

# Immunization coverage and timeliness of immunizations in children with cystic fibrosis in Greece

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## INTRODUCTION

Children with chronic diseases need specific consideration about immunisation, yet significant delays or immunity gaps occur often. Immunisation barriers include false perceptions about immunisation, missed opportunities for immunisation, and organisational issues. Patients with cystic fibrosis (CF) are at increased risk for respiratory infections because of the impaired respiratory function. Pneumococcal and annual influenza immunisation are recommended. Data about immunisation rates and timeliness of immunisation in CF patients are scarce. Given the increasing life expectancy of CF patients, immunisation is important for them. We studied immunisation rates and timeliness of immunisation in children with CF in Greece.

## METHODS

- Southern Greece Reference Centre for Cystic Fibrosis, Aghia Sophia Children’s Hospital (Athens)
- February – March 2014
- Immunisation booklets of children
- Parents opinions about immunisation
- Timeliness at:
  - 12 months: 3 doses of DTaP-IPV-Hib, 2 doses of HBV, 3 doses of PCV, 2 doses of MenC
  - 24 months: 4 doses of DTaP-IPV-Hib, 3 doses of HBV, 4 doses PCV, 3 doses of MenC, 1 dose of MMR, 1 dose of VZV, 1 dose of HAV.
  - 6 years: 4 doses of DTaP-IPV-Hib, 1 dose of DTaP-IPV, 3 doses of HBV, 2 doses of MMR, 2 doses of VZV, 2 doses of HAV, 1 dose of PPSV23
  - 12 years: 4 doses of DTaP-IPV-Hib, 1 dose of DTaP-IPV plus 1 booster DTaP-IPV (adult type), 3 doses of HBV, 2 doses of MMR, 2 doses of VZV, 2 doses of HAV, 2 doses of PPSV23
- Complete/up-to-date immunisation: all vaccines in accordance with the National Immunisation Programme
- logistic regression (stepwise select)

## RESULTS

Characteristics of children with CF	
Characteristic	Subjects n=122
Median age, years (range)	11 (0.5 - 22)
Male gender	58 (47.5%)
Greek nationality	104 (85.2%)
Urban area of residence	98 (83.8%)
Education level of father	
Elementary school	15 (12.9%)
Secondary / High school	57 (49.1%)
University	44 (37.9%)
Education level of mother	
Elementary school	8 (6.9%)
Secondary / High school	62 (53.5%)
University	46 (39.6%)
Median no of children in family (range)	2 (1-5)

Complete up-to-date immunisation by age	
• 12 months	61.4%
• 24 months	46.5%
• 6 years	14.5%
• 12 years	14.5%

**Only 8 (15.1%) of 119 children had completely and up-to-date immunisation in accordance with the Routine Immunisation Programme.**

No association between complete immunisation and patients characteristics

Immunization coverage and timeliness per vaccine		
Vaccine	Complete immunization (%)	Timeliness(%)
DTaP-IPV-Hib	92.6	88.2
DTaP-IPV (adult)	64.4	59.6
HAV	96.7	75.3
HBV	97.4	73.6
MMR	97.4	77.6
VZV2	85.1	62.1
MenC	85.1	84.9
MCV4	26.8	25.0
PCV	84.3	81.4
PPSV23	30.1	12.4
BCG	58.9	44.3

## DISCUSSION - CONCLUSIONS

- significant immunisation gaps
- no catch up immunisation
- differences in immunisation coverage by vaccine
- vaccinations should be reinforced in order to increase the benefits of immunisation in CF patients