

A Review of the Response to Adenovirus Respiratory Illnesses - Fall 2018
University of Maryland College Park

Background

During the fall of 2018, the University of Maryland at College Park experienced cases of adenovirus-associated respiratory illnesses. During this period the University Health Center confirmed 42 cases with illness attributable to an adenovirus. One tragic case in particular resulted in the death of a student. As part of the University's goal to ensure that they are providing the best possible care for its students, Vice President for Student Affairs Linda Clement requested an external review of protocols, policies, procedures and responses to these cases.

In conducting the review, the reviewers were given full access to any and all requested documents needed to evaluate the University's response to this outbreak. This access included health and laboratory records, internal and external communications and correspondence, as well as documented policies and procedures. Appendix I lists the documents that were reviewed. Appendix II describes the qualifications of the two physicians who performed this review.

Adenovirus

Adenoviruses are among a number of common viruses that can cause respiratory infections that manifest as cold-like symptoms such as fever, sore throat, bronchitis and conjunctivitis among others. The illness in response to these viral infections is almost always mild and resolves without specific treatment. Rarely, serious life-threatening illnesses from adenovirus can occur, particularly among individuals with weakened immune systems, or pre-existing respiratory or cardiac disease.

Adenoviruses are usually spread in a similar fashion to other viruses that cause respiratory infections. Spread occurs via close contact with an infected person such as touching or shaking hands, through the air via coughing or sneezing, or by touching surfaces with the virus on it.

Unless warranted by a serious illness that requires hospitalization, laboratory testing to identify the source of a mild upper respiratory infection in an individual patient is not clinically warranted. The exception to this practice is the influenza virus, for which point-of-care testing is frequently available in an outpatient setting. An FDA-approved vaccine for adenovirus types 4 and 7 is licensed and authorized for use by the U.S military but it is not available to the general public.

Respiratory illnesses due to the adenovirus can occur throughout the year. Adenovirus types 3, 4 and 7 are most commonly associated with acute respiratory illness. Adenovirus type 7 has been associated with more severe outcomes than other adenovirus types, particularly in people with weakened immune systems.

UMD Response

On November 1, 2018, the UMD Health Center was informed by the University of Maryland Medical Center of a case of a student with adenovirus. A second UMD student was admitted to the Howard County Medical Center on November 5, prompting the Health Center staff to recommend adenovirus testing which confirmed the presence of the virus on November 12. Both prior and subsequent to November 12, Health Center staff began collecting and submitting specimens for laboratory testing. On November 13, the UMD Medical Director was informed of a 3rd student admitted to The Johns Hopkins Medical Center with severe atypical pneumonia who subsequently succumbed to her illness on November 19. With permission of the family, a notice was sent the next day informing the campus community of the death and urging students and staff to take preventive measures and seek prompt medical attention as warranted.

Beginning on November 9, a series of University-wide communications were sent out regarding the prevention and transmission of viral infections. The timeline of the cases, Health Center actions and communications are posted on the UMD website.

The UMD Health Center response included consultation with the Maryland Department of Health on November 12 and Prince George's County Health Department on November 13, and laboratory testing of specimens by the Centers for Disease Control and Prevention (CDC).

By January 24, 2019, 42 cases of adenovirus infections had been confirmed, 13 of which were adenovirus type 7.

Protocols, Policies and Procedures

Campus Infectious Disease Management Plan (CIDMP)

The University Health Center has a well-developed and executed infectious disease management plan which is part of the larger University Emergency Operations Plan. The CIDMP defines three levels of response depending on the transmissibility, the number of cases of a disease, and the morbidity and mortality associated with a particular infection. The response outlined in the plan (to cases of adenovirus in this instance) was appropriately classified at Level 1 which is for infections with limited transmission and low mortality and morbidity, despite the tragic student death. At this Level, the University responded both consistently with the CIDMP and in the best interests of the campus community by acting to mitigate the spread of further infection through increased prevention measures in residences, dining halls and public locations, and through communications reminding the community of ways to personally prevent the spread of viruses.

The description of the Infectious Disease Response Roles and Responsibilities which is part of the CIDMP is notable for the comprehensive and well-coordinated approach to infectious disease cases. It clearly outlines the responsibilities and actions that covers a

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wide range of campus authorities from the Director and staff of the University Health Center to over a dozen campus services and organizations including Student Affairs, Facilities Management, Environmental Safety, University Communications, Transportation and Dining Services, and Residential Life.

Communicable Disease Management

The University follows a Campus Communicable Disease Management Plan which outlines the management and reporting of infectious illnesses on the UMD campus. The plan is developed with cooperation of a campus infection control committee and both the local and state health departments. Prior to the current revision, this plan applied only to serious infectious diseases such as Ebola or meningitis. The current iteration of the plan now extends to all communicable diseases. The plan outlines procedures for home triage, clinical triage, reporting, management and prevention of disease spread.

Health Records and Laboratory Reporting

As the timely communication of laboratory results is critical to the success of any infectious disease control program, we reviewed current health and laboratory records policies. The University Health Center uses an integrated electronic medical record (EMR) and practice management system utilizing point-and-click (PnC) software. A separate laboratory information system is used to facilitate automatic flow of data and to interface with the PnC health record for ordering and posting results of laboratory testing. According to the Laboratory Policy and Procedure Manual, most notification occurs via the electronic medical record "Panic values" require notification of the order provider via a phone call or direct conversation. In the event that a specimen is rejected, the provider is notified. Under the section "Policy for Corrected and Cancelled Lab Tests," the policy dictates that cancellations and "not performed" tests ordered via the EMR must be brought to the attention of the laboratory director via instant messaging. The patient's provider will then be notified. According to Appendix B of the Manual, serology tests have a typical turnaround time of 1-2 days.

After Hours Patient Advice and Follow up

After hours care is managed by a nurse advice line provided by United Healthcare Student Resources. An on-call provider is available to manage any calls that the advice nurse feels may be outside her scope of practice. The UHC receives a daily report of any calls managed by the advice nurse overnight.

Findings

- Policies and procedures were followed. The University of Maryland has a well-established set of policies and procedures that are regularly updated in order to ensure that students receive the highest levels of patient care both inside and outside of the University Health Center. Both reviewers agreed that there was no deviation from these policies and procedures in the identification, management and response to the cases of adenovirus in the fall of 2018.
- Consultation with local, state and federal health authorities was sought early. As prescribed in the Campus Infectious Disease Management Plan, the UHC leadership team coordinated its efforts with the state, local and federal health agencies.
- Disease identification. Once adenovirus was identified as the pathogen causing severe respiratory disease, the UHC followed the recommendations of the CDC and the Maryland Department of Health to begin testing of all appropriately ill students for adenovirus. While adenovirus testing may be commonly performed in the inpatient hospital setting, in the outpatient setting this level of testing is considered to be above and beyond the current standard of care.
- Communications on both the cases of adenovirus and steps to take to prevent further transmission were frequent, timely and appropriate.

Recommendations

1. Standardize communication with laboratory regarding specimens.

The current laboratory manual suggests that if a patient does not have an ordered laboratory test performed then the laboratory director will be notified. It is then incumbent upon the director to notify the ordering provider. Currently the timing and frequency with which these notifications are made may vary. While early notification to the ordering clinician would likely not have changed the outcome for the student who died from complications subsequent to adenovirus infection, in the future such notification would prompt the ordering providers to contact the patients for whom the tests were ordered for closer follow-up.

2. Refine the Communicable Disease Management Plan for both serious and non-serious illnesses

In the section of the Plan that addresses the triage of patients presenting to registration with fever and a rash, the Communicable Disease Management Plan, which is currently under revision, should be refined to better delineate how to best segregate students who are potentially critically ill. One approach would be to define two subsets of presenting illness: one designed to minimize spread of serious diseases such as meningitis; the

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other subset which would outline the basic management of any student who presents to the UHC with a less severe illness (such as uncomplicated influenza, for example) which could be contagious to other students.

APPENDIX – I

Documents Reviewed – Adenovirus Outbreak Review

Laboratory Policy & Procedure Manual (Revision Date: February 2019)

After-hours Patient Advice and Follow Up Policy (Policy & Procedure Manual, Approval/Revision Date: JAN 2019)

Health Records Policy (Policy & Procedure Manual, Approval/Revision Date SEPT 2018)

Infection Prevention, Control and Safety Program Manual and Plan (Policy & Procedure Manual, Approval/Revision Date SEPT 2018)

Management of Communicable Diseases (Policy & Procedure Manual, Approval/Revision Date MAR 2019)

URI Patient Encounter Template

Campus Infectious Disease Management Plan, University of Maryland – February 2018

Infectious Disease Response Roles and Responsibilities – December 2017

Line listing of Adenovirus Cases (names and University IDs redacted)

Important Information About Flu and Cold Season. November 9, 2018

Important Reminders about Viruses and Staying Healthy. November 19, 2018

Important Update from the University Health Center. November 20, 2018

Adenovirus Update. November 26, 2018

Adenovirus Resources – University Health Center Virus Communication December 12, 2018.

<https://health.umd.edu/adenovirus-resources>

· Spanish-language Version - <https://health.umd.edu/adenovirus-cartas-del-director-al-campus>

Adenovirus FAQs – University Health Center Virus Communication December 12, 2018.

<https://health.umd.edu/adenovirus-faqs>

Letter from Linda M. Clement to Delegate Adrienne A. Jones, Chair, State of Maryland Education and Economic Development Subcommittee, Appropriations Committee – March 5, 2019

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Letter from Linda M. Clement to Senator Bill Ferguson, Vice Chair, Budget and Taxation
Committee – March 5, 2019

Olivia Paregol - Timeline & Redacted Medical Record

Appendix II

Reviewer Credentials

Dr. David S. Reitman

Dr. Reitman graduated from Tufts University School of Medicine in 1997 and completed a pediatrics residency at Massachusetts General Hospital in 2000. He completed a fellowship in Adolescent Medicine at Children's National Medical Center in 2005. Dr. Reitman began his practice in college health at George Washington University in 2006 and since 2013 he has served as the medical director at American University's Student Health Center. In addition to his work in college health, he is an associate professor of pediatrics at Medstar-Georgetown University Hospital and he teaches adolescent medicine to residents and medical students. Dr. Reitman holds a Masters of Business Administration in Healthcare Management from Regis University.

Dr. Paul J. Seligman

Dr. Seligman graduated from the University of California Davis, School of Medicine in 1980 and completed a residency in internal medicine at The Cambridge Hospital in 1983. He completed a fellowship in Preventive Medicine at the Centers for Disease Control and Prevention (CDC) in 1986 after having completed two years as an Epidemic Intelligence Service officer. Dr. Seligman served for 26 years as a Commissioned Officer in the US Public Service in a variety of executive and leadership roles as a physician-epidemiologist at the CDC, the US Department of Energy and the Food and Drug Administration. He is board-certified in internal medicine, public health and general preventive medicine, and occupational medicine. Dr. Seligman holds a Masters in Public Health from the University of Michigan.