



## Illinois State Police FY 2018 DNA Testing Accountability Report

In accordance with 730 ILCS 5/5-4-3a

### **OVERVIEW**

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By statute, the Illinois State Police (ISP), through its Division of Forensic Services, provides forensic science analytical services to more than 1,200 state, county, and local criminal justice agencies. The ISP forensic science laboratory system, established in 1942, has long been recognized as one of the largest crime laboratory systems in the world. The ISP system, currently comprised of six operational (caseworking) laboratories and a Training and Applications laboratory, analyzes evidence from criminal cases in the following specialty areas: drug chemistry, trace chemistry, toxicology, microscopy, forensic biology/DNA, latent prints, firearms/toolmarks, and footwear/tiretracks. Each operational laboratory serves a specific geographical region of the state, providing forensic science analysis of evidence collected from crimes in that region. Whenever possible, the ISP laboratories assist each other in analyzing cases from other regions in an effort to provide more timely service to all Illinois agencies. In Fiscal Year (FY) 2018, the ISP laboratory system received a total of 68,654 cases and completed analysis on 66,126 cases.

The ISP continues to maintain its long-standing commitment to providing high quality services to the Illinois criminal justice system. To that end, the ISP forensic laboratory system adheres to an extensive Quality Assurance (QA) program. The emphasis of the QA program is on prevention and/or correction of analytical problems and providing a course of action if the quality of the work/result is questioned. A key component of the QA program is accreditation. The ISP laboratory system was the first in the world to become accredited through the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) in 1982. Since then, the laboratories have continuously maintained accreditation under the strictest criteria. In 2015, ISP laboratories successfully underwent a reaccreditation assessment and, in doing so, maintained accreditation status under the International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) criteria. This ISO accreditation was originally granted in 2005 by Forensic Quality Services – International (FQS-I) under ISO/IEC 17025:2005 and FQS-I Forensic Requirements for Accreditation. ISO accreditation has been maintained since that time, currently through the American National Standards Institute-American Society of Quality (ANSI-ASQ) National Accreditation Board (ANAB), with periodic on-site assessments to ensure continued compliance. All of the 368 employees assigned to the Forensic Sciences Command – including Forensic Scientists, Evidence Technicians, forensic science managers, and support staff – adhere to the ISO accreditation criteria and standards to ensure the work provided by the ISP laboratories is of the highest quality.

## ***THE DNA PROGRAM – MEETING THE NEEDS OF AGENCIES***

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The ISP DNA Program consists of two components: **casework** and **offender database**.

The **casework** component involves the forensic analysis of evidence from crime scene cases submitted to the ISP laboratories by any Illinois law enforcement agency. Many cases which ultimately undergo DNA analysis are first received into the laboratory as Forensic Biology (FB) cases. The first step in the analysis of these cases is the detection and identification of a biological stain/material using various physical and chemical techniques to identify suitable and probative (i.e., can potentially help solve the case) biological material. For example, finding a suspect's blood left at the crime scene may be important investigative information, while finding the victim's blood on the victim's clothing may not provide any probative information. If sufficient probative material is identified through the FB processes, the case then becomes a DNA case and undergoes separate, highly-technical analytical processes to obtain a DNA profile from the material. In February 2018, ISP laboratories implemented a new efficiency measure called "direct to DNA." This approach eliminates the need to conduct forensic biology analysis on certain types of evidence and instead the case goes directly to DNA analysis. The DNA profile developed from the evidence is then compared to known standards from the victim and suspect to determine the source of the profile. If a suspect is not known, the evidence DNA profile may be entered into, and searched against, the state and national DNA database known as the Combined DNA Index System (CODIS).

In the **offender database** component of the ISP DNA Program, all convicted felons in Illinois, as well as some other individuals as allowed by law, are required to submit a biological sample for DNA typing and inclusion in CODIS. In CODIS, when an unknown DNA profile developed from evidence matches a known offender's DNA profile, or when an unknown DNA profile from one crime matches an unknown DNA profile from another crime, the match is referred to as a "hit." A CODIS hit gives police the ability to identify possible suspects to a crime or link crime scenes, thus providing crucial investigative information to help solve the crime.

To ensure the needs of all aspects of the criminal justice system are met, each ISP laboratory works with law enforcement and criminal justice entities to prioritize cases based on investigative and court needs. Upon submission of a case, the submitting agency communicates their priority to the laboratory, including a specific date when results are needed, if applicable. When prioritizing cases, factors which would warrant a higher priority include cases which have an established court date, subpoena, or court order associated with the forensic analysis; rush cases to meet an urgent investigative need such as in the case of a suspected serial murderer; and violent (versus property) crime cases. The ISP laboratory considers the submitting agency's requested priority for a particular case in conjunction with the priority of cases already submitted by other agencies to determine the order in which cases will be processed. For example, one agency may submit a case stating results are needed for court in two weeks. That same day, another agency may submit a "rush" case stating results are needed within 48 hours before the murder suspect is released from custody. A third agency submits a routine burglary case later that day. The priority order for those three cases would be: first, the "rush" case needing results in 48 hours; second, the case needing results for court in two weeks; and third, the routine burglary case. This process is used to ensure court dates are met and rush cases are completed to meet the needs of the user agencies.

These priorities are constantly reviewed by laboratory management and may need to be adjusted upon submission of additional priority cases. If necessary, ISP laboratories transfer cases to other ISP laboratories as an internal approach to meet the priority needs of the criminal justice system.

## **FORENSIC BIOLOGY AND DNA CASE SUBMISSIONS**

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As noted in previous years, the number of FB and DNA cases received in the ISP laboratories represents only a small fraction (5.7 percent for FB and 9.9 percent for DNA cases) of the total number of cases received annually for all forensic disciplines within the ISP forensic laboratory system. The following table compares FY17 and FY18 FB/DNA case submission figures. When the ISP implemented the "direct to DNA" efficiency measure for sexual assault kits, the result was that these cases that would have been submitted to FB were instead submitted to DNA; this impact can be seen in the chart below in the percent difference from FY 17 to FY 18 in case submissions for both FB and DNA.

### **FB/DNA Case Submissions\***

<b>Cases Submitted</b>	<b>FY 17</b>	<b>FY 18</b>	<b>% Difference from FY 17</b>	<b>% of Total FY 18 Cases</b>
<b>Forensic Biology</b>	6,312	3,895	-38%	5.7%
<b>DNA</b>	4,983	6,800	36%	9.9%

\*"Cases submitted" figures are based on initial case submissions and do not reflect subsequent activity such as agency case cancellations or other activities.

In accordance with 730 ILCS 5/5-4-3a, the ISP is required to include in the reported backlog the number of cases still in the custody of law enforcement agencies which had not yet been submitted to an ISP laboratory (if notified by these agencies in writing by June 1 of each year). During FY18, the ISP had not received notification from any agency under this particular statute. Beginning in January 2016, pursuant to 730 ILCS 5/5-4-3a, the ISP is required to report backlog statistics quarterly, which can be found at <http://www.isp.state.il.us>.

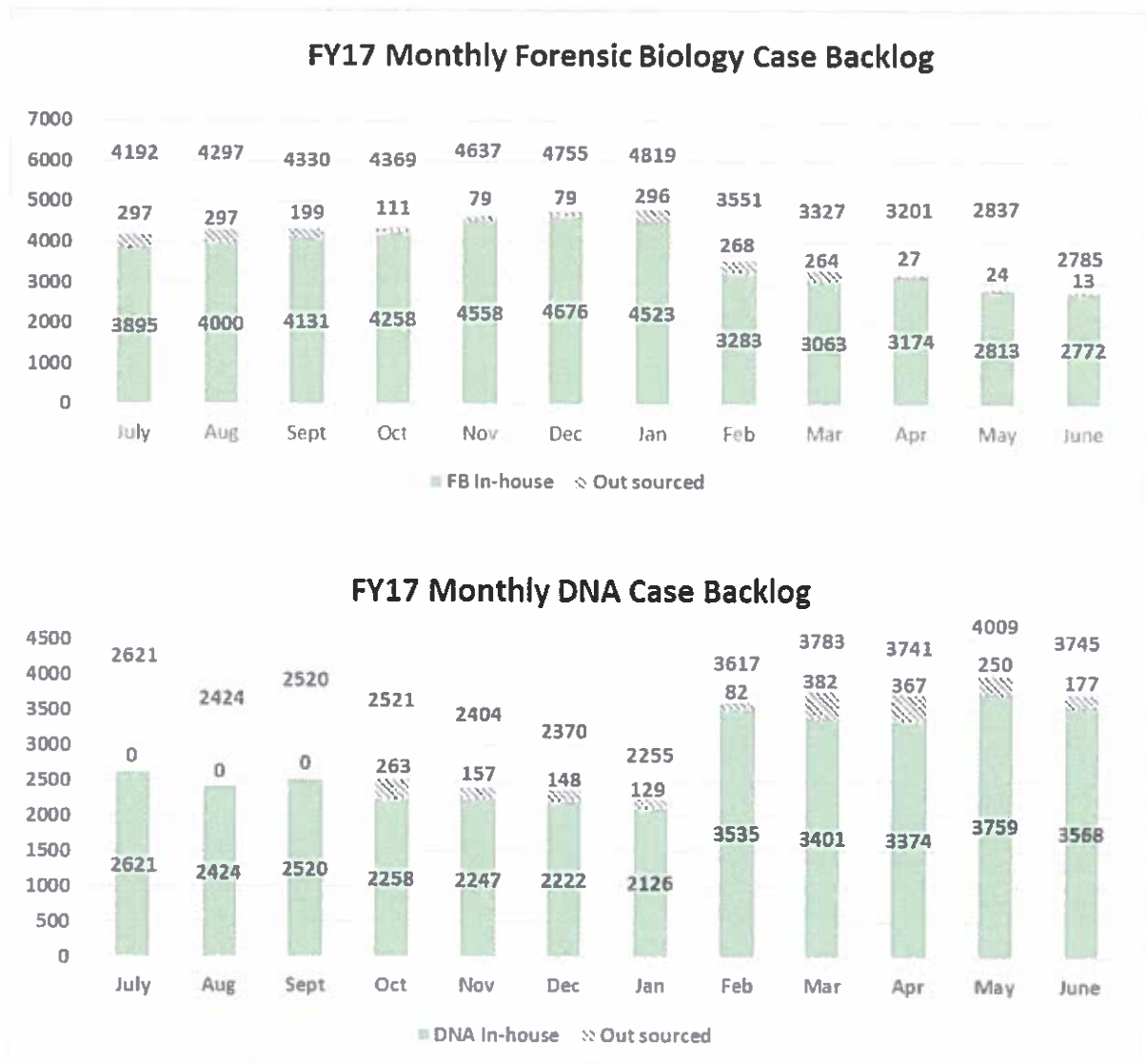
## **FORENSIC BIOLOGY AND DNA CASE BACKLOGS**

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Through ongoing evaluation and implementation of various technology and efficiency measures, the FB/DNA section continues to seek ways to enhance services while reducing backlogs and improving turnaround times of FB/DNA cases completed in-house. One example would be the implementation of the "direct to DNA" approach, which eliminates the time sexual assault cases spend awaiting FB analysis. However, it must be noted that laboratories do not control the number of cases being investigated and subsequently submitted for analysis by agencies. When the number of cases submitted exceeds the capacity of the laboratory staff to conduct the analysis within a 30-day time period, a "backlog" occurs. This backlog includes both cases that are currently in-process of analysis and those which are not yet started. Select cases can take longer than 30 days to complete due to any number of factors including the complexity of the case, the number of exhibits in the case, or the number of additional items of evidence submitted over a period of weeks or months of an ongoing investigation, and thus these cases also become part of the backlog figures.

The monthly FB and DNA backlogs for FY18 are shown in the following charts. The ISP executed a new outsourcing contract at the end of FY15 and has been outsourcing some cases since then. The ISP shipped 624 sexual assault FB cases and 783 DNA cases to the outsourcing vendor during FY18. At the end of FY18, the FB backlog was 2,785 cases; of these, 13 cases were in-progress at the outsourcing vendor laboratory. The DNA backlog was

3,745 cases; of these, 177 cases were in-progress at the outsourcing vendor. The remaining 2,772 FB cases and 3,568 DNA cases on the ISP backlog were in-progress or pending analysis at ISP laboratories. The FY18 FB backlog was 31 percent lower than the FY17 figure (4,013 cases); this reduction in the FB backlog is a direct result of implementing the “direct to DNA” approach. As previously stated, this efficiency measure moved some cases that would have been on the FB backlog to DNA, thus the reduction in the FB backlog. This shift can be seen in the following bar charts, beginning in February.



However, not all cases can be sent directly to DNA and must first be screened in FB. As FB cases are analyzed in-house, the general result is a proportional increase in the number of DNA cases to be analyzed since approximately 65 percent of FB cases are found to have sufficient biological material suitable for DNA analysis. When the ISP sends FB cases to an outsourcing vendor, the vendor will also perform the DNA analysis on the case, but this is not tracked or reflected in the ISP’s DNA statistics. As noted in the table below, during FY18, the ISP analyzed nearly 5,800 DNA cases within the laboratory system. This is an increase from the FY17 figure of nearly 4,300 cases. However, the ISP saw a 44 percent overall increase in the DNA backlog compared to FY17. Again, this is a direct result of the implementation of the “direct to DNA” approach, as cases on the FB backlog were moved to DNA.

It should be noted the same personnel resources conduct both FB and DNA analyses and these resources are limited. The ISP is committed to reducing both the FB and DNA backlogs and continues to pursue various avenues to accomplish this while still maintaining the highest quality standards of casework. These avenues include streamlining the internal FB analytical screening process by exploring options to implement the "direct to DNA" approach for additional types of evidence and other internal procedures. Additionally, as resources allow in FY19, the ISP will continue to outsource FB/DNA cases as a major effort in reducing the overall FB/DNA case backlogs. However, any outsourcing program requires significant non-analytical time on the part of forensic scientists to perform various tasks associated with the effort. Such tasks include receiving, triaging, and preparing evidence for shipment; performing quality assurance checks of the vendor's analysis; technically reviewing the analytical data received from the vendor; and uploading appropriate DNA profiles into CODIS. Once all outsourcing initiatives are completed, the scientists assigned to perform those duties can be redirected to assist in reducing the in-house case backlogs.

### FB/DNA Backlog and Outsourcing Analysis

NOTE: Many cases are first analyzed in the Forensic Biology (FB) section before being analyzed in the DNA section. A case is tracked separately for each section. The ISP concurrently works to address the backlog\* in each section. All figures are from the ISP's Computer Aided Laboratory Management System (CALMS).

	Forensic Biology		DNA	
	FY17	FY18	FY17	FY18
<b>Total pending cases as of June of the previous fiscal year (both &gt; and &lt; 30 days)</b>	4,136	4,734	2,321	3,066
<b>Cases submitted to the labs</b>	6,312	3,895	4,983	6,800
<b>Cases worked in the labs (in-house)</b>	(3,648)	(2,879)	(4,277)	(5,788)
<b>Cases outsourced with grant funding**</b>	585	624	69	783
<b>Cases outsourced with state funding**</b>	754	0	145	0
<b>Total number of pending cases ≤ 30 days</b>	721	375	462	686
<b>Total number of backlog* cases at ISP (in-house)</b>	3,872	2,772	2,435	3,568
<b>Total number of backlog* cases at vendor laboratory (outsourced but not yet completed)</b>	141	13	169	177
<b>TOTAL BACKLOG* CASES (in-house and outsourced)</b>	4,013	2,785	2,604	3,745

\* "Backlog" is defined as in-process and unstarted cases in the FB or DNA section for more than 30 days.

\*\* Table reflects outsourced cases completed during the specified fiscal year as reflected in CALMS. In FY18, a total of 624 FB and 783 DNA cases were shipped to the outsourcing laboratory with some still pending analysis as of June 30.

## **Funding**

NOTE: With one exception, funding figures included in this section of the report are estimates from February 2018 budget projections since FY18 accounting records were not yet closed as of the date of this report. The exception is the figure reported for outsourcing costs; this is the actual figure.

During FY18, the ISP expended a total of \$19.6 million in state funds on the DNA program, including both casework and offender samples. This figure is 3.7 percent higher than the \$18.9 million expended in FY17. Included in this FY18 total is \$2.5 million from the State Offender DNA Identification System Fund. This figure is 8.7 percent higher than the \$2.3 million spent from that fund in FY17. Also included in the FY total is \$2.1 million from the State Crime Laboratory Fund.

As it has for many years, the ISP continues to aggressively pursue federal grant dollars to supplement state funding to aid in addressing the FB and DNA backlogs and to build in-house capacity. In FY18, this practice helped the ISP address the FB and DNA backlogs through outsourcing, the use of overtime, and the purchase of additional commodities and equipment. In this way, the ISP was able to ensure more cases were analyzed than could have been worked using state funds alone. Due to a restructuring of the grant award process by the National Institute of Justice, the ISP saw a slight reduction in the amount of grant funds awarded. In FY18, the ISP spent \$1.7 million in federal DNA grant funds, which was nearly equal to what was spent in FY17 (\$1.8 million). The table below lists estimated FY18 grant expenditures. Additional grant funding is currently being pursued.

### **FY18 FB/DNA Grant Expenditures**

<b>Grant</b>	<b>Funds Expended</b>
NIJ 2015 DNA Capacity and Backlog Reduction Program	\$74,899
NIJ 2016 DNA Capacity and Backlog Reduction Grant	\$1,637,220

Commodity and equipment costs for DNA analysis are very high. If significant cuts to the state budget are mandated or the ability to spend federal grant money is curbed, there will be insufficient funds to purchase necessary DNA supplies, resulting in unworked criminal cases and an increase in the backlog. In FY18 and some previous fiscal years, several vendors threatened to stop providing services and goods to the ISP due to non-payment or lengthy delays in receiving their payments from the Comptroller. As of late FY18, this situation is improving.

As in past fiscal years, one hindrance to the timely purchase of forensic equipment and commodities continues to be the lengthy and complex state procurement process. As additional steps continue to be added to the procurement process, this exacerbates the delays in obtaining necessary supplies and equipment. The expensive DNA commodities have a short shelf life before expiration; therefore, large quantities cannot be maintained in the laboratories but need to be ordered as necessary. Any delays in the procurement approval process can have an immediate impact on laboratory operations, causing laboratories to run out of critical supplies, stopping analysis, and causing an increase in the backlog or even missed court dates.

## Personnel

As of June 30, 2018, the ISP employed a total of 63 fully-trained forensic scientists working on FB/DNA cases or performing case-related assignments. This figure is down from the FY17 staffing level of 65 trained scientists, due to the net decrease of two FB/DNA scientists during FY18. The current staffing level is insufficient to address the current number of cases being submitted by law enforcement agencies. Based on the number of submissions and current technology, the ISP has determined a staffing level of 81 FB/DNA scientists supported by evidence technicians, technical DNA managers, clerical, and maintenance personnel is needed to not only address new case submissions but to also make positive progress in reducing the backlogs in FB and DNA. However, the double impact of higher case submissions in DNA due to "direct to DNA" and the nominal loss of experienced FB/DNA scientists has been a significant factor in the rise of the DNA backlog. In late FY16, ISP was approved to hire six additional FB/DNA scientists. These six new FB/DNA scientists began training in March 2017 and are due to be released from training in the fall of 2018. Included in these six positions are the five additional headcount and associated funding originally requested in "The Sexual Assault Evidence Submission Plan" submitted in February 2011 (pursuant to PA 96-1011) in order to address the permanent increase in the new sexual assault case submissions (pursuant to Section 10 of the law) and to reduce the backlog of all types of FB/DNA cases. It should be noted that the ISP was also approved to hire five additional FB/DNA scientists in late FY18; as of June 30, interviews were completed and backgrounds checks and other steps are in progress, with an anticipated start date of late fall 2018. In order to continue to account for the normal attrition of FB/DNA scientists, the ISP has established a hiring plan through 2022.

ISP's FB/DNA forensic scientists are well-qualified and highly-trained, but the process of hiring and training them takes significant time; thus, the impact of any new hires is not immediate. The ISP is not able to fill forensic science vacancies as they occur; and once approval is given, the hiring process generally takes six to nine months. Full training of an FB/DNA forensic scientist in both FB and DNA techniques currently takes approximately 24 months. Thus, it takes more than two years from when an FB/DNA scientist vacancy occurs until it is filled by a fully-trained new scientist. The ISP is currently exploring ways to help reduce that training timeline yet maintain the quality of the training received. The ISP will be gathering information from other forensic laboratories on current FB/DNA training timelines and programs that can be modeled.

Any progress the ISP makes in reducing backlogs can be immediately impacted when any forensic scientist vacancy occurs. More significantly, without timely filling of non-scientific laboratory support and forensic supervisory positions, fully-trained forensic scientists have to perform critical evidence technician, managerial, and clerical duties rather than analyzing cases. This specific situation resulted in Recommendation #5 in the Office of the Auditor General (OAG) report released in March 2009. Specifically, the OAG stated on page 38, "**Failure to maintain the necessary staffing levels results in cases remaining unsolved and serial criminals could remain free to commit additional crimes. The ISP's inability to fill lost forensic positions has resulted in staff performing work outside of their official duties, which increases the backlog of forensic cases submitted to the labs.**"

As noted in previous reports, this situation continues to occur in FB/DNA, as well as in all the different forensic disciplines in the ISP laboratory system. A review of staffing levels from 2009 through 2017 shows through normal attrition, the ISP loses an average of 13 (5.3 percent of total) experienced forensic scientists each year. Managerial and support staff attrition, however, has averaged 14 individuals (approximately 10.4 percent of such positions) annually. Because the managerial/support vacancies had previously not been approved for filling as readily as the scientist vacancies, forensic scientists had to be reassigned to perform the critical duties of these vacant managerial/support positions. As a result, fewer cases were analyzed, leading to

higher backlogs. As of the end of FY18, the total forensic case backlog was 12,916 cases. This demonstrates how the inability to immediately fill any vacant forensic position - including managers and support staff - has a negative effect on backlog reduction efforts. Generally speaking, high backlogs equate to an increased risk to public safety as criminals remain unidentified and able to commit additional crimes, and innocent individuals remain incarcerated as they await forensic results which could clear them. Fortunately, throughout FY18, the ISP was able to move forward with filling a number of vacant forensic manager, evidence technician, and other support positions. As of June 30, 2018, the ISP has filled most of those types of positions that were being pursued at the end of FY17. The ISP will continue to pursue filling the remaining positions, as well as newly vacated positions, as approvals are received. It is anticipated that filling these positions will bring some stability to the organizational structure of the laboratories and ultimately enable forensics scientists to focus on case analysis.

## **OFFENDER DATABASE SAMPLE BACKLOG**

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The CODIS is a DNA database program administered by the FBI and implemented by the ISP at the state level. The offender portion of this system contains DNA profiles of individuals convicted of felonies, as well as a few other eligible offenses in accordance with Illinois statutes. All samples collected from eligible offenders from across the state are submitted to the DNA Indexing Unit of the Springfield Forensic Science Laboratory. That unit is responsible for analyzing and uploading to the CODIS database all such submitted DNA samples for the entire state.

During FY18, the ISP received 22,092 new offender samples and submitted 26,445 samples to CODIS by the end of June 2018. Additional samples were either in-process of analysis/backlogged or were not uploaded for various reasons (e.g., were duplicates, were ineligible, etc.).

With offender samples, a backlog will occur when the number of offender samples submitted exceeds the laboratory's capacity to upload them into CODIS within 30 days of when they are eligible for CODIS upload. For the past decade, the ISP had been able to maintain a zero backlog in offender samples, until January 2017. In January 2017, the ISP, as well as all other laboratories that participate in CODIS, were mandated by the Federal Bureau of Investigation to change DNA chemistries; this change increased the number of CODIS core loci from 13 to 20. This change in DNA chemistry has led to an increase in the time required to analyze offender samples. Additionally, in FY17, vendors struggled to provide goods to the ISP due to non-payment or lengthy delays in receiving their payments from the Comptroller. The change in DNA chemistry coupled with the delays in receiving goods caused a backlog in offender samples. During FY18, the Indexing unit was able to decrease the time required to analyze samples and reduce the backlog. As of June 2018, the Indexing Unit was able to upload 94 percent of all the new CODIS eligible offender samples received into CODIS within 30 days. At the end of FY18, the CODIS sample backlog was 15. The Indexing Unit will continue to explore ways to decrease the time required to analyze samples and reduce the backlog of samples back to zero.

On January 1, 2012, PA 97-383 became effective. This law closed several loopholes in previous legislation by requiring a DNA sample from all registered sex offenders, regardless of conviction date. The law also added three reasons for collection of DNA: a court order with no other restrictions, sex offenders from other states that are not required to be supervised by parole or probation, and limited "indictees" for First Degree Murder, Home Invasion, Predatory Criminal Sexual Assault, Aggravated Criminal Sexual Assault, and Criminal Sexual Assault. Since the passing of this law, no other changes to the offender statutes have been proposed that would

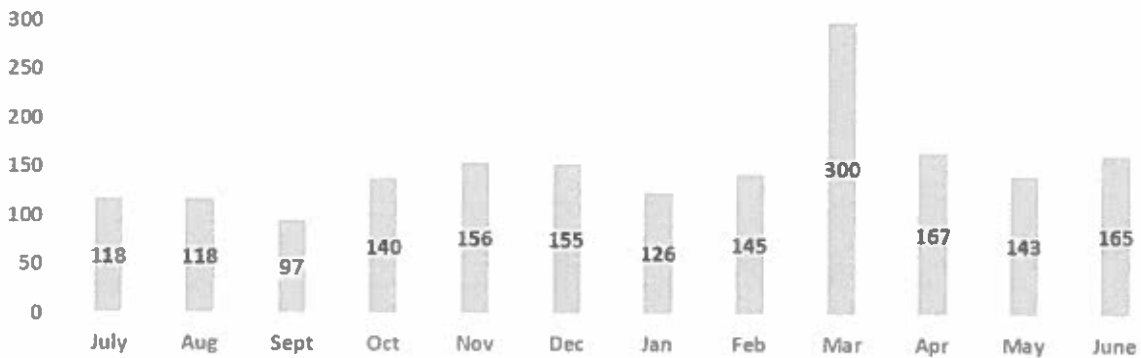


impact the number of offender samples being submitted to the DNA Indexing Unit.

As of June 30, 2018, there was one remaining support staff vacancy at the DNA Indexing Unit which occurred through normal attrition. Once filled, staffing and funding for the CODIS program will be sufficient to address current needs. However, in the event of an inability to backfill vacancies, significant budgetary cuts, equipment problems, and/or additional immediate changes to offender statutes (such as a law which would require all felony arrestees to submit a DNA sample for CODIS), this could change. Any one such action will result in the development or exacerbation of a backlog which will require additional time and resources to address.

In FY18, there were 1,830 CODIS hits, compared to the 1,513 CODIS hits in FY17. The following chart gives a month by month account of CODIS hits during FY18. This figure has increased over past years due to additional unknown DNA case profiles being uploaded into CODIS as a result of the outsourcing effort and the increase in the number of DNA cases being analyzed. The significance of any of the CODIS hits, however, is not known and cannot be determined by the ISP; it is only determined by the law enforcement agency after additional investigation is conducted. It should be noted, the unusually high number of CODIS hits during the month of March 2018 is likely due to an increase in the number of forensic profiles entered into CODIS during that month.

**FY17 Monthly CODIS Hits**



On June 30, 2018, there were totals of 603,087 offender profiles and 45,499 crime scene (or "forensic unknown") profiles in the Illinois DNA database. There were also cumulative totals of 22,850 CODIS hits, with 19,957 offender-to-case hits and 2,994 case-to-case hits detected. In an offender-to-case hit, a convicted offender's known DNA profile is associated with an unknown DNA profile from a case. This information can provide investigators with the identity of the possible perpetrator. In a case-to-case hit, unknown DNA profiles from two or more cases are associated, thereby linking cases and providing additional leads for investigators to pursue. There have been 3,196 national associations, which are CODIS hits of DNA profiles from Illinois to DNA profiles from other states. All 50 states, plus the FBI and US Army laboratories, participate in CODIS. Through May 2018 (last data available), Illinois ranks fifth in the nation, behind only California, Florida, Texas, and New York in the number of investigations aided by CODIS (23,110), according to FBI statistics.

**NOTE REGARDING STATISTICS PROVIDED IN THIS REPORT:**

- All reasonable efforts have been made to ensure the accuracy of the data. However, there are inherent limitations present with the existing search methods of the ISP's CALMS database. The data attached herein is as accurate as possible, given the limitations of the current system.
- With both Forensic Biology and DNA casework, as well as with offender database samples, the reported backlog is just a snapshot of the workload at a given point in time. Legislation, crime rates, new technology, and available resources all impact this statistic.