Since accidental overdoses have been an important topic of discussion over the past few years, I thought it would be appropriate to check in around the mid-point of this year with an update. Overall, accidental overdose cases have been relatively stable for the Montgomery County Coroner’s Office. Unfortunately, there hasn’t been the immense reduction that we’ve hoped for, but our community partners have done an excellent job with prevention, education, and treatment to stabilize our fatalities.

Cases involving fentanyl have stayed relatively consistent at around 250 cases per quarter. Likewise, methamphetamine cases have also stayed consistent with around 130 cases per quarter. Cocaine detection had a slight spike in the first quarter of 2021 but normalized in the second quarter.

Fluorofentanyl, an analog of fentanyl categorized as an opioid, has reemerged in casework over the last three quarters. Detection of fluorofentanyl has doubled since the last quarter of 2020, making it an evolving drug of which to be aware of. Side effects of fluorofentanyl are similar to those of fentanyl itself, which may include itching, nausea, respiratory depression, and death.

We will continue to monitor trends and provide statistics to our law enforcement and community health collaborators, so they have the most current information available on the dangerous substances causing accidental overdose deaths in our community.
Last month I was fortunate enough to attend the Midwest Crime Lab Directors’ Meeting in Louisville. It was great to see my Laboratory Director peers and catch up on what forensic labs are doing across the Midwest.

There was dialog about improving employee engagement, the results of a “white box” study that our chemistry section participated in, and a persuasive conversation on the implementation of the Organization of Scientific Area Committees (OSAC) for Forensic Science standards.

The most informative discussion revolved around Emergency Preparedness Planning. One of my colleagues from Hennepin County in Minnesota, Steve Labatt, discussed his laboratory’s plan for relocating their crime lab during the civil unrest in Minneapolis. Their laboratory is a block away from the courthouse and they are in the same facility as the coroner’s office who performed the autopsy of George Floyd. I could certainly draw parallels in the set-up and location, and for a brief time we had concerns about the security of our facility during periods of unrest in Dayton.

The Hennepin County Crime Lab was forced to do an initial emergency evacuation and then a planned evacuation during the trial of Officer Chauvin. Mr. Labatt shared key points of their plan, including moving evidence and files off-site, and how to handle deliveries and disruption of service. Steve was also very candid in explaining where they could make improvements next time.

I cannot wrap my head around “moving” our lab to another location. However, it’s a task that I’m now forcing myself to do. The Miami Valley Regional Crime Lab (MVRCL) needs to be prepared, not only for instances of civil unrest, but weather, a pandemic, or unexpected crisis. The most important piece to an emergency preparedness plan is the plan. Employees need to know what the expectations are and what role they will play. I believe that once those are defined, the rest will fall into place.

I commend the employees of the Hennepin County Crime Lab and their resiliency to continue to serve their customers during difficult times. With their guidance, I hope that the MVRCL will be as equally prepared if we find ourselves in a similar situation.

“Prepare for the unknown by studying how others in the past have coped with the unforeseeable and the unpredictable.”

~ George S. Patton
We are proud to announce that the Organization of Scientific Area Committees (OSAC) for Forensic Science has recognized the Miami Valley Regional Crime Lab (MVRCL) for implementing nationally recognized standards for its forensic laboratory system. The voluntary implementation of OSAC standards demonstrates the lab’s commitment to serving the citizens of the Miami Valley area at a high level. The MVRCL is the first crime laboratory in Ohio to implement OSAC standards.

OSAC, led by the National Institute of Standards and Technology (NIST), continues to promote standardization in forensic science which will bolster the public's confidence in the work of the forensic science community. When applicable standards are added to the OSAC registry, they are reviewed by the appropriate scientific discipline at our laboratory. If our laboratory is not meeting the standard, an implementation plan is developed to incorporate the standard into our practices. To date, 26 labs in the United States have received the official recognition as an OSAC standard implementer.

The MVRCL is dedicated to providing quality forensic science from exceptional people of service. We maintain the highest standards in our professional services. We continually strive to provide timely and reliable results using established methods and procedures which are documented in accordance with our accrediting bodies. Employees are committed to excellence at the highest level. We look forward to continuing this history of exceptional service and quality with our customers.

1st Crime Lab in Ohio
Dimethyltryptamine (DMT) is a naturally occurring hallucinogen that can be found in a variety of plants or produced synthetically. When found in nature, DMT exists in the root bark of several different types of plants such as *Mimosa hostilis*, and may appear as seen in (Figure 1). Traditionally used in religious ceremonies, Ayahuasca is a brewed concoction native to South America that combines DMT with other naturally occurring components to produce psychoactive effects. A simple internet search reveals the ease for users to purchase these plants. It provides users with an intense but short acting psychoactive experience making it attractive to individuals who want a psychedelic experience but not for the extended periods of time that may occur with other hallucinogens, such as LSD.

When it is being prepared for use, law enforcement may encounter the root bark as a brown ground up powder (Figure 2). Law enforcement may also encounter a DMT extraction lab where the user is actively in the process of extracting the drug from the root bark. The scene may include the ground root bark in addition to the liquid solvents that are being used for the extraction. (Figure 3). Produced synthetically, DMT can additionally be observed in clandestine type tablets, similar in appearance to those containing ecstasy or MDMA, as a powder or crystalline substance, or may be applied to candy similar to LSD (Figure 4). DMT is typically snorted, smoked, or injected but can also be consumed orally if combined with other substances that inhibit its metabolism.

DMT is a Schedule I controlled substance due to its high potential for abuse and dependency. There is currently no legitimate medical use for it in the United States.

The Miami Valley Regional Crime Laboratory has seen a decrease in the number of DMT submissions in recent years. Although not common, there were eleven submissions containing DMT in 2017 compared to just one submission in both 2018 and 2019.

Gas Chromatography/Mass Spectrometry (GC/MS) is the primary instrument used to confirm the presence of DMT in an item of evidence. However, p-Dimethylaminobenzaldehyde (PDMB) is a preliminary color test that forensic chemists may also use to aid in the identification of this substance. The PDMB reagent reacts with DMT to produce a purple color.

The chemistry section is available to answer questions. For all drug case inquiries, packaging questions, requests for lab reports, or to request a rush for a particular case, please email drugrushes@mcohio.org.

**References:**

DEA Diversion Control Division: N,N Dimethyltryptamine, December 2019

Clarke’s Analysis of Drugs and Poisons, Anthony C. Moffat, 2003
How to Interpret and Understand Drug Chemistry Laboratory Reports
Law Enforcement/Attorney Training
Hosted by Miami Valley Regional Crime Laboratory
September 14, 2021 9:00am-12:00pm (Registration begins at 8:30am)

Topics Included:
- Percent THC Determination
- Pharmacophores
- Counterfeit Pharmaceuticals
- Understanding Sampling and Analysis
- Bulk Amounts/Weight Thresholds
- Testimony

Free Training!
Register now, space is limited!

Training Location: Montgomery County Business Solutions Center
1435 Cincinnati Street, Suite 300, Dayton, Ohio 45417
For Registration and Questions, Please Contact
Jennifer Watson 937-496-7037 watson@mcohio.org

Please note: Space is available for both law enforcement and attorneys
Registration after August 5th will be on a first come, first serve basis

Advanced Latent Print Processing and Documentation Workshop
Thursday, September 16, 2021, 8am-4pm
$200 members/$250 non-members

Space is limited to nine attendees* to allow for maximum hands-on training and individual feedback – Register Now!
*One attendee per agency
Basic latent print processing experience using powders and tape lifts required

Topics include:
- Photography of unprocessed and processed evidence
- Lighting tips and tricks
- Recognition of ridge detail
- Processing difficult surfaces
- Use of casting materials
- Recording tips, sides and joints of fingers
- Documentation and scene discussions

Registration fee includes a Latent Print processing kit containing:
- Regular and magnetic black fingerprint powders and brushes
- Lift tape, backing cards and casting material
- Rechargeable flashlight and adhesive scales

Training Location: Miami Valley Regional Crime Laboratory
For registration, please contact:
Robert Hunkeler 937-496-7266 hunkelerr@mcohio.org
For specific workshop questions, please contact:
Jennifer Yoak 937-496-7056 yoakj@mcohio.org

Educational Opportunities
Oil analysis is not a service that we perform at MVRCL. However, we utilize the U.S. Coast Guard for the analysis of many different types of oils. Their facility has a quick turnaround time and is free. If this is something that you encounter in casework, (ex: oil spill at a scene and suspects car is leaking oil) please reach out and I can walk you through the submission process to the MVRCL for analysis at the U.S. Coast Guard Laboratory.

Here is a list of oils they analyze:

- Light fuel oils (diesel, home heating oil, kerosene, etc.)
- Heavy fuel oils (bunker, #4, #5, etc.)
- Lubricating oils (Hydraulic, motor, gear oils, etc.)
- Waste oil (mixture of fuel and lubricant oils)
- Crude oil
Drug-facilitated sexual assaults (DFSA) or drug-facilitated crimes (DFC) occur when alcohol or drugs inhibit an individual’s ability to consent to sexual activity or remember what has happened to them. The prevalence of these types of cases has increased since the 1990s. These assaults may occur by a perpetrator giving an unknowing victim a one-time dose of a debilitating drug or the victim may willingly ingest a mind-altering substance without realizing what effects it may have on their ability to understand what is happening. A victim may also be using a drug chronically that can reduce their ability to consent/remember. For these reasons, the amount of a drug that the toxicology section could be looking for in someone could be very large or very small. Alcohol, prescription medication, over-the-counter medication, and drugs of abuse can all be used for these types of crimes.

Although the toxicology section has performed DFSA testing for many years, the ability to detect these drugs in smaller amounts can now be achieved with better technology. The toxicology section has validated a new method for testing DFSA/DFC cases. In one single test, the new method targets more than 80 drugs at very low levels. These low levels can detect when someone had a single dose of a drug, up to five days prior to providing a sample. This method is more sensitive, uses less sample, and targets drugs routinely seen in DFSA/DFC cases and/or drugs that have the ability to impair someone’s memory so that events are difficult to recall or cannot be recalled at all.

Cases submitted for DFSA/DFC testing will receive the following panel of tests: the new DFC screen, volatiles (drinking alcohol), drug screen by GC/MS (over the counter and prescription medications), LCMSMS screen (common drugs of abuse), fentanyl and analogs screen, benzodiazepines and analogs (including “Roofies”), and GHB. Additional testing may be done based on history, screening results, and specimen volume provided. The list of drugs and detection levels included in the DFSA/DFC screen can be found on the Miami Valley Regional Crime Labs/Coroner’s Office website.

This testing is included for all member agencies and also available to non-member agencies. The laboratory accepts this evidence both at the laboratory and shipped through the mail.

Please contact the toxicology technical leader, Heather Antonides, with any questions. antonidesh@mcohio.org
Tables: Coming to a DNA Report Near You

If you have filled out one of the surveys the MVRCL sends out each year, you may recall a question regarding reports and if they are easy to understand. Reasonably, DNA reports have been described as “hard to read” and sometimes they have needed a little translation to get to the main point. DNA reports can certainly be difficult to absorb because they have to pack in quite a bit of science and be explicit. As such, the reports can get lengthy and very wordy when we are discussing the results. There is a lot of information to communicate!

We have been working on a better way to get the information to you in a manner that is easier to read, and you will have the opportunity to see if our new report format is helpful! DNA reports will now be issued in a table format so you can scan the items that were tested and see the results without having to dissect a paragraph. The necessary information will still be included, but in an easier to read format. The submission number, description of the evidence tested, results (and statistics when applicable), evidence disposition, and the outcome of the sample profile as it pertains to CODIS. Everything you need to know, but in a table, minus a bunch of the words that convolute getting to the highlights.

We sincerely hope that this new format is easier to understand. But as always, we are open to suggestions and answering your questions anytime.
Every so often, it's good to get back to basics! Here are some general tips to keep in mind when you're collecting and packaging evidence to be processed at the lab for latent prints.

**Rule #1** – always wear gloves!

**Non-porous surfaces**: anything non-absorbent like glass, metal, or plastic – should be packaged carefully to avoid excessive rubbing on the surface. That friction could potentially rub off the residue/perspiration of any latent prints on the surface. Boxes are perfect for heavier items, and paper bags are great for lighter objects such as bottles, cans, flashlights, and small tools. Don't overfill the box or bag – you don't want evidence items rubbing against each other. Securing items to a box with zip-ties or wires isn't required but can be helpful to prevent sliding if you have them available. Wrapping with brown paper is fine if it's not tightly wrapped against the surface and the item isn't so heavy that the paper will tear.

**Porous surfaces**: absorbent items such as paper, currency, checks, or raw wood – the latent print residue is absorbed into these surfaces, which means it is naturally more protected. Multiple items can be submitted together in a single envelope, bag, or paper wrapping, whatever size and shape is most convenient.

**Semi-porous surfaces**: objects such as coated cardboard boxes, slick packaging (like for batteries), or the outside of greeting cards – to be on the safe side, treat them like they're non-porous. Semi-porous surfaces will absorb some of the latent print residue, but a portion of it does remain on the surface, so they're still susceptible to friction damage.

**Adhesive surfaces**: the sticky side of tapes, stickers, or labels – there are two main options for packaging that will protect the adhesive. The first is to lay the tape adhesive side up in a box and secure it with pins or ties so that it doesn't move and stick to itself or the inside of the box. The second is to lightly place the adhesive side of the tape on a piece of sturdy acetate (remember overhead projector sheets?). The tape can then be packaged in an envelope or box, and the adhesive is protected, but can be easily removed from the acetate for processing.

**Bloody items**: only package in paper or cardboard to prevent mold and to ensure it fully dries. Choose the type of packaging based on the weight and size/shape of the item, and please mark with a biohazard sticker.

Thank you for doing your part to ensure we have the best chance possible to develop latent prints on your evidence.
This spring, the Coroner’s Office and Crime Lab went to the dogs...literally! Two service dogs, Bailey and Roger, were brought into the facility to allow our employees to spend quality time with the K-9’s. Gerry Coen, the handler for Bailey, said, “The dog just loves people and enjoys interaction with humans.” This was obvious as the following photographs will show.

The dogs will be invited back soon so those who were unable to partake can have an opportunity to “go to the dogs!”
Evidence Technician Training Course

By Robert Hunkeler

Remaining 2021 Course Dates (Accepting Applications)
August 2-13 (FULL CLASS)
September 20 - October 1 (FULL CLASS)
November 29 - December 10 (FULL CLASS)

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

2022 Evidence Technician Training Course

We are in the process of selecting course dates for 2022.
The dates will be on our website upon approval. Here is the link:
https://www.mcohio.org/government/other_government_and_community_agencies/miami_valley_regional_crime_lab/law_enforcement_training.php

Further information regarding the Evidence Technician Training Course can be obtained by contacting Robert Hunkeler at: (937) 496-7266 or hunkelerr@mcohio.org

2021 Course Dates

August 2-13 - Full
Sept. 20 - Oct. 1 - Full
Nov. 29 - Dec. 10 - Full

Please submit applications for standby, as it is not unusual to have cancellations.

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
Ali Wasserman and Emily Leggett joined the Montgomery County Coroner’s Office for a ten-day internship in June. Ali and Emily are Forensic Science Consultants with the Air Force Office of Special Investigations, specializing in death investigations. Ali is stationed at Buckley AFB, CO and has been a Special Agent with OSI for 5 years. Emily is stationed at Joint Base Andrews, MD and has been with OSI for 6 years. During their internship they shadowed both morgue staff and investigative staff. They said their favorite part of their time here was seeing the process from start to finish. Ali said, “being present for everything from the call, to the scene response, to the autopsy was eye-opening. Having seen the ins and outs of a coroner’s office will undoubtedly make me a better investigator.”

Welcoming OSI Forensics Agents is an ongoing opportunity provided by MCCO. Ali and Emily are the 6th and 7th individuals to come through the internship, with 4 more agents scheduled to come through the program by the end of Summer 2021. During their time at MCCO, Ali and Emily attended almost 50 autopsies and 15 death scenes. Based on their experience here, they have satisfied many of the requirements to take the American Board of Medicolegal Death Investigators examination. They would like to thank everyone at MCCO for their time, knowledge, and hospitality during their visit.
Meet Our Staff

Name: Michelle Welch
Hometown: Dayton, OH
Section: Team Morgue
Years with MCCO/MVRCL: 10
Hobbies: Painting, Darts, Spending time with family, friends & my dog Dexter
Favorite Food: Steak
Mentors: My Father
Favorite Part of Working at MCCO/MVRCL: The Experience & Staff

Name: Joy Anderson
Hometown: Grew up in Kettering, OH. Currently in Englewood, OH
Section: Front Office
Years with MCCO/MVRCL: 2 years & 10 months
Hobbies: Listening to music, watching movies, going to Zumba Class
Favorite Food: Italian
Mentors: My parents and my 98 year old Grandmother
Favorite Part of Working at MCCO/MVRCL: The people I work with and being able to help others.
May 14, is the nationally designated, “Dance Like a Chicken” day. This year members of the staff met in the quadrangle and put on the moves for several styles of dance. Of course, the Chicken Dance was first. It was originally composed by a Swiss accordion player in the 1950’s. Then it was called “The Duck Dance.” It wasn’t until the 1970’s that it was changed to “The Bird Dance” and when it became popular in America, “The Chicken Dance” received its new name.

Some old memories were brought back when the music changed to “Boot Scoot and Boogie” and the “Electric Slide.” After being “cooped” up through winter it was great to spend a little time outside getting sun and exercise all to music supplied by our Director, Brooke Ehlers.

Included are a few pictures to show off the many talents of our staff. So, if you missed it this year, you will have to celebrate on your own next year because “Dance Like a Chicken Day” falls on a Saturday.

Here are a few photos memorializing the day and the many talents our staff displayed!
Coming Soon
National Forensic Science Week
September 19-24

In Celebration of National Forensic Science Week, we are excited to present a:
Violent Crime Symposium

DATE: October 18, 2021
WHERE: Sinclair Community College
FULL DAY TRAINING: Lunch and parking included
SPECIAL PRICING FOR MEMBER AGENCIES

TOPICS INCLUDE:
FAMILIAR SEARCHING
TRIAL PRESENTATION OF DNA EVIDENCE
DNA EVIDENCE FROM THE OJ SIMPSON TRIAL

MORE DETAILS COMING SOON!