**Reynoldsburg City Schools**

**Monday February 28, 2022, 6:45 p.m.**

**Special Board Meeting**

**Central Office, 7244 East Main Street**

**1. Opening Items**

The Reynoldsburg City School District Board of Education met in a special session on February 28, 2022 for the purpose of entering into Executive Session. The meeting was held at the Central Office, 7244 East Main St.

**1.01 Call to Order (p) REF: 2.28.22**

Board President Debbie Dunlap called the meeting to order.

**1.02 Roll Call (p) REF: 2.28.22**

The following members were present: Julie Towns, Neal Whitman, Amanda Young, Debbie Dunlap

Not Present: Angela Abram

**1.03 Moment of Silence (p) REF: 2.28.22**

The Board observed a moment of silence for the people of Ukraine.

**1.04 Pledge of Allegiance (p) REF: 2.28.22**

The Board recited the Pledge of Allegiance.

**2. Approval of the Agenda**

**Motion to approve the February 28, 2022 Board of Education Agenda.**

Motion by Neal Whitman, second by Amanda Young

Final Resolution: Motion carries.

Yea: Julie Towns, Neal Whitman, Amanda Young, Debbie Dunlap

Absent: Angela Abram

**2.01 Motion to Approve the Agenda (a) REF: 2.28.22**

BE IT RESOLVED, in accordance with the Superintendent's recommendation, to approve the February 28, 2022 Special Meeting Agenda.

**3. Recognition of Visitors**

Angela Abram arrived at the meeting at 7:00 p.m.

**3.01 The following visitors requested to address the Board. (i) REF: 2.28.22**

Renee Tobe, 8177 Shale Valley-Students and staff wearing masks

**4. Policies**

**4.01 The Board discussed the COVID-19 Face Covering Policy (d) REF: 2.28.22**

* Superintendent Dr. Melvin Brown addressed the Board regarding the changes to the CDC guidelines regarding COVID-19 and the use of face coverings.
* The Board discussed the changes to the CDC guidelines and the use of face coverings. (Please see Neal Whitman’s review at the end of the minutes.)

**Motion to rescind Policy 8450.01 Covid-19 Face Covering Policy.**

Motion by Debbie Dunlap, second by Angela Abram

Final Resolution: Motion carries.

Yea: Angela Abram, Julie Towns, Neal Whitman, Amanda Young, Debbie Dunlap.

**4.02 Motion to approve to rescind the COVID-19 Face Covering Policy.**

BE IT RESOLVED, in accordance with the Superintendent’s recommendation, to rescind Policy 8450.01 COVID-19 Face Covering Policy.

**5. Adjournment**

**Motion to adjourn.**

Motion by Julie Towns, second by Amanda Young

Final Resolution: Motion carries.

Yea: Angela Abram, Julie Towns, Neal Whitman, Amanda Young, Debbie Dunlap.

**5.01 Motion to Adjourn (a) REF: 2.28.22**

The meeting was adjourned.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

President

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Treasurer

Considering lifting mask requirements in Reynoldsburg Schools: A partial literature review and recommendation

Philip Neal Whitman, Board member

**Introduction**

As Central Ohio school districts relax masking requirements for children (and adults) in schools, the question has naturally come to the Reynoldsburg school board. The following is a (necessarily) partial literature review I have attempted on the subject, in response to questions from the community, and to requests for input from Superintendent Brown. There are literally thousands of articles on Covid-19, and hundreds on just the subject of masking. I’ve looked at articles from academic databases, including PubMed, as well as popular articles that have come my way by authors that attempt to emphasize factual information.

My working conclusion as of this date is that:

* Masks, as part of a layered system of protection, reduce the spread of Covid-19.
* Some of the arguments against masks put forth by masking opponents are non-credible.
* Some of the arguments against masks put forth by masking opponents are credible but relatively easy to mitigate.
* Some of the arguments against masks put forth by masking opponents are both credible and possibly serious:
  + Risk of carbon toxicity
  + Risk of “risk compensation” or other carelessness with mask requirements in place.
* The question is whether the credible risks outweigh the very real risks of damage caused directly or indirectly by Covid-19:
  + Actual illness of children, teachers, and their family members.
  + Indirect damage caused by extensive time out of school.

Regarding the final question, my feeling today is that the answer is yes, especially in light of Franklin County Public Health’s misgivings stated in the Feb. 21 *Columbus Dispatch* (Henry et al., 2022). I believe that Reynoldsburg City Schools should make masks optional **when the positivity rate for Franklin County is at 5% or less, and the number of new cases is less than 50 per 100,000**.

The remainder of this paper is structured as follows. Section 2 presents the basic reasons for requiring masks. Sections 3-6 present arguments against mask use, in increasing order of seriousness, from “non-credible” to “credible and serious”. A list of references at the end has been pared down to include only those that I actually cite in the text, and has been divided into academic and popular sources. I have also included some examples of some less trustworthy sources, in sections called “Somewhat sketchy” and “Misinformation”. I did this both because I found it interesting how many such sources I found in my literature review (I was not accustomed to having to wade through so much trash in a database-focused search), and as a record of sources not to trust if I saw them cited later.

**Credible advantages of requiring mask use**

**As part of a system of protections, masks decrease the rates and severity of Covid-19.**

At the outset, we should note that randomized controlled studies on the effectiveness of masks in preventing spread of a virus cannot be done for ethical reasons, and natural experiments are scarce. As (Matuschek et al., 2020) note, “Only a study done in infected people with and without masks would allow a clear conclusion on the role of masks on the spread of the infection.” Furthermore, it is true that a mask cannot stop a virus from entering someone’s respiratory tract.

For those reasons, we can’t rely on masks alone to minimize the spread of COVID-19. Even so, wearing one does decrease the viral load that someone gets infected with (Cheng et al., 2021; Zimmerman, 2022). In their literature review, (Matuschek et al., 2020) cited several studies that argued that the benefit if mask-wearing “would not have a significant health benefit if only a small percentage of individuals were infected.” But when community transmission is high, masks’ importance increase. Later papers by (Catching et al., 2021) and (Cheng et al., 2021) also recommend facial coverings in conjunction with social distancing. Finally, in a page originally published in spring of 2020 and updated in August of 2021, the CDC advises: “Masking is a critical public health tool and … any mask is better than no mask” (CDC, 2020).

(Matuschek et al., 2020) summarize the advantages as follows:

* Wearing a mask in areas where sufficient distance is not feasible, such as public transportation, most likely reduces the spread of virus-loaded droplets and therefore the risk of transferring SARS-CoV-2.
* It is indisputable that infected patients can transfer SARS-CoV-2 to other people, starting few days before manifesting clinical symptoms or during the incubation period. However, there is no reliable data concerning the amount of virus particles that can be spread by an asymptomatic person, when keeping a minimum safe distance.

**Masks decrease the likelihood of having to go to remote learning.**

One study I found put some numbers on mask policies and schools that were able to maintain in-person learning, and found that schools with mask policies were 13% less likely to have to go remote. Unfortunately, that study was done in 2020, and looked at schools in Europe, and I can’t find the reference in my collection. I don’t know what these numbers are like for schools in the US, or in Ohio.

However, just in terms of our back-to-school plan, when a child in a classroom tests positive for COVID-19, the flowchart for how to proceed with contract tracing and deciding who needs to self-isolate is much simpler when the school building requires masks. I don’t know how many times based on our own COVID numbers that we would have had to go to all-virtual in some building or classroom, had masks been optional.

**Non-credible rebuttals of advantages**

**Masks are ineffective at preventing virus transmission, including coronaviruses.**

Arguments on this point are usually phrased as if we’re talking about the use of masks alone. This is a straw-man argument, because masks have always been part of a multi-layered strategy; see section 2.1.

**Children are not severely affected by Covid-19.**

A study early in the pandemic by (Dong et al., 2020) reported that children are generally not as severely affected by Covid-19, but that some immune-compromised children could be worse affected; and that children could still spread the virus asymptomatically. (Cruz & Zeichner, 2020)

reviewed that study and 12 other studies and arrived at similar conclusions.

In a school setting, we can count on there being some of these higher-risk children. Furthermore, schools are full of adults as well, who can be affected more severely by Covid-19.

**Children will not wear the masks.**

This is not an academic claim, but it is one heard from teachers, parents, and the general public. It should first be noted that this is an impressionistic claim, based on one’s own limited experience. Other observers report good compliance. Second, you’re going to get more people masking up if you have a rule than if you don’t. Finally, non-compliance with a rule isn’t by itself a reason to do away with the rule. If it were, you could argue (for example) that since bullying remains a problem, we should just do away with rules against bullying.

Of course, this Board has made policy changes based on the difficulty of enforceability, or at least, the difficulty of ensuring uniform and non-discriminatory enforcement; the dress code comes to mind. In cases like these, it has been our judgment that the benefits of easing the policy outweighed the disadvantages of keeping it. In the case of masks, the question is whether the disadvantages of trying to ensure compliance outweigh the disadvantages of being mask-optional. So far, the answer has been yes, in my own estimation.

**Mask are unnecessary, now that effective vaccines exist.**

It is true that the COVID-19 vaccines are remarkably effective (Zimmerman, 2022). However, several considerations make this argument unconvincing:

* Not everyone is able to get a vaccine.
* Not everyone is willing to get a vaccine. Vaccine rates in Ohio are at less than 60%.
* No vaccine is 100% effective, and if community transmission and new variants are present, this is even more true.

**Claimed disadvantages that are not credible**

**Masks cause or increase children’s mental and emotional distress.**

It’s certainly true that children are experiencing a lot of mental and emotional distress during the pandemic, but there’s no realistic way of putting the blame for this on masks, as opposed to the many other pandemic-related stresses. (McKeever, 2022) quotes Walter Gilliam, a Yale professor of child psychology on this topic. "The purpose of the mask is to reduce all the other traumas—traumas that we know for an absolute fact harm children.”

**Masks impede children’s social/emotional development.**

A more long-term fear is that masks impede children’s social/emotional development. As with mental and emotional distress, there is no evidence that masks do this. As Yale MD Thomas Murray observes in(McKeever, 2022)you certainly could never do an ethical controlled experiment to test this, and we don’t have any natural experiments. Although it’s possible to envision masks doing this, it’s certain that being sick with COVID-19 does real harm to children right now, both directly and indirectly.

(Hoffman & Miller, 2020), during the first summer of the pandemic, provided a far-reaching list of all the social and health benefits that schools provide beyond just education, as school districts around the nation tried to figure out a workable back-to-school plan. Now in 2022, we can also see the actual stunting of social and emotional development that has already happened to students nationwide, and in Reynoldsburg in particular.

**Claimed disadvantages that are credible but mitigable**

**Masks make it harder to read facial expressions.**

A more forceful version of the argument about social/emotional development concerns students with special needs, such as those on the autism spectrum, who often need intensive training on reading people’s emotions by their facial expressions. On the other hand, (Ruba & Pollak, 2020)(cited in (McKeever, 2022) find that masks don’t interfere with reading faces any more than a dark pair of sunglasses. (Matuschek et al., 2020)

But let’s concede that there are cases like these, when there simply isn’t a substitute for a visible face. In these cases, specific needs change the balance of risks and benefits, and it makes sense to make exceptions for these children and the people who work with them. Minimizing the risk that comes with these exceptions is one of the reasons for having multi-layered systems of protections.

**Masks make it harder to hear speech.**

Another obvious drawback of masks is that they can muffle speech. However, Walter Gilliam, a Yale professor of child psychiatry and child psychology, notes that there are many other cues that people use in communication, such as gesture, volume, and intonation (as cited in (McKeever, 2022)).

But like facial visibility, hearing speech clearly is especially important for some children, specifically those with speech or hearing impairments. Furthermore, students receiving speech and language therapy will often need to see their therapist's face (and vice versa). Once again, the solution for cases like these is to make an exception.

**Masks promote skin infections.**

The moist environment between a mask and a face can promote growth of bacteria and fungi, leading to skin infections. I have found credible papers on PubMed on this problem, but only after doing most of this literature review, so I don’t have the citations. In any case, my opinion is that this problem is one of mask hygiene. It can be mitigated with education, but with children, there’s still only so much you can do. When the risks of skin infections are outweighed by the risks of viral transmission, the masks should stay.

**Claimed disadvantages that are credible and serious**

**Masks increase the risk of carbon toxicity.**

In a study published in 2010, a full decade before the arrival of COVID-19, (Roberge et al., 2010) investigated the effects on healthcare workers of wearing N9r respirators. They found that in the space between the face and the mask, the mixture of exhaled air and inhaled air contained about 16.7% oxygen, well below OSHA’s workplace standard of 19.5% or higher. They also found CO2 levels of 2.9%, as opposed to normal levels of less than 0.5%. On the one hand, the OSHA standards are about the ambient atmosphere, not a small pocket of air in front of one’s face, so the presence of normal oxygen levels in a room mitigate these numbers. Even so, if you wear a well-fitting mask, you’re going to be breathing more CO2 and less oxygen than you would without a mask. Roberge et al. also note, “[B]reathing-environment CO2 > 3% has been associated with detrimental physiological effects, and prolonged breathing of CO2 at greater than the atmospheric level can cause symptoms (eg, headache, anxiety, and confusion) and the additional physiological stress of compensatory mechanisms."

Similar concerning effects are detailed in a literature review by (Jacobson et al., 2019), another pre-pandemic paper, whose abstract mentions “potential health risks of chronic exposure to environmentally relevant elevations in ambient CO2, including inflammation, reductions in higher-level cognitive abilities, bone demineralization, kidney calcification, oxidative stress and endothelial dysfunction.” The paper is about environmental threats rather than face masks, but we’re still talking about breathing elevated levels of CO2 long-term.

Here is a summary of the effects of CO2 at different levels of exposure, taken from OSHA (although I happened to get them from the USDA Food and Safety and Inspection Service website (USDA, 2017)):

* 5,000 ppm (0.5%) OSHA Permissible Exposure Limit (PEL) and ACGIH Threshold Limit Value (TLV) for 8-hour exposure
* 10,000 ppm (1.0%) Typically no effects, possible drowsiness
* 15,000 ppm (1.5%) Mild respiratory stimulation for some people
* 30,000 ppm (3.0%) Moderate respiratory stimulation, increased heart rate and blood pressure, ACGIH TLV-Short Term
* 40,000 ppm (4.0%) Immediately Dangerous to Life or Health (IDLH)
* 50,000 ppm (5.0%) Strong respiratory stimulation, dizziness, confusion, headache, shortness of breath 80,000 ppm (8.0%) Dimmed sight, sweating, tremor, unconsciousness, and possible death

Although the possible dangers brought up in these studies should not be dismissed, there are more-recent studies such as (Shein et al., 2021), who not only did their research in the midst of the COVID-19 pandemic, but also looked for decreased oxygenation while wearing a mask both while at rest and during physical activity, checking a variety of masks of the type being worn today. They found:

In conclusion, facemasks did not impair oxygenation or ventilation among 50 adults at rest or during physical activity. No episodes of hypoxemia or hypercarbia occurred with either cloth or surgical masks, both at rest and while walking briskly. The risk of pathologic gas exchange impairment with cloth masks and surgical masks is near-zero in the general adult population.

Similarly, (Rhee et al., 2021) found, “Although, significant increase in CO2 concentrations are noted with routinely used face-masks, the levels still remain within the NIOSH limits for short-term use.”

One difference between the subjects of these studies and our kids in schools is that not all children (or adults) wear masks that fit as tightly as N95s, which decreases both the risk of hypercarbia and the mask’s effectiveness.

Considering all of these points, the most reasonable solution in my estimation, when a facial covering requirement is in effect, would be to allow occasional mask breaks (as is done now), as well as removal of masks during activities when it’s not possible to wear them, such as eating, or when the need for oxygen is greater (during physical education or athletics).

**Masks give could actually increase your risk of exposure to COVID-19.**

An effect known as “risk compensation” refers to people’s tendency toward more risky behavior when they believe they’re protected. I’ve found several studies finding that such effects exist (**but forgot to export them to my bibliographic software**), and others not finding such effects (Liebst et al., 2022). I can personally attest to this phenomenon: With me it’s been a greater willingness to go out to restaurants after being vaccinated and while wearing a mask than during late 2020 and early 2021. With children, it could be less diligence in washing hands. (Matuschek et al., 2020) list this as one of the arguments against mask-wearing.

It’s also true that careless handling of masks (such as taking one off and accidentally putting it back on inside out, or touching its front with your hands and then touching your face), puts you at risk. So does the extra touching of your face to adjust your mask, unless you’re constantly alert to this. And so does typical adolescent foolishness, such as an anecdotal report of kids playing “mask tag”: If you can touch a classmate’s mask with your paint-or-ink-coated fingers and leave a mark, the classmate is out!

Once again, the question is which is the greater risk: That posed by risk compensation or careless use of masks, or the risk of easier spread of the virus. At present, it seems to me that it’s the latter, so the solution is to use the masks while making whatever effort we can to guard against carelessness.

**References**

**Academic**

Catching, A., Capponi, S., Yeh, M. T., Bianco, S., & Andino, R. (2021). Examining the interplay between face mask usage, asymptomatic transmission, and social distancing on the spread of COVID-19. *Scientific Reports*, *11*(1), 1–11. Academic Search Complete.

CDC. (2020, February 11). *COVID-19 and your health: Masks*. Centers for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/masks.html

Cheng, Y., Ma, N., Witt, C., Rapp, S., Wild, P. S., Andreae, M. O., Pöschl, U., & Su, H. (2021). Face masks effectively limit the probability of SARS-CoV-2 transmission. *Science*, *372*(6549), 1439–1443. Academic Search Complete.

Cruz, A. T., & Zeichner, S. L. (2020). COVID-19 in Children: Initial Characterization of the Pediatric Disease. *Pediatrics*, *145*(6), e20200834. https://doi.org/10.1542/peds.2020-0834

Dong, Y., Mo, X., Hu, Y., Qi, X., Jiang, F., Jiang, Z., & Tong, S. (2020). Epidemiology of COVID-19 Among Children in China. *Pediatrics*, *145*(6), e20200702. https://doi.org/10.1542/peds.2020-0702

Henry, M., Winchester, C., & Ar, U. (2022, February 21). More schools districts ditching masks. *Columbus Dispatch*, 1,5.

Hoffman, J. A., & Miller, E. A. (2020). Addressing the consequences of school closure due to COVID‐19 on children’s physical and mental well‐being. *World Medical & Health Policy*. https://doi.org/10.1002/wmh3.365

Jacobson, T. A., Kler, J. S., Hernke, M. T., Braun, R. K., Meyer, K. C., & Funk, W. E. (2019). Direct human health risks of increased atmospheric carbon dioxide. *Nature Sustainability*, *2*(8), 691–701. https://doi.org/10.1038/s41893-019-0323-1

Liebst, L. S., Ejbye-Ernst, P., de Bruin, M., Thomas, J., & Lindegaard, M. R. (2022). No evidence that mask-wearing in public places elicits risk compensation behavior during the COVID-19 pandemic. *Scientific Reports*, *12*(1), 1511. https://doi.org/10.1038/s41598-022-05270-3

Matuschek, C., Moll, F., Fangerau, H., Fischer, J. C., Zänker, K., van Griensven, M., Schneider, M., Kindgen-Milles, D., Knoefel, W. T., Lichtenberg, A., Tamaskovics, B., Djiepmo-Njanang, F. J., Budach, W., Corradini, S., Häussinger, D., Feldt, T., Jensen, B., Pelka, R., Orth, K., … Haussmann, J. (2020). Face masks: Benefits and risks during the COVID-19 crisis. *European Journal of Medical Research*, *25*(1), 32. https://doi.org/10.1186/s40001-020-00430-5

McKeever. (2022, February 17). *Do masks really harm kids? Here’s what the science says.* Science. https://www.nationalgeographic.com/science/article/do-masks-really-harm-kids-heres-what-the-science-says

Rhee, M. S. M., Lindquist, C. D., Silvestrini, M. T., Chan, A. C., Ong, J. J. Y., & Sharma, V. K. (2021). Carbon dioxide increases with face masks but remains below short-term NIOSH limits. *BMC Infectious Diseases*, *21*(1), 354. https://doi.org/10.1186/s12879-021-06056-0

Roberge, R. J., Coca, A., Williams, W. J., Powell, J. B., & Palmiero, A. J. (2010). Physiological impact of the N95 filtering facepiece respirator on healthcare workers. *Respiratory Care*, *55*(5), 569–577.

Ruba, A. L., & Pollak, S. D. (2020). Children’s emotion inferences from masked faces: Implications for social interactions during COVID-19. *PLOS ONE*, *15*(12), e0243708. https://doi.org/10.1371/journal.pone.0243708

Shein, S. L., Whitticar, S., Mascho, K. K., Pace, E., Speicher, R., & Deakins, K. (2021). The effects of wearing facemasks on oxygenation and ventilation at rest and during physical activity. *PLoS ONE*, *16*(2). https://doi.org/10.1371/journal.pone.0247414

USDA, F. (2017). *Carbon dioxide*. https://www.fsis.usda.gov/sites/default/files/media\_file/2020-08/Carbon-Dioxide.pdf

Zimmerman, M. (2022, January). ​2 Years of COVID: What Comes Next in The Pandemic?​. *AARP*. https://www.aarp.org/health/conditions-treatments/info-2022/covid-2-years.html

**Popular**

Henry, M., Winchester, C., & Ar, U. (2022, February 21). More schools districts ditching masks. *Columbus Dispatch*, 1,5.

Hoffman, J. A., & Miller, E. A. (2020). Addressing the consequences of school closure due to COVID‐19 on children’s physical and mental well‐being. *World Medical & Health Policy*. https://doi.org/10.1002/wmh3.365

McKeever. (2022, February 17). *Do masks really harm kids? Here’s what the science says.* Science. https://www.nationalgeographic.com/science/article/do-masks-really-harm-kids-heres-what-the-science-says

Zimmerman, M. (2022, January). 2 Years of COVID: What comes next in the pandemic?. *AARP*. https://www.aarp.org/health/conditions-treatments/info-2022/covid-2-years.html

**Somewhat sketchy**

Ahmad, M. D. F., Wahab, S., Ahmad, F. A., Alam, M. I., Ather, H., Siddiqua, A., Ashraf, S. A., Shaphe, M. A., Khan, M. I., & Beg, R. A. (2021). A novel perspective approach to explore pros and cons of face mask in prevention the spread of SARS-CoV-2 and other pathogens. *Saudi Pharmaceutical Journal : SPJ*, *29*(2), 121. NW: Provocative language in text.

Chhatwal, J., Dalgic, O. O., Mesa‐Frias, M., Buyukkaramikli, N., Cox, A., Van Effleterre, T., Griffin, A., Ayer, T., Yildirim, I. F., Patterson, B. J., & El Khoury, A. (2021). When can we lift non‐pharmaceutical interventions with the availability of COVID‐19 vaccine in the United States? *Health Services Research*, *56*(S2), 78–79. NW: Provocative language in text and title.

Gupta, D. (2020). “Therapeutic” facemasks. *Medical Hypotheses*, *143*, 109855. NW: Provocative language in text; speculative; from same journal that retracted an article.

Kisielinski, K., Giboni, P., Prescher, A., Klosterhalfen, B., Graessel, D., Funken, S., Kempski, O., & Hirsch, O. (2021). Is a mask that covers the mouth and nose free from undesirable side effects in everyday use and free of potential hazards? *International Journal of Environmental Research and Public Health*, *18*(8), 4344. NW: Provocative language in text and title, suggesting straw-man arguments.

**Misinformation**

(RETRACTED) Vainshelboim, B. (2021). Facemasks in the COVID-19 era: A health hypothesis. Medical Hypotheses, 146, 110411.