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# **2007 DNA Evidence and Offender Analysis Measurement**

## **DNA Backlogs, Capacity and Funding**

**Report Prepared by  
Lisa Hurst and Kevin Lothridge**

**January 2010**

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# Executive Summary

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In recent years, a considerable amount of public attention and funding has been devoted to decreasing backlogs of DNA evidence and offender samples and to increasing the capacity of U.S. crime laboratories. In particular, questions have arisen in recent years as to why a backlog of DNA still exists, despite significant funding from the federal government aimed at programs specifically designed to reduce backlogs and build capacity. Certainly, as DNA programs continue to grow and mature, concepts for best management practices and increased efficiency processes are being discussed in the community and implemented in laboratories throughout the nation. However, most investigators, prosecutors and crime laboratories are also very aware of the incredible surge in demand that has continued unabated since the advent of forensic DNA in the criminal justice system.

The *2007 DNA Evidence and Offender Analysis Measurement* provides an update on the nature and extent of backlogs at the nation's publicly funded state and local crime laboratories. The report presents data not only on the size of the backlogs, but also on important details regarding the levels of demand for new analysis, the available supply, or capacity, at the laboratories and the degree of reliance on federal funds.

Major findings from the *2007 DNA Evidence and Offender Analysis Measurement* include:

- A total of 153 crime laboratories reported a beginning backlog for DNA casework analysis of more than 54,000 requests and an end-of-year backlog of more than 70,000 requests. These figures should be considered in context with both the remarkable demand reported (more than 140,000 new requests) and the significant availability of supply or laboratory capacity (more than 124,000 completed requests).
- Property crimes represented a small percentage of the number of new and completed DNA analysis requests reported. However, some laboratories indicated significant demand for property crime analysis and limited capacity to complete such requests.
- More than half of all laboratories reported turnaround times of four months or less for new DNA casework requests. Twenty laboratories had turnaround times of nine months or more.
- Most laboratories reported a strong reliance on federal funding for continuing operation of DNA casework programs. Without federal funding, labs anticipated adding significantly to existing casework backlogs.
- Nationwide, 79 crime laboratories reported that offender DNA backlogs were reduced by nearly 200,000 samples in 2007, with a year-end estimate of approximately 650,000 backlogged samples.

More than one million new samples were submitted for analysis in 2007, and more than 1.2 million samples were completed.

- Many offender analysis laboratories have achieved turnaround times of 90 days or less in processing offender DNA samples; however, several smaller laboratories reported turnaround times of nine months or more.
- Offender DNA programs rely considerably on federal funding programs, although not to the same extent as seen in casework DNA programs.

## I. Introduction

The value of forensic DNA analysis is witnessed daily in headlines announcing the resolution of old crimes thanks to new DNA leads. However, despite the considerable attention paid to these backlogs and the importance of the evidence awaiting analysis, delays persist. Clues to the nature and extent of the backlog have been available through various studies and even anecdotal reports, but the criminal justice community and those responsible for the administration of related policies and budgets have an ongoing need to measure, benchmark and analyze these backlogs.

Moreover, these backlogs should not be considered in terms of sheer numbers only. A backlog of 100 DNA requests at a small laboratory may take a year to process, whereas the same backlog at a large laboratory may take only a few extra weeks of work. Therefore, metrics such as the average number of days needed to complete new requests for DNA analysis, or “turnaround times,” is another important matter to consider.

Additionally, over the years many state and locally funded crime laboratories have relied significantly on federal grant money to support their DNA programs. While such reliance indicates that the federal money is needed and is being put to good use, it may also serve to hide a laboratory’s true funding needs from those in political and administrative offices with budgetary responsibilities. These decision-makers should seek permanent local- or state-based funding solutions, but they may not clearly understand the extent of the DNA laboratory’s funding gap.

The *2007 DNA Evidence and Offender Analysis Measurement* on DNA Backlogs, Capacity and Funding (hereafter called *2007 Measurement*) provides a summary of data collected and analyzed through a survey instrument distributed to state and local publicly funded crime laboratories with forensic DNA programs. Section I and Section II provide the framework for the report and describe the methodology used to collect and analyze data. The report findings are divided into two primary sections: one addressing evidence, or “casework” DNA backlogs, discussed in Section III, and another addressing convicted and/or arrestee offender DNA programs, discussed in Section IV.

Section III of the *2007 Measurement* discusses in detail the existing backlogs at public crime laboratories. Included in this discussion is a consideration of the backlog, both in terms of the number of pending requests and the average turnaround time for completing new requests. Factors contributing to backlogs and turnaround times are also considered in this section, namely demand for new casework and “supply” or capacity of laboratories to handle growing demand. A brief discussion of non-violent crime submissions is also included, along with presentation of data reported regarding the importance of federal funding to crime laboratory DNA casework programs.

Section IV of the *2007 Measurement* quantifies the responses from offender DNA programs regarding the status of backlogs, turnarounds, demand and capacity for offender DNA analysis. Discussion also includes the potential for growth in these programs due to state legislative activity in expanding databases. Finally, data regarding the relative reliance on federal funding for offender DNA programs are presented.

## II. Methodology

The National Forensic Science and Technology Center (NFSTC) contracted with SAL Government Services to develop the survey instrument, identify laboratories for participation, perform follow-up for data submission and draft a final report. SAL Government Services is a division of Gordon Thomas Honeywell Governmental Affairs, a group known for their expertise with forensic DNA policy. Kristen Hughes was contracted to perform data verification. Ms. Hughes is a former statistician with the U.S. Department of Justice's Bureau of Justice Statistics, and she previously worked with the Bureau's *Census of Publicly Funded Forensic Crime Laboratories, 2005* (NCJ 222181). Data Verification Tables can be found in Appendix 2.

All publicly funded crime laboratories performing DNA analysis were identified and confirmed through multiple sources, including comparison with lists of laboratories accredited by the American Society of Crime Laboratory Directors (ASCLD) and Forensic Quality Services (FQS), laboratories surveyed through the Bureau of Justice Statistics' *Census of Publicly Funded Forensic Crime Laboratories, 2005*, (July 2008, NCJ 222181, hereafter referred to as the *2005 Census*), National Institute of Justice (NIJ) rosters of DNA grantees and other resources available through the researchers' own contacts. The final pool of respondents was limited to those publicly funded crime laboratories that were accredited and operating forensic DNA analysis programs. Additionally, federal and military crime laboratories were omitted from the data collection effort, as many of the questions were specific to the utilization of federal grants by state and local laboratories.

In addition to simply quantifying the current state of DNA backlogs in the United States, this study strived to provide data sets to update the backlog growth/reduction in comparison with figures gathered from the *2005 Census*. The draft survey instrument was reviewed by a statistician who worked on the *2005 Census* for confirmation that efforts to collect comparable data sets would be successful.

A pretest of the draft survey instrument was completed by a variety of laboratories in the respondent pool – big and small, state and local – in order to make final adjustments prior to the full launch. The survey instrument itself was an online form that was distributed to crime laboratory directors by e-mail (See Appendix 1.). Follow-up communications were conducted with the crime laboratory directors and with key personnel in the DNA sections. Data from online forms were aggregated in a master spreadsheet. Laboratories that were unable to complete the online form submitted their responses by fax or as electronic attachments. There are no imputed responses in the *2007 Measurement*.

Each laboratory was surveyed individually, following the protocol for the *2005 Census*. However, in several instances, state laboratory systems consisting of several regional laboratories indicated that they were unable to provide individual responses for each laboratory in the system and instead could provide only one system-wide response. Every state laboratory surveyed provided a response, and every local laboratory surveyed within the United States responded, with the exception of one. The non-responding laboratory indicated that it was unable to provide responses due to a directive from the agency's administrator prohibiting participation in surveys.

**Table 2.1***Laboratories responding to questionnaire, by jurisdiction served*

	<b>Number of Laboratories Surveyed</b>	<b>Number of Responses</b>
State Laboratory*	79	79
Local Laboratory	75	74
Total	154	153

- \* It should be noted that the number of state laboratories performing DNA analysis is well above the 79 laboratories reported in the final survey numbers in this report. Many state laboratories reported to researchers that laboratory policy and/or procedures do not permit individual responses for each laboratory in the state system. In order to obtain as much data as possible, these laboratories were granted permission to provide a single response for the entire state system, thereby reducing the overall number of laboratories included in the final analysis.



### III. Casework Backlogs

The first task of the *2007 Measurement* was to provide an updated estimate on the number of DNA requests in the custody of publicly funded crime laboratories. This effort specifically *did not* attempt to count those requests that are in the custody of local law enforcement and not yet submitted to the crime laboratory. Prior to the *2007 Measurement*, the most recent study regarding backlogged DNA requests at crime laboratories is reported in the *2005 Census*. For benchmarking purposes, researchers for the *2007 Measurement* effort endeavored to develop a data set that would be comparable to the *2005 Census* data regarding DNA analysis. As such, laboratories were presented with questions regarding DNA analysis requests and related definitions as follows:

A **case** is defined as evidence submitted from a single criminal investigation.  
A **backlogged case** is a case that is in the laboratory and remains unreported for a period of 30 days or more.  
A single case may result in multiple **requests**; e.g., one case may include a request for biology and a request for latent prints.  
The **single request** for biology may include multiple items to be analyzed for biological fluids.

1. FORENSIC DNA REQUESTS. In the questions below, please indicate the following:  
a. the number of single backlogged requests as of January 1, 2007  
b. the number of single new requests received in Calendar Year 2007  
c. the total number of single requests completed in 2007

The *2005 Census* calculated year-end backlogs by adding (a) the 2005 beginning backlog to (b) the 2005 number of new requests and then subtracting (c) the 2005 number of completed requests, or  $a + b - c = d$ . Through additional conversations with crime laboratories as the questionnaires were being completed, researchers determined that, depending on how each laboratory's accounting process operates, several factors could skew the actual final results for the calculated year-end backlog.

First, certain circumstances may result in a request being submitted, but then closed without actually being counted as "completed." In some instances, an analyst may determine that there was insufficient evidence for testing, or perhaps the entire case was closed for unrelated reasons. In the final calculations, such requests could appear in the year-end backlog figure, depending on the laboratory's accounting methods, although many labs would in fact count such cases as "completed." In other circumstances, the reported "beginning backlog" may not account for cases in the laboratory's custody that did not yet meet the definition of "backlog," meaning they were still within a 30-day window for completion. Thus, a lab with 50 such cases in mid-December would not necessarily count those cases either in the "beginning backlog figures" or in the "new requests" for the following year. However, such cases could appear in the "completed" figures for the year, potentially creating scenarios where a lab appears to have completed more requests than the combined total of reported beginning backlog plus new requests for the year. Unfortunately, any measurement method used to calculate backlog at crime laboratories will be filled with special circumstances given the lack of a uniform method for counting requests, varying definitions of "backlog," and individual operational differences inherent in each

laboratory. While such differences could affect the actual year-end backlogs, such differences should not significantly skew the final calculations.

### A. General Findings

As shown in Table 3.1, 153 responses from crime laboratories were received to this set of questions in the *2007 Measurement*, representing all publicly funded, accredited DNA laboratories in the United States, with one exception.<sup>1</sup> Each laboratory was surveyed individually, following the protocol for the *2005 Census*. However, many state laboratory systems reported that individual responses for regional laboratories within the system were unavailable, due either to internal accounting difficulties or to new agency policy. In these instances, laboratories were asked to submit a response for the entire system. As a result, the 153 laboratories counted in the responses actually represent nearly 100% of individual laboratories because some state systems provided only one response for multiple laboratories. The *2005 Census* data do not appear to have received system-wide responses to the DNA analysis questions, reporting that 66% of laboratories with DNA analysis functions responded, which makes direct comparisons somewhat difficult. With approximately one-third of possible responses missing in the *2005 Census* data for DNA analysis, it is difficult to have a true comparison of *2005 Census* figures and *2007 Measurement* figures.

**Table 3.1**

*2005 Census data on DNA analysis compared with 2007 Measurement data*

	<b>2005 Census (124 labs reporting, 66%)</b>	<b>2007 Measurement (153 labs reporting, 99%)</b>
Beginning Backlog	24,030	54,021
New Requests	67,009	137,408
Completed Cases	52,812	122,895
Ending Backlog	38,227	68,543

In addition to the disparate number of laboratory responses, researchers identified an additional difficulty because the initial design of the *2007 Measurement* survey instrument did not consider that the *2005 Census* counted biological screening requests as separate from requests for DNA analysis. There are benefits as well as drawbacks to such calculations. In many laboratories, biological screening cannot be counted as a separate task from DNA analysis. These laboratories screen and then analyze evidence in one continuous session, often completed by the same analyst. In fact, as indicated in the *2005 Census*, most biological screening cases are completed in preparation for DNA analysis. By suggesting that biological screening is a separate backlog from that of DNA analysis, the actual demand coming from law enforcement for DNA casework could be grossly under-reported if biological screening cases are not understood to have initiated as a request for DNA analysis. On the other hand, counting these two forensic functions separately, when possible, may provide a clearer picture of where bottlenecks occur in the laboratory. Moreover, this separated counting method would also better adjust for the fallout of those cases in which biological screening does not ultimately yield testable DNA evidence. In a discussion with researchers about why separate numbers were sought for DNA analysis instead of a combined response for screening and analysis, one laboratory stated:

<sup>1</sup> One local laboratory was unable to respond due to the agency director's moratorium on responding to survey requests.

*... it is my opinion that we short change the forensic science approach to evidence analysis by viewing only the DNA component without truly looking at the complete process of evidence processing and analysis. Number of cases, types of testing and level of forensic work in the area of DNA analysis really does need to include the serology evidence evaluation and collection process as a part of the entire DNA analysis of forensic evidence. The wrong samples collected make DNA useless; the correct evaluation and collection can be fed to robots and the results will be powerful.*

Simply adding the 2005 Census DNA analysis requests to its biological screening requests could result in a significant double counting of requests. For example, a single request could be counted as two requests in the final figures if it received both biological screening and DNA analysis in the same year. Moreover, it necessarily assumes that all reported DNA analysis cases for the 2007 Measurement included biological screening cases. Through follow-up correspondence with respondents, researchers determined that a fair number of crime laboratories did in fact report only DNA analysis requests and not biological screening requests. Therefore, because of the larger response pool for the 2007 Measurement and discrepancies between DNA analysis requests and biological screening requests, a comparison of data sets between the 2005 Census and 2007 Measurement would be ill-advised.

Nonetheless, the 2007 Measurement data are still valuable in providing insight into the successes and continued challenges facing forensic DNA laboratories around the country and can still be considered on their own merit rather than in comparison with the 2005 Census data. The 2007 Measurement data point to significant capacity of publicly funded laboratories to handle requests for DNA analysis. In 2007, more than 122,895 requests for DNA were reported as “completed.” Unfortunately, this substantial capacity to complete requests for DNA analysis is accompanied by an even greater demand for new DNA analysis, which topped 137,408 requests in 2007. These new requests, added to the existing backlogged requests carried over from 2006 (54,021 requests), result in more than 188,000 pending requests for DNA analysis in 2007. While more than 122,000 of these requests were completed, laboratories were still left with an ending backlog for 2007 of approximately 68,543 requests. Therefore, despite the incredible progress made by laboratories in addressing old backlogs and building capacity for completing incoming DNA analysis requests, demand for DNA analysis continues to outpace the available capacity at laboratories to complete analyses without adding to the existing backlog. In fact, the increased backlog at the end of 2007 is nearly a 30% increase over the beginning backlog.

In summary, although the 2005 Census figures on DNA analysis cannot be relied upon as a benchmark for comparisons, the 2007 Measurement data alone still provide a clear illustration of the challenges facing forensic DNA programs. Crime laboratories reported a beginning backlog in 2007 for DNA casework analysis of more than 54,000 requests and an end-of-year backlog of more than 68,000 requests. These figures must be considered in context with both the remarkable demand reported (more than 137,000 new requests) and the significant availability of supply or laboratory capacity (more than 122,000 completed requests).

## B. Property Crime Requests

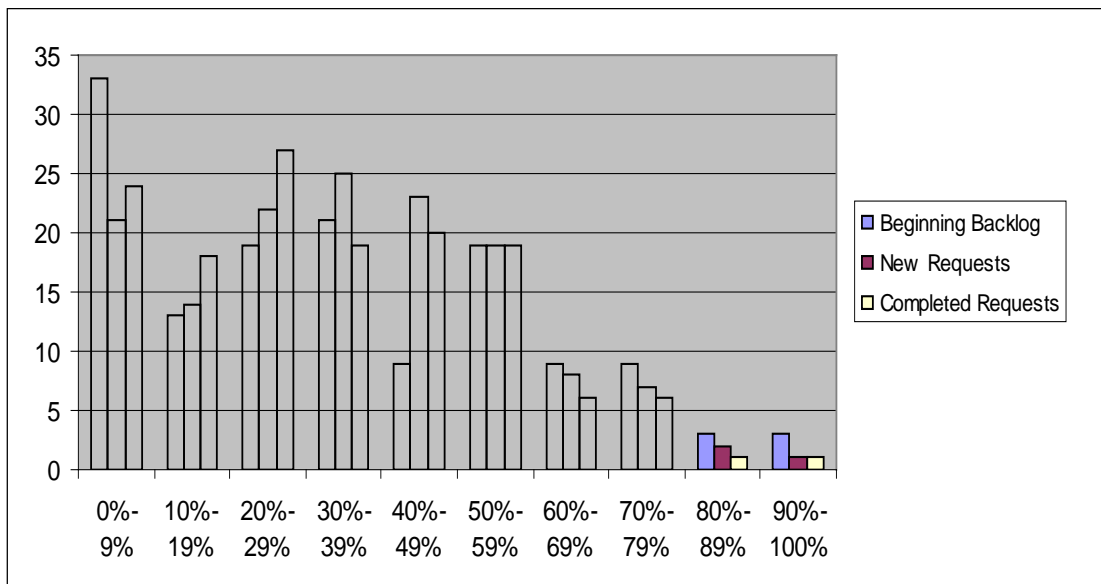
In addition to the questions posed regarding DNA requests and completions, laboratories were also asked to provide details on the estimated percentage of property crimes contained in the reported DNA analysis numbers. Of the 153 responding laboratories, 138 responded to this question. The majority of responding laboratories reported that property crimes are still a small percentage of the overall backlog

and account for a small portion of new requests. As illustrated in Table 3.2, 65 laboratories reported that property crime requests were 30% of total new requests for DNA analysis, and 111 reported that the percentage of property crime cases was 50% or less. Moreover, the figures individually reported by most laboratories for new property crime requests and completed property crime requests were within 10 percentage points, suggesting that laboratories are adequately managing the demand for DNA analysis in property crime cases.

However, in reviewing the individual responses, many laboratories may have chosen a number that was then entered for each category (beginning backlog, new requests, completed requests), suggesting that the figures on property crimes do not represent a good faith effort to provide accurate estimates. With this in mind, a closer look at a few individual responses in which very specific figures were provided may provide a clearer picture. In one such instance, one larger local jurisdiction reported that property crimes accounted for 96% of their backlogged requests at the beginning of the year, and accounted for 60% of all requests during the year. A relatively small state laboratory also reported that property crime cases accounted for 95% of the beginning backlog, 75% of new requests, and only 20% of completed requests by the end of the year. An even smaller state laboratory reported that backlogged property crime cases accounted for 60% of all beginning backlogged cases, 58% of all new requests, and 35% of all completed requests.

**Table 3.2**

*Estimated percentage of reported DNA analysis data attributable to property crime case requests*



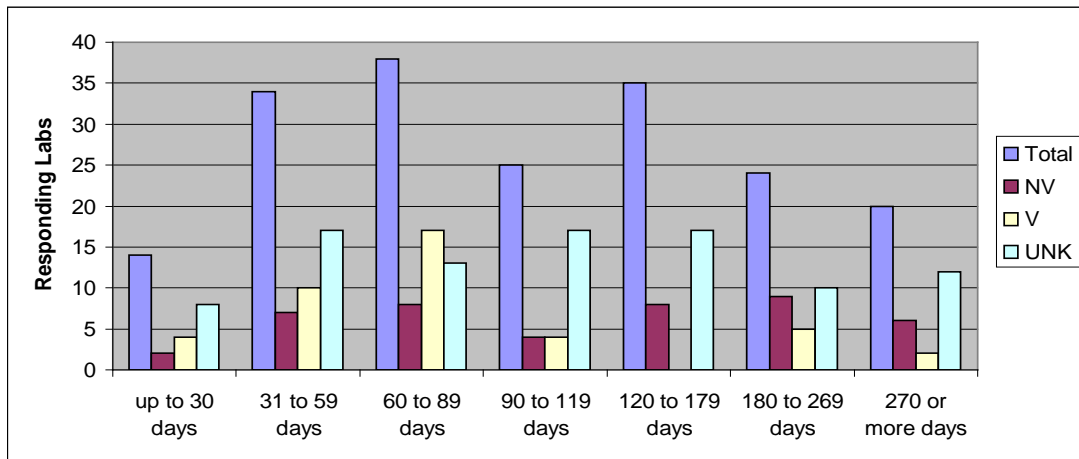
**C. Casework Turnaround Time**

Measuring DNA workloads at laboratories based solely on the number of backlogged requests can ultimately paint a misleading picture. Questions regarding laboratory capacity, types of cases backlogged and even specific characteristics of a jurisdiction are all factors that should be considered when quantifying DNA backlogs. These factors, and potentially many others, can all contribute to the amount of time required to complete analysis of a DNA request. As such, turnaround time may be a better measure of backlogs than a simple counting of requests not yet processed.

Respondents to the 2007 Measurement were asked for the average number of days needed to complete their current load of non-priority forensic cases, including peer review and reporting. Responses to these questions are illustrated in Table 3.3. Of the 145 laboratories responding to this question, only 14 reported to have the equivalent of “no backlog,” which was defined in the survey instrument to mean those cases completed within 30 days of receipt of the request. At least two of these laboratories processed all cases within 30 days, including both violent and non-violent cases. Four of the 14 laboratories reported that the 30-day period applied to violent requests only, and eight did not differentiate between violent and non-violent cases (“Unknown”). It should also be noted that the 14 laboratories reporting a 30-day backlog are primarily those serving smaller jurisdictions.

More than three-quarters of responding laboratories (111) reported completion of DNA analysis requests within 119 days (four months) of receipt, or less. However, this means that the remaining laboratories experiencing longer turnaround times all reported requiring more than 120 days to complete analysis. Twenty-four of these laboratories reported that more than 180 days (six months) were needed, and another 20 laboratories reported that more than 270 days (nine months) were needed. The laboratories needing 270 days or more were represented by three statewide laboratories serving relatively small populations, at least two regional laboratories in a statewide system (population served is unknown) and several local laboratories serving various sizes of populations.

**Table 3.3**  
Average turnaround time for non-priority DNA analysis requests



NV = Non-violent      V = Violent      UNK = Unknown

Several states did not respond correctly to the question by selecting an average turnaround time for their cases, and instead provided a specific breakdown of the number of cases processed in each time interval. While not directly useful to the quantification sought for this measurement, these more specific responses do contain data that provide a clearer picture of the range of turnaround times possible even within one laboratory. For example, one larger laboratory reporting in this manner revealed that of nearly 14,000 DNA requests, approximately 6,000 were processed within 180 days or more. For the same laboratory, more than 3,500 requests were completed within 60 days.

As discussed previously, in measuring backlogs and turnaround times, some consideration should be given to the distinction between violent crime cases and property crime cases. As seen in Table 3.3, in general, violent cases are much more likely to be completed quickly as opposed to non-violent cases – at

least for those laboratories that were able to differentiate between violent and non-violent cases in their responses. Generally speaking, violent crime cases are a greater priority for laboratories, due primarily to the corresponding emphasis placed on solving such crimes by law enforcement and the general public. However, delays in processing property crime cases for DNA analysis can sometimes have a disproportionate impact on such cases due to the greatly abbreviated statute of limitations for prosecuting non-violent crimes. For example, a nine-month backlog on a break-in case that has a statute of limitations of only two years is a significant portion of that crime's shelf life.

#### D. Federal Funding

The *2007 Measurement* also asked several questions regarding the use of federal funds administered by NIJ for forensic DNA programs. The purpose of these questions was to determine the extent to which state and local DNA programs rely on federal funding for ongoing operations.

When asked the question:

*If NIJ funding specific to DNA programs (such as casework backlog reduction, capacity enhancement, offender backlog reduction) was discontinued in future years, what would be the anticipated impact on backlogs in your casework DNA program?*

Of the 148 responding laboratories, 123 (83%) replied that an increase in casework backlogs would be expected. In sum, laboratories responded that almost 26,000 additional backlogged cases would be expected without continued federal funding support. Of the 123 laboratories expecting an increase, 15 did not provide an estimated figure for additional backlogged samples.

Another question posed to survey respondents asked what portion of their DNA casework budget comes from NIJ sources. Specifically, the question asked for responses regarding the percentage spent on reagents, instrumentation and training. Each category had upper-range responses of 100% and lower-range responses of 0%, but there was a clear preference toward strong reliance on federal funding for instrumentation purchases and training, and less reliance for reagent purchases, as shown in Table 3.4.

**Table 3.4**

*Mean and median data for responses regarding portion of DNA casework budget relying on NIJ sources*

	<b>Percentage of Overall Budget</b>	<b>Percentage of Budget for Reagents</b>	<b>Percentage of Budget for Instrumentation</b>	<b>Percentage of Budget for Training</b>
Mean	35.17	23.76	69.52	41.77
Median	26	10	85	20

Another question asked if state and local funding would be sufficient to continue current operations if federal funding were no longer available. Nearly 90%, or 133 laboratories, responded that they would not have sufficient funding. Most interesting were some of the comments provided by laboratories, which point to larger, secondary problems that could occur because of a loss of federal funding. Many labs reported simple increases in backlogs and a strong likelihood of falling behind in technology. One lab reported:

*We would reduce our training of investigators so analysts could devote all their time to casework.*

While such a decision would be understandable if faced with a dire funding situation, this lack of training for investigators could ultimately result in a decrease in the quality of samples being submitted and less efficiency in the laboratories.

Another laboratory reported on the difficulty in forcing state legislatures to pay attention to the state of their own crime laboratories:

*We would be dead in the water without the NIJ funding. The legislators have been told about the need to supply adequate funding but they have not met the need with additional funds.*

## IV. Offender DNA Backlogs

### A. General Findings

DNA samples collected under statutory authority for inclusion in CODIS are another area of backlogs for many publicly funded DNA laboratories. The *2005 Census* stated that 22 states reported processing 234,000 offender samples. However, with each state having at least one offender DNA processing laboratory, clearly fewer than half of all laboratories responded to this inquiry. However, the *2007 Measurement* collected these figures from 100% of all offender DNA testing laboratories, including all regional laboratories and local laboratories that bear responsibility for offender analysis. The data in Table 4.1 should serve as a benchmark for current consideration and future comparisons. In all, 79 laboratories responded, providing the aggregated figures below.

Specifically, those crime laboratories responsible for processing offender samples for the state DNA database were asked to respond to questions regarding the number of offender samples backlogged as of January 1, 2007; the number of new offender samples received in 2007; and the total number offender samples completed in 2007, including those found to have insufficient material for analysis. Laboratories were asked to include those samples that were submitted but discarded due to insufficient specimen as a completed profile for the purpose of this measurement.

**Table 4.1**

2007 Measurement data regarding offender DNA program backlogs, requests and capacity

Beginning Backlog	841,847
New Requests	1,021,930
Completed Profiles	1,206,612
Ending Backlog	657,165

These data indicate that the backlog of unanalyzed offender samples was still quite large in 2007, nearing 850,000 samples. For a demonstration of the difficulty in making progress on these backlogs, one needs only to look at the new requests reported for 2007. With a beginning backlog nearly as large as the number of samples submitted for the entire year, which was more than one million, getting ahead of the DNA backlog of offender samples has been a monumental task for crime laboratories. However, laboratories are also showing significant capacity increases in their ability to analyze these DNA profiles, with more than 1.2 million profiles completed in 2007. The resulting estimate for ending backlog in 2007 is slightly more than 650,000 (beginning backlog added to new requests, reduced by completed profiles), which means that the backlog was reduced by more than 200,000 samples in 2007.

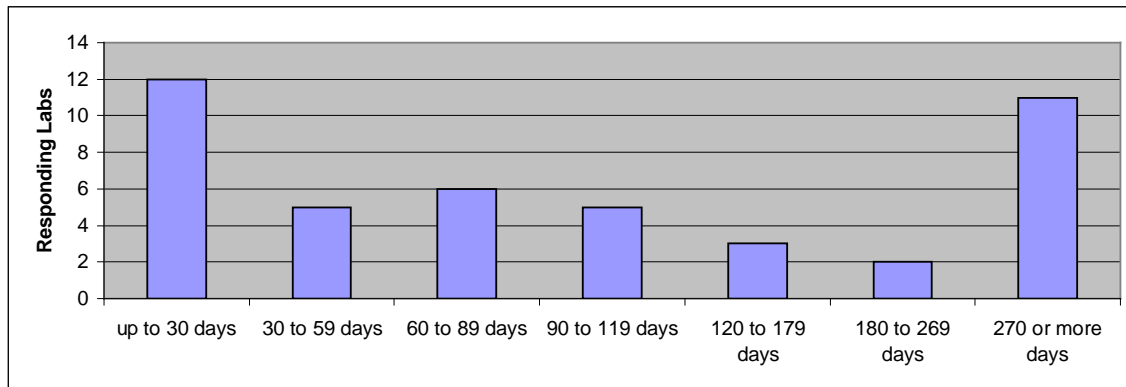
### B. Offender Turnaround Time

As with casework, an important factor in offender backlogs is the time lapse, or turnaround time, between the date an offender sample is accepted at the laboratory until the time that sample is analyzed and included in the database. Table 4.2 shows the results from the 44 laboratories that responded to the question asking for the average number of days needed to complete the current load of offender samples, including upload to CODIS.



**Table 4.2**

Average turnaround time for offender DNA samples, including upload to CODIS



Of the responding laboratories, 12 reported having turnaround times of 30 days or less. Approximately half of all laboratories reported a very manageable backlog of only 90 days or less. However, another 11 states reported turnaround times of more than nine months (270 days). Of these states with longer backlog periods, more than half were laboratories that receive fewer than 5,000 offender samples per year, and all respondents, with one exception, receive fewer than 10,000 offender samples per year.

Those states facing longer turnaround times for offender samples are in particular jeopardy in instances where a DNA sample is collected just prior to a felon's release from prison, for cases where felons are sentenced to short jail terms or placed on community supervision, and for states that have implemented laws to collect DNA from certain arrested individuals. In these circumstances, a backlog of any length may lead to the unnecessary and potentially dangerous release of an offender who may have otherwise been linked on the database to an unsolved crime.

### C. Offender Database Growth

In years to come, many states may face continued expansion of their DNA database through state legislation requiring more profiles to be added to the subject index of the database. Specifically, a growing number of states are considering or enacting legislation to require DNA upon arrest for felony crimes and upon conviction for a growing number of misdemeanors. In order to determine the future growth of these programs – and the potential for continued or additional reliance on federal funds – respondents were asked to estimate the number of additional samples anticipated if their state legislature were to enact a law to require DNA for all felony arrestees.

In many instances, survey instruments such as the one used in this research effort sometimes provide valuable information and insight in analysis of the data that could not be accurately captured. Laboratories responding to the question requesting an estimate of the anticipated additional samples resulting from arrestees yielded a figure of more than 2.5 million additional samples. In looking closely at these figures, estimates provided by the laboratories vary considerably, with extreme ranges between states of similar populations. Additionally, many figures do not appear to be comparable to arrest figures available through the FBI Uniform Crime Reports.

For these reasons, the numbers reported by laboratories regarding anticipated additional samples were deemed unreliable for analysis in this report. However, the inability of some laboratories to provide an

informed response on this question is noteworthy. It suggests that as state legislatures and laboratories move toward arrestee DNA laws or other expansions, they may be grossly underprepared – or potentially overly prepared – for the resulting additional workload.

#### D. Federal Funding

As with the casework programs, respondents were asked several questions regarding their use of federal funds for offender DNA programs. The purpose of these questions was to determine the extent to which offender DNA programs have become reliant on federal funding for ongoing operations.

Respondents were asked:

*If NIJ funding and related programs specific to DNA (such as casework backlog reduction, capacity enhancement, offender backlog reduction) were discontinued in the future, what would be the anticipated impact on backlogs in your offender DNA program?*

Offender DNA programs appear to be in slightly better fiscal condition than the casework programs. Of 49 responding laboratories, 19 (38.8%) reported that no increase in backlogs would be expected, compared with 16.8% responding similarly for the casework program. However, for those laboratories expecting an increase, an additional 225,800 samples per year are expected. This increase would begin to erase the progress states have been making on offender backlogs. It also indicates that while laboratories are relatively less reliant on federal funds for offender program operations than they are for casework program operations, federal money still plays a very big role.

As with casework programs, purchase of instrumentation is a primary function of the federal dollars in these offender DNA programs. Several respondents reported that without federal funding, the laboratory would be unable to purchase new technologies that contribute to efficiencies. Training and reagents were also reported as major spending areas for some laboratories, but were considerably less than what was reported for instrumentation.

**Table 4.3**

*Mean and median data for responses regarding portion of DNA offender budget relying on NIJ sources*

	<b>Percentage of Budget for Reagents</b>	<b>Percentage of Budget for Instrumentation</b>	<b>Percentage of Budget for Training</b>
Mean	27.07	60.25	32.34
Median	0	85	0

## V. Summary of Findings and Conclusion

### A. Casework

1. *The backlog of untested requests for DNA analysis continues to grow, as existing backlogs and new requests outpace the available capacity at laboratories to complete analysis on the DNA requests.*

In January 2007, 153 public crime laboratories reported an existing DNA backlog of 54,000 requests. During the same year, laboratories reported receiving more than 140,000 new requests and completing more than 124,000 requests. By the end of the year, this leaves a backlog of more than 70,000 requests, or an increase of nearly 30% over the initial backlog.

2. *Most laboratories are completing requests for DNA casework within 90 days, but a few laboratories still have unacceptably long turnarounds.*

Turnaround times are an important aspect of any measurement of backlogs. In some instances, a lab with a backlog of 1,000 requests may report that all requests can be completed within 90 days, whereas another laboratory with only 200 requests may require the same amount of time to complete the work. So measuring the length of time needed to complete analysis is an important factor in any discussion on backlogs. Although data on turnaround times for non-violent cases versus violent cases is incomplete, there appears to be a clear lead in the completion of violent cases ahead of non-violent cases.

3. *State and local crime laboratory casework DNA programs are insufficiently funded and rely heavily on federal funding for continuing operations and control of current backlogs.*

Crime laboratories continue to struggle with capacity issues as the demand for more DNA analysis continues to grow. The majority of laboratories responding to the survey indicated that without federal funding, significant cuts would be made to current operations and many reported that backlogs would grow. Notably, several laboratories pointed out that the portions of their budget most reliant on federal funding were budgets for new technologies and budgets for training. However, cuts to either of these budgets could result in laboratories and DNA-related investigations operating in conditions that are less efficient, and potentially less accurate.

### B. Offender DNA Programs

4. *Offender programs are making significant progress on the backlog, despite a significant demand for testing.*

In 2007, 79 laboratories responsible for processing offender DNA samples saw their backlogs decrease by a total of 200,000 samples by the end of year. However, the ending backlog for 2007 was still well more than 600,000 unprocessed offender samples. Moreover, while state legislatures continue to expand DNA database statutes, crime laboratories do not appear to have sound predictions for the number of new samples that these laws will bring.

5. *Many offender DNA programs are insufficiently funded; however, reliance on federal funding for these programs does not appear as heavy as for casework programs.*

Offender DNA programs reported being less dependent on federal funding than what was reported for casework programs, with 38% indicating that no additional backlogs would be expected if the federal funding were no longer available. Nonetheless, for those programs that do rely on federal funding for significant support, an estimated 225,000 samples would be added to the current backlog without federal grant assistance.

### C. Conclusion

In conclusion, forensic DNA programs at state and local publicly funded crime laboratories continue to face considerable strain as demand has outpaced both the available capacity and the available funding for DNA analysis. While overall backlogs of DNA analysis of evidence in criminal cases has continued to skyrocket, the capacity for processing forensic DNA requests at U.S. crime laboratories has also dramatically expanded. Offender DNA programs have seen a remarkable decrease in the overall backlogs, despite continually changing statutes that add to the overall number of offender samples being submitted to laboratories. Nonetheless, most laboratories noted that gains recently made in addressing offender DNA backlogs could entirely disappear if federal grants are no longer available.

The federal government has played – and continues to play – a vital role in assisting laboratories with funding for their DNA programs as they struggle to meet growing requests for DNA analysis. The degree of reliance on federal funding reported by many laboratories illustrates a critical need for state and local governments to seriously evaluate their degree of investment in their own forensic crime laboratories. Without a serious commitment on the part of state and local governments to finding adequate and permanent funding solutions for crime laboratories, it is unlikely that laboratory dependence on federal grants can be significantly altered.

# Appendices

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## 2007 DNA Evidence and Offender Analysis Measurement

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The National Institute of Justice is interested in gathering data regarding DNA evidence and offender analysis at publicly funded crime laboratories. This data is being gathered through an NIJ grant (2006-MU-BX-K002) by the National Forensic Science Technology Center. The first set of questions was designed to provide NIJ with an update to the Bureau of Justice Services (BJS) 2005 Census of Publicly Funded Crime Laboratories. As such, the instructions and terminology provided below are derived directly from the 2005 Census questionnaire for the purpose of collecting comparable data sets. As with the BJS Census, the data will be summarized in an aggregate manner. It is not the intent of this study to publish individual responses.

This questionnaire is directed to all Publicly Funded Crime Laboratories, defined as:

1. an entity funded solely by the government or whose parent organization is a government agency; and
2. a laboratory which employs one or more full time scientists whose principal function is the examination of physical evidence for law enforcement agencies and that provides reports and testimony to courts of law with respect to such evidence.

Additionally, as the questions contained within apply only to DNA analysis, only those Publicly Funded Crime Laboratories performing DNA analysis should respond.

Some laboratories are part of a state or national system. Each laboratory has been sent a copy of this survey with a unique ID number. Even if your laboratory is part of a state or national system, we need information that reflects the resources and caseloads of your site only, not that of an entire laboratory system.

The questionnaire is voluntary, but we would be greatly assisted by your cooperation to make the results comprehensive, accurate, and timely.

There are two ways to respond to this questionnaire:

1. Internet: An electronic version of this questionnaire is located on the Internet at <http://www.questionpro.com/akira/TakeSurvey?id=872205>
2. Fax: You may fax your completed questionnaire to Kevin Lothridge at 727-549-6070.

Please complete the electronic version or fax the completed print version by May 2, 2008.

**Continue**

If you require any clarification on the questions, contact NFSTC STAFF ([Kevin.Lothridge@NFSTC.org](mailto:Kevin.Lothridge@NFSTC.org) 727-549-6067x103). If you have any questions or concerns regarding the nature of this research or its future applications, please contact John Paul Jones at [John.Paul.Jones@usdoj.gov](mailto:John.Paul.Jones@usdoj.gov) or 202-307-5715.

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Questions marked with a \* are required

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### 2007 DNA Evidence and Offender Analysis Measurement

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Name \*

Position \*

Phone \*

e-Mail \*

Agency \*

#### Instructions

- ❖ Select ONE response option per question, unless otherwise directed.
- ❖ Answer EVERY question and please provide a response in EVERY text box, unless otherwise directed.
- ❖ If none in a particular category, please enter "0".
- ❖ Fill in all text boxes with answers that refer to your SITE ONLY; even if you are part of a statewide system.
- ❖ If not applicable to your lab, please enter "NA".

#### Definitions

A **case** is defined as evidence submitted from a single criminal investigation.

A **backlogged case** is a case that is in the laboratory and remains unreported for a period of 30 days or more.

A single case may result in multiple **requests**; e.g., one case may include: a request for biology and a request for latent prints.

The **single request** for biology may include multiple items to be analyzed for biological fluids.

1. FORENSIC DNA REQUESTS. In the questions below, please indicate the following:

- a. the number of single backlogged requests as of January 1, 2007
- b. the number of single new requests received in Calendar Year 2007
- c. the total number of single requests completed in 2007
- d. the average number of days needed to complete non-priority forensic cases ("priority" being a case pulled out of the regular queue for analysis)

#### 2007 Requests

a. # of backlogged DNA requests as of January 1, 2007 \*

Please estimate percentage of these requests that were property crimes.

b. # of new DNA requests received in 2007 \*

Please estimate percentage of these requests that were property crimes.

#### 2007 Completes

c. total # of requests completed in 2007 \*

Please estimate percentage of these cases that were property crimes.

#### Turnaround

d. the average number of days needed to complete (including peer review and report) current load of non-priority forensic cases. Please indicate violent crime time with a "V" and the nonviolent crime time with "NV". If you cannot separate violent and nonviolent cases, please mark your selection with "X".

up to 30 days	<input type="text"/>
31 to 59 days	<input type="text"/>
60 to 89 days	<input type="text"/>
90 to 119 days	<input type="text"/>
120 to 179 days	<input type="text"/>
180 to 269 days	<input type="text"/>
270 or more days	<input type="text"/>

2. If NIJ funding specific to DNA programs (such as casework backlog reduction, capacity enhancement, offender backlog reduction) was discontinued in future years, what would be the anticipated impact on backlogs in your casework DNA program? \*

- No increase in casework backlogs expected
- Increase expected

Approximately how many additional cases backlogged per year? (Please use rounded figures)

3. What percentage of your total budget for DNA casework is from NIJ sources? \*

IF POSSIBLE, please provide a breakdown.

% of budget for reagents funded from NIJ

% of budget for instrumentation funded from NIJ

% of budget for training funded from NIJ

4. If NIJ funding specific to to DNA programs (such as casework backlog reduction, capacity enhancement, offender backlog reduction) was discontinued in future years, what would be the anticipated impact to your DNA casework program? \*

- State and local funding would be sufficient to continue current operations.
- State and local funding would not be sufficient to continue current operations, and the following would likely occur.

Select all that apply.

- Personnel reductions
- Limitations on case acceptance policy
- Loss of training and/or continuing education opportunities
- Decreased outsourcing
- Decreased equipment purchases
- Decreased supply purchases
- Other

**LABORATORIES NOT RESPONSIBLE FOR CODIS OFFENDER PROCESSING SHOULD PROCEED TO QUESTION 12.**

5. OFFENDER PROFILES. Please indicate the following:

- a. the number of offender samples backlogged as of January 1, 2007



- b. the number of **new** offender samples received in 2007
- c. the **total** number offender samples completed in 2007 (to include those found to have insufficient material for analysis)
- d. the average number of days needed to complete offender sample analysis in 2007

**2007 Requests**

- a. the # of backlogged offender samples as of January 1, 2007
- b. the # of new offender samples received in 2007

**2007 Completes**

- c. the total # of offender samples completed in 2007

**Turnaround**

d. the average number of days needed to complete current load of offender samples (including upload to CODIS)

- up to 30 days
- 30 to 59 days
- 60 to 89 days
- 90 to 119 days
- 120 to 179 days
- 180 to 269 days
- 270 or more days

6. If NIJ funding and related programs specific to DNA (such as casework backlog reduction, capacity enhancement, offender backlog reduction) were discontinued in the future, what would be the anticipated impact on backlogs in your offender DNA program?

- No increase in sample backlogs expected
- Increase expected

Approximately how many additional offender samples backlogged per year? (Please use rounded figures)

7. What percentage of your total budget for offender DNA analysis is from NIJ sources?

- IF POSSIBLE Please provide a breakdown:
- % of budget for outsourcing provided by NIJ
  - % of budget for instrumentation funded from NIJ
  - % of budget for training funded from NIJ

8. If NIJ funding specific to DNA programs (such as casework backlog reduction, capacity enhancement, offender backlog reduction) was discontinued in future years, what would be the anticipated impact to your offender DNA program?

- State and local funding would be sufficient to continue current operations.
- State and local funding would **not** be sufficient to continue current operations, and the following would likely occur.

Select all that apply.

- Personnel reductions
- Loss of training and/or continuing education opportunities
- Decreased outsourcing

- Decreased equipment purchases
- Decreased supply purchases
- Other

9. Was your state collecting DNA from arrestees (under statutory authority) for inclusion in the DNA database by the end of Calendar Year 2007?

If YES, in CY 2007 how many arrestee samples were collected and submitted for analysis? **(Go to Question 12)**

- NO, state has a law but collections had not yet begun. **(Go to Question 10 )**
- NO, state has no such law. **(Go to Question 11 )**

10. If your state was **not** collecting DNA from arrestees before the end of Calendar Year 2007, but does have an enabling law authorizing such collections, please provide the following details.

What is the anticipated date of implementation?

What is the estimated number of arrestee samples?

All felony arrests or only certain arrests?  
(Choose one)

- All felony arrests
- Only certain arrests

If only certain arrests, what is the estimated number of samples for all felony arrests?

11. If your state does NOT already have a law to require DNA from arrestees, please provide estimates on the number of anticipated samples for all felony arrestees. For simplicity, do not attempt to account for issues of recidivism and previously collected samples.

Number of all felony arrests

**EVIDENCE RETENTION**

12. Is there an evidence retention policy regarding preservation of biological evidence that was secured in the investigation or prosecution of an offense, if the defendant is under sentence of imprisonment for such an offense? \*

- Yes. There is such a policy meeting this criteria. **(Go to Question 14)**
- No. There is such a policy, but it does not meet this criteria. **( Go to Question 13)**
- No. There is no such policy. **(Go to Question 16)**
- Unsure if such a policy exists. **(Go to Question 16)**

13. If there is an evidence retention policy for biological evidence, but it does not meet the conditions described in Question 12, please describe the difference.

14. What is this policy governed by?  
(Select all that apply)

- State statute
- Local ordinance
- Legal decision

- Agency policy
- Other, please describe

15. Who is responsible for retaining this evidence?  
(Select all that apply)

- Crime laboratory
- Prosecuting Attorney's Office
- Investigating Law Enforcement Agency
- Court System
- Other, please describe

16. Use the space below to provide additional comments on any of the matters covered in this measurement of DNA programs.

**THANK YOU for taking the time to complete this important measurement of DNA programs. Please take a final moment to review your responses and then select "Continue" to submit.**

[Continue](#)

If you require any clarification on the questions, contact NFSTC STAFF ([Kevin.Loathridge@NFSTC.org](mailto:Kevin.Loathridge@NFSTC.org) 727-549-6067x103). If you have any questions or concerns regarding the nature of this research or its future applications, please contact John Paul Jones at [John.Paul.Jones@usdoj.gov](mailto:John.Paul.Jones@usdoj.gov) or 202-307-5715.

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## 2007 DNA Evidence and Offender Analysis Measurement Data Verification

**Q1a-b FORENSIC DNA - Requests** – Data in these questions that were not in whole numbers were edited as follows –

- Answers that were provided as a decimal were rounded to the next highest number
- Answers that were provided as a range (e.g., 30-40) were averaged (e.g., 35)
- Answers that were provided as a “less than” (e.g., <1 or <50) will were coded as the number provided (1, 50)
- Answers provided as “don’t knows” or “unknowns” were coded as blank
- Answers provided as NA were code as 99 and “system missing”

**Statistics**

		Q1 backlogged DNA requests	Q1aE property crimes requests	Q1b new DNA requests	Q1bE property crime requests
N	Valid	152	138	152	142
	Missing	1	15	1	11
Sum		55,969	4,462	140,741	4,815

**Q1c FORENSIC DNA - Completes** – Data in these questions that were not in whole numbers were edited as follows –

- Answers that were provided as a decimal were rounded to the next highest number
- Answers that were provided as a range (e.g., 30-40) were averaged (e.g., 35)
- Answers that were provided as a “less than” (e.g., <1 or <50) will were coded as the number provided (1, 50)
- Answers provided as “don’t knows” or “unknowns” were coded as blank
- Answers provided as NA were code as 99 and “system missing”

**Statistics**

		Q1c requests completed	Q1cE property crimes completed
N	Valid	152	141
	Missing	1	12

**Statistics**

		Q1c requests completed	Q1cE property crimes completed
N	Valid	152	141
	Missing	1	12
Sum		124,874	4,340

**Q1d – Average number of Days needed to complete** – unable to complete because data were not entered correctly

**Q2 – Approximately how many additional cases backlogged per year?**

**Statistics**

Q2Approx how many additional cases

N	Valid	117
	Missing	36
	Mean	219
	Median	130
	Sum	25,666

**Q3 - What percentage of your total budget for DNA casework is from NIJ Sources?**

**Statistics**

		Pct of budget for DNA Casework is from NIJ	Pct of budget for reagents funded from NIJ	Pct of budget for instrumentation funded from NIJ	Pct of budget for training funded from NIJ
N	Valid	144	113	114	115
	Missing	10	40	39	38
	Mean	35.18	23.76	69.53	41.78
	Median	26.75	10.00	87.50	20.00

**Q4 - Data for this question were not provided in file**

**Q5a-b OFFENDER PROFILES**

Respondents were given two different directions for this question. The first was at the beginning of the survey which reads – “If not applicable to your lab, please enter NA.” The second set of instructions is before the question which reads “Laboratories not responsible for CODIS offender processing would proceed to question 12.”

- For this question - ALL NA responses were re-coded as “missing” data.

**Statistics**

		a. the # of backlogged offender samples as of January 1, 2007	b. the # of new offender samples received in 2007
N	Valid	53	54
	Missing	98	99
Sum		841,847	1,021,930

5c. the total # of offender samples completed in 2007

**Statistics**

N	Valid	54
	Missing	99
	Sum	1,206,612

**5d. Average number of Days needed to complete** – unable to complete because data were not entered correctly

6b. Approximately how many additional offender samples backlogged per year? (Please use rounded figures)

**Statistics**

Q6badditionalOS

N	Valid	30
	Missing	123
	Mean	7,527
	Median	5,000
	Sum	225,800

Q7. What percentage of your total budget for Offender DNA is from NIJ Sources?

**Statistics**

		pct of total budget for offender DNA analysis from NIJ source	pct of budget for outsourcing provided by NIJ	pct of budget for instrumentation funded from NIJ	pct of budget for training funded from NIJ
N	Valid	44	29	32	32
	Missing	109	124	121	121
	Mean	42.16	27.07	60.25	32.34
	Median	42.50	.00	87.50	.00

**Q11 – If your state does not already have a law to require DNA from arrestees, please provide estimates on the number of anticipated samples for all felony arrestees.**

**Statistics**

Number of all felony arrests

N	Valid	30
	Missing	121
	Mean	83,804
	Median	55,000
	Sum	2,514,127