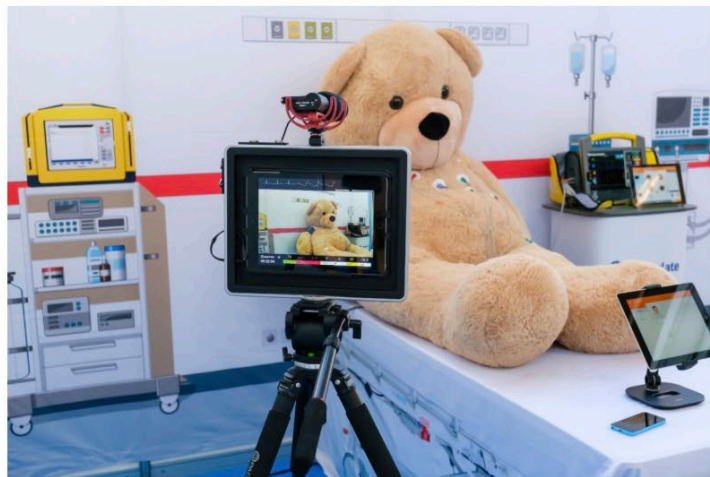


# Corona virus

[Home](#) > [News](#) > [Corona virus](#) > Paediatric webinar serie on COVID-19, April 24, 14:00 CEST

## PAEDIATRIC WEBINAR SERIE ON COVID-19, APRIL 24, 14:00 CEST

 APRIL 20, 2020



The programme for the 2nd webinar is:

Research updates in paediatric emergency medicine, Rianne Oostenbrink, the NL, and Silvia Bressan, Italy (president and secretary REPEM)

National update and lessons learned from China: Dr. Xinping Zhang, director paediatric intensive care, Hunan Children's hospital, China

National update and lessons learned from Sweden: Dr Maria Mossberg, Paediatrician, Lund University, Sweden

National update and lessons learned from the Netherlands: Dr. Rianne Oostenbrink, Assistant professor in paediatrics, Erasmus MC, The Netherlands



Silvia Bressan  
Paediatric Emergency Consultant  
University of Padova, Italy

1222-2022  
**800**  
ANNI



UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA



1222-2022  
**800**  
ANNI



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Research in European Paediatric Emergency Medicine



📅 APRIL 20, 2020

**PAEDIATRIC WEBINAR SERIE ON  
COVID-19, APRIL 24, 14:00 CEST**



**EUSEM**  
EUROPEAN SOCIETY FOR EMERGENCY MEDICINE

# Outline

- Introduction to REPEM
- Results of survey on preparedness and response to Paediatric COVID-19 in European Emergency Departments
- REPEM COVID-19 work in progress

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# RESEARCH IN EUROPEAN PEDIATRIC EMERGENCY MEDICINE (REPEM) NETWORK

[Home](#)[Know us in 10 Minutes](#)[Steering committee](#)[Participating Centers](#)[members only](#)

New Website!

Please [register](#) for full site access.

**REPEM is a Research Network that includes physicians in the capacity of a researcher, medical directors, research directors, consultants or directors of medical education who work in a European pediatric emergency department.**

Deadline for study submission

30/06/2020

[Click here to submit](#)

- [Register](#)
- [Members](#)
- [Login](#)



The network was established in October 2006 at the EuSEM Congress in Crete. Its mission is to improve emergency care for children through high standard national, multinational and multicenter research. In this way, REPEM will help the EuSEM PEM Section achieve the objectives proposed.

This Mission will be developed:

- Considering the patient as the focus of every activity developed
- Taking into account the principles of equity, efficiency, and quality· Encouraging European research
- Establishing relations with other Research Networks from the same or other geographical areas.

- [Evaluation and Selection process](#)
- [Submit a study proposal!](#)
- [Current research projects](#)
- [Publications](#)
- [REPEM Newsletters](#)
- [International Scene](#)
- [APEC course](#)
- [EuSEM](#)

## Tweets

Tweets by [@EuropeanPEM](#)



[repem.secretary@gmail.com](mailto:repem.secretary@gmail.com)

<https://repem.net/>



## Connection to 20 European countries

+ 1 European associated country (Israel)





## Mission

To improve emergency care for children through high standard national, multinational and multi-centre research and through collaboration with the PEM section of EuSEM

## Vision

To be instrumental:

- To the development and conduct of informative multicentre European research projects in PEM
- To the training and engagement of European PEM clinicians in research
- To the provision of sound review and feedback of project proposals submitted by members

### Pediatric Emergency Care in Europe *A Descriptive Survey of 53 Tertiary Medical Centers*

*Santiago Mintegi, MD,\* Itai Shavit, MD,† Javier Benito, MD,\* and the REPEM group  
(Research in European Paediatric Emergency Medicine)*

**PEC 2008**

### **From cradle to adolescence: the development of Research in European Pediatric Emergency Medicine**

Santiago Mintegi<sup>a</sup>, Mark D. Lyttle<sup>b</sup>, Ian K. Maconochie<sup>c</sup>, Javier Benito<sup>a</sup>, Alain Gervais<sup>d</sup>, Henriette Moll<sup>e</sup>, Itai Shavit<sup>g</sup>, Liviana Da Dalt<sup>f</sup>, Yehezkel Waisman<sup>h</sup> and on behalf of Research in European Pediatric Emergency Medicine (REPEM) Network

**EJEM 2014**

### Research priorities for European paediatric emergency medicine

Silvia Bressan,<sup>1</sup> Luigi Titomanlio,<sup>2,3</sup> Borja Gomez,<sup>4</sup> Santiago Mintegi,<sup>4</sup> Alain Gervais,<sup>5</sup> Niccolo Parri,<sup>6</sup> Liviana Da Dalt,<sup>1</sup> Henriette A Moll,<sup>7</sup> Yehezkel Waisman,<sup>8</sup> Ian K Maconochie,<sup>9</sup> Rianne Oostenbrink,<sup>9</sup> On behalf of REPEM

**ADC 2019**



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# COVID-19 RESOURCE CENTRE

European Academy of Paediatrics



## WELCOME TO THE EAP RESOURCE CENTRE FOR COVID-19

The purpose of the resource is to enable paediatricians across Europe to have access to and to share information about the disease and its impact on children, fellow healthcare workers and national and international public health policies; and to share their experience of the disease and its impact on national and international public health policies.

### WEBINARS

You can watch our weekly webinars where guest speakers discuss the impact of the virus on a range of issues including ethics; mental health; future children centric health policies. Links to relevant webinars elsewhere can also be found here.



**24/04/2020**

**Response to CoVID19: evidence towards building a more resilient health system for children**

# Preparedness and response to Pediatric CoVID-19 in European Emergency Departments: a survey of the REPEM and PERUKI networks

Structured point prevalence survey (20-21 March)

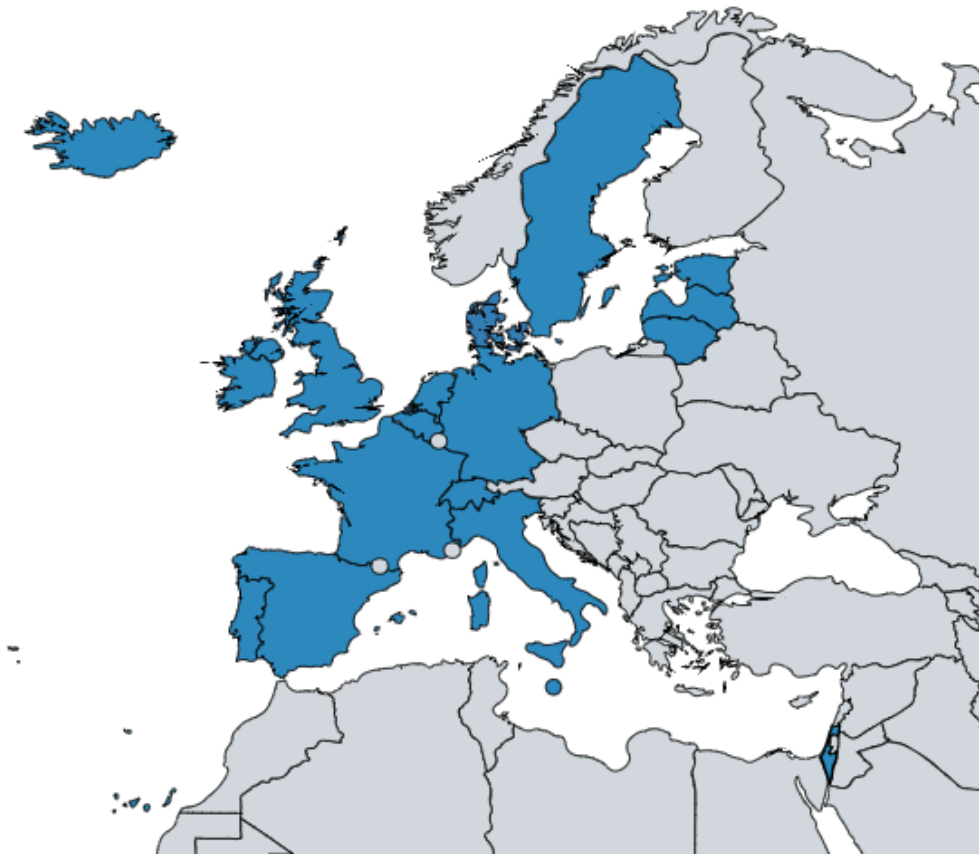
to describe the preparedness and response to the COVID-19 pandemic, including strengths and challenges, in European referral EDs for children within the REPEM and PERUKI networks

to summarise lessons learnt, generalisable across countries

# Results

Centres per Country	
< 20 million inhabitants	1-5
> 20 million inhabitants	6-10

- 102 centres from 18 countries
- 75% tertiary-care PED
- 81%  $\geq 15.000$  paediatric visits/year
- only 192 COVID-19 children seen overall

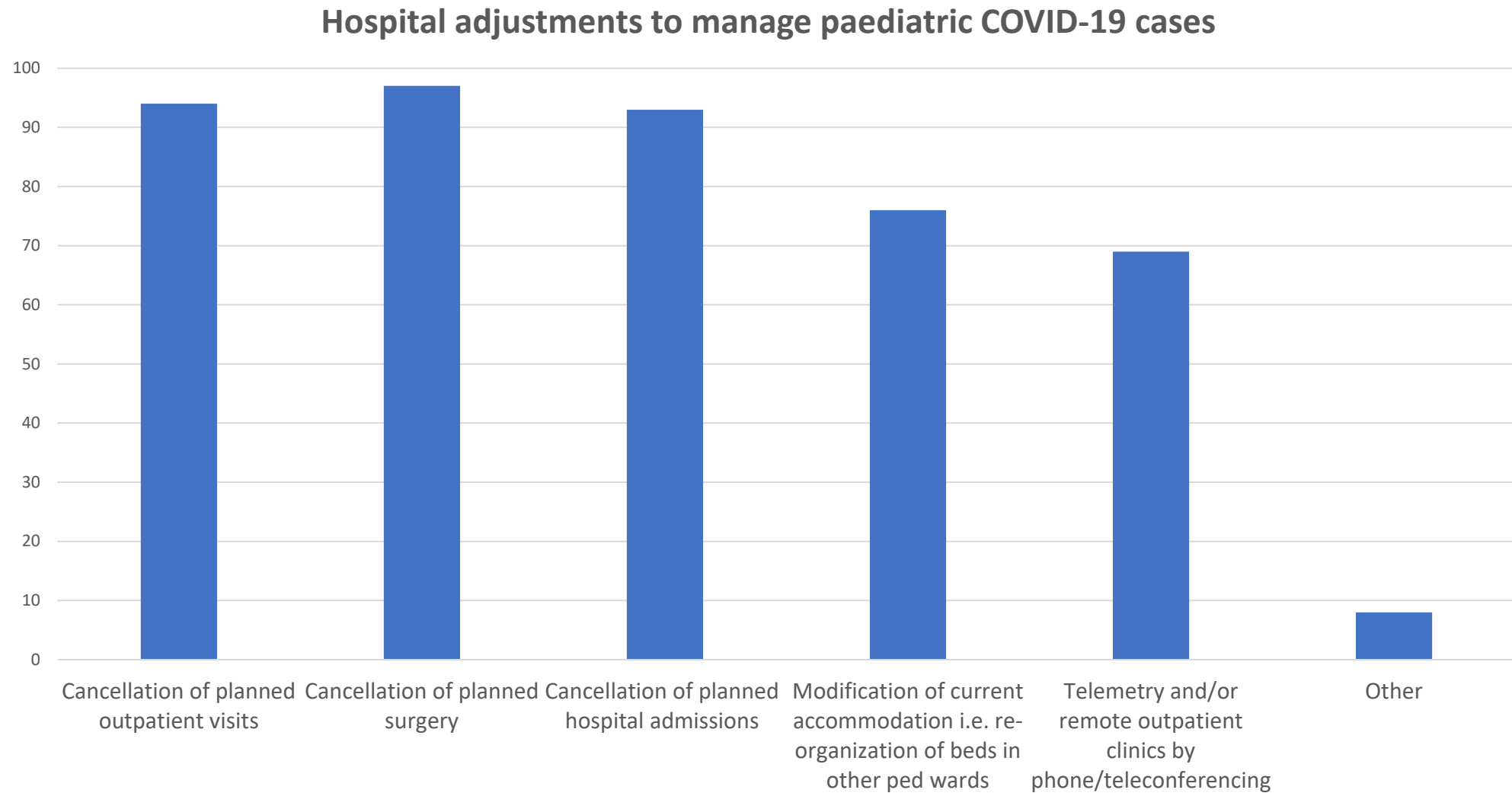




## Results — contingency plan

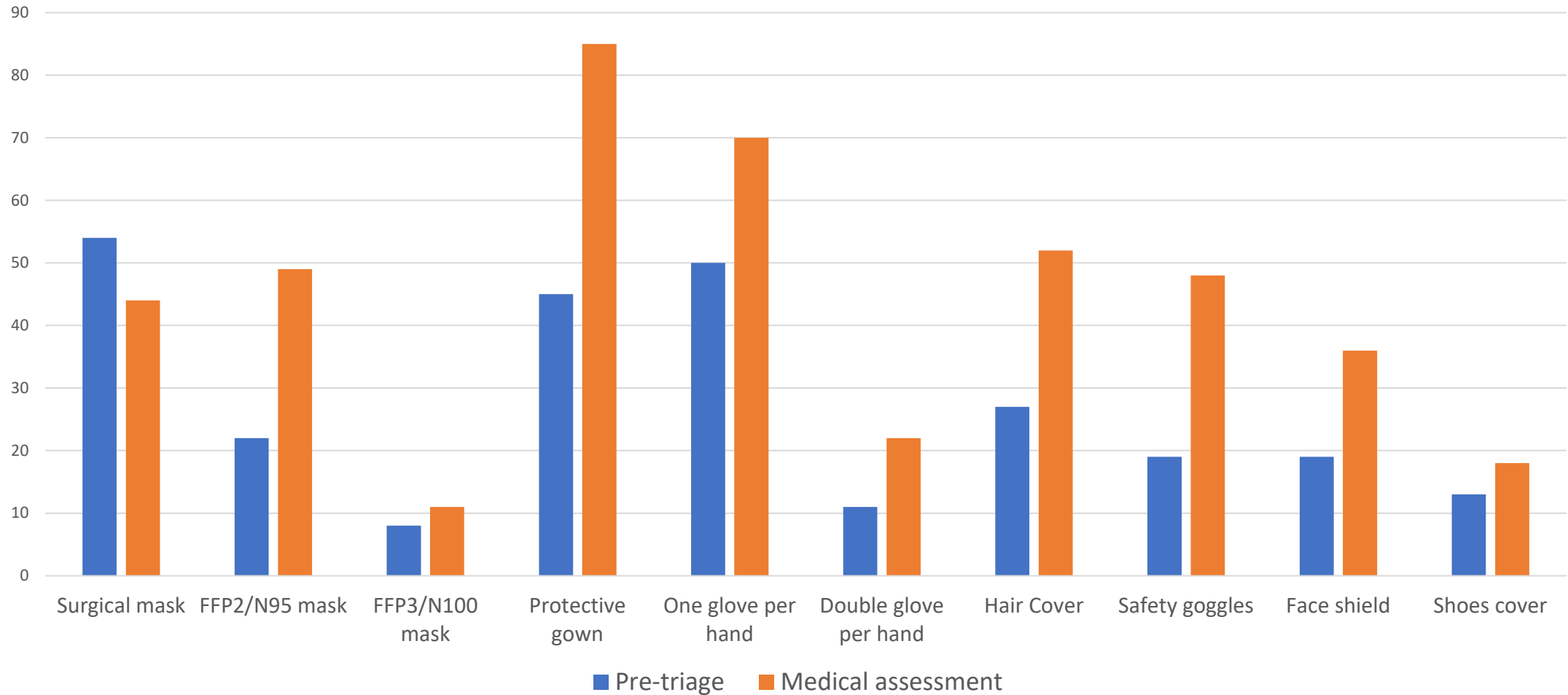
No written and documented ED contingency plan	34%
Simulation for epidemics/mass casualties never done	36%
Pre-triage not set up yet	22%
Isolation rooms with negative pressure in the ED	17%
No ICU availability for paediatric COVID-19	26%
Possibility of paediatric wards converted to adult COVID-19	42%

# Results - contingency plan



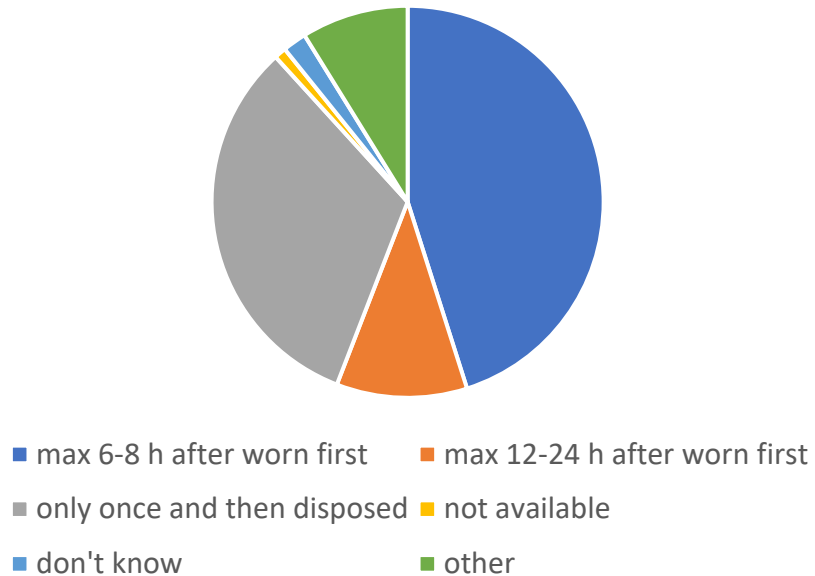
# Results - PPE

## PPE use at pre-triage and for medical assessment

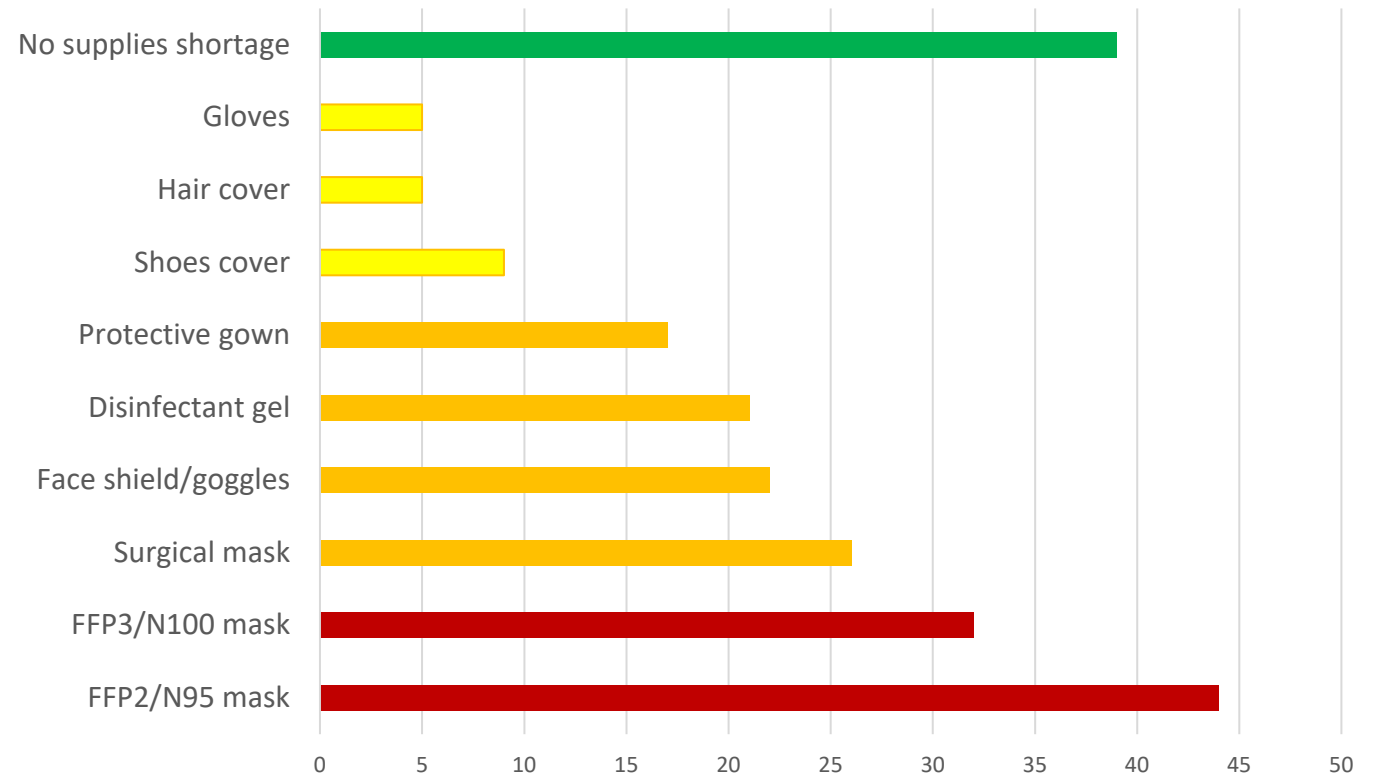


# Results - PPE

Recommendations for duration of use of FFP2/FFP3 in your ED



Shortage of PPE at any time

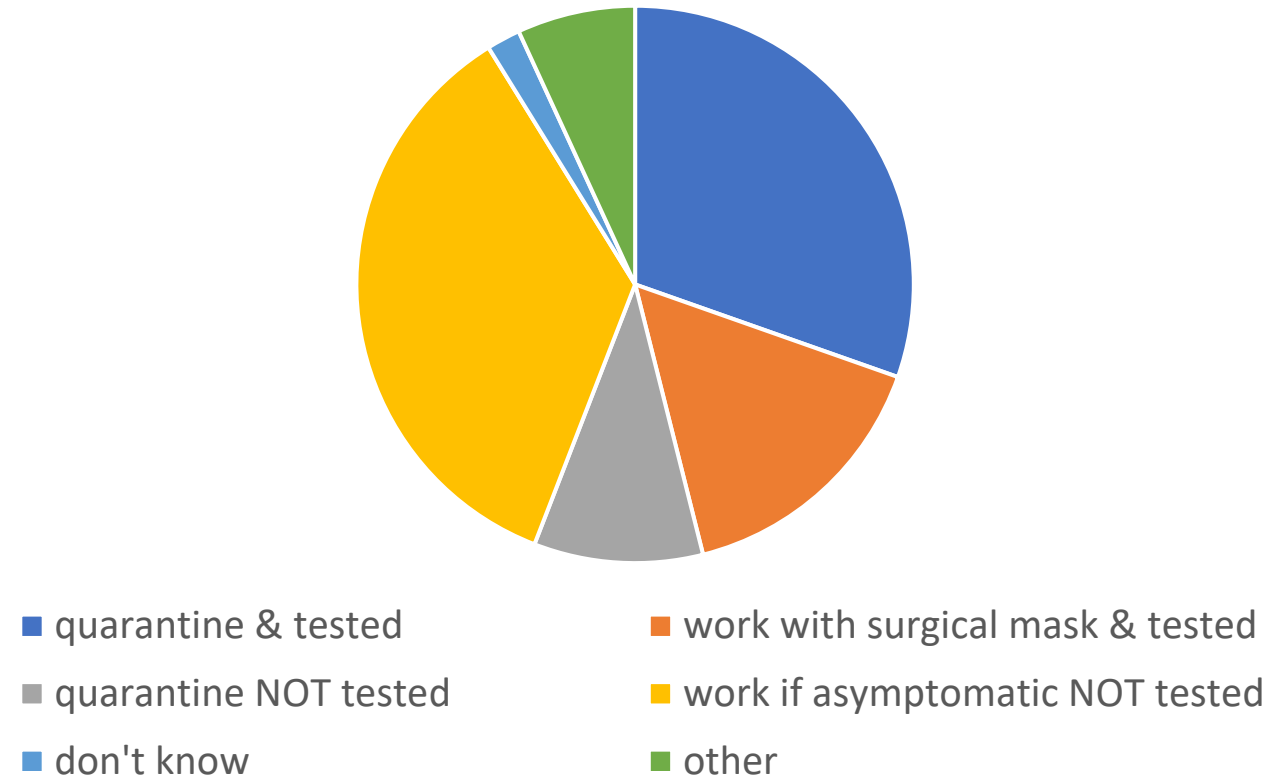


## Results — healthcare professionals' safety

COVID-19 cases in healthcare professionals at your institution	69%
COVID-19 cases in ED staff	25%
Institutional active surveillance plan	18%

# Results — healthcare professionals' safety

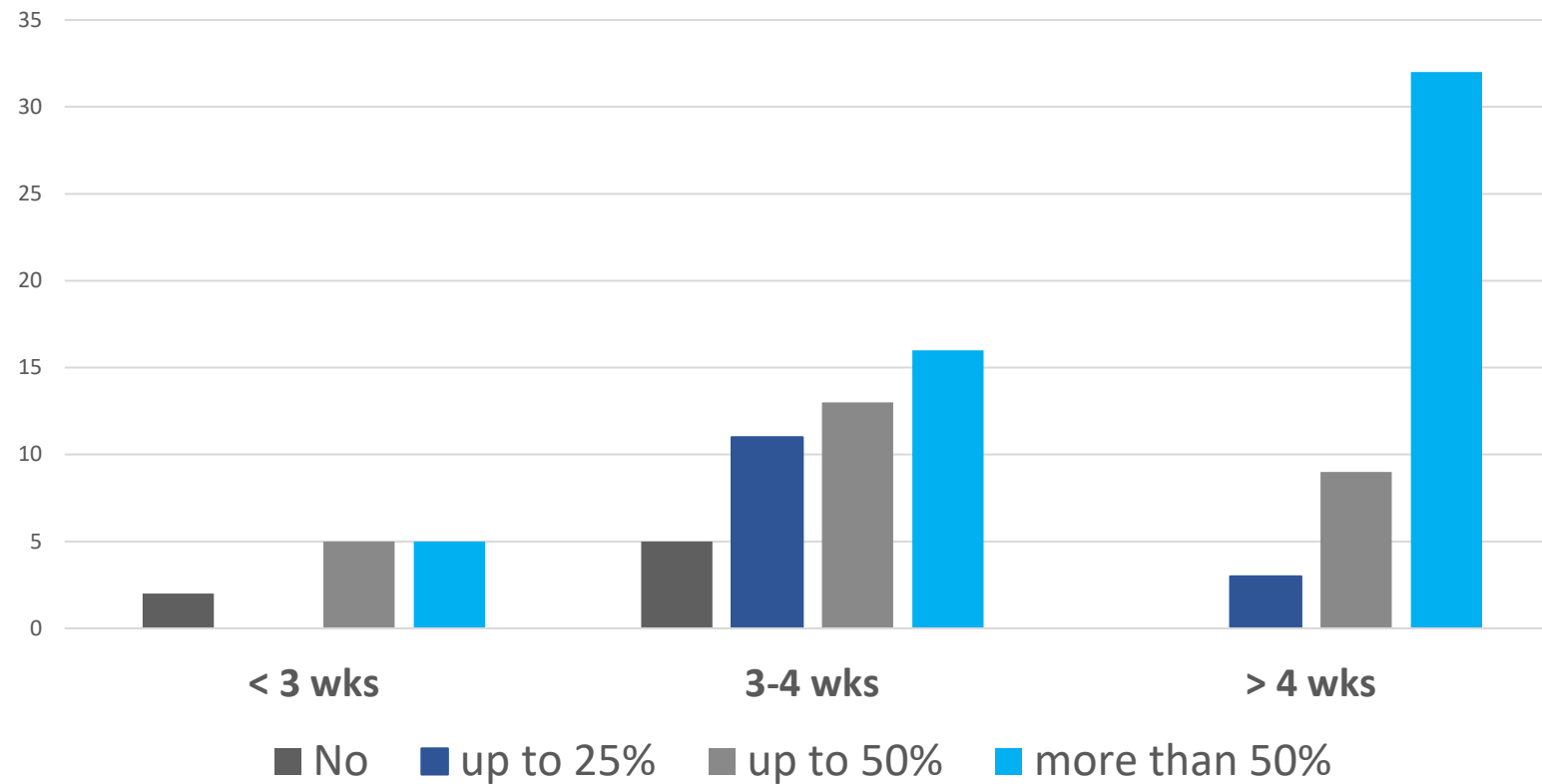
Healthcare workers close contact  
with confirmed COVID-19





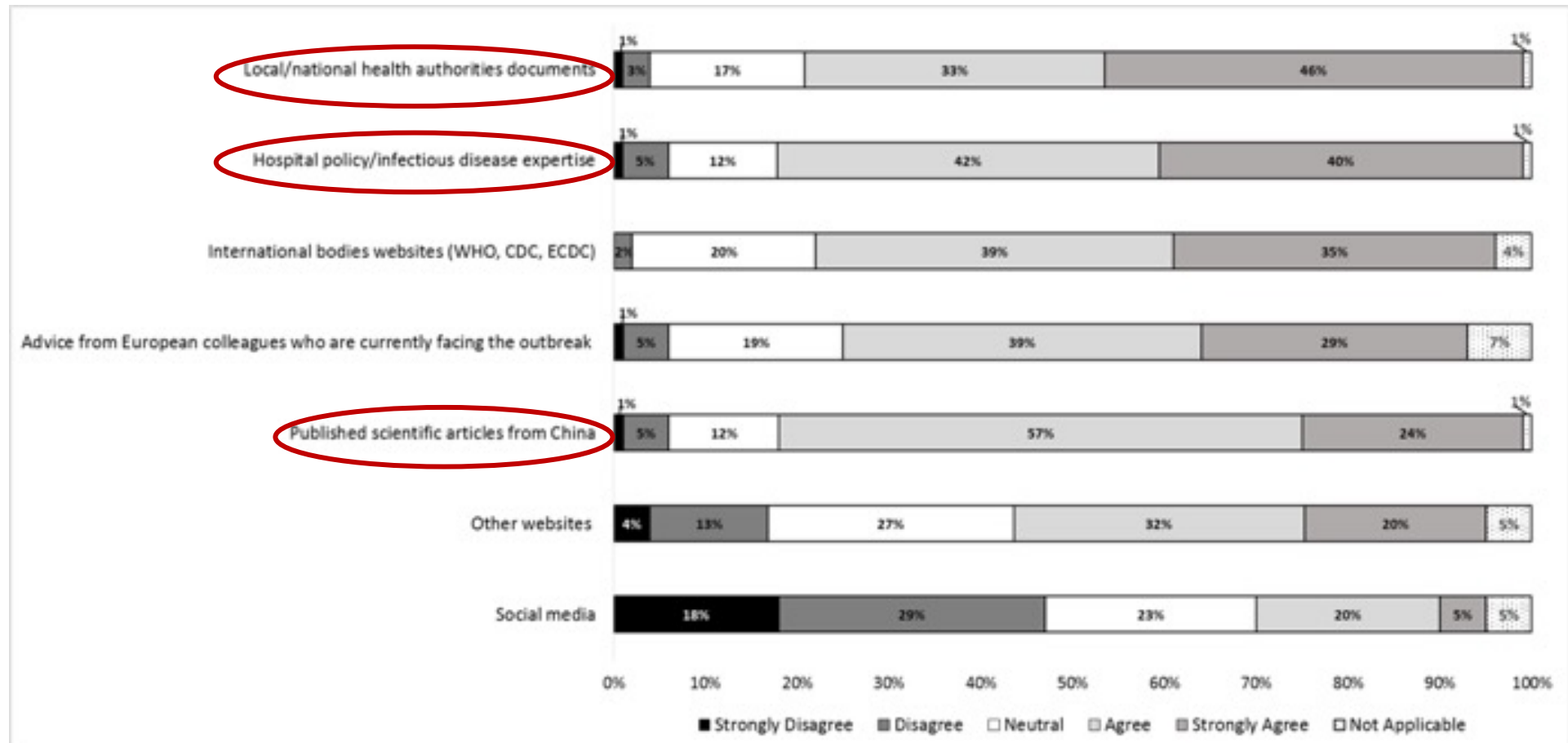
# Results — ED presentations

**Reduction in paediatric ED visits by time since first reported COVID-19 case (based on country of origin)**



# Results — sources of information

Usefulness of sources of information used to get the ED prepared to manage paediatric COVID-19 cases



# Lessons learnt

- COVID-19 – a logistic rather than clinical emergency in paediatrics
- variability and gaps in preparedness and response to the COVID- 19 epidemic across European referral EDs for children
  - early availability of a documented contingency plan
  - provision of simulation training
  - appropriate use of PPE & monitoring of staff infection status
  - appropriate isolation facilities

key factors that should be optimized to improve preparedness and inform responses to future pandemics

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# REPEM COVID-19 work in progress

- Multicentre study on change in ED presentations during lockdown
- Change in presentation patterns versus previous years
- Unique position to assess collateral COVID damage in children in Europe
- Delayed presentations – national projects or selected countries

# Questions??





## **COVID19 research Thoughts on need Perspective pediatric emergency medicine**

Rianne Oostenbrink

General pediatrician

ErasmusMC Rotterdam, The Netherlands



## Heatmap: COVID-19 Funded Research Projects vs WHO Research Priorities

### Funded COVID-19 Research Projects vs WHO Research Priorities

World Health Organisation: A Coordinated Global Research Roadmap: 2019 Novel Coronavirus, March 2020  
[https://www.who.int/blueprint/priority-diseases/key-action/Coronavirus\\_Roadmap\\_V9.pdf?ua=1](https://www.who.int/blueprint/priority-diseases/key-action/Coronavirus_Roadmap_V9.pdf?ua=1)

WHO Research Priority (click to go to tab: WHO Research Priorities)		Total Number of Projects Funded*	% Split Between Primary Focus (Blue) vs Secondary Focus (Green)†		Sub-Priority a	Sub-Priority b	Sub-Priority c	Sub-Priority d	Sub-Priority e	Sub-Priority f	Known Funding Amounts Awarded in USD (incomplete data)‡
1	Virus: natural history, transmission and diagnostics	43			22	9	8	8	7	0	\$24.1m
2	Animal and environmental research on the virus origin, and management measures at the human-animal interface	5			5	1	0				\$2.5m
3	Epidemiological studies	28			15	8	8	3			\$8.5m
4	Clinical management	14			5	4	2	1	0	0	\$7.m
5	Infection prevention and control, including health care workers' protection	13			4	2	2	6			\$1.9m
6	Candidate therapeutics R&D	44			31	2	6	1	0		\$22.m
7	Candidate vaccines R&D	16			12	4	2	0	3		\$11.6m
8	Ethics considerations for research	2			2	0	1	0	1		\$701k
9	Social sciences in the outbreak response	50			23	7	22	4	6	7	\$21.m

Notes: \*Some projects have been assigned several research priorities/sub-priorities. Therefore the numbers displayed in the heatmap sum up to more than the total number of projects funded.

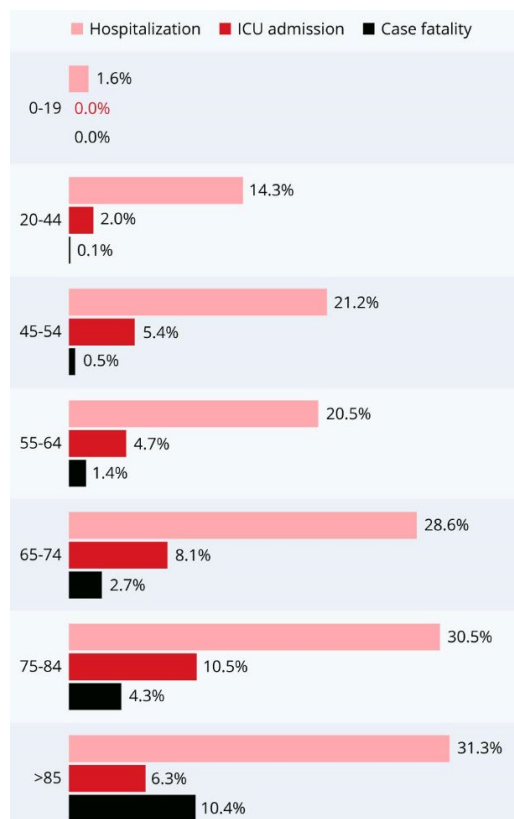
Neither the number of projects displayed in this column nor the colour coding employed should be used in isolation to assess whether a sufficient number of projects have been funded for that priority area.

† Each project has been designated with one or more primary priority areas and, where appropriate, secondary priority areas. This column summarises the proportion of research projects with a primary and secondary focus on a given priority area.

‡ There is currently limited data on funding amounts, therefore the totals displayed here significantly underestimate the awarded total funding. The funding amount displayed should not be used in isolation to assess whether a sufficient amount of funding has been allocated to this priority area.

Image: COVID-19 funded research projects vs WHO research priorities (Version: 17 Apr 2020)

# COVID19 effects in PEM

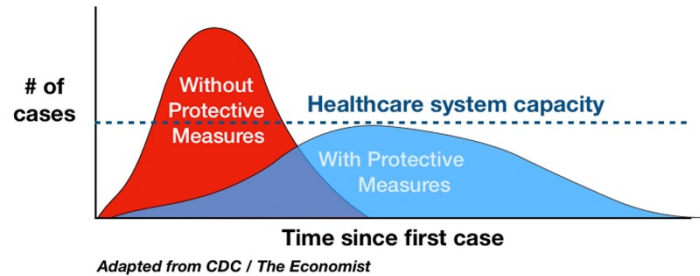


Low number of pediatric COVID cases with full range of illness



Identify COVID child with severe disease

# COVID19 in PEM



COVID19 risk will remain for longer period

➔ Decision making in PED with COVID19 as a potential diagnosis

# Research questions

- Registries national/international COVID cases
  - Clinical spectrum
  - Risk factors
  - Prediction



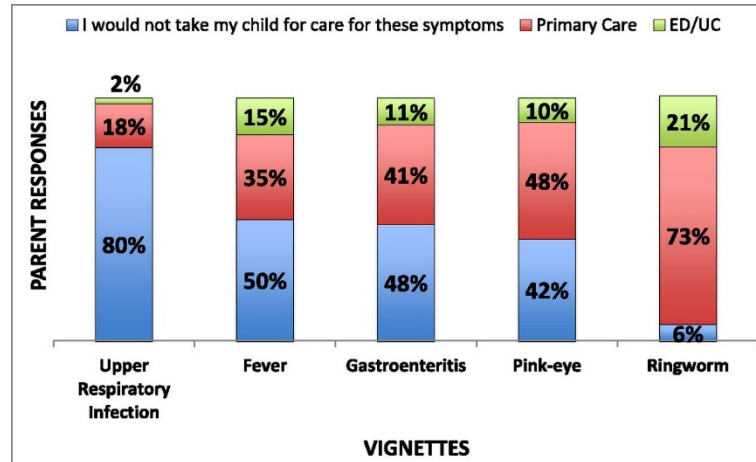
Decision making in PED with COVID as potential diagnosis

ISARIC Clinical characteristics of LRTI ([isaric.tghn.org](https://isaric.tghn.org)), national initiatives can join

PECARN – Clinical characterisation and epidemiology (Freedman, Calgary)

BPSU Neonatal complications of COVID (Imperial College London)

# COVID19 in PEM



Reduced number of all PED consultations

→ Delayed cases / collateral damage

Delayed access or provision of care in Italy resulting from fear of COVID-19.

*Lazzarini et al, Lancet Child Adol, 2020*

Untold Toll - Pandemic effects in patients without COVID

*Rosenbaum, MEJM 2020*

Small changes in basic population not overwhelmed by pandemic number of cases in pediatrics



# Delay and collateral damage to COVID

- Delayed cases / collateral damage in other conditions

- How to judge (serious) delay
- Will delay result in damage
- How to differentiate origin of delay
- How to prevent delay

-Pediatric health care, lessons learned, University Calgary (CIHR)

-REPEM registry of PEM visits during COVID compared to 2019

-Local initiatives at parental aspects of delayed presentations and altered management by parents



**PAEDIATRIC WEBINAR COVID-19:**  
**Update in research and lessons learned from PED's in**  
**China, Sweden and The Netherlands**

Ph.D Xinping zhang

PICU1

Hunan children`s hospital



Beijing

Wuhan, Hubei

Changsha, Hunan

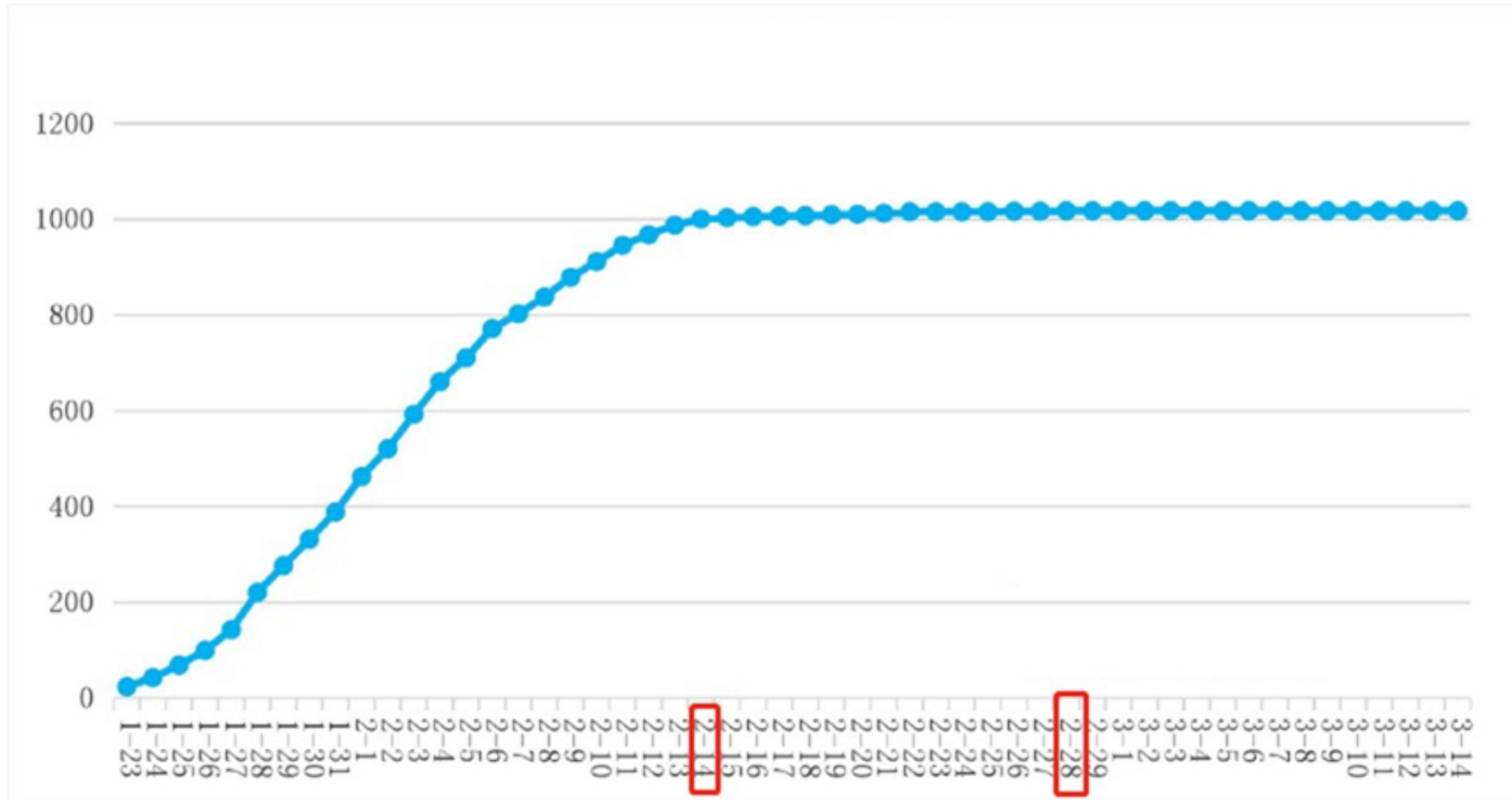
# Cumulative infection



# Remaining infection



# Total confirmed cases in Hunan



Total cases 1018  
2-28 no new  
infections  
Severe cases 150  
Death cases 4  
Children less 50

# Medical resource

- provincial capital : Changsha
  - 1 designated treatment hospital: treat confirmed patient
  - 46 Fever Clinics in different hospital: Screening of febrile patients
- Hunan province
  - 116 designated treatment hospitals were identified in different city、 county and district

## 2. Management in the ED (1)

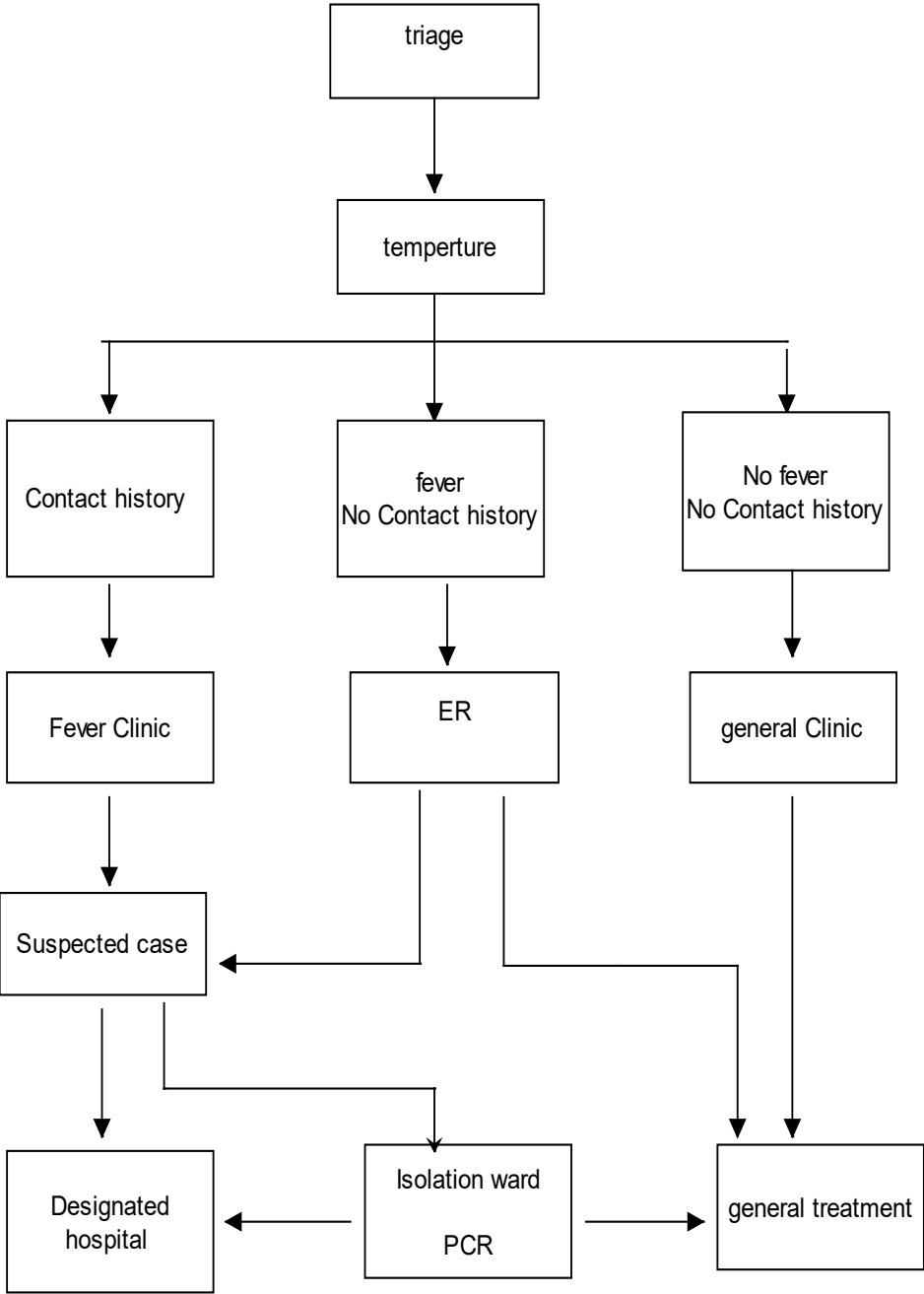
- Total number of outpatient decrease during February and March
- There are three types of outpatients
  - general clinic
  - ER
  - Fever Clinic--screening for COVID-19 patient



# In Hunan children hospital

Characteristics	number
Fever patient	8201
Fever and contact history	919
Suspected cases and isolation	94
released from isolation	94
COVID-19 PCR test	262

# Triage process



# suspected cases

- The suspected cases should be diagnosed through considering both the epidemiological histories and clinical manifestations:
- Epidemiology
- 1 Having a history of travel or residence in Wuhan and its surrounding areas or other communities with cases reported within 14 days before the patient's onset; or
- 2 Having a contact history with patients (a positive results of nucleic acid test of 2019-nCoV) within 14 days before the patient's onset; or
- 3 Having a contact history with patients with fever or respiratory symptoms from Wuhan and its surrounding areas, or the communities with cases reported within 14 days before the patient's onset; or
- 4 Clustering occurrence of cases

# suspected cases

- Clinical Manifestations
- 1 Fever and/or respiratory symptoms;
- 2 Having the imaging features of pneumonia ;
- 3 In the early stage, a normal or decreased total white blood cell count and a decreased lymphocyte count can be found.

# suspected cases

- Patients who satisfy any one of the epidemiological exposure histories as well as any two of the clinical manifestations can be diagnosed as suspected cases.
- Patients with no definite epidemiological history can be diagnosed only if all the three clinical manifestations are met.

## 2. Management in the ED (2)---Testing:

- Who is tested?
  - Suspected case
  - Have epidemiological histories
- Which test is used?
  - RT-PCR
  - respiratory tract samples

## 2. Management in the ED (2)

- Admission
  - suspected cases
- Transfer to designated treatment hospital
  - PCR positive case
- Treatment for confirmed patient
  - symptomatic treatment
  - Antiviral Treatment
    - lopinavir/ ritonavir
    - Chloroquine phosphate
    - Arbidol

<b>First-class protection</b>	<b>Triage General clinic ER</b>	<b>On the basis of first-class protection: Work clothes, work caps, medical masks, work shoes. Add disposable isolation clothes ,gloves and goggles according the degree of danger</b>
<b>Second-class protection</b>	<b>Fever clinic</b>	<b>Second-level protection: On the basis of first-level protection, use isolation clothing, protective clothing, surgical masks, N95 masks, shoe covers, gloves, eye masks and face masks</b>
<b>Third-class protection</b>	<b>Isolation ward Specimen collector</b>	<b>On the basis of secondary protection, use mask, closed respiratory protective device, etc.</b>





### 3. Lessons learned

- Early detection, early reporting, early isolation, early treatment
- The lockdown and quarantine measure curbed the spread of virus
- Strict infection control intervention is essential for medical staff



## PAEDIATRIC WEBINAR COVID-19:

Update in research and lessons learned from PED's in China,  
Sweden and The Netherlands

Name: Maria Mossberg MD PhD

Position: Pediatrician, Skåne University Hospital

Country: Sweden

# Sweden

Cases

16,755

Kvinnor: 9,054 | Män: 7,701

Totalt antal laboratoriebekräftade

Intensivvårdade

1,217

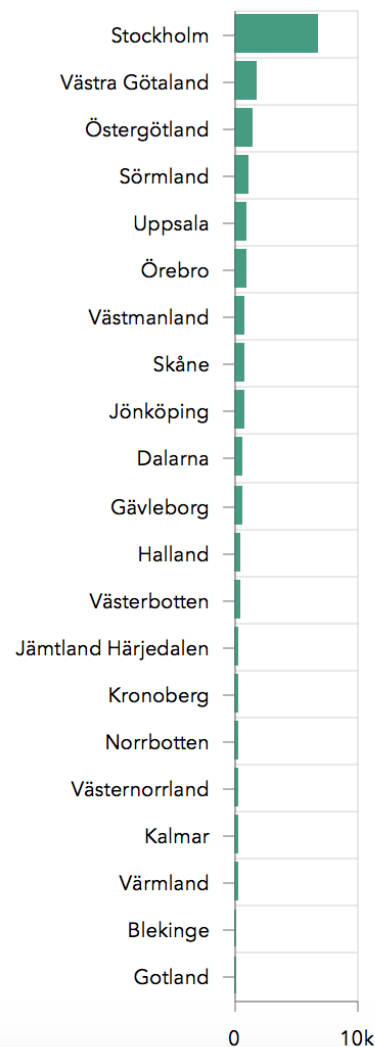
Kvinnor: 318 | Män: 899

Deaths

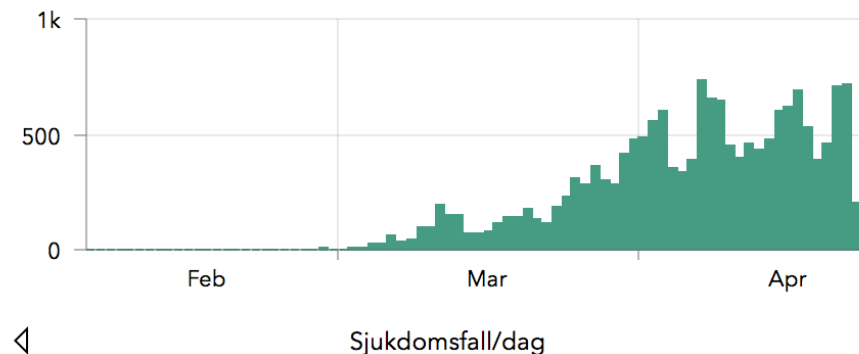
2,021

Kvinnor: 875 | Män: 1,146

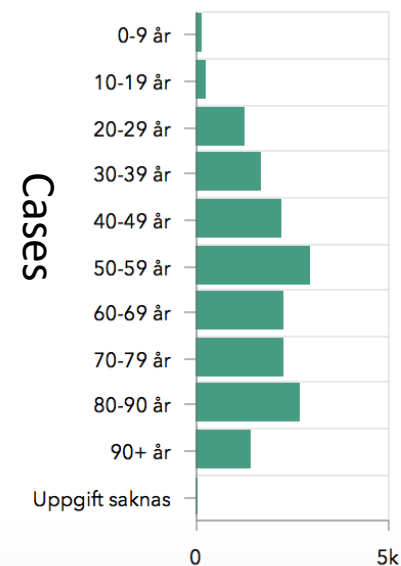
## Sjukdomsfall per region



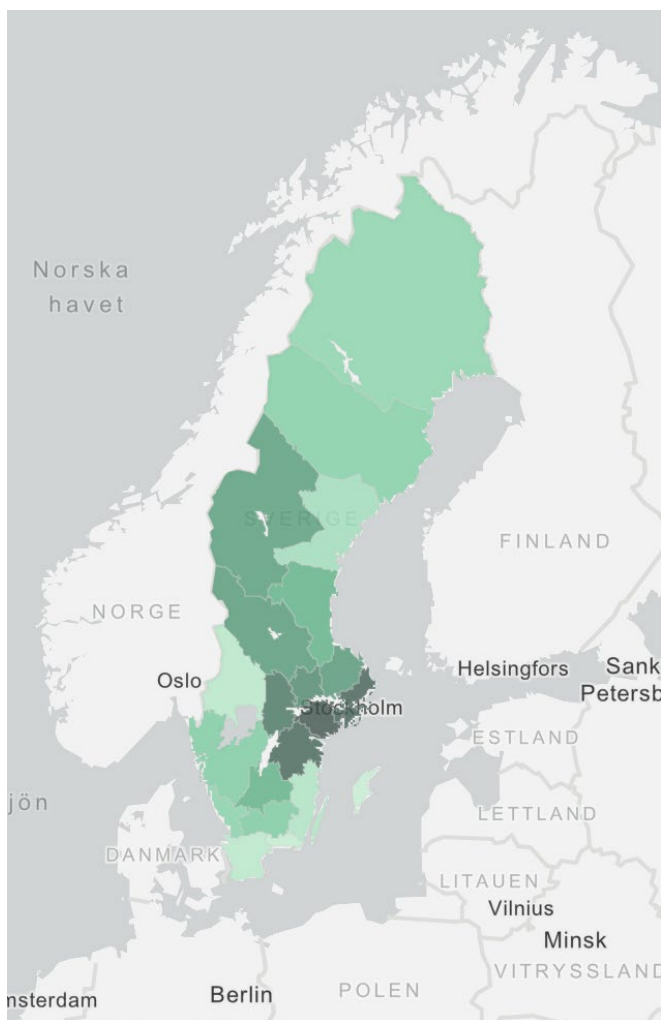
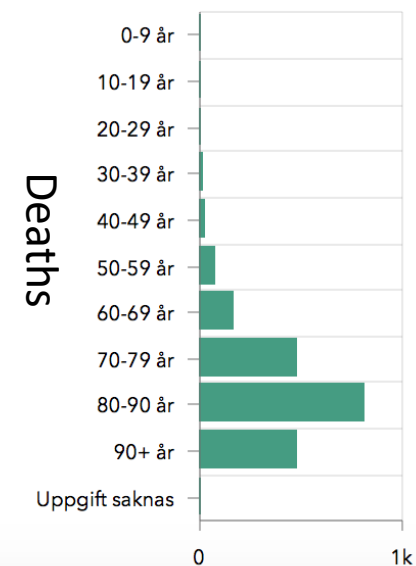
## Cases per day



## Sjukdomsfall per åldersgrupp

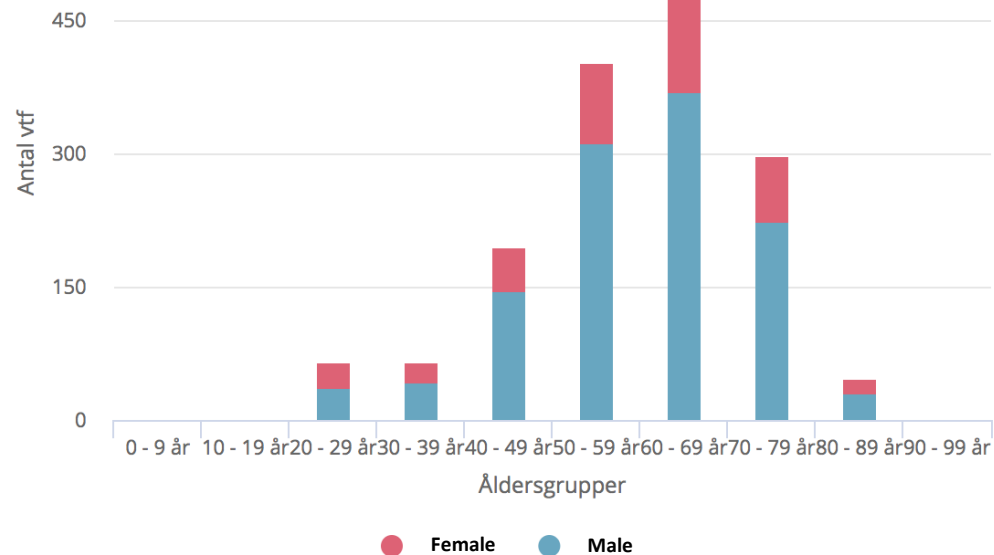


## Avlidna per åldersgrupp

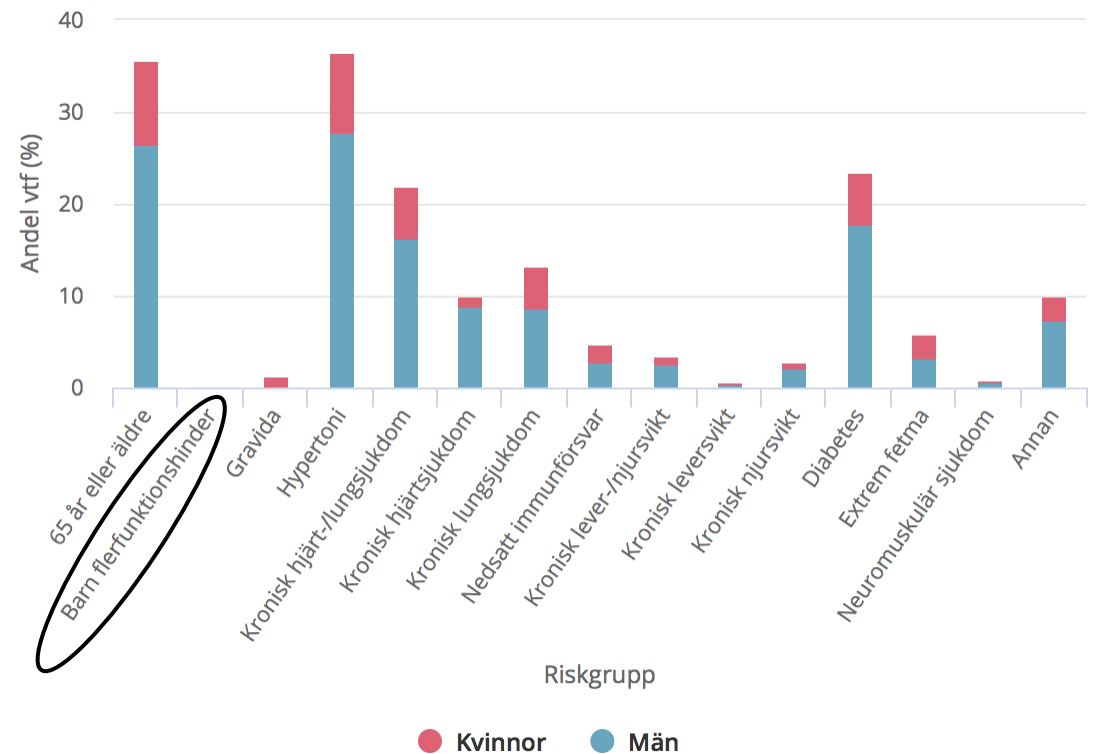


# Intensive care

## Age and Gender

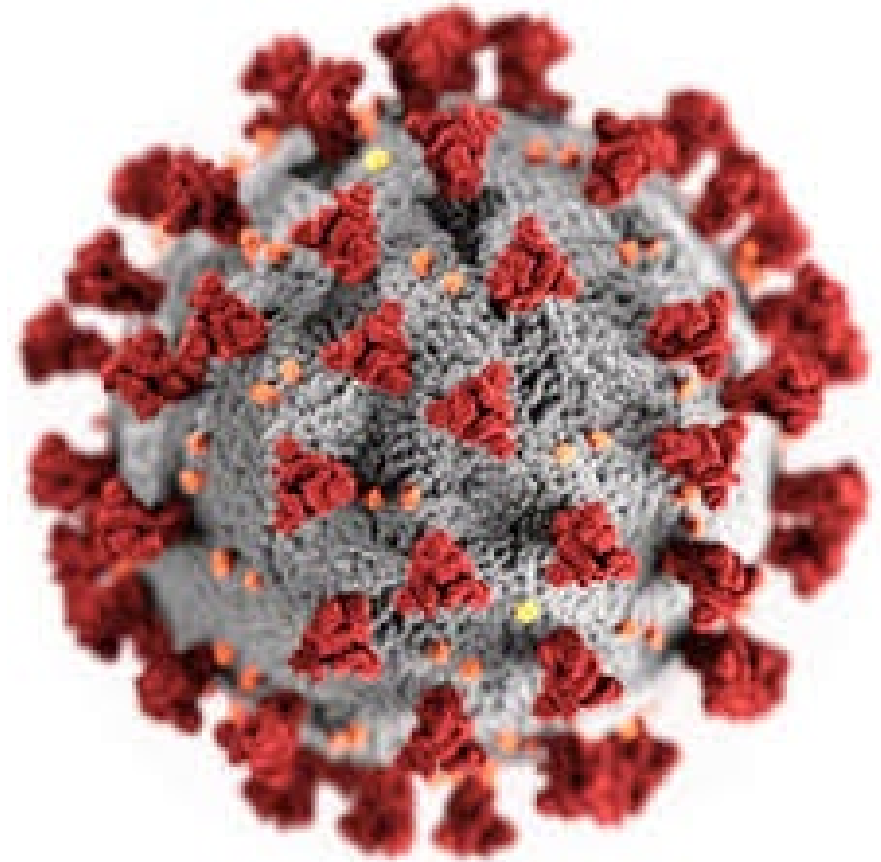


## Risk Groups



# Management in the ED

- Low inflow of children in ED
- Two paths; suspected Covid and others
- Only testing admitted children
- PCR, antibody test soon
- Mainly symptomatic treatment
- Specific treatment only in medical trials, children can not be included



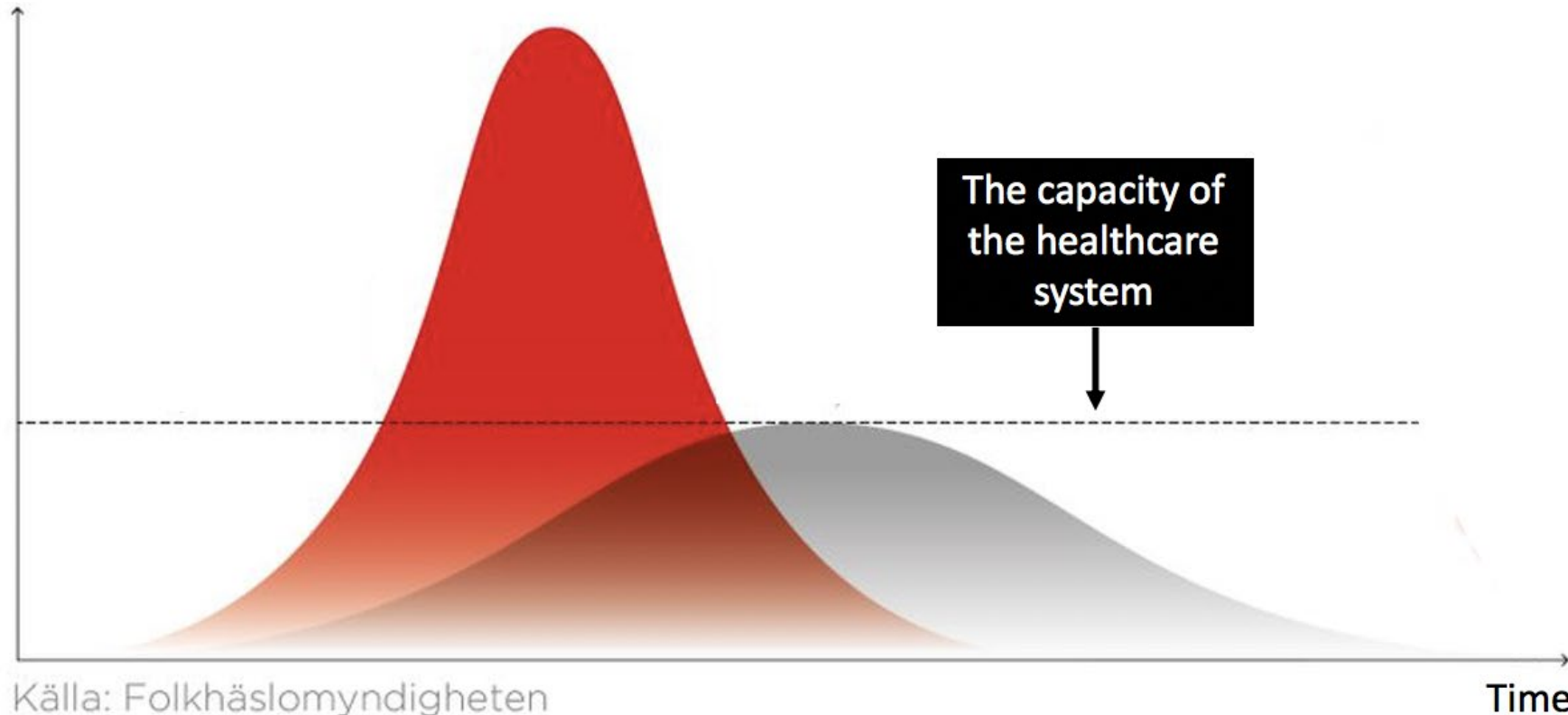
PPE	Talk to patient (distance >2m)	Patient contact without risk for contamination of body fluids	Patient contact WITH risk for contamination of body fluids	Aerosol producing procedures
Basic hygiene routines				

- Short sleeved uniform
- Long hair in knot
- Short nails
- No jewelry
- Use of alcohol-based sanitizers
- Wash hands when dirty



# The Swedish strategy

Numbers  
of very sick  
patients





Every individual in Sweden  
has a responsibility to prevent  
the spread of covid-19

Recommendations

**Good hand hygiene**

**Stay at home when sick, even with slight symptoms**

**No meeting or gatherings above 50 people**

**Keep physical distance > 2m**

**No unnecessary travels**

Recommendations

**Good hand hygiene**

**Stay at home when sick, even with slight symptoms**

**No meeting or gatherings above 50 people**

**Keep physical distance > 2m**

**No unnecessary travels**

**Working from home if possible**

**Also applies to risk groups**

**Social distancing >70 years**

**0 years**

LOW RISK

HIGH RISK

**100+**

Recommendations

Good hand hygiene

Stay at home when sick, even with slight symptoms

No meeting or gatherings above 50 people

Keep physical distance > 2m

No unnecessary travels

Working from home if possible

Also applies to risk groups

Social distancing >70 years

0 years

LOW RISK

HIGH RISK

100+

Regulations

Pre- and primary schools open

High schools & Universities: distant learning

Recommendations

**Good hand hygiene**

**Stay at home when sick, even with slight symptoms**

**No meeting or gatherings above 50 people**

**Keep physical distance > 2m**

**No unnecessary travels**

**Working from home if possible**

**Also applies to risk groups**

**Social distancing >70 years**

**Gym och sports facilities open**

**Shops, shopping malls, restaurants och cafes are open (special regulation)**

**0 years**

LOW RISK

HIGH RISK

**100+**

Regulations

**High schools & Universities: distant learning**

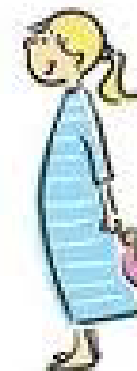
**Pre- and primary schools open**

# Lessons learned

- Avoid spread in institutions for old people
- Parents seeking care too late for their children

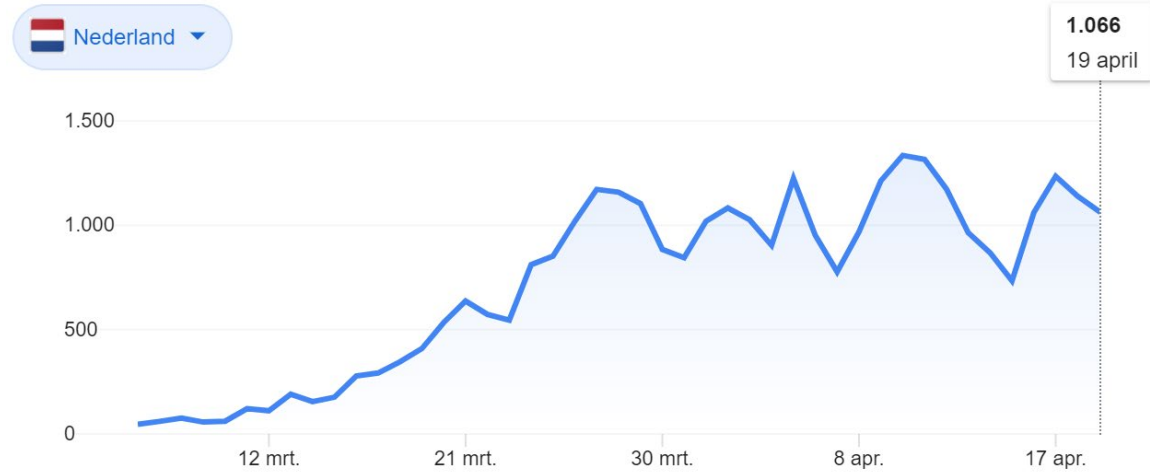
## **National experience – lessons learned ErasmusMC , Rotterdam, The Netherlands,**

Rianne Oostenbrink  
General pediatrician



## COVID19 in Netherlands

- 17.3 million inhabitants
- Positive cases 35.729
- Hospitalised 10.158
  - ICU 1.008  
(max 1.500)
- Death 4.177







- University hospital
- Innercity of Rotterdam
- 50 expertise centers, national level
- Complex care for South-West region Netherlands
- Basic pediatric care for city Rotterdam



# Emergency department ErasmusMC

- Combined adult and pediatric ED
- Children attended by general pediatrician/ PEM consultant
- 7.000 visits annually
- 50% has complex comorbidities
- 30-50% of basic pediatric care are self-referred



# PED experience in COVID19

## Plan

- Fasttrack for >4yrs in adult line, pediatrician on call
- <4 yrs and comorbidities by regular ED

## Situation

- Reduced PED visits
- Low number of COVID suspects

## Provided care

- All children through regular ED
  - Child friendly
  - Expertise complex care
- 2 rooms with isolation, 4+
- Covid suspects seen by (senior) who decides
  - Fast turn over
  - Reduced use of PPE

# Outpatient clinic

## Worries

- Patients not seen who need regular check-ups
  - Fear to become infected/exposed
  - Being symptomatic
- Semi-acute consultations
- Increased waiting list for expertise clinics after COVID period

## Solution

- COVID+ 'street' next to regular outpatient clinic
- Phone consultations (fulfilling requirement of consultation)
  - Reduced number of actual patients
  - Ongoing expertise clinics

# Testing on COVID19

## PED

- Hospitalised patients
- Patients with expected revisit in 2 wks

## Outpatient clinics

- Sx Patients requiring revisit/intervention (radiology, surgery, re-consultation)