

# High safety and acceptance of COVID-19 vaccines in adolescents after multisystem inflammatory syndrome in children (MIS-C)

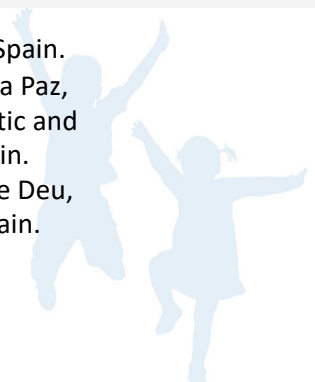
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# Conflict of Interest



X	No, Nothing to disclose
	Yes, please specify



# INTRODUCTION



- MIS-C is characterized by a dysregulated response of the immune system 2-6 weeks after a SARS-CoV-2 infection.
- The disorder is associated with high levels of SARS-CoV-2 antibodies, an intense cytokine response and immune activation.
- Some authors hypothesized that the COVID-19 vaccine could trigger a new exaggerated response in these children.



## AIM



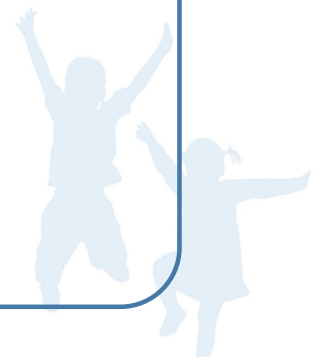
- Assess the proportion of vaccinated children and the incidence of new MIS-C or myocarditis after vaccination in adolescents with previous MIS-C



## METHODS



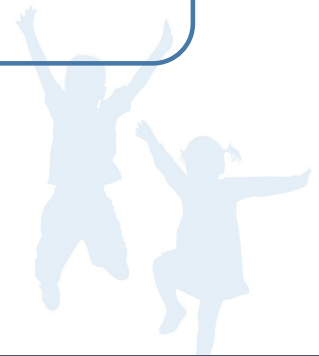
- Multicenter survey study
- EPICO-AEP cohort
- Centers with  $\geq 3$  **MIS-C** patients:
  - **12-18 years** old
  - MIS-C (WHO criteria) March 2020-October 2021
- Semi-structured **telephonic interview** with the caregivers and/or the adolescents
  - Vaccination acceptance and advice and adverse events
  - Severity classification of the side effects:
    - mild (no interference with daily activities)
    - moderate (partial limitation of daily activities)
    - severe (hospitalization or prevents daily activities)



## METHODS



- Categorical variables described as absolute values and percentages, continuous variables as medians and interquartile ranges
- The characteristics of vaccinated and unvaccinated patients were compared using Fisher's test for categorical variables, and the Kruskal-Wallis test for continuous variables.
- Statistical significance  $p < 0.05$
- Data were analyzed using the Stata version 17, College Station, TX.



## RESULTS

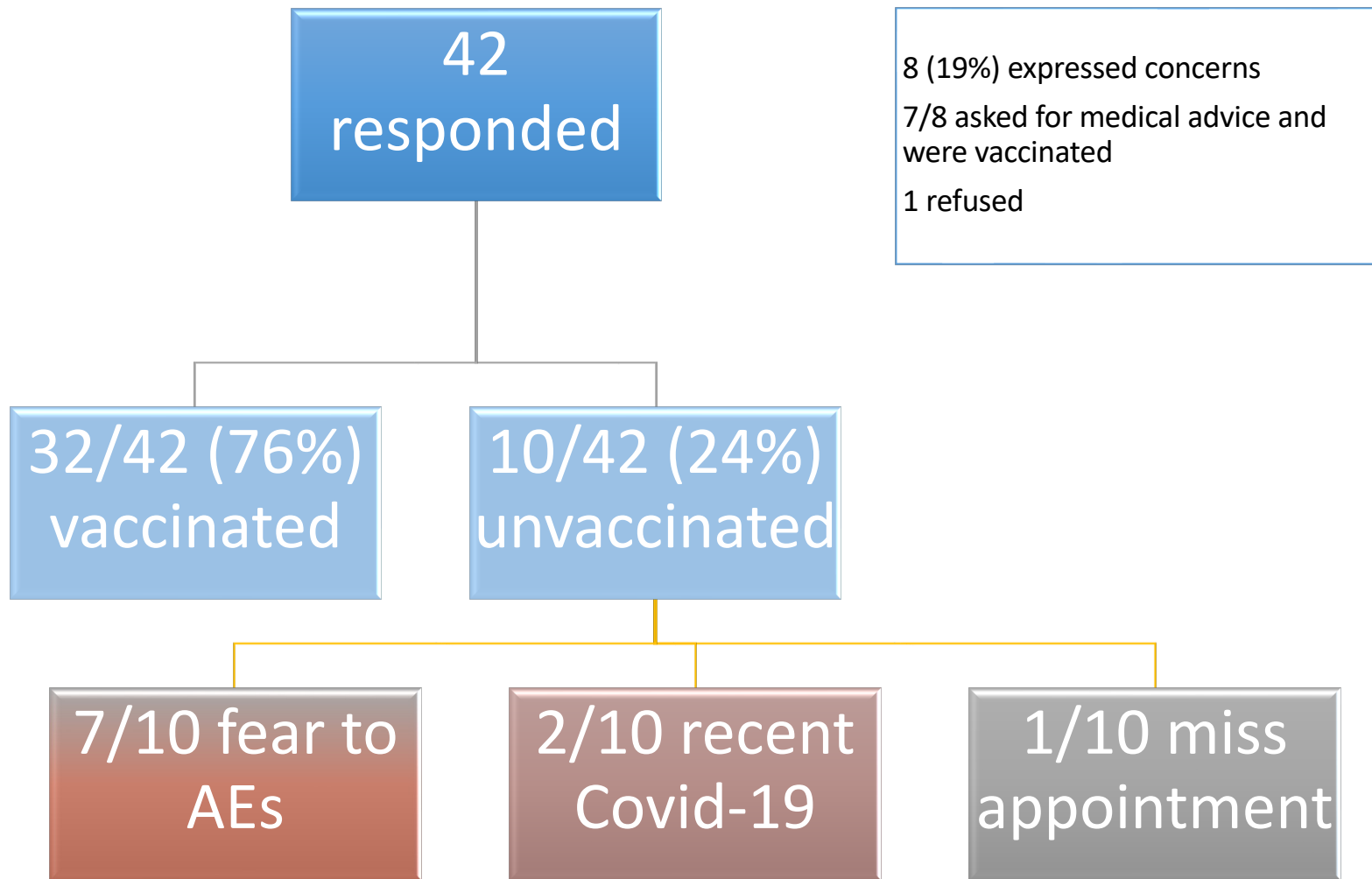


- 48 adolescents from 8 centers met the inclusion criteria.
- 42/48 (87.5%) patients were included in the analysis.
- 6 interview was not possible.



- The telephonic interview took place after a median of 10 weeks (range 5.3-19.7) after vaccination
- Median age at MIS-C diagnosis: 13.1 years old (IQR, 12.6-15.1)
- Male: 30/42 (71.4%).
- At the moment of the interview, **32/42 patients (76.2%) had received COVID-19 vaccine.**
- Median time between MIS-C diagnosis and vaccination: 42 weeks (IQR: 27-68).







# RESULTS



## Comparison of vaccinated patients vs. Unvaccinated patients

	Total (n=42)	Vaccinated (n=32)	Unvaccinated (n=10)	p-value
Gender (male)	30 (71.4)	23 (71.9)	7 (70.0)	1.000
<b>Characteristics of MIS-C episode</b>				
Age at MIS-C episode	13.1 (12.6-15.1)	13.2 (12.6-15.2)	12.9 (12.7-14.4)	0.595
Admission duration (days)	10.0 (8.0-12.0)	10.5 (8.0-13.0)	9.5 (7.0-11.0)	0.288
PICU admission	32 (76.2)	24 (75.0)	8 (80.0)	1.000
PICU admission duration (days)	5.0 (4.0-8.5)	6.0 (4.0-10.0)	4.0 (3.0-5.5)	0.082
Oxygen therapy	25 (59.5)	22 (68.8)	3 (30.0)	0.062
Mechanical ventilation	10 (23.8)	9 (28.1)	1 (10.0)	0.404
Inotropes	26 (61.9)	20 (62.5)	6 (60.0)	1.000
Cardiological complications	33 (78.6)	25 (78.1)	8 (80.0)	1.000
Myocarditis/myocardial dysfunction	32 (76.2)	24 (75.0)	8 (80.0)	1.000
Coronary abnormalities	3 (7.1)	2 (6.2)	1 (10.0)	1.000
Coronary aneurysm	0	0	0	.
<b>Information related to COVID-19 vaccination</b>				
Hesitancy about vaccination	8 (19.0)	6 (18.8)	2 (20.0)	1.000
Sought medical advice before vaccination	7 (16.7)	6 (18.8)	1 (10.0)	1.000

Categorical variables are showed as n (%) and continuous variables as median (IQR)

# RESULTS



## Characteristics of vaccinated patients (n=32)

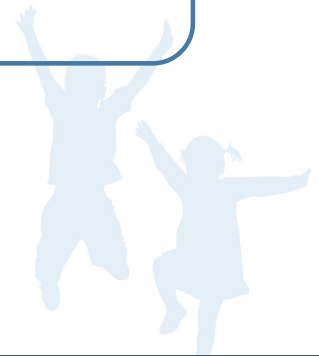
Time between MIS-C and vaccination (weeks)	42.0 (27.4-68.1)
Vaccine:	
Cominarty (Pfizer-BioNTech™)	28 (87.5)
Spikevax (Moderna™)	4 (12.5)
Patients reporting adverse events after vaccination	22 (68.8)
Type of adverse event:	
Local reaction in injection site	14 (43.8)
Fatigue	11 (34.4)
Fever	4 (12.5)
Headache	1 (3.1)
Severity of adverse events:	
Mild	26 (86.7)
Moderate	4 (13.3)
Severe	0
Duration of the adverse events (days)	1 (1-2)
Sought medical assistance for side effect (moderate local reaction)	1 (3.1)



# RESULTS



No new MIS-C or myocarditis or pericarditis episodes were reported after vaccination



## DISCUSSION

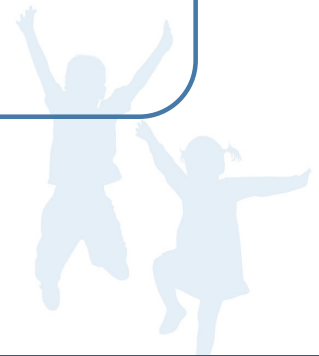


- We describe a high acceptance and low incidence of relevant adverse events after COVID-19 vaccines in a population of adolescents with a previous MIS-C diagnosis.
- In our study, no new MIS-C episodes or myocarditis occurred after a median of 10 weeks post-vaccination.
- Some cases with MIS-C after SARS-CoV-2 vaccination have been reported, but the association is hard to establish.
- A study has proven a highly effective of SARS-CoV-2 vaccine in preventing MIS-C in persons aged 12–18 years (Zambrano LD, MMWR Morb Mortal Wkly Rep, 2022).

## CONCLUSIONS



- COVID-19 vaccine in adolescents has a good safety profile.
- The results of this study are reassuring and may help to decide for patients with previous MIS-C who are considering COVID-19 vaccination.
- Further studies with larger number of participants may confirm these results.



# THANK YOU



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## Patients and Families

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Cinta Moraleda - EPICO-AEP