Διαχείριση COVID-19 στο Νοσοκομείο και την κοινότητα

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Παιδίατρος-Λοιμωξιολόγος
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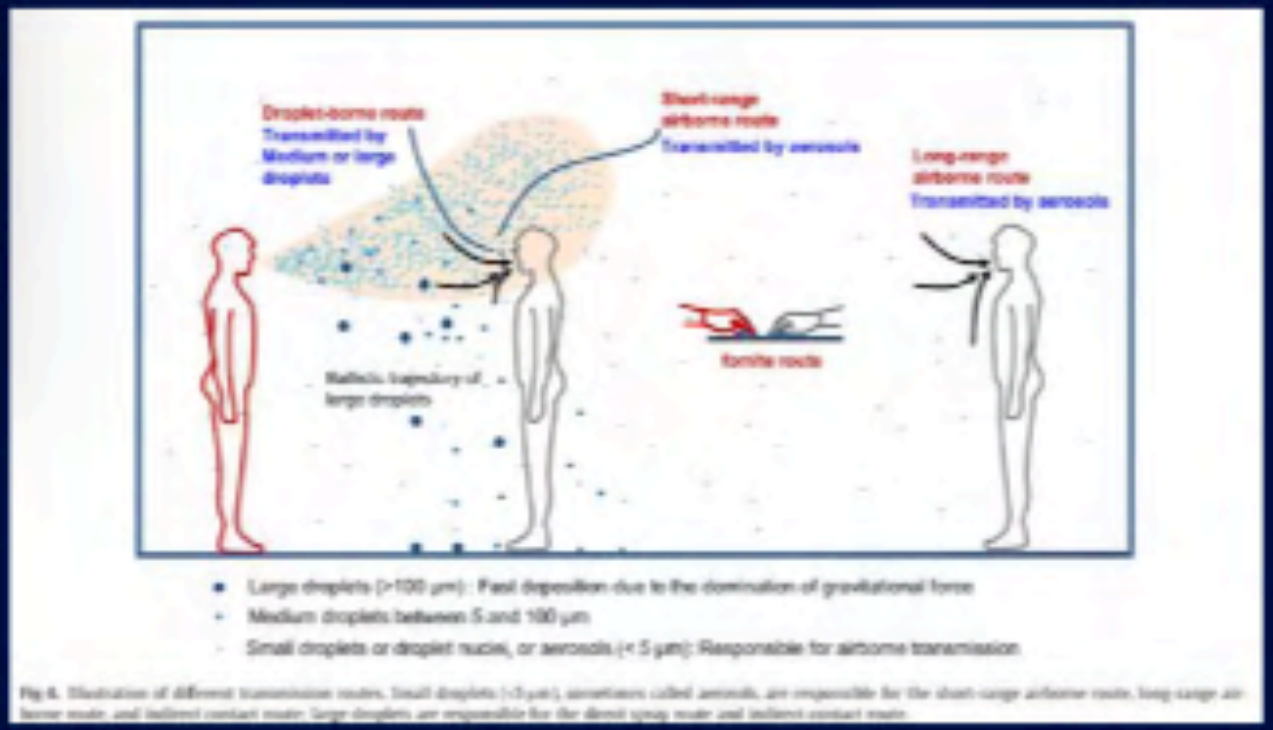
Θεματολογία

- Μετάδοση – Πρόληψη (Μη Φαρμ. Παρεμβ)
- Επιδημιολογία και κλινική εικόνα
- Αντιμετώπιση (και Φαρμ. Παρεμβ)
- Διαχείριση-Συζήτηση

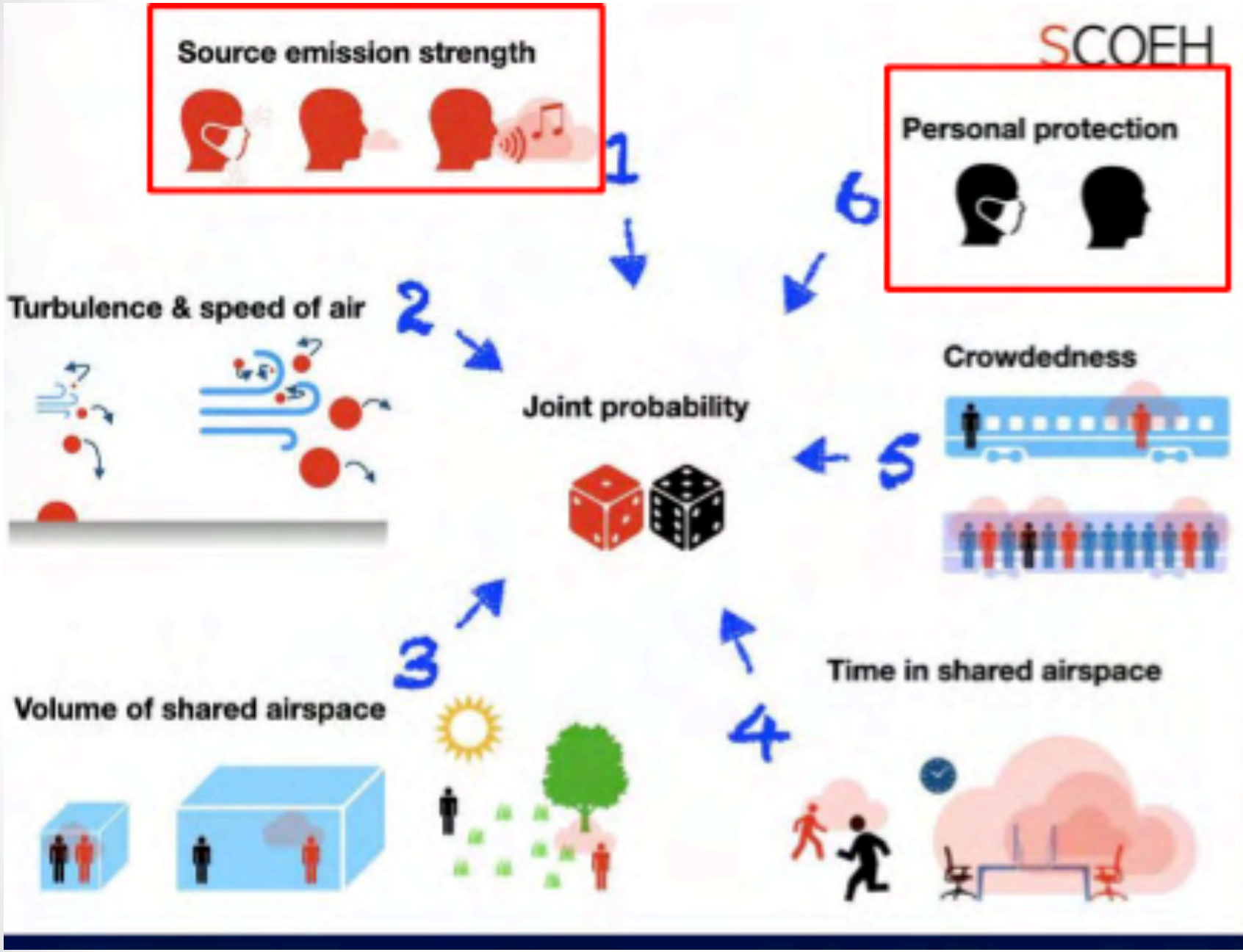
TRANSMISSION OF SARS CoV-2



Μετάδοση του ιού SARS CoV-2

Πηγή διαφάνειας: ID Week

- Droplet (<6 feet) most important mode of transmission
- Direct contact also very important
- Indirect (via the contaminated environment) – Likely
- Pre-symptomatic (i.e., up to 48 hours before person develops symptoms) – Transmission well documented
- Asymptomatic (infection demonstrated) – Infectivity undefined
- Airborne (>6 feet) – Likely but uncommon; transmission to adjacent rooms/corridors/floors NOT described
- Conclusion: Because pre-symptomatic and likely asymptomatic transmission (i.e., person does not know they are infected) may occur important for all persons to wear masks outside their homes and practice physical distancing. Hand hygiene and surface disinfection of shared objects also important
- **In hospital, adhere to Universal Pandemic Precautions**



Factors affecting acquisition of a viral respiratory infection

1. Virus must survive drying and UV
2. To cause infection, virus must be delivered in infectious dose (i.e., survive dispersal/dilution)

Risk reduced by:

1. Physical distancing
2. Infected persons wearing a mask
3. Non-infected persons wearing a mask
4. Hand hygiene
5. Surface disinfection

Πηγή διαφάνειας ID WEEK

Ρόλος των παιδιών στην μετάδοση…

In Greece, Feb-June, 203 PCR+ diagnosed <19 yr olds. In 74% of cases, the source of infection was traced back to an adult. Adults appear to play a key role in spread of the virus in families. *Maltezou, H. C., I. Magaziotou, X. Dedoukou, et al. Children and Adolescents With SARS-CoV-2 Infection: Epidemiology, Clinical Course and Viral Loads. Pediatr Infect Dis J. October 6th 2020*

After reopening of schools in Hong Kong, several exposure situations, which did not lead to secondary infections

Fong M, Cowling B, Leung G, Wu P. COVID-19 cases among school-aged children and school-based measures in Hong Kong. July 2020. Euro Surveill. September 16th 2020

In Italy during this fall after one month of reopening of schools, exposure situations observed in 1 212 schools, but further clustering of cases found only in one (e.g. over 10 SARS-CoV-2+ persons identified)

Buonsenso D, De Rosendahl C, Moroni R, Valentinin P. SARS-CoV-2 infections in Italian schools: preliminary findings after one month of school opening during the second wave of the pandemic. MedRxiv

Susceptibility to SARS CoV-2 of children and adolescents compared with adults

JAMA Pediatrics | Original Investigation

Susceptibility to SARS-CoV-2 Infection Among Children and Adolescents Compared With Adults
A Systematic Review and Meta-analysis

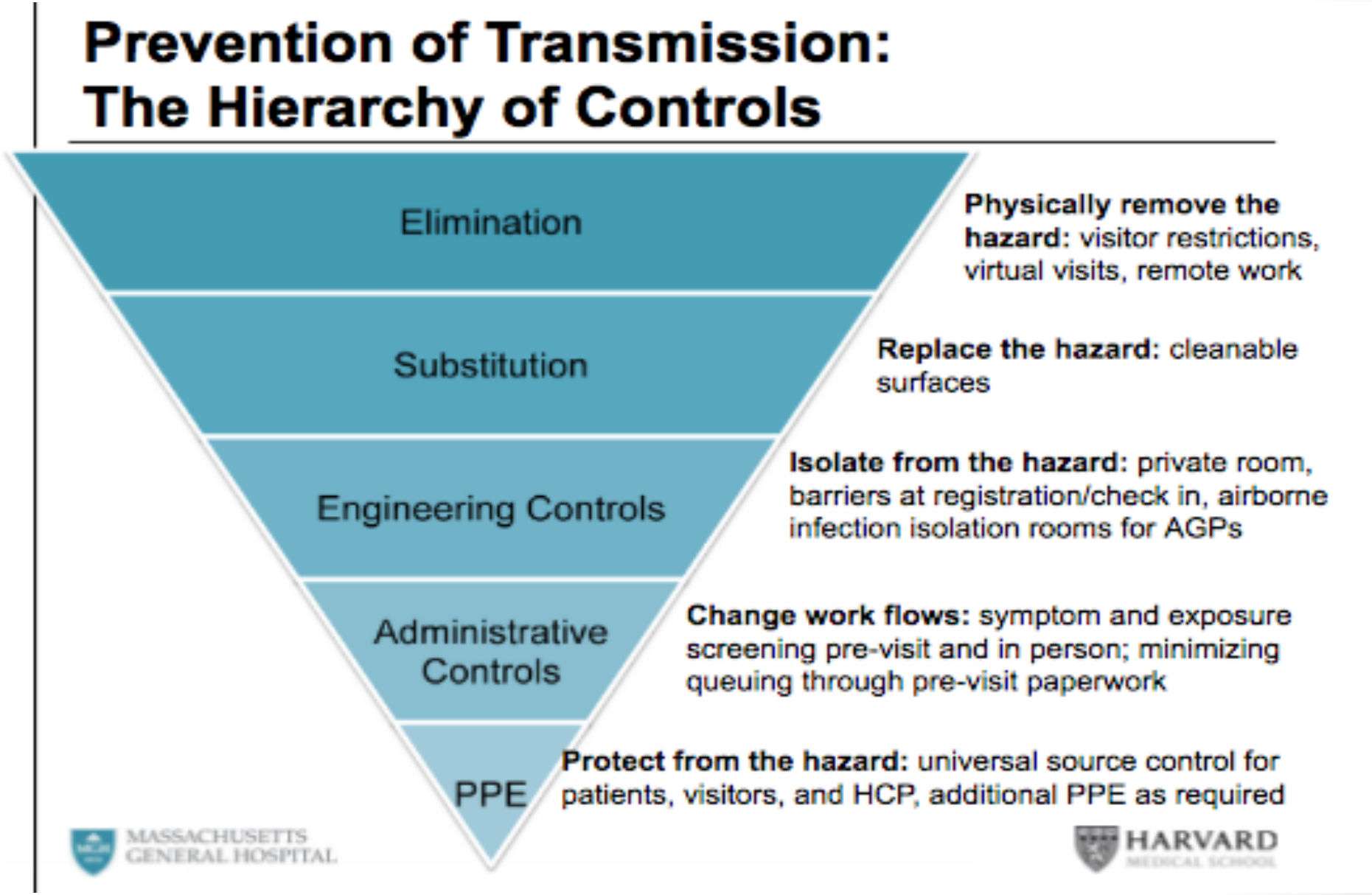
Μετα-ανάλυση με 32 μελέτες, 41.640 παιδιά και 268.945 ενήλικες

- Τα παιδιά (<20 ετών) είχαν 44% μικρότερη πιθανότητα από τους ενήλικες να μολυνθούν δευτερογενώς ως επαφή (secondary infection with SARS-CoV-2)

- Σε ανάλυση δεδομένων ανάλογα με την ηλικία:
  - Τα παιδιά <10-14 ετών είχαν 48% μικρότερη πιθανότητα από τους ενήλικες
  - Οι έφηβοι >10-12 ετών είχαν την ίδια πιθανότητα με τους ενήλικες

- Δεν υπάρχουν αρκετά δεδομένα για το αν τα παιδιά μεταδίδουν λιγότερο από τους ενήλικες

Πρόληψη

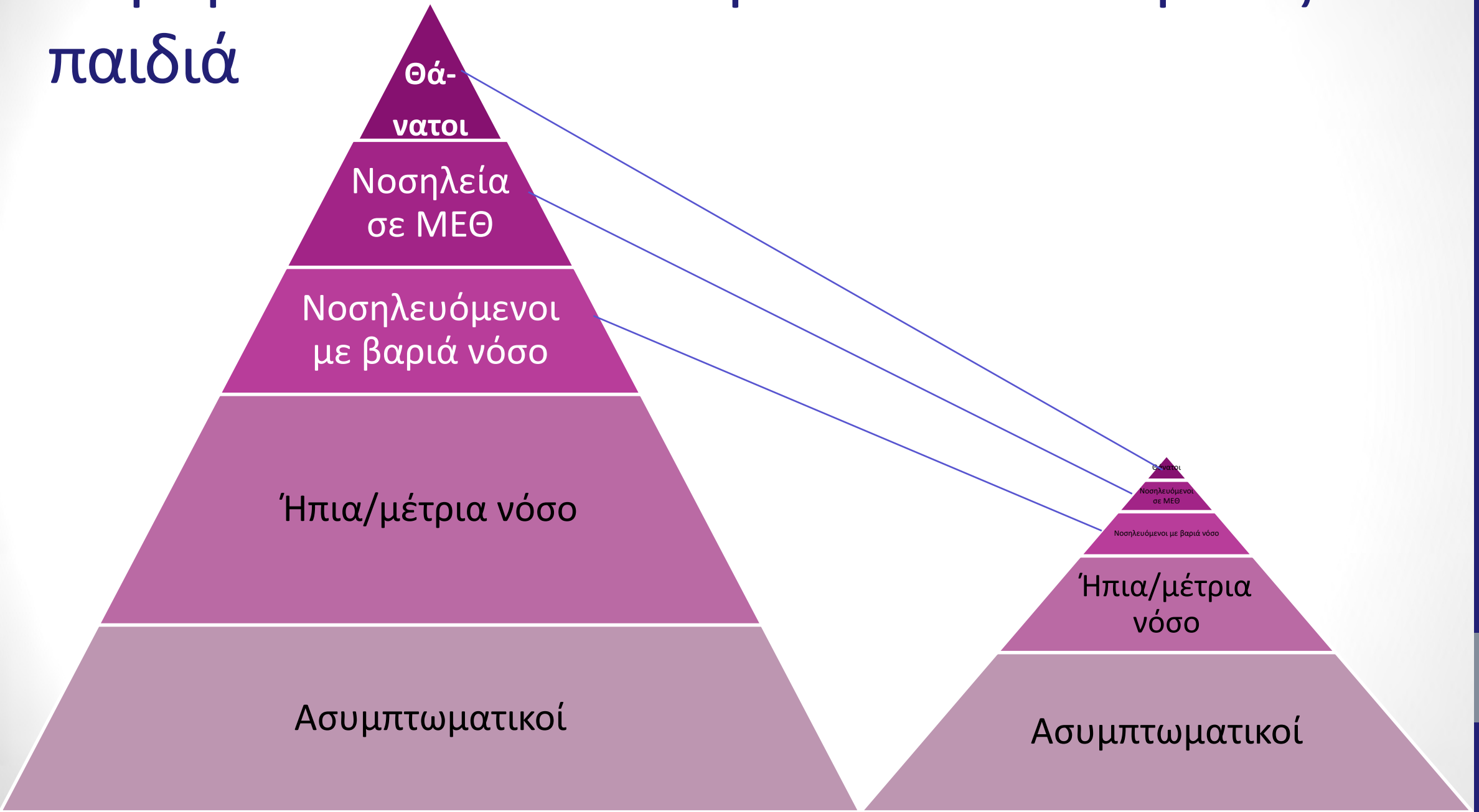


Πηγή
ID Week

Θεματολογία

- Μετάδοση – Πρόληψη (Μη Φαρμ. Παρεμβ)
- Επιδημιολογία και κλινική εικόνα
- Αντιμετώπιση (και Φαρμ. Παρεμβ)
- Διαχείριση-Συζήτηση

Πυραμίδα κλινικών εκδηλώσεων σε ενήλικες και παιδιά



COVID-19 & παιδιά

Epidemiology of COVID-19 Among Children in China

Yuanyuan Dong, MD,[a,b,*] Xi Mo, PhD,[a,*] Yabin Hu, MD,[a] Xin Qi, PhD,[c] Fan Jiang, MD, PhD,[a] Zhongyi Jiang, MD,[a,b] Shilu Tong, MD, PhD[a,d,e]

Κίνα: 2135 παιδιά, 5,8% σοβαρά

COVID-19 in children and adolescents in Europe: a multinational, multicentre cohort study

Florian Götzinger*, Begoña Santiago-García*, Antoni Noguera-Julián, Miguel Lanaspa, Laura Lancella, Francesca I Calò Carducci, Natalia Gabrovska, Svetlana Velizarova, Petra Prunk, Veronika Osterman, Uros Krivec, Andrea Lo Vecchio, Delane Shingadia, Antoni Soriano-Arandes, Susana Melendo, Marcello Lanari, Luca Pierantoni, Noémie Wagner, Arnaud G L'Huillier, Ulrich Heininger, Nicole Ritz, Srini Bandi, Nina Krajcar, Srđan Roglić, Mar Santos, Christelle Christiaens, Marine Creuven, Danilo Buonsenso, Steven B Welch, Matthias Bogyi, Folke Brinkmann, Marc Tebruegge, on behalf of the ptbnet COVID-19 Study Group†

Summary

Background To date, few data on paediatric COVID-19 have been published, and most reports originate from China. This study aimed to capture key data on children and adolescents with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection across Europe to inform physicians and health-care service planning during the ongoing pandemic.

Lancet Child Adolesc Health 2020; 4: 653-61
Published Online June 25, 2020
https://doi.org/10.1016/

Ευρώπη: 585 παιδιά, ήπια νόσος

09/4/20 | 4 Color Fig(s):0 | 11:44 | Art:PIDJ-220-1055

ORIGINAL STUDIES

Children and Adolescents With SARS-CoV-2 Infection

Epidemiology, Clinical Course and Viral Loads

Helena C. Maltezou, MD, PhD,* Ioanna Magaziotou, MD,† Xanthi Dedoukou, MD, MPH,† Eirini Eleftheriou, MD,‡ Vasilios Raftopoulos, RN, PhD,§ Athanasios Michos, MD, PhD,¶ Athanasia Lourida, MD, PhD,‖ Maria Panopoulou, MD, PhD,** Konstantinos Stamoulis, MD, PhD,†† Vasiliki Papaevangelou, MD, PhD,‡‡ Efthimia Petinaki, MD, PhD,§§ Andreas Mentis, MD, PhD,¶¶ Anna Papa, MD, PhD,‖‖ Athanasios Tsakris, MD, PhD,*** Emmanuel Roilides, MD, PhD,††† George A. Syrogiannopoulos, MD, PhD,‡‡‡ and Maria Tsolia, MD, PhD,‡ for Greek Study Group on SARS-CoV-2 Infections in Children

TABLE 1. Characteristics of 203 Children With SARS-CoV-2 Infection, Greece, February 26 to June 30, 2020

Characteristic	N (%) (n = 203)
Median age* (range)	11 yr (6 d to 18.4 yr)
Male sex	106 (52.2)
Underlying condition†	13 (6.4)
Source of SARS-CoV-2 infection	
Family	132 (65)
Community	29 (14.3)
Travel	9 (4.4)
School	4 (2.0)
Other	4 (2.0)
Unknown	25 (12.3)
Type of SARS-CoV-2 infection	
Asymptomatic	111 (54.7)
COVID-19	92 (45.3)
Mild	68 (73.9)
Moderate	23 (25.0)
Severe	1 (1.1)
Viral load‡	
High	46 (28.1)
Moderate	44 (26.8)
Low	74 (45.1)

*At time of diagnosis of SARS-CoV-2 infection.

TABLE 2. Type of SARS-CoV-2 Infection by Age Group of 203 Children, Greece, February 26 to June 30, 2020

Age Group (yr)	Asymptomatic (N = 111)	Mild (N = 68)	Moderate (N = 23)	Severe (N=1)	Total (N = 203)
<1	5 (21.7)	6 (26.1)	11 (47.8)	1 (4.4)	23
≥1–6	21 (53.8)	13 (33.4)	5 (12.8)	0 (0)	39
>6–12	38 (67.8)	16 (28.6)	2 (3.6)	0 (0)	56
>12–<19	47 (55.3)	33 (38.8)	5 (5.9)	0 (0)	85

Signs/symptoms	N (%) N = 92
Fever	42 (45.6)
Low-grade fever	26 (28.3)
Runny nose	25 (27.5)
Cough	24 (26.1)
Headache	17 (18.5)
Sore throat	11 (12)
Diarrhea	10 (10.9)
Loss of taste and/or smell	9 (9.8)
Weakness	9 (9.8)
Myalgia	8 (8.8)
Dyspnea	7 (7.6)
Nausea/vomiting	5 (5.4)
Arthralgia	4 (4.3)
Abdominal pain	2 (2.2)
Restlessness/irritation	1 (1.1)

TABLE 5. Characteristics of Children and Adolescents Hospitalized With COVID-19, Greece, February 26 to June 30, 2020

Characteristic	N (%) N = 24
Median age* (range)	12.2 m (6 d to 18.4 yr)
Age group* (years)	
<1	12 (50)
≥1–6	5 (20.8)
>6–12	2 (8.3)
>12–<19	5 (20.8)
Male sex	12 (50)
Underlying condition†	6 (21.7)
ICU admission	1 (0.4)
Fatal outcome	0 (0)

*At time of diagnosis of SARS-CoV-2 infection.
†Chronic respiratory disease (1), chronic cardiovascular disease (1), obesity (2), chronic neurologic disease (1), prematurity (1).

COVID-19 in children and adolescents in Europe: a multinational, multicentre cohort study

Florian Götzinger*, Begoña Santiago-García*, Antoni Noguera-Julián, Miguel Lanaspa, Laura Lancella, Francesca I Calò Carducci, Natalia Gabrovska, Svetlana Velizarova, Petra Prunk, Veronika Osterman, Uros Krivec, Andrea Lo Vecchio, Delane Shingadia, Antoni Soriano-Arandes, Susana Melendo, Marcello Lanari, Luca Pierantoni, Noémie Wagner, Arnaud G L'Huillier, Ulrich Heininger, Nicole Ritz, Srini Bandi, Nina Krajcar, Srđan Roglić, Mar Santos, Christelle Christiaens, Marine Creuven, Danilo Buonsenso, Steven B Welch, Matthias Bogyi, Folke Brinkmann, Marc Tebruegge, on behalf of the ptbnet COVID-19 Study Group†

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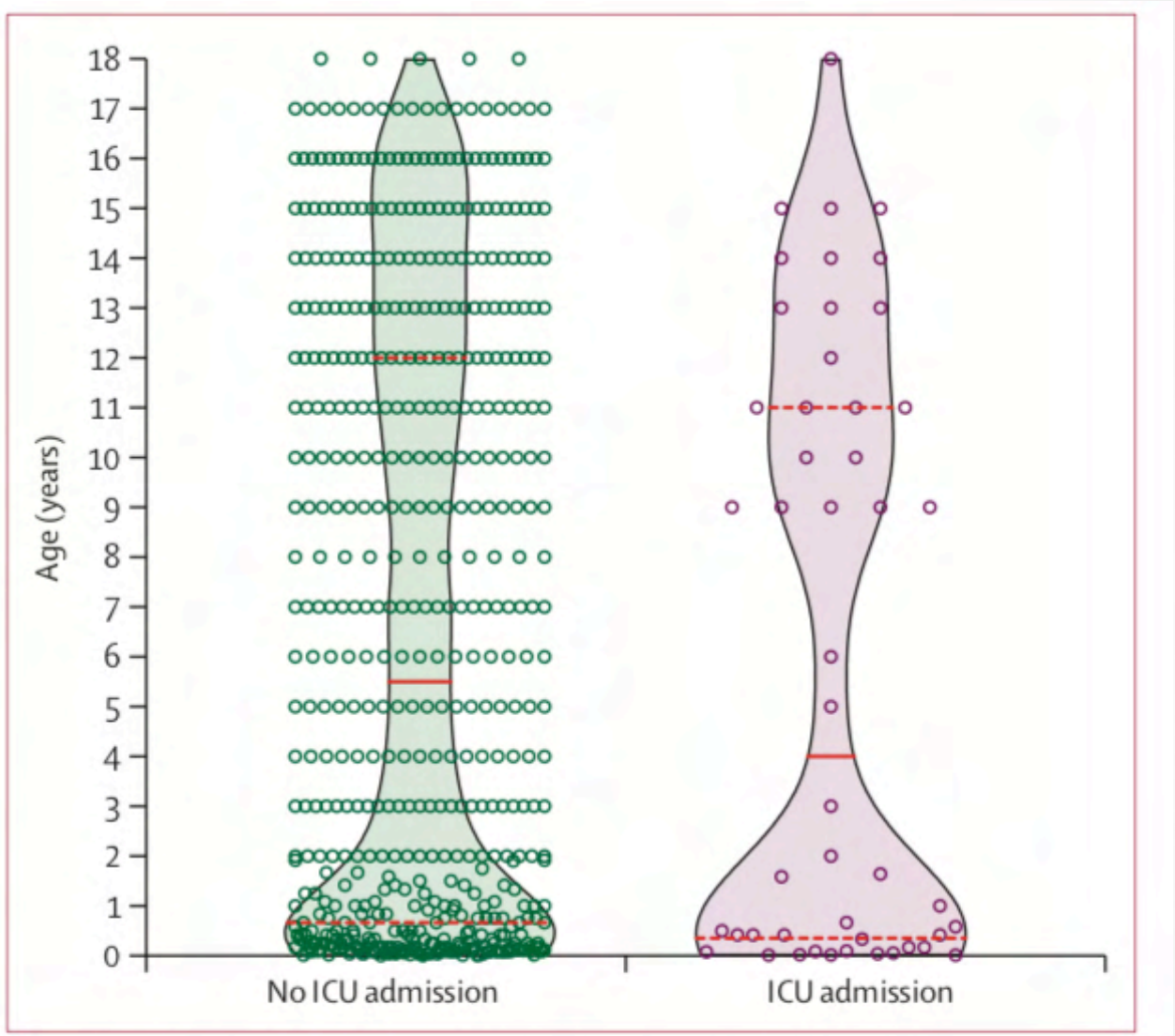


Figure 2: Violin plots showing the age distribution of patients by requirement of ICU support

Γιατί πιο ήπια στα παιδιά;

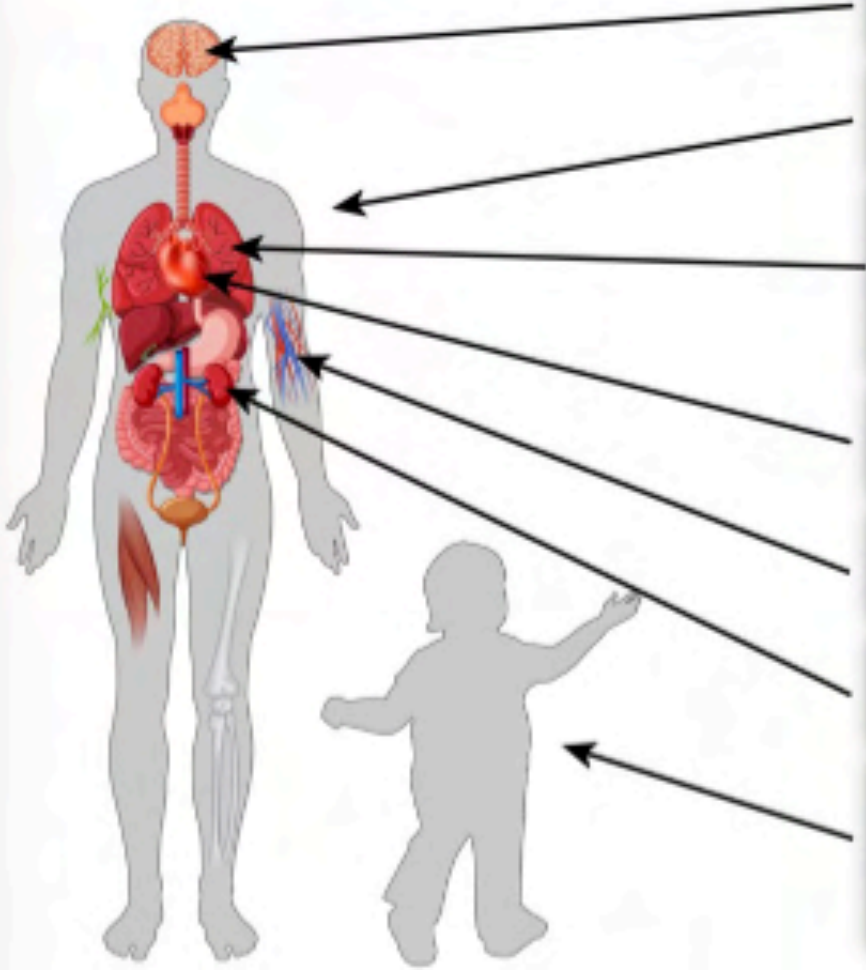
COVID-19 in Children, Pregnancy and Neonates: A Review of Epidemiologic and Clinical Features

Petra Zimmermann, MD, PhD†‡ and Nigel Curtis, FRCPCH, PhD†‡§*

TABLE 6. Hypotheses Suggested to Date for Why Children Infected With SARS-CoV-2 Have Less Severe Symptoms

Hypothesis	Details
1. Differences in the immune system	Children have stronger innate immune response, higher proportion of total lymphocytes, absolute numbers of T and B and NK cells and lower proinflammatory cytokine responses
2. Lower prevalence of co-morbidities	Children have lower prevalence of diabetes, chronic lung, heart and kidney problems, arterial hypertension
3. Differences in pathogen exposure, e.g. higher prevalence of infections with common coronaviruses	Children are more likely to have preexisting immunity to common coronaviruses, including potential cross-reacting antibodies to SARS-CoV-2
4. Microbial interactions and competition limiting colonization and growth of SARS-CoV-2	Children have higher mucosal colonization by viruses and bacteria
5. Infection with second or third generation of virus might have decreased pathogenicity	Children predominantly infected by transmission from adults
6. Differences in ACE2 receptors	Children might have less ACE2 receptors with lower affinity
7. Protection through off-target effects of BCG vaccination	Possible correlation between BCG vaccination policies and severity of COVID-19 in children

Manifestations of Severe COVID-19



- Neurological disorders
- Hyperinflammation
- Acute respiratory distress syndrome (ARDS)
- Cardiac dysfunction
- Hypercoagulability
- Acute kidney injury
- Multisystem inflammatory syndrome in children (MIS-C)

Multisystem Inflammatory Syndrome in CHILDREN

- Μάρτιος 2020: αύξηση συχνότητας περιστατικών covid-19 → εμφάνιση περιστατικών παιδιών με συμπτωματολογία που μοιάζει με νόσο Kawasaki ή/και toxic shock syndrome
- συσχέτιση περιστατικών με COVID-19
- Έχουν δημοσιευτεί αρκετές σειρές περιστατικών από Γαλλία, ΗΒ, ΗΠΑ

Table 1. Case Definitions for Emerging Inflammatory Condition During COVID-19 Pandemic From the World Health Organization, Royal College of Paediatrics and Child Health, and Centers for Disease Control and Prevention

World Health Organization[8]	Royal College of Paediatrics and Child Health (United Kingdom)[7]	Centers for Disease Control and Prevention (United States)[9]
Children and adolescents 0-19 y of age with fever >3 d AND 2 of the following: 1. Rash or bilateral nonpurulent conjunctivitis or mucocutaneous inflammation signs (oral, hands, or feet) 2. Hypotension or shock 3. Features of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities (including ECHO findings or elevated troponin/NT-proBNP) 4. Evidence of coagulopathy (by PT, APTT, elevated D-dimers) 5. Acute gastrointestinal problems (diarrhea, vomiting, or abdominal pain) AND Elevated markers of inflammation such as ESR, CRP, or procalcitonin. AND No other obvious microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes. AND Evidence of COVID-19 (RT-PCR, antigen test, or serology positive), or likely contact with patients with COVID-19 Consider this syndrome in children with features of typical or atypical Kawasaki disease or toxic shock syndrome	A child presenting with persistent fever, inflammation (neutrophilia, elevated CRP, and lymphopenia) and evidence of single or multiorgan dysfunction (shock, cardiac, respiratory, kidney, gastrointestinal, or neurological disorder) with additional features (see listed in eAppendix in Supplement 2). This may include children fulfilling full or partial criteria for Kawasaki disease[a] Exclusion of any other microbial cause, including bacterial sepsis, staphylococcal or streptococcal shock syndromes, infections associated with myocarditis such as enterovirus (waiting for results of these investigations should not delay seeking expert advice) SARS-CoV-2 PCR test results may be positive or negative	An individual aged <21 y presenting with fever, laboratory evidence of inflammation, and evidence of clinically severe illness requiring hospitalization, with multisystem (>2) organ involvement (cardiac, kidney, respiratory, hematologic, gastrointestinal, dermatologic, or neurological) Fever >38.0 °C for ≥24 h or report of subjective fever lasting ≥24 h Laboratory evidence including, but not limited to, ≥1 of the following: an elevated CRP level, ESR, fibrinogen, procalcitonin, D-dimer, ferritin, lactic acid dehydrogenase, or IL-6; elevated neutrophils; reduced lymphocytes; and low albumin AND No alternative plausible diagnoses AND Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or COVID-19 exposure within the 4 wk prior to the onset of symptoms Additional comments Some individuals may fulfill full or partial criteria for Kawasaki disease but should be reported if they meet the case definition for MIS-C Consider MIS-C in any pediatric death with evidence of SARS-CoV-2 infection

FEVER + 2 organ dysfunction + lab evidence of inflammation+ No other alternative + SARS CoV 2 infection

Χαρακτηριστικά ασθενών και συμπτώματα

JAMA | Original Investigation

Clinical Characteristics of 58 Children With a Pediatric Inflammatory Multisystem Syndrome Temporally Associated With SARS-CoV-2

Elizabeth Whittaker, MD; Alasdair Bamford, MD; Julia Kenny, MD; Myrsini Kaforou, PhD; Christine E. Jones, MD; Priyen Shah, MD; Padmanabhan Ramnarayan, MD; Alain Fraisse, MD; Owen Miller, MD; Patrick Davies, MD; Filip Kucera, MD; Joe Brierley, MD; Marilyn McDougall, MD; Michael Carter, MD; Adriana Tremoulet, MD; Chisato Shimizu, MD; Jethro Herberg, MD; Jane C. Burns, MD; Hermione Lyall, MD; Michael Levin, MD; for the PIMS-TS Study Group and EUCLIDS and PERFORM Consortia

Research Letter

June 8, 2020

Multisystem Inflammatory Syndrome Related to COVID-19 in Previously Healthy Children and Adolescents in New York City

Eva W. Cheung, MD[1]; Philip Zachariah, MD, MS[1]; Mark Gorelik, MD[1]; et al

Kawasaki-like multisystem inflammatory syndrome in children during the covid-19 pandemic in Paris, France: prospective observational study

Julie Toubiana, associate professor, Clément Poirault, resident doctor, [...], and Slimane Allali, doctor

Κλινική εικόνα:

- Μέση ηλικία=8 έτη
- >88% γαστρεντερολογικά συμπτώματα
- >65% επιπεφυκίτιδα
- >70% εξάνθημα
- >70% εμφανίστηκαν με σοκ
- >70% μυοκαρδίτιδα
- > 50% εκδηλώσεις από στοματικό βλεννογόνο
- λεμφαδενοπάθεια

Εργαστηριακά ευρήματα

- Αναιμία, λευκοκυττάρωση (αύξηση ΠΟΛΥ, λεμφοπενία)
- Υπολευκοματιναιμία, υποΝΑ, αύξηση LDH, κρεατινίνη
- Αύξηση CRP, τροπονίνη, d-dimers, PT/PTT, φερριτίνη

Απεικονιστικά ευρήματα:

- παθολογική α/α θώρακος
- ανευρύσματα στα στεφανιαία (είτε στην εισαγωγή ή στην πορεία)

SARS Cov-2:

- 26-47% θετική PCR για SARS-CoV-2
- 52-90% θετικά αντισώματα

Θεραπευτική αντιμετώπιση και έκβαση

Έκβαση:

- >80% νοσηλεία σε εντατική
- 47-71% υποστήριξη με ινότροπα
- 0-52% διασωλήνωση
- 3 περιστατικά ECMO
- Μέσος όρος νοσηλείας στο νοσοκομείο: 7-8 μέρες
- 1 θάνατος

Θεραπευτική αντιμετώπιση:
IVIG, κορτικοστεροειδή, ασπιρίνη, αντιπηκτικά

Σύγκριση με τη νόσο Kawasaki

Table 4 | Main features of classic Kawasaki disease and Kawasaki-like multisystem inflammatory syndrome. Numbers are percentages of people affected unless stated otherwise

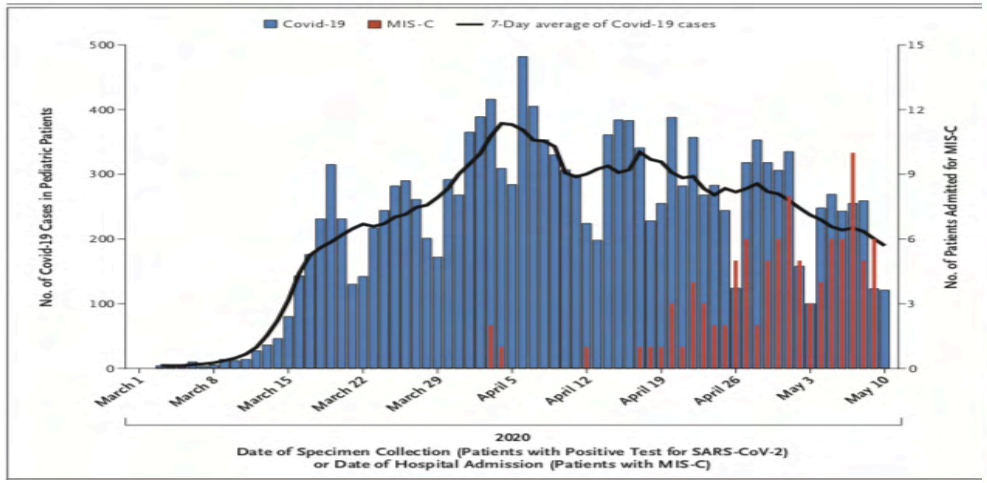
Characteristics	Classic Kawasaki disease*	Kawasaki-like syndrome series
High risk population	Asian	African
Age	6 months-5 years	4-17 years
Incomplete form of Kawasaki disease†	5-20	48
Gastrointestinal symptoms	Uncommon	100
Kawasaki disease shock syndrome	2-7	57
Myocarditis with ventricular dysfunction	<1	76
Intensive care support	4	81
Levels of inflammatory markers	Increased	Noticeably increased
Lymphopaenia	Rare	81
Coronary artery dilations/aneurysm	4-13	24
Intravenous immunoglobulin resistance	10-20	24

PIMS-TS:

- **μεγαλύτερη ηλικία**
- **πιο συχνά γαστρεντερικά συμπτώματα**
- **εμφάνιση σοκ**
- **μυοκαρδίτιδα**
- **ανάγκη για εντατική νοσηλεία**
- **ανευρύσματα στα στεφανιαία**
- **λεμφοπενία**

Multisystem Inflammatory Syndrome in Children in New York State

Elizabeth M. Dufort, M.D., Emilia H. Koumans, M.D., M.P.H., Eric J. Chow, M.D., M.P.H., Elizabeth M. Rosenthal, M.P.H., Alison Muse, M.P.H., Jemma Rowlands, M.P.H., Meredith A. Barranco, M.P.H., Angela M. Maxted, D.V.M., Ph.D., Eli S. Rosenberg, Ph.D., Delia Easton, Ph.D., Tomoko Udo, Ph.D., Jessica Kumar, D.O., Wendy Pulver, M.S., Lou Smith, M.D., Brad Hutton, M.P.H., Debra Blog, M.D., M.P.H., and Howard Zucker, M.D., for the New York State and Centers for Disease Control and Prevention Multisystem Inflammatory Syndrome in Children Investigation Team*



Symptom Category	0–5 Years (N=31)	6–12 Years (N=42)	13–20 Years (N=26)
Dermatologic or mucocutaneous	87.1	78.6	61.5
Gastrointestinal	74.2	83.3	80.8
KD or atypical KD	48.4	42.9	11.5
Myocarditis	38.7	50.0	73.1
Neurologic	12.9	38.1	38.5

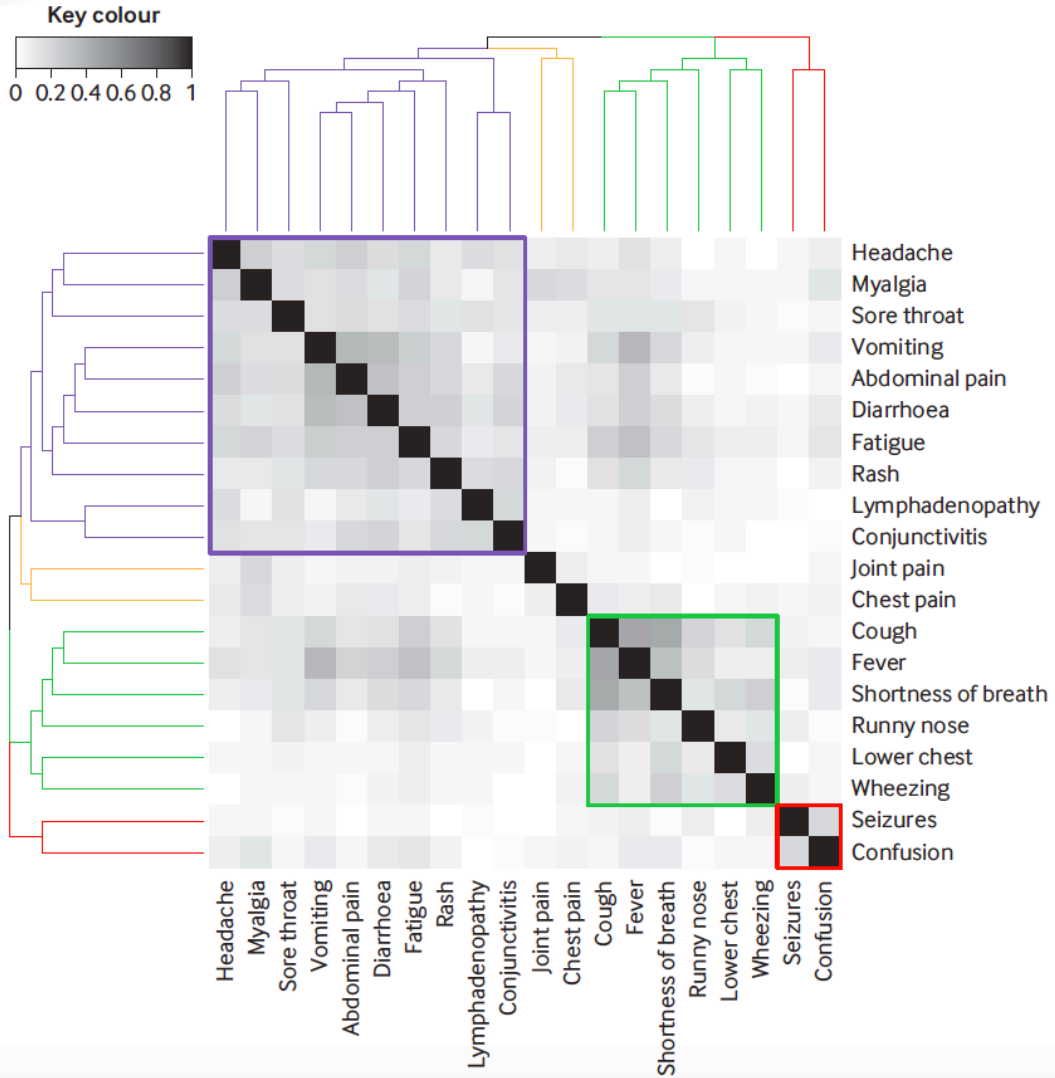
Percent of Patients

0 to 38.4 | 38.5 to 46.2 | 46.3 to 66.1 | 66.2 to 79.0 | 79.1 to 100

Table 4. Clinical Course and Outcomes, According to Age Group.*

Variable	Overall (N=99)	0–5 Years (N=31)	6–12 Years (N=42)	13–20 Years (N=26)
Median time from symptom onset to hospital admission (IQR) — days	4 (3–6)	4 (3–6)	5 (4–5)	4 (3–6)
ICU admission — no. (%)	79 (80)	19 (61)	38 (90)	22 (85)
Median time to ICU entry (IQR) — days	0 (0–1)	0 (0–2)	0 (0–1)	0 (0–1)
Median length of stay (IQR) — days				
Overall	6.0 (4.0–9.0)	6.0 (3.0–8.0)	6.0 (4.0–10.0)	6.5 (6.0–10.0)
Among those discharged	6.0 (4.0–8.0)	5.0 (3.0–7.0)	4.0 (4.0–8.0)	6.0 (5.0–10.0)
Therapy — no. (%)				
BiPAP or CPAP†	7 (7)	1 (3)	3 (7)	3 (12)
High-flow nasal cannula†	16 (16)	1 (3)	10 (24)	5 (19)
Mechanical ventilation†	10 (10)	3 (10)	3 (7)	4 (15)
ECMO	4 (4)	1 (3)	2 (5)	1 (4)
Vasopressor support	61 (62)	15 (48)	29 (69)	17 (65)
Systemic glucocorticoids	63 (64)	16 (52)	30 (71)	17 (65)
IVIG	69 (70)	26 (84)	30 (71)	13 (50)
Systemic glucocorticoids and IVIG	48 (48)	15 (48)	25 (60)	8 (31)
Diagnoses — no. (%)‡				
Kawasaki's disease or atypical Kawasaki's disease	36 (36)	15 (48)	18 (43)	3 (12)
Myocarditis	52 (53)	12 (39)	21 (50)	19 (73)
Shock	10 (10)	4 (13)	5 (12)	1 (4)
Coronary-artery aneurysm	9 (9)	4 (13)	4 (10)	1 (4)
Acute kidney injury	10 (10)	3 (10)	4 (10)	3 (12)
Death — no. (%)	2 (2)	1 (3)	1 (2)	0

Φαινότυποι COVID -19 και νοσηλευόμενα παιδιά: Μελέτη ISARIC



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651 νοσηλευόμενα παιδιά ηλικίας <19 ετών (0,9%) (138 Νοσοκομεία ΗΒ, Ιαν-Ιούλ 2020)

4,6 έτη η διάμεσος ηλικία
35% κάτω του έτους, 57% λευκής φυλής
42% είχαν τουλάχιστον 1 υποκείμενο
18% εισαγωγή στη ΜΕΘ
1% (6 άτομα κατέληξαν)

- **Αναπνευστικό:**

βήχας, πυρετός, δύσπνοια, καταρροή, εισολκές μεσοπλεύριων μυών και συριγμό

- **Συστηματική βλεννογόνο-δερματική εντερική νόσος:**

πονοκέφαλος, μυαλγία, πονόλαιμος, έμετος, κοιλιακό άλγος, διάρροια, κόπωση, εξάνθημα, λεμφαδενοπάθεια, επιπεφυκίτιδα

- **Σπάνια συρροή με νευρολογική σημειολογία με σπασμούς και σύγχυση**

Παράγοντες κινδύνου για εισαγωγή ΜΕΘ

Table 4 | Factors associated with admission to critical care unit. Values are numbers (percentages) unless stated otherwise

Variable	Standard ward admission (n=516; 81.6%)	Critical care admission (n=116; 18.4%)	Odds ratio (95% CI)	
			Univariable	Multivariable
Sex at birth:				
Male	286 (80.1)	71 (19.9)	-	-
Female	229 (83.6)	45 (16.4)	0.79 (0.52 to 1.19); P=0.266	0.82 (0.51 to 1.31); P=0.405
Age group:				
15-19 years	109 (85.2)	19 (14.8)	-	-
<1 month	34 (66.7)	17 (33.3)	2.87 (1.34 to 6.16); P=0.007	3.21 (1.36 to 7.66); P=0.008
1 month to <1 year	152 (91.6)	14 (8.4)	0.53 (0.25 to 1.09); P=0.088	0.53 (0.22 to 1.25); P=0.151
1-4 years	89 (85.6)	15 (14.4)	0.97 (0.46 to 2.01); P=0.928	1.28 (0.57 to 2.89); P=0.545
5-9 years	73 (80.2)	18 (19.8)	1.41 (0.69 to 2.89); P=0.338	1.33 (0.58 to 3.05); P=0.493
10-14 years	58 (63.7)	33 (36.3)	3.26 (1.72 to 6.33); P<0.001	3.23 (1.55 to 6.99); P=0.002
Ethnicity:				
White	281 (87.3)	41 (12.7)	-	-
Black	36 (65.5)	19 (34.5)	3.62 (1.88 to 6.86); P<0.001	2.82 (1.41 to 5.57); P=0.003
South Asian	49 (79.0)	13 (21.0)	1.82 (0.88 to 3.56); P=0.091	1.86 (0.87 to 3.77); P=0.094
Other	92 (78.0)	26 (22.0)	1.94 (1.11 to 3.32); P=0.017	1.91 (1.07 to 3.34); P=0.025
Any comorbidity:				
No/unknown	305 (85.2)	53 (14.8)	-	-
Yes	210 (76.9)	63 (23.1)	1.73 (1.15 to 2.60); P=0.008	1.42 (0.89 to 2.28); P=0.141

Univariable and multivariable logistic regression analyses used potential predictors identified a priori and during exploratory analyses.

<u>Μονοπαραγοντική ανάλυση</u>

Παράγοντες κινδύνου: ***προωρότητα, υποκείμενα νοσήματα αναπνευστικού και καρδιαγγειακού, παχυσαρκία***

Προηγούμενη χρήση ανοσοκατασταλτικά δεν συσχετίστηκε με εισαγωγή σε ΜΕΘ (N=48, 7,4%)

Έκβαση και νεότερα για το MIS-C

- Θνητότητα: 1%
  - 6 παιδιά (από 627): 3 πρόωρα νεογνά με σημαντικά υποκείμενα, 3 παιδιά με σοβαρά υποκείμενα νοσήματα
  - 27% η αντίστοιχη θνητότητα για την ίδια ομάδα ασθενών >19 έτη

- MIS-C
  - Συσχετίζεται με μεγαλύτερη ηλικία, με μη λευκή φυλή και εισαγωγή στη ΜΕΘ
  - Πιο πιθανά να εμφανιστεί με **κεφαλαλγία, μυαλγία, πονόλαιμο, λεμφαδενοπάθεια, εύκολη κούραση και χαμηλά αιμοπετάλια**
  - **2 φαινότυποι: με θετική PCR (λοίμωξη) και με αρνητική PCR (μεταλοιμώδης)**. Η μεταλοιμώδης συσχετίζεται με μη λευκή φυλή και βλεννογόνο-δερματικές εκδηλώσεις (κοιλιακό άλγος και επιπεφυκίτιδα)

Cite this as: *BMJ* 2020;370:m3249
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Θεματολογία

- Μετάδοση – Πρόληψη (Μη Φαρμ. Παρεμβ)
- Επιδημιολογία και κλινική εικόνα
- Αντιμετώπιση (και Φαρμ. Παρεμβ)
- Διαχείριση-Συζήτηση

Αντιική θεραπεία και COVID-19 στα παιδιά

JOURNAL OF THE
Pediatric Infectious Diseases Society

Article Contents

Abstract

ACCEPTED MANUSCRIPT

Multicenter interim guidance on use of antivirals for children with COVID-19/SARS-CoV-2 FREE

Kathleen Chiotos ✉, Molly Hayes, David W Kimberlin, Sarah B Jones, Scott H James, Swetha G Pinninti, April Yarbrough, Mark J Abzug, Christine E MacBrayne, Vijaya L Soma ... Show more

Journal of the Pediatric Infectious Diseases Society, piaa115,
https://doi.org/10.1093/jpids/piaa115
Published: 12 September 2020 **Article history**

Δεν είναι κατευθυντήριες οδηγίες

Συστάσεις

- Όχι χλωροκίνη
- Όχι αντιρετροϊκά
- **Ναι Remdesevir σε επιλεγμένες περιπτώσεις**
- → **ΕΞΑΤΟΜΙΚΕΥΜΕΝΗ ΠΡΟΣΕΓΓΙΣΗ**

Table 1. Suggested management of COVID-19 by illness severity

Disease category	Respiratory support requirement	Management
Mild	No new or increased supplemental oxygen requirement, with symptoms limited to the upper respiratory tract.	Supportive care.
Moderate	No new or increased supplemental oxygen requirement, with symptoms involving the lower respiratory tract, or radiographic findings on chest x-ray.	Supportive care.
Severe	New or increase from baseline supplemental oxygen requirement **without** need for new or increase in baseline non-invasive/invasive mechanical ventilation[a].	Remdesivir is suggested for all children with severe COVID-19, unless there are contraindications. **X5 ημέρες**
Critical	New or increased requirement for invasive or non-invasive mechanical ventilation[a], sepsis, or multi-organ failure; **OR** rapidly worsening clinical trajectory that does not yet meet these criteria.	Remdesivir should be considered for all children with critical COVID-19, unless there are contraindications. **X5 -10 ημέρες**

[a]Non-invasive mechanical ventilation includes high-flow nasal canula, continuous positive airway pressure (CPAP), or bilevel positive airway pressure (BiPAP).

Αντενδείξεις: ηπατική δυσλειτουργία και νεφρική ανεπάρκεια

Αντιική θεραπεία και COVID-19 στα παιδιά

ΑΝΤΙΜΕΤΩΠΙΣΗ ΤΩΝ ΑΣΘΕΝΩΝ ΜΕ ΛΟΙΜΩΞΗ COVID-19

ΑΡΧΙΚΗ ΕΚΤΙΜΗΣΗ ΤΩΝ ΑΣΘΕΝΩΝ στα ΤΕΠ Ή ΚΠΥ

1. **ΕΚΤΙΜΗΣΗ ΒΑΡΥΤΗΤΑΣ ΝΟΣΟΥ**

Ήπια: Ασυμπτωματικοί ή συμπτωματικοί ασθενείς άνευ κλινικών ή απεικονιστικών ευρημάτων πνευμονίας και SpO_2 ≥94% σε FiO_2 21%

Μέτρια: Ασθενείς με κλινικά ή απεικονιστικά ευρήματα πνευμονίας και SpO_2 ≥94% σε FiO_2 21%.

Vijaya L Soma ... Show more

Βαρύτητα νόσου	Θεραπεία
Δεν απαιτείται χορήγηση O2	**Υποστηρικτική**
Απαιτείται χορήγηση O2 Σε ασθενείς με: 1. SO2 ≤ 94% και 2. Πνευμονικά διηθήματα στον απεικονιστικό έλεγχο *Εξαιρούνται οι ασθενείς που απαιτείται υψηλή ροή O2, μη επεμβατικός μηχανικός αερισμός, μηχανικός αερισμός ή ECMO*	**Υποστηρικτική θεραπεία** + **Remdesivir** 200 mg IV δόση φόρτισης την πρώτη ημέρα, ακολούθως 100 mg IV άπαξ ημερησίως για 4 επιπλέον ημέρες + **Dexamethasone** 6 mg PO or IV άπαξ ημερησίως για 10 ημέρες ή μέχρι το εξιτήριο

Table 1. Suggested management of COVID-19 by illness severity

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Critical	New or increased requirement for invasive or non-invasive mechanical ventilation[a], sepsis, or multi-organ failure; **OR** rapidly worsening clinical trajectory that does not yet meet these criteria.	Remdesivir should be considered for all children with critical COVID-19, unless there are contraindications. **X5 -10 ημέρες**

[a]Non-invasive mechanical ventilation includes high-flow nasal canula, continuous positive airway pressure (CPAP), or bilevel positive airway pressure (BiPAP).

Αντενδείξεις: ηπατική δυσλειτουργία και νεφρική ανεπάρκεια

Εξατομικευμένη προσέγγιση

Medical complexity	There is insufficient evidence to definitively support medical complexity as a risk factor for severe COVID-19. Based on the high prevalence of medically complex children in reported critically ill pediatric COVID-19 cohorts and extrapolation from other viral infections, medical complexity could be considered in making antiviral treatment decisions.
Young age	There is insufficient evidence to support young age alone as a risk factor for severe COVID-19.

Εξατομικευμένη προσέγγιση

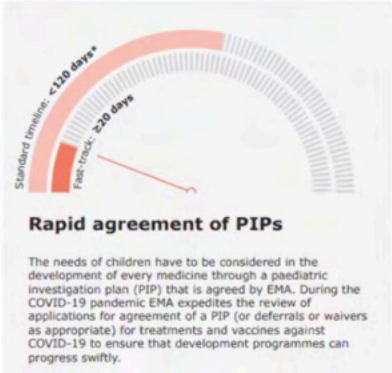
Medical complexity	**Older age**	There is insufficient evidence to definitively support older age (i.e., the adolescent age group) as a risk factor for severe COVID-19. However, based on the higher prevalence of adolescents in published pediatric cohorts relative to younger children, older age could be considered in making antiviral treatment decisions.
Young age	**Severe immunocompromise**	There is insufficient evidence to definitively support severe immunocompromise as a risk factor for severe COVID-19 in children. However, given the limited evidence base, and based on adult studies of COVID-19 and extrapolation from other viral infections, severe immunocompromise could be considered in making antiviral treatment decisions.

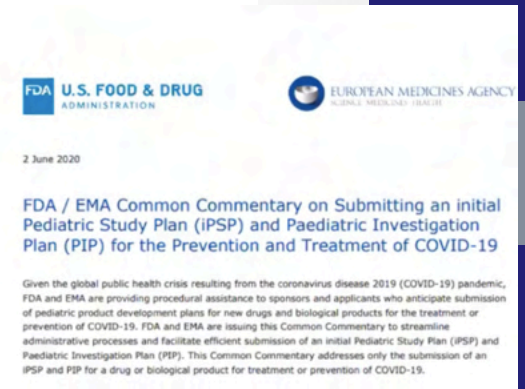
Εξατομικευμένη προσέγγιση

Medical complexity	**Older age**	**Severe underlying cardiac disease**	There is insufficient evidence to definitively support underlying cardiac disease as a risk factor for severe COVID-19 in children. However, based on adult studies of COVID-19, extrapolation from other viral infections, and limited data in children with COVID-19, presence of underlying cardiac disease could be considered in making antiviral treatment decisions.
Young age	**Severe immunocompromise**	**Severe underlying pulmonary disease**	There is insufficient evidence to definitively support underlying pulmonary disease as a risk factor for severe COVID-19 in children. Based on adult studies of COVID-19, extrapolation from other viral infections, and limited data in children with COVID-19, underlying pulmonary disease could be considered in making antiviral treatment decisions.

Ανάπτυξη εμβολίων COVID-19 για παιδιά

- Paediatric development is expected for COVID-19 vaccines
- Adolescents could be included in adults trials, while for younger than 12 studies based on immunogenicity and safety could start after efficacy and safety shown in adults
- Limited to no safety experience in children for some of the technologies
- Dose-finding studies will give preliminary information on safety
- Occurrence of MIS-C and/o any potential rare serious adverse reaction should be followed in adequately sized post-approval studies





Πρέπει να εμβολιάσουμε τα παιδιά για COVID-19?

Ναι, εάν:

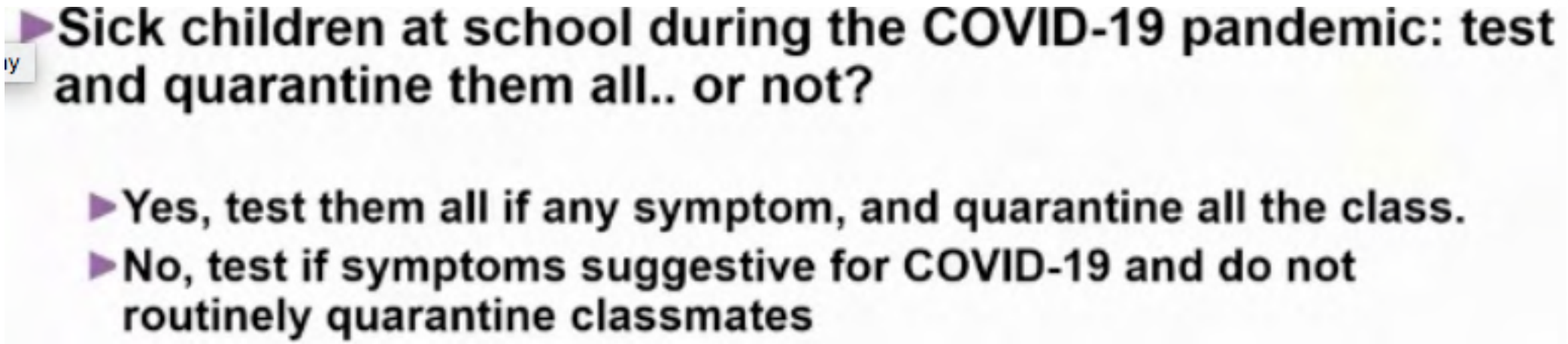
- Τα παιδιά παίζουν σημαντικό ρόλο στην αλυσίδα μετάδοσης
- Το εμβόλιο προστατεύει ενάντια στη μετάδοση
- Το εμβόλιο είναι ασφαλές

Θεματολογία

- Μετάδοση – Πρόληψη (Μη Φαρμ. Παρεμβ)
- Επιδημιολογία και κλινική εικόνα
- Αντιμετώπιση (και Φαρμ. Παρεμβ)
- Διαχείριση περιστατικών-Συζήτηση

«Άρρωστα» παιδιά και σχολείο την εποχή του COVID-19

- Πρέπει να κάνουμε τεστ σε όλα?



ΕΘΝΙΚΟΣ ΟΡΓΑΝΙΣΜΟΣ
ΔΗΜΟΣΙΑΣ ΥΓΕΙΑΣ

Αρχές διαχείρισης ύποπτων ή επιβεβαιωμένων περιστατικών λοίμωξης COVID-19 σε σχολικές μονάδες

18 Σεπτεμβρίου 2020

- Εάν ένας μαθητής εμφανίσει συμπτώματα συμβατά με λοίμωξη COVID-19 όταν είναι στο σχολείο, γίνονται τα παρακάτω εκ μέρους του Υπευθύνου COVID-19

Κλινικά κριτήρια χαρακτηρισμού παιδιού ως ύποπτου κρούσματος COVID-19

Ένα τουλάχιστον από τα παρακάτω συμπτώματα:

- πυρετός (Θ > 37,5° C) με ή χωρίς συνοδά συμπτώματα
- βήχας
- δύσπνοια
- ανοσμία/αγευσία με αιφνίδια έναρξη
- γαστρεντερικά συμπτώματα (διάρροια, έμετος, κοιλιακός πόνος)

} με ή χωρίς πυρετό

ΚΑΙ

απουσία εναλλακτικής διάγνωσης

Σε ποια παιδιά με συμπτώματα να κάνουμε τεστ;

- Evidence from the UK and internationally tells us :
- Fever and cough were the commonest symptoms for any child requiring hospital admission. Of 651 children admitted to hospital with COVID-19, 70% had fever and 39% had a cough. Less than 1 in 10 of these children were reported to have coryzal symptoms (runny noses) or sore throats.
- From this available evidence we believe that children with simple cold symptoms such as coryzal symptoms (runny noses) or sore throats without fever who would normally have attended schools in other times should not be tested for COVID-19.
- This is in agreement with current PHE guidance for deciding when to test. These symptoms are:
- **new continuous cough**
- **fever/high temperature**
- **loss of, or change in, sense of smell or taste.**

Πάντα το ερώτημα να κλείσουν ή όχι τα σχολεία…

- Outbreaks in schools are inevitable, benefits should overweight the risks
- School outbreaks are not a prominent feature in the COVID-19 pandemic, which may partially be due to the fact that the majority of children do not develop symptoms when infected with SARS-CoV-2.
- Opening safely isn't just about the adjustments a school makes. It's also about how much virus is circulating in the community, which affects the likelihood that students and staff will bring COVID-19 into their classrooms.
- Maybe further evidence, including serologic studies, is needed to evaluate the public health benefit of school openings or of school closure as part of mitigation strategies.

Πρόσφατα δεδομένα από σχολεία (Ιταλία)

October 5th, Italy: 1350 cases (1059 students, 145 teachers and 146 other school members), out of about 8million students

		1 case	2-5 cases	6-10 cases	>10 cases	Details missing	Total
Nursery/kindergardens	n	218	10	0	0	8	236
	%	92.4%	4.2%	0.0%	0.0%	3.3%	100.0%
Elementary	n	280	17	2	0	1	300
	%	93.3%	5.7%	0.7%	0.0%	0.3%	100.0%
Middle	n	198	5	1	0	4	208
	%	95.2%	2.4%	0.5%	0.0%	2.0%	100.0%
High school	n	419	25	2	1	5	452
	%	92.7%	5.5%	0.4%	0.2%	1.1%	100.0%
Peer school	n	47	3	0	0	5	55
	%	85.5%	5.5%	0.0%	0.0%	9.1%	100.0%
missing	n	90	4	0	0	5	99
	%	90.9%	4.0%	0.0%	0.0%	5.0%	100.0%
Total	n	1252	64	5	1	28	1350
	%	92.7%	4.7%	0.4%	0.1%	2.0%	100.0%

- Στα λύκεια και γυμνάσια τα περισσότερα περιστατικά
- Στα λύκεια και γυμνάσια πιο συχνή η συρροή 2-5 περιστατικών
- Ελάχιστη η συρροή >10 περιστατικών

Πηγή διαφανειών
ESPID 2020

Fifteen-minute consultation: Does this child have COVID-19 (and does it matter)?

Caroline Ponmani [1], Damian Roland [2,3]

Box 1 Who to test?

- Universal testing of all admitted children.
- Universal testing of all children presurgery.
- Children with fever and respiratory distress presenting to emergency department.
- Children with comorbidities—oncological conditions, respiratory and cardiac conditions.
- Persistent fever for more than 5 days with no identifiable cause, there is no definitive requirement for this and the decision should be made by a senior clinician.

Symptom based cohorting and testing
useful to avoid unnecessary spread of the disease
does not help in the identification of cases (a number of children are asymptomatic) nor in management (as the majority of children will be very well).

challenge then to paediatricians is identifying those with COVID-19 complications;
however, it could be argued this itself should not significantly change practice (as taking blood tests specifically looking for raised inflammatory markers will still have a high false positive rate.

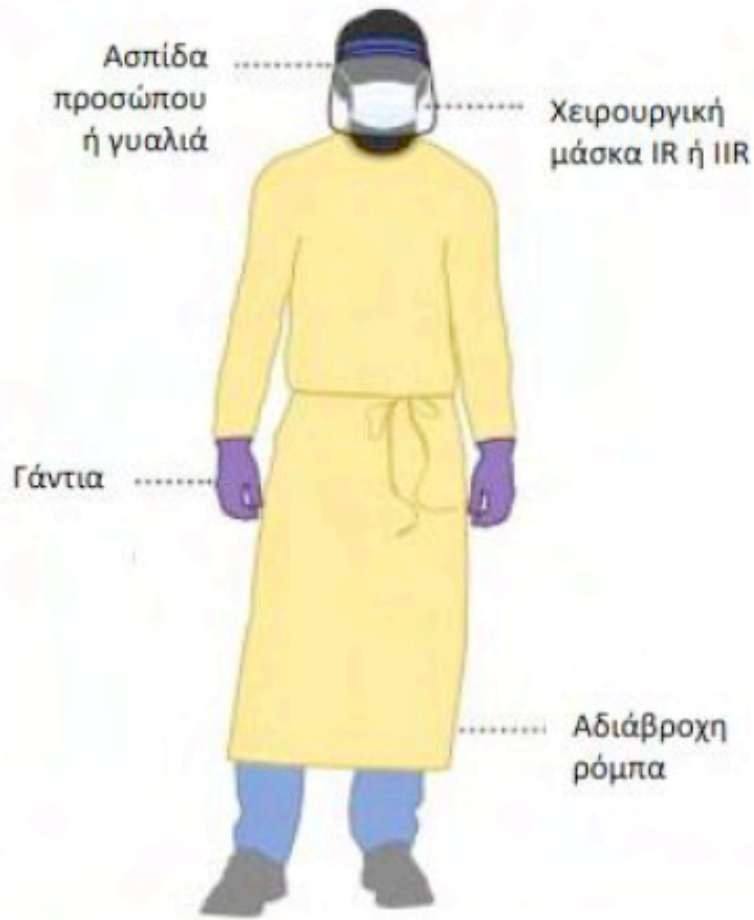
.

.the same poorly defined concept of gestalt
will need to be applied to children with potential COVID-19 as it does for any child with a fever who may have sepsis or children with a headache who may have a brain tumour.

.

Χρήση σε επαφή με ύποπτους ή επιβεβαιωμένους ασθενείς για COVID-19, κατά τη διάρκεια χειρισμών που παράγουν αερόλυμα και για εργασία σε χώρους υψηλού κινδύνου (π.χ. ΜΕΘ, χειρουργεία)

Χρήση σε επαφή με ύποπτους ή επιβεβαιωμένους ασθενείς για COVID-19, όταν η μάσκα υψηλής αναπνευστικής προστασίας δεν είναι διαθέσιμη



ΕΘΝΙΚΟΣ ΟΡΓΑΝΙΣΜΟΣ ΔΗΜΟΣΙΑΣ ΥΓΕΙΑΣ