

UPDATE INFECIOSSES

INFECCIONS VIA AÈRIA SUPERIOR

Maria del Mar Rodriguez Alvarez
MFiC. EAP Canet de Mar. Professor associat UDG

30/03/2023

CONFLICTE D'INTERÈS

Especialista en MFiC per la UD d'Astúries

Doctora en Medicina i Cirurgia General per la UAB

Tutora residents UD Multidisciplinar de Girona

Metge de família de l'EAP Canet de Mar

Professora associada de la UDG

Membre grup Infeccioses CAMFiC

Membre grup Recerca

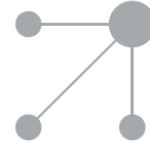
Membre grup PROA

Col·laboració amb la CAMFiC amb docència

Col·laboració amb la UD Multidisciplinar de Girona amb docència

Col·laboració amb l'empresa farmacèutica en docència i recerca

Col·laboració amb revistes (AMF i FMC) per publicacions remunerades



ORIGINAL ARTICLE

Retrospective study on the effectiveness and safety of the shortened 5- to 7-day antibiotic regimen for acute streptococcal pharyngotonsillitis compared to the classic 10-day regimen



Belén Salinas Salvador^{a,*}, Amelia Moreno Sánchez^a, Gema Carmen Marcén^a, David Molina Herranz^a, Teresa Arana Navarro^b, César García Vera^b

^a Servicio de Pediatría, Hospital Universitario Miguel Servet, Zaragoza, Spain

^b Centro de salud José Ramón Muñoz Fernández, Zaragoza, Spain

JUSTIFICACIÓ

- El tractament antibiòtic de la faringoamigdalitis aguda estreptocòccica (FAS) **clàssicament és una pauta de 10 dies**; no obstant això, l'aparició de resistències antibiòtiques indueix a explorar pautes més curtes.
- Baixa incidència de **febre reumàtica** (1/100.000 habitants)
- Es desconeix la infectivitat dels **portadors faringis** i, amb això, la necessitat real d'aconseguir l'erradicació; actualment es postula que aquests portadors poques vegades transmeten el microorganisme, cosa que plantejaria pocs riscos als seus contactes

- Als països desenvolupats, més que no pas l'erradicació, l'objectiu és disminuir el desenvolupament de **resistències als antibiòtics**, promovent pautes de tractaments més curtes.
- Altres beneficis: menys complicacions, més adherència al tractament i menys cost econòmic.

Material i mètodes

- **Estudi retrospectiu observacional descriptiu i analític** a partir de la revisió d'històries de pacients diagnosticats de FAS en dues UABs de pediatria del Centre de Salut José Ramón Muñoz Fernández de Saragossa (Espanya), entre el juny del 2016 i l'abril del 2020.
- Pacients diagnosticats de **FAS mitjançant test de detecció ràpida d'antigen estreptocòccic o cultiu faringi.**

Material i mètodes

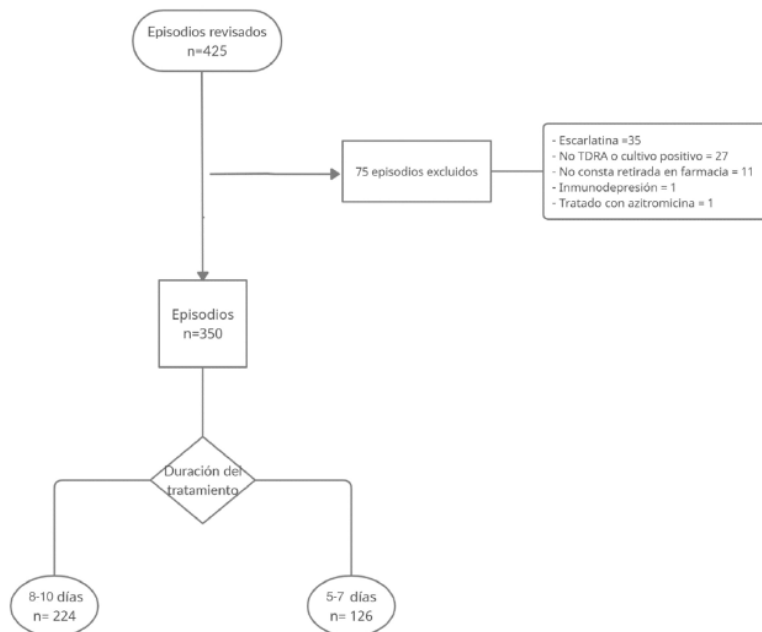


Figura 1 Diagrama de flujo: diseño del estudio y distribución de los pacientes.

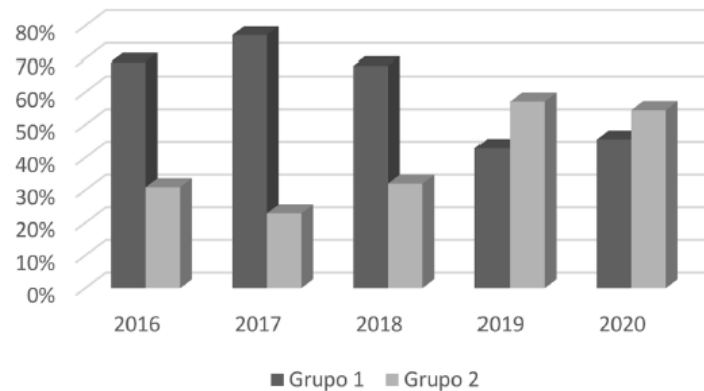


Figura 2 Progresión de los cambios en la pauta antibiótica a lo largo del estudio..

RESULTATS

Tabla 1 Características demogràfiques y antibioterapia

		Grupo 1		Grupo 2		<i>p</i>
		n	%/ $\bar{x} \pm DE$	n	%/ $\bar{x} \pm DE$	
Sexo	Femenino	117	52	58	46	0,265
	Masculino	107	48	68	54	
Edad			7,26 \pm 2,7		7,22 \pm 2,8	0,9
Antibioterapia	Amoxicilina	178	79	98	78	0,26
	Penicilina	35	16	27	21	0,08
	Otros	11	5	1	0,8	0,055

Grupo 1: pauta convencional (10-8 días); grupo 2: pauta corta (7-5 días).

Otros antibióticos: josamicina, clindamicina, cefadroxilo y cefuroxima.

RESULTATS

Tabla 2 Resultados derivados del tratamiento

	Grupo 1		Grupo 2		OR (IC95%)
	n	%	n	%	
FAS/escarlatina	22	9,8	12	9,5	0,97 (0,46 a 2,03)
Otras infecciones de posible origen estreptocócico	9	4	3	2,4	0,58 (0,15 a 2,19)
Infecciones (FAS/escarlatina/otras)	30	13,4	14	11,1	0,81 (0,41 a 1,59)
RAM	6	2,7	1	0,9	0,29 (0,04 a 2,44)

FAS: faringoamigdalitis aguda estreptocócica; grupo 1: pauta convencional (10-8 días); grupo 2: pauta corta (7-5 días); RAM: reacciones adversas medicamentosas.

CONCLUSIONS

Estudio retrospectivo comparativo entre pauta clásica y pauta acortada en FAS

Pauta clásica → 10 días Resistencias bacterianas → Búsqueda de pautas más cortas	Resultados		
	GRUPO 1	GRUPO 2	OR (IC al 95%)
Diagnosticados de FAS (n=350) 2 cupos pediatría de atención primaria 2016-2020 ↓ 10-8 días (n=224) 7-5 días (n=126)	FAS/ESCARLATINA	9,8%	9,5% 0,97 (0,46 a 2,03)
	OTRAS INFECCIONES de POSIBLE ORIGEN ESTREPTOCÓCICO	4%	2,4% 0,58 (0,15 a 2,19)
	INFECCIONES	13,4%	11,1% 0,81 (0,41 a 1,59)
	RAMs	2,7%	0,9% 0,29 (0,04 a 2,44)
	<i>Resultados derivados del tratamiento. Grupo 1=pauta convencional (10-8 días), grupo 2 = pauta corta (7-5 días). FAS = faringoamigdalitis aguda estreptocócica. RAMs= reacciones adversas medicamentosas.</i>		

Conclusiones: Pautas más cortas
No menos efectivas
No más inseguras

Referencia *



FITXA TERAPÈUTICA

Faringitis/amigdalitis aguda

6

**Maneig recomanat
de la faringitis/amigdalitis
aguda. Adults**

Clínica de faringitis/amigdalitis aguda

Es dona alguna d'aquestes situacions?

- Existència d'un brot comunitari per estreptococ del grup A (p. ex., escarlatina)
 - Simptomatologia greu (persistència febre alta, odinofàgia greu, disfàgia, inflamació greu)
 - Antecedents de febre reumàtica
 - Immunosupressió
- Presa d'antibiòtics en les dues setmanes prèvies

No

Sí

Quants criteris de Centor presenta?

- Temperatura ≥ 38 °C o història de febre
- Adenopaties laterocervicals doloroses
 - Exsudat faringoamigdalí
 - Absència de tos

< 2

≥ 2

TDR EBHGA

Tractament
simptomàtic

(-)

Tractament
antibiòtic

(+)

Tractament antibiòtic de la faringitis/amigdalitis aguda. Adults

Consideracions prèvies:

- En les persones adultes, entre el 80-95% de les FAA són d'origen víric i no està indicat el tractament antibiòtic.

TDR EBHGA + i/o
Decisió de tractar amb antibiòtic

No

Sí

Penicil·lina G benzatina dosi única
Fenoximetilpenicil·lina 500 mg/
12 h x 7-10 dies
Amoxicil·lina 500 mg/8 h x 7-10 dies

Clindamicina 300 mg/8 h x 7-10 dies

Millora a
les 72 hores?

Sí

No

FINALITZAR PAUTA

REVISAR DIAGNÒSTIC

Si cal canviar tractament:

Amoxicil·lina/clavulànic 500/125 mg
/8 h x 7- 10 dies

Clindamicina 300 mg/8 h x 7-10 dies

🏠 **Telemedicine and e-Health** > **Vol. 27, No. 5** > **Original Research**

Management of Acute Sinusitis via e-Visit

Kristine S. Penza , Martha A. Murray, Jane F. Myers, Joseph W. Furst, and Jennifer L. Pecina

Published Online: 7 May 2021 | <https://doi.org/10.1089/tmj.2020.0047>

JUSTIFICACIÓ

- La sinusitis aguda es deu + F a infeccions víriques
- L'ús d'antibiòtics per sinusitis sense complicacions, només té un benefici marginal (5-11% durada més curta).
- L'atenció no presencial pot contribuir encara més a innecessària prescripció d'antibiòtics?

- **Revisió retrospectiva**
- Pacients **d'atenció primària** de Rochester, d'entre 18 i 75 anys.
- Visita (presencial, telefònica o electrònica) per símptomes sinusals aguts de l'1 de maig de 2016 a l'1 de maig de 2017.

MATERIAL I MÈTODES

- Exclusió: antibiòtic o visita mèdica 30 dies previs
- En el període d'1 any, hi va haver 383 visites electròniques, 968 presencials 2.084 telefòniques de la qual va ser una mostra **aleatòria** de **150** de cada tipus
- Mateixos professionals virtual i presencial
- Telefònica. Protocol infermeria

RESULTATS

Table 1. Demographics and Encounter Details for Each Initial Encounter Type

	ALL PATIENTS (N= 457)	E-VISIT (N= 150)	PHONE CALL (N= 150)	F2F VISIT (N= 150)	OVERALL <i>p</i> VALUE	E-VISIT VS. PHONE CALL <i>p</i> VALUE	E-VISIT VS. F2F <i>p</i> VALUE	PHONE CALL VS. F2F <i>p</i> VALUE
Age, year, mean ^a	43.7	40.3	46	44.7	<0.001	<0.001	0.003	0.43
Gender, female, N (%) ^b	329 (73.1)	125 (83.3)	106 (70.7)	98 (65.3)	0.001	0.009	<0.001	0.32
Treated at initial encounter with antimicrobials, N (%) ^b	284 (63.1)	84 (56)	92 (61.3)	108 (72)	0.01	0.35	0.004	0.05
Health care worker-recommended follow-up at initial encounter, N (%) ^b	45 (10)	5 (3.3)	39 (26)	1 (0.7)	<0.001	<0.001	0.09	<0.001
Patient followed up within 30 days, N (%) ^b	101 (22.4)	27 (18)	53 (35.3)	21 (14)	<0.001	<0.001	0.34	<0.001

^aAnalysis of variance.

^bChi square.

F2F, face-to-face.

RESULTATS

Table 2. Follow-Up Characteristics by Initial Encounter Type for Patients Who Had Follow-Up

	ALL PATIENTS WITH A FOLLOW-UP VISIT	E-VISIT	PHONE CALL	F2F VISIT	<i>p</i>
	<i>N</i> = 101	<i>N</i> = 27	<i>N</i> = 53	<i>N</i> = 21	
Treated at initial encounter with antimicrobials, <i>N</i> (%) ^a	32 (32)	5 (19)	12 (23)	15 (71)	<0.001
Health care worker-recommended follow-up at initial encounter, <i>N</i> (%) ^a	37 (37)	2 (7)	35 (66)	0	<0.001
Type of follow-up, <i>N</i> (%) ^b					
F2F	74 (73)	18 (67)	43 (81)	13 (62)	0.14
Non-F2F	33 (33)	11 (41)	14 (26)	8 (38)	0.39
Both F2F and non-F2F	9 (9)	2 (7)	7 (13)	0	0.26
Number of follow-up encounters, <i>N</i> (%) ^b					
One follow-up	83 (82)	24 (89)	40 (75)	19 (91)	0.34
Two follow-ups	11 (11)	3 (11)	7 (13)	1 (5)	
Three follow-ups	7 (7)	0	6 (11)	1 (5)	
Average time to first follow-up (days) ^c	4.7	3.9	2.3	11.8	<0.001
Treated at follow-up, <i>N</i> (%) ^a	67 (66)	15 (56)	38 (72)	14 (67)	0.35
Follow-up same day as initial encounter, <i>N</i> (%) ^a	44 (44)	17 (63)	26 (49)	1 (5)	<0.001

^aChi-square test.

^bFisher's exact test.

^cAnalysis of variance.

RESULTATS

Table 3. Type of Follow-Up by Location of Initial Encounter

INITIAL ENCOUNTER TYPE	FOLLOW-UP BY E-VISIT ($p=0.03$) N (%) ^a	FOLLOW-UP BY PHONE CALL ($p=0.37$) N (%) ^a	FOLLOW-UP BY PORTAL ($p=0.06$) N (%) ^a	FOLLOW-UP AT MCEC ($p=0.004$) N (%) ^a	FOLLOW-UP AT PCP ($p < 0.001$) N (%) ^a	FOLLOW-UP AT EMERGENCY DEPARTMENT ($p=0.48$) N (%) ^a	OTHER FOLLOW-UP ^b ($p > 0.99$) N (%) ^a
e-Visit ($N=27$)	3 (11)	3 (11)	5 (19)	13 (48)	4 (15)	1 (4)	1 (4)
Phone call ($N=53$)	0	13 (25)	2 (4)	8 (15)	34 (64)	0	3 (6)
F2F visit ($N=21$)	1 (5)	5 (24)	2 (10)	3 (14)	10 (48)	0	1 (5)

^aFisher's exact test.

^bFollow-up with specialist providers (ENT) or at urgent care.

MCEC, Mayo Clinic Express Care; PCP, primary care provider.








CONCLUSIONS

- Les e-Visites són una **modalitat eficaç** d'atenció als pacients amb sinusitis aguda, oferint equivalent o **inferiors taxes de tractament** i seguiment que les vies més tradicionals.



Review

The Impact of the COVID-19 Pandemic on Otitis Media

Soo-Young Choi ¹, Dong-Keon Yon ², Yong-Sung Choi ³, Jinseok Lee ⁴, Ki-Ho Park ⁵, Young-Ju Lee ⁶,
Sung-Soo Kim ⁷, Sang-Hoon Kim ¹ and Seung-Geun Yeo ^{1,*}

- La pandèmia **mesures per evitar-ne la propagació** de la COVID-19 ha canviat la vida quotidiana.
- Per tant, s'esperava que la **incidència de diverses malalties infeccioses es reduirien molt**. En particular, les del tracte respiratori superior.
- Atès que l'OM és causada principalment per la transmissió d'infeccions del tracte respiratori superior al llarg del conducte auditiu, si es redueix la incidència d'infeccions del tracte respiratori superior, en **la incidència d'OM també disminuirà**.

- Estudi de revisió per donar resposta a diverses preguntes.
 - ✓ Disminució de la **taxa d'incidència** d'OM
 - ✓ Disminució de la **prescripció d'antibiòtics** per a l'OM
 - ✓ Disminució visites al **servei d'urgències** per OM
 - ✓ Retard diagnòstic per la pandèmia augmenta les **complicacions**
 - ✓ Determina si **els símptomes** de l'OM van empitjorar amb COVID

Disminució de la taxa d'incidència

Table 2. Summary of studies on incidence of OM during the COVID-19 pandemic.

Author [Ref.]	Country	Study Design	Study Population	Outcome Measures	Results
Saskia Hullegie et al. [15]	Netherlands	Retrospective observational cohort study Data were obtained from the Julius General Practitioners' Network. Its database contains anonymously extracted routine health care data from electronic records from 62 general practices in the Utrecht area	All children aged 0–12 registered 1 March 2019–29 February 2020 (pre-COVID-19 pandemic) and/or 1 March 2020–28 February 2021 (COVID-19 pandemic) were included. In the pre-COVID-19 period, electronic health record data of 67,245 children aged 0–12 years were available (time point: 1 September 2019) whereas data of 67,134 children were available during the pandemic (time point: 1 September 2020).	Incidence rates per 1000 child years (IR), incidence rate ratios (IRR) and incidence rate differences (IRD) were compared between the two study periods.	OM episodes including acute mastoiditis declined considerably during the COVID-19 pandemic. IR pre-COVID-19 vs. COVID-19 for AOM 73.7 vs. 27.1 [IRR 0.37]; for OME 9.6 vs. 4.1 [IRR 0.43]; and for ear discharge 12.6 vs. 5.8 [IRR 0.46]. The absolute number of AOM episodes in which oral antibiotics were prescribed declined accordingly (IRD pre-COVID-19 vs. COVID-19: –22.4 per 1000 child years), but the proportion of AOM episodes with antibiotic prescription was similar in both the periods (47% vs. 46%, respectively).
Jonathan Hattoun et al. [10]	USA	Retrospective observational cohort study Data were obtained from electronic health record data of a large Massachusetts pediatric primary care network that cares for ~375,000 children.	Children 0 to 17 years of age for the same calendar period in 2019 and 2020 starting from 1 January. The study defined the pre-social distancing (SD) period as calendar weeks 1 to 9 of each respective year, allowed for a 3-week implementation period as SD was enacted in 2020 and defined the post-SD period as calendar weeks 13 to 18, the most recent data available for analysis. The study did not reveal the total number of persons included.	A difference-in-differences regression analysis was performed using a multivariable Poisson regression model with diagnosis count as a function of calendar year, time period (pre-SD versus post-SD), and the interaction between the two.	The diagnosis rate of AOM was significantly lower in the social distancing period (113.4% vs. 11.5%, respectively). A difference-in-differences regression analysis for 2020 vs. 2019 (95% confidence interval) is –85.1 (–86.8 to –83.5).
Mirko Alde et al. [16]	Italy	Retrospective chart-review study Data were obtained from one pediatric outpatient audiology clinic.	All children aged 6 months to 12 years who attended the outpatient clinic for hearing or vestibular disorders during 2 periods before the lockdown, May–June 2019 (n = 350) and January–February 2020 (n = 366), and the period immediately after the lockdown, May–June 2020 (n = 216) were included. Patients with otomicroscopic evidence of ear disease, craniofacial anomalies, a recent history of medical treatment, etc. were excluded.	The study compared the children's sex and age characteristics and the distribution of the types of tympanograms in the 3 periods.	The prevalence of OME in this clinic population was 46.1% in May–June 2019, 52.2% in January–February 2020, and 2.3% in May–June 2020. Children with chronic OME had a higher rate of disease resolution in May–June 2020 (93.3%) than those examined in May–June 2019 (20.7%).
Giannicola Iannella et al. [12]	Italy	Retrospective chart review study Data were obtained from five otolaryngology departments of tertiary referral centers.	To estimate the reduction of OME incidence in children and adults during the COVID-19 pandemic period all patients initially enrolled were divided into three groups according to the following time span. The percent variance of OME incidence between the different time periods was calculated. A total of 1214 patients were included, 526 adults and 688 children between 1 March 2018 and 1 March 2021. In all centers, OME diagnosis were performed according to the commonly recognized OME diagnostic criteria. Patients with otomicroscopic evidence of ear disease, craniofacial anomalies, follow-up loss, etc. were excluded.	<ul style="list-style-type: none"> Group 1—patients with OME diagnosis achieved between 1 March 2018 and 1 March 2019 (not pandemic period). Group 2—patients with OME diagnosis achieved between 1 March 2019 and 1 March 2020 (not pandemic period). Group 3—patients with OME diagnosis achieved between 1 March 2020 and 1 March 2021 (COVID-19 pandemic period). 	<p>In the non-pandemic periods (group 1 and 2), the incidence of OME in the five referral centers considered was similar, with 482 and 555 diagnosed cases, respectively. In contrast, the OME incidence in the same centers, during the pandemic period (group 3) was clearly reduced with a lower total number of 177 cases of OME estimated. Percentage variation in OME incidence between the first non-pandemic year considered (group 1) and the pandemic period (group 3) was 63 and 3%, with 305 fewer cases in group 3 compared to group 1. Similarly, comparing the second non-pandemic year (group 2) and the pandemic year (group 3) the percentage variation of OME incidence was 68 and 1%, with 305 fewer cases in group 3 compared to group 2.</p>

Disminució de la taxa d'incidència

Author [Ref.]	Country	Study Design	Study Population	Outcome Measures	Results
Ravinder Kaur et al. [13]	USA	Ongoing prospective longitudinal study Date were obtained from two participating hospital-affiliated pediatric clinical practices	The child population of the two clinics was 12,512 children. All children were 6–36 months old. During the pandemic (from 15 March to 31 December 2020), 258 infection visits occurred among 144 pandemic cohort children compared with 687 visits among 215 prepandemic (from 15 March to 31 December 2019) cohort children.	Physician-diagnosed, medically attended infection visits were assessed in two child cohorts. The study called for the collection of nasopharyngeal (NP) samples at scheduled healthy / well-child visits at age 6, 9, 12, 15, 18, 24, and 36 months and middle ear fluid by tympanocentesis when children experienced AOM.	The pandemic cohort included 144 children, while the pre-pandemic cohort included 215 children. The pandemic cohort experienced 1.8-fold less frequent infectious disease visits during the pandemic. Specifically, visits for AOM were 3.7-fold lower. Compared the isolation rate from the NP in the two cohorts, detection of <i>Haemophilus influenzae</i> and <i>Moraxella catarrhalis</i> significantly decreased during the pandemic ($p < 0.0001$) but not for <i>Streptococcus pneumoniae</i> . In contrast, isolation of <i>Streptococcus pneumoniae</i> , <i>Haemophilus influenzae</i> and <i>Moraxella catarrhalis</i> from the NP at onset of AOM, when clinical viral upper respiratory infection was concurrently present, did not differ between the cohorts. Oxacillin-resistant <i>Streptococcus pneumoniae</i> isolates increased ($p = 0.009$) and β -lactamase-producing <i>Haemophilus influenzae</i> isolates decreased during the pandemic.
Anna M. Rohe et al. [17]	Germany	Retrospective observational cohort study Data were obtained from 146 ENT practices in Germany.	The study included 162,724 patients in Q2 2019, 158,077 in Q2 2019, 128,342 in Q2 2020, and 149,153 in Q3 2020.	The first outcome was the difference in the number of patients with at least one visit to these practices between the second and third quarters of 2019 and the second and third quarters of 2020. The second outcome was the number of patients with new diagnoses per practice, defined as diagnoses not previously documented in the database for a given patient.	The number of patients per practice was significantly lower in Q2 2020 compared to Q2 2019 (879 versus 1108, $p < 0.001$). There were no significant differences when comparing Q3 2020 to Q3 2019 (1022 versus 1083, $p = 0.261$). Diagnoses of OM were significantly decreased in Q2 2020, the COVID-19 pandemic compared to Q2 2019 (43% decrease). There was still a significant decrease in patient numbers for otitis media (25% decrease) in Q3 2020 compared to Q3 2019.

Author [Ref.]	Country	Study Design	Study Population	Outcome Measures	Results
Natasha Quraishi et al. [18]	UK	Retrospective observational cohort study Data were obtained from three large National Health Service hospitals (1 district general hospital and 2 tertiary centers) covering a catchment population of over 2 million in central England, UK.	A total of 1864 adult admissions in the 2019–2020 period and 791 adult admissions in 2020–2021 period for the ENT infections. Patients aged 16 and older admitted to hospital for ENT infections were included.	Adult hospital admissions for ENT infections over a 12-month period (March 2019 to February 2020 inclusive) before the COVID-19 pandemic were compared with a 12-month period from 23 March 2020 (when the UK government implemented the first national lockdown) to March 2021 inclusive. The main outcome measures were the number of adult hospital admissions.	There was a significant total reduction of 40 admissions (26.85%) for acute otitis media in the 2020–2021 period compared with the 2019–2020 period ($p = 0.01$; RR 1.37, 95% confidence interval [1.07, 1.75]). Two centers, A and C, showed a reduction in admissions for acute otitis media (A: 14 (34.15%); C: 26 (25%)), whereas B showed no change acute otitis media requiring admission.

- ❖ Realitzats en Europa i USA
- ❖ Població pediàtrica (fins a 18 anys), 2 agafen dades d'adults
- ❖ Estudis cohorts retrospectius i 1 prospectiu. Comparació pre vs pandèmia
- ❖ Àmbit: Primària, consultes ORL, urgències/hospital, pediatria

Disminució de la taxa d'incidència



- ❖ En un estudi, utilitzant dades recollides de sis centres de París (François Angoulvant et al.), amb dades de 871.543 nens la incidència d'OMA es va **reduir en més d'un 70%**
- ❖ Reduccions similars en altres estudis. Un estudi alemany (Anna M. Rohe et al.) dades a nivell nacional de nens de 0 a 12 anys. La base de dades utilitzada en aquest estudi conté els registres mèdics de gairebé tots els nens alemanys, també va observar d'una disminució de l'OMA.
- ❖ **Paper del confiament en l'opció de no buscar tractament.**

- ❖ En l'estudi de Ravinder Kaur et al. Durant la pandèmia, es va produir una reducció de la detecció d'*Haemophilus influenzae* i *Moraxella catarrhalis*, però no *Streptococcus pneumoniae*, en mostres nasofaríngies dels nens. Tanmateix, no hi va haver diferències en les proporcions de detecció d'*Haemophilus influenzae*, *Moraxella catarrhalis* i *Streptococcus pneumoniae* entre nens amb OMA

Disminució de la prescripció d'antibiòtics

Author [Ref.]	Country	Study Design	Study Population	Outcome Measures	Results
Alma C. van de Pol et al. [19]	Netherlands	Retrospective observational cohort study Data were obtained from pseudonymized routine health care from over 70 primary care practices located in the city of Utrecht and its surrounding areas.	From March through to May 2019 and 2020, 389,708 and 405,688 patients (49% male) were registered in the Julius General Practitioners' Network practices, respectively. In 2019, 40,219 consultations were extracted, which related to 27,263 infectious disease episodes. In 2020, 37,604 consultations and 23,442 related episodes were found. The overall antibiotic prescription rate was 27% in 2019 and 23% in 2020.	The following outcomes were calculated: (1) the total number of infectious disease episodes recorded from March through May for 2019 and 2020; (2) the number of episodes treated with at least one antibiotic; and (3) the antibiotic prescription rate (proportion of episodes treated with at least one antibiotic). Relative risks were calculated by dividing the risk in 2020 by the risk in 2019. The course of outcomes (1) and (2) over time were determined per week for each infection type. Respiratory/ear infections outcomes (1) and (2) were determined separately per age category of 0–12, 13–40, 41–65, and older than 65 years of age.	Respiratory/ear infection episodes decreased in the youngest and oldest age categories (relative risk, 0.61; confidence interval, 0.58 to 0.64 and relative risk, 0.82; confidence interval, 0.78 to 0.86, respectively), but increased slightly in the 41–65-year-old category (relative risk, 1.14; confidence interval, 1.10 to 1.19). Antibiotic prescriptions for respiratory/ear infections decreased in all age groups, with the largest decrease observed in those aged 0–40 years. Consequently, the antibiotic prescription rate decreased in all age categories.

Author [Ref.]	Country	Study Design	Study Population	Outcome Measures	Results
Sophie E. Katz et al. [20]	USA	Retrospective observational cohort study Data obtained from 4 ambulatory settings affiliated with Vanderbilt University Medical Center: the emergency department, urgent care clinics, primary care clinics, and retail health clinics.	7010 Children (≤ 18 years) pre-pandemic (P1, 1 March 2019–15 May 2019) and 16,671 children during the early pandemic (P2, 1 March 2020–15 May 2020) were included.	Diagnoses and electronic antibiotic prescriptions were extracted from the electronic medical record. Encounter diagnosis was defined as the International Statistical Classification of Diseases and Related Health Problems, 10th revision diagnosis associated with the antibiotic prescription or the primary encounter diagnosis if no antibiotic was prescribed.	The percent of encounters for infectious diagnoses was lower in P2 (4267/7010, 60.8%) vs. P1 (11,412/16,671, 68.5%) ($p < 0.001$), especially for respiratory diagnoses. The percent of encounters with an antibiotic prescription was lower in P2 than P1 for all encounters (P2: 2240/7010 [32%]; P1: 6373/16,671 [38.2%], $p < 0.001$), and among encounters with infectious diagnoses (P2: 1324/2943 [45%]; P1: 3941/7471 [52.8%], $p < 0.001$). In particular, a significant decrease in OM was observed during the early pandemic.

- ❖ Estudi (Alma et al.) amb 405.688 persones als Països Baixos. Per grups d'edat, la freqüència d'infecció oïda va disminuir més marcadament en el grup de 0 a 12 anys i va augmentar lleugerament en el grup de 41 a 65 anys. Els autors van especular que l'aïllament social era més fort per als nens que per als adults.
- ❖ La taxa total de prescripció d'antibiòtics va disminuir del **21% al 13%**.
- ❖ Això s'interpreta com el resultat del confinament.
- ❖ Shopie et al. USA. També va observar disminució en la prescripció antibiòtica (**38% vs 32%**).

Disminución de los visitas URG



Author [Ref.]	Country	Study Design	Study Population	Outcome Measures	Results
François Angoulvant et al. [11]	France	A quasi-experimental interrupted time series analysis study. Data was based on based on multicenter prospective French surveillance data for pediatric emergency (PED) department visits and related hospital admissions.	A total of 871,543 PED visits in the 6 participating centers from 1 January 2017 to 19 April 2020 were included. Data collected in 2017, 2018, and 2019 were used to generate a model fitting the observed values of the PED visit, allowing us to project the number of PED visits that could have been expected without lockdown.	The main outcome was the evolution of the number of hospital admissions following the French decision to close schools and start a lockdown for the whole country. The secondary outcomes were the number of PED visits for AOM.	A sharp discrepancy was found between expected and observed values after lockdown, reflecting the significant decrease of PED visits (-68.0% [95% confidence interval, -81.2% to -55.8%]) and hospital admission following PED visits (-45.0% [95% confidence interval, -57.0% to -32.4%]) in the lockdown period. A significant decrease was found in AOM with a sharp decrease of >70% compared to the expected values.
Gioacchino Andrucci et al. [21]	Italy	Retrospective chart review study. Data obtained from a tertiary care children's hospital patient visiting the emergency department (ED).	1362 children (age median 4 years old) were included from 10 March 2020 to 30 April (during the national lockdown) comparing them with 5628 children (age median: 6 years old) of the same time frame of the previous year.	Data were analyzed the overall ED visits comparing 2019 and 2020 cohorts in sex, age, triage code, and outcome. Then, from the total number of accesses to ED, we collected diagnosis of the following acute otitis media.	A total of 1362 children visited the ED during lockdown compared to 5628 during the same period in 2019 (75.8% decrease). The incidence rates and proportions were significantly decreased for otitis (2.6% vs. 16.2%).
Ilari Kultunen et al. [24]	Finland	Retrospective chart review study. Data obtained from 2 Finnish hospitals, and open national registries for communicable diseases.	871 children visited ED 4 weeks before (17 February 2020 to 15 March 2020) and 303 children visited ED 4 weeks after (16 March 2020 to 12 April 2020), the declaration of the Finnish state of emergency on 16 March 2020.	The infections were classified as upper or lower by the International Classification of Diseases, 10th revision, diagnosis of the visit. The infectious disease register is a nationwide register maintained by the Finnish Institute of Health and Welfare.	Before the pandemic, there were 92 children who visited ED with AOM and 32 after the pandemic. The age distribution of patients at both hospitals remained similar before and after the lockdown. There was an overall decrease in the number of hospitalized patients, especially due to respiratory infections after the lockdown. No COVID-19 cases were detected in children in either of the participating hospitals.
Amy M. DeLaroch et al. [25]	USA	Retrospective cross-sectional study. Data were obtained from the Pediatric Health Information System, an administrative database including 50 tertiary care children's hospitals in the United States.	The study included all ED visits during the COVID-19 pandemic (15 March 2020 to 31 August 2020, N = 495,052) and a 3-year comparator period (15 March-31 August 2017-2019, N = 2,733,078) for 27 hospitals with complete administrative and billing data for the study periods.	To account for yearly variation in ED volume and case mix, the study averaged visit numbers for the 3-year comparator period across the same calendar dates as the pandemic period. The study examined primary discharge diagnoses, ED management, disposition, and select quality metrics for each visit.	Sharp declines in ED visits were observed for less urgent conditions, such as OM and upper respiratory infection (75.1% and 69.6% decreases, respectively). The percentage of visits to ED for total diseases of the ear and mastoid process was reduced by 68.0%. Among them, OM decreased by 75.1%, other specified and unspecified disorders of the ear by 42.5%, and diseases of middle ear and mastoid (except otitis media) by 65.3%.

Author [Ref.]	Country	Study Design	Study Population	Outcome Measures	Results
Sriram Ramgopal et al. [23]	USA	Retrospective cross-sectional study. Data were obtained from 37 freestanding and non-freestanding pediatric hospitals which contribute data to the Pediatric Health Information System. Constructed ensemble forecasting models using data from 2010-2019 and compared the forecasts to the 2020 data.	The study abstracted data from all encounters between 1 January 2010 and 31 December 2020 and with an associated ED charge. (27,874,730 children, median age: 4.8 in 2010-2019, 1,913,085, median age: 5.7 children in 2020, respectively). No exclusions were applied.	The study compared demographics (age, race, ethnicity, payor status, time of year, census region), diagnoses, and measures of acuity (hospitalization, ICU admission, and in-hospital mortality), and abstract based charges between 2010 and 2019 and 2020. The study transformed groupings of ED encounters (by month and year) into a time series object and identified seasonal trends between 2010 and 2019 for all encounters with estimated scatterplot smoothing and results displayed graphically.	Pediatric ED utilization remained low following the COVID-19 pandemic and was below the forecasted utilization for AOM. A total of 816,414 (2.9%) ED encounters for AOM occurred between 2010 and 2019 and a total of 24,322 (1.3%) ED encounters for AOM occurred in 2020.
Sarina Bucher et al. [26]	Switzerland	Retrospective chart review study. Data obtained from one tertiary referral center on emergency otorhinolaryngologic consultations.	A total of 495 emergency consultations were recorded during the lockdown (between 16 March 2020 and 26 April 2020); in comparison, there were 886 emergency consultations during the same period in 2019.	Primary outcomes were defined as differences in the number of emergency consultations in 2020 versus 2019.	During lockdown, the largest decreases of consultation numbers were seen for OM and eustachian tube dysfunction. Seventeen patients sought emergency assistance for otitis media in 2020, compared with 83 in 2019 ($p < 0.001$, OR 2.906, 95% confidence interval 1.704-4.957). Only 3 patients with Eustachian tube dysfunction were seen in 2020 versus 23 in 2019 ($p = 0.007$, OR 4.371, 95% confidence interval 1.306-14.631).

- ❖ Un estudi (Gioacchino et al.) realitzat en un hospital infantil a Itàlia. Les visites a urgències i hospitalitzacions van, OM tenia 162 visites d'urgències per cada 1.000 persones abans de COVID-19, però 26 per 1.000 durant el període COVID-19.
- ❖ **La taxa de visites per malalts greus no van augmentar.**
- ❖ Causes: mesures del confinament i ser més pronunciada per la reticència a visitar l'hospital per por.
- ❖ Altres estudis han reportat resultats similars. En un altre estudi a gran escala (Amy M.De-Laroche et al.) basat en registres de les visites d'urgències a 27 hospitals infantils dels Estats Units **la taxa de visites a urgències es van reduir en un 75,1%.**

Complicacions

Author [Ref.]	Country	Study Design	Study Population	Outcome Measures	Results
Sara Torretta et al. [27]	Italy	Retrospective chart review study Date were obtained from tertiary outpatient clinic	A total of 102 children were included. (50% males, mean age was 41.4 ± 14.0 months)	Families of otitis-prone children (i.e., with a history of recurrent acute otitis media defined as ≥3 distinct episodes in 6 months, or ≥4 in 12 months) scheduled for periodic evaluation were contacted through telephone calls by resident physicians. Parents were asked to provide their subjective opinion on their children's clinical conditions (improved, stable, worsened) during lockdown. The mean number of episodes of acute otitis media without spontaneous tympanic membrane perforation and otorrhea episodes, as well as the number of systemic antibiotic treatments administered was recorded and compared with non-pandemic period.	Most parents (82.3%) declared that their children's condition had improved during the lockdown, and 16.7% stated that their children's condition was stable. There was a statistically significant reduction in the mean number of episodes of AOM without spontaneous tympanic membrane perforation, otorrhea, or systemic antibiotic treatment during pandemic period. (0.37 vs. 0.07, 0.48 vs. 0.01, 0.85 vs. 0.09, respectively).
Mara Barschkett et al. [14]	Germany	Retrospective observational cohort study Date obtained from nationwide data of the Kassenärztliche Bundesvereinigung (National Association of Statutory Health Insurance Physicians) in anonymized form for the population of all children with statutory health insurance in Germany with at least one visit to a medical doctor's office between January 2019 and June 2020.	A total of 8.29 million children (0-15 years) in 2019 and 8.5 million children in 2020 were included. In 2019 and 2020, about 90% of all children between 0 and 15 years were insured via one of the statutory health insurance funds. Thus, the data cover most children living in Germany.	The analyzed dataset includes the number of treatment cases and, at the patient level, the diagnoses documented with ICD-10 codes. The frequencies of outpatient treatment cases and selected diagnoses were evaluated for the second quarter (Q2) of 2019 (control period) for children born in the period of 2007-2018 and for Q2 of 2020 (pandemic period) for children born in the period of 2008-2019.	Among outpatient visits for infectious disorders, there was a particularly marked reduction in OM with other middle ear and mastoid diseases in children aged 1-2 and 3-5 years (22% and 28% decreases, respectively).

Complicacions

- Estudi Italià (Giannico Ialannella et al.). Timpanometria en 932 nens de 6 a 12 anys pacients ambulatori amb OME greu van tenir més resolució després de la restricció social. **No hi va haver cap diferència significativa en la resolució i taxes de col·locació de tubs a causa de la teràpia mèdica a l'OME abans i després de la pandèmia.**
- Un altre estudi Itàlia amb 102 nens propensos a l'otitis (amb antecedents d'aguts recurrents). Es van analitzar OM definit com a 3 episodis diferents en 6 mesos o 4 en 12 mesos). L'estudi va trobar que durant el període de confinament, **el 82% dels nens van mostrar una millora en l'OM.** Reducció episodis de perforació de membrana, d'otorrea i tractament antibiòtic sistèmic.

Complicacions

- Sakia et al. Van comparar les taxes d'incidència d'OM i les complicacions entre els períodes previ a la pandèmia i la pandèmia de COVID-19 entre nens de 0 a 12 anys utilitzant una base de dades a la zona d'Utrecht. L'estudi va incloure 67.245 (pre) i 67.134 (pandèmia) nens. **La presència de mastoïditis aguda i la prescripció d'antibiòtics van disminuir.**
- Els autors van atribuir principalment la disminució al confinament i a l'augment del rentat de mans.

- ❖ Hi ha publicacions que suggereixen que els símptomes de l'OM són pitjors si es desenvolupa l'OM en persones amb COVID-19.
- ❖ Tanmateix, encara no està clar si el SARS-CoV-2 infecta directament l'oïda mitjana i causa OM
- ❖ En un estudi, els símptomes de l'OM no difereixen significativament entre pacients amb i sense COVID-19.
- ❖ Un altre estudi no va observar cap fracàs del tractament, recurrència, o complicacions quan es va produir OM en pacients amb COVID-19.
- ❖ **Per tant, no està clar si els símptomes de l'OM causats per la infecció per SARS-CoV-2 són més greus o el pronòstic és pitjor que els de la MO causada per altres infeccions víriques.**

Conclusions

- Les mesures, inclòs la **higiene personal i el distanciament social**, com a resposta a la COVID-19, va tenir molts efectes positius sobre l'OM.
- A causa de la reducció de les infeccions de les vies respiratòries superiors, la **incidència d'OM va disminuir dràsticament, igual que la prescripció d'antibiòtics, el nombre de pacients que van visitar el SU.**
- Aquests canvis van donar lloc a una **disminució de les complicacions de l'OM.**
- **Millor evolució de les OM greu existent i les complicacions.** Aquesta troballa suggereix que les mesures soles, més que els tractaments agressius convencionals, poden prevenir la progressió de la malaltia. Tot i que es necessiten més estudis en el futur, les troballes existents proporcionen a referència útil per a futures directrius de tractament de l'OM.

Moltes gràcies