Message from the Coroner,
Dr. Kent Harshbarger

The Montgomery County Coroner’s Office (MCCO) and Miami Valley Regional Crime Lab (MVRCL) are dedicated to providing the highest level of service to our communities. We understand the importance of customer service to the agencies we assist. Our employees stay apprised of new techniques and processes through continuing education which ensures reliability, dependability, and the utmost quality and value.

In the upcoming year, the MCCO and MVRCL are committed to the continuous process of improving and evolving our services. The MVRCL Evidence Technician course has been restructured to include night photography and more practical experience for the attendees. We are also in the process of planning refresher and focused classes for those who have previously attended or for agencies that don’t have the resources to send a representative for the 2-week course.

Due to the increase in tour requests, our photography section is compiling discipline and informational footage throughout our facility to provide a virtual tour for our member agencies.

Through grant-funding, we have been able to provide our Investigative Team with laptop computers for their vehicles. These computers will increase efficiency on scene and assist in providing real-time statistical data.

The MCCO and MVRCL will continue to update agencies of the changes we are making, including a potential upgrade to our computer system which will enable member agencies the capability of pre-log evidence, viewing case status updates and retrieving reports upon completion.

We are excited about the New Year and the direction that we are moving. We appreciate the opportunity that you have given us to have a role in the exceptional work that you do.

At this time, I would like to announce our new Director of Operations, Brooke Ehlers. Brooke has been with the MVRCL for twenty years in various positions. I anticipate that Brooke will bring a fresh perspective with her new role, yet build on the solid foundation that has been established by her predecessors.
It is an honor to be named the Director of Operations for the Montgomery County Coroner’s Office and Miami Valley Regional Crime Lab. The MCCO/MVRCL is not just a place of business for me, but the place I consider my second home.

I started as an intern from Eastern Kentucky University in 1999 and knew immediately that this is where I wanted to be. I was fortunate enough to receive the offer to come back upon graduation to begin my career as a forensic scientist in the drug chemistry section.

In addition to an extensive history in the drug chemistry section as an analyst and technical leader, and laboratory supervisor, I am actively participating in forensic organizations across the country. Current attributes include serving as President of the Midwestern Association of Forensic Scientists (MAFS) and as a member of the Organization of Scientific Area Committees (OSAC). In 2015, I became a qualified Technical Assessor to assist in maintaining the MVRCL accreditation.

Customer service is essential to the success of this organization. Quality assurance, case management, and continuing education for our employees are areas that that will bring the balance needed to provide the best product to you. As I continue to learn and grow in this new position, the feedback that you provide is vital to assist me in improving the services we offer. I encourage you to reach out and let me know how the organization is doing—good or bad.

I have been with the MCCO/MVRCL for twenty years. It has challenged me, rewarded me, and brought people into my life that I will forever call my friends. It is for these reasons that I have a vested interest in the future of this organization and its employees.

I look forward to hearing from you!

“The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking.” Albert Einstein
Is It Hemp?

BY JEN WATSON

The Miami Valley Regional Crime Laboratory is accepting cases for tetrahydrocannabinol (THC) quantitation. The Ohio Revised Code (ORC) currently defines hemp as containing not more than 0.3% delta-9 tetrahydrocannabinol by dry weight. A method has been validated to distinguish between hemp and marihuana based on this ORC definition.

This service is available for plant material samples only. Food products, hashish samples, and vape cartridges are currently not able to be differentiated. The MVRCL is working on the validation to provide this service in the future. We will update our agencies when this service is available.

All felony amounts of cannabis plant material will be quantitated. Misdemeanor amounts of cannabis will only be quantitated when no other controlled substances or paraphernalia are present that will result in a higher statutory charge. Residues and plant material exhibits weighing less than 300mg are not able to be analyzed due to the need for a sample of sufficient size.

Please be advised that cases requiring quantitation will be run in batches and requests for rushes may be unable to be accommodated. Member agencies will be giving priority in this situation.

Please contact the drug chemistry section for any additional information regarding THC quantitation at drugrushes@mcohio.org.

THC Quantitation Pricing as follows:

Member Agencies – no additional fee

Non-member Agencies - $175.00 for analysis, $175.00 for quantitation, $175.00 for rush requests (analysis is required for quantitation) Please Note – Large cases requiring multiple samples may be subject to an additional $175.00.
Drug Chemistry: Does Packaging Really Matter?

The drug chemistry section analyzes approximately 6,700 cases per year with three full time chemists and one technical leader. The majority of analyses focus on the identification of controlled substances. The section also analyzes poison, bank-dye, and harmful intoxicant cases. In addition, we are now able to distinguish between hemp and marijuana in plant material samples with the quantitation of THC. We anticipate adding hashish and edible samples in the future.

The packaging of evidence can play an important role in the analysis of evidence. While a large number of drug cases do not require any packaging considerations, there are still certain cases that do.

**Syringes/Sharp Objects**—All syringes and sharp objects are required to be in puncture-proof containers prior to submission to the laboratory. This includes syringes that already have a cap over the needle. Quite often, the needle caps come loose from the syringe or the needle is already protruding from the cap resulting in a safety hazard to anyone that handles the evidence. Syringes not packaged properly will be returned to the agency.

**Marijuana**—Fresh plant material samples (i.e. cultivations) should be packaged loosely in paper bags or cardboard boxes. The roots and dirt should be removed before submission. Please do not layer any plastic inside cardboard boxes or completely wrap a cardboard box in packing tape. The plant material needs space to breath or it will mold and be unsuitable for analysis.

**Mushrooms**—Mushrooms must be removed from their growing medium prior to submission. Mushrooms will continue to grow until their nutrient supply is diminished which allows for them to increase in weight after the date of seizure. Once removed from the growing medium, mushrooms should be packaged loosely in paper bags and cardboard boxes.

**Tablets and Powders**—Due to opioid safety concerns, these items should be placed in leak-proof containers like plastic bags, pill tins, or vials being placed into an envelope. No powder or tablets should be loose in any envelopes as the contents may spill out and/or adhere to any tape used to seal the envelope.

**Harmful Intoxicants**—Harmful intoxicants much be packaged in air tight containers as soon as possible after seizure. These cases include solvents, aerosols, gases, and nitrites. These substances are extremely volatile and if not packaged properly will be unable to be analyzed.

The chemistry section is more than happy to answer any questions or provide assistance in any way that we can. 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.
All evidence submitted for Toxicology should have the following information located somewhere on the specimen container:

Name of subject
Date and Time of Collection
Name of the Witness or Collector

Documentation should be legible. Evidence containers should be sealed in a manner to demonstrate no tampering has taken place. Properly sealed specimen containers should then be placed in an appropriate evidence envelope or box, sealed, and initialed. Evidence is then ready for submission to the Crime lab.

Toxicology submissions can be mailed. If mailing submissions, place the Evidence Submission Form on the outside of the evidence container. This allows for all pertinent contact information to be entered by the evidence technicians before the toxicology department opens the evidence for testing. Evidence submission forms may also be emailed alerting the department that the specimen is on its way.
The Crime Laboratory recently upgraded the footwear database, formerly known as Shoeprint Image Capture and Retrieval (SICAR), to Footwear Print eXpert (FPX). FPX is a new and improved system that combines a comprehensive footwear evidence management tool with an extensive footwear reference database for the rapid identification of full and partial shoe prints left at crime scenes.

The new database has more than 38,000 tread designs to search. Each of the new records features high quality images and information relating to the latest footwear collections produced by leading manufacturers.

With this database, we are able to link crimes to suspects or crimes to other crimes. We also produce detailed FPX reports that will be emailed upon completion of the laboratory case. The FPX report will include an image of the shoe print impression from the crime scene and may include images of the footwear uppers, details of the shoe brand, model and release date.

Get your Firearms Evidence into NIBIN

The National Integrated Ballistic Identification Network (NIBIN) is a nationwide network that is a case management system for cartridge cases collected at crime scenes and test fired cartridge cases from recovered firearms. This year alone the Miami Valley Regional Crime Laboratory Firearms Section has issued four hundred six (406) links out of one thousand seven hundred fifty nine (1759) entries into the system in 2019. In order to further assist our partner agencies the Miami Valley Regional Crime Laboratory Firearms Section is encouraging agencies to submit all collected cartridge cases for NIBIN entry and firearms for test firing and NIBIN entry.

The protocol for NIBIN entry at the Miami Valley Regional Crime Laboratory is that cartridge cases that are typical of being fired in semiautomatic handguns and rifles of any calibers and 12 Gauge shotguns. If multiple cartridge cases are in a submitted case, the cartridge cases are screened and a representative sample is entered into the NIBIN system. Likewise, all semi-automatic handguns and rifles and semi-automatic, pump action and lever-action 12 Gauge shotguns are entered into the NIBIN system. The only firearms that are not entered into the NIBIN system are as follows: Revolvers, Single shot or bolt action rifles, Shotguns other than 12 Gauge, Weapons that have never been fired and Firearms deemed unsafe, inoperable, or incomplete.
The Combined DNA Index System (CODIS) is a database that searches for matching DNA profiles obtained from evidence samples, profiles from convicted offenders and felony arrestees, and profiles from missing persons/unidentified human remains. Operated and controlled by the Federal Bureau of Investigation, the database was created with the intention to aid investigations when a perpetrator is unknown. As a result, DNA profiles must meet the following criteria for entry:

- Profile is from an item left behind by a possible perpetrator at a crime scene
- Profile obtained is not from a victim or consensual sex partner, thus the requirement for elimination standards

DNA profiles that are obtained from items taken directly from a person, their residence, or their vehicle are considered deduced suspect samples, not forensic unknown profiles, and therefore are not admissible to CODIS. This is the reason why DNA profiles from firearms and drugs/drug paraphernalia removed from a person are not searchable in CODIS.

The database only contains DNA profiles and does not contain any identifying information associated with an individual, such as names, date of birth, social security number, etc. An association between a DNA profile with another DNA profile is called a “match”. If the lab determines that these two profiles share a common source, the association is called a “hit”. The laboratories involved in providing the matching DNA profiles share information regarding the samples entered. When a hit involves a convicted offender or an arrestee, the State lab with ownership of that profile confirms information stored in another database and then provides the identifying information for that individual.

The laboratory with the evidence profile will issue a report providing the information between the matching samples. The law enforcement agency is then required to submit a DNA standard from their newly developed suspect for DNA testing and comparison. In other words, think of the function of CODIS as a really informed informant!
The Latent Print Section has made several changes recently to reports and the wording of comparison conclusions. These updates are in line with accreditation requirements and strive to reflect recommendations made by the Friction Ridge Subcommittee of the NIST-administered Organization of Scientific Area Committees (OSAC). The OSACs were established to develop standards and guidelines which can be used by the various forensic science disciplines.

The first update is the inclusion of a terms and definitions page with every report. This includes the current wording used for each conclusion, as well as general definitions for terminology common in Latent Print reports. It explains the Automated Fingerprint Identification System and the types of latent prints that can searched. This list should help with interpretation of most questions that arise when reading a Latent Print report.

The remaining changes to Latent Print reports are in the wording used to describe each conclusion that can be reached. The current OSAC documents and accreditation requirements reflect a move to more fully communicate the significance of each result, as well as more precisely explaining the reason for any inconclusive findings.

- **Identification**: remains the strongest level of association that can be made. There are sufficient discriminating ridge details in agreement to conclude that the latent and known prints were made by the same source, and that the chance of another known print being the source is so small that it is negligible.
- **Exclusion**: there are sufficient friction ridge details in disagreement to conclude that the impressions originated from different sources. All relevant areas of known friction ridge skin must be recorded to reach this conclusion, and the latent print must have a clear location and orientation. Just a reminder that it is possible to touch an item and not leave a latent print of value, so exclusion from a specific latent print doesn’t necessarily mean a person did not touch that surface!
- **Inconclusive**: higher quality or more complete known prints are needed before reaching a conclusion. The report will specify areas needed.
- **Inconclusive due to latent**: this is most commonly used when there is agreement found between the latent print and a known; however, the latent print lacks sufficient quality and quantity of ridge detail for identification. The reported individual cannot be identified or excluded. The case notes will contain details specific to each comparison if needed. The latent prints are of value for comparison because exclusions can usually be reported for these latent prints.
• **Cannot exclude due to latent**: the latent print lacks information to reliably determine the anatomical source and/or location for comparison. No agreement is found with the known prints, but the reported individual(s) cannot be identified or excluded. All possible areas have been considered, but per policy, these prints will be reported as inconclusive. The latent prints are of value because an identification can be reported if the corresponding information is found in a known.

The newer terminology and explanations now used by the Latent Print Section reflect one of the major shifts in the discipline over the past decade: the way conclusions are communicated, both in reports and in court. Certain phrases will no longer be used during testimony: “exclusion of all others”; “reasonable degree of scientific certainty”; “100% certain” and the like. While it is well-supported by research that each finger, palm and footprint is unique, every print in the world is not compared in each case, and latent prints do not often record an entire finger or palm. Eliminating these phrases more accurately represents the scientific method used and avoids overstating the conclusions reached. Reported conclusions have always been – and remain – the expert opinion of the Latent Print Examiner after thorough analysis and comparison of the evidence.

There may be additional wording updates in the future as more OSAC guidance documents are approved and released. MVRCL will ensure any changes are communicated and the terms and definitions page will always include the current wording used.

The goal of the Latent Print Section is to report our findings in a meaningful way that more fully describes our process and the agreement or disagreement observed between two friction ridge impressions. Please feel free to call or email if there’s ever a question about a particular case.
The Miami Valley Regional Crime Laboratory and Montgomery County Coroner’s Office have re-designed the Evidence Technician Training Course. The Evidence Technician Training Course is a 2-week (80 hour) course teaching processing, collection, and packaging of evidence at crime scenes. Class size is limited to 10, in order to promote practical instruction and application. Course topics include:

- Introduction to Forensic Science
- Crime Scene Processing
- Alternate Light Sources
- Photography to include Night and Alternate Light Source
- Crime Scene Sketching, Mapping, and Analysis
- Firearms
- Chemistry
- Toxicology
- Fingerprints
- Forensic Pathology – Scenes and Interesting Cases
- Crime Scene Documentation and Reports
- Courtroom Testimony
- Trace Evidence
- Basic Bloodstain Pattern Analysis
- DNA/Serology
- Laboratory Procedures (completing laboratory submittal forms)
- Basic Shooting Scene Reconstruction
- Death Investigation
- Autopsy Familiarization

Students will be required to demonstrate their proficiency by successfully processing a mock crime scene. Techniques of sketching, photographing, collection and preservation of physical evidence will be used to complete this requirement.

A comprehensive examination will be given to each student on the last day of the class. The test will include material from the lectures, handout material, and practice sessions. A score of 80% or better is required to pass.

Upon successful completion of the Evidence Technician Training Course, the officer becomes a Miami Valley Regional Crime Laboratory trained Evidence Technician.

There is no course fee for member agencies. There is a course fee of $1250.00 for non-member agencies.

The Evidence Technician Training Course application is located at: https://www.mcohio.org/2019application2.pdf

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

2020 Course Dates

- January 6 – January 17
- February 3 – February 14
- April 13 – April 24
- May 11 – May 22
- Sept. 14 – Sept. 25
- October 19 – October 30

BY ROBERT HUNKELER
As 2019 draws to a close, one cannot help but think about the past year. We said goodbye to old friends and hello to new ones, we faced tragedies and trying times, and we stood up when our community needed us. We have performed 2,144 autopsies throughout 2019. As we move into the new year, it is important to think about the cost that our profession asks of us and what we can do to combat the toll it takes on us.

As with any profession, increased workload can begin to wear on individuals, especially during the holidays. When you consider the unique circumstances of what we do, it is easy to see how that stress could be easily compounded and cause one to become “numb” to the work. This numbness could be a symptom of Compassion fatigue which is a condition that affects caregivers, first responders and others who have prolonged exposure to secondary emotional trauma. While it is well documented and studied in nurses, Funeral Directors and other caregivers, there is less data available on this condition when it comes to Coroner’s office staff.

Compassion Fatigue is defined as:

- Physical and mental exhaustion and emotional withdrawal experienced by those who care for sick or traumatized people over an extended period of time.
- Apathy or indifference toward the suffering of others as the result of overexposure to tragic news stories and images and the subsequent appeals for assistance. (mirriam-webster.com)

It is easy to understand how the MCCO staff could at one time or another is susceptible to the effects of compassion fatigue. From the time an individual passes and is determined to be a coroner’s case, we are involved in their journey. We learn the circumstances or their demise, which many times is tragic, we see them in conditions that very few people may ever see, we stand with families as they grieve over their lost loved ones, we care for individuals who don't have any family, and we try to determine their identities or find their family or loved ones. We become their voice in trials and help put their murderers behind bars, helping to bring closure in the end.

As professionals we need to keep our feelings separate and thus “suffer in silence”, while every case makes an impact on us. It is important during stressful times to stop and think about the symptoms of Compassion fatigue, and know you are not alone. These problems can compound and manifest themselves in the workplace, affecting the day to day workings of the office and life at home. It is important to seek assistance when any of these issues become overwhelming. Help can be as simple as talking to peers. It's easier to shoulder the load when you know those around you understand what you are going through. Seek out positive people and don't isolate yourself. It's not selfish to make sure your own needs are being met.

My grandfather used to always tell me, “If you don't like your feelings, change your thoughts”. It took me a long time to learn to appreciate that. Knowing that no matter how tough things may seem, I know that I don't have to do it alone, and whatever we may face in 2020, the MCCO will face it together as a team.
Meet Our Staff

Name: Jennifer Goodman
Hometown: Kettering, Ohio
Section: Front Office
Years with MCCO/MVRCL: 2 years in January
Hobbies: My hobbies are whatever interests my children. At this moment we are into soccer, dance and ballet.
Favorite Food: Pizza
Mentors: Grandma and Mother
Favorite Part of Working at MCCO/MVRCL: My co-workers

Name: Miles Warren
Hometown: Lewisburg, Ohio
Section: Morgue / Photography
Years with MCCO/MVRCL: 6 months
Hobbies: Hiking, rock climbing, and photography
Favorite Food: Hot & sour soup
Mentors: Denny Blevins & Jay Maisel
Favorite Part of Working at MCCO/MVRCL: Everyone I work with!

Name: Hillary Crosley
Hometown: Harrison, OH
Section: Chemistry
Years with MCCO/MVRCL: 3 years
Hobbies: Having game nights with friends & going to the movies
Favorite Food: Indian food
Mentors: My family members have always had my back and have been examples on how to be a good person.
Favorite Part of Working at MCCO/MVRCL: My co-workers are a great group of people to work with and I look forward to coming to work every day.
The MCCO/ MVRCL celebrated National Forensic Science the week of September 16th-20th. Media were invited into the facility to learn about new techniques utilized by the analysts and tour the Mass Fatality Command Center. The staff participated in a ‘Glamourize My Garb’ contest after being treated to lunch on Friday. Next year’s event will include a community service event.
Are you determining THC levels in food products?

The laboratory is not currently quantitating THC in food products, but is working on the method validation to offer this service in the near future.

If there's video or a witness to someone touching an item/surface, why are no latent prints of value recovered and/or the latent prints are identified to someone else?

Leaving and then recovering a useable latent print on a surface is a chance occurrence. It is possible to touch a surface and not leave a useable latent print, or it is possible for that print to be lost before it is recovered. This is due to factors relating to the person's skin, residue present, the surface touched (something smooth, flat and clean is best), atmospheric and packaging conditions the item is exposed to, and whether it's handled or touched at a later time.

How do I collect blood out of snow for DNA analysis?

Collect blood from snow in the same manner as blood from another surface. If the snow is frozen, it may be difficult to transfer the sample to the sterile, cotton-tipped swab. Scooping the snow into a plastic screw top vial is another option. The sample will need to be frozen until submitted to the lab. When submitting, alert the front office staff and notate on the packaging that the contents need to stay frozen until processed.

Can You Identify This Object?

The answer will be revealed in next quarter's Newsletter.

Supplied by Rachel Newton
Thank You!

I presented case studies involving drivers using fentanyl and/or fentanyl analogs at the Society of Forensic Toxicologists (SOFT) annual conference in San Antonio in October 2019. Because fentanyl and fentanyl analogs are so prevalent around the Miami Valley, we are in a unique position to offer insight into those types of cases with toxicologists from all over the world. But without your willingness to share your case histories and information with me, I would not have been able to pass along that data to my forensic colleagues. I would like to thank the agencies who took the time to ensure I had the documents I need to make the presentation as complete as possible. I am so appreciative and so was the audience.

Clarke County Sheriff’s Office
Darke County Sheriff’s Office
Dayton Police Department
Fairfield Township Police Department
Lebanon Police Department
Miamisburg Police Department
Monroe Police Department
Montgomery County Sheriff’s Office
Piqua Police Department
Preble County Sheriff’s Office
Springfield Police Department
St. Mary’s Police Department
Tipp City Police Department
Trenton Police Department
Trotwood Police Department
Troy Police Department
Warren County Sheriff’s Office
Xenia Police Department
Zanesville Police Department

Elizabeth Kiely
Forensic Toxicologist