COVID-19 CONTAINMENT METHODS AT THE UNIVERSITY OF OREGON AND THE PAC-12 UNIVERSITIES

by

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A THESIS

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Primary Thesis Advisor

The development and implementation of the COVID-19 containment methods at Institutions of Higher Education has not yet been widely researched. This thesis aims to document the University of Oregon and PAC-12 universities approached COVID-19 containment, how the containment methods at the University of Oregon were developed, and what lesson can be learned from this pandemic to better prepare IHEs for the next pandemic or public health emergency. Four COVID-19 containment methods utilized at the University of Oregon are analyzed to. Understand the implementation and development. Each containment method is separated into two timeframes and which were then analyzed to establish any changes over the progression of the pandemic. In addition to the University of Oregon, this thesis will explore a single containment method utilized at the each of the universities within the PAC-12. This research was done by using the Wayback Machine and interviews. This thesis will explore how external factors impacted the US COVID-19 response and the response within Institutions of Higher Education. By understanding the factors that influenced pandemic response, we can better prepare for the next pandemic or public health crisis.

Throughout this thesis I found that there is a recurring theme that the definition of preparedness needs to be reevaluated. In relation to IHEs I believe there is no single definition that can encapsulate preparedness. Each IHE is influenced by different external factors, and therefore needs to create preparedness plans that speak to their institutional needs. However, it also became clear through this research that IHEs need to continue to maintain public health preparedness even after the COVID-19 pandemic ends; being proactive instead of reactive. These findings are important because it is likely there will be public health emergencies and pandemics after COVID-19, so learning from the lessons of the past few years can better prepare IHEs for the next one.

Acknowledgements

I would like to thank Professor Josh Snodgrass, Professor Jeffrey Measelle, and Professor Daphne Gallagher for being on my thesis committee. Each of these professors have been instrumental in the completion of this undergraduate thesis. Their guidance, encouragement, and expertise allowed to me to create a thesis that I am truly proud of. I would like to thank my friend, Amelia Heckman; who has supported me throughout the past 4 years within the Clark Honors College and especially throughout the thesis process. I would also like to thank my family for continually being a grounding presence within my life and encouraging me through the completion of this process.

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Chapter 1: Introduction

The U.S. is no stranger to public health emergencies: from HIV in the 1980s, to H1N1 in 2009, to limited international encounters with SARS, MERS, and Ebola. The U.S. has continued a "cycle of panic and neglect" when it comes to public health[1]. In the face of a new public health crisis the U.S. rallies behind its epidemiologists and public health infrastructure; "attention is paid and investments are made"[1]. Then after the crisis abates, "memories fade and budgets dwindle"[1]. After a crisis, the "new normal" erases the lessons learned and an emerging disease becomes unimaginable once again. Figure 1 below shows this trend through 2008 to 2023. The figure illustrates the changes to funding in correlation to public health crises happening within the U.S. and internationally. In 2009, H1N1 emerged; being that it was a relatively mild virus funding only increased slightly, before decreasing in 2013. In 2014 Zika emerged, and Ebola reemerged, and in 2015 funding increases slightly. Funding continues to steadily increases before COVID-19 when in 2020 there is an exponential increase in funding. Interestingly, the 2022 and 2023 allocation predictions are already beginning to decrease from previous years. [2] [3]

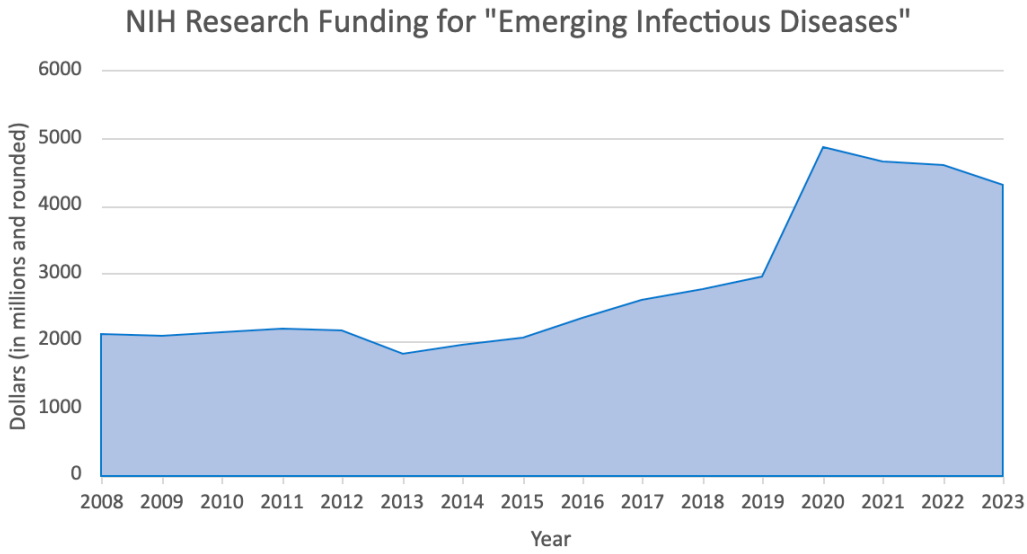


Figure 1: NIH research funding for Emerging Infectious Diseases from 2008 – 2023

Additionally the Center for Disease Control and Prevention (CDC) which is largely responsible for the U.S. pandemic preparedness and infectious disease prevention experienced a 10% decrease in funding over the last decade[4]. Overall health spending within the U.S. increased from approximately 15% of the U.S. gross domestic product (GDP) to 17% of the U.S. GDP[4]. The US healthcare system values investments being chosen based on cost estimates and a high ratio of lives saved per dollars spent[5]. The U.S. healthcare spending is reactive, which can explain Figure 1 above and the continual low investment within U.S. infectious disease agencies.

Health experts warned that a global pandemic to the scale of COVID-19 was inevitable[1 6]. But according to "the Global Health Security (GHS) Index, a report card that grades every country on its pandemic preparedness"[1], in 2019 the U.S. ranked as the most prepared country, with a score of 83.5 out of 100. Although at the very beginning of their report, the GHS Index states "National health security is fundamentally weak around the world. No county is fully prepared for epidemics or

pandemics, and every country had important gaps to address" [7]. The six categories used to evaluate preparedness by the GHS Index include:

Category	Definition	Weight
Prevention	"**Prevention of the emergence or release of pathogens**, including those constituting an extraordinary public health risk in keeping with the internationally recognized definition of a Public Health Emergency of International Concern. 14 Indicators in this category assess antimicrobial resistance, zoonotic disease, biosecurity, biosafety, dual-use research and culture of responsible science, and immunization."	16.3%
Detection and reporting	"**Early detection and reporting for epidemics of potential international concern**, which can spread beyond national or regional borders. Indicators in this category assess laboratory systems; real-time surveillance and reporting; epidemiology workforce; and data integration between the human, animal, and environmental health sectors."	19.2%
Rapid Response	"**Rapid response to and mitigation of the spread of an epidemic**. Indicators in this category assess emergency preparedness and response planning, exercising response plans, emergency response operation, linking public health and security authorities, risk communication, access to communications infrastructure, and trade and travel restrictions."	19.2%
Health System	"**Sufficient and robust health system to treat the sick and protect health workers**. Indicators in this category assess health capacity in clinics, hospitals, and community care centers; medical countermeasures	16.7%

	and personnel deployment; healthcare access; communications with healthcare workers during a public health emergency; infection control practices and availability of equipment; and capacity to test and approve new countermeasures."	
Compliance with International Norms	"**Commitments to improving national capacity, financing plans to address gaps, and adhering to global norms**. Indicators in this category assess IHR reporting compliance and disaster risk reduction; cross-border agreements on public health emergency response; international commitments; completion and publication of WHO JEE and the World Organization for Animal Health (OIE) Performance of Veterinary Services (PVS) Pathway assessments; financing; and commitment to sharing of genetic and biological data and specimens."	15.8%
Risk environment	"**Overall risk environment and country vulnerability to biological threats**. Indicators in this category assess political and security risk; socioeconomic resilience; infrastructure adequacy; environmental risks; and public health vulnerabilities that may affect the ability of a country to prevent, detect, or respond to an epidemic or pandemic and increase the likelihood that disease outbreaks will spill across national borders."	12.8%

Table 1: Global Security Health Index Categories, Definition, and Weight

The U.S. is "rich, strong, developed, [and] is supposed to be the readiest of nations" [1]. Then in December of 2019, "hypotheticals became reality. "What if?" became "What now?""[1]. If the U.S. was supposed to be the "most prepared nation" the question becomes what allowed COVID-19 to overcome the U.S. so easily?

Ed Yong, a journalist who won a Pulitzer prize for his coverage on the COVID-19 pandemic [8], says that much of this can be attributed to a lack of understanding of the word "prepared" or that the factors that contribute to "preparedness" are not being weighted in the proper proportions. The U.S. ranked number one for all the above categories except risk environment, in which the U.S. was ranked nineteenth with a score of 78.2 out of 100 [7]. Table 1 above provides the full definition for risk environment, which will be utilized within the next few paragraphs.

This category is arguably one of the most important aspects of preparedness. Especially with a novel virus when, at least initially, containment relies on traditional public health containment methods such as those "used for tuberculosis, sexually transmitted infections, and other vaccine-preventable diseases" [9]. This includes things like social distancing, closing non-essential businesses, enforcing mask mandates, testing, case management, and contact tracing. South Korea, Singapore, and Hong Kong undertook these efforts with tremendous effect, but the U.S. did not [1].

The first consideration within the risk environment definition of the GSH Index is "political and security risk". This can include social and political unrest in "areas of violence of insecurity, rumors, and miscommunication are rampant, people mistrust authority" [7]. This was omnipresent within the U.S. The Trump administration had a lack of "scientific expertise" [1] which enabled President Trump to continually reject science and guidance from public health experts, while conveying dangerous misinformation. Trump "claimed that COVID-19 was a hoax, refused to order or comply with evidence-based public health measures such as wearing masks and practicing physical distancing, and promoted dangerous (bleach injection) and unproven (hydroxychloroquine)

therapies" [4]. In 2018, President Trump disbanded the pandemic-preparedness office that was part of the National Security Council [1] that had been established by President Obama in 2017. This disbandment resulted in a hiring freeze within the Centers for Disease Control and Prevention (CDC) and left 700 vital pandemic preparedness positions vacant [4]. The power of a president's words can have lasting effects on the country and its citizens. From testing to personal protective equipment (PPE) to conveying false information, President Trump affected the ability of the U.S. to effectively respond to COVID-19. These are examples of why the U.S. was ranked nineteenth in risk environment. I believe that this category was not weighted appropriately compared to the others.

The second consideration within the risk environment definition of the GSH Index is socioeconomic resilience and infrastructure adequacy. Including both the overall investment in healthcare and the socioeconomic impacts on citizens. The U.S. public health infrastructure is chronically underfunded. "Between 2002 and 2019, the share of U.S. health spending devoted to public health fell from 3.21% to 2.45%... Meanwhile, the funding of the Public Health Emergency Preparedness Program (the main source of federal support for the state and local public health emergency capacity) fell by one-third. As a consequence of funding shortfalls, state and local public health agencies lost 50,000 positions, a 20% decrease in the front-line workforce for fighting epidemics" [4]. Although underfunding healthcare was already a trend within the U.S. this was worsened by President Trump's "efforts to dismantle the already weakened public health infrastructure and the Affordable Care Act's (ACA) coverage expansion" [4]. Even before COVID-19, the underfunding of healthcare within this U.S. resulted in an

additional 2.3 million people without health insurance" [4]. Over the past 40 to 50 years the U.S. has continually disinvested in healthcare and public health, this was magnified by the policies of the Trump administration. COVID-19 then exploited the weakened system to spread rapidly throughout the country. To me, these aspects of the risk environment category of GSH Index are vital to ensure a successful pandemic response and should be weighted more heavily when considering preparedness.

The final consideration within the risk environment definition of the GSH Index is public health vulnerabilities. This can include the investment in public health infrastructure, mentioned above, but can also include the compliance with public health guidance. Ed Yong identifies this as a central problem to the U.S. pandemic response. "Many of the country's core values have seemed to work against it during the pandemic. It's individualism, exceptionalism, and tendency to equate doing whatever you want with an act of resistance meant that when it came time to save lives and stay indoors, some people flocked to bars and clubs"[1]. Many U.S. citizens proved that they value individual expression and freedom over the health of their neighbors and the success of their country's ability to contain COVID-19. One such example can be seen through the anti-mask movement. In a Gallup Poll from June 29 to July 5, 2020 U.S. only 44% of adults responded they "always" wear a mask in public, 28% responded "very often, 11% responded "sometimes", 4% responded "rarely", and 14% said never[10]. With less than half of American adults consistently complying with arguably one of the easier public health guidance's, having an abundant pandemic infrastructure becomes irrelevant.

"The U.S. may end up with the worst outbreak in the industrialized world" [1]. As of June 2022, the U.S. has reported 84.4 million cases of COVID-19 while India, the next highest case count reported 43.2 million cases of COVID-19[11]. Considering the U.S. COVID-19 response, Ed Yong, has made the point that the definition of pandemic preparedness needs to be re-evaluated. The U.S. was ranked as the most prepared nation, but the risk environment section was not appropriately compared to the other categories. Some of the most prominent struggles for the U.S. in containing COVID-19 can be contributed to the factors within this category as described above. The U.S. COVID-19 response lacked federal coordination and without clear guidance states and local agencies were forced to take action to control COVID-19.

COVID-19 Background

COVID-19 is a disease caused by the novel SARS-CoV-2 virus, which was discovered in Wuhan, China, in December of 2019. COVID-19 is very contagious and has since rapidly spread around the world. Individuals can present with symptoms often associated with a cold, the flu, or pneumonia but may also present without any symptoms. As a respiratory virus, COVID-19 spreads through droplets from an infected persons' coughs or sneezes [12]. During 2020, it was estimated that, on average, each infected person would infect 2 to 3 others [9].

Being that COVID-19 is a respiratory virus similar to influenza, many public health measures were adapted from existing protocol to limit the spread of infection. Additionally, in the earliest months of the COVID-19 pandemic (January and February, 2020), epidemiologists were learning from other global outbreaks to inform and create public health guidance that was more specific to COVID-19. One of the first global

outbreaks and subsequent national lockdowns was in Italy. On February 20, 2020, there were 3 confirmed cases within Italy. Less than 2 weeks later, all Institutes of Higher Education (IHE) within Italy were closed and there were more than 3,000 confirmed COVID-19 cases [13]. This aggressive spread of COVID-19 prompted more international concern.

Much of the U.S. did not understand how bad this situation could get and therefore did not take the necessary early containment measures. Much of this can be traced back to profit-driven healthcare and disinvestment in public health in the United States. The lack of infrastructure resulted in many systemic issues in the early U.S. COVID-19 response. Highlighted below are some of the most prominent events, issues, and dates within the early U.S. COVID-19 response.

January 21, 2020	• CDC confirms the first case of COVID-19 in the U.S. in Washington state • World Health Organization (WHO) declined to categorize the coronavirus as a global health emergency as there was no evidence of human-to-human infection outside of China
January 24, 2020	• Senator Rick Scott, R-Fla., urged the Trump administration to declare a public health emergency and requested information from the CDC on their plan to combat COVID-19 • Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, declares the risk to Americans is low but that the threat is being taken seriously

January 30, 2020	• WHO declares COVID-19 a public health emergency of international concern • U.S. reports the first case of person-to-person transmission
January 31, 2020	• U.S. declares a public health emergency • The CDC quarantines Americans who have been to certain parts of China (the first quarantine order by the federal government in over 50 years)
February 3, 2020	• CDC submits Emergency Use Authorization (EUA) for the developed SARS- CoV2 diagnostic testing they developed and it is approved **February 4, 2020**
February 6, 2020	• First U.S. COVID-19 death. This was not confirmed until later, previously it was thought that that first U.S. COVID-19 death occurred in Seattle on February 29. This shows the potential that COVID-19 was spreading in the U.S. even of not reported, likely due to the limited testing availability in the U.S.
February 8, 2020	• First CDC test kits arrive in New York City and the lab reports the test produces "untrustworthy results"
February 11, 2020	• CDC confirmed 13 COVID-19 cases • At a rally in New Hampshire, Trump claims that once the weather warms up the virus will miraculously go away
February 21, 2020	• Dr. Nancy Messonnier, director CDC National Center for Immunization and Respiratory Diseases, says that although "we're not seeing community spread in the U.S. yet, it's very possible, even likely, that it may eventually happen."
February 23, 2020	• Italy locks down

February 26, 2020	• CDC reports community spread of COVID-19 in the United States • COVID-19 confirmed case count in the U.S. is now 15 • President Trump announced Vice President Mike Pence would lead the COVID-19 task force
February 29, 2020	• Food and Drug Administration (FDA) announced it would open the EUA process to allow certain laboratories to develop and use COVID-19 diagnostic tests before a full review of their EUA request. This was done to address testing shortages within the U.S. • U.S. Surgeon General Jerome Adams and CDC guidance encourages Americans not to buy face masks needed for healthcare professionals and that they are not effective in preventing COVID-19 infection.
March 3, 2020	• U.S. surpasses 100 confirmed cases of COVID-19
March 6, 2020	• President Trump tells reporters that "Anybody that wants a test can get a test."
March 11, 2020	• WHO declares COVID-19 as a pandemic
March 12, 2020	• Dr. Anthony Fauci calls the U.S. COVID-19 testing a "failing" of the nation's healthcare system
March 13, 2020	• President Trump declares a national emergency, which frees nearly $50 million in disaster relief funding

Table 2: Timeline of U.S. COVID-19 response from January 21 to March 13, 2020

The table above is a timeline of events within the U.S. during the early days of COVID-19 (before many IHEs decided to close their doors). The timeline barely scratches the surface of the events but provides proof that the U.S. was not prepared for a public health emergency. The testing debacle, the lack of PPE for healthcare workers and the general public, the downplaying, and general mistrust and confusion allowed COVID-19 to spread within the United States. [14] [15]

In the U.S. between January and February, the reported spread of COVID-19 was very minimal; at the end of February there had only been 24 total confirmed COVID-19 cases reported to the CDC [16]. However, it is important to note that testing within the U.S. at the time was complicated and unreliable. On February 3, the CDC submitted an Emergency Use Authorization to the FDA in order to begin testing for COVID-19. On February 8, the first COVID-19 tests arrived in public health laboratories in New York City. There was a presumed COVID-19 spread within the city, and these tests were the last chance to control it. Laboratory technicians worked for hours to verify the accuracy of the tests but continually discovered untrustworthy results. Between February 8 and February 29, the Trump administration continued to rely on the inaccurate CDC tests, allowing the undetected spread of COVID-19 to rage across the country. With there being such little confirmed and reported COVID-19 cases across the country, there was also a false sense of security. On February 29, the FDA opened their EUA protocol to allow for labs across the nation to begin creating and using their own COVID-19 tests [17]. The U.S. federal government failed to develop and disperse accurate COVID-19 tests and instead relied on private labs and businesses to do this important task. In a country where public health is underfunded and business and healthcare are so entangled it should come as no surprise that COVID-19 testing and PPE dispersion fell to private labs and businesses. Figure 2 below shows that there is no data for the total number of tests administered by the CDC before March 1, 2020. However, it has been estimated that this statistic is under 4,000 tests [17].

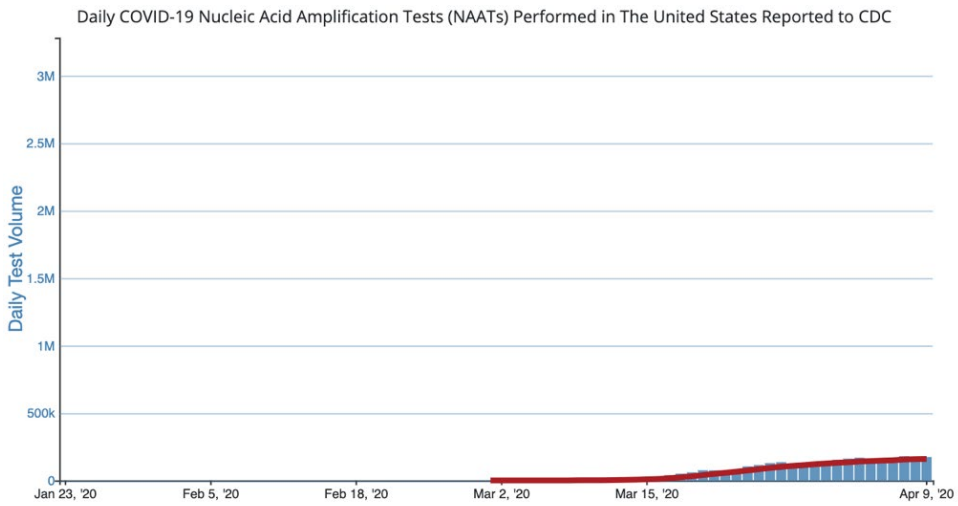


Figure 2: Daily COVID-19 Nucleic Acid Amplification Tests (NAATs) Performed in Tthe U.S. Reported to CDC

This figure shows the number of COVID-19 tests being administered daily within the U.S. between January 23, 2020 and April 9, 2020 as reported to the CDC. The relevant information from this figure above shows that between January 23, 2020 and February. 29, 2020 there was no data reported to the CDC on the number of daily tests administered. [18]

Beginning in early March of 2020 there was an increase in reported spread of COVID-19 within the United States. In the month of March the number of cases rose from just over 100 to 186,000 cases [16]. There were also 5,359 deaths attributed to COVID-19 [19]. The mounting pandemic would require the U.S. to implement a robust and comprehensive system to manage COVID-19. “Management of the COVID-19 pandemic will rely heavily on traditional public health methods for case identification and contact tracing, similar to methods used for tuberculosis, sexually transmitted infections, and other vaccine-preventable diseases” [9]. Included within these public health measures was the closure of non-essential businesses and social distancing guidance. This caused the U.S. to enter a national lockdown, in which citizens movements were greatly restricted in order to slow the spread of COVID-19.

Although called a “national lockdown”, these decisions came from individual state governments. The public health system within the U.S. provides both the federal government and individual states certain powers of decision making and responsibilities[20]. The federal government intends to “survey the population's health status and health needs, sets policies and standards, pass laws and regulations, support biomedical and health services research, help finance and sometimes delivers personal health services, provide technical assistance and resources to state and local health systems, provides protection against international health threats, and supports international efforts toward global health[20]. However, individual states become “the principal governmental entity responsible for protecting the public's health in the United States. State health agencies collect and analyze information; conduct inspections; plan; set policies and standards; carry out national and state mandates; manage and oversee environmental, educational, and personal health services; and assure access to health care for underserved residents; they are involved in resources development; and they respond to health hazards and crises”[20]. States have the power to act in the protection of their citizens. During the COVID-19 pandemic many state and local leaders accomplished this by issuing executive orders[21]. However, there has been discussion on whether states are able to issue such orders. “The coronavirus pandemic has raised a host of constitutional questions- including the interplay between state and federal governments in responding to the crisis”[22]. Supporters of executive orders use the Supreme Court ruling from the 1905 case *Jacobson v. Massachusetts*. This case was presented during the smallpox pandemic and the issue was based on a state law that

authorized local health boards to fine citizens who would not comply with vaccinations[21]. "The Court held that the state can impose "reasonable" regulations to protect public health for the "common good", even where such regulations interfere with individual rights"[21]. Before the COVID-19 pandemic there had been no nationwide comparable public health crisis since the *Jacobson v. Massachusetts* era. There has been continued debate over the legality of using *Jacobson v. Massachusetts* over 115 years after the ruling. Regardless this ruling guided much of the federal and state responsibilities during the COVID-19 pandemic.

Between January and early March 2020, the U.S. failed to control COVID-19. The infrastructure to contain COVID-19 was still being built and when it rolled was out and there were consistent struggles. The challenges the CDC faced in establishing a nationwide testing protocol can be attributed to the profit-driven healthcare system, the disinvestment in public health for decades, and the Trump administration's attacks on pandemic preparedness and the CDC. I share this scenario to highlight that the novelty of COVID-19 impacted even the top government agencies and experts in communicable diseases. But also, that the U.S. was so underprepared for a public health emergency to the scope and scale of this crisis that it should not come as a shock that the U.S. mishandled the COVID-19 pandemic. Due to the lack of an extensive and successful federal level management of COVID-19, the responsibility to make decisions fell to individual states as to how to respond to the COVID-19 pandemic. This resulted in inconsistent public health policies across the nation and states being closed at various levels, which had a direct impact on the operation of higher education.

Higher Education & University of Oregon Background

These necessary public health measures took a toll on many critical aspects of U.S. infrastructure one of the most impacted being higher education. Prompted by the guidance that social gatherings posed a serious risk to public health, the decision was made by the majority of states to temporarily close intuitions of higher education (IHEs) [23]. An estimated 19.4 million higher education students [24] and an estimated 3.5 million higher education staff [25] across the U.S. were impacted by these measures. As there has been no comparable event in modern history, the system of higher education was underprepared for a disruption of this magnitude.

Most IHEs have an Emergency Operation Plan (EOP) that is regularly reviewed and updated. The purpose of the University of Oregon EOP, which is likely similar for other IHEs, is to "outline the management structure, responsibilities, procedures, and guiding policies to assist the university when responding to an emergency event" [26]. The EOP "includes procedures for responding to a range of levels of emergency regardless of the size, type, or complexity" [26]. The EOP also provides the outline for the university's Incident Management Team (IMT). Below is the IMT structure for the University of Oregon, though the IMT structure is flexible and was continually adapted during the COVID-19 pandemic to reflect the needs of the university.

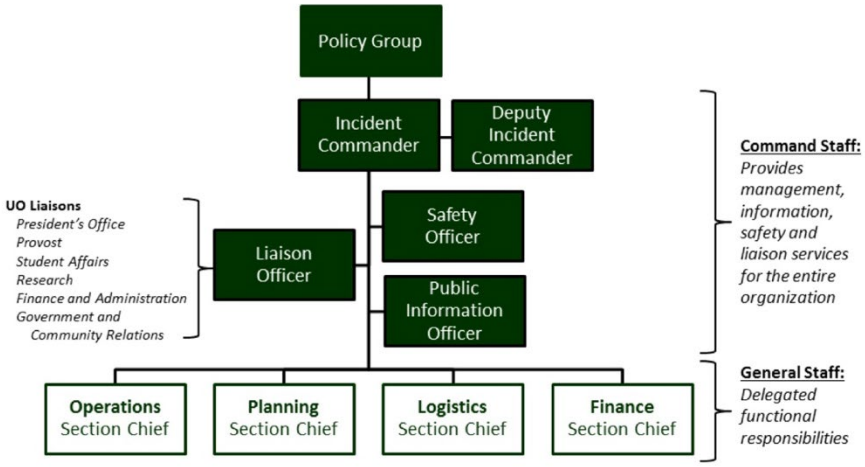


Figure 3: University of Oregon Incident Command System

The University of Oregon highlights the above Incident Command System (ICS). The ICS will then be modified to the University of Oregon Incident Management Team (UO-IMT) in the event of an emergency by having appropriate staffing assume the Command Staff and General Staff positions.

The EOP usually includes one or more sections on preparing for the containment of communicable diseases (such as Hepatitis, Measles, and Meningitis). The University of Oregon presumably has activated the IMT and its EOP for communicable disease outbreaks in 2009 for H1N1 and in 2015 for a Meningitis outbreak. At the first indication of potential COVID-19 spread globally and within the U.S. IHE's began to activate and implement their EOPs. The University of Oregon partially activated the IMT on January 28 and fully activated the IMT on February 27. However, this was complicated by the novelty of COVID-19. In many instances, once EOPs were activated institutions had nothing to do but wait for positive cases to crop up on their campuses. Within the U.S. at this time, public health experts and the Trump administration were still relaying that there was low risk of COVID-19 spread within the U.S. The UO IMT did everything according to plan, but few predicted the severity and rapid acceleration

of the impending COVID-19 pandemic. There was little to indicate that in January and February 2022 IHEs needed to have a totally exhaustive containment infrastructure ready to be implemented. It was a difficult for IHE administrators to make decisions that would impact the whole campus community when the CDC/federal, state, and county guidance were not always cohesive and constantly changing [27] [28]. Additionally, if the University of Oregon had acted sooner it would have been out of step with other IHEs, local guidance, state guidance, as well as federal guidance.

This thesis will additionally evaluate a containment method utilized at each of the PAC-12 universities. The PAC-12 is a collegiate athletic conference that operates in the Western United States. I chose to look at the PAC-12 conference due to its national respect and recognition. Additionally, it will help narrow the scope of research while maintaining a variety of public and private institutions, university sizes, demographics, political compositions. One of the things in common among most of the PAC-12 IHEs between January 2020 and the end of February 2020 were the announcements they made related to their community on COVID-19. These announcements were only made a few times before the decision to close their campuses was announced. The tone of these announcements often came across as cautiously optimistic and contained similar content including updates on safe health practices, travel restrictions, modifications to campus events, and general information on COVID-19.

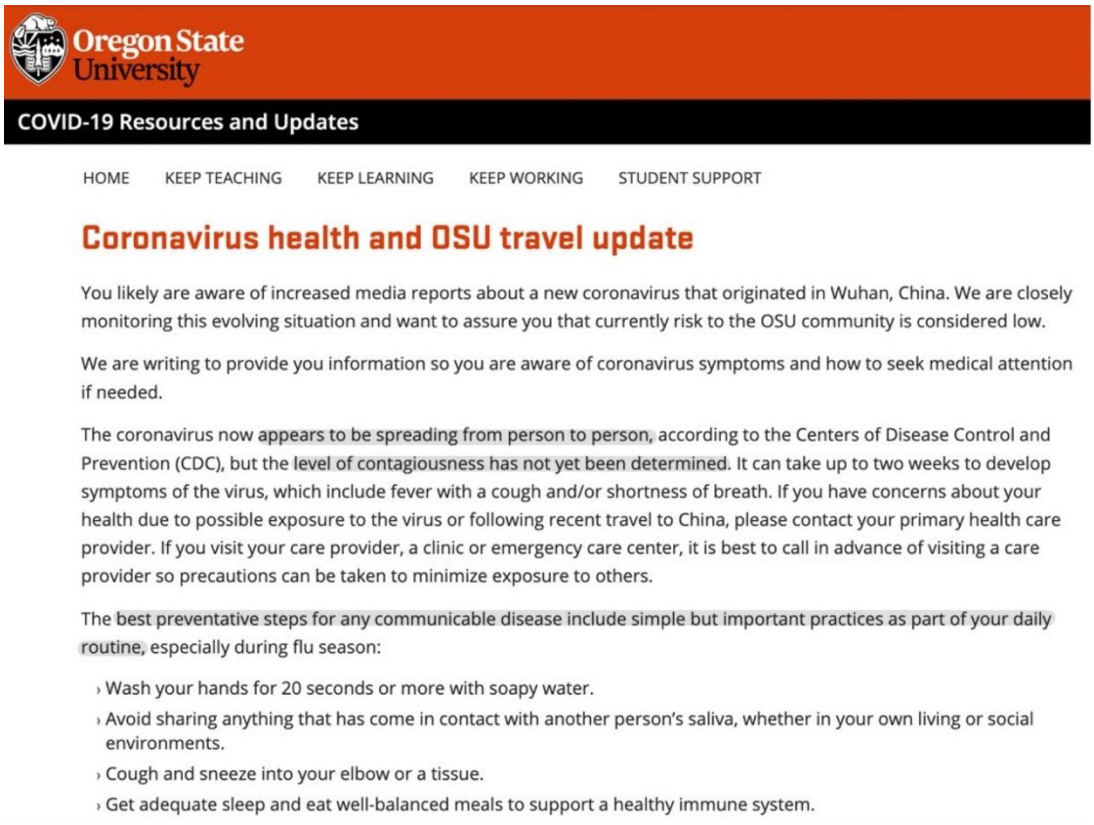


Figure 4: Oregon State University Coronavirus health and travel update (January 28, 2020)

Oregon State University's first announcement regarding COVID-19 from January 28, 2020. This post starts off in an assuring tone that all proper steps were being taken by OSU and risk to the community was low. The post then details updated information from the CDC on how COVID-19 appeared to be spreading, as well as a reminder on preventative health measures such as hand washing and cough/sneeze etiquette.

Oregon State University announced on March 6 it was "preparing for remote teaching, if it was needed", and only five days later on March 11, announced that "final exams will be offered remotely, when possible." One week later, on March 18, OSU announced that "spring term will be remote instruction"(OSU Staff, 2020).

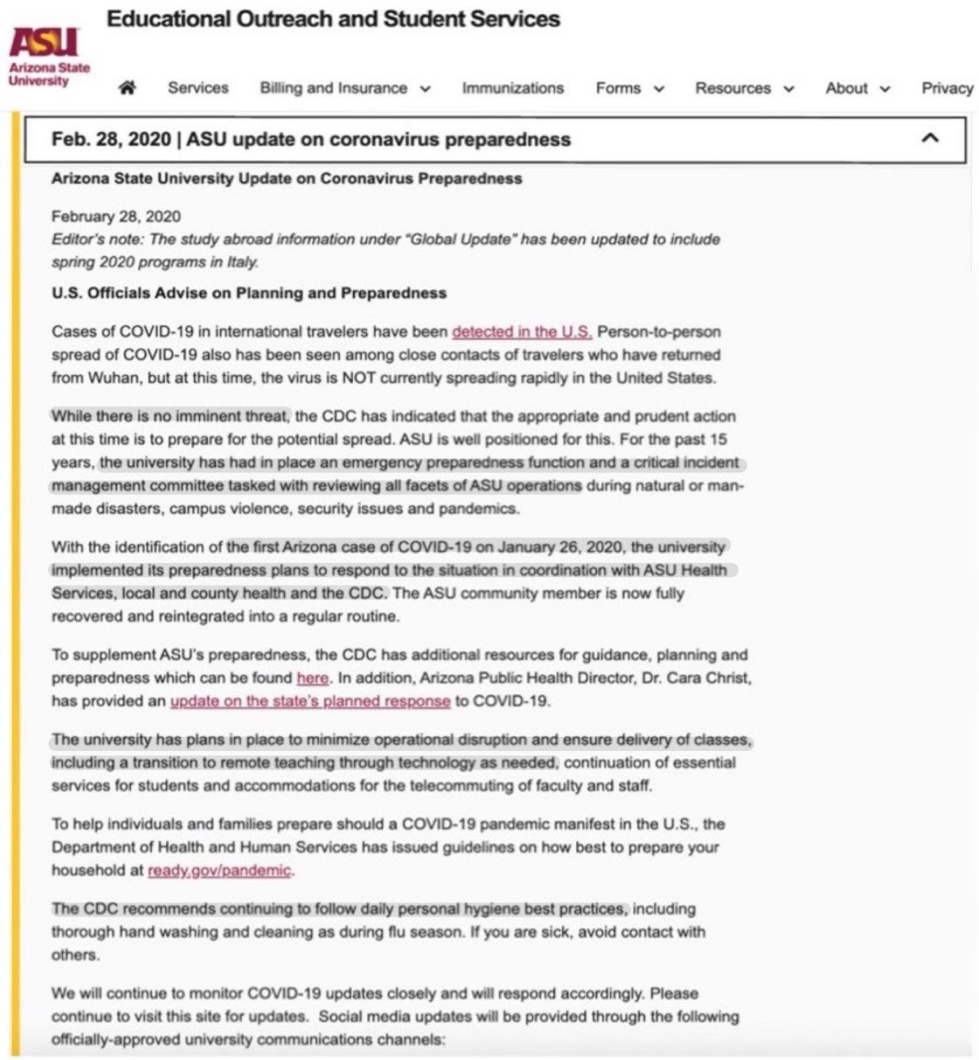
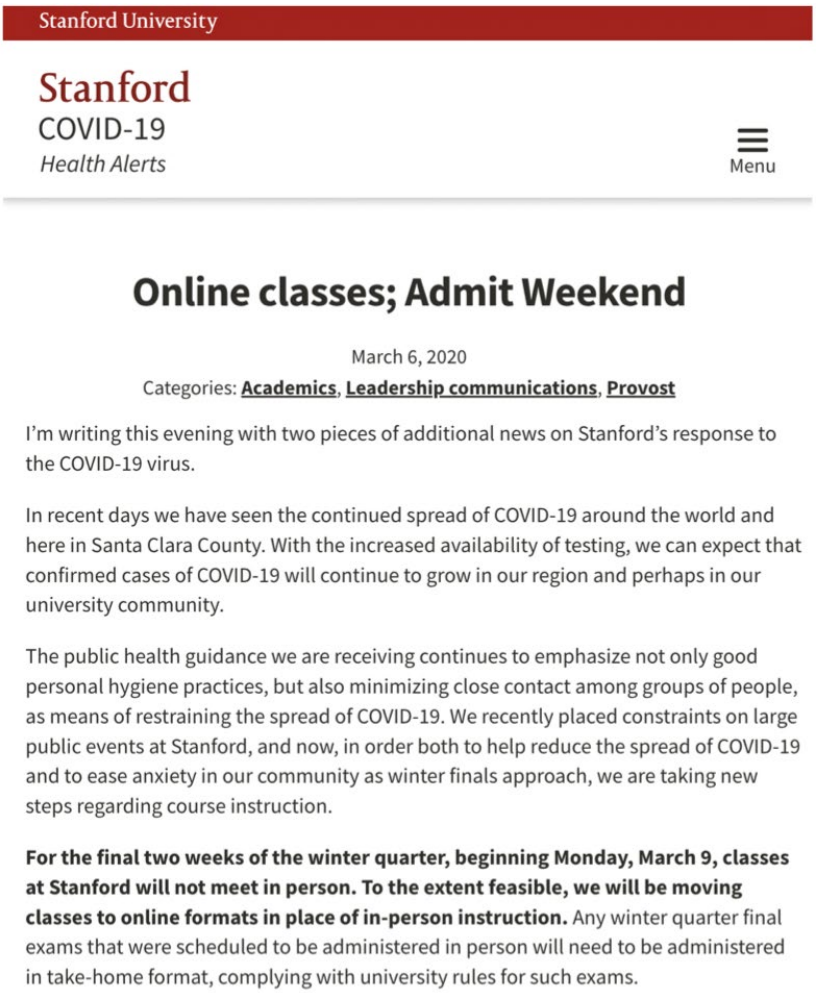


Figure 5: Arizona State University update on coronavirus preparedness (February 28, 2020)

Announcement from Arizona State University on February 28, 2020, that details the early implementation of the ASU Emergency Preparedness Plan due to a positive case within the ASU community. This post conveys the cautiously optimistic tone that preparation was underway if needed but that there was "no imminent threat."

On March 11, Arizona State University announced effective March 16 that classes would "transition to online instruction wherever possible for two weeks," but that the "university remains open including housing, labs, dining services, and health

clinics." On March 16, 2020, ASU announced that the spring semester would be completed in a fully remote modality.



Stanford University

Stanford
COVID-19
Health Alerts

Menu

Online classes; Admit Weekend

March 6, 2020

Categories: **Academics**, **Leadership communications**, **Provost**

I'm writing this evening with two pieces of additional news on Stanford's response to the COVID-19 virus.

In recent days we have seen the continued spread of COVID-19 around the world and here in Santa Clara County. With the increased availability of testing, we can expect that confirmed cases of COVID-19 will continue to grow in our region and perhaps in our university community.

The public health guidance we are receiving continues to emphasize not only good personal hygiene practices, but also minimizing close contact among groups of people, as means of restraining the spread of COVID-19. We recently placed constraints on large public events at Stanford, and now, in order both to help reduce the spread of COVID-19 and to ease anxiety in our community as winter finals approach, we are taking new steps regarding course instruction.

For the final two weeks of the winter quarter, beginning Monday, March 9, classes at Stanford will not meet in person. To the extent feasible, we will be moving classes to online formats in place of in-person instruction. Any winter quarter final exams that were scheduled to be administered in person will need to be administered in take-home format, complying with university rules for such exams.

Figure 6: Stanford University announces online end to winter term

At Stanford University, in the span of one day, preventative steps changed drastically due to two students having been exposed to a presumptive COVID-19 case within Santa Clara County. On March 5, Stanford planned for "regularly scheduled classes to continue through the remainder of the quarter, and for final exams to be administered according to the existing schedule with no in-person restrictions" [30]. Then, on March 6, Stanford University announced the "final two weeks of winter quarter

[including final exams] will not meet in person and will be moving to online formats" [30].

Between January and early March 2020, IHEs across the nation implemented major changes within their campus operations to prepare for and limit the possibility of a public health emergency caused by the novel coronavirus. Although there were communicable disease outbreaks at the University of Oregon in 2009 and 2015, there was nothing to the scale of COVID-19 in modern history.

Timeframe

This thesis is separated into two timeframes: Time Frame 1 is from March 2020 through the end of the 2019-2020 academic year (May/June 2020) and Time Frame 2 is the Summer of 2020 through Fall term 2020 (December 2020). The distinction between these time frames is the preparation and development of containment methods versus the implementation and execution of tailored approach to COVID-19 [31].Within Chapter 4: Containment Methods at the Pac-12 Universities, a few of the universities are not directly within these timeframes.

Time Frame 1 will focus on the period in which the University of Oregon needed to make decisions about how to develop a COVID-19 containment plan for its campus. This will include a focus on the establishment of a testing program, forging relationships with local hospitals and the county health department, closing campus buildings and residence halls, and managing positive cases.

Time Frame 2 will focus on how the University of Oregon prepared to execute COVID-19 containment methods for Fall term 2020. This includes how to manage moving students safely back to campus, implementation of surveillance testing, logistics

of contact tracing, alterations to campus buildings and residence halls to reduce transmission, relocating cases and contacts from within residence hall, and how to get resources to students who test positive.

Research Question and Predictions

Research Question #1 - University of Oregon

- What COVID-19 containment methods did the University of Oregon implement between March and December of 2020?
- Did containment plans at the University of Oregon change over the progression of the pandemic? If so, how?
- What factors impacted decision-making at the University of Oregon when developing a COVID-19 containment plan?

Research Question #2 - PAC-12

- How did IHEs within the PAC-12 approach aspects of COVID-19 containment?

Research Question #3

- What lessons can be learned from the COVID-19 pandemic to better prepare IHEs for the next pandemic or public health crisis?

Research Prediction

From this research I expect that the University of Oregon acted swiftly and effectively while developing and implementing its COVID-19 containment plan. It is likely that approaches to containment shifted as new information came to light about the specifics of the novel coronavirus. Within the PAC-12, it is likely that each IHE used a custom-tailored approach to containment that worked best for their institution, as there

is no single strategy to COVID-19 containment. There will likely be many lessons learned from the COVID-19 pandemic; I believe there will be a new understanding of the word "prepared." Since we cannot always rely on the federal government to continually prioritize public health, moving forward IHEs will need to maintain a level of pandemic preparedness.

Motivation

The inspiration for this thesis comes from my work with the University of Oregon Corona Corps since August 2020. Through almost two years as a student worker for this program, I have learned a considerable amount about COVID-19 containment at IHEs. This piqued my interest in knowing the decision-making process for the University of Oregon's containment plan, but also how other IHEs approached COVID-19 containment.

Upon further research, I discovered there has been very little literature that directly examines the development and implementation of COVID-19 containment plans on university campuses. Prior pieces of literature often discuss the transition from in-person learning to remote learning and the challenges surrounding those decisions. However, all of this misses the focus of this thesis, which is to understand the public health actions an IHE needs to take to protect its students, faculty, and community. The original idea for this thesis was to compare and contrast containment methods used at the PAC-12 universities. However, after a low response rate to the survey designed to gather this information, a pivot was made to focus solely on the containment plan at the University of Oregon. Instead, the PAC-12 section of this thesis will highlight a single

containment method used by PAC-12 universities that is innovative and specific to their COVID-19 containment plans.

As there has been so little published on this specific area of COVID-19 research, it is crucial to document the early pandemic and IHEs containment response as way to recall the events and learn lessons in hopes better to prepare for future public health emergencies.

Chapter 2: Research Methodology

In order to address the three research questions posed above, three separate research methods were used. These methods include utilizing the Wayback Machine to access internet archives specific to the time frames, a survey to detail the specific containment methods enacted at the University of Oregon, and interviews with three UO faculty members from various departments. The data collected from these three sources was largely qualitative.

Web Archive

The Wayback Machine is a non-profit that has built a digital library of more than 862 billion webpages dating back to 1996 [32]. The Wayback Machine works by tracking changes to URLs and allowing people to visit archived versions of web pages. As my thesis looks at the initial pandemic response from the University of Oregon and other PAC-12 universities, this tool became essential to my research. This tool allowed me to retrieve information from previously published web pages from dating back to January 2020. COVID-19 information and action changed consistently over the course of the pandemic and universities would simply update their websites to convey the most accurate and up-to-date information. Much of the information collected in this thesis would not have been possible if not for the Wayback Machine.

Within Chapter 3: Containment Methods at the University of Oregon, the Wayback Machine was frequently utilized. For example, within the academic continuity section, the Wayback Machine was useful in tracking the initial announcements from the University of Oregon as the decision was made to conduct Winter 2020 and Spring

2020 remotely. This was also the research method used in Chapter 4: PAC-12 Containment Highlights.

The initial design of this thesis was going to focus on a comparison of the University of Oregon's COVID-19 containment plan and that of other PAC-12 universities. I began conducting my initial research using the Wayback Machine extensively. For each PAC-12 university I tracked changes and updates through various COVID-19 related web pages from March 2020 to December 2020. The process was extremely time-consuming and tedious. Compiling data from an archived web page for a single institution could take me 10-15 hours to complete. As useful as the information was provided by the Wayback Machine it became too time-consuming, which is when the decision was made to develop a survey. Additionally, the survey provided the opportunity to get a look at the inner working at institutional decision making that was not available via the public webpages and the Wayback Machine.

Survey

In lieu of hours tracking and compiling the various COVID-19 containment web pages at PAC-12 universities, I developed a survey in hopes of gathering the same information but in a more time-effective manner. The survey was created by utilizing the background knowledge I had acquired from the Wayback Machine and my own experience with innerworkings of COVID-19 containment at the University of Oregon. The Wayback research provided insight into the various containment methods at PAC-12 universities and then I developed questions to assess which containment methods were used at each institution. For example, at the University of Oregon student employees of the Corona Corps aided county officials with case investigation and

contact tracing efforts for on-campus students. Whereas at the University of Colorado – Boulder, professional staff within the Public Health Office of Student Health & Wellness Services conducted contact tracing and case investigation for students [33]. Using this information, I created a survey question aimed at determining how different PAC-12 universities approached contact tracing and case management. The question would then be asked for both timeframes. For the above example the question became:

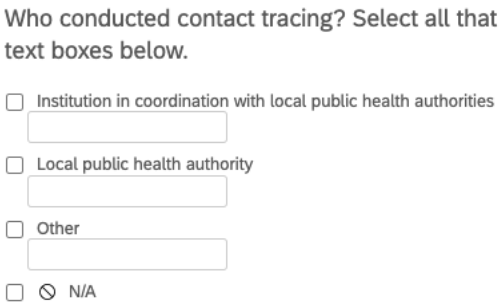


Figure 7: Question #29 from survey

The full and final version of the survey can be found in Appendix A. The layout of the survey is as follows:

- Survey Introduction
- Demographics
- Transition to Time Frame 1
    - Testing
    - Contact Tracing
    - Campus Access
    - Case Management
- Transition to Time Frame 2
    - Testing
        - Move-In Testing
        - Surveillance
    - Contact Tracing
    - Campus Access
    - Case Management

The survey was created with the intention of being distributed to various faculty members who played a role in containing COVID-19 at the PAC-12 universities via email. Unfortunately only a single response was recorded from Angela Long (University of Oregon Health Services Director of Public Health Practices and Health Outcomes Improvement). I attribute this in part to the length of the survey and the busy schedules of those asked to take the survey as the public health emergency is ongoing and requires their attention. The effect this had on the thesis will be discussed more in the limitations section of Chapter 5.

This survey was not subject to IRB review or exemption process. The definition of human subjects research provided by the University of Oregon states, "Living individual about whom an investigator (whether professional or student) conducting research obtains: (1) information or biospecimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or biospecimens; or (2) obtains, uses, studies, analyzes, or generates identifiable private information or identifiable biospecimens" [34]. The questions within this survey did not ask for their interpretations of containment plans. All questions are geared towards what happened with COVID-19 containment and how decisions were made within their

Interviews

After the low-response rate to the survey, I needed to shift my thesis research in a slightly different direction. I wanted to find a way to still highlight various containment methods and provide an in-depth analysis of COVID-19 response decision-making. Due to my affiliation and experience with the University of Oregon, I had

existing knowledge on the containment efforts and decided to focus the majority of my analysis on the UO. However, I still needed to supplement my understanding on decision-making so interviews were arranged.

I was able to be connected to three key individuals at the University of Oregon who were available to be interviewed. Each participant was able to speak to a certain containment method highlighted in Chapter 3, although there was a lot of cross-over in responsibilities due to the interconnected relationship built at the UO to contain COVID-19. The three interview participants were:

- Ron Bramhall, Associate Vice Provost for Academic Affairs
- Angela Long, Director of Public Health Practices and Health Outcomes Improvement
- Michael Griffel, assistant vice president for Student Services and Enrollment Management and director for University Housing

Each interview lasted between 30 minutes to an hour. I conducted the interviews in a semi-structured model, so that I could get a discourse going within the interview and then build on information as it was provided. The planned interview questions are included in Appendix B.

Information collected in these interviews is not subject to IRB review or exemption. The definition of human subjects research provided by the University of Oregon states, “Living individual about whom an investigator (whether professional or student) conducting research obtains: (1) information or biospecimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or biospecimens; or (2) obtains, uses, studies, analyzes, or generates

identifiable private information or identifiable biospecimens" [34]. The information provided by the participants was on behalf of their institutions and questions did not ask for their interpretations of containment plans.

Summary

The combination of these three research methods built upon one another to create a holistic and interconnected research design to provide a cohesive analysis across this thesis. The Web Archives provided information to build the survey, and while it was unfortunate the survey was not utilized to the intended degree, the research and time that went into creating it was then used in the interviews.

Chapter 3: Containment Methods at the University of Oregon

Introduction

Within this next section, I will be answering the following three research questions: "What COVID-19 containment methods did the University of Oregon implement between March and December of 2020?", "Did containment plans at the University of Oregon change over the progression of the pandemic? If so, how?" and "What factors impacted decision-making at the University of Oregon when developing a COVID-19 containment plan?". To do this I utilized the following resreach methodology: an interview Ron Bramhall, Associate Vice Provost for Academic Affairs; survey response and interview from Angela Long, Director of Public Health Practices and Health Outcomes Improvement; and Interview with Michael Griffel, Assistant Vice President for Student Services and Enrollment Management and Director for University Housing.

> "The University of Oregon is committed to safeguarding the health and safety of the campus community as it plans for in-person instruction and research, and as it prepares to welcome students back to campus. The [UO COVID-19 Health and Safety Operations] Plan… takes a comprehensive approach to managing COVID-19 by monitoring health indicators, reducing the likelihood of the virus spreading through policy, physical distancing and programmatic changes; requiring and reinforcing CDC guided behavioral expectations and an ethic of personal responsibility; managing cases through testing, tracing, and treatment protocols, communicating and engaging stakeholders; creating supporting policies that apply to all individuals affiliated with or visiting the UO campus, and communicating about these activities and expectations. The comprehensive plan of activities is managed by… the IMT, in collaboration with public health agencies, local and state governments, and peer institutions. It reflects input from faculty experts, employee and student groups, and other experts and stakeholders. The plan adheres to public health orders, standards and guidance, and draws from sound science, scholar expertise, and emerging understanding of COVID-19. It is designed to be flexible to rapidly adapt to change ass the university confronts these unprecedented challenging times"[35].

Objectives of UO Health and Safety Operational Plan

- Reduce the likelihood of COVID-19 illness
- Manage positive cases
- Keep campus informed
- Reduce disruptions to campus
- Inspire campus to engage in prevention and recovery
- Assess financial impacts
- Protect the long-term stability of the university

I propose that the University of Oregon focused on four main aspects within their COVID-19 containment plan to successfully manage the public health crisis. These include academic continuity, contact tracing and case management, testing, and University Housing. The next four sections of this thesis will focus on each containment method within Time Frame 1 (March 2020 – June 2020) and Time Frame 2 (July 2020 – December 2020).

Academic Continuity

Time Frame 1

On March 11, the University of Oregon announced that finals week for Winter term 2020, in addition to the first three weeks of Spring term 2020, were to be conducted remotely. Ron Bramhall, Associate Vice Provost for Academic Affairs, recalls that the first conversations about the impact on academics at the University of Oregon, occurred only a week or maybe two weeks before this announcement. In the

decision to transition to remote learning, the University of Oregon was confronted by many challenges, often due to the lack of infrastructure.

The first obstacle to face the Provost Office was how to support faculty and students through the administration of final exams. Being that the University of Oregon only offered a small number of remote classes in a typical year, there was no contract to support proctored exams. Additionally, there was little formal guidance the provost office and the university could provide. Many professors made choices for their own courses about how to alter their final exams to comply with prevention guidance. Some chose to change their exam format or alter the content of their finals. In the end, Bramhall says everyone, to some extent, had to "wing it." In a publication released on March 15, the Oregon State Higher Education Coordinating Commission "encouraged Oregon's colleges and universities to maintain the continuity of their teaching, learning, and residential/wellness/ health services to the greatest extent possible" [36]. However, there was very little practical guidance on how to ensure this continuity.

As there was little assistance available for the end of Winter term, the focus moved toward ensuring a quick and smooth transition to remote learning in Spring term 2020. Luckily, this was simplified by a new academic continuity policy that was passed by the University Senate in April 2019. Following a strike by the Graduate Teaching Fellows Federation (GTFF) in October 2018, the "Academic Continuity and Emergency Grades During a Significant Disruption to Academic Activities" became policy. This continuity policy provides "a framework to guide planning and decision-making in the event that a significant disruption to campus operations impedes academic activity" [37]. During the GTFF strike the UO IMT was structured so that academic decisions

regarding grading and classes fell to Department Heads. This resulted in differences between academic departments for students. The continuity policy created an academic branch of the IMT, which gave more power of academic decision-making to the office of the provost and the IMT. This allowed for the standardization of the academic decisions so that all students had the same academic experience. The academic continuity plan includes notes on online educational continuity but, again, there was little infrastructure in place to easily transition classes to online instruction as quickly as was required for Winter term finals. Although the creation of an online learning infrastructure was not possible for finals' week, it would be a top priority for Spring term 2020. The academic continuity plan became an extremely important policy during the COVID-19 pandemic as it allowed for a swift and coordinated response from the University of Oregon.

The end of Winter term and spring break at the University of Oregon was spent preparing for the unknowns and every imaginable contingency plan. Much of this was preparing the remote learning infrastructure needed to support a fully remote campus. This included acquiring a larger Zoom contract, a proctoring contract, and purchasing extra laptops, among other concerns.

The University of Oregon had already been in contract negotiations with Zoom dating back to November 2019. According to an Around the O article by Nancy Novitski this was "prompted by the need to replace the UO's 30-year-old phone system" [38]. The University of Oregon "accelerated existing plans to roll out Zoom… in time to support remote instruction, work, and communications for Spring term" [38]. The highspeed rollout of Zoom to thousands of UO students, faculty members, and staff

required cooperation from Purchasing and Contracting Services and Information services. Matt Riley, chief technology officer, said there were expected bumps in the road, but he was immensely grateful for everyone who helped to "compress a six-month deployment and training period into two or three weeks"[38].

With the remote infrastructure in place, Spring term 2020 commenced in a remote modality. Students were spread across the country to continue their education and faculty transitioned to working from home. However, this would bring its own challenges, and not all that were able to be solved immediately. For starters, as students spread across the country, and in some cases the globe, they entered different time zones, creating an unsolvable academic inequality among students. Other inequalities included students who did not have access to Wi-Fi, a quiet space to learn and take classes, and/or laptops (this was partially solved by the purchasing of laptops although shipping proved a complication). As childcare facilities had closed, some faculty members struggled to work from home while also taking care of their children and assisting in their children learning from home. At the time this too was an unsolvable problem, but as we transition to Time Frame 2 these became a priority for the University of Oregon.

Time Frame 2

Over the summer one of the containment tools developed by the University of Oregon was COVID-19 alert levels. Alert levels were originally proposed in the COVID-19 Toolkit developed by Tuscany Strategy Consulting, Council for Higher Education Accreditation, and Johns Hopkins Bloomberg School of Public Health.

COVID-19 alert levels are used to "indicate the severity of COVID-19 transmission and implications for institutional operations" [31]. Alert levels provide an understanding of the current risk to campus and the surrounding community by using a number of indicators and then translate into the institutional operation possible.

There are two main types of indicators used by the University of Oregon: community indicators and institutional indicators, which are indicative of the spread and transmission of COVID-19. Both types of indicators are used in order to support planning and decision-making for the university, but also for the Eugene community at-large. In evaluation of alert levels, "the cumulative status all indictors are considered to influence the university's continuity of operations and response at any point in time" (UO Staff, 2020).

Incidence & Prevalence	"The number of new and existing COVID-19 cases per day. This indicator considers campus, local, regional, national, and international cases."
% Positive Test	"The number of positive tests returned over the total number of tests conducted. The WHO and OHA recommend that this indicator remains below 5%."
% of Cases Linked to Other Known Cases	"This indicator is pulled from testing and contact tracing. A linked case is one that was identified in the contact tracing party. Unlinked cases can indicate uncontrolled spread in the community. The higher the %, the higher the risk is of uncontrolled spread."
Hospital Stress	"Indicator related to local hospital inpatient and ICU bed availability and the % of COVID-19 positive patients. A low availability of hospital beds and high % COVID-19 positive patients would indicate high levels of community transmission and high risk."

Table 3: Community Indicators of COVID-19

The table above is from the University of Oregon COVID-19 Health and Safety Operational Plan outlining the community indicators and their definition as used in determination of COVID-19 alert levels[35].

Prevention Methods	"The capacity, adoption, and adherence to prevention methods such as PPE, administrative controls, engineering controls."
Testing Capacity	"At baseline, everyone with COVID-19 symptoms should be able to obtain a test. Test results should be returned as quickly as possible."
Contact Tracing Capacity	"The ability to continue contact tracing efforts."
Treatment Capacity	"The capacity for local hospitals to support outbreak."
Quarantine and Isolation Capacity	"The number of empty beds available to house students who are in quarantine or isolation."
Federal, State, and Local Policies	"Regulations and operating protocols are continually being developed at federal, state, and local levels. This will impact the level at which the university may operate."
Comparators and Coordination	"Observing the protocols of similar institutions. Helpful to understand how other professionals are thinking about the operating protocols."

Table 4: Institutional Indicators of COVID-19

The table above is from the University of Oregon COVID-19 Health and Safety Operational Plan outlining the institutional indicators and their definition as used in determination of COVID-19 alert levels[35].

Using the above indicators, the University of Oregon, in partnership with Lane County Public Health adopted the four-level model of developed in the COVID-19 Toolkit. The alert levels are very-high, high, moderate, and low or the "new normal." Each alert level comes with protocol and guidance for how the University of Oregon

would conduct business and classes. This also includes a very detailed matrix of the triggers to move up or down an alert level based on the community and institutional indicators.

Alert Level	
Very High	Physical Space: • University closed to general public • Non-essential buildings closed • Face coverings required in all UO buildings • Minimum of six feet distance Classes: • Nearly all instruction is remote or online • In-person classes are limited to fieldwork, labs, studios, and classes that cannot be conducted remotely Residence Halls: • Very limited operation and all public health requirements are followed
High	Physical Space: • University closed to general public • Limited access to university facilities • Face coverings required in all UO buildings • Barriers and physical distancing practices in place • Enhanced cleaning Classes: • Instruction is primarily remote or online • In-person instruction is limited to courses that are difficult to conduct remotely • In-person instruction must seek appropriate dean approval and submit a safety plan to UO IMT

	Residence Halls: • Operational with local and public health standards • Indoor and in-person social and co-curricular activities limited to small groups and must follow all public health requirements
Moderate	Physical Space: • University facilities closed to general public • Most buildings open to students and staff with restricted flow of access • Buildings that are open (to students and employees) operate with lower density • Face coverings required in university buildings • Enhanced cleaning Classes: • Instruction is a mix of in-person, remote, and online instruction • All in-person classes will be low-density and maintain a minimum six feet distance Residence Halls: • Dining with modified indoor seating • In-person social or co-curricular activities in small groups following all public health guidance
Low **"New Normal"**	Physical Space: • University can operate moderate-density environments, per relevant public health guidance Classes: • Instruction is a mix of in-person and online • Some students and faculty will not be able to return to campus until there are reliable treatments and/or vaccines Residence Halls:

	• Increased density in dining and residential activities with some modifications
Pre-COVID	

Table 5: UO Operational Summary by COVID-19 Alert Level

The table above has been modified from the University of Oregon COVID-19 Health and Safety Operational Plan outlining the operational status by COVID-19 alert levels (UO Staff, 2020).

Utilizing COVID-19 alert levels can create a clear decision-making framework for the needed public health interventions based on indicators of COVID-19 spread. Alert levels typically improve accountability and communication by providing transparency and a rationale to the complicated public health measures. The color scheme of the alert levels provides an easily comprehendible and visual system so that everyone can better understand the level of risk within their communities.

An additional benefit specific to IHEs when utilizing alert levels for COVID-19 is the added flexibility needed with a novel communicable disease. Throughout the COVID-19 pandemic the need for a flexible containment plan has been apparent due to the constantly changing information. Universities need to create plans that works with the unknowns. The structure and flexibility provided by COVID-19 alert levels lay out clear plans for universities so they can be adaptable to various risk levels within their communities [39].

Until it was announced on August 26 that Fall 2020 classes were to be held remotely, the University of Oregon prepared to hold classes in-person according to CDC, OHA, and county guidance. Much of this plan included creating the physical

infrastructure within classrooms and campus buildings to safely bring students and faculty back. This included things such as:

- Placing chairs six feet apart
- Removing extra chairs
- Installing plexiglass
- Adding additional air filtration measures
- Using social distancing stickers
- Using directional signs to direct flow of foot traffic in a single direction
- Adding cleaning supplies within classrooms and by high-touch surfaces
- Installing hand sanitizers
- Requiring masks and ordering custom masks for all students and faculty
- Upgrading approximately 300 classrooms with better technology (mics, cameras, etc.)

Although the University of Oregon campus had built the physical infrastructure to contain COVID-19, the decision was made to continue remote education for Fall term 2020. The only classes held in-person were essential labs, studio classes, certain first-year student classes, and some small discussion sections. The university prioritized getting first-year students to campus and then ensuring they had residential and academic experiences through building communities. Bramhall said that in addition to providing first-year students with some resemblance of a college experiences, the university wanted to ensure all first-year students would have access to the same resources such as Wi-Fi, study spaces, technology, as well as other support resources. The goal was to limit the academic inequalities experienced within the freshman class.

To address the work from home concern some of the faculty had, they were allowed to use the upgraded rooms on-campus to hold their classes remotely.

The University of Oregon also made changes within the academic calendar and to the class schedule for Fall term 2020. Alterations were made to the class schedule to ensure that students and faculty were not at greater risk of exposure due to attending in-person classes. These included reducing class sizes, adding more class sections, and increasing the time between sections to allow for cleaning. The main change to the academic schedule for Fall 2020 was that after Thanksgiving break, all classes and final exams would be held remotely. This change was made in order to limit the number of students and faculty travelling in and out of campus and across state lines. This solution was proposed in the COVID-19 Toolkit and was widely adopted by IHEs in Fall 2020.

With a new crisis, and one that continues to evolve, there will always be small bumps in the road and there will always be unhappy people, but all things considered the summer preparations and the execution of containment plans in Fall 2020, from an academic continuity perspective, went smoothly. The majority of students and faculty adjusted well to learning remotely and many of the larger infrastructure issues were resolved.

Discussion

Academic continuity became a top priority for institutes of higher education across the U.S. in March of 2020. Institutions had to prepare for a number of contingency plans while balancing fear and anxiety of a novel infectious disease. With the lack of a national COVID-19 plan for higher education academic, each IHE created a plan that best suited their institution. This allowed for creative thinking and problem

solving that gave way to great methods of containment. Examples of this creative thinking include discontinuing in-person classes after Thanksgiving break and utilizing COVID-19 alert levels. Throughout the pandemic, IHEs continually learned from one another's mistakes and triumphs to create better containment plans while ensuring academic continuity.

The administration at the University of Oregon adapted quickly and cohesively to the remote model of learning and eventually the majority of students and faculty adapted too. Much of the remote infrastructure needed to be built extremely quickly, and from the ground up, but with the help of the academic continuity plan there was a clear chain of command to aid in academic decision making for the university. I think this was one of the key contributors to the success of UO's transition to remote learning in Spring 2020 and then subsequently for Fall 2020. When developing the academic continuity plan, Bramhall noted the lack of this type of plan by other IHEs across the nation. I think this is a relatively simple, yet very effective first step in preparing for future public health emergencies, but also for other crises that could potentially disrupt academics.

In addition to this policy, IHE's should maintain some level of preparedness for remote education. This does not necessarily mean continuing large and expensive contracts with Zoom and proctoring software but geared more towards ensuring academic equalities. Regardless of where a student is learning they should have access to a computer and to Wi-Fi.

To be better equipped for the next crisis IHEs need to have a preemptive and holistic preparedness that is ready to be implemented. If the U.S. won't prioritize

pandemic preparedness, this needs to be a priority for IHEs. The academic continuity policy is a great example of the success an institution can have when faced with an unprecedent crisis, even low to moderate levels of preparedness.

Contact Tracing & Case Management

Time Frame 1

January 28th, when the IMT was partially activated through February 28th, when the IMT was fully activated, learning and preliminary preparations were the priority. Angela Long, Director of Public Health Practices and Health Outcomes Improvement, recalls learning all that she could from the CDC, OHA, and COVID-19 containment, or in some cases the lack of containment from outbreaks around the world. During this time the universities emergency preparedness plan for pandemic was reevaluated. Long noted the last time the University needed to implement measures from the pandemic preparedness plan was in Fall 2015, when there were seven confirmed Meningitis cases, one of which resulted in a fatality. During this outbreak the University of Oregon used similar containment methods that it seemed would be needed to contain COVID-19, except on a much smaller scale. The university utilized contact tracing to prescribe contacts with a course of antibiotics in hopes to prevent the development of Meningitis. The university also worked with University Housing to create isolation spaces for those who contracted Meningitis to remove them from their living situations. Another containment method utilized by the University of Oregon during the Meningitis outbreak was mass vaccination clinics [40]. While vaccination clinics are out of the scope of this thesis, the procedures and experiences would become helpful in 2021 once

vaccines became available for COVID-19. These procedures were dusted off and were re-evaluated to determine the steps needed to contain a potentially much larger outbreak of COVID-19.

On March 13th the CDC determined that most of Europe, China, and Iran had widespread sustained (ongoing) COVID-19 spread and travelers from these destinations would begin to encounter restrictions on entry to the United States. This impacted the University of Oregon students studying abroad that needed to return to the United States. Long recalls that much of the contact tracing during this timeframe was for students returning from these programs. Long and staff at University Health Services (UHS) began to assist in establishing quarantine dates for these students as well as providing necessary information and resources. UHS also began to look internally and assess how their daily operations might need to change. For example, the greeter program became one of the first places on campus to utilize face masks. Student employees within the greeter program assist patients and visitors with check-in and finding their appointments. Due to their close contact with potentially sick patients, their risk of exposure to COVID-19 was higher than typical student employees.

During spring term 2020 the University of Oregon did not have any confirmed cases that required the involvement of UHS. There was little early indication to develop the infrastructure needed to do mass contact tracing and case management at the University of Oregon. However, towards the middle of May 2020 this mindset shifted. Conversations surrounding the need for mass contact tracing and case management infrastructure for Fall 2020 began between Dennis Galvan, professor of International Studies and Political Science, and Vice Provost for International Affairs, and Debra

Beck, Assistant Vice President for Student Services and Enrollment Management and Executive Director, University Health Services.

Later becoming the Student Corps to Combat Coronavirus (Corona Corps for short), Long took on the position of co-director and began to further develop this infrastructure. Jeff Measelle, professor of Psychology and co-director of the Corona Corps, was actively working with Lane County Public Health (LCPH) to establish an intergovernmental agreement (IGA). Once this was established, Measelle and Long, along with Josh Snodgrass (Professor of Anthropology), then entered the process of designing the Corona Corps, establishing a call center, and hiring the original 16 student employees.

Time Frame 2

At the end of Spring term 2020 and into the Summer the University of Oregon Corona Corp entered a fast-paced and extensive training program with public health experts from Lane County Public Health and the University of Oregon. The training included the basics of COVID-19 exposure, how to determine quarantine dates, and gaining an understanding of HIPAA. Josh Snodgrass, Professor of Anthropology and Global Health, along with student Alex Mentzel, created the much of the training courses provided to the students. The Contact Monitoring call center opened on July 1 and remained open 7 days a week.

LCPH and the Contact Monitoring team worked very closely with one another daily. After a LCPH case investigator conducted contact tracing with positive COVID-19 cases, the contacts information would be entered into a contact tracing and monitoring software called ARIAS (At Risk Identification Alerting System. Each

morning the Contact Monitoring team, would be given a list of Lane County residents who had been determined to be close contacts. This list would include all UO students who were identified as contacts. In an initial call the contact monitors would follow a script to let contacts know of their exposure, explain testing recommendations, quarantine dates, and provide resources available through the county. The demand placed on the contact monitoring team was much higher than originally expected, which resulted in the continued hiring of new student employees.

Due to an outbreak in July between college aged individuals, Lane County Public Health and the Corona Corps directors knew that come Fall 2020 with University of Oregon students returning to campus the need for contact monitors would continue to grow. In addition, there was a predicted increase in the need for case managers specific to UO students.

However, it was also predicted that when students returned to the residence halls and to campus activities there would also be a greater need for case management. This was when a second IG was established for the Corona Corps Care Team. The Care Team (CT) was geared towards handling case management (i.e. moving to isolation dorm) and contact tracing for on-campus students and supporting LCPH when needed for off-campus students. The Care Team continued to take shape into early September, hiring more student worker. The Care Team officially launched on September 16th and quickly became extremely connected to multiple groups and departments on-campus including University Housing, MAP testing, CM, and UHS. The responsibilities and an outline of relationships need to support on-campus students is below.

CT to Housing	• CASES:
	  ○ Isolation dates
	  ○ Transportation times
	  ○ Extension of isolation after UHS confirmation
	• CONTACTS:
	  ○ Quarantine dates
	  ○ Transportation times
	  ○ Testing recommendation
	• OTHER:
	  ○ If a contact became a case, after the notification by UHS, the CT will call the student and then follow the case procedure above

Housing to CT	• CASES:
	  ○ Room assignment
	• CONTACTS:
	  ○ Room assignment

CT to UHS	• CASES:
	  ○ Medical needs
	  ○ Informing provider when a student is still experiencing symptoms on their end of isolation
	• CONTACTS:
	  ○ Contacts quarantine period and testing recommendation for

UHS to CT	• CASES:
	  ○ Notification of positive test result
	  ○ Isolation dates for UHS cases

CT to CM	• CONTACTS: ○ Information about new contacts as provided by positive cases

CM to CT	• CONTACTS: ○ If during a monitoring call, provides a notification of symptomatic student so CT can arrange for testing and assess any medical needs
MAP to CT	• CASES: ○ Notification of positive results
Housing to UHS	• CONTACTS: ○ Arrangement of contact weekly testing within Barnhart
Housing to MAP	• CASES: ○ Exemption of weekly testing for 90 days
CT to OTHER	• Counseling referral to University Counseling Center • Academic assistance to Dean of Students Office and/or Accessible Education Center

Table 6: Interdepartmental flow of information to assist students living on-campus

The table above provides a sense of some aspects of the relationship between Care Team, University Housing, University Health Services, Contact Monitoring, MAP, among others. This table is not all inclusive and the relationships above was very adaptable to situations that arose.

Throughout Fall term 2020 the Contact Monitoring team and the Care Team became a central part of the University of Oregon's COVID-19 containment plan, for on-campus students and off-campus students. By design the Care Team was supposed to be less involved with off-campus students, gearing efforts more towards offer resources. Resources available to off-campus students included assistance with securing a hotel room for isolation or quarantine, financial assistance for hotel room and/or food, counseling referral, academic support, and employment assistance for student workers.

Discussion

The University of Oregon had a preparedness plan for communicable diseases that had been recently activated within the last 7 years. The UO preparedness plan was comparable to those of the other IHE's within the United States. However, as typical within the United States, these plans tend to run at a bare-minimum and give little instruction for the scale-up and implementation of communicable disease containment methods. When it came to COVID-19, none of these plans were able to address the scale and scope that a novel pandemic would require.

The lack of national COVID-19 response has allowed for IHEs to create new and effective containment methods, an example of this being the Corona Crops. The innovative thinking from the University of Oregon allowed them to overcome the obstacles facing public health departments across the nation. Public health has been severely underfunded for years and have been forced to continually cut budgets and staff. When the COVID-19 pandemic hit U.S. shores, the public health infrastructure paled in comparison to the flood of responsibility and illness heading their way. The University of Oregon decided to combat the shortage in trained public health workers by hiring exemplary student employees who were invested in safeguarding the health and safety of their communities. Using student callers allowed for peer-to-peer connections that established trust and cooperation during these important conversations. The student employee's dedication through the pandemic provided assistance to their peers but also to the larger community. Each student had a personal drive to make a difference, according to Long, and they rose to the challenge ahead of them. Additionally the hope was to motivate the next generation of public health professionals by creating a connections and valuable work experience.

The support provided by the Care Team became essential for the success of all students, both academically and otherwise. According to Long, President Schill and the Board of Trustees wanted to prioritize the care and wellbeing of UO students. The importance of the Corona Corps became two-fold when it was realized that pressure on the local public health department was being alleviated. Not only was the Corona Corps important for the success of the University of Oregon, but it also became important for the community. By the Care Team and Contact Monitoring team being able to assist LCPH in contact monitoring, case management, and limited contact tracing for on-campus students, more resources were available for community members.

Testing

Time Frame 1

COVID-19 testing is a useful indicator to assess the spread within a community and the risk posed to its members. In the beginning of the pandemic the U.S. struggled to establish widely available and reliable COVID-19 testing. When it came to testing at IHEs, the U.S. did not adopt a singular national plan. Instead, IHEs were given more freedom on how they wanted to approach COVID-19 testing. Some institutions chose to test students and employees, or to only test on-campus students, to partner with a third-party provider, or to establish an in-house testing facility [41].

In Spring term of 2020, the University of Oregon decided testing was an important aspect of COVID-19 containment and began to establish an in-house testing program for asymptomatic community members called, the COVID-19 Monitoring and Assessment Program (MAP). MAP testing was created for asymptomatic students as its

common for people can be unknowingly infectious and continue to pass on the virus to those around them. The MAP testing program was created by expert researchers in genomics, data science, and prevention sciences from the University of Oregon. To create a successful testing program MAP wanted to meet the goals below: [42]:

- Develop a fully operational clinical laboratory improvement amendments (CLIA)-certified testing laboratory on campus
    - "CLIA regulates testing within a laboratory and require all clinical laboratories to be certified by the Center for Medicare and Medicaid Services before the lab can accept human samples" [43].
- Create test collection and test processing systems to provide capacity for screening and surveillance testing for COVID-19 at UO and its surrounding community
- Employ epidemiological models to forecast the spread and prevalence of COVID-19 in the population as the level of public activity changes and as new students join the population
- Use the results of the modeling to develop strategies that local officials and university leaders can enact to suppress the spread of COVID-19 as activity and population changes occur

Beginning in Spring there was efforts to do voluntary student testing to refine data collection and processing. This was followed by voluntary staff testing over the summer. During Spring term testing done by UHS and MAP program was very minimal. Any tests that were collected by UHS were sent to McKenzie-Willamette

Hospital to be processed. According to Angela Long, the majority of student and faculty testing done during this period was at Urgent Care or county testing facilities.

Time Frame 2

Over the Summer MAP worked to establish partners with Lane County Public Health and the University. The partnership with LCPH increased the testing capacity from a few dozen tests per week to thousands. MAP also created a secure database for the test results so that public health officials at LCPH and UO could conduct case investigation, contact tracing, and case management.

In preparation for Fall term 2020 MAP testing quickly worked to increase their capacity. The first phase of MAP testing was focused on residence hall students. The relationship between MAP testing and University Housing took much of the summer to establish and was put to the test during Fall 2020 residence hall move-in. In a typical year the University of Oregon will move in the majority of its residence hall students between two big move-ins days. In Fall of 2020, however, the University of Oregon required all students to be tested on-site through the MAP testing program before being allowed to enter their residence hall. Due to the limited number of MAP test the lab could process in one day, move-in to the residence hall was spread out of 10 days; with approximately 3,000 students moving into the dorms over a 10 day period nearly 300 tests were processed by MAP each day of move-in. The first positive case through the MAP residence hall move-in testing was determined on 9/24/2020, this student then became the first student to enter into the University of Oregon's designated isolation and quarantine dorm. This required collaboration with the University of Oregon Care Team, in order to help the student with a smooth transition into the isolation dorm,

contact trace, answer any questions, and access resources. University Health Services also helped to provide medical care and establish the student's isolation timeframe. During the move-in period there was only 3 other on-campus students to test positive being reported on 9/27/2020.

In addition to this first test, students were re-tested between 3 to 10 days after they moved in to the residence halls[35]. This was then followed by the requirement that each week one of students within a dorm room would get tested for COVID-19 at MAP, then the following their roommate would get tested. This method ensured that within a shared living space unknown transmission risk remained low. This is a form of surveillance testing which is conducted to monitor for an outbreak within a population. Another form of surveillance testing conducted on the University of Oregon campus was done by encouraging the entire campus community to participate in the asymptomatic testing available at MAP. If students or staff were symptomatic they were directed to UHS to receive a test. UHS was able to handle symptomatic individuals by having them enter through a separate door and being seen by medical professionals in high-grade PPE.

In October of 2020 MAP announced it was planning to increase their testing capacity to 4,000 tests per week by Winter 2021. This would allow for "additional groups of employees and students, including students living off-campus (with a focus on large apartment complexes or other congregate housing, such as fraternities and sororities), faculty and employees whose work requires them to be on-campus, underserved communities disproportionally impacted by COVID-19, and in some cases the community at large" [42]. To compensate for this increase in demands, MAP testing

began to use a registration portal instead of planning for walk up testing. Walk-ups would continue to be allowed but often resulted in a longer wait time.

For Fall term 2020, MAP testing was conducted at Matthew Knight Arena and the collection method was shallow (anterior nares) nasal swab, deep nasal swab was also approved it was not used. Before entering the building staff instructed students to blow their nose into a tissue in order to clear nasal passage for more accurate results; wastebaskets and touchless hand sanitizer was provided. After checking-in students then entered a social distanced before being separated to one of five to six testing tables. Testing personnel then prepped a sample collection tube, prompted students to remove the swab by the end from the packaging, and gave the following instructions.

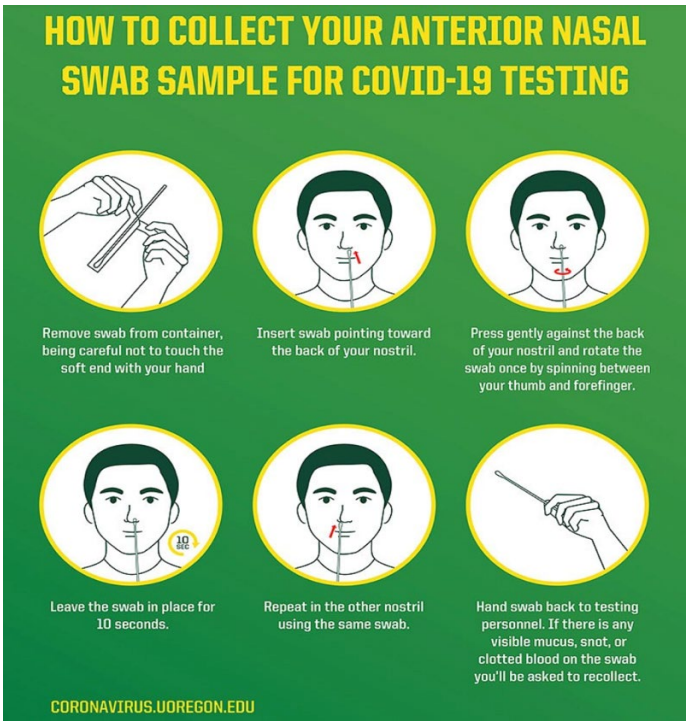


Figure 8: Instructions for anterior nasal swab collection at UO MAP testing

The figure above shows the process for anterior nasal swab collection used by MAP testing in Fall term 2020.

After the sample was collected it went into processing at the MAP laboratory. Processing methods at this time included TaqMan quantitative PCR (qPCR) and Genotyping by RNA sequencing, high throughput RNA-seq of entire viral genomes. Test results usually took between 24 and 72 hours to be processed and sent out. Positive MAP results would then be sent to LCPH case investigators and Care Team case managers. At this point MAP testing also began to seek FDA for other less collection and procession methods that were less expensive. MAP testing was seeking approval for self-collected saliva tests and for Saliva Direct processing.

MAP testing generates large amounts of data as it can process thousands of test each week. This data can be extremely useful for university decision makers and county public health officials. “By effectively analyzing large volumes of data, from different

sources and stored in compliance with privacy laws, researchers will create models that show the prevalence of COVID-19 and how the virus is most likely to spread. This will enable them to forecast the effects of potential interventions that the university and the county might consider" [44]. The data processing abilities by MAP provide useful information on outbreaks that can be hard to identify otherwise.

Discussion

The University of Oregon developed a state-of-the-art testing facility to provide students, faculty, and community members access to the quick and reliable tests. Testing is an important factor for any containment plan and is central to maintain the structure needed to do. Without COVID-19 testing there is no understanding of the level of spread and risk within a community. Without positive results containment infrastructure is not utilized. If no positive cases are relayed to the Care Team there is no need for case management, for isolation dorms, for Contact Monitoring, or for quarantine dorms. By establishing MAP testing the University of Oregon prioritized the ability to ensure free COVID-19 testing within the community and protection to the pandemic infrastructure.

Within the U.S. there was many challenges specific to testing that needed to be addressed within the early COVID-19 pandemic. Many of the systematic failures came from the continued disinvestment in U.S. public health infrastructure, such as the CDC. When testing failed the U.S. and IHEs turned to other methods of containment such as mass quarantine and strict social distancing policies. However, this had many negative consequences, such as social isolation and economic impacts. With the ability to provide testing there is an increased likelihood for a smoother return to normal and the

ability to increase in-person events within the community [44]. Developing and implementing this program attests to the University of Oregon's commitment to building a public health infrastructure that protects the health and safety of the community while striving to get back to a new level of normal.

Housing

Time Frame 1

According to Michael Griffel, assistant vice president for Student Services and Enrollment Management and director for University Housing, the announcement on March 11th that Winter term final exams and the first three weeks of Spring term were to be held remotely, was the first indication of potential disruptions to residential life at the University of Oregon [45]. Immediately after this announcement Griffel and University Housing worked to establish communication with on-campus students and assess their plan for Spring break and the start of Spring term 2020 via the Residence Hall Portal. Options given to students included: staying in their residence hall for Spring break and the start of the remote Spring term, to leave their residence hall for Spring break and return for the start of the remote Spring term, to leave their residence hall for Spring break and to return when Spring term classes were to resume in-person. At this time there was no indication that the move to remote learning was going to be long-term, so students were not given the option of moving out of their residence hall completely.

However, this all changed on March 19th, during Spring break, when the University of Oregon announced that the entirety of Spring term 2020 was to be

conducted via a remote modality. Initially there were discussions about whether students had the option to return to the residence halls. Following CDC, OHA, Oregon Governor Kate Brown, and LCPH's guidance it was determined that only student who did not have other housing options would be allowed to move back into the residence halls. In Winter term of 2020 the University of Oregon had 4,600 students living within residence halls, and only 250 students remained on-campus during Spring term 2020. University Housing remained open for "students who would be without housing if required to leave, those whose travel restrictions or travel safety preclude them from traveling home, and those who would otherwise face an increased health or personal risk returning home" [46].

According to Griffel there were a few big challenges University Housing faced during Spring term 2020. The first was how to safely allow students to pack up their dorm rooms. Many students were able to return to campus or had a proxy that was able to pack up their dorm room on their behalf. However, of the 4,350 students who did not return to campus approximately 2,000 students physically could not get back to pack up their dorm rooms. For many this was due to inter-state travel restrictions, among other external factors. For these students the University of Oregon Housing department undertook a huge effort to reunite students with their belongings. University Housing staff offered to pack student's belonging and ship them at a reduced price. Griffel said that it took nearly all of spring term to reunite students with their belongings.

The second major challenge University Housing faced was ensuring the health and safety of the 250 students who did remain on-campus for Spring term 2020. The University decided that for safety and security reasons it would be best to consolidate

the remaining students to two residence halls and one dining facility. Each student was given a single room with access to their own private bathroom. Additional health and safety measures included access to spray disinfectant, stickers and posters to aid in social distancing, pick-up dining only, and closing campus buildings to general public access, among others.

The third challenge was the need to greatly reduce those employed by University Housing. Within university dining, there simply wasn't the need or ability to continue to staff for 4,600 residents when there were only 250 utilizing the dining halls. There were a few other reductions in staff including employees from the finance division, resident life staff, around 800 student employees, among others. Griffel said this was probably one of the hardest things he has had to do in his professional career.

The final challenge Griffel noted during Spring term 2020 was the loss of revenue. Any student who did not live in the residence halls was not charged room and board for that term. Of the 250 students who remained on-campus approximately 110 were resident assistants who did not pay room and board. This means that University Housing lost revenue from the room and board of nearly 4,310 students (this does not include total 150 RAs and 140 residents paying room and board for Spring 2020). Griffel says this was a loss of "tens of millions of dollars", which I calculated to be approximately loss of revenue to be approximately $18.4 million dollars. Typically, University Housing operates at breakeven, securing just enough money to cover all their expenses. Due to this loss in revenue the housing department was not able to cover debt services, the mortgage for buildings, pay staff, utilities, and other operating expenses.

Griffel also noted the loss of contractual agreements with conference groups that would no longer be possible during the Summer of 2020.

March and April are typically the peak months incoming freshman will register with the university residence hall portal for dorm assignments for the following Fall term. Griffel noted that the month of March tracked typical to other years but that there was a substantial dip come April. The total number of students registered to live on-campus the 2020-2021 academic year totaled 3,000, when in a typical year there would be 4,800-5,000. Griffel thought that many of these students chose to remain at home to learn remotely rather than to come to Eugene and live on-campus or even off-campus.

Time Frame 2

On August 26th it was announced that the freshman class would be welcomed back to the residence halls, even though classes were to be held in a primarily remote modality. In this announcement President Schill outlined the UO's commitment to ensuring first-year students have a rewarding in-person experience. "Students will live in our residence halls, eat at our dining facilities, and have access to a wide range of in-person academic seminars and faculty-led discussions, dozens of Academic Residential Communities (ARCs) and First-Year Interest Groups (FIGs), an expanded Faculty Fellows program, a full complement of academic and career advisors (online and in-person), student clubs and affinity groups, the campus recreation center, organized outdoor activities, and much more. Our goal is to help first-year students build community, make lasting connections with friends and faculty, and become engaged in all the facets of campus life that make the UO such an amazing place to live and learn" (UO Staff, 2020). During fall term 2020 it was estimated that 40-60% of the students

living within the residence halls were taking all their classes remotely; and University Housing was at the heart of providing the aforementioned opportunities to first-year students.

However, like most COVID-19 announcements, this one was meet some pushback and negative reactions. One reaction in specific was due to the wording of the University Housing contracts. The contract stated, “If the university closes the residence halls and requires all students to leave campus for the remainder of the school year, students will not be charged for the canceled portion of the room and meal plan… if the university goes fully remote for all or portions of fall, winter or spring terms, but the university does not close the residence halls, the room and meal charges and contract terms are the same as if classes are delivered in-person, remotely or online" [48]. Griffel noted that students were given until September 1, 2020 to sign their University Housing contract or to back out with no penalty. Compared to other IHEs in Oregon, students and parents thought the University of Oregon’s housing contract lacked flexibility. Oregon State University and Portland State University, for example, allowed students to re-evaluate their decision to live on-campus before the start of each term [48]. Although it was highly encouraged for first-year students to move into the residence halls to not all students wanted to pursue this option and then be committed in a contract for a full year. Director of Public Affairs at UO, Kay Jarvis, says the “university is trying to be as flexible as possible- and rejects the assertion that [the contract] is less flexible than other universities” [48].

Regardless the announcement from President Schill, confirmed that University Housing had to prepare for the arrival of approximately 3,000 students in the residence

halls in a little over a month. One of the first steps in doing this was to scale up the staffing from the very reduced level during Spring term 2020 and Summer 2020. Griffel recalls this part to be relatively easy compared to the other challenges being faced by University Housing at this time. The housing department was able to recall most of their staff and had great success at this as many were unable to secure other work since March of 2020.

The next preparations University Housing needed to make were creating infrastructure to ensure the health and safety of each student living within the residence hall. This took forming interdepartmental relationships with University Health Service, University of Oregon Care Team, and MAP testing. For a representation of these relationships please see Table 6 above. For a more detailed explanation on UHS and Care Team relationship please see the Contact Tracing & Case Management section above and for a more detailed explanation of the MAP testing relationship please see the section above. Besides these vital relationships, the university needed to build the infrastructure as outlined in the UO COVID-19 Health and Safety Operations Plan "to ensure: maximized prevention efforts, adequate isolation and containment, and care" (UO Staff, 2020).

This started with the ability to relocate residence hall students who are determined to be positive COVID-19 cases, presumptive COVID-19 cases, and close contacts. The University of Oregon used Barnhart Hall (and Riley Hall on reserve for when capacity was reached within Barnhart) to house students needing a safe space to isolate or quarantine. If a student was determined to be a case, presumptive case, or contact, they were moved out of their residence hall and into the University of Oregon's

designated isolation and quarantine facility in Barnhart Hall. Coordinated by the University of Oregon Care Team and University Housing students were provided transportation from their residence hall to Barnhart. On an initial call between a student employee from the Care Team and the positive case or close contact a time and location was arranged for pick-up. Rides were scheduled every 30 minutes in order to allow time for cleaning between each ride, and also to keep cases, presumptive cases, and contacts separate. Transportation was provided via a minibus that had plexiglass between students and the driver; along with a wear masks for the entire transportation.

Between Barnhart and Riley Halls there was a total of 245 beds made available by University Housing. This was guided by national higher education guidelines recommending at least 4% of total inventory be available for on-campus residents needing to isolate or quarantine (UO Staff, 2020). Confirmed cases, presumptive cases, and contacts were all given a separate section within Barnhart that did not allow for interaction with one another. Barnhart Hall was chosen to house cases and contacts for a variety of reason including that each student was above to have a private bathroom in their room and that there was a full-service dining facility within residence hall.

University Housing and University Health Services also provided daily essential services within Barnhart Hall. University Housing created an entire food ordering and delivery service system to ensure that students would receive 2 deliveries a day; one for lunch and the second for dinner and breakfast for the next day. Students were also able to choose from a menu with many options including for those students with dietary restrictions. Once it came time for University Housing staff, in proper PPE, would deliver the food they would individually deliver each meal, knocking on the doors and

then backing away to ensure they were not near the door as it opened. Students were also provided medical services within Barnhart Hall. At least twice a week medical professionals from UHS would round through Barnhart. They would provide treatment to symptomatic students as well as provide a PCR test to every contact ideally between days 5-7 after their initial exposure to see if they had developed COVID-19. If it was determined that a contact had become a positive case they would move to the appropriate floor within Barnhart Hall and wait for the Care Team to establish their isolation period.

In hopes to prevent the need for students to go to Barnhart there were many alterations were made to residence halls and residential life. These were outlined in the UO COVID-19 Health and Safety Operations Plan and are summarized below.

Dorm Rooms	• No triple rooms • Rooms will bee mostly doubles, with some single rooms • A minimum of 64 square feet will be ensured for each student • Furniture will be configured to maximize space between residents in shared spaces • Residence halls do not have central ventilation; residents will be instructed to open windows when weather permits
Bathrooms	• Residents with private bathrooms will be responsible for cleaning but cleaning supplies will be provided • Communal bathrooms will be deep cleaned and sanitized daily by custodial service
Common Spaces	• Will be open to residence halls students only

	• Signage will be posted to promote social distancing • Cleaning supplies will be provided within common spaces • Custodial staff will clean high touch surfaces regularly
Dining	• Food will be served as pick-up only • Students will be able to order food ahead of time through GrubHub in order to limit congestion within the dining halls
Testing	• As a part of their residence hall contract, students will be required to test via MAP regularly throughout Fall term
Other Expectations	• Maintain six feet distance when possible • If proper physical distancing is not possible, use face coverings • Monitor health and seek medical attention as appropriate

Table 7: Alterations to residence halls and residential life as outlined in the University Housing and residential activities section of the UO COVID-19 Health and Safety Operations Plan (UO Staff, 2020).

This table outlines the changes and expectations within the University of Oregon residence halls to ensure the health and safety of the students, resident assistants, and other staff.

Discussion

The entire University of Oregon Housing department worked tirelessly to prepare and implement a containment plan with the highest regard for the health and safety of students and staff. University Housing did all it could with the available information to create and implement a residence hall containment plan. This came with

challenges, some that greatly affected faculty and students, but with a novel communicable disease this is to be expected.

The extreme demand on resources caused by the pandemic is something that Griffel says no one was prepared for. During the Meningitis outbreak in 2015, University Housing and UHS worked closely to create isolation spaces for infected students. The number of students needing to be isolated for Meningitis was incomparable to the amount that would need to be isolated for COVID-19. Although the university had a pandemic preparedness plan that included, it was not designed for the scale of the COVID-19 pandemic; this is even acknowledged within the pandemic preparedness plan. "During a pandemic 40% of residence hall students may become ill (~ 1,360) and many may be unable to return home. This would make it very difficult to isolate students within the residence halls and would place a significant strain on Housing staff providing support for ill students" [49]. After this there is no other mention of isolation/quarantine spaces within housing. I acknowledge that it is likely impractical for the University of Oregon, and specifically University Housing, to have mass isolation/quarantine spaces readily available in case of a public health emergency, but there needs to be more forethought for the potential worst-case scenarios. Within the US, it is a common attitude to deal with only the most pressing health emergency in front of us, by placing value on profits over health outcomes. The COVID-19 pandemic has proven the ineffectiveness of this healthcare model; and while I believe this should be fixed on a national level, that is unlikely to happen. The responsibility then falls to states and IHEs to prioritize health over profits. The University Housing department lost a very sizeable source of revenue, but they placed the health of their students and staff

above all. By having a pandemic preparedness plan that includes considerations for large and small scale public health emergencies, there is hope that for the next pandemic there will be less of drain on resources.

Conclusion

During Time Frame 1 the main priority for the University of Oregon was ensuring academic continuity as the institution transitioned to online classes. This was an unprecedented scale-up in remote learning infrastructure. However, under fortuitous the university had two main advantages to assist with a smooth transition. This was the Academic Continuity Plan and the pre-existing contract negotiations with Zoom. This policy allowed for effective and cohesive communication from the University of Oregon to get from in-person learning to full-remote learning.

During Time Frame 2, the priorities for the University of Oregon began to shift from academic continuity to implementing containment methods such as housing, testing, and contact tracing. The goal was to safely bring all students back to campus for Fall 2020. The COVID-19 containment plan by the University of Oregon uses a comprehensive and layered approach containment.

Containing a communicable disease is no easy feat, especially on a college campus. The University of Oregon did not have a pandemic plan in place to handle the scale of a novel virus, such as COVID-19. The University of Oregon EOP Pandemic Annex was geared more towards anticipated and known communicable disease outbreaks, such as Meningitis, which the University of Oregon experienced in a 2015. However, the COVID-19 pandemic would require a large scale, holistic, and

interdepartmental approach to have a successful containment plan. This pandemic required the cooperation from multiple university departments under many problem-solving lenses. This was not simply a scientific problem but a sociology problem, political problem, and cultural problem. Universities often deal with a singular problem but to handle all of this in a short time frame was nearly impossible to grapple with. However, this was not unique to the University of Oregon or even IHEs. The U.S. did not have an adequate pandemic preparedness plan that could effectively handle COVID-19. This pandemic forced debates among public health experts as to what it means to be prepared for a novel virus outbreak.

Throughout this chapter, I've attempted to outline the factors that contributed to the development and implementation of COVID-19 containment methods at the University of Oregon. These factors include university politics, financial losses, the response from other IHE's, and the input from parents and students. These factors challenged and complicated the pandemic response and should thus be evaluated in the IHE definition of preparedness. The definition and plan for pandemic preparedness at the University of Oregon and within IHEs, needs to be re-evaluated with the lessons learned from the COVID-19 pandemic.

Chapter 4: PAC-12 University Containment Highlights

Introduction

- Research Question #2: PAC-12
    - How did IHEs within the PAC-12 approach aspects of COVID-19 containment?

The original concept for this section if the thesis was to compare how PAC-12 universities approached COVID-19. Although the planned survey provided no additional information on containment methods, the research done in preparation provided insight into different approaches to containment. Within the following section a containment approach from each PAC-12 university (besides the University of Oregon) will be highlighted after a brief background section. Additionally, for each PAC-12 university that published cases counts a graph is included. It should be noted that the scale for each varies as well as the time frame in which cases were reported (daily or weekly)

Oregon State University

Background

Oregon State University (OSU) is a public land-grant research University located in Corvallis, Oregon, with an enrollment of approximately 32,000 students[50]. OSU has a research division that "continues to lead the way with practical, problem-solving research that improves lives, protects natural resources and generates economic growth to transform our future for the better"[51]. Additionally, OSU has a College Public

Health and Human Science that aims to "prepare the next generation of globally aware problem-solvers and seek to understand and confront health disparity"[51].

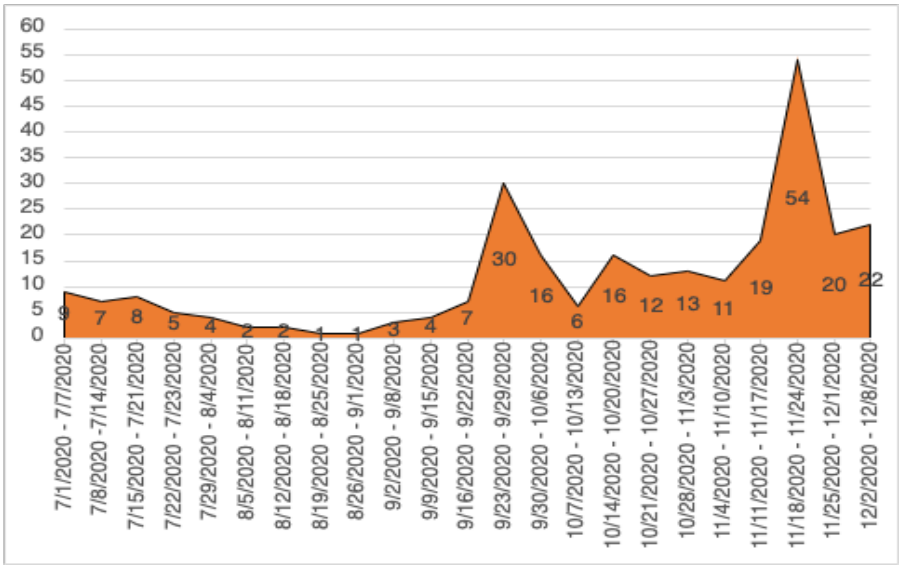


Figure 9: Oregon State University COVID-19 cases 7/2/2020 through 12/2/2020

The graph above shows the confirmed and reported student COVID-19 cases at Oregon State University between July 1, 2020 and December 2, 2020. Note: Data were reported monthly on Wednesday. I was not able to locate case counts for the weeks after 12/2, it cannot be determined if these values are 0 or just not publicly available.

TRACE

Oregon State University developed and conducted a public health project called TRACE COVID-19 (Team-based Rapid Assessment of Community-level coronavirus Epidemics). The program "obtains timely information about the prevalence and spread" of COVID-19 in Oregon communities by "testing a representative sample of individuals in the community to determine the prevalence of the virus" [51]. This kind of community prevalence is a critical piece of information to help slow the spread of COVID-19 but at this time it was missing from U.S. COVID-19 statistics [51]. TRACE aimed to address the

question of community spread by using two community testing models, door-to-door and wastewater.

In April 2020, the TRACE team partnered with local county health officials to conduct door-to-door COVID-19 testing. Trained providers follow all health guidance, including the use of PPE and social distancing. Each household member must sign a consent form and provide basic information before being given a home test kit. After participants collect their sample they leave them on their doorstep and TRACE workers collect them before moving to the next house [51]. The TRACE program also conducted wastewater sampling. In order to do this "team members take a composite sample of the wastewater over a 24-hour period from the treatment plant and sometimes also from pumping stations within neighborhood or within a community" [51]. The sample is filtered in the lab and then tested for the presence of fragment of COVID-19.

These community-based testing methods allowed county and state health officials to determine the extent of COVID-19 spread within the community and to create guidance to lessen the impacts made by the virus. Before this program federal and state guidance still prioritized testing of symptomatic individuals, but there was strong evidence of asymptomatic transmission and without community testing, regardless of symptoms, there would be no way to assess how widespread the virus is within communities [51].

During Fall term 2020 Oregon State University implemented the same two community or surveillance testing methods. At the start of the academic year OSU students and faculty were asked to enroll in the TRACE programs portal. The success of this program came from widespread participation. Each week participants were

randomly selected using university identification numbers. Selected participants were then given a testing location and time. TRACE COVID-19 would conduct up to 1,000 tests for students and faculty. In addition to the randomized individual tests, TRACE tested water sample from nine OSU buildings, including residence halls. Although wastewater testing does not identify cases or a number of cases, it provides an estimate of the prevalence within a community and provides public health officials with creating containment guidance. In an announcement from Dan Larson, Vice Provost for Student Affairs and OSU COVID-19 Response Coordinator on September 30, the TRACE program detected virus present in a residence hall. OSU acted quickly to arrange for additional testing within that specific residence hall. Any student who did not want to participate in this testing was required to move to the designated isolation/quarantine space on campus. Being able to conduct surveillance testing in addition to subsequent individual testing is a true attest to the testing program at Oregon State University as it likely prevented further infection of students and staff.

Stanford University

Background

Stanford University is a private research University located near the city of Palo Alto, California with an enrollment 17,000 students a year[52]. Stanford University has a school of Medicine and Healthcare that aims to "advance human health through innovative research, education, and care" (Stanford University Staff). Stanford also has continually strived to be a "wellspring of new ideas and innovative solutions, where curious people come to make a difference" [53]. When faced with the challenges of

COVID-19 they amplified their mission to the scale and urgency demanded by the pandemic [53].

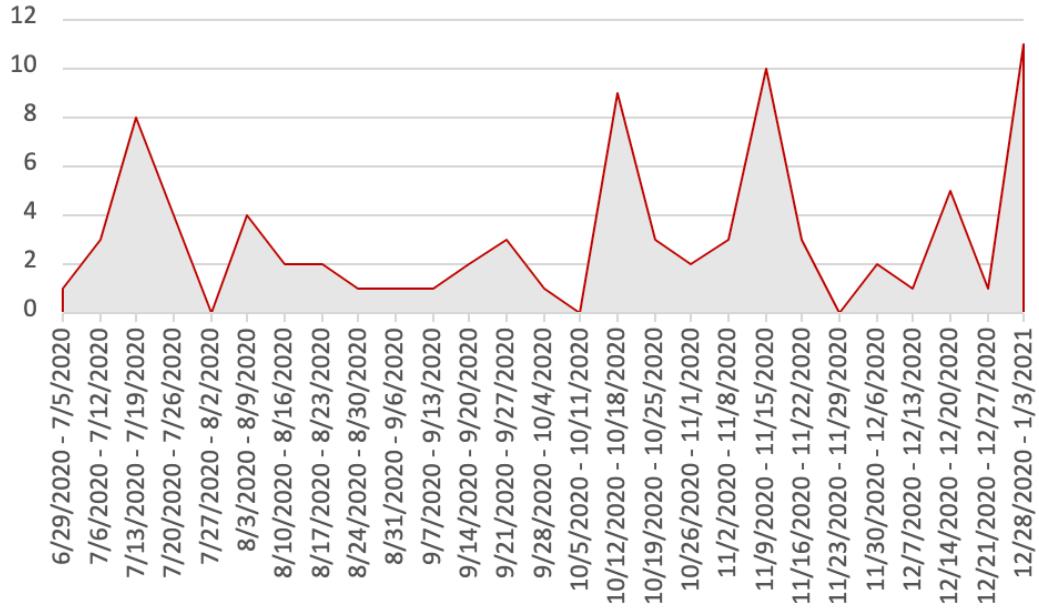


Figure 10: Stanford University COVID-19 cases from 6/29/2020 to 12/28/2020

The graph above shows the confirmed and reported student COVID-19 cases at Stanford University between June 29, 2020 and December 28, 2020. Note: cases were reported weekly on Mondays.

Fitbit COVID-19 Study

The PAC-12 conferences created a Student-Athlete Health and Well-Being Initiative (SAHWBI) in 2013 to ensure each PAC-12 university was taking steps to "reduce injuries, share current best practices and latest studies and conduct research to uncover new ways to keep student-athletes as safe as possible" [54]. During COVID-19 strived to find ways to continue athletic events while also ensuring the health and safety of student-athletes, coaches, and fans.

During Spring 2021, Stanford University Medicine, the PAC-12 Conference, and Fitbit began collaboration to "investigate whether data from wearable devices can be used to help detect, track, and contain infectious diseases such as COVID-19" [55]. This project recruited 1,000 student athletes from various sport including football, basketball, and volleyball from PAC-12 universities. Researchers from Stanford University Medicine collected data from the Fitbit smartwatches, weekly testing results, and a survey on potential exposure and symptoms to determine if there was a correlation. This study found that wearable devices were able to detect the onset of illness by monitoring changes in respiration rate, heart rate, and heart rate variability [56]. Approximately one in five Americans wears a smartwatch so the easily accessible and reliable data provided by existing technology is a promising method for preventing asymptomatic spread of COVID-19 [57]. This technology is not only valuable for COVID-19 but for the season flu, other infections, and even other emerging diseases [58].

Washington State University

Background

Washington State University (WSU) is a public-land grant research university with 28,000 students in total across five campuses and an online campus; although the flagship campus is located in Pullman, Washington[59]. There are 95 different majors available to students at WSU. WSU's mission statement is to "advance knowledge through creative research… extend knowledge through innovative educational programs… [and] to apply knowledge through local and global engagement" [60].

* I was unable to find any archived COVID-19 case history

WiFi Hotspot Program

In May 2020 a drive-in hotspot program launched within the state of Washington in result of the multiple partnerships between "Washington State University, Washington State Library, part of the Washington Office of the Secretary of State; members of the Washington Public Utility Districts Association (WPUDA) and affiliated nonprofit Northwest Open Access Network (NoaNet); the Washington State Broadband Office; Washington Independent Telecommunications Association (WITA); Washington Technology Solutions (WaTech); and the Office of the Superintendent of Public Instruction (OSPI). Microsoft and the Avista Foundation" [61]. The drive-in hotspot program had over 600 locations, many in parking lots, where community members could go to access free WiFi.

After the success and demand on the drive-in hotspot program WSU for Fall term 2020 created an extension of this program in which students who did not have adequate WiFi could borrow mobile hotspots at no cost. This program was created by the partnership of the Office of the Provost and Information Technology Services [62]. Students would submit a request form and a WiFi hotspot would be processed within 1 business day and then shipped within 2-5 business days. The demand for this was higher than anticipated and on October 5, 2020 the program ran out of available inventory.

This program was created in response to the COVID-19 pandemic, but it highlighted a need for bridging the digital divide. The lack of Wifi to all citizens is not a new problem, but with the COVID-19 pandemic it became an essential to service.

Washington State Broadband Office Director Russ Elliott said, “This crisis has fueled the energy around seeing these deliverables come to fruition as broadband is no longer a luxury, but critical infrastructure for all” [61]. Moving froward from the COVID-19 pandemic Washington State and WSU will strive to maintain WiFi infrastructure equity. In particular, the Washington State Public Works Board approved $21 million in state funding to increase long term WiFi access within communities.

University of Washington

Background

The University of Washington (UW) is a public research university located in Seattle WA, with a total enrollment of 49,000[63]. Research at the University of Washington aims to “discover timely solutions to the world’s most complex problems and enrich the lives of people throughout our community, the state of Washington, the nation, and the world” [64].

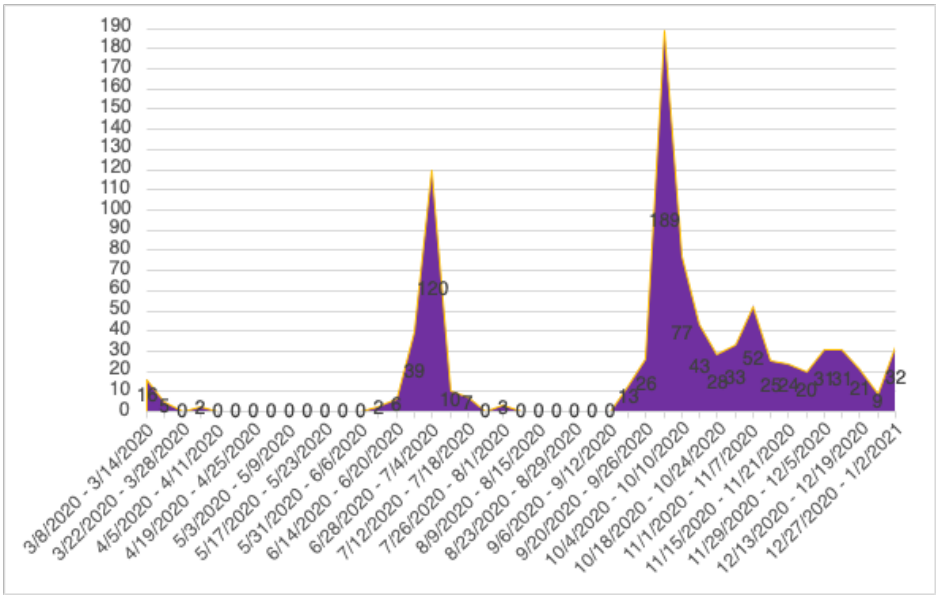


Figure 11: University of Washington COVID-19 cases from 3/8/2020 to 1/2/2021

The graph above shows the confirmed and reported student COVID-19 cases at University of Washington between March 8, 2020 and January 2, 2021. Note: cases were reported weekly on Sundays. This case count includes students, faculty, and staff.

Wastewater Testing

In early January of 2021 the UW department of Civil and Environmental Engineering began to test wastewater for outbreaks of COVID-19. UW researchers worked to create a new method of testing that utilizes samples of wastewater directly taken from neighborhood pump stations. After the wastewater is pumped from various stations it is analyzed for RNA from the virus that contains COVID-19. Researchers were also able to determine the number of people within a neighborhood by measuring the amount of ammonia and phosphorus in the samples [65].

University of California – Berkeley

Background

The University of California- Berkely is a public land-grant research university located in Berkeley, California with an total enrollment of 45,000 students[66]. UC Berkely offers 350 degree programs including a public health a major, minor, and certificate program. UC Berkely "drive(s) to constantly push the boundaries of knowledge in research and scholarship" [67]. During my research of different approaches to COVID-19 containment methods, UC Berkely particularly caught my attention. Their approach seemed holistic valuing student academic continuity and quality as well as student and faculty mental and social wellbeing. As I could not pick between these three innovative approaches to COVID-19 containment, each will be highlighted in a short paragraph below.

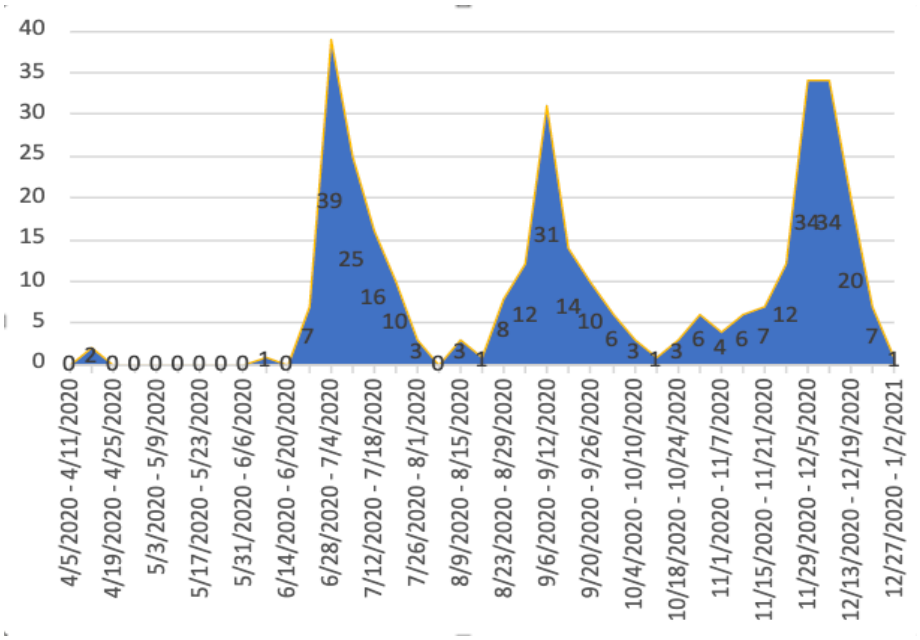


Figure 12: University of California – Berkely COVID-19 cases from 4/5/2020 to 12/27/2020

The graph above shows the confirmed and reported student COVID-19 cases at University of California – Berkely between April 5, 2020 and December 27, 2020. Note: cases were reported weekly on Sundays.

Berkeley At Home

During Spring semester 2020 the University of California Berkeley developed an online community program called Berkeley at Home that aims to "foster community and bring the campus spirit home during social distancing, especially how to come together with teams and friends while maintaining that all-important physical distance" [68]. This online community was done via YouTube videos that were anywhere from 8 to 17 minutes. Each of the 11 episodes highlights different campus community members, new updates, and other fun topics (such as a cooking class, fitness tips, scavenger hunts, and campus wildlife updates). After watching the episodes of Berkeley at Home I think they did a really good job trying to keep the campus spirit alive in a remote form. 71%

of college students indicated increased stress and anxiety due to COVID-19 and innovative ideas to manage this, such as Berkely at Home, were not made a priority [69].

Semester in the Cloud

Starting in Fall of 2020 UC Berkely created the Semester in the Cloud program designed specifically to aid faculty members in adjusting and preparing for a remote Fall term. Over the summer UC Berkeley hosted 31 prep classes over 19 departments and nine colleges. Faculty was paired with "staff specializing in instructional design, digital pedagogy and audio/video production for guidance in digital learning design and delivery, digital learning strategies, and technical implementation of content within our UC Berkeley Learning Management System" [70]. Faculty were also provided recording and presentation equipment. In Fall term 13% of all undergrad students were being taught by a faculty member who had participated in Semester in the Cloud. This program continued each for Spring 2021 and Summer 2021 semesters.

Daily Symptom Check

For Fall semester 2020, UC Berkeley required all students, faculty, and visitors to complete a Daily Symptom Screener for each day they planned to go to campus. The symptom screener was available online via a Qualtrics survey but also a mobile phone app. The survey begins by asking for basic information, such as name and email, then follows with the question asks the respondent if they have any COVID-19 symptoms. By selecting no, respondents are sent to a screen in Figure 13 below and by selecting yes, respondents are sent to Figure 14 below [67]. Students and faculty were then required to present these at various locations on campus.

Figure 13: UC Berkeley Daily Symptom Screener: cleared to come to campus

Figure 14: UC Berkeley Daily Symptom Screener: not cleared to come to campus

This containment measure adds an extra layer of protection for students and faculty who needed to work or learn on-campus. While other institutions, such as the University of Oregon, provided students with symptom check tools they were not required to be shown to get into campus buildings.

Arizona State University

Background

Arizona State University (ASU) is a public research university located in Tempe, Arizona with a total enrollment of 128,000 students. This is across 4 campuses and includes 54,000 students enrolled online[71]. ASU approached the challenges demanded by the COVID-19 pandemic with creativity and commitment to seeking diverse expertise and background [72].

* I was unable to find any archived COVID-19 case history

PPE Response Network

During the early months of the COVID-19 pandemic, the U.S. experienced a shortage in personal protective equipment (PPE). PPE is essential for healthcare workers to remain healthy and able to take care of COVID-19 patients. Without PPE healthcare workers can fall ill and then cause instability within hospital and other healthcare infrastructure [73]. In April of 2020 ASU began the PPE Response Network "initiative to design, produce, and distribute critically needed PPE and other medical supplies" [74]. This initiative uses nearly 150 3D printers and sewing machines to bring hospitals the much needed disposable and reusable face shields, medical gowns, nasal swabs, N95 masks, and more. The PPE Response Network was "designed and launched within a few weeks by students, staff, and faculty… that has worked at astonishing speed to address the crisis. [74]. Once the design is programed and the 3D printer finishes the items they are either sent to locations that have sterilization gear, such as large hospital, if the location does not items are sent to processors in order to be sterilized before being used within clinical settings. As of today, the end of May 2022, the PPE Response Network has delivered 15,665 pieces of equipment to hospitals, clinics, and other places in need [75].

University of Arizona

Background

The University of Arizona is a land-grant research institution located in Tucson, Arizona with a total enrollment of 49,000 students[76]. The University of Arizona's mission is to "continuously improve how we educate and innovate so we can lead the

way in developing adaptive problem-solvers capable of tackling our greatest challenges" [77].

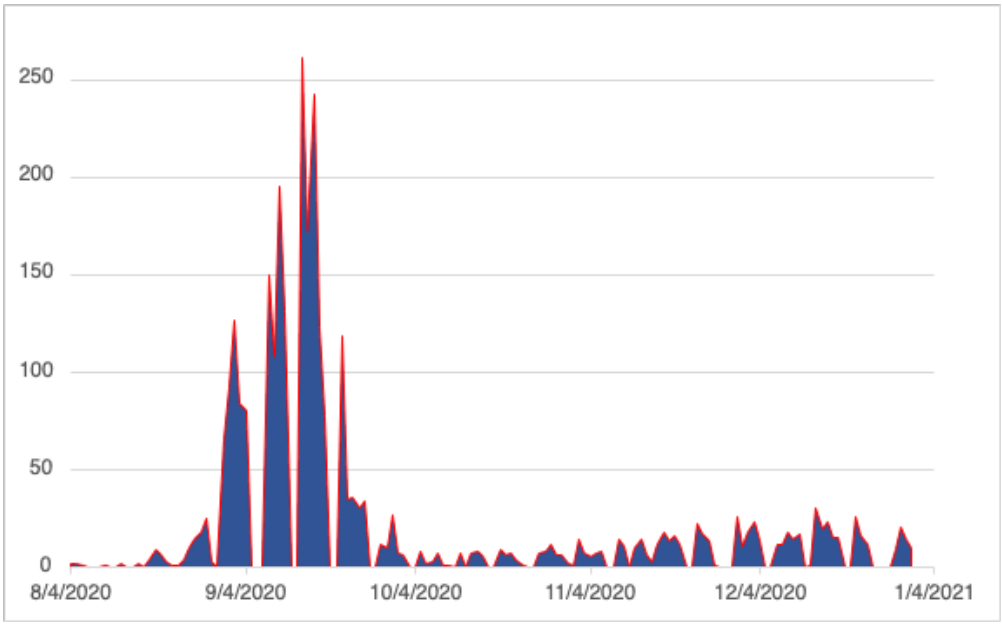


Figure 15: University of Arizona COVID-19 cases from 8/4/2020 to 12/31/2020

The graph above shows the confirmed and reported student COVID-19 cases at University of Arizona between August 4, 2020 and December 31, 2020. Note: this cases count could potentially include faculty. Cases were reported daily except on most weekends.

SAFER TEAM

Similar to the Corona Corps program at the University of Oregon, the University of Arizona created the Student Aid for Field Epidemiology Response (SAFER). The SAFER team was composed of students from the College of Public Health and worked in close collaboration with the Pima County Health Department. The SAFER team assisted Pima County in their efforts to investigate all positive COVID-19 cases among university students and faculty. and inform contacts of their exposure. The SAFER team utilized a voluntary self-report form to collect the names of contacts from positive cases, the form then automatically will send exposure notifications to the reported

contacts. In a phone call from the SAFER team 24-48 hours later additional questions will be asked about onset of illness to determine isolation dates [78].

University of California – Los Angeles

Background

The University of California- Los Angeles is a public-land grant research university in Los Angeles, California with a total enrollment of 46,000 students [79]. UCLA has a School of Medicine and a School of Public Health. UCLA values "discovery, creativity, and innovation … [to] advance knowledge, address pressing societal needs and create a university enriched by diverse perspectives" [80].

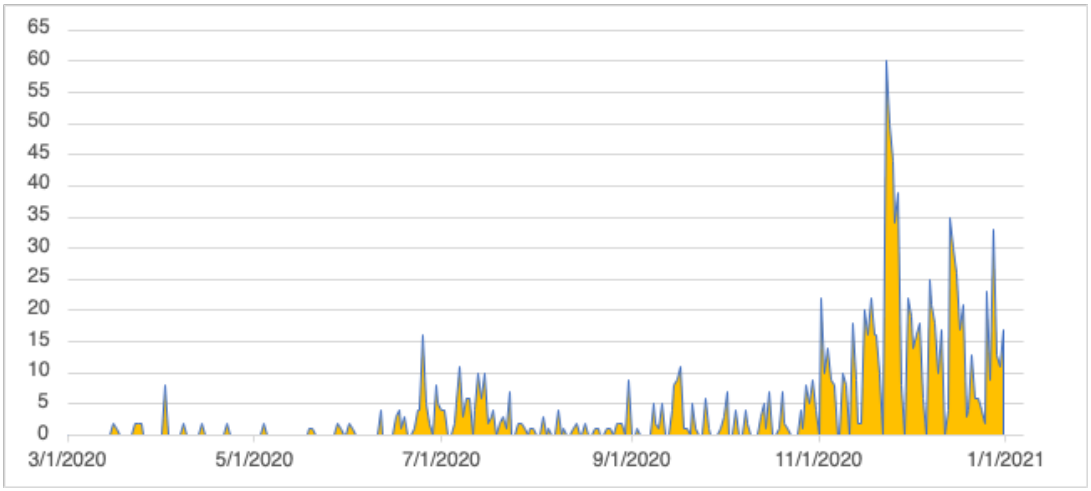


Figure 16: University of California – Los Angeles COVID-19 cases from 3/1/2020 to 12/31/2020

The graph above shows the confirmed and reported student COVID-19 cases at University of California – Los Angeles between March 1, 2020 and December 31, 2020. Note: cases were reported daily.

Breathalyzer-like diagnostic test for COVID-19

In May of 2020, UCLA and University of Massachusetts Amherst researchers began developing a new method for rapid COVID-19 test collection, by using a

breathalyzer model. This method of testing would be cheap and massively deployable within the U.S. and internationally. The technology could also be developed for other respiratory viruses and airborne threats, known and emerged [81]. Professor Kavehpour, Mechanical and Aerospace Engineering at UCLA, noted the innovative project was motivated by the "deficiency in capacities to conduct rapid, simple, point-of-care diagnostic and environmental sample collection and testing" [82]. The technology is based on water condensation technology. The participant would exhale into the device for about a minute and the water vapor from their breath would condense onto a specialized plate. Using fluorescent genetic tags the test would locate RNA from the virus that causes COVID-19 infection [82]. On April 14, 2022 the FDA issued an EUA for COVID-19 breath tests [83]. However, on April 22, 2022 UCLA Health published an article that highlighting the need for further investigation to determine the effectiveness before being widely available within clinical and community testing [84].

University of Southern California

Background

The University of Southern California (USC) is a private research university in located Los Angeles with a total enrollment of 49,000 students[85]. USC "constantly for excellence in teaching knowledge and skills to our students, while at the same time helping them to acquire wisdom" [86].

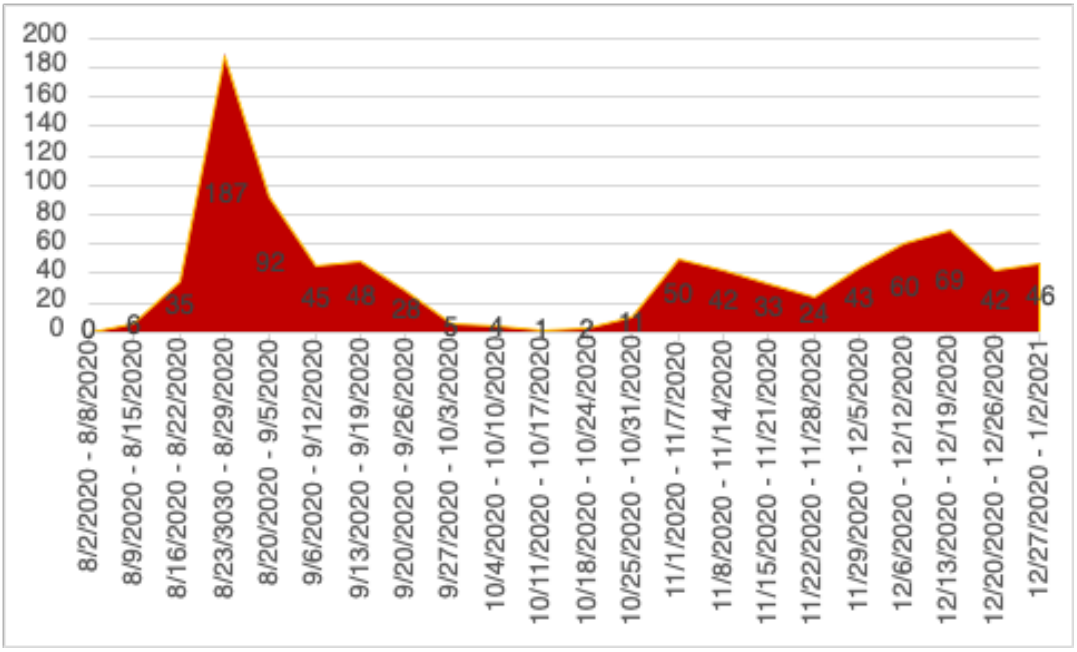


Figure 17: University of Southern California COVID-19 cases from 8/2/2020 to 1/2/2021

The graph above shows the confirmed and reported student COVID-19 cases at University of Southern California from August 2, 2020 to January 2, 2021. Note: cases were reported weekly on Sundays. Additionally, I was unable to locate any published Spring term COVID-19 cases.

Trojan Check

For the Fall 2020 semester USC implemented a required training course of every student and faculty member who would be returning to campus. The training covers "proper handwashing, physical distancing, mandatory use of facial coverings, and sanitation protocols, as well as illness reporting and actions for individuals at higher risk of severe disease from COVID-19" [87]. In addition to the required training, every student, faculty, and guest who wanted to go to USC's campus was required to complete a daily wellness checker. For Fall semester 2020 this was available online and on paper at campus buildings. After completion, the Trojan Check system will provide a pass which will access to campus buildings [87]. Trojan Check provides a list of common

COVID-19 symptoms and asks respondents to select yes or no for each symptom. After verifying that the information is correct respondents are required to provide their first name, last name, phone number, email, and the location on campus they are going. In order to access campus building the clearance you need a QR as figure 18 below shows.

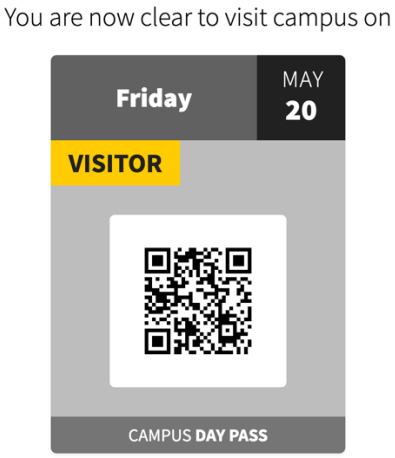


Figure 18: USC Trojan Check: cleared to come to campus [88]

University of Colorado – Boulder

Background

University of Colorado – Boulder (CU) is a public research university located in Boulder, Colorado with a total enrollment of 36,000 students[89]. Research at CU Boulder prides itself on the ability to "make discoveries that positively impact people and communities across Colorado, the nation, and the world" [90].

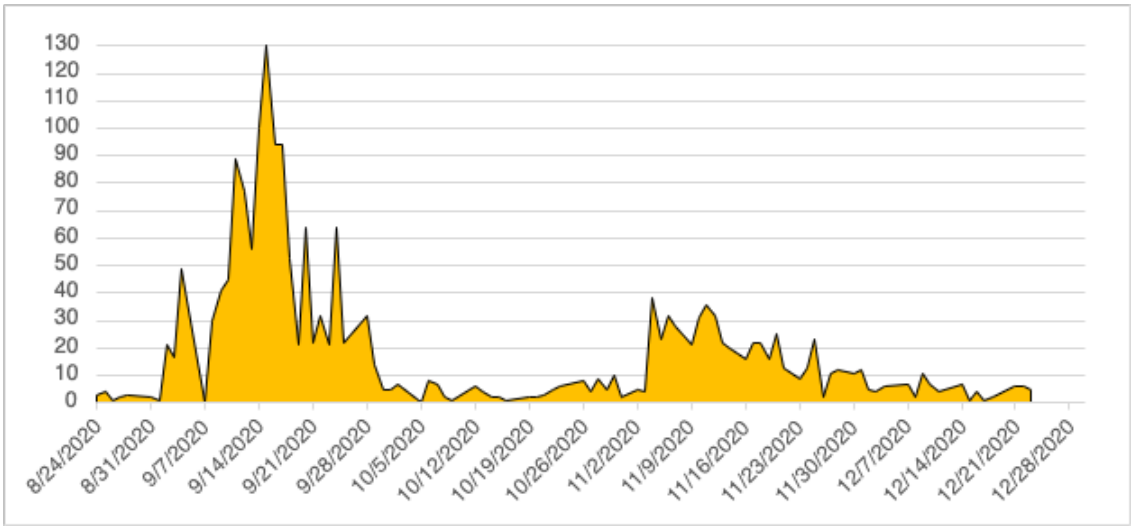


Figure 19: University of Colorado - Boulder COVID-19 cases from 8/24/2020 to 1/23/2021

The graph above shows the confirmed and reported student COVID-19 cases at University of Colorado - Boulder from August 24, 2020 to December 23, 2020. Note: cases, for the most part, were only reported daily on weekdays. Infrequently cases were also reported on Saturdays. Additionally, I was unable to locate any published Spring term COVID-19 cases.

Student Health & Expectations Course

For the Fall 2020 semester CU required students to complete education modules and quizzes in order to return to campus. The course included 8 modules on COVID-19 related topics such as prevention strategies, what to do if you get sick or may have been exposed, and a Protect our Herd commitment [91]. Students had to complete the course before August 1, 2020 or a hold would be placed on their student account an prevent students from adding or dropping classes as well as registering for classes [91].

University of Utah

Background

The University of Utah is a public research university located in Salt Lake City, Utah with a total enrollment of approximately 33,000 students [92]. The University of Utah "generates and shares new knowledge, discoveries, and innovations, and engages local and global communities to promote education, health, and quality of life" [93].

* I was unable to find any archived COVID-19 case history

Steps to Take for COVID-19 Symptoms, Exposure, or Positive

For spring term 2022, at the top of the University of Utah COVID-19 page, they've created a very detailed and interactive webpage to detail exactly what the steps and protocol to take in the event of developing symptoms, exposure to a positive case, or a positive test result. For example, by selecting the "I've tested positive for COVID-19" box, you are brought to a page that details current isolation policy in detail. Within these sub-pages there are also links to other information such as a reporting form and testing. Although this web page was created outside of the time frame of this thesis, the concept is incredibly useful as COVID-19 protocols and could be implemented for other diseases and even other emerging infectious diseases [94].

Key Points and Analysis

The point of this chapter was to highlight the innovation that came from IHEs during the COVID-19 pandemic. As there was no federal guidance on how IHE's needed to contain COVID-19, each IHE was able to develop and implement containment methods that worked best for their institution. These methods were widely

impacted by different factors such as the location and size of the university, the state politics, the university politics, COVID guidance from state/local health departments, among many other. In future research this would be a useful topic to explore.

Not many emergencies create the urgency for innovative action that COVID-19 has. The PAC-12 universities have approached COVID-19 with innovation that has strengthened not only their communities but local and state communities. In many cases, these containment methods and programs can be used long past the COVID-19 pandemic to continue to strengthen communities, whether that be within health care inequities or within other social inequities. For example, the WSU rental and drive-in WiFi hotspots should continue to be a service available to students and the state of Washington as it addresses social inequities. The OSU and UW wastewater surveillance program is a valuable public health tool and could probably be re-imagined to track outbreaks of other diseases. For example, the seasonal flu then directing vaccine resources and prevention methods to neighborhoods showing high levels of the disease.

Chapter 5: Conclusion

Within this final section I will answer the final research question, of what lessons can be learned from the COVID-19 pandemic to better prepare IHEs for the next pandemic or public health crisis.

Final Analysis

Since the 1980s, after the global eradication of smallpox, healthcare focus shifted from infectious diseases to communicable diseases, and the funding followed. In 1980, infectious disease spending accounted for only 5% of total healthcare spending. In 2019 the NIH spending on emerging infectious diseases counted for 13% of the total $39.1 billion budget [95] [2]. Between 2002 and 2019 the funding for public health preparedness decreased by 33%, resulting in a 20% loss of frontline public healthcare workers [4]. Left was an incredibly underprepared system to fight a novel infectious disease. For this reason, it is more important than ever to re-invest in public health infrastructure. If COVID-19 has taught us anything it should be that even the most powerful and wealthy of nations are vulnerable to infectious diseases without proper preparedness.

One step in the right direction is President Biden pledging $12.1 billion to support "pandemic preparedness, including for research and development of vaccines, diagnostics, and therapeutics against high priority viral families, biosafety and biosecurity, and to expand laboratory capacity and clinical trial infrastructure" [2]. However, increasing public health funding lacks bipartisan support. Since pandemic preparedness and increased public health spending is unlikely to continually happen on

the federal level, it must pass to states and their IHEs to properly prepare for future pandemics.

COVID-19 containment was unlike any challenge to face IHEs in modern history. There has been no comparable public health emergency that could helped to prepare IHEs for the complex preparedness plan they were going to need to contain COVID-19 on college campuses. Due to increased global travel, increased human-animal contact, and climate change this is likely not the last communicable disease outbreak we encounter in the coming decades. If the federal government won't prioritize public health infrastructure IHEs should prioritize their preparedness by maintaining communicable disease infrastructure. The lack of national COVID-19 guidance throughout the pandemic has encouraged innovative thinking and creative solutions to contain COVID-19 by IHEs, as highlighted in the PAC-12 chapter above.

Moving forward from the COVID-19 pandemic there are many lessons to be learned on the federal, state, and local level, but also for IHEs. From this pandemic iit has become evident that the definition that was being used for "preparedness" was incorrect. IHEs need to reevaluate what it means to be prepared for a public health emergency or infectious disease outbreak. One key lesson we need to learn from this pandemic is that there is no singular definition that will encapsulate preparedness. As highlighted throughout this thesis each IHE within the PAC-12 took a variable and tailored approach to containment, but one containment plan was not better than the other. All of the containment methods benefitted not only the institution and the campus community but the larger community surrounding the university. Each IHE encountered difference challenges that need to be considering when defining preparedness such as

geographic location, campus size, financial resources, campus demographics. Moving forward and working towards being better prepared will require each IHE to redefine preparedness for their institution and community.

The next lesson learned is that public health emergencies are not anticipated and that IHEs should maintain a level of pandemic preparedness that is ready to tackle large outbreaks and the "worst case scenarios". There are many potential solutions for IHEs to be better prepared for the next public health crisis. First, IHEs should utilize the expertise within their institution and value the experience of their students and staff to build a pandemic preparedness plan. Before the COVID-19 pandemic the UO EOP was not equipped to handle a pandemic outbreak of an infectious disease. Additionally in February of 2020 when the UO IMT was activated more public health experts from the university staff should have been recruited quicker.

One innovative solution to maintain pandemic preparedness staff at the University of Oregon is Oregon Public Health Corps (OPHC) which will replaces the Corona Corps. Using funding that has already been secured from the Oregon Health Authority the OPHC will become a more permanent public health program supporting the University of Oregon, Lane County Public Health, and the Oregon Health Authority on anticipated and unanticipated public health emergencies. OHA and the OPHC will work together to modernize public health and reprioritize public health within the state of Oregon. Student workers will continue to be central to the mission of the OPHC, "receiving training on communicable disease containment, health education campaigns, mental health support, among others" [96]. While the everyday responsibilities will likely not focus on infectious disease outbreaks the OPHC model is easy to scale-up in the

event of a mass infectious outbreak. This is an example of innovative problem-solving that will better prepare the University of Oregon and the state of Oregon to respond to emergencies of any size, duration, or demand on resources.

Limitations and Future Research

Limitations

Due to the nature of this research, there are numerous potential limitations. However, the main limitation came from the low response rate for the survey; I attribute the low response rate to the length and detail of the survey. The original goal was to use the survey results to look at the containment approach of each IHE within the PAC-12, instead of just the University of Oregon. This is an important limitation as it hindered the scope of this thesis. Being that there was no national plan to contain COVID-19 on college campuses there was a variety of approaches. Losing the PAC-12 comparison constrained the depth of analysis into IHE COVID-19 containment. When it was realized that the survey was not likely to yield any results the decision was made to focus solely on the University of Oregon. However, I had conducted a substantial amount of surface-level research into steps PAC-12 universities to took contain COVID-19, and I did not want to lose all that research. It was then decided to do a single containment highlight for each PAC-12.

Future Research

There is an incredible amount of potential for future research building on this topic. In particular,future research could continue with the original idea of analyzing the PAC-12 containment methods and how the university came to those specific

containment methods. This could even be expanded to IHEs across the U.S. and even internationally. Documenting the early days of COVID-19 containment is a beneficial piece of research as it can help to better prepare for the next public health emergency.

Final Remarks

This thesis process has been incredibly difficult, but it has been even more rewarding. This thesis has provided the first documentation of the efforts and dedication it took to contain COVID-19. There is so much more I wish for this thesis and hope that someone else finds inspiration within this project and continues the work. But for now this feels like the perfect conclusion to my time as an undergraduate student at the University of Oregon. I just want to leave one final thought inspired by an episode of In the Bubble podcast with host Andy Slavitt and guest Ed Yong. Yong mentions that it would be another failure for the U.S. and the world to go back "normal" [97]. "Normal" led to this pandemic, "normal" was a society full of inequities, vulnerabilities, among numerous other problems. "Normal" caused this crisis to be much worse than it needed to be. There are many problems facing our society that will demand cooperation and innovation moving forward. Climate change, to name one, will not be solved with the current lackadaisical approach by the U.S. and other nations. COVID-19 can be and needs to be a turning point in our society. But this is only possible if we choose and accept the lessons of the last few years.

Appendix A: Qualtrics Survey

SURVEY INTRODUCTION

Thank you for your participation in this survey. The purpose of this survey is to gather information about COVID-19 containment methods and strategies implemented at institutions of higher education within the PAC-12.

This survey is divided into two different timeframes that correspond with the early periods of the COVID-19 pandemic. The first time frame (**Time Frame 1**) covers the period from March 2020 through the completion of academic year 2019-2020 (i.e. the conclusion of the spring quarter/semester around May/June of 2020). This was the initial period that institutions needed to make decisions about how to manage COVID-19 on their campus. The second timeframe (**Time Frame 2**) covers the Summer of 2020 when colleges and universities were focused on preparations for fall term of the academic year 2020-2021 (i.e., fall quarter/semester, typically through December of 2020).

This survey should take 30 minutes to complete and will include varying types of questions. In order to efficiently and effectively answer this survey, it is advised to take a moment before continuing to review the timeframes above and recall information about your institutions containment plan (testing, contact tracing, campus access and student housing, and case investigation resources) within each timeframe. Following a brief demographic section, there are several sections per timeframe that focus on testing, contact tracing, campus access and student housing, and case investigation

resources. In the event that you do not know the answer to a question being asked, please either leave it blank or select N/A when the option is available. Although **Time Frame 1** and **Time Frame 2** will contain some repeated questions, it is important that both are answered to establish any changes between timeframes.

At the end of the survey, you will be asked if you would be willing to participate in a brief follow-up interview designed to learn more about the decision making processes at your institution during these two early periods of the pandemic.

Again, thank you for taking the time to complete this survey. The results of this survey will assist with the completion of an undergraduate honors thesis through the Robert D. Clark Honors College thesis at the University of Oregon.

To begin the survey, please use the arrow on the lower right of this screen to proceed to the demographic section and beyond.

Demographics

Demographic Section

What is your name?

Which institution of higher education do you work for?

What office/department do you work for?

What is your current position or title?

Is your current position (listed above) the same as before the COVID-19 pandemic?

Yes

No

What position/title did you have before the COVID-19 pandemic?

Transition to Time Frame 1

Please answer the next several sections of questions with Time Frame 1 in mind, specifically, March 2020 to the end of Academic Year 2020.

TESTING - Timeframe 1: March 2020 to End of Academic Year 2020

TIME FRAME 1 (March 2020 to End of Academic Year 2020): Testing Section

Did your institution have an in-house testing facility (i.e. part of the university)? If yes, when was this established?

Yes

No

N/A

What types of COVID-19 tests were available to students? Select all that apply.

PCR

Rapid

Other

N/A

What method of COVID-19 test collection was utilized? Select all that apply.

Saliva

Nasopharyngeal swab

Oropharyngeal swab

N/A

What was your institution's average weekly testing capacity? If not applicable, please type N/A.

Did your institution partner with a third-party test provider in order to test students? If yes, when was this established?

Yes

No

N/A

Rank from most common (1) to least common (5) where your student body typically got tested for COVID-19? If this is unknown, please rank "N/A or Unknown" as 1. To rank click and drag an option into the appropriate order.

In-house testing facility

Third-party test provider

Health Center

Other

N/A or Unknown

Were close contacts required to test before being allowed to resume normal activities after quarantine?

Yes

No

N/A

How were testing options communicated to the student body? Select all that apply.

Email

Social media

Teachers/Syllabus

Posters around campus

N/A

Other

If a student tested at an on-campus testing facility, was the university made aware of positive test results? If yes, please indicate by whom (e.g., local public health authority, testing facility, etc.).

Yes

No

N/A

If a student tested at an off-campus testing facility, was the university made aware of positive test results? If yes, please indicate by whom (e.g., local public health authority, testing facility, etc.).

Yes

No

N/A

Was the number of COVID-19 positive cases at your institution published? If yes, where (e.g., institutional dashboard or Covid website, local newspaper, etc.)?

Yes

No

N/A

Is there anything else you would like to add regarding testing in Time Frame 1 (March 2020 to End of Academic Year 2020)?

CONTACT TRACING - Timeframe 1: March 2020 to End of Academic Year 2020

TIME FRAME 1 (March 2020 to End of Academic Year 2020): Contact Tracing Section

Was contact tracing conducted at your institution within this timeframe? If yes, approximately when did this start?

Yes

No

Was contact tracing conducted within classrooms?

Yes

No

N/A

Was contact tracing conducted within campus activities?

Yes

No

N/A

Was contact tracing conducted within residence halls?

Yes

No

N/A

Was contact tracing conducted within off-campus activities?

Yes

No

N/A

Who conducted contact tracing? Select all that apply. If needed, please expand in the text boxes below.

Institution in coordination with local public health authorities

Local public health authority

Other

N/A

How were contacts notified of their exposure? Select all that apply.

Email

Phone call

Text

Other

N/A

Did your institution notify instructors if there was a positive case within one of their classrooms, lectures, labs, discussions, etc.?

Yes

No

N/A

Did your institution use whole class exposure notifications in the event someone tested positive within a lecture, lab, discussion, etc.?

Yes

No

N/A

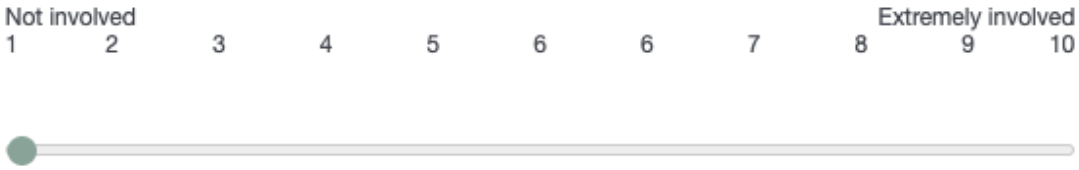
Was there a relationship between the county public health department and your institution?

Yes

No

When was the relationship between the county public health department and your institution established?

How involved was the county health department in daily COVID-19 containment operations, such as contact tracing? (1- not involved 10- extremely involved)



Did the county health department approve your institution's COVID-19 containment plan?

Yes

No

Is there anything else you would like to add regarding contact tracing within Time Frame 1 (March 2020 to End of Academic Year 2020)?

CAMPUS ACCESS- Timeframe 1: March 2020 to End of Academic Year 2020

TIME FRAME 1 (March 2020 to End of Academic Year 2020):
Housing & Campus Access Section

Did your institution close residence halls in March 2020?

Yes

No

Were there any special circumstances that allowed students to remain on-campus (international students, students with unsafe/ unsteady housing, etc.)? If yes, briefly explain.

Yes

No

N/A

Were any alterations made to campus buildings and residence halls during this time to decrease the risk of transmission? Select all that apply.

Consolidated to a single residence hall

Pick-up or self-serve food from dining halls

Single occupancy rooms

Closed common spaces

Dining in specific areas only

Additional air filtration measures

Updating HVAC systems

Limiting elevator use

Installation of plexiglass

Mask requirement

Motion sensing appliances (lights, hand dryers, sinks, toilets) Social distancing stickers

Arrows to direct flow of foot traffic in single directions

Installed Clorox wipes in classrooms and by elevators/stairs

Installed hand sanitizers

Other

N/A

Did your institution make masks/face coverings available throughout campus (ex: at student center, bookstore, pharmacy, etc.)?

Yes

No

N/A

If a student decided to leave campus at any point during this time frame, were they allowed to return back to campus?

Yes

No

If a student returned back to campus after leaving, were there any testing or quarantine requirements? If yes, please briefly explain.

Yes

No

If a student living in a residence hall tested positive, where was the student relocated to isolate or advised to isolate? Select all that apply.

Designated isolation dorm

Hotel or other local facility

Within their dorm room

Off-campus at a place of the students choice

Other

N/A

If a student living in a residence hall was determined to be a close contact, where was the student relocated to quarantine or advised to quarantine? Select all that apply.

Designated isolation dorm

Hotel or other local facility

Within their dorm room

Off-campus at a place of the students choice

Other

N/A

What factors contributed most to the location that was chosen to house students needing to isolate/quarantine? Briefly explain.

Did your institution have COVID-19 alert levels to indicate the severity of COVID-19 transmission on campus and implications for institutional operations?

Yes

No

N/A

Did your institution allow any local community members to access campus buildings?

Yes

No

Is there anything else you would like to add regarding housing & campus access in Time Frame 1 (March 2020 to End of Academic Year 2020)?

CASE MANAGEMENT- Timeframe 1: March 2020 to End of Academic Year 2020

TIME FRAME 1 (March 2020 to End of Academic Year 2020): Case Management Section

How was a positive test result communicated to students? Select all that apply.

- Email
- Phone call
- Text
- Other ☐
- N/A

Did anyone reach out to students who tested positive to offer support or resources?

- Yes
- No

What resources were students able to access? Select all that apply.

- Financial aid
- Counseling
- Medical services
- Food delivery
- Hotel arrangements
- Other ☐

Did your institution have a system to answer frequently asked questions and share important information regarding COVID-19? If yes, please share in what form this was such as phone line, webpage, etc.

- Yes
- No

N/A

Did your institution ask students to sign a social contract before returning to campus that detailed expectations on implemented safety measures such as physical distancing, PPE, hygiene, and sanitation?

Yes

No

Did your institution implement any disciplinary measures which could be imposed in the event that students did not comply with university policies?

Yes

No

What disciplinary measures did your university enact for students how did not comply with university policies? Select all that apply.

Warnings

Reminder letter

Educational conversation

Peer/Community Impact Circle

Registration holds

Temporary Suspension

Fines

Academic probation

Removal from university housing

Academic suspension

Expulsion

Other

N/A

Is there anything else you would like to add regarding case management in Time Frame 1 (March 2020 to End of Academic Year 2020)?

Transition to Time Frame 2

Please answer the next several sections of questions with Time Frame 2 in mind, specifically, Summer of 2020 preparations for Fall term 2020 (i.e., fall quarter/semester, typically through December of 2020).

TESTING- Timeframe 2: End of Academic Year 2020 to December 2020

TIME FRAME 2 (Summer 2020 and Fall 2020): Testing Section

Did your institution have an in-house testing facility (i.e. part of the university)? If yes, when was this established?

Yes

No

N/A

What types of COVID-19 tests were available to students? Select all that apply.

PCR

Rapid

Other

N/A

What method of COVID-19 test collection was utilized? Select all that apply.

Saliva

Nasopharyngeal swab

Oropharyngeal swab

N/A

What was your institution's average weekly testing capacity? If not applicable, please type N/A.

Did your institution partner with a third-party test provider in order to test students? If yes, when was this established?

Yes

No

N/A

Rank from most common (1) to least common (5) where your student body typically got tested for COVID-19? If this is unknown, please rank "N/A or Unknown" as 1. To rank click and drag an option into the appropriate order.

In-house testing facility

Third-party test provider

Health Center

Other

N/A or Unknown

Were close contacts required to test before being allowed to resume normal activities after quarantine?

Yes

No

N/A

How were testing options communicated to the student body? Select all that apply.

Email
Social media

Teachers/Syllabus

Posters around campus

Other

N/A

If a student tested at an on-campus testing facility, was the university made aware of positive test results? If yes, please indicate by whom (e.g., local public health authority, testing facility, etc.).

Yes

No

N/A

If a student tested at an off-campus testing facility, was the university made aware of positive test results? If yes, please indicate by whom (e.g., local public health authority, testing facility, etc.).

Yes

No

N/A

Was the number of COVID-19 positive cases at your institution published? If yes, where (e.g., institutional dashboard or Covid website, local newspaper, etc.)?

Yes

No

N/A

Is there anything else you would like to add regarding testing in Time Frame 2 (Summer 2020 to Fall 2020)?

MOVE IN TESTING- Timeframe 2: End of Academic Year 2020 to December 2020

TIME FRAME 2 (Summer 2020 and Fall 2020): Initial Testing Section

In this section "initial testing" refers to testing of on-campus students that would have been completed at the time they moved into residence halls OR of off-campus students at the start of the academic year.

Was initial testing required of students moving into residence halls? Briefly explain.

Yes ☐

No

N/A

Was a test required upon arrival at your institution or before a student could depart their home to travel to your institution?

Upon arrival

Before departure

Other ☐

N/A

Was there any initial testing requirement for students living off-campus, but planning to attend classes or activities on-campus?

Yes

No

Which on-campus activities required initial testing? Select all that apply.

Classes

Labs/Discussion sections

Research Labs

Clubs

Use of facilities (gym, libraries, student center, etc)

Other

N/A

Was there an initial testing requirement for students in high-risk activities, such as Greek life or athletics?

Yes

No

Which of these high risk activities required initial testing? Select all that apply.

Athletics

Club sports

Intramural sports

Greek life

Other

N/A

Were other alternatives discussed as opposed to requiring initial testing? If yes, briefly explain.

Yes

No

N/A

Is there anything else you would like to add regarding initial testing in Time Frame 2 (Summer 2020 to Fall 2020)?

SURVEILLANCE TESTING- Timeframe 2: End of Academic Year 2020 to December 2020

TIME FRAME 2 (Summer 2020 and Fall 2020): Surveillance Testing Section

Was surveillance testing conducted throughout Fall term?

Yes

No

How was surveillance testing conducted? Briefly explain.

Was surveillance testing voluntary?

Yes

No

For which students was surveillance testing conducted? Select all that apply.

Residence Hall students

Off-campus students

Greek Life students

Student athletes (including club and intramural teams)

Students attending on-campus activities/classes

Other

N/A

Is there anything else you would like to add regarding surveillance testing in Time Frame 2 (Summer 2020 to Fall 2020)?

CONTACT TRACING- Timeframe 2: End of Academic Year 2020 to December 2020

TIME FRAME 2 (Summer 2020 and Fall 2020): Contact Tracing Section

Was contact tracing conducted at your institution within this timeframe? If yes, approximately when did this start?

Yes

No

Was contact tracing conducted within classrooms?

Yes

No

N/A

Was contact tracing conducted within campus activities?

Yes

No

N/A

Was contact tracing conducted within residence halls?

Yes

No

N/A

Was contact tracing conducted within off-campus activities?

Yes

No

N/A

Who conducted contact tracing? Select all that apply. If needed, please expand in the text boxes below.

Institution in coordination with local public health authorities

Local public health authority

Other

N/A

How were contacts notified of their exposure? Select all that apply.

Email

Phone call

Text

Other

N/A

Did your institution notify instructors if there was a positive case within one of their classrooms, lectures, labs, discussions, etc.?

Yes

No

N/A

Did your institution use whole class exposure notifications in the event someone tested positive within a lecture, lab, discussion, etc.?

Yes

No

N/A

Did your institution request that instructors track in-person attendance or use seating arrangements to help facilitate contact tracing in the event of an exposure?

Yes

No

N/A

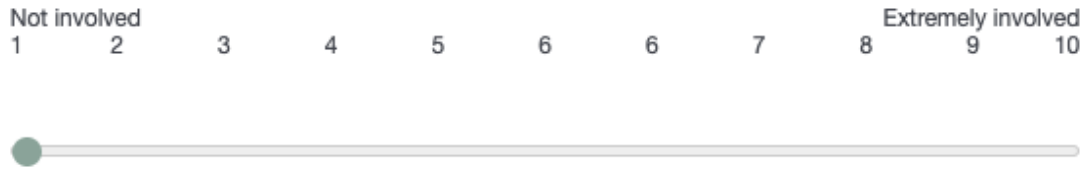
Was there a relationship established between the county public health department and your institution?

Yes

No

When was the relationship between the county public health department and your institution established?

How involved was the county health department in daily COVID-19 containment operations, such as contact tracing? (1- not involved 10- extremely involved)



Did the county health department approve your institution's COVID-19 containment plan?

Yes

No

Is there anything else you would like to add regarding contact tracing in Time Frame 2 (Summer 2020 and Fall 2020)?

CAMPUS ACCESS- Timeframe 2: End of Academic Year 2020 to December 2020

TIME FRAME 2 (Summer 2020 and Fall 2020): Housing & Campus Access Section

Did your institution open residence halls for Fall 2020?

Yes

No

Were there changes to capacity within residence halls? If yes, explain these changes briefly.

Yes

No

N/A

Were rooms under a certain square footage made single occupancy? If yes, please indicate that square footage.

Yes

No

N/A

Was every residence hall on-campus utilized in housing students during Fall 2020?

Yes

No

Was the first year live-on requirement lifted?

Yes

No

N/A

If a student living in a residence hall tested positive, where was the student relocated to isolate or advised to isolate? Select all that apply.

Designated isolation dorm

Hotel or other local facility

Within their dorm room

Off-campus at a place of the students choice

Other

N/A

How many beds were made available for isolation on-campus?

If a student living in a residence hall was determined to be a close contact, where was the student relocated to quarantine or advised to quarantine? Select all that apply.

Designated quarantine dorm

Hotel or other local facility

Within their dorm room

Off-campus at a place of the students choice

Other

N/A

How many beds were made available for quarantine on-campus?

During this timeframe, did your institution allocate a sufficient amount space to isolate and/or quarantine students?

Yes

No

N/A

What factors contributed most to the location that was chosen to house students needing to isolate/quarantine? Briefly explain.

Were any alterations made to campus buildings and residence halls during this time to decrease the risk of transmission? Select all that apply.

- Consolidated to a single residence hall
- Pick-up or self-serve food from dining halls
- Single occupancy rooms
- Closed common spaces
- Dining in specific areas only
- Additional air filtration measures
- Updating HVAC systems
- Limiting elevator use
- Installation of plexiglass
- Mask requirement
- Motion sensing appliances (lights, hand dryers, sinks, toilets)
- Social distancing stickers
- Arrows to direct flow of foot traffic in single directions
- Installed Clorox wipes in classrooms and by elevators/stairs
- Installed hand sanitizers
- Other
- N/A

Did your institution make masks/face coverings available throughout campus (ex: at student center, bookstore, pharmacy, etc.)?

- Yes

No

N/A

Did your institution alter academic schedules? For example, by creating "A" and "B" groups that alternate in person and remote class. If yes, please explain.

Yes

No

N/A

Did your institution move to fully remote campus activities after Thanksgiving break?

Yes

No

Did your institution close campus buildings, including residence halls, after Thanksgiving break?

Yes

No

Did your institution have COVID-19 alert levels to indicate the severity of COVID-19 transmission on-campus and implications for institutional operations?

Yes

No

N/A

Did your institution require proof of a negative test in order to access campus buildings?

Yes

No

N/A

Did your institution allow any local community members to access campus buildings?

Yes

No

Is there anything else you would like to add regarding housing & campus access in Time Frame 2 (Summer 2020 to Fall 2020)?

CASE MANAGEMENT- Timeframe 2: End of Academic Year 20 to December 20

TIME FRAME 2 (Summer 2020 to Fall 2020): Case Management Section

How was a positive test result communicated to students? Select all that apply.

Email

Phone call

Text

Other

N/A

Did anyone reach out to students who tested positive to offer support or resources?

Yes

No

What resources were students able to access? Select all that apply.

Financial aid

Counseling

Medical services

Food delivery

Hotel arrangements

Other

Did your institution have a system to answer frequently asked questions and share important information regarding COVID-19? If yes, please share in what form this was such as phone line, webpage, email newsletter, etc.

Yes

No

N/A

Did your institution ask students to sign a social contract before returning to campus that detailed expectations on implemented safety measures such as physical distancing, PPE, hygiene, and sanitation?

Yes

No

Did your institution implement any disciplinary measures which could be imposed in the event that students did not comply with university policies?

Yes

No

What disciplinary measures did your university enact for students how did not comply with university policies? Select all that apply.

Warnings

Reminder letter

Educational conversation

Peer/Community Impact Circle

Registration holds

Temporary suspension

Fines

Academic probation

Removal from university housing

Academic suspension

Expulsion

Other

N/A

Is there anything else you would like to add regarding case management in Time Frame 2 (Summer 2020 to Fall 2020)?

Interview

In addition to the information provided by this survey about how your institution approached COVID-19 containment, we would also like to better understand the process of decision-making within institutions of higher education as they worked to manage this emerging and evolving public health crisis. To best accomplish this, we would be interested in arranging supplementary interviews that would take no more than 30 minutes. Please indicate below if you would be willing to participate in a supplementary interview.

Yes

No

What is the best way to contact you regarding a supplementary interview?

Appendix B: Interview Questions

Ron Bramhall - Academic Continuity

- Question 1:
    - Even before the timeframes mentioned what were the conversations like surrounding COVID-19 pandemic and the potential effects it would have on academic at UO?
- Question 2:
    - How did the IMT activation and IMT structure affect the flow of information and decision making?
- Questions 3:
    - What were the biggest challenges during spring term 2020?
- Question 4:
    - What was the preparation like during summer 2020 for fall term?
- Question 5:
    - How did changing information about how best to contain Covid impact decision making in the Provost's office regarding academics at the UO?
- Question 6:
    - Why was it decided to prioritize bringing freshman back to campus?
- Question 7:
    - How did the Provost office provide extra support to students and faculty?

Angela Long - Contact Tracing and Case Management

- Question 1:
    - Between Jan and end of Feb 2020 what was the university's take on COVID-19? What were conversations like during this time period (i.e. level of worry , lack of reliable testing)
- Question 2:
    - How did the IMT activation and IMT structure affect the flow of information and decision making?
- Question 3:

    - How did changing and evolving information impact containment?
- Question 4:
    - It seems that during Time Frame 1 there was less focus on the 4 containment methods that I am choosing to focus on within this project, what was the universities main focus at the moment?
- Question 5:
    - What conversation or scenarios showed the need for something like the Corona Corps? How did the idea of the Corona Corps come to fruition?

Michael Griffel - University Housing

- Question 1:
    - Even before the timeframes mentioned what were the conversations like surrounding COVID-19 pandemic?
- Questions 2:
    - What effect, if any, did the IMT activation have on the housing department?
- Questions 3:
    - What were the biggest challenges for spring term 2020?
- Question 4:
    - What effect did closing dorms in spring 2020 have on the housing department?
- Question 5:
    - How were partnerships formed with other university departments such as MAP testing and UHS?
- Question 6:
    - What was the biggest factor in wanting to get students to live in the dorms fall 2020?
- Question 7:
    - What were the biggest challenges in preparing for students to return to the dorms in Fall 2020?

- Question 8:
    - Did any new challenges emerge once students were back on campus?
- Question 9:
    - How collaborative was decision making between the housing department and other university departments?

Glossary

Term	Definition
Academic Continuity	Ensuring a smooth transition from in-person learning to remote learning for students and staff. I will be highlighting the changes implemented within academics to aid in containment of COVID-19 and to respond to public health guidance.
Alert Levels	Indicates the severity of COVID-19 transmission within campus community that indicates level of institutional operation (ex: A very-high alert level would require a full stay-at-home order and all non-essential activities are cancelled) [31]. "The COVID-19 alert levels are similar to the community air quality index, where each level has s specific color. The color makes it easy for people to quickly determine whether COVID-19 spread is increase or decreasing in the community; and to also provide clear guidance on the actions that individuals and institutions should take based upon the [alert] level." [35]
CDC	Centers for Disease Control and Prevention
CM	Contact Monitoring team
CT	Care Team
EOP	Emergency Operations Plan
EUA	Emergency Use Authorization
FDA	Food and Drug Administration
GHS Index	Global Health Security Index
IHE	Institution of Higher Education
IMT	Incident Management Team
In-house testing	testing program that is part of the university

Initial testing	refers to testing of on-campus students that would have been completed at the time they moved into residence halls or of off-campus students at the start of the academic year
LCPH	Lane County Public Health
MAP	Monitoring and Assessment Program
NIH	National Institutes of Health
Off-campus activities	Greek life, social gatherings, parties, community gatherings, etc.
Off-campus student	a university student who does not live in university housing (ex: apartment complexes, Greek life housing, etc)
On-campus activities	includes classes, lectures, lab sections, discussion sections, clubs, NCAA sports, club sports, intramural sports, etc.
On-campus student	a university student living in university housing (ex: residence halls, upperclassmen apartments, etc.)
PAC-12	a collegiate athletic conference within the Western United States; includes a variety of public and private institutions, university sizes, demographics, political compositions
PPE	Personal protective equipment
Social Contract	an agreement made by students to abide by universities protocols for safety and prevention
Surveillance testing	used to monitor community level spread of COVID-19; results are not linked to individuals
Testing capacity	number of test that were able to be collected in a week
Third-party testing	testing provided by a third-party (urgent care, county testing sites, etc)
Thresholds	numerical value that indicates a change between Alert Levels (ex: confirmed cases beyond a manageable capacity would indicate an increase in Alert Level) [31]
Time Frame 1	March 2020 to end of academic year 2019-2020
Time Frame 2	Summer 2020 to end of December 2020

UHS	University Health Services
WHO	World Health Organization
Whole classroom exposure notifications	a notification provided to a class, lecture, lab section, discussion section, etc. in the event that a student tested positive after attending class

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