



Preparing for autumn: Use of face masks in public settings

(10)(2e) PC/Clinical team, PHE support group

Joint Meeting for National Focal Points for Preparedness and Response & National Focal Points for Threat Detection, 27 August 2020



Aim

- What is the role of policies for use of face masks in the community, especially in anticipation of the autumn and winter months
- What considerations need to be addressed when considering the implementation of a face mask policy

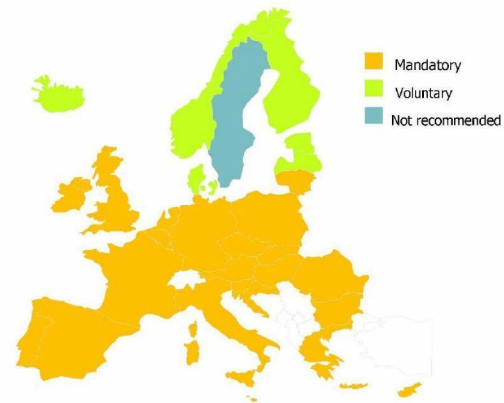
Outline

- Rationale
- Evidence
- Current recommendations
- Considerations for implementation
- Ventilation
- Conclusions

What are current policies in EU/EEA?



- Voluntary
- Mandatory
- Scope
 - National
 - Local
- Settings
 - Indoor public spaces
 - Public transport
 - All public spaces
 - Workplace
 - Specific occupations



Rationale for face mask use in public settings as a control measure for COVID-19



Transmission route

Respiratory droplets including aerosols in confined indoor spaces

Infectivity period

Asymptomatic, pre-symptomatic and early symptomatic period

Protection of self

filtering of air and preventing droplets from reaching mouth and nose

Protection of others (source control)

barrier to expelled respiratory droplets

Types of face masks



	Medical mask (or 'surgical')	Respirator (FFP, N95 etc)	Non-medical or 'community' mask
User	HCW and public	Mostly HCW, ? Public	Public
Filtering	Average to high	Highest (>95%)	Low to high
Indication	Source control when used by HCWs and sick persons and protection against droplets and splashes	Protection against droplets and aerosols	Mostly source control ? Self protection
Evidence for HCWs	Strong for self-protective effect	Strong for self-protective effect	Weak and conflicting for protective effect
Evidence for the public	Weak and mostly indirect for protective effect and source control	Not available	Weak indirect for protective effect and source control

What is the evidence?



High transmission settings (households, colleges, healthcare)	Small number of studies out of healthcare Small protective or no effect Caveats: often underpowered, methodological problems (adherence, inappropriate controls), most evidence from influenza
Basic science experimental studies	Medical and some non-medical face masks: Filter a large proportion of respiratory droplets Decrease the amount of expelled droplets Caveats: indirect evidence
Natural experiments	Introduction of face mask use in populations linked to decreased COVID-19 incidence (city of Jena in Germany, various states in the US) Caveats: effect of other concurrent measures

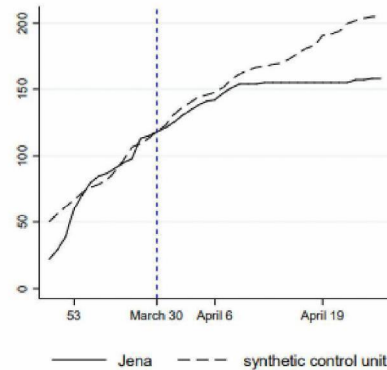
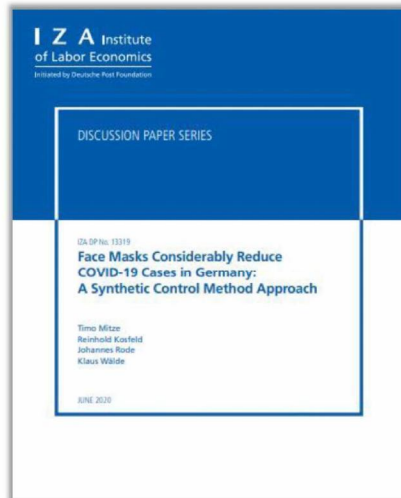
Reduction of secondary transmission of SARS-CoV-2 in households by face mask use, disinfection and social distancing: a cohort study in Beijing, China



Yu Wang,¹ Huaiyu Tian,² Li Zhang,¹ Man Zhang,³ Dandan Guo,⁴ Wenting Wu,¹ Xingxing Zhang,⁵ Ge Lin Kan,⁶ Lei Jia,⁷ Da Huo,⁸ Baiwei Liu,¹ Xiaoli Wang,¹ Ying Sun,⁹ Quanyi Wang,¹ Peng Yang,² C. Raina MacIntyre^{2,7}

Table 4 Risk factors for SARS-CoV-2 household transmission: multivariable analysis

Risk factor	Adjusted OR	95% CI	P value
Primary case has diarrhoea	–	–	–
No	–	–	Ref
Yes	4.10	(1.08 to 15.60)	0.04
Close contact at home with primary cases (within 1 m or 3 feet) (times)	–	–	–
0	–	–	Ref
1–3	3.30	(1.05 to 10.40)	0.04
≥4	18.26	(3.93 to 84.79)	< 0.001
No of family members (including primary case) wearing a mask at home before the primary case's illness onset date	–	–	–
None	–	–	Ref
1 or more	0.21	(0.06 to 0.79)	0.02
Frequency of chlorine or ethanol based disinfectant use for house cleaning	–	–	–
Once in 2 or more days	–	–	Ref
Once a day or more	0.23	(0.07 to 0.84)	0.03



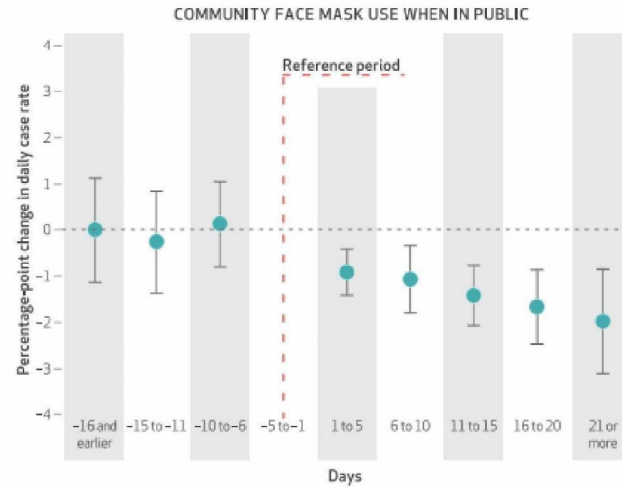
- Reduction in the average daily growth rate of the total number of reported infections: 1.32%
- Reduction of the number of new infections over the next 20 days: 25%



COVID-19

By Wei Lyu and George L. Wehby

Community Use Of Face Masks And COVID-19: Evidence From A Natural Experiment Of State Mandates In The US

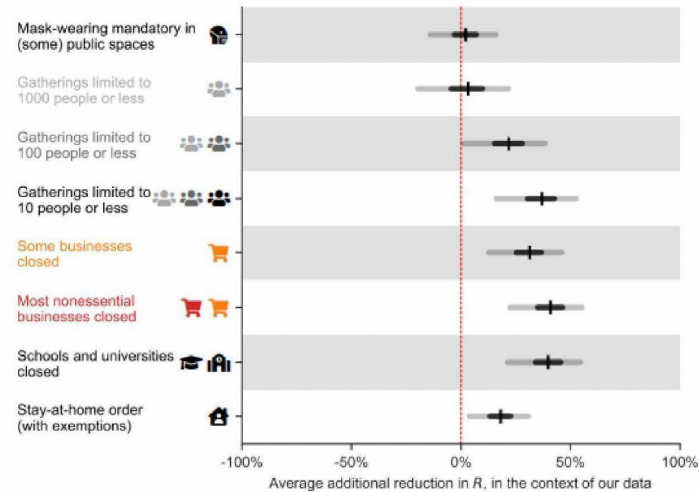


Lyu W., *Health Affairs* 39, NO. 8 (2020): 1419–1425
<https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.2020.00818>

The effectiveness of eight nonpharmaceutical interventions against COVID-19 in 41 countries



- Analysis of the effect of non-pharmaceutical interventions on R
- Bayesian hierarchical model
- Mandatory use of face masks in the public had a very small (2%) and non-significant effect but at the same period countries had already introduced physical distancing measures



Ongoing trials on use of face masks in the community



Title	Location	Participants	Status	Completion date
Reduction in COVID-19 Infection Using Surgical Facial Masks Outside the Healthcare System	Denmark	6 000	Completed	June 2020
Locally Produced Cloth Face Mask and COVID-19 Like Illness Prevention	Guinea-Bissau	66 000	Enrolling	November 2020

Source: ClinicalTrials.gov

Arguments against the use of face masks in the community



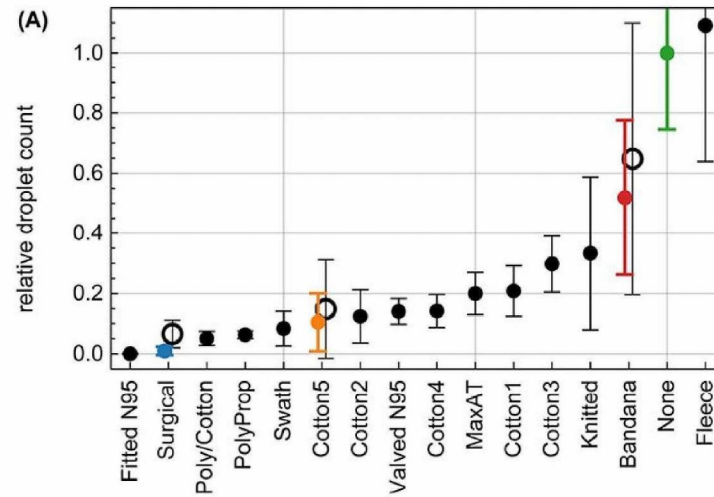
Face mask shortage	Medical face masks are prioritised for use in healthcare Use of non-medical face masks Increased availability
Wearing a face mask may create a false sense of security (risk compensation)	Has not been supported by data Use of protection measures has been associated with less risky behaviour and better compliance with other measures
Improper use may lead to increased risk of infection	Has not been supported by data May reduce touching the mouth and nose

When to consider the use of face masks in the community



- When physical distancing cannot be guaranteed
- Indoor settings (e.g. supermarkets, shops, public transport, workplace)
- In overcrowded outdoor situations
- By persons in vulnerable groups
- In areas with community transmission of COVID-19

Medical vs. non-medical (community) face masks



Standards for community face masks



CEN	SN-CWA 17553:2020
WORKSHOP	CWA 17553
AGREEMENT	June 2020
ICS 13.340.20	
English version	
Community face coverings - Guide to minimum requirements, methods of testing and use	

Bigonial breadth 132,5 - 144,5 mm	Chin-Sellium length 123 - 135 mm	Interpupillary distance 65 - 71 mm	Bitragion chin arc 295 - 315 mm

Construction

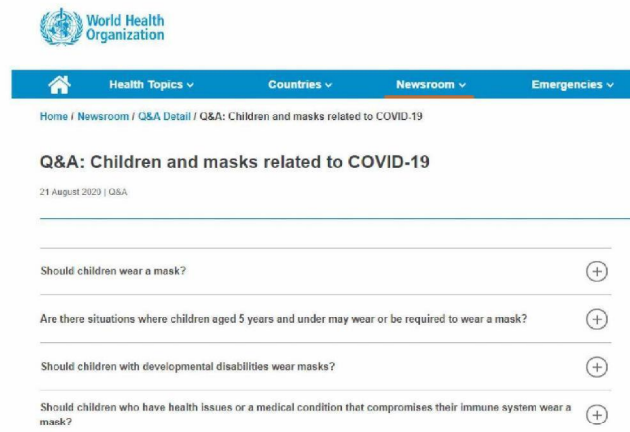
Filtration efficacy

- 70% or 90% for 3µm particles

Material

Packaging

Face masks in children



The screenshot shows the WHO Newsroom Q&A page. At the top is the WHO logo and navigation links: Home, Health Topics, Countries, Newsroom (selected), and Emergencies. Below the navigation bar is the breadcrumb trail: Home / Newsroom / Q&A Detail / Q&A: Children and masks related to COVID-19. The main heading is 'Q&A: Children and masks related to COVID-19' with a sub-date '21 August 2020 | Q&A'. Below this is a list of four questions, each with a plus icon to its right:

- Should children wear a mask?
- Are there situations where children aged 5 years and under may wear or be required to wear a mask?
- Should children with developmental disabilities wear masks?
- Should children who have health issues or a medical condition that compromises their immune system wear a mask?

<https://www.who.int/news-room/q-a-detail/q-a-children-and-masks-related-to-covid-19>



Should not be required in children
under the age of 5

For children **aged 6-12** a number of factors should be accounted for, such as impact on learning

Children **aged 12 and older** may use masks in the same situations as adults



Considerations for implementation



Acceptability, feasibility, barriers

- Discomfort or difficulty breathing
- Fatigue
- Communication difficulties, especially for people with impaired hearing
- Availability
- Adherence
- Stigmatisation especially when face masks are recommended only for sick persons
- Environmental impact

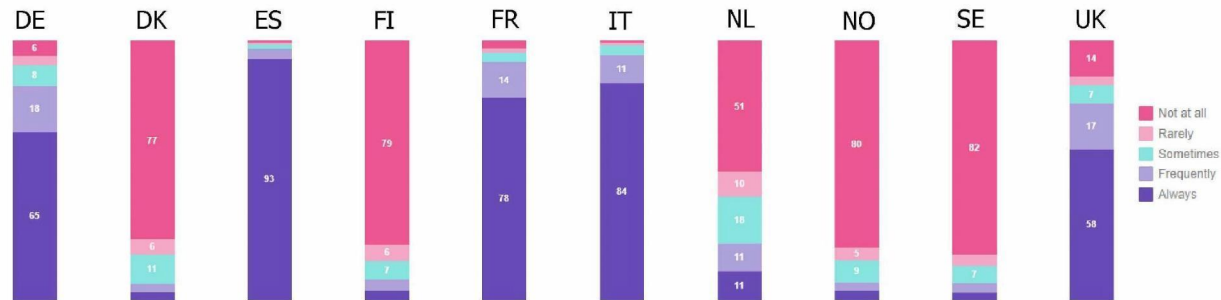
Facilitators

- Information and educational campaigns (risk perception and appropriate use)
- Mandatory policies (Betsch C, *PNAS* 2020)
- Monitoring the implementation of the policy

Monitoring face mask use



I have worn a mask outside my home (Week: August 3 – August 9)



Source: Imperial College London (coviddatahub.com)

Educational campaigns



<https://www.ecdc.europa.eu/en/publications-data/infographic-using-face-masks-community>



Ventilation



- Ensure air exchange in line with applicable building regulations
- Ensure sufficient fresh air through natural or artificial ventilation
- Minimise recirculation of air
- Filtering and other technologies such as UV radiation under study

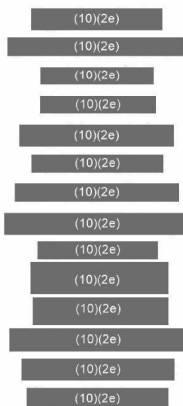


Conclusions



- Face mask use in public settings is a measure to be considered especially in indoor settings when physical distancing cannot be guaranteed
- It is not clear what is the effect on top of other non-pharmaceutical interventions
- It is unclear if face mask use in public settings is sufficient to significantly reduce transmission without the implementation of other measures
- Addressing barriers, such as availability and adherence, and facilitators, such as educational campaigns, is key for a successful face mask use policy
- Monitoring the implementation of the strategy is a means to identify gaps and guide further actions

Thank you



PHE Communications Team

<https://www.ecdc.europa.eu/en/publications-data/using-face-masks-community-reducing-covid-19-transmission>