Arkansas State Crime Laboratory Annual Report - 2022

The Arkansas State Crime Laboratory, Department of Public Safety, is pleased to submit this Annual Report. Fiscal information is based on FY2022. Data on evidence submission, case completions, and other workload measures are for calendar year 2022. This report also provides updates on significant achievements and internal improvements that focus on quality, efficiency and transparency of analysis.

Kermit B. Channell, II
Director

Cindy Moran
Deputy Director

Executive Summary

The Arkansas State Crime Laboratory was created in 1977 by Act 517. The laboratory was placed in the Department of Public Safety by Act 864 of 1979. This action was reversed by Act 45 of 1981, which made the laboratory an independent agency. In April 1981, the laboratory began moving into its current location at #3 Natural Resources Drive in Little Rock. At that time, the agency shared the building with the Arkansas State Police, occupying approximately 26,000 square feet on the third floor and the basement. In April 1997, State Police moved to their new facility, and the Crime Laboratory began remodeling the building at #3 Natural Resources Drive allowing itself to occupy 80,000 square feet. In 2019, the Arkansas State Crime Laboratory was placed under the Department of Public Safety by the Transformation and Efficiencies Act (Act 910 of 2019).

The Arkansas State Crime Laboratory is led by a Director who is appointed by the Governor of Arkansas and reports to the Secretary of the Department of Public Safety. The Governor appoints the Crime Laboratory Board which consists of the following individuals who serve for a term of (7) seven years.

- One member of the active judiciary;
- One practicing member of the legal profession;
- One active county sheriff;
- One active chief of police;
- One active prosecuting attorney;
- Two physicians engaged in the active practice of private or academic medicine; and
- One member at large from the state.

The laboratory does not charge any law enforcement agency for analysis of evidence submitted or for testimony in criminal court. The agency can charge specific fees for testimony of its analyst in civil courts. The Crime Laboratory only accepts evidence from those agencies having law enforcement responsibilities.

Little Rock Laboratory- Currently the only fully functional forensic laboratory in the state. Services include Physical Evidence, DNA and DNA Databasing (CODIS), Firearms/Toolmarks, Forensic Chemistry, Latent Prints, Toxicology, and Forensic Pathology. Digital Evidence analysis is conducted at the Arkansas State Police Headquarters in Southwest Little Rock, Troop A. The laboratory accepts evidence from investigations originating anywhere in Arkansas, both state and federal.

Hope Regional Laboratory- Arkansas opened its first regional crime laboratory on April 12th, 2004 in Hope. The laboratory currently serves as an intake point for all evidence submitted from the southern region of the state allowing law enforcement officers to remain in their communities. The facility, located on the campus of the University of Arkansas Hope-Texarkana, consists of approximately 2,200 square feet of administrative, evidence storage, and laboratory areas.

Lowell Regional Laboratory- The Lowell Regional Laboratory is located at the Arkansas State Police Troop L Headquarters. This laboratory offers testing for cases involving suspected controlled substances. . This laboratory, consisting of approximately 10,000 square feet, was officially opened for case submissions October 1, 2019.

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Mission, Vision and Core Values

CORE VALUES

Quality	Excellence, getting it right the first time, consistent performance, continuous improvement, taking pride in one's work
Teamwork	Having a common vision, ensuring cohesiveness, assisting one another, supporting other sections, putting others interests first and making decisions based on what is best for the laboratory
Safety	Providing a safe work environment and educating employees on safety practices
Clear Communication:	Communicate often, promptly, professionally and in person when appropriate
Accountability:	Holding oneself and others responsible for productive and ethical behavior
Professional Development:	Growing and engaging employees through training, mentoring, and providing leadership opportunities

Quality (Accreditation and Certification)

To “accredit” means to recognize an agency or institution as conforming to a body of standards related to a specific discipline. Accreditation is a way for an institution to objectively demonstrate, by the evaluation of an external accrediting body, that it meets (or exceeds) these standards.

ANAB (ANSI National Accreditation Board) is a non-governmental organization that provides accreditation services to public and private sector organizations. ANAB provides accreditation for ISO/IEC 17025 testing, calibration, and forensics laboratories.

On December 13, 2004, the ASCL became an accredited laboratory through the American Society of Crime Laboratory Directors/Lab Accreditation Board (ASCLD/LAB) Legacy Program.

On July 10, 2014, the ASCL received accreditation through the ASCLD/LAB-International program. This program is based on the ISO/IEC 17025 standards for the competence of testing laboratories, with supplemental requirements based on the needs of the forensic science discipline.

In April 2016, ASCLD/LAB merged into ANAB, which is now the accrediting body for the ASCL.

In order to maintain its accreditation, the laboratory undergoes a full on-site assessment by a team of assessors every four years, with annual assessment activities to evaluate and confirm ongoing conformance. The most recent full on-site assessment occurred in April 2022.

Accreditation is just one component of the ASCL’s quality assurance program. Our program also includes proficiency testing, continuing education, and other programs to help the laboratory provide better service to the criminal justice system and demonstrate that our laboratory meets the highest standards of the forensic science discipline.

The Medical Examiner’s Section was first accredited by the National Association of Medical Examiners (NAME) in 1976; the most recent period of accreditation began August 15, 2015, and the ASCL continues to maintain this accreditation. NAME is the premier professional organization for medical examiners, forensic pathologists, and medicolegal affiliates and administrators.

Fiscal Resources

The ASCL is funded through general revenue, federal funding and other special revenue as specified in Table 1. Federal funding is received directly through the Department of Justice and in directly as a sub-grantee through Arkansas State Police and the Arkansas Department of Health (Table 3). Salaries and benefits account for 79% of the general revenue budget. The ASCL pays approximately $900,000 for rent of the current facility in Little Rock.

Table 1 Appropriation Summary FY2022

Source	Authorized Appropriation	Funding
498 General Revenue	$13,609,936.00	$13,781,731.00
1ED Federal Funding	$3,759,787.00	$3,658,736.00
788 DNA Special	$1,902,270.00	$1,710,925.00
1VM Asset Forfeiture	$1,000,000.00	$661,145.00

Table 2 General Revenue Appropriation Itemization

Source	Authorized
Regular Salaries	$8,274,739.00
Personal Service Matching	$2,625,684.00
# Positions	139
Operating Expenses	$1,997,998.00
Conference & Travel	$55,000.00
Professional Fees	$66,515.00
Capital Outlay	$515,000.00
Student Loan Incentive Program	$75,000.00
Total	$13,609,936.00

Table 3 Federal Funding Itemization

Source	Program	Funding
Department of Justice	DNA Capacity Enhancement Backlog Reduction (CEBR)	$1,530,126.00
Department of Justice	Paul Coverdell Forensic Science Improvement Grants Program	$264,850.00
Arkansas State Police	Fatality Analysis Reporting System (FARS)	$335,000.00
Arkansas Department of Health	CDC Overdose Data to Action Program	$154,744.00

^^Federal fiscal year (Oct 1 – Sept 30)

1 ED Federal Funding

This appropriation is funded by grants from the United States Department of Justice. These are utilized to purchase scientific equipment, supplies, training and allows for funding to contract out forensic casework if necessary. It is also noted that this federal funding supports the salary for 7 forensic scientists.

788 DNA Special

This appropriation provides for operating expenses to support the DNA database, as authorized by Act 1470 of 2003, the 'State Convicted Offender Database Act', which is codified at A.C.A. §12-12-1101 et seq. Funding for this appropriation is Special Revenue generated by a mandatory fine of no less than $250 for persons required to submit to a DNA sample under the provision of this legislation.

1VM Asset Forfeiture

This appropriation is funded by Special Revenue generated from forfeitures of funds and property derived through court proceedings in cases involving the illegal manufacture and/or distribution of narcotics. The ASCL receives 20% of all forfeitures over the first $20,000 of forfeitures per county, per year. This appropriation is utilized to purchase equipment and is used to supplement the rent of the ASCL facility.

Case Submissions

In calendar year 2022, the ASCL received 26,471 cases, which comprised 33,773 requests. This is lower when compared with cases and requests received in 2021 (Figure 1).

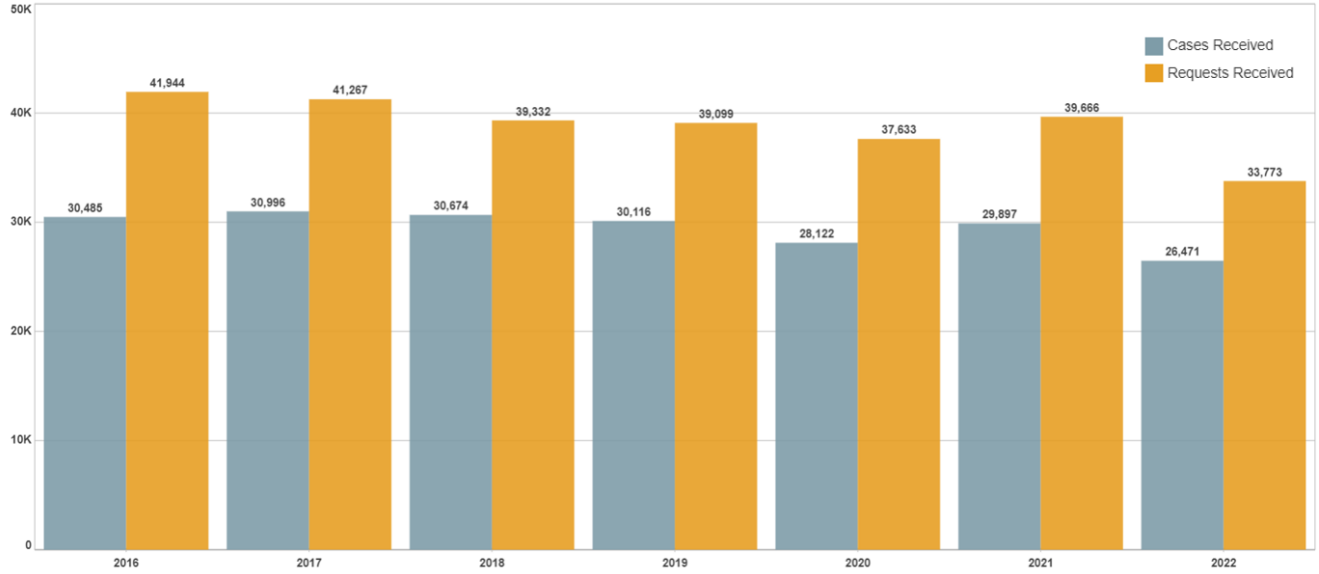


Figure 1 Cases/Requests received for analysis, 2017-2022

Note: A case can have several requests (e.g. homicide case can have a Firearms, DNA, Physical Evidence, Latent Print, requests).

Evidence Receiving Secure Storage

Submissions by Forensic Disciplines and Lab Location

In 2022 the ASCL received the following requests which are broken down by forensic discipline and laboratory location. As shown in Figure 2, 62% of requests received system wide is for seized drug analysis.

Table 4 Cases Received by Discipline, 2022

Disciplines	Little Rock	Lowell	Totals
Forensic Chemistry	13,072	5,490	18,562
Toxicology	5,056		
Physical Evidence	1,254		
DNA	1,541		
Firearms/Toolmarks	1,100		
Latent Prints	974		
Digital Evidence	76		
Database Samples			
CODIS	12,221		
Firearms - NIBIN	1,421		

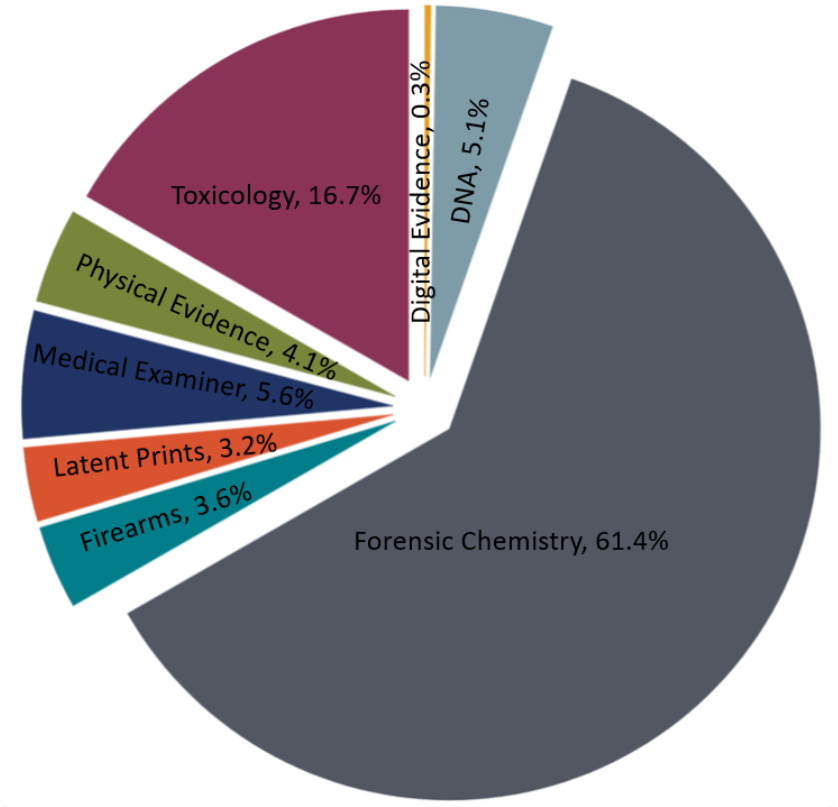


Figure 2 Requests for Analysis by Discipline, 2022

Medical Examiner Caseload

The ASCL Medical Examiner's Office conducts forensic examinations for all 75 counties, as deemed necessary, and may be requested by the county Coroner, elected Prosecuting Attorney and law enforcement (AR 12-12-318). The number of forensic examinations drastically increased (19%) in 2021, with drug overdose deaths on the rise (Table 5). It should be noted that case submissions to the ASCL for autopsy are at the discretion of the county Coroner. Statewide drug overdose statistics from 2021indicate that the ASCL receives approximately 89% of all drug overdose death cases.

Table 5 Medical Examiner Examinations, 2016-2022

Year	Cause: Drug Overdose	Manner: Homicide	Total
2016	207	270	1,445
2017	285	300	1,562
2018	322	285	1,504
2019	263	288	1,448
2020	329	387	1,429
2021	495	349	1,703
2022*	365	339	1680

*159 Autopsy reports are pending

Table 6 summarizes the cause and manner of death for the forensic examinations conducted in 2022. NAME accreditation standards require that 90% of autopsy reports are completed within 90 days. Because of staffing issues in both the Medical Examiner and Toxicology sections, the ASCL completed 63% of autopsy reports within 90 days and 37% within 60 days (for autopsy reports completed January-July 2022).

Table 6 Medical Examiner Examination Summary, by Cause and Manner, 2022

	Total By Cause	Accident	Homicide	Natural	Suicide	Undetermined
Total by Manner	1680*	625	337	291	130	129
Alcohol	11	9	0	2	0	0
Asphyxia	23	18	1	0	4	0
Blunt Force	133	103	21	0	2	7
Burns	4	3	0	0	0	1
Carbon Monoxide	57	40	2	0	2	12
Disease	325	25	25	288	0	6
Drowning	38	34	1	0	3	0
Drug Overdose	395	367	1	0	19	8
Electrocution	1	1	0	0	0	0

Exposure (Hyperthermia)	13	12	0	0	0	1
Gunshot Wound(s)	363	6	276	0	68	10
Hanging	25	0	0	0	25	0
Other	10	7	1	0	0	1
Shotgun Wound(s)	13	0	9	0	4	0
SIDs	42	0	0	0	0	42
Stabbing	20	0	16	0	3	1
Stillborn	3	0	0	3	0	0
Strangulation	3	0	3	0	0	0
Undetermined	41	0	1	0	0	40

*159 Autopsy reports pending

Case Submissions by County

Figure 3 represents areas in which cases submitted to the laboratory are most prevalent. Central and northwest regions of the state submit a higher caseload. Benton and Washington counties are in the High Intensity Drug Trafficking Area (HIDTA) and reflect the necessity for the new Lowell Regional Laboratory.

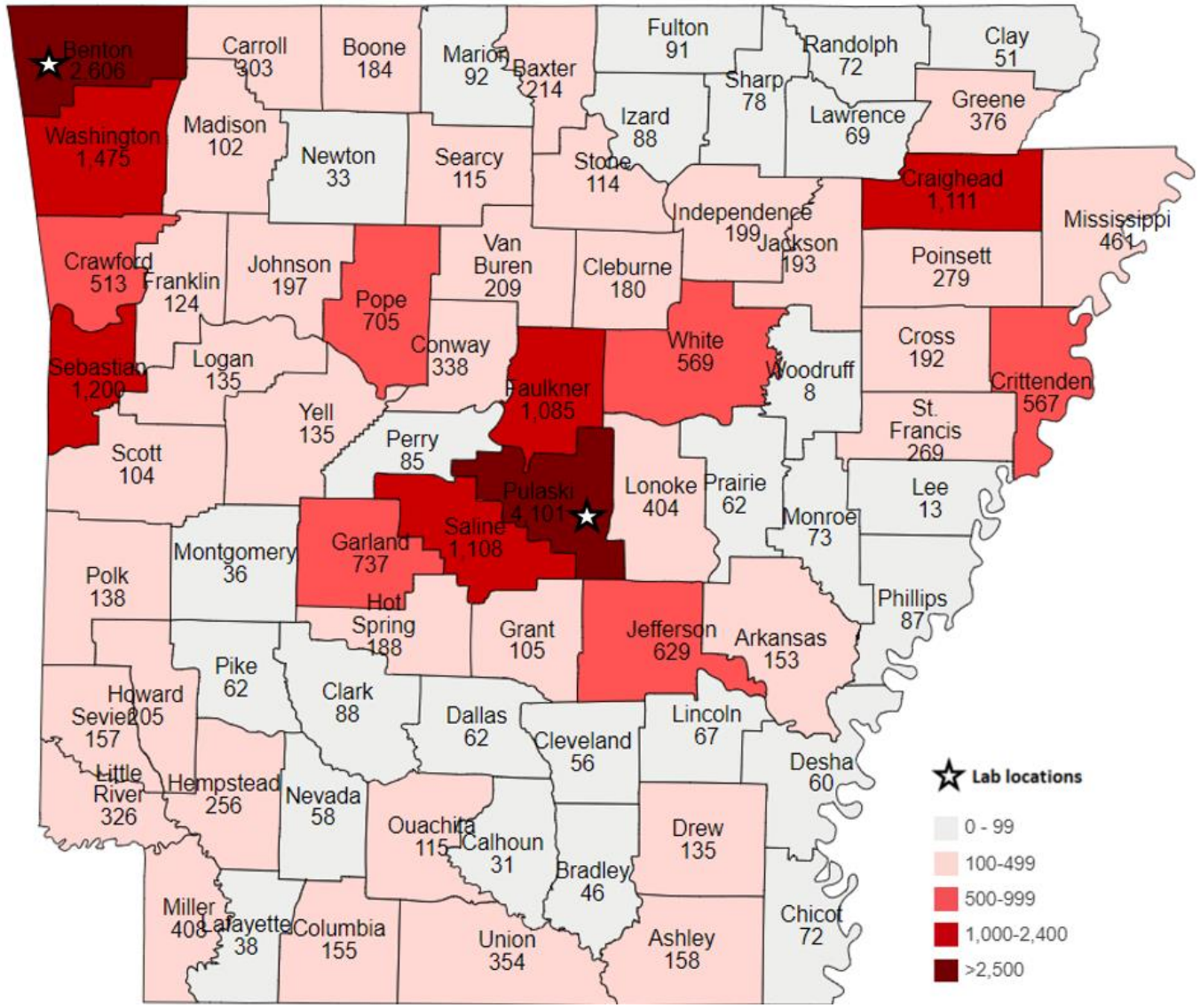


Figure 3 Requests for Analysis by County, 2022

Case Completions and Turn-Around Times

Table 7 Case Completions by Discipline and Location, 2022

Disciplines	Little Rock	Lowell	Totals
Forensic Chemistry	11,100	3,299	14,399
Toxicology	5,327		
Physical Evidence	1,476		
DNA	1,092		
Firearms/Toolmarks	453		
Latent Prints	938		
Digital Evidence	60		

Table 8 Turn-Around Times by Discipline and Location, 2022

Disciplines	December 2021	December 2022
Forensic Chemistry – Little Rock	4 months	6 months
Forensic Chemistry - Lowell	5 months	6 months
Toxicology – Law Enforcement (DUI/DWI)	3 months	60 days
Toxicology – Coroner	60 days	50 days
Toxicology – Medical Examiner	60 days	60 days
Physical Evidence – Sexual Assault	3 months	3 months
Physical Evidence – Homicide	<30 days	60 days
Physical Evidence – Battery	12 months	8 months
DNA – Sexual Assault	7 months	7 months
DNA - Homicide	8 months	10 months
DNA – Property/Other	2 years	3 years
Firearms/Toolmarks - Homicide	10 months	10 months
Firearms/Toolmarks – Other	2 years	3 years
Latent Prints - Homicides	<30 dats	30 days
Latent Prints - Other	60 days	60 days
Digital Evidence – Mobile Devices	14 months	14 months
Digital Evidence – Computers	18 months	15 months

Outsourcing of Property Crimes

According to a study funded by the National Institute of Justice[1], when DNA is collected and analyzed for property crime investigations, the following observations were made:

- More than twice as many suspects were identified
- Twice as many suspects were arrested
- More than twice as many cases were accepted for prosecution

This study also found that suspects were five times more likely to be identified through DNA evidence than through fingerprints.

Criminal justice experts have long known that those who commit property crime have high recidivism rates; the types of crimes they perpetrate—including the level of violence used—can escalate; and property crime cases frequently go unsolved. The Bureau of Justice Statistics estimates the average (mean) property loss from a household burglary in 2005 was approximately $1,500. Burglars often offend at high-rates and the total cost from their crimes may be many times this amount. Therefore, arresting burglars using DNA as part of the criminal investigation—burglars who otherwise would not be caught and brought to justice—has the potential to **prevent future property and other crimes**.

Understanding the importance of utilizing DNA analysis in property crimes investigations while still keeping focus on homicide and sexual assault cases, the ASCL has utilized federal funding through the DNA Capacity Enhancement for Backlog Reduction (CEBR) Program to contract property casework to private vendor laboratories.

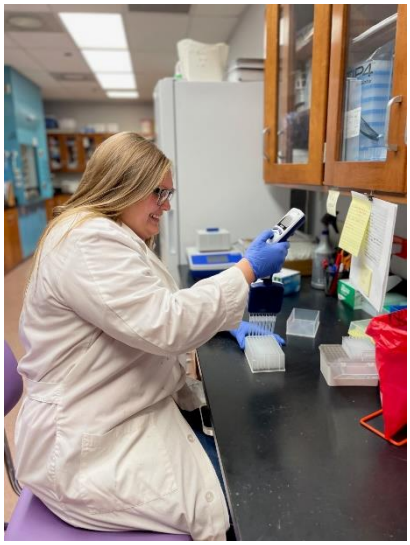
1,144 property crime cases have been outsourced (2019: 333; 2020: 524; 2021:161; 2022:126). From the results of this testing, 700 developed a usable DNA profile (61%) for entry into the CODIS DNA database. From those entries, there were 485 CODIS hits (69%).

2022 Success of Outsourcing Property Crime Cases

- 90% of cases outsourced produced a useable profile to enter into CODIS (114 profiles).
- Of these profiles, 82% resulted in a CODIS hit (94 hits).
- 75% of these property cases (majority of these are when no suspect was identified by law enforcement) resulted in a CODIS hit identifying a suspect.

[1] DNA Solves Property Crimes (But Are We Ready for That?) | National Institute of Justice (ojp.gov)

Human Capital



Human capital is an intangible asset that the ASCL strives to protect. Our employees are the laboratory's greatest asset and what makes the laboratory successful. In 2013, the ASCL became a Lean Six Sigma laboratory that strives for continuous improvement. Part of this culture is to 'manage' from the bottom. ASCL employees who perform the work are the experts that Administration engages to make significant improvements to the laboratory's processes. The ASCL currently has appropriation for 151 positions, 7 of which are paid from federal grant funds.

One of the goals of the laboratory is to have an 'employee centered' culture where employees are passionate and engaged in their career. To help gage the success or make improvements to the laboratory's culture, it is important to review and understand why scientists leave. Maintaining a low turn-over rate is essential to the success of a forensic laboratory because the training period for a new analyst can be up to 1.5 years. Table 9 demonstrates the number of analyst vacancies over the last 5 years, as well as the reason. In the situations in which an analyst left for other employment, 88% were receiving a higher salary at their new employment.

Table 9 Employee Retention/Attrition, 2018-2022

Reason for Leaving	2018	2019	2020	2021	2022	TOTAL	%
Other non-forensic employment	0	1	3	2	10	16	**35%**
Other forensic employment - Public	3	1	3	3	1	11	**24%**
In-Voluntary Dismissal	2	1	1	0	1	5	**11%**
Higher Education	3	0	1	1	1	6	**13%**
Personal- Family	1	0	0	1	3	5	**11%**
Other forensic employment - Private	0	0	2	0	0	2	**4%**
Unknown	0	0	0	1	0	1	**2%**
TOTAL VACANCIES	**9**	**3**	**10**	**8**	**16**	**46**	
Retention Rate (80 FTE's)	**89%**	**96%**	**86%**	**90%**	80%		

Laboratory Facility

Facility & Needs Assessment – Feasibility Study

The *Justice for All Reauthorization Act* of 2016 (JFARA) mandated a needs assessment of forensic laboratories, which included an examination of workload, backlog, personnel, and equipment needs for both public crime laboratories and Medical Examiner and Coroner (ME/C) offices.

As indicated in the *Report to Congress - Needs Assessment of Forensic Laboratories and Medical Examiner/Coroner Offices*[2], one of the challenges for laboratories is the physical capacity and infrastructure of their existing facilities. These facilities are maximized and most are outdated.

In order to sufficiently address the increase in demand for and complexity of forensic services and the lack of physical space at the ASCL, a Facility Assessment and Needs Analysis (Feasibility Study) was conducted by the SmithGroup in collaboration with Polk Stanley Wilcox, and Bernhard Engineering. The Feasibility Study published report contains the below analysis and can be obtained from the ASCL.

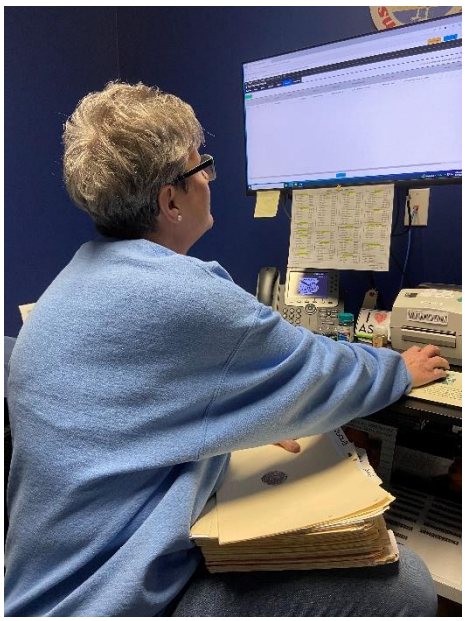
ANALYSIS

- Existing Facility Analysis
- Architecture & Planning
- Mechanical & Plumbing
- Electrical System
- Site Criteria
- Site Infrastructure Criteria
- Staffing & Investigative Projections

[2] https://www.justice.gov/olp/page/1228306/download

Project FORESIGHT

The ASCL participates in a program called Foresight, which is a business quantitative process tailored to forensic laboratories. The program, hosted at West Virginia University, allows the ASCL to evaluate its performance against other forensic laboratories (186 participants) across the globe. For the past three years (2018 - 2020), the ASCL was recognized as one of fourteen forensic laboratories in the world as a top performing laboratory based on the Foresight business metric. This Foresight Maximus award was presented to the ASCL for operating at 90% or better of peak efficiency. The tables below demonstrate how the ASCL performs relevant to other laboratories across the globe.



Demand for Services

Table 10 demonstrates that the ASCL receives more cases per capita when compared to the median in the areas of DNA Database (CODIS), Drugs, Fire Analysis (Arson), Firearms and Ballistics, Toxicology ante-mortem and post-mortem and Trace (GSR, hair suitability), 123%, 165%, 89% and 53%, 31%, 143% respectively. In fact, both DNA Database, Drugs and Fire analysis receive more cases than the highest 25% receiving laboratories.

Table 10 Cases Received per 100,000 population

Cases per 100,000 population	Arkansas	25th Percentile	Median	75th Percentile
Digital Evidence	6.24	1.39	5.28	37.80
DNA Casework	87.83	51.82	87.82	146.31
DNA Database	391.33	24.72	137.05	272.46
Drugs	720.80	156.36	235.12	368.66
Fingerprints	36.59	24.66	31.67	81.90
Fire analysis	7.54	2.29	3.18	4.80
Firearms and Ballistics	42.01	14.82	34.13	45.61
Serology/Biology	50.41	22.82	39.92	69.33
Toxicology ante mortem	95.37	42.92	65.33	116.01
Toxicology post mortem	80.29	48.05	67.53	131.80
Trace Evidence	4.08	0.73	1.51	2.33

Laboratory Productivity

Table 11 represents the requests completed and laboratory reports generated per capita. In the areas of Drugs, Fire Analysis, Serology, Toxicology (ante and post-mortem) and Trace Evidence, the ASCL completes more reports than the median.

Table 11 ASCL Laboratory Reports Issued per 100,000 population

Reports Issued per 100,000 population	Arkansas	25th Percentile	Median	75th Percentile
Digital Evidence	3.02	1.38	5.75	46.05
DNA Casework	82.05	43.40	82.75	132.45
Drugs	614.74	165.00	224.89	351.63
Fingerprints	35.13	20.54	31.77	83.14
Fire analysis	7.34	2.21	2.82	4.90
Firearms and Ballistics	15.71	15.81	19.65	47.55
Serology / Biology	50.27	19.03	32.95	49.09
Toxicology ante mortem	89.26	32.12	54.21	68.89
Toxicology post mortem	69.07	48.70	68.29	78.43
Trace Evidence	3.89	0.51	1.48	2.33

Laboratory Efficiency

Table 12 represents the time it takes to complete a report from the submission of evidence (turn-around time). In the areas of Digital Evidence, Fingerprints, Serology, Toxicology (ante and post-mortem) and Trace Evidence, the ASCL is analyzing and completing reports more timely than the median.

Table 12 Turn-around Time per Investigative Area

Area of Investigation	Arkansas	25th Percentile	Median	75th Percentile
Digital Evidence	166	24	75	149
DNA Casework	119	103	133	152
Drugs	88	57	70	86
Fingerprints	53	54	69	82
Firearms and Ballistics	143	56	72	85
Serology/Biology	49	54	65	80
Forensic Pathology	72	56	62	67
Toxicology ante mortem	47	51	66	77
Toxicology post mortem	42	67	81	90
Trace Evidence	36	168	204	242

Table 13 represents the number of cases completed for each full-time equivalent (FTE) employee (the work input of a full-time employee working for one full year) retained by the laboratory. This information indicates the level of productivity within the average laboratory by investigative area. It demonstrates that the ASCL completes more cases per FTE when compared to the median in all sections with the exception of DNA Casework and Database. In the areas of Digital Evidence, Fire analysis, Toxicology (ante and post-mortem) and Trace Evidence more cases are completed per FTE than the highest 25% laboratories. In summary, this demonstrates that the ASCL is extremely efficient in case processing.

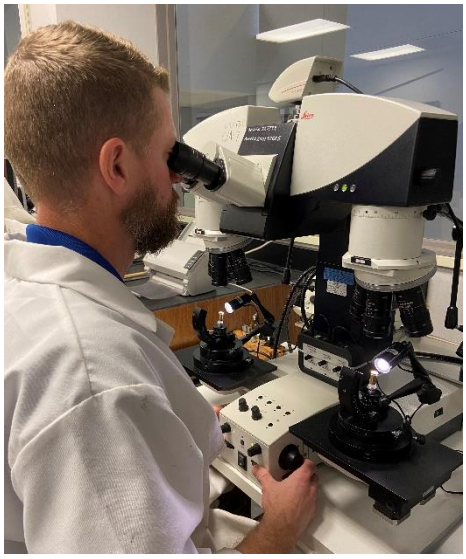


Table 13 Cases Completed per Full Time Examiner (FTE)

Area of Investigation	Arkansas	25th Percentile	Median	75th Percentile
Digital Evidence	132	23	40	61
DNA Casework	98	74	99	133
DNA Database	1,657	1,219	2,522	3,653
Drugs	477	296	352	477
Fingerprints	155	94	132	174
Fire analysis	212	29	54	89
Firearms and Ballistics	127	45	64	113
Serology/Biology	126	57	113	145
Toxicology ante mortem	391	133	168	255
Toxicology post mortem	391	114	139	177
Trace Evidence	115	29	35	38

Court Testimony and Judicial Efficiencies

All employees are subject to testify in criminal cases in local, state and federal court throughout Arkansas. Table 14 compares the court activity in 2019-2022. The COVID-19 pandemic resulted in many courts closing, decreasing overall court time and miles driven in 2020. Court time increased back to levels in 2019. Use of video testimony as an alternate method is still under-utilized.

Table 14 Court Time, 2019-2022

Year	Confirmed Subpoenas*	Testified	Video Testimony	Testimony Time (hours)	Waiting Time (hours)	Travel Time (hours)	Total Time (hours)	Total Miles
2019	316	188	6	77	738	1,134	1,949	24,425
2020	218	144	17	57	300	304	661	12,705
2021	379	188	11	90	612	954	1,656	32,841
2022	531	269	10	120	456	1,880	2,000	30,694

*The individual was confirmed and spent time for court purposes (e.g. driving, waiting, and testifying).

Significant Challenges

Sexual Assault Kit Backlog

Act 839 of 2019 requires that all sexual assault kits (SAK) be collected, tracked and tested by the laboratory within **60 days** of receipt. The ability of the laboratory to complete testing within 60 days depends of the following factors:

a. The number of sexual assault kits that the laboratory receives;
b. The technology and improved testing methods available;
c. The establishment of a fully trained and dedicated staff to meet the caseload; and
d. The number of lab requests related to other crime categories.

Despite being one of the most efficient laboratories in the country as well as implementing more efficient and streamlined policy and procedures for the processing of SAKs, the ASCL is not meeting this 60 day turnaround time requirement. This is due in large part to losing six (6) DNA Analysts since July 2019 – 2021. Due to the 12 month training period required for a new DNA Analyst, the backlog of sexual assault kits significantly increased.

In order to reduce the sexual assault backlog, the legislature approved 5 new DNA Analysts positions as well as adding an additional $600,000.00 to the ASCL's general revenue which was provided by the Governor's Office.

Opioid Epidemic

The opioid epidemic has had a significant impact on the ASCL, specifically in the Forensic Chemistry, Toxicology and Medical Examiner's section. The Medical Examiner's section conducted a record number of autopsies in 2021, due in large part to the large increase in drug overdose deaths: 147 from 2020 to 2021 (Figure 4).

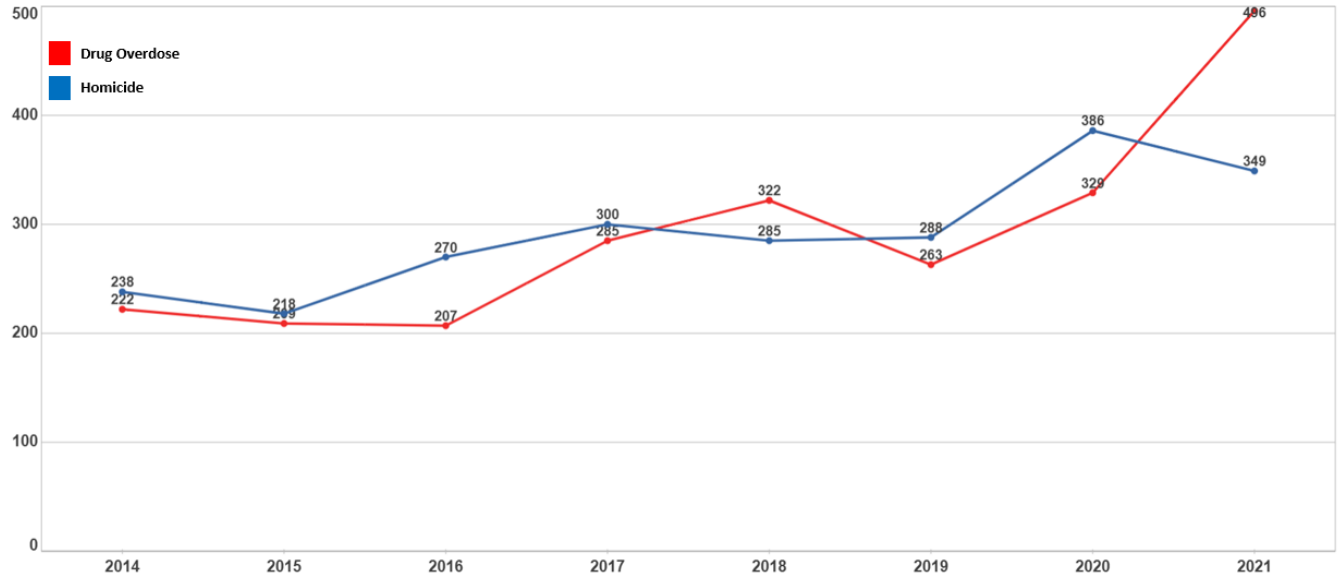


Figure 4 Drug Overdoses versus Homicides from autopsies conducted at ASCL, 2014-2022

Fentanyl was present in 57% of drug overdose cases which is a staggering statistic. Figure 5 indicates the drugs present in overdose deaths. Methamphetamine is also a major contributor to overdose deaths. It is not uncommon to see multiple drugs present in an individual and there seems to be an increased trend in methamphetamine and fentanyl combinations.

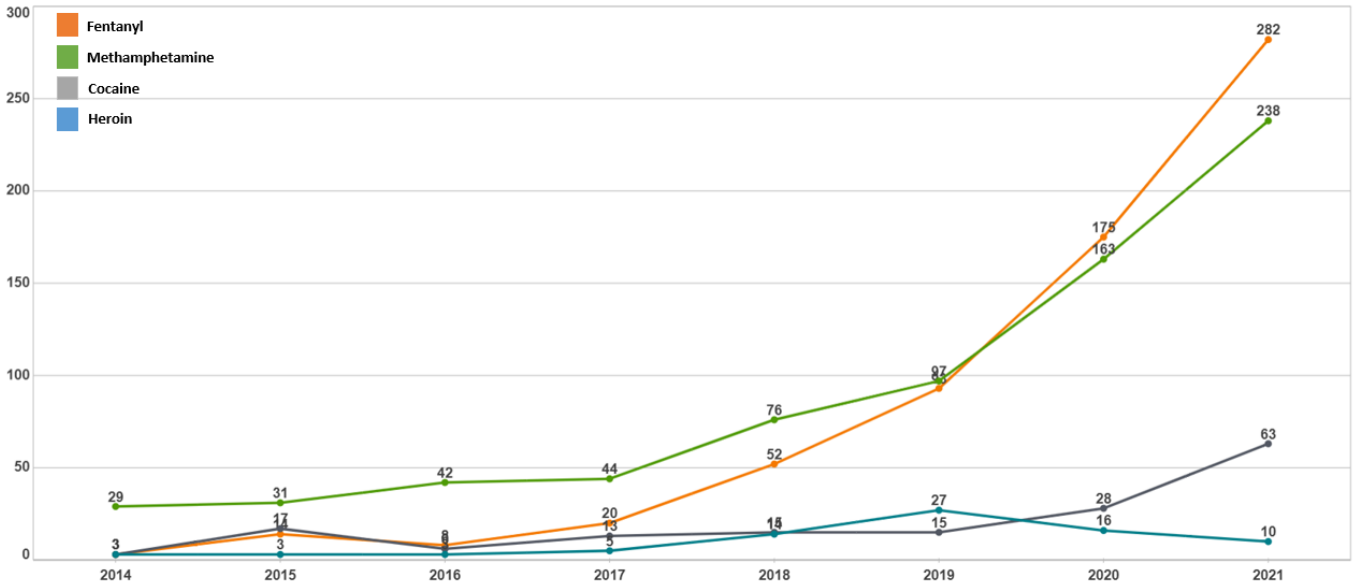


Figure 5 Drug types in drug overdoses from autopsies conducted at ASCL, 2004-2021

New Initiatives

Rapid DNA Task Force

Rapid DNA, or Rapid DNA analysis, is a term used to describe the fully automated (hands free) process of developing a DNA profile from a reference sample buccal (cheek) swab without human intervention. The goal of the FBI's Rapid DNA initiative is to link FBI approved commercial instruments capable of producing a CODIS core loci DNA profile within two hours to the existing CODIS infrastructure in order to search unsolved crimes of special concern while a qualifying arrestee is in police custody during the booking process.

A State Rapid DNA Technology, Public Safety, and Privacy Improvement Task Force was assembled consisting of members from the following organizations: Arkansas State Crime Laboratory; Arkansas State Police; Arkansas Crime Information Center; Arkansas Chiefs of Police; and the Arkansas Sheriff's Association; and representatives from both the Senate and House. Each member organization serving on the task force has the core mission to enhance the safety and security of all Arkansans. As new forensic technologies and tools become available to the State of Arkansas, such as Rapid DNA Technology, our partners in the criminal justice system will evaluate its efficacy of use.

The goal of the Task Force was to determining if rapid DNA technology would be beneficial to the State of Arkansas and if determined beneficial, the Task Force would make recommendations. The summary of those recommendations are as follows:

Recommendations of the Task Force

1. ***The development and use of rapid DNA technology at booking stations in the identification of offenders:***

The process of determining if a DNA sample is required occurs within the software workflow while the 10-finger enrollment on the AFIS Livescans is performed. Once the two index fingers are electronically captured, an identification process will check the computerized criminal history (CCH) to verify whether DNA needs to be collected from the arrestee. If DNA sample is required, the booking officer will be prompted to collect a sample. This workflow change will include the formatting and placing of the appropriate file for processing and retrieval by the Rapid DNA system.

This workflow change will require that all individuals arrested on a qualifying offense provide and DNA sample at time of booking. If the sample is not collected, the booking process will not allow the booking process to continue. This workflow change will be made on all ASP owned Livescan systems regardless of Rapid DNA use, which will force compliance with collecting arrestee sample throughout the state.

This critical improvement to the IDEMIA LiveScan will ensure that these arrestee individuals are collected give law enforcement the ability to solve cases throughout the state and nation.

The Task Force recommends the development and use of rapid DNA technology at booking stations utilizing the AFIS Livescans.

2. *The development and use of rapid DNA technology for investigative lead testing in local criminal investigation and the potential impact on the reduction at the State Crime Laboratory:*

The FBI has approved the use of Rapid DNA at booking stations if all federal guideline/requirements are met. The DNA profiles obtained, by approved booking stations utilizing Rapid DNA will be available for upload and/or searching in the Combined DNA Index System (CODIS).

For purposes of uploading and/or searching, Rapid DNA systems are not authorized for use on crime scene samples. The analysis of forensic samples by a Rapid DNA system is not compliant with the FBI Director's Quality Assurance Standards (QAS) for Forensic DNA Testing Laboratories and therefore is not permitted to be uploaded and/or searched in CODIS at this time.

The Task Force recommend the use of Rapid DNA at approved booking stations for the collection of arrestee samples. Rapid DNA is not recommended for use at this time for crime scene analysis.

3. *The potential of rapid DNA technology to provide quick identification of discovered human remains in order to provide answers (identification of human remains or decedents) during times of disaster response:*

Rapid DNA technology is a useful tool in the quick identification of discovered human remains that are associated with mass casualty events. In a mass casualty event, the potential number of disassociated body parts that would require identification could quickly overwhelm the laboratory. In such instances, the Arkansas Mass Fatality Plan (MFP) directed by the Arkansas Health Department would take lead and resources such as Rapid DNA instrumentation could potentially requested.

The ASCL's Medical Examiner's section during their normal course of business, identify human remains and unidentified individuals using traditional DNA typing, fingerprint comparisons, dental, as well as other information provided by law enforcement and coroner's offices. This process is generally completed within a two week period and would not require Rapid DNA technology.

The Task Force does not recommend at this time the implementation of Rapid DNA for the purposes of mass disaster and body identification.

Cost Associated with the Implementation of Rapid DNA at two selected booking stations:

Rapid DNA Cost Projections				
Item	**Quantity**	**Cost**	**Total Cost**	Re-Occuring Annual Cost
IDEMIA Workflow Setup and Optimization	1	$ 300,000.00	$ 300,000.00	No
CODIS Analysts	2	$ 130,000.00	$ 260,000.00	Yes
Rapid ID Jump Start Package	2	$ 184,730.00	$ 369,460.00	No
Arrestee Swab Kit	160	$ 5,678.00	$ 908,480.00	Yes
Cartridges For Rapid Instuments	40	$ 8,298.00	$ 331,920.00	Yes
Service Contract	2	$ 15,000.00	$ 30,000.00	Yes
		TOTAL	$ 2,199,860.00	

Rapid DNA

Rapid DNA - Identify arrestees wanted in connection with a crime while still in custody to prevent future crimes and exonerate the innocent.

Arkansas State Rapid DNA Technology Task Force

- Determine if rapid DNA technology is beneficial to the State of Arkansas.

ASCL
CODIS Administrator
ASP
ACIC
AACP
ASA
Senator
Representative

Pilot Program
- Saline Co. So.
- Faulkner Co. So.

National Sexual Assault Kit Initiative (SAKI)

The Arkansas State Crime Laboratory (ASCL), through the Department of Public Safety was awarded the *FY 2022 National Sexual Assault Kit Initiative grant.* The purpose of this grant is to expand the states DNA database to assist with sexual assault investigations. This will be accomplished by collecting 'lawfully owed' DNA samples from individuals who have been convicted and/or arrested on felony offenses that have not been previously collected. Once collected the DNA samples will be processed and uploaded into the Combined DNA Index System (CODIS) at the Arkansas State Crime Laboratory.

The ASCL CODIS Section is responsible for receiving, analyzing, and verifying eligibility requirements of samples from convicted offenders and arrestees as enumerated in ACT 974 of 2009. This includes AFIS verification of fingerprints on the DNA database cards, entering and storing DNA profiles into the CODIS database, and monitoring and enabling access to that database. ASCL also provides education and training to staff of the AR Department of Correction (ADC) as well as local jail staff regarding the appropriate collection for the DNA samples.

Goal: Expand the DNA database by collecting Lawfully Owed DNA

Census conducted in 2022 identified: 42,000 individuals who have not been collected; 2,800 of these individuals are under state supervision (Incarcerated or on active probation and parole – and have a *high likelihood of being linked to cases associated with sexual assaults*.

The ASCL will establish a SAKI Convicted Person's DNA Collection Coordinator; select a Task Force comprised of DPS Divisions including Sheriff's and Chiefs of Police; and implement a plan to collect those on active probation and parole.

Conclusion

The ASCL has worked diligently since 2013 to ensure that we continue to utilize the tools of Lean Six Sigma to promote an employee centered culture that focuses on continuous improvement, efficiency, quality and teamwork. The Foresight data detailed in this report demonstrates the success that Lean Six Sigma has created in making these improvements.

Arkansas, like many states, is facing continual challenges such as the opioid crisis, the demand for timely services, advancements in forensic science and technology and the necessary infrastructure needed to support them.

Challenges that continue to face all forensic laboratories, as assessed by the National Institute of Justice:

- Collaboration and communication impairment – Better coordination is needed to enhance evidence collection and preservation; facilitate requests for testing; and ensure adequate communications on subpoenas to testify in cases later dismissed or resolved via plea bargains
- Physical and technology infrastructure deficiencies – Resources are needed to bring facilities up to date
- Recruitment, hiring and training needs – These challenges are often in competition with law enforcement personnel needs, and are exacerbated by background investigations and security clearance requirements
- Shortfall of training funding – Training funds typically account for only 0.5% of total laboratory budgets
- Medical examiner and Coroner systems- workload issues compound the difficulty of conducting death investigations across jurisdictions
- Federal funding- is not available for forensic disciplines practiced at forensic laboratories and medical examiner and coroner offices – DNA analysis funding is an exception
- Forensic science research, development, and evaluations- there is a lack of dedicated funding
- Stressful work environments- takes a toll on the forensic workforce, yet few support tools are developed specifically for forensic scientists, in contrast to law enforcement and other public service sectors.

Our laboratory and professional staff will continue to improve all areas of concern listed above and focus on an environment of continuous improvement.

Respectfully submitted,

Kermit B. Channell, II
Director