

OFFICE OF THE ATTORNEY GENERAL
XAVIER BECERRA

Sexual Assault Forensic Evidence Tracking Database
Annual Report to the Legislature
Calendar Year 2018



DIVISION OF LAW ENFORCEMENT
BUREAU OF FORENSIC SERVICES

Executive Summary

Reporting Requirement

The California Department of Justice (Department) created the Sexual Assault Forensic Evidence Tracking (SAFE-T) database to track the statewide collection and processing of victim sexual assault evidence (SAE) kits. In California, 46 of 58 counties send their SAE kits to the Department's laboratories for processing. Twelve larger, urban counties¹ maintain their own local laboratories and process their own SAE kits. Law enforcement agencies (LEAs) that investigate cases involving SAE kits, and public DNA laboratories that analyze this evidence, enter the SAE kit information in SAFE-T. This database allows LEAs to log and track the status of SAE kits collected from victims of sexual assault.

Penal Code section 680.3, subdivision (e), beginning in 2019, requires the Department to submit an annual report to the Legislature summarizing the data entered into SAFE-T during the preceding calendar year. This first annual report includes information collected from incidents that occurred in 2018.

Background

The Department created the SAFE-T database in 2015 in an effort to collect data regarding the status of SAE kits in the possession of LEAs and crime laboratories. From its 2015 inception through the end of 2017, LEAs and crime laboratories entered SAE kit data into the SAFE-T database on a strictly voluntary basis. Public and legislative interest in clearing reported backlogs of untested SAE kits led to the passage of Assembly Bill 41, Chapter 694, Statutes of 2017, which added section 680.3 to the Penal Code to mandate reporting in the SAFE-T database of all victim SAE kits collected as of January 1, 2018. For the purpose of this report, the Department's laboratories define a backlog as an SAE kit that has been in their inventory for more than 120 days and exceeds the recommended processing time. Local crime laboratories may define their backlogs differently.

The SAE kit status information collected in SAFE-T and summarized in this report is as follows:

- An information record for each SAE kit, which must be created within 120 days of collection of the kit;
- The date biological evidence samples from a kit are submitted to a crime laboratory for DNA analysis or the reason samples are not submitted to a laboratory;
- Whether a kit generates a potentially probative DNA profile, and
- The reason(s) a kit submitted to a laboratory is not tested within 120 days, and every 120 days thereafter until testing is complete.

¹ These counties are Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Kern, Los Angeles, Orange, Sacramento, San Bernardino, San Diego and Ventura.

Definitions

Terms and acronyms used in this report include:

Sexual Assault Evidence Kit – SAE kit, as used in this report, refers to evidence collected by a hospital that conducts a sexual assault examination. The standard victim SAE kit consists of multiple body swabs that may contain the perpetrator’s DNA, a reference buccal swab from the victim’s cheek, and other potential evidence such as underwear, hairs, or fibers.

Rapid DNA Service (RADS) – A Department-specific rapid DNA testing program established with the majority of the 46 counties in the Department’s service area. Through this program, the Department trains hospital staff to create RADS kits from the standard SAE kits. The RADS kit is sent directly to the Department’s crime lab for expedited DNA testing. Rural hospitals in participating counties located far from large population centers are sometimes not equipped to collect RADS kits. In those cases, the LEAs may submit the standard SAE kit to the Department’s crime laboratory for analysis, where the laboratory will triage the kit in RADS-fashion and add the selected swabs to the laboratory’s RADS analysis workflow.

Similar rapid testing programs may also exist in the twelve California counties that have their own local crime laboratories.

RADS or “Mini” Kit – A RADS kit generally contains up to three of the most probative evidence swabs from the standard SAE kit and a DNA reference swab from the victim. This is a subset of the standard victim SAE kit. Typically, the selected evidence swabs are the ones most likely to contain the perpetrator’s DNA based on the case history. As sexual assault evidence is commonly a mixture of body fluids from both the victim and the perpetrator, a DNA reference swab from the victim is also included to aid with the interpretation of any DNA mixtures. Hospital staff packages the selected evidence swabs and victim DNA reference swab separately from the standard SAE kit and sends them directly to a crime laboratory for expedited DNA testing. The standard SAE kit, which contains all of the remaining swabs and evidence samples, is sent to the LEA rather than the crime lab. Depending on the results of the RADS kit analysis, the standard SAE kit may need to be submitted to the crime lab for additional testing. For the purpose of this report, similar rapid testing kits collected by local agencies outside of the Department’s RADS program are referred to as mini kits.

Combined DNA Index System (CODIS) – CODIS is the FBI’s program and software used to store and search perpetrator DNA profiles developed from forensic evidence against the DNA profiles of qualifying convicted offenders and arrestees. CODIS comprises Local DNA Index System (LDIS), State DNA Index System (SDIS), and National DNA Index System (NDIS) databases. The three main criminal indices in CODIS are the Forensic Index, which contains perpetrator DNA profiles developed from forensic evidence, the Convicted Offender Index, and the Arrestee

Index². DNA profiles may be uploaded as far as the LDIS, the SDIS, and the NDIS, provided they meet the criteria for each level and index.

Once uploaded, the DNA profiles in the three criminal indices are regularly searched against each other to identify potential matches. To link forensic evidence to a known convicted offender or arrestee, the Forensic Index is searched against the Convicted Offender Index and the Arrestee Index. The Forensic Index is also searched against itself to link evidence from different crimes to the same perpetrator (referred to as case-to-case hits).

Access to CODIS is strictly limited to law enforcement laboratories that comply with the requirements set forth in the Federal DNA Identification Act (42 U.S.C. 14132(c)). Private laboratories do not have access to CODIS. A private DNA laboratory may analyze evidence and develop DNA profiles, but a CODIS laboratory has to assume ownership of a profile for it to be uploaded to CODIS.

Local DNA Index System (LDIS) – An LDIS is a local CODIS DNA database that feeds into the state’s SDIS. An LDIS laboratory is a local crime laboratory that participates in CODIS and uploads the perpetrator DNA profiles from forensic evidence submitted by their LEAs. Although some DNA profiles may be held at the LDIS level, most evidence DNA profiles entered into an LDIS laboratory’s database are also uploaded to the SDIS. Because local policies may differ from state or federal rules, some DNA profiles in an LDIS database may not be eligible for inclusion in SDIS and/or NDIS.

State DNA Index System (SDIS) – An SDIS is a state-level CODIS DNA database that feeds into NDIS. It includes all of the qualifying DNA profiles from that state’s LDIS laboratories, as well as those uploaded directly by state laboratories. An SDIS laboratory is a state crime laboratory that administers CODIS for the local crime laboratories in that state and is responsible for ensuring statewide compliance with state and federal CODIS requirements. In California, the SDIS laboratory is at the California Department of Justice, Bureau of Forensic Services Jan Bashinski DNA Laboratory in Richmond.

National DNA Index System (NDIS) – NDIS is the national DNA database that is maintained by the FBI. It contains qualifying DNA profiles uploaded by local, state, and federal crime laboratories. DNA profiles uploaded from an SDIS are regularly searched against appropriate indices in NDIS.

Record – A single database record created in the SAFE-T database.

Profile – A DNA profile that may be uploaded to CODIS if it meets specific eligibility requirements.

² CODIS also contains non-criminal and specialty indices; however, for the purpose of this report, the term CODIS refers to the three criminal indices.

2018 SAFE-T Report

This report contains statistics on the progress and status of SAE kits collected from incidents occurring in California between January 1, 2018, and December 31, 2018. To ensure all late submissions were captured, the SAFE-T data extract used for this report was pulled on July 17, 2019. Any activity relating to 2018 SAE kits up to that date is included.

2018 Sexual Assault Evidence Kits: Status & Location

Every SAFE-T record contains current information on the status and the location of each individual SAE kit. This section provides an overview of the reported³ status and location of all **7,676** records from 2018 as of July 17, 2019.

As of July 17, 2019, DNA analysis was complete for **6,045** kits, **722** kits had been received and retained by an LEA⁴, **67** kits were in transit from an LEA to a crime laboratory, **154** kits had been received by a crime laboratory but not yet analyzed, **132** kits were undergoing DNA analysis, and LEAs or laboratories had determined that **556** kits would not be analyzed for DNA⁵ (see Figure 1).

Reported Status of 2018 SAE Kits as of July 17, 2019

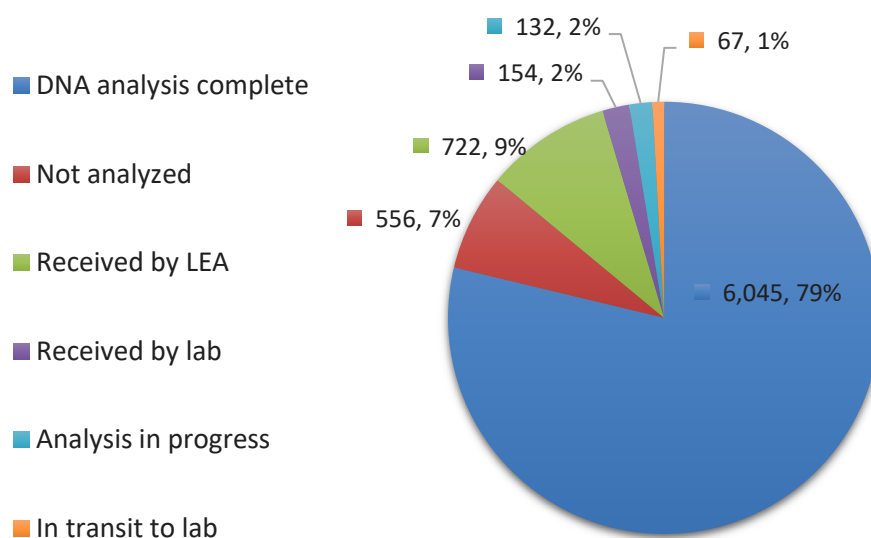


Figure 1. Point-in-Time Status of 2018 SAE Kits as of July 17, 2019.

³ Users may update a profile's SAFE-T record at different points throughout the process. Since there is no requirement to make real-time, step-by-step updates, a kit may have progressed beyond its last reported location as of the date of the data extraction.

⁴ See Figure 3 for the reasons kits that had been received by an LEA were not submitted to a laboratory.

⁵ See Figure 4 for the reasons kits that had been submitted to a laboratory were not tested.

Records Created in SAFE-T

LEAs and crime laboratories generated **7,676** new SAE kit records in SAFE-T with incident dates between January 1, 2018, and December 31, 2018. **Eighty-nine** percent of these were entered into the SAFE-T database within 120 days from the date the SAE kit was collected as required by Penal Code section 680.3, subdivision (a).

New users from agencies that had not participated in SAFE-T prior to January 1, 2018, were added and trained throughout 2018. Any kits from incidents in 2018 that were received by law enforcement more than 120 days prior to when the reporting agency began using SAFE-T were automatically late upon initial entry into the database. This specific scenario applied to 122 of the 847 kits for which SAFE-T records in 2018 were created over 120 days after collection.

One hundred and seven records (1%) did not have a medical exam date recorded in SAFE-T and **four** records (0.05%) were created prior to the recorded exam dates, likely due to a recording error. To account for this user error in this report, the medical exam is assumed to have occurred on the day of the reported incident. This assumption is based on the most frequently observed duration between incident and medical exam.

The collection and analysis of 2018 data for this report highlighted a discrepancy in the statutory timeline: LEAs have 20 days to submit a kit to a crime laboratory but an additional 100 days, 120 days in total, to create the kit record in SAFE-T. However, evaluation of the data in SAFE-T for this report found that the median⁶ laboratory processing time is 78 days from the date of receipt of the SAE kit to the date of release of the analysis report (see Table 1). If the laboratory's analysis is complete before the LEA has created the initial record in SAFE-T, its falls to the laboratory staff to create the record in order to be able to enter their portion of the information. When laboratories create records in SAFE-T, whether by arrangement or necessity, some details may be missing from the record if the LEA does not later complete their portion, which then affects the Department's ability to fully analyze the data for this report.

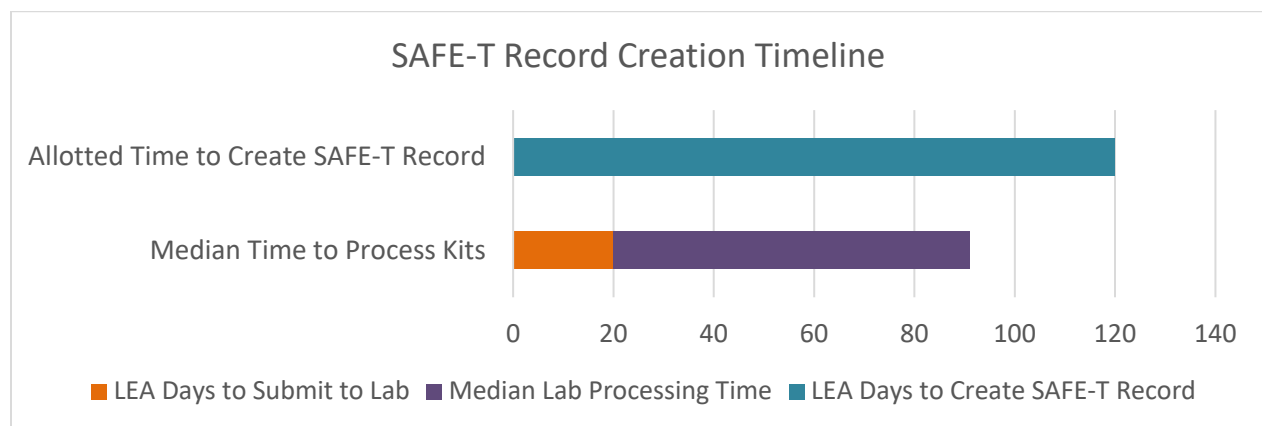


Figure 2. SAFE-T Record Creation Timeline.

⁶ This report uses the median instead of the mean because the median is less sensitive to outliers and is therefore a better representation of central tendency in skewed data.

Kit Locations & Crime Laboratory Submission

As of July 17, 2019, **6,954** (91%) of the **7,676** total kits had been sent to a crime lab and **722** kits (9%) had been retained by an LEA. Of the **6,954** kits sent for crime laboratory analysis, **192** kits (3%) were sent from one CODIS lab to a secondary CODIS lab and **120** kits (2%) were sent by the LDIS to a vendor lab. RADS/mini kits constituted **1,505** (22%) of the kits submitted to laboratories; the records for **68** kits did not specify whether they were standard kits or RADS/mini kits.

Kits Not Submitted to Lab

There are many reasons why law enforcement may choose not to submit an SAE kit for laboratory analysis. The reasons these **722** SAE kits were not submitted to a lab are as follows: the victim declined (**122**), the LEA could not substantiate that a crime occurred (**76**), the incident occurred in another jurisdiction (**75**), the case was determined to be unfounded (**54**), the suspect claimed that the interaction was consensual (**46**), the kit was withheld at the victim's discretion pursuant to the Violence Against Women Act (**27**), there was insufficient evidence (**25**), the suspect confessed or pled guilty (**19**), they were unable to locate the victim (**16**), the victim recanted (**11**), the kit was no longer linked to an investigation (**7**), or "Other" (**172**). No reason was given for **72** of the kits that were not sent to a laboratory (see Figure 3).

The LEA entry screen in SAFE-T provides options from which to select to indicate the reason a kit is not submitted to a crime laboratory. If none of the listed reasons are suitable, the agency may select "Other" and provide a freeform explanation. "Other" explanations commonly observed in SAFE-T may be broadly summarized as:

- The case is pending investigation/assignment
- The case is being actively investigated
- The identity of the suspect is not in question
- Other evidence was tested
- The case was rejected by the District Attorney
- The kit is unsuitable for testing

Reasons SAE Kit Not Sent to Lab

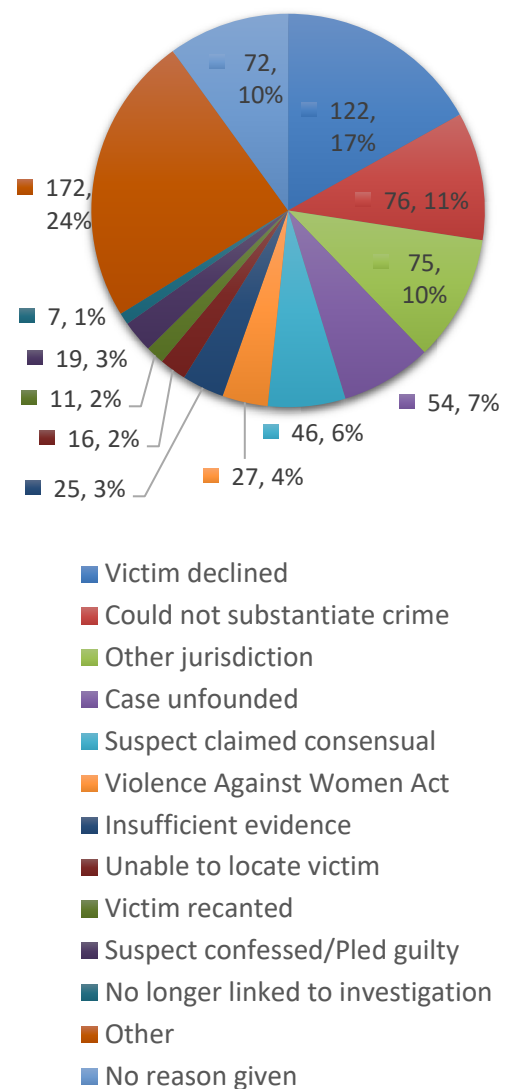


Figure 3. Reasons SAE Kit Was Not Sent to a Lab.

Kits Analyzed for DNA

The status of the DNA analysis was reported for **6,733** of the 6,954 kits sent to a crime laboratory: **6,045** kits have been tested for DNA, **132** kits are pending testing, and **556** kits were not tested. Reasons provided for the **556** kits that were received by a lab, but not analyzed, include: the kit screened⁷ negative⁸ (**349**), the LEA requested the kit not be analyzed (**77**), the District Attorney requested the kit not be analyzed (**9**), the case was adjudicated (**5**), other evidence was analyzed (**3**), or “Other” (**102**) (see Figure 4). No reason was given for **11** of the kits that were not analyzed.

Reason SAE Kit Not Tested

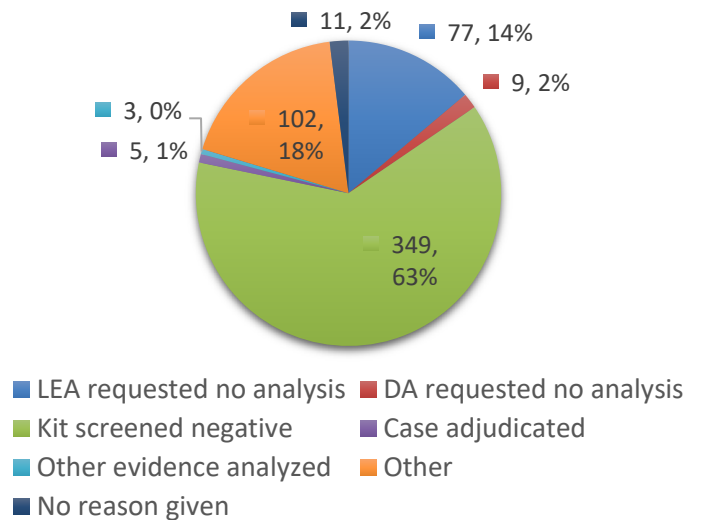


Figure 4. Reason SAE Kit Was Not Tested.

CODIS Profiles Generated

Of the 6,045 SAE kits for which crime laboratories have completed DNA analysis and released reports, **2,562** yielded potentially probative DNA profiles that were uploaded to CODIS. Out of those **2,562** records, **1,336** indicated whether there was an “offender/arrestee” hit. An offender/arrestee hit was reported for **685** of those **1,336** records, which accounts for 51 percent of the total kits for which an outcome was reported in the SAFE-T database (see Figure 5).

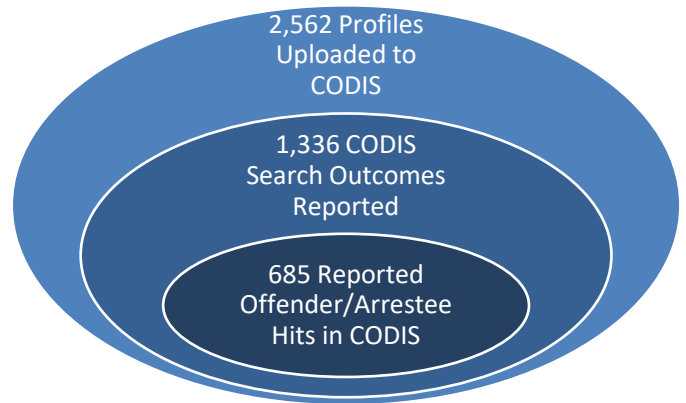


Figure 5. CODIS Uploads to Reported CODIS Hits.

⁷ “Screening” usually refers to biological screening for the components of semen when the case history indicates a male perpetrator; this may not involve DNA analysis.

⁸ Evidence samples from the kits are screened for components of semen. No further DNA analysis was conducted in these instances because the samples screened negative for semen.

Kits Without CODIS Profiles

Not all analyzed kits yield a DNA profile suitable for entry into CODIS. 2018 data showed **3,483** kit analyses did not yield a CODIS profile. Reasons were provided in **2,504** of these cases (see Figure 6). Most frequently cited were the absence of foreign DNA (**671**) and insufficient foreign DNA for CODIS (**922**). Together, these explanations accounted for 64 percent of the lack of a CODIS upload. Another **528** of the analyses did not proceed past the DNA quantitation step because no male⁹ DNA was detected. **Two** specimens were too degraded to yield a profile, **75** kits screened negative, **114** kits had a complex mixture of DNA that was not suitable for upload to CODIS, and **192** were marked “Other.”

Reason No DNA Profile Uploaded to CODIS

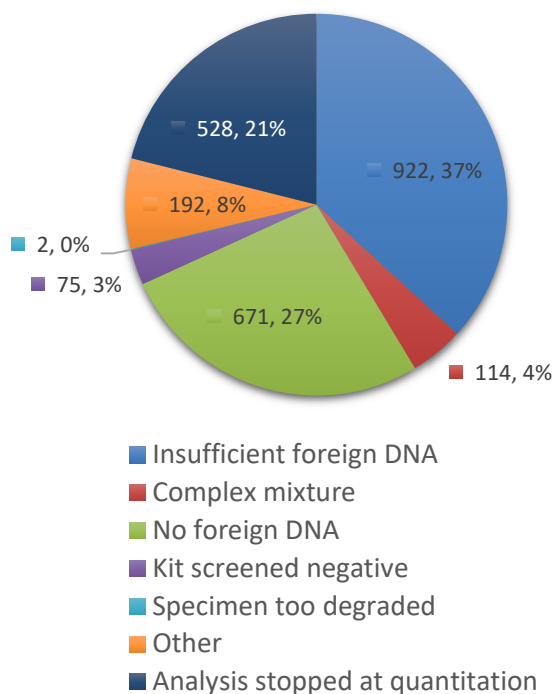


Figure 6. Reason No DNA Profile Uploaded to CODIS.

⁹ For cases involving male perpetrators and female victims, analysis may be stopped if no male DNA is detected at DNA quantitation. In cases of male-on-male and female-on-female assault, samples go through DNA analysis to look for DNA foreign to the victim.

Sexual Assault Evidence Kits: Processing Times¹⁰

Penal Code section 680, subdivision (b)(7) recommends timelines for the processing of DNA evidence in sexual assault cases. LEAs are encouraged to either submit kits to crime laboratories within 20 days of booking or ensure that a rapid turnaround DNA program is in place. Laboratories are encouraged to process SAE kits for DNA within 120 days of receipt. Alternatively, they should send the kit to another laboratory as soon as possible, but no later than 30 days after receipt. This section discusses the duration between various milestones.

Duration from the incident to the medical exam. Of the **7,676** kit records with 2018 incident dates, 99 percent include both the incident and medical exam dates. For most kits, the assault incident and the medical exam took place on the same or following day.

Duration from the medical exam to the LEA's receipt of the kit. The SAFE-T records for 73 percent¹¹ of the kits had both recorded medical exam dates and LEA receipt dates for a total of **5,608** kits. SAE kits typically arrive at an LEA within one day following the medical exam.

Duration from the medical exam to the receipt of the kit by the crime lab. There were **6,780** kits that included both the exam date and the date the kit was received by the first lab. **Seventeen** kits' recorded lab receipt date preceded the medical exam date and were therefore excluded from analysis, resulting in 97 percent of the kits sent to lab for lab analysis, a total of **6,763** kits. The median duration for all kits, including RADS kits, from the date of the medical exam to the date the kit was received by the laboratory was six (6) days after completion of the victim's medical exam.

Duration from the lab's receipt of the kit to upload of a DNA profile to CODIS. All but one of the **2,562** kits for which CODIS-eligible profiles were found had both the date received by the first laboratory and the date uploaded to CODIS. Fifteen of the CODIS-eligible profiles had CODIS upload dates that preceded the kit receipt date and were therefore removed from analysis. From initial receipt of the kit, it took a lab a median of **73** days to develop a suitable probative DNA profile from an SAE kit sample and upload it to CODIS.

Duration from the medical exam to the release of the DNA report. Of the **7,676** SAE kit records for incidents that occurred between January 1, 2018, and December 31, 2018, **5,925** records have both medical exam dates and DNA report release dates. One had a report date that preceded the exam date and was excluded from analysis. The median duration of the overall process, from the date of the start of the medical exam to the laboratory's release of a DNA report, was **85** days (see Figure 7).

¹⁰ See Table 1 for all descriptive statistics for process durations and Figure 8 for an illustration of the SAE Kit lifecycle.

¹¹ Two kits were excluded because their recorded LEA receipt dates preceded the recorded medical exam dates.

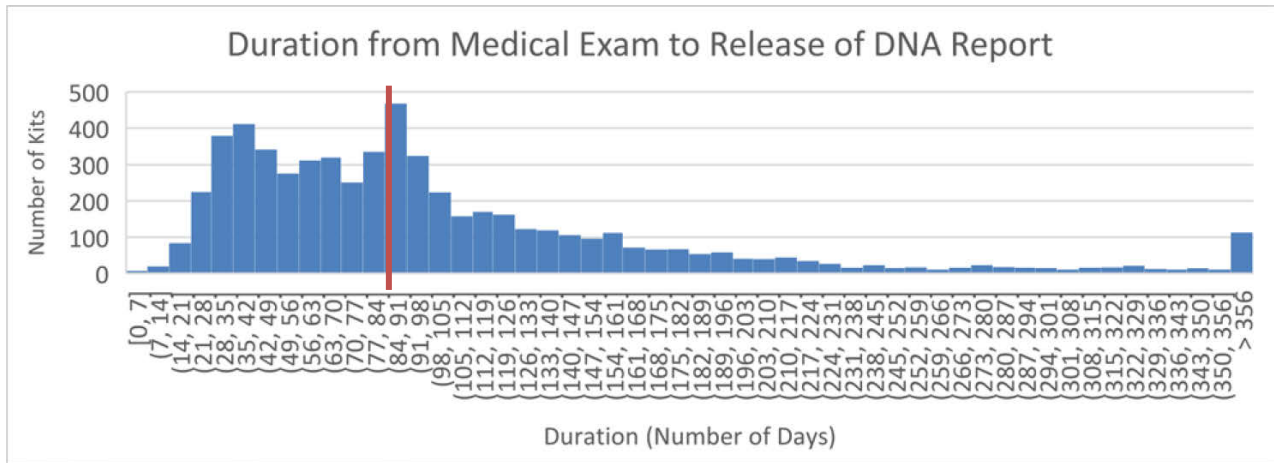


Figure 7. Histogram of Duration from Medical Exam to DNA Report Release.

Duration of Sexual Assault Evidence Kit Processes, in Days

Process	Number of Records	Median	Mode	Mean	Standard Deviation	Min	Max
Incident to Medical Exam	7,569	1	0	2	14	0	372
Medical Exam to LEA	5,608	1	0	2	15	0	367
LEA to Send to Lab	4,091	4	0	18	49	0	484
Send to Lab to Lab Receipt	3,706	0	0	6	22	0	410
Medical Exam to Lab Receipt	6,763	6	2	19	43	0	474
Lab Receipt to CODIS Upload	2,546	73	86	88	71	2	512
Lab Receipt to DNA Report	6,003	78	84	93	72	0	510
Lab Receipt to Return to LEA	2,928	70	3	92	80	0	511
Medical Exam to DNA Report	5,924	85	90	103	77	0	515

Table 1. Duration of sexual assault evidence kit processes, in days.

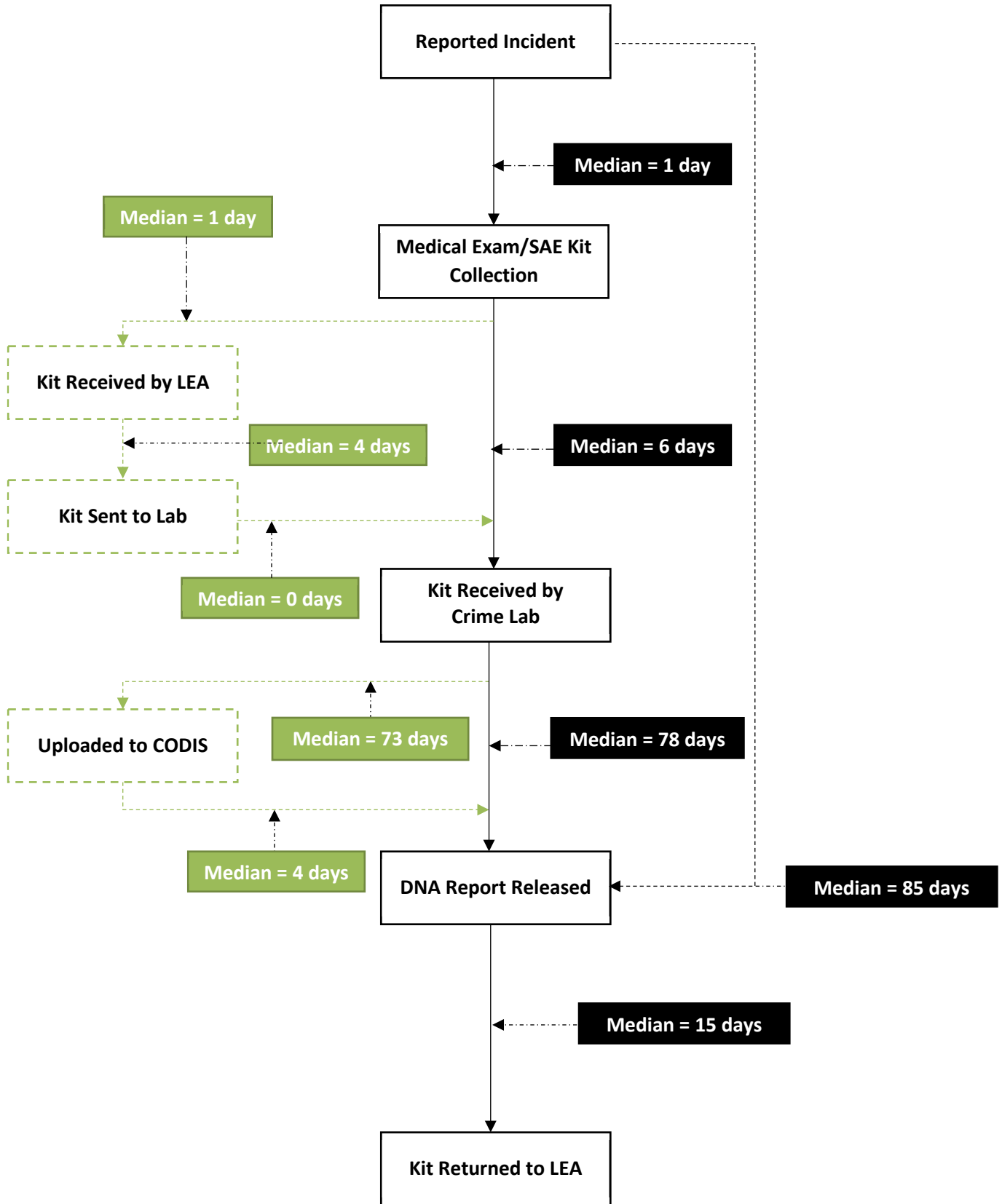


Figure 8. Lifecycle of SAE Kit with Typical Duration in Median Days.

Impact of 120-Day Timeline

There have been benefits and drawbacks to the implementation of the legislatively-encouraged 120-day turnaround time for processing SAE kits. (Starting January 1, 2020, the 120-day turnaround time became statutorily mandated due to the passage of Senate Bill 22, Chapter 588, Statutes of 2019.) Although timely SAE kit analysis is critical to bring offenders to justice, the prioritization of sexual assault cases over all others (e.g., homicides, robberies, etc.) has consequences that may not have been intended or anticipated. It has, for example, required the Department to reallocate personnel resources in order to meet the 120-day timeline. While SAE kits from service area counties represent about half of the DNA case submissions the Department receives, they now consume as much as 70 percent of its laboratories' analytical hours.

Reduced turnaround times to process SAE kits, coupled with insufficient resources for the SDIS and LDIS laboratories, have forced agencies to make difficult choices regarding which cases to analyze and where to allow the inevitable backlogs to accrue. The Department ensures that all SAE kits submitted to its laboratories are tested within 120 days of receipt and therefore does not have a backlog of untested SAE kits. However, prioritizing SAE kit processing without an accompanying increase in laboratory personnel has caused the Department to accumulate a backlog of approximately 2,300 cases in all other types of crime, including homicides and other violent crimes.

Although it can seem compelling to prioritize backlogs of evidence from sexual assaults over DNA backlogs for burglaries or vandalism, DNA profiles obtained from eligible lower-level crimes are the most frequent sources of CODIS matches to DNA evidence later collected from the most violent felonies. California's growing backlog in categories other than sexual assaults denies justice to victims of other serious crimes and impedes law enforcement's ability to quickly solve sexual assault cases through the DNA Data Bank Program.

Case-to-Case CODIS Hits

The purpose of analyzing an SAE kit for DNA evidence is to develop a perpetrator profile suitable for upload to CODIS. CODIS compares these DNA profile uploads from SAE kits to existing profiles in the database to try to find a match. These matches are known as *hits* and may connect the new profile to an existing CODIS profile of an arrestee, a convicted offender, or forensic evidence from another case. A CODIS hit can help law enforcement identify the perpetrator and even provide the common thread to tie serial crimes together.

Working on multiple types of cases simultaneously helps solve sexual assault crimes faster and, importantly, helps prevent serial crime. CODIS hits occur between profiles uploaded for sexual assaults and various other types of offenses, including homicide, aggravated assault, and property crimes. These hits aid investigators in finding and stopping serial offenders. In other words, *testing more* sexual assault kits is not necessarily the same as *solving more* sexual assault crimes, solving sexual assault crime *more quickly*, or *preventing* sexual assaults from occurring in the first place. Rather, testing more SAE kits is part of an equation that must also include testing evidence from other types of crimes.

In September 2009, the Department released the CODIS Hit Outcome Project (CHOP) database to track and notify LEAs about offender-to-offender CODIS hits. From its inception to September 9, 2019, CHOP recorded a total of **13,859** CODIS hits¹² between profiles that were uploaded for sexual assault offenses and known offender profiles. The category of the qualifying offense of the known offender profile was recorded in CHOP for **10,710** of the sexual assault case hits. Of those **10,710** hits, **2,449** were to offender profiles that had been uploaded to CODIS for a sexual assault. By comparison, **7,270** hits were to known offender profiles with qualifying offenses of aggravated assault, burglary, theft, motor vehicle theft, vandalism, arson, and drug- and weapon-related crimes¹³ (see Figure 9).

Unknown Sexual Assault Offender to Known Offender CODIS Hits, by Qualifying Offense

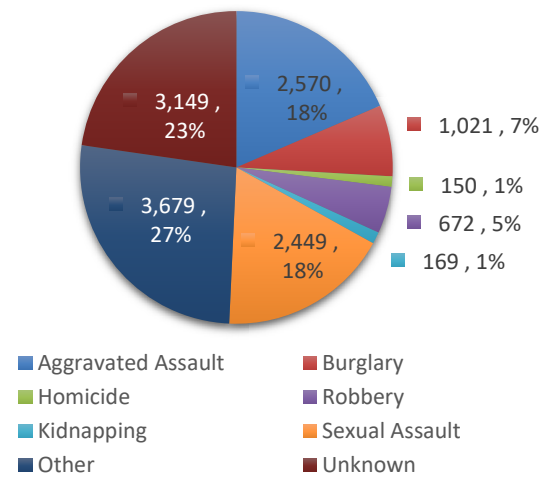


Figure 9. CODIS hits: sexual assault profiles to known offenders, by qualifying offense.

Frequently, violent crimes are not first crimes; therefore, developing and uploading profiles from collected evidence for all qualifying offense categories is crucial for every crime type. The following table details CODIS hits tracked by the Department between September 2009 and September 2019. A CODIS hit occurs when a forensic evidence profile is searched against the arrestee and offender profiles already in the database and a match is found. In the following table, the new and existing profiles are categorized by the qualifying offense that permitted each profile to be uploaded to CODIS. The crime category labeled “Other” includes arson, drugs, theft, motor vehicle theft, vandalism and weapons.

¹² An additional 6,685 offender hits had no incident crime type entered and are excluded from this report.

¹³ The category labeled “Other” consists of arson, drugs, theft, motor vehicle theft, vandalism and weapons.

**Offender/Arrestee CODIS Profiles Matched to Forensic Unknown CODIS Profiles
(Crime Scene Samples, Sexual Assault Evidence Kits, etc.)**

		<i>Aggr. Assault</i>	<i>Burglary</i>	<i>Homicide</i>	<i>Robbery</i>	<i>Kidnap</i>	<i>Sexual Assault</i>	<i>Other</i>	<i>Un- known</i>	<i>Total Hits</i>
Forensic Unknown Incident Crime	<i>Aggravated Assault</i>	287	128	36	99	4	29	562	353	1,498
	<i>Burglary</i>	1,743	3,849	99	801	22	159	6,367	4,213	17,253
	<i>Homicide</i>	369	177	144	113	6	86	767	554	2,216
	<i>Robbery</i>	536	473	43	521	12	57	1,438	926	4,006
	<i>Kidnapping</i>	23	15	3	13	10	13	68	43	188
	<i>Sex Assault</i>	2,570	1,021	150	672	169	2,449	3,679	3,149	13,859
	<i>Other</i>	784	832	49	298	11	85	3,252	1,891	7,202
<i>Total</i>	6,312	6,495	524	2,517	234	2,878	16,133	11,129	46,222	

Table 2. CODIS Hits by Qualifying Offense Category.