Measles – The Return of a Preventable Disease

By Paul A. Granato, PhD, DABMM, FAAM, Director of Microbiology

Background

America’s recent measles outbreak has sent the country back in time. In the first six months of 2019, the measles outbreak reached the worst level in a single calendar year since the disease was declared eliminated in 2000. The significant rise in the incidence of measles has left physicians, hospitals, laboratories, and public health facilities scrambling to diagnose, treat and control this vaccine-preventable disease.

Overview

Measles, also known as rubeola, is a highly contagious, potentially life-threatening disease that is caused by a virus. Most infections occur in the pediatric age group. Prior to the development of a safe and effective vaccine in 1963, major worldwide epidemics of measles occurred approximately every two to three years. These epidemics resulted in an estimated 2.6 million deaths annually. With the availability of an effective measles vaccine and adherence to public health vaccination guidelines, the Centers for Disease Control and Prevention (CDC) declared measles eliminated in the United States in 2000.

Even though the measles vaccine is available in many countries throughout the world, measles continues to be prevalent in some of these areas because of a lack of compliance with vaccination recommendations. As a result, approximately 110,000 people died from measles in 2017 worldwide. Most of these individuals were children under the age of 5 years.

In 2018, 17 outbreaks of measles were documented throughout the United States. Three of the outbreaks that accounted for most of the cases occurred in New York state, New York City, and New Jersey. Infections in these areas occurred primarily among unvaccinated people in Orthodox Jewish communities who traveled to Israel, where a large measles outbreak is occurring. The outbreak has also been linked to unvaccinated travelers who brought measles back from other countries, such as Ukraine and the Philippines, where large measles outbreaks are also being experienced.

The measles outbreak of 2018 in the U.S. continues into 2019. From Jan. 1 to July 3, 1,109 measles cases have been confirmed in 28 states (see the map below). This represents an increase of 14 cases from the previous week. The year-to-date 1,109 measles infections documented as of July 3 represent the greatest number of cases reported in the U.S. since 1992 and since measles was declared eliminated in 2000.

Transmission

Measles infections are transmitted following inhalation of aerosols or droplets expelled from the respiratory tract of an infected person during coughing. Infection may also result by touching an object that is contaminated with the measles virus from an infected person’s respiratory secretions. Measles is a highly contagious disease and susceptible individuals who come in close contact with an infected person have a 99% chance of acquiring the infection.

Symptoms of Measles

Following exposure to the measles virus, 10 to 14 days may pass before a susceptible person develops symptoms of disease. Symptoms typically begin with a mild to moderate fever, often accompanied by a persistent cough, runny nose, conjunctivitis (inflamed eyes), and sore throat. These relatively mild symptoms

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Correct Codes are Critical

By Nancy Sniffen, Director of Billing and Compliance

NCDs and LCDs
National Coverage Determinations (NCDs) and Local Coverage Determinations (LCDs) tests and information concerning appropriate diagnosis codes can be found on Laboratory Alliance’s website at laboratoryalliance.com under the Healthcare Providers tab. There, you will find:

- Specific test CPT codes for which medical necessity rules have been defined.
- The ICD-10 or diagnosis codes that Medicare will accept as documentation that the listed test is reasonable and necessary for diagnosis or treatment. ICD-10 codes supporting medical necessity must be included on the requisition form. The diagnosis must be present for the procedure to be paid and there must be documentation within the patient’s medical record. Medicare and Medicare Managed Care plans may deny payment for a test even though the physician believed it was appropriate if the test did not meet Medicare’s definition of medical necessity.

Medicare and Medicare Managed Care plans may deny payment for a test even though the physician believed it was appropriate if the test did not meet Medicare’s definition of medical necessity.

Client cooperation in providing diagnostic information is essential to the efficient operation of our lab. Without appropriate diagnostic documentation, we cannot be paid for our services.

Additionally, diagnostic information can determine whether or not an Advanced Beneficiary Notice (ABN) should be signed. An ICD-10 code or a written diagnosis should be included in the space provided on our test requisition form.

Providing diagnostic information when ordering a test not only helps us operate efficiently and be paid for our services, it can also eliminate the time and expense the physician office may incur when responding to our requests and, subsequently, reviewing patient files.

- National Coverage Determinations (NCD) is a national policy statement that indicates which diagnoses, signs, or symptoms are payable for specific tests.
- Local Coverage Determinations (LCD) is a local policy statement by the local Medicare carrier or fiscal intermediary that indicates which diagnoses, signs or symptoms are payable for specific tests. Our Medicare carrier is National Government Services.
- ICD stands for International Statistical Classifications of Diseases. ICD codes are alpha-numeric designations given to every diagnosis, description of symptoms and cause of death attributed to human beings.

Reflex Testing
Reflex testing is testing that is performed as a result of initial test results which are used to further identify significant diagnostic information required for appropriate patient care. A list of the reflex tests that are performed when appropriate is on our website.

Panels
Organ or disease panels will only be billed and reimbursed when all test components are medically necessary. If only some components are medically necessary, or if the physician wishes to order other tests not included in the panel, those tests should be ordered individually. A list of tests included in the American Medical Association acceptable panels is included on our requisition and at laboratoryalliance.com. Medicare reimbursement amounts for these tests can be found online at cms.hhs.gov/ClinicalLabFeeSched/. Medicaid reimbursement will usually be equal to or less than the Medicare reimbursement.

Clinical Consultation Services
Appropriate test use and ordering may be discussed with Laboratory Alliance’s Medical Director, Michael Graber, M.D., available by contacting our Customer Service Department at 315-461-3008.

Access NCD/LCD Book and ICD-10 Codes on our website at laboratoryalliance.com

1. Select the “Healthcare Providers” tab.
2. Select “NCD/LCD Book and ICD-10”
3. Select the link “2019 New and Invalid ICD-10 Codes”
Recognizing Medical Technologist Sister Maria Grace Quartiero

Celebrating 50 Years as a religious sister and even more as a medical technologist

The news that longtime Laboratory Alliance Medical Technologist Sister Maria Grace Quartiero, IHM, celebrated her 50th Jubilee of Religious Profession in June is inspiration to share her story in LabLines.

Long before she was Sister Maria Grace or a medical technologist, Jeanne Quartiero was an eighth grader in Connecticut, and that is when she discovered an interest in medicine. She chose diseases as her themed essay topic and, as part of the assignment, mailed letters to healthcare organizations for information.

"I heard from all the laboratory associations, despite it being a fairly new field at that time," she said.

This was in the mid-1950s and the role of the laboratory in clinical diagnosis and patient care was expanding at hospitals.

From the mid-1950s through the 1960s, the capabilities of automated devices increased the number of laboratory tests that were being ordered, and medicine's and surgery's dependence on clinical chemistry was confirmed.

"Once I had all this information I never wanted to do anything else."

From 1961 to 1965, she attended Marywood College in Scranton, Pa. She spent three years at the college and a fourth year at Robert Packer Hospital in Sayre, Pa., for the required internship to earn her bachelor's degree in medical technology. She was hired by the hospital as a medical technologist where she worked for a year before making another change in her life.

Medical technology was not her only calling. She wished to enter religious life.

"Maybe I was being called by God. I wasn't sure, but the longing stayed with me through college. The following year when I was working as a medical technologist at Robert Packer Hospital I listened to my heart," she said.

Entering the Convent in 1966

"My parents were not happy about my decision at the time," she said, "but as they came to know the sisters I was living with, they changed their minds. It was on Sept. 8, 1966, along with 49 other young women, that I became a postulant of the Congregation of the Sisters, Servants of the Immaculate Heart of Mary (IHM), in Scranton. I was one of the older girls in our group. Most were just out of high school, and these young postulants without college educations were directed toward degrees in education. The next three years of my novitiate – or training – took place at St. Joseph's Hospital in Carbondale, Pa., where I continued to work in the laboratory. In 1969 I was officially hired by this hospital lab where I spent the next 12 years."

By 1981, Sister Maria Grace wanted a change so she sent applications to laboratory job openings in Long Island, Pittsburgh, Scranton and Maryland. The church placed three criteria on her job search: it must be a Catholic hospital, she had to live in a convent and she needed to have access to public transportation.

"The congregation was not going to buy me a car!" she said. "The weekend after the Fourth of July holiday, I traveled to Maryland for an interview. It was so hot and all the girls were crowded into the one room at the convent with air conditioning. After a single sleepless night, I said I'm not coming here!"

A month later she learned about a job in Syracuse through a friend who was heading north to get her master's in nursing from Syracuse University. St. Joseph's Hospital hired Sister Maria Grace in 1981, where she worked until she joined Laboratory Alliance in its inception year, 1998.

The full-time medical technologist works in special chemistry at our Operations Center main laboratory. She operates the instruments that test for lead, celiac disease, lupus and more. During her early years in the lab, she attended conferences to learn about industry changes. Now she stays ahead of new technology through online training sessions. Sister Maria Grace continues to find the work interesting, challenging and meaningful.

Sister Maria Grace's 38 years of service to our community through her work in the laboratory is complemented by an equal number of years of service to our community and beyond through her ministry with the Syracuse parish, Most Holy Rosary.

"I would like to see more young people consider a career in medical technology," she said. "It's sad that our youth don't know about the great opportunities in the lab."

In the meantime, she says "I have no plans to retire – there's no retiring when you work for the Church!"
Trichomonas vaginalis – The Rodney Dangerfield of STDs

By Paul A. Granato, Ph.D., DABMM, FAMM, Director of Microbiology

Introduction

Sexually transmitted diseases (STDs) or sexually transmitted infections (STIs) are most commonly acquired following sexual contact with an infected partner. The organisms that cause STIs may pass from person to person by being exposed to infected blood, semen, vaginal, or other body fluids. Sometimes, these STIs may be transmitted by non-sexual contact, such as from mother to infant during pregnancy or childbirth, or through blood transfusions or shared needles. Even though the very great majority of STIs involve the genital sites, extra-genital infections involving the oropharynx, rectum, etc. may be affected as well.

Causes

Over 30 different microorganisms including bacteria, viruses, yeast, and protozoa are known to cause STIs. Among the bacteria, Chlamydia trachomatis, Neisseria gonorrhoeae (gonorrhea), Mycoplasma species, and Treponema pallidum (syphilis) are the most common causes while human papilloma viruses (HPV), herpes simplex virus type I and type II (herpes), and human immunodeficiency virus (HIV) are the most common viral agents of disease. Trichomonas vaginalis causes trichomoniasis and is the only STI protozoan pathogen.

Incidence

According to the World Health Organization’s 2019 statistics, more than one million STIs are acquired each day worldwide. Each year, there are more than 357 million new infections caused by either C. trachomatis, N. gonorrhoeae, T. pallidum, or T. vaginalis. Additionally, more than 290 million women are infected with HPV. In 2016, 988,000 pregnant women had syphilis that resulted in over 200,000 stillbirths and newborn deaths. Importantly, most individuals who have these STIs may not seek medical attention because they have no symptoms or only mild symptoms of infection. As a result, the infection may be transmitted to others following sexual contact.

Trichomoniasis

Trichomoniasis, caused by the protozoan T. vaginalis, is a very common STI that is often underdiagnosed by healthcare professionals. Hence, it may be considered as the Rodney Dangerfield of STI pathogens because it receives “no respect” and insufficient attention. In the United States, trichomoniasis is the most prevalent nonviral STI, affecting an estimated 3.7 million individuals while an estimated 143 million new cases occur each year worldwide.

Most Trichomonas infections do not produce any symptoms of disease. These individuals are called asymptomatic for infection but they can readily transmit the protozoan disease to others following sexual contact. Some men infected with Trichomonas may have symptoms of urethritis, epididymitis, or prostatitis, while some infected women may produce a diffuse, malodorous, yellow-green colored discharge with or without vulvar irritation. The most reliable way to determine whether a person has asymptomatic or symptomatic infection caused by T. vaginalis is by performing an appropriate, highly sensitive laboratory test.

Laboratory Diagnosis

The laboratory diagnosis of trichomoniasis can be achieved by the visualization of the Trichomonas parasite in a wet mount, microscopic examination of an appropriate clinical specimen or by its cultural recovery. Wet mount, microscopic examinations for Trichomonas are performed in many healthcare facilities but the method has a poor sensitivity of 50% to 65%. Culture provides an improved alternative method with a sensitivity of about 75%. However, few clinical laboratories offer this cultural test because it requires the use of a specialized medium and final results may not be available for 5 to 7 days. Due to the poor sensitivities of these methods, the use of these tests may result in a missed diagnosis of infection.

More recently, highly sensitive, nucleic acid amplification tests (NAAT), such as PCR, have been developed for the reliable detection of Trichomonas in endocervical or vaginal swab specimens or in urine specimens collected from both male and female patients. The NAAT has a sensitivity and specificity ranging from 95% to 100%. Currently, the microbiology department at Laboratory Alliance of Central New York routinely offers a NAAT service for Trichomonas. Health care providers who do not currently order this test may do so by contacting Laboratory Alliance’s Client Services, 315-461-3008, and request the special Trichomonas specimen collection transport container needed for this test.

Treatment

Once the diagnosis of trichomoniasis has been made, a course of therapy with an antibiotic such as metronidazole is usually curative.
**Candida auris Update**

By Paul A. Granato, Ph.D., DABMM, FAMM, Director of Microbiology

**Preface**

In the summer 2017 issue of *LabLines*, an article was published reporting the emergence of a new, multi-drug resistant yeast, called *Candida auris*. The Centers for Disease Control (CDC) has recently reported that nearly 600 confirmed cases of drug-resistant *C. auris* infections have been documented over the past few years occurring in 12 states. The highest number of cases have been reported in the New York City and Chicago area and New Jersey. Because of the potential seriousness of this disease, the *Candida auris LabLines* article has been republished below in its entirety as a reminder to health care professionals as to the existence of this potential infectious disease threat.

**Candida auris: The Newest Multi-Drug Resistant Superbug**

**Background**

Ever since the first antibiotics were developed and made available for the treatment of infectious diseases, microbial resistance to these agents began emerging. Since bacteria cause the great majority of human infections, most antibiotics have been developed to treat these infections, resulting in the emergence of multi-drug resistant bacteria. A few notable examples include methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), carbapenemase-resistant *Enterobacteriaceae* (CRE), and multi-drug resistant *Mycobacterium tuberculosis* (MDR-TB).

Fungi, such as yeast, are relatively uncommon causes of human infection and, as such, few antibiotics have been developed to treat these infections. In 2009, a new yeast, *Candida auris*, was documented as a cause of a human ear infection in Japan. Since that time, *C. auris* has developed into an emerging pathogen that has been reported globally in at least a dozen countries on four continents.

*Candida auris* infection was first documented in the United States in 2013 followed by another case in 2015. As of June 16, 2017, a total of 86 cases have been reported to the CDC, of which most cases were from the metropolitan New York City area (n=60) and New Jersey (n=17). Of greatest significance is that many of the *C. auris* isolates were resistant to some, if not all, of the agents used for treatment. As such, *C. auris* is regarded as a multi-drug resistant superbug that poses a serious potential threat to human health.

**What is Candida auris?**

*Candida auris* is a microorganism that is different from bacteria and viruses, and is classified within the group of fungi called yeast. *Candida albicans* is the best known yeast because it is the *Candida* species that causes most infections but is generally susceptible to most antifungal agents. Unlike *C. albicans*, *C. auris* is resistant to many, and sometimes all, antifungal agents, making it a true “superbug.”

**Who gets C. auris infection?**

Individuals who develop life-threatening *C. auris* infections are usually hospitalized patients or residents in extended care facilities. Most patients have serious underlying medical conditions such as hematologic malignancies, tumors, respiratory disease, chronic urinary problems, or are receiving immunosuppressive therapy, such as corticosteroids. The main predisposing risk factor for developing a life-threatening bloodstream infection is the long-term placement of a central venous catheter. Because few, if any, antifungal agents may be available for treatment due to multi-drug resistance, mortality rates may exceed 50 percent.

As of mid-June 2017, a total of 86 *C. auris* infections have been reported to the CDC. New York state accounted for 60 (70 percent) of these cases. With the exception of one patient, all cases were concentrated in hospitalized patients and nursing home residents in the metropolitan New York City area. A single patient infection was documented in Rochester but that person was previously treated at a New York City facility. Among New York’s patients with serious infections, the mortality rate was around 35 percent. However, since all the patients had serious underlying medical conditions, it may be difficult to attribute these deaths specifically to *C. auris*.

**Treatment Options**

The antifungal agents available to treat *C. auris* infections are limited and can be divided into three major groups: 1. the fluconazoles; 2. the polyenes; and 3. the echinocandins. A few strains of *C. auris* are susceptible to all of these antifungal agents; most are resistant to at least one if not two of these antifungal groups; and, some strains are resistant to all three groups. Since resistance develops quickly during treatment with these agents, the public health concern is that the incidence of resistance to all three antifungal groups may increase significantly over time. As such, infection with *C. auris* can present as a therapeutic dilemma as there may be few, and in some cases no, treatment options available. Because of this, the CDC has categorized *C. auris* as a “superbug” that poses a potentially catastrophic threat to the public.

**Infection Control Measures**

In both hospitals and in nursing homes, individuals with *C. auris* infection or who might be colonized with the yeast should be placed in a single room on Standard and Contact Precautions. Such infection prevention measures are designed to minimize and/or prevent the transmission of *C. auris* to other people. Unlike other Candida species that do not survive for long periods on environmental surfaces, preliminary evidence suggests that *C. auris* may persist for extended periods of time. As such, surface disinfectants with proven efficacy against fungi should be used for daily environmental surface cleaning and disinfection. Despite this, infected or colonized patients do not need to be restricted to their rooms but should perform good hand hygiene before leaving the room since the yeast is most commonly transmitted by direct contact.

**Summary**

Currently, Laboratory Alliance's Microbiology Department has not detected any isolates of *C. auris* from patient specimens. The situation is continually monitored and Laboratory Alliance is vigilant to the isolation and characterization of this yeast. In all likelihood, it is only a matter of time before *C. auris* makes its presence known in the Central New York area.
Laboratory Alliance announced a change to the troponin assay reference range in late April.

With more than 8 million people in the U.S. presenting to emergency rooms with chest pain every year, physicians have been requesting a biomarker to assist in earlier diagnosis of acute myocardial infarctions and risk stratification of patients with signs and symptoms of ischemic heart disease.

Troponins are a group of proteins found in skeletal and heart, or cardiac, muscle fibers that regulate muscular contraction. Troponin tests measure the level of cardiac-specific troponin in the blood to help detect heart injury.

Over the years several generations of blood tests with increasing sensitivity for cardiac troponin have been developed. In keeping with the recent evidence-based recommendations made by an expert international task force and professional societies, Laboratory Alliance made the following change in its troponin assay reference range effective May 15, 2019:

Based on the expert consensus document “The Fourth Universal Definition of Myocardial Infarction (2018),” published by an international task force that includes the American College of Cardiology and the American Heart Association, the reference range for Troponin I was updated to <0.05 ng/mL, which represents the 99th percentile of patients without cardiac injury.

- Myocardial injury is present when there is evidence of elevated troponin values with at least one value above the 99th percentile upper reference limit. Myocardial injury should be considered acute if there is a rise and/or fall of troponin values.
- Myocardial infarction should be considered when there is acute myocardial injury with clinical evidence of acute myocardial ischemia and with detection of a rise and/or fall of troponin values with at least one value above the 99th percentile upper reference limit and at least one of the following:
  - Symptoms of myocardial ischemia;
  - New ischemic ECG changes;
  - Development of pathological Q waves;
  - Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality in a pattern consistent with an ischemic etiology;
  - Identification of a coronary thrombus by angiography or autopsy (not for Type 2 or 3 MIs).
- The Troponin I reference range was changed from 0.00-0.10 ng/mL to <0.05 ng/mL.
- The lowest reportable value for Troponin I was changed from 0.06 ng/mL to 0.05 ng/mL. Values below 0.05 ng/mL are now reported as <0.05 ng/mL.
- The laboratory report was updated to include the following interpretive comments:
  - Less than 0.05: Myocardial injury unlikely
  - Greater than or equal to 0.05: Highly suggestive of myocardial injury.
  - Correlation with rise and/or fall of serial troponins, clinical symptoms, and ECG changes is necessary.

### Change in Troponin Assay Reference Range

By Susan Salerno, MT(ASCP), SBB, Special Projects Manager, Rapid Response Lab at St. Joseph’s Health

During Laboratory Professionals Week several celebrations and recognitions took place at Laboratory Alliance. Our biannual meeting for couriers was held on Saturday, April 27, at the Corporate Offices. Transportation Manager David Dollinger welcomed 52 Laboratory Alliance couriers.

CEO Anne Marie Mullin, Vice President of Human Resources Barbara Guiffrida and Director of Sales and Support Services Jeff Coyne recognized employees with anniversary milestones and they acknowledged each individual courier for his or her years of service.

Milestone recognitions included:
- 20 years - Michael Lynch
- 15 years - Sam Toscano, Rick Russell, Bill Becker
- 10 years - Fran Springer
- 5 years – Jeff Burgess

New couriers were welcomed. They include Nancy Albro, Bob Bloodough, Rob Nicklaw, Alex Piascik and Bob Tucker.

Following the recognitions, David and Transportation Supervisor John Capoto led the required continuing education session, which included a quiz on driver competency and driving safety. This was followed up with a town hall style safety discussion led by Quality Assurance Manager/Corporate Safety Officer Kathy Hass.

The couriers were commended on collectively driving 1.25 million miles in 2018, with only two “at fault” accidents. A commendable accomplishment given that the industry averages for a fleet our size is eight to 12.
New Employees

Please welcome our new employees

At our Corporate Office
Amy Ahern – Accounts Payable Processor

At our Operations Center
Bodhraj Acharya – Chemistry and Referral Testing Manager
Adhel Akol – Device Trial Specialist
Frederick Anson – Courier
Trisha Brummett – Phlebotomist
Cassandra Buck – Phlebotomist
Joseph Craver – Courier
Adamma Fielder – Phlebotomist
Frederick Anson – Courier
Trisha Brummett – Phlebotomist
Cassandra Buck – Phlebotomist
Joseph Craver – Courier
Adamma Fielder – Phlebotomist
Frederick Anson – Courier
Trisha Brummett – Phlebotomist
Cassandra Buck – Phlebotomist

At our Rapid Response Laboratory
at Crouse Hospital
Gregory Beebe – Medical Technologist
Bradley Bowen – Medical Technologist
Lindsey Fiorelli – Technical Processing Assistant
Danielle Halsey – Technical Processing Assistant
Shannon Halsey – Technical Processing Assistant
Xavier Hamilton – Technical Processing Assistant
Issa Kaileh – Medical Laboratory Technicial
Loay Kaileh – Central Receiving Supervisor
Helena Motieram – Technical Processing Assistant
Austin Rienhardt – Technical Processing Assistant
Jean Wilsey – Anatomic Pathology Administrative Secretary

At our Rapid Response Laboratory
at St. Joseph’s Hospital
Sean Eddy – Technical Processing Assistant
Samantha Gibbs – Technical Processing Assistant
Derek Graney – Medical Technologist
Michele McGorry – Technical Processing Assistant
Ashley McKie – Technical Processing Assistant
Rebecca Prosser – Technical Processing Assistant
Janaida Ramos – Medical Technologist
Joan Claire Rebustillo – Medical Laboratory Technician
Jesse True – Technical Processing Assistant
Brian Westcott – Medical Laboratory Technician
Julianna Zabala – Medical Technologist

Mark Jordan Recognized by Partners for Education & Business

Laboratory Alliance’s Education Coordinator Mark Jordan, Ed.D., received the Career Spark Award from the Partners for Education & Business, Inc. at the group’s annual awards ceremony on June 12.

Mark, who coordinates outreach with students in our community, received his award and was featured in the awards program with an article about his career path.

Mark earned his bachelor of science in chemistry, a Master of Arts in Education and a Ph.D. in education.

As education coordinator in Laboratory Alliance’s Human Resources Department, Mark onboards all new employees and develops position, resume and application processes. He trains and leads orientation for all new hires and provides required education of OSHA and HIPAA.

Mark’s passion is clearly in education and training. He oversees all involvement pertaining to the Clinical Laboratory Technology (CLT) P-TECH Program — a full-time job in itself! — and coordinates clinical training and rotations schedules of medical technology students from SUNY Broome, Onondaga Community College, Bryant & Stratton College, Monroe Community College and other affiliates. Mark not only helps to recruit career coaches for the 9th and 10th graders in the CLT P-TECH Program at Henninger High School once a month, but he volunteers as a career coach as well.

His passion for the career path these students are on is evident. Also, Mark coordinates many trips for these students to Laboratory Alliance locations and gives the students a real-world experience.

Employee Anniversaries

May, 5 years
Jeffrey Burgess
Mark Jordan

June, 5 years
Donald Massey

June, 15 years
Curtis Brunelle

June, 20 years
Joni Ducey

August, 5 years
Morgan Thomas

July, 5 years
Jeffrey Sanderson
August, 20 years
Li Chen

July, 20 years
Dawn Nappa

In The News

Presentations:
Director of Microbiology Paul A. Granato, Ph.D. was invited to give a presentation on “The iC-GN Assay - The Clinical Experience” at the regional meeting of the South Central Association of Clinical Microbiology held in March in Sandusky, Ohio.
Measles – The Return of a Preventable Disease

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may last two to three days. Small white spots, called Koplik's spots, (pictured right, top) may develop inside the cheeks in 50% to 90% of patients two to three days before the appearance of the rash. The Koplik's spots are pathognomonic for measles and are small, irregular red spots with a bluish-white speck in the center.

Soon after, a splotchy rash develops on the forehead, face, and neck, (pictured right, bottom). The rash gradually extends downwards, involving the trunk of the body and extremities. At the same time, the fever rises sharply, often as high as 105.8°F. The patient may also experience vomiting and diarrhea. After seven to ten days, most patients improve and the rash gradually resolves with recovery rapid and complete.

Approximately one in every 1,000 individuals with measles will die. The mortality rate is much higher in developing countries. Most measles-related deaths are caused by complications associated with the disease. Serious complications are more common in children under the age of five and adults over the age of 30. The most serious complications include blindness, encephalitis (brain infection), severe diarrhea that can produce life-threatening dehydration and shock, and severe respiratory infection, such as pneumonia.

Life-threatening measles occurs more likely in malnourished young children, especially those with insufficient vitamin A or in those whose immune systems have been weakened by HIV/AIDS, other diseases, or immunosuppressive therapies. Unfortunately, measles is still common in many developing countries, particularly in parts of Africa and Asia. Over 95% of measles deaths occur in countries with low per capita incomes and poor health infrastructures.

Diagnosis

The symptoms of measles, especially the high fever, characteristic skin rash, and the presence of Koplik's spots inside the mouth, often make for an easy clinical diagnosis for an experienced clinician.

Because measles is relatively uncommon even during the current outbreak, physicians may need to have confirmatory laboratory tests performed to support their clinical suspicions. A variety of different laboratory tests can be used to confirm the diagnosis of measles, of which PCR would be the most popular test method.

Treatment

There is no specific antiviral treatment for measles. Severe complications from measles can be reduced through supportive care that ensures good nutrition and adequate fluid intake for patients experiencing severe diarrhea. All children diagnosed with measles should receive two doses of vitamin A supplements given 24 hours apart. This treatment restores low vitamin A levels that can occur even in well-nourished children and can help prevent eye damage and blindness. Vitamin A supplements have also been shown to reduce the number of measles-related deaths.

Prevention

The CDC recommends that people receive the MMR vaccine to protect against measles, mumps, and rubella. The vaccine is very safe and effective. Children should receive two doses of MMR vaccine, starting with the first dose at 12 to 15 months of age and the second dose at four through six years of age. Two doses of the MMR vaccine are about 97% effective in preventing measles. Teens and adults should also be up to date on their MMR vaccination. Children may also get MMRV vaccine, which protects against measles, mumps, rubella, and varicella (chickenpox). This vaccine is only licensed for use in children who are 12 months through 12 years of age.

Routine measles vaccination for children combined with mass immunization campaigns in countries with high case and mortality rates are key public health strategies to reduce measles deaths worldwide. The measles vaccine has been in use for over 50 years. It is safe, effective, and inexpensive. It costs approximately one U.S. dollar to immunize a child against measles. Between 2000 and 2017, measles vaccination prevented an estimated 21.1 million deaths worldwide, making the measles vaccine one of the best buys in public health.