UNCOVER

Usher Network for COVID-19 Evidence Reviews

Which occupations and activities might benefit from mask wearing to reduce the transmission of COVID-19?

Date: 22 April 2020 Version: 005-01

THE UNIVERSITY of EDINBURGH | usher institute

Review date: April 20th 2020
Authors: Dr Catherine Carver, Margaret Guyan, Miranda Pierre
(contact c.carver@sms.ed.ac.uk)

Question

This review sought to answer two sub-questions:

Which high proximity activities in the UK might benefit from mask wearing to reduce the transmission of COVID-19?

Which occupations, outside of those already advised to wear a face mask in the UK, might benefit from wearing a face mask at work to reduce the transmission of COVID-19?

Summary and bottom line:

From a search conducted on April 16th 2020, we found no papers based on COVID-19 data for either question.

Having excluded data from the Hajj, which was not thought representative of activities in the UK, data for high proximity activities in the community were found from schools and airplanes, all relating to influenza. Four papers, all from observational studies given a GRADE rating of very low quality, were found. None specified mask type. Two cross-sectional studies in schools examined mask use and influenza infection. One found evidence of a statistically significant reduction in risk of influenza infection for parent/carer-reported 'habitual' face mask wearers (adjusted OR 0.859, 95% CI 0.778–0.949)(1). The other found a reduction in risk of influenza infection amongst 'continuous' mask wearers (OR 0·51, 95% CI 0·30–0·88)(2). However, an ecological study in 29 Japanese elementary schools found no correlation between habitual mask wearing at a population level and the influenza epidemic level within the school (p=0.776)(3). A fourth paper, this time a case-control study of H1N1 found a statistically significant reduction in risk of infection for airplane passengers wearing face masks for the whole duration of the journey from New York to Hong Kong (OR 0, 95% CI 0-0.71)(4).

No relevant papers for other respiratory infections were identified for occupations outside of those advised to wear face masks in the UK. One paper involving face masks was found relating to the military, but this was excluded due to the communal living involved on an aircraft carrier (5).

Due to time constraints, two modelling studies were identified but excluded for this version of the review. One is modelled on N95 use in a student office in China(6), the other on N95 use on a flight(7), both supported N95 mask over no mask to reduce infection risk. They are based on many, possibly fallible, assumptions and have not been critically appraised so their results should be treated with extreme caution, but are described in the text below for reference.

Overall, the data are not robust, are extrapolated from influenza and are confounded by the fact those who wore masks during these activities are liable to be wearing masks more frequently in community contexts outside of these high proximity activities. As only one poor quality, small case-control study for airplane travel was identified, and because the studies in schools did not appear to explicitly ask about use in the particular context of school, there is insufficient evidence from this review to know whether mask wearing in airplanes or schools is beneficial.

Background

There is much concerted interest in how countries can get out of lockdown whilst avoiding a second peak of COVID-19 cases. In the absence of a vaccine, policy makers must look to non-pharmacological interventions such as distancing and face masks. One possibility is that strategic deployment of these interventions could enable a phased lifting of restrictions to ease the economic and other fallouts from a total lockdown. Whilst there is no debate over the necessity of use of face masks by exposed healthcare workers, there is much debate about the validity of universal community masking(8) (compare CDC guidance(9) with the WHO(10))

One of the issues raised relates to the demand on the mask supply. This review seeks to identify evidence for targeting face masks to particularly high risk populations by examining the evidence for face mask use during high proximity activities relevant to the UK context (eg school attendance, public transport) and to see if the evidence supports any occupations other than healthcare personnel as particularly benefitting from face masks (eg shop workers).

Methods

Eligibility criteria

Occupations

Population
Occupations with risk of exposure to SARS-CoV-2 transmission in the workplace (any risk, from low to high) excluding occupations already recommended to wear a face mask according to UK government guidance.

Intervention
Face masks of any kind (include multiple interventions eg face mask AND hand hygiene)

Comparison
No face mask or a different type of face mask

Outcome
Respiratory infection (identifying clearly what the outcome was eg ILI)

Exclude
Inpatient setting
Occupations already recommended to wear a face mask according to UK government guidance
Occupations where animal-human transmission is likely to be a key infection route eg poultry workers and avian influenza

Occupations where communal living with co-workers is the prevalent model eg military barracks
Case Reports, Editorials, Letters, Case series
No language restrictions

High proximity activities

Population

Mass gatherings eg going to a bar, attending a shopping mall or sporting event and other high proximity activities eg airplane travel, public transport.

Intervention
Face masks of any kind (include multiple interventions eg face mask AND hand hygiene)

Comparison
No face mask or a different type of face mask

Outcome
Respiratory infection (identifying clearly what the outcome was eg ILI)

Exclude
The Hajj – not representative of mass gatherings liable to happen in the UK eg 2.5 million people sleeping, many sleeping in tents together.
Household settings including university halls of residence
Case Reports, Editorials, Letters, Case series
No language restriction

Search strategy

Search terms: Based on an adapted version of the search deployed by Jefferson et al 2020 (11) we used terms relating to masks, respiratory infection and transmission, but excluded healthcare personnel. Full strategy detailed in Appendix A.

Databases: PubMed and MedRxiv (both searched by CC)

Dates: PubMed: 14th October 2010 -April 16th 2020 (to update Jefferson 2011(12))
MedRxiv: 1st January 2020-April 16th 2020

Screening

Title and Abstract Screen: Titles and abstracts were each screened by one reviewer (CC, MG, MP). A second reviewer then screened all excluded abstracts. Where there was a conflict, the abstract was included in full text screening.
Full Text Screen: The included full text articles were each screened by one reviewer (CC). A second reviewer then screened all excluded full texts (MG, MP). Conflicts were resolved by discussion.

Data extraction

Data extraction for each article was conducted by a single reviewer (CC). A second reviewer then checked the data extraction (MG). Data extraction was limited to a minimal set of required data items.

Critical appraisal

All papers were appraised and assigned a GRADE classification (13,14) by two separate reviewers (CC and MG). The NIH QAT was used for critical appraisal of cross-sectional and case-control papers. As no established tool exists for ecological studies, we employed the template used by Betran et al in their 2015 systematic review(15) to assess Uchida 2018.

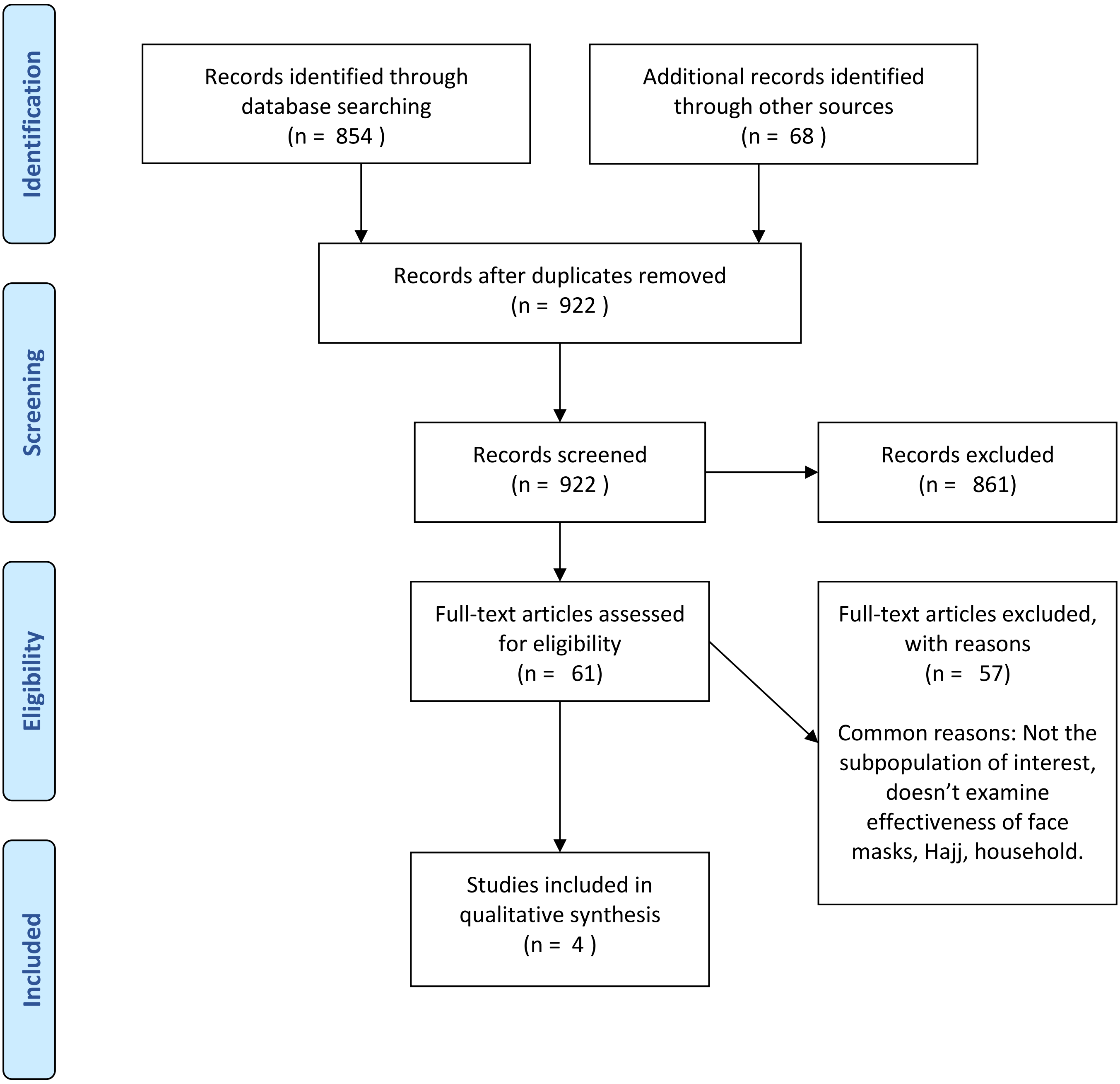
Data synthesis

Data were synthesized narratively. Because of the heterogeneity of the evidence, a meta-analysis was not appropriate. Using the GRADE system two reviewers (CC, MG) graded the certainty of the evidence.

Results

854 unique citations were identified, along with one additional paper found from within a systematic review and 67 papers from Jefferson 2011(12). This gave a total of 922 papers, of which 61 were examined at full text and 4 were included, Common reasons for rejection at full text included not the subpopulation of interest, doesn't examine effectiveness of face masks, examining the Hajj and focussed on households. Whilst we applied no language limits, one review in Spanish was identified and excluded at full text stage due to our inability to translate it (16) (see PRISMA diagram below).

PRISMA 2009 Flow Diagram



Summary of findings

From a search conducted on April 16th 2020, we found no papers based on COVID-19 data for either question.

Having excluded data from the Hajj, which was not thought representative of activities in the UK due to the sheer volume of participants living and sleeping communally in tents, data for high proximity activities in the community were found from schools and airplanes. Four papers were included, none specified mask type and all related to influenza.

With regards critical appraisal, all three were found to be of poor quality and assigned a GRADE classification of very low. This is because they were observational, and therefore classified by GRADE as low, and were then downgraded due to serious risk of bias (Kim 2012, Uchida 2017, Zhang 2013). The ecological study, Uchida 2018, was judged by the applicable tool to be of acceptable quality, but was given a GRADE of very low because it was observational data downgraded due to serious risk of bias.

High proximity activities

Schools

In February 2015, Uchida and colleagues issued a survey across all 29 public elementary schools in Matsumoto City, Japan. They obtained data from 10,524 7 to 12-year-old public elementary school students in Japan, including face mask use and self-reported diagnosis of influenza at a medical institution (96.4% had been diagnosed using rapid diagnosis kits and the remainder were diagnosed based on symptoms of influenza-like illness). 20.9% reported a diagnosis of influenza (2,149/10,524) and 52% (5,474/10,524) reported habitual mask wearing. They found evidence of a statistically significant reduction in risk of influenza infection for 'habitual' face mask wearers (adjusted OR 0.859 (95% CI 0.778–0.949)) compared with those who did not identify as 'habitual' mask wearers(1). Interestingly they also reported that masks had greater 'effectiveness' in older children – 12% for grade 4-6 versus 5.3% for grade 1-3.

Similarly, Kim 2012 conducted a cross-sectional survey in 7,448 7 to 18 year old students in South Korea. 5.6% (417/7,448) reported H1N1 diagnosis (based on RT-PCR, the influenza rapid antigen test, or viral cultures). 6.3% (466/7,448) were 'continuous' mask users, 37.8% (2,819/7,448) 'irregular' users (defined as rare and usual users) and 55.9% (4,164/7,448) non-users. They found a statistically significant reduction in risk of influenza infection amongst 'continuous' mask wearers OR 0·51 (95% CI 0·30–0·88) compared with non-users, but not when comparing 'irregular users' with non-users OR 1·02 (95% CI 0·83–1·25) (2).

However, an ecological study also conducted by Uchida was less supportive of face masks, this time at the population level. Using the data from the cross-sectional survey reported in Uchida 2017, as well an additional survey to calculate R for each of the 29 Matsumoto City public elementary schools, they found no correlation between habitual mask wearing at a population level and the influenza epidemic level within the school (p=0.776)(3).

Airplane

A fourth paper conducted a case-control study on a flight from New York to Hong Kong in May 2009. They looked at 9 case-passengers with H1N1 (defined as onset of fever and respiratory symptoms and detection of virus by PCR) and 32 control-passengers. They reported that 0% of case-passengers wore a mask for the duration of the flight, compared with 47% (15/32) of the control-passengers. From this, they calculated a statistically significant reduction in risk of infection for passengers wearing face masks for the whole duration of the journey from New York to Hong Kong compared with those who did not wear a mask for the entire journey (OR 0, 95% CI 0-0.71)(4). This result is complicated by the fact that the New York-Hong Kong flight included a stop-over in Vancouver. It is unclear from the text whether some people disembarked, and one of the case passengers did wear a mask from New York-Vancouver, but not for the whole New York-Hong Kong trip. Whilst all of the cases travelled from New York to Hong Kong, some of the controls only boarded at Vancouver.

There are strengths to these observational studies, for instance the large sample sizes in the school studies and the fact laboratory confirmation dominates in the measurement of the outcome (albeit self-reported lab confirmation). However, we have five significant reservations regarding these four papers.

First, for all four studies, it is impossible to be clear on the temporal relationship between mask wearing and influenza infection. For instance, as the authors acknowledge, the case passengers on Zhang's plane may have caught H1N1 at the airport in New York, prior to boarding. Equally, the cross-sectional surveys could not establish a timeline for the relationship between mask wearing and infection.

Secondly, the measurement of mask wearing is subjective and the type of mask not specified. In Uchida 2017, for obvious pragmatic reasons, guardians (parents/carers) reported their child's mask usage. However, this does raise the question of how accurately guardians perceive their child's mask wearing when they aren't present, where social pressures may affect wearing. Moreover, the question of whether there is a 'correct' response to whether your child wears a mask during flu season at school is worth pausing on. In Kim, it is unclear who completed the surveys, given the spread of ages, from 7-18 years, it may have been a mix of children and guardians. There is also the question of how general mask wearing relates to mask wearing at school specifically, which is the context of interest for this review. Whilst it seems reasonable to think a 'habitual' or 'continuous' wearer would have a mask at school, Kim's 'irregular' users may or may not have focused their wearing on the school context.

This leads to a third issue, namely that people – children or adults – who wear masks at school may have had their risk of influenza lowered by wearing masks in other contexts and perhaps by being more mindful of respiratory illness prevention measures in general. That said, Uchida 2017 still found significance for masks when controlling for several measures including hand washing and Zhang 2013 found no difference in handwashing behaviours between cases and controls.

Fourth is the issue of testing. There are clear advantages to having an outcome defined by laboratory test but it does raise the issue of asymptomatic or very mild infections, where medical care won't have been sought but the child may have been infected. It has been reported that asymptomatic influenza infection is common in children, more so than in adults (17)

Finally, these data are from influenza, which raises issues of generalisability to SARS-CoV-2. First, it is thought that the number of secondary infections generated from one infected individual is higher for SARS-CoV-2 than influenza. Importantly in the context of schools, the WHO describe children as "important drivers of influenza virus transmission in the community" but that "clinical attack rates in the 0-19 age group are low. Further preliminary data from household transmission studies in China suggest that children are infected from adults, rather than vice versa."(18)

Occupation

No relevant papers for other respiratory infections were identified for occupations outside of those advised to wear face masks in the UK. One paper involving face masks was found relating to the military, but this was excluded due to the communal living involved on an aircraft carrier (5). Moreover, there is little discussion of the role of face masks in this paper and the statistically significant differences in H1N1 attack rates on the two ships are ascribed by the authors to the higher use of oseltamivir and more extensive quarantining on one of the carriers.

Modelling studies

Due to time constraints, two modelling studies were identified but excluded for this version of the review. They are based on many (possibly fallible) assumptions and have not been critically appraised so their results should be treated with extreme caution but are provided for reference.

Zhang 2018 is modelled on N95 use amongst 39 students in a student office in China(6). Their data are based on real data from more than 3500 person-to-person contacts and 127,000 surface touches obtained by video-camera. They reported that in their model, the average risk of influenza infection per student was 8.75%. When all susceptible individuals in the office tightly wear an N95, the average risk of infection per student drops to 0.87%. If only the infected individual wore an N95 that blocked 95% of both small and large droplets, the risk of infection per student drops to 0.45%.

Gupta also conducted a modelling study, this time of influenza transmission on a four-hour flight. They calculated infection rates if an N95 mask was worn by 20 passengers sitting adjacent to a non-mask wearing index case. They calculated two different scenarios based on high or low measure of virus inhalation. At the low rate, with no masks 3/20 could be infected and with passengers wearing an N95 0/20 could be infected. At the higher rate, with no mask 20/20 could be infected and with the N95 11/20 could be infected (7).

Discussion

Overall, the data are not robust, are extrapolated from influenza and are confounded by the fact those who wore masks during these activities are liable to be wearing masks more frequently in community contexts outside of these high proximity activities. This makes it difficult to make recommendations regarding mask wearing specifically for these activities.

There are no data to make a mask wearing recommendation grounded in the existing evidence base in occupations such as bar staff or retail workers that aren't currently advised to wear masks for SARS-CoV-2. No data specific to public transport such as trains or buses were identified. Only one poor quality, small case-control study for airplane travel was identified. There were larger studies in schools but the studies did not appear to explicitly ask about use in the particular context of school. Although it is not unreasonable to think that 'habitual' and 'continuous' imply school time wearing, it is not explicit and has the added problem that the benefit may be from wearing the mask in a range of contexts, not necessarily about the benefit from school use. Therefore, there is insufficient evidence to know whether mask wearing in airplanes or schools is beneficial.

Of course, one may pause to consider the perspective of Greenhalgh et al who recently acknowledged the limited data but advised that the absence of evidence is not evidence of absence. They state "in the face of a pandemic the search for perfect evidence may be the enemy of good policy. As with parachutes for jumping out of aeroplanes, it is time to act without waiting for randomised controlled trial evidence…Masks are simple, cheap, and potentially effective. We believe that, worn both in the home (particularly by the person showing symptoms) and also outside the home in situations where meeting others is likely (for example, shopping, public transport), they could have a substantial impact on transmission with a relatively small impact on social and economic life."(8)

They do temper this call with a recognition that there is a need to address mask supply chain issues and highlight the need for urgent research into overcoming described problems of poor filtration and moisture retention in cloth masks. The reality of these and other potential harms, such as an impact on other hygiene behaviours, has not been explored in the current COVID context and needs immediate investigation.

There are key strengths and limitations to our rapid review. With regards strengths, we adopted broad search terms, utilising a search that was adapted from an existing paper and checked with an information specialist. We caught a diverse range of contexts, from aircraft carriers to schools to swine farms, and therefore would expect to have caught data on any relevant high proximity activities (such as public transport, schools) as well as an array of occupations, if it existed. The only context specific point was that we excluded health personnel as a MeSH term, so there is a risk we missed papers that looked at health personnel AND non-health care workers/high proximity activities.

A further strength is that this search was conducted on April 16th, so very recent data will have been captured. In addition, we incorporated both published and preprint literature, assessing over 900 papers for potential inclusion. All titles, abstracts and full texts were reviewed by two separate reviewers. Data extraction was performed by one reviewer and checked by a second, and critical appraisal was conducted by two reviewers and discrepancies resolved by discussion.

However, there are important limitations – we only searched PubMed and MedRxiv, which means we may suffer from incomplete data. Moreover, MedRxiv was only searched from 1st January 2020, as its key added value was expected to be papers on COVID-19 or generated recently by the fact face masks have become a hot academic topic. This limited search may have introduced publication bias, and the fact we didn't search reference lists (except included studies in systematic reviews) or the broader grey literature leaves us open to publication bias. In addition, our definition of both populations was broad, which may have led to different interpretations of inclusion criteria by different reviewers. Double reviewing all titles and abstracts and completing a full text assessment of any papers where one reviewer felt inclusion was warranted should have mitigated this risk.

Appendix A. Search strategy

PubMed
Date: 14/10/2010 – 16/04/2020 (Jefferson 2011 ran April 2009-Week 2 Oct 2010)
No language limits

("Influenza, Human"[Mesh] OR "Influenzavirus A"[Mesh] OR "Influenzavirus B"[Mesh] OR "Influenzavirus C"[Mesh] OR Influenza[tiab] OR "Respiratory Tract Diseases"[Mesh] OR "Bacterial Infections/transmission"[Mesh] OR Influenzas[tiab] OR “Influenza-like”[tiab] OR ILI[tiab] OR Flu[tiab] OR Flus[tiab] OR "Common Cold"[Mesh:NoExp] OR "common cold"[tiab] OR colds[tiab] OR coryza[tiab] OR coronavirus[Mesh] OR "sars virus"[Mesh] OR coronavirus[tiab] OR Coronaviruses[tiab] OR "coronavirus infections"[Mesh] OR "severe acute respiratory syndrome"[Mesh] OR "severe acute respiratory syndrome"[tiab] OR "severe acute respiratory syndromes"[tiab] OR sars[tiab] OR "respiratory syncytial viruses"[Mesh] OR "respiratory syncytial virus, human"[Mesh] OR "Respiratory Syncytial Virus Infections"[Mesh] OR "respiratory syncytial virus"[tiab] OR "respiratory syncytial viruses"[tiab] OR rsv[tiab] OR parainfluenza[tiab] OR ((Transmission[tiab]) AND (Coughing[tiab] OR Sneezing[tiab])) OR ((respiratory[tiab] AND Tract[tiab]) AND (infection[tiab] OR Infections[tiab] OR illness[tiab])))

AND

(Masks[Mesh] OR "respiratory protective devices"[Mesh] OR facemask[tiab] OR Facemasks[tiab] OR mask[tiab] OR Masks[tiab] OR respirator[tiab] OR respirators[tiab] OR "Protective Clothing"[Mesh:NoExp] OR "Protective Devices"[Mesh] OR “Hygiene intervention”[tiab])
AND

("Communicable Disease Control"[Mesh] OR "Disease Outbreaks"[Mesh] OR "Disease Transmission, Infectious"[Mesh] OR "Infection Control"[Mesh] OR Transmission[sh] OR “Prevention and control”[sh] OR "Communicable Disease Control"[tiab] OR “Secondary transmission”[tiab] OR ((Reduced[tiab] OR Reduce[tiab] OR Reduction[tiab] OR Reducing[tiab] OR Lower[tiab]) AND (Incidence[tiab] OR Occurrence[tiab] OR Transmission[tiab] OR Secondary[tiab])))
NOT
(“Case Reports”[pt] OR Editorial[pt] OR Letter[pt] OR “Case Report”[ti] OR “Case series”[ti])
NOT
((Animals[Mesh] not (Animals[Mesh] and Humans[Mesh]))
NOT
(health personnel[Mesh])

MedRxiv
Date of search: 01/01/2020-16/04/2020
Results: 187
Title or abstract searched for phrase “mask” OR “facemask”

References

1. Uchida M, Kaneko M, Hidaka Y, Yamamoto H, Honda T, Takeuchi S, et al. Effectiveness of vaccination and wearing masks on seasonal influenza in Matsumoto City, Japan, in

the 2014/2015 season: An observational study among all elementary schoolchildren. Prev Med Rep. 2017 Mar;5:86–91.

2. Kim CO, Nam CM, Lee D, Chang J, Lee JW. Is abdominal obesity associated with the 2009 influenza A (H1N1) pandemic in Korean school-aged children? Influenza Other Respir Viruses. 2012 Sep;6(5):313–7.

3. Uchida M, Kaneko M, Hidaka Y, Yamamoto H, Honda T, Takeuchi S, et al. High vaccination coverage is associated with low epidemic level of seasonal influenza in elementary schools: an observational study in Matsumoto City, Japan. BMC Infect Dis. 2018 Mar 13;18(1):128.

4. Zhang L, Peng Z, Ou J, Zeng G, Fontaine RE, Liu M, et al. Protection by face masks against influenza A(H1N1)pdm09 virus on trans-Pacific passenger aircraft, 2009. Emerg Infect Dis. 2013;19(9).

5. Harwood JL, LaVan JT, Brand GJ 2nd. Two aircraft carriers' perspectives: a comparative of control measures in shipboard H1N1 outbreaks. Disaster Med Public Health Prep. 2013 Feb;7(1):29–35.

6. Zhang N, Li Y. Transmission of Influenza A in a Student Office Based on Realistic Person-to-Person Contact and Surface Touch Behaviour. Int J Environ Res Public Health. 2018 Aug 9;15(8).

7. Gupta JK, Lin C-H, Chen Q. Risk assessment of airborne infectious diseases in aircraft cabins. Indoor Air. 2012 Oct;22(5):388–95.

8. Greenhalgh T, Schmid MB, Czypionka T, Bassler D, Gruer L. Face masks for the public during the covid-19 crisis. BMJ. 2020 Apr 9;369:m1435.

9. CDC. Coronavirus Disease 2019 (COVID-19) [Internet]. Centers for Disease Control and Prevention. 2020 [cited 2020 Mar 20]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/lab/guidelines-clinical-specimens.html

10. WHO. Advice on the use of masks in the community, during home care and in healthcare settings in the context of the novel coronavirus (COVID-19) outbreak [Internet]. 2020 [cited 2020 Apr 20]. Available from: https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)-outbreak

11. Jefferson T, Jones M, Ansari LAA, Bawazeer G, Beller E, Clark J, et al. Physical interventions to interrupt or reduce the spread of respiratory viruses. Part 1 - Face masks, eye protection and person distancing: systematic review and meta-analysis. medRxiv. 2020 Apr 7;2020.03.30.20047217.

12. Jefferson T, Del Mar CB, Dooley L, Ferroni E, Al-Ansary LA, Bawazeer GA, et al. Physical interventions to interrupt or reduce the spread of respiratory viruses. Cochrane Database Syst Rev. 2011 Jul 6;(7):CD006207.

13. Guyatt GH, Oxman AD, Vist GE, Kunz R, Falck-Ytter Y, Alonso-Coello P, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. BMJ. 2008 Apr 24;336(7650):924–6.

14. Siemieniuk R, Guyatt G. What is GRADE? | BMJ Best Practice [Internet]. [cited 2020 Apr 20]. Available from: https://bestpractice.bmj.com/info/toolkit/learn-ebm/what-is-grade/

15. Betran AP, Torloni MR, Zhang J, Ye J, Mikolajczyk R, Deneux-Tharaux C, et al. What is the optimal rate of caesarean section at population level? A systematic review of ecologic studies. Reprod Health [Internet]. 2015 Jun 21 [cited 2020 Apr 20];12. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4496821/

16. Stern D, Lopez-Olmedo N, Perez-Ferrer C, Gonzalez-Morales R, Canto-Osorio F, Barrientos-Gutierrez T. [Rapid review of the use of community-wide surgical masks and acute respiratory infections]. Salud Publica Mex. 2020 Apr 9;

17. Hsieh Y-H, Tsai C-A, Lin C-Y, Chen J-H, King C-C, Chao D-Y, et al. Asymptomatic ratio for seasonal H1N1 influenza infection among schoolchildren in Taiwan. BMC Infect Dis. 2014 Feb 12;14(1):80.

18. WHO. Q&A: Similarities and differences – COVID-19 and influenza [Internet]. 2020 [cited 2020 Apr 20]. Available from: https://www.who.int/news-room/q-a-detail/q-a-similarities-and-differences-covid-19-and-influenza