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# FFX-COVID-19

## Results Phase 1

5.1.2e

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## First Few 100 - Household study

Based on 'latent' RIVM/METC protocol 'Study on avian or new influenza virus in humans'

### Phase 1 inclusion

- Lab confirmed patients ( $\geq 16$  years) COVID-19 (via GGD)
- With children between 1-18 years old
- All household members live in same house

### Exclusion

- Children under 1 year of age
- Hospital admission



## Overview of sampling

	Day															week
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15-21	4-6
<b>Questionnaire</b>	x															x
<b>Symptom diary</b>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<b>Blood sample</b>	x														x	x
<b>Nose/Throat swab</b>	x														x	
<b>Oral fluid</b>	x															x
<b>Feces sample</b>	x														x	x
<b>Nose/Throat swab (optional ≥16Y)</b>			x			x			x			X				



## Inclusion Phase 1

Period 23 March-16 April

- 54 Households
  - > 239 participants, 185 family members
- Many households with positive health care workers
  - > 80% of index cases (42/54)



## Analyses

Exclusion of family members:

- Missing PCR result day 1 and/or questionnaire

174 family members included

- 67 adults (mean age 42 years)
- 107 children 1-16 years (mean age 10 years)

Focus on:

- Home visit day 1
- Home visit after 2-3 weeks (median 16 days, range 14-22)
- Results PCR nose/throat, PCR feces and serology



## PCR nose/throat family members

Day 1:

Children <12 less frequently PCR positive than older children and adults

Day 15:

2 children <12 PCR positive → were not PCR positive on day 1

leeftijdscategorie	N	positieve uitslag PCR	Ct-waarde*
		n (%)	mediaan (uitersten)
<b>uitslagen op onderzoeksdag 1</b>			
1-5 jaar	19	2 (10)	31,2 (26,7-35,7)
6-11 jaar	44	7 (16)	25,1 (20,2-34,5)
12-17 jaar	44	15 (34)	28,2 (18,2-35,6)
18-45 jaar	36	10 (28)	32,4 (20,7-36,0)
> 45 jaar	31	13 (42)	28,9 (20,6-36,3)
<b>uitslagen na 2-3 weken</b>			
1-5 jaar	19	1 (5)	32,7
6-11 jaar	39	1 (3)	30,0
12-17 jaar	43	7 (16)	33,9 (30,9-35,3)
18-45 jaar	36	4 (11)	35,1 (28,8-36,2)
> 45 jaar	31	7 (23)	33,6 (28,5-35,7)

\* Ct-waarde: 'cycle threshold'-waarde; dat is het aantal PCR-cycli (verdubbelingen) dat nodig is om het virale RNA te detecteren in het PCR-apparaat. Een lage Ct-waarde geeft aan dat er veel virus aanwezig is in het monster.

Ned Tijdschr Geneeskd. 2020;164:D5140





## PCR results and symptoms

Of 174 family members

- 45% had symptoms on day 1
- 59% had symptoms in previously 14 days

Family members with positive PCR on day 1:

	<18 years	≥18 years
Symptoms day 1	46%	87%
Symptoms previously 14 days	67%	91%
≥2 respiratory symptoms* day 1	13%	52%
≥2 respiratory symptoms* previously 14 days	25%	78%

\*sore throat, cough, breathing pain, shortness of breath, common cold, mucus cough



## Feces results

Day 1:  
Children <12 less frequently PCR  
positive than older children and  
adults

Age category	N total	N positive PCR Feces day 1 N (%)	N totaal	N positive PCR Feces day 15 N (%)
1 t/m 5 year	19	2 (10,5)	19	3 (15,8)
6 t/m 11 year	42	5 (11,9)	39	6 (15,4)
12 t/m 17 year	43	15 (34,8)	43	10 (23,3)
18 t/m 45 year	35	10 (28,6)	33	2 (6,1)
45 year and older	31	11 (35,5)	28	4 (14,3)





## Serology results

Day 1:  
All children <12  
negative

Higher  
seroprevalence  
after 2-3 weeks

Seroconversion in  
29 family members  
who tested  
negative on day 1

leeftijdscategorie	positieve uitslag op dag 1	positieve uitslag na 2-3 weken
	n/N (%)*	n/N (%)
1-5 jaar	0/19 (0)	3/14 (21)
6-11 jaar	0/39 (0)	4/31 (13)
12-17 jaar	4/43 (9)	12/38 (32)
18-45 jaar	4/35 (11)	11/35 (31)
> 45 jaar	6/31 (19)	13/30 (43)

\* Van onderzoeksdag 1 waren er in totaal 167 uitslagen beschikbaar en van serum dat 2 tot 3 weken later was afgenomen in totaal 148 uitslagen.

Ned Tijdschr Geneeskd. 2020;164:D5140



## PCR, feces and serology day 1-15

Of 174 family members

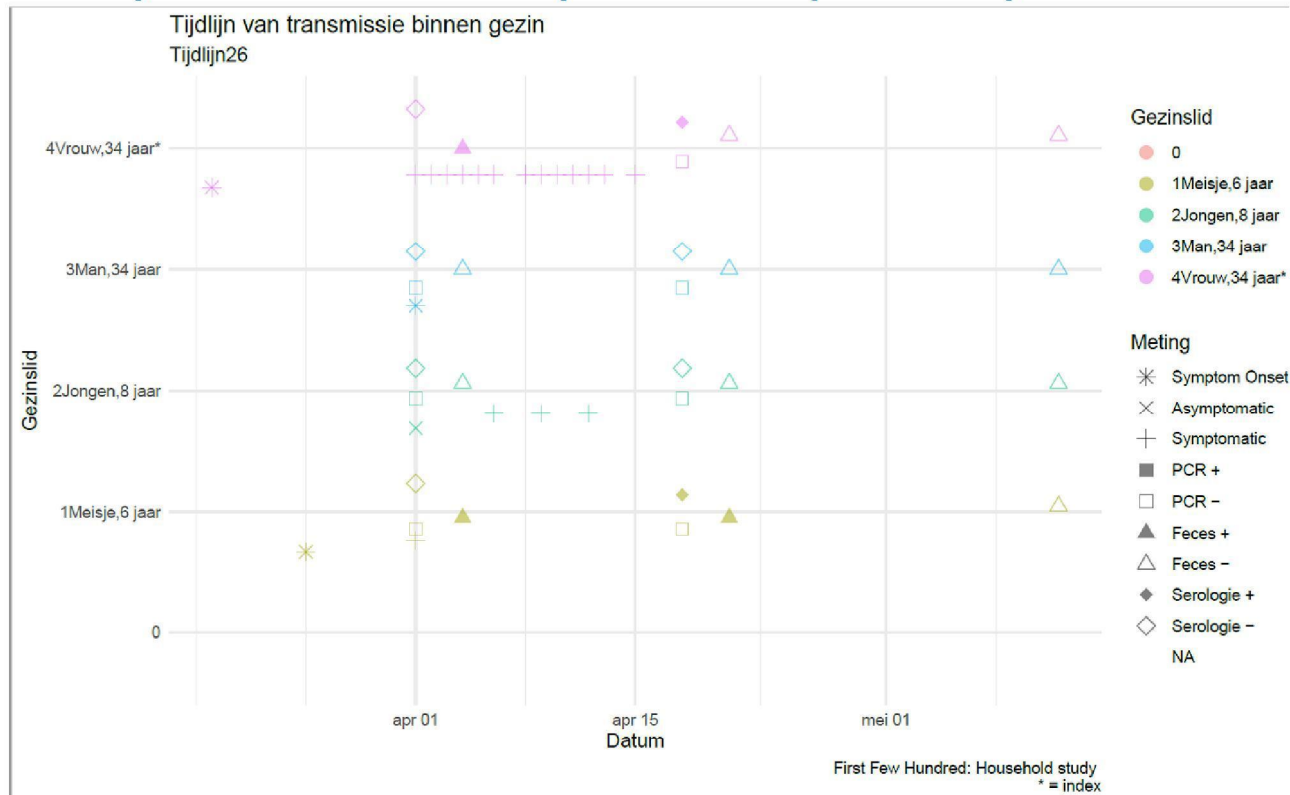
- 63% (n=110) tested negative in all samples PCR nose/throat, feces and serology day 1-15

Split by age categories:

- Children <12: **78%** negative
- Children 12 t/m 17: **57%** negative
- Adults  $\geq 18$ : **54%** negative

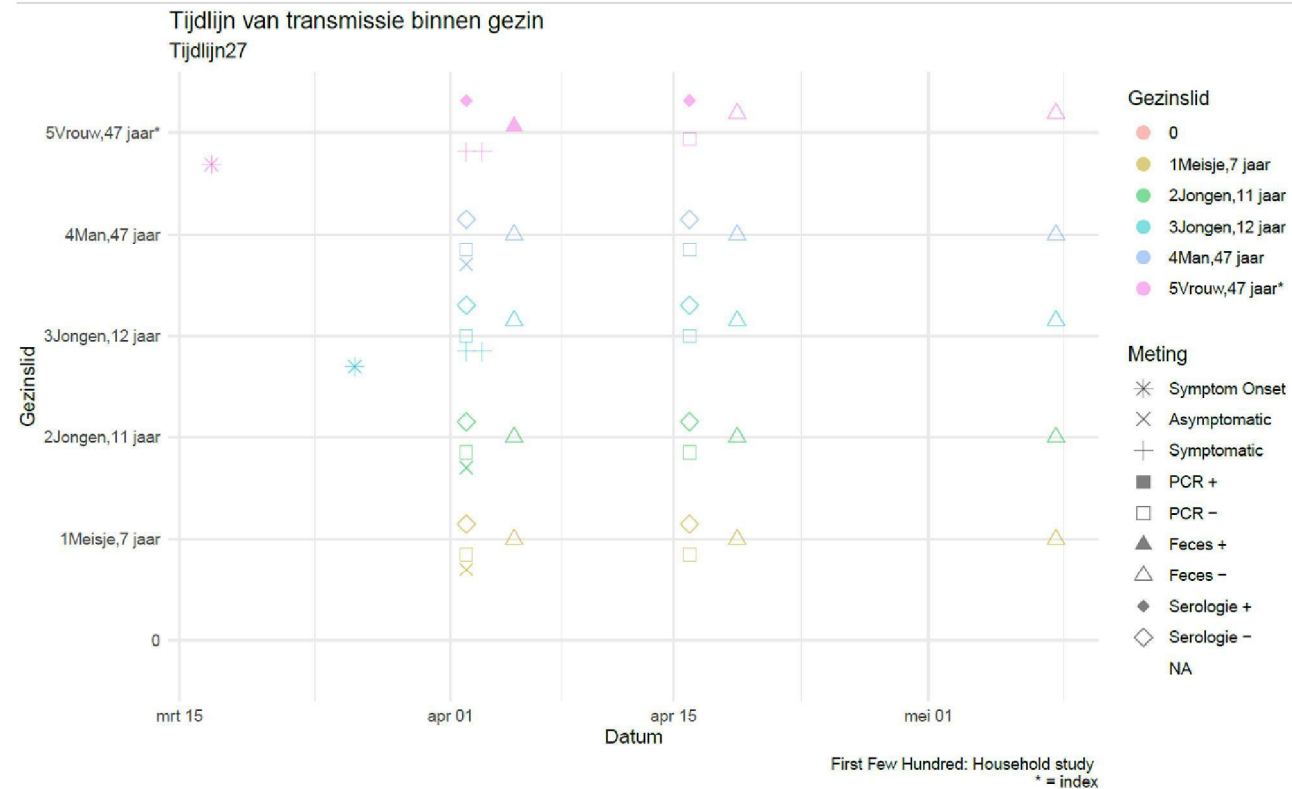


## Family members as possible primary case?



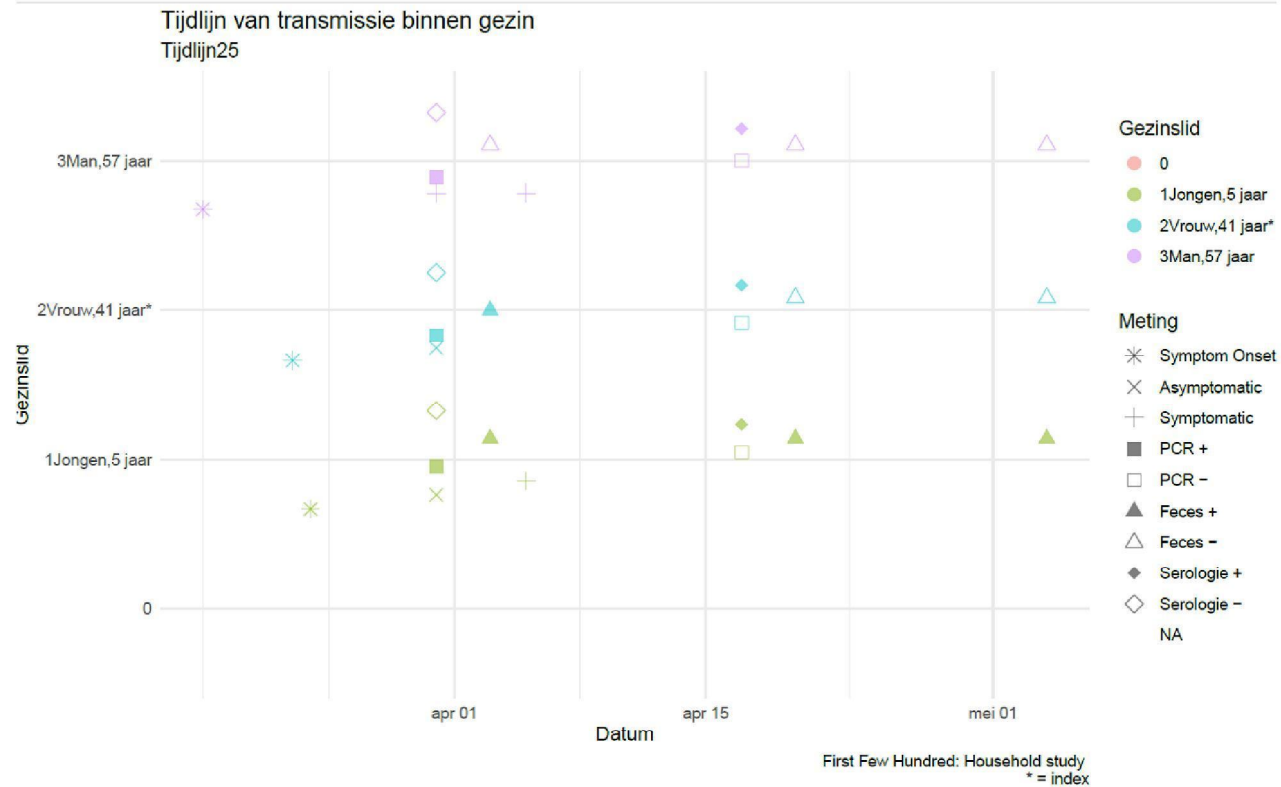


## Family members as possible primary case?





## Family members as possible primary case?





## Conclusion

- Within included households children <12 years less frequently PCR and serologically positive than older children and adults
- Within this study no indications that a child <12 was the first case within a household
- Results match with international studies

### Critical notes:

- Study performed during school closure
- Many index cases were health care workers



## What's next?

### Inclusion Phase 2

- Lab confirmed children (<18 years) COVID-19 (via GGD)
- All household members live in same house

### Exclusion

- Children under 1 year of age
- Parents or other adult family members already COVID-19 positive
- Hospital admission

Testing of complete school classes? (symptomatic/asymptomatic)