

COVID 19 en niños: COVID or not COVID

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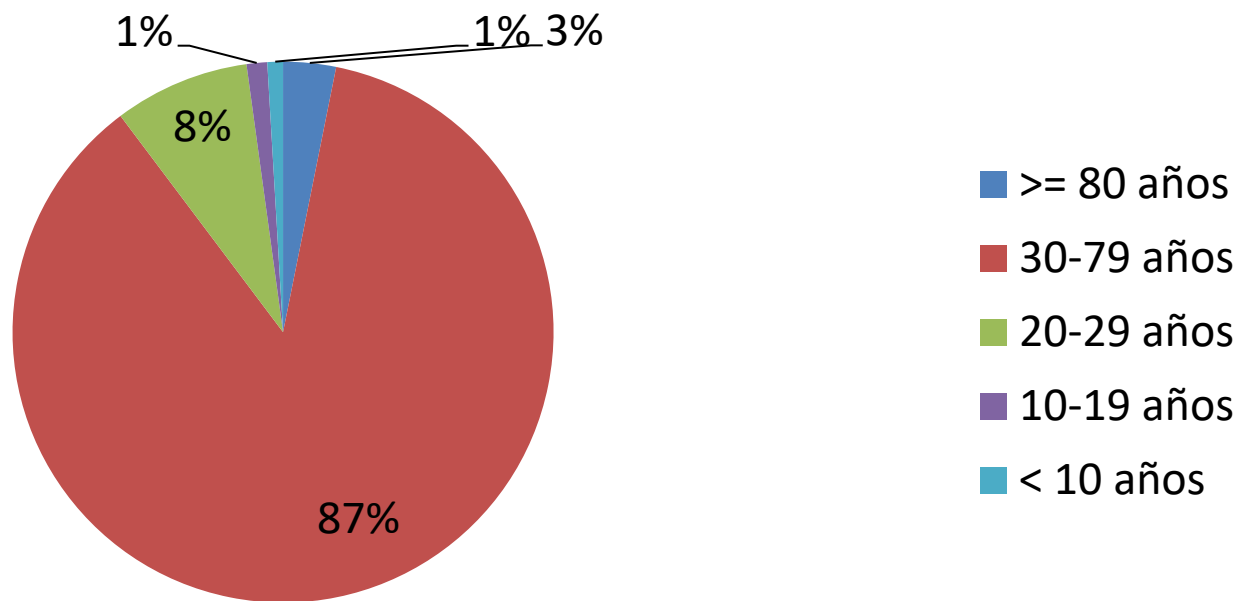
¿Cuál es la frecuencia de infección por SARS-CoV2 y COVID19 en los niños?

¿Cuál es la gravedad de la enfermedad?

Frecuencia y gravedad

- Los niños representan una pequeña proporción de los casos por coronavirus
- Casos mucho más leves (letalidad muy baja)

Coronavirus: distribución por edad (44672 casos)



Assessment of 135 794 Pediatric Patients Tested for Severe Acute Respiratory Syndrome Coronavirus 2 Across the United States

L. Charles Bailey, MD, PhD; Hanieh Razzaghi, MPH; Evanette K. Burrows, MPH; H. Timothy Bunnell, PhD; Peter E. F. Camacho, MS; Dimitri A. Christakis, MD, MPH; Daniel Eckrich, MLIS; Melody Kitzmiller, BS; Simon M. Lin, MD, MBA; Brianna C. Magnusen, MD; Jason Newland, MD; Nathan M. Pajor, MD, MS; Daksha Ranade, MPH, MBA; Suchitra Rao, MD, MSCS; Olamiji Sofela, MBChB, MMCI; Janet Zahner, BS; Cortney Bruno, MSW; Christopher B. Forrest, MD, PhD

- 5.374 niños infectados por SARS-CoV-2
- Hospitalizados: 7%
- Fallecidos: 0,2%

Prevalence of SARS-CoV-2 Infection in Children and Their Parents in Southwest Germany

Table 5. Number of Participants Who Were Seropositive, Estimated Mean Family Seroprevalence, and 95% CIs^a

Group	Total participants, No.	Participants with seropositivity, No.	Estimated prevalence of seropositivity, % (95% CI)
Children age range, y			
1-5	1129	9	0.5 (0.2-0.9)
6-10	1353	13	0.7 (0.4-1.4)
Children	2482	22	0.6 (0.3-1.0)
Parents	2482	48	1.8 (1.2-2.4)

Tönshoff *et al.* JAMA Pediatrics 2021; 21 de enero

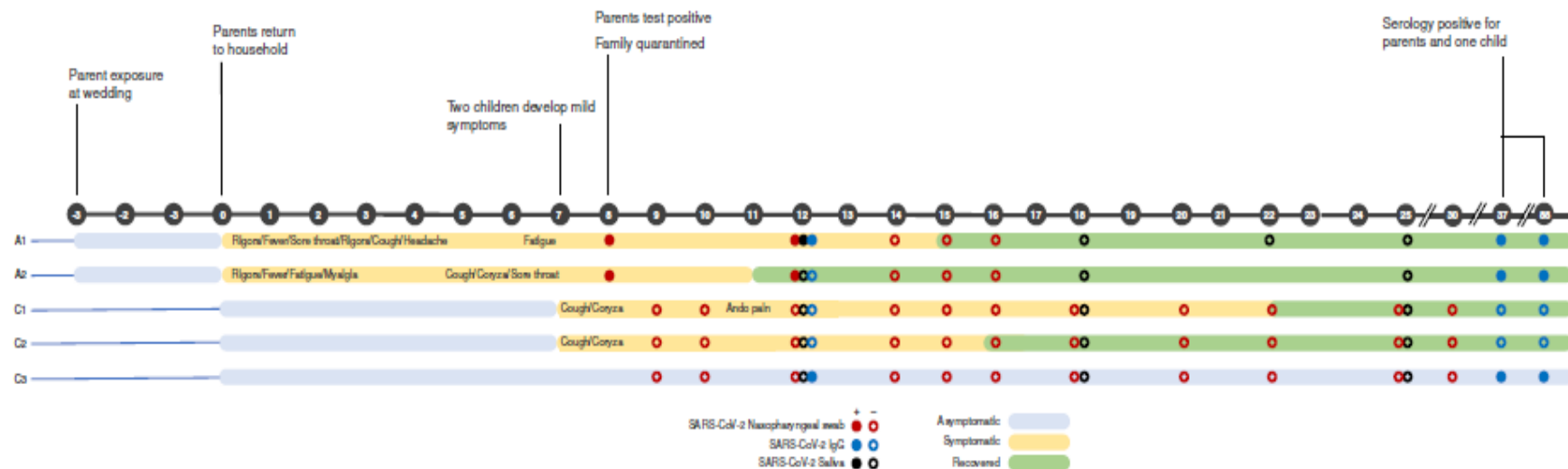


¿Por qué es menos frecuente y grave en los niños?

Hipótesis para explicar la frecuencia más baja y menor gravedad

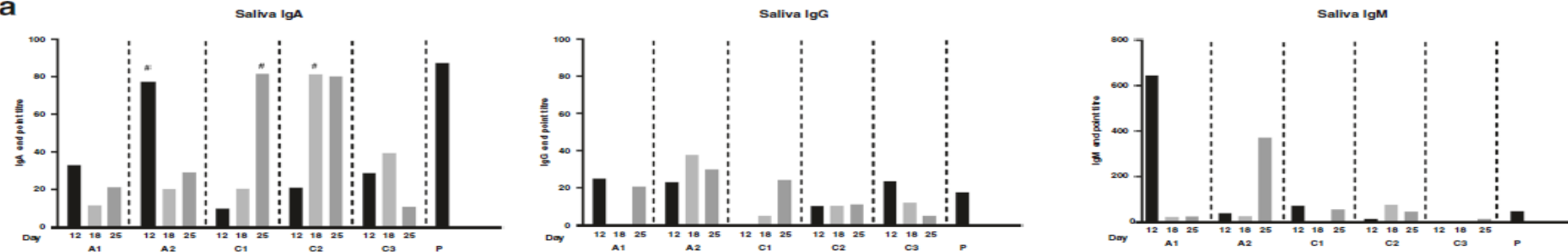
- Los niños desarrollan una respuesta inmune que controla rápidamente la infección antes de que el virus se replique
 - Mejor respuesta innata
 - Más células T naive y respuesta adaptativa
- Diferente respuesta inmune en niños y adultos
- Menos densidad de receptores ACE2 en los niños

Immune responses to SARS-CoV-2 in three children of parents with symptomatic COVID-19

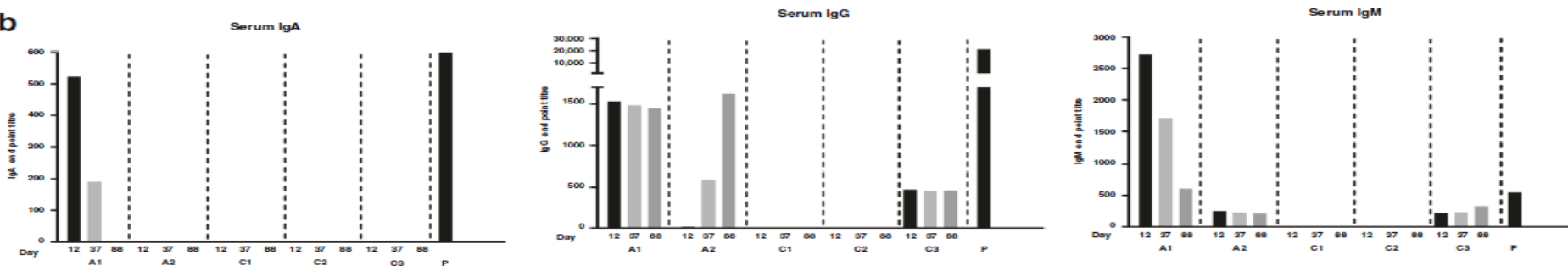


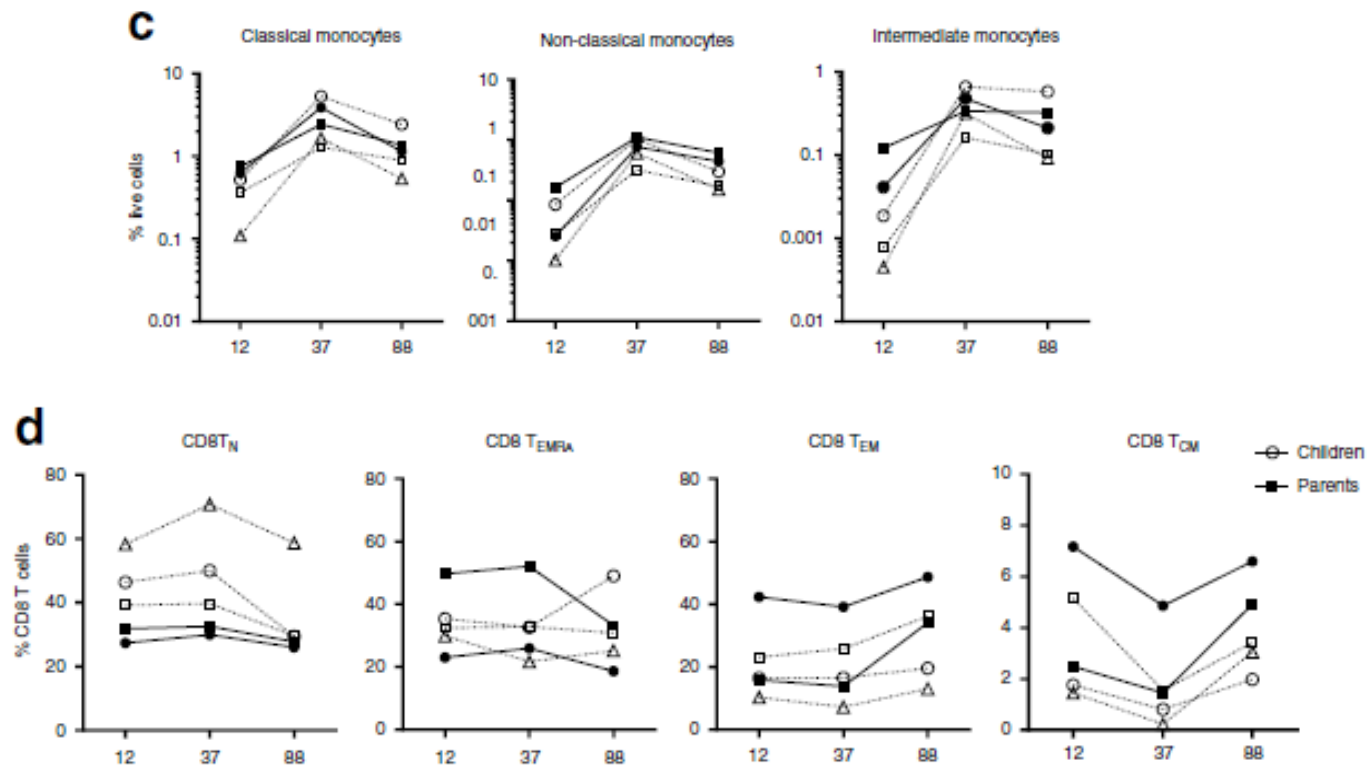
Immune responses to SARS-CoV-2 in three children of parents with symptomatic COVID-19

a

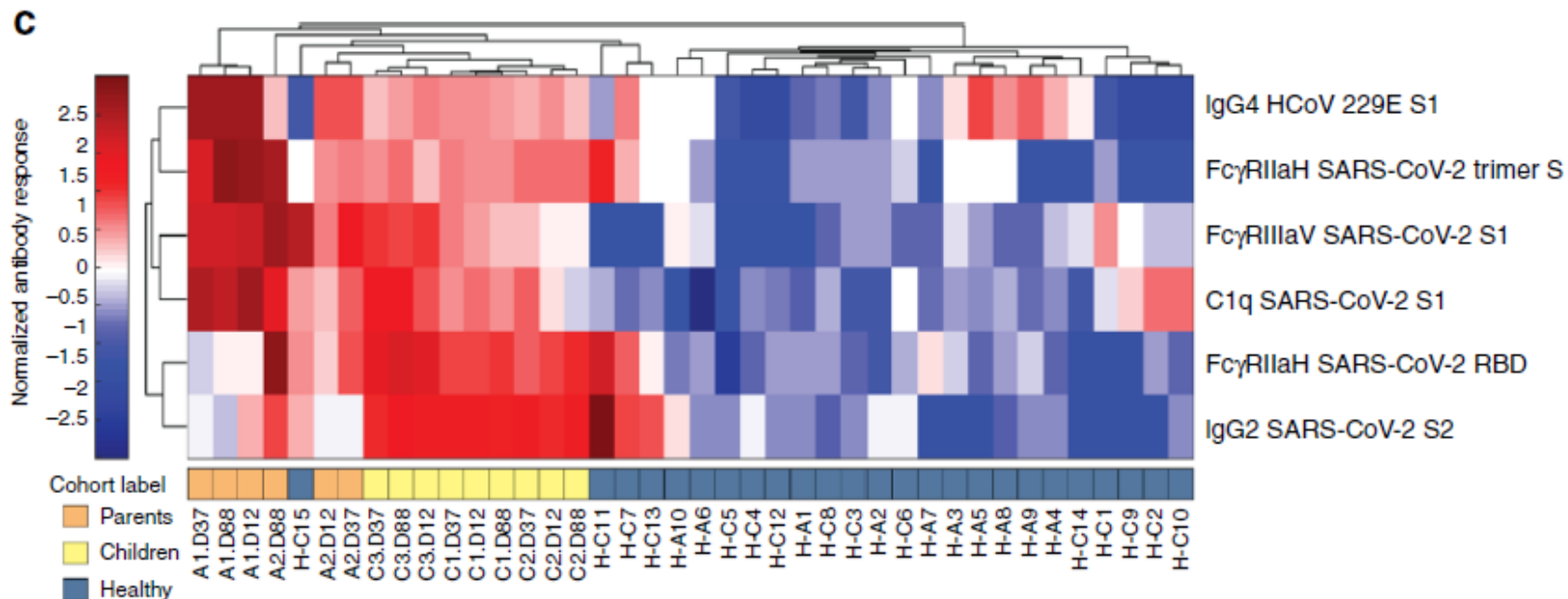


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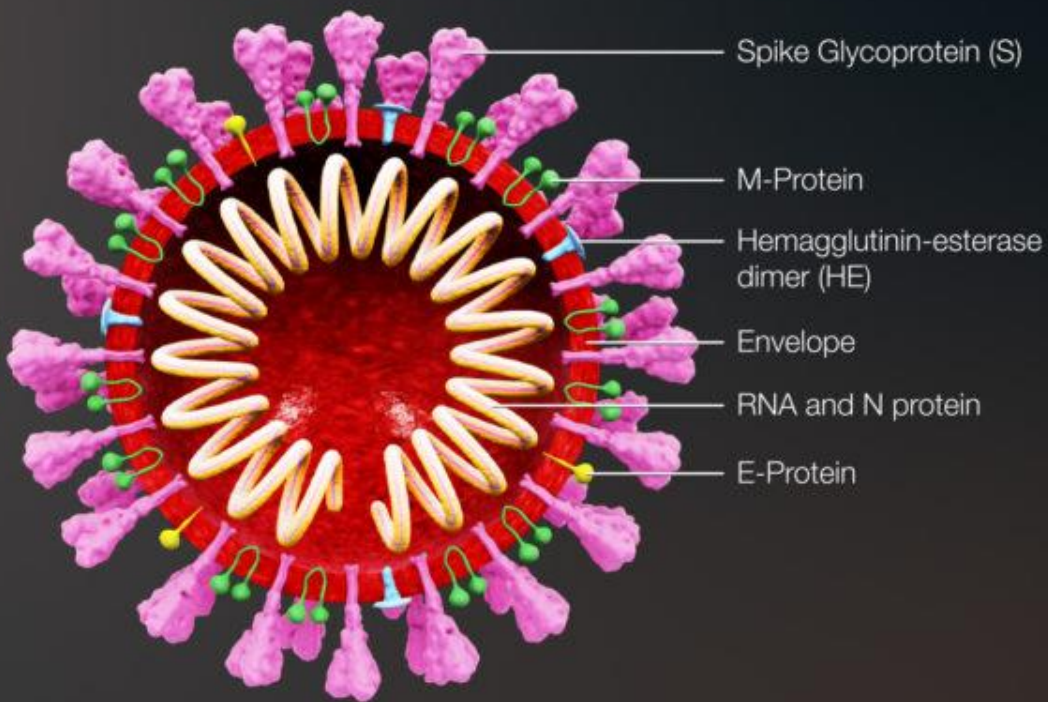
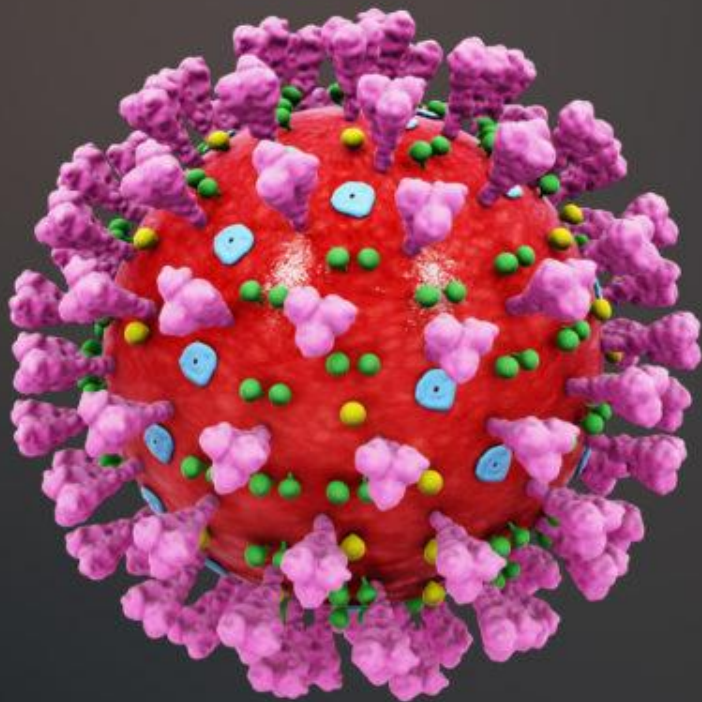




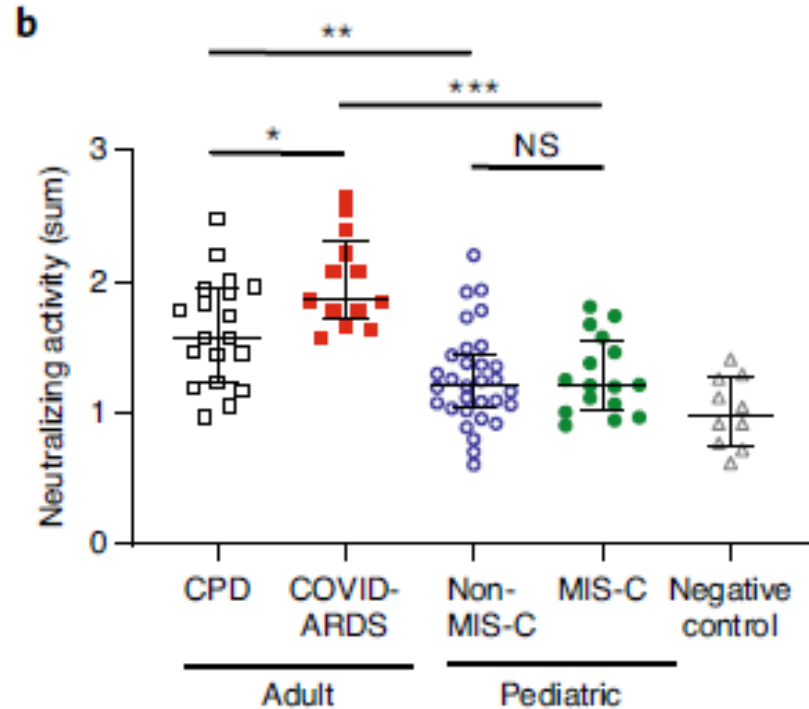
Comparación de anticuerpos en suero de la familia y de un grupo de niños y adultos antes de la pandemia



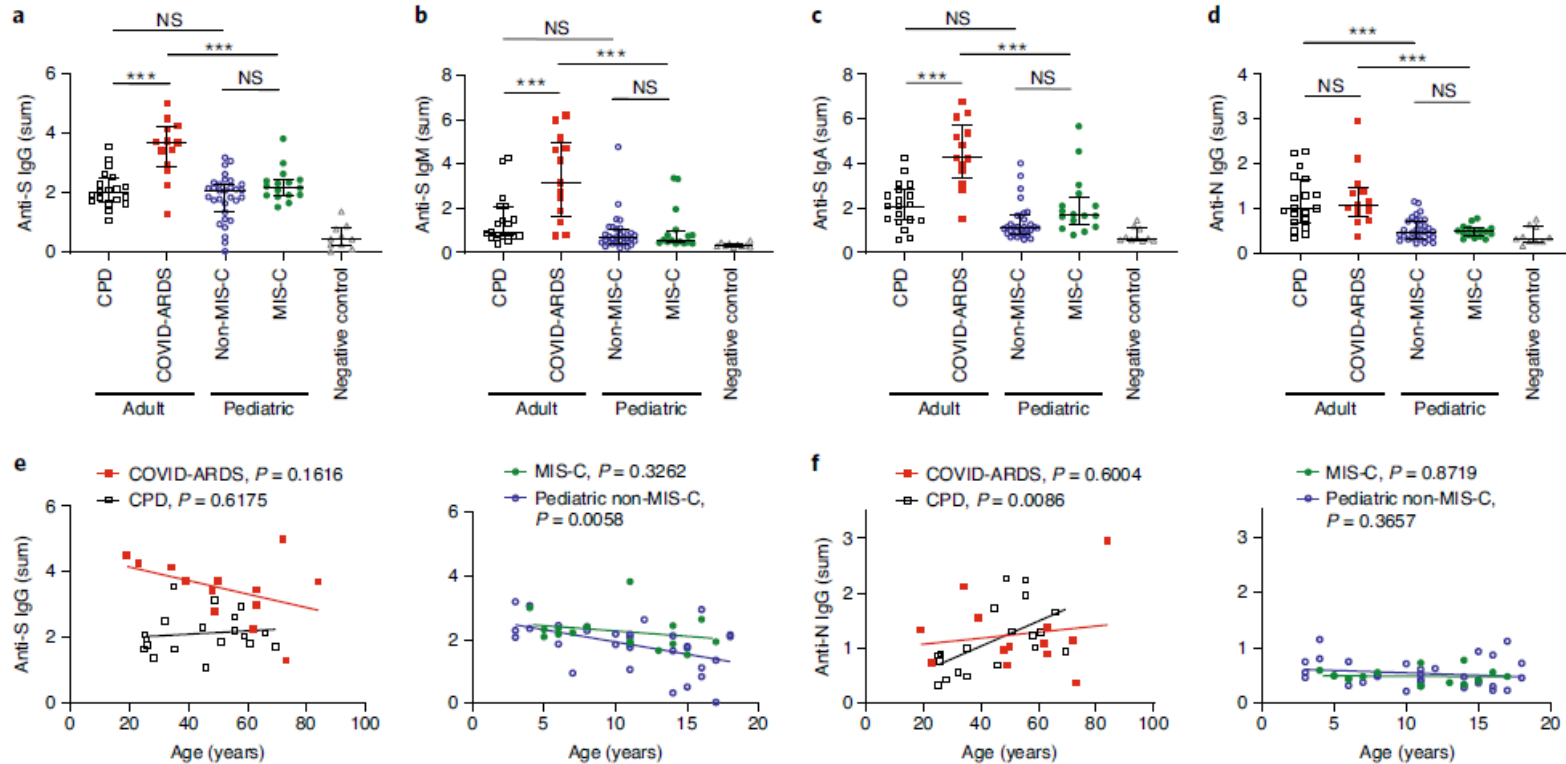
Diferencia de respuesta en niños y adultos



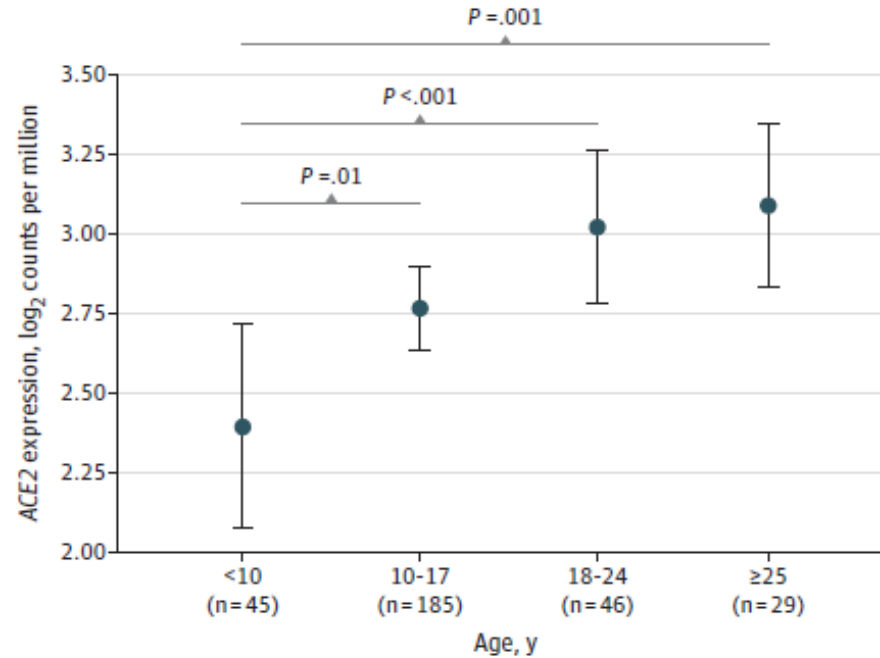
Capacidad neutralizante de niños vs adultos



Diferente respuesta en adultos y niños frente al SARS-CoV2

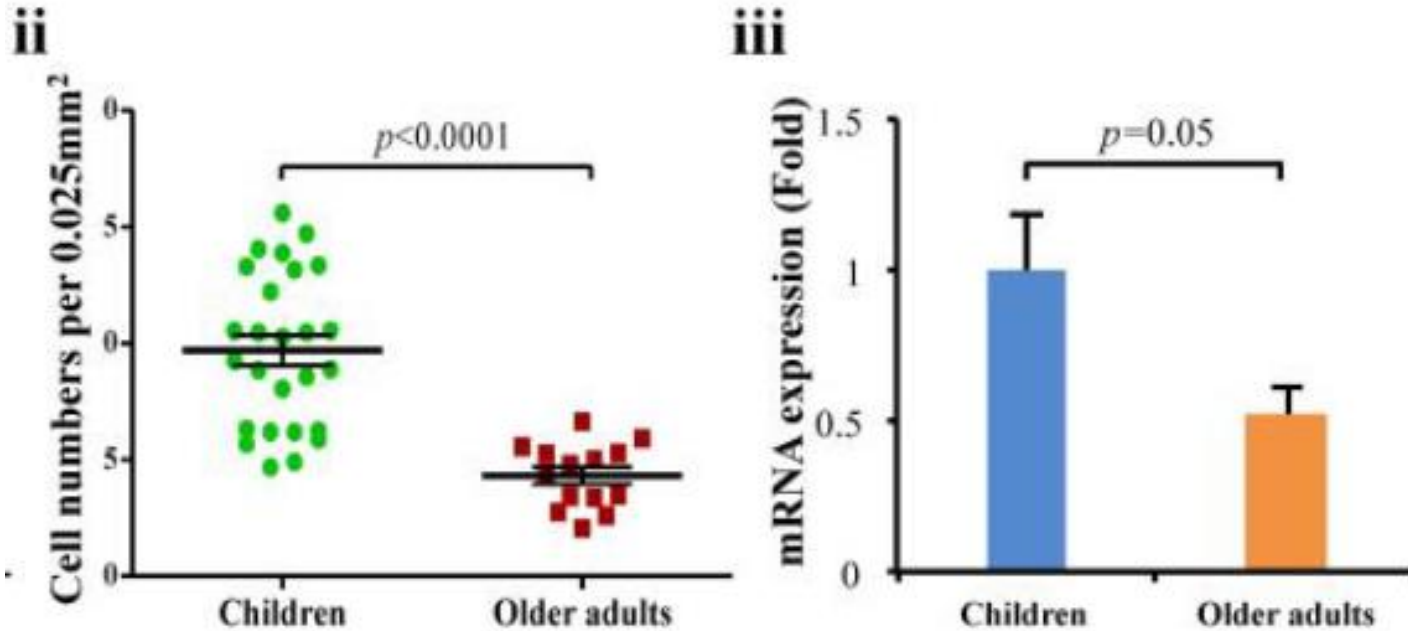


ACE2 en adultos y niños



Bunyavanich S, et al. JAMA 2020;

ACE2 pulmón de niños y adultos





¿Contagian y se contagian
+/- los niños?

Infección por SARS-CoV2 después de un contacto en niños y adolescentes vs adultos

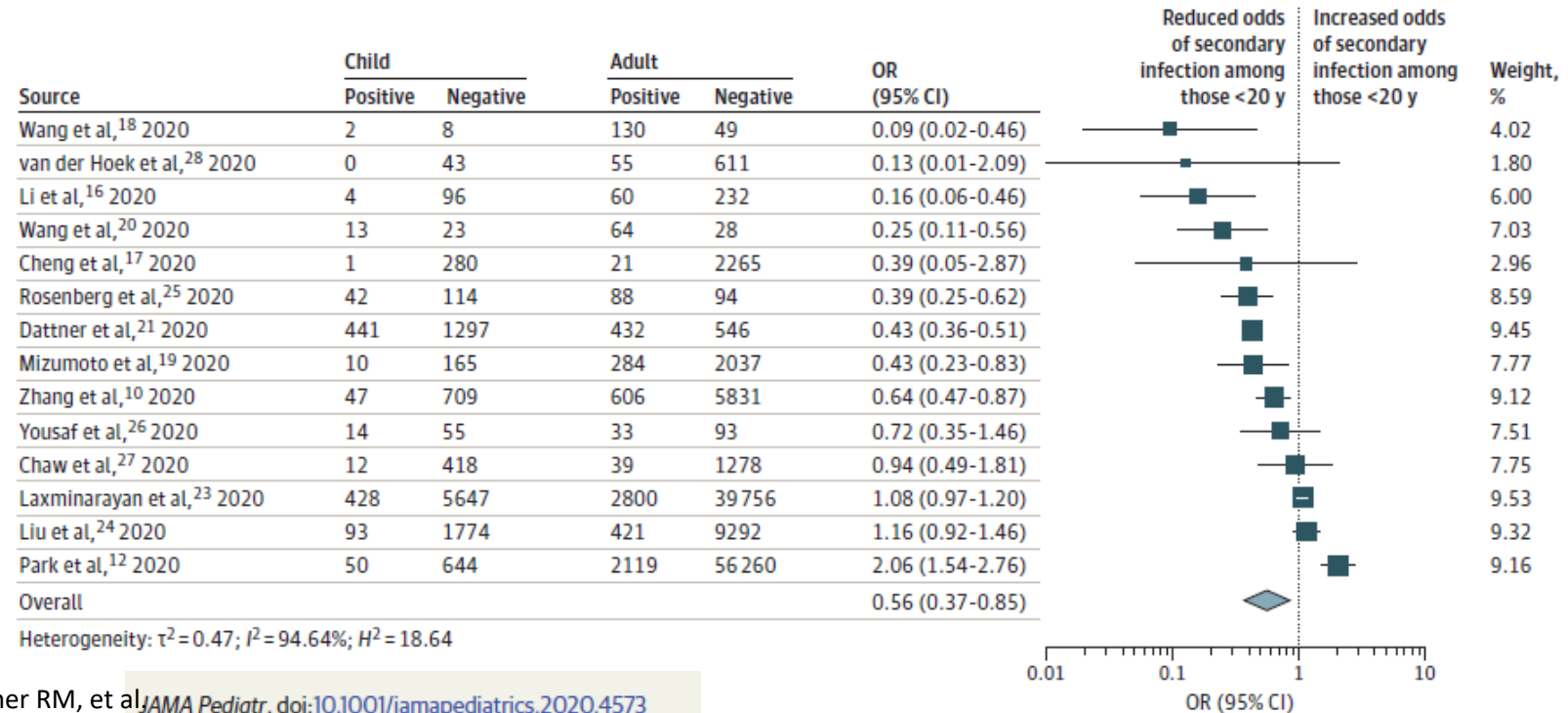


Table 2. Distribution and attack rates (AR) by age group and severe outcome of cases in TESSy, 1 August to 29 November 2020

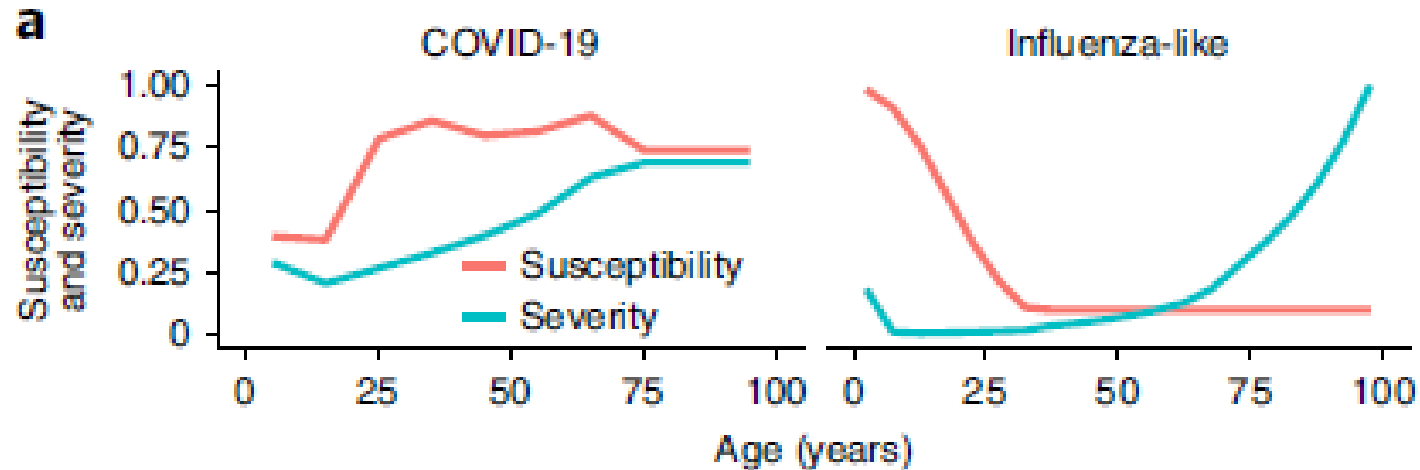
Age group (years)	Population distribution (%)	Total cases n (%)	Hospitalised		Severe hospitalisation		Fatal	
			n (%)	AR, %	n (%)	AR, %	n (%)	AR, %
01-04	3.8	23 182 (1.3)	450 (0.4)	1.94	15 (0.1)	0.06	2 (0)	0.01
05-11	6.8	75 287 (4.2)	464 (0.4)	0.62	21 (0.1)	0.03	4 (0)	0.01
12-15	3.8	67 092 (3.7)	452 (0.4)	0.67	16 (0.1)	0.02	16 (0.1)	0.02
16-18	3.0	66 960 (3.7)	580 (0.5)	0.87	28 (0.2)	0.04	6 (0)	0.01
19-39	26.1	560 665 (31.0)	10 859 (9)	1.94	530 (3.4)	0.09	127 (0.6)	0.02
40-64	35.7	713 368 (39.4)	38 257 (31.5)	5.36	4 777 (31)	0.67	1 693 (8.1)	0.24
65+	20.8	301 905 (16.7)	70 212 (57.9)	23.26	10 025 (65)	3.32	19 036 (91.2)	6.31
Total	100.0	1 808 459 (100.0)	121 274 (100.1)	6.71	15 412 (99.9)	0.85	20 884 (100)	1.15



Age-dependent effects in the transmission and control of COVID-19 epidemics

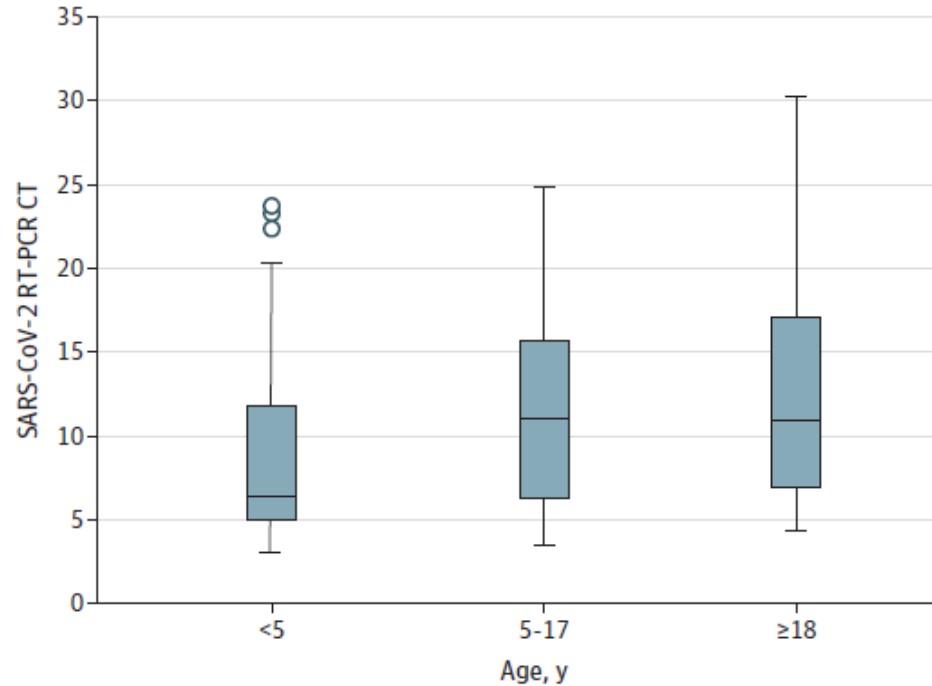
- Susceptibilidad en menores de 20 años es la mitad que en los mayores de esta edad
- Solamente un 21% (12-31%) de niños de 10 a 19 años manifiestan síntomas (un 69% en mayores de 70 años)
- Intervenciones en los niños poco impacto
- Menos incidencia esperada en los países subdesarrollados (pero más comorbilidades)

Age-dependent effects in the transmission and control of COVID-19 epidemics



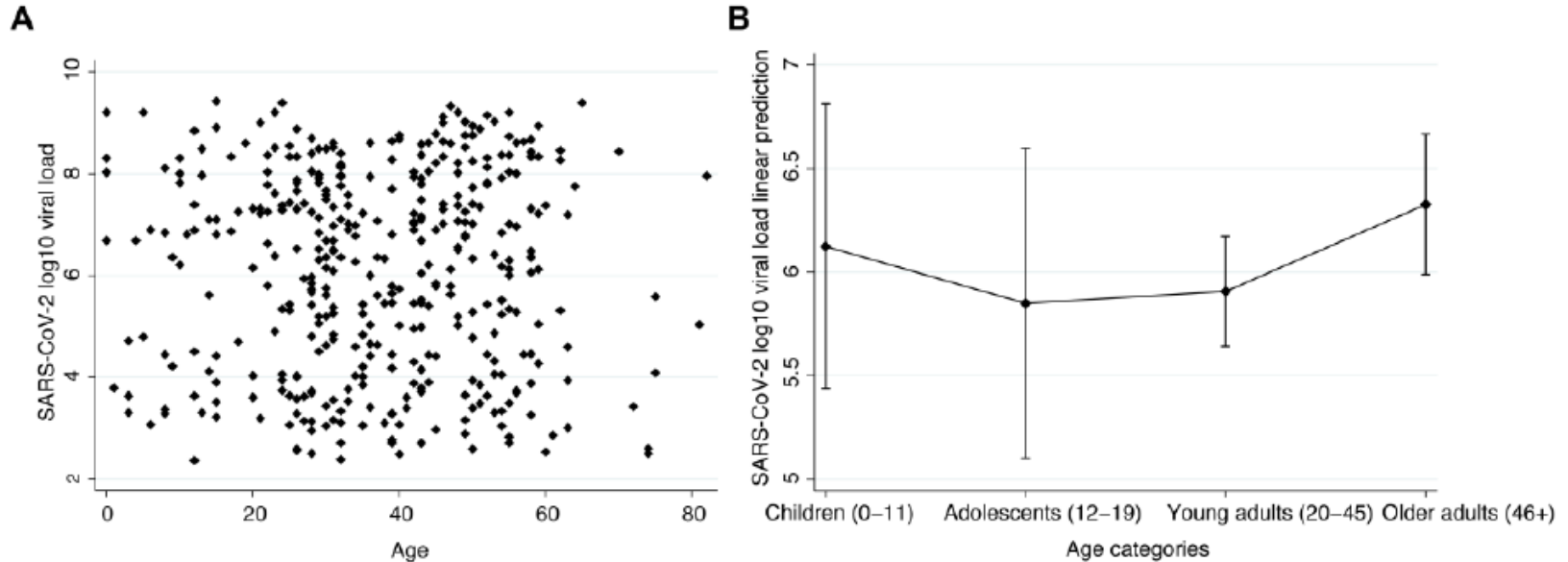


Carga viral en niños y adultos



Heald Sargent T, et al. JAMA Pediatrics 2020

Carga viral en niños y adultos con infección por SARS-CoV-2



¿Dónde se infecta el niño?

Dinámica de la infección en la familia

- 40/4310 casos (0,9%) Fueron niños
- Se estudian los 40 niños con sus 111 contactos domiciliarios
- En el 79% de los contactos domiciliarios se identificó un adulto infectado, antes que ningún niño
- Sólo en un 8% de los casos los niños fueron los primeros infectados
- 85% de los adultos vs 43% de los niños desarrollaron síntomas
- La madre fue la transmisora mas frecuente seguida de los niños

Transmission of SARS-COV-2 Infections in Households — Tennessee and Wisconsin, April–September 2020

Carlos G. Grijalva, MD^{1,*}; Melissa A. Rolfes, PhD^{2,*}; Yuwei Zhu, MD¹; Huong Q. McLean, PhD³; Kayla E. Hanson, MPH³; Edward A. Belongia, MD³; Natasha B. Halasa, MD¹; Ahra Kim, MPH¹; Carrie Reed, DSc²; Alicia M. Fry, MD²; H. Keipp Talbot, MD¹

- Estudio prospectivo de 101 casos índice y 91 contactos: infección secundaria 53% (46-60%)
- Casos índice < 18 años
 - Infección secundaria a contactos < 12 años: 53% (31-74%)
 - Infección secundaria a contactos 12-17 años: 38% (23-56%)

Grijalva CG, et al. MMWR 2020; 69: noviembre



¿Puede lactar al bebé la madre infectada?

COVID 19 y lactancia materna

- Pequeños estudios observacionales
- PCR en la leche raramente positiva
- Cultivo de virus siempre negativos
- Posible transferencia de anticuerpos

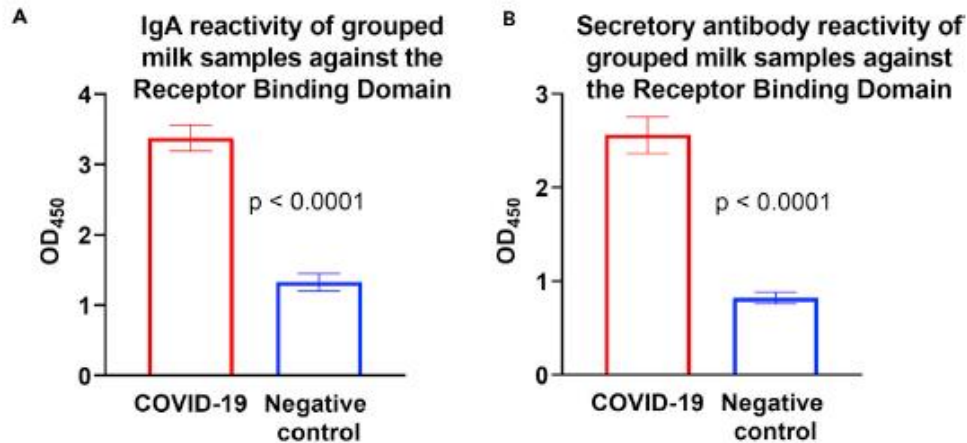


Okdiario.com

Chambers C, et al. JAMA 2020; 324. 1437

Bath H. Current Nutrition Reports 2020

Robust and Specific Secretory IgA Against SARS-CoV-2 Detected in Human Milk



Transmisión vertical y riesgo de compartir habitación

- 62 recién nacidos de 61 madres
- PCR a los 0, 7 y 20 días después del nacimiento
- Compartiendo habitación y lactancia materna
- Mascarilla durante la toma de pecho,
- Sólo un niño infectado (distrés respiratorio)

Transmisión vertical y riesgo de compartir habitación

- Registro de la Sociedad Perinatal de la AAP
- Cuatro mil niños (60% compartiendo habitación): sólo 2% infectados.
- ¿Causas?
 - Disminución de ACE2 en placenta



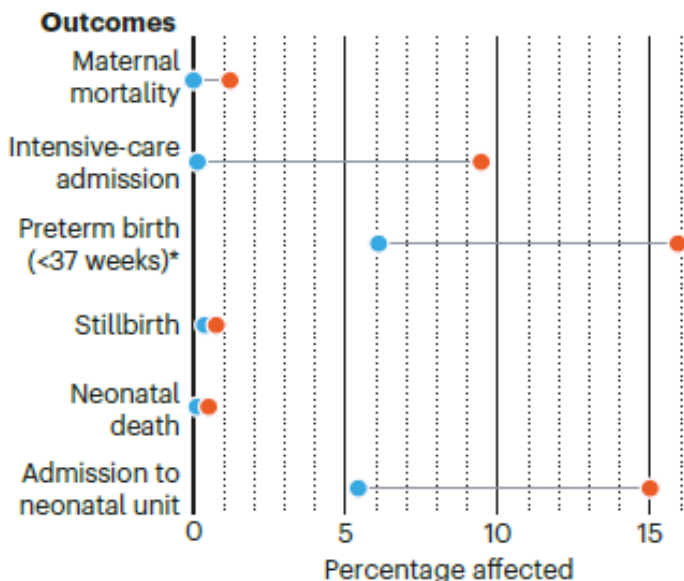
A pregnant woman attends a celebration in Caracas. Data show that pregnant women face increased risks from SARS-CoV-2 infection.

HOW DOES COVID AFFECT MOTHER AND BABY?

COVID RISKS IN PREGNANCY

Pregnant women who contract COVID-19 are more likely to need intensive treatment than are those without the infection, according to an analysis of 77 clinical studies. Their babies are more likely to be born preterm, although the risk of death was low in babies born to both groups.

- Pregnant women with COVID-19
Sample size: 427
- Pregnant women without COVID-19
Sample size: 694





¿Qué pasa con los colegios?

Children and COVID-19

Last available scientific evidence has shown that children do not play a more significant role in COVID-19 transmission than adults.

However, they tend to be asymptomatic or develop only a mild infection, which makes it harder to detect or diagnose. At present, it remains unclear how infectious asymptomatic children are.



Transmisión en las escuelas



1. La prevalencia de infección en la escuela refleja la prevalencia en la comunidad
2. La transmisión en las escuelas supone una proporción baja de la transmisión en un determinado país.
3. Los casos detectados en las escuelas no necesariamente suponen transmisión en las mismas.
4. Los adultos que trabajan en la escuelas no tienen un incremento del riesgo con respecto a otras profesiones

Minimal transmission of SARS-CoV-2 from paediatric COVID-19 cases in primary schools, Norway, August to November 2020

Age group (years)	Contact tracings	Index cases	Index likely infected in household	Asymptomatic index cases	Included contacts		Primary cases ^a		Secondary cases ^b	
					Children	Adults	Children	Adults	Children	Adults
5–10	8	8 ^c	7 ^d	6	148	45	1	0	0	0
11–13	5	5	5	3	86	13	1	1	0	0
Total	13	13	12	9 ^e	234	58	2	1	0	0

Transmisión niño/niño: 0,9%

Transmisión niño/adulto : 1,7%

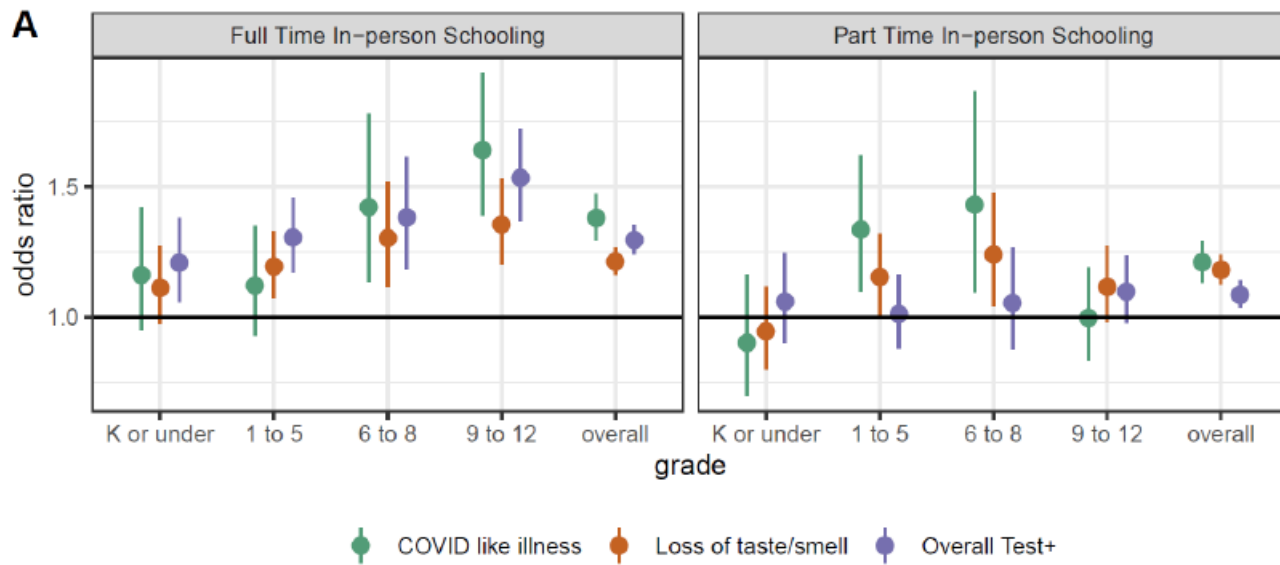
Eurosurveillance, enero de 2021

No evidence of secondary transmission of COVID-19 from children attending school in Ireland, 2020

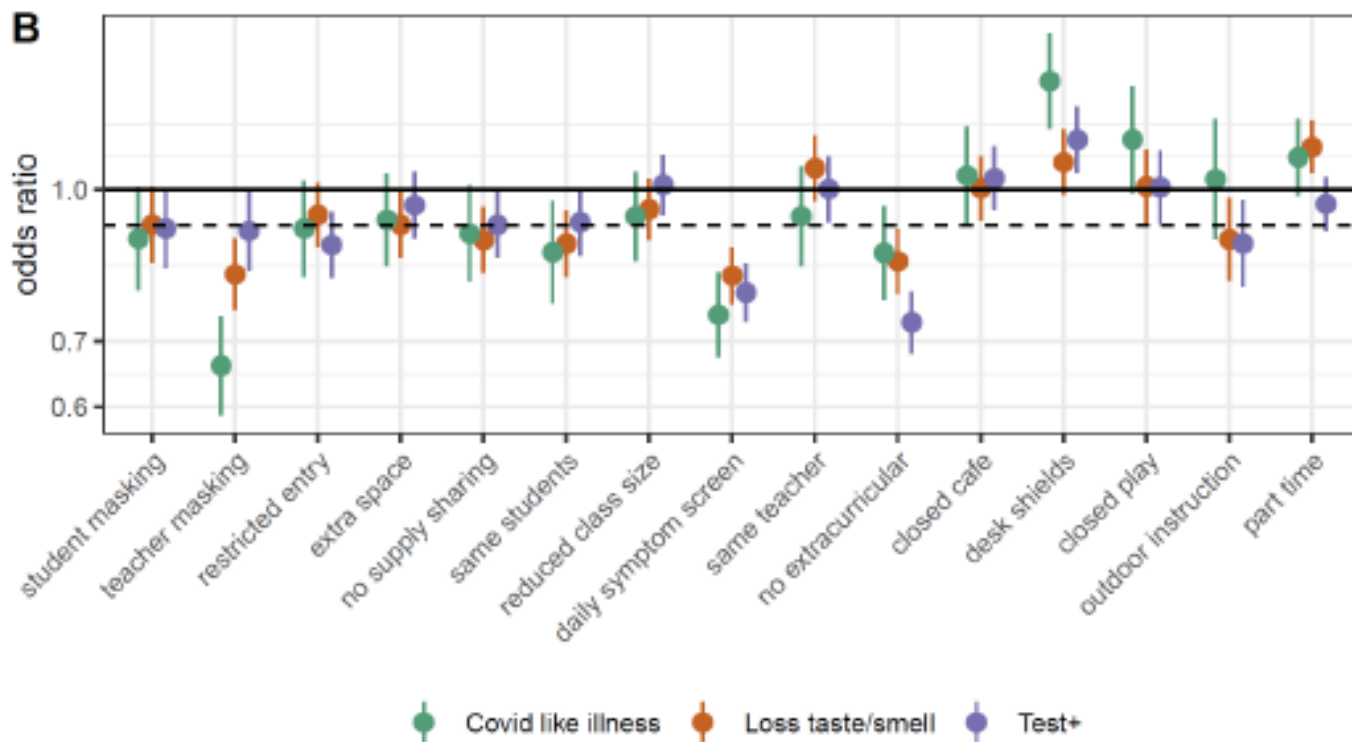
Laura Heavey^{1,2}, Geraldine Casey^{1,2}, Ciara Kelly^{1,2}, David Kelly^{1,2}, Geraldine McDarby^{1,2}

Case	Age group in years	Symptoms	Number of contacts				Number of secondary cases			
			Child		Adult		Child		Adult	
			School	Other ^a	School	Other ^a	School	Other ^a	School	Other ^a
1	10–15	Fever	475	29	30	3	0	0	0	0
2	10–15	None	125	30	25	8	0	0	0	0
3	10–15	Fever	222	14	28	0	0	0	0	0
4	Adult > 18	Coryza/cough	52	2	4	38	0	0	0	2
5	Adult > 18	Cough	39	2	2	3	0	0	0	0
6	Adult > 18	Cough	11	0	12	1	0	0	0	0

Asistencia de los niños al colegio y riesgo de COVID19 en los miembros de la familia

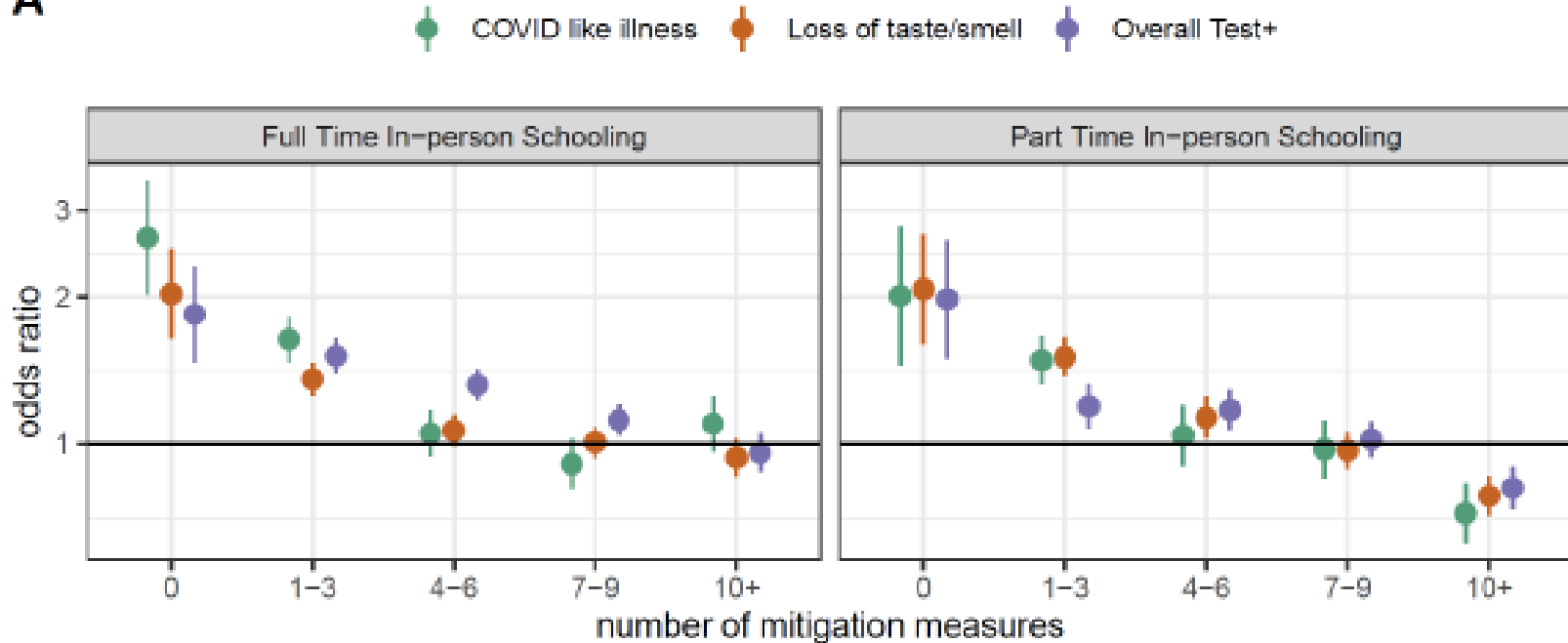


Medidas de mitigación y riesgo de infección en familiares



Medidas de mitigación y riesgo de infección en familiares

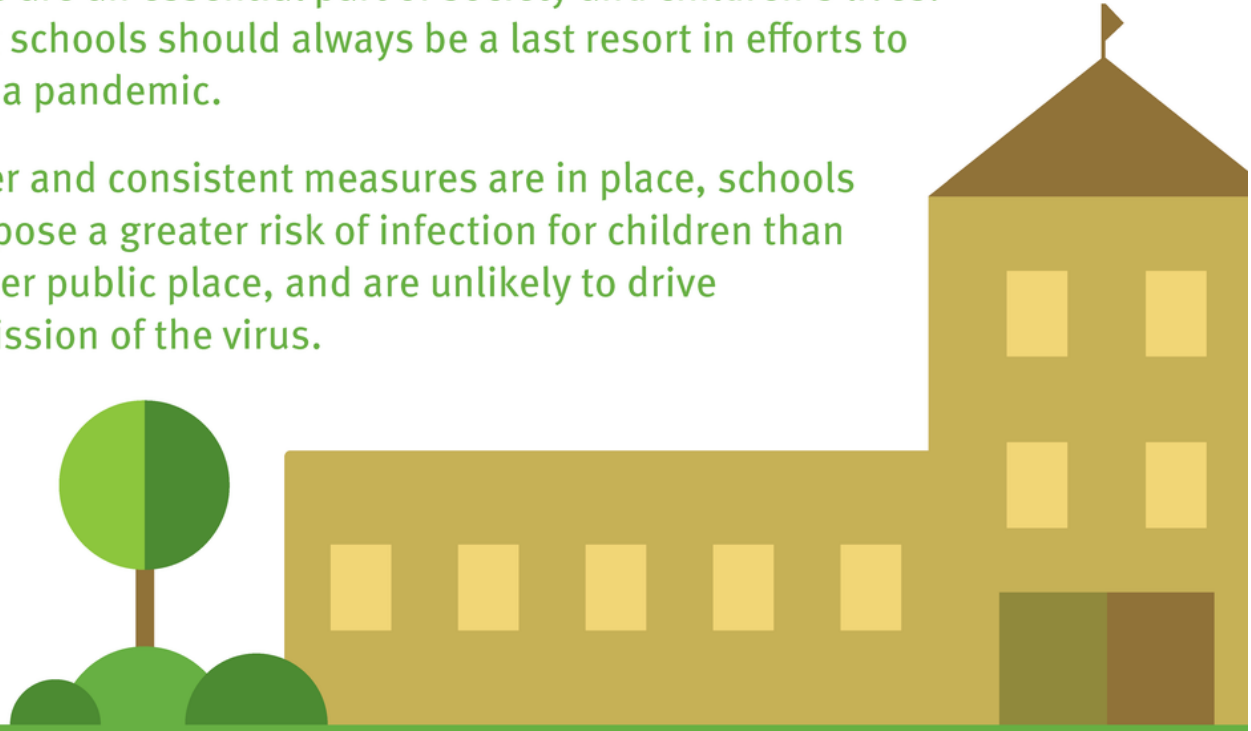
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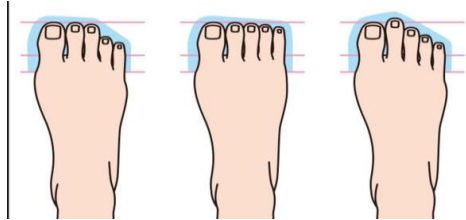
Schools - open for business

Schools are an essential part of society and children's lives. Closing schools should always be a last resort in efforts to control a pandemic.

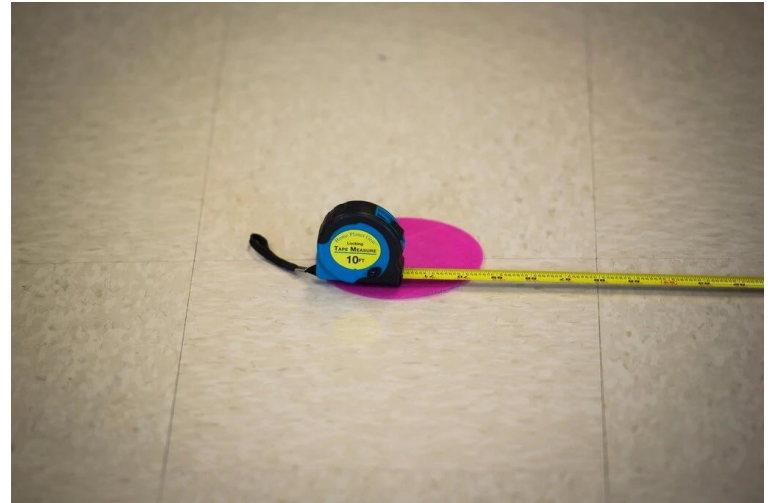
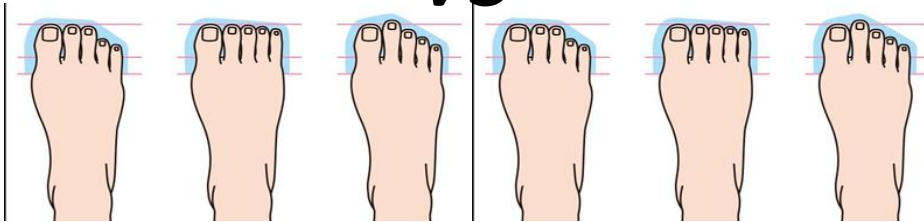
If proper and consistent measures are in place, schools do not pose a greater risk of infection for children than any other public place, and are unlikely to drive transmission of the virus.



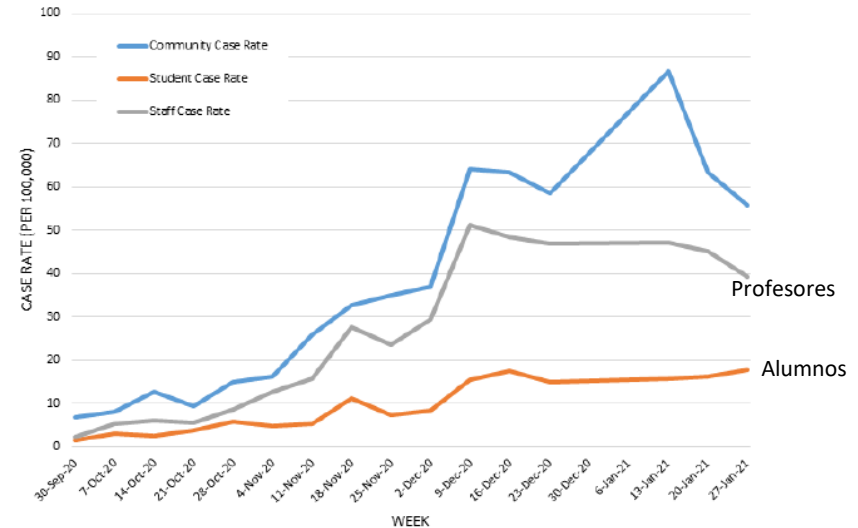
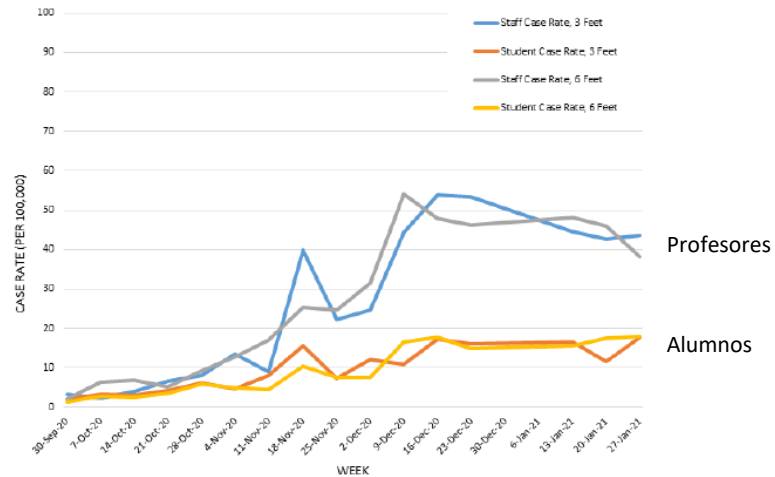
Una cuestión de pies o de metros



VS



Distancia física entre alumnos y tasa de infección en colegios



Van der Berg P, et al. Clin Infect Dis 2021; ahead on line



COVID-19



WEAR A MASK



STAY 6 FEET APART



AVOID CROWDS



GET A VACCINE



Your Health

Vaccines

Cases & Data

Work & School

Healthcare Workers

Health Depts

More

Community, Work & School

Vaccination

Health Equity



Community Mitigation
Framework

Cleaning, Disinfecting, &
Ventilation



Workplaces & Businesses



Schools & Child Care



Operational Strategy for K-12 Schools through Phased Prevention

Updated Mar. 19, 2021

Languages ▾

Print

Summary of Recent Changes

Updates as of March 19, 2021



- Revised physical distancing recommendations to reflect at least 3 feet between students in classrooms and provide clearer guidance when a greater distance (such as 6 feet) is recommended.



GOBIERNO
DE ESPAÑA

MINISTERIO
DE SANIDAD

MINISTERIO
DE EDUCACIÓN
Y FORMACIÓN PROFESIONAL

1. Limitación de
contactos

2. Medidas de
prevención personal

3. Limpieza y
ventilación

4. Gestión de casos

What do the guidelines say about reopening classrooms?

With proper mitigation, such as masking, physical distancing and hygiene, elementary schools can operate in person at any level of community virus transmission, the guidelines state.

The document says that middle and high schools can safely operate in person at all but the highest level of transmission, which is defined in two ways: when 10 percent or more of the coronavirus tests in a community come back positive over a seven-day period; or when there are 100 or more virus cases per 100,000 people in the community over seven days.

¿Por qué vacunar a los niños?



- Deber ético y necesidad
- Protección individual
- Espacios seguros de educación
- Protección colectiva
- Evitar la circulación del SARS-Cov2
- Evitar la aparición de nuevas variantes





Pediatrics and COVID-19

Dimitri A. Christakis,
MD, MPH
University of
Washington, Child
Health Institute,
Seattle; and Editor,
JAMA Pediatrics.

Years from now, today's children will tell the next generation about their experiences during the coronavirus disease 2019 (COVID-19) pandemic. What they recount will depend on how old they are currently and the circumstances in which they currently live. If an effective vaccine is developed soon, today's infants will have no

An entire birth cohort of children will have missed seminal events such as middle school, high school or college graduations, senior proms, and sports seasons, that will be indelibly lacking from their memories, their yearbooks, and their Instagram feeds. These lacunae in their childhood experiences will assuredly be conveyed to their children, especially as their offspring approach the events they missed.

and young adults.⁵ Tens of thousands of children will have lost parents or grandparents at an age when they cannot appreciate (or later recall) the loss, but those loved ones' absences will influence their lives in innu-

doing so? What of the social and emotional effects of COVID-19 on children of all ages? School-age children in Wuhan, China showed increases in depression and anxiety during the lockdown.⁷ How long will those effects last, and what will their sequelae be over time,

years from now. Notably and sadly, all of those effects will be felt more substantively by socially disadvantaged children and children of color, as their families have been disproportionately affected by the health and

Muchas gracias