Efficacy of Masks Against Virus Infections

I have reviewed 24 studies of the potential efficacy of mask / respirators against viral infections. The Master Table of findings is on Page 3. The definition of what the columns of this Table mean are on Page 2. The Table on this page, below, extracts from the Master Table those cases which pertain to the 'Real World (RW)' (i.e., mask usage by the public going about their daily lives) or to Meta-Analyses (MA) which include Real World data in their mix of studies. From this reduced Table applicable to public usage of masks the results are,

- 10 out of 17 studies indicate no benefit of mask usage;
- 4 out of 17 studies indicate statistically significant benefit ranging from 17% to 67% reductions in infections;
- 3 out of 17 studies suggested benefit but were not statistically significant or the significance was unclear/unproved.

I cannot guarantee the completeness of my set of studies, though I would hope that the many meta-analyses between them have mopped-up everything, possibly barring very recent publications.

Table Including 'Real World' Data

Ref	year	type	Environ	Into/Out Of	Infect	control	benefit	Stat.Sig.	notes
2	2010	?	RW students	IN	Yes (ILI)	Yes	none	-	2
4	2009	Surgical/P2	RW (household)	IN	Yes (ILI)	Yes	none	-	4
5	2011	Surgical	RW (household)	IN	Yes PCR	Yes	none	-	5
7	2008	Surgical	MA (6 studies)	IN	Yes (illness)	Yes	17%	Yes	7
7	2008	N95	MA (6 studies)	IN	Yes (illness)	Yes	33%	Yes	7
8	2017	Surgical or N95	MA (16 studies)	IN	Yes	Yes	47%	No	8
9	2020	Surgical	MA (31 studies)	BOTH	Yes (ILI)	Yes (12 RCTs)	none	-	9
10	2010	Surgical & N95	MA (12 studies)	IN	Yes PCR or ILI	Yes	none	-	10
12	2011	N95/P2 resps	MA (8 studies)	IN	various	Yes RCTs	none	-	12
13	2020	Surgical/N95/P2	MA (14 studies)	IN	Yes ILI or test	Yes RCTs	none	-	13
14	2020	Surgical mostly	MA (10 studies)	IN	Yes lab tests	Yes RCTs	none	-	14
15	2020	Gen public	RW	IN	Public "cases"	No	45%	?	15 invalid?
17	2021	Surgical	RW, age <60	IN	Yes ILI & tests	Yes	10%	No (close)	17
17	2021	Surgical	RW, age 60+	IN	Yes ILI & tests	Yes	35%	Yes	17
18	2021	Surgical	RW	IN	Yes ILI & tests	Yes	none	-	18
19	2020	Surgical	MA (6 studies)	IN	Yes, tests	Yes	67%	Yes	19
20	2021	Gen public	RW	BOTH	No, "cases"	No, comparator	none	-	20

Legend for Master Table of 24 Studies (definition of columns)

Type: N95 respirator or equivalent / surgical or medical mask / cloth mask

Environ: RW = Real World study with members of the public going about their normal day to day activities / CS = Controlled Setting using people as subjects but in a controlled environment, e.g., a hospital, probably with professional subjects / Ex = Experiment – lab based, not based on people going about normal activities (e.g., coughing through mask & measuring escaping particulates) / Th = theoretical studies, not experimental or observational / MA = meta-analysis

Into/Out Of: IN = measure is what gets to the subject from outside / OUT = measure is what gets out of the mask from the subject into the environment / BOTH = the effectiveness of mask wearing in decreasing the communal infection rate (may be out-of or into responsible).

Infect: Yes = infection rate is measured (ILI indicates measure based on Influenza-Like Illness symptoms) / B = bacteriological assays in droplets used / V = virus detection in droplets / No = if other measurements are used for effectiveness, e.g., droplet counts.

Control: Yes = a control group used (or trials compare with & without masks) / No = everything else, including where a theoretical/model estimate or a population measure is used as a comparator.

Benefit: Percentage reduction, e.g., 5% means 95 people would be infected even with a mask out of 100 who would have been infected without the mask, whereas 95% means only 5 people would be infected with a mask out of 100 who would have been infected without the mask.

Stat.Sig.: Yes = statistical significance of the benefit was demonstrated; No = statistical significance demonstrated not to be achieved; ? = statistical significance not examined

Master Table

Ref	year	type	Environ	Into/Out Of	Infect	control	benefit	Stat.Sig.	notes
1	2013	surgical	Ex	OUT	B	Yes	75%	Yes	1
1	2013	homemade	Ex	OUT	B	Yes	50%	Yes	1
2	2010	?	RW students	IN	Yes (ILI)	Yes	none	-	2
3	2015	medical	CS	IN	Yes (ILI)	Yes	56%	No	3
3	2015	medical	CS	IN	Yes (ILI)	Yes	3% = none	No	3
4	2009	Surgical/P2	RW (household)	IN	Yes (ILI)	Yes	none	-	4
5	2011	Surgical	RW (household)	IN	Yes PCR	Yes	none	-	5
6	2013	Surgical	Ex	Dummy used	V	No	83%	?	6
7	2008	Surgical	MA (6 studies)	IN	Yes (illness)	Yes	17%	Yes	7
7	2008	N95	MA (6 studies)	IN	Yes (illness)	Yes	33%	Yes	7
8	2017	Surgical or N95	MA (16 studies)	IN	Yes	Yes	47%	No	8
9	2020	Surgical	MA (31 studies)	BOTH	Yes (ILI)	Yes (12 RCTs)	none	-	9
10	2010	Surgical & N95	MA (12 studies)	IN	Yes PCR or ILI	Yes	none	-	10
11	2011	N92	CS	IN	YES ILI or test	comparator	75%	borderline	11
11	2011	Medical	CS	IN	YES ILI or test	comparator	none	-	11
12	2011	N95/P2 resps	MA (8 studies)	IN	various	Yes RCTs	none	-	12
13	2020	Surgical/N95/P2	MA (14 studies)	IN	Yes ILI or test	Yes RCTs	none	-	13
14	2020	Surgical mostly	MA (10 studies)	IN	Yes lab tests	Yes RCTs	none	-	14
15	2020	Gen public	RW	IN	Public “cases”	No	45%	?	15 invalid?
16	2021	homemade	Ex	No subjects	No	N/A	-	-	16
17	2021	Surgical	RW, age <60	IN	Yes ILI & tests	Yes	10%	No (close)	17
17	2021	Surgical	RW, age 60+	IN	Yes ILI & tests	Yes	35%	Yes	17
18	2021	Surgical	RW	IN	Yes ILI & tests	Yes	none	-	18
19	2020	Surgical	MA (6 studies)	IN	Yes, tests	Yes	67%	Yes	19
20	2021	Gen public	RW	BOTH	No, “cases”	No, comparator	none	-	20
21	2019	N95 cf medical	CS healthcare	IN	Yes, tests	N95 cf medical	none	-	21
22	2016	N95 cf medical	CS (6 studies)	IN	Yes, tests	N95 cf medical	none	-	22
23	2009	Surgical	CS healthcare	IN	Cold symptoms	RCT	none	-	23
24	2017	N95 & medical	CS/MA	IN	various	RCTs	41%	Yes	24

Notes on the Studies

[1] Did not test for viruses but did test for bacteria covering the size range of coronaviruses. Effectiveness based on colony-forming centres. Wide range of effectivenesses.

[2] Quote, "We observed significant reductions in ILI during weeks 4-6 in the mask and hand hygiene group, compared with the control group, ranging from 35% (confidence interval [CI], 9%-53%) to 51% (CI, 13%-73%), after adjusting for vaccination and other covariates. Face mask use alone showed a similar reduction in ILI compared with the control group, but adjusted estimates were not statistically significant." A randomized intervention trial involving 1437 young adults living in university residence halls during the 2006–2007 influenza season (H1N1). Effectiveness measure was development of flu-like symptoms, or not.

[3] Quote, "The rate of ILI was also significantly higher in the cloth masks arm (RR=3.49 and 95% CI 1.00 to 12.17), compared with the control arm. Other outcomes were not statistically significant between the three arms." i.e., the cloth masks made things worse!

[4] Intent-to-treat analysis showed no significant difference in the relative risk of ILI in the mask use groups compared with the control group; however, <50% of those in the mask use groups reported wearing masks most of the time. Adherence to mask use was associated with a significantly reduced risk of ILI-associated infection. We concluded that household use of masks is associated with low adherence and is ineffective in controlling seasonal ILI. If adherence were greater, mask use might reduce transmission during a severe influenza pandemic. Relates to 2006 & 2007 flu seasons.

[5] Quote, "Influenza transmission was not reduced by interventions to promote hand washing and face mask use. This may be attributable to transmission that occurred before the intervention, poor facemask compliance, little difference in hand-washing frequency between study groups, and shared sleeping arrangements."

[6] The author of https://dailysceptic.org/?s=masks opines that "masks blocked live influenza particles in a 2013 simulation experiment with a dummy, but studies showing that masks block droplets or even infectious particles cannot be assumed automatically to prevent infections".

[7] Quote, "Meta-analysis of six case-control studies suggests that physical measures are highly effective in preventing the spread of SARS". Odds Ratios and "number needed to treat" were stated as: wearing masks (0.32, 0.25 to 0.40; NNT=6, 4.54 to 8.03); wearing N95 masks (0.09, 0.03 to 0.30; NNT=3, 2.37 to 4.06).

[8] "Meta-analyses suggest that regular hand hygiene provided a significant protective effect (OR = 0.62; 95% CI 0.52–0.73; I2 = 0%), and facemask use provided a non-significant protective effect (OR = 0.53; 95% CI 0.16–1.71; I2 = 48%) against 2009 pandemic influenza infection."

[9] Quote, "To better understand the value of wearing facemasks we undertook a rapid systematic review of existing scientific evidence about development of respiratory illness, linked to use of facemasks in community settings…There were 31 eligible studies (including 12

RCTs)…. Where specific information was available, most studies reported about use of medical grade (surgical paper masks). In 3 RCTs, wearing a facemask may very slightly reduce the odds of developing ILI/respiratory symptoms, by around 6% (OR 0.94, 95% CI 0.75 to 1.19, I 29%, low-certainty evidence). Greater effectiveness was suggested by observational studies. When both house-mates and an infected household member wore facemasks the odds of further household members becoming ill may be modestly reduced by around 19% (OR 0.81, 95%CI 0.48 to 1.37, I 45%, 5 RCTs, low certainty evidence). The protective effect was very small if only the well person (OR 0.93, 95% CI 0.68 to 1.28, I 11%, 2 RCTs, low uncertainty evidence) or the infected person wore the facemask (very low certainty evidence)." Note that those results mean none of the combinations provided a statistically significant benefit.

[10] "We identified four randomized controlled trials that examined the effectiveness of face masks to prevent respiratory virus transmission in community settings". There was no significant benefit in any of those. Of five studies of face mask use in healthcare settings none provided significant benefit.

[11] In regards to hand hygiene, 83% (382/461), 87·8% (428/488) and 88·6% (435/492) of participants from the N95 fit test arm, N95 non-fit test arm and medical mask arm stated that they washed their hands between patients, respectively.

[12] "Six of eight randomised controlled trials found no significant differences between control and intervention groups (masks with or without hand hygiene; N95/P2 respirators). One household trial found that mask wearing coupled with hand sanitiser use reduced secondary transmission of upper respiratory infection/influenza-like illness/laboratory-confirmed influenza compared with education; hand sanitiser alone resulted in no reduction. One hospital-based trial found a lower rate of clinical respiratory illness associated with non-fit-tested N95 respirator use compared with medical masks."

[13] Quote, "We included 15 (cluster) randomised trials investigating the effect of masks (14 trials) in healthcare workers and general population and of quarantine (1 trial). We found no trials testing eye protection. There was no reduction of influenza-like illness (ILI) cases (Risk Ratio 0.93, 95%CI 0.83 to 1.05) or laboratory-confirmed influenza (Risk Ratio 0.84, 95%CI 0.61-1.17) for masks compared to no masks in the general population, nor in healthcare workers (Risk Ratio 0.37, 95%CI 0.05 to 2.50). There was no difference between surgical masks and N95 respirators: for ILI Risk Ratio 0.83 (95%CI 0.63 to 1.08), for laboratory-confirmed influenza Risk Ratio 1.02 (95%CI 0.73 to 1.43)…..Most included trials had poor design, reporting and sparse events. There was insufficient evidence to provide a recommendation on the use of facial barriers without other measures. We found insufficient evidence for a difference between surgical masks and N95 respirators and limited evidence to support effectiveness of quarantine."

[14] "Although mechanistic studies support the potential effect of hand hygiene or face masks, evidence from 14 randomized controlled trials of these measures did not support a substantial effect on transmission of laboratory-confirmed influenza." From the text, "Disposable medical masks (also known as surgical masks) are loose-fitting devices that were designed to be worn by medical personnel to protect accidental contamination of patient wounds, and to protect the wearer against splashes or sprays of bodily fluids. There is limited evidence for their effectiveness in preventing influenza virus transmission either when worn by the infected person for source control or when worn

by uninfected persons to reduce exposure. Our systematic review found no significant effect of face masks on transmission of laboratory-confirmed influenza. We did not consider the use of respirators in the community. Respirators are tight-fitting masks that can protect the wearer from fine particles and should provide better protection against influenza virus exposures when properly worn because of higher filtration efficiency. However, respirators, such as N95 and P2 masks, work best when they are fit-tested, and these masks will be in limited supply during the next pandemic. These specialist devices should be reserved for use in healthcare settings or in special subpopulations such as immunocompromised persons in the community, first responders, and those performing other critical community functions, as supplies permit."

[15] I believe the Mitze paper is invalid. Quote, "After face masks became mandatory between 1 April and 10 April 2020 the number of new infections fell almost to zero. Jena is not the only region in Germany, however, that introduced face masks. Six further regions made masks compulsory before the introduction at the federal state level. Eventually, face masks became mandatory in all federal states between 20 April and 29 April 2020". The paper uses a "synthetic control", i.e., from another region, claimed to be similar other than mask usage. My concern is that as Figure ? below shows, the spring peak in Germany was already declining when masks were introduced, so the study may have confused the effect of masks with the natural decline. In any case, the mask mandate in Germany did not prevent the winter surge, as Figure ? shows.

[16] These experiments measure droplet penetration through fabric masks with one or more layers. The droplet size, however, seems far too large (0.25 – 0.5 mm) and hence no where near the aerosol range of interest (<0.1mm) – let alone virus size (circa 0.1m mircron). The paper seems to confirm that single-layer cloth masks can't work - but I can't see this paper as giving any indication of the efficacy of multi-layer cloth masks either.

[17] There were 178,288 individuals in the intervention group and 163,838 individuals in the control group. The intervention increased proper mask-wearing from 13.3% in control villages (N=806,547 observations) to 42.3% in treatment villages (N=797,715 observations). The proportion of individuals with COVID-like symptoms was 7.62% (N=13,273) in the intervention arm and 8.62% (N=13,893) in the control arm. Blood samples were collected from N=10,952 consenting, symptomatic individuals. Adjusting for baseline covariates, the intervention reduced symptomatic seroprevalence by 9.3% (adjusted prevalence ratio (aPR) = 0.91 [0.82, 1.00]; control prevalence 0.76%; treatment prevalence 0.68%). In villages randomized to surgical masks (n = 200), the relative reduction was 11.2% overall (aPR = 0.89 [0.78, 1.00]) and 34.7% among individuals 60+ (aPR = 0.65 [0.46, 0.85]). Hence, for people 60+ there was a greater benefit (35%) and this was statistically significant.

[18] Objective: To assess whether recommending surgical mask use outside the home reduces wearers' risk for SARS-CoV-2 infection in a setting where masks were uncommon and not among recommended public health measures. Participants spent 3 or more hours per day outside their homes and both control and 'treated' groups were encouraged to exercise social distancing. A total of 3030 participants were randomly assigned to the recommendation to wear masks, and 2994 were assigned to control; 4862 completed the study. Infection with

SARS-CoV-2 occurred in 42 participants recommended masks (1.8%) and 53 control participants (2.1%). The between-group difference was −0.3 percentage point (95% CI, −1.2 to 0.4 percentage point; P = 0.38) (odds ratio, 0.82 [CI, 0.54 to 1.23]; P = 0.33). So, emphatically no significant difference.

[19] This was a meta-analysis commissioned by the WHO. The 6 studies relevant to surgical masks were all from China or Vietnam. Four of the six were in a healthcare setting. It's not clear why more papers were not included as there were far more studies available, even in June 2020, than just these.

[20] This paper uses observational data from the USA, comparing Covid-19 cases rates in regions with mandated mask wearing with those without such a mandate at the same time. Conclusions: "Case growth was not significantly different between mandate and non-mandate states at low or high transmission rates, and surges were equivocal. Mask use predicted lower case growth at low, but not high transmission rates. Growth rates were comparable between states in the first and last mask use quintiles adjusted for normalized total cases early in the pandemic and unadjusted after peak Fall-Winter infections. Mask use did not predict Summer 2020 case growth for non-Northeast states or Fall-Winter 2020 growth for all continental states….Mask mandates and use are not associated with slower state-level COVID-19 spread during COVID-19 growth surges."

[21] This was a test of whether N95 respirators were more effective in protecting healthcare staff than ordinary medical masks when in constant exposure to patients. There was no significant difference – the infection rate was high with both: "Among 2862 randomized participants (mean [SD] age, 43 [11.5] years; 2369 [82.8%]) women), 2371 completed the study and accounted for 5180 HCP-seasons. There were 207 laboratory-confirmed influenza infection events (8.2% of HCP-seasons) in the N95 respirator group and 193 (7.2% of HCP-seasons) in the medical mask group (difference, 1.0%, [95% CI, −0.5% to 2.5%]; P = .18) (adjusted odds ratio [OR], 1.18 [95% CI, 0.95-1.45]). There were 1556 acute respiratory illness events in the respirator group vs 1711 in the mask group (difference, −21.9 per 1000 HCP-seasons [95% CI, −48.2 to 4.4]; P = .10); 679 laboratory-detected respiratory infections in the respirator group vs 745 in the mask group (difference, −8.9 per 1000 HCP-seasons, [95% CI, −33.3 to 15.4]; P = .47); 371 laboratory-confirmed respiratory illness events in the respirator group vs 417 in the mask group (difference, −8.6 per 1000 HCP-seasons [95% CI, −28.2 to 10.9]; P = .39); and 128 influenzalike illness events in the respirator group vs 166 in the mask group (difference, −11.3 per 1000 HCP-seasons [95% CI, −23.8 to 1.3]; P = .08). In the respirator group, 89.4% of participants reported "always" or "sometimes" wearing their assigned devices vs 90.2% in the mask group."

[22] "We identified 6 clinical studies (3 RCTs, 1 cohort study and 2 case–control studies) and 23 surrogate exposure studies. In the meta-analysis of the clinical studies, we found no significant difference between N95 respirators and surgical masks in associated risk of (a) laboratory-confirmed respiratory infection (RCTs: odds ratio [OR] 0.89, 95% confidence interval [CI] 0.64–1.24; cohort study: OR 0.43, 95% CI 0.03–6.41; case–control studies: OR 0.91, 95% CI 0.25–3.36); (b) influenza-like illness (RCTs: OR 0.51, 95% CI 0.19–1.41); or (c) reported workplace absenteeism (RCT: OR 0.92, 95% CI 0.57–1.50). In the surrogate exposure studies, N95 respirators were associated

with less filter penetration, less face-seal leakage and less total inward leakage under laboratory experimental conditions, compared with surgical masks. Interpretation: Although N95 respirators appeared to have a protective advantage over surgical masks in laboratory settings, our meta-analysis showed that there were insufficient data to determine definitively whether N95 respirators are superior to surgical masks in protecting health care workers against transmissible acute respiratory infections in clinical settings."

[23] Health care workers in a tertiary care hospital in Japan were randomized into 2 groups: 1 that wore face masks and 1 that did not. Participants recorded symptoms daily for 77 consecutive days. Presence of a cold was determined based on a previously validated measure of self-reported symptoms. The number of colds between groups was compared, as were risk factors for experiencing cold symptoms. Results: Thirty-two health care workers completed the study, resulting in 2464 subject days. There were 2 colds during this time period, 1 in each group. Of the 8 symptoms recorded daily, subjects in the mask group were significantly more likely to experience headache during the study period ($P < .05$). Subjects living with children were more likely to have high cold severity scores over the course of the study.

[24] This systematic review and meta-analysis quantified the protective effect of facemasks and respirators against respiratory infections among healthcare workers. Meta-analysis of randomized controlled trials (RCTs) indicated a protective effect of masks and respirators against clinical respiratory illness (CRI) (risk ratio [RR] = 0.59; 95% confidence interval [CI]:0.46–0.77) and influenza-like illness (ILI) (RR = 0.34; 95% CI:0.14–0.82). Compared to masks, N95 respirators conferred superior protection against CRI (RR = 0.47; 95% CI: 0.36–0.62) and laboratory-confirmed bacterial (RR = 0.46; 95% CI: 0.34–0.62), but not viral infections or ILI. Meta-analysis of observational studies provided evidence of a protective effect of masks (OR = 0.13; 95% CI: 0.03–0.62) and respirators (OR = 0.12; 95% CI: 0.06–0.26) against severe acute respiratory syndrome (SARS). This systematic review and meta-analysis supports the use of respiratory protection. However, the existing evidence is sparse and findings are inconsistent within and across studies.

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Excluded / Retracted Papers

In performing this review I noted two relevant articles, initially published, had since been retracted, and so do not feature in my review, above. Both articles had concluded that masks had no efficacy, and both were withdrawn (I believe deservedly) due to errors . I believe both had been per reviewed before being published (which does not say much for per review). The articles in question are,

Seongman Bae, Min-Chul Kim, Ji Yeun Kim, Hye-Hee Cha, Joon Seo Lim, Jiwon Jung, Min-Jae Kim, Dong Kyu Oh, Mi-Kyung Lee, Seong-Ho Choi, Minki Sung, Sang-Bum Hong, Jin-Won Chung, and Sung-Han Kim. Effectiveness of Surgical and Cotton Masks in Blocking SARS–CoV-2: A Controlled Comparison in 4 Patients. Retraction in: Ann Intern Med. 2020 June 2; : L20-0745. http://doi.org/10.7326/M20-1342

BaruchVainshelboim. RETRACTED: Facemasks in the COVID-19 era: A health hypothesis. Medical Hypotheses. Volume 146, January 2021. https://doi.org/10.1016/j.mehy.2020.110411

Other Issues of Relevance

Authoritative Bodies' Advice

The University of Minnesota Center for Infectious Disease Research and Policy (CIDRAP) does not recommend that the public wears masks, because they do not work, they may reduce other preventive measures, and they risk the supply of masks for healthcare workers:

In summary, though we support mask wearing by the general public, we continue to conclude that cloth masks and face coverings are likely to have limited impact on lowering COVID-19 transmission, because they have minimal ability to prevent the emission of small particles, offer limited personal protection with respect to small particle inhalation, and should not be recommended as a replacement for physical distancing or reducing time in enclosed spaces with many potentially infectious people.

That statement is rather weak compared with their own conclusion from an evidential review,

Sweeping mask recommendations—as many have proposed—will not reduce SARS-CoV-2 transmission, as evidenced by the widespread practice of wearing such masks in Hubei province, China, before and during its mass COVID-19 transmission experience earlier this year.

Our review of relevant studies indicates that cloth masks will be ineffective at preventing SARS-CoV-2 transmission, whether worn as source control or as PPE.

Surgical masks likely have some utility as source control from a symptomatic patient in a healthcare setting to stop the spread of large cough particles and limit the lateral dispersion of cough particles.

Brosseau LM et al., "COMMENTARY: Masks-for-all for COVID-19 not based on sound data", CIDRAP, 16 July update 2020.

World Health Organisation: Near the start of the Covid-19 pandemic the WHO's position was that there is no benefit to healthy people from wearing masks in public, and there is only limited evidence that masks help when in contact with a sick person:

There is limited evidence that wearing a medical mask by healthy individuals in the households or among contacts of a sick patient, or among attendees of mass gatherings may be beneficial as a preventive measure. However, there is currently no evidence that wearing a mask (whether medical or other types) by healthy persons in the wider community setting, including universal community masking, can prevent them from infection with respiratory viruses, including COVID-19. (Quoted here: https://dailysceptic.org/?s=masks, the original WHO document having been superseded).

The WHo's current advice (as of 18/9/21) is,

The World Health Organization (WHO) advises the use of masks as part of a comprehensive package of prevention and control measures to limit the spread of SARS-CoV-2, the virus that causes COVID-19. A mask alone, even when it is used correctly, is insufficient to provide adequate protection or source control. Other infection prevention and control (IPC) measures include hand hygiene, physical distancing of at least 1 metre,

avoidance of touching one's face, respiratory etiquette, adequate ventilation in indoor settings, testing, contact tracing, quarantine and isolation. Together these measures are critical to prevent human-to-human transmission of SARS-CoV-2.

However, in the community situation, this advice is weakened by the statement,

Decision makers should apply a risk-based approach when considering the use of masks for the general public.

What the general advice does not take into account is that the ideal behaviours which are included as part of the advice are simply not going to be adhered to by the general public, and so the claimed benefits may be largely, or entirely, fictitious.

"Advice on the use of masks in the context of COVID-19", WHO, 1 December 2020.

Harms of Mask Wearing

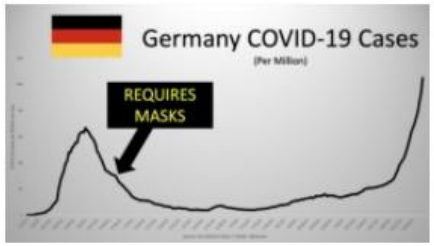
I have not reviewed the harms of mask wearing, which should (but have not been) taken into account by Governments or authoritative medical bodies before advising mask usage by the public.

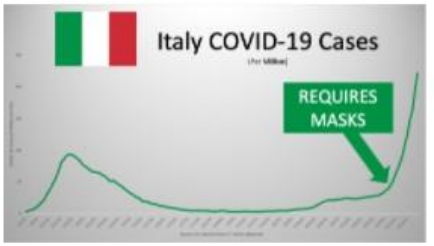
The harms are manifold, including the impact on small children whose socialisation and acquisition of language depends upon seeing faces. The widespread use of masks in public sends a powerful message of danger, instilling fear rather than equanimity. The psychological harm that this extended exposure to fear may have done to some susceptible people has been ignored by Government (unless, as some cynics claim, it is deliberate).

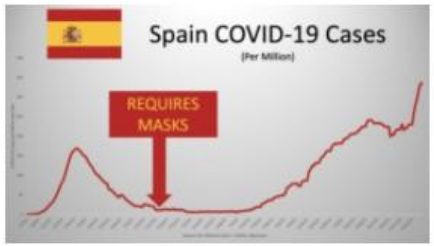
It is worth noting that there is a literature indicating that masks are not even necessary in an operating theatre, e.g., https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2493952/pdf/annrcse01509-0009.pdf

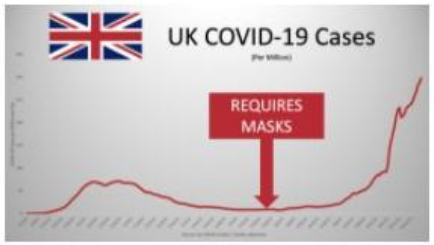
There is also a literature on the harm of mask wearing in relation to oxygen depletion. A number of studies noted increased headaches by mask wearers. The risk can be particularly significant for people with certain conditions which make them vulnerable to oxygen depletion – and especially important to anyone who attempts vigorous exercise in a mask (which, frankly, strikes me as very stupid – but that has not stopped some colleges obliging students to wear masks whilst engaging in athletics – arguably an instance of the imbecility induced by fear, conformance and obedience to authority).

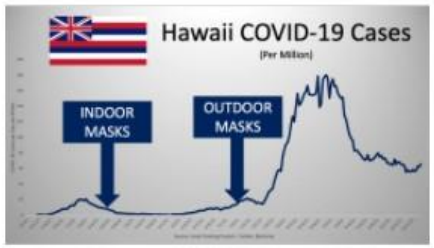
The usage of masks is not obviously evident in the timeline at nation level…

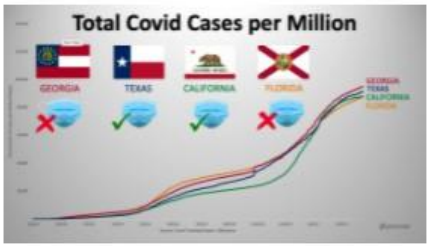












Swiss Policy Research: Are Face Masks Effective? The Evidence (September 2021). https://swprs.org/face-masks-evidence/ provides data showing the lack of obvious benefit in the timeline of individual cities also…

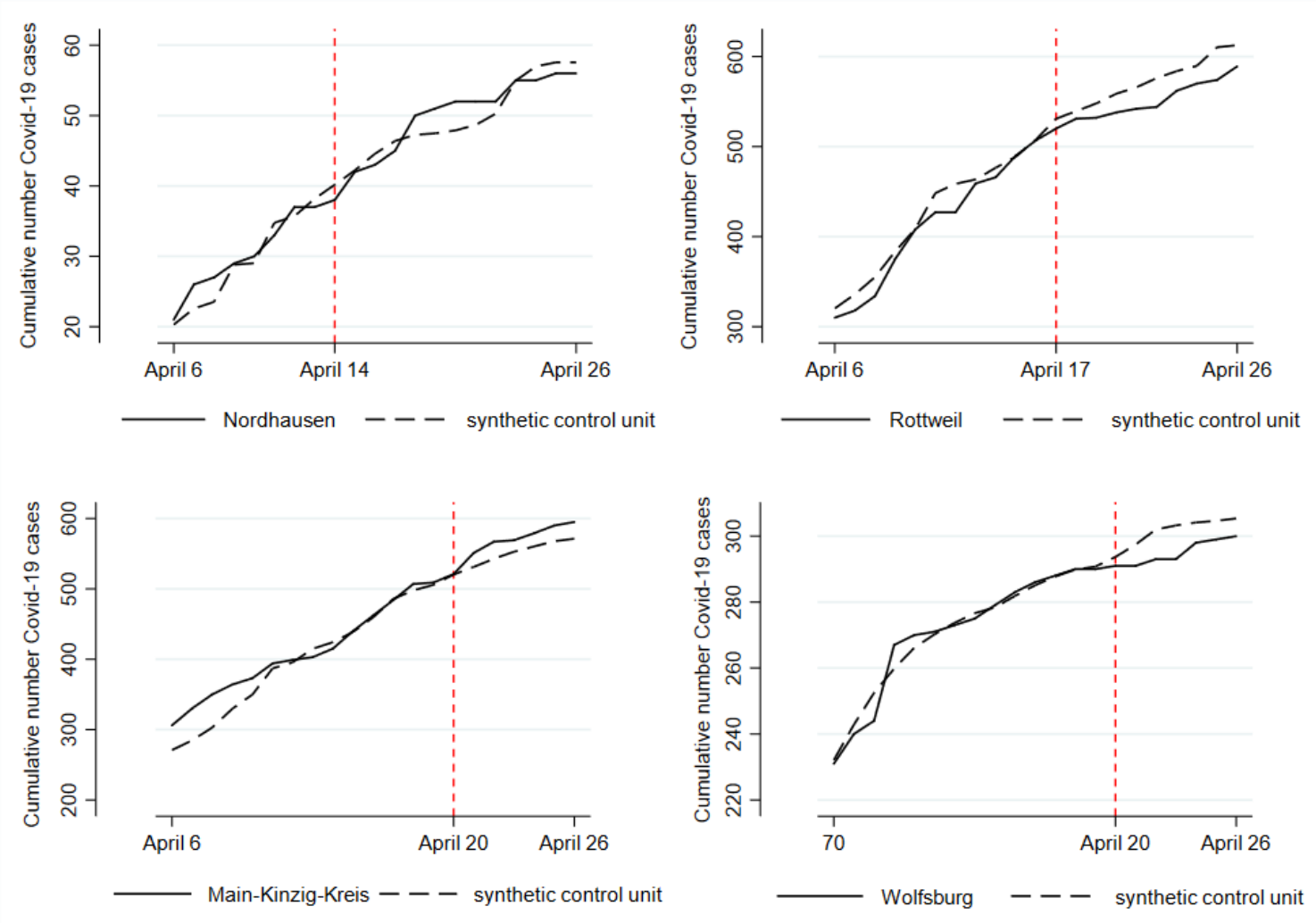


Figure A7: Treatment effects for introduction of face masks in other cities

The sort of "public information" illustrated below is simply false – the data is insupportable and even the qualitative message that mask wearing is beneficial at all is more likely to be wrong than right…