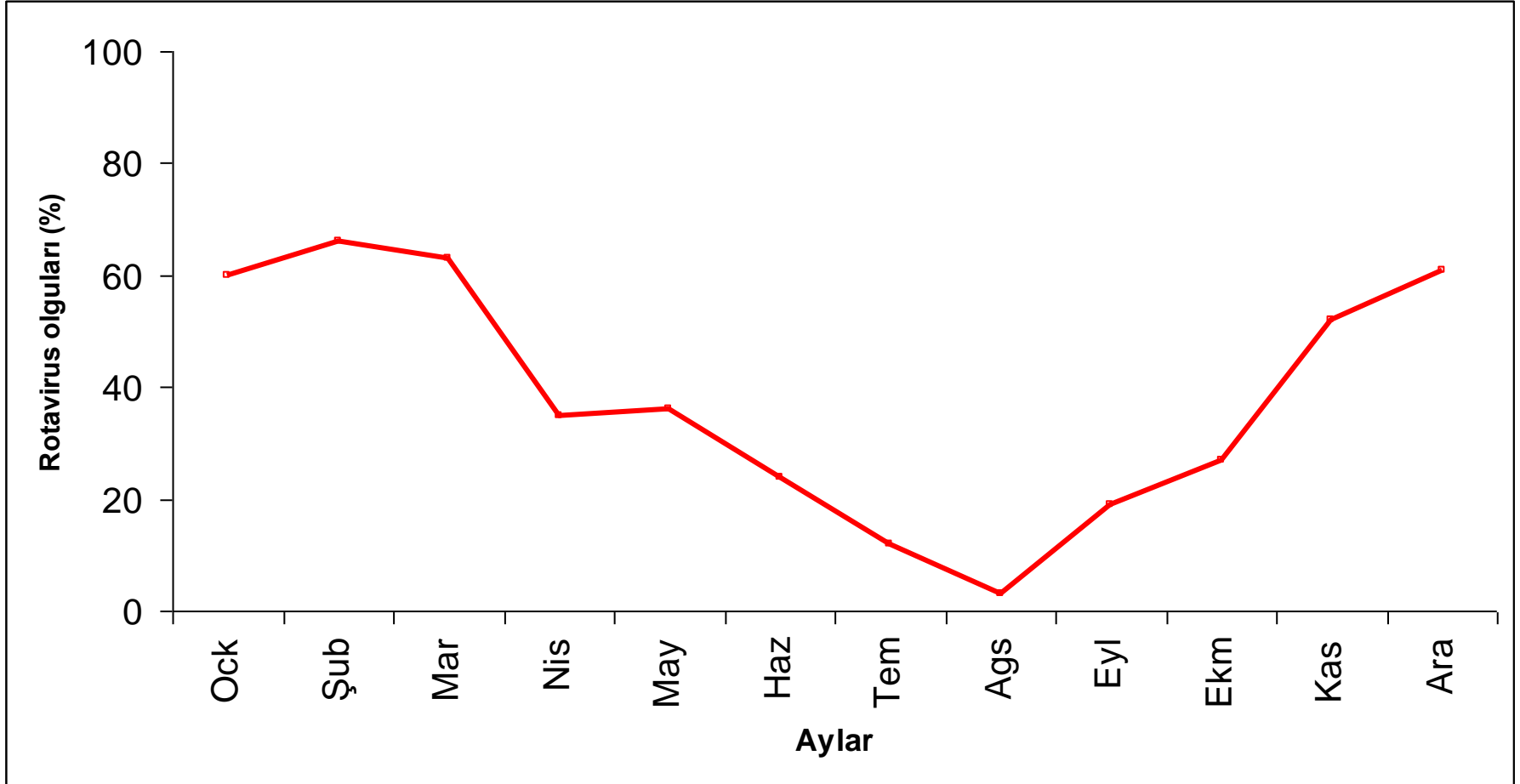


- Tüm dünyada çocukların %95'i 3 yaşına kadar enfekte olur.
 - Semptomatik vakaların çoğu 3 ay-2 yaş arasındadır.
 - Gelişmekte olan ülkelerde daha küçük (6-8 ay), gelişmiş ülkelerde daha büyük (9-18 aylık) çocuklarda

Rotavirus ishali - yaş dağılımı

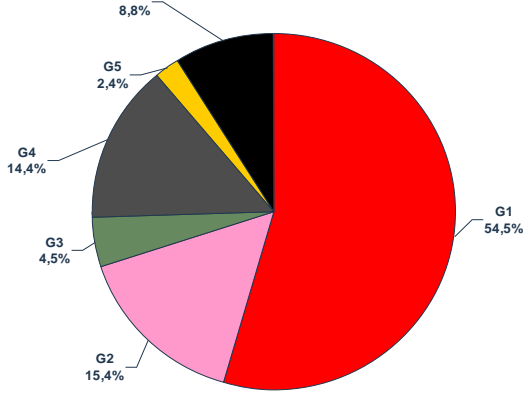


Aylara göre dağılım

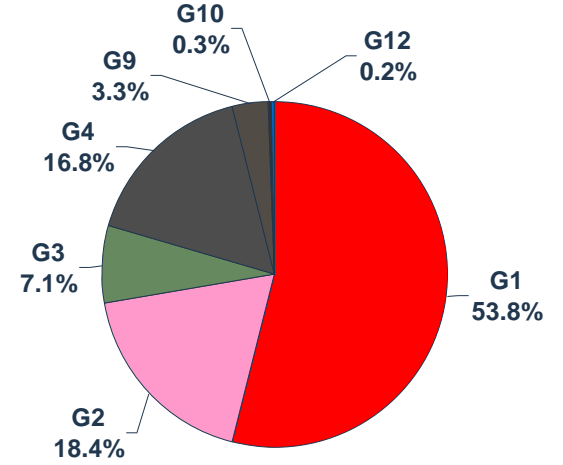


Karadağ A, et al. Scand J Infect Dis. 2005;37:269-75; Rota EPI study. J Infect D (baskıda);
Kurugöl Z, et al. Turk J Ped 2003;45:290-294; Ceyhan M, et al. Turk J Ped 1987;29:145-9.

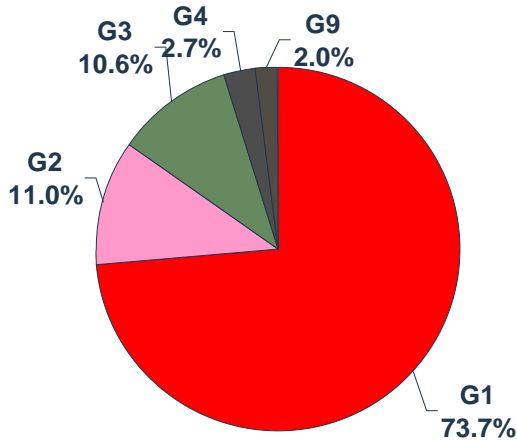
Dünya Geneline Rotavirus Serotip Dağılımı



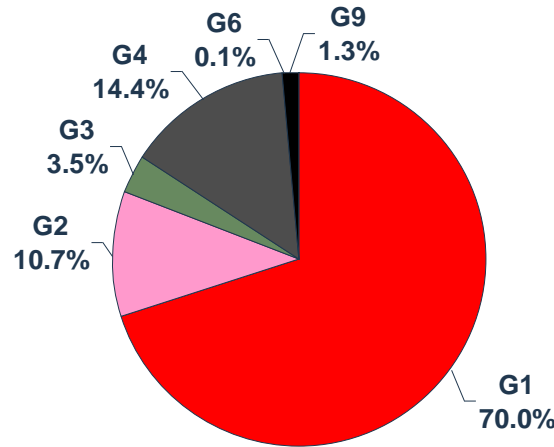
Güney Amerika, N=2950



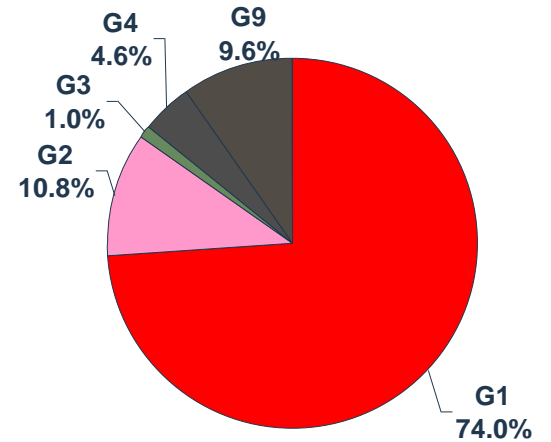
Asya N=13126



Kuzey Amerika, N=2892



Avrupa, N=17475

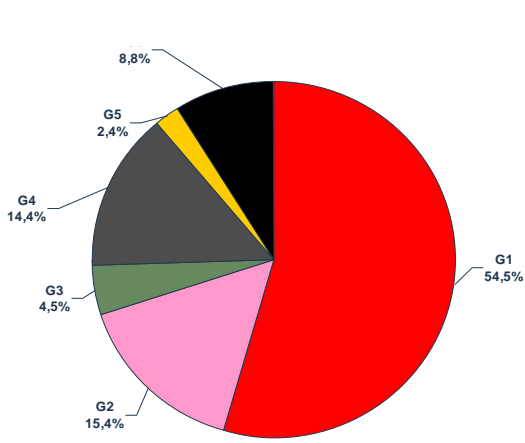


Avustralya/Okyanusya, N=6995

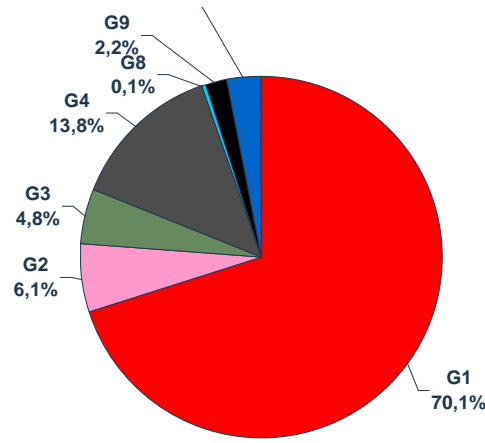
P2A[6]
Afrika %50 ↑

G8, G12 Afrika,
G5 GA

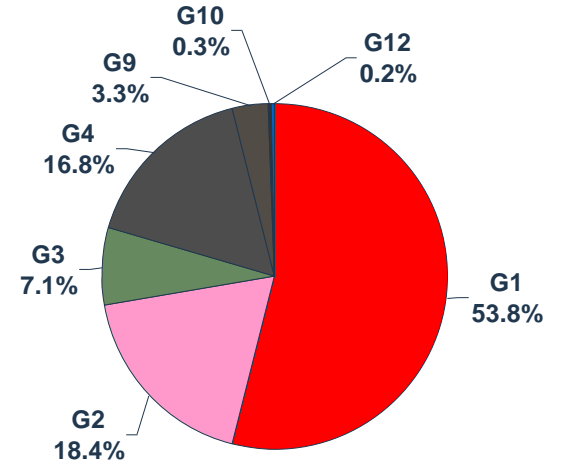
Dünya Geneline Rotavirus Serotip Dağılımı



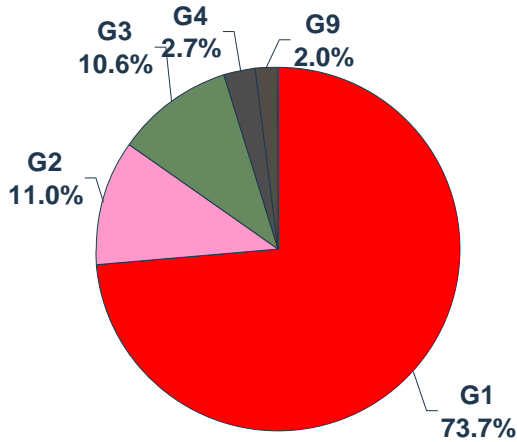
Güney Amerika, N=2950



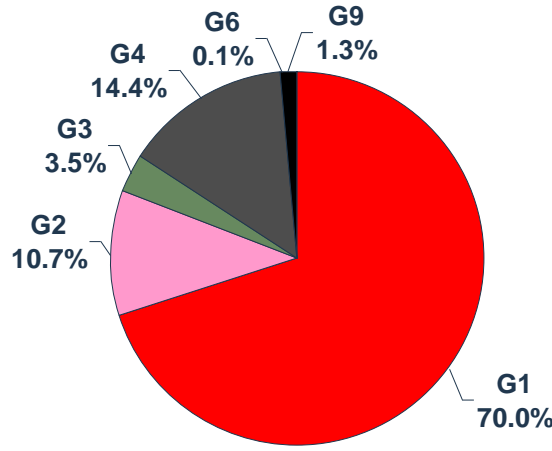
İzmir, N= 920



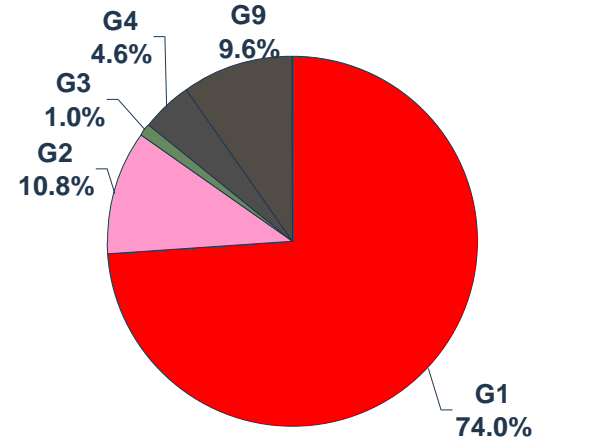
Asya N=13126



Kuzey Amerika, N=2892

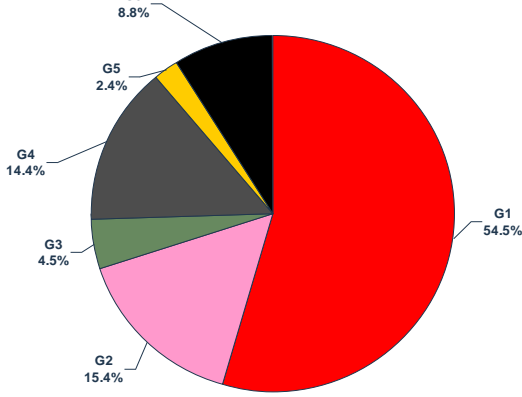


Avrupa, N=17475

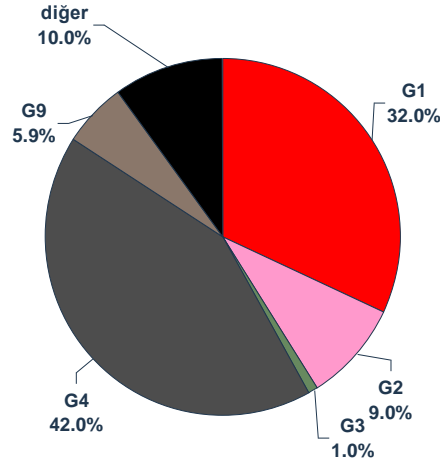


Avustralya/Okyanusya, N=6995

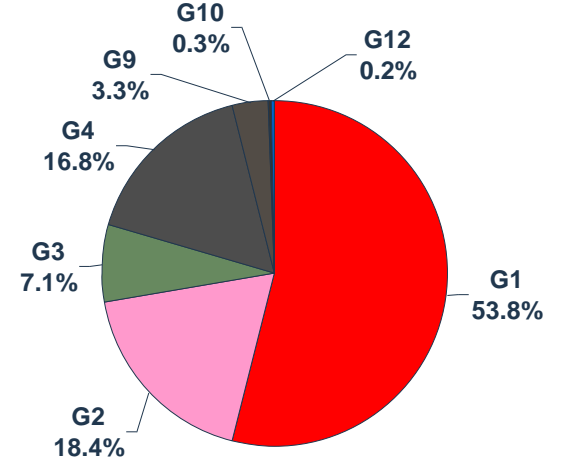
Rotavirus Serotip Dağılımı



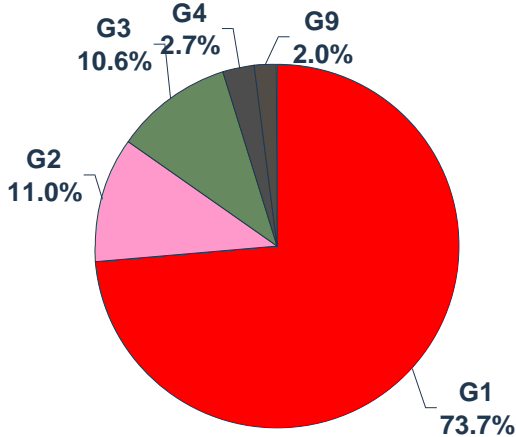
Güney Amerika, N=2950



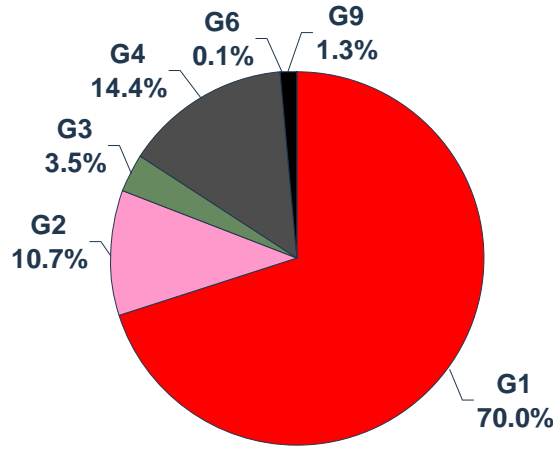
Gaziantep, N=119



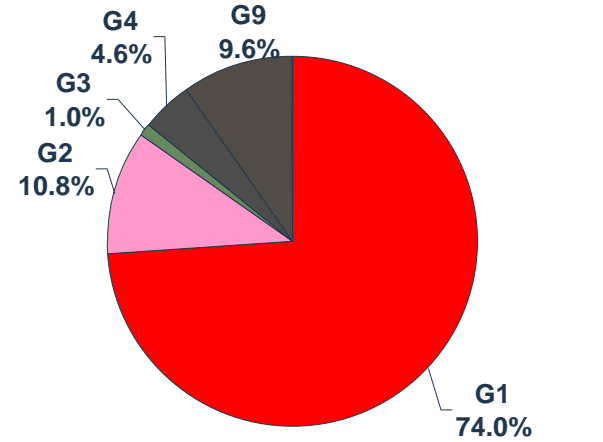
Asya N=13126



Kuzey Amerika, N=2892

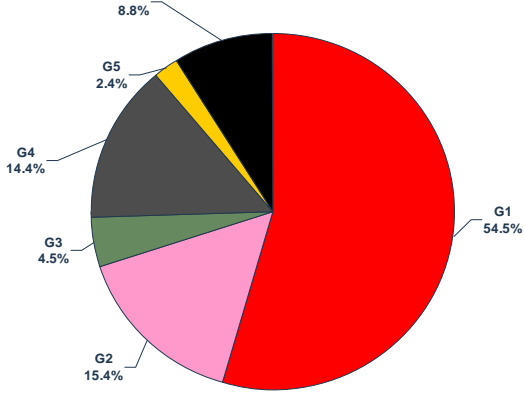


Avrupa, N=17475

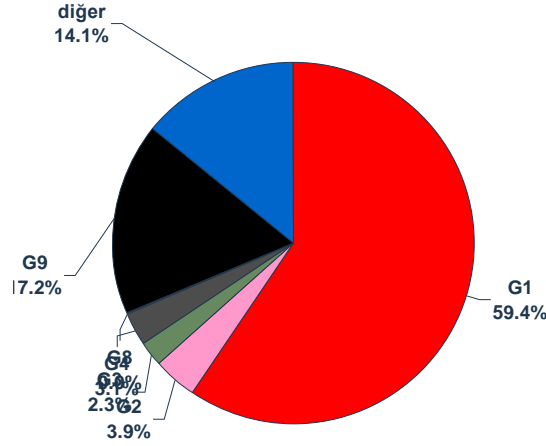


Avustralya/Okyanusya, N=6995

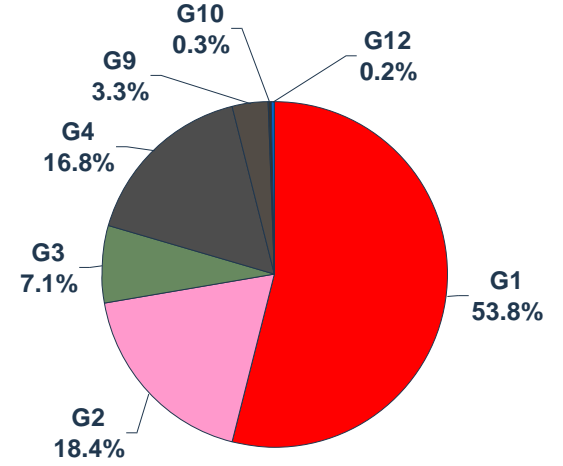
Rotavirus Serotip Dağılımı



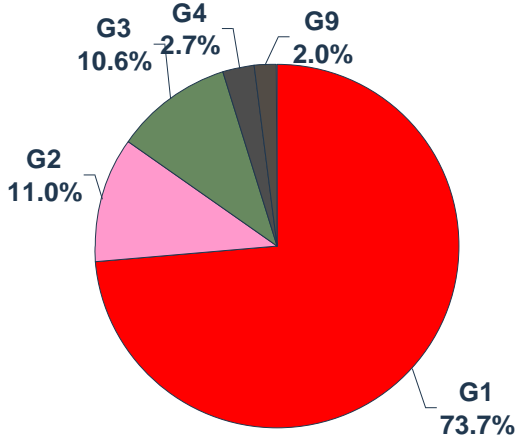
Güney Amerika, N= 2950



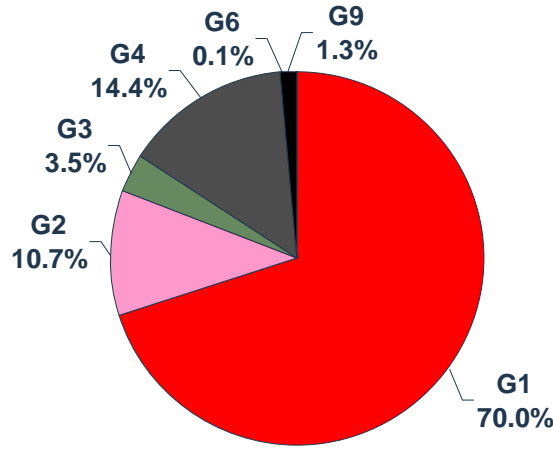
Ankara, N=332



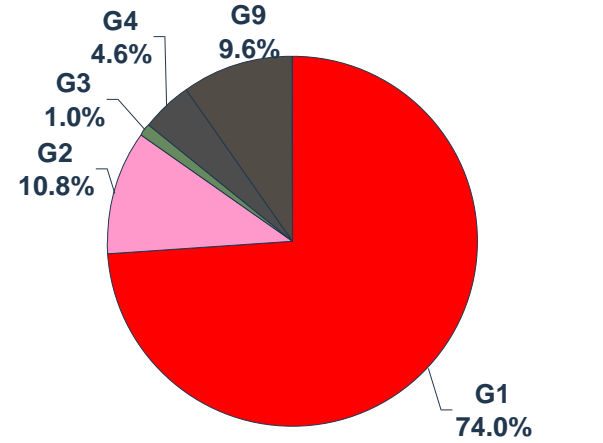
Asya N=13126



Kuzey Amerika, N=2892

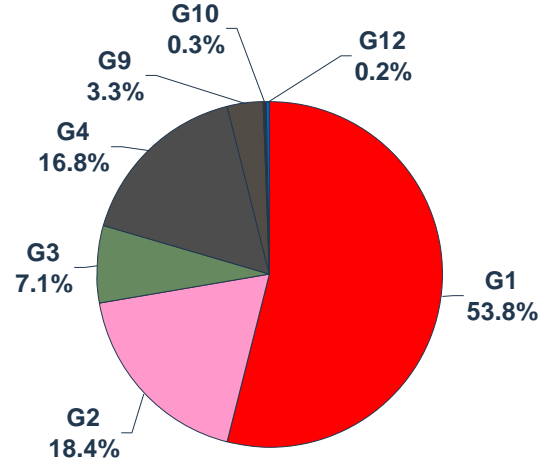
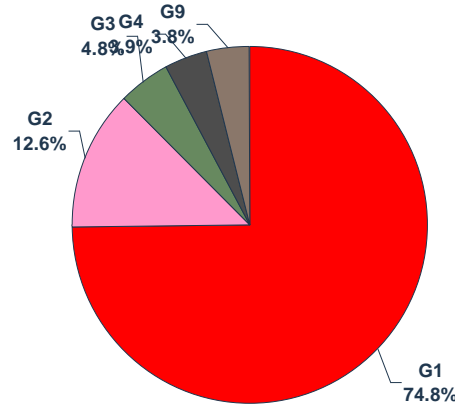
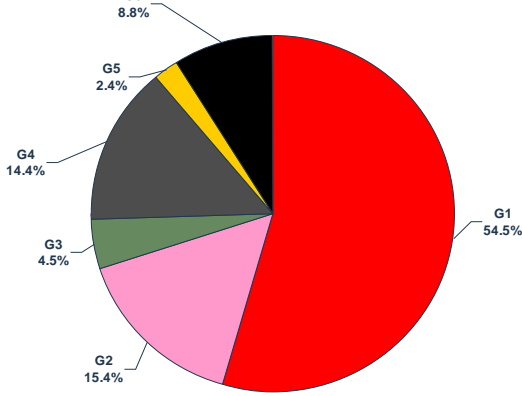


Avrupa, N=17475



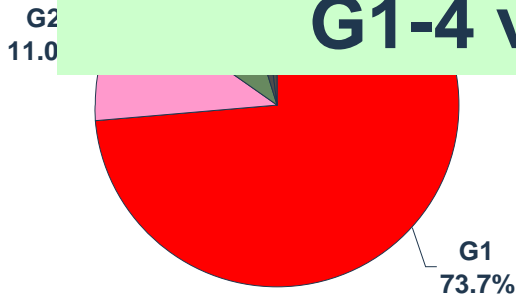
Avustralya/Okyanusya, N=6995

Rotavirus Serotipleri- Türkiye

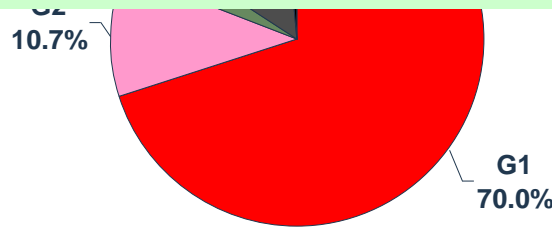


- Ülkemizde en sık görülen tip G1P1A[8] dir.

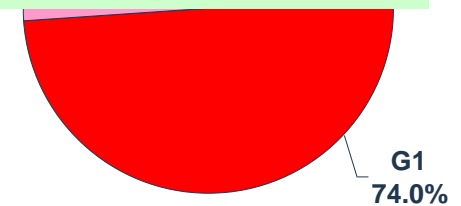
RVGE vakalarının %90'ından fazlasında G1-4 ve G9 tipleri izole edilmiştir.



Kuzey Amerika, N=2892

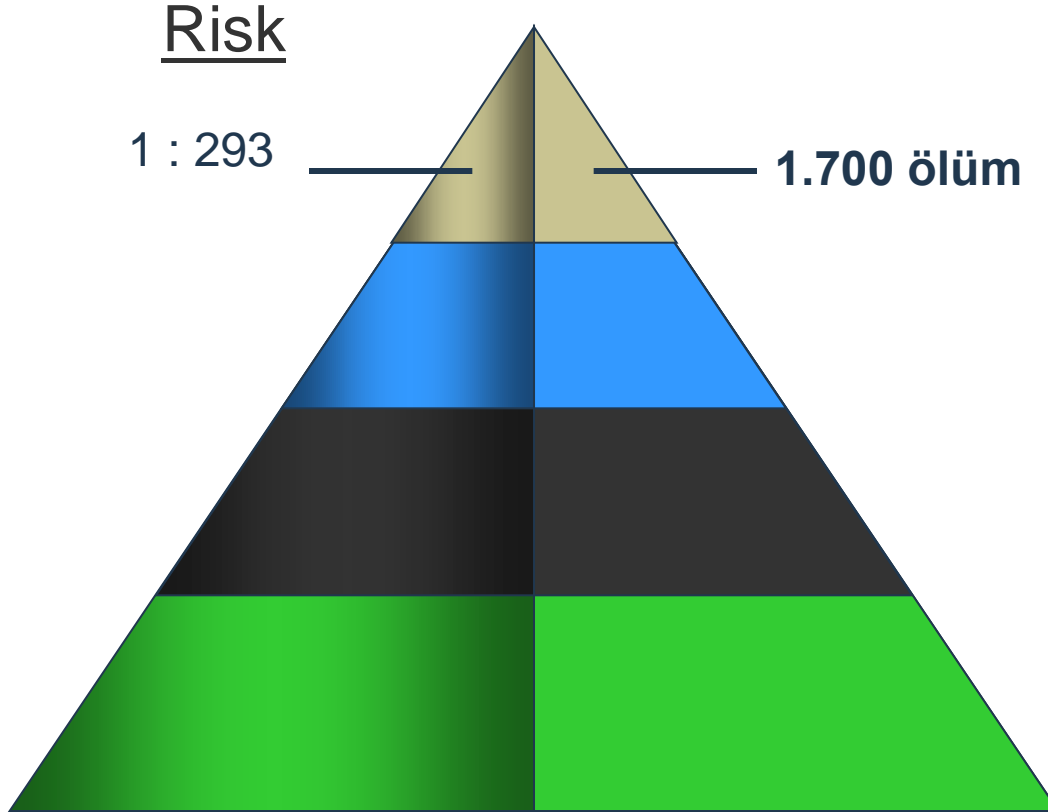


Avrupa, N=17475



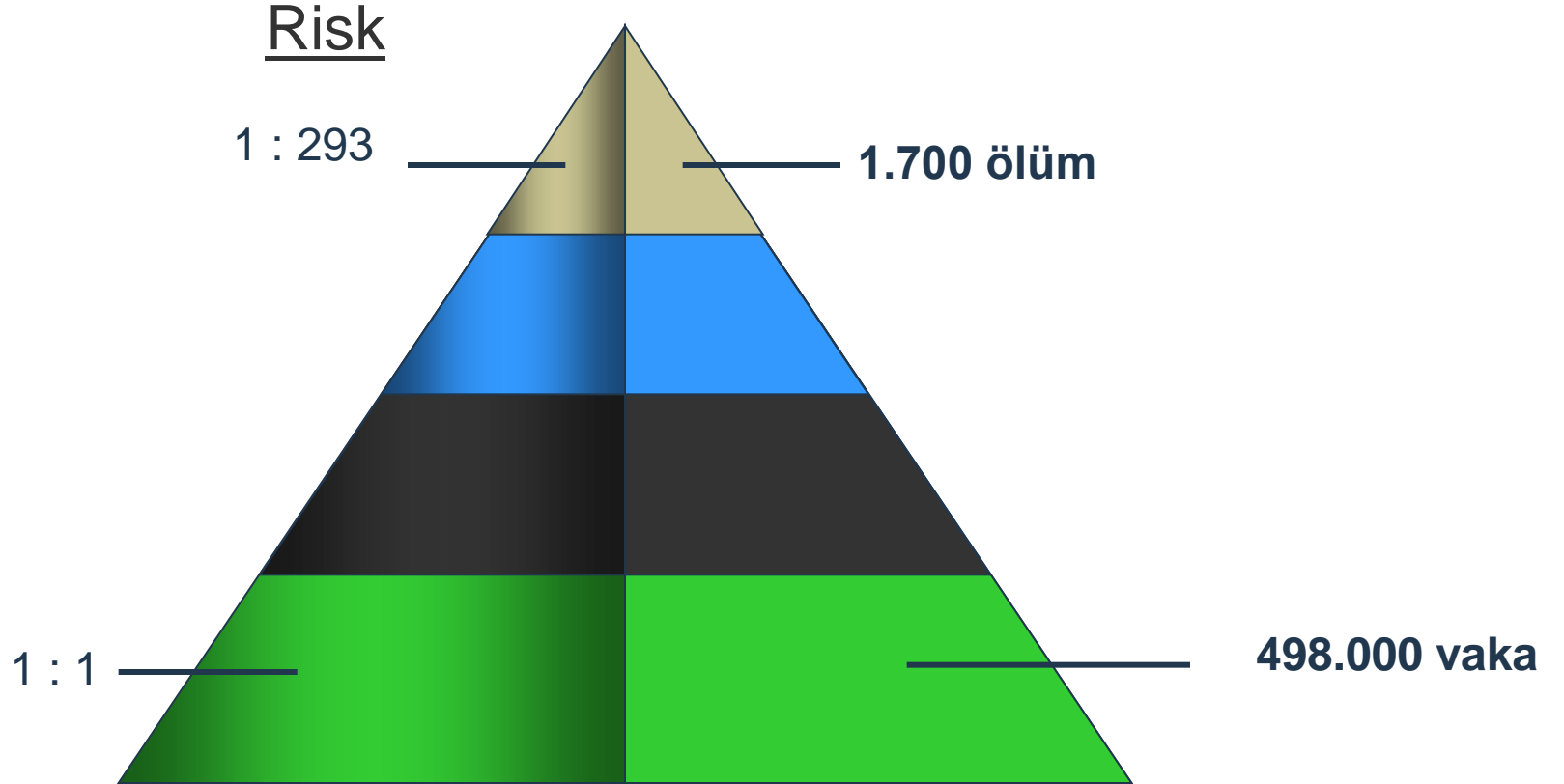
Avustralya/Okyanusya, N=6995

Rotavirus hastalık yükü-Türkiye



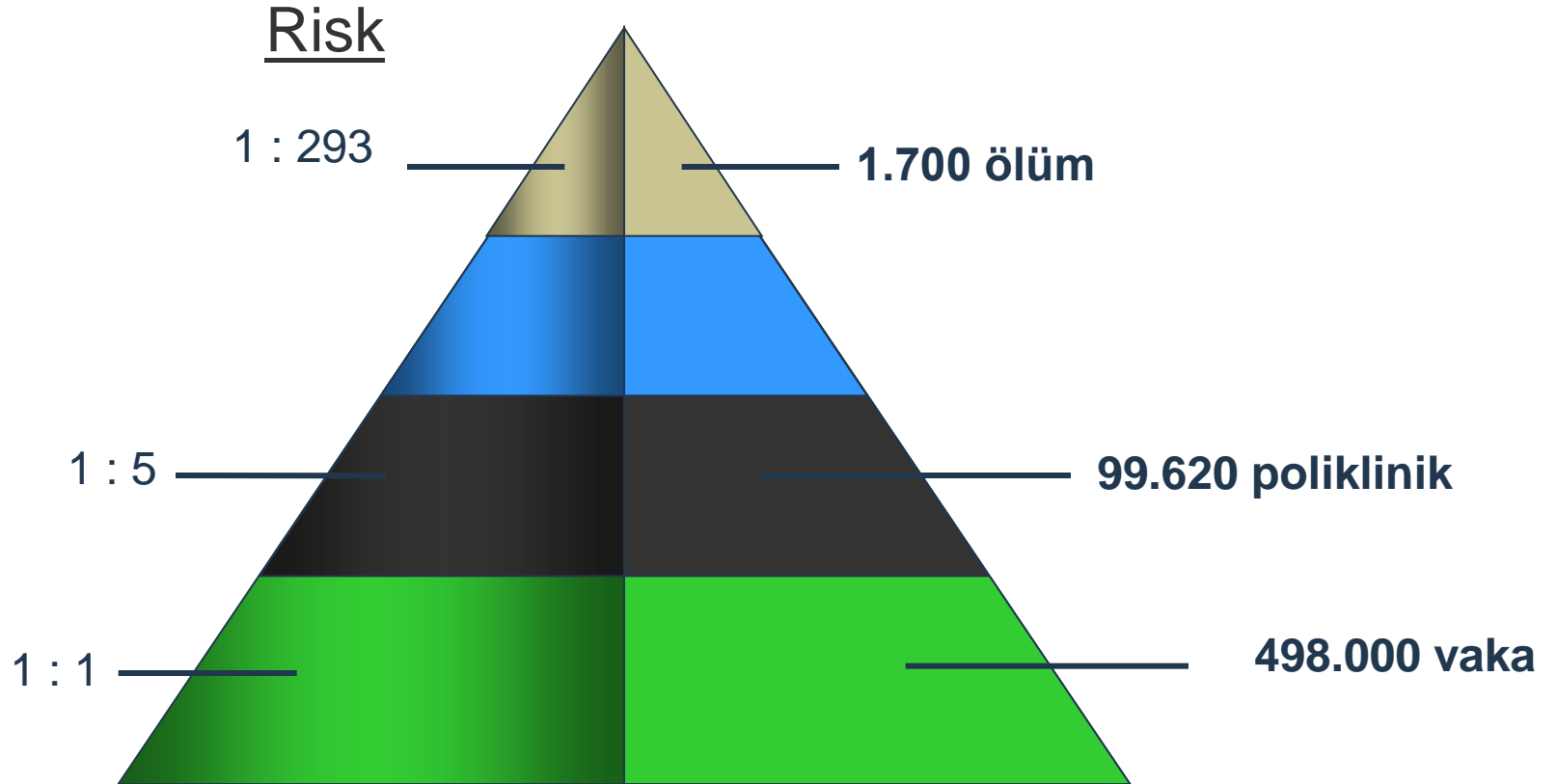
DSÖ, TC Sağlık Bakanlığı ve literatür verilerine göre tahmini RV hastalık yükü

Rotavirus hastalık yükü-Türkiye



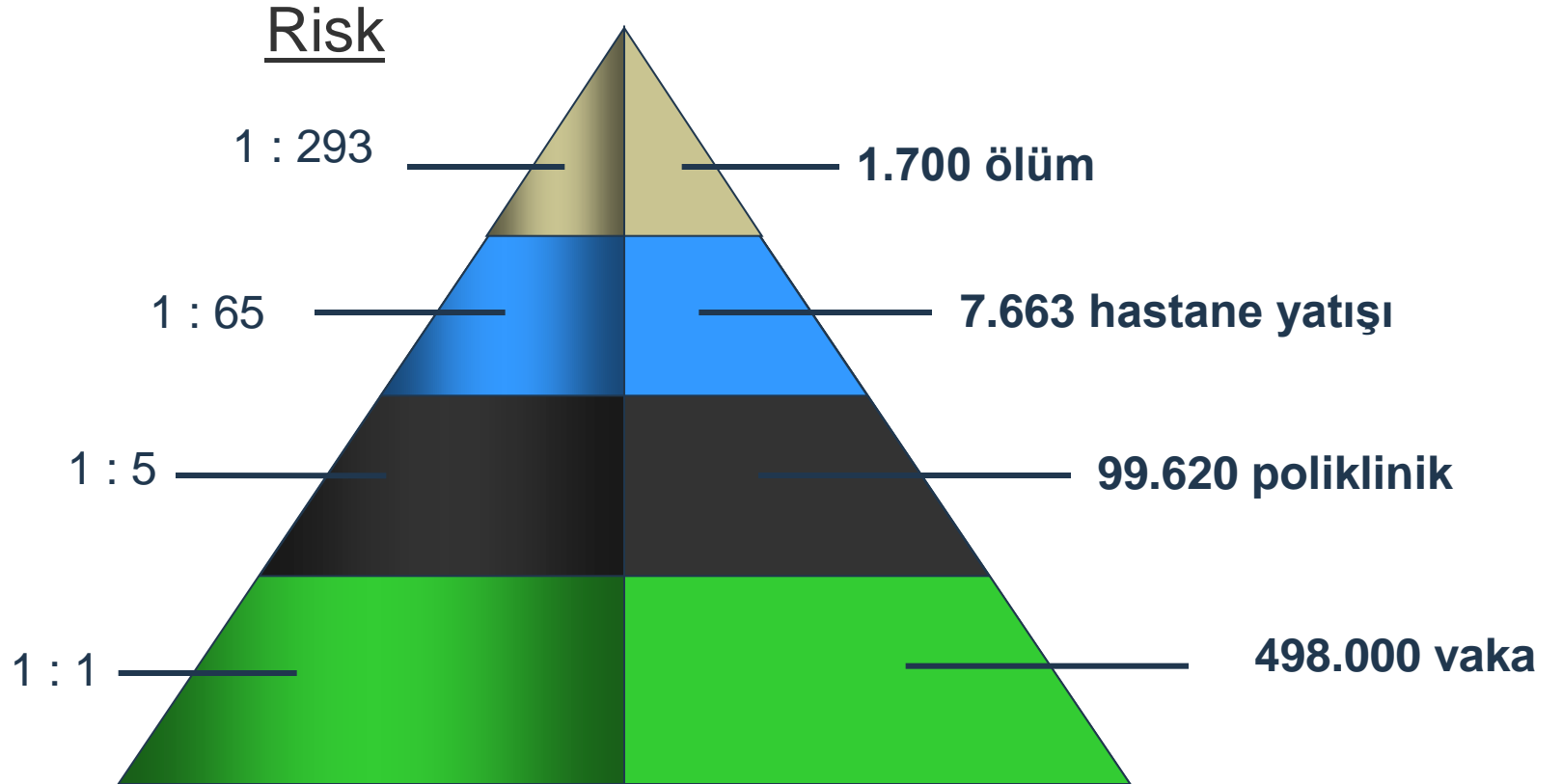
DSÖ, TC Sağlık Bakanlığı ve literatür verilerine göre tahmini RV hastalık yükü

Rotavirus hastalık yükü-Türkiye



DSÖ, TC Sağlık Bakanlığı ve literatür verilerine göre tahmini RV hastalık yükü

Rotavirus hastalık yükü-Türkiye



DSÖ, TC Sağlık Bakanlığı ve literatür verilerine göre tahmini RV hastalık yükü



World Health
Organization

Organisation mondiale de la Santé

Weekly epidemiological record Relevé épidémiologique hebdomadaire

5 JUNE 2009, 84th YEAR / 5 JUIN 2009, 84^e ANNÉE

No. 23, 2009, 84, 213–236

<http://www.who.int/wer>

- WHO strongly recommends the inclusion of rotavirus vaccination into the national immunization programmes of all regions of the world.
- In particular, countries where deaths among children due to diarrhoeal diseases account for 10% of under-5 mortality rate should prioritize the introduction of rotavirus vaccination. Countries where deaths among children due to diarrhoeal diseases account for <10% of under-5 mortality rate should also consider the introduction of rotavirus vaccination based on anticipated reduction in mortality and morbidity from diarrhoea, savings in health care costs, and the cost-effectiveness of vaccination.

WHO's Strategic Advisory Group of Experts (SAGE)



World Health
Organization

Organisation mondiale de la Santé

Weekly epidemiological record Relevé épidémiologique hebdomadaire

5 JUNE 2009, 84th YEAR / 5 JUIN 2009, 84^e ANNÉE

No. 23, 2009, 84, 213–236

<http://www.who.int/wer>

- WHO strongly recommends the inclusion of rotavirus vaccination into the national immunization programmes of all regions of the world.
- In particular, countries where deaths among children due to diarrhoeal diseases account for 10% of under-5 mortality rate should prioritize the introduction of rotavirus

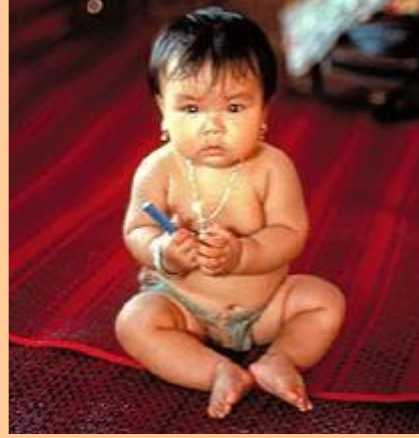


Ülkemizde 5 yaş altı çocuk ölümlerinin %12.2 si ishale seyreden hastalıklar

TC Sağlık Bakanlığı. UHY-ME Çalışması 2004.

vaccination based on anticipated reduction in mortality and morbidity from diarrhoea, savings in health care costs, and the cost-effectiveness of vaccination.

ROTAVIRUS
VACCINE PROGRAM
A PATH AFFILIATE



If we could prevent rotavirus:

We would save the lives of
1,400 children a day.

We would save countries'
Precious human and financial
resources.

**Bu mini konferans esnasında,
rotavirus ishalinden 25 çocuk ölmüştür...**