ANNUAL REPORT 2015

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Message from the Director: Moving Foward

This annual report outlines the successes and challenges faced by the Wisconsin State Crime Laboratory (WSCL) during 2015. It also emphasizes our commitment to our mission, which is to provide the citizens of the State of Wisconsin quality forensic services delivered in a timely manner.

The skills and commitment of the WSCL staff are fundamental in achieving our mission and my thanks go to all the staff who have worked tirelessly for the WSCL. This commitment is demonstrated not only in the high profile cases but in the day-to-day work that gets accomplished.

The year 2015 was full of change for the WSCL. The most significant change was the loss of Kim Vonnahme. She was not only a great person to know, she was a great addition to the WSCL. Her legacy will touch the Bureau for years to come.

Another change was that we saw full implementation of Wisconsin Act 20, including the DNA Databank Unit transition into a new facility in Madison and the hiring of additional forensic program technicians. The DNA Databank Unit has stepped up to manage these new processes and has done a remarkable job.

Staff turnover and training of numerous entry level analysts and forensic program technicians has been a major issue in 2015. We saw several units undergo 50% or more turnover which put a strain on the delivery of timely services to our customers. I am hopeful that in 2016 we are able to keep a more stable workforce.

As we move into 2016, we look forward to preparing for our next full ISO/IEC accreditation cycle. With the addition of two new permanent full-time Lab Quality Managers and advanced analysts in various disciplines this will allow the WSCL to effectively poise itself for a smooth assessment in 2017.

I hope you will find this report helpful and informative.
-Jana Champion, Director of WSCL

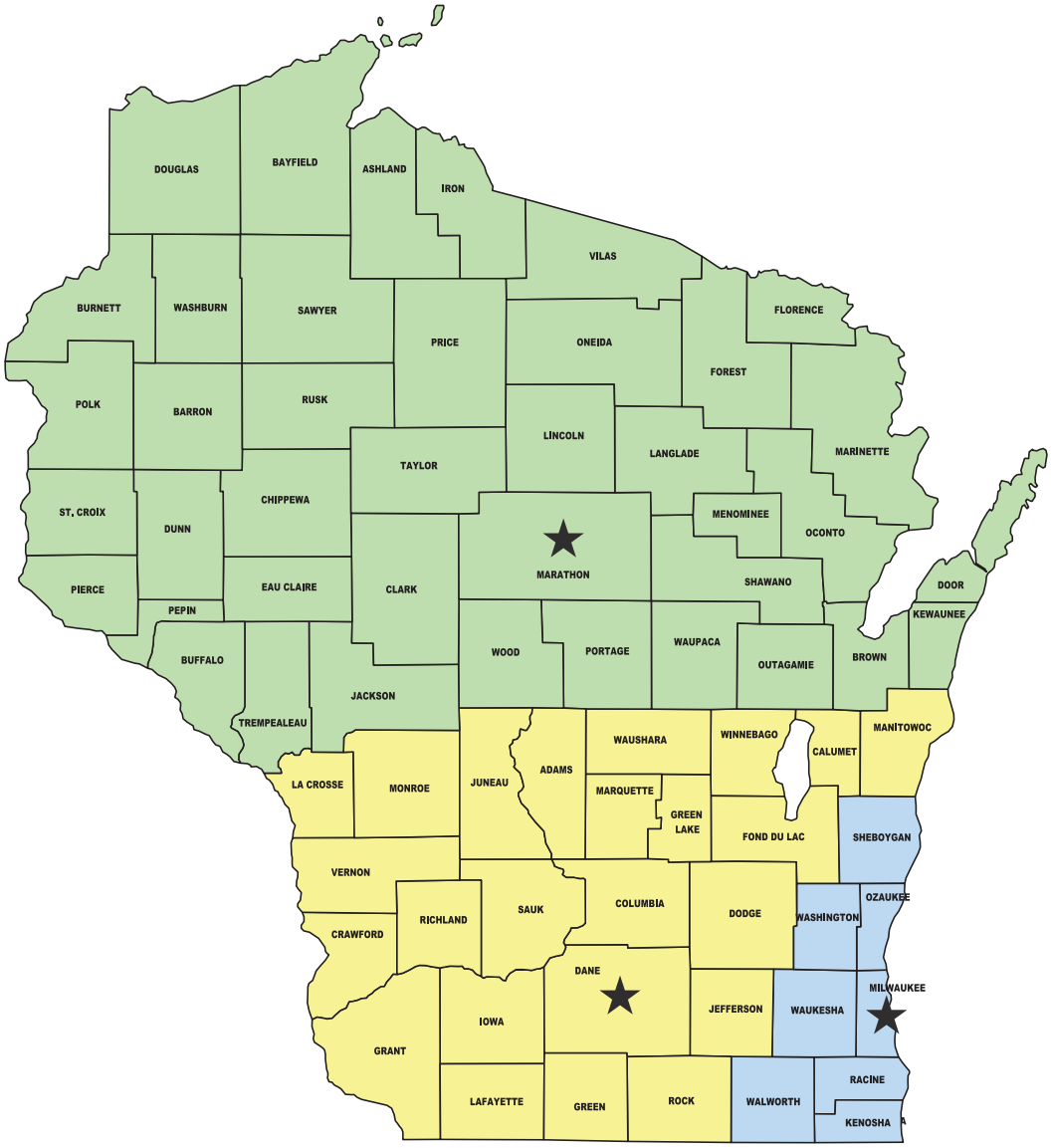
Laboratory History and Accreditation

The Wisconsin State Crime Laboratory Bureau (WSCL) was established on August 8, 1947 when Chapter 165 of the Wisconsin Statutes was approved and published. The first Laboratory Superintendent, Charles M. Wilson, was hired to establish a laboratory in the Capitol Building in Madison. Shortly thereafter, the Madison Laboratory was relocated. A second full-service laboratory was opened in 1974 in New Berlin to serve the eight county Milwaukee metropolitan areas. And finally, in 1991, the Madison service area was reorganized further with the development of the limited services laboratory in Wausau to provide service to the forty northern counties of Wisconsin.

The Wisconsin State Crime Laboratories are accredited by the American Society of Crime Laboratory Directors / Laboratory Accreditation Board (ASCLD/LAB) International Program, ISO/IEC 17025:2005. The current accreditation was granted in September 2012. Accreditation is part of the WSCL quality assurance program and ensures the laboratory provides effective overall service to the customer base. In 2017, the WSCL will be reassessed by ASCLD/LAB. External assessment by ASCLD/LAB is comprehensive; every aspect of the WSCL operation will be carefully reviewed to ensure that all requirements are being consistently met. In addition, the WSCL is applying for an extension in scope in the disciplines of Crime Scene Response and Automated Fingerprint Identification. The application for assessment will be submitted June, 2016.

Laboratory Service Area

The Wisconsin State Crime Laboratory is part of the Division of Law Enforcement Services within the Wisconsin Department of Justice. To support the state, there are three separate service areas: Madison, Milwaukee, and Wausau. Both the Milwaukee and Madison laboratories are full service laboratories providing DNA Analysis while the Wausau laboratory offers limited services at this time. In total, there are ten disciplines practiced at varying levels throughout the state (below). The Questioned Documents discipline is no longer provided in Wisconsin.



Services	Madison	Milwaukee	Wausau
AFIS Specialists	✓		
Controlled Substances	✓	✓	✓
Crime Scene Response	✓	✓	✓
Databank	✓		
DNA Analysis	✓	✓	
Firearms and Toolmarks		✓	
Forensic Imaging	✓	✓	✓
Identification	✓	✓	✓
Toxicology	✓	✓	✓ (BAC only)
Trace		✓	

Evidence And Administrative Support

The Wisconsin State Crime Laboratory has approximately 150 management, forensic scientists, and technicians. To support the staff and the Bureau, there are fourteen evidence and administrative support positions spread across all three Bureau locations; two are vacant. The evidence and administrative support staff is the Wisconsin State Crime Laboratory's emissary with law enforcement and fully communicate the specific details and limitations regarding the submission guidelines outlined in the Physical Evidence Handbook.

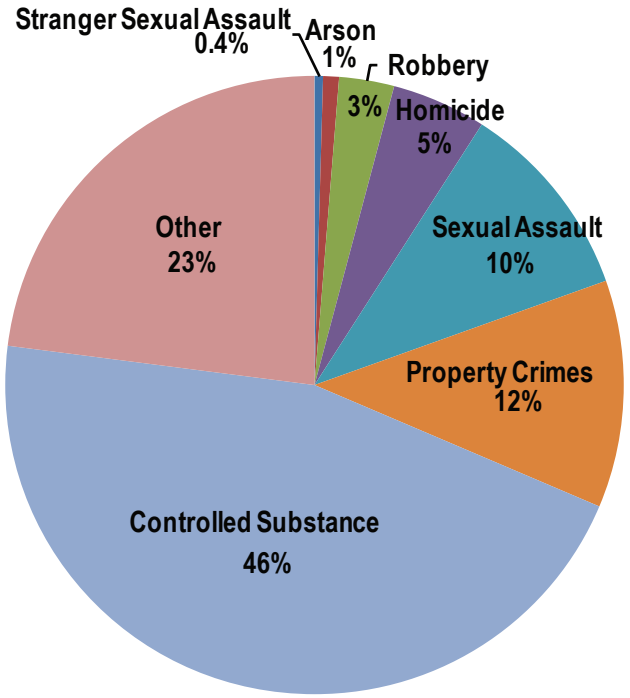
Evidence and Administrative Support Caseload (2015)

	Cases
Madison	4297
Milwaukee	4589
Wausau	3678
Bureau Total	12564

Cases Received: The Wisconsin State Crime Laboratory received over 12500 cases in 2015. The case intake was split relatively even across the three Bureau locations with the two full service laboratories having slightly more submissions.

Evidence and Administrative Support Case Type (2015)

Bureau: In total, there were 12564 cases submitted to the Wisconsin State Crime Laboratory in 2015. The data in the graph to the right is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). The types of cases submitted to each laboratory vary, for instance Controlled Substance cases account for over 70% of the cases received at the Wausau Laboratory. Case types included in the Other category include Weapon Seizures, DWI, Other Assaults, and Miscellaneous.



Evidence and Administrative Support Achievements and Challenges

The biggest challenge for the evidence and administrative support units is hiring and retaining qualified staff. This year each laboratory has had staff vacancies. At the Madison Laboratory, due to a complete turnover of staff, the most experienced evidence technician was hired in October 2015. This represents both a challenge and a large accomplishment as the evidence and administrative support staff were able to maintain operations during the shortages.

As mentioned above, the evidence and support staff are the main point of contact for Wisconsin law enforcement agencies. Due to this, the evidence and support staff spend a large portion of time ensuring that the customer remains in compliance with the submission guidelines. Trying to keep up with the guidelines while short staffed is challenging and requires a lot of extra communication with law enforcement agencies. The main goal in 2016 is to retain staff and continue satisfying the customer base as well as support the Bureau.

Note: For the remainder of this report, the term case will refer to an assignment created to perform the work. This is the easiest metric to use to effectively evaluate the productivity of the analysts in each unit. Of note, a case may have multiple assignments created if it is being worked in multiple units, by multiple analysts, or additional evidence is submitted.

Chemistry Section

The primary function of the Chemistry Section is to analyze items of evidence in order to determine the presence or absence of a controlled substance or the transfer of evidence from one substance to another. At the Wisconsin State Crime Laboratory the Chemistry Section consists of three units: Toxicology, Controlled Substance, and Trace (Milwaukee).

Toxicology Unit

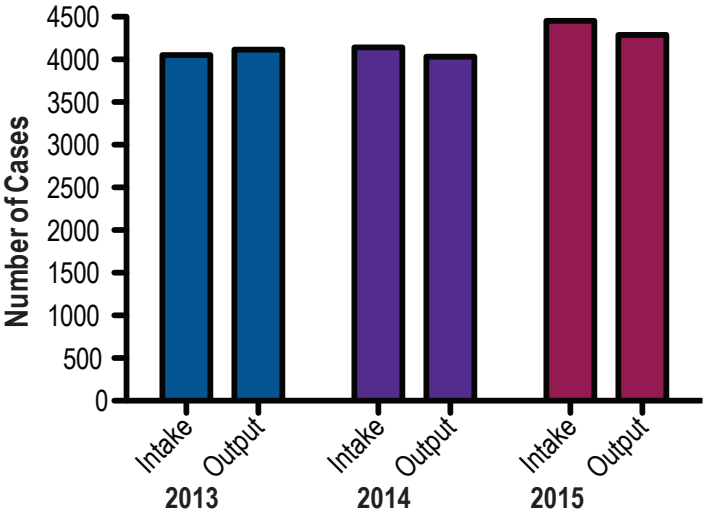
The Toxicology Unit tests blood and other body fluids or tissue samples for alcohol, controlled substances, and occasionally poisons. These tests assist investigations of crimes where drug or alcohol use may be implicated and provide support in determining the cause and manner of death. Toxicology Units are located in all three Bureau locations: Madison, Milwaukee, and Wausau. To support the unit, there are seven full time Toxicology positions; two Toxicologists are in training and one is position vacant. Since 2014, two Controlled Substance Analysts in Wausau have provided support to the Bureau by performing Blood Alcohol Analysis; eventually they hope is to establish and staff a full time Toxicology Unit.

From an analytical viewpoint, there are two broad categories of cases in the Toxicology Unit. The first category of analysis is for the presence of alcohol. Alcohol-only cases comprise, by and far, the largest number of samples tested in the Toxicology Unit. These analyses are routine and are generally completed by a single toxicologist within thirty days of submission. The second category of analysis is for the presence of substances of interest, with or without alcohol analysis. Substances of interest may include drugs or poisons; however, poison cases are exceptionally rare. As a whole, these cases can require widely different sets of analyses; each class of drugs may require a separate assay or analysis scheme. Due to the complexity of these analyses, samples are often batched to improve efficiency and as such, each class of drugs may be worked by different toxicologists. Importantly, the turnaround time and pending case log are largely affected by the number and complexity of these cases.

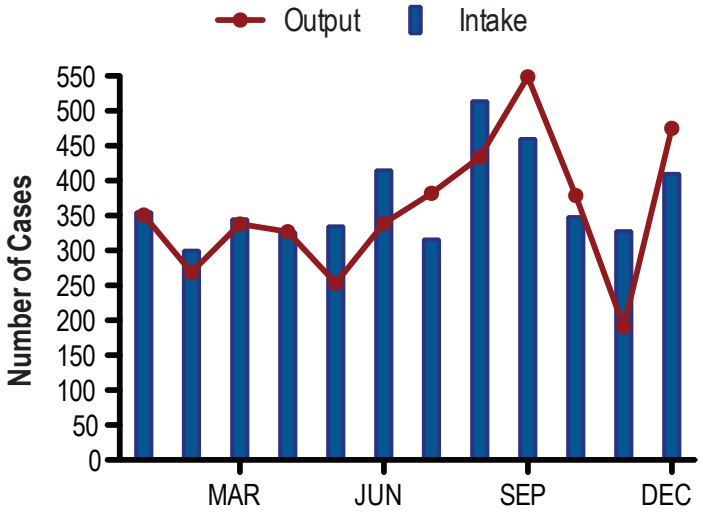
Toxicology Caseload

A. The number of Toxicology cases submitted to the Wisconsin State Crime Laboratory has remained relatively steady the last three years. Toxicology case output and turnaround time have fluctuated due to staff losses and the training of new staff.

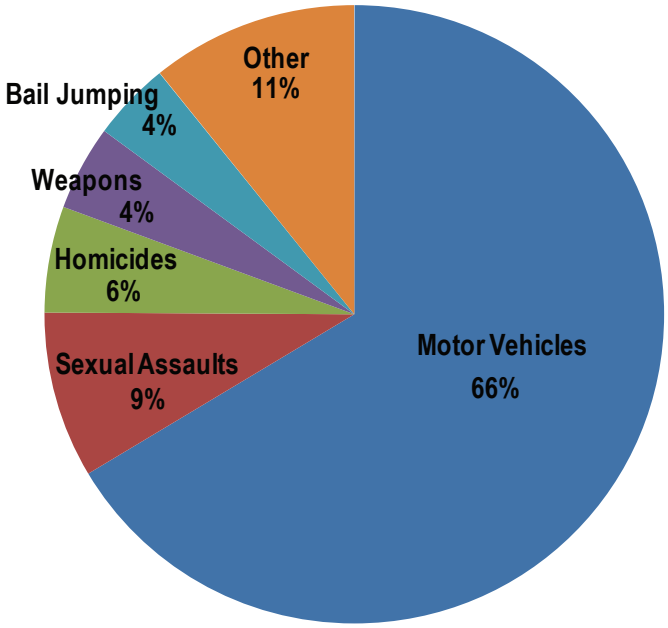
Toxicology	2013	2014	2015
Case Intake	4053	4141	4452
Case Output	4114	4034	4287
Avg.Turnaround	37 days	32 days	57 days



B. As demonstrated below, the 2015 Toxicology monthly intake and output fluctuate throughout the year. Importantly, this demonstrates that the number of pending cases is fluid from month to month and may vary greatly depending on the number and the complexity of cases received.



Toxicology Case Type (2015)



Toxicology: In total, there were 4452 Toxicology cases worked in 2015. The data in the graph to the left is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). Motor Vehicle Incidents account for over 65% of the Toxicology cases worked. Cases in the other category include Crimes Against Children, Property Crimes, and Assaults/Endangering Safety.

Toxicology Achievements and Challenges (2015)

The Toxicology Unit has had a couple notable achievements in 2015. One is the hiring and completion of Blood Alcohol training for a new Toxicologist. The Unit also successfully implemented the Laboratory Information Management System (BEAST) Toxicology Module and has started to increase workflow efficiencies throughout the Bureau.

However, the Toxicology Unit has faced one large challenge in 2015: an increasing backlog of cases due to loss of personnel, the difficulty of recruitment of qualified individuals, and training new staff. They are currently operating at 60% staffing levels with two new Toxicologists in training and one open position for which recruitment is ongoing. Additionally they are cross-training a Controlled Substances Analyst in Blood Alcohol training as this type of analysis is performed on nearly every case received. The focus of the Toxicology Unit in 2016 will be to continue the training of staff as well as look for increased efficiencies throughout the unit due to implementation of the Toxicology Module mentioned above. If successful, they will be able to effectively begin to decrease the backlog and the turnaround times for cases.

Additionally, the Toxicology Unit will be working towards validation of a Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS). This technology will allow the Bureau to analyze target drugs/toxins at a very low level, as well as increase the range of substances the Bureau can identity in an efficient manner. Finally, the Toxicology Unit plans to establish additional advanced-level positions to provide support to the Toxicology Bureau Technical Coordinator.

Controlled Substance Unit

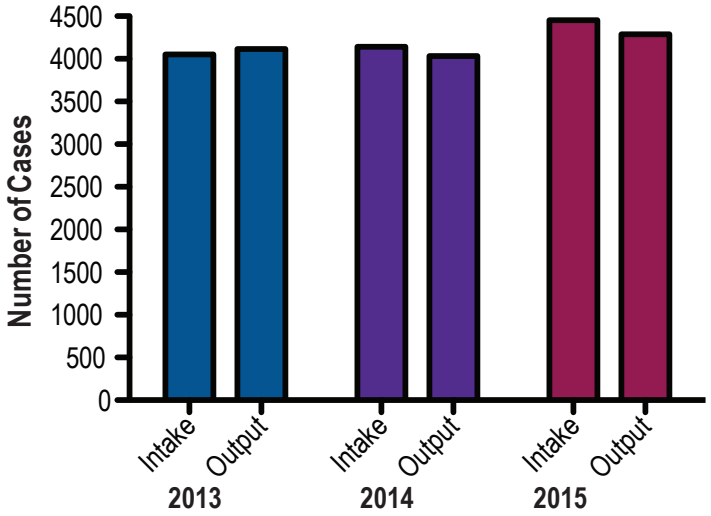
The Controlled Substance Unit analyzes a variety of evidence for the presence or absence of controlled substances. Quality requirements for the Controlled Substance Unit rely heavily on validated standards and/or literature references to support the identification of substances. Controlled Substance Units are located in all three Bureau locations: Madison, Milwaukee, and Wausau. To support the unit, there are fourteen Controlled Substance positions.

To enhance efficiency and maintain quality, the Bureau Technical Coordinator proposed new language for a Special Use Authorization (SUA) bill that allows the Wisconsin State Crime Laboratory to purchase necessary standards without amending the SUA each time. This bill passed the legislature in 2016. This is important because the Controlled Substance Unit was experiencing increased submissions of new designer drugs which can be more challenging to identify. In addition to amending the SUA annually, the Controlled Substance Unit must notify the Wisconsin Controlled Substances Board (CSB) of their controlled substances inventory; prior to obtaining a new standard for use, the CSB must be notified of, and approve, the change in inventory. Due to the complex review, this process can take over a month to complete; however, as mentioned above, to streamline the process, the Bureau Technical Coordinator also presented new language in the statute to allow the Wisconsin State Crime Laboratory to purchase necessary standards without prior approval by the CSB.

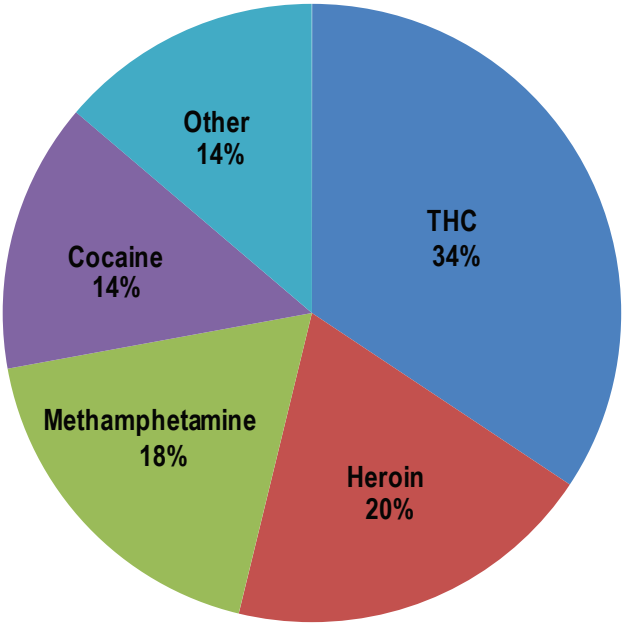
Controlled Substance Caseload

A. The number of Controlled Substance cases submitted to the Wisconsin State Crime Laboratory has remained relatively steady the last three years. Controlled Substance case output and turnaround time have improved over the last three years due to consistent staffing.

Drug Analysis	2013	2014	2015
Case Intake	5602	5834	5789
Case Output	5968	6159	5710
Avg.Turnaround	78 days	54 days	42 days



Controlled Substance : Drug Analysis Frequency



To the left is a summary of the drugs that are encountered most frequently in the Controlled Substance Unit in 2015. The data was extracted from the Wisconsin State Crime Laboratory reports to the National Forensic Laboratory Information System operated by the Drug Enforcement Administration. Of note, a case submission may include multiple drugs and therefore, some cases are counted multiple times. Since 2010 (table below) there has been a significant increase in the frequency of heroin, methamphetamine, and designer drugs observed (included in other). In contrast, there has been a significant decrease in the frequency of THC and cocaine observed.

Drug Analysis	2010	2015
THC	40%	34%
Heroin	10%	20%
Methamphetamine	6%	18%
Cocaine	25%	14%
Other	19%	14%

Controlled Substance Achievements and Challenges (2015)

The Controlled Substances Unit had a couple of notable achievements in 2015. They completed training for two new Controlled Substances Analysts and have nearly completed training for a third new analyst. This is important because in the past five years, submissions have increased 18% overall with the Wausau Laboratory having the largest number of submissions. This increase became especially challenging for the Wausau Laboratory in light of the fact that they lost their Laboratory Supervisor this past year. Much of the senior staff from Controlled Substances Unit stepped up to provide support for Administrative and Quality duties to maintain lab operations. Having three more fully trained analysts in the Bureau will allow the cases to be re-distributed to other laboratories, helping the Bureau to manage the backlog.

In 2016 the Controlled Substance Unit will be working to maintain a turnaround time of less than 45 days while continuing efforts to lower the backlog. To achieve this goal, the Controlled Substance Unit is working to complete training for the third analyst and to establish additional advanced-level positions to provide support to the Controlled Substances Bureau Technical Coordinator, as well as implement a Laboratory Information Management System (BEAST) Drug Module for improvement of workflow efficiencies. Another goal is to complete a survey project for Division of Criminal Investigation which includes quantitations of heroin samples from around the state.

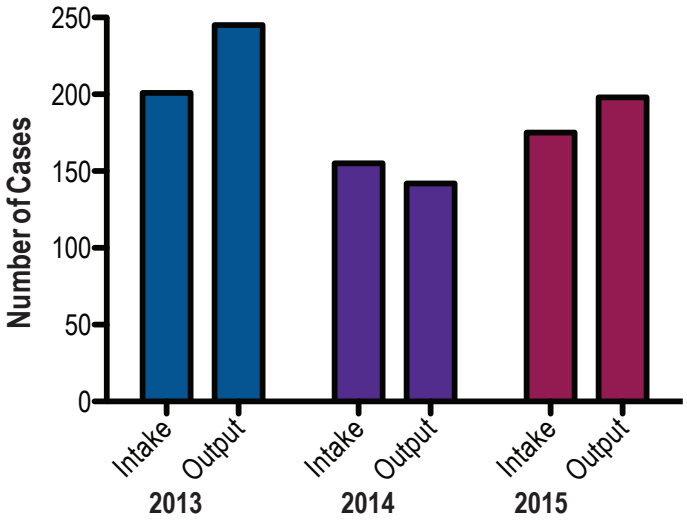
Trace Evidence Unit

The Trace Evidence Unit analyzes a broad spectrum of physical evidence to determine if the evidence could be connected to a suspect or victim. In addition, the Trace Evidence Unit examines a variety of substances for identification or comparison purposes. The Trace Evidence Unit is located at the Milwaukee Laboratory. To support the unit, there are two Trace Evidence positions.

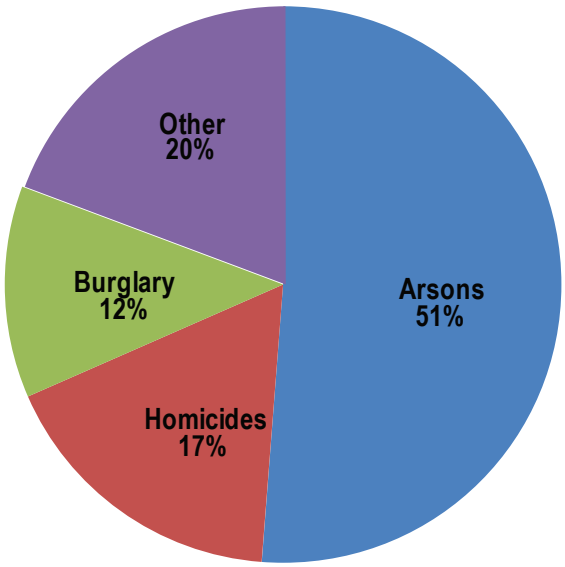
Trace Evidence Caseload

A. The number of Trace cases submitted to the Wisconsin State Crime Laboratory and case output has remained relatively steady the last three years. Trace Evidence case turnaround time have improved over the last three years due to consistent staffing and a decrease in the backlog.

Trace	2013	2014	2015
Case Intake	201	155	175
Case Output	245	142	198
Avg.Turnaround	97 days	53 days	48 days



Trace Evidence Case Type (2015)



Trace Analysis: In total, there were 198 Trace Analysis cases worked in 2015. The data in the graph to the left is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). Arson, Homicide, and Burglary cases account for over 75% of the Trace Analysis cases worked.

Trace Evidence Achievements and Challenges (2015)

In 2015, the Trace Evidence Unit arranged for the lab to participate in the Royal Canadian Mounted Police Paint Database Query (PDQ). This program, while fairly new, identifies automotive paint based on defined characteristics. In order to participate, annually, each lab must provide a set number of paint samples. To facilitate this, Ruth Henk has developed a relationship between the lab and an automotive body shop. The shop sets aside damaged automobile parts and catalogues the necessary information. Ms. Henk subsequently takes paint samples from the parts and submits them. It has not yet provided any investigative information for the laboratory but due to rapid growth has a high potential to do so in the future.

Due to the extreme variability in evidence types received it is difficult to set productivity metrics; instead the Trace Evidence Unit focuses on service goals. The service goals are to complete all arson cases in fewer than 30 days from submission and all other cases within 60 days. In six of the last eight quarters, the Trace Evidence Unit has achieved these goals. Further, in 2016 the Trace Evidence Unit will complete the purchase of the specialized instrument required to perform glass analysis which will improve turnaround times on those cases.

Criminalistics Section

The Criminalistics Section is the most multifaceted section in the Bureau. In general, the Criminalistics Section utilizes scientific principles to recognize, identify, individualize, and evaluate physical evidence. More specifically the Criminalistics Section focuses on friction ridge detail interpretation, pattern recognition, and video/imaging analysis. At the Wisconsin State Crime Laboratory the Criminalistics Section consists of five units: Firearms and Toolmarks (Milwaukee), Identification, Forensic Imaging, Automated Fingerprint Identification System (Madison), and Crime Scene Response. At this time Questioned Documents are not analyzed in Wisconsin.

Firearms and Toolmarks Unit

The Firearms and Toolmarks Unit examines firearms for operability and performs comparative examinations on fired bullets and cartridge cases. In addition, the Firearms and Toolmarks Unit conducts serial number restorations, distance determinations, and toolmark comparisons. At the end of 2014, after the retirement of a longstanding Firearms examiner at the Madison Laboratory, the Firearms and Toolmarks Unit transferred all cases to the Milwaukee Laboratory. To support the unit, there are four Firearms and Toolmarks positions at the Milwaukee Laboratory; two analysts have just initiated the 18 month training program.

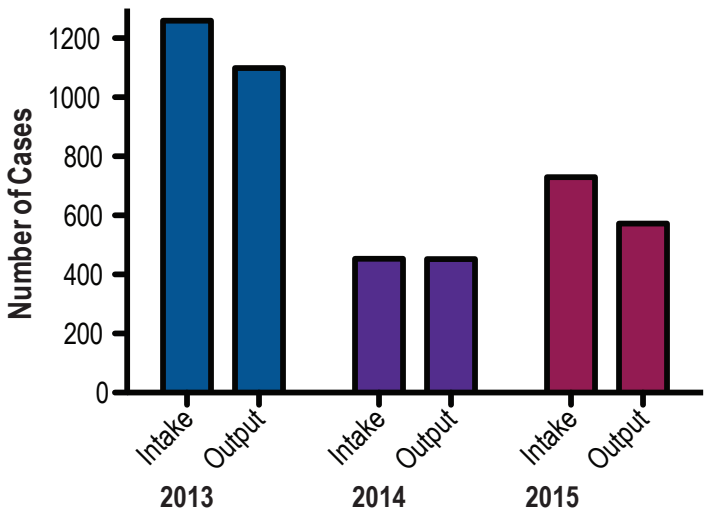
As part of firearms examinations, cartridge case images may be stored and searched in the National Integrated Ballistic Information Network (NIBIN). NIBIN is an automated database that identifies similarities in the markings found on fired cartridge cases. The NIBIN unit then generates a correlation list of possible matches for the firearms examiner to analyze. This technology allows the firearms examiner to identify fired cartridge cases that were deposited at different crime scenes, thus creating investigative leads for our submitting agencies.

In addition to examining evidence, the Firearms and Toolmarks Unit is instrumental in storing and destroying both guns and ammunition in the state of Wisconsin. This project requires a lot of maintenance as there is a constant influx of both. In the last 2 years approximately 15,000 firearms were destroyed by the Wisconsin State Crime Laboratory.

Firearms and Toolmarks Caseload

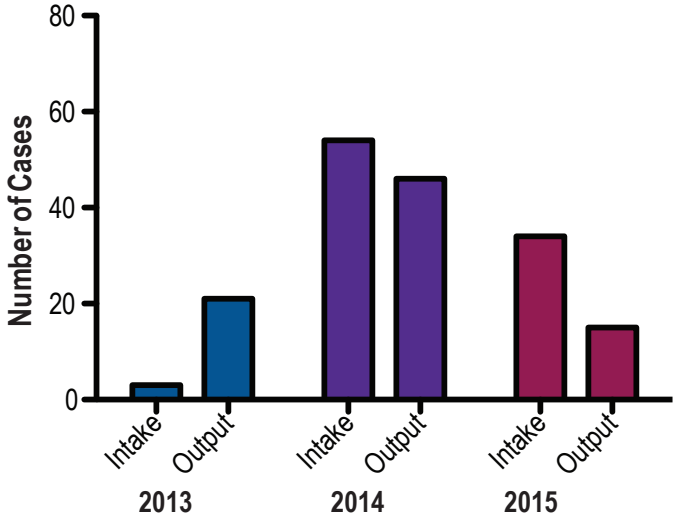
A. The number of Firearms cases submitted to the Wisconsin State Crime Laboratory declined in 2014 due to the loss of Milwaukee Police Department NIBIN cases. Firearms case output and turnaround times have fluctuated due to staff losses and training.

Firearms	2013	2014	2015
Case Intake	1259	453	728
Case Output	1099	452	571
Avg.Turnaround	52 days	115 days	113 days

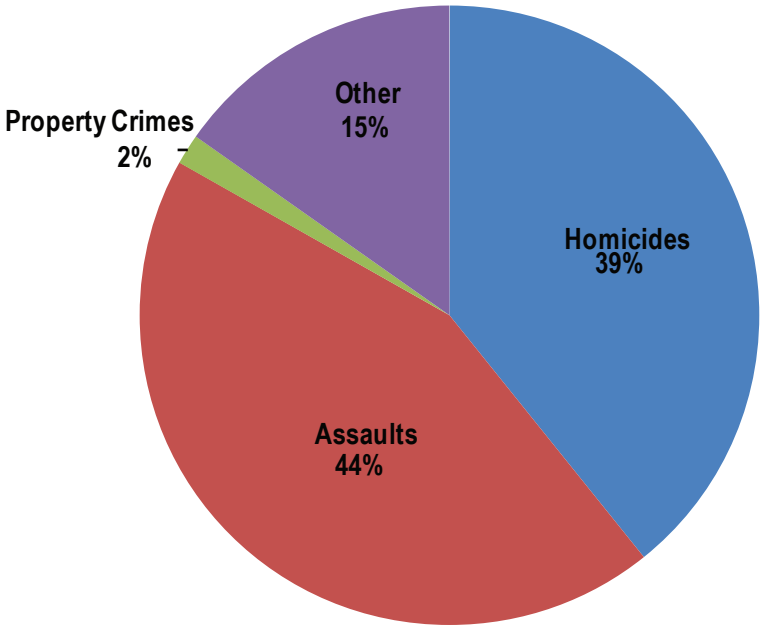


B. The number of Toolmarks cases submitted to the Wisconsin State Crime Laboratory has remained relatively steady the last three years. Toolmarks case output and turnaround times have fluctuated due to staff losses and training.

Toolmarks	2013	2014	2015
Case Intake	3	54	34
Case Output	21	46	15
Avg.Turnaround	82 days	145 days	277 days

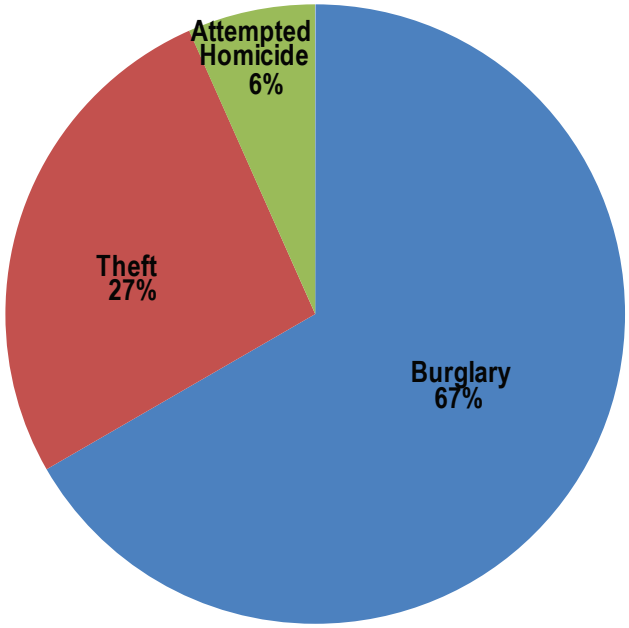


Firearms and Toolmarks Case Type (2015)



Firearms: In total, there were 571 Firearms cases worked in 2015. The data in the graph to the left is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). Homicides and Assaults/Endangering Safety account for over 80% of the Firearms cases worked in 2015. Case types included in the Other category include Weapon Seizure. No Sexual Assault cases were worked by Firearms in 2015.

Toolmarks: In total, there were 15 Toolmarks cases worked in 2015. The data in the graph to the right is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). Burglaries and Thefts account for over 90% of the Toolmarks cases worked in 2015. No Armed Robbery cases were worked by Toolmarks in 2015.



Firearms and Toolmarks Achievements and Challenges (2015)

In 2015, the Firearms and Toolmarks Unit encountered a significant fluctuation in personnel. Positively, the three examiners hired in 2013 completed their training in January (2015) and began independently working cases. Unfortunately, two of the three newly trained examiners quit in mid 2015 leaving the Unit short staffed. Supervisor Kyle Anderson has hired two new examiners; however, the training program is approximately 18 months and requires extensive supervision by one of the two competent examiners. This fluctuation in personnel has resulted in the backlog and turnaround time growing dramatically. At the current case intake and output rate it is projected that the backlog will be at nearly 800 cases by the end of 2017. Under the current staffing, it would take approximately nine years to eliminate the backlog. Further, the oldest Firearms case is 575 days and the oldest Toolmarks case is 910 days. Without an increase in resources the Firearms and Toolmarks Unit will continue to be unable to efficiently manage cases. The main goal throughout 2016 is to continue to stay current with cases that have a trial date and to continue training the two new examiners.

Identification Unit

The Identification Unit examines items of evidence using a variety of physical and chemical methods to process and visualize both latent fingerprints and footwear or tire track impressions. When fingerprints or impressions of value are located, they are compared with submitted standards. Due to the nature of the work, the Identification Unit works closely with both the Automated Fingerprint Identification System (AFIS) and Forensic Imaging Units and as such, their workload directly impacts those two areas.

Identification Units are located in all three Bureau locations: Madison, Milwaukee, and Wausau. To support the unit, there are fifteen total Identification positions. Recent changes in the Identification Unit include the temporary suspension of Footwear analysis in Wausau, due to increased backlog and lack of trained examiners. Footwear cases will be re-distributed to Madison and Milwaukee until the Wausau latent print backlog is greatly reduced. In addition to the temporary suspension, the Wisconsin State Crime Laboratory eliminated tire track analyses from its scope on January 1, 2016.

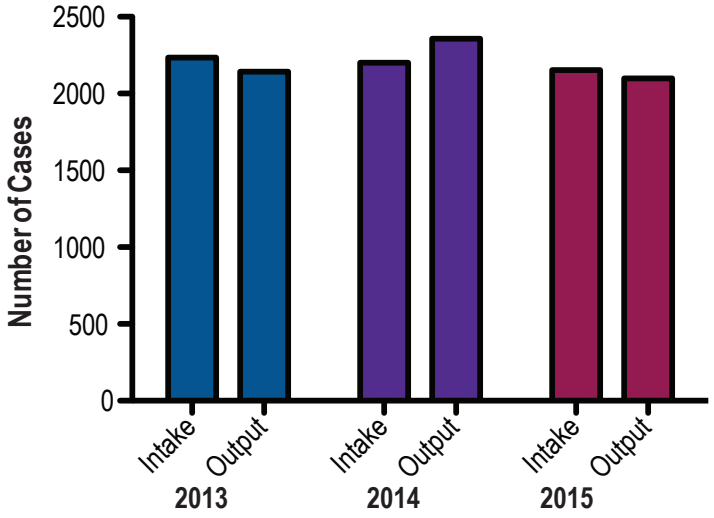
Identification Caseload

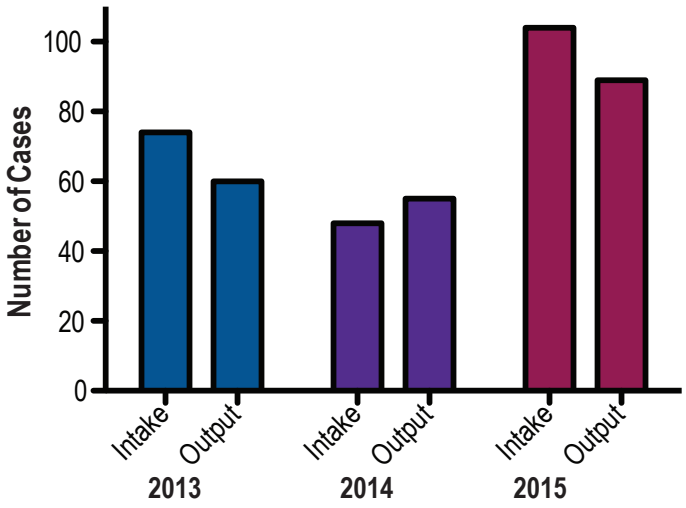
A. The number of Latent Print cases submitted to the Wisconsin State Crime Laboratory has remained relatively steady the last three years. Latent Print case output and turnaround times have fluctuated due to a reduction in staff through attrition and low retention rates.

Latent Print	2013	2014	2015
Case Intake	2235	2201	2154
Case Output	2143	2357	2099
Avg.Turnaround	149 days	174 days	185 days

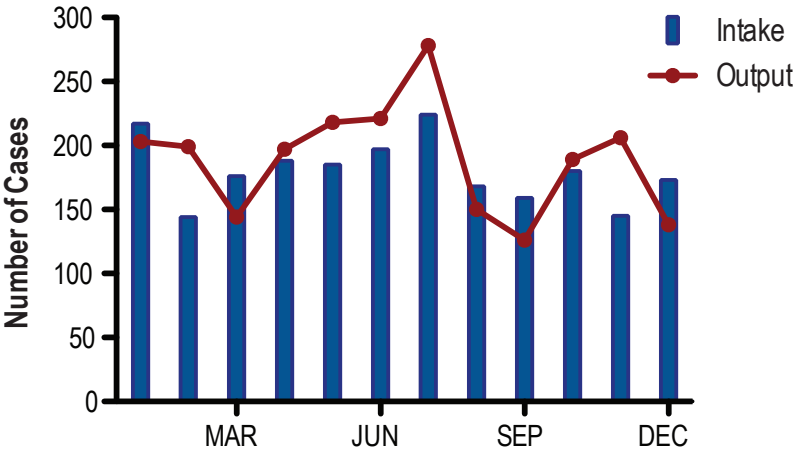
B. The number of Footwear and Tire cases submitted to the Wisconsin State Crime Laboratory has fluctuated slightly the last three years. Footwear and Tire case output and turnaround times have fluctuated due the level of case complexity and high Latent Print backlogs.

Footwear/Tire	2013	2014	2015
Case Intake	74	48	104
Case Output	60	55	89
Avg.Turnaround	196 days	253 days	259 days

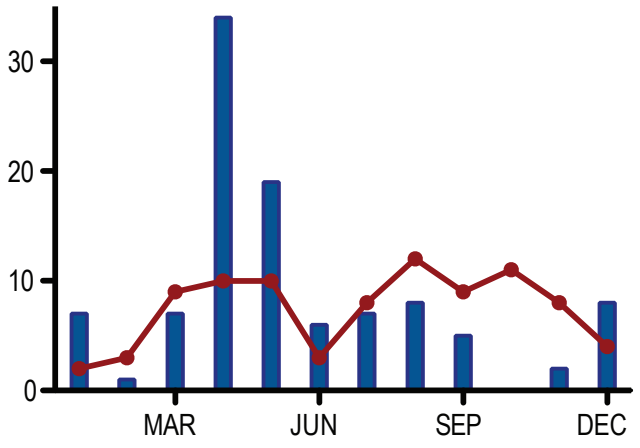




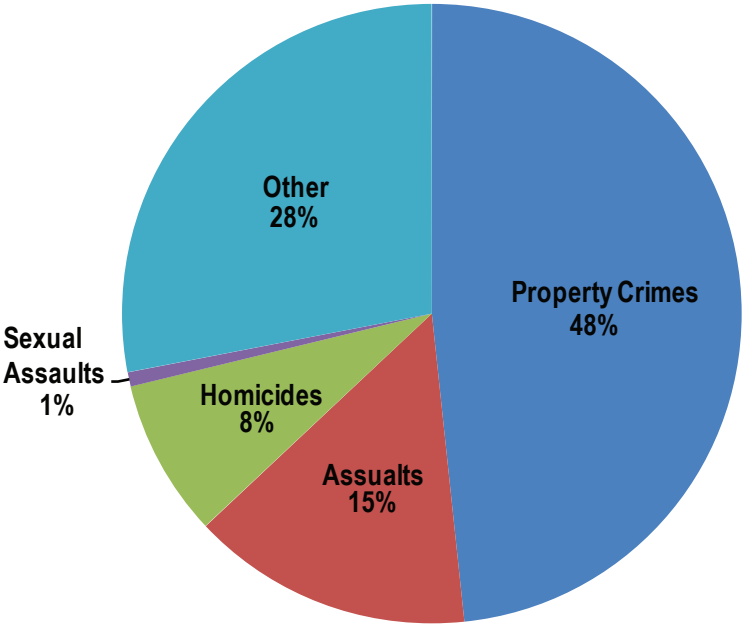
C. As demonstrated below, the 2015 Latent Print monthly intake and output fluctuate throughout the year.



D. As demonstrated below, the 2015 Footwear and Tire monthly intake and output fluctuate throughout the year.

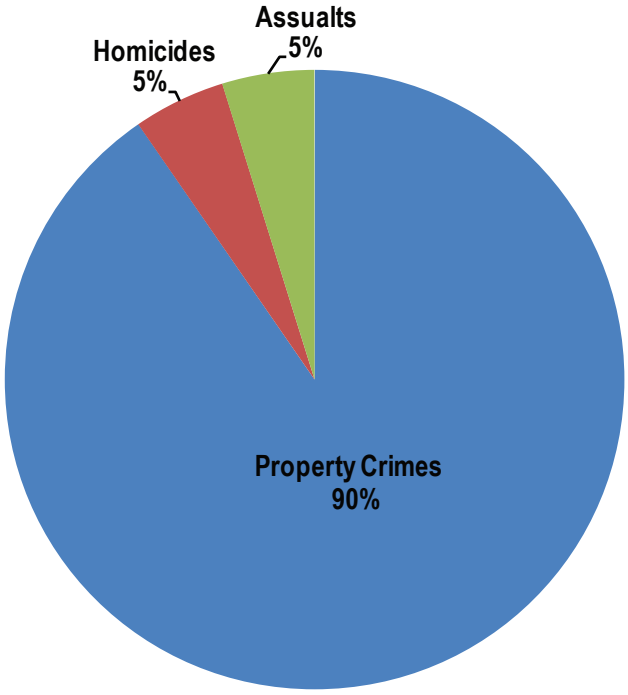


Identification Case Type (2015)



Latent Print: In total, there were 2099 Latent Print cases worked in 2015. The data in the graph to the left is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). Property Crimes and Assaults/Endangering Safety account for over 60% of the Latent Print cases worked in 2015. Case types included in the Other category include Weapon Seizure. Since the Identification Unit works closely with the Imaging Unit, these case types are mirrored in Photography Work Orders.

Footwear and Tire: In total, there were 89 Footwear and Tire cases worked in 2015. The data in the graph to the right is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). Property Crimes account for over 90% of the Footwear and Tire cases worked in 2015. No Sexual Assault cases were worked by Footwear and Tire in 2015.



Identification Achievements and Challenges (2015)

In 2015, the Identification Unit continued to struggle with maintaining personnel. Positively, a new analyst was hired in Wausau and has begun the two year training program. Unfortunately, due to the personnel fluctuation and an increase in rush cases being submitted, the backlog in Wausau has increased resulting in the temporary suspension of Footwear analysis in Wausau. During this temporary suspension, all Footwear cases are being transferred to Madison and Milwaukee. Importantly, all analysts at the Milwaukee and Madison Laboratories have completed Footwear training and will hopefully be able to maintain the current case turnaround time in spite of the slight increase in case submission in 2015.

This fluctuation in personnel as well as a large quality review project of a previous employee at the Madison Laboratory and a large data transition discrepancy during the last major upgrade to the AFIS database has slightly increased the Bureau backlog and turnaround times this year. In spite of these challenges, the Identification Unit has worked hard in 2015 to become more closely aligned with other Identification Units throughout the country. Briefly, throughout 2015, the Bureau Technical Coordinator has recommended new submission guidelines and implemented new procedures which address consultations and conflict resolution. The addition of these procedures and guidelines ensures the Identification Unit continues to improve the quality, efficiency, and consistency of the work while also progressing with the industry standards. The main goal throughout 2016 is to continue to decrease the backlog while continuing to improve quality, efficiencies, and consistency with other Identification Units throughout the country.

Forensic Imaging Unit

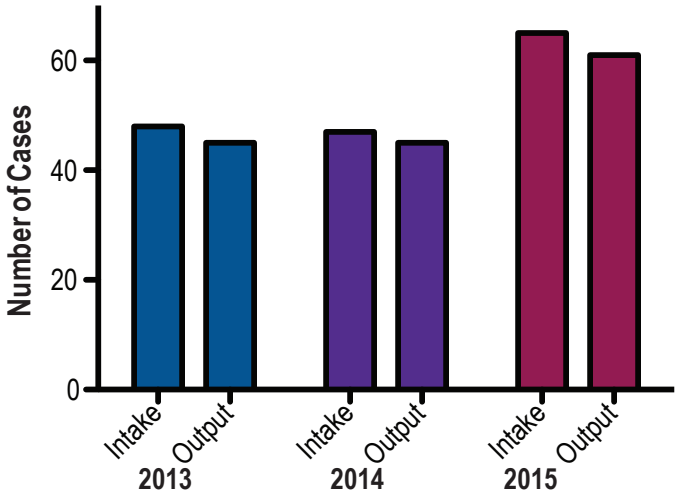
The Forensic Imaging Unit's primary responsibilities consist of photographing and processing images for latent print and footwear analysis, video and image analysis for external agencies, processing images for Crime Scene Response, and photographing evidence. Forensic Imaging Units are located in all three Bureau locations: Madison, Milwaukee, and Wausau. To support the unit, there are six total Forensic Imaging positions.

In addition to casework related tasks, the Imaging staff complete requests at all levels of the organization. These tasks include, but are not limited to: preparation of court presentations, recording high profile speeches from state dignitaries, teaching Evidence Technician courses, conducting photography training both internally and externally, and completing many other audio/visual projects as necessary. These unseen duties, conducted routinely, facilitate work flow throughout the Wisconsin State Crime Laboratory.

Forensic Imaging Caseload

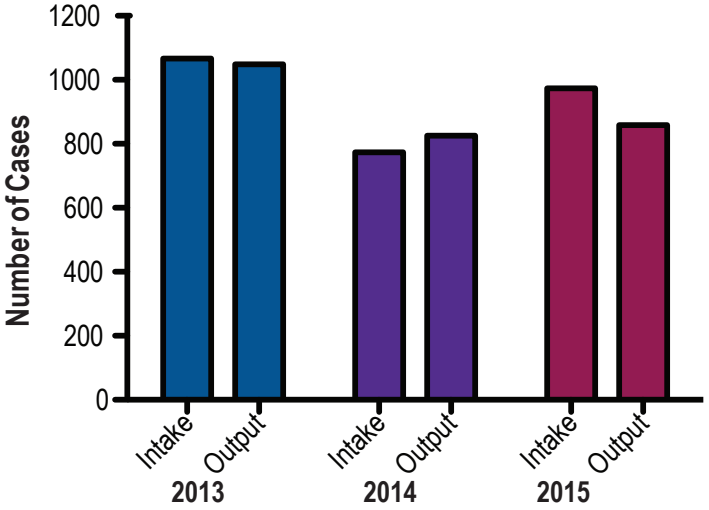
A. The number of Forensic Imaging cases submitted to the Wisconsin State Crime Laboratory has remained relatively steady the last three years. Forensic Imaging case output and turnaround times have fluctuated due to a reduction in staff and training of new staff.

Forensic Imaging	2013	2014	2015
Case Intake	48	47	65
Case Output	45	45	61
Avg.Turnaround	95 days	73 days	92 days

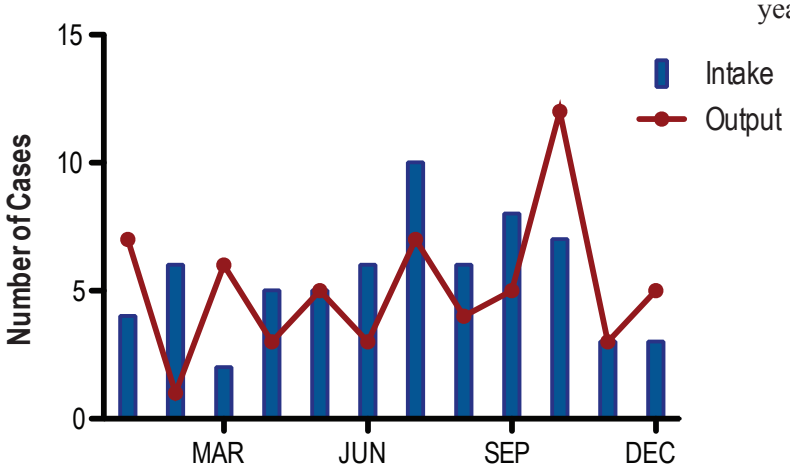


B. The number of Photography Work Orders submitted is largely dependent on the Identification Unit and fluctuates as their turnaround times fluctuate. Photography Work Order output and turnaround times have remained relatively steady despite the fluctuation in staff.

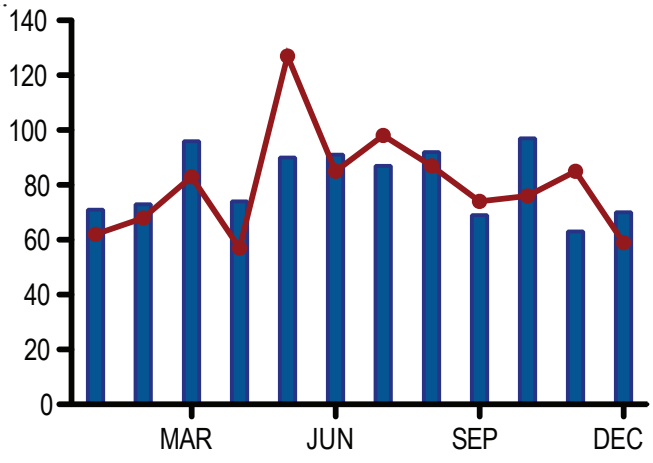
Work Orders	2013	2014	2015
Case Intake	1066	773	973
Case Output	1048	825	858
Avg.Turnaround	34 days	32 days	36 days



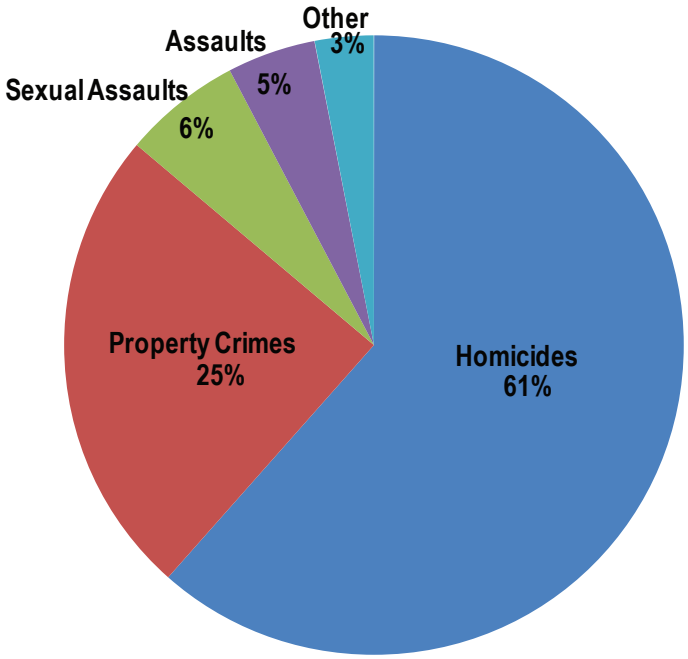
C. As demonstrated below, the 2015 Forensic Imaging monthly intake and output fluctuate throughout the year.



D. As demonstrated below, the 2015 Photography Work Orders monthly intake and output fluctuate throughout the year.

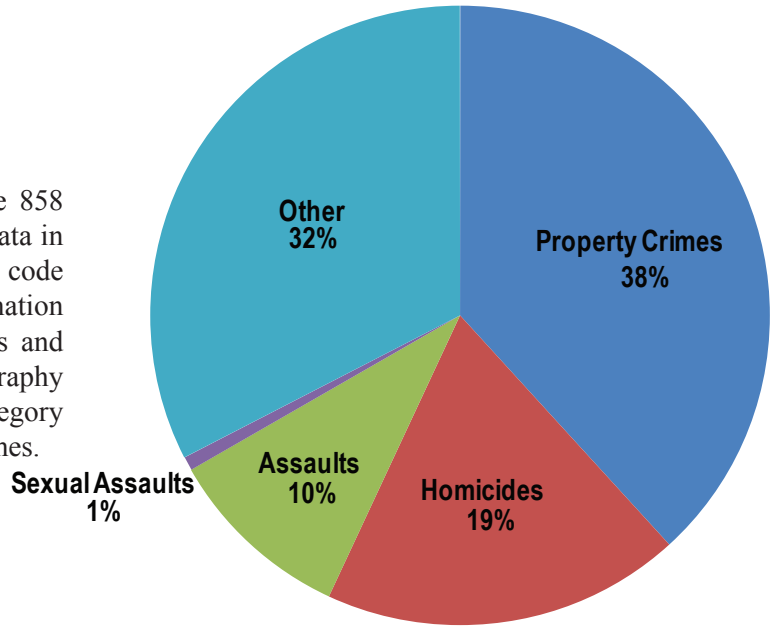


Forensic Imaging Case Type (2015)



Forensic Imaging: In total, there were 61 Forensic Imaging cases worked in 2015. The data in the graph to the left is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). Homicides account for over 60% of the Forensic Imaging cases worked in 2015.

Photography Work Orders: In total, there were 858 Photography Work Orders worked in 2015. The data in the graph to the right is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). Property Crimes and Homicides account for over 70% of the Photography Work Orders worked in 2015. The Other category includes Controlled Substance and other lesser crimes.



Forensic Imaging Achievements and Challenges (2015)

At the current time, the Wisconsin State Crime Laboratory has temporarily suspended photo comparison submissions (i.e. comparing evidence items to the photos of alleged evidence items). Further investigation is needed to determine if there is an external proficiency test available. Additionally, further work is needed to unify the procedures in the Forensic Imaging Unit to ensure more consistency and quality. The Bureau Technical Coordinator will continue to focus on this issue in 2016.

Positively, in 2015, the Forensic Imaging Unit hired two new Forensic Imaging specialists. Both hires, one in Madison and one in Milwaukee, are nearing the completion of their training and are already actively contributing to internal Photography Work Orders. As the two specialists complete training in 2016, turnaround times are expected to decrease closer to the numbers observed in 2014 when the Forensic Imaging Unit was closer to being fully staffed. In addition to the hires at Madison and Milwaukee, two new positions were overfilled in Wausau to prepare for the retirement of two seasoned Forensic Imaging specialists. The training of these new hires is also in progress and will be completed in 2016. The main goals throughout 2016 are completion of training for the new specialists, retention of experienced specialists, and unification of Forensic Imaging procedures within the Bureau.

Automated Fingerprint Identification System Unit

The Automated Fingerprint Identification System (AFIS) is the central repository for fingerprint records in the State. The AFIS Unit works closely with the Crime Information Bureau (CIB), the DNA Databank Unit, and the Identification Units at the Wisconsin State Crime Laboratory. This unique environment requires an AFIS technician to possess the skills necessary to perform fingerprint identifications and pattern analysis on hundreds of prints per day. Comparisons and quality control are performed on a variety of media, including paper sources, inked ten-print cards, and digital images. The AFIS Unit is currently located at the Madison Laboratory. To support the unit, there are seven positions at the Madison Laboratory; one technician has just been hired.

The AFIS Unit supports the Identification Unit by performing the preliminary analyses on all Ten-Print to Unsolved Latent images in the database. The AFIS Unit also supports the DNA Databank Unit by performing all fingerprint identifications on DNA submission forms. Furthermore, the AFIS Unit supports the CIB by verifying fingerprints on expungement requests and consolidation records, as well as, performing identifications for external agencies including the Department of Corrections. Due to these interactions, AFIS technicians are considered the gatekeepers of fingerprint identification information for all law enforcement agencies in Wisconsin.

AFIS Unit Achievements and Challenges (2015)

At the end of 2015, the retirement of the AFIS Unit Lead as well as promotion of one of the technicians to the Criminalistics Supervisor contributed to a significant backlog and high queues. Since then, the backlog has been steadily declining. To further decrease the backlog the AFIS Unit will soon be hiring a new entry level employee. In addition to the new hire, the AFIS Unit was able to reclassify two specialists to the senior level and internally transfer a DNA Databank Technician to the AFIS Unit in 2015. Importantly, all of the current technicians in the AFIS Unit are trained to perform Ten-Print to Unsolved Latent comparisons, a crucial task in maintaining a reasonable backlog.

The main goal of the AFIS Unit for 2016 is to prepare for the American Society of Crime Laboratory Directors / Laboratory Accreditation Board assessment in 2017. Over the last two years the AFIS Unit has been committed to improving their quality system and completing the accreditation requirements. Notably, the AFIS Unit has created a procedural and training manual, began participating in the Quality Assurance Program, and developed a proficiency test system. These are all large steps towards ensuring that they will be the first accredited AFIS Unit in the entire country.

Crime Scene Response Unit

The Wisconsin State Crime Laboratory (WSCL) currently staffs on-call Crime Scene Response Units (CSRU) at the Madison, Milwaukee, and Wausau Laboratories 24 hours per day, 365 days a year. The role of the CSRU was clearly defined when the Crime Laboratory System was established in 1947 under Wisconsin Statute 165.75(3)(c). The CSRU responds to calls from law enforcement agencies for assistance at major crime scenes; typically homicides and autopsies. When requested by an authorized law enforcement or government official, the WSCL provides a team of trained scientific staff to assist in processing the crime scene. Mobile units are equipped to aid in the recognition, documentation, recovery, and preservation of physical materials which may have evidentiary value, and to transport these materials to the WSCL for processing.

Volunteers are drawn from the staff of various units within the WSCL. They receive specialized forensic training in crime scene photography, blood stain pattern analysis, casting, body fluid collection, blood borne pathogens, fingerprint and footwear development and recovery, bullet trajectory, buried body recovery and processing vehicles. Currently there are eighteen individuals employed by the WSCL that volunteer as members of the CSRU. In 2015, the CSRU lost seven members of the program through retirement, resignation or cessation of employment with the Department of Justice. Due to these losses, seven more individuals have volunteered and are actively undergoing training.

The CSRU responded to 38 requests in 2014 and 80 requests in 2015 for assistance by law enforcement agencies. The average amount of time spent on a crime scene response is 18 hours. This includes travel, processing and report generation time per CSRU member responding. Based upon a two member team responding this would be approximately 36 analytical hours per investigation.

In general, the CSRU primarily responds to three types of scenes: homicides, officer involved shootings, and clandestine grave sites.

- Homicide investigations are typically processed by a two member team but more members may attend as needed based upon scene size and complexity. Routine processing of these scenes would include photographic scene documentation; utilize general searching techniques, biological and latent print evidence detection/collection. More advanced methods such as bloodstain pattern analysis and bullet trajectory are utilized as needed.

- Officer involved shooting investigations are typically processed by a two member team. Routine processing of these scenes would include photographic scene documentation; utilize general searching techniques, biological and latent print evidence detection/collection. Due to the nature of these scenes, there is a higher demand for bullet trajectory as part of the searching methods and bullet trajectory reconstruction as part of the scene assessment.

- Clandestine grave sites are typically processed by a two to four member team and are routinely a scheduled response. Routine processing of these scenes would include photographic scene documentation; utilize general searching techniques and excavation methods utilized for searching for human remains and other evidence.

Training is an ongoing requirement for the CSRU. To remain proficient and provide a quality service to law enforcement, regular training events are performed. These would include internal training on methods routinely utilized and external training events on advanced techniques such as bloodstain pattern analysis and bullet trajectory reconstruction. Two examples of the training events attended are provided below.

- In 2014, CSRU personnel attended a forty hour course on Bloodstain Pattern Analysis presented by Bevel, Gardner and Associates. This training provides the CSRU members with the skills to identify evaluate and document bloodstain patterns at scenes.

- In 2015, CSRU personnel attended a thirty-five hour Shooting Incident Reconstruction course presented by Bevel, Gardner and Associates. This training provides the CSRU members with the skills to analyze and reconstruct shooting incidents.

Advancements in equipment are also routinely evaluated. This would include response vehicles and scene processing equipment. Examples of equipment currently under evaluation would include photography lighting equipment, 360 degree photography, ground penetrating radar and three dimensional imaging for scene documentation.

The main goals for 2016 are to complete training of the seven new members and prepare the CSRU for the it's first American Society of Crime Laboratory Directors / Laboratory Accreditation Board assessment in 2017.

Deoxyribonucleic Acid (DNA) Section

In general, the DNA Section applies scientific principles through identification, documentation, collection, and evaluation of physical evidence. More specifically the DNA Section analyzes and compares biological material from evidence and/or individuals required by Wisconsin State Law to provide a reference DNA sample. At the Wisconsin State Crime Laboratory the DNA Section consists of two units: DNA Analysis (Madison and Milwaukee) and DNA Databank (Madison).

DNA Analysis Unit

The DNA Analysis Units are located in two Bureau locations: Madison and Milwaukee. To support the unit, there are fifty-four analyst positions, as well as, three forensic program technician positions; two analysts are in training. In addition, the DNA Databank Unit assists the DNA Analysis Unit with casework as time allows.

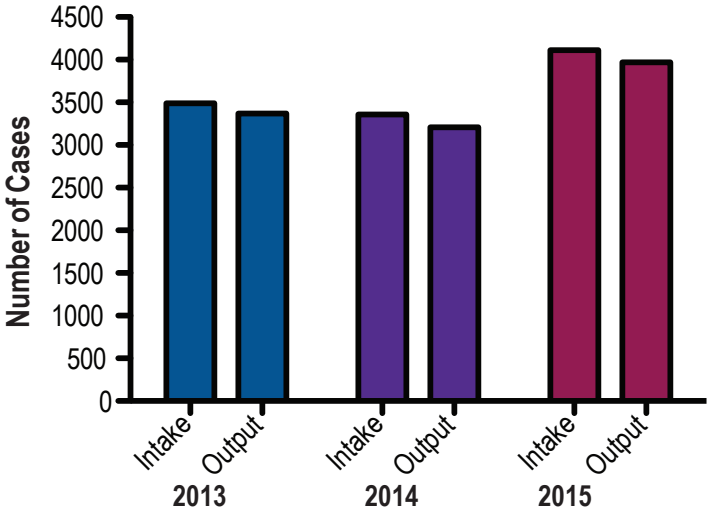
The DNA Analysis Unit routinely examines evidence for the presence of biological material, develops DNA profiles utilizing scientific techniques, analyzes and interprets data. Using the analysts' interpretations, conclusions can be drawn as to whether or not an individual is able to be included as a possible contributor to the DNA profile identified on the evidence. In circumstances where a suspect has not been identified, the DNA evidence profile can be entered into the Combined DNA Index System (CODIS) for routine search against individuals required by State Law to provide a reference DNA sample and other DNA evidence samples. This technology provides potential for unknown DNA evidence profiles to be associated with a known individual thus creating investigative leads for the submitting law enforcement agencies.

The DNA Analysis Unit also performs specialized DNA testing referred to as Y STR testing. Y STR analysis develops DNA profiles from males which may be useful in sexual assault cases where the amount of male DNA present may be low compared to the high amount of female DNA present in the evidence. All DNA analysts, at the Wisconsin State Crime Laboratory, are qualified to perform Y STR analysis.

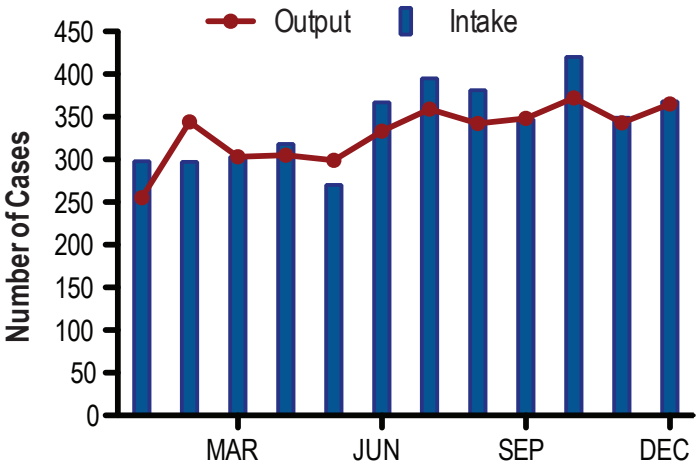
DNA Analysis Caseload

A. The number of DNA Analysis cases submitted to the Wisconsin State Crime Laboratory increased in 2015 by almost 20%. DNA analysis case output has increased proportionate to intake while turnaround time has increased only slightly. These turnaround times continue to be well under the reported national average of 106 days for violent crimes and 154 days for property crimes (*National Institute of Justice Special Report*).

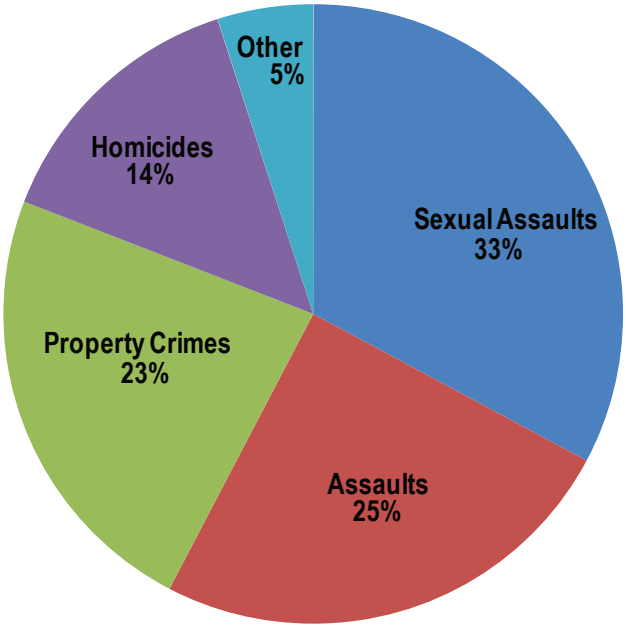
DNA Analysis	2013	2014	2015
Case Intake	3488	3359	4113
Case Output	3370	3209	3968
Avg.Turnaround	37 days	40 days	43 days



B. As demonstrated below, the 2015 DNA Analysis monthly intake and output fluctuate throughout the year. Importantly, this demonstrates that the number of pending cases is fluid from month to month and may vary greatly depending on the number and the complexity of cases received.



DNA Analysis Case Type (2015)



DNA Analysis: In total, there were 3968 DNA Analysis cases worked in 2015. The data in the graph to the left is based upon the offense code assigned to each case in the Laboratory Information Management System (BEAST). It is worth noting that DNA Analysis has observed a dramatic increase in the number of Sexual Assault cases and Homicide cases over the last three years. These cases are the most complex and proportionately have longer turnaround times.

DNA Analysis : Sexual Assault Response Team

The Wisconsin Attorney General's Sexual Assault Response Team (AG SART) was formed a few years ago to address sexual assault evidence practices for the State of Wisconsin. As part of the AG SART's efforts in 2015, a Medical-Forensic work group, comprised of Sexual Assault Nurse Examiners (SANE) and DNA Supervisors Nikki Roehm and Dan Campbell, redesigned the Sexual Assault Evidence Collection Kit. The new kit was named the "Medical-Forensic Evidence Collection Kit" and will facilitate kits collected from non-reporting patients to be submitted directly by the health care facility to the Madison Crime Laboratory for storage. To acquire comprehensive usage by health care facilities and to lend consistency in SANE training and sexual assault evidence collection throughout Wisconsin, the new kits are offered at no cost to health care and law enforcement agencies. Additionally, a new "Undecided/Non-Reporting Packet" was developed to further assist health care facility's submission to the Madison Crime Laboratory for storage.

Advantageously, in 2015, the Department of Justice applied for and was awarded two grants totaling over $4 million dollars. The purpose of the grant is to assist in the DNA analyses, investigation and prosecution of the estimated 6000 stored kits at Wisconsin law enforcement agencies. These grant funds will allow for the hiring of additional personnel to assist state law enforcement officers with investigation and District Attorney's Offices with prosecution. At the end of 2015, to relieve the burden on the DNA Analysis Unit's resources, the Wisconsin State Crime Laboratory developed a 'Request for Bid' to outsource testing of the stored kits. Award and implementation of the outsourcing bid will crossover into 2016 as well as continued communication and education efforts regarding the new Medical-Forensic Evidence Collection Kit processes in Wisconsin.

DNA Analysis : Expansion of the Core CODIS Loci

In 1997, the Federal Bureau of Investigation (FBI) established the original core set of 13 Combined DNA Index System (CODIS) autosomal short tandem repeat (STR) loci required for upload to the national database in the United States. Unfortunately, every year, as the number of profiles stored in the National DNA Index System (NDIS) increases, the likelihood of adventitious matches becomes greater. To evaluate this dilemma, the FBI established the CODIS Core Loci Working Group to propose modifications if necessary. In 2011, the committee announced the proposal to expand the core CODIS loci citing the desire to reduce the potential of adventitious matches, increase international compatibility and data sharing, and increase discrimination in missing person investigations. In 2015, following completion of a validation project, the FBI announced that an additional seven loci would be added to the CODIS Core with an effective date of January 1, 2017. Accordingly, in order to remain in compliance with the FBI Quality Assurance Standards, every CODIS participating laboratory, including the Wisconsin State Crime Laboratory, must validate a kit with the expanded core CODIS loci prior to January 1, 2017. Completing this validation is one of the top priorities for the DNA Analysis Unit in 2016.

DNA Analysis Achievements and Challenges (2015)

In the past decade, DNA technology has experienced significant advancements. These advancements include but are not limited to techniques, kits, and instruments. Importantly, many of these improvements have been paramount in decreasing turnaround times and in maintaining a manageable case load in spite of the increase in complex case submissions. Importantly, the mark of an efficient and effective crime laboratory is one that utilizes process improvements without sacrificing quality. Over the next year the DNA Analysis Unit will continue to make process improvements. First, a new robotic system with air displacement technology was purchased in 2015 and will complete the DNA Analysis validation and be implemented in 2016. The new robotic system will decrease maintenance and set up time for analysts. Next, a new quantification kit was evaluated and validated in 2015. Early in 2016, the new quantification kit will be employed; this new kit allows analysts to not only observe the quantity of human DNA, but to also to gather data such as male DNA content (essential for sexual assault cases), and degradation status of DNA. It will also be a faster assay, a welcome efficiency in the laboratory. Finally, in 2016 the DNA Analysis Unit will begin to evaluate a new Laboratory Information Management System to improve robotic efficiencies as well as purchase a new temperature monitoring system to improve quality by automatically collecting accurate temperature readings.

DNA Databank Unit

The DNA Databank Unit is responsible for receiving, verifying acceptability, analyzing, and maintaining a repository of reference DNA samples in the Combined DNA Index System (CODIS) software. The software is owned and operated by the Federal Bureau of Investigation. The primary purpose of CODIS is to assist law enforcement agencies with leads for investigations in which biological evidence was recovered. To accomplish these tasks, the DNA Databank Unit is responsible for developing an understanding of and applying the Wisconsin statutes, rules, regulations, administrative codes, and standards required to ensure the quality and security of the data stored in the database. The DNA Databank Unit is located at the Madison Laboratory. To support the unit, there are thirteen analyst positions, as well as, eight forensic program technician positions. As time allows, the DNA Databank analysts assist the DNA Analysis Unit with casework.

DNA Databank Collections and Wisconsin Act 20

The Wisconsin DNA Databank is largely dependent upon law enforcement's collection of high quality reference DNA samples. Thus, ensure comprehensive usage by law enforcement facilities and to lend consistency in training and reference DNA sample collection throughout Wisconsin, the DNA Databank kits are offered at no cost to law enforcement agencies. Additionally, in preparation for Wisconsin Act 20, the DNA Databank Unit worked with the Bureau Computing Service for almost two years to improve and simplify the DNA Databank submission form as well as provide up to date information about an individual's DNA Databank status.

On April 1, 2015 Wisconsin implemented a new state law that significantly impacted the collection of reference DNA samples by law enforcement officials. In brief, Wisconsin Act 20 enforces collection of DNA from a subset of violent felonious acts at arrest (adults and juveniles), all misdemeanor convictions from adults, a subset of misdemeanor convictions from juveniles, and all felony convictions (adults and juveniles). In addition, Wisconsin Act 20 prevents the Wisconsin State Crime Laboratory from processing an arrest DNA sample unless probable cause is established by the courts and requires destruction of an arrest DNA sample at one year if probable cause is not established.

2015	Total	Felony Convictions	Misdemeanor Convictions	Arrests	Errors	Non-Compliant
Count	24194	11344	6402	6448	6652	1231
Percent		47%	26%	26%	28%	5%

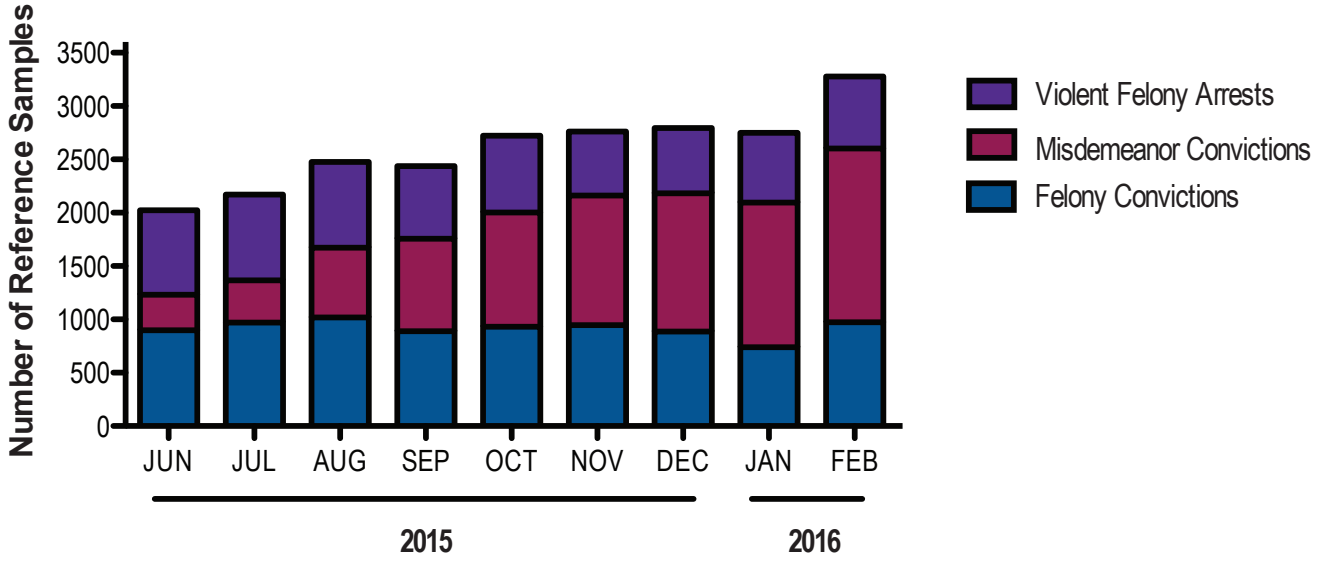
In 2015, the Wisconsin State Crime Laboratory received a little over 24,000 reference DNA samples. This is roughly a twofold increase from 2014. Of note, not all reference DNA samples received are statutorily eligible. As defined by the Wisconsin State Crime Laboratory a non-compliant DNA sample is a sample received from an individual who does not have a qualifying offense and therefore is not obligated. Non-compliant samples are unable to be processed by the DNA Databank and are returned to the collection agency with a letter documenting the error. Positively, the quantity of non-compliant samples submitted has decreased monthly as familiarity with Wisconsin Act 20 continues to increase.

DNA Databank Collection Forecast

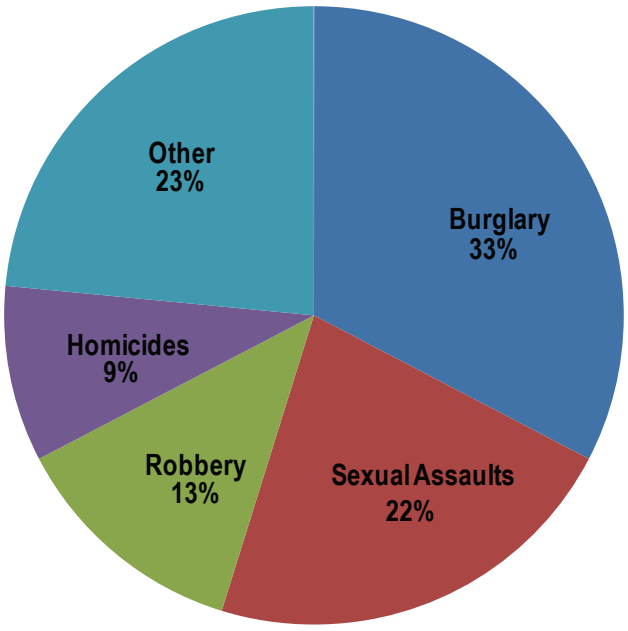
The number of reference DNA samples received monthly has steadily been increasing since July 2015. For January and February 2016, the Wisconsin State Crime Laboratory has already received a little over 6,000 reference DNA samples. This is almost a 1.5 fold increase from mid 2015 and if it continues we will receive approximately 36000 samples in 2016.

2016	Total	Felony Convictions	Misdemeanor Convictions	Arrests
Count	6027	1712	2985	1330
Percent		28%	50%	22%

In addition to an increase in reference DNA samples received, the proportion of qualifying offenses has been steadily shifting. Misdemeanors now account for almost 50% of the samples received. The shift in qualifying offenses is likely due, to a modification in legislation that occurred on April 7, 2015. This modification stated that a qualifying misdemeanor conviction must have an offense date on or after April 1, 2015. This change was significant for both law enforcement and the DNA Databank Unit and resulted in a large number of misdemeanor samples, from April until June, being returned to law enforcement agencies as non-compliant samples.



DNA Databank Growth and Hits (2015)

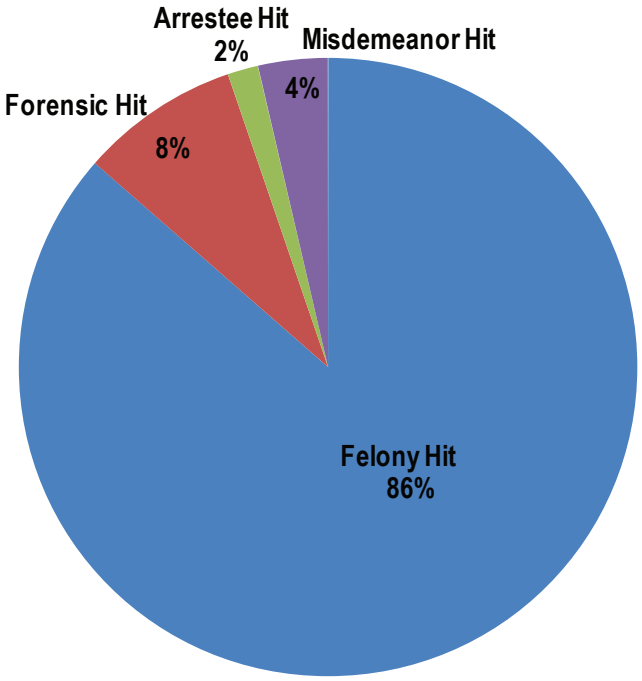


DNA Databank Hit Breakdown The types of hits reported out to law enforcement are manually tracked by the State CODIS Administrator and reported monthly to Administration. In 2015, there were a total of 684 hits to convicted offenders and arrests. This is 123 more hits than 2014 and likely tied to the increased number of profiles entered into CODIS. As shown to the left the case types involved in hits are relatively varied, however, 31% are high priority hits (Sexual Assaults and Homicides). The average turnaround time for a high priority hit is 3 business days. The other category includes Property Crimes as well as Attempted Homicides.

DNA Databank Growth and Hits (2015)

As of January 1, 2016 there were 14878 casework profiles, 198611 convicted offender profiles, and 681 arrest profiles in CODIS. The number of arrest profiles is significantly lower than the number received in 2015 (6448) because arrest samples cannot be processed and entered into CODIS until probable cause has been established. This process has proven very time consuming without the appropriate court notification and has significantly delayed the process. In 2016, now that a process has been established without the software, the number of arrest samples in CODIS should exponentially increase.

DNA Databank Hit Types: A majority of the hits in 2015 were still to individuals convicted of felonies. This stated, despite the low number of arrest samples in CODIS, there were still 10 arrestee hits in 2015. Only 40% of the arrestee hits provided investigative leads; the rest hit to arrestees already charged for the crime linked to that investigation or were the listed suspect. It is unclear at this time if this will continue to be the trend of if this will change as more arrest samples are entered into CODIS.



As per the National Conference and State Legislatures website, New York and Wisconsin are the only two states collecting for all misdemeanor convictions. As mentioned previously, Wisconsin statute §165.76(1)(as) has been interpreted to be operational. In other words, it was deemed that the legislative intent was to limit misdemeanor conviction collections for individuals in which the date of the offense had to have occurred on or after April 1st, 2015. Thus, the expected upload of qualified misdemeanor conviction did not pick up until the end of 2015.

In 2015, there were 25 hits to individuals convicted of a misdemeanor (this number is expected to increase exponentially as 13 of the hits were seen in December alone). Importantly, all of the misdemeanor hits provided investigative leads for felony casework. For example, one hit in to an offender collected for Possession of THC (Mis U-961.41(3g)(e)) provided an investigative lead for a burglary case from 2011. This demonstrates the potential importance of misdemeanor collections providing investigative leads in the state of Wisconsin.

DNA Databank Achievements and Challenges (2015)

While there were some challenges encountered, mainly software related, the DNA Databank Unit has successfully transitioned to the increase in samples and hits from Wisconsin Act 20 as well as movement to a new location in 2015. The next large hurdle will be destroying arrest samples beginning on April 1, 2016 that failed to have probable cause established. While there are a number of goals for 2016, a majority can be summed up with two statements: 1. Continue to reduce the cost to analyze a reference DNA sample. 2. Continue to reduce the amount of analyst and technician time required to obtain, analyze, and process a reference DNA sample.

To reduce the amount of analyst and technician time required to obtain, analyze, and process a reference DNA sample, the DNA Databank will focus heavily on two validations and several procedure modifications. First, the DNA Databank Unit will complete the expert system, the direct amplification, and the punch system validation. The first validation will allow automated interpretation of DNA profiles. The second and third validation will significantly reduce sample handling time and cost of analysis. In addition, the DNA Databank Unit will continue to suggest improvements in the functionality of the sample tracking portion of the Arrest Management System (ARMS). Finally, the DNA Databank will continue to improve their organizational structure to ensure samples are maintained better and are therefore easier to store as well as pull for re-analysis.