Variety is the ‘Spice’ of Life

By Michael R. O’Leary, M.D., Chief Executive Officer, Director of Laboratories

We have all heard this familiar idiom/cliché, extolling the virtue of trying different things to keep life interesting. While I do not disagree, I’m referring instead to the wide variety of herbal mixtures that produce experiences similar to marijuana (cannabis) when smoked.

I’m often asked about Spice: what it is, why it mimics marijuana’s effects and why it is marketed as a “safe” legal alternative to that drug. Sold under many names, including K2, fake weed, Yucatan Fire, Skunk, Moon Rocks, and others — and labeled “not for human consumption” — these products contain dried, shredded plant material laced with chemical additives that are responsible for their psychoactive (mind-altering) effects.

Labels on Spice products often claim that they contain “natural” psychoactive material taken from a variety of plants. Spice products do contain dried plant material, but chemical analyses show that their active ingredients are synthetic (or designer) cannabinoid compounds.

For several years, Spice mixtures have been easy to purchase in head shops, gas stations and via the Internet. However, since the chemicals used in Spice have a high potential for abuse and no medical benefit, the Drug Enforcement Administration (DEA) has designated the five active chemicals most frequently found in Spice as Schedule I controlled substances, making it illegal to sell, buy, or possess them. Manufacturers of Spice products attempt to evade these legal restrictions by substituting different chemicals in their mixtures, thus the “variety” in the cliché I mentioned above.

While the DEA continues to monitor the chemical makeup of Spice preparations, it’s a cat-and-mouse situation, with rogue chemists always coming up with new compounds that are not on the list of banned substances. I have written about a similar situation with performance-enhancing drugs such as synthetic erythropoietin substances used by athletes.

Spice products are popular among young people; of the illicit drugs most used by high school seniors, they are second only to marijuana. (They are more popular among boys than girls — in 2012, nearly twice as many male 12th graders reported past-year use of synthetic marijuana as females in the same age group.) Easy access and the misperception that Spice products are “natural” and therefore harmless have likely contributed to their popularity. Another selling point is that the chemicals used in Spice are not easily detected in standard drug tests.

How Is Spice Abused?

Some Spice products are sold as “incense,” but they more closely resemble potpourri. Like marijuana, Spice is abused mainly by smoking. Sometimes Spice is mixed with marijuana or is prepared as an herbal infusion for drinking.

How Does Spice Affect the Brain?

Spice users report experiences similar to those produced by marijuana—elevated mood, relaxation, and altered perception—and in some cases the effects are even stronger than those of marijuana. Some users report psychotic effects like extreme anxiety, paranoia, and hallucinations.

So far, there have been no scientific studies of Spice’s effects on the human brain, but we do know that the cannabinoid compounds found in Spice products act on the same cell receptors as THC (tetrahydrocannabinol), the primary psychoactive component of marijuana. Some of the compounds found in Spice however, bind more strongly to those receptors, which leads to a much more powerful and unpredictable effect. Since the chemical composition of many products sold as Spice is unknown, it is likely that some varieties also contain substances that could cause dramatically and different effects than the user might expect.

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National Medical Laboratory Professionals Week is April 20-26

National Medical Laboratory Professionals Week — Lab Week — is an annual celebration of the medical laboratory professionals who play a vital role in every aspect of healthcare to ensure that patients receive the right tests, the right diagnosis and the right treatment.

Lab Week is a time for medical laboratory personnel to celebrate their professionalism and be recognized for their efforts. It’s our chance to let people know about our dedication and commitment to our profession and to quality patient care.

Join Laboratory Alliance as we strive to increase public understanding of and appreciation for our clinical laboratory professionals!

As team members of one of the largest industries in the United States, and with the public now demanding the assurance of quality health care and professional accountability, it’s our responsibility to ensure that the public is well informed about our clinical laboratory competency.

Coming soon ... the launch of our new website!

In 2001, Laboratory Alliance unveiled our first website, a state-of-the-art gem reflecting our company’s commitment to stay ahead of the times with technology and communications. Since that launch over a decade ago, our company has seen admirable growth and success, thanks to our loyal clients and our committed staff. Our laboratory systems and methods are continually upgraded to stay ahead of the technology curve.

Now it’s time to rethink how we communicate with our patients, providers and the community. This spring we will introduce the new LaboratoryAlliance.com, an easy-to-navigate website taking full advantage of current web technologies – accessible from any device. Turn to LaboratoryAlliance.com for current information about our patient service centers, Directory of Services, and other information you seek, quickly and with ease.

Look for our announcement, coming soon to your mailbox or inbox, or check in at LaboratoryAlliance.com for news about our exciting transition to the new site!

We’ve become bigger... to serve you better!

Visit our newly expanded patient service center located in the Cicero Professional Building
6221 Route 31, Suite 108B
Monday through Friday, 8:00 am to 4:30 pm
Closed for lunch from 12:15 to 1:00 pm
315-752-0077
Free parking • No appointment necessary
Continuous Process Improvement Makes Its Way to Microbiology

By Lonnie D. Stallcup, Jr., Manager, Continuous Process Improvement

Laboratory Alliance began the process of incorporating the principles of Lean Production at its Operations Center laboratory in 2010, and has realized great improvements in both the use of space and the flow of patient specimens throughout the entire process of testing in our Rapid Response Laboratories located within each owner hospital and, most recently, in the Microbiology Department at our Operations Center.

Lean production is a practice that considers the expenditure of resources for goals other than the creation of value for the end customer to be wasteful, and thus a target for elimination. Lean is centered on preserving value with less work. The Japanese manufacturing concept was developed by Toyota in the 1990s and helped to turn the small company into the world’s largest automaker. It has since been applied to numerous industries, including laboratories—a lean laboratory is one which is focused on testing products and materials to deliver results in the most efficient way in terms of cost or speed or both. The focus is on reducing the “seven wastes,” which include: overproduction, unnecessary movement, overprocessing, unnecessary transport, unnecessary waiting and defects. An eighth waste has been identified as “unused employee creativity.”

The Microbiology staff was excited about bringing Lean Production principles into their department right from the beginning. Work in this department began in April 2013. What was learned from the four previous Lean initiatives was of tremendous value to this project.

Over the course of about four months, Microbiology was transformed into a department with a harmonious workflow, detailed in this photo sequence. As is evident in the photos, all workstations contain only organized bins of supplies needed to accomplish the job at hand.

Now that the department’s Lean layout has been completed, the process of documenting Standards of Work ensues. Microbiology staff and our management team remain committed to Lean production with the focus to provide the very best care to our patients.

“There is no end. As dramatic as the improvement may be, there is always room to improve on it further,” wrote David A. Novis, MD, FCAP, in his study titled “Reducing Errors in the Laboratory: A Lean Production System Approach.”
Septicemia and Its Early Laboratory Diagnosis
By Paul A. Granato, Ph.D., Director of Microbiology

Septicemia, often referred to as sepsis, is a serious, life-threatening immune response to infection in an individual’s blood vascular system or bloodstream that globally accounts for millions of deaths each year. In 2009, septicemia was associated with over 800,000 hospitalizations in the United States contributing to more than 200,000 deaths.

Septicemia is most commonly caused by bacteria but viruses, fungi, and various types of protozoa and parasites may also cause bloodstream infections. While gram-negative bacteria were previously the most common cause of sepsis, within the last decade, gram-positive cocci, namely staphylococci, now account for more than 50% of the cases of bacterial sepsis.

Common symptoms of sepsis include those related to a specific infection, but usually are accompanied by high fevers, hot, flushed skin, elevated heart rate, hyperventilation, altered mental status, swelling, and low blood pressure. In very young and elderly patients, or in people with weakened immune systems, the pattern of symptoms may be atypical, with hypothermia and without an easily localizable infection.

Severe sepsis can lead to multi-system organ dysfunction, such as pulmonary dysfunction, disseminated intravascular coagulation or other blood abnormalities, decreased urine production with renal failure, and/or altered mental status. Septicemia is usually secondary to some localized, primary site of infection in which the patient may have pneumonia, a urinary tract infection, a soft tissue abscess infection, etc. whereby the bacteria enter into the bloodstream from these primary sites of infection.

Prompt diagnosis followed by the administration of appropriate antibiotic(s) and intravenous fluid replacement are crucial to the successful management of sepsis. Very often, the initiation of early, goal-directed therapy is essential in reducing mortality from severe sepsis. Sometimes, delays in diagnosis beyond 12 to 24 hours may result in the potential for an adverse patient outcome. The laboratory diagnosis of septicemia is based upon the cultural recovery of the microorganism from the patient’s blood followed by the accurate and timely reporting of its identification and antibiotic susceptibility profile.

Laboratory Alliance’s Microbiology Department uses the latest of modern instruments and technologies for the rapid detection of microorganisms in patients’ blood specimens. Patient blood specimens are collected in special culture bottles that are then placed in instruments that electronically monitor the blood culture bottles every 10 minutes, 24 hours per day, 7 days a week, signaling an alarm when microbial growth is detected.

Since our Microbiology Department is staffed 24 hours per day, a medical technologist will immediately examine the positive blood culture bottle for the presence of growth by performing a Gram stain and then notify the attending physician of the Gram stain findings.

The prompt availability of this positive blood culture result helps guide the physician in the early choice of empiric antibiotic therapy.

The Microbiology Department also performs automated tests to determine the final identification and the antibiotic susceptibility profile of the isolate. The availability of the final identification and antibiotic susceptibility test results may take an additional 18 to 30 hours.

A new molecular technology is currently available that allows for the rapid characterization of certain bacterial isolates recovered from a patient’s blood culture specimen within a few hours of detection. If the bacterial blood culture isolate is a gram-positive bacterium, the Microbiology Department now uses a new multiplexed, automated, nucleic acid test that allows for the identification of over 12 different genera and species of gram-positive bacteria.

The bacterial types that can be identified include: Staphylococcus aureus, Staphylococcus epidermidis, Staphylococcus lugdunensis, Streptococcus anginosus, groups A and B beta hemolytic streptococci, Streptococcus pneumoniae, Enterococcus faecalis, Enterococcus faecium, and the genera Listeria, Streptococcus, and Staphylococcus. In addition, the assay screens for the presence of three antibiotic gene resistance markers associated with methicillin and vancomycin resistance.

The nucleic acid technology employs the use of gold nanoparticles, which are typically 13 to 20 nanometers in diameter. One nanometer is approximately 1/10,000 the width of a human hair. These nanoparticles are coated with single-stranded DNA capture oligonucleotides that hybridize with a target bacterium’s DNA or gene resistance marker when present in the blood culture specimen.

The electronic detection of this hybridization reaction indicates that a specific bacterium and/or resistance gene marker is present in the specimen. The entire assay can be completed within several hours allowing for the early administration of appropriate therapeutic care during the early stages of septicemia that may result in more favorable patient outcomes.

For more information about this new service, please email your inquiry to me at paulgranatophd@lacny.com.
A New PCR Test for the Rapid Diagnosis of Tuberculosis

Tuberculosis (TB), caused by Mycobacterium tuberculosis complex (MTBC), is a global disease of pandemic proportions affecting over one third of the world’s population or 2 billion people.

Fortunately, in the United States, only 9,954 cases of TB were reported in 2012, which represents the first time that the yearly number of reported cases of TB has fallen below the 10,000 mark since tracking records began over 60 years ago.

A problem associated with the complete eradication of TB in the U.S. has been the emergence of strains of TB that are multi-drug resistant, often called MDR-TB. MDR-TB is defined as any strain of Mycobacterium tuberculosis that is resistant to two of the most effective drugs used to treat TB, isoniazid and rifampin.

The emergence of MDR-TB following the AIDS outbreak in the 1990s along with other developments suggests that TB will continue to be a public health threat in the U.S. For instance, the incidence of TB increased in foreign-born individuals in the U.S. from 29% in 1993 to 63% in 2012. The countries with the highest incidence of foreign-born TB cases were Mexico, the Philippines, India, Vietnam and China where the prevalence of multi-drug resistance is 1.8%, 5.6%, 4.3%, 3.7% and 6.4% respectively.

The problem of MDR-TB has been further complicated by the emergence of an even more drug resistant TB strain, called extensively drug resistant tuberculosis or XDR-TB. XDR-TB strains are not only resistant to isoniazid and rifampin but also to any fluoroquinolone, such as ofloxacin, and at least one of three injectable second line drugs (amikacin, kanamycin, or capreomycin).

With foreign-born cases making up an increasing proportion of U.S. cases and with the incidence of MDR-TB and XDR-TB increasing worldwide, particularly in the countries that are a higher source of immigration to the U.S., it seems likely that the problem of TB and drug-resistant TB in the U.S. will continue to persist, if not increase, in the foreseeable future.

Recently, a significant technologic advance has been made with the availability of a nucleic acid amplification test (NAAT) for the rapid and highly reliable diagnosis of TB and MDR-TB infections. The NAAT, called the Xpert MTB/RIF assay, detects DNA specific for MTBC and genetic mutations in the rpoB gene that is associated with rifampin resistance. The presence of mutations in the rpoB gene is a surrogate marker for MDR-TB and XDR-TB that has a sensitivity and specificity of 95% and 99% respectively. If the rpoB gene is not detected by the assay that is positive for the presence of MTBC, the isolate is regarded as susceptible to the conventional drugs used for TB therapy.

Traditional methods for the laboratory diagnosis of TB involve the use of microscopy and culture. Microscopy is very insensitive whereas the cultural isolation and identification of MTBC from a clinical specimen may require several weeks to several months.

Because of this, in 2008, the Association of Public Health Laboratories and the CDC convened a panel that recommended NAA testing as standard practice in the U.S. to aid in the initial diagnosis of patients with suspected TB. On the basis of the panel report and through consultation with the Advisory Council for the Elimination of TB, the CDC published revised NAAT guidelines including a detailed testing and interpretation algorithm for initial diagnosis.

Recent studies have shown that NAAT use in the United States can avoid delays in diagnosis and treatment, especially for patients with suspected TB who have sputum smears negative for the presence of acid-fast bacilli on microscopy. Because of the availability of the rapid and reliable NAAT results, hospitalized patients can avoid unnecessary respiratory isolation and anti-tuberculous therapy resulting in considerable healthcare cost savings.

The CDC recommends that NAA testing be performed on at least one lower respiratory tract expectorated sputum specimen from each patient suspected of having pulmonary TB. The recommendation emphasizes the need for NAA testing in the initial diagnosis of TB and for triaging public health interventions such as contact investigations and infection control decisions. Similar recommendations have been developed for the use of TB NAA testing in patients infected with HIV.

In January, Laboratory Alliance’s Microbiology Department began routinely performing the Xpert MTB/RIF assay as a new service for the detection of MTBC and MDR-TB in patient sputum specimens. Ideally, the specimen of choice for testing is a first-morning, expectorated sputum. Due to its high sensitivity, the Xpert MTB/RIF assay will only be performed on one patient sputum specimen even though the CDC recommends that three sputum specimens continue to be submitted to the laboratory for mycobacterial culture.

The TB NAAT can be performed with the results reported within several hours of specimen receipt and, as such, offers the most highly sensitive and rapid method available for the detection of MTBC and MDR-TB in sputum specimens.

Per the CDC guidelines, NAA testing does not replace the need for performing microscopy and culture. Microscopy and mycobacterial culture will continue to be performed on up to three sputum specimens as an adjunct to the NAAT.

For more information, please feel free to email me at paulgranatophd@LACNY.com.
The mission of the U.S. Marine Corps Reserve Toys for Tots Program is to collect new, unwrapped toys during October, November and December each year, and distribute those toys as Christmas gifts to less fortunate children in the community.

Once again, Laboratory Alliance participated in the campaign, filling several collection boxes with new, unwrapped toys.

A special thank you goes out to Bill Miller, transportation supervisor, pictured right, for his assistance with the pickup and drop off of all the toys collected for this charitable event.

On behalf of the Activities Committee, which includes, from left, Mark Adkins, material handler supervisor, Carrie Nappa, phlebotomy manager, Marsha Herbst, human resources assistant, (not pictured) and myself, I want to thank the employees of Laboratory Alliance for their kindness and generosity by helping others in need during the 2013-14 holiday season.
New Employees

Please welcome our new employees

At our Corporate Office
Tinara O’Rourke – Customer Service Representative

At our Operations Center
Kristin Griffiths – Medical Lab Technician
Gregg Hamilton – Courier
Dolores Juliano – Medical Technologist
Katareana Santos – Laboratory Office Assistant
Aldina Zulic – Referral Testing Specialist

At our Rapid Response Laboratory
at St. Joseph’s Hospital
Kevin Joy – Laboratory Office Assistant
Bridget Lavin – Laboratory Office Assistant

Welcome to our New Clients

Bowen Chiropractic
Baldwinsville, N.Y.

Bright Futures Pediatrics
Liverpool, N.Y.

Family Medicine Associates of CNY
Cicero, N.Y.

Gianna Medical Practice of Upstate NY
Syracuse, N.Y.

Medical Services of Syracuse
Syracuse, N.Y.

Plastic and Reconstructive Surgery of CNY
Syracuse, N.Y.

Employee Anniversaries

January, 5 Years
Ronald LaRose

January, 10 Years
G. Richard Russell
Michael Venezia

February, 10 Years
Mary Hayden
Jean-Paul L’Orange

February, 15 Years
Phyllis Leone
Mark Adkins
Jeffrey Peterson

March, 10 Years
Jean Amidon
Kathleen Scrimale

March, 15 Years
Michael Lynch

Donate a Children’s Book by Feb. 23

Laboratory Alliance is participating in the United Way’s 16th annual “Bring on the Books” book drive. Employees are encouraged to donate new or gently used children’s books.

The books will be donated to child care centers and other programs that serve the youth in Onondaga County. The campaign, “Success by 6,” is a children’s initiative of the United Way that promotes literacy and works to ensure that children in Onondaga County are ready for success in both school and life.

Please place the books in the designated boxes located at each of our sites. For more information, contact Brenda Alkins in the Microbiology Department at 315-410-7067.

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What Are the Other Health Effects of Spice?

Spice abusers who have been taken to Poison Control Centers report symptoms that include rapid heart rate, vomiting, agitation, confusion, and hallucinations. Spice can also raise blood pressure and cause reduced blood supply to the heart (myocardial ischemia), and in a few cases it has been associated with heart attacks. Regular users may experience withdrawal and addiction symptoms.

We still do not know all the ways Spice may affect human health or how toxic it may be, but one public health concern is that there may be harmful heavy metal residues in Spice mixtures. The take-home message is buyer beware!
Laboratory Alliance will be participating as a team in the 2014 American Heart Association Heart Walk. Our team will again walk or run in memory of Barb Gonnella, a colleague and advocate for a healthy lifestyle, who died in 2013.

The event will be held on Saturday, March 22, at 10 a.m., rain or shine, at Onondaga Community College, SRC Event Center. There is no entry fee. Registration begins at 8 a.m.

Following are instructions to join the Laboratory Alliance Team:
2. Click on “Register.”
3. Agree to the Waiver/Agreement.
4. Click on “Join a Team.”
5. Type in “Laboratory Alliance of Central New York, LLC” and click “Search.”
6. Choose “Laboratory Alliance of CNY, LLC (In memory of Barb Gonnella).”
7. Click on “Join Our Team.”
8. Agree to the Waiver/Agreement, again.
9. Create username (can be your name) and create password.
10. Follow the prompts to conclusion.

The funds you raise for the Heart Walk will support heart research. Your donations will also help to provide life-saving information to those who need it most.

For more information, contact Marsha Herbst at 461-5903 or by email at marshaherbst@lacny.com or Sunquest mailbox (MYH).