A Message from Dr. Harshbarger

The International Association of Coroners and Medical Examiners (IACME) declared a week at the end of January as “National Medicolegal Death Investigator Week”. The role of a Medicolegal Death Investigator (MDI) is to investigate any death that falls under the jurisdiction of the medical examiner or Coroner, including all suspicious, violent, unattended, unexplained, and unexpected deaths. Also known as “Last Responders”, the role they play in my office is crucial.

The service they provide is often overlooked and underestimated. They are my eyes and ears on the scene and throughout each death investigation.

Please take a minute to appreciate and acknowledge the “Last Responders” in your office.
The COVID Pandemic: MCCO/MVRCL One Year Later

Last year around this time, the MCCO/MVRCL had just made the decision to split the employees into shift work, schools were shutting down and struggling through distance learning plans, and toilet paper had flown off the shelves in record numbers. Pure chaos!

In the past year, we have adapted like Darwin himself was standing at our front door. Given the proper permissions and parameters, we learned to work remotely, communicate effectively, and conduct business virtually. Our work is essential and being absolutely necessary means being absolutely adjustable.

The word patience has taken on new significance. We don't use it as a reminder to stay calm or wait your turn, but as a rule of what tomorrow may bring and the continued need for flexibility and tolerance.

The importance of preparation has been recognized. As individuals, we evaluate the events that we can anticipate: a car accident, illness, fire. As an organization, we were not ready for a pandemic that drastically changed our daily operation. We had pieces of the puzzle but had never put it together to see what was missing. We had the ability to testify remotely, but would the Court accept that option? We were able to accept evidence from police agencies, but how would we know if the evidence had been in the possession of a COVID-positive individual? Analysts had the ability to work remotely, but what type of guidelines would they follow? Should staff be quarantined away from their family to not risk exposure from an unknown positive decedent?

I think we’re better from this experience. Please don't confuse that with wanting to do it again, but I would be remiss if I didn’t admit that we’ve grown from this pandemic. We’ve learned to appreciate our health, our family and friends, and our peers. We’ve realized our ability to adjust, adapt and adopt. We are capable.

"Sometimes you find yourself in the middle of chaos, and sometimes in the middle of chaos, you find yourself."

~ Boonaa Mohammed
We were honored to have Montgomery County Commissioner, Judy Dodge and Administrator, Michael Colbert visit the MCCO/MVRCL facility to view the recently installed Lodox machine and the CT scanner last month.

The Lodox presented a special challenge during construction because the original building was not designed to support the weight of the machine. The county engineer was required to install a special beam to support the equipment.

The Lodox is beneficial to the Morgue staff because it allows for the complete X-ray scan of a body in approximately 12 seconds. It also allows the physicians and staff to view the images immediately in each of the autopsy rooms as well as on their computers in their offices.

Dr. Harshbarger demonstrated the use of each piece of equipment and spoke of the benefits that the equipment offers, including court testimony when needed to educate the jury.

The visitors asked questions and were enthusiastic about the Office. They also discussed the increased demand for better equipment; a result of juries wanting more “CSI-like” information because of what they have seen on television.
Shrooooooms, Man

Hallucinogenic mushrooms, sometimes called “Magic Mushrooms”, “shrooms”, or originally enough: “mushrooms”, have been used for religious and social occasions by Mexican and South American Indian cultures for thousands of years. To be called hallucinogenic mushrooms, they must contain psilocyn and/or psilocybin. Both psilocyn and psilocybin are Schedule I controlled substances, classified as hallucinogens. Schedule I substances have a high potential for abuse and dependence as well as no accepted medial use in the United States.

Some possible effects of a general hallucinogen include a rise in blood pressure/pulse rate, hallucinations, illusions, delusions, sweating, or nausea. Hallucinations are the most likely experience with psilocyn/psilocybin mushrooms, as well as possible nausea, vomiting, and lack of coordination. If a user ingests a high dose, psychotic–like episodes or panic reactions may also occur. Poisoning is also a possibility if a user mistakes a poisonous mushroom for one containing psilocyn/psilocybin.

Suspected hallucinogenic mushrooms will usually have whitish gray stems with a brown cap that has dark gills on the underside. An overall brownish color may develop as the mushrooms dry out. Some bluish “bruising” may also be present on the stalks of hallucinogenic mushrooms. (See Figure 1)

The analysis of mushroom material at the Miami Valley Regional Crime Laboratory begins with an extraction to separate any potential controlled substances from the plant-like material (technically a fungus). The resulting liquid is then analyzed by Gas Chromatography/Mass Spectrometry (GC/MS) to confirm any potential controlled substances present. This analytical scheme will only identify psilocyn as any psilocybin present in the mushroom material will break down.

It is not necessary to submit all items seized from a mushroom grow operation for analysis. Spores, often in a liquid solution (sometimes contained in a syringe labeled as spores) or occasionally a “spore print” (see Figure 2) are unable to be analyzed. The white, fuzzy mycelium (also known as “fungus cake”) encountered in grow jars (see Figure 3), is also unable to be analyzed. However, if you encounter grow jars with mushrooms attached (see Figure 4), the mushrooms can be analyzed. The mushrooms must be removed from the growing media prior to submission for analysis. Other indicators of a possible mushroom grow operation include a humidity chamber (aquarium, foam cooler, etc.), vermiculite, pressure cookers, and grain like food sources such as rice flour/powder, bird seed, or similar items.

While not as popular as the recent Fentanyl and Methamphetamine trends, the chemistry section of MVRCL has identified psilocyn in an average of roughly 20 -25 cases per year (less than 1% of the cases that have been submitted) over the past 10 years. If you any questions related to packaging, lab reports, rush requests for a particular case, or any other drug case

References:

Drug Identification Bible, 2012 Edition


DEA Drugs of Abuse, 2020 Edition
In October of 2020 the Firearms section was awarded a competitive grant that will allow us to purchase three new Leica DMS300 stereo microscopes to replace the old Dinolite microscope cameras. This upgrade will provide better resolution and working distance of the scopes. Also included in the grant award is a new Leeds LCF3 comparison microscope that will allow each of the examiners to have a comparison microscope of their own, eliminating down time due to shared equipment.

Once the equipment has arrived, been validated, and utilized in casework we'll send an update letting you know how it's working out for us.
Trace evidence can be transferred when two items, or persons, come into contact with each other. This minute material is often difficult to see with the unaided eye and can easily be lost. Therefore, it is important to package trace evidence properly when submitting to the Laboratory to prevent losing evidence.

One thing I always say in the evidence class is to “double package particulates”. This means that the small piece of evidence (i.e. a hair, a paint chip, etc.) should go into an appropriate container such as a paper packet/slide box/pill tin, and then into an envelope. The paper packet is one of the simplest and most effective ways to package minute material, and I highly recommend using it to package hairs. Below is a diagram on one way to perform a paper packet. It does not need to be sealed with tape, only folded, the material placed inside, and then placed into an envelope.

Another packaging method that I recommend for paint is the slide box or pill tins. These can be sealed and then placed into an envelope. I don't recommend these for hairs because when I go to break the seal, I don't want to accidentally cut the hair.

Never package evidence from two different items (questioned vs. known) or from two different areas into the same envelope. If material were to get dislodged and be free floating in the envelope, the analyst wouldn't be able to tell which is which and no analysis would be done.

The Folded Paper Packet:
1. Obtain a square piece of paper or cut one in a square (any sized square will work).
2. Make a diagonal fold (A). Then fold B and C together (fold in and tuck one into the other).
3. Open the top of the “2 story house” (make sure it's the actual top opening) and place the sample in.
4. Then fold at D (making your “2 story house, into a 1 story house”).
5. Fold up again and tuck triangle E into the slot formed by the folds of B and C (“1 story house into a trailer”).
6. Initial and date the packet formed. Place in an envelope.
An Update from Toxicology

By Heather Antonides

One of the advantages of having a full-service crime laboratory is the sharing of information between units. Drug Chemistry and Toxicology often communicate to one another on trends or new analytes that emerge while investigating human performance/death investigations and drug seizure investigations. Due to the increase in the prevalence of several analytes in drug chemistry, toxicology has developed methods to include some of these analytes in our screening tests.

PCP analogs, Hydroxy-PCP, Chloro-PCP, and Hydroxy-PCE, are now included in the screening protocol for OVI and coroner cases. These analytes have been seen in conjunction with fentanyl and some designer benzodiazepines. The recreational use of PCP and these related analytes act as dissociative anesthetics and can result in agitative and combative activity. Reports of “superhuman” strength are often associated with PCP use. PCP/analog toxicity may cause sedation, coma, and respiratory depression. These drugs may increase the respiratory depression effects of fentanyl when the two are used together.

Designer benzodiazepines (eg., clonazolam, estazolam, etizolam, and delorazepam) have been added to our benzodiazepine confirmation method. Many of these analytes are detected in cases where fentanyl is also detected. These benzodiazepine analogs exhibit the same sedative-hypnotic qualities as their older counterparts like alprazolam. Toxic effects of these analytes can include confusion, drowsiness, and tachycardia.

Brorphine, a new synthetic opioid, is as potent as fentanyl. Although, this analyte has not been as prevalent in our Ohio cases, we have been seeing it in some out of state cases. Due to the potency of this drug, we have added it to our routine drug of abuse screen.

Photo Credit: National Organization for Youth Safety
April 25th is National DNA Day! This day commemorates the completion of the Human Genome Project in 2003 and the discovery of DNA's double helix in 1953. As you can imagine, technology has advanced greatly and the opportunities are abundant from medical research to forensics. From the days of Colin Pitchfork in 1986 to the recent identification of the Golden State Killer in 2018, forensic DNA analysis has come a long way.

DNA analysis is a great tool for forensics because even with 99.9% of our DNA being the same, there is a minute portion that forensic scientists can dive into that is unique among individuals. This uniqueness can be used to identify or link DNA profiles from evidence to a person. To develop this unique profile, Analysts use short tandem repeats (STRs). The number of repeats at any particular area (locus) in the DNA differs from person to person. Since a person inherits chromosomes from each parent, every individual has two sets of STRs (alleles). This pairing of the alleles at the several loci, is what makes up the DNA profile of the person. A trained forensic DNA analyst can look at these profiles and compare them to one another. Since everyone has a unique DNA profile, with the exception of identical twins, these matches can be quite significant. DNA is a great forensic tool that has helped solve innumerable cases. With how far it has come in the last 35 years, DNA's impact on the world of forensics will continue to grow.
One of the responsibilities of the Latent Print Section outside standard casework is to assist the MCCO in the identification of the deceased. This can be for individuals with a presumptive ID that needs to be confirmed, or for bodies that arrive at MCCO as a true “John or Jane Doe”. In both 2019 and 2020, we assisted on approximately 80 cases, with positive identifications made in more than 70% of the cases each year.

In many cases, the condition of the skin and fingerprints allows MCCO to record inked prints, which we can then use for direct comparison to known prints, or can scan into our Automated Fingerprint Identification System. The prints can be searched against the local database maintained by MVRCL, as well as the criminal databases of Ohio BCI and the FBI. The Latent Print Section can also request assistance from the FBI or Department of Homeland Security if there is a possible military or immigration connection.

When decomposition or mummification makes recording inked prints difficult or impossible, we are able to use specialized techniques to capture the fingerprints or palmprints of the deceased. These can include recording with black powder, degloving the skin, or casting with a material such as Accutrans or Mikrosil. The MCCO photographers can also take close-up, high-resolution photographs that we use for comparison or AFIS. Depending on the condition of the remains, the friction ridge skin may have decomposed to a point where there is not enough useable information to perform a comparison.

Attempts to identify the deceased through fingerprints are supplemented by “lights out” handheld scanning technology. With these devices, the index fingerprints are captured digitally and transmitted to a database to search automatically, providing a “hit” or “no hit” response without the need for manual comparisons. MCCO/MVRCL is in the final stages of installing the newest version of these scanners, as the previous device was reliant on outdated 3G cellular connections. This option works best when the fingerprints are in good condition and a full, high clarity image can be captured.

One caveat is that all of these techniques depend on the individual having antemortem known prints on file for comparison. If the deceased has a criminal record, it is usually easier to locate known prints or to get a hit when searching a database. If fingerprint records can be located through an employer or other means, those can be submitted through the MCCO investigators for comparison.

As Latent Print Examiners, we take pride in providing this assistance to MCCO – it is truly meaningful to know that we help provide timely, reliable answers to the families of the deceased during such a difficult time.
The Crime Lab front office wants to welcome our new Evidence Custodian, Tiffany Westfall.

Tiffany came to us from Perry Township Police Department where she worked as their evidence custodian and administrative assistant. Prior to Perry Township PD, Tiffany was employed by Five Rivers Metro Parks. She graduated from Hocking College with an Associate degree in Natural Resource Law Enforcement.

Below are important emails for both the Crime Lab and Coroner’s Offices:

When requesting reports from the Crime Lab, please use: crimelabrecords@mcohio.org
When requesting reports from the Coroner’s Office, please use: coronerrecords@mcohio.org

The above email accounts are monitored by multiple individuals to insure a timely response.
The Evidence Technician Training Course dates for 2021 filled fast! Due to the high demand, a course was added for May 17–28, 2021, making a total of 7 courses for 2021.

Please submit applications for standby, as it is not unusual to have cancellations. Due to high demand, we fill every class with the 8 person maximum. We have revised our Application to include additional items available to purchase with your kits. The additions are based on student feedback. If you have submitted an application for 2021, and wish to revise your evidence kit selections, please send the updated application back to Robert Hunkeler so we can have the items available by the class date.

New Items:

Alternate Light Source: Forensic Light Kit with Deluxe Orange Goggles and 455nm Blue Light ($175)

52mm Orange Camera Filter for Alternate Light Source Photography ($50)


The new application form link is below:

https://www.mcohio.org/document_center/Coroner/EV_Course_Application.pdf

Further information can be obtained by contacting Robert Hunkeler at: (937) 496-7266 or hunkelerr@mcohio.org

2021 Course Dates

May 17–28 - Full
August 2–13 - Full
Sept. 20 - Oct. 1 - Full
Nov. 29- Dec. 10 - Full

Space is limited.
Hurry & Sign up!!

The Evidence Technician Training Course application is located at:

https://www.mcohio.org/document_center/Coroner/EV_Course_Application.pdf

For additional information, contact Robert Hunkeler at
937-496-7266 or hunkelerr@mcohio.org
Changes in the Morgue

After over 36 years with Montgomery County, Morgue Supervisor Denny Blevins retired at the beginning of April. We are excited to announce that Kaitlyn Nicholson has been appointed the new Morgue Supervisor of the Montgomery County Coroner’s Office.

Kaitlyn Nicholson has been employed as a Pathology Tech at the Montgomery County Coroner’s Office since July 2016. She received her Bachelors degree in Forensic Science and Biology from the University of Findlay in 2011. Kaitlyn went on to earn a Masters Degree in Forensic Pathology from Oklahoma State University in 2015. Kaitlyn is excited to take on her new role, and states her favorite part of the job is the day-to-day variety of cases (Just when you think you've seen it all...) She enjoys spending her free time with her husband, Justin, their son, Kallen, and dog, Tessa.
Meet Our Staff

Name: Denny Wayne Blevins
Hometown: New Lebanon, OH
Section: Team Morgue
Years with MCCO/MVRCL: 17 (Retiring this month!!)
Hobbies: Travel, boating, driving Brooke to lunch
Favorite Food: Steak
Mentors: My Dad
Favorite Part of Working at MCCO/MVRCL: My Work Family

Name: Jacque Engler
Hometown: Malta, OH
Section: Serology/DNA
Years with MCCO/MVRCL: 1 (as of March 2!)
Hobbies: Traveling, mountain biking/hiking, drinking wine
Favorite Food: Most seafood and most anything with peanut butter (not together, ew)
Mentors: Everyone at AFDIL where I had my first real forensic job
Favorite Part of Working at MCCO/MVRCL: Finally seeing how a real Crime Lab works!

Name: Brian Simons
Hometown: Dayton, OH
Section: Toxicology
Years with MCCO/MVRCL: Almost 17
Hobbies: Playing soccer, collecting and listening to vinyl records, coaching my kid's sports, bourbon
Favorite Food: Strawberry rhubarb crisp
Mentors: My High School French Teacher – Mrs. O’Callaghan
Favorite Part of Working at MCCO/MVRCL: Learning about new things as my field of science expands and changes.
Friday, January 15, 2021, was designated as National Hat Day and the staff members at the MCCO/MVRCL decided to celebrate. Hats of all shapes and sizes were worn throughout the various sections of the organization.

This day has been celebrated since 1983 in schools, libraries, and museums and now the MCCO/MVRCL. Originally, students and patrons were encouraged to wear the hat related to your occupation. Hats were found being worn as far back as 3000BC. They function for protection, style, rank and mark of royalty.

But, today in the office, it was an opportunity for a little fun and deviation from the norm in a scientific environment. Thanks for all those who participated and for those who forgot, there is always next year.

Hats off to you all!
Coming Soon
National Forensic Science Week
September 19-24
Check out our next newsletter for more details!