REPORT TO THE UNIVERSITY SYSTEM OF MARYLAND

BOARD OF REGENTS:

INDEPENDENT INVESTIGATION OF THE

UNIVERSITY OF MARYLAND, COLLEGE PARK'S HANDLING OF THE

ADENOVIRUS OUTBREAK AND MOLD ISSUES IN FALL OF 2018

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November 11, 2019

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I. EXECUTIVE SUMMARY

A. Background and the Task of the Independent Panel

On November 18, 2018, Ms. Olivia Paregol, a student at the University of Maryland, College Park (the "University" or UMCP), died from complications of severe adenovirus infection. Olivia's death raised a number of questions about the University's response to the presence of adenovirus on campus in the fall of 2018. Olivia lived in Elkton Hall during her time at the University. Questions have also been raised about the University's response to unprecedented levels of mold in certain residential facilities that fall.

In response to these questions, on May 30, 2019, Maryland Governor Larry Hogan issued a public letter to the University System of Maryland Board of Regents ("Board of Regents") requesting a thorough investigation into the University's handling of adenovirus information in the fall of 2018.

Thereafter, the Board of Regents issued an eight-point charge to respond to Governor Hogan's request and assembled a group of independent subject matter experts ("SMEs"), in a variety of fields, to investigate adenovirus and mold issues at the University in the fall of 2018. The backgrounds of the SMEs include a university medical director, an associate vice chancellor of facilities, an infectious diseases physician and healthcare epidemiologist, a vice president of Medicaid clinical operations, a certified industrial hygienist, and an engineer with expertise in building engineering, design and HVAC systems. The SMEs, along with counsel retained to coordinate the investigation and assist in the preparation of this report, comprised the "Panel" who conducted the investigation.

Other than the time for completion of the investigation, no constraints were placed on the Panel's ability to conduct the investigation. The University agreed and cooperated with every request by the Panel for access to documents and University personnel. As addressed more fully below, the Panel received over 25,000 pages of documents concerning the University's response to adenovirus and mold. Twelve employees from various University departments, at various levels of management and responsibility, were interviewed. Some of those employees were interviewed multiple times. In addition, two representatives of a key outside contractor (Building Dynamics, LLC) were interviewed. Finally, the Panel interviewed Mr. Ian Paregol, father of Olivia Paregol.

The Panel also researched and gathered local, state, and federal regulations, statutes and guidelines applicable to the University's response to adenovirus and mold. The Panel analyzed the University's own policies and procedures, both on a departmental level and on a University-wide level. The Panel carefully assessed whether the University's response to both issues was in accordance with those requirements, and in areas where no requirements existed, whether the University's response was in accordance with applicable guidelines and/or prevailing custom and practice.

This unanimous report of the Panel is the result of the many hundreds and hundreds of hours dedicated to this investigation, many of those hours provided by SMEs at no charge to the University.

B. High Level Findings of Fact

The Panel's investigation was conducted nearly a year after the incidents in question, with the advantage of having all information readily available and without significant time constraints to consider that information. That is, the Panel recognizes that its review of the University's

handling of the adenovirus and mold events is undertaken with the benefit of hindsight and not in the "heat of the moment" as experienced by University employees. Nevertheless, the Panel found, without exception, that: 1) the University employees involved with adenovirus and mold issues in the fall 2018 worked tirelessly to address the issues they confronted; 2) student health and safety was the paramount concern; 3) cost was never a limiting factor in the University's response to these two issues; and 4) no employee intentionally withheld or delayed disclosing pertinent information.

That is not to say that the University's response to these events was perfect. No response ever is. There are a number of findings of fact and recommendations by the Panel that highlight areas of weakness in the University's responses and propose changes to permit better and more coordinated responses to future emergencies. One finding by the Panel rises above the others. The University handled both the adenovirus outbreak and mold issues as departmental emergencies instead of campus-wide emergencies. With respect to the adenovirus outbreak, from a University perspective, the issue was handled to a very large extent within the University Health Center ("UHC") with only minimal input from other departments. With respect to mold, the issue was handled to a very large extent within the Department of Residential Facilities ("Res Facilities"). Both issues should have been viewed and handled as campus-wide emergencies which would have made available additional personnel, talent and resources.

Several other noteworthy findings of fact, discussed in more detail below, include:

- The weather in fall 2018 was unprecedented in temperature and precipitation and therefore humidity. Residential HVAC systems were simply inadequate to dry out the saturated air which led to previously unseen levels of mold in the dorms.

- The University's response to mold was in accordance with applicable guidelines published by the EPA and OSHA, in accordance with the University's own internal policies and procedures, and in accordance with prevailing custom and practices.
- The University's decision not to conduct post-remediation air sampling in Elkton and other halls was based on recommendations and advice by industry experts and the University's own Department of Environmental Safety, Sustainability and Risk ("DESSR") and was consistent with recognized practice.
- The University Incident Response Team ("IRT") met only once during the handling of mold issues and only after the decision had been made to relocate all students from Elkton Hall for cleaning/remediation.
- Human adenoviruses are DNA viruses that are normal, frequent causes of the common cold. Although most adenovirus infections resolve without medical attention, severe adenovirus infection can occur in both healthy and immunocompromised individuals.
- There are no biological studies documenting an association between mold exposure and respiratory viral infections.
- The Centers for Disease Control and Prevention ("CDC") and the State of Maryland have reporting requirements, and adenovirus is not a reportable disease, unless there is an outbreak event.
- The UHC saw increases in influenza-like illnesses ("ILI") in September and October 2018, earlier than the typical flu season.
- The University has a Campus Infectious Disease Management Committee ('CIDMC") which met twice in the fall of 2018: November 7 and November 15.

- On November 9, 2018, the University issued a campus-wide communication to students and families discussing prevention techniques during cold, flu and virus season.
- Dr. David McBride, Director of the UHC, was in contact with the CDC, Maryland Department of Health, and Prince George's County Department of Health on November 12, 2018, with knowledge of just two confirmed student cases of adenovirus, before the definition of an outbreak (or any requirement for reporting an outbreak) had been met.
- The November 15, 2018 meeting of the CIDMC was convened to discuss adenovirus and additional messaging to students. Dr. McBride approved the content of the adenovirus-specific communication on November 16, 2018 but the message was not disseminated until November 19, 2018. The November 19, 2018 communication was not sent in response to Olivia Paregol's death.
- The University adhered to the requirements of all local, state and federal regulations and statutes governing reporting and communication concerning infectious diseases.
- The University's response to adenovirus was in accordance with the University's own internal policies and procedures.

C. Recommendations

A complete list of the Panel's recommendations appears in Section VI below. Several of the Panel's noteworthy recommendations are as follows:

i. Generally

- The University did not appear to have a mature culture of emergency management across all levels of the organization which would have provided earlier opportunities

for escalation and more effective emergency management for both incidents. It does not appear that any formal campus-wide or Office of Emergency Management ("OEM") coordinated after-action meetings were held as a result of the mold and adenovirus incidents from fall 2018.

- The University should provide training through a trackable platform to ensure appropriate staff complete training in Federal Emergency Management Agency ("FEMA") National Incident Management System ("NIMS") and Incident Commander System ("ICS"). The University should review roles and responsibilities of staff at all levels during a range of campus incidents and emergencies.
- The University should err on the side of activation of its emergency plans during real campus events. Emergency operations can be scaled back as appropriate but earlier activation is far better than activation that occurs too late. The University should designate a person or role for crisis communication who has direct access to decision makers.

ii. Mold

- The University's IRT should be involved, early on, in issues like the University's mold emergency in fall 2018. The IRT and procedures should not be reserved solely for exigent circumstances.
- Although air sampling is not required under Environmental Protective Agency ("EPA" or Occupational Safety Health Agency ("OSHA") guidelines, sampling should be considered in future events to assure students and families that mold remediation activities are successful.

- The University should investigate the feasibility of installing Dedicated Outside Air Supplies ("DOAS") in residential buildings to assist in controlling building pressurization and, as a result, indoor relative humidity.

iii. Adenovirus

- The UHC should have tighter syndromic surveillance to monitor trends of ILI, conjunctivitis, and gastroenteritis.
- The University should have procedures in place for targeted outreach to students with underlying health conditions.
- The UHC should update its eligible population in the Chesapeake Regional Information System for our Patients ("CRISP") more frequently to ensure that the UHC has included the broadest array of students within that population.
- The UHC should strengthen the CIDMC by including an infectious disease specialist on the committee.
- The UHC should review its Campus Infectious Disease Management Plan ("CIDMP") to ensure it adequately contemplates non-reportable diseases and corresponding communication strategies, and that it requires declaration of response level, if a declaration is appropriate.
- The University should incorporate activation of the IRT into its response to outbreaks, as well as into the CIDMP.

II. SCOPE AND METHODS OF THE INVESTIGATION

Ms. Olivia Paregol, a student at the University, died from complications of a severe adenovirus infection on November 18, 2018. Thereafter, inquiry by the Paregol family and media

reports[1] raised questions concerning the University's response to both the presence of adenovirus and mold on campus in the fall of 2018.

On May 30, 2019, Governor of Maryland Larry Hogan, issued a letter to the Board of Regents requesting a thorough investigation into the University's handling of adenovirus information in the fall of 2018.

In response to the Governor's request, the Board of Regents undertook a search for subject matter experts ("SMEs") on the issues facing the University in the fall of 2018. According to the Board of Regents, the criteria for selection included: a) recognition of each as an expert in their field; and b) independence, i.e., no prior ties to the University. On July 12, 2019, the Board of Regents announced the selection of six SMEs to participate in an independent review of the University's response to the presence of adenovirus and mold during the fall 2018 semester:

Melanie J. Bernitz, MD, MPH: Associate Vice President and Medical Director, Columbia Health, Columbia University, with expertise in College and University Health;

Shane R. Conklin, MBA: Associate Vice Chancellor for Facilities and Campus Services, University of Massachusetts, Amherst, with expertise in University Facilities;

Timothy M. Duffy, CIH, PE, RS: Vice President of Engineering, Compliance Environmental International, Inc. (CEI), with expertise as a Certified Industrial Hygienist and a Professional Engineer in mold remediation;

Tara N. Palmore, MD: Hospital Epidemiologist, National Institutes of Health (NIH) Clinical Center, with expertise in Epidemiology and Infectious Diseases;

[1] See, e.g., Jenn Abelson, Amy Brittain and Sarah Larimer, *A Dangerous Delay,* Wash. Post, May 16, 2019.

Laura Herrera Scott, MD, MPH: Vice President of Medicaid Clinical Operations, Anthem with expertise in Public Health and Public Health Communication;

E. Mitchell Swann, P.E., FCIBSE, LEED AP: Principal, MDC Systems, with expertise in Building Engineering, Design and HVAC Systems.

On August 19, 2019, the Board of Regents engaged attorney Charles L. Simmons Jr. and the law firm of Gorman & Williams to coordinate the investigation and prepare a report of findings and recommendations of the independent investigation. Mr. Simmons is the managing partner of the Baltimore and Washington, D.C. offices of Gorman & Williams and led the team of SMEs with the assistance of associate attorney, Taylor W. Beckham. Collectively, the SMEs and the coordinating attorneys are referred to in this report as "the Panel."

The Board of Regents gave the Panel the following charge:

1. Identify generally accepted protocols, policies, rules, regulations, statutes and/or other standards pertaining to incidents of adenovirus and mold on university campuses and assess the actions taken by the University in the Fall 2018 pertinent to these standards.
2. Develop a comprehensive timeline of events between August 2018 - present to include: dates of reported illnesses; dates of diagnoses of adenovirus; dates specific university officials were notified or otherwise became aware of such illnesses or diagnoses; and actions taken by the university leadership—including those associated with the University Health Center, housing, facilities, communications, and any other University of Maryland, College Park ("University" or "UMCP") departments and/or individuals.
3. Review the University's response to the first reported cases of potential adenovirus-related illness and to students experiencing potential adenovirus-related illness thereafter.
4. Review the UHC's response and service to students experiencing influenza-like symptoms during academic year 2019.

5. Review the UHC's response and service to students experiencing upper-respiratory symptoms during AY 2019.
6. Review the University's communication and coordination with public health agencies regarding adenovirus.
7. Review the University's communication and coordination with hospitals and other medical care facilities regarding adenovirus.
8. Make recommendations, based on the investigation's findings, with respect to protocols, policies and procedures, to enhance the safety and well-being of students.

Following issuance of the Board of Regent's charge, the Panel created a list of forty-four categories of documents they wished to review in the course of the investigation. The University gathered the requested documents and produced over 25,000 pages of documents in response to the following categories:

1. Documents sufficient to show UMCP communications and actions to individual students, campus, external public health officials and health care practitioners regarding the outbreak of adenoviruses during the relevant time.
2. Documents sufficient to show communications between Dr. McBride, the Campus Infectious Disease Management Committee ("CIDMC"), personnel at the University Health Center ("UHC") and any UMCP or USM personnel on the necessity or timing of notices to individual students or the campus regarding the outbreak of adenovirus.
3. Documents sufficient to show UMCP's responses to students experiencing: a. first report of adenovirus and potential adenovirus related illness thereafter. b. UHC's response and service to students experiencing upper respiratory illnesses in AY 2019 c. UHC's response and service to students experiencing influenza-like symptoms in AY 2019
4. Documents sufficient to show all communications with Olivia Paregol and her family regarding the presence of adenovirus on campus, any medical advice or interventions identified or recommended, and interventions specific to Ms. Paregol related to mold remediation for her campus residence.
5. Documents sufficient to show communications with public health agencies on the necessity and timing of notices to individual students or the campus on adenovirus

infections or the adenovirus outbreak, including the Prince George's County Department of Health, the Centers for Disease Control and Prevention (CDC) and the State of Maryland Department of Health.
6. Documents sufficient to show UMCP communications and actions to individual students, campus, UMCP mangers and senior executives, external public health officials and health care practitioners regarding the existence of mold in the residential facilities, including when mold remediation began, who undertook remediation and their credentials, the materials used in mold remediation.
7. Any documents consulted in preparation of the letter provided to the State of Maryland Education & Economic Development Subcommittee.
8. Applicable organizational documents for UMCP and the following UMCP departments: UHC, Student Affairs, Housing, and Industrial Health and Safety.
9. Confirmation whether the USM or UMCP is accredited by Joint Commission, the American College Health Association or any other similar accreditation body. Please provide last survey and confirmation of accreditation.
10. Confirmation whether UMCP has a student health advisory committee or any other similar body that interacts with UMCP or the Health Center on student health issues. If so, please provide contact information for the committee members and any communications from the time period August 2018 to December 2018 pertaining to the adenovirus or mold in residential facilities.
11. Communications and documents with the Student Affairs Committee/Group that brought student concerns to the attention of UMCP about the presence of mold and adenovirus.
12. Policies and procedures, as well as any manuals, SOPs, guidelines or informal guidance documents related to the following: a. University emergency activation b. Strategic communications c. Health-related communications to individual students and UMCP student body d. Infection control e. Campus outbreaks of virus or other health related dangers f. Emergency management operations g. UHC communications h. UHC follow-up procedures i. UHC lab request procedures j. Code of occupancy requirements k. Mold prevention strategies l. Mold removal guidelines m. Mold remediation protocols n. Mold sampling and testing

o. Debrief or "lessons learned" protocol and/or minutes
13. Any documents comprising a compilation of communications and events associated with a review of UMCP's response to the presence of adenovirus on the campus and the development of mold in residence halls during the Fall 2018 semester, including documents supporting the timeline identified on the USM website.
14. Current Emergency activation training materials, including simulations and preparation information, if any. Identify how emergency activation training is provided and to what population of UMCP personnel.
15. Relevant data collected by UMCP regarding adenovirus, upper-respiratory or influenza-like-symptoms, including any disease surveillance performed during Fall 2018 by the UHC. Provide any surveillance protocols.
16. Communications with students regarding adenovirus, upper-respiratory or influenza symptoms, including any disease surveillance performed during Fall 2018 by the UHC.
17. Provide an index of the data fields collected by the UHC, including the electronic health record system used to monitor student health status.
18. Protocol related to health information requested, collected or maintained by UMCP relating to student health status during admission or enrollment, including presence of any chronic illnesses.
19. Relevant documents from the CIDMC including the following: a. Membership list b. Governance documents c. Meeting minutes d. Committee communications with Dr. McBride and/or UHC regarding notice to individual students or the campus regarding adenovirus outbreak e. Any other communications concerning the presence of adenovirus on the campus and the development of mold in residence halls during the Fall 2018 semester.
20. Communications with any hospitals and other medical facilities regarding the presence of adenovirus on the campus, including University of Maryland Medical Center in Baltimore and Washington Adventist Hospital.
21. Any assessments, reports, risk analyses or audits concerning the presence of adenovirus on the campus and the development of mold in residence halls during Fall 2018, whether performed by UMCP personnel or third parties, including the review conducted by David Reitman, M.D. and Paul Seligman, M.D.
22. Information related to industrial hygiene reporting and testing, moisture intrusion and environmental health and safety.

23. Mold remediation log including any service requests, trouble tickets or other problem management communications or documents beginning in March 2018.
24. Mold validation reports or other information used by UMCP to confirm resolution of mold issue.
25. Documents of Elkton Hall HVAC service contracts, HVAC manuals, HVAC maintenance logs, HVAC cleaning protocols, including materials used, and any service requests beginning in March 2018. Also include information on any Work or Task Order Management system used to manage maintenance tasks or 'trouble' reports.
26. HVAC\Mechanical, Building Automation and Control System (aka "Energy Management System") and Architectural Design drawings and specifications for Elkton Hall. Note: if any major renovation, replacement or upgrade projects have been performed on the building, provide similar subject documents of said project(s).
27. Documents and communications related to decision-making process around Elkton Hall mold remediation process, including assessment of and communications about student relocation.
28. Data or reporting on effectiveness of UMCP communications, including student email open rates.
29. Any records, reports, or communications with the Environmental Protection Agency, Occupational Safety and Health Administration, or similar state and federal bodies between August 2018 and the present.
30. Any documents provided in response to any Public Information Act Request ("PIA") relating to the presence of adenovirus on the campus and the development of mold in residence halls during the Fall 2018 semester.
31. List of persons identified as having knowledge related to the presence of adenovirus on the campus and the development of mold in residence halls during the Fall 2018 semester, including communications with the Paregol family.
32. The letter from Governor Hogan initiating the investigation and setting the charge for the investigation.
33. All documents related to the Clinical Director of the UHC's job roles and responsibilities.
34. Any and all communications from the UHC or Residential Life sent in the Fall 2018 to a specific population receiving allergy shots or with asthma.
35. All communications sent on or via "Maryland Today" during the Fall of 2018 related to mold or adenovirus.

36. Any and all articles referred to or relied on by the UHC to respond to the mold complaints or adenovirus outbreak on campus during the Fall of 2018.
37. Data or reporting on effectiveness of UMCP communication sent on November 9, 2018.
38. Any and all reports received on the UHC's "After-Hours" call line related to any student experiencing cold, upper-respiratory, or influenza-like symptoms in Fall 2018.
39. Any and all reports received by the UHC via the Chesapeake Regional Information System for Patients (CRISP) during the Fall of 2018.
40. Any and all Student Health Advisory Committee (SHAC) meeting minutes for all meetings held in preparation for or during the Fall of 2018.
41. Any and all documents related to the cost of mold remediation and/or student relocations due to mold in Fall 2018 including, but not limited to, contractor costs, Elkton Hall relocation costs (i.e. moving costs, hotel costs, dining costs), furniture replacement costs, cleaning costs, staff overtime costs.
42. Any and all contracts, including, but not limited to, the scope of work for any HVAC maintenance completed in Elkton Hall and Denton Hall in the summer prior to and during Fall 2018.
43. Any and all documents related to the roles and responsibilities of the Incident Response Team ("IRT"), including but not limited to documents related to the IRT's purpose, charge, and relationship to other departments or committees within the University's administration.
44. All correspondence concerning approval of adenovirus communications.

In addition to reviewing documents, the Panel interviewed the following witnesses between September 17 and October 22, 2019: 1) Dr. David McBride, Director of the UHC (twice); 2) Christopher Moore, Assistant Director of Administrative Services; 3) Andrea Crabb, Director of Res Facilities (twice); 4) Andrew Van Der Stuyf, Res Facilities, Assistant Director of Project Management; 5) Katie Lawson, Chief Communications Officer, Office of Strategic Communications; 6) Dr. Linda Clement, Vice President of Student Affairs (now retired); 7) Dr. Mary Hummel, Assistant Vice President of Student Affairs; 8) Maureen Kotlas, Executive

Director of the Department of Environmental Safety, Sustainability and Risk; 9) Susan Gilson, Health & Safety Officer; 10) Julius Williams, Facilities Management; 11) Ed Light and Rick Meetre, Building Dynamics; 12) Mike Glowacki, Executive Assistant to Deborah Grandner, Department of Residential Life ("Res Life"); 13) Capt. Ken Ecker, Campus Emergency Manager; and 14) Mr. Ian Paregol, Olivia Paregol's father.

Finally, the Panel toured dorm rooms and various mechanical spaces and common areas in Elkton Hall and inspected the exterior of the building.

III. INTERVIEW SUMMARIES

All interviewees were made aware that their interviews were not being recorded nor were the interviews being transcribed. The Panel compiled questions for the interviewees and provided the questions to each interviewee in advance of the interviews. At the request of the employees being interviewed, the University's general counsel was present in a representative capacity. The University's general counsel had no input into the questions asked and no speaking role during the interviews. The University's general counsel also had no input into the Panel's Report, findings of fact, or recommendations. Mr. Ian Paregol had his own counsel present during his interview. The interviewees, except for Mr. Paregol and the representatives of Building Dynamics, were each asked questions concerning their background and their duties and responsibilities as employees of the University.

A. Dr. David McBride, Director of the UHC

The Panel interviewed Dr. David McBride who is the Director of the University Health Center (UHC). The Panel questioned Dr. McBride on the following topics: 1) internal processes within the UHC; 2) the UHC's actions and related response to the reports of mold-related illnesses

and symptoms; 3) the UHC's emergency management response structure; 4) Dr. McBride's communications with outside health care facilities and communications with other University departments; 5) the UHC's response to the adenovirus outbreak; and 6) the University's communications to students and other stakeholders concerning influenza-like symptoms and adenovirus in the fall of 2018.

Dr. McBride served as the Director of the UHC for five years prior to the fall of 2018. Before his tenure at the University, Dr. McBride served as the Director of the Boston University Health Center for eight years.

Dr. McBride spent about 30% of his time on patient care, episodic visits, and primary care visits. He also treated patients on an appointment basis who had ongoing health concerns. The Director of the UHC reports directly to the Vice President of Student Affairs, who in the fall of 2018 was Dr. Linda Clement. The Office of Student Affairs held bi-weekly "Directors' Group" meetings involving all the directors within the Office of Student Affairs. Dr. McBride stated that he also met weekly with Dr. Clement and maintained a direct line of communication with her.

Dr. McBride has an executive committee that reports to him. Dr. McBride sits on University-wide committees such as the International Risk Management Committee, the Emergency Management Committee and the Institutional Biosafety Committee. It is the responsibility of the UHC Director to serve as the "Campus Health Officer" who is regularly consulted on University health issues. The UHC has a Clinical Director who is responsible for clinical operations. UHC leadership staff also includes a Physician Supervisor to oversee Walk-In Care and a Coordinator of Nursing to oversee nursing and medical assistant personnel.

During fall 2018, UHC held staff meetings monthly, unit meetings monthly, more casual "huddles" i.e., informal meetings as needed on a frequent basis, and ran monthly syndromic reports for influenza-like illness (ILI), conjunctivitis, and gastroenteritis. Dr. McBride indicated that these reports are now run weekly. In the fall of 2018, for after-hours calls which were routed to a telephone service through the University insurance plan, it was the practice of the UHC to receive printouts of the calls and include that information in the subject student's chart and follow-up with that student.

The UHC requires all students to submit information regarding immunizations and to complete a TB screening prior to matriculation at the University. It does not require, however, a health history for students; students may submit their health records voluntarily. The UHC understands that approximately 75% of students at the University are Maryland residents and thus still have access to their primary healthcare providers. It is recognized that those students may primarily seek treatment with their existing primary healthcare providers rather than with the UHC.

Dr. McBride advised that the UHC adopted a practice in the fall of 2019 to reach out to students with particular diagnoses (i.e. asthma, IBD and those who are immunocompromised or who are taking immunosuppressive medications) to invite them to the UHC to connect with providers, remind them of the risks of congregate settings, and encourage them to get flu shots. It is not the policy of the UHC to communicate with parents of students, but Dr. McBride did encourage his staff to follow up within 24-48 hours with any student who presented for a visit to the UHC and was particularly sick and/or febrile.

The UHC is a participant in CRISP. It is Dr. McBride's understanding that local hospitals, emergency rooms, or urgent care facilities have no obligation to inform the UHC of students being

seen at those facilities. In fall 2018, the UHC's population of students loaded into the CRISP system were those students that had been seen at the UHC in the past 18 months. The population in CRISP would be updated by the University's IT specialists; in the fall of 2018 the population was loaded into the CRISP system at the beginning of the semester and then periodically throughout the semester. The UHC now updates the population of students loaded into CRISP on a weekly basis during the first two months of the academic year. Dr. McBride stated that he would have received notice of an admission or discharge of a student in the CRISP data population, unless that student had intentionally opted out of CRISP. Any day that there was an alert, Dr. McBride would be sent that student's diagnosis from the visit and Dr. McBride could then access the student's hospital records. If Dr. McBride received an alert through CRISP he would pull the list of individuals and look for connections to the UHC and then send an outreach message to the student or have a member of staff follow up.

The University has a Campus Infectious Disease Management Committee ("CIDMC") which is chaired by the Director of the UHC. Dr. McBride stated that the CIDMC collectively identified concerns, practices, and expectations around management of infectious diseases. The CIDMC would advise the Incident Response Team (the "IRT") about the need to convene in the event of an infectious disease situation and the CIDMC would serve in an operations role. The CIDMC grew out of a need to respond to an infectious disease event in an operational way and the members of the committee were not particularly selected based on expertise on infectious diseases. Dr. McBride stated that it is unclear how the IRT would add to the response because the operations group completes all the actionable items. Dr. McBride did not recall if the IRT was convened for either mold or adenovirus in the fall of 2018. Dr. McBride advised that the CIDMC serves a relationship establishment function. The CIDMC has no set meeting schedule – Dr. McBride

described that the CIDMC meets on an "as needed" basis and in some years more frequently. He stated that in the last year the CIDMC didn't meet, but in other years it met more frequently. In fall 2018, the members of the committee were primarily operational; after the fall of 2018, the CIDMC included a faculty member from the School of Public Health.

Dr. McBride stated that the CIDMC convened on November 7, 2018 for the first time during the fall of 2018. The CIDMC meeting was called due to the increase in ILI in September, October, and November of 2018, which was not typical for the season. The CIDMC normally does not meet during flu season, which is typically January through March, when a rise in influenza-like illness is expected. At this meeting, the CIDMC reviewed the communication that was sent on November 9. The November 7 CIDMC meeting was also convened for the purpose of having all departments review and update their specific Campus Infectious Disease Management ("CIDM") plans. Dr. McBride confirmed that the issue of adenovirus does not appear in the minutes of the meeting and he has no specific recollection of mentioning it at the meeting. Isolated cases of non-reportable illness and/or individual student hospitalizations do not reach the threshold for discussion at the CIDMC and based on the information available on that day, one known case of adenovirus infection, there was no indication to discuss adenovirus at this meeting.

The CIDMC was convened again on November 15, 2018, more specifically to discuss adenovirus because three students had been hospitalized, and for consultation about campus communications regarding adenovirus. Dr. McBride stated that the UHC frequently communicated with the campus but was unsure of how influential or impactful these communications were because many students do not open or read emails. The November 9 message contained much of

the same information that was repeated later throughout the outbreak and emphasized personal protective measures to be taken.

The campus uses a coordinated approach with regard to health-related communications. Dr. McBride stated that he typically takes a primary role in drafting a communication, which is then edited by the communications department. At the November 15 meeting, the CIDMC considered targeted messaging to immunocompromised individuals, specific messaging to those living in Elkton Hall, and broad messaging to the entire campus. The decision was made to send broad community messaging to the entire campus. Additionally, Dr. McBride stated that although the CDC and Maryland and Prince George's ("PG") County Departments of Health did not require nor recommend any additional messaging be sent, the UMCP team determined that an additional community message would be beneficial. The CIDMC agreed to drafting and sending a campus-wide message at the November 15 meeting. The content of the message was approved by Dr. McBride on the evening of Friday November 16, and the message was sent on Monday, November 19. Dr. McBride stated that after approving the message, he does not control the distribution or its timing. Dr. McBride and his team decided to send messaging beyond November 19 in light of Olivia Paregol's case.

Dr. McBride stated that the CIDMC did not discuss assigning a "level" to the adenovirus outbreak at the November 15, 2018, meeting. In retrospect, he stated the response was between levels 1 and 2, and as the situation progressed, the campus was practically acting per the level 2 guidelines, even though a specific designation was not made. He also stated that declaration of an outbreak is made by public health authorities and this occurred after three cases were confirmed at the University. Dr. McBride stated that many campus departments have infectious disease

policies, and as far as he was aware, they were all triggered. He does not know if the campus emergency management response plan was triggered in the Fall 2018.

Dr. McBride stated that the purpose of communications with the CDC, Maryland Department of Health, and the PG County Department of Health is reporting and receiving guidance. These agencies provide reporting and broad advice, community investigation by surveillance and data collection, advisement on notice issues, advisement on treatment if necessary, advisement on response, and they participate on the spectrum of management. Dr. McBride stated that he communicated with these agencies frequently during the fall 2018 through email and various informal and formal telephone conversations.

Dr. McBride indicated that his first notice from a University official regarding the high levels of mold in dorm rooms was on September 20 via email from Andrea Crabb. Dr. McBride did not recall specifics of a phone call with Ms. Crabb nor did he have any notes from that call, but the records indicate that a phone meeting or conference occurred between Dr. McBride and Andrea Crabb around that time. Dr. McBride also stated that it was on or about that date that he started having patients present to the UHC complaining of potential mold-related illnesses. Dr. McBride sent out a communication to the UHC on September 20 regarding mold and asking providers to notify him or the UHC Clinical Director immediately if students presented with serious health effects potentially due to mold.

In terms of the UHC's coordination with Residential Life (Res Life) and Res Facilities to respond to the high levels of mold in the dorm rooms in fall 2018, Dr. McBride and the UHC provided clinical knowledge related to the health effects of mold exposure. Dr. McBride indicated his understanding that mold is a respiratory irritant that could be dangerous to those with lung

illness or allergies to mold. Dr. McBride stated the UHC was treating the symptoms of mold exposure seen in students and thus the UHC took on an advocacy role for symptomatic students who were living with mold exposure and worked to prioritize them to move out of their dorms during remediation. The UHC's primary diagnostic screen for the students presenting with possible mold exposure was to ask the students whether their symptoms were worse indoors or outdoors.

Dr. McBride stated that during fall 2018, about 180 students received allergy shots at the UHC. Between Res Life and the UHC, specific messaging was sent to those 180 students regarding whether they were seeing mold. Dr. McBride did contact and communicate with an occupational health expert, Marianne Cloeren, Associate Professor of Medicine in the Division of Occupational and Environmental Medicine at the University of Maryland School of Medicine. It was Dr. McBride's recollection that communications to the students regarding mold in the dorms first appeared in Maryland Today, an online publication by the Office of Strategic Communications.

While Dr. McBride was involved in the decision making and meetings that resulted in the decision to relocate the students on a floor-by-floor basis during the Elkton mold cleaning/remediation, the final decision regarding relocation and the remediation process was made by Res Facilities. Res Facilities also made all decisions concerning the procedures for doing the work. Dr. McBride recalled attending, along with Deb Grandner and Andrea Crabb, the townhall meeting in Elkton during Parents' Weekend. It was Dr. McBride's recollection that the greatest proportion of complaints regarding mold came from students and their parents concerning Elkton Hall.

Dr. McBride advised that the decision not to take air samples prior to or after the remediation was a "subject of controversy." Dr. McBride was present in some discussions and

meetings where decisions were made not to test air samples. Dr. McBride stated that it was the position of DESSR that there was a lack of utility in air sampling and with the positions of EPA and OSHA being ambiguous on the efficacy of air sampling it was decided that no air sampling would occur.

Dr. McBride raised concerns about Aspergillus based on his belief that this type of mold could have significant effect on immunocompromised individuals. Dr. McBride recalled that after mold was abated in Elkton, the complaints to the UHC regarding mold-related illnesses and symptoms slowed, if not stopped.

During the response to mold in the dorm rooms in fall 2018, the CIDMC was not convened because the issue was not considered an infectious disease. While the IRT did convene during Fall 2018 related to the mold in the dorm rooms, Dr. McBride could not recall specifics about that meeting.

Dr. McBride was contacted by the Department of Health during the University's handling of mold even though mold exposure is not a "reportable" disease or event.

B. Andrea Crabb, Director of Residential Facilities

The Panel interviewed Andrea Crabb who is the Director of Res Facilities. The Panel questioned Ms. Crabb on the following topics: 1) internal policies, procedures and general building information; 2) Res Facilities' response to the mold in the dorm rooms; 3) Res Facilities' coordination with other university departments to respond to the mold in the dorm rooms; 4) Res Facilities' communications with students and parents regarding mold in the dorm rooms; and 5) Res Facilities' involvement with adenovirus.

Ms. Crabb is a licensed Professional Engineer in Maryland and Virginia and has worked at the University for 6 years. Ms. Crabb spent about 4.5 years with the central Facilities Management office at the University and just prior to the fall of 2018 she took on her current role.

Res Facilities is in charge of all the residential and Greek housing facilities on campus which equates to about 2.7M square feet of building space. Res Facilities is responsible for the approximately 9,800 beds on campus and for about 800 beds of on-campus Greek housing. Res Facilities manages the areas within five feet of the residential buildings and the areas inside the buildings.

In the fall of 2018, Ms. Crabb reported to Mary Hummel, the Assistant Vice President of Student Affairs, who reported to Dr. Linda Clement. Ms. Crabb participated in bi-weekly directors' meetings as well as in weekly one-on-one meetings with Dr. Hummel. Ms. Crabb stated that she does not make decisions to send communications out to the campus and that Strategic Communications handles campus communications.

Ms. Crabb identified and explained the Res Facilities' schedules for capital projects and summer cleaning. Res Facilities typically schedules maintenance and capital improvement projects during the summer. Ms. Crabb advised that prior to move-in, the rooms go through a "robust" quality check done by the managers which consists of cleaning, checking to make sure the windows and blinds are working and determining how the room feels, smells and looks. In summer 2018, technicians were reporting mold issues and generating service tickets to address those issues. Res Facilities does preventative maintenance on the HVAC systems in the dorm rooms using its own staff but will contract out work that is more complicated. Res Facilities would use in-house

staff to change pieces of the fan coil unit (i.e. actuators or the fan). However, Res Facilities would consider a complete replacement of a fan coil unit to be a capital improvement.

Ms. Crabb advised that just prior to fall of 2018, Res Facilities implemented a new software system for tracking residential service requests. That system is called Tririga (the system went live on August 3, 2018). In the fall of 2018 Tririga, as configured at the University, did not generate reports on clusters of issues or reappearing issues. Eventually in the fall of 2018, Res Facilities created a priority code in Tririga for mold and exported daily lists for mold calls.

In the fall of 2018, Res Facilities' management of work generated from service requests was limited to foremen/superintendents managing and tracking the work with handwritten checklists. Res Facilities utilizes a 24/7 staffed desk that manages service requests. Students serve as staff and are trained to receive service requests and to escalate emergency calls. When a student staffer received a service request call they were to hand-write the request. On a subsequent break in calls, the staffer would input the ticket into the 4-Work system. It is Res Facilities' practice that at 3AM, all tickets for the next day are printed and placed in boxes for staff pick-up and completion of the work.

In the fall of 2018, Ms. Crabb stated that the humidity levels on campus were higher for longer periods than had previously been experienced. Ms. Crabb stated that technicians were reporting mold issues and that the HVAC department was understaffed. Ms. Crabb advised that Res Facilities received eight times the regular volume of calls regarding mold complaints; Res Facilities typically receives 250 calls a year related to mold; in the fall of 2018 over 1,800 service calls were related to mold. These tickets are based on student reports of mold, not on confirmations

by staff of the existence of mold. There has been no analysis of the number of confirmed mold findings from the 1,800 service calls.

Res Facilities received reports of staffers having adverse reactions to mold in the dorm rooms. The week before the Elkton relocation there were housekeepers that reported to the UHC for treatment for mold exposure.

Res Facilities determined that the HVAC system in the dorm rooms (i.e., the fan coil units) was not designed to address the weather conditions being experienced on campus. In the fall of 2018, for multiple days, the weather exceeded the design criteria of the equipment. Res Facilities believed the primary issue leading to the high levels of surface mold in the dorm rooms was high humidity over an extended period. Res Facilities hired W.L. Gary to clean and confirm proper operation of the fan coil units in Elkton.

Ms. Crabb stated that Bel Air Hall was the first residential building to report mold growth due to high humidity. Elkton was the second hall to report mold issues with the initial service requests being similar to those from Bel Air Hall. Res Facilities was receiving numerous calls for mold in the other high rises and buildings but there is no data regarding whether the calls resulted in mold being found.

Elkton Hall had the greatest number of calls, and staff reported significant mold in that building. Ms. Crabb stated that Elkton was selected for cleaning/remediation without students in-place because Res Facilities needed its staff resources to handle the high mold calls in other buildings. By moving the students out of Elkton, Res Facilities could allow external contractors to remediate and clean in Elkton without the security concerns and supervision necessary when contractors work in spaces where students are present. Outsourcing work at Elkton to contractors

also allowed Res Facilities' staff to focus on cleaning/remediating mold issues in other residential buildings. While some students in dorms other than Elkton were relocated during cleaning/remediation, it was not building-wide and not nearly as extensive as Elkton.

Res Facilities made special provisions for students who expressed a sensitivity to mold and/or reported a health concern to the UHC. Once Res Facilities learned of a specific health concern, it would inspect the room and work with the student regarding relocation.

Ms. Crabb indicated that there was an internal staff meeting on September 18 that determined staff would have to work overtime and over the weekend between September 18 and 21. Res Facilities was handling mold cleaning/remediation primarily with internal staff as long as it could. Res Facilities utilized different approaches to cleaning/remediation. Res Facilities' initial response was to take out affected furniture and replace with clean furniture. Res Facilities was unable to keep up with the number of calls regarding mold. Further, staff was unable to properly clean the rooms because the students' possessions were in the way and the fan coil units were often blocked. The week of September 21, Res Facilities brought in contractors to remove furniture from the rooms for cleaning.

Ms. Crabb stated that the communication with lower level staff and workers during the cleaning/remediation process in the fall of 2018 was not ideal and that there were communication breakdowns. Res Facilities has taken efforts to address those issues. Ms. Crabb also referred to three active actions since fall 2018: 1) analyzing and optimizing the IBM Tririga work order management system; 2) reviewing policies and procedures related to mold handling by acknowledging that two inspectors weren't enough and the need to have more properly trained inspectors; and 3) updating and clarifying training for staff – they were trained in cleaning and

voluntary use of respirators but didn't fully understand. Res Facilities also revamped the training program to ensure a more complete understanding of policies and procedures by staff. Res Facilities also reviewed policies and procedures so that more effective decisions could be made about when to call a contractor versus doing work in-house.

Ms. Crabb indicated that Res Facilities had challenges working around occupied student rooms so they have worked on a robust education campaign including reminders about not blocking fan coil unit air flows in the rooms. In fall 2018, Res Facilities also encountered coordination issues on preventative maintenance, e.g., hallway dehumidifiers in Elkton had not been added to the periodic maintenance schedule and filters had not been changed (dirty filters will restrict airflow over time).

When mold call volumes increased, Res Facilities communicated with students to ask them to report what they were seeing. As soon as the mold topic became a press issue, calls from parents and students increased significantly. There was continued escalation of mold issues leading to the week that included Friday, September 21, 2018. Ms. Crabb recommended on September 21 to Mary Hummel that they remove students from Elkton. Staff had been working almost non-stop since move-in day with eight straight weekends of mandatory overtime, and they were realizing they didn't have enough people to do the work and they needed to relocate students to do the work. The decision to relocate all students in Elkton Hall was made on September 21. Saturday morning, September 22, 2018, Res Facilities called in key staff to discuss the plan. Res Facilities began moving students Sunday afternoon, September 23, 2018. Ms. Crabb noted it was a tremendous amount of coordination in a very short period of time including coordination with hotels during Parents' Weekend, arranging student transportation, building containment areas, getting all

contractors in place, hiring a moving company to help pack belongings, building a basement storage area with alarms and cameras, all in three days.

One of the key considerations when Res Facilities determined to relocate the students in Elkton was the restriction on non-state employees entering student rooms when occupied. Res Facilities hired two cleaning contractors – Sandow and Infinity, to assist with cleaning/remediation. These contractors wore protective clothing. Ms. Crabb stated that although the work was called remediation, it really was a deep clean. With the recommendation and advice of outside contractor, Building Dynamics, LLC ("BDL"), based on the lack of connectivity in the HVAC systems between floors, Res facilities determined that floor-by-floor remediation was the best approach to address the mold issues. Additionally, the decision to vacate Elkton was made during Parents' Weekend when area hotels were near capacity. Thus, it was not feasible to move the entire Elkton population at the same time. On average, students stayed out of the dorms during remediation for one to two nights.

Ms. Crabb consulted with DESSR when determining whether to sample and conduct mold testing. The decision was made to not test the air in the dorms prior to beginning the mold remediation because the mold was visible. Ms. Crabb was advised by DESSR that air sample testing should not be conducted. Ms. Crabb also consulted with representatives at BDL who advised Ms. Crabb that air sampling would not be an effective method of determining whether cleaning efforts were successful. Ms. Crabb, based on the advice given to her, determined that there would be no testing or air sampling, either pre-remediation or post-remediation. Ms. Crabb advised that the decision not to conduct air sample testing had nothing to do with the cost of such

testing. Nor was the decision made because of a concern that the results might show that the cleaning/remediation was unsuccessful.

Res Facilities now has a person on staff who is qualified to conduct air sampling. Res Facilities did create a Prevention Assessment document for use after fall 2018, because Res Facilities did not have formal checklists prior.

Outside contractor WL Gary was working in Elkton before the first students were moved. BDL came into Elkton the Sunday/Monday during the weekend the decision was made to relocate students. Res Facilities hired outside contractor Vertex to verify the remediation efforts. Additionally, Res Facilities staff conducted "manager checks" as furniture was placed back in the rooms following cleaning. Vertex did not perform visual inspections of the cleaning efforts on the higher floors in Elkton (5,6,7,8), those inspections were performed by Res Facilities' staff.

The total cost of mold cleaning/remediation in the fall of 2018 was about $2.5 million.

Ms. Crabb stated that the number of calls related to mold went down significantly in October after cleaning and after the weather returned to more typical fall conditions. Res Facilities did receive a few calls from Elkton after the remediation and investigated and found no significant mold.

Ms. Crabb stated that during the remediation efforts there was no overall "incident commander." Ms. Crabb and Res Facilities were responsible for the majority, if not all of the decisions, work scopes and work orders related to the actions taken by external contractors and consultants. Ms. Crabb understands the Incident Response Team (IRT) responds to issues that affect the campus and the IRT is called to discuss such issues. She remembers that in the fall of 2018 there was only one formal IRT meeting held.

Ms. Crabb stated that during the mold crisis there was no campus emergency management team assisting Res Facilities and that the department was handling the issues primarily on its own. She indicated that University leadership was involved in a number of other issues at the time and that she believed that she was addressing and managing the mold issues within her department. Ms. Crabb believed that notice was given campus-wide only after media became aware of mold in Elkton and that mold in the residential facilities was seen as a Res Facilities emergency and not a campus-wide emergency.

C. Christopher Moore, Assistant Administrative Director, Residential Facilities

The Panel interviewed Christopher Moore who is the Assistant Administrative Director of Res Facilities. The Panel questioned Mr. Moore on the following topics: 1) internal policies, procedures, and general building information; and 2) Res Facilities' response to mold in the dorm rooms. Mr. Moore reports to Ms. Jacinta Felice, who reports to Andrea Crabb.

Mr. Moore handles purchasing and procurement within Res Facilities. Mr. Moore is also involved with the 24-hour service call center where students can submit their maintenance requests. The 24/7 call center is student run and students serve in three-hour shifts. There are student supervisors who are also on call 24/7 and there is a full-time assistant manager who manages the call center. The University increased student staff at the call center during evenings and afternoons during fall 2018.

During fall 2018, Mr. Moore took the lead on setting up purchase orders for remediation contractors, industrial hygienists, and HVAC contractors. In fall 2018, Mr. Moore stated that calls related to mold in the dorm rooms were 7-8 times more than normal and that calls in Fall 2019 are back to normal.

Mr. Moore explained that Res Facilities uses the University's "4-Work" system to receive and log service requests. The Tririga system is used in conjunction with the 4-Work system and the Tririga system manages the work order requests for facilities maintenance that come through 4-Work. In August 2018, Res Facilities implemented a new system and the call center was using log sheets where people write down the request and then enter it into the system. The system has prompts which allow the person recording the request to indicate the required trade, the priority level, and assign a problem code for the call. Students were also able to submit service requests through the 4-Work system via the University's website. Mr. Moore indicated that during the summer of 2018 there were some calls regarding mold. It was Mr. Moore's opinion that the new system implemented in August did not affect mold response in the fall of 2018.

Mr. Moore noticed an uptick in mold calls in mid to late September. During the first month of school, the number and nature of calls were similar to mold calls they had received in the past. Res Facilities utilizes a community-based approach when responding to maintenance requests. Community-assigned maintenance personnel are the first responders and have their own protocols for responding to mold calls. Mr. Moore noted that at the beginning of the fall semester, it is not uncommon for Res Facilities staff to work overtime and weekends to assist with the student 'move-in' process. Mr. Moore noted that there was a period in fall 2018 where staff was in at 7AM and left at 7PM.

Mr. Moore indicated that while Elkton received a high level of calls, Bel Air, Centerville, Denton and Easton also had service requests called in for mold. All of the buildings that were renovated in the 2010s were reporting mold calls, except for Cambridge.

D. Andrew Van Der Stuyf, Assistant Director of Project Management, Department of Residential Facilities

The Panel interviewed Andrew Van Der Stuyf, Assistant Director of Project Management within the Department of Res Facilities. The Panel questioned Mr. Van Der Stuyf on the following topics: 1) involvement in capital upgrades to Elkton and similar facilities in 2010-2013; 2) development of scope of work for Elkton cleaning/remediation; and 3) the University's response to mold in the fall 2018.

Mr. Van Der Stuyf develops scopes of work for projects that are typically contracted to external contractors due to the work being beyond the University staff's capacity. This includes select maintenance, new construction, and upgrades. In the 2010s, Mr. Van Der Stuyf developed the scope of work to upgrade Elkton and similar buildings. The scope of work included full upgrade of the mechanical systems in the buildings, including air conditioning, heat exchangers, fan coil units in each room, piping connections and insulation assemblies for the fan coil units, replacement of all windows and adjacent wall insulation, and upgrades to the electrical systems, including additional 20-amp circuits in each room. The total capital project costs were approximately $11M. Mueller Associates was the mechanical design engineer for the HVAC\fan coil system upgrades. Plano-Coudon was the general contractor.

In the spring and summer of 2018 there were water-based mold issues in several of the dorms and other buildings on campus. These frequently related to mold growing on fan coil unit piping insulation jackets. The issues experienced in the fall of 2018 were different. The weather was unprecedented that fall. There were extended periods of very high relative humidity. If it wasn't raining, there was "crazy humidity." The conditions surpassed the typical design parameters of HVAC systems in the region.

Although Res Facilities would not normally be involved in cleaning and housekeeping issues, Mr. Van Der Stuyf was asked to assist. He inspected Elkton and prepared the scope of work for WL Gary's work. WL Gary was tasked to provide all labor, material and equipment to clean and maintain all of the fan coil units in Elkton Hall. At the time, it was believed that the fan coil units were the only way to control moisture issues in the dorm rooms and that the units needed to be cleaned and checked for proper operation. Mr. Van Der Stuyf also provided quality control of WL Gary's work, including inspections. No physical changes were made to the fan coil equipment by WL Gary. However, temperature set points on the units were lowered from 73ºF to 71ºF and the fans were set to run continuously. It was believed that these changes would assist in drying out the dorm rooms and prevent the regrowth of surface mold. These changes were suggested by BDL.

Once portable dehumidifiers were installed in the dorm rooms, the fan coil units were set back to the originally set points (73ºF) and fans were set on 'auto' which means that they run only when the unit is commanded "ON" by the temperature control, as opposed to continuous operation.

E. Katie Lawson, Chief Communications Officer, Office of Strategic Communications

The Panel interviewed Katie Lawson, who is the Chief Communications Officer within the Office of Strategic Communications. The Panel questioned Ms. Lawson on the following topics: 1) University communications concerning mold on campus in the fall of 2018; 2) University communications concerning adenovirus on campus in the fall of 2018; and 3) the role of the Office of Strategic Communications on various emergency management groups including the CIDMC and the IRT.

The University has an Office of Strategic Communications, the staff of which are available to work on campus-wide communications as needed, as well as social media and media relations. There are approximately 150 "communicators" embedded in the schools and offices around the campus, and 8 communicators who report directly to Ms. Lawson. Ms. Lawson directly reports to Joel Seligman, Associate VP of Strategic Communications. The UHC does not have an embedded "communicator" so the UHC works directly with a representative from the Office of Strategic Communications on an as-needed basis around health-related communications. Residential Life (Res Life) had a communicator that she worked with during mold in fall 2018. The Office of Strategic Communications has four units 1) social and media relations (Ms. Lawson's unit), 2) marketing and creative services/design team, 3) alumni magazine and video, and 4) digital strategy, websites, apps managed centrally.

Strategic Communications has a role within the IRT. Joel Seligman, Associate Vice President of Strategic Communications, has a seat on the IRT. Ms. Lawson was invited to attend the September 24, 2018 meeting of the IRT but she was out sick that day. Dr. McBride also had a seat on the IRT. Ms. Lawson stated she became aware of the mold issue when contacted by an employee of DESSR on September 18, 2018. She did not fully know the scope at that point so she began working with Residential Life and they quickly began working on a town hall meeting to be held that following weekend (September 21-23, 2018). In the case of adenovirus, Ms. Lawson stated she learned about the issue from an email she received on November 13, 2018 from the Vice President for Student Affairs letting President Loh and the Assistant President know of the three confirmed cases of adenovirus.

Ms. Lawson stated that in campus-wide incidents, her office partners with the campus police department and the chief, and threats to public health are handled typically between Dr. McBride and Ms. Lawson. They would defer to state and county health officials on certain communications issues.

Strategic Communications assigned a senior communicator to work with Res Life while mold issues were being addressed. Strategic Communications, through the creative services/design team, published an article in Maryland Today concerning relocation of students in Elkton Hall and cleaning/remediation on September 24, 2018. Ms. Lawson's department also assisted with the September 25, 2018 campus-wide communication. The timing of communications was deferred to DESSR (with regard to mold issues) and to the UHC (with regard to adenovirus issues). There were also emails to students directly affected by mold that were sent on September 22 and 23, 2018.

Strategic Communications has a role on the Campus Infectious Disease Management Committee (CIDMC). During Fall 2018, the Chief Communications Officer worked with the UHC on campus-wide communications. The communications team defers to the expertise of the UHC and the local and state health departments on the content of health-related communications. However, Ms. Lawson assisted with editing of messages (she did not provide content) and her office provided the outreach channels needed for dissemination of information. Ms. Lawson stated the decision to communicate campus-wide comes from campus leaders, and the IRT can be a factor in that decision making.

The November 9, 2018 flu and cold season notice was prepared by the UHC and edited by Strategic Communications before dissemination. Communications by UHC with local and state

health departments confirmed that no additional messaging was necessary concerning adenovirus-specific issues. Nevertheless, the CIDMC decided to send follow-up messaging after the November 15, 2018 meeting. There was some delay in getting out that follow-up notice. Ms. Lawson believes that a draft of the communication was prepared the day of the CIDMC meeting or the day after, November 16. The communication was approved by Dr. McBride on November 16. Approval by Dr. McBride came after business hours. That communication would go from Dr. McBride to the VP of Marketing to the VP of Student Affairs for dissemination. The communication did not go out on Friday, November 16 and did not go out over the weekend (Saturday, November 17 or Sunday, November 18). As a result of the weekend, the communication did not go out until Monday, November 19, 2018. The communication and timing of dissemination on Monday, November 19 had no connection to the death of Olivia Paregol.

Ms. Lawson stated that Dr. McBride determined when the communication would go out and he indicated he would pass it along but that it wouldn't go out until Monday. If Ms. Lawson had been asked to assist with sending the communication on Friday, it could have been sent that evening. There was a specific adenovirus type 7 communication that went out on November 20, 2018. Throughout the handling of adenovirus notices, Ms. Lawson stated there was tension around wanting to be responsive to the community with more information than usual and guidance from state and county health officials, which was also coming from the CDC. Ms. Lawson stated she wasn't aware of the declaration of the adenovirus outbreak by public health officials on November 13, 2018. Ms. Lawson had her director of communications attend an IRT on mold on September 24, 2018 due to her being out sick, and that no IRT was held for adenovirus.

Ms. Lawson was on calls with local and state health agencies that occurred after November 19. Ms. Lawson recalls that the CDC confirmed verbally that there was no evidence to support a link between mold and adenovirus infection, but that they did not have a written CDC statement on the lack of connection between mold and adenovirus that they could quote for campus or media communications.

Ms. Lawson believes that all recommendations from the public health officials were followed. She stated that a lesson learned is to assure the University documents the communication with state and county health officials so that the University can be consistent in how it deals with information from those officials and agencies. She does believe that parent communications could have been better coordinated with public health and student messaging. Ms. Lawson also believes there should be better guidance from the public health officials on how to deal with messaging around health-related issues that are not mandated to be reported.

F. Dr. Linda Clement, Vice President of Student Affairs

The Panel interviewed Dr. Linda Clement who during fall 2018 served as Vice President of Student Affairs. Dr. Clement retired at the end of the 2018/2019 academic year. The Panel questioned Dr. Clement on the following topics: 1) the duties and responsibilities of the Vice President of Student Affairs; 2) Internal Policies and Procedures of the Office of Student Affairs 3) the presence of mold in the dorm rooms in fall 2018 and the Office's communication with parents and other University departments; and 4) the presence of adenovirus at the University.

Dr. Clement served as the VP of Student Affairs for 18 years. She worked at the University in various positions for 45 years. The VP of Student Affairs oversees 14 departments within the division. Dr. Clement reports directly to the President of the University. There are six vice

president positions campus-wide who meet every week for about 90 minutes. Dr. Clement stated that she had a direct line of communication to President Loh and that she met with him one-on-one every other week. She also advised that she communicated with Michele Eastman, the Assistant President, at least 3-4 times a week. Dr. Clement had retired as of the interview date but held the position of Vice President during fall 2018.

Three Assistant Vice Presidents reported to Dr. Clement. Dr. McBride also reported directly to Dr. Clement. Andrea Crabb reported directly to Dr. Mary Hummel, who reported to Dr. Clement. Dr. McBride met and communicated with Dr. Clement regularly. Dr. Clement spoke with Dr. McBride about having a second in command on prior occasions but she was not convinced that creation of such a position was absolutely required.

All the directors of the 14 units within the Office of Student Affairs met every two weeks and each director would meet once a week with their direct report. Katie Lawson, the Chief Communications Officer, did not report to Dr. Clement.

Prior to fall 2018, Dr. Clement stated that, to her knowledge, there had been no significant mold issues. For instance, Res Facilities would typically receive about 250 reports of mold a year. Typically, those mold reports would be handled within 24 hours. There had been water-related mold incidents in buildings around campus but there were no significant renovations done to alleviate mold. In the summer of 2018, Dr. Clement was not aware of any preparations or adjustments to the HVAC systems in the dorm rooms to address the high humidity/high heat season. Additionally, Dr. Clement stated that mold was not a big discussion topic during the summer and August of 2018.

Leading up to the fall of 2018, Dr. Clement stated that the University was expecting more students in the residence halls than was typical. In Elkton, plans were made to create triple rooms in spaces that were previously utilized as student lounges. It was anticipated that Elkton would house about 25 more students than in the past. Elkton typically housed around 500 students.

Dr. Clement became aware of significant mold issues after she was notified by Dr. Hummel that the dorms were experiencing more mold than usual. Dr. Clement understood the cause to be abnormal weather conditions that were experienced in fall 2018. As the mold issues escalated in September, Dr. Clement understood that the Res Facilities staff could not handle the workload and she was advised that the students in Elkton would need to be relocated. It was Dr. Clement's understanding that as of about September 19, Res Facilities staff were still responding to complaints on a case-by-case basis.

Dr. Clement stated that within a week of her learning about mold issues, the University's response was escalated. Dr. Clement said that her role in dealing with the mold issues focused on assuring that the right people were around the table to discuss issues and make decisions, but that Ms. Crabb made final decisions regarding how to handle the situation (including cleaning the furniture and the rooms). Dr. Clement stated that Ms. Crabb required no approval from her level in order to proceed with the Elkton relocation and cleaning/remediation. That is, Ms. Crabb had the authority at her level to make all necessary decisions to address the mold issues and cleaning/remediation at Elkton.

When asked how the decision to clean/remediate Elkton Hall on a floor-by-floor basis was made, Dr. Clement responded that the University was advised by consultants that floor-by-floor cleaning would be safe and was the proper way to conduct the remediation. Her understanding of

the remediation process was that one outside contractor was checking the work of another outside contractor. When asked about how the decision was made to not conduct air sampling, Dr. Clement stated that EPA and OSHA guidelines/standards were used and that experts advised that air sampling did not need to be done. Dr. Clement stated that she was unaware of any conflicts within the group over whether or not to do air sampling.

The Panel asked Dr. Clement about the IRT. Dr. Clement's role is to chair the IRT and it is her responsibility to call meetings of the IRT. Dr. Clement stated that for the past couple of years the IRT has met about once a year. Dr. Clement described the IRT as an "informational-sharing group and not a decision-making group." As situations unfold the IRT allows leadership to have all of the facts. Dr. Clement stated that the decision to relocate students from Elkton was not made in the IRT meeting. She indicated that the recommendation to vacate Elkton was made by Dr. Hummel and Ms. Crabb.

Dr. Clement recalled that the IRT met concerning mold in the dorm rooms during the week of September 25. The purpose of that meeting was information gathering and sharing to get communications out. Dr. Clement indicated that she was the person keeping the President aware of the issues. Dr. Clement also stated that she did not have to approve student and campus communications regarding mold. During the handling of mold issues, Dr. Clement advised that she was in contact with President Loh and Assistant President Eastman almost every day. Dr. Clement stated she recalls first learning of the mold issues on September 21, 2018, the same day she informed President Loh.

When asked what Student Affairs' policies and practices concerned handling complaints from parents or students regarding issues they experience at the University, Dr. Clement responded

that there are always parent complaints and they are typically handled at the department level. In the instance of mold, there were parents whose complaints made it to the level of Dr. Hummel. When asked if Dr. Clement or Student Affairs were aware of reports from staff regarding health issues or irritation from the mold in fall 2018, Dr. Clement stated that she was relying on and working with Dr. McBride to respond to those concerns.

Dr. Clement stated that there were no financial constraints placed on those individuals who were making decisions concerning the handling of mold issues in fall 2018.

Dr. Clement did not convene the IRT during the adenovirus outbreak because it is a health-related issue. She also stated that the CIDMC served in an advisory role. Dr. Clement confirmed that she had no role on the CIDMC. Dr. Clement stated that on health-related communications, Dr. McBride has the final say. Dr. Clement indicated her belief that the timing of communications related to adenovirus was appropriate and that she would not have handled any of the communications differently.

Dr. Clement advised that when a student is hospitalized, typically the Office of Student Affairs is not notified. During the adenovirus outbreak, Dr. Clement indicated that Dr. McBride kept her informed about hospitalizations of students with adenovirus infection. Dr. Clement understood that certain strains of adenovirus could be dangerous for immunosuppressed individuals. Dr. Clement relied heavily on Dr. McBride during the outbreak to make judgment calls on when to talk to CDC, the Maryland Department of Health, and the PG County Health Department. She indicated that she had daily communications with Dr. McBride during the outbreak.

Dr. Clement indicated that one confirmed case of adenovirus infection would not have risen to the level of reporting to the President. She stated that her first communication to President Loh regarding adenovirus was November 13.

G. Dr. Mary Hummel, Assistant Vice President of Student Affairs

The Panel interviewed Dr. Mary Hummel who is the Assistant Vice President of the Division of Student Affairs. The Panel questioned Dr. Hummel on the following topics: 1) internal policies and procedures and general building information; 2) mold in the residential facilities in Fall 2018 and the University's response; and 3) the adenovirus outbreak and the University's response.

Dr. Hummel has served for nine years as an Assistant Vice President but has been at the University for 20 years in a variety of positions. During the fall of 2018, Dr. Hummel reported directly to Dr. Clement. Dr. Hummel oversees Transportation Services, Res Facilities, Res Life, Conferences & Visitor Services, and Dining Services.

Dr. Hummel indicated that she works in the same office space with Dr. Clement so her communications with Dr. Clement in the fall of 2018 were frequent.

Dr. Hummel met with her department heads once a week in either a large group or within the group that directly reported to her. Dr. Hummel would have one-on-one meetings with her department heads weekly or bi-weekly. Andrea Crabb reported directly to Dr. Hummel once she started in her role. Prior to Andrea Crabb, the Director of Res Facilities had been at the University for over 40 years.

Dr. Hummel is a member of the IRT. Dr. Hummel's understanding of the IRT was that it only meets in response to an incident. Dr. Hummel serves on the IRT as a representative of Student

Affairs. It was Dr. Hummel's understanding that the Emergency Management Operations Plan was managed by Alan Sactor.

Dr. Hummel stated that the purpose of the IRT was primarily for information sharing regarding student affairs and concerns in connection with an incident. Dr. Hummel recalled that in fall 2018, there was an initial meeting of the IRT regarding mold, and the purpose of the meeting was to talk about what was happening in the residence halls, the problems in the academic buildings and how other schools in the region were addressing the issues. Dr. Hummel had no recollection of any decisions or plans made at the IRT meeting.

Prior to the start of the fall semester, Dr. Hummel advised that the University had occupants in the residential buildings at various times throughout the summer and that the University was not hearing about or seeing significant problems. Additionally, the University had dealt with mold issues related to water damage and leaking foundations, but only as one-off events. Historically, any surface-related mold in unoccupied space would be resolved once housekeeping cleaned the rooms prior to move-in and the spaces were subsequently occupied. Any mold issues were managed at the facility level and may not have reached the department-head level. Additionally, Dr. Hummel stated that regular maintenance to the HVAC systems was typically done in house.

Dr. Hummel stated that she learned of the escalating mold concerns when she received an email from Andrea Crabb on September 13. She did not ask how long Andrea Crabb and her staff had known about mold issues. Dr. Hummel let Dr. Clement know about the mold issues around this time because there were a high volume of service requests coming in concerning a number of buildings.

It was Dr. Hummel's understanding that there were not enough resources to handle the service requests concerning mold and that something different would have to be done for Elkton Hall. In Dr. Hummel's recollection, a team was brought in to clean/remediate and a team brought in to determine the cause of the mold.

During the University's response to mold in Fall 2018, Dr. Hummel became more involved by speaking directly with parents, managing, and being more hands-on than normal. She indicated that during that period about 80% of her day was spent on mold-related issues. Dr. Hummel indicated that the President's Office was not directly involved with the relocation or the cleaning/remediation efforts nor did it provide any recommendations related to the mold issues on campus.

Dr. Hummel recalls that the University prioritized relocating students who reported health issues as a result of mold. Dr. McBride provided recommendations and there were discussions held about the CDC's position on the effects of mold on health. Dr. Hummel did not recall Dr. McBride being particularly involved with the decision to relocate all students in Elkton.

When asked how the Department of Environmental Safety Sustainability and Risk (DESSR) got involved with the mold issues, Dr. Hummel indicated that Ms. Crabb reached out to them for consultation purposes and for guidance about testing.

Dr. Hummel was involved in the decision not to conduct air quality testing. Her understanding was that it was not recommended because the same remediation activities would occur regardless of the type of mold found in the dorms. When asked about the public relations implications of air testing, Dr. Hummel stated that there was a balance between best practices and whether that testing would provide helpful or useful information. Dr. Hummel stated that the

decision not to conduct air testing was not based on a concern that samples would indicate that remediation was unsuccessful. She also reiterated that expense was never a factor in conducting the remediation.

Dr. Hummel indicated that validation of the cleaning/remediation was done visually by the firm that Res Facilities hired for that purpose. Dr. Hummel was not involved in the decisions to have reports generated by BDL or Vertex.

Dr. Hummel indicated that Strategic Communications took the lead on drafting mold-related communications but she also reviewed those communications. Dr. Hummel handled some direct parent communications. Also, during the handling of mold issues, Dr. Hummel indicated that a team of about 20 people were trained to respond to parent concerns.

Dr. Hummel recalls that once the weather got better there were significantly less mold complaints and by about the end of October/the beginning of November the call volume dropped dramatically.

In fall 2018, Dr. Hummel was on the CIDMC. Her role on the CIDMC was to represent Student Affairs and bring information back to the relevant stakeholders. She advised that Dr. McBride would call the meetings for the CIDMC. Though Dr. Hummel was included on some communications between the CDC, Maryland Department of Health and the Prince George's (PG) County Health Department, she stated she was only "CC'd" on these communications for information purposes.

Dr. Hummel indicated that she was made aware of the adenovirus outbreak once Res Facilities started high touch cleaning. She was also aware of Res Facilities' efforts in January to go into every room over the winter break and clean the rooms. Dr. Hummel had limited

involvement with communicating to students and parents during the adenovirus outbreak and served only in a support role.

H. Maureen Kotlas, Executive Director of the Department of Environmental Safety, Sustainability, and Risk

The Panel interviewed Maureen Kotlas who, during fall 2018, served as the Executive Director of DESSR. The Panel questioned Ms. Kotlas on the following topics: 1) the structure of DESSR and 2) her and DESSR's involvement with mold issues in the dorm rooms in fall 2018.

Maureen Kotlas has worked at the University for about three and a half years, always as the Executive Director of DESSR. DESSR has multiple components including an Environmental Health and Safety department and an Occupational Safety and Health department. Ms. Kotlas indicated that she is a member of the CIDMC.

Ms. Kotlas advised that DESSR typically gets involved in a mold response when a representative from Facilities Management or Res Facilities contacts DESSR to do a visual assessment. Fall 2018 was not the first time that DESSR has been contacted regarding mold in residential buildings and DESSR had completed a few mold assessments in 2018. Ms. Kotlas referred to instances where sheet rock would be removed to find hidden mold, but that visible mold is usually related to a moisture or humidity problem.

Previous instances of mold in University buildings varied from building to building. Mold can be found in older buildings where ventilation is not as good. Ms. Kotlas indicated that some buildings are subject to water leaks which can also promote mold.

Ms. Kotlas advised that DESSR's role in assisting Res Facilities with mold concerns involves conducting a visual inspection of the area and if mold is seen, writing a scope of work

that identifies appropriate cleaning/remediation and the details of the nature of mold found. The scope of work would include the "Mold Remediation Protocol" which dictates that if mold is seen it must be removed by trained or properly equipped personnel or a qualified mold remediation contractor. Ms. Kotlas stated that it is very unusual for the University to be able to evacuate an entire building during remediation. DESSR's scope of work typically includes a qualified mold inspector reviewing the project after remediation is completed.

In fall 2018, Ms. Kotlas recalls receiving about 12-15 mold calls a week, campus-wide. Ms. Kotlas recalls that Ms. Crabb called Katie Cavanaugh, the manager of the OSHA program, on or about September 14 requesting information about how to deal with mold and inquiring about whether DESSR recommends taking samples or testing for mold. Ms. Kotlas recalled that most of the calls concerned visible surface mold and not because students were experiencing health issues.

It was Ms. Kotlas' and DESSR's position that there was no need to take mold samples because the mold at issue was visible. She indicated that an exception to this rule could be to verify whether remediation was successful or if a physician requested mold sampling in the course of treatment. Ms. Kotlas also thought it would be appropriate to test if there was a question whether what was visible was actually mold. However, in fall of 2018, Ms. Kotlas stated that Ms. Cavanaugh was looking at the rooms and could tell that the substance was mold. Overall, DESSR's normal procedure is not to conduct air sampling and Ms. Kotlas did not think there was a need to air sample in fall 2018. She stated, however, that she wouldn't oppose sampling being done before and after the remediation to determine whether the cleaning was successful.

Ms. Kotlas understood mold in the dorm rooms was predominantly on possessions and furniture and not the walls. DESSR representatives walked Elkton Hall and observed the conditions. DESSR also had direct contact with parents regarding mold issues.

Ms. Cavanaugh recommended bringing in an outside contractor to get humidity under control in the dorm facilities. Ms. Kotlas stated that Ms. Cavanaugh also recommended: 1) hiring a qualified mold remediation firm; 2) establishing appropriate environmental controls; 3) removing students from remediation areas; and 4) hiring a qualified contractor to verify remediation after work was complete.

DESSR did not monitor nor did it inspect the post-remediation work in Elkton. DESSR recommended having an industrial hygiene expert do the post-remediation inspections. Ms. Kotlas indicated that visual validation of the mold remediation is not totally reliable, but because the dorm rooms are constructed with masonry, the visual inspection is made more reliable, because there are fewer places for the mold to remain "hidden" from view. DESSR recommended a full evacuation of the students in Elkton but DESSR was later informed that the HVAC system configuration made floor-by-floor remediation an acceptable method. Ms. Kotlas indicated a belief that certain employees were involved with cleaning mold longer than they should have been.

Ms. Kotlas felt that the University's efforts to conduct mold remediation were collaborative and that during the peak of the calls she spent about eight hours a day for a couple of weeks dealing almost exclusively with mold calls.

Ms. Kotlas recommended after Fall 2018 that the University should investigate ways to identify when mold in the dorm rooms becomes a larger issue than is typical. DESSR was also involved in helping Res Facilities develop a new moisture plan after Fall 2018. Ms. Kotlas also

recognized that the industrial hygiene industry needs more understanding of the health effects of mold on immunocompromised individuals because of the possibility that some people could get sick from mold exposure.

I. Susan Gilson, Safety Manager for Residential Facilities

The Panel interviewed Susan Gilson who, during fall 2018, served as the Safety Manager for Residential Facilities. The Panel questioned Ms. Gilson on her involvement with mold in the dorm rooms in fall 2018.

Susan Gilson worked in the past with DESSR. She left that position but came back to the University to work with Res Facilities as its safety manager on a part-time basis. She has served in her current role for three years.

Ms. Gilson reports directly to Cindy Felice, who serves as the Associate Director of Services for Res Facilities. Ms. Gilson's duties include injury prevention and safety and health for the Res Facilities staff. Ms. Gilson focuses on targeted loss control, incident investigations, compliance issues, and "lock out tag out" training.

Prior to fall of 2018, Ms. Gilson had only limited experience with mold. She did conduct some room inspections, however. Ms. Gilson noticed that mold growth was "pale with whitish greenish spots." The mold was found under desk drawers, on the side of the dressers, and in black spots on the blinds. She noticed the high level of humidity when she did her inspections in Fall 2018.

Mold was also found on student possessions and once the dresser drawers were removed it was found on the back of the dressers. Ms. Gilson noticed black spots on the fan coil units and on wooden portions of the furniture. She also stated that some mold could only be seen with a

flashlight. During a series of room inspections, Ms. Gilson indicated she found an increased level of mold in a stack of rooms that were in a column. She stated that the rooms were very humid and when she entered the room, she noticed a bad smell and mold on the furnishings.

Once the decision was made to remediate Elkton, Ms. Gilson worked to find the third-party industrial hygienist to do the inspection of the remediation. Ms. Gilson worked with Julius Williams to put together that scope of work. Ms. Gilson stated that Patrick Rhodes was responsible for finding the contractors to conduct the remediation and he found Waco and Sandow.

Ms. Gilson was involved in the discussions regarding air sampling and it was her recollection that DESSR helped everyone come to the determination that air samples are not informative and thus should not be conducted. Ms. Gilson also recalled that Vertex, the third-party industrial hygienist who conducted visual inspections after the remediation, did not recommend taking air quality samples post-remediation.

Ms. Gilson stated that Towson University reached out to her at some point and discussed their decision to do air sampling following a remediation. Although Towson believed its remediation efforts were thorough and complete, post-remediation air sampling showed the existence of some mold (which is omnipresent both indoors and outdoors). Equivocal mold test results caused Towson to clean/remediate certain spaces a second time. Towson indicated that it did not believe the second cleaning/remediation efforts were warranted but undertook the exercise again based on equivocal test results. Based on that experience, Towson indicted that air sampling was likely not necessary in their example.

Ms. Gilson has been involved with air sampling in isolated events. In January 2019, Ms. Gilson did conduct air sampling in Elkton 3152 (Olivia Paregol's room during fall 2018). The

results of those tests revealed that mold levels were higher outside of the building than inside room 3152. Ms. Gilson also mentioned that air sampling was conducted in one of the fraternity houses where an immunocompromised student lived.

Since fall 2018, Ms. Gilson stated that Res Facilities' housekeepers have become better with "nook and cranny" cleaning over the summer months.

J. Julius Williams, Project Manager in Renovation Services, Facilities Management

The Panel interviewed Mr. Julius Williams who, during fall 2018 served, as a Project Manager in Renovation Services within the Facilities Management department. Mr. Williams has worked for the University for eight years. The Panel questioned Mr. Williams on his involvement with mold in the dorm rooms in Fall 2018.

Mr. Williams oversees all mold remediation handled by the Facilities Management office. He directly and indirectly assists with mold remediation and is considered a campus expert on mold-related matters. Mr. Williams advised of his understanding that Res Facilities has the authority to handle its own remediation projects.

Prior to fall 2018, Mr. Williams had no experience with any other significant mold events on campus. He indicated that he learned of the high levels of mold after he saw media reports and reached out to Ms. Crabb. Mr. Williams stated that the Res Facilities safety director (Susan Gilson) reached out to him to help write the scope of work for quality control for the Elkton remediation. Mr. Williams' understanding is that mold was caused by air systems not removing sufficient humidity from the building. When asked who prepared the "Elkton Hall Cleaning Scope," Mr. Williams stated that DESSR developed that document.

Mr. Williams was asked about how the decisions were made to not conduct air sampling post remediation. Mr. Williams advised that based on what he knew to be the site conditions at Elkton Hall, air sampling was not considered. He stated that air sampling serves as a guide if the source of the mold wasn't identifiable. In Elkton, the reason for the mold was clear. Mr. Williams stated that air sampling wouldn't provide any substantial information. It is also Mr. Williams' opinion that visual inspection post-remediation is normal and acceptable. When asked if air sampling should be done to assure students and parents, Mr. Williams stated that he would have no resistance to air sampling for those reasons.

Mr. Williams made periodic site visits to Elkton Hall during the remediation and observed that the rooms were completely vacated and that the mold was localized as green spores on porous surfaces. When he visited, the bulk of the work was happening on the upper floors. He noticed mold on chairs but not on walls, the concrete masonry units, or the ceilings. During remediation, contractors wore dust masks and gloves but remained in their regular clothes. Rooms were not isolated from each other as the objective was to clean surface mold. Mr. Williams stated that by the time Vertex was on site, most of the cleaning was complete. He also recalled seeing BDL in Elkton specifically working on the fan coil units.

Mr. Williams indicated that non-residential buildings experienced mold but not to the level of Elkton.

In terms of lessons learned from fall 2018, Mr. Williams suggested less reliance on the CCMS (hub that controls all of the HVAC systems from one main system) and have actual people observing and looking at the buildings in real time during extreme weather conditions. He also suggested the students have fans placed in their rooms to regulate humidity. Finally, he

recommended installing humidity monitors and dehumidifiers in Elkton that can inform Res Facilities when the humidity is above 50/60% (note that humidity monitors have been installed in Elkton since fall 2018).

K. Building Dynamics, LLC

The Panel interviewed Ed Light and Rick Meetre from BDL regarding their role in the Elkton Hall remediation in fall 2018. Mr. Light is the President of BDL and Mr. Meetre is the Building Automation Controls Engineer for BDL.

BDL is a mechanical engineering and industrial health consulting firm that specializes in indoor air quality and moisture control. The majority of the employees of BDL are engineers who specialize in HVAC systems.

BDL has numerous contracts with primary schools and was called to the University on an emergency basis. Andrea Crabb found BDL after she conducted a literature review. BDL indicated that its scope of work was a combination of mold assessment and review of the engineering related to the HVAC systems in Elkton Hall. It was BDL's task to understand what happened and define the root cause of the problem. BDL also reviewed the work that had already been done by the University. BDL conducted an engineering analysis of the HVAC system in Elkton and assessed what improvements could be made to the system. BDL was not involved with any of the remediation efforts in the other buildings with mold calls.

BDL was also involved in assisting with communications and responding to media inquiries related to mold and humidity controls. BDL stated that its primary goal was to provide an immediate response and make the building safe. BDL advised that it was involved in the

remediation of Elkton from the very beginning and felt that the plans and procedures put in place were appropriate and within industry norms.

BDL stated it did not have enough time to do a full scope of study but that BDL determined that the cause of mold was the dehumidification equipment and the need for better humidity control based on their report. Because of the sustained high humidity in the area, mold growth was triggered. BDL stated that during the Summer of 2018, because of the weather, BDL was historically busy working on other projects related to humidity, HVAC control and mold growth.

When BDL inspected rooms on different floors in Elkton, it noticed a pattern of humidity related mold growth that was a range of gray colors. BDL noticed that some rooms had several areas of mold growth in patches on the furniture, the HVAC system in the rooms, and some on the walls. In the worst-case scenarios, mold was present in several patches and in the minor situation there were smaller patches. BDL stated that there were many rooms that did not have mold growth. BDL did not measure the mold in terms of the square footage.

BDL noted that air circulation was an issue and that the closets were particularly bad because closets are a dead area (i.e., no air circulation). BDL was informed that the mold was generally everywhere so it did not attempt to determine whether there were specific clusters of mold. BDL determined that the fan coil unit was cooling the supply air without removing moisture.

In evaluating the HVAC systems in Elkton, BDL did not speak with the contractors who designed or installed the fan coil units in 2012 and 2013. BDL did contact the manufacturer of the controller of the HVAC system/fan coil units but it did not look at the Air System Testing and Balancing ("TAB") reports.

BDL stated that it was not onsite for the entire Elkton remediation and that it picked critical and representative times to be onsite. BDL did "spot check" the work of WL Gary.

BDL's scope of work did not include any suggestions for tape lifts or post remediation air sampling. It was BDL's position that testing for mold spores does not answer questions related to health risks, doesn't measure the effectiveness of the remediation, doesn't measure the damage of the growth of mold on the surfaces, nor does it measure the dampness/moisture content of the materials which are key factors in determining whether conditions have been returned to normal. BDL was also of the position that air sampling provides false negatives and false positives and that contradictory to a lot of consultants' beliefs, BDL advocates against air sampling.

BDL recommended that the University not take air samples and suggested instead that they use an assessment and verification procedure which involved BDL and other contractors visually verifying the removal of the mold and the drying of the building. BDL checked the initial verification procedure and provided updates and then added two layers of back up: BDL doing a thorough inspection, Res Facilities doing an inspection, and then another industrial hygienist firm doing an inspection.

BDL does not believe that the type of mold found in an indoor space is a controlling factor in how quick and stringent the response to mold should be because the generally accepted standard is that any mold is not acceptable indoors. BDL stated that an important factor in determining the health effects of mold is the health status of the occupant and that the real problem is a sustained dampness in the building.

BDL could not improve humidity control in the building, but it stated that in its view the University remediated effectively and went above and beyond what was necessary.

L. Capt. Ken Ecker, Campus Emergency Manager

The Panel interviewed Captain Ken Ecker who is a Commander in the Police Training Division. Captain Ecker is listed as the "Campus Emergency Manager" and is a member of the Emergency Management Team, which is housed within DESSR. Captain Ecker has been with the University for about twenty-five years.

The Emergency Management Team consists of the Police Department and DESSR; Capt. Ecker stated that Al Sactor is the voice of emergency management.

Captain Ecker stated that in his role he does not interact much with the IRT. He stated that once the President, any of the VPs or the Police Chief declares an emergency, they will call for Captain Ecker. Captain Ecker is involved with the Incident Command System which is for exigent emergencies. Capt. Ecker stated that there is no campus emergency manager role.

Capt. Ecker's office developed the University's Emergency Management Operations Plan and he works with each department to make sure the department plans properly flow into the Emergency Operations Plan.

Captain Ecker's department helps the separate departments develop their emergency operations, readiness, and response plans. He stated that trainings and drills are handled at the Department director's level. Within the plans, there are discussion of the different triggers for an initial response.

Captain Ecker indicated that in the Fall of 2018, Res Facilities' mold-related issues did not rise to the level of a campus-wide emergency.

Captain Ecker advised that during the adenovirus outbreak his office was not involved.

M. Mike Glowacki, Executive Assistant to the Director of Residential Life

The Panel interviewed Mr. Mike Glowacki who, during fall 2018, served as the Executive Assistant to Deb Grandner, Director of Res Life. The Panel questioned Mr. Glowacki on the following topics: 1) his duties and responsibilities; 2) Internal Policies and Procedures of Res Life; 3) the presence of mold in the dorm rooms in Fall 2018 and the Office's communication with parents and other university departments; and 4) the presence of adenovirus at the University.

Res Life supervises the operation of about 12,500 residential beds and another 3,000 beds that are in public-private operation. Res Life provides support functions to students living in residential facilities as well as programming for the students to keep them engaged. Mr. Glowacki stated that Res Life and Res Facilities work closely with each other and have the same funding source and that although their responsibilities sometimes overlap, each department has a unique set of responsibilities. Both departments report to the same Assistant Vice President, Dr. Hummel. Mr. Glowacki acknowledged that Elkton was in a high occupancy state in the fall 2018 but that this had happened in the past.

Mr. Glowacki has been with Res Life for thirty years. In prior years, Res Life's involvement with moisture issues in the dorm rooms was minimal as it was primarily a Res Facilities function. During the summer months, Res Life runs a small housing program in some of the facilities. Prior to move-in for the fall semester, the Resident Assistants (RA's) do a preoccupancy room check and prepare preoccupancy reports. Mr. Glowacki stated that he was unaware of any mold related complaints found during the pre-occupancy checks and that if there had been mold found it would have been reported.

For most of fall 2018, Mr. Glowacki was acting in Deb Grandner's role as she was away from the University for a family emergency. Mr. Glowacki's regular duties consist of providing administrative support, coordination, planning and customer service. Mr. Glowacki is familiar with the IRT and stated that Deb Grandner often attends the meetings but is not a sitting member of the IRT. During fall 2018, Mr. Glowacki stated that he attended an IRT meeting, but he did not recall anything from that meeting regarding mold.

In the fall of 2018, Mr. Glowacki recalled that Res Life established additional procedures to be as responsive as possible to mold concerns. A call center was established to address concerns. Mr. Glowacki stated that he first became aware of the high levels of mold during the week of September 18 after a staff meeting discussing elevated mold levels. Mr. Glowacki understood that students were finding a white fuzzy substance on their furniture, the walls, and their belongings. Mr. Glowacki stated that the Friday of that week, Ms. Grandner was leaving to take care of family business. After that, the senior leadership team was led by Mr. Glowacki.

Mr. Glowacki indicated that he was involved with coordinating communications with residents, hotel spaces, buses, police to provide traffic management, and dining services to provide food to students. Mr. Glowacki was not involved in the decision-making regarding validating the mold remediation. Mr. Glowacki had limited direct communication with Dr. McBride and DESSR. Throughout the height of the mold-related issues, Mr. Glowacki advised that the University employees involved with the remediation and cleaning hosted daily conference calls.

Mr. Glowacki stated that a meeting on Friday, September 21 indicated that Elkton Hall was at a tipping point and that the best way to complete the remediation thoroughly was if the students

were moved. At that meeting Mr. Glowacki recalls that the team ran through their options. Considering that it was Parents' weekend, there was limited hotel space.

[redacted]

Mr. Glowacki recalled that the mold complaints subsided after the remediation and that October 20 was the first day with no service requests for mold.

Mr. Glowacki stated that in late November/early December Res Life and Res Facilities hosted a post-action review meeting where they discussed how mold issues were handled. As a result of the events in fall 2018, Res Life instituted more messaging to students regarding proper operation of the dehumidifiers and added a health and safety inspection of the rooms for each fall.

Mr. Glowacki stated that he was minimally involved with the adenovirus outbreak. He may have reviewed the communication that went out on November 19, 2018. He did not participate in any after-action meetings related to adenovirus.

N. Mr. Ian Paregol, Father of Olivia Paregol

The Panel interviewed Mr. Ian Paregol regarding the events of fall 2018 regarding both mold handling issues and the adenovirus outbreak. All panel members were present for Mr. Paregol's interview and the Panel expressed their condolences for the loss of Olivia.

Mr. Paregol was asked open-ended questions regarding his concerns about the University's handling of the mold and adenovirus issues in fall 2018. Mr. Paregol expressed his unhappiness in what he perceived to be a failure of the University on both fronts. He also expressed frustration with the University's response to him and his family following Olivia's death.

Mr. Paregol advised that Olivia moved into Elkton at the end of August and within two weeks she was seeing mold in her dorm room. Mr. Paregol indicated that a lot of Olivia's friends lived on the 8th Floor of Elkton and that she spent a lot of time there. Mr. Paregol stated that Elkton Hall was overcrowded, doubles were made into triples and lounges were converted to student rooms. Mr. Paregol felt that the overcrowding situation was purposeful by the University.

Mr. Paregol recalled that prior to Parents' Weekend, Res Facilities had been to Olivia's room and replaced the furniture, but the mold came back. Mr. Paregol did not attend the town hall meeting regarding mold held during Parents' Weekend. Mr. Paregol stated that a week after Olivia and her roommate were relocated, there was still caked mold in the vent. It was his understanding that the dorms were only cleaned and not remediated, and that untrained housekeepers were handling the cleaning. As a result, it was Mr. Paregol's understanding that housekeeping staff became sick from the mold exposure.

Mr. Paregol indicated that the dehumidifiers in Elkton were only placed in the hallways and not the rooms. The mold kept coming back and the University never tested the air quality in Elkton to be clear about what mold was in the dorm. Mr. Paregol's understanding of Vertex's work was that it only did half the rooms in Elkton and the rooms that were checked by Vertex found that the remediation had missed certain areas.

Mr. Paregol understood that 37 of the 38 dorms were reported as having mold in them. Mr. Paregol stated that the efforts that the University took to address the mold after the fall of 2018

(i.e. placing dehumidifiers) in the rooms were not sufficient in comparison to the University building a new athletic facility. Mr. Paregol stated that there was never any testing of the type of mold present in the dorms and there was never any air sampling after the cleaning work was finished.

Mr. Paregol indicated that the CIDMP was developed in fall 2014 in response to a meningitis outbreak on campus. Mr. Paregol stated that when he spoke with University officials after his daughter's death, he was told that the response according to the CIDMP was level 2. Mr. Paregol stated that a level 2 response would have required notice to families regarding the adenovirus outbreak. Mr. Paregol stated that the University knew of two cases of adenovirus before November 2 [redacted] Additionally, Mr. Paregol stated that as of November 2 the UHC was aware of the unprecedented spike in influenza-like illnesses and failed to address and determine the cause of that spike.

On November 2, a Friday, Mr. Paregol remembered having dinner with Olivia and determining that because [redacted]

Mr. Paregol stated that the UHC was aware of adenovirus on campus and that as of the November 9 [redacted] they had received no communication from the University concerning adenovirus. Mr. Paregol stated that [redacted]. Mr. Paregol stated that had someone known along the way that she had adenovirus infection she would have received proper treatment. [redacted]

By November 12, [redacted] on November 13 [redacted]. That same day Mr. Paregol called a University official who was identified in a mold-related communication. Mr. Paregol received a call back from Dr. McBride and Mr. Paregol was told [redacted] that adenovirus was confirmed on campus at Maryland. During that same conversation, Dr. McBride asked Mr. Paregol where Olivia had been spending time and Mr. Paregol told Dr. McBride to check a location which turned out to be a fraternity house.

Mr. Paregol indicated that [redacted]

Mr. Paregol stated his belief that there were forty-five identified cases of adenovirus infection on the University's campus, 10-15 resulted in hospitalization during the adenovirus

outbreak. Mr. Paregol indicated that the UHC and the University did not follow the protocols it had in place from 2014.

Mr. Paregol stated his belief that the communications regarding adenovirus to staff and students were issued only as a result of Olivia's death. Mr. Paregol indicated that while Olivia's roommate was informed about adenovirus, Olivia, as the immunocompromised individual, did not receive that same notice. Mr. Paregol stated his belief that the University made a conscious decision not to communicate directly to immunocompromised individuals.

Mr. Paregol expressed his belief that the University failed to follow the protocols put in place in 2014. He believes that failure is with Dr. McBride and President Loh, at minimum. He believes that the University made decisions not to disseminate communications about adenovirus because it was trying to protect its image in the wake of the Jordan McNair matter.

Mr. Paregol was unhappy about the University's response following Olivia's death. At a meeting with Dr. Loh and Dr. Clement, about a month after Olivia's passing, Mr. Paregol recalls that Dr. Loh had no understanding of the facts of Olivia's situation or what had happened. He recalls Dr. Loh saying "we have an expert team that handles those matters."

Mr. Paregol believes that the University: 1) purposefully overcrowded the dorms; 2) knew about growth of mold in Elkton and other buildings for years; 3) failed to properly clean and oversee cleaning in Elkton; 4) failed to recognize spikes in ILI in the Fall 2018 that could be attributable to causes other than typical flu season; 5) made housekeeping susceptible to mold related illnesses; 6) failed to properly treat Olivia and alert her to known dangers; 7) failed to communicate the fact that adenovirus was on campus to staff and students; and 8) purposefully withheld information about the condition of the dorms and adenovirus because of the Jordan McNair matter.

IV. FINDINGS OF FACT

The Panel, through its document review and interviews of key personnel developed a comprehensive timeline of the events of Fall 2018. That timeline and supporting documents are attached as **Exhibit A**.

The Panel's investigation was conducted nearly a year after the incidents in question, with the advantage of having all information readily available and without significant time constraints to consider that information. That is, the Panel recognizes that its review of the University's handling of the adenovirus and mold events is undertaken with the benefit of hindsight and not in the "heat of the moment" as experienced by University employees. Nevertheless, the Panel found, without exception, that: 1) the University employees involved with adenovirus and mold issues in the fall 2018 worked tirelessly to address the issues they confronted; 2) student health and safety was the paramount concern; 3) cost was never a limiting factor in the University's response to these two issues; and 4) no employee intentionally withheld or delayed disclosing pertinent information.

That is not to say that the University's response to these events was perfect. No response ever is. There are a number of findings of fact and recommendations by the Panel, detailed below, that highlight areas of weakness in the University's responses and propose changes to permit better and more coordinated responses to future emergencies.

A. FINDINGS OF FACT RELATED TO MOLD IN THE DORM ROOMS

The Panel established a timeline of important events related to the mold in the dorm rooms in Fall 2018. Notable dates are listed below:

July 9 – July 19: Infinity Environmental is engaged to "provide labor, materials, and equipment to clean and seal dual temp pipe insulation in seventeen (17) bedrooms on the 8th Floor of Elkton Hall" due to mold in these rooms.

August 8 – August 9: Res Facilities staff conducting humidity inspections in the residence halls.

August 18 – August 20: Infinity Environmental engaged to provide all labor, materials, and equipment to clean and/or remove mold from walls and cabinets in Elkton Hall.

August 22: Infinity Environmental engaged to provide all labor, materials, and equipment to remediate furniture in the bedrooms of Elkton Hall.

August 23: "Official" opening day for students to move into Elkton Hall.

September 13: Andrea Crabb informs Dr. Mary Hummel about the high volume of service requests due to mold in the residence halls due to the weather.

September 19: Communications to students regarding mold issues and ongoing inspections and cleaning efforts on all floors in Elkton to respond to service calls related to mold.

September 20: Andrea Crabb contacts Dr. McBride to discuss the elevated levels of mold in the dorm rooms and potential health concerns. Andrea Crabb notes that Elkton is identified as the worst hall because there are service requests regarding mold on every floor.

September 21: Res Facilities decides to evacuate Elkton floor-by-floor to remediate the building without students in place. Linda Clement notifies the President's office of the mold problems in Elkton Hall and the relocation of 500 students.

September 23: Relocation of students from Elkton Hall begins.

September 24: Article published in "Maryland Today" regarding mold. Incident Response Team convened for one hour to discuss the "mold issue in the residence halls."

September 25: Communication regarding important information for faculty and staff.

September 26: [redacted]

September 26 – October 9: Sandow Construction is engaged to provide "all labor, materials, and equipment to provide emergency cleaning and remediation of all surfaces and bedroom areas in Elkton Hall; WL Gary is engaged to provide "all labor, material and equipment to respond and repair as necessary to an emergency event at Elkton Hall maintenance and cleaning of all fan coils at Elkton due to mold" and to "thoroughly clean all building fan coil units and their individual components and verify through test methods the proper operation and performance of each unit as originally designed."

September 26 – October 19: BDL engaged to "provide engineering assistance to inspect the general operations of [Elkton's] fan coil units, verify thermostat capabilities, and set points for cooling and dehumidification and provide recommendations per scope of work." Additionally, BDL was engaged to furnish necessary labor, material, equipment and accessories required to thoroughly assess the approach, process and results of the remediation in Elkton Hall and provide

engineering assistance to inspect the general operation of the building's fan coil units, verify the thermostat's capabilities and set points for cooling and dehumidification and provide recommendations for improved humidity removal and improved overall system performance.

October 7: [redacted].

October 10: Elkton Hall remediation efforts complete.

Based on the established timeline, document review, and the interviews, the Panel determined the following findings of fact related to the mold in the dorm rooms:

i. The weather in the summer and fall of 2018 had a significant impact on the ability of the dorm room HVAC systems to remove moisture and control humidity.

The weather in summer/fall 2018 was unusual and there were unprecedented levels of rain, high temperatures, and sustained high relative humidity levels. Dew points, the temperature at which condensation occurs, were historically high in September 2018. Reagan and BWI airports each reported multiple average dew points above 70ºF. *See* **Exhibit D – Relevant Weather Data and Corresponding Charts, Attachment I, Figures 1 & 2**. In September 2017 (the previous year), the daily average dew points were all below 70ºF. *See* **Exhibit D, Attachment I, Figures 3 & 4.**

Rainfall in September of 2018 was about five times that of the previous year. In September 2018, Reagan National Airport reported 8.63 inches of rainfall compared to the 1.43 inches in September 2017. Additionally, BWI Airport reported 10.01 inches of rainfall in September 2018, compared to the 1.96 inches in September 2017. *See* **Exhibit D, Attachment I, Figures 5, 6, 7 & 8.** *See also* **Exhibit D, Attachment I, Data Graphs 1, 2 & 3**.

The HVAC systems in Elkton Hall and certain other residence halls on campus were designed to accommodate weather conditions that fell within what is defined as the "2% Design Condition" by ASHRAE. This means, based on historical weather data, the outside conditions will be higher than these design conditions only 2% of the total hours of the year, or 175 hours per year; and it is not expected that this excursion beyond the 2% design condition would occur in consecutive hours. The conditions of late summer/early fall 2018 exceeded this "2%" limit on multiple occasions within a relatively short period of time. The HVAC equipment in Elkton was incapable of removing enough ambient moisture under the prevailing conditions causing previously unexperienced widespread surface mold blooms. The mold growth in Elkton Hall was caused by condensation on surfaces by the elevated atmospheric humidity.

There is no mechanical ventilation system for Elkton, so all ventilation air requirements for a room are provided by manually operable windows on the exterior wall of the room. The toilet/shower rooms are exhausted by a toilet room exhaust fan which continuously runs, and the exhaust air is ducted to an exhaust stack riser which terminates on the roof of the building. The result of this system configuration is that the building operates under negative pressure (relative to the outside), meaning that the building is drawing air from the outside into the building through cracks and open windows which can create swings in temperature and relative humidity throughout the building.

In fall 2018, multiple buildings were reported as impacted by moisture and mold growth. In a typical year, Res Facilities receives about 250 service requests a year regarding mold. The level of requests concerning mold in fall 2018 was exponentially higher than in a regular year as there were just under 1,800 calls about mold. The buildings that saw the highest level of mold

related service requests during the fall of 2018 were Elkton Hall (322), Easton Hall (197), Centreville Hall (192) and Denton Hall (186).

ii. In prior years, the University had experienced surface mold growth during the summer months in the dorms, but the University would address those issues through cleaning and utilizing pre-move-in "Managers' Checks" and RA inspections.

Res Facilities understood that the dorm rooms were typically subject to high levels of humidity during the summer months and that mold growth would occur as a result. Res Facilities would typically see surface mold growth in the dorm rooms due to the buildings being "unloaded" (i.e., not occupied by students). Rooms would be cleaned in preparation for student move-ins by housekeeping. In addition, the "Managers' Checks" consisted of inspecting housekeeping's cleaning, assuring windows and blinds were working, and evaluating how the room felt, smelled, and looked. Finally, Resident Assistant (RA) checks were performed of each room prior to student move-ins. Once the dorms were occupied and the weather began to cool in the fall months, Res Facilities would not see high levels of humidity-related surface mold growth. In sum, in typical weather years, the University's preparation for fall semester move-ins had generally resolved surface mold issues.

iii. During the summer leading up to the fall 2018 semester, staff conducted Managers' Checks of the dorms, identified surface mold in the dorm rooms, and were concerned with the efficacy of the Managers' Checks and subsequent cleaning efforts.

Prior to the Summer of 2018, Res Facilities attempted to develop a humidity control strategy for the summer of 2018. In August 2018, Res Facilities personnel conducted humidity inspections in the dorms and noticed mold in the dorms and based on experience in prior years, knew that surface mold due to humidity in the dorms was an issue in unoccupied dorms and that the plan to address humidity was not a good long-term solution. Commitments were made to

develop a "more exact method" for recording humidity problems in the coming year. *See* **Exhibit B – Documents Referenced in Report, DR 6 000589.**

iv. Prior to the start of the fall semester in August 2018, Res Facilities implemented a new system for tracking service requests, Tririga.

Res Facilities' Computerized Maintenance Management System (CMMS) implemented a new platform (Tririga) that went live on August 3, 2018. *See* **Exhibit B, DR 25 & 26 004307.** In the Fall of 2018, Residential Facilities did not utilize independent methods to "close the loop" on an assignment or to record the "closed" status within the system. In the Fall of 2018, the campus did not utilize automation in Tririga to track or report trends with regard to maintenance calls or clusters of similar calls within a building or residential community.

v. Andrea Crabb took over the position of Director of Res Facilities in July/early August.

Ms. Crabb became the Director of Res Facilities about one to two months before the mold issues in the dorm rooms became apparent. However, she had worked in the Central Facilities Management Office for the University for 5 years prior and had experience in addressing significant issues concerning University properties.

vi. The mold growth found in the dorm rooms during the fall of 2018 was consistent with surface-level mold growth that occurs due to high humidity levels.

The report of the patterns of mold growth, especially as reported by Ms. Andrea Crabb and BDL, were consistent with mold growth caused by condensation on surfaces by elevated atmospheric humidity. The elevated outdoor humidity was exacerbated by the capability and operation of the dorm room fan coil units. The reports of growth patterns include: 1) growth found on furnishings and contents, *see* **Exhibit D - Attachment III, Photos 7, 8, 9, 10, 11, 12, 13 & 14;** 2) growth on surfaces affected by cool air conditioned air blowing out from the wall mounted fan coil units; 3) and in rare ocaassions, growth in the window area. In the cases where mold growth

was found in the window area, the mold growth was usually caused by contents placed on or around the fan coil unit which suppressed or misdirected airflow. *See* **Exhibit D - Attachment III, Photo 12**. There was little or no mold growth found on the walls or ceiling.

Estimates of the amount of mold growth ranged from 0 to 20 square feet in each dorm room, within the impacted area. Mold growth was reported to be quite variable from room to room and some rooms had no mold growth. Other rooms had up to 20 square feet of mold – usually less. The estimates of square footage were provided with the caveat that any estimates of square footage were difficult to provide due to the irregularity of surfaces upon which mold was found.

vii. Though Elkton Hall had the most service requests, students were relocated from Elkton Hall because Res Facilities staff was overwhelmed and leaving the students in place while outside contractors remediated was not feasible.

There was insufficient staff available in Res Facilities to handle the number of service requests due to mold in fall 2018. In typical years, Res Facilities had sufficient staff to handle any concerns about surface mold that remained after the buildings were loaded. In Fall 2018, however, staff could not keep up with number of calls received. Prior to the student relocation from Elkton, Res Facilities personnel and cleaning staff had consistently worked weekends and overtime since move-in on August 23 as a result of typical work required during move-in period followed by the need to address mold calls. In fall 2018, that overtime and weekends was extended by efforts to respond to mold service requests. By September 21, employees were overworked and tired and pushing back on additional overtime requests to work on September 22 and September 23. **See Exhibit B, DR 6 001077.**

Belair Hall was the first residence hall to register a complaint regarding mold. While Elkton Hall was the most highly impacted facility, the overall conditions affecting almost all of the dorms

in Fall 2018 were such that the University staff could not keep up with surface mold cleaning. As a result, a decision was made that Elkton Hall would be best remediated by retaining independent contractors to perform the cleaning. Though there were mold issues in most of the dorms during fall 2018, Elkton Hall was the only dorm that relocated all residents to remediate the mold.

viii. The decision to clean/remediate Elkton on a floor-by-floor basis was made after a determination that the HVAC system, as configured, did not pose a "cross-contamination" threat between floors.

The HVAC units serving the dormitory rooms are two-pipe fan-coil units. Each dorm room has its own unit. Some of the larger rooms, like the lounges, are served by multiple fan coil units. There is no ductwork interconnection of air systems between rooms or floors to create an air circulation path that could allow for cross-contamination between areas. Each floor was isolated in a negative pressure containment as an environmental control. Within the containment area, remediation was performed by deep cleaning surfaces to remove visible mold growth. Therefore, any mold or other construction dust and debris created on one floor during remediation could be isolated from a floor above or below the 'in process' floor and prevent any re-contamination of a cleaned floor by a dirty floor. Thus, relocating students on a floor-by-floor basis afforded sufficient segregation, environmental control and safety during the demolition, disinfection and rehab process.

The University also determined that complete evacuation, all at once, was not feasible due to the limited availability of local hotel space due in part because of the upcoming Parents' Weekend. The University did not use hotels farther away from the school because of concerns regarding student safety.

ix. Residential Facilities conducted no pre-remediation air sampling of Elkton or any of the other dorms reporting mold on the advice and recommendation of DESSR.

DESSR recommended no air or surface sampling of mold for several reasons. First, mold was readily visible. Thus, DESSR believed that testing would only delay the process of remediation. Second, air sample testing can provide only an accurate picture of the mold concentration and species distribution at the point in time of the test. Mold is ubiquitous in the environment and the spores float on air currents. The exact 'mix' and concentration of mold in any area can vary with weather, wind and temperature. The results are only broadly comparative at best. Neither the EPA nor OSHA mandates that testing be done. Given the potential for inconclusive results and the fact that visible mold had already been verified, DESSR believed that there was little value in air sampling in this instance.

x. On the advice and recommendation of DESSR and BDL, the University conducted no air sampling after the remediation was complete.

Both DESSR and BDL provided advice and recommendations to Res Facilities that pre-remediation sampling was unnecessary. This was based on the fact that mold was visible and confirmed by DESSR to be mold. Similarily, based on the advice and recommendations of DESSR and BDL, the University took no air samples post-remediation. Project validation was performed by visual inspection only. Floors 6, 7, and 8 were inspected by University in-house staff. The remaining five floors were inspected by an outside consultant – Vertex. BDL advised that air sampling cannot be correlated reliably to the health effects of mold and thus air sampling was not considered useful. Additionally, since no air sampling had been done before the remediation process was undertaken, comparisons of results would be inconclusive.

xi. The University adhered to recognized standards and protocols related to mold remediation.

The University used in-house maintenance and housekeeping staff to respond to the mold complaints when the students first moved into the dorms, and up until on or around September 20 when Res Facilities added outside contractors to assist their efforts. At a point prior to September 5, representatives from Res Facilities contacted DESSR regarding the mold in the dorm rooms.

On September 5, 2018, Jennifer Kurek, a Safety Specialist within DESSR, sent preliminary information to Patrick Rhodes in Res Facilities stating that there are no regulations directly governing the presence of mold or mold spores in buildings in the State of Maryland. Ms. Kurek further advised that the "presence of visible mold in the indoor environment is an unacceptable condition and should be corrected. The cause(s) of moisture intrusion should be identified and repaired. Following repairs, qualified mold remediation contractors remove mold colonized building materials and clean affected areas using environmental controls." **Exhibit B, DR 12 000166**. This initial assessment and guidance provided to Res Facilities was correct and reflects recognized practices and policies within the mold remediation field.

Also, within that September 5 communication, Ms. Kurek stated "as is the case with any air sample, the air sample is representative of only a short period of time (typically two to ten minutes) and can lead to false alarms or a false sense of security depending on the outcome of the testing." **Exhibit B, DR 12 000166**. This assessment is consistent with literature and guidelines from the EPA and OSHA.

On September 14, after a discussion between Katherine Cavanaugh and Andrea Crabb, Ms. Cavanaugh sent to Ms. Crabb a general "Scope of Work" containing DESSR's recommendations. Ms. Cavanaugh also informed Ms. Crabb that DESSR does not recommend obtaining air samples

because "it is difficult to interpret the data, associate it to a negative health effect, and act . . . Surface samples to confirm mold presence may be obtained if growth is ambiguous." Ms. Cavanaugh advised that conducting visual inspections and refraining from air sampling for mold is consistent with recommendations from the EPA and CDC. **Exhibit B, DR 12 000167**. Ms. Cavanaugh also provided Ms. Crabb with information from the EPA and the CDC that further elaborated on the EPA's and CDC's positions on conducting air sampling. This information reflects the language in the EPA's publication "Mold Remediation in Schools and Commercial Buildings."

Also, on September 14, Ms. Cavanaugh informed Ms. Crabb that DESSR performs visual inspections and then addresses the visible mold on materials. "If there is more than 10 square feet of mold growth on material, a qualified mold remediation contractor will abate the mold under environmental controls. If there is more than 10 square feet of mold, residents will need to be temporarily relocated, as they cannot be in the work area when cleanup occurs." **Exhibit B, DR 12 000168.** This suggestion from Ms. Cavanaugh is also consistent with the EPA guidelines.

On September 19, Res Facilities staff sent out a communication to Elkton Hall residents stating that they were "assessing and addressing reports from residents as we receive them." **Exhibit B, DR 6 000783.** Res Facilities indicated at that time that Elkton Hall has built-in dehumidifiers on floors five through eight to help remove the moisture from the air and that it had installed additional temporary dehumidifiers to each wing to further assist with drawing the moisture out of the air and the building. **Exhibit B, DR 6 000782-83.**

Later that same evening, Res Facilities notified Elkton Hall residents that Res Facilities staff had inspected and remediated the rooms that reported mold on the second, third, fourth, and

eighth floor. Res Facilities informed residents that it would be inspecting and remediating rooms with reports of mold on the eighth, seventh, sixth, fifth and first floors. These inspections consisted of inspecting the fan coil units, windows, walls, floors and furniture for any mold-related issues. If staff found growth on the walls, floor, or other non-porous surfaces in the room, those areas would be cleaned. Staff notified students that if mold growth was found on the furniture, that affected furniture would be removed and replaced with clean furniture. **Exhibit B, DR 6 000782.**

At some time prior to September 19, the University made the decision to supplement Res Facilities staff with "contract assistance" to respond to the service requests related to mold. **Exhibit B, DR 6 001631**. On September 20, Patrick Rhodes from Res Facilities notified the Res Facilities leadership team addressing mold issues, that the "remediation contractor will move over to the [multi-purpose room] in the morning to set up containment." **Exhibit B, DR 6 000794.**

Res Facilities followed EPA guidelines to notify building occupants about remediation efforts. Though representatives from Res Facilities did not record specific square footage of mold by room, the inspections and remediation/cleaning of the rooms prior to the full relocation of Elkton Hall followed recognized guidelines.

On September 20, Ms. Crabb contacted Dr. McBride regarding the high levels of mold in the dorm rooms. **Exhibit B, DR 1 000065-69.** Dr. McBride expressed his "concern about students with asthma and allergies living in a situation where there's a significant amount of mold." **Exhibit B, DR 1 000065**. This is consistent with the EPA and OSHA recommendations that a health official be consulted regarding the health effects of mold.

On September 21, Res Facilities made the decision to relocate students from Elkton on a floor-by-floor basis beginning on September 23rd. Elkton Hall residents were notified that same day of the upcoming relocation and informed of the relocation plan. **Exhibit B, DR 6 001635.**

On September 22 and 23, additional remediation contractors arrived at Elkton Hall. In addition, professional movers began setting up to move items in student rooms. **Exhibit B, DR 6 000795.** Once students were relocated from Elkton, the remediation plan included: 1) cleaning all room and surfaces including walls, floors, doors, and closets, and HEPA vacuuming carpets; 2) servicing and cleaning the fan coil unit (air conditioning unit) in the room, including removing and cleaning the cover, cleaning coils, and changing filters; 3) cleaning all furniture surfaces, including inside and underneath drawers; 4) cleaning all surfaces in the hallways and bathrooms, and other public areas; 5) and placing dehumidifiers and additional air filtration in place during the process. **Exhibit B, DR 6 001086**. As of September 22, an outside consultant to review building and mechanical systems was not on board. **Exhibit B, DR 6 001086**.

The University contracted with Sandow Construction, Inc. and Infinity Restoration, Inc. to perform the cleaning on a floor-by-floor basis with each contractor working in one wing of a floor. **Exhibit B, DR 6 001683**. Res Facilities prepared an "Elkton Hall Cleaning Scope" dated September 23 that indicated that the work would be performed in the resident rooms in Elkton Hall. **Exhibit B, DR 6 001652-54.** The Scope indicated that all remediation actions would be conducted by a qualified contractor. The Scope defined a "qualified contractor." The Scope required that the remediation procedures be conducted per the EPA's Table 2: Mold Remediation Guidelines and that all surfaces would be cleaned with a mild detergent solution and/or HEPA vacuumed. The specific surfaces were listed in the Scope. The Scope also included cleaning

exposed pipes and pipe insulation, and pipe insulation PVC jackets including overhead pipes, risers, and all pipes running to the fan coil units. All other surfaces in the work area were to be thoroughly HEPA vacuumed and the waste materials sealed in "six-mil polyethylene bags" prior to their being removed from the work area.

Following cleaning, the Scope provided for qualified personnel conducting a visual inspection of the areas following removal and cleaning activities prior to them being re-occupied. If there was 1) no visible mold present; 2) no visible dust or debris present; 3) an adequately dried work area to inhibit the re-growth of mold; and 4) surfaces appropriately cleaned and HEPA vacuumed, then the space would be considered available for reoccupation. After the contractors cleaned a resident room, Res Facilities staff would conduct an inspection of the cleaning and then of the fan coil unit and generate an inspection approval certificate. **Exhibit B, DR 6 001684, Vertex Report**. The remediation contractors' cleaning efforts and staff approval after the cleaning followed the recommendations from the EPA.

On September 25, Ms. Cavanaugh received a Scope of Work for cleaning and assessments of the fan coil units in Elkton Hall for the "remediation event." **Exhibit B, DR 6 001227.** Ms. Cavanaugh noted that the scope she reviewed only addressed the fan coil units and had no specific information regarding "mold remediation, environmental controls (containment, PPE, etc.), or re-occupancy parameters."

With tentative work dates of September 26th – October 19th, Res Facilities engaged BDL to "furnish the necessary labor, material, equipment and accessories to thoroughly assess the approach, process and results of the remediation in Elkton Hall." BDL was also engaged to "inspect the general operation of the buildings fan coil units, verify the thermostat's capabilities

and set points for cooling and dehumidification and provide recommendations for improved humidity removal and improved overall system performance." **Exhibit B, DR 6 001305 – 08**. BDL was to inspect and advise on the existing HVAC systems and how those systems might be adjusted, modified or augmented to provide "better" humidity control which would be expected to reduce or eliminate future mold problems. BDL's report was presented to the University in, or around, mid-November 2018. BDL produced a report making recommendations to the University with regard to potential system and control modifications and supplementary equipment which might be added to improve conditions in Elkton Hall.

With a tentative work date set to begin on September 26, Res Facilities engaged W.L. Gary to "furnish all labor, material, equipment and accessories required to thoroughly clean all building fan coil units and their individual components and very thoroughly test the proper operation and performance of each unit as originally designed. For fan coil units found to be operating outside of the design sequence or parameters, [W.L. Gary] shall adjust or repair [the fan coil unit] and its operation re-verified." **Exhibit B, DR 6 001529**. WL Gary's work was completed by early October 2018. Although the mold issues in Elkton had been significantly abated by that date, some spaces showed a recurring problem. By mid-November there were no longer any mold 'emergencies' in Elkton Hall.

Finally, the University engaged Vertex Companies, Inc. to provide a limited evaluation of the mold remediation effectiveness in residential units on the 1st through 5th floors of Elkton Hall. **Exhibit B, DR 6 001683**. Vertex was to provide a 'second pair of eyes' to ensure that the systems upon and spaces in which WL Gary worked were sufficiently cleaned and mold remediated prior to returning that space to the available room inventory for the University. In short, WL Gary's job

was to make sure that the HVAC systems in Elkton were operating as intended in the original design; Vertex's job was to make sure that upon achieving that operational status, the systems and spaces affected by Gary's work were free from mold (within the inspection parameters set by the University's scope).

Vertex was on site for the remediations of the 1st through 5th floors. Vertex did not inspect the remediation of the 6th, 7th, and 8th floors as those floors were remediated between September 25 and September 30. The remediation of those floors occurred prior to Vertex's involvement and thus were inspected by University staff. Vertex performed its visual observations of the remediation efforts from October 1 to October 8, 2018.

Vertex performed visual assessments on the rooms after the remediation contractors, mechanical contractor, University staff, and "University Mechanical Plant" staff stated that remedial cleaning and repairs were complete. **Exhibit B, DR 6 001684.** Vertex performed assessments of the fan coil units in each room once the mechanical contractor stated that the work on the unit was complete. Vertex completed checklists after visually assessing each room and if the room was found not to be properly cleaned, the room was recleaned and then reassessed. Vertex then generated a "Certification Note" and placed that note on the door. **Exhibit B, DR 6 001685.** Vertex reported that it did not "observe any microbial contamination, debris, or water damaged materials within the work areas and recommended that the source(s) of suspected microbial growth be identified and corrected." The visual assessments performed by Vertex were consistent with EPA recommendations.

The University responded in a timely manner to requests for service in Elkton Hall given the nature of the threat. In the span of roughly 16 days, the University implemented a major relocation, cleaning, disinfection and refurbishing of the dorm rooms at Elkton Hall.

The University's approach to addressing the mold problem was in adherence with the recognized practices in the remediation industry. There is no 'standard' protocol for addressing the interface of HVAC systems and mold in indoor spaces. Further, there are no standards or requirements for conducting air sampling or surface testing. Thus, the University's reliance on recommendations from DESSR and BDL to not conduct air sampling or surface testing that were in alignment with recognized guidelines was not improper.

xii. The IRT met once in the Fall of 2018 on September 24 after students began relocating from Elkton Hall for the remediation.

The IRT consists of high-level university leaders who provide policy and strategic guidance to ensure an effective and efficient emergency response and recovery. The Office of Emergency Management ("OEM") assists the IRT with direction, control and coordination. OEM's role is to ensure that the incident process and operations follow the National Incident Management System ("NIMS"), that critical discussions and actions are documented, and all groups have the same timely information and maintain situational awareness.

Res Facilities made the decision to vacate the building on September 21. Students began moving out of Elkton Hall on a floor-by-floor basis on September 23. The IRT convened once for one hour on September 24, 2018. In response to the mold in the dorms, the University did not activate the campus emergency operations center. Additionally, the OEM was not involved with managing mold issues in dorm rooms.

The IRT was not activated during the adenovirus outbreak.

xiii. There have been no biological studies that document an association between mold exposure and respiratory viral infection.

Although some mold species can cause invasive disease in highly immunocompromised individuals, such as persons with leukemia, stem cell transplants, or organ transplants, they are opportunistic molds that are ubiquitous in the environment.

The medical literature lacks biological studies that document an association between mold exposure and respiratory viral infection. No studies involving viral diagnostic testing have shown an epidemiological link, and relationships that have been suggested in published reports are supported solely by questionnaires of patients or their parents, without microbiological verification of infection.[2]

Dampness and mold, however, have clearly been linked to allergic symptoms such as shortness of breath, wheezing, cough, hypersensitivity pneumonitis, and asthma exacerbations that can be significant. In 2004, the Institute of Medicine (IOM) found there was sufficient evidence to link indoor exposure to mold with upper respiratory tract symptoms, cough, and wheeze in otherwise healthy people, and with asthma symptoms in people with asthma. In addition, the IOM found sufficient evidence to link exposure to damp indoor environments with upper respiratory tract symptoms, cough, and wheeze in otherwise healthy people and with asthma symptoms in people with asthma.

B. FINDINGS OF FACT RELATED TO ADENOVIRUS

The Panel established a timeline of important events related to the adenovirus outbreak in fall 2018. Notable dates are listed below:

[2] *See infra* note 54.

September 26: [redacted]

October 23: Case No. 1 (Student "A") [redacted] confirmed on November 5 as positive for adenovirus.

October 29: Case No. 2 (Student "B") [redacted] confirmed positive for adenovirus on November 10.

November 1: [redacted]

November 2: Olivia Paregol, Case No. 3, [redacted] That same day, Dr. McBride was contacted by the mother of a student [redacted]. The mother stated that her son had been sick with a fever for several days and that his flu and other tests were negative.

November 5: Dr. McBride receives confirmation that Case No. 1 – Student A tested positive for adenovirus. Dr. McBride id contacted by parent of Case No. 2 – Student B [redacted] Dr. McBride communicates to clinical staff to regularly follow up with students with fever or particularly sick students because of two recent hospitalizations and suspected adenovirus.

November 6: [redacted].

November 7: Dr. McBride and members of the Campus Infectious Disease Management Committee (CIDMC) hold a meeting to discuss higher rate of febrile illnesses seen in September and October and to discuss each department updating their plans and sending a flu message earlier this year. The message is reviewed by the committee. Dr. McBride states that the CIDMC meeting was proposed on October 17 (prior to ILI and Adenovirus concerns) and scheduled on November 7. Dr. McBride requests implementation of high-touch cleaning.

November 9: UHC sends out first notice on effective prevention techniques during cold, flu and virus season to Parent and Family Association and the UMCP community, including the following language: "For students, faculty and staff who have chronic medical problems (ex. asthma, diabetes, obesity), it is important to visit the UHC or your personal physician within 48

hours of developing flu symptoms." [redacted].

November 10: On Saturday, UHC receives notice [redacted] of a second positive test of adenovirus (Case No. 2 – Student B). Dr. McBride reviews that notice on Monday, November 12.

November 12: [redacted] and Dr. McBride agree that [redacted] will contact Dr. Richard Brooks with the CDC at the Maryland Department of Health and Dr. McBride will contact the Prince George's County Health Department about the two confirmed cases of adenovirus. [redacted] emails Dr. McBride about mold related concerns and Dr. McBride responds that there is increased ILI, a lot of non-flu viral illnesses going around, and that "adenovirus may be one of the culprits."

November 13: Dr. McBride received notice from Mr. Paregol, who had contacted residential facilities, [redacted]. Dr. McBride spoke with Mr. Paregol and contacted [redacted] and relayed to her information of the two confirmed adenovirus cases. Later that day, it was confirmed that Olivia was the third confirmed case of adenovirus and the State declares an adenovirus outbreak. Dr. McBride informs the clinical staff to test for adenovirus using a lower threshold for chest x-rays for atypical pneumonia and testing for adenovirus (respiratory virus panel PCR). As of November 13, Dr. McBride understood [redacted] case three (Olivia) lived in Elkton.

November 14: Dr. McBride emailed Dr. Brooks regarding the November 9 communication and asked if anything more needs to be communicated. Dr. Brooks responded that

"the communication looks excellent to us, and based on our conversations with the CDC, we don't think additional, more specific messaging about adenovirus is necessary at this time."

November 15: Second meeting of the CIDMC to discuss the five cases of adenovirus and discuss sending additional messaging to students in Elkton with the heightened sensitivity (mold); decision is made to send the message out to the campus at large and consider a follow-up notice to immunocompromised students

November 16: Follow-up message to be sent to the entire campus community is drafted and approved by Dr. McBride for dissemination. Message is not sent on Friday, November 16.

November 18: Oliva Paregol passed away.

November 19: Dr. McBride again contacted Dr. Brooks to advise of Olivia's passing and asking if her passing plus diagnosis of Adenovirus Strain 7 could change messaging. Dr. Brooks informs Dr. McBride that the messaging does not need to change: "[CDC] not recommending that you NOT put out any additional messaging . . . we just aren't recommending that you need to do so." That same day, second communication sent to the campus community naming adenovirus and stating that in the past two weeks there were six cases of students with adenovirus-associated illnesses. This message included targeted language to those people with lower immune systems or who are taking medicines that weaken their immune system.

Based on the established timeline, document review, and the interviews, the Panel determined the following findings of fact related to the adenovirus outbreak:

i. Human adenoviruses are DNA viruses that are normal, frequent causes of the common cold.

Human adenoviruses are DNA viruses that are normal, frequent causes of the common cold. In ambulatory populations, adenovirus upper respiratory infections are rarely diagnosed because diagnostic testing is infrequently done on persons who have uncomplicated colds. Although most adenovirus infections resolve without medical attention, severe adenovirus infection can occur in both healthy and immunocompromised individuals.

Diagnostic testing for adenovirus is routinely performed in hospitals that serve highly immunocompromised patients, such as stem cell and organ transplant recipients (see below). In addition to colds, adenoviruses can cause gastrointestinal illness, conjunctivitis, and rarely pneumonia. Adenovirus is not typically tested for in an outpatient setting. Most adenovirus infections in healthy people resolve without incident, but occasionally healthy people develop severe, even fatal disease. Such severe disease in healthy people was seen in the outbreaks that occurred on military bases before adenovirus vaccination was introduced in 1971, and during the hiatus during which adenovirus immunization was stopped from 1999 to 2011.

In highly immunocompromised persons, such as stem cell and organ transplant recipients, and leukemia patients undergoing certain types of chemotherapy, adenovirus can cause pneumonia, disease of the central nervous system, liver, other organs, or disseminated disease. Individuals born with certain severe immunodeficiencies may also be vulnerable to severe adenovirus disease.

Adenoviruses are transmitted by respiratory droplets, fecal particles, and contact with contaminated surfaces or objects. Adenoviruses are more difficult to disinfect on surfaces than most other cold viruses, requiring harsher chemicals such as bleach rather than the hydrogen

peroxide or quaternary ammonium compounds that are found in typical cleaning wipes and solutions.

Although adenovirus type 7 has caused outbreaks in healthcare facilities resulting in severe disease and high mortality, most adenovirus type 7 illness is mild, and other types can also cause severe or fatal disease. Outbreaks of adenovirus type 7 have also been reported in college settings. Adenoviral strains are not typically typed unless there is an epidemiological reason to do so, and then typing is generally initiated by a public health department. Treatment approach does not differ for the various strains of adenovirus; all strains usually cause self-limited disease, and any strain has the potential to cause severe disease.

ii. <u>The treatment for adenovirus is supportive care.</u>

Recommendations for care for viral syndromes is supportive and include recommendations for social distancing to prevent spread. The mainstay of treatment of severe adenoviral infection is supportive care.

Cidofovir is an antiviral drug that has in vitro activity against adenovirus but has not been tested in randomized clinical trials. Cidofovir is not approved by the U.S. Food and Drug Administration for treatment of adenoviral infection. Cidofovir is highly toxic to the kidneys and somewhat toxic to the bone marrow. (Brincidofovir, a related, investigational drug with fewer side effects, is not available.) Use of preventative cidofovir appears to have reduced mortality from adenovirus infections in stem cell and lung transplant recipients, though mortality remains quite high once pneumonia or another site of infection has already developed in these patients. Apart from transplant recipients, cidofovir is administered almost exclusively to critically ill patients, in whom its use is often limited by kidney toxicity. Its effectiveness for severe adenoviral pneumonia

in previously healthy persons or other immunocompromised patient populations is unknown, and only case reports and small case series describing successes or failures with its use in treating various strains of adenovirus are published in the literature.

iii. The CDC has reporting requirements and adenovirus is not a reportable disease, unless there is an outbreak event.

Notifiable diseases reporting is mandated at the Federal level and enforced at the state and local level. In Maryland, notifiable diseases reporting is required by the Code of Maryland Regulations (COMAR) 10.06.01.03 C. In addition to individual conditions and pathogens, "An outbreak of a disease of known or unknown etiology that may be a danger to the public health" is listed as a reportable finding. "Outbreak" is defined in the Maryland Department of Health document as "Any grouping or clustering of patients having similar disease, symptoms, or syndromes that may indicate the presence of a disease outbreak." In the same document, "Outbreak" is further described as "three or more cases of a disease or illness that is not a foodborne outbreak and that occurs in individuals who are not living in the same household, but who are epidemiologically linked."

iv. Dr. McBride in the fall of 2018 was spending about 30% of his time on patient care, episodic visits, and primary care visits.

Dr. McBride oversees the primary care clinical services at UMCP and sees patients three half days per week so he is actively involved in day-to-day clinical care. Dr. McBride also serves as "campus health officer," and is expected to take the lead on campus public health matters such as influenza or other health concerns impacting the campus. Dr. McBride is also available to serve as a consultant to the campus on health matters. Within the UHC Medical Services, there is a Clinical Director responsible for clinical operations, a Physician Supervisor to oversee Walk-In Care, and a Coordinator of Nursing to oversee nursing and medical assistant personnel.

Dr. McBride spends the other 70% of his time on managing the UHC, serving on other health related committees, and liaising with other student-facing offices and departments. Dr. McBride also serves on the Incident Response Team and is responsible for calling meetings of the CIDMC and serving as its chair.

v. The UHC does not require incoming students to provide information regarding their health status, only required proof of vaccination.

The UHC does not require incoming students to provide prematriculation health information on their health status apart from the required proof of vaccinations (MMR, TDaP, meningitis A,C,W, Y) and completion of the tuberculosis screening questionnaire. A health history form is available within the student health portal, connected to the electronic medical record, and students can voluntarily complete it and send any prior health records if they choose. In fall 2018, this form would only have been reviewed at a student's first visit.

vi. During the fall of 2018, the UHC used an electronic medical record system and ran reports on a monthly basis regarding flu-like illnesses, gastroenteritis and conjunctivitis.

The UHC uses data provided by the electronic medical record system to identify the number of patients presenting with symptoms consistent with an influenza-like illness (ILI) and comparing this to the total number of patient visits. During fall 2018, the UHC was running syndromic surveillance reports on a monthly basis through its electronic medical record system **Exhibit B, DR 15 000006-11**. This would pull data using certain diagnosis codes related to ILI, gastroenteritis and conjunctivitis, and allow the UHC to assess if there was an increased rate of any of these diagnoses over baseline. Additionally, the UHC runs reports quarterly to look at frequency of diagnostic tests sent by individual providers for conditions including mononucleosis, strep, and influenza, and overall positive tests for influenza and strep for the whole clinic. **Exhibit B, DR 15 00012-13; DR 15 000015**.

vii. The UHC is a member of CRISP which is a tool for Maryland health care providers to receive notifications regarding a patient's interaction with a Maryland hospital.

UHC is enrolled in CRISP. CRISP is a regional health information exchange (HIE) serving Maryland and the District of Columbia. CRISP has been formally designated as Maryland's statewide health information exchange by the Maryland Health Care Commission. As clinical information is created and shared with CRISP, it is made accessible in real time to participating health care providers through the CRISP Portal. The portal gives providers the ability to securely look up patient information through the internet.

The UHC uploads eligible patient data into the CRISP system. The UHC defines its eligible population as patients seen at the UHC in the prior 18 months. Students can opt out of participation in CRISP when they are seen at the UHC. In the fall of 2018, the UHC updated its population at the beginning of the semester and then periodically would manually update the population during the semester. The UHC has set its alerts to receive data from CRISP on its population who are admitted and discharged from Maryland hospitals. The UHC Director receives an alert from CRISP when a patient in its population meeting the criteria set by the UHC is admitted or discharged from a Maryland or DC area hospital. Upon receiving the alert, the Director may log into the CRISP system and review the clinical details. The UHC Director will then assign the case to a UHC nurse for outreach and follow up.

Howard County General Hospital and Johns Hopkins are enrolled in and are connected providers in the CRISP system. At relevant times during fall 2018, Dr. McBride received CRISP alerts on October 21, October 23, October 24, October 25, October 26, October 27, November 6, November 14, November 15, November 16, November 21, and November 22. [redacted]

[redacted]

[redacted]

viii. The University has a Campus Infectious Disease Management Committee, chaired by the Director of the UHC which met twice in the fall of 2018 – November 7 and November 15.

The CIDMC was convened by Dr. McBride on November 7, 2018, due to the higher rates of ILI noted by the UHC. It was reported that in October, there were a total of 85 flu cases and illnesses with high temperatures (30 more than the previous year) and as of November 7 there were 29 cases of flu and illnesses with high temperatures. At this meeting, Dr. McBride also disseminated a general communication piece for review that would be sent out to Students/Staff, Faculty and Parents regarding flu season. The CIDMC also convened on November 7 for the purpose of informing the participating departments to update their Campus Infectious Disease plans by February 1, 2019.

The CIDMC was again convened on November 15, 2018, after three cases of adenovirus had been identified and three students were hospitalized. This meeting discussed adenovirus and requested increased high touch cleaning and deep cleaning of the floors of the hospitalized students. Also, at this meeting there was discussion on whether to send another campus message particularly to students in "an immunocompromised state" or additional messaging to Elkton given the heightened sensitivity due to mold. The decision was ultimately made to send a message to the entire campus community.

ix. Though not required by the Campus Infectious Disease Management Plan, the CIDMC never declared a specific level of operation for the adenovirus outbreak.

In response to the adenovirus outbreak, the CIDMC never declared a specific incident level related to adenovirus.

x. In fall 2018, the UHC ran monthly reports related to student lab follow-ups.

The UHC laboratory director, in accordance with the Laboratory Policy and Procedure Manual, reviewed laboratory tests that had been ordered but not performed on a monthly basis and messaged the ordering provider to review and follow up with the patient.

xi. For all health-related cases, the communications department takes the lead from the State and local Health Department on guidance regarding student communications.

There are approximately 150 "communicators" embedded in the schools and offices around UMD. However, the University Health Center does not have an embedded "communicator" so the UHC, through Dr. McBride, works directly with a representative from the Office of Strategic Communications as needed to develop health-related communications. Strategic Communications has a seat on the CIDMC. During fall 2018, Katie Lawson, the Chief Communications Officer did not attend the November 7 CIDMC meeting, nor did she receive the notes after the meeting. Ms. Lawson did receive the notes after the November 15 CIDMC meeting.

The communications team defers to the UHC, local and state health department when determining when to communicate on a health-related matter. The communications team will assist with editing of messages, not content, and will provide the outreach channels needed for dissemination of information.

xii. Dr. McBride contacted the CDC, Maryland Department of Health, and the Prince George's County Department of Health on November 12, when he received confirmation of two cases of adenovirus in compliance with federal, state, and local notifiable disease reporting guidelines.

Sometime between November 1 and November 5, Dr. McBride was contacted by a student's mother [redacted] (Case No. 2 – Student B) [redacted] Dr. McBride accessed the student's health records [redacted] and on November 5, Dr. McBride contacted [redacted] and discussed similarities between Student B's case and Student A's case (positive for adenovirus on November 5). [redacted] confirmed fluid available for testing and that fluid was sent out for testing.

The test results for Student B came back as positive for adenovirus on November 10 which was a Saturday. On November 12, Dr. McBride and [redacted] decided that Dr. McBride would contact the Prince George's County Health Department and that [redacted] would contact Dr. Richard Brooks with the Center for Disease Control, whose office is in the Maryland State Department of Health. Dr. McBride was included on the communication to Dr. Brooks. Dr. Brooks at that time advised Dr. McBride and [redacted] that "I doubt at this point we'd do much more unless some connection is identified since adenovirus is pretty common."

Dr. McBride's correspondence with individuals at the Maryland and Prince George's County Health Departments confirms that his actions adhered to the State reporting guidelines, as he consulted with public health officials when he was aware of only two confirmed cases of adenovirus pneumonia in students who had been hospitalized. **Exhibit B, DR 5 000260, DR 5 000262.** Dr. McBride noted in his interview a habit of early reporting to and close communication with public health officials. This assertion is evidenced by the volume and frequency of email

correspondence between himself and the State and Prince George's County Health Department public health officials with whom he corresponded in the fall of 2018.

In fall 2018, UHC worked with the CDC to track adenovirus cases. After the outbreak, they worked with CDC in gathering further information from patients impacted to try and inform future practice related to adenovirus.

xiii. In fall 2018, during the adenovirus outbreak, the University and the UHC sent out communications to the campus on November 9, November 19, and November 20.

After the CIDMC meeting on November 7, Dr. McBride circulated a draft of a "Viral Season Message" to be sent via email and posted on the UHC website. On November 9, the UHC sent out via email and posted on its website a "Virus Communication" which contained the following information:

> "We are seeing many ill patients (as is typical in the fall) with fevers and sick symptoms for a variety of reasons. In particular, we're seeing patients with non-specific fever and gastrointestinal symptoms (diarrhea and vomiting), influenza-like illness, and some scattered cases of Hand, Foot and Mouth Disease. The Health Center, Residential Facilities, Facilities Management and RecWell are working together to increase cleaning of high touch surfaces and restrooms around campus.
>
> This is no cause for alarm, but it does give us the opportunity to practice effective prevention techniques for these types of illnesses:
> .....
>
> Wash your hands frequently and use the hand-sanitizing stations that are located around campus.
>
> Avoid those who are ill, if possible.
>
> Clean high touch surfaces in your room with anti-bacterial cleaner (bleach wipes are very effective – follow the instructions on the packaging).
> .....

> Take fever reducers like acetaminophen (Tylenol), ibuprofen (Advil) or naproxen (Aleve) if you have a fever. If your fever persists for more than 3 days in spite of fever reducer, please seek care.
> .....
>
> For students, faculty and staff who have chronic medical problems (ex. asthma, diabetes, obesity), it is important to visit the UHC or your personal physician within 48 hours of developing flu symptoms."

The full November 9 communication is attached within **Exhibit B**.

After the CIDMC meeting on November 15, the UHC, via the Office of Student Affairs, sent out via email and posted on its website another "Virus Communication" which contained the following information:

> "As is typical this time of year, the University Health Center is seeing many patients with symptoms such as high fevers, cough, congestion, sore throats, diarrhea and vomiting. In the past two weeks, there have been reports of six cases of students with adenovirus-associated illness. Adenovirus is a typical cold virus with many strains. Some strains cause a more severe or potentially life-threatening illness with high fever and respiratory symptoms.
>
> For otherwise healthy people, the treatment for these types of illnesses includes rest, plenty of fluids and fever-reducing medicine. However, **if you have chronic medical problems like asthma, diabetes or illnesses that lower your immune system or if you take medicine that lowers your immune system, it is vitally important not to ignore these symptoms and visit the University Health Center or your personal physician within 48 hours of developing symptoms.**
> ....
>
> Keep your hands and high-touch surfaces around you clean. Wash your hands frequently and use the hand-sanitizing stations that are located around campus. Clean high touch surfaces in your room with anti-bacterial cleaner (bleach wipes are very effective – follow the instructions on the packaging). The Health Center, Residential Facilities, Facilities Management, Department of Transportation Services and RecWell are working together to increase cleaning of high touch surfaces and restrooms around campus."

The full November 19 communication is attached within **Exhibit B**.

On November 20, the UHC, via the Office of Student Affairs, sent out via email and posted on its website another "Virus Communication" which contained the following information:

> "I am sad to share that a University of Maryland student recently passed away from Adenovirus associated illness.
> ...
> Adenoviruses are common causes of colds, but there are strains that can cause more serious illness. Over the past couple of weeks we have shared guidance on preventative measures our community should take during this flu and virus season and we urge our community to follow these guidelines.
>
> We learned of an isolated case of a student with Adenovirus on November 1. Since then, we have been closely monitoring for cases in coordination with the Maryland Department of Health and Prince George's County Health Department, by testing students at the Health Center and advising testing to facilities where ill students have been admitted. The Health Center staff has been on high-alert and we have reached out to medical facilities in the area to heighten awareness of this illness.
>
> Since then, there have been reports of five additional cases of students with confirmed Adenovirus associated illness. On November 19, we learned that the testing of one specimen sent to the CDC revealed Adenovirus 7, a strain that may cause more severe illness.
>
> The treatment for these types of illnesses generally includes rest, plenty of fluids and fever-reducing medicine. Unfortunately, there is no specific medication to treat this infection in a non-hospitalized individual. However, vigilance is extremely important for those with chronic medical problems like asthma, diabetes or illnesses that lower your immune system or if you take medicine that lowers your immune system. It is vitally important not to ignore flu-like symptoms (high fever and cough/sore throat and vomiting/diarrhea) and to visit a physician within 48 hours of developing symptoms.

The full November 20 the communication is attached within **Exhibit B**.

xiv. Dr. McBride approved for dissemination on November 16 the campus communication sent on November 19 naming adenovirus.

On November 16 at 4:40PM, Dr. McBride received an email from Alana Coyle, a Senior Communications Associate from the Office of Strategic Communications attaching a draft of a "Flu and Virus Season Follow-up Email." The recommendation from Ms. Coyle was that "the message not be sent too late tonight but am not opposed to it going out to all students over the

weekend if there is a sense of urgency (particularly if there is a concern about rumor-spreading." Dr. McBride responded at 5:30PM that he was comfortable with the message going out now.

After making a few additional edits, Ms. Coyle at 6:36PM asked whether the VP's office would handle distribution to the students. Dr. McBride responded at 6:42PM that he could ask the VP's Office to send the communication, but that [the VP's Office] probably won't send [the communication] until Monday.

V. APPLICAPLE STATUTES, REGULATIONS, POLICIES AND PROCEDURES AND THE UNIVERSITY'S ADHERENCE TO THOSE STATUTES, REGULATIONS, POLICIES AND PROCEDURES

A. MOLD

There are no federal statutes regarding proper mold remediation in schools, commercial buildings, or residences. Maryland does have a "mold licensing law"[3] which addressed licensing of remediation professionals but did not provide statutes or regulations concerning proper methods of mold remediation. This law was scheduled to take effect on July 1, 2013. However, due to budget constraints, the state postponed the implementation of the Maryland Mold Remediation Services Act. A review of the 2019 version of the licensing statute indicates that it was terminated as of July 1, 2019.

Mold remediation professionals utilize guidelines promulgated by the United States Environmental Protection Agency ("EPA") and the Occupational Safety and Health Administration ("OSHA") in conducting remediation work. The guidelines published by the EPA

[3] Md. Code Ann., Bus. Reg. §8-701-8-718 (2018).

and OSHA are attached to this report as **Exhibit C – Relevant Policies, Procedures, Statutes, Regulations, Standards and Guidelines**.

The focus of the guidelines published by the EPA and OSHA concern: 1) the health and safety of occupants and personnel tasked with assessment, remediation or removal in spaces containing mold; and 2) a determination whether mold contamination can be managed in-house or if outside contracting is required.

i. Mold Remediation in Schools and Commercial Buildings

The Indoor Environments Division of the EPA published "Mold Remediation in Schools and Commercial Buildings" which are the present guidelines for the remediation/cleanup of mold and moisture problems in schools and commercial buildings.[4] The EPA suggests that remediation begin with an assessment of the size of the mold/moisture problem and determine a remediation manager.[5] The EPA also recommends that remediation plans include steps to resolve the underlying water/moisture issue that is promoting the growth of mold, use of appropriate Personal Protective Equipment (PPE), and steps to contain and remove the moldy building materials.[6]

In constructing a remediation plan, consideration of relocation of occupants in mold contaminated spaces should include: 1) the size and type of the area affected by the mold growth, 2) the type and extent of health effects reported by the occupants, 3) the potential health risks associated with debris, and 4) the amount of disruption likely to be caused by the remediation activities.[7]

[4] "Mold Remediation in Schools and Commercial Buildings" EPA, Office of Air and Radiation, Indoor Environments Division. (EPA 402-K-01-001, published September 2008)
[5] *Id*. at 6.
[6] *Id.*
[7] *Id*. at 7.

As the first step to remediation, the EPA recommends resolving the underlying water or humidity issue.[8] The EPA further recommends communicating with the occupants as appropriate, cleaning the mold and dry water-damaged areas using appropriate cleaning and drying materials and PPE, and containing and removing moldy materials.[9]

There are no standards or threshold limit values for airborne concentrations of mold or mold spores.[10] Further, there are no EPA regulations or standards for airborne mold contaminants.[11] The recommendations set forth by the EPA for remediation are based on the square footage amount of mold existing in the contaminated space. Usually, an area of mold that exists in less than 10 square feet can be treated as a housekeeping activity – requiring minimal training, minimal protection and minimal isolation; however direct contact of the mold to skin or eyes or breathing in mold spores is not recommended.[12] Affected areas of 10 to 100 square feet may require limited or full containment and limited or full PPE.[13] Locations of 100 square feet or more of mold in the affected area usually require full containment and full PPE.[14]

The EPA suggests a variety of mold cleanup methods depending on the type of affected material. The EPA suggests wet vacuums, damp wipes, High-Efficiency Particulate Air ("HEPA") vacuums, and discarding any contaminated or affected materials by removal and sealing in plastic bags.[15] When cleaning mold, the EPA suggests that a N-95 respirator be used, at minimum.[16]

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[8] *Id.* at 9.
[9] *Id.* at 9.
[10] *Id.* at 12.
[11] *Id.*
[12] *Id.* at 14.
[13] *Id.* at 14-15.
[14] *Id.*
[15] *Id.* at 16-18.
[16] *Id*. at 20.

Limited containment is recommended for areas involving 10 to 100 square feet of mold contamination.[17] The containment area should be maintained under negative presure to assure contaminated air does not flow into adjacent areas.[18]

The EPA advises that in most cases, if visible mold growth is present, sampling is unneccesary.[19] The EPA cites specific instances where sampling may be considered during site evaluation: 1) the source of the mold contamination is unclear; or 2) health concerns are a problem.[20] Surface sampling may also be useful to determine whether the area has been adequately cleaned or remediated but only after development of a "sampling plan that includes a confirmable theory regarding suspected mold sources and routes of exposure."[21]

The EPA provides guidelines to assess the effectiveness of remediation efforts. The moisture problem should be completely remedied.[22] Mold removal should be completed and there should be no visible mold, mold-damaged materials, nor moldy odors.[23] If sampling, the mold levels inside should be similar to those found outside.[24] The EPA suggests visiting the site shortly after remediation to verify that there are no signs of water damage or mold growth.[25] Finally, the EPA suggests that the occupants should be able to re-occupy the space without health complaints or physical symptoms.[26]

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[17] *Id.* at 22.
[18] *Id.*
[19] *Id.* at 25.
[20] *Id.*
[21] *Id.*
[22] *Id.* at 26.
[23] *Id.*
[24] *Id.*
[25] *Id.*
[26] *Id.*

OSHA also publishes guidelines which are used by industrial hygienists when conducting mold remediation -- "A Brief Guide to Mold in the Workplace."[27] *See* **Exhibit C, OSHA Guidelines.**

OSHA advises that mold exposure can cause a variety of health effects and symptoms, including allergic reactions. OSHA provides measures designed to protect the health of building occupants and the workers involved in mold cleanup and prevention.[28]

OSHA advises that moisture control is the key to mold control and that a prompt response (within 24-48 hours) and thorough clean-up, drying, and/or removal of water-damaged materials will prevent or limit mold growth.[29] OSHA references EPA guidelines with respect to development of remediation plans and recommends the inclusion of the following in the plan: 1) steps to permanently correct the water or moisture problem; 2) use of appropriate PPE; and 3) steps to carefully contain and remove molding building materials in a manner to prevent future contamination.[30]

Similar to EPA's guidelines, OSHA suggests that clean up include utilizing a wet vacuum, damp wipe, HEPA vacuum, and disposal of damaged materials.[31] According to OSHA, killing mold with biocides (i.e. chlorine bleach) is not necessarily required, however its use in a water/bleach mixture may be appropriate if immune-compromised individuals will be present in

[27] https://www.osha.gov/dts/shib/shib101003.html
[28] *Id.*
[29] *Id.*
[30] *Id.*
[31] *Id.*

the remediated space.[32] Mold must be removed because the harmful chemicals and proteins, even in dead mold, can cause reactions and contribute to harmful health effects in humans.[33]

OSHA's remediation guidelines are similar to the EPA's in that the nature or procedure of remediation is based on the total contaminated surface area.[34] In areas of less than 10 square feet (i.e. ceiling tiles and small areas on walls), remediation can typically be conducted by regular maintenance staff trained on property clean-up methods, personal protection, and potential health hazards.[35] At this level of remediation, OSHA recommends that cleaning staff use N-95 disposable respirators (in accordance with 29 CFR 1910.143).[36] Remediation can also be conducted by building maintenance staff when the contaminated area is between 10sf and 30sf.[37] For contaminated areas larger than 30 square feet, OSHA recommends involving industrial hygienists or other environmental health and safety professionals with experience performing microbial investigations and/or mold remediation both prior to remediation activities to develop an appropriate plan and during remediation to provide oversight for the project.[38] For areas larger than 100 contiguous square feet, OSHA similarly recommends involving industrial hygienists as well as additional remediation procedures.[39]

ii. Air Sampling for Mold

With respect to efficacy and usefulness of air sampling for mold, the EPA states that sampling may have limited use or application:

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[32] *Id.*
[33] *Id.*
[34] *Id*.
[35] *Id.*
[36] *Id.*
[37] *Id.*
[38] *Id*.
[39] *Id.*

> Sampling may help locate the source of mold contamination, identify some of the mold species present, and differentiate between mold and soot or dirt. Pre- and post-remediation sampling may also be useful in determining whether remediation efforts have been effective. After remediation, the types and concentrations of mold in indoor air samples should be similar to what is found in the local outdoor air. Since no EPA or other Federal threshold limits have been set for mold or mold spores, sampling cannot be used to check a building's compliance with Federal mold standards.[40]

If sampling is conducted, the EPA cautions against using inexperienced personnel due to pitfalls that may occur if air sampling is done by unqualified individuals.[41] The EPA suggests no sampling if sampling is not able to be properly conducted because inadequate sample plans can generate misleading, confusing, and useless results.[42] The EPA notes that when sampling is done correctly, it can only confirm what was in the air at the moment when the sample was taken. [43] If sampling is conducted, the results should be similar to those found outside.[44]

OSHA states that in most cases, "if visible mold growth is present, sampling is unnecessary."[45] Because testing for mold is expensive, OSHA recommends having a clear reason for testing and advises that it may be economically impractical to test for mold growth on surfaces or for airborne spores in the building.[46] Further, OSHA states there are no standards for "acceptable" levels of mold in buildings and there is a lack of a definitive correlation between exposure levels and health effects.[47]

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[40] "Mold Remediation in Schools and Commercial Buildings," EPA at 25.
[41] *Id.*
[42] *Id.*
[43] *Id.*
[44] *Id*. at 26.
[45] *Id.*
[46] *Id.*
[47] *See* OSHA Guidelines.

The American Industrial Hygiene Association ("AIHA") developed "FAQS About Spore Trap Air Sampling for Mold for Direct Examination" which provide additional commentary on air sampling.[48] The AIHA indicates that "investigations for mold in indoor environments may include the collection of air samples for direct examination for fungi, culturable fungal air samples, or both." Before collecting samples, the AIHA recommends establishing clearly defined goals and developing a sampling plan.[49] The plan should include the purpose and relevance of the sampling and the questions that sampling is meant to answer.[50] The AIHA indicates that air sampling should be used "as a screening tool or as ancillary to an informed inspection."[51] Finally, the AIHA states that "air sampling alone cannot support any definitive conclusions [and] air sampling for mold spores does not and cannot evaluate potential health risks."[52]

The AIHA publishes a "green book" on mold and advises that while not required, there is general agreement that clearance sampling can be useful, and in some instances, sampling can help locate or identify a hidden mold source within a wall cavity or heating ventilation and air conditioning system.[53]

iii. Recognized Health Effects of Mold on Individuals

Dampness and mold have clearly been linked to allergic symptoms such as shortness of breath, wheezing, cough, hypersensitivity pneumonitis, and asthma exacerbations that can be significant. In 2004, the Institute of Medicine (IOM) found sufficient evidence to link indoor mold

[48] "FAQS About Spore Trap Air Sampling for Mold for Direct Examination," Mold Analysis Document, AIHA, May 16, 2019.
[49] *Id.*
[50] *Id.*
[51] *Id.*
[52] *Id.*
[53] Prezant B., Weekes, D., Miller, D., Recognition Evaluation and Control of Indoor Mold, page 34, c2008, American Industrial Hygiene Assoc., Fairfax, VA

exposure with upper respiratory tract symptoms, coughing, and wheezing in otherwise healthy people, and with asthma symptoms in people with asthma. In addition, the IOM found sufficient evidence to link exposure to damp indoor environments with upper respiratory tract symptoms, coughing, and wheezing in otherwise healthy people and with asthma symptoms in people with asthma.

Although some mold species can cause invasive disease in highly immunocompromised individuals, such as persons with leukemia, stem cell transplants, or organ transplants, those molds are opportunistic and are ubiquitous in the environment. There have been no biological studies that document an association between mold exposure and respiratory viral infection, and no studies involving viral diagnostic testing have shown an epidemiological link. Any relationship that has been suggested in published reports is supported solely by questionnaires of patients or their parents, with no medical or microbiological verification of infection.[54]

The EPA also recognizes the health implications of dampness in buildings. In a publication dated December 2013, the EPA reiterated the 2004 findings of the Institute of Medicine.[55] This

[54] Institute of Medicine 2004. Damp Indoor Spaces and Health. Washington, DC: The National Academies Press. https://doi.org/10.17226/11011; World Health Organization. WHO Guidelines for Indoor Air Quality: Dampness and Mold. WHO Regional Office for Europe; Copenhagen, Denmark: 2009; https://www.cdc.gov/niosh/topics/indoorenv/moldsymptoms.html; https://www.cdc.gov/mold/dampness_facts.htm; Rylander R, Mégevand Y. Environmental risk factors for respiratory infections. Arch Environ Health. 2000 Sep-Oct;55(5):300-3; Pirhonen I, Nevalainen A, Husman T, Pekkanen J. Home dampness, molds and their influence on respiratory infections and symptoms in adults in Finland. Eur Respir J. 1996 Dec;9(12):2618-22; Kilpeläinen M, Terho EO, Helenius H, Koskenvuo M. Home dampness, current allergic diseases, and respiratory infections among young adults. Thorax. 2001 Jun;56(6):462-7; Haverinen U, Husman T, Vahteristo M, Koskinen O, Moschandreas D, Nevalainen A, Pekkanen J. Comparison of two-level and three-level classifications of moisture-damaged dwellings in relation to health effects. Indoor Air. 2001 Sep;11(3):192-9; Haverinen U, Husman T, Vahteristo M, Koskinen O, Moschandreas D, Nevalainen A, Pekkanen J. Comparison of two-level and three-level classifications of moisture-damaged dwellings in relation to health effects. Indoor Air. 2001Sep;11(3):192-9.

[55] "Moisture Control Guidance for Building Design, Construction and Maintenance." United States Environmental Protection Agency. December 2013.

report found that "immune-compromised individuals, such as some categories of hospital patients, are at increased risk for fungal colonization and opportunistic infections."[56]

OSHA's guidelines suggest that molds may cause localized skin or mucosal infections but generally only cause systemic infections in humans for those "persons with impaired immunity, AIDS, uncontrolled diabetes, or those taking immune suppressive drugs."[57] The mold species that most commonly cause invasive disease in immunocompromised individuals are opportunistic molds that are ubiquitous in the environment.

iv. The University's Mold Remediation Protocols

The Department of Environmental Safety, Sustainability, and Risk ("DESSR") developed a Mold Remediation Protocol ("Mold Protocol") in or around July 2015.[58] *See* **Exhibit C – University Mold Remediation Protocol**. The document was designed to assist departments in addressing mold growth on materials totaling less than 10 square feet in an area. The document directs that when mold is found on areas greater than 10 square feet, DESSR should be contacted before beginning remediation.

The Mold Protocol confirms there are "no regulations directly governing the presence of mold or mold spores in buildings in the State of Maryland. There are also no standards for measurable concentrations of mold in indoor environments. Professionals and professional organizations agree that the presence of visible mold in the indoor environment is an unacceptable condition and should be corrected."

[56] *Id.* at 2.
[57] https://www.osha.gov/dts/shib/shib101003.html referring to "an important reference with guidelines for immuno-compromised individuals" published at the CDC.
[58] In 2015, DESSR was known as the Department of Environmental Safety.

The Mold Protocol directs that during remediation activities of areas less than or equal to 10 square feet of mold PPE should be worn, particularly: 1) nitrile gloves; 2) safety glasses/goggles; and 3) N95 respirators. The area to be remediated should be unoccupied but environmental controls are not required. The Mold Protocol directs that remediation personnel receive proper training and are enrolled in the University of Maryland Respiratory Program. The Mold Protocol requires that DESSR be contacted to determine if asbestos-containing materials would be impacted and non-porous and semi-porous materials can be cleaned with water and detergent. Porous material should be discarded. The work area surrounding the remediation site should be HEPA vacuumed and be dry and free of visible dust and debris at the conclusion of the project.

If the mold covers an area greater than 10 square feet, the Mold Protocol requires that DESSR be contacted to conduct and Indoor Air Quality Investigation and identify a mold remediation scope of work.

Following the mold events at the University in fall 2018, the Department of Residential Facilities developed a document entitled "Prevention, Assessment and Removal of Mold" in July 2019."

v. HVAC System Industry Standards

There are no specific HVAC industry standards addressing mold in situations comparable to that at University of Maryland, however, there are standard methodologies for determining appropriate thermal comfort conditions for inhabited spaces and for the determination of suitable outside air quantities for mechanically ventilated spaces. The Elkton Residence Hall does not have a dedicated mechanical ventilation system. These standards include:

- ANSI/ASHRAE Standard 55 (2017): Thermal Environmental Conditions for Human Occupancy which is an American National Standard published and maintained by ASHRAE that establishes the ranges of indoor environmental conditions to achieve acceptable thermal comfort for occupants of buildings.
- ASHRAE Standard 62.1 Ventilation for Acceptable Indoor Air Quality is a standard intended to specify minimum ventilation rates and other measures intended to provide indoor air quality that is acceptable to human occupants and that minimizes adverse health effects. It is intended for regulatory application to new buildings, additions to existing buildings, and those changes to existing buildings that are identified in the body of the standard. It has been adopted as the reference standard by the International Code Council which manages the International Building Code and by the US Environmental Protection Agency.

The ASHRAE standards are attached in **Exhibit C – ASHRAE Standards**.

B. ADENOVIRUS

i. Federal, State, and Local Statutes, Policies and Guidelines and Relevant Industry Guidelines

a. Public Health Reporting and CDC Guidelines

The Centers for Disease Control and Prevention ("CDC") publish guidelines for control of communicable diseases. These guidelines are widely adopted by practitioners, health departments, and facilities, but are themselves only recommendations and therefore nonbinding. Jurisdictional laws enforce certain aspects of the guidelines, such as notifiable diseases reporting.

State and local health departments have adopted the guidelines with some local variations. Notifiable diseases reporting is mandated at the federal level and enforced at the state and local

level. The CDC has a National Notifiable Diseases Surveillance System which helps public health professionals monitor, control and prevent about 120 diseases including infectious diseases such as Zika, foodborne outbreaks such as E. coli, as well as noninfectious diseases like lead poisoning. Adenovirus is not considered a national notifiable disease.

In Maryland, the Maryland Department of Health is responsible for regulating health care providers in the state who are responsible for reporting notifiable diseases. The Code of Maryland Regulations (COMAR) requires notifiable diseases reporting. Adenovirus is not a reportable disease, and neither is influenza (unless associated with a pediatric mortality or novel type A strain). In addition to individual conditions and pathogens, "an outbreak of a disease of known or unknown etiology that may be a danger to the public health" is listed as a reportable finding. "Outbreak" is defined as "Any grouping or clustering of patients having similar disease, symptoms, or syndromes that may indicate the presence of a disease outbreak." Outbreak is further described as "three or more cases of a disease or illness that is not a foodborne outbreak and that occurs in individuals who are not living in the same household, but who are epidemiologically linked." Though adenovirus is not itself a reportable condition, three or more cases of adenovirus that have a common epidemiological connection are considered an outbreak and thus must be reported.

b. American College Health Association

The American College Health Association (ACHA) is the principal leadership organization, since 1920, for advancing the health of college students and campus communities through advocacy, education, and research. It represents over 1,100 institutions of higher education. ACHA provides guidance around an "all-hazards approach" in planning for a campus

emergency and the role of a campus health service.[59] *See* **Exhibit C – ACHA Standards**. ACHA recommends following the Crisis and Emergency Risk Communication (CERC) principles and guidelines that were developed by the United States Department of Health and Human Services for effective communication.[60] The CERC is defined by CDC as "encompassing the urgency of crisis communication with the need to communicate risks and benefits to stakeholders and the public."[61] ACHA lists as an example of an emergency or dangerous situation an "outbreak of meningitis, norovirus, or other serious illness."[62]

ACHA suggests that even if not responsible for handling media inquiries, all key players should be responsible for communicating critical information to someone in the chain of command. ACHA recommends that campus health services develop procedures for establishing communication protocols within their operations.[63] As to internal communication, ACHA recommends that during an emergency response college health providers, among other things: 1) identify who will be in charge of communications, as well as one or two persons in backup positions in case the key person fall ill or become injured; 2) establish a calling tree for notification/alerts to essential personnel; and 3) provide information to the campus community on: the status of the disaster or disease on campus, travel advice, self-care, personal preparedness planning, proper hand washing techniques and cough etiquette; federal, state, and local public health resources; and how/when to access services in case of illness or injury."[64] Finally, ACHA

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[59] https://www.acha.org/documents/resources/guidelines/ACHA_Guidelines_Emergency_Planning_AllHazards_Approach.pdf
[60] *Id.* at 2.
[61] *Id.* at 2-3.
[62] *Id.* at 3.
[63] *Id.*at 3.
[64] *Id*.

suggests to "communicate early and often. Share emergency planning status with the campus community."

ACHA provides recommendations for Ethical Principles and Guidelines in provision of care to college students to which all members of the ACHA are expected to adhere.[65] *See* **Exhibit C – ACHA Ethical Guidelines.** ACHA states that an ethical principal is to protect privacy of the individual to maintain control over the time, place, manner, and extent to which information about one's self, beliefs or person, is shared.[66]

ACHA does not provide recommendations on collection of prematriculation health history. There are no written national guidelines on the benefit of this requirement. Some schools choose to recommend or require this as a benefit to the ongoing clinical care needs of their students, and as a way to elicit proactive connection with students with chronic health needs. UHC's approach to clinical care and patient management is not contrary to those in ACHA's Ethical Principles and Guidelines.

c. Accreditation Association for Ambulatory Health Care (AAAHC)

AAAHC (Accreditation Association for Ambulatory Health Care) is considered a leader in ambulatory health care accreditation with more than 6,100 organizations accredited. For university health centers, there is no mandatory requirement for accreditation, and only about 10% of universities nationwide have accredited health centers. The UHC is accredited by AAAHC. Per AAAHC, the "AAAHC Certificate of Accreditation demonstrates an organization's commitment to provide safe, high quality services to its patients." AAAHC has eight core standards, focused

[65] https://www.acha.org/documents/resources/guidelines/ACHA_General_Statement_Ethical_Principles_May2010.pdf
[66] *Id.*

on administration, governance, patient care, clinical records, facilities, quality management and infection control with numerous sub-standards describing appropriate practice, policies and procedures.

The UHC has been accredited by AAAHC for 29 years. The most recent triennial survey of the UHC occurred in April 2019 *see* **Exhibit B, DR 9 000001** and UMCP's University Health Center was reaccredited with compliance in all areas. For quality of care, quality improvement, risk management, facilities, and clinical records, UHC was found fully compliant. For infection prevention, control and safety, UHC was found substantially compliant. Areas for improvement were suggested in formalizing an internal risk assessment document for infection prevention. This utilizes a tool provided by the CDC as a checklist for reviewing all infection prevention practices.[67] All items in the tool are contained in the UHC Infection Prevention Manual.

The ongoing accreditation by AAAHC is an endorsement of the quality of care provided at UHC, as well as the compliance with standards maintained for patient care and the written policies and procedures governing UHC. The assignment of "substantially compliant" for infection prevention around not having a formalized risk assessment tool is a common area for college health services to need improvement, as this is a new standard utilizing a tool that had not previously been used in the college health setting. However, as the UHC did not receive a "non-compliant" in this area it is assumed that all critical elements were being met. The items contained in the risk assessment tool are present in the UHC Infection Prevention Manual and were followed.

[67] https://www.cdc.gov/infectioncontrol/pdf/icar/outpatient.pdf

ii. University Policies and Procedures

a. University Health Center Infection Prevention, Control and Safety Manual **Exhibit C, DR 21 002268**

The University Health Center Infection Prevention, Control and Safety Program Manual and Plan is a written document within UHC to define the clinical services program for active and ongoing efforts to control, prevent, identify, and report communicable diseases, as well as to provide safe delivery of patient care. Responsibility is assigned to the Risk Management Committee within the UHC. The plan includes a statement on isolation of patients with potentially contagious disease as well as reporting of known clusters.

The Infection Prevention, Control and Safety Program Manual and Plan was evaluated as part of the triennial reaccreditation process by AAAHC, an independent accrediting body. There were only minor consultative comments on improvements to be made to this through the AAAHC review. The UHC runs quarterly emergency drills (including CPR drills) and has run drills (table top and after-action on real situations) looking specifically at infection control, including drills on Ebola and active tuberculosis. The UHC has also participated in several drills with the Prince George's County Department of Health around setting up a closed POD (point of distribution). These drills simulate how UMCP would respond should there be a catastrophic release of anthrax in the community, with mass distribution of antibiotic prophylaxis to the campus community.

The UHC utilized its Infection Prevention, Control and Safety Program Manual and Plan during fall 2018 in accordance with the policies and practices outlined therein.

b. Emergency Operations Plan, **Exhibit C, DR 12 000364**

The University, through DESSR, has developed an Emergency Operations Plan ("EOP"). The Panel was provided with an EOP that was updated in May 2019. The EOP was reviewed by

Maureen Kotlas, Executive Director of DESSR and David Mitchel, the Director of Public Safety and Chief of Police. The EOP was approved by President Wallace Loh.

The EOP indicates that it is a flexible document that is in effect at all times and seeks to provide a framework to "effectively organize, coordinate, and direct resources toward emergency response and recovery." The purpose of the EOP is to "outline how the University plans for, responds to, and recovers from all types of emergencies." The goals of the EOP are to: 1) protect the health and safety of students, faculty, staff, and visitors; 2) mitigate impacts on property and the environment; 3) minimize disruptions to University operations; and 4) expediently restore normal operations.

The EOP establishes an Office of Emergency Management ("OEM") that is responsible for maintaining a comprehensive University-wide management program and ensure that all appropriate personnel are trained to operation in the Federal Emergency Management Agency (FEMA), National Incident Management System (NIMS), and the Incident Command System (ICS). The EOP requires that the OEM work with the specific departments to develop their own department-specific Emergency Operations Plans.

The EOP also establishes and defines the Incident Response Team ("IRT"). The IRT "provided policy and strategic guidance to ensure an effective and efficient response and recovery for major emergencies." Activation of the IRT may be prompted by: "1) individual student tragedies; 2) civil disorder and unrest/group behavior; 3) weather related incidents; 4) infectious disease incidents; 5) active threats and violence; 6) property-related [incidents]; or 7) [incidents related to] infrastructure or reputation." The IRT is a policy level body that does not direct the details of operations-level activities but it does have the duties that include "mak[ing] final

decisions regarding direction and actions (i.e. policy and fiscal matters)" and "provid[ing] strategic guidance to university groups responsible for emergency or incident management and implementation during response and recovery operations."

The IRT may be activated independent of the Emergency Operations Center or an incident command. The IRT Chair is responsible for activating the IRT, sending communications to the IRT regarding activation and operations, and communicating with the University President.

The EOP sets out planning assumptions, particularly "emergencies or disasters, and the management of emergencies or disasters, may have economic, physical, social, and reputational impacts." The EOP also assumes that the plan can be used for planned or unplanned events and that the University will dedicate the resources necessary to develop and implement emergency plans.

The EOP determines "Levels of Incident" which are to guide emergency preparedness and response activities and states that the OEM is responsible for "determining the appropriate level of incident."

A Level Three incident contemplates that the University will continue to conduct normal business and University and local responders will resolve the campus emergency. The incidents are limited and can be resolved in a short period. The examples provided by the EOP are fire alarms, isolated medical emergencies, and localized flooding. The EOP does not activate the Emergency Operations Center (EOC) nor the Incident Response Team (IRT).

A Level Two incident (limited emergency) is considered by the EOP as "more complex, longer in duration, and require more response resources and coordination than routine university operations." The EOP examples are severe weather events, extended widespread power outages,

and regional flooding. The EOP indicates that at this level OEM and Public Safety determine the required level of EOC activation and consider establishing a virtual EOC. Additionally, incident command/unified command posts may be established, and University and local agencies are to respond to the incident accordingly. The EOP states that the "IRT may be activated if policy issues arise."

A Level One incident, considered a major emergency, is an incident that "affects many or all university units, disrupts normal campus operations, and taxes routine response capabilities." The examples are major natural disasters, major violent events, and widespread epidemics. This level contemplates that response resources may "exceed the University's capabilities and require support from outside agencies." At this level, the EOP requires activation of the IRT/EOC, establishment of an Incident Command, and requests for support from outside agencies.

The EOP sets out a "Campus Emergency Management Structure." The field-level activities considered needed for all incidents, management level engagement is needed for major emergencies, and policy-level engagement is generally required only for major emergencies. At the policy level, strategic decisions are assigned to the President and the Incident Response Team (IRT). The Emergency Operations Center and Incident Command Posts at the management level and field level/operations level respectively are meant to handle response implementation.

The EOP states that the IRT will make policy decisions and will consist of "high-level university leaders who provide policy and strategic guidance to ensure an effective and efficient emergency response and recovery." The EOP indicates that the IRT will be activated for major emergencies and be assisted by the OEM with direction, control and coordination. OEM's role is to "ensure that the incident process and operations follow the NIMS, that critical discussions and

actions are documented, and all groups have the same timely information and maintain situational awareness."

As to after-action meetings and reports, the EOP states that the OEM will coordinate after-action meetings for major exercises and emergencies. The After-Action report would include an executive summary of the incident, summary and analysis of the response strengths and areas for improvement, an improvement plan, and a summary of participant feedback.

As to communications during a crisis, the EOP indicates that the communications strategy is to be led by the Office of Strategic Communications to provide timely synthesis of information from the Department of Public Safety, the President's Office, IRT, the EOC and IC team. The EOP states that this is to prevent misinformation, rumor-spreading, and inconsistent messaging. Finally, the Strategic Communications office is meant to manage all media inquiries and approve release of official statements and comments during a crisis. The Chief Communications Officer is considered the "official spokesperson for the University and must approve any information released to the media."

The University's adherence to the EOP during fall 2018. The University's EOP is in accordance with the industry guidelines articulated by the ACHA for emergency management response. During fall 2018 in response to the high levels of mold in dorm rooms, the University did not officially trigger the EOP, i.e. there was no emergency operations center activation, there was a limited IRT activation for the mold incidents, and no formal incident commander was designated, and the office of emergency management was not involved. It is not clear that University employees recognized that the handling of mold events in the fall 2018 should have triggered the EOP. Alternatively, any recognition that the EOP should have been triggered came

after substantial remediation and/or relocation efforts were already underway. While many of the requirements of the EOP were met in the manner in which Res Facilities handled mold issues that fall, earlier recognition that the EOP should have been triggered and closer adherence to the EOP requirements would have assisted in a campus-wide coordination of resources and communications.

The goals articulated in the EOP are applicable to the mold events of fall 2018. Further, the assumptions stated in the EOP include the events related to mold in the fall of 2018. As a result of our review of documents and interviews, it is unclear to what extent appropriate campus staff have FEMA, NIMS, and ICS training which all touch on and direct the effective management of campus emergencies. Captain Ecker, of the Office of Emergency Management, stated that they suggest the training to staff but cannot guarantee that staff take that training.

From reviewing the definitions of emergency levels within the EOP, the mold crisis in fall 2018 most closely aligned with the definition of a Level 2 incident. The issues were complex, longer in duration and required more response resources than routine university operations. Service requests related to mold began when students moved in on August 23 and continued until remediation efforts were complete on about October 10. Res Facilities had insufficient staff to handle the number of mold service requests that were caused by the weather aberration in fall 2018. The University required the assistance of outside contractors. Further, to properly address the mold issues and to redirect internal staff to other locations for mold cleaning work, it was necessary to relocate more than 500 students to temporary housing. These events had a significant impact on the affected students and their families, was a distraction from their studies, and impacted the acclimation to college life for predominantly freshman students. The events also

disrupted certain campus operations to the extent the University instructed all faculty to give academic accommodation to affected students. **Exhibit B, DR 6 001658.**

According to the EOP, for a level 2 incident, the OEM and Public Safety would determine the required level of EOC activation. The IRT can be activated "if policy issues arise." During the handling of mold issues in fall 2018, there was no triggering of the EOP and no determination by the OEM or Public Safety of the required level of EOC activation. In essence, Res Facilities handled and coordinated the University's response within that department alone or with assistance from other departments as requested by Res Facilities. Further, there was only one IRT meeting on September 24. That meeting occurred several days after the decision had been made to relocate over 500 students and after the commitment of University resources had already been made.

The EOP also covers crisis communication. In fall 2018, DESSR contacted Katie Lawson, Chief Communications Officer, on September 18. This is identified as the first point of contact with the Office of Strategic Communications concerning the high levels of mold in residential facilities. On September 19, an email was distributed to residence hall occupants with information and instructions about the increased number of mold related calls. Prior to these communications, Res Facilities had received complaints from students and parents regarding mold in the dorm rooms. Earlier communication with strategic communications would have provided a more comprehensive communication plan and would have been in more accordance with EOP.

c. Campus Infectious Disease Management Plan, **Exhibit C, DR 2 000067**

The CIDMP, falls under the broader oversight of the University's Emergency Operations Plan **DR 12, 000364** and has been approved by the Administrative Council (comprising the Provost, Vice Presidents, General Counsel and Assistant President). The Plan was developed based

the expertise of the members of the Campus Infectious Disease Management Committee and incorporates guidance from the CDC and the ACHA.

The CIDMP was broadened in scope five years ago to provide a framework for the key units at the University to respond to an incident of a campus infectious disease and to "reduce morbidity, mortality, social and economic disruption caused by an infectious disease case or outbreak in the UMD community." Prior to the fall of 2018, the CIDMP was updated in February 2018.

The CIDMP sets out within its Executive Summary that it "names levels of response that are divided 1, 2, and 3 based on the transmissibility, number of cases and morbidity and mortality associated with a particular infection." The CIDMP is reviewed at least annually with key stakeholders and describes itself as a "living document...constantly updated based on new information and experience."

The CIDMP recognizes that the IRT will manage the institution's response to a broad threat that that it will incorporate recommendations from within the CIDMP. The IRT, according to the CIDMP, is to "meet weekly, daily, or more often as issues unfold." The CIDMP calls for a Campus Infectious Disease Management Committee CIDMC "to communicate and meet periodically to keep the IRT abreast of potential threats in this realm." The UHC Director is the primary contact with local, state, or federal public health authorities. The CIDMP states that the UHC Director and Emergency Manager will "work together to coordinate a date and time for CIDMC to meet."

The CIDMP states that management of an infectious disease related situation would be conducted within the UMCP structure for Emergency Management for all-hazards. The CIDMP names the Public Information Officer for the University of Maryland as the primary and only

spokesperson to communicate to the "media, external constituents and any other interested parties." The CIDMP states that the PIO is typically the Chief Communication Officer for UMCP.

Membership on the CIDMC includes representation from Facilities Management, Office of International Affairs, University of Maryland Police Department, Student Affairs, Athletics, Communications, Human Resources, University Health Center, Residential Facilities, Department of Environmental Safety, Sustainability and Risk, Office of Emergency Management, and University Recreation and Wellness. The CIDMC collectively identifies concerns, practices and expectations around the campus management of infectious diseases. They ensure that relationships between offices and resources are established in advance of any outbreak or situation.

The CIDMP developed three levels to guide the University's response to various infectious diseases situations. A Level One response is for an infectious disease with limited transmission of infectious disease with low mortality and morbidity with examples of norovirus or viral meningitis. This level of response dictates that the University mitigate the spread of the low danger infection, provide information to the community about the infection in question and increase prevention measures in Resident Halls/Dining Halls/public locations.

A Level Two response is for an infectious disease with high mortality or morbidity that potentially threaten campus health & safety and hospitalization or death of community member potentially occurring. The CIDMP examples are bacterial meningitis, isolated Ebola, or measles. The CIDMP contemplates that this level of response would see a "significant increase in student, faculty and staff absenteeism, heightened level of anxiety about the infection..." In addition, social distancing and event cancellation is seen at this level.

A Level Three response involves an infectious disease with high mortality and morbidity that disrupts the conduct of University business. The CIDMP provides a virulent flu strain as an example. This level of response contemplates normal operations interrupted and that the University being called upon to provide food and shelter to community members affected on campus and the surrounding area.

Under the CIDMP, the University's responsibilities include: 1) practicing ongoing disease surveillance to facilitate early detection of an infectious disease; 2) active communication with local and state public health authorities on disease patterns; 3) ensure appropriate student immunizations and disease reporting; 4) University department coordination; 5) provide timely, consistent, and accurate information to campus community; 6) educational campaigns to reduce risk; and 7) participation in Point of Distribution activities.

Each key University responsible unit has its own written response to actions required under each of the three levels. The CIDMP provides for coordination of any infectious disease response with the University Strategic Communications representatives to work together on appropriate communications.

The CIDMP follows the recommendations of ACHA's guidelines on Emergency Planning. Further, the CIDMC never declared a specific level of incident for the adenovirus outbreak. The CIDMP does not explicitly recommend or require that a level be designated for every infectious disease situation. From the time the adenovirus outbreak was appreciated on November 13 until the outbreak concluded, the CIDMC never declared a specific level of incident related to the outbreak.

Although the University and Dr. McBride did not specify an operation level within the CIDMP, and such declaration is not required by the CIDMP, the University and specifically the UHC and Dr. McBride adhered to the requirements of the CIDMP.

d. Laboratory Policy and Procedure Manual, **Exhibit C, DR 12 000419**

The UHC utilizes a Laboratory Policy and Procedure Manual. This describes how phlebotomy and laboratory testing is performed, both in house and for send-out laboratory tests, and how tests are ordered within the electronic medical record. It describes procedures for receipt and review of results, and notifications to patients. Using this system, the laboratory director reviewed laboratory tests that had been ordered and not performed on a monthly basis and messaged the ordering provider to review and follow up with the patient.

Monthly review of unfilled laboratory tests may potentially result in a significant delay to follow up. While there is no indication that this impacted patient care or outcome during fall 2018, only conducting a monthly review of unfilled laboratory tests is not recommended.

VI. RECOMMENDATIONS

The Panel makes the following comments and recommendations:

A. GENERALLY

The University did not appear to have a mature culture of emergency management across all levels of the organization which would have provided early opportunities for escalation and more effective emergency management for both incidents. It does not appear that any formal campus wide/OEM coordinated after-action meetings were held as a result of the mold and adenovirus incidents from fall 2018. Res Facilities and Residential Life conducted a joint after-

action meeting and so did the UHC, however given that the entire campus was affected by mold and adenovirus, a larger coordinated after-action meeting would have been appropriate.

The University should consider providing training through a trackable platform to ensure appropriate staff complete the training in the FEMA National Incident Management System (NIMS) and the Incident Commander System (ICS). The University should review roles and responsibilities of staff at all levels during a range of campus incidents and emergencies.

In the case of the Emergency Operations Center and IRT activities, the University should err on the side of activations during real events so that campus-wide teams may continue to improve on the handling of campus emergencies. A campus may convene their campus wide emergency operations teams and then scale back as needed once an appropriate decision has been made to do so. The combination of the EOP and the lack of campus-wide emergency management in these two incidents suggests the campus reserves the campus-wide emergency operations management to higher levels of threat including situations such as exigent criminal activity on campus or natural disasters.

With a more robust culture of campus emergency management there would be an improved recognition of formal campus wide coordination at all levels of incidents, especially in situations which may have potentially less impact but are more likely to occur, versus reserving the campus wide emergency operations activities to only the most severe, but more unlikely incidents.

The University should evaluate the current structure of its marketing department and identify one of the four branches which owns “crisis communication” for the University. Moreover, the University should designate a person/role named for crisis communication so that moving forward there is an owner for crisis communication. That person or role should have direct

access to the decision makers and those communicating with parents and students (i.e., the VP of Student Affairs). Moreover, those persons dealing with the crisis operationally should have direct access and coordination with this "crisis communicator."

The University should leverage the IRT. If the CIDMC is consulted (or a similar subgroup), the IRT should be called as well to determine if crisis messaging is needed and to evaluate the potential for institutional risks. If the VP of Student Affairs is considered the conduit to students/parents, that individual needs to be an active partner with the crisis messaging and the IRT.

B. RECOMMENDATIONS SPECIFIC TO MOLD

i. The Incident Response Team, in accordance with the Emergency Operations Plan, should be involved in decision making.

The Emergency Operations Plan states that the IRT's role is to make final decisions regarding direction and actions. In addition, the IRT is meant to be involved with a variety of incidents, in particular individual student tragedies, weather-related incidents, infectious disease incidents and property-related or infrastructure or reputation related incidents. The University should follow its description of the IRT and be more involved in decision making particularly where institutional risk is at issue.

Dr. Clement, the Vice President of Student Affairs and Dr. Hummel, her Assistant VP described the IRT as a body that gathers and shares information but not a decision-making body. While the IRT is not meant to direct the details of operations, the response to high levels of mold in the dorm rooms should have had more IRT involvement. The IRT's active involvement would likely have allowed for more consideration of institutional risk and provided for more streamlined communication.

ii. Although air sampling is not required under EPA or OSHA guidelines, and although recommended against by DESSR and BDL, air sampling may have been helpful to determine whether there was a hidden source of the mold which could have been missed by visual inspection.

The recommendations of BDR and DESSR to not sample for mold were not against the EPA and AIHA guidelines and the University's adherence to those recommendations was acceptable under the broad EPA guidelines.

Res Facilities created a "Prevention, Assessment and Removal of Mold" on July 25, 2019 which addresses among other things, mold prevention, internal communications of mold assessment, remediation procedures, roles and responsibilities, remediation evaluation, escalation considerations, and risk and process communication. *See* **Exhibit C, DR 12 000205**. The document does not suggest air sampling to validate the remediation which is not in conflict with EPA and AIHA guidelines.

Air sampling, however, is a useful tool in determining the differences between indoor and outdoor air quality whch may indicate the presence of hidden indoor microcopic air contaminant. Usually, the observation would be that outdoor spore concentrations exceed the indoor concentrations. It would have also been useful for the University to also conduct surface samples after remediation.

The University is responsible for the health and safety of the students, faculty and visitors to the campus. In the residential halls, the University is charged with providing a safe living environment for the occupants. Considering that the university's remediation efforts would be scrutinized by the public and perhaps more importantly, the parents of the students living in Elkton, the University should have conducted air sampling after the remediation to provide a level of assurance to the students and their families that the cleaning/remediation activities were successful.

iii. Where possible, identify persons who are sensitive receptors and make provisions to notify, remove or protect them from environmental incidents.

There are limitations regarding knowledge of personal health information imposed by federal HIPAA regulations. However, mold is an aeroallergen, and allergens affect individuals very differently depending upon personal sensitivity. At minimum, staff should be trained that mold growth may result in very different effects upon building occupants due to individual sensitivity.

iv. Coordinate with the communications department to review readiness to set up call centers.

Res Facilities with the assistance of Residential Life handled the remediation efforts for the mold in the dorms. Res Facilities was also tasked with responding to service requests and constant parent and student inquiries and complaints, The University should review the coordination between the communications department and particular departments responding to a crisis to allow the department to focus on the operations of handling the crisis and task the communications department with call center coordination to adequately and efficiently handle parent and student inquiries.

v. Review the Tririga system for effectiveness in management and reporting of work tasks and alerts of trends and clusters.

In the fall of 2018, Res Facilities did not utilize the Tririga system to generate real-time information regarding clusters or maintenance requests or trends in certain buildings. This information would be helpful for Res Facilities to earlier detect a trend and more quickly address a large problem.

vi. Investigate feasibility of installing Dedicated Outside Air Supply (DOAS) system in the buildings.

DOAS systems supply tempered and dehumidified make-up air to the building to act as a positive control on indoor relative humidity and provide positive pressurization to the building, thus reducing the uncontrolled infiltration of outdoor air into the building.

Of note, in the aftermath of 2018, the University has developed and implemented several initiatives which will improve the performance of their facilities with respect to water intrusion and subsequent mold problems. Res Facilities developed a new moisture control program for Elkton that includes: 1) signage on windows to remind students to keep the windows closed when air condition is operating and on the fan coil units to prevent blockage; 2) general signage on first floors related to moisture control; 3) data monitoring of the temperature and humidity in each students' room using a "HOBO" brand data logging service; 4) dehumidifiers in each students room that have a built in water pump which pumps collected moisture into the fan coil unit condensate drain; 5) health and safety inspections in the student rooms; and 6) large built-in dehumidifiers in the hallways.

vii. Investigate modifications to the chilled water supply temperature to the FCUs for cooling.

Current supply water temperature is reported to be 44°F. Providing chilled water at such a low temperature can lead to subcooling the dorm rooms which will cause the fan coil unit to short cycle and thus severely limit the dehumidification effect of the chilled water fan coil unit. The University should consider modulating the chilled water supply temperature to the fan coil units to maintain sufficient airflow over the coil to achieve effective dehumidification.

viii. Trim back the ledge that still extends over the fan coil unit.

The window sill overhangs the wall and it forms a ledge of approximately 1 – 1.5 inches that extends out over the top of each fan coil unit. The design of the air outlet of the fan coil unit is intended to direct air back towards the window and 'wash' the wall. The overhanging ledge blocks that airflow and redirects it toward the front of the fan coil unit. The fan coil's temperature control is located in the return air slot at the bottom of the fan coil. When the cold discharge air is directed towards the front of the fan coil unit, it does not get a chance to mix adequately with the room air. It is drawn back into the return and gives a false reading to the temperature control that the room temperature needs have been satisfied. The controller then closes the coil control valve and shuts off the fan. This 'looping' of air is called 'short circuiting' and the unit stopping and starting due to this errant airflow is called 'short cycling'. Res Facilities should grind or cut away the overhanging ledge to allow the discharge air to wash the window\wall and mix properly in the room. This will improve comfort and allow the unit to run longer, thus aiding dehumidification.

C. RECOMMENDATIONS SPECIFIC TO ADENOVIRUS

i. The campus should incorporate activation of the Incident Response Team into its response to outbreaks, as well as into the Campus Infectious Disease Management Plan.

The University should leverage the breadth of resources of the campus with a more coordinated response to infectious disease outbreaks by triggering the IRT when an outbreak is declared and/or a CIDMP level is stated. The recommended checklist for each level within the CIDMP could include assembling the IRT. Having the IRT activated will enable the University to engage campus-wide leadership and allow for a broader perspective on the issues at hand, including improved consideration of institutional risk.

ii. The UHC should utilize tighter syndromic surveillance to monitor trends of ILI, conjunctivitis, and gastroenteritis.

During fall 2018, the UHC was running monthly disease surveillance reports which is not frequent enough to detect a pattern. Similarly, quarterly reporting for individual providers or laboratory patterns would have been too infrequent for rapid response. In addition, the list of diagnoses being monitored was limited, and ILI data patterns were being reviewed retrospectively. Although a specific diagnosis of adenovirus would not have been detected by these surveillance methods and while the UHC utilized other internal mechanisms for surveillance (such as staff discussions, collaborations, and interactions) which contributed to the UHC recognizing the increased frequency of ILI in the University's community, increasing frequency of data review may be able helpful to identify issues and to trigger a level 1 response earlier.

Since fall 2018, the UHC has already increased running these surveillance reports to weekly which is much more appropriate for detecting a pattern, but the UHC could consider broadening the reported list of diagnosis codes by reviewing their most frequent diagnoses. Using fever as a diagnosis code for reporting is a good proxy for infection, and the UHC has already lowered the definition of fever to include low-grade fever of 100 degrees or higher. While likely not possible through the electronic medical system, the UHC should explore ways of automating reporting so patterns above baseline are flagged or become "high alert" without having to manually run the report.

Disease surveillance methods utilizing the electronic medical record were in place in Fall 2018 but did not assist in recognition of patterns given frequency of and limitations around electronic reporting. This change can make a significant difference in the sensitivity of disease detection on a campus of more than 40,000 students and trigger a Level I response earlier.

The UHC may also consider introduction of a formal daily huddle or a daily broadcast report to update all staff on emerging patterns that are being seen and updates from campus-wide communications that may impact patient care, rather than relying on close daily interactions.

iii. The University should implement a system that allows for more frequent laboratory test verification for patients seen at the UHC.

In the fall of 2018, the UHC providers were notified by the laboratory manager only monthly if a laboratory test was ordered but the patient did not have the test done. Since the fall of 2018, the UHC has implemented a system so that unfilled lab orders are canceled after one week, and providers are notified by the laboratory manager so they can follow up directly with the patient and evaluate whether the test is still necessary and the reasons why the student did not have the test completed. This is an improvement that will help prevent missed diagnoses due to unfilled lab orders.

iv. The UHC staff should receive full documentation of all after-hours UHC calls for all students, not just students enrolled in certain plans.

When the UHC is closed, students are able to connect with a nurse via telephone through a system run by a contract company**.** The system has recently switched, and reports are only received on students enrolled in the university insurance plan. Incomplete handoff communication of medical information hinders proper follow-up of medical issues and is a significant issue in health care that should be remediable in this setting.

This also leaves a potential gap for loss of information on those who are not covered by the plan, as their information will not be transmitted to the UHC, so the UHC cannot offer follow up. In fact, a large proportion of the University's population is not covered by the student health insurance plan. The UHC should consider ways to remove this barrier in communication due to

the loss of information and ability to follow up. One way would be to contract with an after-hours telephone provider not related to the insurance plan and thus funded through a different source.

v. The UHC should have procedures in place for targeted outreach to students with underlying health conditions.

During the mold crisis, the UHC in conjunction with Res Facilities was able to send targeted messages to students with asthma or receiving allergy shots messages regarding the health impacts of mold in the residence halls and informing those students to seek care at the UHC if they were experiencing mold symptoms.

In fall 2018, the UHC's only ability to know the health history of any student was upon their first visit to the UHC. The availability of an online health history questionnaire would allow students to submit information to UHC's Medical Services before their arrival on campus, and if reviewed, allows proactive communication to students and establishment of care prior to an illness or crisis. The UHC has implemented in the fall of 2019, a system whereby that once any student submits their required immunization records, they receive a message directing them to complete their health history and schedule an appointment with a clinician. For students who have completed the health history and endorse a positive response to chronic conditions, or who have been seen in the health center with a chronic condition or immunosuppression, there is now proactive outreach with a message to come in and meet a clinician, get a flu shot, and practice personal protective behaviors to prevent infection. Anecdotally, clinicians have noted that some students have scheduled an appointment based on this outreach, indicating it is successful.

It is not recommended that there be a mandatory requirement for students to complete a health history prior to arrival at the University, but the UHC could provide that as an option for incoming students, especially for those with chronic health conditions. These health records can

also be used for targeted messaging to individuals with immunocompromising or other chronic health conditions during flu season or when there are relevant infectious outbreaks on campus.

vi. The UHC should update its eligible population in CRISP more frequently to ensure that the UHC has included the broadest array of students within its population.

Many students attending the University are from the local Maryland area, so may receive their healthcare with outside physicians and specialists, and may be seen at outside urgent care facilities, emergency rooms or hospitals. Outside providers have no obligation to notify UHC providers of their interaction with a University student, and a student is also under no obligation to notify the UHC of care received elsewhere.

The UHC is enrolled in CRISP, the regional health information exchange serving Maryland and Washington, D.C. During the fall of 2018, the UHC would upload its eligible population, defined as students seen at the UHC within the last 18 months, at the beginning of the semester and then periodically throughout the semester. The UHC should update its eligible population within the CRISP system more frequently. The CRISP system is a tool unique to Maryland and Washington, D.C. and health care providers in this region should utilize its capabilities.

The CRISP system does allow for the UHC Director to manage alerts to eliminate non-actionable alerts (i.e. emergency room visits for a broken arm). Arguably, the UHC population of students could be expanded to include the entire student population since they provide mandatory immunization records to the UHC. Thus, updates of the eligible population at the beginning of the semester would theoretically encompass the students served by the UHC. By increasing its eligible population, the UHC can fully ensure it is utilizing the CRISP system.

vii. The UHC should make the CIDMC more robust by including an infectious disease specialist on the committee.

In fall 2018, the only health professional serving on the CIDMC was Dr. McBride. The CIDMC needs additional medical expertise. The CIDMC since the fall of 2018 has added a member from the School of Public Health. The CIDMC should further include at least one University of Maryland Medical Center pediatric or adult infectious disease specialist, or someone with a global health perspective even if they can only attend remotely.

viii. Adjust the responsibilities of the UHC Director to reduce percentage of patient care and burdens on the UHC Director and broaden the senior leadership within the UHC.

During the fall of 2018, Dr. McBride spent about 30% (three half day sessions) of his time on clinical care at the UHC. The University Health Center (UHC) Director has a large portfolio and significant responsibility. This is typical for this type of position at an institution of this size. However, the UHC Director should consider reducing the percentage of work time on patient care to allow more time for administrative oversight. While there is benefit in clinical involvement, the UHC director should reduce to 10-20% clinical time.

Additionally, in fall 2018, Dr. McBride was responsible for calling meetings of the CIDMC and chairing the committee. The UHC Director should be considered the lead for calling a CIDMC, but they should not chair the committee.

In addition, the University may consider broadening the senior leadership within the UHC, particularly on the medical side, to allow shared representation on campus committees and internal supervision of clinical services, to not leave this all to the Director. Adding an Associate Director may allow sharing some of this responsibility, particularly for internal clinical pieces such as oversight of CRISP and laboratory supervision.

ix. Once a decision is made to send a campus-wide message, the process for sending that message should be more streamlined.

The University's existing procedure for sending campus-wide messages is cumbersome and unclear. The CIDMC decided to send a campus-wide message naming adenovirus on November 15th and the message was drafted and sent to Dr. McBride in the afternoon of November 16th. Dr. McBride approved the message within one hour of receiving the draft and stated that he was "comfortable with the message going out now." The distribution of the message was left to the "VPs Office" which would delay the message going out until Monday. The University should have the ability to send messages in a more immediate fashion.

x. The UHC should have a dedicated communications professional assigned to the UHC with experience in health-related communications.

There is no embedded communications professional within the UHC. Given the size of the population and the scope of responsibility of the UHC, having a dedicated communications professional with expertise in health-related communications would be beneficial. While this person may not directly report to the UHC Director, that person should have a "dotted line" to the UHC Director. This health communications official should be on the CIDMC and the IRT. Further, processes and procedures for dissemination of health-related communications should be clarified and simplified. As seen on November 16, the dissemination of health-related communications can be delayed by the bureaucracy of going through multiple channels before the communication can be delivered. Finally, neither the UHC nor its dedicated communications professional should feel constrained in providing additional student messaging if it is determined to be warranted, even if additional messaging is not recommended by local, state, or federal public health agencies.

xi. The UHC should review its CIDMP plan to ensure it adequately contemplates non-reportable diseases and corresponding communication strategies and requires a declaration level.

The CIDMC met twice during the 2018 fall semester. At neither of these meetings was a level of response in accordance with the CIDMP stated. If the CIDMC is assembled for an infectious concern, it should state a level of appropriate response, if any declaration of level is appropriate. Certain situations may warrant certain actions at more than one level.

The CIDMP grid containing the three levels of response is a good guide, but there is much fluidity between the different levels which will be situation dependent. During the adenovirus outbreak, not all actions were taken at either a level 1 or 2. While it may not have been appropriate to take all actions at both levels given the specifics of that situation, the CIDMC should consider creation of a checklist at each level so there can be documentation and tracking of actions taken during a situation, with written analysis of why actions are and why they are not taken. This would also allow flexibility in infection-specific actions which may not be contained in the broad guide.