



October 2023

## MASCUP! Mask Surveillance & Adherence Project @ Stockton University

Tara Lynn Crowell  
Tara.crowell@stockton.edu

Britny Dileo  
dileob@go.stockton.edu

Michaela Knoll  
knollm1@go.stockton.edu

Amanda Maurer  
maurera1@go.stockton.edu

Follow this and additional works at: <https://digitalcommons.cwu.edu/ijurca>

---

### Recommended Citation

Crowell, Tara Lynn; Dileo, Britny; Knoll, Michaela; and Maurer, Amanda (2023) "MASCUP! Mask Surveillance & Adherence Project @ Stockton University," *International Journal of Undergraduate Research and Creative Activities*: Vol. 14: Iss. 1, Article 4.

DOI: <https://doi.org/10.7710/2168-0620.0368>

Available at: <https://digitalcommons.cwu.edu/ijurca/vol14/iss1/4>

This Article is brought to you for free and open access by ScholarWorks@CWU. It has been accepted for inclusion in *International Journal of Undergraduate Research and Creative Activities* by an authorized editor of ScholarWorks@CWU. For more information, please contact [scholarworks@cwu.edu](mailto:scholarworks@cwu.edu).

---

## MASCUP! Mask Surveillance & Adherence Project @ Stockton University

### Abstract

Stockton University was one of over 50 Colleges and Universities across the nation to participate in a study sponsored by the Centers for Disease Control to gauge compliance with mask wearing during the Spring 2021 semester. Five undergraduate Public Health students supervised by a Public Health Faculty member, observed mask wearing behaviors of individuals on campus over an 8-week period of time. Observations ranged from 40-90 minutes at various times of day and at 15 different locations on campus. During that time there were a total of 2,548 observations, of which 2,357 people were wearing masks. Of that group, 92.5%, were wearing the mask correctly. Other variables that were observed and recorded were type of mask and how masks were worn incorrectly along with possible explanations for this mistake. Results indicate the most common type of mask was cloth, with more than half (54%), while the most common mistake was not covering the nose. Although observers were unable to determine the exact reason, the following were observed for those not wearing masks from most to least: eating / drinking, then, outdoors / not within 6 ft of anyone, and finally exercise / playing a sport. Lastly, Stockton's results are compared to all institutions that participated in the study.



August 10, 2022

## MASCUP! Mask Surveillance & Adherence Project @ Stockton University

TARA LYNN CROWELL

*Stockton University*, tara.crowell@stockton.edu

BRITNY DILEO

*Stockton University*, dileob@go.stockton.edu

MICHAELA KNOLL

*Stockton University*, knollm1@go.stockton.edu

AMANDA MAURER

*Stockton University*, maurera1@go.stockton.edu

KELLY MILLER

*Stockton University*, mille402@go.stockton.edu

KIMBERLY NGUYEN

*Stockton University*, nguyen73@go.stockton.edu

### Abstract

Stockton University was one of over 50 Colleges and Universities across the nation to participate in a study sponsored by the Centers for Disease Control to gauge compliance with mask wearing during the Spring 2021 semester. Five undergraduate Public Health students supervised by a Public Health Faculty member, observed mask wearing behaviors of individuals on campus over an 8-week period of time. Observations ranged from 40-90 minutes at various times of day and at 15 different locations on campus. During that time there were a total of 2,548 observations, of which 2,357 people were wearing masks. Of that group, 92.5%, were wearing the mask correctly. Other variables that were observed and recorded were type of mask and how masks were worn incorrectly along with possible explanations for this mistake. Results indicate the most common type of mask was cloth, with more than half (54%), while the most common mistake was not covering the nose. Although observers were unable to determine the exact reason, the following were observed for those not wearing masks from most to least: eating / drinking, then, outdoors / not within 6 ft of anyone, and finally exercise / playing a sport. Lastly, Stockton's results are compared to all institutions that participated in the study.

### Keywords

Mask Wearing; COVID-19; Observational Research; Public Health

### **Peer Review**

This work has undergone a double-blind review by a minimum of two faculty members from institutions of higher learning from around the world. The faculty reviewers have expertise in disciplines closely related to those represented by this work. If possible, the work was also reviewed by undergraduates in collaboration with the faculty reviewers.

## Introduction

MASCUP is an acronym for Mask Adherence Surveillance at Colleges and Universities Project. This project involves the Center for Disease Control COVID-19 Response team, Institutions of Higher Education (IHE) and Health Departments. The purpose of this project was to serve as a vehicle to help institutions to identify and encourage mask use on their campus. During the spring of 2021, a total of 54 colleges and universities across the United States participated in MASCUP.

This study utilized observational methodology to determine mask wearing on campus over an 8-week period. Specifically, this study was conducted to identify proper mask wearing on campus. The purpose of this manuscript is twofold. First, this article will provide an explanation of the study and specific details on procedures. Second, it will provide results on mask wearing, types of masks, incorrect mask wearing and possible explanation for non-mask wearing on Stockton University's main campus. These results will also be compared with results from all 53 other institutions and implications of both are discussed.

## Background

According to the CDC, the rate of COVID-19 positivity rates among young adults has been higher than other age groups during July and August 2020<sup>1</sup>. There may be many reasons, including that disease severity tends to be lower at young ages and that young adults may have less concern about future health than older adults. If students at IHE do not follow recommended mitigation measures, such as wearing masks, the resulting spread of COVID-19 may adversely affect plans to continue in-person teaching. Use of face masks and cloth face coverings has been shown to reduce transmission of SARS-CoV-2<sup>2</sup>, the virus that causes COVID-19. Observing mask use can assist universities with determining the adherence among students, faculty, and staff to inform public health decision-making. The information will help understand how well the IHE and communities are promoting proper mask use and help them implement and assess strategies to increase the proportion of people who use masks correctly.

---

<sup>1</sup> Tegan K. Boehmer, et al. Changing Age Distribution of the COVID-19 Pandemic-United States, May-August 2020. Center for Disease Control and Prevention, MMWR 2020; 69(39);1404–1409.

<sup>2</sup> Derek K. Chu, et al. 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 2020; 395(10242); 1973-1987.

Direct in-person observation by human observers<sup>3</sup> is used in healthcare settings to measure adherence to infection prevention and control activities such as hand hygiene and the correct use of personal protective equipment, and to guide feedback and interventions for improving adherence. Also, observational sampling methods similar to an approach to conduct vaccination coverage cluster surveys<sup>4</sup> can be utilized for observing mask adherence. This study will utilize both and results will be used to provide information on the compliance of mask use, improve understanding of correct mask use within the IHE population, and support the development of additional mitigation strategies and training and communication materials for the IHE. Data obtained during assessments of individual IHE can be analyzed together, strengthening the ability to look at different mitigation methods and potentially obtaining clearer findings.

This approximate 3-month study (during the spring 2021 semester) outlines specific objectives and parties involved. The following objectives of the protocol are<sup>5</sup>:

- Measure the proportion of people who are wearing masks at IHE and at specific off-campus locations
- Measure the proportion of people who are wearing a mask correctly at IHE and at specific off-campus locations
- Report findings to the IHE and Health Department Leadership to inform decision making
- Report findings to the IHE and Health Department population and surrounding community to improve mask adherence
- Inform national efforts to improve mitigation efforts by comparing findings with other participating IHE around the U.S. (if partnering with CDC).

---

<sup>3</sup> John M. Boyce, Hand Hygiene Compliance Monitoring: Current Perspectives from the USA. *Journal of Hospital Infection*, 2008; 70(1); 2-7, [http://doi.org/10.1016/S0195-6701\(08\)60003-1](http://doi.org/10.1016/S0195-6701(08)60003-1)

<sup>4</sup> The World Health Organization. *Immunization Documents*, 2019; [https://www.who.int/immunization/documents/who\\_ivb\\_18.09/en/](https://www.who.int/immunization/documents/who_ivb_18.09/en/)

<sup>5</sup> *Observing Mask Use at Institute of Higher Education: COVID-19 Response Mitigation Assessment Protocol*, 2021. Unpublished Document.

The three major parties involved in the MASCUP project included the CDC COVID-19 Response Team, Principal Investigator and Co-investigators. **CDC COVID-19 Response Team** will provide training material, technical assistance in development of the investigation protocol, provide subject matter guidance in support of activities listed in the protocol, and if partnering with the IHE, will participate in the analysis and dissemination of information. Note: CDC will not have access to identifiable information. The **Principal Investigator(s)** will be responsible for the scientific integrity of the investigation, as well as overall administrative and/or fiscal management of activities.

- Conducting program and administrative management, coordination and collaboration to ensure implementation of investigation according to strategic objectives and the approved protocol;
- Ensuring that investigation staff is aware of and adheres to policies and procedures related to administering the activities under this protocol;
- Ensuring that technical/programmatic progress reports are submitted promptly as required by the terms and conditions of the protocol

While the **Co-investigators** will be responsible for the technical quality of protocol, investigation tools, implementation, analysis and dissemination of data.

To begin the project, the projects leaders (CDC COVID-19 Response Team) reached out, via email to institutions of Higher Education across the United States to recruit participants right after the first of the year. Initial communication with institutions provided a brief overview of the study and instructions to indicate interest to participate. Once the initial statement of interest was submitted, along with a support leader from a local county public health office, leaders provided an online orientation via zoom, to provide more specific information and instructions. Specifically, the orientation provided a copy of the approved IRB form to share with the institutions, a breakdown of data collection procedures and training for observing and recording observations. Finally, this orientation addressed questions and concerns about how data would be recorded, reported, and shared.

## **Methodology**

This observational methodology was designed to calculate an estimate of the percentage of people wearing masks correctly in public indoor settings within the larger population of IHE. Directly observed data was collected using standardized techniques that reduce potential for

human error and facilitate rapid data collection and analysis. As it is preferable that observations are made covertly in order to avoid the Hawthorne Effect, a subtle data collection tool should be used<sup>6</sup>.

An “observation session” is defined as a period during which observation takes place at one defined location. To avoid duplication of measurements, direct observation is typically conducted by a stationary observer who measures adherence by passers-by, or a mobile observer who measures adherence in stationary people. Within an observation session, each observer used an observation instrument to document observed data. Observations were made by a stationary observer at an entry or exit point of a designated location.

### **Locations**

Instructions to identify locations specified to select places across a range of spaces and times, so that the diversity of mask-wearing behaviors on campus may be captured. Also, it was important to make sure that data collected are comparable and can be collated. Specifically, IHE were instructed to identify public settings in the nearby community where students frequently could be observed in collaboration with local authorities. Potential locations were scouted before location selection was finalized to determine the amount of foot traffic at different times. This will help guarantee that: 1) a diversity of settings is chosen, 2) there is adequate and appropriate space for observers to use, 3) that there is adequate foot traffic to generate sufficient data, and 4) that observers will be safe. Bias in location selection can be minimized by setting the rules and approach to location selection ahead of time and avoid substitutions when possible.

At Stockton, there were 14 locations selected (see table below for location and number of observations). In addition, instructions were clear that selected observation points should be visited during different times of the day and on different days, on a rotational basis, to avoid observation biases. Select observation session times distributed randomly or systematically across opening hours at the location minimizes bias. Thus, over the 8-week period, during Stockton’s spring semester, over 30 different observations were conducted, between 40-90

---

<sup>6</sup> D.J. Gould, J. Chudeigh, N.S. Drey, and D. Moralejo, Measuring Handwashing Performance in Health Service Audits and Research Studies, *Journal of Hospital Infection*, 2009; 66(2); 109-15; [http:// doi: 10.1016/j.jhin.2007.02.009](http://doi:10.1016/j.jhin.2007.02.009).



minutes each, during the hours of 8:30-5:45, on Monday through Friday. Table 1 provides the name of each location and the number and percentage of each observation per location.

**Table 1. Locations**

		Frequency	Percent	Cumulative Percent
Valid	Arts & Science Building	73	2.9	2.9
	B/C Wing	154	6.0	8.9
	Big Blue	70	2.7	11.7
	Bookstore	494	19.4	31.0
	Campus Center	644	25.3	56.3
	Campus Center Game Area	237	9.3	65.6
	Courtyard Sciences Building	43	1.7	67.3
	Food Court	80	3.1	70.4
	H/I/G Wing	215	8.4	78.9
	K Wing / PAC	86	3.4	82.3
	Lakeside Lodge	43	1.7	83.9
	Library Inside	108	4.2	88.2
	Library Outside	271	10.6	98.8
	Shuttle stop (NOT riding transportation)	30	1.2	100.0
	Total	2548	100.0	

### **Observers**

Only trained observers should perform measurements. To the extent possible, observers should not engage with those being observed. A prepared statement on behalf of the IHE and Department of Public Health to explain what they are doing was provided to each of the 5 observers. In addition, the following requirements were provided for each of the observers:

- Observers should always model correct mask usage.
- Observers should use an anonymized assigned ID for data collection.
- Identity of those being observed should not be collected.
- Measurement data should be kept private with respect to location, date and time.
- Observers should not engage with those being observed.
- The role of the observer is to objectively collect information on mask use.

- Observers should be positioned in locations where they are able to clearly observe and measure mask use, but not one that forces them to interact with those being observed.
- Observers should only record exactly what they are able to see. For example, if an observer misses an opportunity to observe someone face-to-face, but notices mask straps behind someone's head or ears, it should not be assumed that the mask was being worn correctly (i.e. covering both the nose and mouth).

Observers were also provided clear guidelines to identify correct mask wearing. Correct mask use includes covering both the nose and mouth and securing it under the chin<sup>7</sup>. As much as possible, masks should fit snugly against the sides of the face. CDC does not recommend use of masks or cloth masks for source control if they have an exhalation valve or vent. The mask should not be positioned around the neck or up on the forehead. In addition, the below image was provided to all observers:

**Figure 1. Correct Mask Wearing**



Source: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-to-wear-cloth-face-coverings.html>

Training of the observer was also conducted. Observers were trained to recognize what constitutes a public indoor space, what constitutes a mask and what constitutes appropriate mask usage; they must also be trained to collect and document data in a standard way. A double-sided instructional handout was also provided to each observer (See Appendix A).

### **Data Collection**

---

<sup>7</sup> Center for Disease Control and Prevention. Guidance for Unvaccinated People: How to Wear Masks, Updated June 11, 2021; <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-to-wear-cloth-face-coverings.html>.

Data was collected using a standardized instrument that did not vary between settings or over time. Electronic forms were recommended, as these reduce the potential for human error and facilitate rapid data collation and analysis. If data collection devices were not available (laptops, iPads, smart phones) for observers to download onto, printed observation forms, clipboards and pens or pencils were provided. Data from each observation included the following and was recorded and submitted at the end of each week:

- Observer ID
- Date
- Location (name of establishment and address/location)
- Point of observation (entry, inside, exit)
- Start time
- End time
- Total duration of observation
- Sampling strategy
- Number of people observed
- Number of people wearing a mask
- Number of people wearing a mask correctly
- Overall adherence percentages

### **Sample**

The study employed a stratified systematic sampling; specifically, a schedule was developed to make observations at a subset of setting types, locations, and times on campus or in nearby community locations over the course of a week. First, to ensure reproducibility of results, the people to be observed must be clearly defined *a priori* (e.g. every person within 10 minutes, 3rd person passing through one specific door, or every 10th person going across a walkway etc...). For the current study, students were to observe every 10<sup>th</sup> person. Observers also selected multiple observation points within each location (e.g., at the entrance, at the check-out line, in an aisle) as behavior may differ between observation points. This will allow for monitoring if change in masking behavior (e.g., someone may be correctly wearing a mask when walking through the entrance past security or staff but may remove the mask later). For the current study, data indicated that 53.6% of observations are from entry way, 25.6% inside, while 20.8% were while exiting or outside.

In addition, observers only recorded one person from each social group (e.g., a family or a group of friends) to maintain the approximation of “interchangeability.” In terms of counting per priori observation selection rules, one person from each social group should be counted.

Repeat sampling to monitor mask-use adherence was conducted on a weekly basis; conducted in the same locations repeatedly so that changes over time can be measured. Thus, each observer was assigned the same 2-3 locations for each of their 8 weeks. A total of 2,548 observations were recorded during this time, and out of that, 2,508 were valid observations (able to determine if mask was worn).

## Results

After 8 weeks of data collection on Stockton's campus, the principal investigator combined the weekly excel spreadsheets and converted them into an SPSS file. Then, descriptive statistics were run on data on all 8 weeks of observations. Results indicate a total N of observed individuals in this study was 2,548. Out of that, observers could determine that 2,508 individuals were wearing masks (98.2%) and of those, 2,357 (or 92.5%) were wearing mask correctly.

In addition to proper use of masks, observers coded for type of mask. Results indicate the following types of masks: 53.5% cloth masks; 38% Surgical; and other was almost always bandana. The following table provides a frequency distribution of mask type, number and percentage:

**Table 2. Mask Type**

		Frequency	Percent	Cumulative Percent
Valid	Surgical	968	38.0	38.7
	N95	72	2.8	41.6
	Cloth	1363	53.5	96.0
	Neck	87	3.4	99.5
	Gator			
	Other	13	.5	100.0
	Total	2503	98.2	
Missing	System	45	1.8	
Total		2548	100.0	

Of those incorrectly wearing masks = N=146; the following errors occurred most to least frequently - nose out, only on chin, mouth out, hanging from neck, to least, hanging from ear. Although observers were unable to know the exact reason / circumstance for mask-wearing errors, the following were recorded as feasible explanations: eating / drinking was the most, then, outdoors / not within 6 ft of anyone, and then finally exercise / playing a sport.

Upon completion of the entire study (which included data from all 54 IHE that participated in the MASCUP study) data was combined to analyze total results. The total number of observations for the entire MASCUP study were 89, 088. Statistics were run to determine the percentage of people wearing masks overall and those wearing them on and off campus locations (some IHE, selected locations that were not typically part of a college or university, but have a heavy volume of student, faculty and staff). Results of descriptive statistics indicate that an overall rate of 94% of those observed wore masks; 96% on-campus vs. 85% off-campus, and 91% of those wearing masks, wore them correctly. The breakdown for type of mask for the entire study was as follows: 62% cloth; 31% surgical; 4% buff; 3% N95-type.

## Discussion

While Stockton University's total percentage of correct mask usage was slightly higher than the percentage for the total MASCUP study, both provide strong evidence of mask compliance at Institutes of Higher Learning. More than 90% of faculty, staff and students across the nation were wearing masks correctly while on campus during the spring semester. These are high numbers and should contribute to individual's increased perception of safety on campus. Even for those who conducted the observations at Stockton, these number may have surpassed their initial thoughts. The following are quotes from three of the observers at the end of the study:

“At the start, I was surprised to see students not wearing masks, or not wearing them correctly,” said Maurer, a public health major. “Interestingly, I found that by the end of the observations, there were more students correctly adhering to mask policies and wearing their masks correctly.”

Nguyen also notes “that early on in the observations the students were wearing masks with their noses sticking out, but by around the fourth week, most students were wearing them correctly”.

Dileo said she was “surprised at how compliant students and staff were at Stockton” because she also works in customer service and she said “I regularly come across people improperly wearing masks or even arguing and refusing to wear one at all. So, it was refreshing to see that the vast majority of Stockton's students and staff were able to adhere to the mask mandate with ease, at least from my personal observations”.

Identifying such a high level of compliance is especially essential given the current state of the country over the last year and half. As Gostin states “the world has been experiencing a once-in-a-lifetime pandemic, causing untold human suffering and death, unraveling of social

relationships and robbing individuals of livelihoods and countries of prosperity”<sup>8</sup>. As a result, educational structures were disjointed and struggling to re-organize.

Since the U.S. lockdowns started in March 2020, the negative impact to the educational system in the United States has been unprecedented. In early spring, as the pandemic hit its first peak, the virus consigned 1.4 billion children across the globe under the age of 18 to stay out of school or childcare which included nearly all of the over 55 million school children in the U.S.<sup>9</sup> <sup>10</sup> <sup>11</sup>. Even before K-12 schools closed, college campuses were sending students home to finish up their semesters virtually. On March 6, the University of Washington in Seattle became the first major American college to shut down campus operations. Ten days later, over 250 U.S. colleges and universities followed suit<sup>12</sup>. At first, institutions were hopeful to resume classes in the fall of 2020; however, as the summer progressed, this hope became less and less likely. According to The Chronicle of Higher Education, out of nearly 3,000 colleges, just 4% were fully in-person, as of October 2020<sup>13</sup>. In addition, several universities concluded their fall terms — or at least their in-person components — by Thanksgiving break.

While COVID-19 restrictions varied among different countries, cities, and states, both the World Health Organization and CDC recommend practicing social distancing. Social distancing is maintained by keeping a six-foot distance between individuals. Additionally, these organizations recommend that individuals wear masks and wash hands frequently to reduce the transmission of COVID-19. Mandatory mask wearing became a lifeline to opening college and

---

<sup>8</sup> Lawrence O. Gostin. The Great Coronavirus Pandemic of 2020—7 Critical Lessons. *JAMA Health*, 2020; 324; 816-1817. doi:10.1001/jama.2020.18347

<sup>9</sup> National Center for Education Statistics (NCES), U.S. Department of Education. Table 216.20. Number and Enrollment of Public Elementary and Secondary Schools, by School Level, Type, and Charter, Magnet, and Virtual Status: Selected Years, 1990–91 Through 2017–18, Digest of Education Statistics: 2019, Institute of Education Sciences, U.S. Department of Education, December 2019. [https://nces.ed.gov/programs/digest/d19/tables/dt19\\_208.20.asp](https://nces.ed.gov/programs/digest/d19/tables/dt19_208.20.asp).

<sup>10</sup> Lucie Cluver et al. Parenting in a Time of COVID-19, *The Lancet*, March 25, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30736-4](https://doi.org/10.1016/S0140-6736(20)30736-4).

<sup>11</sup> U.S. Census Bureau. CPS Historical Time Series Tables on School Enrollment Table A-1. School Enrollment of the Population 3 Years Old and Over, by Level and Control of School, Race, and Hispanic Origin: October 1955 to 2018, 2019; <https://www.census.gov/data/tables/time-series/demo/school-enrollment/cps-historical-time-series.html>

<sup>12</sup> Mike Baker, Anemona Hartocollis and Karen Weise, First U.S. Colleges Close Classrooms as Virus Spreads, More Could Follow, *New York Times*; March 6, 2020; <https://www.nytimes.com/2020/03/06/us/coronavirus-college-campus-closings.html>.

<sup>13</sup> Anne Dennon. COVID-19 Updates: Coronavirus Impacts on Student and Online Learning. *Best Colleges*, 2020. <https://www.bestcolleges.com/blog/coronavirus-impacts-on-students/>

universities campus back up and increasing the number of classes that could be delivered face to face.

The MASCUP study provides solid evidence that supports individuals at IHE were in compliance with these mandates for the Spring 2021 semester. These findings are also important, given that although vaccinations are now available, there are still many who are unable to or choose not to get vaccinated. According to the CDC, as of the beginning of July approximately 47.7% of the population have been fully vaccinated. In New Jersey, 5,645,861 people or 63.56% of the population have received at least one dose and 4,976,576 people or 56.03% of New Jersey's population have been fully vaccinated<sup>14</sup>. In addition, new variants of the COVID-19, the Delta and Omicron variant, continue to pose a health risk to both vaccinated and unvaccinated<sup>15</sup>, during the 2021-2022 academic year.

In addition to new variants over the last year, other changes have occurred. First, there was an approval of booster shots. Specifically, a COVID booster shot is an additional dose or doses of a vaccine given after the protection provided by the original shot(s) has begun to decrease over time. The booster helps people maintain strong protection from severe coronavirus disease<sup>16</sup>. Another change that occurred over the past academic year, was a shift back to face-to-face learning, along with various levels of mask mandates in classrooms. Specifically, while many schools went back to face-to-face learning in the fall 2021, there still is an upward trend in online learning<sup>17</sup>. Moreover, while schools started with mask mandates at the beginning of the year, many were lifted by the middle of the school year. In the State of New Jersey, Governor Phil Murphy announced in early February that mask mandates would be lifted starting March 7<sup>th</sup><sup>18</sup>. All three of these factors, along with others, have impacted society's continuously changing reactions to a new world since the COVID-19 pandemic began.

---

<sup>14</sup> USAFacts, New Jersey Coronavirus Vaccination Progress, 2021; <https://usafacts.org/visualizations/covid-vaccine-tracker-states/state/new-jersey>

<sup>15</sup> Shawn Radcliffe. Even If You're Vaccinated, the Delta Variant Can Still Impact You, Healthline, June 25<sup>th</sup> 2021; <https://www.healthline.com/health-news/even-if-youre-vaccinated-the-delta-variant-can-still-impact-you>

<sup>16</sup> Lisa Maragakis & Gabor David Kelen (2022). Booster Shots and Additional Doses for COVID-19 Vaccines — What You Need to Know. John Hopkins Medicine. <https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/booster-shots-and-third-doses-for-covid19-vaccines-what-you-need-to-know>

<sup>17</sup> Johnny Wood (2022). These Three Charts Show the Global Growth of On-line Learning. World Economic Forum. <https://www.weforum.org/agenda/2022/01/online-learning-courses-reskill-skills-gap/>

<sup>18</sup> Carly Sitrin & Katherine Landergan (2022). New Jersey to lift school mask mandates. POLITICO. <https://www.politico.com/news/2022/02/07/new-jersey-to-lift-in-school-mask-mandate-beginning-march-7-00006136>




As IHE planned to return to “business as normal” for 2021-2022 academic year, mask wearing, reporting of COVID cases, testing, booster mandates (or strong recommendations), social distancing, along with other new requirements / suggestions, became part of their current and future school plans. Thus, this study provides us with the data to indicate that a high level of compliance is certainly obtainable. In addition, if mask wearing continues to be required (at various levels) at IHE, future research should continue to track these behaviors; along with any significant differences that may exist with mask wearing. In addition, this study provides evidence of strong compliance on campuses of IHE that could serve well for combatting future diseases. Overall, the results of the MASCUP study, with a sample of 54 IHE, provides evidence of high compliance with mask wearing at colleges and universities across the nation; and that is good news for everyone.



## Appendix A: Observational How-To Handout

### MASCUP! Mask Adherence Surveillance at Colleges and Universities Project

#### Your goal will be to:

-   Measure the proportion of people who are wearing masks
-   Measure the proportion of people who are wearing a mask correctly
-   Measure the proportion of people with different mask types (surgical, cloth, gaiter, or other)

You will need to model correct mask usage at all times during the study.



Correct mask use includes covering both the nose and mouth and securing it under the chin. As much as possible, masks should fit snugly against the sides of the face. CDC does not recommend use of masks for source control if they have an exhalation valve or vent. The mask should not be positioned around the neck or up on the forehead.

#### Types of Masks



[cdc.gov/coronavirus](https://cdc.gov/coronavirus)

### School Fieldwork Unit

#### Observational Study How-To

#### What You SHOULD Do

- Remain in the same place while conducting observations (do not walk around)
- For every 3<sup>rd</sup> person who walks by you, record whether they are wearing a mask and, if so, whether they are wearing it correctly and what type of mask it is
- People wearing face shields only should be counted as not wearing a mask but record face shield use in notes if worn correctly
- Only include one person from each social group (e.g., a family or a group of friends)
- Only record what you are able to see—for example, if you miss an opportunity to observe someone face-to-face, but notice mask straps behind someone's head or ears, do not assume that the mask was being worn correctly

#### What You SHOULD NOT Do

- Do not collect identity of those being observed
- Do not discuss location, date, or time of observation with those not working on the study
- Do not talk to or otherwise engage with those being observed

#### Record at the end of each observational study:

- Your observer ID
- Date
- Location of observation
- Point of observation (entry/exit, inside, outside, on transportation)
- Start time
- End time
- Total duration of observation
- Sampling strategy (every 3<sup>rd</sup> person)
- Number of people observed
- Number of people wearing a mask (yes, no, unknown)
- Number of people wearing a mask correctly (yes, no, unknown)
- Type of mask (surgical, cloth, gaiter, N95/KN95, other)

#### Do NOT wear a mask



[cdc.gov/coronavirus](https://cdc.gov/coronavirus)