# Protocol: Use of Masks or Cloth Face Coverings

Date: June 25, 2020
Issued by: Infectious/Communicable Disease Task Force
Affected parties: All Temple University employees, students, guests, visitors and vendors.

These guidelines are issued in accordance with the university Infectious/Communicable Disease policy, policy No. 04.64.01 and the university's Community Health Policy, policy No. 04.64.02 and other applicable policies. These guidelines give further detail with regard to actions required in safety protocols for COVID-19.

## SUMMARY

The use of face coverings is an important component to reducing the spread of COVID-19. Face coverings primarily act to prevent the wearer from spreading disease through droplets from the wearer's mouth and nose, particularly if they are unknowingly infected and either pre-symptomatic or asymptomatic. It is difficult to estimate the percentage of asymptomatic COVID-19 carriers; in addition, it may take several days for individuals with COVID-19 to develop symptoms. Consequently, asymptomatic and presymptomatic carriers can spread the virus without realizing they are sick. Wearing a face covering, in combination with other public health measures such as hand washing, daily health monitoring and physical distancing,[1] is necessary to help prevent the spread of COVID-19.

## GUIDELINES

The following guidelines are in accordance with the recommendations of the Centers for Disease Control and Prevention, the Pennsylvania Department of Education, and the Philadelphia Department of Public Health. These guidelines are also based on emerging findings that COVID-19 disease can be transmitted for at least three to six days before symptoms emerge and/or when people remain asymptomatic.

1. Face coverings must be worn by all students, faculty, and staff in all classrooms, public and shared spaces on campus, and in areas where physical distancing of six feet or more cannot be observed.
2. Individuals in a building space by themselves, such as in an office that is not shared by others, may remove the face covering. It will need to be donned again when leaving.
3. Physical distancing of six feet or more should be maintained as much as possible in all university building spaces and outdoors. Inside buildings, when maintaining a distance of six feet, or two arm's length is difficult, individuals must wear face coverings, avoid prolonged contact or conversation, and move swiftly into a space with lower density.
4. When outdoors, individuals must wear face coverings when physical distancing cannot be maintained.
5. While eating, and when wearing a mask is not possible, individuals must stay at least six feet apart in order to prevent viral transmission.

[1] Physical distancing, also referred to as "social distancing," involves maintaining a physical distance of six feet, or two arm's lengths, between persons.

6. When instructing students, and to facilitate teaching, faculty may substitute face shields for face coverings. Physical distancing must be adhered to when using a face shield.
7. All students in the classroom should wear face coverings for the entire class.
8. For individuals unable to wear face coverings due to a health condition or disability[2], face shields may be used as an alternative. Such individuals should be extra cautious about maintaining physical distancing and observing all other hygiene protocols.
9. In addition to face coverings, other public health precautions must be observed by the whole community, including frequent, thorough hand washing, physical distancing, the implementation of regular cleaning and disinfecting procedures, and encouraging or requiring students and staff to stay home when they are sick.

## SUPPORTING EVIDENCE

1. **Many people who are infected with COVID-19 are asymptomatic or pre-symptomatic carriers of the virus.**
    a. COVID-19 disease appears to feature statistically significant numbers of asymptomatic carriers.
        i. The World Health Organization stated in a situation report published March 6 that "data to date suggest that 80% of infections are mild or asymptomatic" (WHO, 2020).
        ii. Researchers from Scripps Research Translational Institute published findings in June that 40–45% of SARS-CoV-2 infections are asymptomatic and that such persons can transmit the virus to others for an extended period, perhaps longer than 14 days (Oran and Topal, 2020)
        iii. Symptom-based screening is not enough to control transmission because it fails to identify a significant portion of infectious cases (Gandhi, Yokoe and Havlir, 2020) (Arons et al., 2020).
        iv. The exact number of asymptomatic COVID-19 patients would be virtually impossible to determine, as it is typically calculated using seroepidemiological data which is prohibitively costly to collect (Nishiura et al., 2020).
        v. One estimation from data collected on board the Diamond Princess cruise ship approximates the asymptomatic proportion of the population at between 17.9% and 50.6% (Mizumoto et al., 2020). Though a large range, the figures are statistically significant.
        vi. A study of skilled nursing facility residents found that more than half of those who tested positive for SARS-CoV-2 were asymptomatic at the time of testing (Arons et al., 2020).
    b. The viral load for symptomatic and asymptomatic COVID-19 patients is similar, so both types of patients are equally infectious (Zou et al., 2020).
        i. Per the CDC, epidemiologic studies have documented SARS-CoV-2 transmission during the pre-symptomatic incubation period, and asymptomatic transmission has been suggested in other reports (Centers

[2] Students who require accommodation should contact Disability Resources and Services (215-204-1280). Employees who require accommodation should contact Human Resources, Employee Relations ada-hr@temple.edu.

for Disease Control and Prevention, 2020). Mandatory face coverings would prevent these asymptomatic carriers from unknowingly spreading the virus through respiratory droplets.

ii. Live coronavirus sheds from the nasal cavity in presymptomatic COVID-19 patients at high concentrations, indicating that these patients could be highly infectious (Gandhi, Yokoe and Havlir, 2020).

2. **Widespread use of face coverings, shields and masks has been shown to reduce the transmission of SARS-CoV2 virus. Masks control the source of disease and protect from infection.**
    a. Face masks that fit properly disrupt the particles being expelled forward when coughing or sneezing, thus preventing transmission. Even ill-fitting face masks have been shown to effectively interrupt respiratory particles from reaching the breathing zones of people nearby (Shin et al., 2014). Cough etiquette is another example of reducing respiratory droplet transmission to protect others from infection (Cheng et al., 2020).
    b. Communitywide mask wearing has been shown to contribute to the control of COVID-19 by reducing the emission of infected respiratory droplets and saliva by individuals with pre-symptomatic, asymptomatic, subclinical or mild COVID-19 (Cheng et al., 2020).
    c. Data gathered from 39 studies indicated that the use of face masks ranging from N95 respirators to reusable cotton masks by those exposed to infectious individuals is associated with lower risk of transmission of virus and subsequent infection (Chu et al., 2020).
    d. Face shields have emerged as a potential alternative to face masks. A simulated study of the efficacy of face shields in preventing exposure to cough aerosol droplets in a healthcare setting indicated that the face shield “inhalational exposure of the worker by 96%” in the period directly following a cough (Lindsley et al., 2020). The shields offer several advantages: They can be reused indefinitely and are easily cleaned with soap and water or household disinfectants (Perencevich et al., 2020). They improve communication as they allow visibility of facial expression and lip movements for speech perception (Perencevich et al., 2020). Face shields are also comfortable to wear and prevent the wearer from touching their face, which reduces the potential for autoinoculation (Perencevich et al., 2020).
3. **When layered with other measures, cloth face coverings reinforce and augment other preventive measures.**
    a. The CDC recommends wearing cloth face coverings or masks in public settings when it may not be possible to maintain six feet of distance (Centers for Disease Control and Prevention, 2020). Face shields were shown to be most effective when physical distancing of at least 72 inches was in place (Lindsley et al., 2020).
    b. The findings of 172 studies provide evidence that current policies implementing at least one meter of physical distancing have been associated with a large reduction in infection, with distances of two meters or more being even more effective (Derek et al. 2020).

c. Hand-washing culture has been shown to act as a "very good predictor" of COVID-19 spread magnitude in different countries.
    i. A regression analysis of a 2015 study on hand-washing culture showed that locations with lower levels of habitual hand washing had more severe outbreaks of COVID-19 (Pogrebna & Kharlamov, 2020).
    ii. The use of surfactant-based hand-washing products has been proven to reduce the presence of viruses, including SARS-CoV-2 (Chaudhary et al., 2020).
d. The use of a face shield reduced the surface contamination of a respirator by 97% in a simulated study of aerosol droplets produced by a cough, indicating that these measures are most effective when employed concurrently (Lindsley et al., 2020).

## Authorities and Guidelines

| Reference | Last Date | Link |
|---|---|---|
| Governor of PA: Plan for Pennsylvania | June 24, 2020 | Reference here |
| Order of the Secretary of the Pennsylvania Department of Health Directing Public Health Safety Measures for Businesses Permitted to Maintain In-person Operations | April 12, 2020 | Reference here |
| Philadelphia Department of Public Health (PDPH): Guidance for Essential Business and Organizations | May 2, 2020 | Reference here |
| PA Department of Education Preliminary Guidance for Resuming In-Person Instruction at Postsecondary Education Institutions and Adult Education Programs | June 2, 2020 | Reference here |
| PDPH: COVID-19 Reopening Guidance for Universities and Colleges | June 2, 2020 | No online reference available. |
| CDC: Coronavirus Disease (COVID-19) | June 24, 2020 | Reference here |
| CDC: Physical Distancing, Quarantine and Isolation | June 24, 2020 | Reference here |
| CDC: Use of Cloth Face Coverings to Help Slow the Spread of COVID-19 | June 24, 2020 | Reference here |
| CDC: Hand Hygiene | June 24, 2020 | Reference here |

## Further References

Arons, M.M., K.M. Hatfield, S.C. Reddy, A. Kimball, and A. James, et al. (2020). "Presymptomatic SARS-CoV-2 infections and transmission in a skilled nursing facility."

New England Journal of Medicine. Retrieved from https://www.nejm.org/doi/full/10.1056/NEJMoa2008457

Centers for Disease Control. (2020). "Recommendation regarding the use of cloth face coverings, especially in areas of significant community-based transmission." Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html

Chaudhary, N.K., Chaudhary, N., Dahal, M., Guragain, B., Rai, S., Chaudhary, R., & Sachin, K.M. (2020). "Fighting the SARS CoV-2 (COVID-19) pandemic with soap." *Preprints.* Retrieved from https://www.preprints.org/manuscript/202005.0060/v2

Cheng, K. K., Lam, T. H., & Leung, C. C. (2020). "Wearing face masks in the community during the COVID-19 pandemic: altruism and solidarity." *The Lancet.* Retrieved from https://www.thelancet.com/action/showPdf?pii=S0140-6736%2820%2930918-1

Cheng, V. C., Wong, S. C., Chuang, V. W., So, S. Y., Chen, J. H., Sridhar, S., To, K. K., Chan, J. F., Hung, I. F., Ho, P. L., & Yuen, K. Y. (2020). "The role of community-wide wearing of face mask for control of coronavirus disease 2019 (COVID-19) epidemic due to SARS-CoV-2." *The Journal of infection*, S0163-4453(20)30235-8. Advanced online publication. Retrieved from https://doi.org/10.1016/j.jinf.2020.04.024

Chu, D. K., Akl, E. A., Duda, S., Solo, K., Yaacoub, S., & Schunemann, H. (2020). "Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis." *The Lancet.* Advance online publication. Retrieved from https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(20)31142-9.pdf

Gandhi, M., Yokoe, D. S., and Havlir, D. V. (2020). "Asymptomatic Transmission, the Achilles' Heel of Current Strategies to Control Covid-19." *The New England Journal of Medicine.* Retrieved from https://www.nejm.org/doi/pdf/10.1056/NEJMe2009758?articleTools=true

Ing, A. J., Cocks, C., & Green, J. P. (2020). "COVID-19: In the footsteps of Ernest Shackleton." *Thorax*. Advance online publication. https://doi.org/10.1136/thoraxjnl-2020-215091

Lindsley, W. G., Noti, J. D., Blachere, F. M., Szalajda, J. V., & Beezhold, D. H. (2014). Efficacy of face shields against cough aerosol droplets from a cough simulator. J*ournal of occupational and environmental hygiene*, 11(8), 509–518. Retrieved from https://doi.org/10.1080/15459624.2013.877591

Maragakis, L. L. (2020). Coronavirus face masks & protection FAQs. Retrieved from https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/coronavirus-face-masks-what-you-need-to-know

Mayo Clinic Staff. (2020). Can face masks protect against the coronavirus? Retrieved from https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/coronavirus-mask/art-20485449

Mizumoto, K., Kagaya, K., Zarebski, A., & Chowell, G. (2020). "Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020." *Eurosurveillance* 25(10). Retrieved from https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.10.2000180

Nishiura, H., Kobayashi, T., Miyama, T., Suzuki, A., Jung, S., Hayashi, K., et al. (2020). "Estimation of the asymptomatic ratio of novel coronavirus infections (COVID-19)." *International Journal of Infectious Diseases.* Retrieved from https://www.medrxiv.org/content/10.1101/2020.02.03.20020248v2.full.pdf

Oran, Daniel P. and Eric J. Topol (2020). "Prevalence of Asymptomatic SARS-CoV-2 infection," *Annals of Internal Medicine*. Retrieved from https://www.acpjournals.org/doi/full/10.7326/M20-3012

Perencevich, E. N., Diekema, D. J., & Edmond, M. B. (2020). Moving personal protective equipment into the community: Face shields and containment of COVID-19. *Journal of the American Medical Association, 323*(22), 2252-2253. doi:10.1001/jama.2020.7477

Pogrebna, G. & Kharlamov, A. (2020). The impact of cross-cultural differences in handwashing patterns on the COVID-19 outbreak magnitude. *Regulation & Governance, preprint.* Retrieved from https://www.researchgate.net/publication/340050986_The_Impact_of_Cross-Cultural_Differences_in_Handwashing_Patterns_on_the_COVID-19_Outbreak_Magnitude

Sim, S. W., Moey, K. S. P., & Tan, N. C. (2014). The use of facemasks to prevent respiratory infection: A literature review in the context of the health belief model. *Singapore Medical Journal, 55*(3), 160-167. Retrieved from http://www.smj.org.sg/article/use-facemasks-prevent-respiratory-infection-literature-review-context-health-belief-model

World Health Organization. (2020). Coronavirus disease 2019 (COVID-19) situation report (Report no. 46). Retrieved from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200306-sitrep-46-covid-19.pdf?sfvrsn=96b04adf_4

# **Appendix A:** Types of Respirators and Face Coverings

## Types of Respirators and Face Coverings

| | N-95 Respirator | Medical-Grade Surgical Mask | Disposable Face Mask | Face Covering |
|---|---|---|---|---|
| **Description** | Designed to protect the wearer from exposure to airborne particles by using layers of filter material. A proper seal between the user's face and the respirator forces inhaled air through the respirator's filter material, thereby providing protection. Available in various sizes needing proper selection. | FDA-approved mask to protect the wearer from large droplets, splashes or sprays of bodily or other hazardous fluids. It helps to contain the wearer's respiratory emissions. | Commercially manufactured mask that helps to contain the wearer's respiratory emissions. | Hand-made or commercially manufactured face covering that helps to contain the wearer's respiratory emissions. |
| **Intended Use** | Reserved for healthcare workers, and approved areas and/or task-specific hazards as determined by EHRS. | | Face masks and coverings are intended for community use (office spaces, community areas where 6' social distancing cannot be maintained). Not required when working alone in an office. | |
| **Use Limitations** | Generally single use, discard when damaged or contaminated. Requires medical clearance and testing for proper fit. | Generally single use, discard when damaged or contaminated. Does not require medical clearance or testing for proper fit. | Generally single use, discard when damaged or contaminated. Face coverings can be reused with proper wash and care. Does not require medical clearance or testing for proper fit. | |
| **Examples** |  |  |  |  |

Temple University
Environmental Health and Radiation Safety

3307 N. Broad St.
Room B-49
Philadelphia, PA 19140

215-707-2520
ehrs@temple.edu
www.temple.edu/ehrs