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Summary of COVID-19 Testing at OSU
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COVID-19 Testing Overview

Testing, tracing and isolation are critical first points of action in effectively containing and mitigating the spread of COVID-19 on OSU campuses. Rigorous testing will serve as a cornerstone of a comprehensive public health strategy for OSU's resumption plans, to be utilized in conjunction with other key measures to support campus health and safety as OSU gradually resumes on-site operations.

Shortages of COVID-19 testing supplies, nationally and locally, greatly hampered early progress in containing the spread of infection across the country. Fortunately, the availability of testing has improved – supplies have increased, and state and local health authorities have made COVID-19 testing a priority within state and county reopening plans.

The CDC and Oregon Health Authority (OHA) continue to provide guidance and set priorities for COVID-19 testing in Oregon. Currently, testing is recommended for individuals who have any symptoms of COVID-19, as well as those who do not have symptoms (asymptomatic) but are identified as close contacts of a confirmed case. Others who are in high-risk living and working environments are also advised to be tested, e.g., health care works, first responders, or other essential workers. The CDC currently does not recommend doing blanket testing of all faculty, staff and students in the higher education environment.

Certain individuals are at considerably higher risk of facing more serious illness. Thus, OHA has established priorities for testing individuals with underlying health conditions, and members of groups disproportionately impacted by serious illness due to historic racism and systemic social and health inequities. There is clear evidence that people who identify as Black, African-American, Latinx, or Indigenous/Native American/Alaskan Native face more serious impacts from the COVID-19.

Overall, working to ensure access to COVID-19 testing for those who need it is a top priority for OSU planners. Testing is ordered by healthcare providers who will use state guidelines and their own clinical judgment to determine whether someone should be tested for COVID-19, or to oversee broader testing efforts within an at-risk group or

population. Testing must be provided in close collaboration with local public health authorities to ensure there are adequate testing supplies and Personal Protective Equipment (PPE) available, as well as the capacity to initiate quick case investigations to isolate of those who test positive, and quarantine those who are close contacts of confirmed cases. Testing is also important in understanding the bigger public health picture on campus, including prevalence testing to determine rates of infection within campus locations.

The COVID-19 pandemic has, and will continue to impact the lives of thousands of Oregonians – during this time it is essential to support the privacy and dignity of individuals who are affected by this disease. Members of the OSU community who have suspected or confirmed COVID-19 should work with their supervisors or instructors to make accommodations for remote work or learning. An individual's personal health status should not be shared by anyone other than the individuals affected, or by health care providers or campus officials designated to work directly with local public health authorities. As needed, the university may provide outreach to departments asking members to take extra precautions in monitoring symptoms and applying hygiene and sanitation measures.

Approaches to COVID-19 Testing

There are three general approaches to COVID-19 testing at OSU. The types of tests used for each approach may be the same, but the intended outcomes will differ by context and setting:

1. Diagnostic (viral) testing
2. Antibody (serology) testing
3. Screening, surveillance or prevalence testing

1. Diagnostic testing:

- The CDC recommends diagnostic testing for individuals with any symptoms of COVID-19, which will typically be ordered by a health care provider. These tests are used to determine if someone is currently infected with COVID-19. Testing is also recommended for individuals who are not symptomatic if they have been in close contact with a confirmed case, or if they fall within an identified high-risk category.
- Individuals who are confirmed or suspected of having COVID-19 should isolate until 10 days have passed from the onset of symptoms, and 72 hours have passed with no fever (without use of medication) and other symptoms have improved. Those who are diagnosed with COVID-19 but test positive for the disease should isolate for 10 days from the date of their diagnostic test.
- Medical providers will use state guidance as well as their own clinical judgement to determine whether testing is warranted and which type of test to use. Testing will involve collection of a respiratory sample, which will either be sent to an external lab for

analysis or analyzed in-house; results can be available within an hour for some tests, and up to 3 or more days for tests sent to an external lab.

- Given the similarity in symptoms of COVID-19 and influenza, a flu test may be ordered at the same time as the COVID-19 test, particularly if flu is known to be circulating within the community.
- There are currently two types of diagnostic testing:
    - **Molecular (Polymerase Chain Reaction or PCR):** These tests detect viral RNA consistent with a current infection. Samples are collected by nasal-pharyngeal swabs, nasal swabs, or saliva. At present, molecular testing remains the "gold standard" in diagnostic testing with high sensitivity and specificity, meaning these tests are generally accurate at determining who is infected and who is not. However, these tests may not identify someone who has been very recently infected as it can take a few days for the virus to start replicating in the nose and throat.
    - **Antigen:** These tests are also used to diagnose current infection and work by detecting viral proteins in nasal mucus or saliva. Antigen tests are rapidly expanding in the market and have the advantage or being less expensive and producing faster results, which would enable screening larger numbers of people. A positive antigen test result is considered to be accurate most of the time; however, there is a higher likelihood of a false-negative result with this type of test, meaning the test may fail to detect the virus in someone who is infected. For this reason, a clinician may order a PCR test to confirm a negative antigen test result. As the accuracy of antigen tests improves these could become a key resource in expanding testing capacity across the campus community.

2. Antibody (Serology) testing

- Serology or antibody testing looks for evidence of prior infection by detecting antibodies produced by the immune system to fight COVID-19. The CDC does not currently recommend using antibody testing as the sole basis for diagnosing current infection.
- Antibodies can take several days or weeks to develop after someone has had an infection, and the presence of antibodies may suggest short-term immunity. However, questions remain if having COVID-19 antibodies actually makes someone immune from reinfection, or if so, for how long.
- These tests have rapidly increased on the market with the intent of identifying those within a population who may safely return to regular activities, or those whose serum might be utilized to treat acutely ill people. Unfortunately, the sensitivity and specificity of these tests varies widely, with some tests having a predictive value less than 50%. Thus, until these tests improve and more is known about immunity to COVID-19, they should not be used to make decisions about returning to the workplace or a living environment (e.g., "immunity passports").
- As research on COVID-19 antibodies continues to grow, and this type of testing improves, antibody tests may be of value in providing information about rates of past infection within a community, along with transmission patterns, plus help identify those who may

be at most risk for infection. Antibody testing is also being used by OSU's athletic medical staff (in conjunction with Pac12 guidelines) to screen student athletes for potential cardiac conditions resulting from past infection.

3. **Screening surveillance and prevalence testing:**

- Screening generally refers to testing aimed at those who are not showing symptoms but may be transmitting disease. Given the emerging knowledge of COVID-19 infections among people who are asymptomatic, **screening** can be an effective tool in detecting hidden infection within a specific group or setting on campus. Preemptively identifying and isolating positive cases will allow for quick containment to reduce spread within the campus community. This can include use of multiple types of tests, and testing specific groups or a population prior to initiating an activity.
- Public health **surveillance** is also an effective tool in utilizing testing as part of an ongoing collection and analysis of health-related data to direct strategic actions needed to reduce spread of infection on campus, including identification of any emerging 'hot spots'. This method is often conducted within a defined area, or at the county or state levels, incorporating multiple data points.
- **Prevalence** testing is also used within a community or campus setting to monitor the presence of disease within a defined population, and to identify incidents or rates of disease over a period of time. These are typically reported as a percentage or number per 1000 or 100,000. This type of testing can also be used as an early alert mechanism to signal changes or the emergence of infection within a population.
- Screening, surveillance and prevalence testing should be approached in close partnership with local public health authorities to ensure adequate testing supplies, PPE, and contact tracing resources are readily available.

OSU's Comprehensive Approach to COVID-19 Testing

In close alignment with national, state and local health authorities, as well as other institutions of higher education in Oregon, OSU has initiated a strategic and comprehensive approach to the COVID-19 pandemic response to support the continued health and safety of OSU's students, faculty and staff across campus locations. OSU's comprehensive and science-driven methods and strategies, including testing, are designed to balance high quality education, resource stewardship and rigorous public health practice as the campus resumes on-site living, learning and working. There are three types of testing that will be utilized for the OSU community.

1. Individual Testing
2. Screening
3. Prevalence Testing

1. **Individual Testing**

   - **OSU students:**
     - Students who have any symptoms of COVID-19 should be seen by a medical provider for testing. Testing is also indicated for students who are close contacts of a confirmed or suspected case, or those with other risk factors as defined by OHA.
     - Students paying the OSU Health Fee may obtain testing through Student Health Services. Students may also access testing through their home health care provider or a community medical center. These may be ordered through a telehealth visit.
     - COVID-19 tests are covered by OSU's student insurance plans, private insurance plans, and the Oregon Health Plan. Network restrictions may apply – students should consult with their insurance provider to verify coverage. Students without insurance should contact Student Health Services for options in receiving a test.

   - **OSU Faculty and Staff:**
     - Individual diagnostic testing for faculty and staff can be obtained through their primary health care provider. Faculty and staff can consult with their local public health authority to receive testing if they do not have a medical care provider available.
     - Medical providers will use the same criteria listed above in determining who should be tested.

2. **Departmental screening at OSU**: Some OSU departments have initiated testing to screen groups determined to be at higher risk based on departmental activities or operations.

   - **OSU Athletics**
     - In alignment with PAC-12 recommendations, student athletes will be given a diagnostic PCR test for COVID-19 upon arrival to OSU, with follow-up testing during their competitive season based on risk-level (level of contact and proximity with other athletes) of the sport. For instance, students participating in football, basketball, soccer, and volleyball will be retested weekly. Students in intermediate and lower risk sports, such as baseball, softball, track and field, gymnastics and swimming will be retested lest frequently.
     - Students will also receive antibody testing upon arrival. These results will not be used to determine immunity, but may help identify the potential for cardiac damage resulting from a past infection.
     - Student athletes will continuously self-monitor for symptoms and are required to report any potentially high-risk contacts.
     - OSU coaches, trainers and medical staff working in positions requiring physical contact with student athletes will also be tested.

- **OSU Ship Operations**
  - OSU Ship Operations, through the College of Earth, Ocean and Atmospheric Science, are applying the most recent guidance to establish protocols to help prevent transmission of COVID-19 while at sea on the R/V Oceanus. Incoming science parties and crew will:
    - Monitor health at home prior to departure for Newport, including continuous screening for symptoms;
    - Be required to quarantine at home for a 14-day period prior to traveling to Newport, followed by a 5-day quarantine period in a Newport hotel and testing (OSU employees may opt out of testing, which would require a longer 14-day quarantine period in a Newport hotel.).
    - Be advised on testing protocols prior to departure from Newport.

- **Carlson College of Veterinary Medicine**
  - The College of Veterinary Medicine provided optional PCR testing for fourth-year professional DVM students prior to the start of their clinical rotations on June 15.
  - Students, faculty and staff are also required to self-screen for any COVID-19 symptoms prior to arrival at OSU facilities, including taking body temperature daily.

3. Prevalence Testing at OSU

- Following the successful implementation of the community TRACE project within select Oregon communities, TRACE-OSU will utilize similar methodology to provide extensive and continuous voluntary viral monitoring among faculty, staff and students on OSU's three campus locations: Corvallis, Cascades, and the Hatfield Marine Science Center.
- The TRACE-OSU project will establish up to 8 testing sites on OSU locations to collect self-administered nasal swabs for PCR testing, under the observation of project staff. Individuals who test positive will be notified, along with the local public health authority who will then initiate contact tracing.
- Baseline levels will be determined during summer, with ongoing samples to be collected from students, faculty and staff throughout Fall Term at frequent intervals.
- Sample collection sites will be situated across campus locations to collect up to 4000 samples per week across the three OSU campuses, which will provide ongoing prevalence rates within each campus location, i.e., number of positive cases per 1000.
- The TRACE-OSU project also includes ongoing wastewater surveillance to monitor the presence of viral RNA in campus sewage and stormwater systems. Combined with the PCR test sample collection, project data will serve as "leading indicators" or early warning signals of any emerging hot spots or areas in need of more targeted assessment within OSU's campus communities.
- TRACE-OSU will be conducted in close partnership with local public health authorities in Benton, Deschutes, and Lincoln counties to ensure rapid tracing and containment measures are supported.

Considerations for COVID-19 Testing in the Campus Environment

The Landscape of COVID-19 testing is rapidly changing, and recommendations are subject to change as new information emerges from national and state health experts. The CDC and OHA regularly update their guidance related to COVID-19 testing, which is applied by health care providers and state and local public health authorities. **Individuals who have symptoms of COVID-19, or are concerned about exposure to the virus and feel they need to be tested, should contact their health care provider who will determine the best course of action.**

As U.S. colleges and universities move towards the resumption of on-site operations, campus leadership continuously seeks the best courses of action in supporting continued campus health and safety. The American College Health Association has partnered with the CDC to provide considerations for U.S. colleges and universities in framing robust strategies within their local environments. Resumption plans for Oregon's institutions of higher education are now under the guidance of OHA and the Higher Education Coordinating Commission (HECC), as well as close alignment with local county reopening plans.

Wide-scale testing approaches for colleges and universities has become a topic of debate. There is broad agreement that diagnostic testing should be readily available for individuals who may need it – anyone with symptoms of COVID-19, those who may have been exposed through a close contact, and for other high risk and priority groups per state and national health authorities.

A number of prominent campuses in the U.S. are currently planning to require some form reentry testing for all students, or in some areas, all students, faculty and staff. The type of testing used and funding mechanisms vary, and all acknowledge the need for some form of re-testing to be in place. Recent interim guidance from CDC on testing at institutions of higher education indicate that reentry COVID-19 testing for all students, faculty and staff has not yet been systematically studied, meaning the efficacy of this approach in reducing transmission is not known. **Thus, the CDC is not currently recommending entry testing of all returning students, faculty and staff.**

Why campuses are considering requiring reentry testing:

- Campus officials are seeking to do whatever possible to create a safer campus environment – reentry testing is expected to identify positive cases that might otherwise have been missed.
- Rentry testing may help bolster confidence among the campus constituents and stakeholders related to campus health and safety.

Limitations of reentry testing:

- Single point-in-time testing is limited as an individual's infection status could change within hours or days of being tested, meaning retesting would be necessary. Thus, any 'sense of comfort' from a blanket testing requirement would not be reliable.

- The cost of testing at this scale may create an untenable financial burden for campuses already facing steep financial challenges.
- While the availability of viral testing has improved in past months, COVID-19 testing continues to vary across the U.S., with shortages still occurring in some areas.
- Testing all members of a campus community will expend testing and other resources that many be needed elsewhere.
- Wide-scale testing of asymptomatic individuals is likely to skew results toward a higher percentage of false negative results (compared to testing people with symptoms).
- The prevalence of COVID-19 in a healthy young adult population is likely to be quite low, which also affects the positive and negative predictive values.
- Inaccurate results, particularly false negatives, could result in a false sense of security, leading people to take fewer precautions.

OSU's Strategic Approach to Testing

Resuming on-campus learning, working and living does not come without risk. OSU has designed a strategic and balanced approach to allow the enriching on-campus learning and living experiences needed to advance students' personal and academic development. OSU is also applying comprehensive public health strategies to mitigate spread of COVID-19, while creating a culture of care on campus to support students, faculty and staff in navigating the difficulties and uncertainties resulting from the pandemic.

OSU takes a comprehensive and science-based approach to testing through a combination of diagnostic, screening, and prevalence approaches. The TRACE-OSU project will serve as a center point of OSU's mitigation plan to provide continuous monitoring for the presence of the virus throughout Fall Term. OSU's strategic testing plan, combined with other key public health measures, including widescale use of face coverings, diligent hygiene and sanitation, and consistent physical distancing, will support OSU's goal to protect and enhance health and safety as resumption plans unfold in September.

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Resources:
CDC: https://www.cdc.gov/coronavirus/2019-nCoV/index.html;
https://www.cdc.gov/coronavirus/2019-ncov/community/colleges-universities/ihe-testing.html
FDA: https://www.fda.gov/consumers/consumer-updates/coronavirus-testing-basics
OHA: https://govstatus.egov.com/OR-OHA-COVID-19
ACHA: https://www.acha.org/documents/Resources/COVID_19/COVID-19_Testing_June-3-2020.pdf