Safe Campus & Scientific Advisory Subgroup Recommendations

Submitted to the Post-pandemic Operations Task Force

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Their expertise, experience, flexibility, time, and good humor made these recommendations possible and we cannot thank them enough.

Table of Contents

Safe Campus & Scientific Advisory Subgroup Recommendations

Last Revised: June 23, 2020

Balancing Risks in Campus Activities

Introduction

The Ohio State University is a leading land-grant public research university that is determining how to operate as safely as possible amidst the COVID-19 pandemic. The University community is comprised of over 100,000 people spread across campuses in Columbus, Lima, Mansfield, Marion, Newark, and Wooster. The University operates hospitals, classrooms, residence halls, agricultural assets, laboratories, extension programs, venues for athletics, entertainment and other events, information tech infrastructure, an energy framework, leased properties, an airport, and multiple forms of transportation. In Columbus, in particular, the University is a city within a city. Students attending the Columbus campus originate from all U.S. states and over 100 countries. In addition to the myriad of activities that physically occur on University campuses, students, staff, and faculty regularly interact with the broader community, through internships, externships, field work, and other activities. As such, a return to on-campus operations necessarily involves a return to, and integration with, the broader community. The boundaries of a land grant university like ours are, in important ways, defined not by the campus, but by our partnerships.

The University's Safe Campus & Scientific Advisory Subgroup is charged with providing recommendations for a safe return to on-campus operations. The advisory group has consulted with experts in medicine, nursing, infectious diseases, virology, public health, environmental engineering, environmental sciences, student life, ethics, law, and other disciplines. The group has utilized an evidence-based analysis but has been mindful of the limits of data and the uncertainties surrounding COVID-19. Throughout the deliberations, there has been an unyielding commitment to protect the health, well-being and welfare of our University community and prepare our community for success in future endeavors. As we defined acceptable alternatives, we worked with other subgroups of the COVID-19 Transition Task Force to inform implementation of final recommendations.

COVID-19 Health Risks and Public Health Orders

The State of Ohio's stay-at-home orders, business and school closures, and social distancing mandates—along with the University's shift to remote work and learning—were driven by several factors, including uncertainties surrounding: incidence, prevalence, and transmission of COVID-19; the extent and severity of COVID-19 illnesses; lack of effective treatments for COVID-19; and the ability of the health care system to handle a large influx of individuals suffering COVID-19 health complications. These concerns were exacerbated by data that revealed a significant number of asymptomatic individuals who could potentially transmit the virus, shortages in personal protective equipment, inadequate resources to conduct COVID-19 viral and antibody testing, and uncertainty about the meaning of a positive antibody test.

In light of the limited resources and COVID-19 uncertainties, there has been broad public support for unprecedented isolation, quarantine, and social distancing measures that, at one point, left more than 90 percent of the country in some form of lockdown. The initial wave of public health social distancing measures did not intend to eliminate COVID-19 risks. Rather, they were instituted in a good faith attempt to ameliorate the potential health impact of COVID-19 and create an opportunity to buttress both the public health and clinical care infrastructure. In enacting the public health orders, the State and University understood that other risks were created, including but not limited to loss of jobs, food and housing insecurity, business closures, and a loss of educational opportunities. The virus and the measures to contain it have placed dual burdens on vulnerable urban populations. Evidence suggests that rural populations are at similar dual risks. At the time we began this report, the social distancing measures had been in place for approximately nine weeks.

The State of Ohio has now begun to reevaluate and adjust its social distancing orders. As with the State's initial decision to implement social distancing, the systematic easing of social distancing has been a data-driven decision grounded in medical, public health, and other social and economic factors. Because of the success of the social distancing measures, immunity in many communities is likely to be low, making it likely that easing restrictions will lead to an uptick in COVID-19 cases, including cases that result in hospitalization or death. The State's decision to slowly re-open the economy accepts these COVID-19 health risks as a necessary condition of curtailing other harms that have been caused by the public health orders, and then balancing those risks to avoid the need to return to more sweeping containment measures.

The University is in the midst a comprehensive review to consider and adopt re-opening implementation plans. In doing so the University aims to take a leading role among institutions of higher education in developing an evidence-based plan for return in these unprecedented and uncertain times.

A Broader Conception of Risk

In a context of uncertainty, the risks of widespread community transmission have been a matter of urgency. As we clear the initial epidemic surge, we must begin to address the many layers of disease, economic, and social risks simultaneously. Although many questions remain unanswered, since the outset of the pandemic medical and public health experts have a better understanding of the transmission characteristics and disease burden of COVID-19. Social distancing measures blunted the epidemic surge, creating an opportunity to increase the capacity for surveillance and contact tracing on the part of state and local health authorities. We distinguish social distancing from physical distancing measures. Social distancing measures have been used to describe interventions such as business closures or stay at home orders. We use the term physical distancing to mean measures that define a minimum distance between people or that limit the number of people in any particular space.

At the same time, weeks of stay-at-home orders amplified collateral viral harms. These include: a battered economy, an increase in mental illness due to lockdown trauma and related stresses; reduced educational, clinical, performance, and athletic opportunities; impediments to career development and recruitment; disruptions to social interactions, networking, and the university experience; research obstacles; constraints on the university's pre-COVID-19 role as a resource and special partner in the community; and potential reduced revenue.

Compounding risks, mass protests against structural racism and ongoing inequality are bringing thousands into the streets across the United States and the world. Even with masks, physical distancing is difficult to maintain in such situations. Even with masks and physical distancing, chanting generates more potentially infectious aerosols and projects them farther. Even with the potential for increased viral risks, a failure to recognize calls for a just society would also exact a tremendous toll. So too would efforts to curtail free speech in a democracy.

This full panoply of social, political, economic, disease, and moral harms impacts students, staff, and faculty, and presents challenges to the university's ability to fulfill its educational and community missions. Each person is both a victim (in terms of COVID-19 infection or other harm caused by isolation orders) and a vector (someone able to transmit COVID-19), the latter of which is potentially complicated by the significant rate of asymptomatic or mildly symptomatic infections. Moving forward with measured and carefully crafted re-opening plans—while taking into account a broader conception of risks and harms—is essential to protecting the health and welfare of our community.

Recommendations: A Risk Balancing Approach

A risk balancing approach is essential to re-opening and re-invigorating the University and community. Our aim is to provide recommendations that provide an initial foundation for keeping the University community safe in a context in which viral risks will necessarily be higher. Yet, we cannot, and do not, exist as an isolated bubble. We must, then, tune our protective measures both to the emerging science and the conditions of the broader community. Tuning necessarily implies adjusting. As is true across the globe, governments and institutions are entering a phase of the pandemic that will require tightening and

loosening of restrictions in a targeted way as transmissions wax and wane. But while these recommendations are meant to provide a foundation, they cannot be viewed as static. The university will need to remain nimble and pivot quickly as our knowledge of the virus and our capacity to combat it evolves. This might include measures such as closing specific buildings, further density reductions, enhanced telecommuting, or return to full online education for the remainder of the semester.

Guidance on how best to balance benefits, burdens, and risks of specific activities may be found in fundamental tenets of public health ethics. Although public health law allows for broad restrictions of individual liberties when disease poses an imminent threat to the public, the foundational principles of public health ethics help guide what restrictions are appropriate. These ethical principles include: distributive justice (ensuring that burdens, risks, and benefits are distributed fairly amongst the population); necessity and least infringement (examining whether there are alternative ways to achieve the desired public health goals that infringe on the fewest possible number of people in the least possible way); proportionality (continuously monitoring restrictions to track whether the anticipated benefits are manifest and outweigh the infringed rights); and public justification (explaining to constituents in a transparent and clear fashion why infringements are necessary to achieve public health goals).

Coupled with these considerations, a risk balancing calculus specific to the University should recognize that, based on currently available information, the majority of the student community likely falls into a low risk category for COVID-19 health complications and death based on age.

Yet, because even the healthiest students are equally able to infect others, those who are least likely to suffer the severe consequences of infection (not just death, but hospitalization) bear a greater burden when it comes to COVID-19 restrictions. To be sure, there is a risk for serious COVID-19 complications and death amongst individuals under 30, particularly for those with co-morbidities. But those who bear the highest risk of severe disease are those who are over age 65 and those with underlying health conditions, particularly if those conditions are not well-controlled. These groups are summarized in the following table, based on CDC risk categories:

Table 1.

Group	Description
Age	• People 65 years and older

People with underlying medical conditions (particularly if these conditions are not well-controlled	• Chronic lung disease or moderate to severe asthma
	• Serious heart conditions
	• Conditions that cause them to be immunocompromised including:
	  ○ Those undergoing cancer treatment
	  ○ Smoking
	  ○ Bone marrow or organ transplantation
	  ○ Immune deficiencies
	  ○ Poorly controlled HIV or AIDS
	  ○ Prolonged use of corticosteroids and other immune weakening medications
	• Severe obesity (Body Mass Index of 40 or higher)
	• Diabetes
	• Chronic kidney disease who are undergoing dialysis
	• Liver disease

In addition, students, faculty, and staff may be employed in jobs that place them at higher risk of infection: housekeeping, policing, clinical care, service, and similar occupations. Minority and first generation students, in particular, may work and live in communities that have been hardest hit by the pandemic, in terms of disease, death, and economic hardships.

Taken together, we must work to ensure—as much as possible in a period of public health crisis and continuing uncertainty—an equitable educational and work experience for students, faculty, and staff. And we must develop plans for campus that enhance protection for those that those at higher risk—either because of their employment, age, or other health conditions.

Precisely because we are part of the community and our students, faculty, and staff live and interact with local businesses, organizations, and families, the University must consider providing appropriate measures to protect those most vulnerable to serious COVID-19 health consequences and institute measures that help prevent a disease resurgence that threatens public health, clinical systems, and the economy. Striking this balance is an iterative process with many unknowns. It calls for a campus re-opening framework that is inquisitive and nimble; a process that diligently works to understand risks, benefits, and burdens, and is able to rapidly address the risks, benefits, and burdens in light of new evidence.

Part of the continuing challenge is that, by instituting measures to lower COVID-19 health risks, other harms are amplified. Moreover, for any policy that is implemented, there likely will be exceptional situations that warrant special treatment—either by relaxing or enhancing social distancing, physical distancing, or other preventive measures. Not every setting poses the same risks. The cleaning measures, for example, appropriate to a classroom space devoted to lectures will not need to be as stringent as those required for performance or athletic spaces. Likewise, although the majority of students, faculty, and staff are not at high risk for severe outcomes if they acquire COVID-19, we do have high risks populations—faculty and staff over the age of 65 and individuals with co-morbidities—who we must provide, as much as practically possible, an equitable education and work experience. This will require consideration of access to ongoing telecommuting, opportunities for remote teaching, or other physical protective barriers that can ensure that the risks on any of our campuses are tuned at or below the background community risks.

Conclusion

Reinvigorating campus life requires a delicate and thoughtful balance of benefits, burdens, and risks. There is no risk-free approach to COVID-19 or the re-opening of campus activities. Our students, faculty, and staff will face risks in the broader community. Our university community, like our local communities, faced risks even at the moment in which public health measures were most restrictive.

The Safe Campus & Scientific Advisory Subgroup recommends that the University institute policies that do not jeopardize the health, well-being and welfare of students, staff, faculty, visitors, and patients. At the same time, the University must be mindful of broader risks and harms as it considers appropriate measures to mitigate COVID-19 health risks. Likewise, faculty, staff, and students bear a responsibility to adhere to university guidelines, both to safeguard their own health but the health of others. Transmission from asymptomatic or pre-symptomatic people is presumed to be responsible for a large proportion of COVID-19 cases, primarily through airborne spread. While it is important for individuals to keep risks in perspective—particularly individuals who are not in groups at high risk of serious complications—it is vital that we see ourselves working in partnership with the university to safeguard the health of fellow Buckeyes. However willing we might be to accept risk as individuals, we cannot be cavalier when it comes to the health of others: when it comes to an infectious disease like COVID-19, *My health is your health; Your health is my health*.

This balanced approach is reflected in the specific recommendations that follow. Organizational resiliency and narrowly tailored scenario assessments are key. Risk balancing will be a continuous process with constant monitoring and evaluation of best practices. Risk balancing will require constant communication to a university community that must expect information to change. As central as formal communications and messaging from the highest levels of leadership will be, a safe campus environment also rests on the informal ways in which faculty, staff, and student leaders model and convey the rationales for protective measures and explicitly articulate the values that underlie the university approach. In addition to reinforcing messages about limiting the spread of COVID-19, we must broadly communicate the importance of staying home when ill. The current national culture has often been to power through illness.

But this approach exposes others and this exposure is particularly dangerous with COVID-19. As Buckeyes we must continue to live by our University values, putting people and our public mission at the heart of all decisions.

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Subgroup Approach

In addition to the challenge of balancing the multiple layers of risk that characterize this phase of the COVID-19 pandemic, any group making best practice and policy recommendations contends with the challenge of uncertainty. Although we have learned an enormous amount in a matter of months, vexing uncertainties remain. Yet the answer cannot wait for more evidence. We must evaluate incomplete and evolving evidence in a context in which no one can be certain about the rules that COVID-19 has set.

Our committee relied on both the best evidence available and the decades of experience that we collectively brought from our diverse fields of expertise. When vexing issues required further exploration, we called on OSU faculty members who helped us understand both unfolding research and published, peer-reviewed literature. Where possible, as we indicate as appropriate in these recommendations, we walked the classrooms and the residence halls. We measured. We accessed floor plans. We assessed the HVAC systems of buildings.

Above all, we checked our assumptions against the literature. Where appropriate, biomedical and scientific databases such as PubMed and Scopus, along the preprint servers (especially MedarXiv) were searched using terminology meant to balance sensitivity and specificity in search results. That is, the search included multiple synonyms for concepts while trying to stay within the realm of COVID-19 and its related concepts in virus research. Additionally, publisher webpages that collated COVID-19 literature and synthesized reviews were hand searched, including the Cochrane Collaboration, University of Oxford Centre for Evidence-based Medicine, and *Science* magazine. References from key papers and papers that cited key papers were also traced when needed, and inclusion of papers suggested by group experts were also added manually as appropriate. With large searches, results were exported into Covidence, screened, and relevant papers reviewed in full text then synthesized. Group experts had the opportunity to discuss papers related to particular areas of the recommendations. Searching was conducted by an experienced health sciences librarian and screening and synthesizing was conducted by an epidemiology graduate student and the librarian.

In addition to this deep, systematic searching of the literature directly related to or relevant to COVID-19, we called on the kind of sophisticated expertise uniquely available at a top R1 university. In so doing, we also quickly gained access to cutting-edge literature and analyses in fields that investigate how students learn, communications, and ethics and law.

There is more that the University can and should do in the coming weeks and months. The following recommendations represent the consensus of this subgroup as of June 23, 2020. We also agree that it will be vital to assess and evaluate these recommendations in a searching, systematic fashion as our knowledge and experience deepens. We are confident that we have here at The Ohio State University the breadth and depth of expertise to see us through these times like no other.

Metrics and Systems for Tracking

Recommended Key Metric

R_t, the effective reproduction rate over time. Data should be presented for confirmed cases (through virologic testing) and for confirmed plus probable cases. Both should be presented daily for Ohio, Franklin County, and the five regions of Ohio to allow for monitoring in the areas that feed OSU regional campuses. See Figures at end of section as examples.

Thresholds

Regional, national, and international standards commonly use some measure of disease decline over a two-week period as an appropriate threshold for relaxation of social distancing measures. We recommend that OSU could begin to relax social distancing measures two weeks after R_t is < 1 for the general population. Because increases in R_t can have many explanations, as we describe below, rather that setting a specific threshold that would trigger tightening social distance measures, an expert committee should monitor on a daily basis and determine the case of any trends that might suggest an increase in the effective reproduction rate.

Implementation

A small committee, including experts in infectious disease epidemiology and officials with specific knowledge of conditions on campus, should review this and many other pieces of information daily for the duration of the epidemic.

Rationale

R_t is the effective reproduction rate (R_e) over time. R_t is an indicator of disease transmission. R_0 is the average number of people infected by a new case in a completely susceptible population. In general, if R_0 is > 1, an outbreak may occur; if R_0 is < 1, an outbreak is unlikely. The same principles hold over time: if R_t remains greater than 1, the outbreak is growing; when R_t drops below 1, the outbreak is declining.

R_t is an important guide to our success in containing COVID-19 at manageable levels, but we need ongoing expert monitoring because some changes may reflect bias rather than reality. Delays in laboratory reports of test results can result in large number of cases being reported on one day rather than over several days or a week, which can create an artificial uptick. For example, we saw spikes over three days (4/18-4/20) that were the result of delayed testing in the prisons. Had testing been conducted from the outset of the pandemic based on onset of symptoms or exposure, cases would have been spread out over time. Instead, cases spiked because testing was concentrated at one point in time.

No measure is perfect and no measure speaks for itself. Although R_t is also affected by the uncertainty of the variables going into it, R_t has some advantages over other potential metrics.

The 0 cases over X days metric is one example. The 0 cases or 0 hospitalizations approach may be appropriate for an eradication scenario, but it is not ideal for measuring control. Although no one knows for sure, we cannot expect eradication of COVID-19 in the short term. If we rely on a 0 cases standard, we might delay relaxation of social distancing longer than is warranted.

There are other measures that could be appropriate provided the data are complete. For instance, it could be helpful to also track the percentage of individuals who test positive combined with a measure of tests per day. Missouri, for instance, is considering a positive test rate under 10 percent in a context in which it is also conducting 1.52 tests per day per 1,000 people, which it takes to be the minimum recommended number per day, as its benchmark for easing social distancing. Because it is not currently mandatory in Ohio to report negative test results, data are likely incomplete. Although negative test results reports are included in the proposed surveillance plan, setting a threshold (e.g., below 10 percent) would require first taking into account who is being tested and why (e.g., because someone was named as a contact, because there is weak clinical suspicion of infection, or because there is strong clinical suspicion of infection).

As we begin to ease, we can expect to see clusters of localized cases, with locality being either geographical (e.g., a county or city) or setting (e.g. a business, OSU building, etc.). Epidemiologists expect sporadic cases with some low-level endemic transmission with the possibility of larger surges of cases (e.g. the second peak). We will continue to see some cases, hospitalizations, and deaths. Because of the success of stay at home measures, herd immunity in Ohio is low. Even in New York where COVID-19 has been much more severe, the population prevalence is only about 15-20%, substantially lower than the herd immunity threshold of about 50% that is likely to be needed. We cannot count on having 0 cases for quite a while. In addition, as testing increases, 0 days without cases will become harder to achieve. Finally, even if we did see X days (and, for the sake of argument, let's say 7 days) with 0 cases, that could be an artifact of laboratories running out of supplies. As of April 23, 2020, that remains the current situation in Ohio, nationally, and globally. In Ohio, reporting is lagging about three days behind testing. And, of course, that lag varies across the state. At Wexner Medical Center, in contrast, turnaround is approximately 24 hours.

The application we are using to calculate R_t uses case counts up to the given day. It accounts for the past data when updating current data (e.g. today's case counts) using a Bayesian process. The result is a smoothed plot that de-emphasizes short-term blips of unexpected cases on a given day.

But because reporting is complicated and contingent on many factors, to be truly meaningful, a small team of experts in infectious disease epidemiology and officials who are knowledgeable about specific campus conditions and testing circumstances should proactively review the data on a daily basis. This expert committee must ultimately determine if a spike is worrisome and warrants consideration of further investigation or action.

Monitoring R_t will be especially important for the regional campuses. Patterns of disease and death have reflected longstanding social inequalities. Blacks and Hispanics are overrepresented among those who become ill and die, dying at twice the rates of whites and Asians in New York City. In Chicago, where less than one third of the population is African American, 72.2 percent of those who had died were Black. In Louisiana, where Blacks represent less than one third of the population, 70 percent of the pandemic-related diseases were among African Americans. Working class white Americans in industrial and, particularly, rural areas may be at similar risk. Recent data underscore that while infections and deaths are not yet as high, the rate of growth in non-metro areas (both those adjacent to metro areas and those that are not) is alarmingly high. The rate of nearly doubling nearly every two days far exceeds the rate of growth in metro areas, where it is doubling every four days. The epidemic in rural areas may peak after the epidemic in urban areas and that may be missed if only state data are considered.

Figures for Metrics and Systems for Tracking

Figure 1.

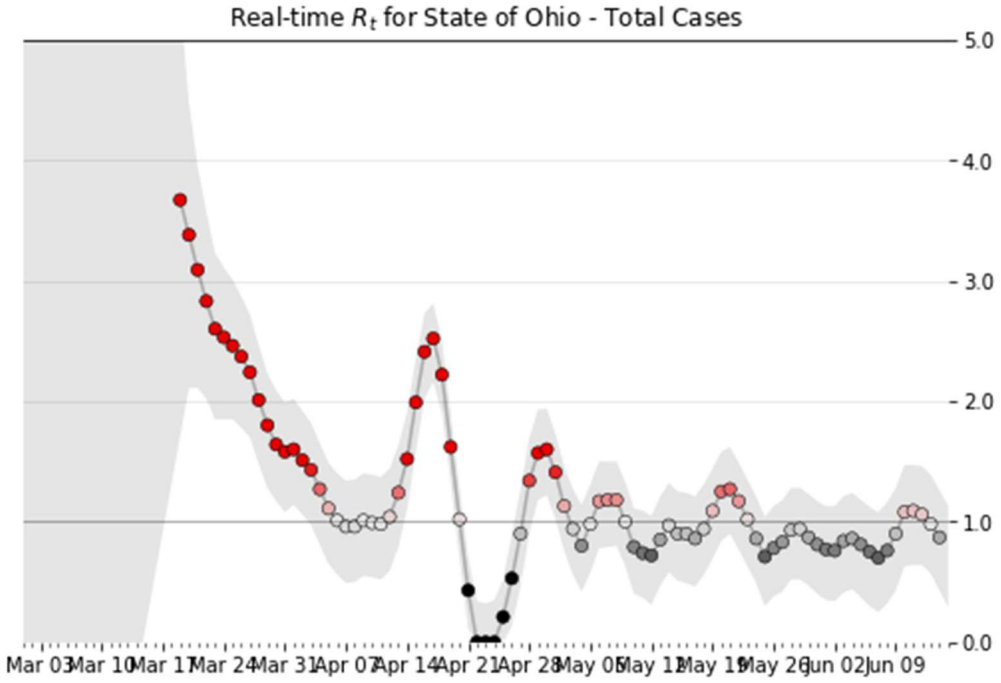
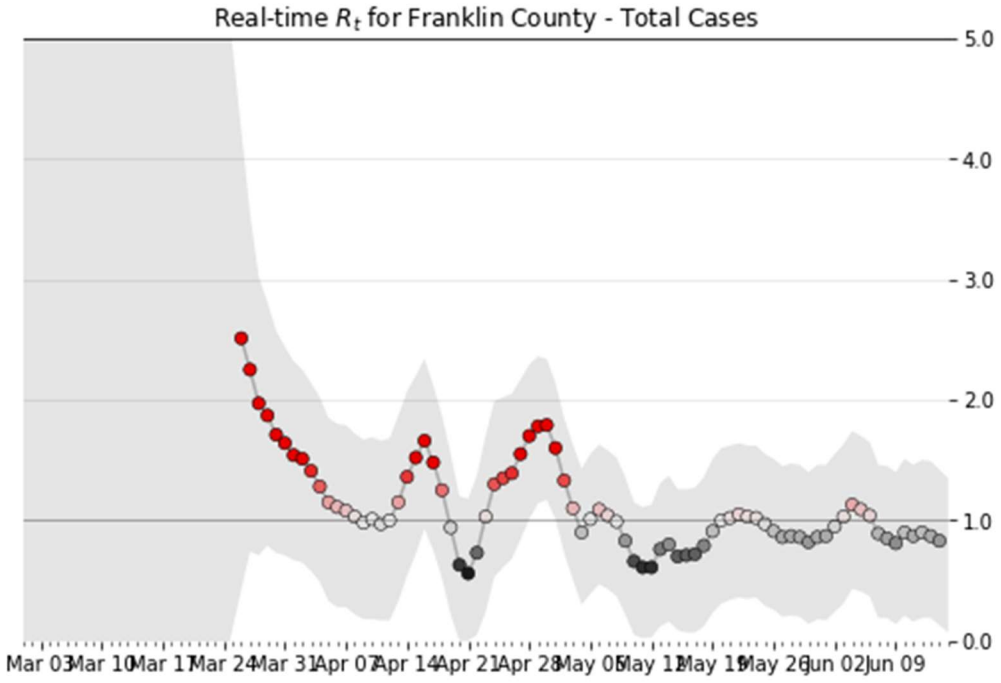


Figure 2.



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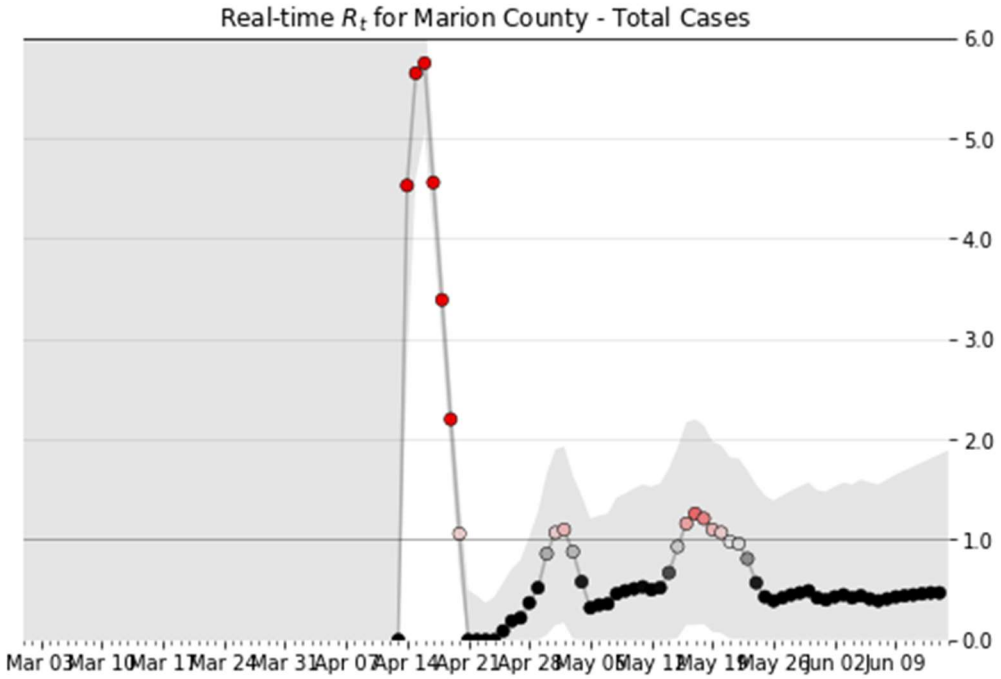


Figure 4.

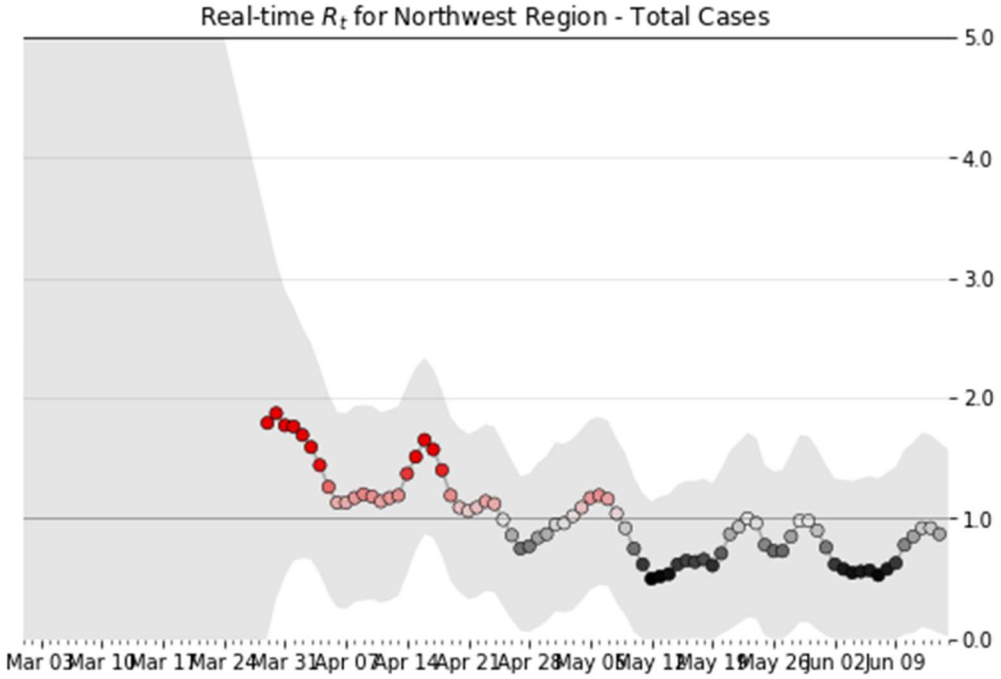
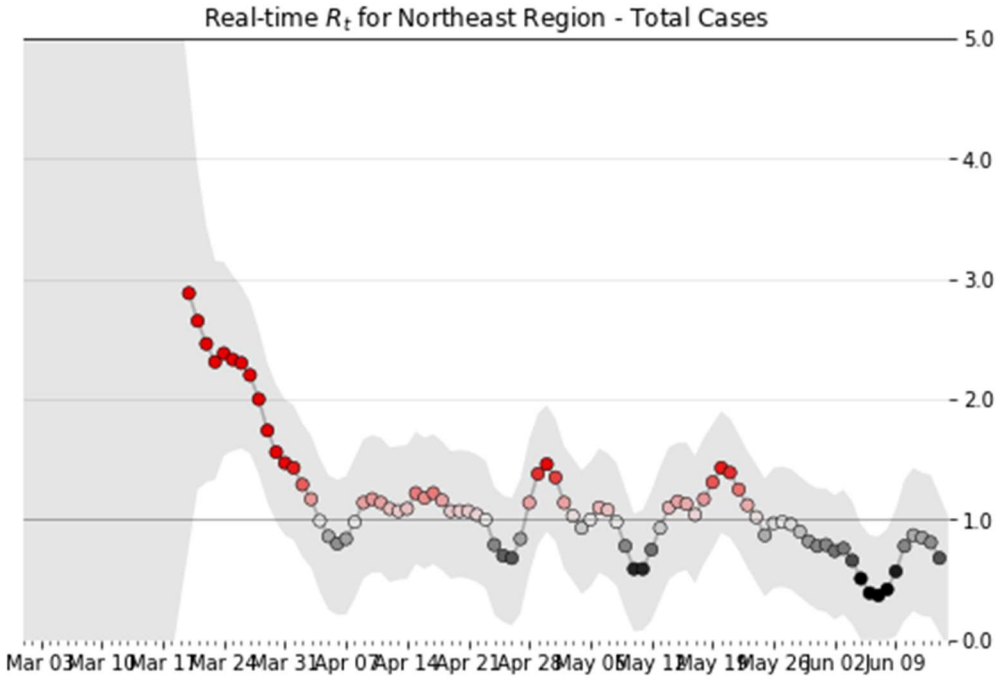


Figure 5.



All figures reflect data through June 14, 2020.

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Testing and Surveillance

Goal
To safely re-engage students, faculty, and staff in daily on-campus university life.

Background
The future of the COVID-19 pandemic is uncertain, though COVID-19 is likely to be a part of our lives for the foreseeable future. The measures taken by state governmental authorities have dramatically reduced the impact of the COVID-19 pandemic. The level of community transmission, especially with few or minimal symptoms, remains largely unknown throughout the United States. Communities that have been hardest hit, such as New York City, appear to have an increased community prevalence. Among symptomatic people being tested at OSUWMC, the positive COVID19 testing rate is currently approximately 10%. With this information, we can speculate that less populous communities, such as much of Ohio, will have a substantially lower prevalence.

As we prepare to open the campus, our goal is for both the OSU Columbus and regional campuses to be equally prepared and have access to the necessary services. COVID-19 testing should be aligned with guidelines provided by the Ohio Department of Health.

Physical distancing, testing of those who are symptomatic, contact tracing, and isolation/quarantine are the primary tools for containment. The importance and rationale of any testing procedures adopted and daily symptom reporting needs to be communicated widely to the university community. We must emphasize the need for communal attention to this pandemic: Buckeyes protecting Buckeyes.

Need for Continual Monitoring
The pandemic of COVID-19 is ongoing and dynamic. Recommendations will require modification over time as we learn more about this infection. A Comprehensive Monitoring Team (CMT) should be created that can continually assess conditions on the ground, including the incidence and prevalence of COVID-19 in all five regions of the state, and systematically evaluate recommendations on an ongoing basis. Depending on the epidemic picture, this may have to be as often as daily but no less than every two weeks. The CMT should have expertise in public health, epidemiology, infectious disease, virology, and data analytics. The CMT itself would be charged with monitoring data and directing teams working under the umbrellas of IDI and TDAI to commission and evaluate reports as needed in order to make recommendations to the University President, Provost, Executive Vice President and Chancellor for Health Affairs. The university contact tracing team would work under the auspices of the CMT, which can ensure rapid reporting to Columbus Public Health and access to metadata that can create a model for a rapid, nimble response.

Testing Options
Two types of individual tests are used for COVID-19. The first type is a viral RNA assay, which is used to identify people with active infection. This test typically requires a nasopharyngeal swab collected by a trained professional. The second test type is a serological assay, which is used to measure antibodies to SARS-CoV-2, the virus that causes COVID-19. This test requires a blood draw for specimen collection.

The viral RNA test assesses a person's *current* infection status. The antibody test assesses a person's *past* infection status. People with a positive viral RNA test are at risk for transmitting the virus for at least the next 14 days. People with a positive antibody test may have been infected previously. A positive antibody test may indicate that the person had symptomatic or asymptomatic SARS-CoV-2 infection; alternatively, a positive antibody test may be a false positive, given the expected prevalence in the OSU community.

A third option involves wastewater surveillance. The environmental tests described below would allow for to university to track a person's *potential* to be infected. These tests allow for a crucial factor of time to

assess how and where people are being exposed to provide the time to assess how to best intervene on those exposures.

Virus Testing for All

Benefits of Virus Testing for All

Virus testing for all would allow the university to identify most people who are currently infected (or infected in the recent past assuming validated antibody test available) with SARS-CoV-2. If adopted, a testing protocol for faculty, staff, and students would allow the university to isolate anyone before they engage actively on campus. A Pilot Testing Program for Employees has been developed. It will be an important means of assessing feasibility and can inform a potential plan for broader testing. Because transmission from asymptomatic or pre-symptomatic people is presumed to be responsible for a large proportion of COVID-19 cases, primarily through airborne spread, this approach would reduce campus-wide transmission in the short-term.

Concerns for Virus Testing for All

This test would require testing many asymptomatic people to find a small number of people with active infection. The test is uncomfortable/painful. Cost is also a consideration—we would test many to find few at significant cost. The ability to test all students, faculty, and staff prior to return to campus would need to be weighed.

Antibody Testing for All

Benefits of Antibody Testing for All

The primary benefit of serological tests that react specifically against the SARS-CoV-2 is to determine the prevalence of past infection in the university community. With this epidemiological information in hand, the university could more accurately forecast the threat of future infections and the associated disease. The more complete the testing, the more accurate the forecast.

Concerns for Antibody Testing for All

Antibody testing would require a blood draw, which presents a number of potential concerns for implementation. The results cannot be interpreted on an individual basis to determine risk of future infection as we do not know for sure that a positive antibody test relates to protective immunity or how long protective immunity lasts.

Testing Recommendations

We recommend following CDC and state guidelines for clinical purposes. We recommend using both the viral RNA test and the serological assay for primarily epidemiological reasons. By using both tests, we can estimate past and current prevalence of COVID-19 in the university community. The viral RNA assay provides direct evidence that someone is infectious with COVID-19. These people would need to be isolated before returning to campus. The antibody test would provide an assessment of the penetration of COVID-19 into the university community, which could be used for planning purposes. Taken together, the combination of tests would allow us to estimate the current and future risk of the university for a COVID-19 outbreak.

An alternative, less costly approach to testing everyone is testing a random sample of the OSU population. We could randomly sample the OSU population, stratified by students, faculty, and staff, and depending on test availability and test everyone in the sample for virus only, antibodies only, or both virus and antibodies. The sample could give us very similar information to testing everyone at a lower cost but would require biostatistical/epidemiological input for the survey design. This sampling approach provides an estimate of how many people are showing up on campus with the virus. Sampling could also be combined with targeted testing of certain groups, like athletes, dancers, or musicians.

Who to Test

We recommend both viral and serological testing of all students, faculty, and staff to the extent feasible. Viral RNA testing would be used to confirm an active infection and allow the university to reduce the number of people with infection who return to campus. The serological testing of everyone, or of a sample of students, faculty, and staff, would be used to help understand the epidemiology by providing an epidemiological estimate of the status of the campus at the time of return. Both approaches would help the university assess and model the safety of the campus environment. Testing procedures are established by the Wexner Medical Center. The university would need to consider how to phase in any testing protocol, particularly for students. The university would need to explain the test results to individuals. Testing for student athletes, dancers, musicians, band members, theatre participants, and other participants in activities where masks are not worn should be prioritized. Testing protocols for these groups should be aligned with their risk and should evolve over time as appropriate.

Surveillance Recommendations

Symptom Reporting

It is recommended that all students, faculty, and staff coming to campus submit a daily assessment of their symptoms using an app comparable to the one used at OSUWMC. If a faculty/staff/student does not have a smartphone, an alternative delivery system would need to be established to complete this assessment. The symptom list used would be based on the current CDC list of symptoms. An algorithm would be developed to trigger a stay at home directive with specific symptom combinations. In addition, those with symptoms consistent with COVID-19 would be referred for viral RNA testing through employee health or student health. A positive viral RNA test would trigger isolation of the person with infection and contact tracing.

Environmental Surveillance

Environmental surveillance of the virus would be used to focus testing and surveillance efforts on areas of greatest risk for outbreaks, providing an early warning system ahead of the syndromic curve. Focus would be placed on residence halls and other heavily occupied buildings as defined by the CMT. The approach would combine surface testing of high-touch areas in common spaces, and sewage monitoring that provides real time assessment of population infection levels. The rationale of sewage monitoring is that the coronavirus can lead to intestinal infection and be present in feces in those infected persons, both symptomatic and asymptomatic. Sewage sampling would reflect zones or catchment areas traceable to specific building sources. Surface sampling would be conducted using a CDC approved sampling standard operating procedure that was developed for healthcare surfaces. The methods for wastewater sample processing and analysis would mirror those in development for Columbus sewage monitoring. These efforts are led by Dr. Jiyoung Li, with financial support from the Infectious Diseases Institute. Results of surface testing would further inform the effectiveness of cleaning and disinfection protocols. If it is determined that this is a feasible approach, it could be supported through the Applied Microbiology Laboratory and coordinated through the CMT, though it would require additional funds to be sustainable.

Contact Tracing

People with documented COVID-19 should be contacted by a trained team of university contact tracers working under the direction of the CMT in alignment with Columbus Public Health. This team should then identify the close associates of the person with COVID-19. Contact tracing procedures for the university should be developed further and coordinated with contact tracing efforts of the Columbus Public Health and other local health departments. For details, see separate recommendations on contact tracing.

Test Result Analysis

The interpretation of the results of both symptom surveillance and testing requires expertise in virology, surveillance, and infectious disease epidemiology. The CMT would be responsible for monitoring state and regional changes to R_t and other metrics that will help the university anticipate risks. The CMT should also be primarily responsible for analyzing and interpreting any testing data.

References for Testing and Surveillance

Ohio Department of Health. Updated COVID-19 testing guidance. https://coronavirus.ohio.gov/wps/portal/gov/covid-19/healthcare-providers-and-local-health-districts/for-healthcare-providers/updated-covid-19-testing-guidance. Published May 8, 2020. Accessed May 14, 2020.

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Isolation and Quarantine

Definitions and general guidance

Definition of Isolation

Isolation is the separation of people with COVID-19 (ill and asymptomatic) from others who are not infected. The purpose of isolation is to reduce transmission. Isolation is a critical component of mitigation of spread of SARS-CoV-2. CDC recommends isolation for people with confirmed diagnosis, those who have been tested based on suspicion of infection and are awaiting test results, and those with symptoms consistent with COVID-19. Isolation requires staying home or in a specific sick room or area away from other people.

Definition of Quarantine

Quarantine is the separation of people who have been exposed to someone with COVID-19 from others who have not been exposed. Since transmission of SARS-CoV-2 may occur before symptoms occur, quarantine is necessary to reduce spread. CDC recommends that people who have been in close contact with someone with COVID-19 be quarantined. Quarantine requires staying home or otherwise limiting contact with others for 14 days after the exposure. People in quarantine should monitor for symptoms and take their temperatures twice daily. Symptom/sign monitoring may be performed by the person or designated, trained university personnel.

Isolation for Students Living on Campus

The university must develop an isolation plan for students with COVID-19, confirmed or probable cases, who live on campus. Key elements of an isolation plan may include:

1. A method for physical separation of isolated students in a separate, restricted access living space. Even if a student has a single room with a bathroom, infected students must not remain in that room, as others on their hallway would be unnecessarily exposed.
2. The separate living space for isolation could be an entirely separate residence building or an entirely separate sector (e.g., designated floor) of specific residence buildings or hotels if needed for spillover. It is important to physically separate those who are known to be infected to reduce contact with those who are uninfected. It is also important to isolate infected individuals in a physical location with a zoned HVAC system to ensure that exhausted and recirculated air from the isolation space is contained to the designated isolation area/floor in residential building. Air from the restricted space(s) must not be recirculated back into the non-isolation spaces where assumed healthy and uninfected students reside.
3. Estimating the number of students who will require isolation is a significant epidemiological challenge. To provide a reasonable estimate, we assumed that infection would occur on the OSU campuses at a rate equal to the rate for an average person in Ohio. The actual rate could be higher or lower than these estimates. With the assumption that the infection occurs at a rate similar to that of an average person in Ohio, we estimate that approximately 84 students living in residence halls on the Columbus campus will become infected over the course of the Autumn semester. For the Mansfield, Newark, and Wooster/ATI campuses, we can anticipate 1, 2, and 3 students living on campus with COVID-19, respectively.
4. Assuming that the infections are spread out over the course of the semester and students remain in isolation for 2-3 weeks, we recommend reserving 20 isolation rooms on the Columbus campus and 1-2 rooms on each of the Mansfield, Newark, and ATI campuses. Isolation and quarantine estimates are summarized in Table 2 below:

Table 2: Isolation and Quarantine Estimates

Campus	Estimated Student Cases* Requiring Isolation	Estimated Number of Rooms for Isolation	Estimated Range for Students Requiring Quarantine	Estimated Number of Rooms for Quarantine
Columbus	84	20	840-1,680	250
Mansfield	1	1-2	10-20	5
Newark	2	1-2	20-40	10
ATI (Wooster)	3	1-2	30-60	15

*In on campus housing

5. Ideally, the isolation accommodations would be single rooms with separate bathrooms. But given that all in the isolation area will have infection, a shared bathroom is acceptable.
6. Students in isolation should be provided with supplies needed to clean their isolation room during occupancy.
7. Students in isolation must not attend class in person and, instead, should attend virtually as they are able.
8. Students in isolation must be monitored by a health professional regularly, at least daily. Protocols for hospitalization including criteria and plans for transport must be in place.
9. Meals must be delivered to the isolation units with consideration of the safety of the dining staff.
10. Provision of safe, separate outdoor areas should be considered.
11. Care must be taken to reduce stigmatization, such as limited explicit signage.
12. Procedures for re-entry to classes must be developed. These procedures may be based on time (e.g. at least 14 days after a positive test) or test results (e.g. two repeat negative viral RNA assays taken on two different days).

Quarantine for Students Living on Campus

Quarantine will be necessary for exposed students identified through contact tracing conducted under the auspices of the CMT. Many of the elements of quarantine are similar to those of isolation but care must be taken to ensure that exposed people are unnecessarily exposed to additional known cases. For this reason, quarantine spaces must be *distinct* from isolation spaces. Key elements for a quarantine plan are the same as for isolation and may include the following:

1. Students in need of quarantine should be identified through the contact tracing process and self-reporting.
2. Physical separation of quarantined students in a separate restricted access living space. Even if a student has a single room with a bathroom, they must not remain in that room, as others on their hallway could be unnecessarily exposed.
3. The separate living space for quarantine should be an entirely separate residence building or an entirely separate sector (i.e. designated floor) of specific residence buildings or hotels if needed for spillover. It is important to physically separate those who may be in the early stages of infection to reduce contact with those who are uninfected. Students requiring quarantine must be housed in a physical location with a zoned HVAC system to ensure that exhausted and recirculated air from the isolation space is contained to the designated isolation area/floor in residential building. Air from the restricted space(s) must not be recirculated back into the non-quarantine spaces where assumed healthy and uninfected students reside.
4. Separate accommodations, ideally without shared bathrooms, are essential for students in quarantine. As some exposed students may be infected but not yet detectable or symptomatic and others not infected, transmission may occur. The quarantine space should ensure limited contact between exposed students.
5. Students in quarantine should be provided with supplies needed to clean their quarantine room during occupancy.
6. If a student in quarantine becomes symptomatic or tests positive, they should be moved into isolation housing.

7. We estimate between 10 and 20 students who live on campus will require quarantine for each student case who lives on campus. This estimate accounts for roommates and students sitting close to other students in class. It also assumes assigned seating in classrooms. Based on these assumptions, the predicted range of students requiring quarantine is 840 to 1,680 for the entire semester. Assuming the need for quarantine is spread across the semester, we recommend reserving 250 rooms for students in quarantine for the Columbus campus, 5 rooms for Mansfield, 10 rooms for Newark, and 15 rooms for ATI.

Isolation and Quarantine for Students Living off Campus

Many OSU students live off campus. Often many students share several rooms and a bathroom. The potential for transmission in these living spaces is significant. Although the university does not control off-campus housing, the university should provide guidance, in alignment with state and federal guidance on quarantine and isolation, for students who choose to remain in their off-campus housing to minimize in household transmission.

Isolation and Quarantine for Faculty and Staff

Faculty and staff who are infected or exposed should be required to isolate or quarantine, respectively, in their homes. It is recommended that test results, self-report, and contact tracing procedures, coordinated by Ohio State, Columbus Public Health, and other health authorities, be used to identify faculty and staff in need of isolation or quarantine. Similar to the protocols for students, Ohio State should provide guidance, using existing state and federal standards, to ensure safe isolation and quarantine.

References for Isolation and Quarantine

This guidance was developed based on recommendations from the CDC, the American College Health Association, ASHRAE, and epidemiological principles.

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Physical Distancing

Consistent hand-hygiene and adherence to physical distancing, including limiting time in indoor spaces, remain the cornerstones of personal protection. Here we cover the recommendations for physical distancing in office spaces, classroom spaces (including labs without local ventilation), residence halls, meeting spaces, studying spaces including library spaces, general common spaces, and dining spaces. Any exceptions to these requirements should be explicitly approved. These are covered in subsequent area-specific recommendations.

Physical Distancing Standards – Minimum 6 Feet

- For offices, meeting rooms, and classroom settings where individuals are in seats or are relatively stationary during the time they occupy the room:
    - Maintain minimum 6-foot distancing (approximately 30 square feet of usable space per person in most offices and most classrooms).
    - Maintain minimum 6-foot distance when entering and exiting.
    - Mark hallways and doors to direct movement in and out.
- For dining halls, cafes, and areas designated for eating:
    - Wear masks and maintain 6-foot distance while entering (approximately 30 square feet of usable space per person in any dining hall or eating area).
    - Create and mark aisles for movement in, out of, and between seating areas.
    - Remove masks only while eating.
    - Limit time in dining halls and lines:
        - Identify and carefully analyze dining choke points to develop appropriate solutions (e.g., relying exclusively on or creating more carry out options, developing a reservation system, etc.).
- For libraries and other large, open spaces where students study:
    - Maintain minimum 6-foot distancing (approximately 30 square feet of usable space per person).
    - Create and mark aisles for movement in, out of, and between seating areas.
- For settings in which exceptions to mask requirements are relaxed:
    - Maintain 10-foot distancing when possible, approximately 78 square feet of usable space per person.

Mask Zones and No Mask Zones

Unless otherwise marked, all indoor areas are recommended mask zones. Exceptions would include a limited number of classes specified in the classroom recommendations and designate dining areas (masks would be required when moving around dining areas).

The Safe Campus & Scientific Advisory Subgroup considered minimum 10-foot distancing (approximately 78 square feet per person) in dining halls and other facilities where students might eat, like common spaces. We determined that multiple standards would be confusing, infeasible to implement, and risk undermining the importance of 6-foot distancing. Consistently maintaining 6 feet of distance between people, combined with good hand hygiene and limiting time in enclosed spaces, remain the cornerstones of protection.

Reinforcement

In addition to clear communication and training, discussed elsewhere in these recommendations, physically marking spaces with tape and signage can help maintain appropriate 6-foot distances between people. For example, where possible:

- Mark off or remove furniture and desks that should not be used.
- Mark doors as “entry only” or “exit only.”
- Mark staircases as “up only” or “down only.”
- Mark 6-foot distances from reception areas.
- Mark traffic flow lanes on floors in hallways and large common areas.

Exposure Hazard and Infection Risk Considerations

There will be instances and activities in which space recommendations cannot be maintained, for example, when individuals enter and exit buildings and move from one classroom to the next. It is important to remember that not only distance but also duration of exposure increases risk. If people are occasionally within the diameter of the minimum barrier distance, the university can still maintain safety. For example, in some labs or facilities work, safe operation may require that individuals come close to one another. If we generally maintain physical distancing standards, the risks of aberrant events involving closer proximity will be minimized.

References for Physical Distancing

Anderson EL, Turnham P, Griffin JR, Clarke CC. Consideration of the aerosol transmission for COVID-19 and public health. *Risk Anal.* 2020;40(5):902-907.

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Methods for Determining Recommendations on Physical Distancing

Physical Distancing and Associated Square Feet

The recommendations for physical distancing of a minimum of 6-feet between people in most OSU settings for all campuses, but 10-feet in some settings, are based on CDC guidance. Specific calculations are based on the exposure paradigm that assumes a circular shape (actually 3-dimensionally it is a sphere) for the pattern of distribution of aerosol released from a person ("source") via exhalation, speaking, coughing, or sneezing, a 6-feet distance is the radius and, accordingly, the area per person is $\Pi(D/2)^2 = \Pi(6ft/2)^2 = 28.27ft^2$ (we agreed to round to $30ft^2$). For a 10-feet physical distance the area is approximately $79ft^2$ per person. The area serves as a denominator when estimating the approximate maximum number of occupants in a space by dividing the area (ft^2) of a room (numerator) by the area (ft^2) per person.

Ventilation (HVAC)

One mode for inhalation exposure control is to limit the release and accumulation of airborne contaminants, such as aerosols released from humans as well as resuspended aerosols from surfaces into indoor room air. Reducing the number of people in a room space, plus, properly cleaning/disinfecting surfaces and floors contributes to reduced release and accumulation of aerosols including infectious viruses. However, it is inevitable that the indoor air quality will be affected. Mechanical general (dilution) ventilation is one engineering control used to reduce the accumulation of airborne contaminants including aerosols. Indeed, the overall fate of contaminants in the air in an enclosed area (room) is influenced by the HVAC (air flow, air temp, air humidity), occupancy (people/ft^2), activity (passive vs. active); and, concentration of contaminants (e.g. released aerosols). Focusing on air flow (volume of air per time, Q; ft^3/min) and room volume (V, ft^3) we can calculate the number (N) of air changes per time (acm or ach; N = (Q x T)/V) needed to dilute the accumulation of aerosols and also control the other comfort parameters:

- For example, a 10' x 20' floor plan with 9' ceiling height equals a Room Volume (V) = $1800ft^3$ . . . assuming this is a meeting room designed for max occupancy of 15 people and design to provide 20 ft^3/min $person^{-1}$ air flow for room, Q = $300ft^3$/min . . . Therefore, "number of air changes per hour" (N ach) = ($300ft^3$/min x 60min/h)/$1800ft^3$ = 10 ach. The higher the number of air changes per hour (N) the lower the level of accumulated air contaminants.

However, there also is difference between best design and poor design relative to location and number of make-up air inlet diffusers, and number and location of air exhaust outlet vents to achieve the best efficiency and effectiveness to exchange air. Optimal design has a better "mixing factor" which relates to better air exchange efficiency. And, with HVAC, there is also a need to know if the make-up air is 100% "fresh" (relative term) air from outside, or, a percentage of recirculated air that is (filtered? unfiltered?) and returned back into the room. If filtered, best efficiency for "cleaning" the air is use of filters with relatively high MERV ratings (e.g. 10-13). Finally, physical distancing practice within a room is enhanced by reducing the number of occupants allowed as "max occupancy" to a fewer number of occupants, plus, having an adequate number of air changes per hour.

Return to Work and Personal Protection

As with all the recommendations of the Safe Campus & Scientific Advisory Committee, we stress that the fluid nature of scientific discovery regarding the transmission of SARS-CoV-2 and the disease it causes, known as COVID-19, means that all recommendations are subject to change. These recommendations, which are based on both the current evidence and expert analysis, are intended for Fall 2020. As we have a better sense of the prevalence of COVID-19, relaxation or stricter adherence to these recommendations may be warranted.

Background

As individual students, faculty, and staff return to campus, there will be measures that they can take to help minimize exposure and risk of infection to prevent and mitigate the spread of COVID-19. Above all, individuals should understand that consistent hand-hygiene (described below) and adherence to physical distancing (described in detail elsewhere in these recommendations) remain the cornerstones of personal protection. Many of our recommendations involve some structural changes that will help to provide for physical distancing in different settings. Here we provide additional recommendations for structural changes for office repopulation and density and for the provision of masks. The success of these recommendations will be dependent on individual cooperation and compliance, both for the protection of self and community.

Return to Work

1. Prepare all office spaces, office workspaces, and office common spaces in accordance with physical distancing and common space recommendations. These include signage and traffic flow recommendations.
2. Implement policies, as units become fully operational, that allow for a combination of on campus and, where feasible, off campus work. Examples include repopulation of units in phases, staggered shifts, staggered telecommuting, and continuing to conduct meetings, even if all participants are in the building, through remote communication platforms like Zoom or Skype. Even with appropriate physical distancing in shared workspaces, eliminate as many shared spaces as feasible and limit time individuals spend in those spaces to reduce density. Such measures make adherence to physical distancing recommendations easier and reduce population density in the offices/workspaces/buildings at any given time.
3. Limit visitors in the workplace. Faculty and staff are likely to experience challenges managing children. These challenges will be compounded if schools close or operate on a part time or staggered basis. Although children are not at high risk for serious health consequences if infected, they may pose a risk of transmission to others. Flexibility in telecommuting will help employees comply with recommendations that prohibit children in the workplace.
4. Promote enhanced flexibility in telecommuting for individuals who are at higher risk of serious health consequences if they are infected. These groups include over age 65 and those with underlying health conditions, particularly if those conditions are not well-controlled.

Symptom Checking

1. Know and stay up to date on the symptoms of COVID-19. Up to date symptoms can be found at https://wexnermedical.osu.edu/features/coronavirus/patient-care/symptoms-and-prevention.
2. If you think you've been exposed but are not sure, self-monitor for symptoms for 14 days after exposure. Call your primary care provider if you experience COVID-19 symptoms.
3. If you have been exposed to someone who has a confirmed case, self-quarantine for 14 days (avoid being closer than six feet to others). Call your primary care provider if you experience symptoms.
4. If you think you have COVID-19, stay home and call your primary care provider's office or Ohio State Telehealth Immediate Care at 614-293-3200. Even if you do not think you have COVID-19, stay home if you are sick. Call your primary care provider if symptoms warrant.
5. If you are experiencing symptoms, stay home and call your primary care provider's office or Ohio State Telehealth Immediate Care at 614-293-3200.

6. Get medical attention immediately if you or someone you are with experience(s):
    - Difficulty breathing or shortness of breath
    - Persistent pain or pressure in the chest
    - New confusion or inability to arouse
    - Bluish lips or face

Personal Hygiene

1. Cover your mouth and nose with a tissue or sleeve when you sneeze or cough.
2. Wash your hands often and thoroughly, for at least 20 seconds, with soap and water.
3. If soap and water are not available, use 70% alcohol hand rub:
    - Foam sanitizer is best.
    - Gels are less effective. Hand sanitizers that are only alcohol (70% by volume) with minimal aloe vera to prevent damage to the hands have shown less retention of pathogens that those with moisturizers.
4. Avoid touching your eyes, nose, or mouth with unwashed hands.
5. Clean and disinfect "high-touch" surfaces often.
6. Practice physical distancing as outlined in these recommendations.

Personal Equipment

1. Masks must be worn in indoor settings.
    - Masks must be on before entering enclosed or indoor spaces including, but not limited to classrooms, common areas, conference rooms, shared office spaces, hallways, buses, and shared vehicles.
    - Exceptions include single occupancy of a dedicated office, dining, and some athletic/performance settings.
    - Outside of clinical settings, the primary benefit of masks that are not NIOSH-approved respirators (e.g., N95 masks) is to help protect others by intercepting large aerosol drops that are released when exhaling, speaking, singing, coughing, or sneezing.
2. Masks must be worn in outdoor spaces where individuals gather and cannot maintain physical distancing of at least six feet between each person.
    - Evidence suggests that in outdoor settings, momentary relaxation of physical distancing (e.g., passing someone on the sidewalk) is not a significant source of transmission.
3. For individuals who wear respirators or masks, with or without face shields, and/or other protective measures such as gowns and gloves in the normal course of performing their work or duties, we recommend continued adherence to standard requirements (including fit requirements for respirators) based on procedure types and job duties.
4. For food service personnel, adhere to guidelines developed by the Ohio restaurant task force for their employees. For example, face coverings should be required of employees except for some exemptions that would affect safety (e.g., grill cooking).
5. For housekeeping personnel, see recommendations on cleaning.
6. Although evidence on the use of masks outside of the clinical setting to prevent transmission of viral diseases is limited, there is evidence to suggest that use of masks can help prevent transmission to others. The available empirical studies suggest a hierarchy of effectiveness at protecting others and self. For all the options below, we stress that there is no evidence regarding the efficacy of masks alone: to provide any known benefit, masks must be combined with good hand hygiene and physical distancing. Mask acceptability and tolerance (Can it be worn all day? For lecturing? For discussion?) will be key for achieving compliance:
    - A commercially available, disposable procedure mask (type dependent on supply chain) would offer maximum protection:
        - Benefits
            - Most effective of the three options considered in these recommendations
            - Based on experience in clinical settings, procedure masks are well tolerated and can be worn comfortably for 8 hours or more.
        - Drawbacks

        - Supply chain may be a limiting factor
        - As with all masks, may lead to a false sense of security and lapses in hand hygiene and physical distancing
        - Cannot be washed
    - Other considerations
        - Unless standard in-placement settings are higher, this standard could apply to students when working off campus. For community-based clinicals, our students are more likely to be welcomed back if agencies do not have to provide students with appropriate masks or other PPE.
        - Students engaging in activities that require a high level of exertion might need to be offered fresh masks preceding and following activities.
- Washable, reusable, cotton cloth procedure masks with appropriate design are a second common standard that the evidence suggests offers some protection of others:
    - Although there is evidence that they can effectively filter, there is uncertainty that they provide the same level of protection as a disposable procedure mask
        - When properly constructed, cloth masks can provide some level of protection to others and may remind the wearer of the importance of effective handwashing and keeping hands off the face.
        - The University could identify a vendor, specify the design, and have effective masks manufactured if the supply chain is insufficient, which would promote standardization and quality control
        - Ability to wash, combine with proper design provide a potential advantage over a dirty disposable mask
    - Drawbacks
        - Efficacy depends on construction (e.g., reduced gap between mask and face) and material (e.g., two layers of cotton or cotton/silk combinations)
- Homemade cloth masks
    - Benefits
        - With appropriate barrier material and design, may provide some level of protection to others and may remind the wearer of the importance of effective handwashing and keeping hands off the face.
    - Drawbacks
        - Efficacy not completely known. WHO notes that these masks have not been well evaluated in community settings.
        - Depending on the construction, tolerance for wearing may be much lower than for a disposable or cloth procedure mask
        - May lead to a false sense of security and lapses in hand hygiene and physical distancing
        - Quality control: it is impossible to know if it was constructed properly, with appropriate fabric. We note that even the CDC-recommended masks have not been tested.
        - Homemade masks are discouraged in hospital settings

7. Regardless of mask standard that the University sets:
    - In larger classrooms personal, wireless headset microphones can also be worn under the mask so that the instructor is audible. Physical distancing minimums and hand hygiene must also be observed.
    - The university should provide guidance on proper wearing, storage, care, and disposal (including cleaning if cloth masks are the standard)
    - Providing masks to all students, faculty, and staff would enhance compliance, but at a minimum the standard should be made widely available throughout campus (e.g., bookstore, post office, student health, etc.)
8. Unless typically required for setting or job, gloves are not recommended.

9. Plexiglass: although a longstanding practice in the food industry, we could not find evidence in the published literature that plexiglass shields in reception areas or at lecture podiums are protective:
    - In specific, limited classroom settings in which students cannot wear masks because of the activity, in which there is a high degree of aerosolization (e.g., singing, athletics, dance), or in which it is important for the instruction to see the student's mouth (e.g., speech and language) or for students to see the instructor's mouth (e.g., for hearing impaired students), evidence suggests that face shields may be an appropriate option. Face shields would not be appropriate in the vast majority of settings.
    - Marking the floor to reinforce 6-foot physical distancing in reception areas and increasing the distance between podium and the front row in classrooms, combined with wearing appropriate masks, are known, effective measures.
    - The university should study the efficacy of plexiglass barriers

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Cleaning

Personal Hygiene

- Above all, individuals must understand that in addition to physical distancing (minimum 6 feet between people in most areas), adherence to consistent, thorough handwashing for at least 20 seconds with soap and water remains the cornerstone of personal protection.
- Provide hand sanitizer at entry and exit of all shared spaces
    - Alcohol (70% by volume) foam sanitizer is best
    - Gels are less effective. Hand sanitizers that are only alcohol (70% by volume) with minimal aloe vera to prevent damage to the hands have shown less retention of pathogens that those with moisturizers.
    - In addition to hand hygiene, it has been shown, in particular for rotavirus, that surface cleaning in conjunction with hand hygiene bolsters the benefits of both. The compliance rates of hand hygiene is the consistent limitation in this intervention's efficacy, thus the need for surface cleaning to bolster hand hygiene.

Cleaning Products and Equipment

- Use only EPA-registered "cleaner/disinfectant"[1]
    - "Cleaners" have a surfactant that helps prevent accumulation of debris/biofilms and the "disinfectant" component "kills" (or deactivates) the virus.
- Provide housekeeping staff with appropriate PPE, including face masks, gloves, gowns, and eye protection (when necessary) and training on appropriate techniques (as per CDC guidelines) for cleaning and disinfecting common, non-clinical spaces.
- Provide housekeeping training on following for those cleaning/disinfecting surfaces in any building:
    - PPE donning and doffing, handling, and storage (if applicable)
    - Cleaning and disinfection practices for infectious agent exposure control and related disease intervention
    - Safe operation, handling, and disposal of vacuum bags
    - Safe practices to minimize cross contamination. We have yet to establish the potential for significant cleaning cross-contamination.
- Use only vacuum cleaners with high-efficiency particulate air (HEPA) filters and/or bags.
    - Vacuuming is a precaution to remove particulate matter from floors. Particulate matter, including potentially infectious bioaerosols, originally released into the air eventually may settle and deposit on the floors over the day. Walking on carpet stirs this matter and can resuspend potentially infectious material in the air. Vacuuming reduces particles that can be re-suspension in the air when people walk on the carpet. Although the probability of infection via this route is low, using HEPA filters can help to protect those at highest risk.
    - For hard flooring, Swiffer™ style cloths (brand name is best) have been demonstrated to be very effective at trapping and removing particulate matter, including pathogens, from floors.

Cleaning and Disinfection Frequency and Protocols

Depending on use, the risk of viral shedding in different areas will vary. Settings where individuals are sitting, with masks, for short periods of time will pose less risk than high traffic areas or areas used for athletics, music, or performance. The cleaning and disinfecting protocol should be matched to the exposure risk in different areas. It is essential that procedures are followed to properly clean and disinfect work and learning spaces.

- High-touch point areas such as elevator buttons, doorknobs, lever handles, push plates, pull bars and handles, shared equipment (i.e. phones, computers) and light switches should be cleaned

[1] https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2.

and disinfected 2 times per day. Items such as white board markers and erasers should be removed from classrooms and provided by each individual lecturer for their class period.

- *High Risk Area* cleaning and disinfecting protocol:
  This protocol is recommended for residence hall sections where students, faculty, or staff have preexisting conditions and for isolation and quarantine facilities.
    - Quarantine and isolation rooms should be cleaned and disinfected as recommended by the CDC after individuals move out of the space. This should include cleaning and disinfecting all surfaces and restrooms, as well as vacuuming carpets and/or cleaning and disinfecting hard surface flooring.
    - In addition to routine cleaning provided by custodial staff in residence halls, offices and classrooms, individuals who have preexisting conditions that may place them in the high risk category, should clean and disinfect surfaces and high-touch areas in shared spaces prior to use, whenever possible.
- *Performance/Athletics/Recreational Sports facilities* cleaning and disinfection protocol:
  Surfaces, including desks, floors, podiums, doorknobs and light switches, should be cleaned and disinfected three times a day, with appropriate contact time as recommended by the manufacturer.
    - White boards should be cleaned daily using an appropriate white board cleaner
    - Students/employees should be provided with cleaning/disinfectant products to disinfect their work area before use
    - Carpets should be vacuumed nightly
    - At a minimum, cleaning in recreational facilities should follow the state guidelines for gyms, dance instruction studios, and other personal fitness venues
- *Classroom, Office, Common Area and Bus* cleaning protocols:
  Surfaces, including desks, floors, podiums, doorknobs, and light switches, cleaned and disinfected once a day minimum, with appropriate contact time as recommended by the manufacturer
    - White boards should be cleaned daily using an appropriate white board cleaner
    - Students/employees should be provided with cleaning/disinfectant products to disinfect their work area after use
    - Carpets in high traffic areas should be vacuumed nightly and carpets in other areas should be vacuumed weekly
    - Based on current knowledge about the possibility of viral resuspension with foot traffic, hard floor surfaces in high traffic areas can be cleaned every other day and in other areas should be cleaned every other week
    - Restrooms should be cleaned 2 times per day

Individual Workspaces

1. Individuals should be provided with products that have both a cleaning and disinfecting agent.
2. Individuals should clean and disinfect shared workspaces, including classroom computer stations, before and after use.
3. If an individual using a workspace tests positive for COVID-19 RNA, the *High Risk Area* cleaning and disinfecting protocol should be used.

Trash Disposal

1. There is not clear evidence on lidded trash containers versus open trash containers. Lids may prevent or enhance aerosolization of the virus. Further, lidded trash containers raise access issues under the Americans with Disabilities Act. Until there is more evidence, we recommend no change to current procedures.
2. Faculty and staff should consider disposing of trash in common receptacles to limit the time housekeeping must spend in individual offices or office areas.
3. Items used in classroom spaces to wipe down surfaces should be disposed on in appropriately sized hallway or central area trash containers.

References for Cleaning

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Common Spaces

Consistent hand-hygiene and adherence to physical distancing remain the cornerstones of personal protection. Physical distancing standards and square footage requirements per person for offices, classrooms, and approved dining areas should be maintained. Here we cover additional considerations for common areas. Most of these recommendations are also laid out in the American College Health Association (ACHA) guidelines.

1. Consider closing common areas.
2. If common areas are left open or cannot be closed:
    - We recommend removing furniture where feasible to encourage compliance with physical distancing and to minimize congregation in these spaces.
    - Eliminate reusable kitchen items (flatware, dishes, and cups) and cleaning tools (sponges, brushes, towels) and replace with single use options.
    - Install no-touch appliances where feasible (e.g., ice or water dispensers).
    - Remove high-touch items such as magazines, common pens, etc.

On-Campus Housing

As with all the recommendations of the Safe Campus & Scientific Advisory Subgroup, we stress that the fluid nature of the environment means that all recommendations are subject to change. As we have a better sense of the prevalence of COVID-19, relaxation or stricter adherence to these recommendations may be warranted.

Background

As individual students, faculty, and staff return to campus, there will be measures that they can take to help minimize exposure and risk of infection to prevent and mitigate the spread of COVID-19. Above all, individuals should understand that consistent hand-hygiene and adherence to physical distancing remain the foundation of personal protection. Many of our recommendations involve some structural changes that help promote physical distancing in different settings. Here we make recommendations that largely require individual compliance.

Student Move-In

1. Consider delayed and staggered move-in dates and processes by expanding the number of scheduled residential building/room move-in dates and times to decompress and dilute the number of occupants lining up to move-in and the number of students, parents, and visitors on campus. Example: Delay move-in dates to period during end-week 4 of August and week 1 of September and use distance learning for first two-weeks of the term.
2. Provide training to Ohio State Welcome Leaders (OWLS) regarding personal exposure/infection control precautions before arrival on campus.
3. Provide OWLS with appropriate masks and disposable gloves (e.g. nitrile) to distribute to students, as needed, for room cleaning.
4. Provide OWLS with appropriate masks to distribute to any family members or visitors helping with move-in.
5. Establish cleaning and disinfection procedures for the transport bins.

Residential Buildings/Rooms and Physical Distancing

1. Assess the feasibility of housing comorbid students in a building or floor with students who do not have those conditions.
    a. For students at increased risk of severe outcomes if they acquire COVID-19, offer residence hall rooms on the lower floors of buildings to reduce the need to ride in elevators.
    b. Offer students at increased risk the option to be assigned single occupancy rooms with private baths if available. Publicize existing accommodation processes that allow students to request a specific type of room or living accommodation on campus.

2. Apply a balanced risk approach to residential housing, taking account of student density in the building, spacing in rooms, air exchange, and, in particular, bathroom density and cleaning. In shared living spaces, shared bathrooms represent areas where there are a number of high-touch surfaces, making them areas requiring special attention.
    a. After reviewing floor plans, HVAC systems, and physically measuring layouts, multiple occupancy in rooms is currently conceivable.
    b. All rooms currently designed as singles should remain single occupancy.
    c. In Lincoln and Morrill Tower, the suite occupancy should be a maximum of 6 residents per suite. The exhaust flow rate in shared bathrooms farthest from exhaust fans should be verified.
    d. In residence halls that do not have general building mechanical ventilation, occupancy of two per room provided:
        i. Floor-based units with HEPA filters with 100 to 200 CFM flow rate depending on dimensions of the rooms in the “hot dorms”. Filters are to be changed on a schedule consistent with manufacturer recommendations.

ii. MERV 10 to 13 filters in general ventilation in the residence halls or in wall-based units (preference for MERV 13 if the units can handle them). Filters are to be changed on a schedule consistent with manufacturer recommendations.
iii. Verification of exhaust flow rate of bathroom fans meets specification.

3. Close common congregation areas (e.g., lounges; kitchens; exercise areas) within dorms.

4. Restrict visitors entering residential rooms or living quarters unless it is necessary. Use virtual communications and check-ins (phone or video chat), as appropriate.

5. Practice minimum 6-foot physical distancing in hallways and stairwells where feasible.

6. Maximize use of stairways where feasible and consider designating building/floor one-way entrance stairwells and separate one-way exit stairwells.

7. Except during move-in day or when students need to carry heavy loads, prioritize use of elevators for those who cannot use stairs due to injury or disability. Place signage recommending limiting the number of occupants in elevators and require masks while riding.

8. Front desk/check-in staff who have interactions with residents, visitors, and the public should wear masks.

Residential Contingency Plans

Follow recommendations and procedures under isolation and quarantine section of these recommendations.

Ongoing Exposure/Infection Control Precautions

1. Provide COVID-19 prevention supplies for staff and residents in common areas, such as soap, alcohol-based hand sanitizers that contain at least 70% alcohol, tissues, and appropriate trash containers. Also, provide soap for washing hands, disposable gloves (nitrile), and household cleaners and EPA-registered disinfectants for residents and staff to clean and disinfect surfaces and contact points at least daily.

2. Provide hand sanitizer (alcohol-based foam preferred) dispensers throughout the residential buildings. Locate in strategic locations, such as, entrance and exits stairways and elevators.

3. Require residential occupants to wear approved mask whenever outside of the residential room, including when walking through hallways, stairwells, lobby, etc.

Laundry Rooms

1. Maintain access to and adequate cleaning supplies to laundry facilities to help prevent spread of COVID-19.

2. Post the maximum number of people allowed in laundry rooms at one time to help students stay at least 6 feet apart.

3. Provide products for residents and staff to clean and disinfect buttons, knobs, and handles of laundry machines, laundry baskets, and shared laundry items. In laundry rooms with sinks, provide soap for handwashing and, if air dryers are not available, disposable towels for hand drying.

Shared Bathrooms

In residence hall spaces where there are no alternatives to shared use, it is recommended that bathrooms are:

1. Cleaned twice daily (e.g., in the morning and evening or after times of heavy use) using EPA-registered disinfectants and bathroom trash cans emptied regularly. Students should be encouraged to wipe down sinks and other high-touch surfaces after use with cleaner/disinfectant products.
2. Stock with soap and paper towels or automated hand dryers. Hand sanitizer could also be made available.
3. Residents should be instructed that sinks could be an infection source and to avoid placing toothbrushes or other personal items directly on counter surfaces. The use of totes to carry personal items to limit their contact with other surfaces in the bathroom should be encouraged.

References for On-Campus Housing

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Methods for Determining On Campus Housing Recommendations

The recommendations for classrooms (including studios/labs) and student housing/residential buildings are based on a combination of several sources of published and unpublished information, a walkthrough of representative buildings/select internal spaces, and scientific and professional judgement. Some information regarding floor plans and HVAC were provided and/or obtained via a scan of the SIMS building portal.

Specific to the walkthrough, a sub-group from the advisory team conducted walkthroughs in several types of classroom and residential buildings/select spaces deemed to be representative of spaces across all the OSU campuses. Qualitative plus some basic quantitative assessment was conducted to see different types of classroom layouts and square feet, arrangements of mobile and stationary student seating (with and without table surfaces), proximity of students to instructor, location of mechanical general (dilution) ventilation air flow diffusers distributing air into the rooms, and vents exhausting air out of the rooms. Specialty classroom settings for student activities requiring active exertion (e.g. dance), and, laboratories were visited too. The same information was gathered for the specialty classrooms, plus for lab space additional information such as presence of mechanical local exhaust ventilation at benchtop workstations. While in the classroom spaces, the normal number and arrangement of student seats was determined, then measurements were made to determine what the adjusted number and arrangement of seats should be recommended to maintain a minimum 6 feet of physical distance between occupants during class (~30 square feet/student) to reduce the exposure hazards for students and instructors. In addition, based on building and classroom entrances, exits, and hallways some plans were discussed how to potentially move people into, through, and out of the classroom buildings and classrooms via one-way directional patterns to further contribute to reducing contact and exposure hazards.

The walkthrough of the residential buildings including seeing the entrances, exits, hallways, common areas, bedrooms, and bathrooms (including whether ensuite or hallway pod). Similar qualitative and semi-quantitative assessments were conducted as summarized above. This information was then used to determine the recommended adjusted maximum number of students per room, including students per bathroom, plus, potential patterns for movement of people into, through, and out of the residential buildings and rooms via one-way directional patterns.

Classes and Other Teaching Spaces

General Recommendations

The resumption of educational and co-curricular activity with over sixty-five thousand students on a thriving semi-urban campus and across five regional campuses will necessarily entail greater levels of health risk than maintaining strict mitigation protocols such as compliance with stay in place orders. While we expect that some educational experiences will shift to high quality online modalities, we also believe that it is appropriate that rich, immersive in-person educational experiences (particularly in areas that cannot as readily be shifted to online approaches) continue to be offered to our students this fall.

In order to obtain the benefits of educational and other co-curricular opportunities in a way that balances risk with benefit, there will need to be both specific guidance for how to conduct classes more safely, as well as broader campus level compliance efforts for three key practices – maintaining physical distancing, wearing face masks, and frequent hand washing or sanitizing. To that end, three critical recommendations for the resumption of in person educational activity are the following:

1. Students should wear clean and appropriate face masks every class day. Unless otherwise specified, students should be expected to wear masks whenever they enter a classroom building or other educational building and continue to wear masks until they exit that building. Places where it may be appropriate for students to remove a mask should be marked as Mask Off Zones. Generally, classroom and educational spaces should all be marked as Mask On Zones.
2. There should be building and classroom flow and spacing indicators in all classroom buildings to reduce congestion and manage student flow in ways that facilitate appropriate physical distancing. The flow and spacing indicators should be readily understood and commonly used throughout campus.
3. Provision should be made for frequent handwashing and hand sanitizing. For instance, there should be hand sanitizing stations near the entrances and exits of large classrooms, and near the entrances and exits of large classroom buildings. Students should be encouraged to wash or sanitize their hands before and after each class.

In addition, there are some general recommendations concerning instructors. Attention should be given to protecting and accommodating instructors in this environment while balancing the risk that certain modes of instruction pose to others in a class.

1. Develop a toolkit for instructors to assist with transitioning classes to face to face, online, or hybrid instructional activity under current conditions.
2. Assurance should be given that if an instructor becomes sick or needs to be quarantined during the course of the semester, they will not risk employment. This assurance needs to apply to instructors in all categories (e.g. tenure track, tenured and associated faculty) as well as to graduate teaching assistants.
3. In higher risk areas of instructional activity (e.g., performance based), it may also be appropriate for instructors who are not in high risk categories to opt out of participating in face to face instruction.
4. Where teaching involves enhanced modes of vocal projection (e.g., lecturing to a large room, demonstrating a wind instrument, demonstrating pronunciation in a language class), the instructor may choose to wear a face shield. In most of these cases, it is recommended that where practical instructors also wear face masks unless it is absolutely necessary to do otherwise (e.g., meet the needs of students with disabilities such as hearing impairment). We note that face masks or face masks in combination with face shields are intended to protect others, not the wearer.

Finally, a few other general recommendations for the resumption of classes across campus:

1. Class transition times should be at least doubled in order to allow additional time for handwashing prior to and after classes, entering and exiting classes and classroom buildings using new traffic

flows, and to accommodate students and instructors potentially traveling further to get to their assigned teaching spaces.
2. Students should be assigned a specific seat at the beginning of the semester and be expected to use their assigned seat each time they attend class. This will assist in contract tracing should a student become infected with COVID-19.
3. Signage should be available to remind students not to eat food in class or in the hallways or waiting areas outside of class. Students should be encouraged to eat in specially designated Mask Off eating areas.
4. Students should bring their own water bottles or beverage containers. They should avoid using regular water fountains, except for those provided to refill bottles. Such bottle refill stations should be cleaned regularly throughout the day.
5. In order to accommodate the requirements contained here regarding physical distancing, regular hygiene practice, and longer class transition times, as well as to reduce congestion on campus during peak periods of the day, the university should consider options that include extending the class day or week.

It should be noted that these recommendations are general and do not specifically address all modes of teaching. A process should be developed to create, review, and approve implementation plans for specific buildings, classrooms, other modes of teaching and curricular programs.

Lecture, Seminar and Discussion Classes

1. It is recommended that scheduled classes with 100 or more people (including instructional staff and students) not be permitted to meet in person for the AU20 semester but, instead, moved to an online format for the lecture portion of these classes.
2. For courses of less than 100 people (including instructional staff and students), it is recommended that there is a minimum spacing expectation in class meeting room of approximately 30 square feet of usable space per person with a minimum physical distancing of 6 feet between people. In classrooms, appropriate signage should indicate where students can (in assigned seats) and cannot sit.

Lab Classes

1. In contexts where appropriate PPE is worn (i.e., masks, and googles, face shields or eye shields) and where there is local exhaust ventilation, it is recommended that the requirements for social spacing may be reduced to 15 square feet per student or 3 feet between individuals.
2. Spacing indicators should be available for the use of bench space in rooms.

Studio spaces

Spaces with shared equipment or materials, but that do not require vocal/oral performance or heavy physical exertion:

1. Standard spacing recommendations apply unless local exhaust ventilation is present, in which case spacing protocols can be reduced to 3 feet between individuals and 15 square feet per student, for instance on a bench or table.
2. Masks should be worn at all times.
3. Efforts should be taken, where practical, to minimize the number of people who access shared materials or who share equipment (e.g. asking students to bring their own keyboards).
4. *Classroom, Office, Common Area and Bus* cleaning protocol standards should be used. There should also be user cleaning before and after use.

Performance-based classes

There will be certain performance-based classes, including dance, vocal performance, theater, musical instruments (band, orchestra, and ensemble), where required activities involve a higher level of exposure

than normal class instruction. In these teaching settings, universal recommendations (e.g., maintaining 6 feet between each person or wearing a face mask) to reduce virus transmission may not be possible. Below are considerations for students and faculty to return to these classes and activities.

There is currently little current evidence to guide performance-based activities. Because of this, we are recommending a balanced risk approach be taken when considering the risk of virus transmission and the activities required for certain performance-based majors.

1. Higher risk activities should be disclosed to students and instructors prior to any higher risk activity occurring.
2. It is recommended that students and instructors in performance-based classes be required to have enhanced health monitoring including temperature and symptoms screening at the time of entering the classroom/facility and engage in frequent hand and face washing and hand and face sanitizing.
3. Establish appropriate physical distancing for students and instructors in performance-based classes that involve high levels of physical exertion and/or breathing-intensive performance (e.g., singing, wind instruments, theatre projection) are 10 feet between each person and 79 square feet of space per person in a room. The extension to 10 feet of physical distancing represents the upper limit of the CDC's 6- to 10-foot physical distancing standard.
4. Although students should be encouraged to maintain physical distancing recommendations whenever possible, faculty should limit activity where physical distancing cannot be maintained to only highly essential activity. Faculty should provide alternative performance-based activities to allow for physical distancing and minimize unnecessary high-risk activity.
5. Face masks for students and instructors are recommended whenever possible during activity. Instructors should minimize the need for removal of the face masks.
6. Instructors should maintain physical distancing and use of face masks at all times. Instructors should take extra precaution understanding that the potential for asymptomatic carriers and transmission may be higher in the performance-based students that engage in higher risk activities. Instructors should also have enhanced health monitoring including temperature and symptoms screening at the time of entering the classroom/facility.
7. All students should take extra precautions with frequent hand and face washing and hand and face sanitizing.
8. Students should maintain and clean their own equipment (instruments, clothing, shoes etc.).
9. If possible, students required to engage in higher risk activities should be provided housing options to limit their exposure to others outside of their discipline.
10. Students should be instructed regarding the potential for certain activities to be higher risk for virus transmission and if they are uncomfortable with these required activities, the students should be given options for alternate activity or understand that they may have to postpone classes/degree requirements.
11. Wherever possible, class and rehearsal times for indoor performance classes should be shortened to one hour or less. (Where feasible, outdoor alternatives should be explored.) Thirty minutes of non-occupancy time should be provided between class or rehearsal sessions to increase ventilation.
12. Where appropriate, programs that offer performance-based education should also follow scientifically based guidance from their national professional organizations.

Field Based Classes

1. Wherever possible, field-based activities should be revisited or adjusted to avoid off campus group transportation or overnight accommodation.
2. Where group transportation to a field site is needed, it is recommended that it be planned to accommodate physical distancing expectations or 6 feet spacing between passengers and 30 sq. feet of space per passenger as well as to design flow into and out of transportation vehicles in a way to minimize contact among those on the field trip.

3. At a field site, it is recommended that regular physical distancing expectations apply and that, where practical, the number of individuals present at the site at a given time be limited.
4. Where feasible, work should be performed outdoors in sparsely populated areas, and the time in any buildings should be kept to a minimum.
5. Masks should be worn at all times. Regular hand washing or hand sanitizing should be practiced, and appropriate hand sanitizers (i.e., preferably foam, 70% alcohol) should be provided.
6. If students and instructors are using common equipment or materials, these should be disinfected before the first use, between users on the trip, and after the final use before being returned to storage.
7. Food or beverages should not be shared and it is recommended that plans for meals be developed in advance and include consideration of required physical distancing.
8. Plans for overnight field experiences should be reviewed centrally by the academic unit, in consultation with a designee from the Safe Campus and Scientific Advisory Committee or equivalent committee.

Internships

1. Programs should determine that physical distancing and masking standards are appropriate for the setting.
2. Just as with students who work and study on campus, programs should expect daily symptom monitoring in accordance with university requirements.
3. Programs should consider developing MOUs with the internship providers about cornerstone protective measures: hand hygiene, physical distancing, masks, and limiting time in indoor spaces. In cases where the university has an MOU with an internship placement, consider amending those agreements to address protective measures.
4. Develop a process for students to share concerns regarding health and safety conditions at placement sites.
5. Review and consider flexibility in existing internship requirements for graduation.

References for Classrooms and Other Teaching Spaces

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Methods for Determining Classroom Spacing Recommendations

The recommendations for classrooms (including studios/labs) and student housing/residential buildings are based on a combination of several sources of published and unpublished information, a walkthrough of representative buildings/select internal spaces, and scientific and professional judgement. Some information regarding floor plans and HVAC were provided and/or obtained via a scan of the SIMS building portal.

Specific to the walkthrough, a sub-group from the advisory team conducted walkthroughs in several types of classroom and residential buildings/select spaces deemed to be representative of spaces across all the OSU campuses. Qualitative plus some basic quantitative assessment was conducted to see different types of classroom layouts and square feet, arrangements of mobile and stationary student seating (with and without table surfaces), proximity of students to instructor, location of mechanical general (dilution) ventilation air flow diffusers distributing air into the rooms, and vents exhausting air out of the rooms. Specialty classroom settings for student activities requiring active exertion (e.g. dance), and, laboratories were visited too. The same information was gathered for the specialty classrooms, plus for lab space additional information such as presence of mechanical local exhaust ventilation at benchtop workstations. While in the classroom spaces, the normal number and arrangement of student seats was determined, then measurements were made to determine what the adjusted number and arrangement of seats should be recommended to maintain a minimum 6 feet of physical distance between occupants during class (~30 square feet/student) to reduce the exposure hazards for students and instructors. In addition, based on building and classroom entrances, exits, and hallways some plans were discussed how to potentially move people into, through, and out of the classroom buildings and classrooms via one-way directional patterns to further contribute to reducing contact and exposure hazards.

The walkthrough of the residential buildings including seeing the entrances, exits, hallways, common areas, bedrooms, and bathrooms (including whether ensuite or hallway pod). Similar qualitative and semi-quantitative assessments were conducted as summarized above. This information was then used to determine the recommended adjusted maximum number of students per room, including students per bathroom, plus, potential patterns for movement of people into, through, and out of the residential buildings and rooms via one-way directional patterns.

Communications

As the university community returns to campus, effective and consistent communication in alignment with university values will be key to developing a culture that supports sustainable, community norm-setting and self-enforcement of health and safety practices. The review of the empirical evidence makes clear that consistent hand-hygiene and adherence to physical distancing, including limiting time in shared spaces, are the cornerstones of personal protection. Masks will only be effective in a context where we maintain high standards when it comes to hand washing and maintaining, as often as possible, 6 feet of distance from others.

Encouraging a culture that supports these social norms will require not only signage and individual trainings but also a broad communications campaign regarding expectations.

Signage

- Post clearly visible signs that convey the importance of hand washing with soap and water including information regarding proper handwashing technique and handling of faucet and door handles
- Develop signage that can be placed throughout facilities with reminders, such as, signs/symptoms of COVID-19, physical distancing, use of appropriate mask, hand washing/use of hand sanitizers, etc.
- Post maximum occupancy in common break areas and configure spaces to accommodate appropriate physical distancing
- Place appropriate signage and markings indicating the foot traffic patterns into, out of, and within buildings and hallways and appropriate distancing markings where lines may form
- Develop and place signage and markers for classrooms about appropriate physical distancing
- Place appropriate signage in locker and storage areas about physical distancing but also handwashing.
- Place appropriate signage about required use of masks in all buildings
- Post CDC guidelines for doing laundry such as washing instructions and safe handling of dirty laundry.
- Consider placing more/enhanced signage in:
    - high traffic or higher risk areas
    - residence halls and residence hall bathroom
    - isolation and quarantine areas
    - no mask zones (including athletics facilities, performance studios, dining facilities)

Trainings

Develop an online training for students, faculty, and staff returning to campus that can be tracked through Buckeye Learn to educate our community on symptoms, recommendations, requirements, and practices that can help prevent the spread of the virus. We recommend that this training acknowledge the anxieties people have experienced and will continue to experience. It is key, then, that mental health resources be carefully outlined in this training as well.

Consider development of additional specialized training for housing staff, residence advisors (RA), and others in similar roles.

Communications Campaign

In addition to training, there will be need for an all-encompassing plan for ongoing communication to all university constituencies. This plan should anticipate handling communication of dynamic and changing recommendations. As we note elsewhere in this document, the environment and risk will remain fluid for some time. As we tighten or relax protective measures, change phases, or as state or CDC guidelines and orders change, University Communications should be prepared to alert all communities and it should be made clear that all recommendations and requirements are subject to change so that credibility is not damaged when changes are made.

Students should be a particular focus of such communication efforts, both to share information and make clear what is needed to comply with guidelines. We recommend drawing not only on University Communications but also expertise within the School of Communication and the Department of Psychology. The involvement and cooperation of student populations/groups (e.g., student government, student-athletes, sorority and fraternity councils, multicultural center, other student associations) to provide input regarding proposed communication and compliance strategies is also necessary and may help encourage peer norms supportive of guideline compliance.

We recommend development of alternative versions of signage and messages and pretesting with members of various constituencies. Messages and signage should be pretested (and, if possible, formative research should be conducted). Messages can not only be misunderstood, they can generate unintended resistance. There is excellent research in the advertising realm that suggests that attitude toward the message (language, presentation, the message source) can impact attitude towards what is advocated (in this case, physical distancing, hand hygiene, and mask use).

We recommend that University Communications consult with college communications staff in addition to:

- Shelly Hovick, School of Communication
- Michael Slater, School of Communication
- Richard Petty, Psychology (received an OSU grant to study how to enhance COVID compliance)
- Daniel Strunk, Psychology (received an OSU grant to study relationship between health, economic, and social stressors and their relationship to mental health over time)
- Brittany Shoots-Reinhard, Psychology
- Russell Fazio, Psychology
- Robin Wilson, School of Environment and Natural Resources
- Dave Isaacs, Student Life Strategic Communication

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Wolburg JM. College students' responses to antismoking messages: Denial, defiance, and other boomerang effects. J Cons Affairs. 2006;40(2):294-323.

Mental Health and Wellbeing

Optimizing the Mental Health and Wellbeing of Students, Faculty, and Staff in the COVID-19 Pandemic Transition Back to Campus

Goal
To support, enhance and sustain optimal mental health and well-being of students, faculty, and staff during the transition back to campus.

Background
The overall health and well-being of our students, faculty, and staff needs to remain a top priority as the university transitions back to campus. Findings from research have indicated that public health emergencies have a negative impact on the health, well-being and safety of individuals (e.g. insecurity, confusion, emotional isolation, and stigma) and communities (e.g., economic loss, inadequate resources). These negative effects precipitate a range of emotional responses, mental health conditions (e.g., depression, anxiety, post-traumatic stress, grief) and unhealthy behaviors (e.g., substance abuse and non-compliance with regulations). In a survey conducted by the Kaiser Family Foundation (KFF) in April 2020, 72 percent of Americans said their lives have been disrupted “a lot” or “some” by the coronavirus outbreak. Nearly half (45%) of those polled reported that their mental health has been negatively impacted due to worry and stress over the coronavirus.

In a survey conducted during the first week of May with over 1,200 Ohio State students, faculty, and staff enrolled in the Stay Calm and Well During the COVID-19 Storm virtual lecture series, 45% reported a moderate to large amount of stress, 70% reported feeling nervous, anxious or on edge during the last week, and 46% reported feeling down or depressed several days to nearly every day during the last week. Major worries reported on the survey included: (a) family health (e.g., What will happen if I/my spouse get sick and my children are alone?; What will happen if my parents or loved ones with immune compromised conditions get sick? How do I keep my family safe as an essential worker?; (b) finances (current and retirement); (c) job security (e.g., potential OSU workforce reduction, furloughs); (d) mental health (e.g., inability to focus and concentrate, controlling anxiety, sleepless nights); (e) balancing large workload challenges while trying to care for children; (f) telework and distance learning gaps; (g) potential surge and redeployment; and (h) what will “getting back to normal” really look like?

Based upon this research and initial survey, the Safe Campus & Scientific Advisory Subgroup recommends the following actions.

Baseline Status and Ongoing Needs

Assess the baseline status and ongoing needs of students, faculty, and staff as they return to campus.

- Conduct a voluntary survey representative of OSU undergraduate, graduate, and professional students, faculty, and staff using a stratified random sample addressing mental health and wellness issues, including but not limited to anxiety, depression, and sleep loss as well as concerns about returning to campus and beliefs about physical distancing and masks). The advantage of the stratified random sample is a survey with representative estimates for each stratum, allowing interpretation of the data for students, faculty, and staff separately and jointly.) The survey would also be an opportunity to address the concerns of the university population regarding returning.
- Conduct a comparable voluntary survey for our regional campuses.
- Conduct weekly anonymous surveys of students, faculty, and staff enrolled in the Stay Calm and Well in the Transition Back to Campus virtual lecture series that is scheduled to launch in July. These surveys are currently being conducted each week following the Stay Calm and Well during

the COVID-19 Storm virtual lecture series that document levels of stress, anxiety, depressive symptoms and worries of participants as well as continued needs over time.
- Launch the newly developed tool entitled *Check and Improve Your Stress and Well-being* for faculty, staff, and graduate students in July. This is a 15-minute online, anonymous mental health and well-being self-screening and resource survey tool that is specifically designed for faculty, staff and graduate students to self-screen stress levels, mental health, healthy lifestyle behaviors, and overall self-care strategies with immediate automated feedback provided on how an individual's scores compare to normative data. The tool also contains recommended strategies for improving stress and overall health and well-being as well as resources they can access at OSU and beyond for health care and mental/emotional support. The College of Nursing has received IRB approval for using this tool (Study Number 2020B0154).
- Adapt the *Check and Improve Your Stress and Well-being* tool for undergraduate students and begin to offer it during the fall semester.
- Continue to offer the well-being assessment provided by the Office of Student Life once a semester.

Screening and Intervention

Expand opportunities for mental health screening and intervention for students, faculty, and staff.

- Conduct a brief voluntary mental health screen when students, faculty, and staff are tested for COVID-19 that includes a screen for anxiety (the Generalized Anxiety Disorder [GAD-2]) and depressive symptoms (the Patient Health Questionnaire-2 [PHQ-2]). Share a list of mental health and well-being resources with students, faculty, and staff being screened, including counseling with mental health counselors via telehealth.
    - For faculty and staff with elevated scores on the PHQ-2 or GAD-2, the standard practice is that they will be encouraged to contact their primary care provider, Employee Assistance Program, or the Wexner Medical Center's Stress Trauma And Resiliency (STAR) Program.
    - Students with elevated scores on the PHQ-2 or GAD-2 will be encouraged to contact OSU's Counseling and Consultation Services.
- Conduct a brief voluntary mental health with faculty and staff when they complete their annual Biometric Screen and to faculty, staff, and students during new hire orientations.
- Conduct a brief voluntary mental health screen during all visits to the student health center and refer to OSU's Counseling and Consultation Services as needed.

Strategies and Programming

Implement a set of strategies and programming to enhance the mental health and well-being of students, faculty, and staff during the COVID-19 pandemic.

- Share mental health and wellness resources with new students, faculty, and staff.
- Share information with students, faculty, and staff (and their parents) regarding available programming.
- Share information regarding mental health and well-being programming/resources on the appropriate web sites (http://wellness.osu.edu; https://hr.osu.edu/coronavirus/keepwell/; https://studentlife.osu.edu/articles/bucks-be-well) (See Appendix A included as a separate document).
- Offer Part 2 of the Stay Calm and Well Series as part of the transition back to campus for faculty, staff and graduate students.
- Offer a similar version of the Stay Calm and Well Series as part of the transition back to campus for undergraduate students.
- Develop and provide a virtual on-line series for managers/supervisors to help them provide mental health and well-being support to their employees as they transition back to campus.
- Increase the number and/or frequency of mental health and well-being/resiliency programs as needed for students, faculty, and staff (see Appendix A).

Outcomes Evaluation

Conduct an outcomes evaluation on data for faculty, staff, and student mental health and well-being during and following the transition back to campus.

- Track participation in all mental health and well-being screening and programming for students, faculty, and staff.
- Report data being collected on faculty, staff, and student mental health and well-being at least once a semester to the One University Health and Wellness Council in order to evaluate the impact of screening/programming and adjust/ increase programming as needed.

Monitoring and Support

Offer mental health and well-being monitoring and support of students, faculty, and staff who are diagnosed with COVID-19.

- Conduct twice weekly telephonic mental health and well-being checks with students, faculty, and staff who are diagnosed with COVID-19 and monitor outcomes.
- Offer individuals diagnosed with COVID-19 appropriate resources and refer to available services as indicated.
- Report outcomes data being collected on those diagnosed with COVID-19.

References for Mental Health and Wellbeing

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