PROJECT FORESIGHT ANNUAL REPORT, 2023-2024

Paul J Speaker, Forensic Science Initiative, John Chambers College of Business & Economics, West Virginia University

FORESIGHT—Annual Report—Idaho State Police Forensic Services

(US Dollars)

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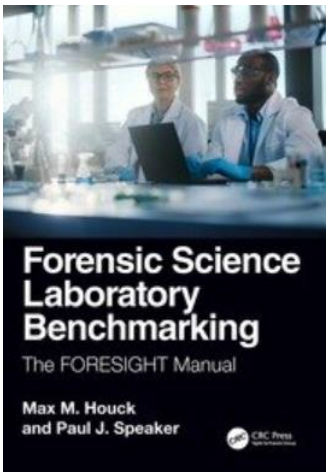


1st Edition

Forensic Science Laboratory Benchmarking: The FORESIGHT Manual

By Max M. Houck and Paul J. Speaker

Forensic Science Laboratory Benchmarking: The FORESIGHT Manual takes a step-by-step instructional approach to utilizing FORESIGHT data, detailing how labs can participate in the process to improve efficiencies. The FORESIGHT Project—a business benchmarking process for forensic service providers—was created in 2008 to collect and report data while offering improvement to processes through analysis, comparisons, and best practice evaluations. The program has grown to include more than 200 participating forensic laboratories worldwide.

FORESIGHT offers the capability for labs to improve core functions, provide and benefit from metrics, and thus, improve the labs capabilities and functioning for the public good, while maintaining their often limited, fixed budgets. Due to ever-increasing caseloads, forensic laboratories are constantly plagued by backlogged casework—cases submitted to the laboratory but not yet worked. This leads to inefficiencies, delays, and unhappy agencies expecting timely results. Unfortunately, even if a lab's slates were wiped clean and the backlog was erased, many of the inefficient processes—that created the backlog—would still be in place. Eventually, and inevitably, the lab would develop a new backlog.

Unique coverage and features:

- Presents critical and proven cutting-edge measures to utilize FORESIGHT data improve laboratory testing, operational efficiency, and policies without added additional costs.
- Synthesizes the data input from more than 200 labs and a decade's worth of analytics to illustrate process improvements and the advantages of participating.
- Outlines how to develop data-driven responses to solve current and future problems.

Forensic Science Laboratory Benchmarking will be of interest to quality assurance specialists, economists, supervisors in the parent agencies of the labs, managers at all levels of any of the hundreds of public laboratories around the world, and anyone concerned about the effectiveness and efficiency of laboratory testing. As an operational guide, the book provides a helpful roadmap to help public science agencies and forensic labs analyze how they operate, improve on what works, and change what doesn't to better meet their mission and serve their community's goals.

FORESIGHT Benchmark Data 2023-2024

Project FORESIGHT is a business-guided self-evaluation of forensic science laboratories across the globe. The participating laboratories represent local, regional, state, and national agencies. Economics, accounting, finance, and forensic faculty provide assistance, guidance, and analysis. Laboratories participating in Project FORESIGHT have developed standardized definitions for metrics to evaluate work processes, linking financial information to work tasks, and functions. Laboratory managers can then assess resource allocations, efficiencies, and value of services—the mission of Project FORESIGHT is to measure, preserve what works, and change what does not.

The benchmark data for the 2023-2024 performance period includes laboratory submissions for a variety of fiscal year definitions. However, all submissions have December 31, 2023 as part of their fiscal year accounting. The majority of submissions follow a July 1, 2023 through June 30, 2024 convention. Others follow a year that begins as early as January 1, 2023 (ending December 31, 2023) while the other extreme includes laboratories with a fiscal year originating October 1, 2023 and ending September 30, 2024.

Consider the summary statistics for several of the key performance indicators. Because of outliers in several of the investigative areas, the most meaningful comparisons might best be made with respect to median as a representation of "typical" laboratory performance. To lend perspective to the spread of these metrics, each of the quartile metrics is reported along with the specific comparison to the laboratory highlighted in this report.

As of this writing, 220 laboratory or laboratory systems have contributed data to the project for the 2023-2024 period. For most areas of investigation, the submitted data offers a large enough sample to elicit good statistical properties.

For more information on Project FORESIGHT, visit the Project web site at www.be.wvu.edu/forensic/foresight.htm. Questions regarding this report or other matters pertaining to Project FORESIGHT should be directed to the Principal Investigator Paul Speaker (foresightsubmissions@gmail.com).

Characteristics of Submitting Laboratories

Each submission year has seen an increase in the number of participating laboratories. Since the data collection tool, LabRAT, was modified to highlight the minimum data needed (Level I data), there has been an increase in the number of smaller laboratories in FORESIGHT. That is reflected again for the 2023-2024 submissions as the total number of laboratory or laboratory systems submitting data has grown.

Note that any laboratory or laboratory system may voluntarily submit data to the FORESIGHT project. Each submitting laboratory will receive a copy of the annual benchmark data along with the placement of their own data for comparison to the benchmarks. However, the benchmark comparison data only includes the performance from accredited laboratories.

Table 1: Characteristics of Submitting Laboratories

Characteristics of Submitting Laboratories	
Jurisdiction	
National	8
State	59
Regional	45
Metro	66
Regional/Metro	42
*Regional lab with a city exceeding 100K population	
Total Accredited (ISO/IEC 17025:2017 or ANAB)	213
Non-accredited	7
TOTAL SUBMISSIONS	**220**
International/Domestic	
U.S.	191
Non-U.S.	29

Table 1 highlights some of the characteristics of the submitting laboratories. Note that the 220 submissions represent some laboratory systems. There are a total of 318 separate facilities represented in these accredited submissions.

COVID-19, Inflation, and the 2022-2023 Submissions

Data reveals some of the impact of the pandemic, supply chain issues, and resulting inflation on forensic laboratories. Many submitting laboratories indicated the departure from a "normal" year with increased case submissions, higher expenses for consumables, and staffing issues from resignations during the pandemic. The post-pandemic return to normality has been met with additional changes in collecting evidence for submission to crime laboratories. Across reporting laboratories, we observe increased costs in the 2023-2024 FORESIGHT submissions.

There are a few observations to note. As restrictions surrounding COVID-19 were lifted, policing agencies increased evidence submissions to forensic laboratories. The greatest impact appears with the median number of case submissions returning to historic levels after surging in the previous year when many COVID-19 restrictions were lifted.

Since many submitting laboratories mentioned an accelerated impact from inflation for many laboratory supplies from consumables to lab coats, additional cost breakdowns are continued in this year's report. Tables 32-39 highlight the expenses per case and per sample from personnel expenditures, capital expenditures, consumable expenditures, and all other

expenditures. The trend that emerges suggests that many laboratories were able to reduce personnel costs due to employee turnover, but increased productivity. Additional expense cuts came from investment in capital through delayed equipment purchases. These reduced areas for expenses were countered by large increases in the cost of chemicals, reagents, consumables, and gases as well as other supplies.

FORESIGHT Maximus Awards

Started in FY2009 by a cooperative agreement between the John Chambers College of Business and Economics at West Virginia University and the National Institute of Justice, the FORESIGHT program is a business-guided, self-evaluation of forensic science laboratories, which began with local, regional, state, and national agencies in North America. Over the years, the program has expanded to include several laboratories in Europe. Economics, accounting, finance, and forensic faculty from WVU provide assistance, guidance, and analysis. The process involves standardizing definitions for metrics to evaluate work processes, linking financial information to work tasks, and functions. The program has grown over time and its success had led to numerous journal publications, countless laboratory efficiency improvements across the U.S. and a supplementary program with funding by the Laura and John Arnold foundation to examine the interface between Foresight metrics and Laboratory Information Management Systems. Based on the success of the program and the gains seen by forensic laboratories, ASCLD has sought to begin recognizing peak performing laboratories at its Annual Symposium.

> *The FORESIGHT Maximus awards are presented to participant laboratories operating at 90% or better of peak efficiency.*

Maximus Award Winners FY2024

- Baltimore Police Department, Baltimore, MD
- Bexar County Criminal Investigation Laboratory, San Antonio, TX
- Chandler Police Department Forensic Service Section, Chandler, AZ
- Denver Police Department Crime Laboratory, Denver, CO
- Forensic Science Department, Organismo de Investigación Judicial, San Joaquín de Flores, Heredia, Costa Rica

- Indianapolis-Marion County Forensic Services Agency, Indianapolis, IN
- Institute of Forensic Sciences of Puerto Rico, San Juan, PR
- Kansas Bureau of Investigation, Great Bend, KS
- Midwest Regional Forensic Laboratory, Andover, MN
- Montana Forensic Science Division, Missoula, MT
- North Louisiana Criminalistics Laboratory, Shreveport, LA
- Oklahoma State Bureau of Investigation, Edmond, OK
- Pinellas County Forensic Laboratory, Largo, FL
- Wyoming State Crime Laboratory, Cheyenne, WY

FORESIGHT 20/20

The American Society of Crime Laboratory Directors (ASCLD) was successful in securing a grant from the Laura and John Arnold Foundation (LJAF) to assist laboratories in the extraction of data from their Laboratory Information Management Systems (LIMS), including data for submission to Project FORESIGHT. The executive summary of the FORESIGHT 20/20 project follows.

FORESIGHT 20/20 Executive Summary

The proliferation of television shows featuring CSI titles has both glamorized and cursed crime laboratories in America as expectations of laboratory performance have dramatically increased the demand for forensic science services. This increase in demand, coupled with laboratory funding cuts from the Great Recession, created a bottleneck in the justice system as laboratory backlogs rose, slowing down the entire system. The National Institute of Justice (NIJ) recognized this problem and funded a solution via two grants for Project FORESIGHT for the years 2009 through 2015. The Project FORESIGHT team was tasked with studying the forensic science industry and developing business metrics for forensic laboratories that would enable them to gain efficiencies and become more cost-effective, thus addressing the bottleneck in the justice system. While Project FORESIGHT has had a pronounced effect on the participating laboratories, fewer than half of U.S. laboratories submit data to the project. The main reason for the lack of participation had been the difficulty in extracting the necessary data on laboratory casework and coupling that information with laboratory expenditures and personnel detail, which come from separate information management systems.

This proposal sought funding to overcome this participation hurdle through the creation of software that provides the interface between the testing and casework information maintained in a Laboratory Information Management System (LIMS) and the separate financial and personnel systems. This software was developed by 2nd Logic, LLC under ASCLD's leadership to connect the NIJ's FORESIGHT measurement standards with laboratories nationwide to permit broader forensic science industry perspectives and to enhance the business metrics available to individual laboratory directors for daily decision-making. Organizing software development through the four major LIMS providers offered a permanent software solution

to all crime laboratories for access to business metrics and does so at no cost to the individual laboratories. For laboratories participating in FORESIGHT, these business metrics have permitted dramatic increases in efficiency and saved hundreds of millions of dollars. Extending participation fivefold is expected to have similarly magnified gains. Once initiated across the leading LIMS providers, this offered a permanent, broad-based system for monitoring the performance of the individual laboratory and details on the performance across all forensic science.

PROJECT DESCRIPTION

The American Society of Crime Laboratory Directors (ASCLD) is a nonprofit professional society of crime laboratory directors and forensic science managers dedicated to providing excellence in forensic science through leadership and innovation. The purpose of the organization is to foster professional interests, assist the development of laboratory management principles and techniques; acquire, preserve and disseminate forensic based information; maintain and improve communications among crime laboratory directors; and to promote, encourage and maintain the highest standards of practice in the field. With this mandate, ASCLD proposed to the Laura and John Arnold Foundation an investment to dramatically increase the efficiency and effectiveness of crime laboratories nationwide through the creation of financial intelligence software.

With ever increasing demands for services and shrinking budgets, a crime laboratory must have a thorough understanding of their operations from a business perspective and a means to compare that performance to the standards of the "forensic science industry." The National Institute of Justice (NIJ) has led efforts to improve laboratory business practices through the creation of Project FORESIGHT. Project FORESIGHT is a performance benchmarking model that enables crime laboratories to perform an internal business assessment and external comparison by standardizing terminology and performance metrics across local, state, and federal laboratories.

The FORESIGHT Project began as a funding award from the National Institute of Justice to the West Virginia University Forensic Science Initiative to develop a system that would enable laboratories to understand and assess the relationship between their casework, personnel, and budgetary expenditures. Forensic laboratory managers use these functions to assess resource allocations, human capital development, drive efficiencies, and evaluate the value of services—the mission is to measure, preserve what works, and change what does not. FORESIGHT is intended to support significant and enduring systematic reforms in accountability and decision-making in public forensic laboratories.

Participation in FORESIGHT is free, voluntary, and open to forensic science laboratories worldwide. FORESIGHT has led to significant improvement at the individual laboratory level and for the forensic industry. Evaluation of efficiency and effectiveness of a crime laboratory was virtually impossible without a common industry language and corresponding performance benchmarks. Individual annual reports to contributing laboratories detail the laboratory's metrics with emphasis on productivity, risk management, analytical process, and economic market forces. These annual evaluations are equivalent to a consultant's report, highlighting

performance over time and across the industry. Even though participation is costless, less than 20% of U.S. laboratories enroll in the project. This low participation is not a comment on the value of the project; rather it is a product of the difficulty of data extraction from multiple computer systems. Casework data is extracted from the LIMS, while personnel data and expenditures are extracted from one or more computer systems of the laboratory's parent organization (generally, a policing organization). To bridge the firewalls protecting the data in each system, laboratory management must manually extract data from these multiple systems to report their performance to project FORESIGHT. For many laboratories, the cost in time and resources is deemed too high to participate. NIJ recognizes this burden, and its Forensic Science Technology Working Group Operation Requirements highlight the need for increased IT knowledge and software for management to improve productivity.

FORESIGHT has led to a macro view of the provision of forensic science services. The common measurements have permitted a review of fundamental economic hypotheses and the delivery of crime laboratory services for economic regions. The results have shown that individual laboratories are highly efficient in the provision of services, but rarely cost-effective because of the reliance on political jurisdictions, rather than economic markets, for the provision of services.

Although many laboratories have adopted this program to guide their operations, a major obstacle to implementation has been the "hands-on" time required by laboratory staff to manually gather and input the required data. This data is composed of both laboratory and financial metrics, each of which is stored in separate locations or in systems that do not communicate. This then requires significant time dedicated to downloading this information and transferring it to the FORESIGHT program. The FORESIGHT program is not integrated with any of the existing vendor LIMS systems. As the LIMS systems have evolved, their capabilities have advanced to allow more detailed monitoring of evidence samples as they move through the laboratory system. The crime laboratory user can detect problems and/or issues with samples before a report is issued and provides for greater transparency to the criminal justice system as to the analysis history and quality assurance of that item of evidence.

The development of such freeware then permits simple extraction and submission of FORESIGHT data. That allows 100% participation for all U.S. laboratories. Such a census, rather than the current voluntary sample, will benefit both the new participants as well as those laboratories currently in the program as a more complete picture of the forensic industry emerges. With the combination of casework, expenditures, and personnel data in a single database, the freeware will also permit easier reporting for federal grant purposes. For laboratory leadership, the freeware also permits the construction of a manager's data dashboard with up-to-the-minute productivity metrics.

The American Society of Crime Laboratory Directors requested and received funding to support the development of freeware software, FORESIGHT 20/20, enabling the seamless data collection of core business metrics from Laboratory Information Management Systems (LIMS) commonly employed by laboratories. Once implemented into the major LIMS providers, this legacy program requires no expenditure for individual laboratories beyond the normal updating of their LIMS.

Workforce Calculator

A 2019 National Institute of Justice report estimated that state and local forensic laboratories were understaffed by more than 900 positions.[1] In response to that shortfall, the Forensic Technology Center of Excellence at RTI International (FTCoE) commissioned the creation of a workforce calculator to assist forensic laboratories with an independent, objective determination of staffing needs.[2] The workforce calculator may be accessed from the FTCoE website (https://forensiccoe.org/workforce-calculator-project/) and is free to use. Users input details on the annual caseload for each area of investigation and the calculator provides an immediate response with the corresponding number of operational, administration and support staff to efficiently process that caseload.

The econometric estimates were developed from the performance of FORESIGHT Maximus award-winning laboratories. Additional factors in the estimates include the state-level violent and property crime rates, populations served, and the type of jurisdiction covered by the laboratory. Additional output offers the corresponding annual investment in capital expenditures to support the optimal personnel.

Users are encouraged to share their results with Project FORESIGHT to assist in the continual updating of the tool. Greater detail about the project is available via the open-access publication in Forensic Science International: Synergy.[3]

FORESIGHT Digital Evidence

Since the initial efforts to collect data via Project FORESIGHT, receiving responses from forensic laboratories that examine digital evidence has been difficult. A small percentage of forensic laboratories reported areas of investigation for computer analysis or analysis of multimedia audio and video. Additionally, it appeared that the type of digital evidence activity differed widely between state-level laboratories and the analysis performed in metropolitan jurisdictions. Questions emerged regarding changes necessary to increase the number of reporting digital evidence laboratories.

In 2018 the National Institute of Justice created the Forensic Laboratory Needs Technology Working Group (FLN-TWG). "The FLN-TWG explores new ways to increase casework

[1] U.S. Department of Justice, Office of Justice Programs. (2019). *Report to Congress: Needs Assessment of Forensic Laboratories and Medical Examiner/Coroner Offices*. Washington, DC: National Institute of Justice. https://www.ncjrs.gov/pdffiles1/nij/253626.pdf.

[2] This project was supported by Award No. 2016-MU-BX-K110, awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication are those of the author and do not necessarily reflect those of the Department of Justice.

[3] Speaker, P. J. (2021). An Independent Evaluation of Laboratory Staffing Needs: Launching the Forensic Laboratory Workforce Calculator. *Forensic Science International: Synergy*, 3(1). https://doi.org/10.1016/j.fsisyn.2021.100137.

efficiencies and implement forensic technology innovations that will advance system-based strategies and lead to a stronger justice system and safer communities." Among the initial efforts of FLN-TWG was the development of a white paper with suggestions to improve data collection for analysis of digital evidence. The white paper identified additional organizations beyond ASCLD to identify and contact digital evidence laboratories for participation in Project FORESIGHT. FLN-TWG offered some data categorization models to better recognize evolving technologies.

In 2021, the Forensic Technology Center of Excellence (FTCoE) funded a project, FORESIGHT Digital Evidence – Creation & Data Gathering (Award 2016-DN-BX-K110), to improve Project FORESIGHT. The funding led to the creation of the Laboratory Reporting and Analysis Tool for Digital Evidence (LabRAT DE), designed to capture the suggestions from FLN-TWG. LabRAT DE simplifies the reporting of financial data (Figure 1) and updates the data collected on casework (Figure 2).

Figure 1: FORESIGHT DE Expenditures

Expenditure Information:		
Currency of Expenditure data		
Personnel Expenditures (salary, benefits, & overtime)		
Capital Expenditures		
Consumable Expenditures		
Other Expenditures (Overhead, etc.)		
Total Expenditures	$0	Automatically sums the categories above
Do Total Expenditures include a charge for:		
utilities	0	enter 1 for yes; 0 for no
telecommunications	0	enter 1 for yes; 0 for no

Figure 2: FORESIGHT DE Casework & FTE Allocation

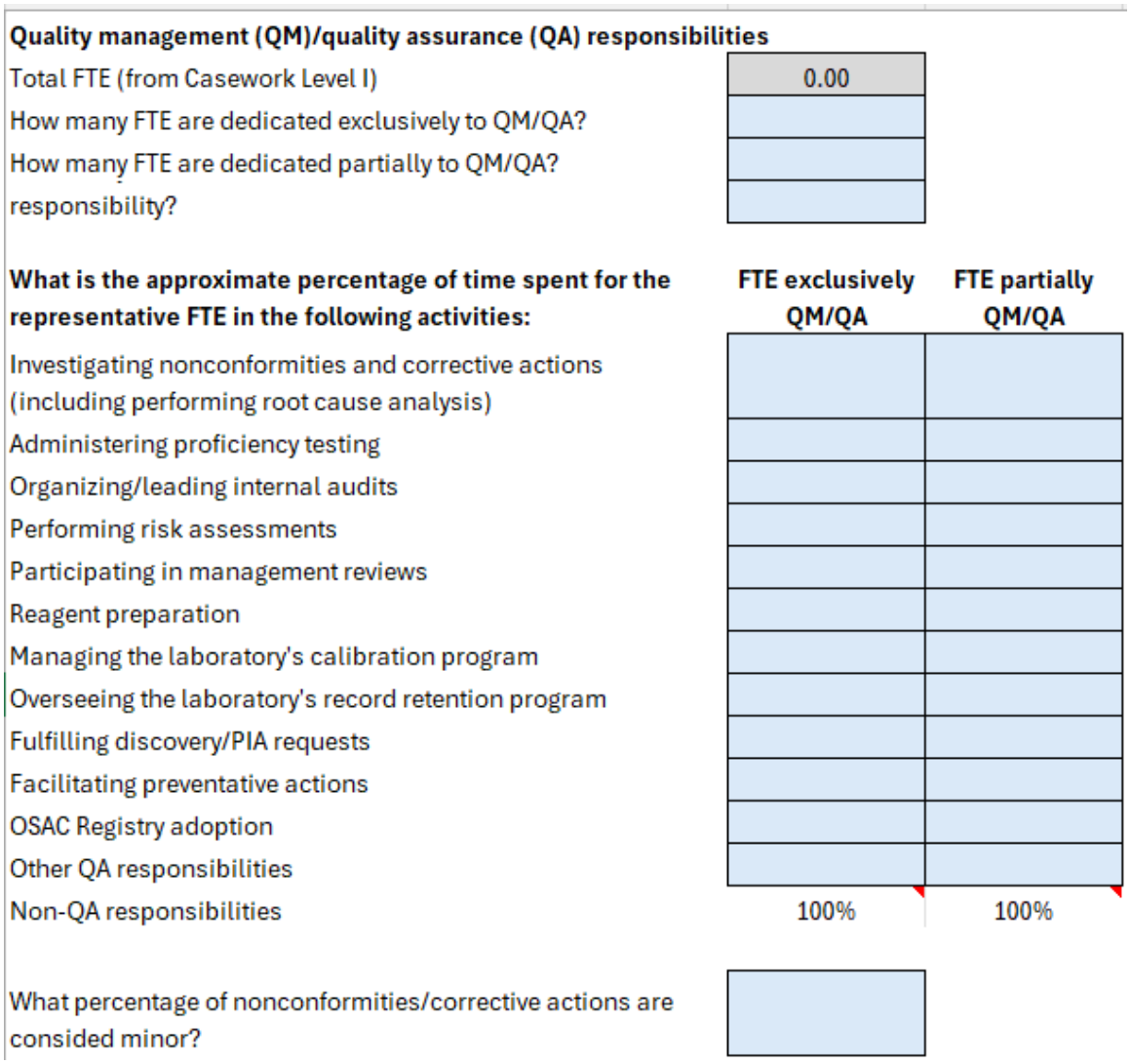
Digital Evidence Category:	Mobile	Computer	Video	Mass Storage	Other (drones, watches, Internet of Things, etc.)
Operational FTE					
Administration & Support FTE					
Cases					
items					
items outsourced					
items examined internally					
reports					
Gigabytes examined					
Median (days) turn around time (TAT)					
open cases at end of year					
Year end open cases older than 30 days					
If your laboratory assists outside agencies, please complete the following:					
Cases assisted for outside agencies					
Items examined for outside agencies					
Median TAT for assisted cases (days)					

Personnel Time Allocation	Provide an estimate of the percentage of time spent in each activity for operational FTE.
Casework	
Technical Review	
Testimony & Testimony Preparation	
Training	
Continuing Education	
Non-Digital Evidence Duties	
Other	

FORESIGHT Quality Metrics

A committee of quality managers proposed an additional line of inquiry to Project FORESIGHT in FY2023. The quality managers wanted to discover the optimal level of full-time equivalent employees (FTE) to staff laboratories of various sizes. A sample of submitting laboratories assisted in creating an optional (Level II) worksheet for inclusion in LabRAT

Figure 3: LabRAT Level II Quality Management



Quality management (QM)/quality assurance (QA) responsibilities		
Total FTE (from Casework Level I)	0.00	
How many FTE are dedicated exclusively to QM/QA?		
How many FTE are dedicated partially to QM/QA?		
responsibility?		
What is the approximate percentage of time spent for the representative FTE in the following activities:	**FTE exclusively QM/QA**	**FTE partially QM/QA**
Investigating nonconformities and corrective actions (including performing root cause analysis)		
Administering proficiency testing		
Organizing/leading internal audits		
Performing risk assessments		
Participating in management reviews		
Reagent preparation		
Managing the laboratory's calibration program		
Overseeing the laboratory's record retention program		
Fulfilling discovery/PIA requests		
Facilitating preventative actions		
OSAC Registry adoption		
Other QA responsibilities		
Non-QA responsibilities	100%	100%
What percentage of nonconformities/corrective actions are consided minor?		

Summary statistics from the Level II Quality Management responses appear in Table 50 below.

Figure 4: LabRAT MEC

Complete all white cells; blue cells are optional	Forensic Pathology	Medicolegal Death Investigator	Toxicology Post mortem (Basic testing)	Toxicology Post mortem (Expanded testing)	Toxicology Post mortem (Directed testing)	Administration and Support	Total
Cases							
FTE							0.00
Total Reported Deaths							
Total Deaths Investigated							
Total Deaths Certified							
Full Autopsies							
Limited Autopsies							
External Exam Only							
Certified by record review							
Total Deaths with Scenes							
Total Death Scenes attended by MDI							
Reports							
Median TAT							
Open Cases Year End							
Open Cases Year End > 30 days							
Personnel Expenditures							$0
Outsourcing Expenditures							
Capital Expenditures							
Consumables Expenditures							
Other Expenditures							
Capital Expenditures prior 4 years							
Currency							
Do your expenditures include a charge for utilities? (1 for yes, 0 for no)	0						
Do your expenditures include a charge for utilities? (1 for yes, 0 for no)	0						

Relative Volume & Activity Metrics

The use of the forensic crime laboratory differs across jurisdictions. The FBI's National Incident-Based Reporting System (NIBRS) offers some indication of the volume of crime. FORESIGHT offers additional indication of the role of the forensic crime laboratory in the processing of evidence for the population served by the laboratory.

Cases per 100,000 Population Served

A **case** in an investigative area refers to a request from a crime laboratory customer that includes forensic investigation in that investigative area. Note that a customer request may lead to a case in multiple investigative areas.

Table 2: Cases per 100,000 Population Served

Cases per 100,000 population				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	77.48	46.10	79.58	143.84
Crime Scene Investigation	NA	2.42	5.85	37.82
Digital evidence	NA	2.00	7.78	26.92
DNA Casework	NA	53.47	81.00	138.78
DNA Database	NA	72.44	175.60	309.03
Document Examination	NA	0.54	1.02	1.19
Drugs - Controlled Substances	468.22	126.01	216.96	319.08
Evidence Screening & Processing	NA	27.51	79.88	468.37
Explosives	NA	0.10	0.11	0.25
Fingerprints	36.58	20.21	32.52	70.80
Fingerprints Database (including IAFIS)	NA	14.38	55.85	181.88
Fire analysis	1.04	1.73	2.42	4.89
Firearms and Ballistics	11.49	13.30	23.16	50.12
Firearms Database (including NIBIN)	NA	49.70	129.10	412.18
Forensic Pathology	NA	56.12	73.36	185.44
Gun Shot Residue (GSR)	NA	2.38	4.13	8.07
Marks and Impressions	NA	0.17	0.43	0.70
Serology/Biology	NA	18.37	40.51	72.41
Toxicology ante-mortem (excluding BAC)	78.86	40.03	68.20	133.58
Toxicology postmortem (excluding BAC)	NA	43.43	75.70	136.39
Trace Evidence	NA	0.71	1.43	2.61

Items Processed Internally per 100,000 Population Served

An **item** refers to a single object for examination submitted to the laboratory. Note that one item may be investigated and counted in several investigation areas.

Table 3: Items Processed Internally per 100,000 Population Served

Items Examined Internally per 100,000 population				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	76.58	45.53	96.58	157.78
Crime Scene Investigation	NA	5.01	9.52	404.09
Digital evidence	NA	3.03	10.66	37.46
DNA Casework	NA	107.99	260.00	470.41
DNA Database	NA	65.80	146.68	299.09
Document Examination	NA	3.45	11.75	20.87
Drugs - Controlled Substances	601.78	251.76	481.81	774.25
Evidence Screening & Processing	NA	85.31	254.37	638.66
Explosives	NA	0.29	0.32	0.35
Fingerprints	178.42	41.79	135.43	277.47
Fingerprints Database (including IAFIS)	NA	25.56	123.86	913.70
Fire analysis	3.91	4.41	6.31	9.86
Firearms and Ballistics	105.54	55.07	110.11	175.45
Firearms Database (including NIBIN)	NA	63.00	386.14	1,574.58
Forensic Pathology	NA	57.90	58.23	59.27
Gun Shot Residue (GSR)	NA	3.94	9.37	20.45
Marks and Impressions	NA	0.53	0.85	1.57
Serology/Biology	NA	49.04	111.57	194.16
Toxicology ante-mortem (excluding BAC)	62.87	37.68	65.63	107.72
Toxicology postmortem (excluding BAC)	NA	81.52	98.41	135.67
Trace Evidence	NA	2.34	4.55	9.50

Samples per 100,000 Population Served

A **sample** refers to an item of evidence or a portion of an item of evidence that generates a reported result.

Table 4: Samples Examined per 100,000 Population Served

Samples Examined per 100,000 population				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	76.58	37.00	103.67	194.85
Crime Scene Investigation	NA	4.51	11.74	504.53
Digital evidence	NA	7.42	23.41	78.96
DNA Casework	NA	128.55	304.79	558.88
DNA Database	NA	92.84	246.97	346.09
Document Examination	NA	1.04	10.08	23.44
Drugs - Controlled Substances	655.10	238.24	466.56	876.67
Evidence Screening & Processing	NA	55.43	174.76	543.79
Explosives	NA	0.32	0.61	0.84
Fingerprints	154.95	57.98	140.96	387.29
Fingerprints Database (including IAFIS)	NA	39.12	186.95	869.55
Fire analysis	4.21	2.65	5.93	11.39
Firearms and Ballistics	104.75	74.82	116.94	163.65
Firearms Database (including NIBIN)	NA	67.09	495.77	1,090.80
Forensic Pathology	NA	56.78	58.23	87.16
Gun Shot Residue (GSR)	NA	7.70	10.24	25.20
Marks and Impressions	NA	0.36	0.58	1.13
Serology/Biology	NA	60.51	142.79	198.03
Toxicology ante-mortem (excluding BAC)	62.87	44.56	64.38	106.83
Toxicology postmortem (excluding BAC)	NA	80.37	114.91	157.88
Trace Evidence	NA	2.27	6.28	14.12

Tests per 100,000 Population Served

A **test** refers to an analytical process, including but not limited to visual examination, instrumental analysis, presumptive evaluations, enhancement techniques, extractions, quantifications, microscopic techniques, and comparative examinations. This does not include technical or administrative reviews.

Table 5: Tests Performed per 100,000 Population Served

Tests Performed per 100,000 population				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	153.17	99.48	163.59	259.95
Crime Scene Investigation	NA	3.35	7.45	17.73
Digital evidence	NA	3.59	15.91	25.14
DNA Casework	NA	121.67	488.43	897.76
DNA Database	NA	76.06	156.32	458.10
Document Examination	NA	1.70	10.35	31.93
Drugs - Controlled Substances	1,855.54	448.28	1,006.28	1,861.82
Evidence Screening & Processing	NA	123.33	729.01	761.24
Explosives	NA	0.71	1.41	4.42
Fingerprints	3,287.87	58.74	188.54	515.14
Fingerprints Database (including IAFIS)	NA	35.76	61.39	794.93
Fire analysis	6.44	2.96	6.15	14.86
Firearms and Ballistics	209.50	45.00	117.10	239.37
Firearms Database (including NIBIN)	NA	54.79	151.48	1,154.02
Forensic Pathology	NA	33.87	56.45	57.34
Gun Shot Residue (GSR)	NA	4.25	20.49	38.11
Marks and Impressions	NA	0.61	0.95	1.57
Serology/Biology	NA	70.74	157.20	260.41
Toxicology ante-mortem (excluding BAC)	193.86	87.12	153.65	237.16
Toxicology postmortem (excluding BAC)	NA	127.84	172.72	417.91
Trace Evidence	NA	6.08	11.71	76.61

Reports per 100,000 Population Served

A **report** refers to a formal statement of the results of an investigation, or of any matter on which definite information is required, made by some person or body instructed or required to do so.

Table 6: Reports per 100,000 Population Served

Reports per 100,000 population				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	75.35	42.72	71.00	151.96
Crime Scene Investigation	NA	3.17	6.66	52.29
Digital evidence	NA	2.04	7.48	35.37
DNA Casework	NA	44.73	71.63	148.22
DNA Database	NA	10.23	32.07	201.24
Document Examination	NA	0.27	0.65	0.97
Drugs - Controlled Substances	457.23	148.02	231.20	364.50
Evidence Screening & Processing	NA	40.67	47.52	68.41
Explosives	NA	0.06	0.11	0.11
Fingerprints	33.32	19.22	30.39	45.40
Fingerprints Database (including IAFIS)	NA	14.60	89.35	180.92
Fire analysis	1.04	1.86	2.47	4.62
Firearms and Ballistics	10.10	14.82	20.28	49.16
Firearms Database (including NIBIN)	NA	33.88	62.12	453.35
Forensic Pathology	NA	43.61	57.59	96.91
Gun Shot Residue (GSR)	NA	1.99	4.25	7.77
Marks and Impressions	NA	0.18	0.38	1.07
Serology/Biology	NA	7.49	30.49	45.43
Toxicology ante-mortem (excluding BAC)	62.87	35.56	60.09	91.55
Toxicology postmortem (excluding BAC)	NA	42.95	67.01	87.06
Trace Evidence	NA	0.61	1.40	2.39

Cost Metrics

Cost per Case

The **cost** includes allocations for capital, wages & salary, benefits, overtime & temporary hires, chemicals, reagents, consumables, gases, travel, quality assurance and accreditation, subcontracting, service of instruments, advertisements, non-instrument repairs and maintenance, equipment leasing, utilities, telecommunications, overhead, and other expenses.

A **case** in an investigative area refers to a request from a crime laboratory customer that includes forensic investigation in that investigative area. Note that a customer request may lead to a case in multiple investigative areas.

Table 7: Cost per Case by Investigative Area

Cost per Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$223.74	$141.14	$233.65	$356.97
Crime Scene Investigation	NA	$1,793.84	$4,113.62	$8,560.74
Digital evidence	NA	$1,892.79	$3,693.42	$6,192.80
DNA Casework	NA	$1,320.14	$1,623.57	$2,417.89
DNA Database	NA	$53.19	$90.47	$160.36
Document Examination	NA	$3,379.63	$4,622.42	$6,251.41
Drugs - Controlled Substances	$253.05	$318.20	$428.21	$568.17
Evidence Screening & Processing	NA	$526.72	$1,083.24	$1,309.00
Explosives	NA	$7,968.19	$10,286.19	$18,713.45
Fingerprints	$1,883.26	$777.75	$1,258.03	$1,846.49
Fingerprints Database (including IAFIS)	NA	$262.14	$595.58	$866.54
Fire analysis	$1,824.28	$1,926.55	$3,083.14	$4,865.47
Firearms and Ballistics	$1,455.44	$1,361.33	$2,183.20	$3,500.71
Firearms Database (including NIBIN)	NA	$74.01	$177.54	$325.13
Forensic Pathology	NA	$1,673.75	$2,269.77	$2,730.75
Gun Shot Residue (GSR)	NA	$2,323.12	$3,334.33	$4,565.81
Marks and Impressions	NA	$3,192.62	$6,537.63	$8,770.07
Serology/Biology	NA	$887.67	$1,212.69	$2,049.40
Toxicology ante-mortem (excluding BAC)	$499.48	$582.43	$738.39	$995.88
Toxicology postmortem (excluding BAC)	NA	$641.57	$857.76	$1,096.61
Trace Evidence	NA	$3,630.65	$5,090.04	$6,967.03

Real Cost per Case

Project FORESIGHT submissions have increased annually. Although laboratory participation is voluntary, the summary statistics have been relatively consistent across time, particularly for areas of investigation that have large numbers of submissions. For those areas with fewer observations, there has been a fair amount of fluctuation, indicative of the smaller sample and the voluntary nature of the submissions. To illustrate the time series behaviour of the median performance, the following table provides a comparison of the cost/case over time after correcting for inflation. These measures are termed "real cost/case" where real refers to inflation-adjusted measures. We converted prior year's metrics to 2022-2023 prices.

Table 8: Real* Cost per Case across Time

Real Cost per Case over time (2023.12 = 100)				
Area of Investigation	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**
Blood Alcohol	$285	$262	$230	$234
Crime Scene Investigation	$4,662	$4,297	$4,108	$4,114
Digital evidence	$4,455	$4,106	$3,470	$3,693
DNA Casework	$1,794	$1,653	$1,681	$1,624
DNA Database	$94	$87	$106	$90
Document Examination	$6,972	$6,426	$5,812	$4,622
Drugs - Controlled Substances	$487	$449	$410	$428
Evidence Screening & Processing	$885	$816	$777	$1,083
Explosives	$22,287	$20,542	$9,081	$10,286
Fingerprints	$1,190	$1,097	$1,250	$1,258
Fingerprints Database (including IAFIS)	$642	$592	$733	$596
Fire analysis	$3,012	$2,776	$3,001	$3,083
Firearms and Ballistics	$2,739	$2,524	$2,329	$2,183
Firearms Database (including NIBIN)	$264	$243	$197	$178
Forensic Pathology	$2,551	$2,352	$2,122	$2,270
Gun Shot Residue (GSR)	$3,995	$3,682	$3,237	$3,334
Marks and Impressions	$10,672	$9,837	$7,006	$6,538
Serology/Biology	$1,343	$1,238	$1,256	$1,213
Toxicology ante-mortem (excluding BAC)	$979	$903	$730	$738
Toxicology postmortem (excluding BAC)	$1,118	$1,030	$835	$858
Trace Evidence	$5,951	$5,485	$6,203	$5,090

Cost per Item

Differences in case detail and differences in case complexity across laboratories (and across time) suggest that other relative cost measures may offer more meaningful comparison. FORESIGHT data collection includes measures for items, samples, and tests in each investigative area.

An **item** refers to a single object for examination submitted to the laboratory. Note that one item may be investigated and counted in several investigation areas. As noted above, the **cost** includes allocations for capital, wages & salary, benefits, overtime & temporary hires, chemicals, reagents, consumables, gases, travel, quality assurance and accreditation, subcontracting, service of instruments, advertisements, non-instrument repairs and maintenance, equipment leasing, utilities, telecommunications, overhead, and other expenses.

Table 9: Cost per Item Examined by Investigative Area

Cost per Item Examined Internally				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$226	$142	$219	$335
Crime Scene Investigation	NA	$333	$664	$1,616
Digital evidence	NA	$1,115	$1,905	$3,005
DNA Casework	NA	$417	$615	$855
DNA Database	NA	$48	$66	$117
Document Examination	NA	$776	$1,219	$2,017
Drugs - Controlled Substances	$197	$170	$237	$291
Evidence Screening & Processing	NA	$229	$385	$478
Explosives	NA	$3,293	$4,099	$5,678
Fingerprints	$386	$270	$416	$654
Fingerprints Database (including IAFIS)	NA	$62	$117	$664
Fire analysis	$485	$825	$1,314	$2,392
Firearms and Ballistics	$158	$396	$705	$1,156
Firearms Database (including NIBIN)	NA	$33	$115	$148
Forensic Pathology	NA	$1,980	$2,093	$2,459
Gun Shot Residue (GSR)	NA	$1,194	$1,721	$2,666
Marks and Impressions	NA	$2,104	$2,632	$3,599
Serology/Biology	NA	$259	$385	$644
Toxicology ante-mortem (excluding BAC)	$627	$514	$686	$867
Toxicology postmortem (excluding BAC)	NA	$326	$445	$571
Trace Evidence	NA	$449	$680	$1,032

Cost per Sample

A **sample** refers to an item of evidence or a portion of an item of evidence that generates a reported result.

As noted above, the **cost** includes allocations for capital, wages & salary, benefits, overtime & temporary hires, chemicals, reagents, consumables, gases, travel, quality assurance and accreditation, subcontracting, service of instruments, advertisements, non-instrument repairs and maintenance, equipment leasing, utilities, telecommunications, overhead, and other expenses.

The sample offers a consistently applied metric across laboratories and suggests an average cost measure that is intuitively comparable in cross-sectional commentary.

Table 10: Cost per Sample by Investigative Area

Cost per Sample				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$226	$135	$208	$311
Crime Scene Investigation	NA	$196	$451	$814
Digital evidence	NA	$953	$1,640	$2,005
DNA Casework	NA	$260	$411	$545
DNA Database	NA	$45	$62	$106
Document Examination	NA	$588	$1,012	$1,423
Drugs - Controlled Substances	$181	$119	$151	$194
Evidence Screening & Processing	NA	$229	$361	$553
Explosives	NA	$1,238	$1,727	$2,567
Fingerprints	$445	$199	$275	$443
Fingerprints Database (including IAFIS)	NA	$56	$129	$691
Fire analysis	$451	$439	$729	$1,497
Firearms and Ballistics	$160	$307	$472	$744
Firearms Database (including NIBIN)	NA	$45	$117	$148
Forensic Pathology	NA	$1,023	$1,868	$2,404
Gun Shot Residue (GSR)	NA	$630	$919	$1,248
Marks and Impressions	NA	$735	$1,096	$2,463
Serology/Biology	NA	$66	$116	$220
Toxicology ante-mortem (excluding BAC)	$627	$515	$652	$847
Toxicology postmortem (excluding BAC)	NA	$213	$280	$377
Trace Evidence	NA	$278	$411	$719

Cost per Test

A **test** refers to an analytical process, including but not limited to visual examination, instrumental analysis, presumptive evaluations, enhancement techniques, extractions, quantifications, microscopic techniques, and comparative examinations. This does not include technical or administrative reviews.

As noted above, the **cost** includes allocations for capital, wages & salary, benefits, overtime & temporary hires, chemicals, reagents, consumables, gases, travel, quality assurance and accreditation, subcontracting, service of instruments, advertisements, non-instrument repairs and maintenance, equipment leasing, utilities, telecommunications, overhead, and other expenses.

Table 11: Cost per Test by Investigative Area

Cost per Test				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$113	$75	$131	$181
Crime Scene Investigation	NA	$210	$464	$1,175
Digital evidence	NA	$375	$729	$1,381
DNA Casework	NA	$66	$111	$199
DNA Database	NA	$45	$64	$106
Document Examination	NA	$233	$440	$845
Drugs - Controlled Substances	$64	$54	$70	$87
Evidence Screening & Processing	NA	$180	$296	$448
Explosives	NA	$352	$494	$786
Fingerprints	$21	$87	$138	$274
Fingerprints Database (including IAFIS)	NA	$57	$162	$518
Fire analysis	$295	$298	$449	$834
Firearms and Ballistics	$80	$245	$428	$637
Firearms Database (including NIBIN)	NA	$67	$122	$162
Forensic Pathology	NA	$1,855	$1,868	$2,375
Gun Shot Residue (GSR)	NA	$451	$629	$1,002
Marks and Impressions	NA	$560	$717	$1,448
Serology/Biology	NA	$54	$92	$181
Toxicology ante-mortem (excluding BAC)	$203	$97	$134	$202
Toxicology postmortem (excluding BAC)	NA	$87	$117	$173
Trace Evidence	NA	$125	$196	$340

Cost per Report

A **report** refers to a formal statement of the results of an investigation, or of any matter on which definite information is required, made by some person or body instructed or required to do so.

As noted above, the **cost** includes allocations for capital, wages & salary, benefits, overtime & temporary hires, chemicals, reagents, consumables, gases, travel, quality assurance and accreditation, subcontracting, service of instruments, advertisements, non-instrument repairs and maintenance, equipment leasing, utilities, telecommunications, overhead, and other expenses.

Table 12: Cost per Report by Investigative Area

Cost per Report				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$230	$149	$227	$337
Crime Scene Investigation	NA	$1,425	$3,550	$6,520
Digital evidence	NA	$1,908	$3,689	$7,231
DNA Casework	NA	$1,245	$1,771	$2,537
DNA Database	NA	$45	$73	$122
Document Examination	NA	$4,037	$4,785	$8,557
Drugs - Controlled Substances	$259	$319	$437	$561
Evidence Screening & Processing	NA	$723	$1,071	$1,274
Explosives	NA	$10,969	$14,533	$18,795
Fingerprints	$2,068	$806	$1,077	$1,731
Fingerprints Database (including IAFIS)	NA	$215	$428	$890
Fire analysis	$1,824	$2,298	$3,130	$5,063
Firearms and Ballistics	$1,655	$1,383	$2,095	$3,339
Firearms Database (including NIBIN)	NA	$143	$217	$325
Forensic Pathology	NA	$1,904	$2,037	$2,402
Gun Shot Residue (GSR)	NA	$2,453	$3,527	$4,691
Marks and Impressions	NA	$3,871	$6,642	$9,592
Serology/Biology	NA	$1,010	$1,430	$2,573
Toxicology ante-mortem (excluding BAC)	$627	$594	$772	$1,101
Toxicology postmortem (excluding BAC)	NA	$667	$859	$1,066
Trace Evidence	NA	$3,916	$5,518	$8,410

Metric Interpretation

The various unit cost metrics may be interpreted using the technique highlighted in The Decomposition of Return on Investment for Forensic Laboratories (Speaker, 2009). Consider the Cost/Case metric which may be decomposed into:

$$\frac{Cost}{Case} = \frac{Average\ Compensation\ x\ Testing\ Intensity}{Personnel\ Productivity\ x\ Personnel\ Expense\ Ratio}$$

From the decomposition expression for the Cost/Case, an increase in the numerator components, Average Compensation or Testing (or Sampling) Intensity, will increase the cost per case. Similarly, a decrease in denominator component will increase the cost per case. This may occur from either a drop in productivity, as measured by cases processed per FTE, or from an increase in capital investment for future productivity but financed via a drop in personnel expenses relative to total expenses.

Although the metric breakdown illustrated above offers a decomposition of the Cost/Case metric, a similar procedure may be applied to other cost metrics. Likewise, the Testing Intensity metric may be replaced by a Sampling Intensity metric (e.g., Samples/Case) or similar decomposition which offers the most meaning to the individual laboratory.

Market Metrics

A substantial portion of the cost to the laboratory comes through personal services budget for salary and benefits. (The section below on Analytical Process Metrics highlights the percentage of total costs attributable to personnel expenditures.) Laboratories across the globe and across a particular country face very different labor markets and cost of living conditions. As such, accounting for the salary and benefit pressures in each market is beyond the direct control of the individual laboratory and is subject to the market forces in a laboratory's political jurisdiction.

It may be helpful for a laboratory to replace their specific average compensation with that of the reported sample median to gain insight into how they compare to other laboratories once market forces have been neutralized.

Average Compensation

Note that **compensation** includes all personnel expenditures. This includes wages, salary, and benefits operating staff, support staff, and administrative staff. Centrally assigned compensation is apportioned to each investigative area according to the percentage of full-time equivalent employees assigned to a particular investigative area.

The values reported in this table and other tables with budgetary metrics have been converted to the currency of the reporting laboratory using the exchange rate for December 31 of the measured year as reported at www.xe.com.

Table 13: Average Compensation by Investigative Area

Average Compensation				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$98,203	$83,487	$100,150	$123,303
Crime Scene Investigation	NA	$95,568	$113,301	$128,763
Digital evidence	NA	$54,180	$110,448	$131,547
DNA Casework	NA	$109,611	$129,356	$144,116
DNA Database	NA	$94,169	$108,452	$125,819
Document Examination	NA	$93,045	$114,634	$140,877
Drugs - Controlled Substances	$99,760	$106,467	$123,348	$133,841
Evidence Screening & Processing	NA	$72,918	$96,759	$108,905
Explosives	NA	$91,654	$102,259	$121,000
Fingerprints	$99,760	$104,066	$114,722	$132,477
Fingerprints Database (including IAFIS)	NA	$87,353	$101,389	$127,931
Fire analysis	$99,760	$97,797	$118,943	$128,832
Firearms and Ballistics	$99,760	$107,513	$119,999	$136,927
Firearms Database (including NIBIN)	NA	$70,496	$95,454	$120,198
Forensic Pathology	NA	$113,018	$187,804	$356,850
Gun Shot Residue (GSR)	NA	$96,665	$115,000	$130,552
Marks and Impressions	NA	$108,170	$133,508	$161,163
Serology/Biology	NA	$93,063	$108,869	$121,422
Toxicology ante-mortem (excluding BAC)	$99,760	$96,918	$112,794	$125,561
Toxicology postmortem (excluding BAC)	NA	$75,502	$108,058	$119,124
Trace Evidence	NA	$92,779	$114,407	$155,125

Risk Management Metrics

There are a variety of metrics that may be used in the decomposition of average cost to suggest quality and/or risk. Three of these metrics follow to highlight the level of testing, sampling, and items examined internally per case.

Items per Case

An **item** refers to a single object for examination submitted to the laboratory. Note that one item may be investigated and counted in several investigation areas.

A **case** in an investigative area refers to a request from a crime laboratory customer that includes forensic investigation in that investigative area. Note that a customer request may lead to a case in multiple investigative areas.

Table 14: Items per Case by Investigative Area

Items per Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	0.99	1.00	1.05	1.14
Crime Scene Investigation	NA	2.68	4.85	5.33
Digital evidence	NA	1.46	2.05	2.78
DNA Casework	NA	2.71	3.10	3.32
DNA Database	NA	1.00	1.03	1.06
Document Examination	NA	3.64	4.24	4.95
Drugs - Controlled Substances	1.29	1.70	1.83	2.03
Evidence Screening & Processing	NA	2.51	2.56	2.79
Explosives	NA	2.50	3.11	3.61
Fingerprints	4.88	2.13	2.37	2.72
Fingerprints Database (including IAFIS)	NA	1.03	3.47	4.90
Fire analysis	3.76	2.34	2.56	2.72
Firearms and Ballistics	9.19	2.69	2.94	3.21
Firearms Database (including NIBIN)	NA	1.12	1.79	3.42
Forensic Pathology	NA	1.04	1.04	1.06
Gun Shot Residue (GSR)	NA	1.85	2.01	2.21
Marks and Impressions	NA	2.43	2.83	3.26
Serology/Biology	NA	3.50	3.75	3.97
Toxicology ante-mortem (excluding BAC)	0.80	1.05	1.17	1.25
Toxicology postmortem (excluding BAC)	NA	1.57	2.20	2.42
Trace Evidence	NA	5.68	7.78	8.53

Samples per Case

A **sample** refers to an item of evidence or a portion of an item of evidence that generates a reported result.

A **case** in an investigative area refers to a request from a crime laboratory customer that includes forensic investigation in that investigative area. Note that a customer request may lead to a case in multiple investigative areas.

Table 15: Samples per Case by Investigative Area

Samples per Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	0.99	1.04	1.09	1.16
Crime Scene Investigation	NA	6.80	7.93	8.87
Digital evidence	NA	1.88	3.65	4.13
DNA Casework	NA	4.38	4.91	5.16
DNA Database	NA	1.00	1.03	1.09
Document Examination	NA	3.85	6.23	7.05
Drugs - Controlled Substances	1.40	2.55	2.89	3.12
Evidence Screening & Processing	NA	2.51	2.64	2.85
Explosives	NA	5.13	8.00	9.28
Fingerprints	4.24	3.40	3.86	4.22
Fingerprints Database (including IAFIS)	NA	1.01	3.37	5.13
Fire analysis	4.05	3.68	5.48	6.18
Firearms and Ballistics	9.12	4.29	4.74	5.14
Firearms Database (including NIBIN)	NA	1.14	1.42	3.70
Forensic Pathology	NA	1.02	1.03	9.66
Gun Shot Residue (GSR)	NA	3.39	3.92	4.24
Marks and Impressions	NA	3.63	8.11	8.95
Serology/Biology	NA	6.46	16.44	17.40
Toxicology ante-mortem (excluding BAC)	0.80	1.11	1.20	1.28
Toxicology postmortem (excluding BAC)	NA	1.84	3.73	4.13
Trace Evidence	NA	9.57	13.06	14.56

Tests per Case

A **test** refers to an analytical process, including but not limited to visual examination, instrumental analysis, presumptive evaluations, enhancement techniques, extractions, quantifications, microscopic techniques, and comparative examinations. This does not include technical or administrative reviews.

A **case** in an investigative area refers to a request from a crime laboratory customer that includes forensic investigation in that investigative area. Note that a customer request may lead to a case in multiple investigative areas.

Table 16: Tests per Case by Investigative Area

Tests per Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	1.98	1.69	1.87	1.97
Crime Scene Investigation	NA	4.80	7.84	8.46
Digital evidence	NA	1.93	14.95	16.76
DNA Casework	NA	12.18	20.29	21.71
DNA Database	NA	1.00	1.04	1.09
Document Examination	NA	6.78	16.01	17.15
Drugs - Controlled Substances	3.96	5.69	6.54	7.14
Evidence Screening & Processing	NA	2.56	2.66	3.20
Explosives	NA	15.64	30.15	37.83
Fingerprints	89.87	6.29	8.45	9.13
Fingerprints Database (including IAFIS)	NA	1.64	3.35	5.08
Fire analysis	6.19	7.29	8.75	9.59
Firearms and Ballistics	18.24	5.25	5.72	6.27
Firearms Database (including NIBIN)	NA	1.07	1.48	3.76
Forensic Pathology	NA	1.03	1.03	1.41
Gun Shot Residue (GSR)	NA	5.30	5.80	6.31
Marks and Impressions	NA	3.51	11.40	12.74
Serology/Biology	NA	16.50	19.19	20.79
Toxicology ante-mortem (excluding BAC)	2.46	3.84	7.57	8.22
Toxicology postmortem (excluding BAC)	NA	3.59	10.10	10.64
Trace Evidence	NA	23.16	26.65	30.05

Reports per Case

A **report** refers to a formal statement of the results of an investigation, or of any matter on which definite information is required, made by some person or body instructed or required to do so.

A **case** in an investigative area refers to a request from a crime laboratory customer that includes forensic investigation in that investigative area. Note that a customer request may lead to a case in multiple investigative areas.

Table 17: Reports per Case by Investigative Area

Reports per Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	0.97	0.94	0.98	1.04
Crime Scene Investigation	NA	1.00	1.04	1.14
Digital evidence	NA	0.91	1.02	1.15
DNA Casework	NA	0.94	1.01	1.07
DNA Database	NA	0.92	0.97	1.03
Document Examination	NA	0.92	1.00	1.08
Drugs - Controlled Substances	0.98	0.96	0.99	1.02
Evidence Screening & Processing	NA	0.89	1.01	1.34
Explosives	NA	1.00	1.00	1.09
Fingerprints	0.91	0.94	0.99	1.06
Fingerprints Database (including IAFIS)	NA	0.96	1.00	1.00
Fire analysis	1.00	0.94	1.00	1.05
Firearms and Ballistics	0.88	0.94	1.00	1.06
Firearms Database (including NIBIN)	NA	0.89	1.00	1.06
Forensic Pathology	NA	1.00	1.01	1.03
Gun Shot Residue (GSR)	NA	0.93	0.98	1.03
Marks and Impressions	NA	0.96	1.00	1.09
Serology/Biology	NA	0.91	0.96	1.00
Toxicology ante-mortem (excluding BAC)	0.80	0.94	1.00	1.04
Toxicology postmortem (excluding BAC)	NA	0.98	1.01	1.05
Trace Evidence	NA	0.82	0.91	1.00

Samples per Item

A **sample** refers to an item of evidence or a portion of an item of evidence that generates a reported result.

An **item** refers to a single object for examination submitted to the laboratory. Note that one item may be investigated and counted in several investigation areas.

Table 18: Samples per Item Examined Internally by Investigative Area

Samples per Item Examined Internally				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	1.00	1.00	1.02	1.06
Crime Scene Investigation	NA	1.00	1.51	1.67
Digital evidence	NA	1.00	1.31	1.45
DNA Casework	NA	1.29	1.54	1.69
DNA Database	NA	0.99	1.00	1.04
Document Examination	NA	0.98	1.25	1.60
Drugs - Controlled Substances	1.09	1.03	1.54	1.68
Evidence Screening & Processing	NA	1.00	1.02	1.04
Explosives	NA	2.35	2.44	2.64
Fingerprints	0.87	1.01	1.53	1.70
Fingerprints Database (including IAFIS)	NA	1.00	1.00	1.01
Fire analysis	1.08	1.22	2.11	2.32
Firearms and Ballistics	0.99	1.02	1.56	1.73
Firearms Database (including NIBIN)	NA	1.00	1.00	1.01
Forensic Pathology	NA	0.97	0.98	0.99
Gun Shot Residue (GSR)	NA	1.65	1.89	2.05
Marks and Impressions	NA	1.00	2.51	3.06
Serology/Biology	NA	1.04	4.43	4.72
Toxicology ante-mortem (excluding BAC)	1.00	0.98	1.00	1.03
Toxicology postmortem (excluding BAC)	NA	1.04	1.60	1.81
Trace Evidence	NA	1.52	1.65	1.75

Tests per Item

A **test** refers to an analytical process, including but not limited to visual examination, instrumental analysis, presumptive evaluations, enhancement techniques, extractions, quantifications, microscopic techniques, and comparative examinations. This does not include technical or administrative reviews.

An **item** refers to a single object for examination submitted to the laboratory. Note that one item may be investigated and counted in several investigation areas.

Table 19: Tests per Item Examined Internally by Investigative Area

Tests per Item Examined Internally				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	2.00	1.57	1.74	1.89
Crime Scene Investigation	NA	1.03	1.55	1.66
Digital evidence	NA	1.03	5.41	6.15
DNA Casework	NA	4.70	6.56	6.99
DNA Database	NA	0.99	1.01	1.05
Document Examination	NA	1.02	1.84	4.13
Drugs - Controlled Substances	3.08	3.17	3.55	3.86
Evidence Screening & Processing	NA	1.00	1.01	1.24
Explosives	NA	9.23	10.18	10.60
Fingerprints	18.43	1.15	3.52	3.81
Fingerprints Database (including IAFIS)	NA	0.99	1.02	1.06
Fire analysis	1.65	3.00	3.33	3.59
Firearms and Ballistics	1.98	1.26	1.90	2.10
Firearms Database (including NIBIN)	NA	0.97	1.00	1.03
Forensic Pathology	NA	0.99	0.99	1.00
Gun Shot Residue (GSR)	NA	2.66	2.97	3.15
Marks and Impressions	NA	1.01	3.60	4.53
Serology/Biology	NA	4.55	5.21	5.55
Toxicology ante-mortem (excluding BAC)	3.08	3.89	6.23	6.83
Toxicology postmortem (excluding BAC)	NA	2.02	4.27	4.72
Trace Evidence	NA	3.19	3.35	3.65

Reports per Item

A **report** refers to a formal statement of the results of an investigation, or of any matter on which definite information is required, made by some person or body instructed or required to do so.

An **item** refers to a single object for examination submitted to the laboratory. Note that one item may be investigated and counted in several investigation areas.

Table 20: Reports per Item Examined Internally by Investigative Area

Reports per Item Examined Internally				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	0.98	0.88	0.95	0.99
Crime Scene Investigation	NA	0.19	0.21	0.34
Digital evidence	NA	0.37	0.42	0.69
DNA Casework	NA	0.30	0.33	0.35
DNA Database	NA	0.89	0.96	1.01
Document Examination	NA	0.21	0.24	0.29
Drugs - Controlled Substances	0.76	0.49	0.53	0.58
Evidence Screening & Processing	NA	0.13	0.14	0.22
Explosives	NA	0.30	0.31	0.37
Fingerprints	0.19	0.38	0.42	0.45
Fingerprints Database (including IAFIS)	NA	0.14	0.22	0.59
Fire analysis	0.27	0.36	0.39	0.42
Firearms and Ballistics	0.10	0.31	0.34	0.38
Firearms Database (including NIBIN)	NA	0.21	0.38	0.91
Forensic Pathology	NA		0.97	
Gun Shot Residue (GSR)	NA	0.44	0.48	0.56
Marks and Impressions	NA	0.32	0.37	0.41
Serology/Biology	NA	0.24	0.25	0.27
Toxicology ante-mortem (excluding BAC)	1.00	0.77	0.83	0.95
Toxicology postmortem (excluding BAC)	NA	0.42	0.46	0.58
Trace Evidence	NA	0.11	0.11	0.13

Tests per Sample

A **test** refers to an analytical process, including but not limited to visual examination, instrumental analysis, presumptive evaluations, enhancement techniques, extractions, quantifications, microscopic techniques, and comparative examinations. This does not include technical or administrative reviews.

A **sample** refers to an item of evidence or a portion of an item of evidence that generates a reported result.

Table 21: Tests per Sample by Investigative Area

Tests per Sample				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	2.00	1.47	1.67	1.83
Crime Scene Investigation	NA		1.00	
Digital evidence	NA	1.07	4.04	4.28
DNA Casework	NA	3.11	4.09	4.40
DNA Database	NA		1.00	
Document Examination	NA	1.02	1.18	2.68
Drugs - Controlled Substances	2.83	2.08	2.26	2.51
Evidence Screening & Processing	NA	0.99	1.01	1.34
Explosives	NA	2.61	4.02	4.34
Fingerprints	21.22	1.17	2.17	2.40
Fingerprints Database (including IAFIS)	NA	0.98	1.01	1.06
Fire analysis	1.53	1.31	1.50	1.62
Firearms and Ballistics	2.00	1.05	1.17	1.29
Firearms Database (including NIBIN)	NA		1.00	
Forensic Pathology	NA	0.55	1.00	1.01
Gun Shot Residue (GSR)	NA	1.35	1.51	1.68
Marks and Impressions	NA	1.00	1.36	1.52
Serology/Biology	NA	1.07	1.16	1.24
Toxicology ante-mortem (excluding BAC)	3.08	3.50	6.03	6.58
Toxicology postmortem (excluding BAC)	NA	1.32	2.48	2.89
Trace Evidence	NA	1.87	2.05	2.21

Reports per Sample

A **report** refers to a formal statement of the results of an investigation, or of any matter on which definite information is required, made by some person or body instructed or required to do so.

A **sample** refers to an item of evidence or a portion of an item of evidence that generates a reported result.

Table 22: Reports per Sample by Investigative Area

Reports per Sample				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	0.98	0.85	0.90	0.95
Crime Scene Investigation	NA	0.12	0.13	0.15
Digital evidence	NA	0.25	0.28	0.38
DNA Casework	NA	0.19	0.21	0.22
DNA Database	NA	0.89	0.97	1.00
Document Examination	NA	0.15	0.16	0.17
Drugs - Controlled Substances	0.70	0.31	0.34	0.39
Evidence Screening & Processing	NA	0.11	0.21	7.11
Explosives	NA	0.12	0.13	0.17
Fingerprints	0.22	0.23	0.26	0.28
Fingerprints Database (including IAFIS)	NA	0.12	0.21	0.64
Fire analysis	0.25	0.16	0.18	0.25
Firearms and Ballistics	0.10	0.19	0.21	0.23
Firearms Database (including NIBIN)	NA	0.20	0.37	0.82
Forensic Pathology	NA	0.28	0.51	0.73
Gun Shot Residue (GSR)	NA	0.22	0.25	0.28
Marks and Impressions	NA	0.12	0.12	0.34
Serology/Biology	NA	0.05	0.06	0.06
Toxicology ante-mortem (excluding BAC)	1.00	0.75	0.82	0.90
Toxicology postmortem (excluding BAC)	NA	0.24	0.26	0.43
Trace Evidence	NA	0.06	0.07	0.07

Productivity Metrics

Return to the decomposition measure for the cost/case. The denominator terms have the opposite effect on average cost. That is, as ***labor productivity*** or the ***labor expense ratio*** increases, average costs will fall. This confirms that, as a representative scientist is able to process more cases per year, then the effect will be a decrease in the average cost as fixed expenditures are averaged over a higher volume of processed cases. Similarly, if a greater portion of the budget is devoted to personnel expenditures (as opposed to capital investment) *ceteris paribus*, more cases will be processed for the same expenditure at the opportunity cost of delaying investment in capital equipment for future returns.

The next five tables contain the LabRAT summary statistics for alternative personnel productivity ratio measures.

Cases per FTE

This measure is simply the number of Cases completed for each full-time equivalent (FTE) employee (the work input of a full-time employee working for one full year) retained by the laboratory. It gives an indication of the level of productivity within the average laboratory by investigative area.

Table 23: Cases per FTE by Investigative Area

Cases per FTE				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	812.33	339.94	661.23	1,030.48
Crime Scene Investigation	NA	14.74	32.83	62.28
Digital evidence	NA	19.73	40.56	61.69
DNA Casework	NA	76.80	99.94	124.97
DNA Database	NA	1,048.58	2,188.25	3,605.12
Document Examination	NA	21.48	30.02	51.17
Drugs - Controlled Substances	647.38	299.88	369.91	483.36
Evidence Screening & Processing	NA	96.59	147.91	176.24
Explosives	NA	7.27	10.06	16.25
Fingerprints	89.09	87.64	126.20	176.12
Fingerprints Database (including IAFIS)	NA	166.06	323.78	498.46
Fire analysis	98.10	28.14	47.00	85.96
Firearms and Ballistics	131.37	46.36	67.49	120.38
Firearms Database (including NIBIN)	NA	374.72	653.11	1,392.79
Forensic Pathology	NA	70.67	92.04	123.67
Gun Shot Residue (GSR)	NA	29.75	36.29	66.85
Marks and Impressions	NA	15.03	23.14	52.47
Serology/Biology	NA	62.37	106.07	152.81
Toxicology ante-mortem (excluding BAC)	381.63	154.46	216.47	316.12
Toxicology postmortem (excluding BAC)	NA	146.32	178.17	210.96
Trace Evidence	NA	21.82	34.27	40.17

Items per FTE

This measure is the number of Items examined internally for each full-time equivalent (FTE) employee (the work input of a full-time employee working for one full year) retained by the laboratory. It gives an indication of the level of productivity within the average laboratory by investigative area.

Table 24: Items Examined Internally per FTE by Investigative Area

Items Examined Internally per FTE				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	802.98	372.52	641.54	1,072.69
Crime Scene Investigation	NA	60.42	263.04	372.23
Digital evidence	NA	41.28	71.25	119.66
DNA Casework	NA	214.12	301.45	406.53
DNA Database	NA	1,805.30	2,888.45	3,839.31
Document Examination	NA	72.26	107.38	210.70
Drugs - Controlled Substances	832.05	557.49	678.37	898.84
Evidence Screening & Processing	NA	250.89	378.32	483.89
Explosives	NA	22.95	24.15	31.44
Fingerprints	434.48	229.62	329.76	473.10
Fingerprints Database (including IAFIS)	NA	195.65	1,385.50	2,542.99
Fire analysis	369.05	64.10	100.55	157.10
Firearms and Ballistics	1,207.24	141.62	215.10	390.58
Firearms Database (including NIBIN)	NA	726.68	1,379.31	3,291.60
Forensic Pathology	NA	154.80	217.04	220.26
Gun Shot Residue (GSR)	NA	60.12	75.02	107.28
Marks and Impressions	NA	35.79	60.50	78.28
Serology/Biology	NA	181.09	348.32	520.63
Toxicology ante-mortem (excluding BAC)	304.25	179.22	226.74	311.59
Toxicology postmortem (excluding BAC)	NA	274.94	329.19	429.14
Trace Evidence	NA	123.26	276.60	322.35

Samples per FTE

This measure is the number of samples from Items examined internally for each full-time equivalent (FTE) employee (the work input of a full-time employee working for one full year) retained by the laboratory. It gives an indication of the level of productivity within the average laboratory by investigative area.

Table 25: Samples per FTE by Investigative Area

Samples per FTE				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	802.98	378.30	678.71	1,115.38
Crime Scene Investigation	NA	112.20	361.97	600.05
Digital evidence	NA	80.49	98.66	193.60
DNA Casework	NA	326.65	436.56	604.44
DNA Database	NA	2,024.45	3,041.37	4,029.41
Document Examination	NA	80.70	145.14	261.99
Drugs - Controlled Substances	905.76	834.61	1,067.66	1,262.35
Evidence Screening & Processing	NA	266.19	391.52	472.59
Explosives	NA	52.72	59.86	77.03
Fingerprints	377.34	317.18	484.08	683.49
Fingerprints Database (including IAFIS)	NA	189.33	1,519.39	2,596.30
Fire analysis	397.08	91.60	183.38	334.51
Firearms and Ballistics	1,198.18	224.56	342.61	538.99
Firearms Database (including NIBIN)	NA	750.50	1,440.31	2,445.09
Forensic Pathology	NA	153.01	217.04	583.64
Gun Shot Residue (GSR)	NA	101.21	140.53	211.98
Marks and Impressions	NA	78.21	134.20	206.94
Serology/Biology	NA	461.85	1,065.04	2,008.34
Toxicology ante-mortem (excluding BAC)	304.25	180.81	229.91	313.91
Toxicology postmortem (excluding BAC)	NA	370.36	525.48	662.73
Trace Evidence	NA	210.56	463.17	519.01

Tests per FTE

This measure is the number of tests performed on samples for each full-time equivalent (FTE) employee (the work input of a full-time employee working for one full year) retained by the laboratory. It gives an indication of the level of productivity within the average laboratory by investigative area.

Table 26: Tests per FTE by Investigative Area

Tests per FTE				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	1,605.97	598.89	1,062.62	1,698.58
Crime Scene Investigation	NA	87.48	355.33	574.52
Digital evidence	NA	94.54	315.44	471.12
DNA Casework	NA	901.84	1,683.74	2,595.14
DNA Database	NA	2,083.38	3,081.20	4,000.53
Document Examination	NA	146.09	396.44	530.83
Drugs - Controlled Substances	2,565.54	1,723.93	2,250.10	2,848.90
Evidence Screening & Processing	NA	330.94	424.50	705.79
Explosives	NA	173.96	258.86	320.15
Fingerprints	8,006.71	490.71	1,023.77	1,514.22
Fingerprints Database (including IAFIS)	NA	222.05	1,193.26	2,571.38
Fire analysis	607.30	154.26	287.75	452.57
Firearms and Ballistics	2,396.35	249.50	372.58	705.33
Firearms Database (including NIBIN)	NA	658.18	1,394.39	2,059.24
Forensic Pathology	NA	91.63	92.50	154.77
Gun Shot Residue (GSR)	NA	161.77	200.32	292.76
Marks and Impressions	NA	133.94	168.22	280.21
Serology/Biology	NA	591.79	1,283.34	2,592.99
Toxicology ante-mortem (excluding BAC)	938.14	857.16	1,133.87	1,468.75
Toxicology postmortem (excluding BAC)	NA	726.89	1,353.67	1,684.75
Trace Evidence	NA	404.97	966.10	1,135.43

Reports per FTE

This measure is the number of reports filed per full-time equivalent (FTE) employees (the work input of a full-time employee working for one full year) retained by the laboratory. It gives an indication of the level of productivity within the average laboratory by investigative area.

Table 27: Reports per FTE by Investigative Area

Reports per FTE				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	790.01	348.82	627.70	1,037.84
Crime Scene Investigation	NA	19.79	45.18	75.88
Digital evidence	NA	18.45	29.77	58.87
DNA Casework	NA	71.13	94.23	129.51
DNA Database	NA	1,729.54	2,865.68	3,903.60
Document Examination	NA	20.00	22.52	30.16
Drugs - Controlled Substances	632.18	287.53	360.20	461.99
Evidence Screening & Processing	NA	116.95	131.48	188.18
Explosives	NA	7.21	10.00	10.94
Fingerprints	81.13	84.73	123.58	164.47
Fingerprints Database (including IAFIS)	NA	114.30	325.96	560.78
Fire analysis	98.10	26.27	45.28	68.01
Firearms and Ballistics	115.51	48.26	66.93	123.04
Firearms Database (including NIBIN)	NA	375.14	584.00	876.34
Forensic Pathology	NA	169.74	214.03	251.87
Gun Shot Residue (GSR)	NA	27.26	36.61	55.45
Marks and Impressions	NA	14.10	23.13	57.20
Serology/Biology	NA	49.61	89.41	132.86
Toxicology ante-mortem (excluding BAC)	304.25	144.90	194.50	272.61
Toxicology postmortem (excluding BAC)	NA	139.86	173.90	210.27
Trace Evidence	NA	16.92	30.87	35.56

Analytical Process Metrics

The next decomposition measure, **Personnel Expense/Total Expense**, serves as a proxy for the level of analytical technology chosen. This measure has a significant negative correlation with **Capital Expense/Total Expense** and serves as simpler decomposition term for the return on investment.

Below, the cost structure is detailed with a breakdown of expenses in capital, labor, consumables, versus other costs. Investigative areas that are highly automated, such as evidenced by the DNA database processing line, should show a lower Personnel Expense/Total Expense.

Personnel Expense as a proportion of Total Expense

Note that **compensation** includes all personnel expenditures. This includes wages, salary, and benefits operating staff, support staff, and administrative staff. Centrally assigned compensation is apportioned to each investigative area according to the percentage of full-time equivalent employees assigned to a particular investigative area.

Table 28: Personnel Expenditures/Total Expenditures by Investigative Area

Personnel Expenditures/Total Expenditures				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	54.03%	65.22%	73.66%	81.84%
Crime Scene Investigation	NA	66.59%	79.12%	85.71%
Digital evidence	NA	65.60%	75.84%	88.60%
DNA Casework	NA	64.71%	73.35%	81.93%
DNA Database	NA	50.30%	61.98%	69.66%
Document Examination	NA	70.21%	77.51%	87.64%
Drugs - Controlled Substances	60.90%	71.74%	79.79%	84.39%
Evidence Screening & Processing	NA	66.62%	78.05%	84.57%
Explosives	NA	76.12%	88.61%	95.50%
Fingerprints	59.46%	73.81%	83.29%	85.68%
Fingerprints Database (including IAFIS)	NA	79.15%	88.24%	92.39%
Fire analysis	55.74%	70.50%	82.44%	85.30%
Firearms and Ballistics	52.18%	70.33%	76.30%	83.14%
Firearms Database (including NIBIN)	NA	65.60%	75.16%	86.13%
Forensic Pathology	NA	75.76%	81.51%	87.90%
Gun Shot Residue (GSR)	NA	75.48%	82.22%	86.00%
Marks and Impressions	NA	81.87%	89.16%	91.35%
Serology/Biology	NA	77.82%	87.58%	89.97%
Toxicology ante-mortem (excluding BAC)	52.34%	63.26%	71.20%	75.56%
Toxicology postmortem (excluding BAC)	NA	62.07%	73.07%	81.80%
Trace Evidence	NA	75.98%	80.64%	83.86%

Capital Expense as a proportion of Total Expense

Capital expenditures reference those purchases by the laboratory for assets whose use extends across time periods. Since depreciation classifications place laboratory equipment into a five-year depreciation class, the capital expenditures over a five-year period are averaged in the determination of this portion of a laboratory's expenditures.

Table 29: Capital Expenditures/Total Expenditures by Investigative Area

Capital Expenditures/Total Expenditures				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	6.26%	2.90%	5.04%	9.29%
Crime Scene Investigation	NA	1.98%	5.44%	11.24%
Digital evidence	NA	3.96%	8.98%	18.43%
DNA Casework	NA	3.21%	6.06%	9.02%
DNA Database	NA	4.25%	9.28%	18.82%
Document Examination	NA	0.53%	2.41%	4.96%
Drugs - Controlled Substances	8.19%	3.32%	5.47%	8.97%
Evidence Screening & Processing	NA	2.82%	4.56%	6.97%
Explosives	NA	1.12%	1.55%	3.64%
Fingerprints	6.78%	3.10%	4.02%	6.64%
Fingerprints Database (including IAFIS)	NA	1.15%	2.87%	4.36%
Fire analysis	6.36%	2.72%	3.37%	6.57%
Firearms and Ballistics	14.28%	3.08%	4.63%	7.36%
Firearms Database (including NIBIN)	NA	2.87%	4.45%	9.47%
Forensic Pathology	NA	1.74%	2.04%	6.60%
Gun Shot Residue (GSR)	NA	2.83%	4.23%	7.37%
Marks and Impressions	NA	1.52%	2.01%	3.69%
Serology/Biology	NA	1.00%	1.67%	4.03%
Toxicology ante-mortem (excluding BAC)	5.97%	4.65%	8.53%	12.81%
Toxicology postmortem (excluding BAC)	NA	2.77%	5.13%	7.72%
Trace Evidence	NA	4.52%	5.94%	8.06%

Consumables Expense as a proportion of Total Expense

This category includes a variety of variable cost components including chemicals, reagents, consumables, and gases.

Table 30: Consumables Expenditures/Total Expenditures by Investigative Area

Consumable Expenditures/Total Expenditures				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	18.05%	4.10%	6.20%	11.02%
Crime Scene Investigation	NA	0.31%	1.57%	7.02%
Digital evidence	NA	0.13%	0.98%	4.76%
DNA Casework	NA	4.89%	7.86%	14.92%
DNA Database	NA	2.58%	6.29%	12.32%
Document Examination	NA	0.60%	1.45%	3.01%
Drugs - Controlled Substances	6.88%	2.99%	4.38%	8.30%
Evidence Screening & Processing	NA	1.52%	3.22%	5.23%
Explosives	NA	1.36%	2.83%	5.96%
Fingerprints	10.29%	1.29%	1.75%	6.98%
Fingerprints Database (including IAFIS)	NA	0.21%	1.26%	4.39%
Fire analysis	15.90%	2.68%	3.77%	6.43%
Firearms and Ballistics	12.96%	2.33%	5.12%	7.81%
Firearms Database (including NIBIN)	NA	0.52%	5.98%	13.60%
Forensic Pathology	NA	2.70%	3.19%	4.47%
Gun Shot Residue (GSR)	NA	1.62%	2.47%	4.48%
Marks and Impressions	NA	1.05%	1.47%	5.86%
Serology/Biology	NA	2.54%	3.40%	6.51%
Toxicology ante-mortem (excluding BAC)	21.04%	6.25%	8.10%	11.59%
Toxicology postmortem (excluding BAC)	NA	4.51%	6.17%	13.64%
Trace Evidence	NA	2.26%	2.79%	5.32%

Other Expenses as a proportion of Total Expense

This category includes all other cost components not accounted for above in personnel, capital, and consumables expenses.

Table 31: Other Expenses as a Percentage of Total Expenses

Other Expenditures/Total Expenditures				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	21.66%	5.00%	8.02%	12.14%
Crime Scene Investigation	NA	4.96%	8.64%	14.96%
Digital evidence	NA	3.22%	7.31%	16.56%
DNA Casework	NA	4.52%	7.91%	12.73%
DNA Database	NA	8.64%	17.67%	24.66%
Document Examination	NA	5.28%	12.75%	19.87%
Drugs - Controlled Substances	24.03%	5.13%	8.17%	11.47%
Evidence Screening & Processing	NA	7.26%	11.17%	20.43%
Explosives	NA	1.70%	5.94%	10.92%
Fingerprints	23.46%	6.13%	9.03%	10.88%
Fingerprints Database (including IAFIS)	NA	2.99%	5.63%	9.93%
Fire analysis	22.00%	6.31%	9.03%	11.34%
Firearms and Ballistics	20.59%	5.26%	11.06%	15.98%
Firearms Database (including NIBIN)	NA	4.21%	6.52%	15.95%
Forensic Pathology	NA	6.55%	10.03%	15.64%
Gun Shot Residue (GSR)	NA	6.57%	8.05%	10.99%
Marks and Impressions	NA	4.95%	5.83%	6.53%
Serology/Biology	NA	5.02%	6.75%	8.00%
Toxicology ante-mortem (excluding BAC)	20.65%	7.20%	10.48%	13.69%
Toxicology postmortem (excluding BAC)	NA	6.68%	10.35%	14.51%
Trace Evidence	NA	6.72%	9.10%	10.97%

Cost Breakdown

As highlighted above, expenditures are divided into four categories: personnel, capital, consumables, and other expenditures. The next eight tables detail the average size of each category per case and per sample.

Personnel Expenditures per Case

Note that **compensation** includes all personnel expenditures. This includes wages, salary, and benefits operating staff, support staff, and administrative staff. Centrally assigned compensation is apportioned to each investigative area according to the percentage of full-time equivalent employees assigned to a particular investigative area.

Table 32: Personnel Expenditures per Case

Personnel Expenditures/Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$120.89	$103.30	$166.45	$258.58
Crime Scene Investigation	NA	$1,417.94	$2,791.81	$6,581.23
Digital evidence	NA	$1,317.81	$2,665.70	$5,039.32
DNA Casework	NA	$957.83	$1,178.16	$1,719.56
DNA Database	NA	$31.40	$48.31	$96.37
Document Examination	NA	$2,622.74	$3,653.37	$4,489.31
Drugs - Controlled Substances	$154.10	$229.72	$330.21	$432.36
Evidence Screening & Processing	NA	$408.12	$693.86	$1,046.78
Explosives	NA	$6,331.51	$8,693.55	$15,140.61
Fingerprints	$1,119.76	$628.96	$922.51	$1,322.08
Fingerprints Database (including IAFIS)	NA	$163.84	$320.47	$665.97
Fire analysis	$1,016.90	$1,229.52	$2,155.24	$3,977.50
Firearms and Ballistics	$759.39	$975.37	$1,747.85	$2,714.11
Firearms Database (including NIBIN)	NA	$43.19	$130.79	$270.57
Forensic Pathology	NA	$543.93	$1,557.94	$2,112.75
Gun Shot Residue (GSR)	NA	$1,672.06	$2,796.72	$3,769.22
Marks and Impressions	NA	$2,194.19	$5,519.04	$7,214.50
Serology/Biology	NA	$718.97	$1,004.71	$1,855.05
Toxicology ante-mortem (excluding BAC)	$261.41	$361.91	$507.67	$722.54
Toxicology postmortem (excluding BAC)	NA	$307.39	$628.73	$818.92
Trace Evidence	NA	$2,854.39	$3,984.92	$5,741.24

Capital Expenditures per Case

Capital expenditures reference those purchases by the laboratory for assets whose use extends across time periods. Since depreciation classifications place laboratory equipment into a five-year depreciation class, the capital expenditures over a five-year period are averaged in the determination of this portion of a laboratory's expenditures.

Table 33: Capital Expenditures per Case

Capital Expenditures/Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$14.01	$5.36	$10.59	$26.36
Crime Scene Investigation	NA	$25.21	$204.61	$904.40
Digital evidence	NA	$64.57	$276.99	$803.86
DNA Casework	NA	$52.59	$92.37	$186.68
DNA Database	NA	$3.73	$9.90	$20.26
Document Examination	NA	$24.11	$94.65	$225.12
Drugs - Controlled Substances	$20.72	$13.02	$19.30	$36.40
Evidence Screening & Processing	NA	$22.63	$45.70	$67.38
Explosives	NA	$137.88	$205.18	$342.20
Fingerprints	$127.77	$25.07	$49.88	$95.06
Fingerprints Database (including IAFIS)	NA	$2.15	$7.33	$22.42
Fire analysis	$116.03	$64.34	$113.57	$216.37
Firearms and Ballistics	$207.81	$46.61	$98.02	$172.23
Firearms Database (including NIBIN)	NA	$1.92	$8.12	$14.81
Forensic Pathology	NA	$0.00	$41.35	$95.63
Gun Shot Residue (GSR)	NA	$64.58	$145.85	$284.69
Marks and Impressions	NA	$73.00	$117.89	$219.38
Serology/Biology	NA	$13.97	$22.49	$50.42
Toxicology ante-mortem (excluding BAC)	$29.83	$23.05	$56.88	$101.04
Toxicology postmortem (excluding BAC)	NA	$18.67	$32.10	$74.58
Trace Evidence	NA	$165.46	$304.11	$557.40

Consumables Expenditures per Case

This category includes a variety of variable cost components including chemicals, reagents, consumables, and gases.

Table 34: Consumables Expenditures per Case

Consumables Expenditures/Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$40.38	$6.91	$14.66	$25.89
Crime Scene Investigation	NA	$8.67	$43.15	$172.79
Digital evidence	NA	$4.11	$25.91	$108.08
DNA Casework	NA	$71.95	$151.81	$278.87
DNA Database	NA	$1.94	$6.94	$21.44
Document Examination	NA	$27.71	$72.05	$136.73
Drugs - Controlled Substances	$17.41	$11.69	$18.87	$37.54
Evidence Screening & Processing	NA	$9.11	$43.40	$90.29
Explosives	NA	$166.36	$335.67	$618.97
Fingerprints	$193.83	$11.94	$18.49	$91.21
Fingerprints Database (including IAFIS)	NA	$0.15	$3.88	$8.90
Fire analysis	$290.04	$70.05	$112.23	$259.70
Firearms and Ballistics	$188.56	$30.62	$104.19	$208.70
Firearms Database (including NIBIN)	NA	$0.70	$3.35	$34.15
Forensic Pathology	NA	$0.00	$54.82	$120.71
Gun Shot Residue (GSR)	NA	$48.77	$85.54	$153.26
Marks and Impressions	NA	$74.83	$96.30	$182.23
Serology/Biology	NA	$33.10	$52.78	$74.72
Toxicology ante-mortem (excluding BAC)	$105.08	$39.12	$63.66	$102.39
Toxicology postmortem (excluding BAC)	NA	$32.31	$51.98	$90.75
Trace Evidence	NA	$96.23	$162.13	$310.18

Other Expenditures per Case

This category includes all other cost components not accounted for above in personnel, capital, and consumables expenses.

Table 35: Other Expenditures per Case

Other Expenditures/Case				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$48.46	$9.53	$19.14	$31.92
Crime Scene Investigation	NA	$90.88	$507.83	$1,212.47
Digital evidence	NA	$57.99	$254.52	$557.72
DNA Casework	NA	$68.33	$118.22	$245.69
DNA Database	NA	$7.75	$13.49	$25.93
Document Examination	NA	$224.23	$504.86	$993.68
Drugs - Controlled Substances	$60.81	$17.96	$35.22	$53.69
Evidence Screening & Processing	NA	$69.43	$117.64	$174.62
Explosives	NA	$314.17	$603.82	$1,208.92
Fingerprints	$441.89	$58.31	$103.48	$167.22
Fingerprints Database (including IAFIS)	NA	$1.58	$15.03	$57.78
Fire analysis	$401.30	$109.31	$250.29	$495.68
Firearms and Ballistics	$299.68	$90.72	$220.59	$387.91
Firearms Database (including NIBIN)	NA	$3.49	$12.78	$38.93
Forensic Pathology	NA	$0.00	$137.61	$272.22
Gun Shot Residue (GSR)	NA	$130.63	$295.71	$475.46
Marks and Impressions	NA	$238.47	$395.26	$470.43
Serology/Biology	NA	$58.95	$87.98	$130.57
Toxicology ante-mortem (excluding BAC)	$103.16	$39.36	$80.43	$122.38
Toxicology postmortem (excluding BAC)	NA	$39.55	$73.08	$112.99
Trace Evidence	NA	$254.68	$426.28	$735.40

Personnel Expenditures per Sample

Note that **compensation** includes all personnel expenditures. This includes wages, salary, and benefits operating staff, support staff, and administrative staff. Centrally assigned compensation is apportioned to each investigative area according to the percentage of full-time equivalent employees assigned to a particular investigative area.

Table 36: Personnel Expenditures per Sample

Personnel Expenditures/Sample				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$122.30	$100.48	$148.28	$226.25
Crime Scene Investigation	NA	$111.04	$229.09	$596.58
Digital evidence	NA	$664.27	$1,185.10	$1,416.01
DNA Casework	NA	$202.55	$295.75	$407.19
DNA Database	NA	$27.37	$35.47	$54.42
Document Examination	NA	$0.00	$469.86	$920.74
Drugs - Controlled Substances	$110.14	$89.84	$121.48	$151.45
Evidence Screening & Processing	NA	$165.15	$271.79	$410.91
Explosives	NA	$1,006.79	$1,597.97	$2,388.58
Fingerprints	$264.38	$148.21	$225.64	$340.70
Fingerprints Database (including IAFIS)	NA	$45.17	$105.88	$681.19
Fire analysis	$251.23	$335.71	$543.96	$1,134.10
Firearms and Ballistics	$83.26	$232.09	$381.40	$599.85
Firearms Database (including NIBIN)	NA	$24.37	$80.82	$136.51
Forensic Pathology	NA	$888.44	$1,641.35	$2,011.13
Gun Shot Residue (GSR)	NA	$519.50	$737.17	$981.46
Marks and Impressions	NA	$140.55	$694.64	$1,357.23
Serology/Biology	NA	$55.75	$100.43	$193.06
Toxicology ante-mortem (excluding BAC)	$327.89	$354.06	$469.54	$620.30
Toxicology postmortem (excluding BAC)	NA	$150.86	$198.30	$236.90
Trace Evidence	NA	$225.43	$334.81	$555.92

Capital Expenditures per Sample

Capital expenditures reference those purchases by the laboratory for assets whose use extends across time periods. Since depreciation classifications place laboratory equipment into a five-year depreciation class, the capital expenditures over a five-year period are averaged in the determination of this portion of a laboratory's expenditures.

Table 37: Capital Expenditures per Sample

Capital Expenditures/Sample				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$14.18	$5.02	$9.10	$21.58
Crime Scene Investigation	NA	$1.10	$14.51	$118.28
Digital evidence	NA	$58.66	$201.24	$445.61
DNA Casework	NA	$9.86	$20.44	$40.00
DNA Database	NA	$2.69	$9.58	$17.68
Document Examination	NA	$0.00	$3.22	$13.90
Drugs - Controlled Substances	$14.81	$4.36	$6.58	$13.61
Evidence Screening & Processing	NA	$9.50	$17.68	$26.36
Explosives	NA	$26.16	$29.51	$48.33
Fingerprints	$30.17	$5.93	$10.60	$22.25
Fingerprints Database (including IAFIS)	NA	$0.73	$2.18	$14.35
Fire analysis	$28.67	$11.90	$28.68	$51.95
Firearms and Ballistics	$22.78	$11.96	$20.47	$37.10
Firearms Database (including NIBIN)	NA	$1.27	$4.17	$9.38
Forensic Pathology	NA	$22.05	$38.41	$115.95
Gun Shot Residue (GSR)	NA	$17.42	$43.05	$59.24
Marks and Impressions	NA	$1.56	$13.28	$42.94
Serology/Biology	NA	$0.81	$1.32	$3.76
Toxicology ante-mortem (excluding BAC)	$37.41	$21.92	$52.35	$87.34
Toxicology postmortem (excluding BAC)	NA	$6.16	$12.61	$21.94
Trace Evidence	NA	$13.11	$24.01	$44.81

Consumables Expenditures per Sample

This category includes a variety of variable cost components including chemicals, reagents, consumables, and gases.

Table 38: Consumables Expenditures per Sample

Consumables Expenditures/Sample				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$40.85	$6.49	$12.76	$21.08
Crime Scene Investigation	NA	$0.05	$1.88	$8.42
Digital evidence	NA	$3.96	$17.06	$47.27
DNA Casework	NA	$13.86	$34.36	$59.35
DNA Database	NA	$1.44	$3.57	$9.01
Document Examination	NA	$0.00	$4.46	$15.96
Drugs - Controlled Substances	$12.45	$4.16	$6.09	$12.64
Evidence Screening & Processing	NA	$7.11	$19.23	$35.81
Explosives	NA	$23.79	$42.61	$69.61
Fingerprints	$45.76	$2.71	$4.31	$13.23
Fingerprints Database (including IAFIS)	NA	$0.14	$1.53	$5.96
Fire analysis	$71.66	$11.67	$28.45	$58.86
Firearms and Ballistics	$20.67	$11.92	$24.81	$40.89
Firearms Database (including NIBIN)	NA	$0.36	$1.03	$10.89
Forensic Pathology	NA	$37.66	$65.35	$94.44
Gun Shot Residue (GSR)	NA	$14.37	$23.88	$36.04
Marks and Impressions	NA	$4.70	$9.84	$21.64
Serology/Biology	NA	$2.16	$3.08	$6.35
Toxicology ante-mortem (excluding BAC)	$131.81	$37.58	$53.91	$79.77
Toxicology postmortem (excluding BAC)	NA	$10.26	$17.35	$28.00
Trace Evidence	NA	$7.04	$12.19	$24.98

Other Expenditures per Sample

This category includes all other cost components not accounted for above in personnel, capital, and consumables expenses.

Table 39: Other Expenditures per Sample

Other Expenditures/Sample				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	$49.03	$9.40	$18.89	$27.42
Crime Scene Investigation	NA	$2.11	$40.62	$106.19
Digital evidence	NA	$29.97	$82.21	$264.16
DNA Casework	NA	$12.62	$27.90	$60.43
DNA Database	NA	$7.08	$11.49	$19.43
Document Examination	NA	$0.00	$37.37	$207.82
Drugs - Controlled Substances	$43.46	$8.04	$12.11	$20.26
Evidence Screening & Processing	NA	$24.17	$42.01	$72.50
Explosives	NA	$39.94	$70.14	$168.35
Fingerprints	$104.33	$12.77	$23.51	$44.85
Fingerprints Database (including IAFIS)	NA	$1.24	$5.64	$17.53
Fire analysis	$99.15	$35.69	$58.79	$121.50
Firearms and Ballistics	$32.86	$25.64	$46.72	$88.27
Firearms Database (including NIBIN)	NA	$0.58	$4.97	$7.99
Forensic Pathology	NA	$75.31	$122.60	$182.05
Gun Shot Residue (GSR)	NA	$51.86	$82.96	$137.30
Marks and Impressions	NA	$0.24	$46.84	$83.43
Serology/Biology	NA	$4.35	$6.81	$10.78
Toxicology ante-mortem (excluding BAC)	$129.40	$41.92	$74.90	$103.18
Toxicology postmortem (excluding BAC)	NA	$15.18	$25.04	$34.28
Trace Evidence	NA	$22.37	$38.03	$72.24

Turn-around Time

Turn-around time is offered in two forms. The first is a measure that begins when the last item of evidence in an investigative area has been submitted to the laboratory. The second measure begins the turn-around time count with the submission of the first piece of evidence in an investigative area. Because most laboratories only record one or the other of these measures, there is some seeming inconsistency which is attributed to the limited sample. The metric has been slightly altered from previous years to correspond to recommendations from Project FORESIGHT participants. The change in the metric reflects the time from each request for analysis to issuance of a report. As such, a case in one investigative area may have multiple turn-around times that correspond to separate requests.

Turn-around Time (Days from last submission of evidence to Report submission)

Table 40: Turnaround Time from Last Item Received by Investigative Area

Turnaround Time from Last Item Received				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	11	10	13	25
Crime Scene Investigation	N/A	13	14	27
Digital evidence	N/A	15	47	53
DNA Casework	N/A	43	68	111
DNA Database	N/A	23	44	65
Document Examination	N/A	46	49	87
Drugs - Controlled Substances	10	27	49	89
Evidence Screening & Processing	N/A	30	50	70
Explosives	N/A	28	47	61
Fingerprints	147	9	40	70
Fingerprints Database (including IAFIS)	N/A	2	4	9
Fire analysis	14	21	54	62
Firearms and Ballistics	10	11	17	40
Firearms Database (including NIBIN)	N/A	1	2	3
Forensic Pathology	N/A			
Gun Shot Residue (GSR)	N/A	27	48	128
Marks and Impressions	N/A	9	44	64
Serology/Biology	N/A	17	45	72
Toxicology ante-mortem (excluding BAC)	30	25	29	55
Toxicology postmortem (excluding BAC)	N/A	32	47	52
Trace Evidence	N/A	41	64	140

Turn-around Time (Days from first submission of evidence to Report submission)

Table 41: Turnaround Time from First Item Received by Investigative Area

Turnaround Time from First Item Received				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	12	17	29	39
Crime Scene Investigation	N/A	23	40	53
Digital evidence	N/A	29	67	151
DNA Casework	N/A	112	141	164
DNA Database	N/A	46	61	76
Document Examination	N/A	43	63	85
Drugs - Controlled Substances	13	52	73	92
Evidence Screening & Processing	N/A	30	47	54
Explosives	N/A	99	138	146
Fingerprints	134	54	73	87
Fingerprints Database (including IAFIS)	N/A	6	13	30
Fire analysis	14	29	97	130
Firearms and Ballistics	22	58	78	93
Firearms Database (including NIBIN)	N/A	2	10	24
Forensic Pathology	N/A	10	36	91
Gun Shot Residue (GSR)	N/A	76	91	115
Marks and Impressions	N/A	70	98	123
Serology/Biology	N/A	57	69	87
Toxicology ante-mortem (excluding BAC)	32	42	69	84
Toxicology postmortem (excluding BAC)	N/A	59	80	91
Trace Evidence	N/A	171	207	254

Cases Open 30+ Days

Another area of concern involves the increased demand for laboratory services and the level of backlog. For data collection purposes, the definition of backlog has been defined as open cases at the end of the fiscal year that have been open for more than thirty days. As a relative comparative measure, the ratio of open cases to total cases for the year is presented in the following table.

Cases Open over 30 Days/Annual Caseload

Table 42: Cases Open 30+ Days as a Percent of Total Cases by Investigative Area

Cases Open 30+ Days as a % of Total Cases				
Area of Investigation	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Blood Alcohol	0.38%	1.42%	1.68%	2.33%
Crime Scene Investigation	NA	5.04%	6.91%	18.87%
Digital evidence	NA	6.42%	11.11%	19.72%
DNA Casework	NA	9.07%	10.73%	33.00%
DNA Database	NA	9.67%	11.43%	12.61%
Document Examination	NA	11.34%	19.74%	23.58%
Drugs - Controlled Substances	2.27%	7.00%	8.16%	9.93%
Evidence Screening & Processing	NA	3.58%	5.01%	7.80%
Explosives	NA	35.00%	42.73%	48.86%
Fingerprints	32.34%	7.82%	9.35%	11.49%
Fingerprints Database (including IAFIS)	NA	9.35%	4.66%	18.18%
Fire analysis	NA	13.68%	18.18%	24.43%
Firearms and Ballistics	11.64%	9.89%	11.52%	17.59%
Firearms Database (including NIBIN)	NA	11.52%	2.65%	8.13%
Forensic Pathology	NA	4.46%	8.13%	10.84%
Gun Shot Residue (GSR)	NA	12.66%	16.39%	25.40%
Marks and Impressions	NA	21.63%	26.09%	42.56%
Serology/Biology	NA	7.70%	8.64%	9.51%
Toxicology ante-mortem (excluding BAC)	2.01%	6.60%	9.03%	10.35%
Toxicology postmortem (excluding BAC)	NA	4.87%	9.37%	10.45%
Trace Evidence	NA	14.19%	18.77%	25.00%

Digital Evidence LabRAT outcomes

The Forensic Laboratory Needs Technology Working Group (FLN-TWG) provided recommendations for data collection for Digital Evidence analysis. The next two tables highlight some of the details that emerged from that special data collection.

Table 43: Digital Evidence Level I Metrics

Digital Evidence Level I Metrics				
Measure	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Cases				
Total	0	76	182	472
Mobile	N/A	175	326	806
Computer	N/A	21	40	101
Video	N/A	24	52	117
Mass Storage	N/A	2	13	43
Internet of Things	N/A	8	21	60
Reports				
Total		65	188	516
Mobile	N/A	160	399	1,502
Computer	N/A	15	44	132
Video	N/A	26	43	147
Mass Storage	N/A	2	11	39
Internet of Things	N/A	6	15	77
FTE				
Total		2	4	10
Mobile	0	1	1	3
Computer	N/A	1	3	9
Video	N/A	1	3	7
Mass Storage	N/A	0	1	6
Internet of Things	N/A	1.00	1.41	4.16

Table 44: Digital Evidence Level II Metrics

Digital Evidence Level II Metrics				
Measure	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Turnaround Time				
Total	N/A	29	67	151
Mobile	N/A	4	7	31
Computer	N/A	38	57	121
Video	N/A	33	49	127
Mass Storage	N/A	12	21	43
Internet of Things	N/A	32	37	47
Gigabytes Examined				
Total	NA	16,726	31,454	51,808
Mobile	N/A	1,985	13,982	35,169
Computer	N/A	22,554	28,258	53,016
Video	N/A	1,198	10,105	15,241
Mass Storage	N/A	1,144	1,573	3,235
Internet of Things	N/A	53	168	810
Personnel Time Allocation				
Casework	N/A	61.09%	66.00%	71.50%
Technical Review	N/A	0.00%	2.00%	4.50%
Testimony & Testimony Preparation	N/A	3.00%	5.00%	8.50%
Training	N/A	1.00%	4.00%	5.00%
Continuing Education	N/A	4.50%	10.00%	10.00%
Non-Digital Evidence Duties	N/A	2.00%	5.05%	14.00%
Other	N/A	0.00%	0.00%	5.76%
Outside Agencies Assisted	N/A	6	9	32

Time Trends

The 2019 National Institute of Justice report noted some worrisome trends as forensic laboratory resources were stressed from increased demands for services outpacing any increase in resources to the laboratories.[4] The report estimated that state and local forensic laboratories were understaffed by more than 900 positions and those shortfalls resulted in growing backlogs as turnaround times increased. Part of the additional strain on resources could be attributed to the attention placed on unsubmitted sexual assault kits (SAKs) and the drive to test the 200,000 to 400,000 outstanding SAKs that had yet to be submitted for laboratory analysis. Another key influence on the increased demand for resources was the growing opioid crisis. The COVID-19 pandemic introduced additional stress on forensic laboratories.

Using Project FORESIGHT benchmark data from fiscal years 2015-2024, we note some of the trends influenced by these systemic stressors.[5] The tables illustrate the growth in various metrics over this period. Both the arithmetic mean and the geometric mean are provided. The arithmetic mean provides an average of the year-to-year growth, while the geometric average offers a long-term growth trend. The latter highlights the influence of COVID-19 on forensic laboratories.

The National Association of Medical Examiners (NAME) contributed some additional data on the demand for services over time. Table 48 highlights pre-COVID (2018) and post-COVID (2023) demand for services growth for 89 medical examiner offices.[6]

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[4] U.S. Department of Justice, Office of Justice Programs. (2019). *Report to Congress: Needs Assessment of Forensic Laboratories and Medical Examiner/Coroner Offices*. Washington, DC: National Institute of Justice. https://www.ncjrs.gov/pdffiles1/nij/253626.pdf.

[5] Speaker, P. J. (2024) Project FORESIGHT Annual Report, 2022-2023. https://researchrepository.wvu.edu/faculty_publications/3296/.
Speaker, P. J. (2023) Project FORESIGHT Annual Report, 2021-2022. https://researchrepository.wvu.edu/faculty_publications/3284/.
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Speaker, P. J. (2016). Project FORESIGHT Benchmark Data 2014-2015. https://researchrepository.wvu.edu/faculty_publications/1143/.
Speaker, P. J. (2015). Project FORESIGHT Benchmark Data 2013-2014. https://researchrepository.wvu.edu/faculty_publications/1142/.

[6] Note that the 89 medical examiner offices are not included in the 220 laboratories providing data directly to Project FORESIGHT.

Table 45: Average Annual Growth in Case Submissions per 100,000 population, 2015-2024

Growth in Case Submissions per 100K population (2015-2024)		
Area of Investigation	**Arithmetic Average**	**Geometric Average**
Blood Alcohol	1.11%	-4.36%
Crime Scene Investigation	104.04%	-2.43%
Digital evidence	632.98%	0.68%
DNA Casework	2.55%	1.73%
DNA Database	8.29%	-5.67%
Document Examination	37.62%	-10.76%
Drugs - Controlled Substances	-1.65%	-3.31%
Evidence Screening & Processing	10.17%	2.22%
Explosives	13.72%	0.90%
Fingerprints	-1.21%	-4.52%
Fingerprints Database (including IAFIS)	20.49%	-9.70%
Fire analysis	-7.11%	-8.31%
Firearms and Ballistics	3.64%	1.77%
Firearms Database (including NIBIN)	36.53%	25.46%
Forensic Pathology	58.00%	27.47%
Gun Shot Residue (GSR)	-2.61%	-3.86%
Marks and Impressions	-2.54%	-7.26%
Serology/Biology	5.28%	-1.83%
Toxicology ante-mortem (excluding BAC)	1.70%	1.40%
Toxicology postmortem (excluding BAC)	10.46%	6.48%
Trace Evidence	-2.40%	-5.20%

Table 46: Average Annual Growth in TAT, 2015-2024

Growth in Case Turnaround Time (2015-2024)		
Area of Investigation	**Arithmetic Average**	**Geometric Average**
Blood Alcohol	8.61%	8.01%
Crime Scene Investigation	18.55%	13.30%
Digital evidence	4.27%	-2.29%
DNA Casework	3.35%	3.17%
DNA Database	-1.94%	-2.62%
Document Examination	2.80%	2.40%
Drugs - Controlled Substances	3.46%	3.30%
Evidence Screening & Processing	5.13%	5.00%
Explosives	5.53%	4.88%
Fingerprints	0.52%	0.39%
Fingerprints Database (including IAFIS)	15.45%	12.47%
Fire analysis	0.57%	-0.06%
Firearms and Ballistics	0.31%	0.00%
Firearms Database (including NIBIN)	8.57%	4.46%
Forensic Pathology	0.63%	-2.69%
Gun Shot Residue (GSR)	3.47%	2.64%
Marks and Impressions	4.23%	3.96%
Serology/Biology	1.70%	1.66%
Toxicology ante-mortem (excluding BAC)	2.25%	2.15%
Toxicology postmortem (excluding BAC)	4.82%	4.32%
Trace Evidence	7.89%	6.70%

Table 47: Average Annual Growth in 30+ Days Open Cases as a percent of annual Case Submissions (2014-2023)

Growth in 30+ Day Open Cases as a % of Case Submissions		
Area of Investigation	**Arithmetic Average**	**Geometric Average**
Blood Alcohol	1.11%	-4.36%
Crime Scene Investigation	104.04%	-2.43%
Digital evidence	632.98%	0.68%
DNA Casework	2.55%	1.73%
DNA Database	8.29%	-5.67%
Document Examination	37.62%	-10.76%
Drugs - Controlled Substances	-1.65%	-3.31%
Evidence Screening & Processing	10.17%	2.22%
Explosives	13.72%	0.90%
Fingerprints	-1.21%	-4.52%
Fingerprints Database (including IAFIS)	20.49%	-9.70%
Fire analysis	-7.11%	-8.31%
Firearms and Ballistics	3.64%	1.77%
Firearms Database (including NIBIN)	36.53%	25.46%
Forensic Pathology	58.00%	27.47%
Gun Shot Residue (GSR)	-2.61%	-3.86%
Marks and Impressions	-2.54%	-7.26%
Serology/Biology	5.28%	-1.83%
Toxicology ante-mortem (excluding BAC)	1.70%	1.40%
Toxicology postmortem (excluding BAC)	10.46%	6.48%
Trace Evidence	-2.40%	-5.20%

Forensic Pathology Time Trends

The National Association of Medical Examiners shared the following time trends in the demand for their services.

Table 48: Growth in Demand for Medical Examiner Services

	2018		2023		
	Average	Sum	Average	Sum	%Δ Average
Deaths in jurisdiction (all deaths including non ME/C cases)	12,604	1,121,721	15,435	1,373,722	22.47%
Deaths reported to the office	5,575	496,204	7,056	627,973	26.56%
Deaths investigated (certified)	2,102	187,078	2,796	248,883	33.04%
Scenes investigated by ME/C staff	915	81,461	1,260	112,172	37.70%
External Inspections	521	46,334	739	65,803	42.02%
Full Autopsies performed	1,072	95,393	1,270	112,994	18.45%
Partial Autopsies performed	45	4,004	71	6,306	57.48%
Population Served	1,606,153	142,947,591	1,642,806	146,209,713	2.28%
Number of offices in sample	89		89		

Source: National Association of Medical Examiners

Level II Quality Management Summary Statistics

A beta test survey in early 2024 led to the creation of a Level II (optional) addition to the LabRAT data collection tool.

Table 49: Characteristics of Quality Management Participants

Quality Management Sample Characteristics							
Jurisdiction	**N**		**FTE**	**FT%**	**PT%**	**Total%**	**Minor issues**
State	29	Mean	154.57	1.85%	3.48%	5.34%	68.62%
		Std. Dev.	145.28	1.29%	5.17%	5.00%	24.68%
Metro	22	Mean	81.00	3.12%	2.41%	5.54%	70.05%
		Std. Dev.	64.51	2.99%	3.29%	3.92%	19.41%
Regional	9	Mean	38.92	3.23%	3.14%	6.37%	83.57%
		Std. Dev.	19.19	1.76%	4.02%	4.01%	11.82%
National	8	Mean	200.39	4.39%	0.67%	5.06%	75.00%
		Std. Dev.	222.71	2.42%	1.02%	2.62%	12.84%
Combined	68	Mean	120.25	2.67%	2.76%	5.44%	69.31%
		Std. Dev.	135.17	2.23%	4.21%	4.24%	20.18%

The following two tables highlight the estimated allocation of time to various duties for the quality management activities for personnel primarily in quality assurance (Table 49) and personnel with assignments that are partially dedicated (Table 50) to quality assurance activities.

Table 50: Time Spent in Various QM/QA Activities of Personnel with Primary Duties in Quality Assurance

FTE dedicated exclusively to QM/QA		
What is the approximate percentage of time spent for the representative FTE in the following activities:	**Average**	**Std. Dev.**
Investigating nonconformities and corrective actions (including performing root cause analysis)	18.81%	12.28%
Administering proficiency testing	12.65%	7.87%
Organizing/leading internal audits	12.24%	8.79%
Performing risk assessments	6.12%	4.01%
Participating in management reviews	5.23%	3.63%
Reagent preparation	0.75%	4.74%
Managing the laboratory's calibration program	4.21%	6.27%
Overseeing the laboratory's record retention program	6.27%	7.68%
Fulfilling discovery/PIA requests	5.94%	16.44%
Facilitating preventative actions	3.65%	3.47%
OSAC Registry adoption	3.79%	5.88%
Other QA responsibilities	13.11%	12.21%
Non-QA responsibilities	7.24%	11.40%
Nonconformities/corrective actions consided minor	72.58%	20.51%

Table 51: Time Spent in Various QM/QA Activities of Personnel with Partial Duties in Quality Assurance

FTE dedicated partially to QM/QA		
What is the approximate percentage of time spent for the representative FTE in the following activities:	**Average**	**Std. Dev.**
Investigating nonconformities and corrective actions (including performing root cause analysis)	14.05%	17.98%
Administering proficiency testing	3.09%	4.92%
Organizing/leading internal audits	2.91%	4.23%
Performing risk assessments	3.05%	4.21%
Participating in management reviews	2.08%	2.85%
Reagent preparation	1.77%	3.52%
Managing the laboratory's calibration program	1.53%	3.47%
Overseeing the laboratory's record retention program	1.56%	2.84%
Fulfilling discovery/PIA requests	1.23%	3.20%
Facilitating preventative actions	2.62%	2.99%
OSAC Registry adoption	2.41%	3.97%
Other QA responsibilities	5.67%	8.59%
Non-QA responsibilities	59.01%	29.22%

Efficiency and Cost Effectiveness of Forensic Science Services—FORESIGHT 2023-2024 Benchmark Data

The summary statistics offer a one-dimensional view of performance. In this section, that view is expanded through a consideration of cost effectiveness and efficiency. Economic theory indicates that any industry, including forensic science laboratories, will have average costs (Cost/Case) that decline as caseload is increased until reaching a point of perfect economies of scale. Thereafter, diseconomies of scale will be realized and average costs will rise as caseload increases. This behavior is exemplified via U-shaped average cost curves.

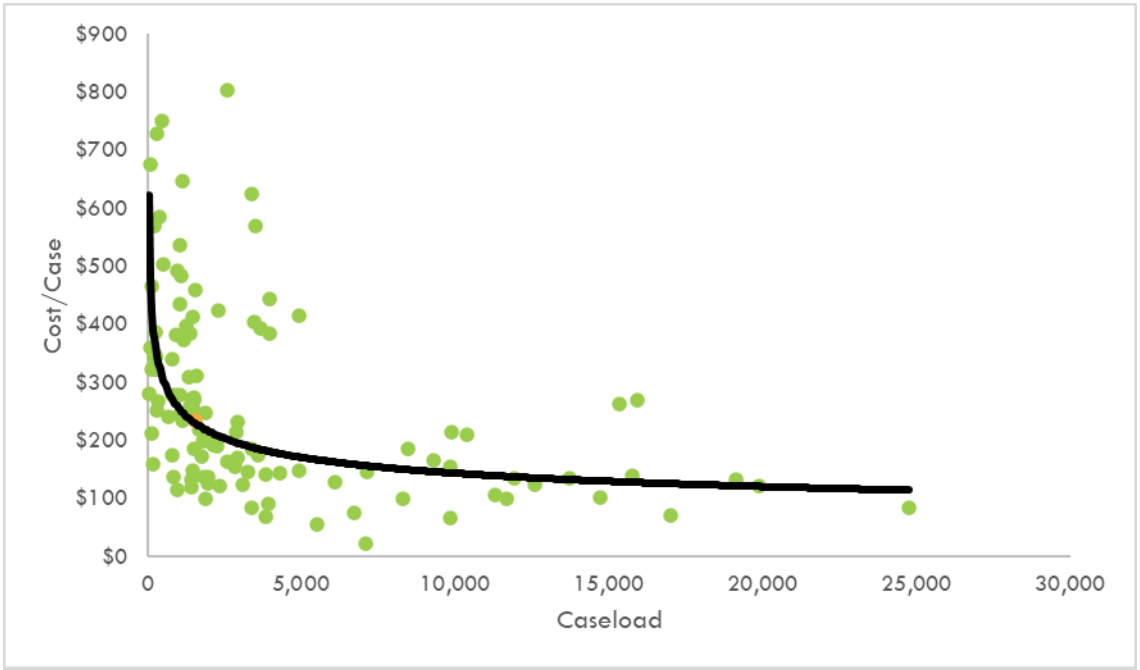
For each investigative area, the industry average total cost curve has been estimated by a series of non-linear regressions. When a laboratory performs on or near the curve, it is an indication of efficiency for the corresponding caseload. For an efficient performance that is near the bottom of the U-shaped curve, the laboratory exhibits cost-effective performance as it approaches perfect economies of scale.

Each of the average cost curves is illustrated with a corresponding table of values for the cost/case for various caseloads. Also note that productivity in the form of Cases/FTE versus the corresponding caseload exhibits an inverted curve as compared to the average cost. Research to-date suggests that the level of productivity for any caseload is the most critical component in the DuPont breakdown to explain efficiency in the laboratory. That is, a laboratory that exemplifies high productivity for its caseload is likely to be operating near peak efficient average cost for that level of casework.

In addition to this cross–sectional comparison, it is recommended that participants track their average cost and productivity for all past FORESIGHT submissions in real terms. The term "real" indicates that costs have been adjusted for inflation and converted to the most recent year's price index.

Blood Alcohol Analysis

Figure 5: Efficient Frontier for Blood Alcohol Analysis—Average Total Cost v. Cases Processed



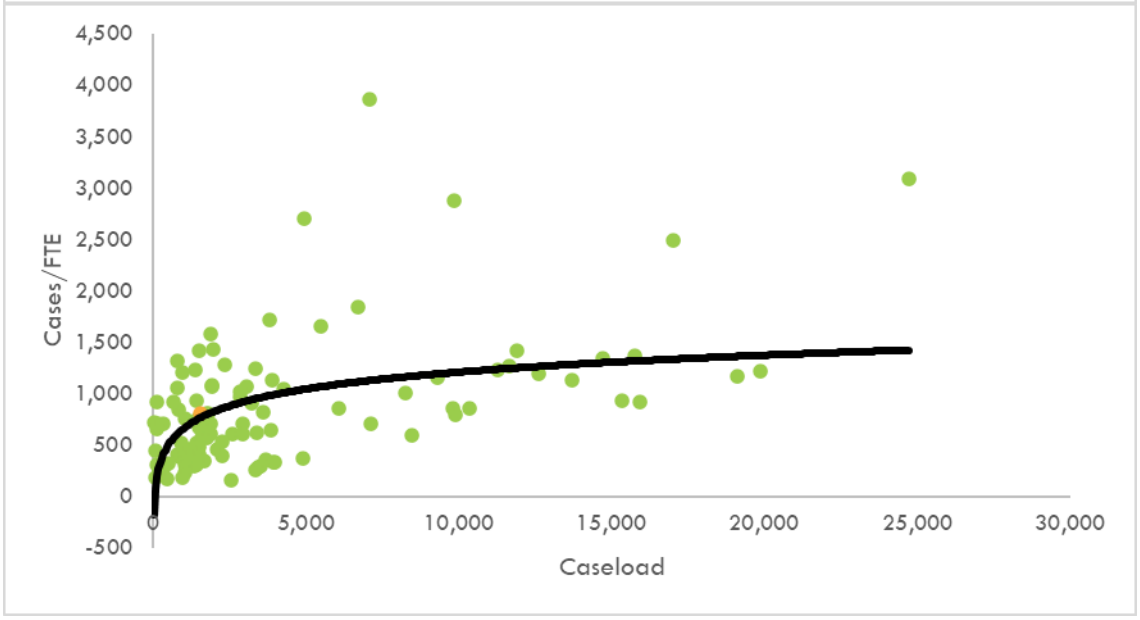


Figure 6: Efficient Frontier for Blood Alcohol Analysis—Cases/FTE v. Cases Processed

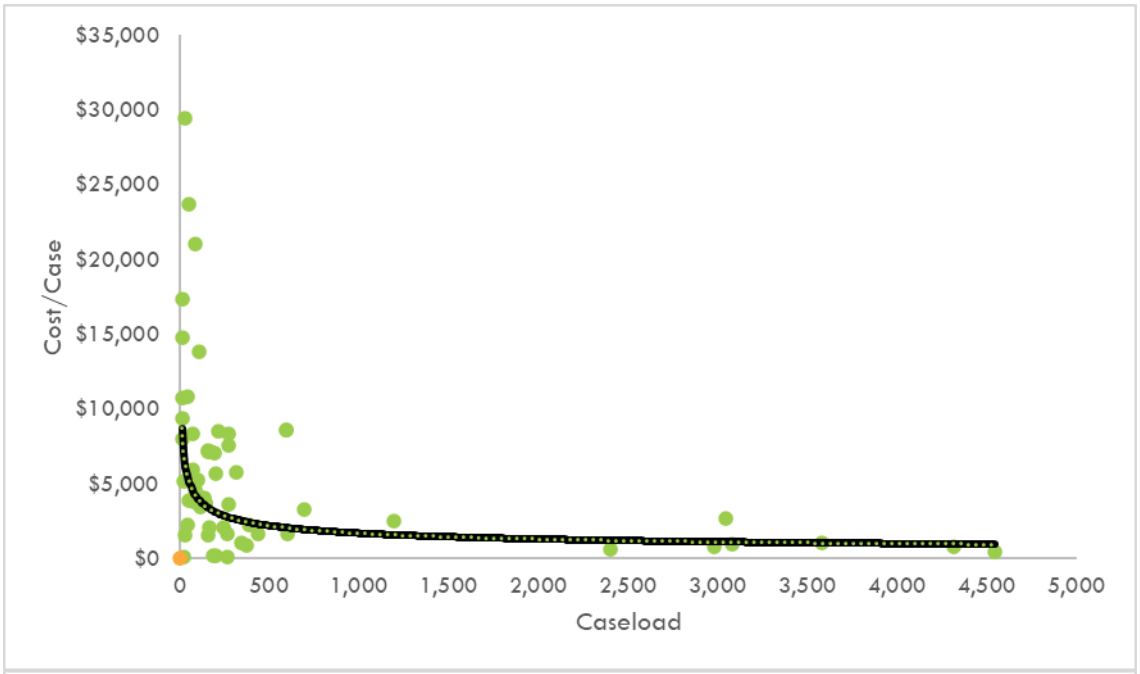
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 52: Efficient Frontier for Blood & Breath Alcohol Analysis—Efficient Cost/Case & Cases/FTE for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$457	267	5,000	$171	850
200	$384	328	5,500	$167	874
300	$347	370	6,000	$164	897
400	$323	403	7,000	$157	938
500	$305	430	8,000	$152	976
600	$292	454	9,000	$148	1,011
700	$281	475	10,000	$144	1,043
800	$271	494	11,000	$141	1,073
900	$263	512	12,000	$138	1,101
1,000	$257	528	13,000	$135	1,127
1,250	$243	564	14,000	$132	1,152
1,500	$232	595	15,000	$130	1,176
1,750	$223	623	16,000	$128	1,198
2,000	$216	648	17,000	$126	1,220
2,250	$209	671	18,000	$124	1,241
2,500	$204	692	19,000	$123	1,261
2,750	$199	712	20,000	$121	1,280
3,000	$195	731	21,000	$120	1,299
3,250	$191	748	22,000	$118	1,316
3,500	$187	765	23,000	$117	1,334
3,750	$184	780	24,000	$116	1,351
4,000	$181	795	25,000	$114	1,367
4,500	$176	824	26,000	$113	1,383

Crime Scene Investigation

Figure 7: Efficient Frontier for Crime Scene Investigation—Average Total Cost v. Cases Processed



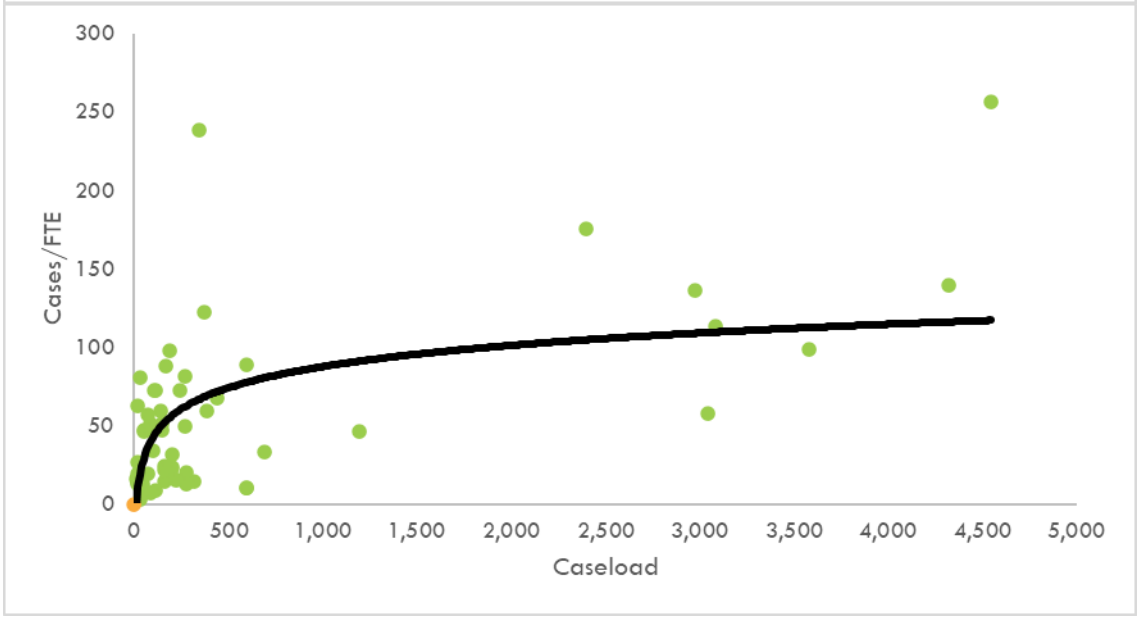


Figure 8: Efficient Frontier Crime Scene Investigation—Cases/FTE v. Caseload

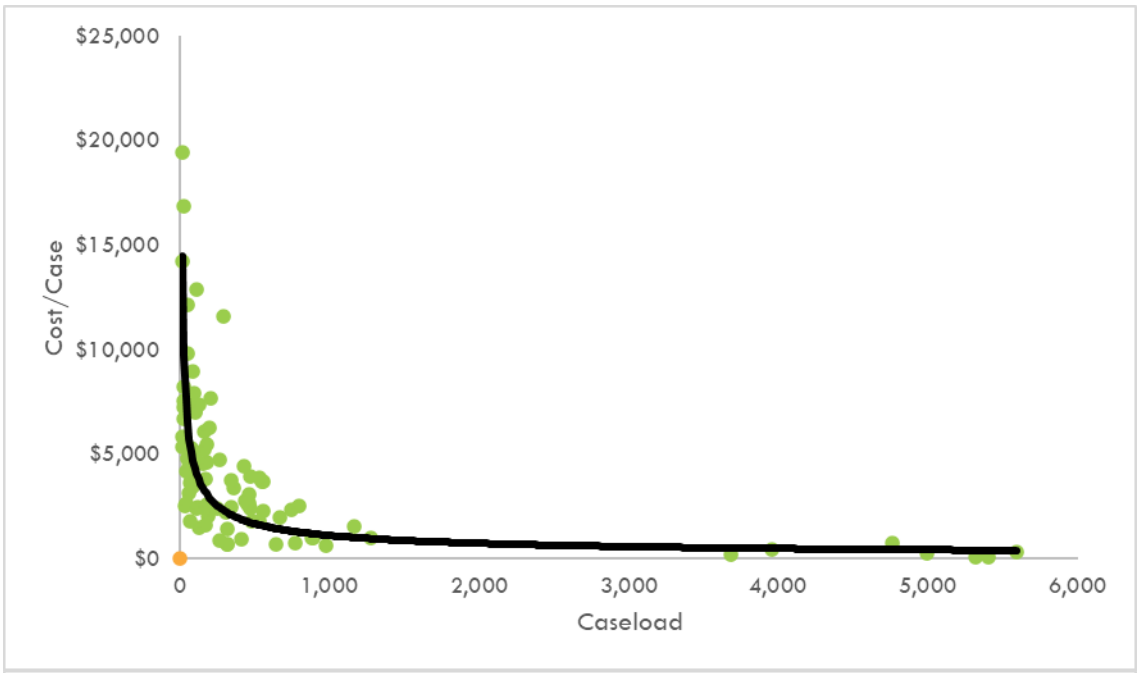
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 53: Efficient Frontier for Crime Scene Investigation—Efficient Cost/Case & Cases/FTE for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
5	$12,480	11	400	$2,409	46
10	$9,621	14	450	$2,305	48
15	$8,263	16	500	$2,216	49
20	$7,417	18	600	$2,069	52
25	$6,821	19	700	$1,953	55
30	$6,370	20	800	$1,857	58
35	$6,012	21	900	$1,777	60
40	$5,718	22	1,000	$1,708	62
45	$5,471	23	1,100	$1,648	64
50	$5,258	24	1,200	$1,595	66
55	$5,074	24	1,300	$1,548	67
60	$4,911	25	1,400	$1,505	69
65	$4,765	26	1,500	$1,467	70
70	$4,634	26	1,600	$1,432	72
75	$4,516	27	1,700	$1,400	73
100	$4,054	30	1,800	$1,370	75
125	$3,728	32	1,900	$1,342	76
150	$3,481	34	2,000	$1,317	77
175	$3,286	35	2,500	$1,211	83
200	$3,125	37	3,000	$1,131	88
250	$2,874	40	3,500	$1,067	92
300	$2,684	42	4,000	$1,015	97
350	$2,533	44	4,500	$971	100

Digital Evidence Analysis

Figure 9: Efficient Frontier for Digital Evidence Analysis—Average Total Cost v. Cases Processed



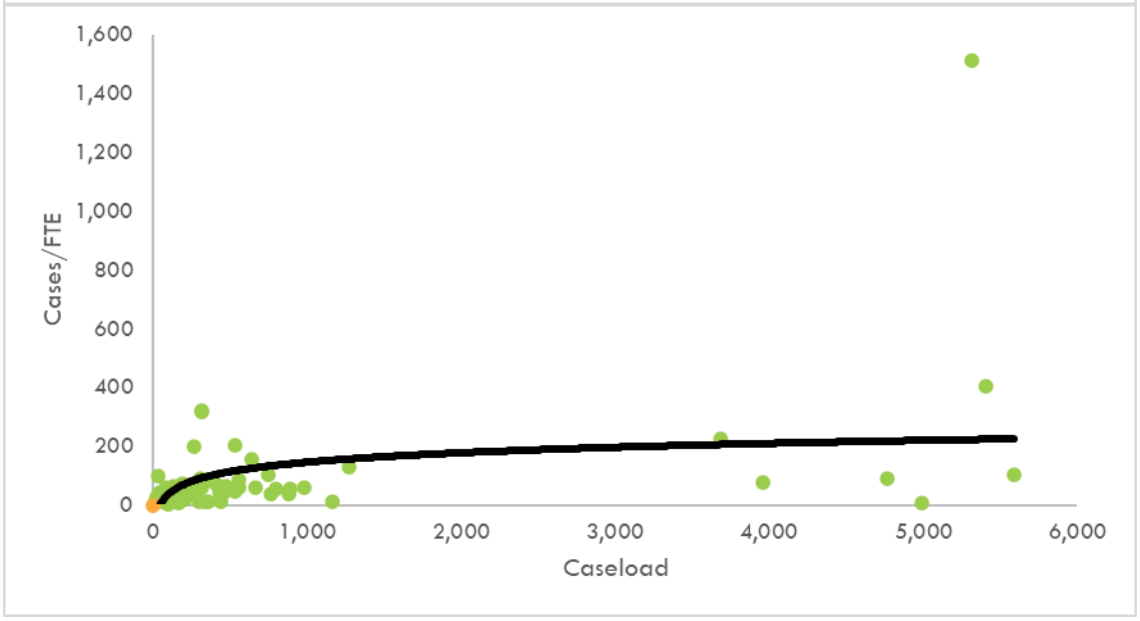


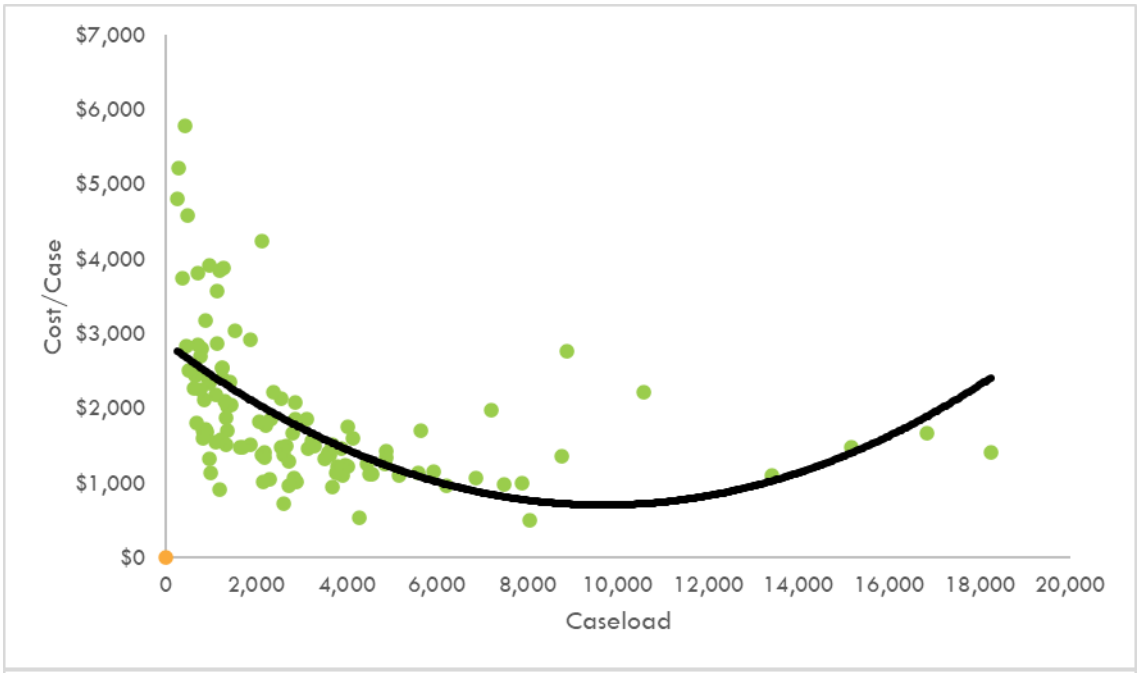
Figure 10: Efficient Frontier Digital Evidence Analysis—Cases/FTE v. Caseload

Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 54: Efficient Frontier for Digital Evidence Analysis—Efficient Cost/Case & Cases/FTE for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$457	267	5,000	$171	850
200	$384	328	5,500	$167	874
300	$347	370	6,000	$164	897
400	$323	403	7,000	$157	938
500	$305	430	8,000	$152	976
600	$292	454	9,000	$148	1,011
700	$281	475	10,000	$144	1,043
800	$271	494	11,000	$141	1,073
900	$263	512	12,000	$138	1,101
1,000	$257	528	13,000	$135	1,127
1,250	$243	564	14,000	$132	1,152
1,500	$232	595	15,000	$130	1,176
1,750	$223	623	16,000	$128	1,198
2,000	$216	648	17,000	$126	1,220
2,250	$209	671	18,000	$124	1,241
2,500	$204	692	19,000	$123	1,261
2,750	$199	712	20,000	$121	1,280
3,000	$195	731	21,000	$120	1,299
3,250	$191	748	22,000	$118	1,316
3,500	$187	765	23,000	$117	1,334
3,750	$184	780	24,000	$116	1,351
4,000	$181	795	25,000	$114	1,367
4,500	$176	824	26,000	$113	1,383

Figure 11: Efficient Frontier for DNA Casework Analysis—Average Total Cost v. Cases Processed



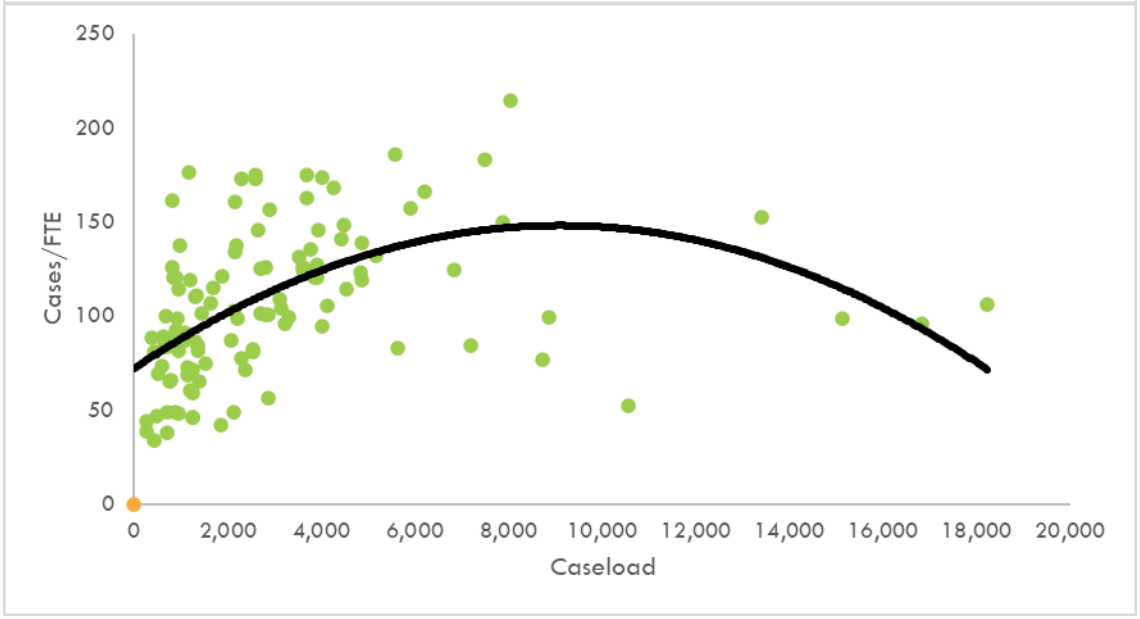


Figure 12: Efficient Frontier DNA Casework Analysis—Cases/FTE v. Caseload

Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 55: Efficient Frontier for DNA Casework Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
50	$3,862	56	4,000	$1,418	125
100	$3,296	63	4,500	$1,326	129
200	$2,813	70	5,000	$1,226	132
300	$2,564	75	5,500	$1,136	135
400	$2,400	78	6,000	$1,057	138
500	$2,281	81	6,500	$988	140
600	$2,188	84	7,000	$929	142
700	$2,112	86	7,500	$881	143
800	$2,048	88	8,000	$842	144
900	$1,994	89	8,500	$814	145
1,000	$1,947	93	9,000	$797	145
1,100	$1,905	94	9,500	$789	145
1,200	$1,867	95	10,000	$792	144
1,300	$1,833	96	10,500	$805	143
1,400	$1,802	98	11,000	$828	142
1,500	$1,774	99	12,000	$906	138
1,750	$1,713	102	13,000	$1,025	132
2,000	$1,661	105	14,000	$1,184	125
2,250	$1,617	108	15,000	$1,385	115
2,500	$1,579	110	16,000	$1,627	105
2,750	$1,545	113	17,000	$1,910	92
3,000	$1,514	116	18,000	$2,234	78
3,500	$1,462	120	19,000	$2,599	63

DNA Database

Figure 13: Efficient Frontier for DNA Database—Average Total Cost v. Cases Processed

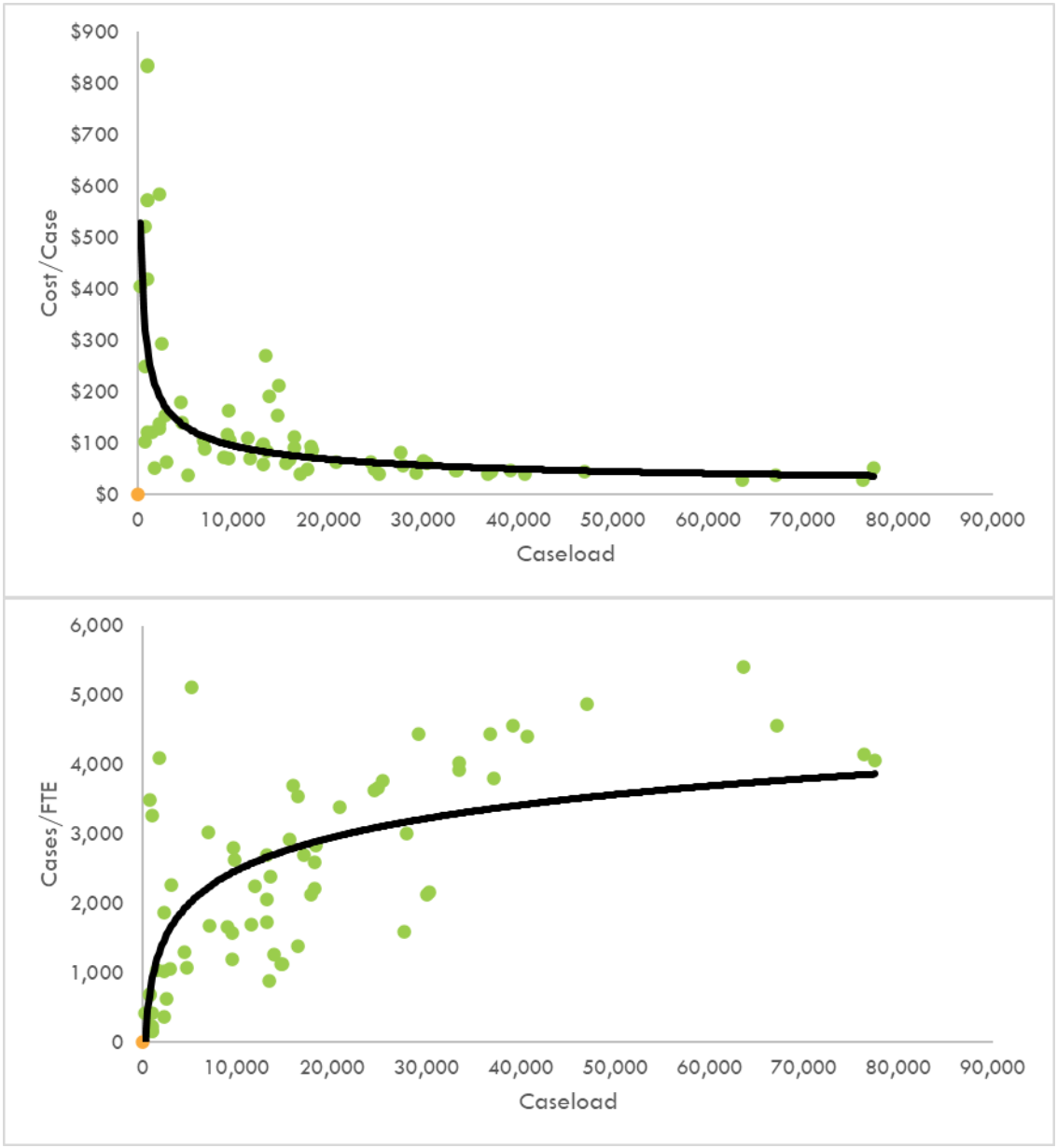


Figure 14: Efficient Frontier DNA Database—Cases/FTE v. Caseload

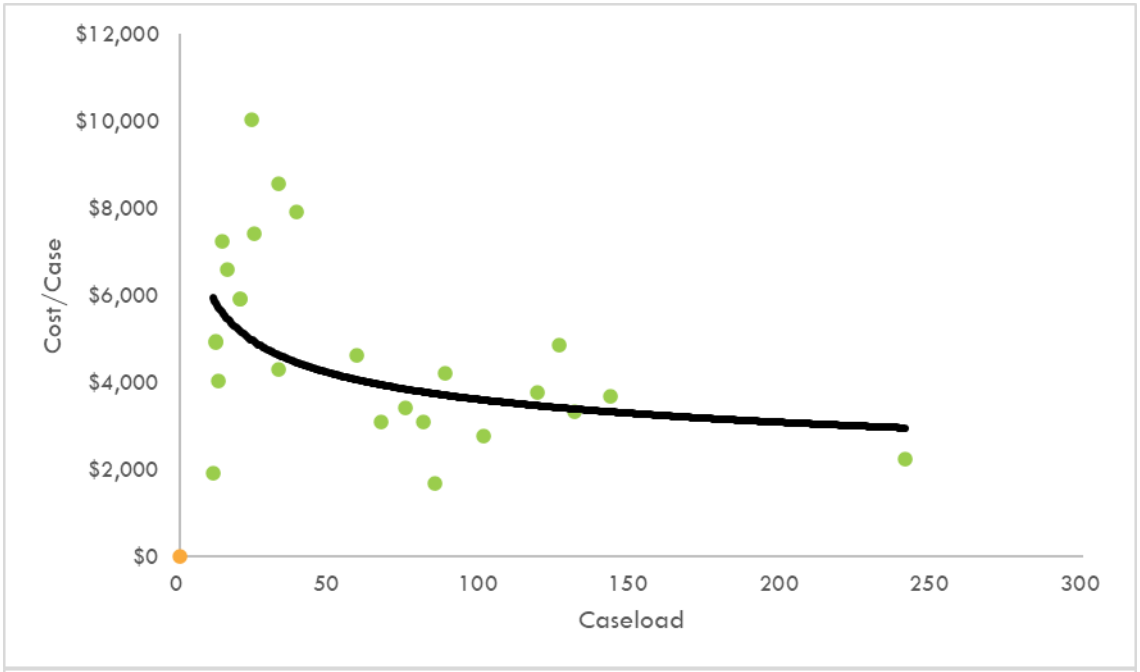
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 56: Efficient Frontier for DNA Database—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$1,197	157	5,000	$143	1,277
200	$821	228	5,500	$136	1,344
300	$659	283	6,000	$129	1,408
400	$564	330	7,000	$119	1,529
500	$499	372	8,000	$111	1,643
600	$452	410	9,000	$104	1,750
700	$416	445	10,000	$98	1,852
800	$387	478	11,000	$93	1,949
900	$363	509	12,000	$89	2,042
1,000	$343	539	13,000	$85	2,131
1,250	$304	608	14,000	$82	2,217
1,500	$275	670	15,000	$79	2,301
1,750	$253	728	16,000	$76	2,382
2,000	$235	782	17,000	$74	2,461
2,250	$221	832	18,000	$71	2,537
2,500	$208	881	19,000	$69	2,612
2,750	$198	927	20,000	$67	2,685
3,000	$189	971	21,000	$66	2,756
3,250	$181	1,014	22,000	$64	2,825
3,500	$174	1,055	23,000	$62	2,893
3,750	$167	1,095	24,000	$61	2,960
4,000	$161	1,133	25,000	$60	3,026
4,500	$151	1,207	26,000	$58	3,090

Document Examination

Figure 15: Efficient Frontier for Document Examination—Average Total Cost v. Cases Processed



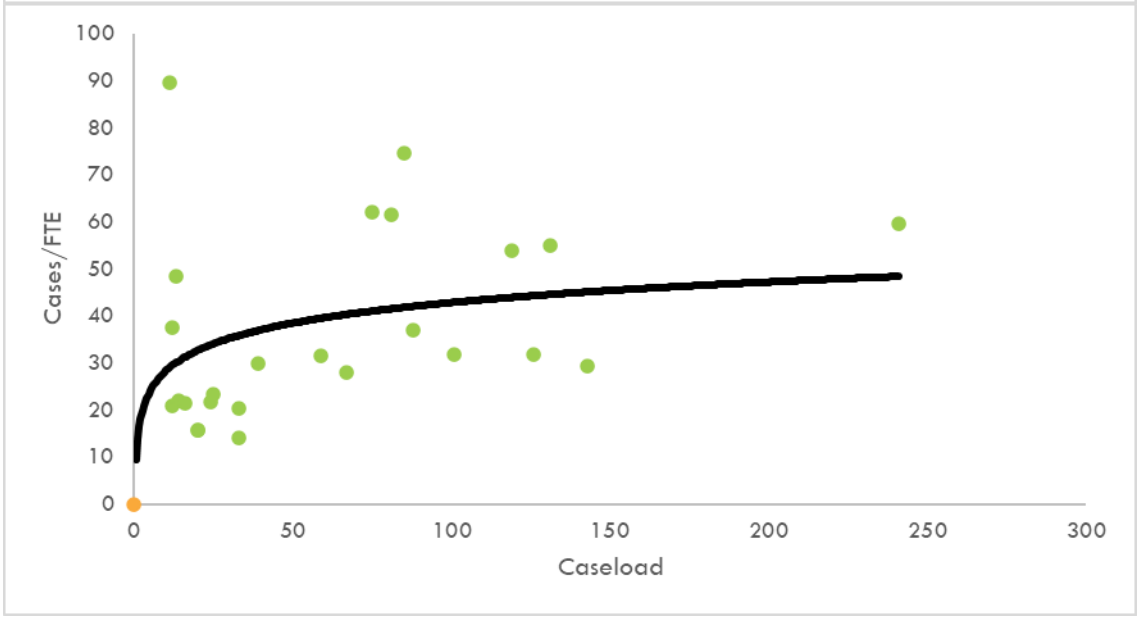


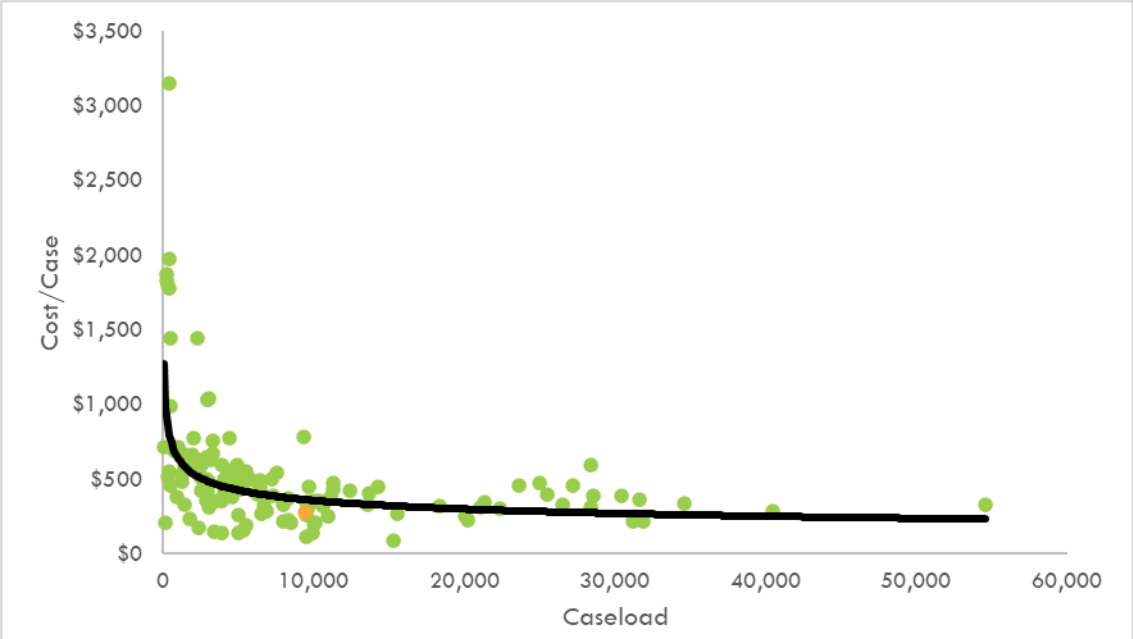
Figure 16: Efficient Frontier Document Examination—Cases/FTE v. Caseload

Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 57: Efficient Frontier for Document Examination—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
2	$8,715	17	105	$3,569	40
4	$7,455	20	110	$3,532	40
6	$6,804	21	115	$3,497	41
8	$6,376	23	120	$3,463	41
10	$6,064	24	125	$3,432	41
15	$5,534	26	130	$3,401	42
20	$5,187	28	135	$3,373	42
25	$4,932	29	140	$3,345	43
30	$4,734	30	145	$3,319	43
35	$4,572	31	150	$3,293	43
40	$4,436	32	155	$3,269	43
45	$4,320	33	160	$3,246	44
50	$4,219	34	165	$3,223	44
55	$4,129	35	170	$3,202	44
60	$4,049	35	175	$3,181	45
65	$3,977	36	180	$3,161	45
70	$3,911	37	190	$3,123	45
75	$3,850	37	200	$3,087	46
80	$3,795	38	210	$3,053	46
85	$3,743	38	220	$3,021	47
90	$3,695	39	230	$2,991	47
95	$3,651	39	240	$2,962	48
100	$3,609	40	250	$2,935	48

Figure 17: Efficient Frontier for Drugs-Controlled Substances Analysis—Average Total Cost v. Cases Processed



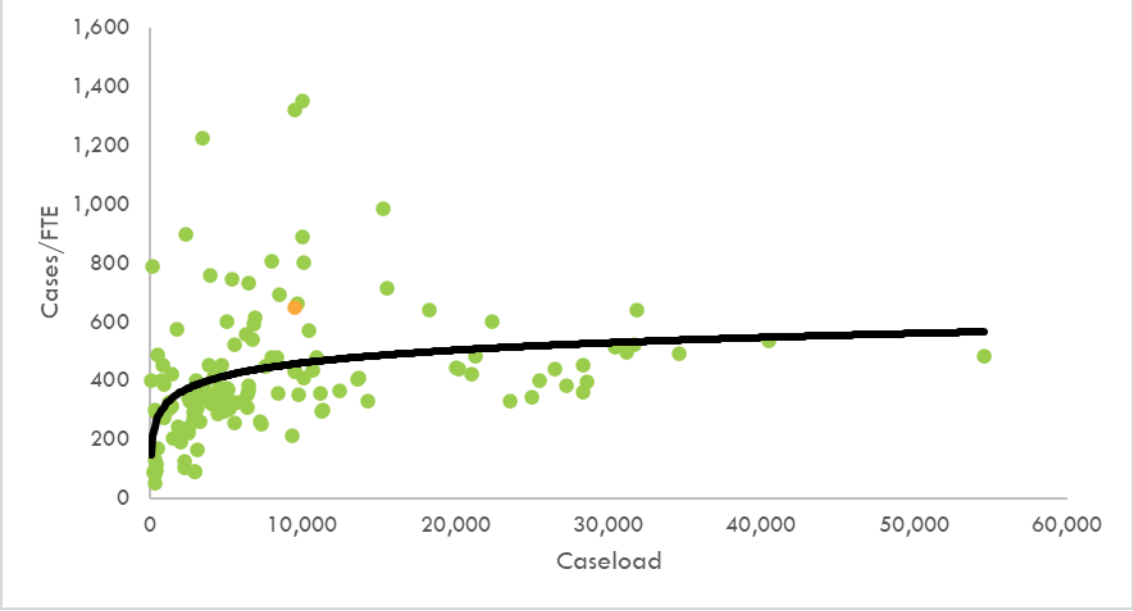


Figure 18: Efficient Frontier Drugs-Controlled Substances Analysis—Cases/FTE v. Caseload

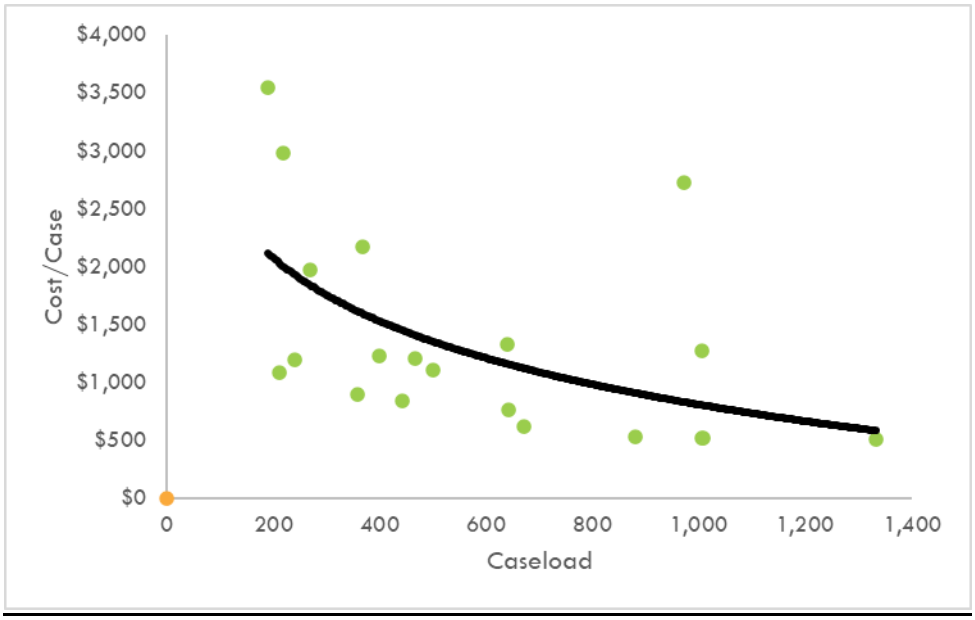
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 58: Efficient Frontier for Drugs—Controlled Substances Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$1,247	155	12,000	$347	441
200	$1,116	180	13,000	$331	448
300	$1,040	197	14,000	$318	456
400	$986	210	15,000	$305	463
500	$944	220	16,000	$292	469
750	$868	241	17,000	$281	476
1,000	$814	256	18,000	$270	481
1,250	$772	269	19,000	$260	487
1,500	$738	280	20,000	$250	493
1,750	$709	290	22,000	$293	503
2,000	$683	298	24,000	$287	514
2,500	$641	313	26,000	$281	519
3,000	$607	326	28,000	$276	524
3,500	$578	337	30,000	$271	528
4,000	$553	347	32,500	$265	533
4,500	$531	356	35,000	$261	538
5,000	$511	364	37,500	$256	542
6,000	$477	379	40,000	$252	546
7,000	$448	392	42,500	$248	550
8,000	$423	403	45,000	$244	553
9,000	$401	414	47,500	$241	557
10,000	$381	424	50,000	$238	560
11,000	$363	432	52,500	$235	563

Evidence Screening & Processing

Figure 19: Efficient Frontier for Evidence Screening & Processing—Average Total Cost v. Cases Processed



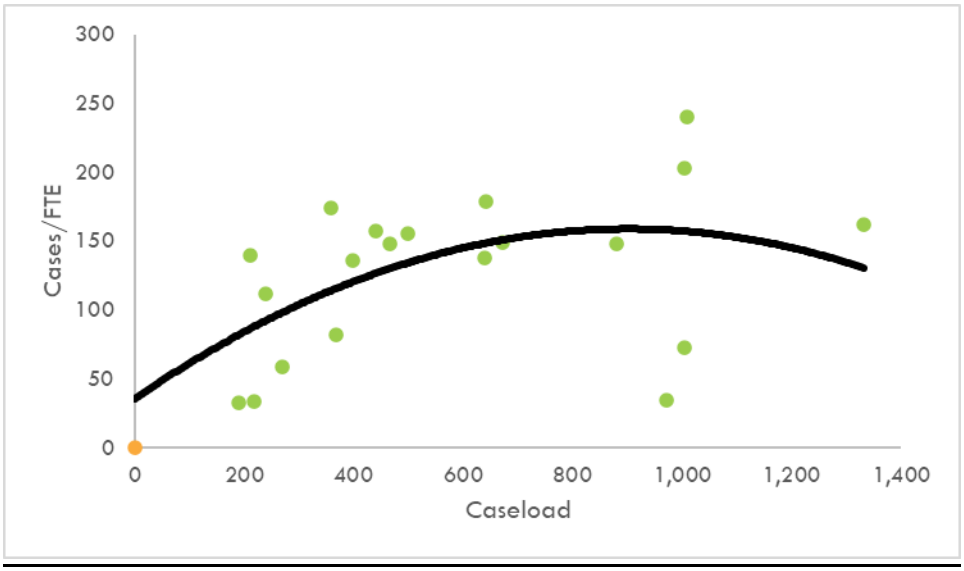


Figure 20: Efficient Frontier for Evidence Screening & Processing — Cases/FTE v. Caseload

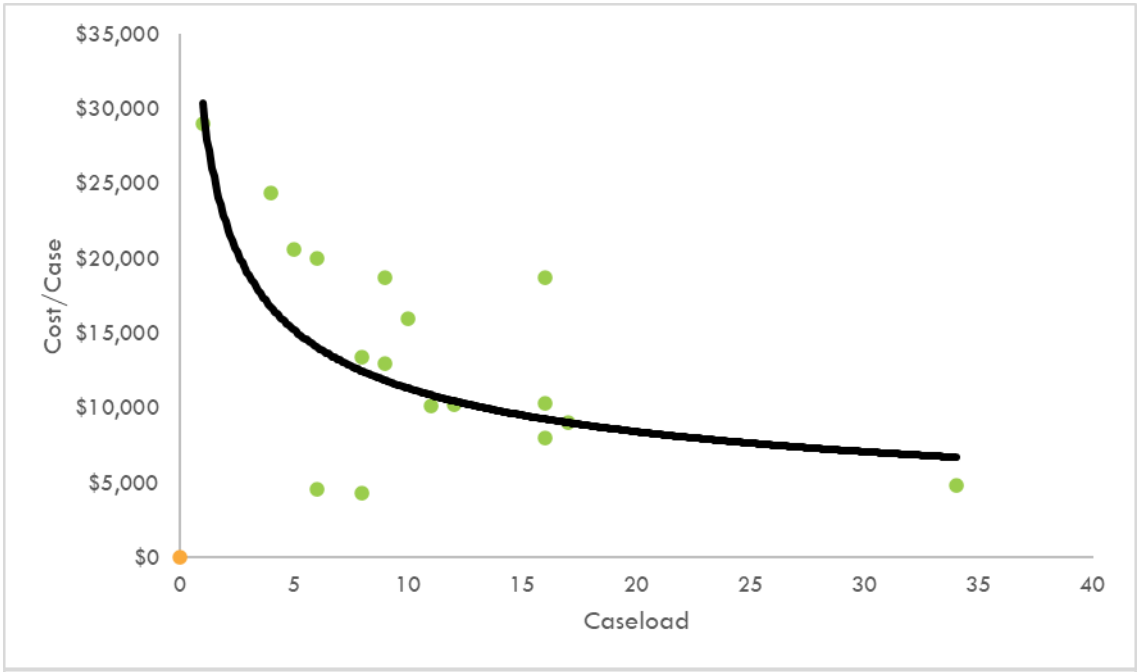
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 59: Efficient Frontier for Evidence Screening & Processing—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$3,003	58	1,500	$579	175
150	$2,347	75	1,600	$557	178
200	$1,971	88	1,700	$537	181
250	$1,721	97	1,800	$519	183
300	$1,541	105	1,900	$502	186
350	$1,403	112	2,000	$487	188
400	$1,293	118	2,100	$472	190
450	$1,204	123	2,200	$459	192
500	$1,129	128	2,300	$447	194
550	$1,066	132	2,400	$435	196
600	$1,011	136	2,500	$425	198
650	$963	139	2,600	$415	199
700	$921	142	2,700	$405	201
750	$883	145	2,800	$397	203
800	$849	148	2,900	$388	204
850	$818	151	3,000	$380	206
900	$790	153	3,500	$346	212
950	$765	156	4,000	$319	218
1,000	$741	158	4,500	$297	223
1,100	$700	162	5,000	$279	228
1,200	$664	166	6,000	$250	236
1,300	$632	169	7,000	$227	243
1,400	$604	172	8,000	$210	248

Explosives Analysis

Figure 21: Efficient Frontier for Explosives Analysis—Average Total Cost v. Cases Processed



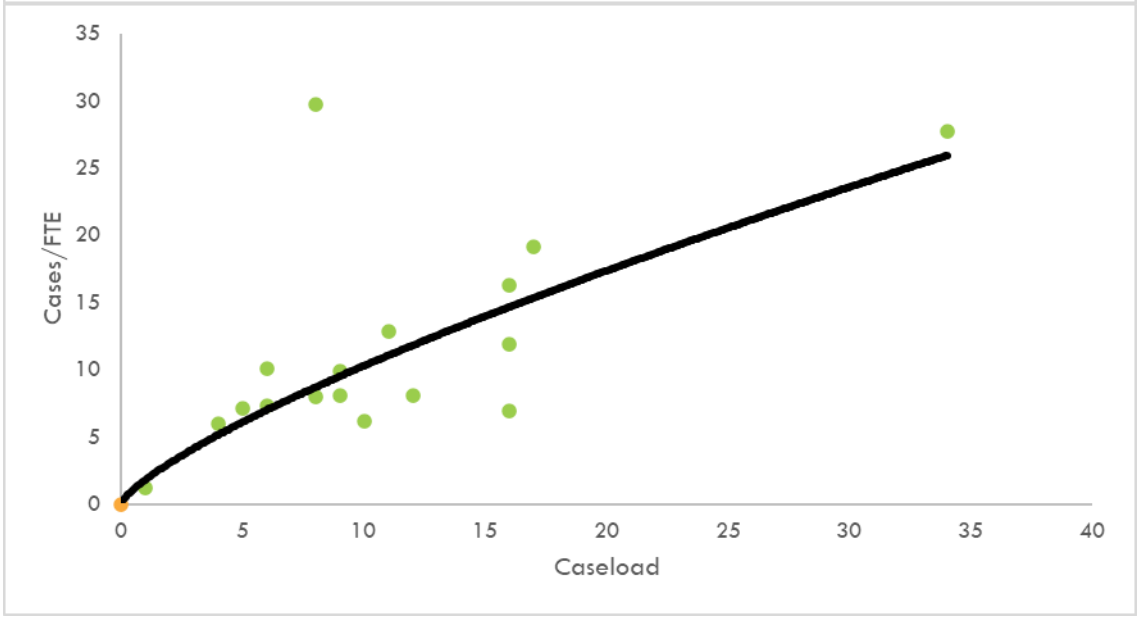


Figure 22 : Efficient Frontier for Explosives Analysis—Cases/FTE v. Caseload

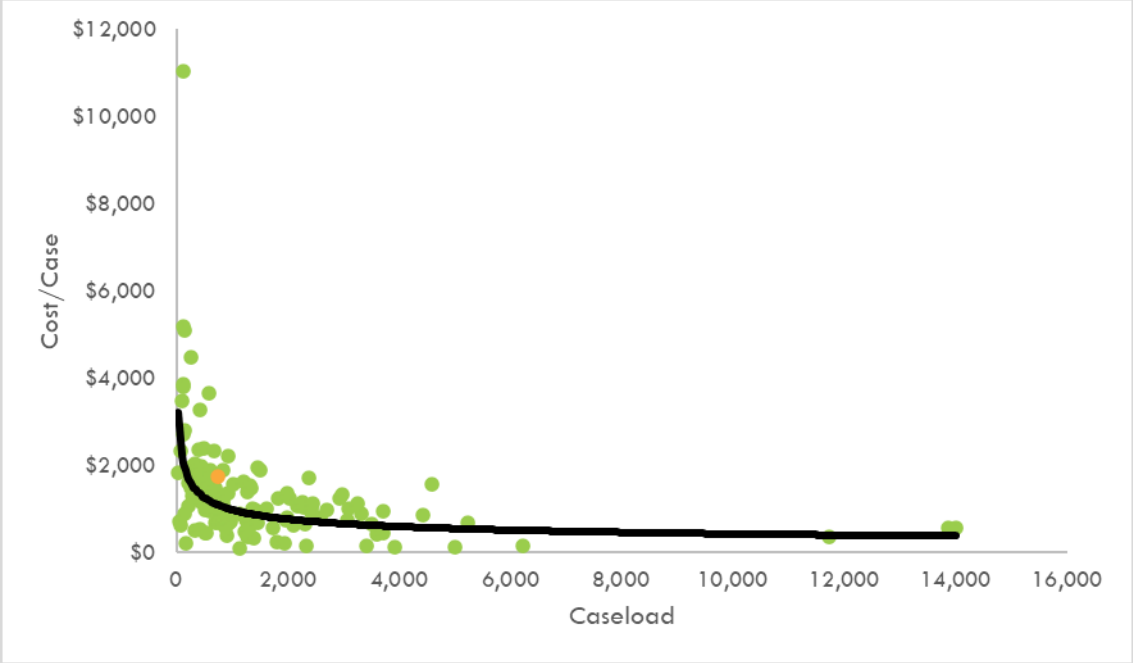
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 60: Efficient Frontier for Explosives Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
1	$32,701	2	24	$5,895	20
2	$26,854	3	25	$5,551	21
3	$23,434	4	26	$5,220	21
4	$21,008	5	27	$4,902	22
5	$19,126	6	28	$4,595	22
6	$17,588	7	29	$4,299	23
7	$16,288	8	30	$4,013	24
8	$15,162	9	31	$3,736	24
9	$14,168	10	32	$3,469	25
10	$13,279	10	33	$6,801	25
11	$12,475	11	34	$6,715	24
12	$11,742	12	35	$6,632	24
13	$11,066	13	36	$6,552	24
14	$10,441	13	37	$6,476	24
15	$9,859	14	38	$6,403	25
16	$9,315	15	39	$6,332	25
17	$8,804	15	40	$6,264	25
18	$8,322	16	41	$6,198	25
19	$7,866	17	42	$6,134	26
20	$7,433	17	43	$6,073	26
21	$7,021	18	44	$6,013	26
22	$6,629	19	45	$5,956	26
23	$6,254	19	46	$5,900	26

Fingerprint ID

Figure 23: Efficient Frontier for Fingerprint Identification—Average Total Cost v. Cases Processed



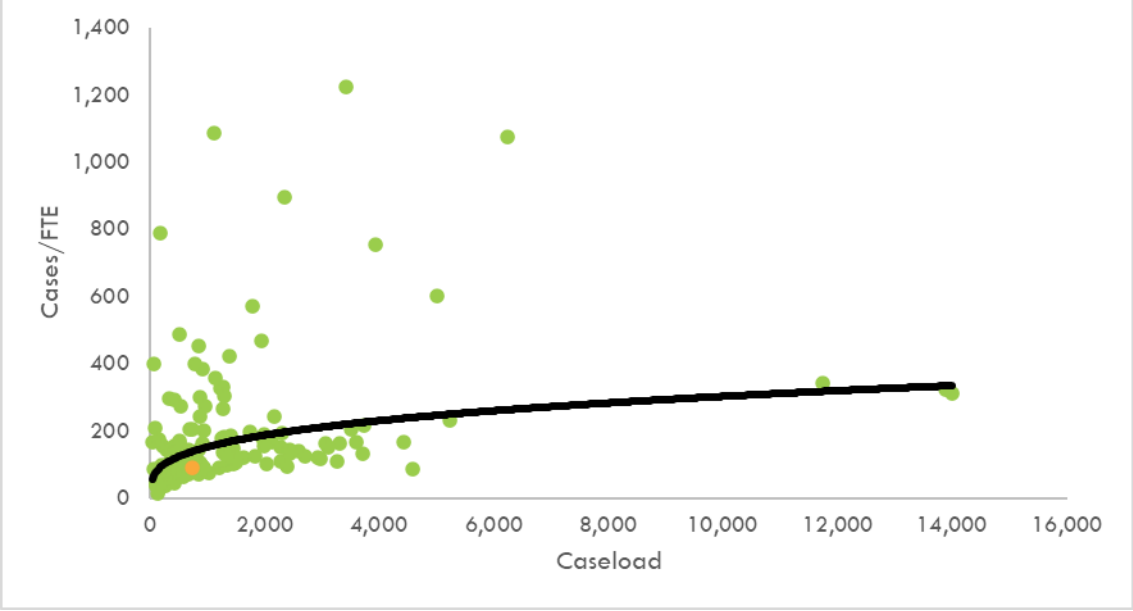


Figure 24: Efficient Frontier for Fingerprint Identification—Cases/FTE v. Caseload

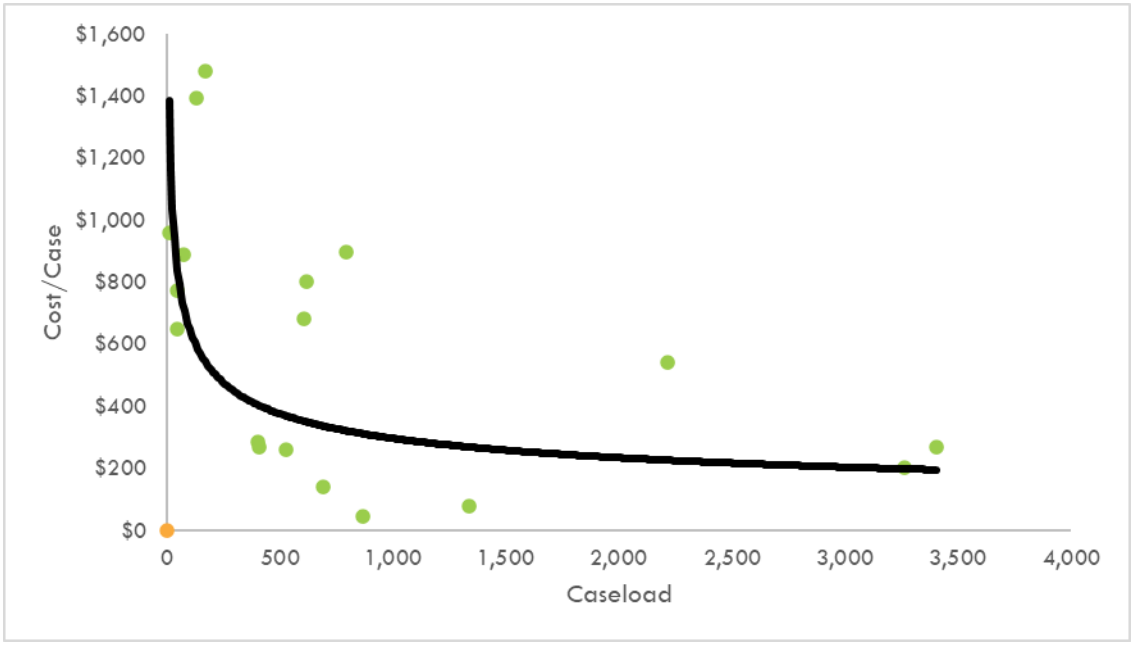
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 61: Efficient Frontier for Fingerprint Identification—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$2,590	76	5,250	$544	249
200	$2,203	94	5,500	$535	253
300	$1,977	106	5,750	$526	256
400	$1,816	116	6,000	$518	260
500	$1,691	124	6,250	$511	263
750	$1,465	140	6,500	$504	266
1,000	$1,304	152	6,750	$497	269
1,250	$1,180	163	7,000	$490	272
1,500	$1,078	172	7,250	$484	275
1,750	$992	180	7,500	$478	278
2,000	$917	187	8,000	$467	283
2,250	$851	194	8,500	$457	288
2,500	$792	200	9,000	$448	293
2,750	$739	206	9,500	$439	298
3,000	$691	211	10,000	$431	302
3,250	$646	216	10,500	$424	307
3,500	$629	221	11,000	$417	311
3,750	$614	226	11,500	$410	315
4,000	$600	230	12,000	$404	319
4,250	$587	234	12,500	$398	323
4,500	$575	238	13,000	$392	327
4,750	$564	242	13,500	$387	331
5,000	$553	246	14,000	$382	334

Fingerprint Database

Figure 25: Efficient Frontier for Fingerprint Database—Average Total Cost v. Cases Processed



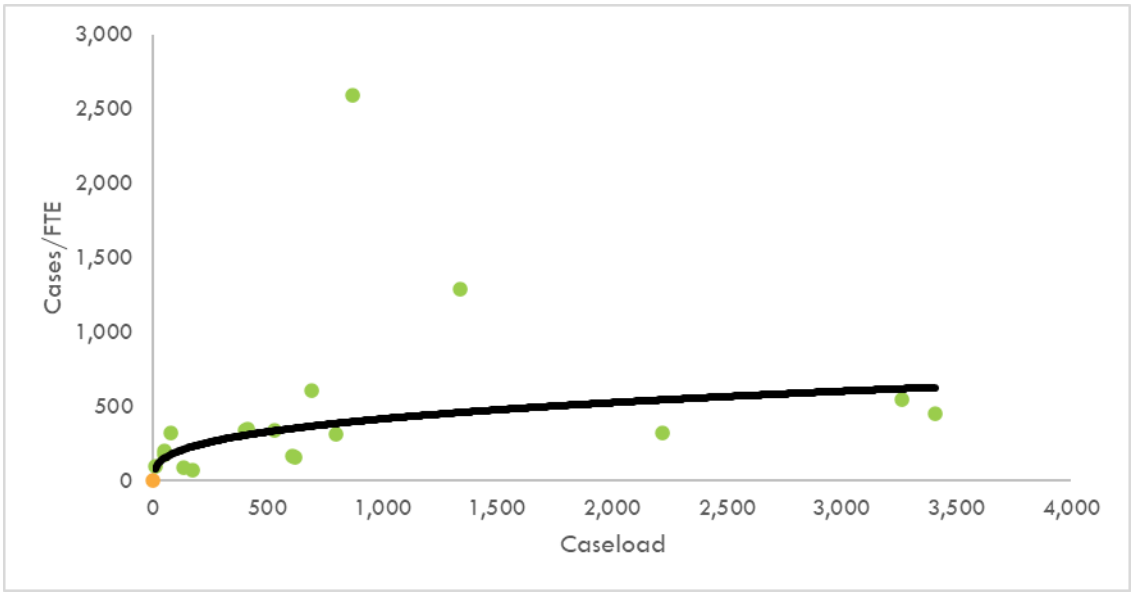


Figure 26: Efficient Frontier for Fingerprint Database—Cases/FTE v. Caseload

Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 62: Efficient Frontier for Fingerprint Identification Database—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
25	$1,046	120	900	$308	401
50	$826	152	1,000	$297	415
75	$719	174	1,100	$288	429
100	$652	191	1,200	$279	442
125	$604	206	1,300	$272	454
150	$568	219	1,400	$265	465
175	$539	231	1,500	$259	476
200	$515	242	1,600	$253	486
225	$495	251	1,700	$248	496
250	$477	260	1,800	$243	506
275	$462	269	1,900	$239	515
300	$448	277	2,000	$235	524
325	$436	285	2,100	$231	533
350	$425	292	2,200	$227	541
375	$416	299	2,300	$224	550
400	$406	305	2,400	$221	557
450	$390	317	2,500	$218	565
500	$377	329	2,600	$215	573
550	$365	340	2,700	$212	580
600	$354	350	2,800	$209	587
650	$344	359	3,000	$204	601
700	$336	368	3,200	$200	614
800	$321	385	3,400	$196	627

Fire Analysis

Figure 27: Efficient Frontier for Fire Analysis--Average Total Cost v. Cases Processed

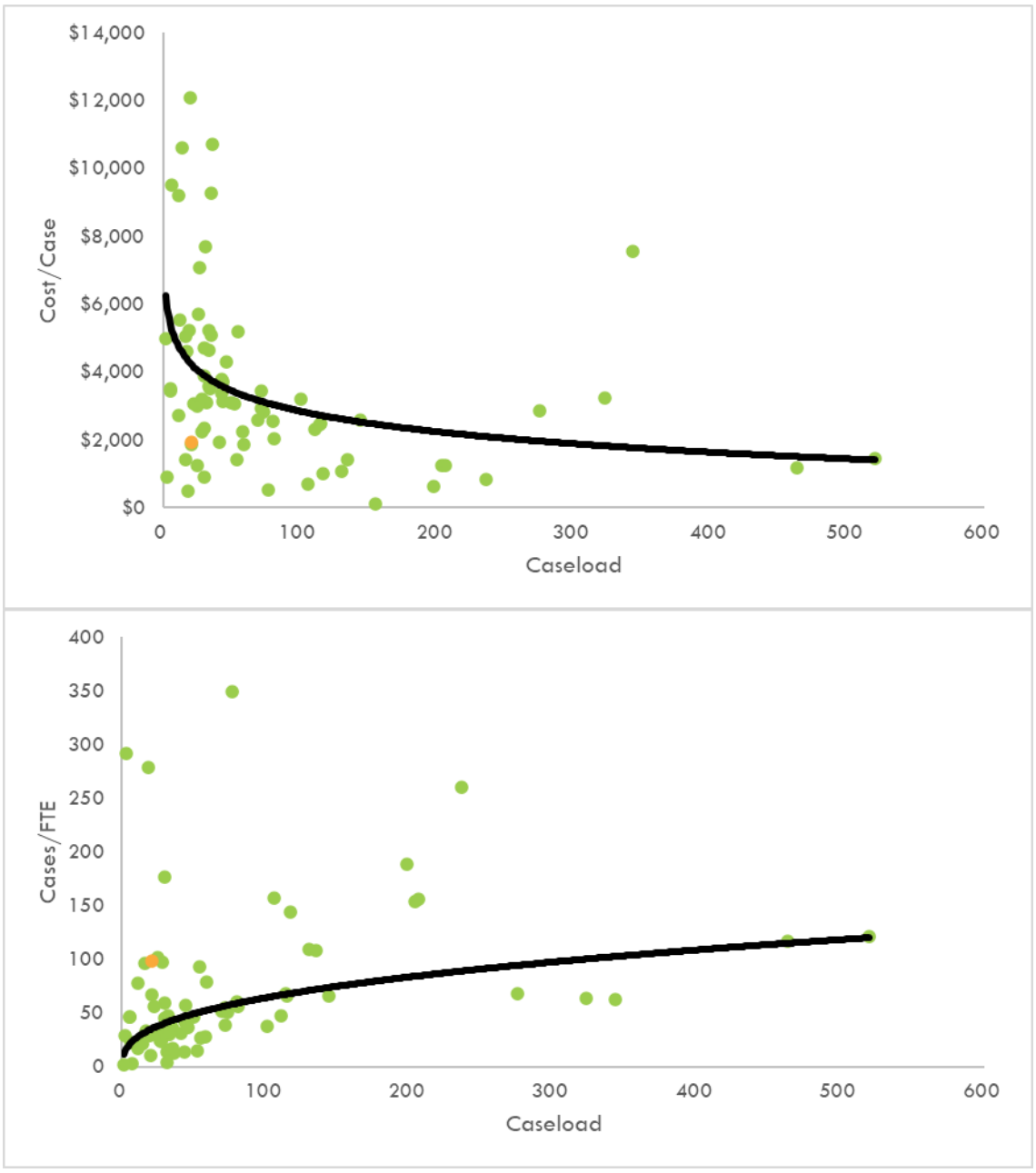


Figure 28: Efficient Frontier for Fire Analysis—Cases/FTE v. Caseload

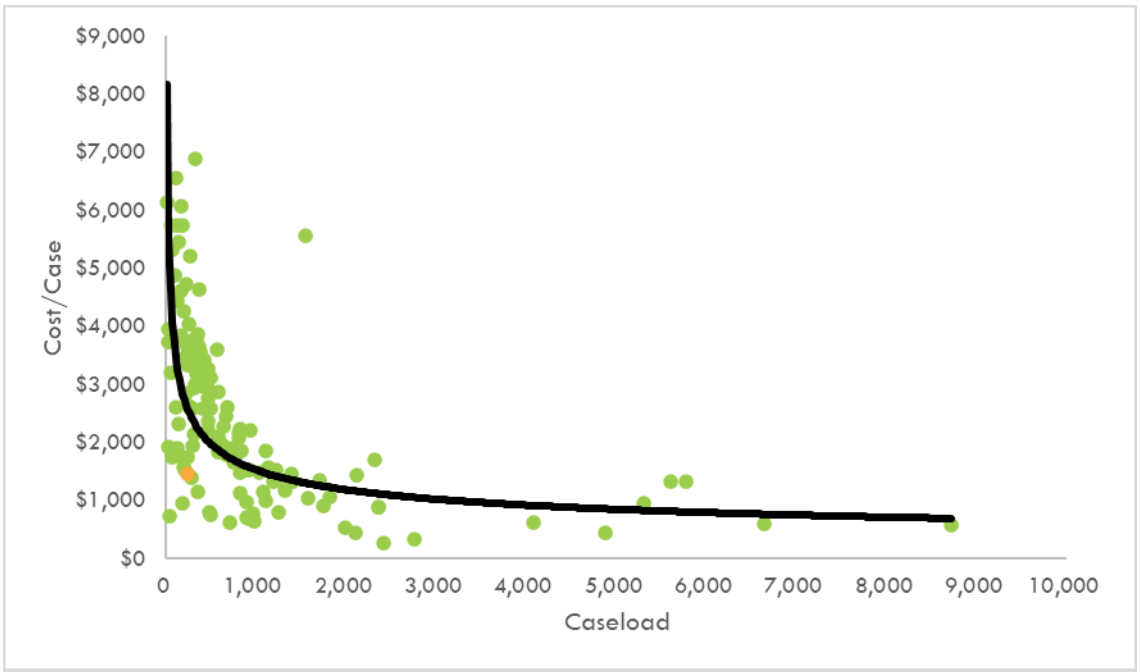
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 63: Efficient Frontier for Fire Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
5	$5,465	28	140	$1,953	75
10	$4,860	34	150	$1,916	76
15	$4,506	38	160	$1,881	78
20	$4,255	42	170	$1,849	79
25	$4,060	45	180	$1,820	81
30	$3,900	47	190	$1,792	82
35	$3,766	49	200	$1,766	83
40	$3,649	51	210	$1,742	84
45	$3,546	53	220	$1,720	85
50	$3,454	55	230	$1,698	87
55	$3,371	57	240	$1,678	88
60	$3,295	58	250	$1,659	89
65	$3,225	59	260	$1,641	90
70	$3,160	61	270	$1,623	91
75	$3,100	62	280	$1,607	92
80	$2,287	63	290	$1,591	93
85	$2,248	64	300	$1,576	94
90	$2,212	66	325	$1,541	96
95	$2,179	67	350	$1,509	98
100	$2,148	68	375	$1,480	100
110	$2,091	70	400	$1,453	102
120	$2,040	71	425	$1,428	104
130	$1,995	73	450	$1,406	106

Firearms & Ballistics Analysis

Figure 29: Efficient Frontier for Firearms & Ballistics Analysis—Average Total Cost v. Cases Processed



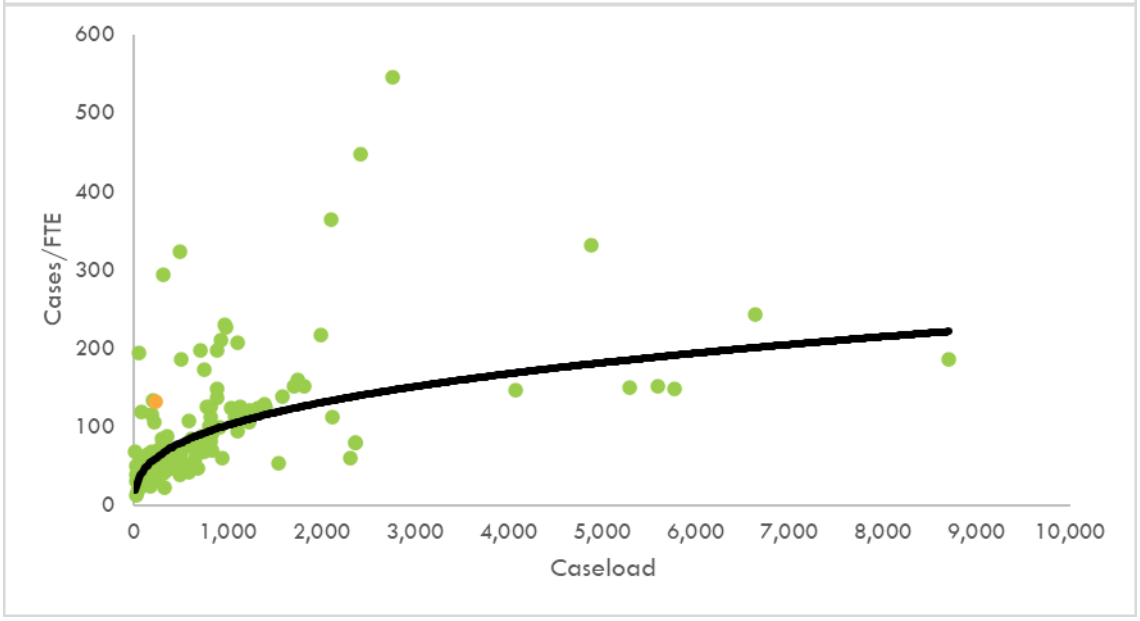


Figure 30: Efficient Frontier for Firearms & Ballistics Analysis—Cases/FTE v. Caseload

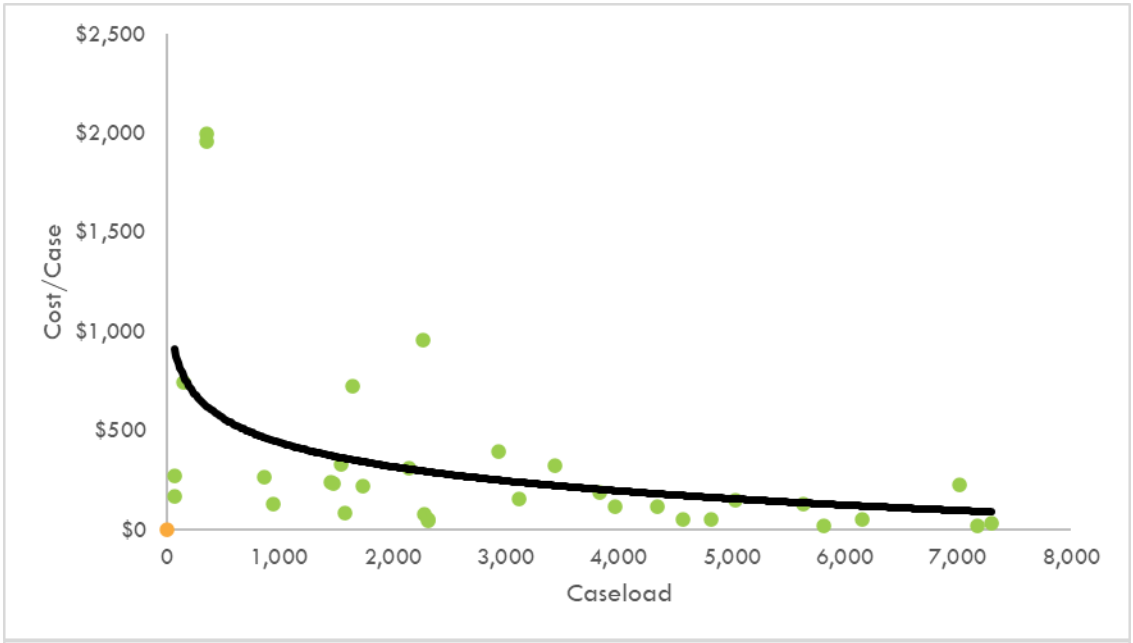
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 64: Efficient Frontier for Firearms & Ballistics Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
25	$6,614	27	1,500	$1,292	118
50	$5,017	35	1,750	$1,215	125
75	$4,268	40	2,000	$1,152	131
100	$3,805	45	2,250	$1,100	136
125	$3,481	48	2,500	$1,054	142
150	$3,237	52	2,750	$1,015	147
175	$3,044	55	3,000	$980	151
200	$2,886	57	3,250	$950	156
250	$2,641	62	3,500	$922	160
300	$2,455	66	3,750	$897	164
350	$2,309	70	4,000	$874	168
400	$2,189	73	4,250	$853	171
450	$2,089	77	4,500	$834	175
500	$2,003	80	4,750	$816	178
600	$1,863	85	5,000	$800	181
700	$1,752	90	5,500	$770	188
800	$1,661	94	6,000	$744	194
900	$1,584	98	6,500	$720	199
1,000	$1,519	102	7,000	$699	205
1,100	$1,463	106	7,500	$680	210
1,200	$1,413	109	8,000	$663	215
1,300	$1,368	112	8,500	$647	219
1,400	$1,329	115	9,000	$633	224

Firearms Database

Figure 31: Efficient Frontier for Firearms Database—Average Total Cost v. Cases Processed



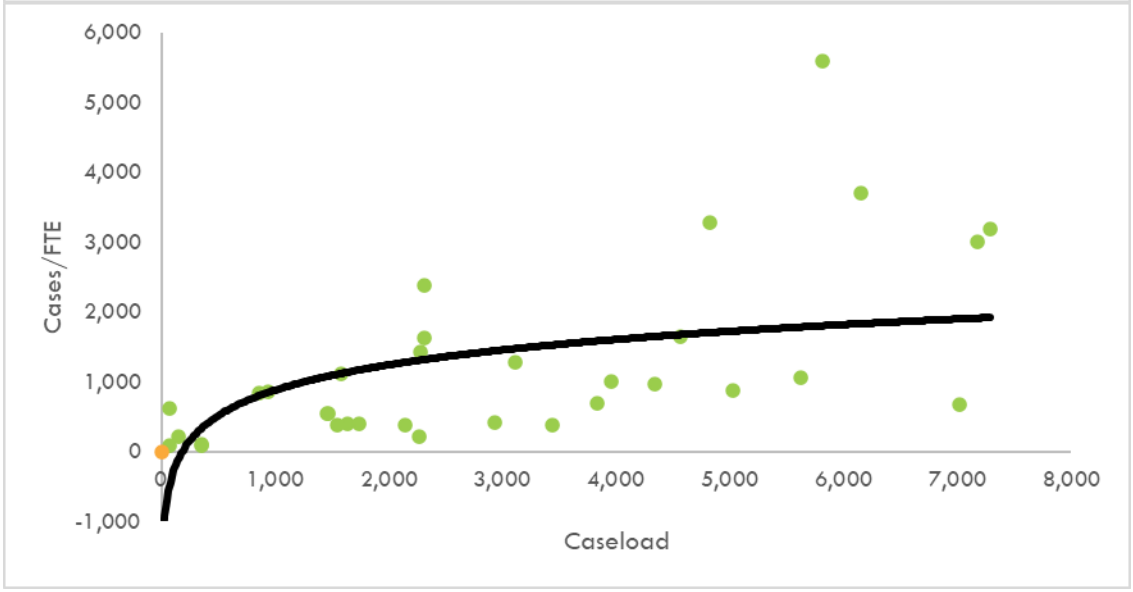


Figure 32: Efficient Frontier for Firearms Database—Cases/FTE v. Caseload

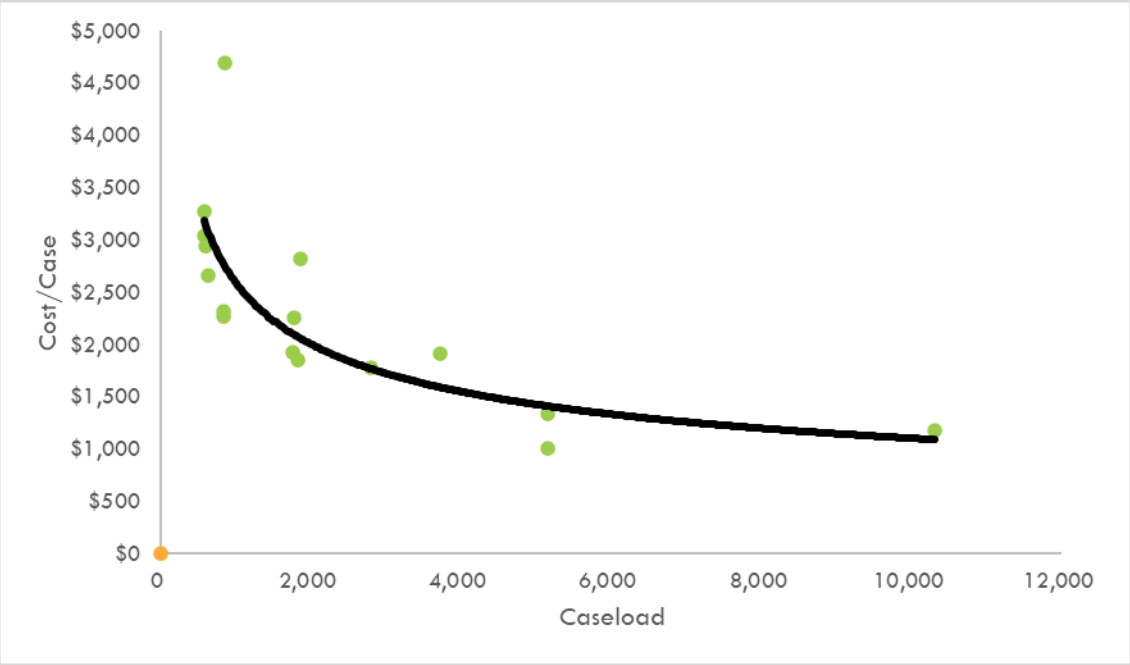
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 65: Efficient Frontier for Firearms Database—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
25	$1,520	63	1,500	$188	1,928
50	$1,067	94	1,750	$174	2,087
75	$868	118	2,000	$163	2,224
100	$749	139	2,250	$153	2,346
125	$669	158	2,500	$145	2,454
150	$609	176	2,750	$138	2,553
175	$563	192	3,000	$132	2,642
200	$526	207	3,250	$127	2,725
250	$470	235	3,500	$122	2,801
300	$428	269	3,750	$118	2,872
350	$396	427	4,000	$114	2,939
400	$370	565	4,250	$111	3,001
450	$348	687	4,500	$108	3,060
500	$330	795	4,750	$105	3,116
600	$300	983	5,000	$102	3,169
700	$278	1,142	5,250	$99	3,219
800	$259	1,280	5,500	$97	3,267
900	$244	1,401	5,750	$95	3,313
1,000	$232	1,510	6,000	$93	3,357
1,100	$221	1,608	6,250	$91	3,399
1,200	$211	1,698	6,500	$89	3,439
1,300	$203	1,780	7,000	$86	3,516
1,400	$195	1,857	7,500	$83	3,587

Forensic Pathology

Figure 33: Efficient Frontier for Forensic Pathology—Average Total Cost v. Cases Processed



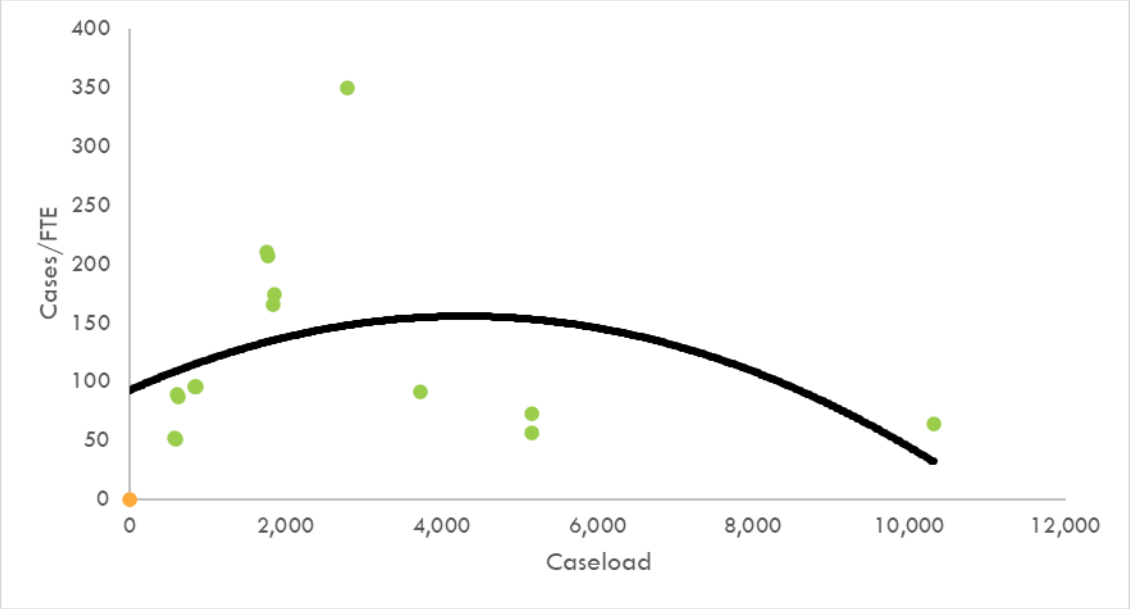


Figure 34: Efficient Frontier for Forensic Pathology—Cases/FTE v. Caseload

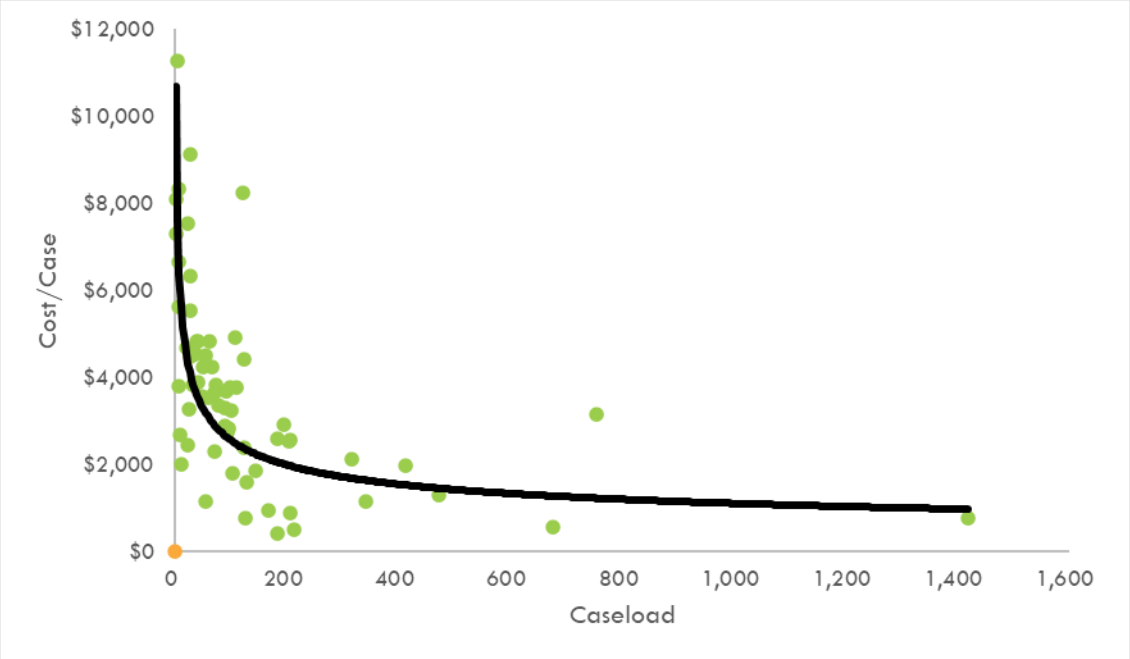
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 66: Efficient Frontier for Forensic Pathology—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
500	$3,346	106	4,000	$1,551	155
600	$3,128	109	4,250	$1,517	155
700	$2,955	112	4,500	$1,485	155
800	$2,813	114	4,750	$1,456	155
900	$2,693	116	5,000	$1,428	154
1,000	$2,590	119	5,250	$1,403	152
1,100	$2,500	121	5,500	$1,379	150
1,200	$2,421	123	5,750	$1,357	148
1,300	$2,350	125	6,000	$1,335	145
1,400	$2,287	127	6,250	$1,315	142
1,500	$2,229	129	6,500	$1,296	139
1,600	$2,177	131	6,750	$1,278	135
1,700	$2,129	133	7,000	$1,261	130
1,800	$2,084	134	7,250	$1,245	126
1,900	$2,043	136	7,500	$1,230	120
2,000	$2,004	138	7,750	$1,215	115
2,250	$1,919	141	8,000	$1,201	111
2,500	$1,846	145	8,250	$1,187	108
2,750	$1,782	147	8,500	$1,174	105
3,000	$1,725	150	9,000	$1,149	97
3,250	$1,675	152	9,500	$1,127	89
3,500	$1,630	153	10,000	$1,106	80
3,750	$1,589	154	10,500	$1,086	70

Gunshot Residue Analysis

Figure 35: Efficient Frontier for Gunshot Residue Analysis--Average Total Cost v. Cases Processed



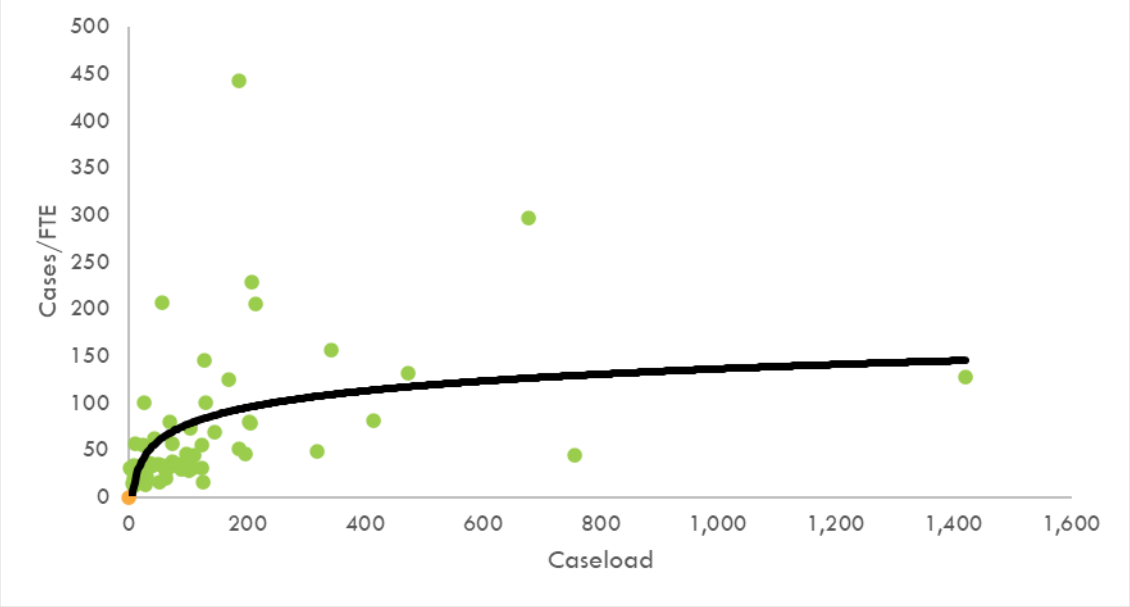


Figure 36: Efficient Frontier for Gunshot Residue Analysis—Cases/FTE v. Caseload

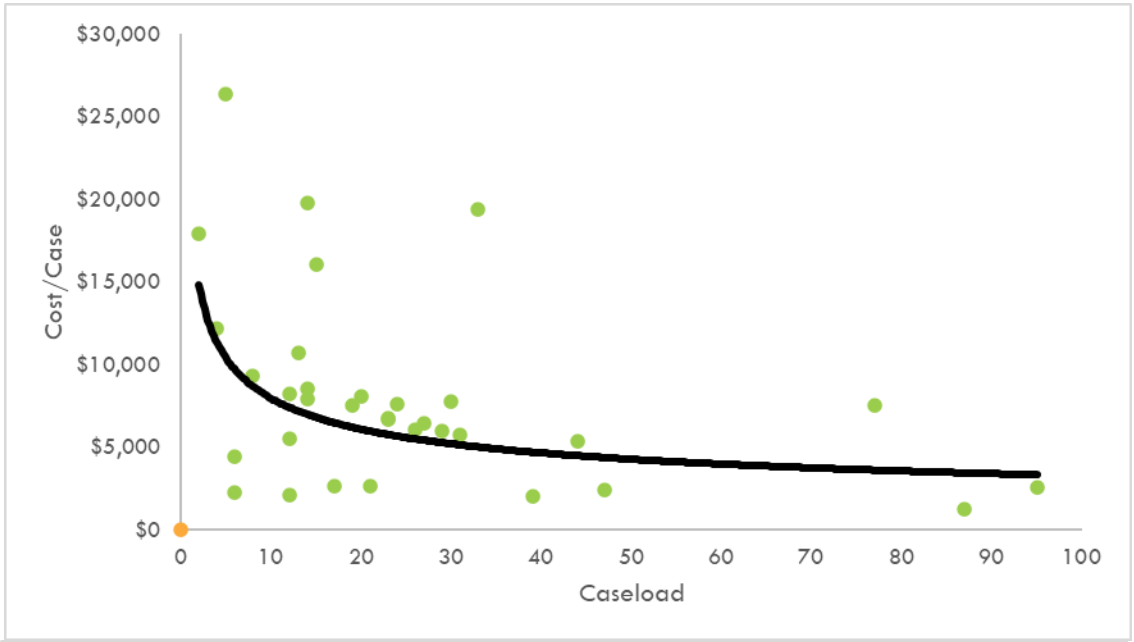
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 67: Efficient Frontier for Gunshot Residue Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
25	$4,262	34	1,500	$960	138
50	$3,311	43	1,750	$907	146
75	$2,857	49	2,000	$864	152
100	$2,573	54	2,250	$828	159
125	$2,372	59	2,500	$797	165
150	$2,220	62	2,750	$770	170
175	$2,099	66	3,000	$746	175
200	$1,999	69	3,250	$724	180
250	$1,843	74	3,500	$705	185
300	$1,725	79	3,750	$688	189
350	$1,631	83	4,000	$672	194
400	$1,553	87	4,250	$657	198
450	$1,488	91	4,500	$643	202
500	$1,432	94	4,750	$631	206
600	$1,340	101	5,000	$619	209
700	$1,267	106	5,500	$598	216
800	$1,207	111	6,000	$579	223
900	$1,156	116	6,500	$563	229
1,000	$1,113	120	7,000	$548	235
1,100	$1,075	124	7,500	$534	241
1,200	$1,041	128	8,000	$522	246
1,300	$1,011	131	8,500	$510	251
1,400	$984	135	9,000	$500	256

Marks & Impressions Analysis

Figure 37: Efficient Frontier for Marks & Impressions Analysis--Average Total Cost v. Cases Processed



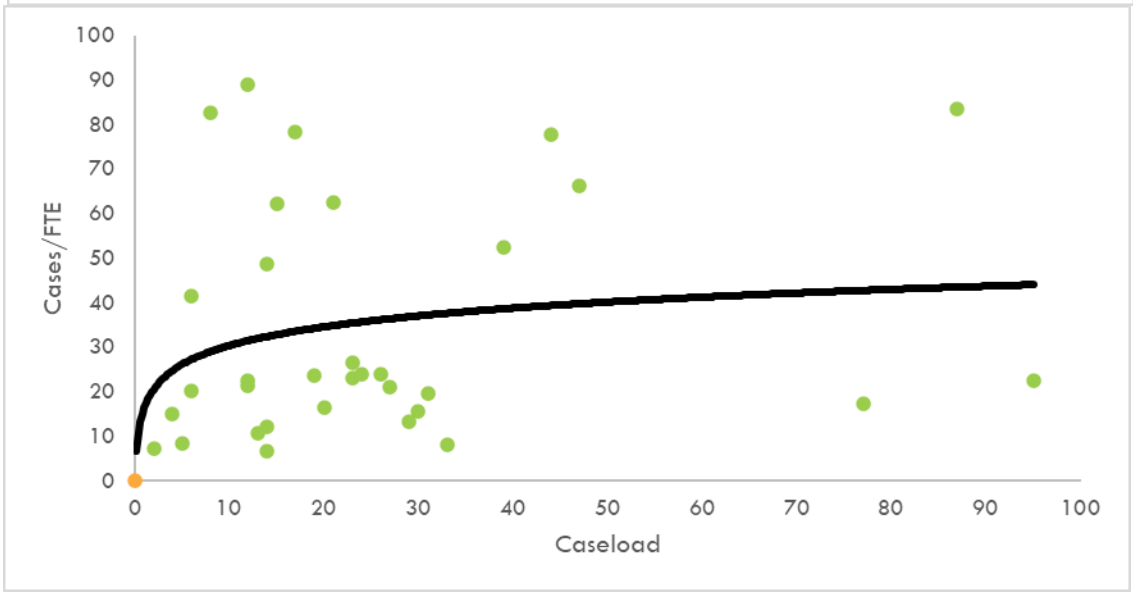


Figure 38: Efficient Frontier for Marks & Impressions Analysis—Cases/FTE v. Caseload

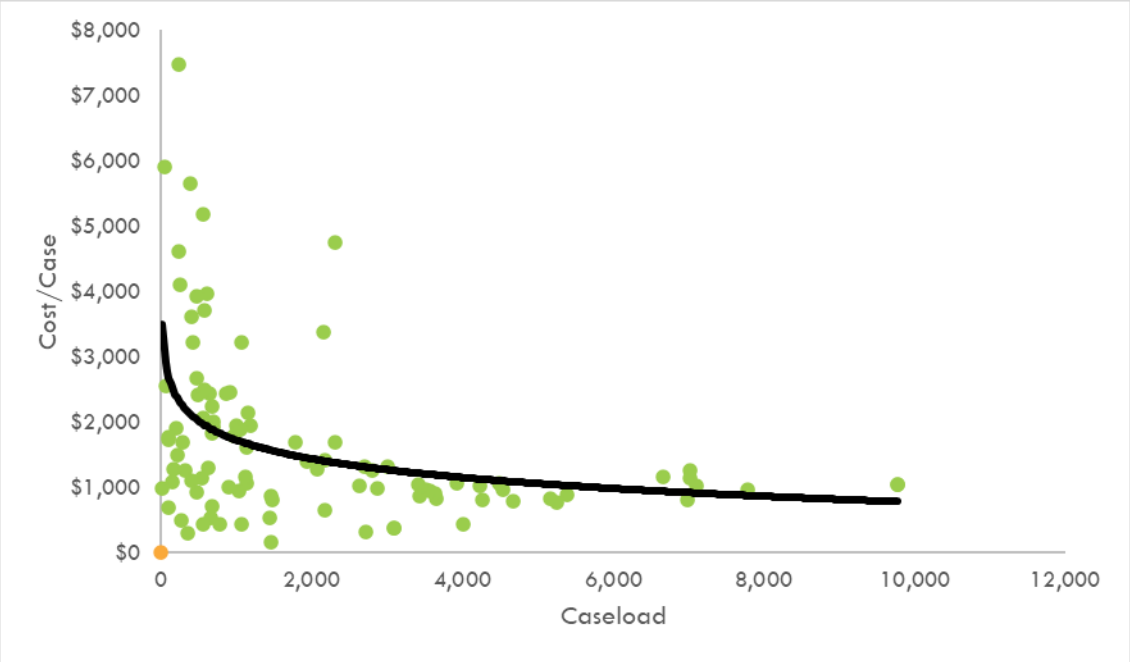
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 68: Efficient Frontier for Marks & Impressions Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
2	$14,975	15	48	$4,349	30
4	$11,435	17	50	$4,280	30
6	$9,766	19	52	$4,215	30
8	$8,732	20	54	$4,154	30
10	$8,006	21	56	$4,095	31
12	$7,458	22	58	$4,040	31
14	$7,023	23	60	$3,987	31
16	$6,668	23	62	$3,936	31
18	$6,369	24	64	$3,888	31
20	$6,113	25	66	$3,842	32
22	$5,891	25	68	$3,798	32
24	$5,695	25	70	$3,755	32
26	$5,520	26	72	$3,714	32
28	$5,363	26	74	$3,675	32
30	$5,221	27	76	$3,637	33
32	$5,092	27	78	$3,600	33
34	$4,973	27	80	$3,565	33
36	$4,864	28	82	$3,531	33
38	$4,762	28	84	$3,498	33
40	$4,668	28	86	$3,466	33
42	$4,581	29	88	$3,435	34
44	$4,498	29	90	$3,405	34
46	$4,421	29	92	$3,376	34

Serology/Biology Analysis

Figure 39: Efficient Frontier for Serology/Biology Analysis—Average Total Cost v. Caseload



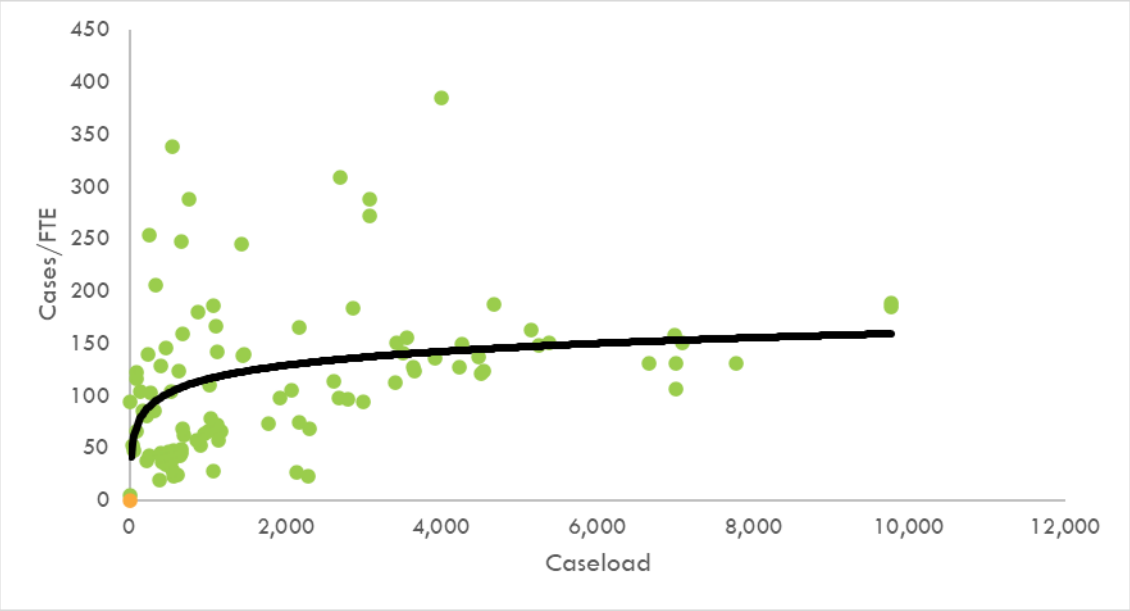


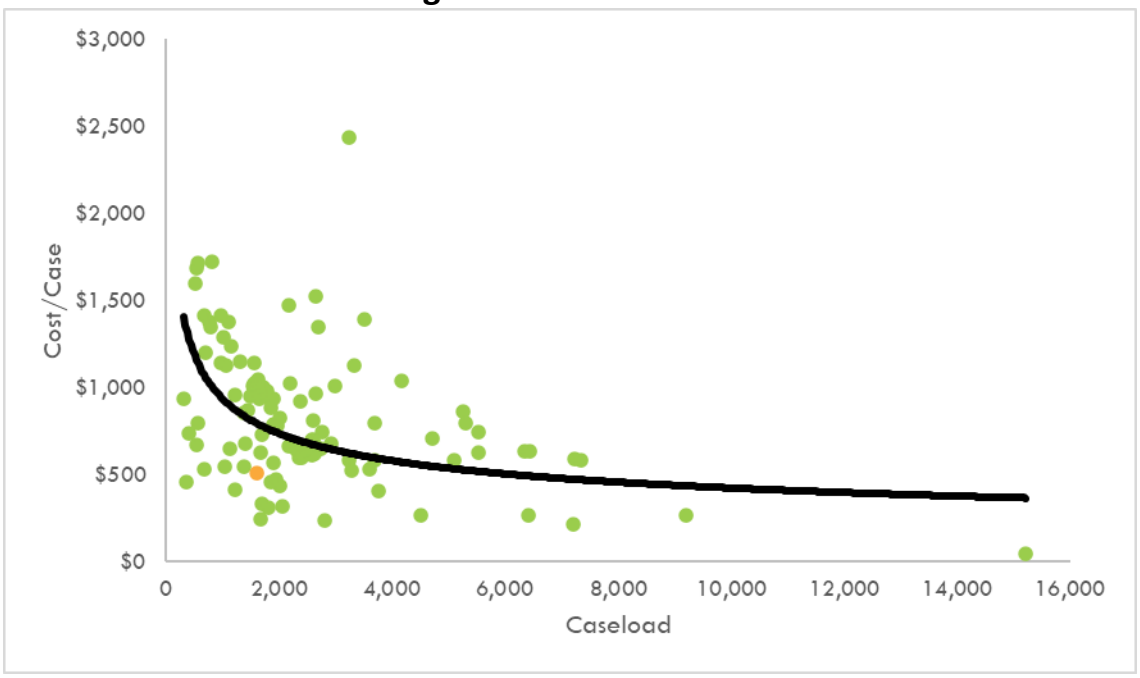
Figure 40: Efficient Frontier for Serology/Biology Analysis—Cases/FTE v. Caseload

Table 69: Efficient Frontier for Serology/Biology Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
2	$6,392	21	48	$2,908	63
4	$5,383	25	50	$2,879	64
6	$4,868	27	52	$2,851	64
8	$4,533	29	54	$2,824	65
10	$4,290	30	56	$2,799	66
12	$4,100	34	58	$2,775	67
14	$3,946	37	60	$2,752	67
16	$3,818	40	62	$2,729	68
18	$3,708	42	64	$2,708	69
20	$3,613	44	66	$2,687	69
22	$3,528	46	68	$2,668	70
24	$3,453	48	70	$2,649	71
26	$3,385	50	72	$2,630	71
28	$3,324	51	74	$2,612	72
30	$3,267	53	76	$2,595	72
32	$3,215	54	78	$2,578	73
34	$3,168	55	80	$2,562	73
36	$3,123	57	82	$2,547	74
38	$3,081	58	84	$2,532	74
40	$3,042	59	86	$2,517	75
42	$3,006	60	88	$2,503	75
44	$2,971	61	90	$2,489	76
46	$2,939	62	95	$2,455	77

Toxicology Analysis ante-mortem Analysis

Figure 41: Efficient Frontier for Toxicology Analysis (antemortem)—Average Total Cost v. Caseload



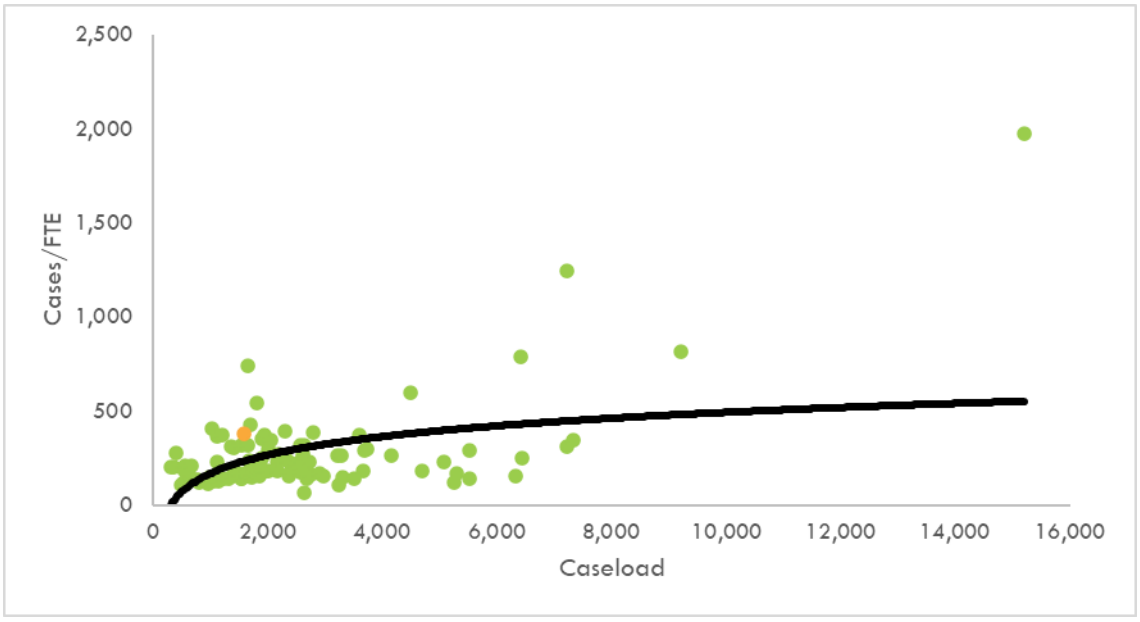


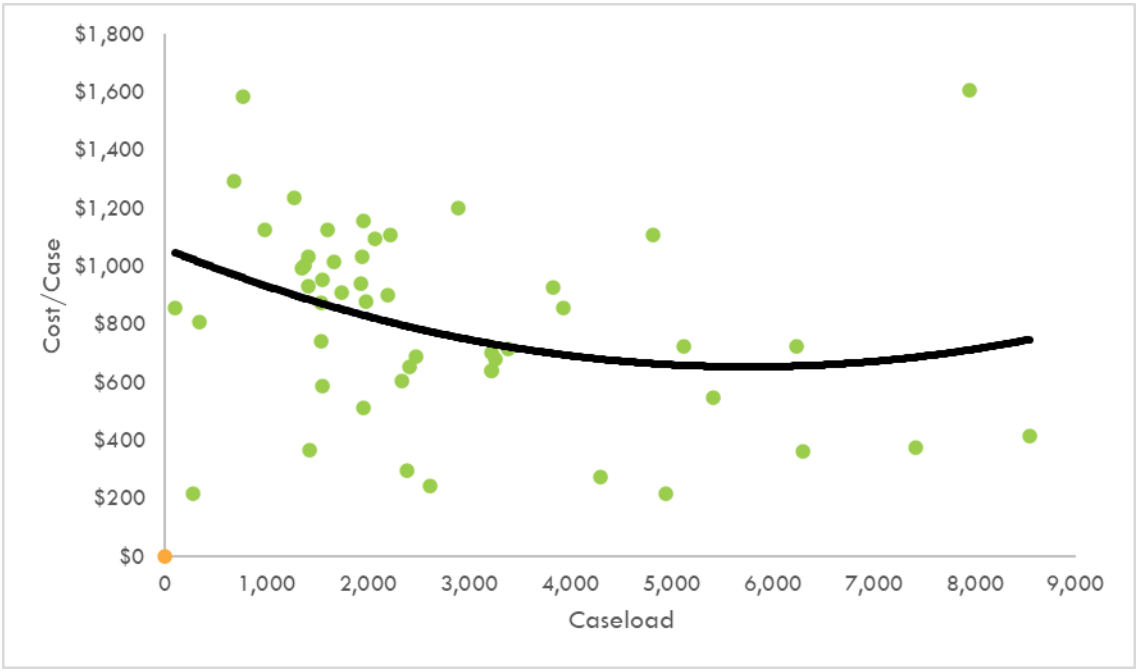
Figure 42: Efficient Frontier for Toxicology Analysis (antemortem)—Cases/FTE v. Caseload

Table 70: Efficient Frontier for Toxicology ante-mortem—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
300	$1,414	124	4,500	$658	380
400	$1,281	135	5,000	$635	395
500	$1,187	145	5,500	$614	408
600	$1,115	153	6,000	$595	421
700	$1,057	118	6,500	$577	432
800	$1,034	137	7,000	$561	442
900	$1,009	153	7,500	$546	452
1,000	$986	168	8,000	$532	461
1,100	$965	181	8,500	$519	470
1,200	$946	194	9,000	$506	478
1,300	$928	205	9,500	$495	485
1,400	$912	215	10,000	$483	493
1,500	$897	225	10,500	$473	499
1,750	$864	247	11,000	$463	506
2,000	$834	266	11,500	$453	512
2,250	$809	282	12,000	$444	518
2,500	$786	297	12,500	$435	524
2,750	$765	311	13,000	$426	530
3,000	$746	323	13,500	$418	535
3,250	$729	334	14,000	$410	540
3,500	$712	345	14,500	$402	545
3,750	$697	354	15,000	$395	550
4,000	$683	363	15,500	$388	554

Toxicology Analysis post-mortem Analysis

Figure 43: Efficient Frontier for Toxicology Analysis (postmortem)—Average Total Cost v. Caseload



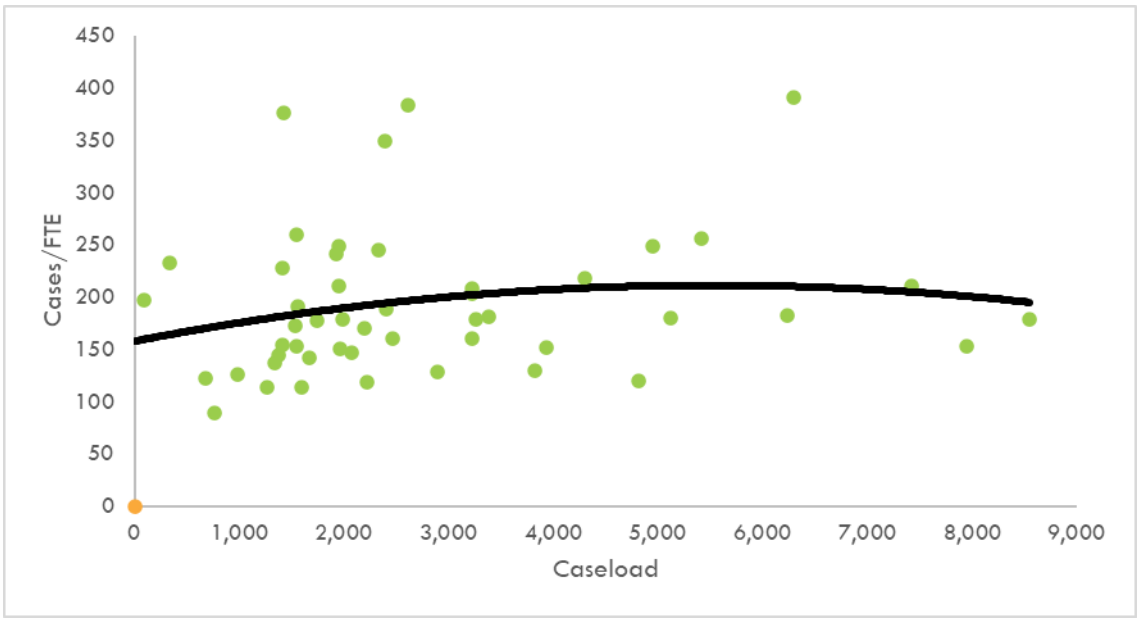


Figure 44: Efficient Frontier for Toxicology Analysis (postmortem)—Cases/FTE v. Caseload

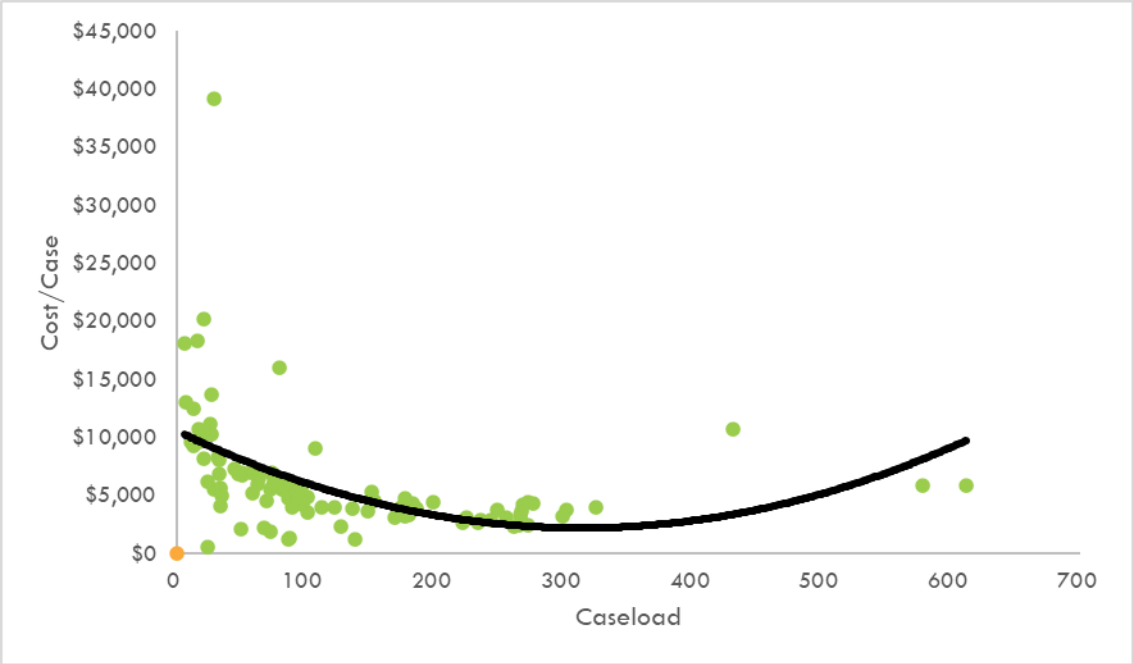
Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 71: Efficient Frontier for Toxicology post-mortem—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
300	$911	211	4,500	$748	174
400	$881	207	5,000	$739	168
500	$859	205	5,500	$731	163
600	$842	203	6,000	$724	159
700	$827	270	6,500	$718	155
800	$890	263	7,000	$711	151
900	$881	257	7,500	$706	147
1,000	$872	252	8,000	$700	144
1,100	$864	247	8,500	$695	141
1,200	$857	242	9,000	$691	138
1,300	$850	238	9,500	$686	135
1,400	$844	234	10,000	$682	132
1,500	$838	231	10,500	$678	130
1,750	$826	223	11,000	$674	127
2,000	$815	216	11,500	$671	125
2,250	$805	210	12,000	$667	123
2,500	$796	204	12,500	$664	121
2,750	$788	199	13,000	$660	119
3,000	$781	195	13,500	$657	117
3,250	$775	191	14,000	$654	115
3,500	$769	187	14,500	$651	113
3,750	$763	183	15,000	$649	111
4,000	$758	180	15,500	$646	110

Trace Evidence Analysis

Figure 45: Efficient Frontier for Trace Evidence Analysis—Average Total Cost v. Caseload



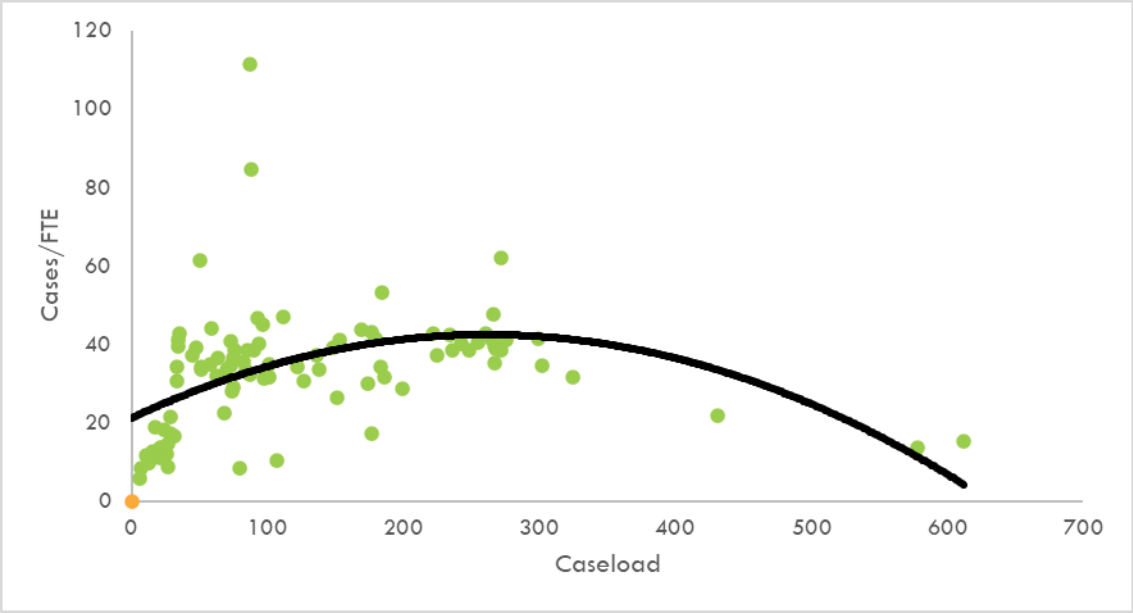


Figure 46: Efficient Frontier for Trace Evidence Analysis—Cases/FTE v. Caseload

Foresight Project 2023-2024, West Virginia University, Morgantown, WV, USA

Table 72: Efficient Frontier for Trace Evidence Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
5	$13,281	14	190	$4,049	38
10	$10,478	17	200	$3,910	38
15	$9,122	19	210	$3,778	39
20	$8,267	20	220	$3,652	39
25	$7,660	31	230	$3,531	39
30	$9,053	31	240	$3,416	39
35	$8,635	32	250	$3,305	39
40	$8,273	32	260	$3,199	39
45	$7,954	33	270	$3,097	40
50	$7,668	33	280	$2,998	40
60	$7,174	34	290	$2,903	40
70	$6,756	35	300	$2,811	40
80	$6,394	35	325	$2,594	40
90	$6,075	35	350	$2,393	41
100	$5,789	36	375	$2,206	41
110	$5,531	36	400	$2,031	41
120	$5,295	37	425	$1,867	41
130	$5,078	37	450	$1,712	42
140	$4,877	37	475	$1,566	42
150	$4,690	37	500	$1,427	42
160	$4,515	38	525	$1,294	42
170	$4,351	38	550	$1,168	42
180	$4,196	38	575	$1,048	42

FORESIGHT Glossary

Term	Definition
autopsy	Postmortem diagnostic medical procedure conducted by a pathologist, consisting of external and internal examination of a decedent, and may include other ancillary tests.
backlog	Open cases that are older than 30 days after submission to the laboratory.
capital expenditures	Purchases of equipment, instruments, etc. with a lifetime longer than three years and a cost above $1,000. LabRAT data collection includes contracts for the service of instruments and equipment leasing.
case - institute case	A request from a crime lab "customer" that includes forensic investigations in one or more investigative areas related to an event, crime, or investigation.
case - area case	A request for an examination in one forensic investigation area. An area case is a subset of an institute case and is equivalent to the term "request."
case – as reported in LabRat	Cases reported in LabRat are “area cases.”
death certificate	A permanent document, registered with the vital records office, that states the identification, fact of death, cause of death, and manner of death; a source of mortality statistics.
full-time equivalent employee (FTE)	The work input of a full-time employee working for one full year.
non-reporting manager	An individual whose primary responsibilities are in managing and administering a laboratory or a unit thereof and who is not taking part in casework.
operational personnel	Personnel in operational units providing casework, research and development (R&D), education and training (E&T), and external support services.
personnel expenditures	The sum of direct salaries, social expenses (employer contribution to FICA, Medicare, Workers Comp, and Unemployment Comp), retirement (employer contribution only towards pensions, 401K plans, etc.), personnel development and training (internal or external delivery, including travel), and occupational health service expenses (employer contribution only).

report	A formal statement of the results of an investigation, or of any matter on which definite information is required, made by some person or body instructed or required to do so.
request	A request for an examination in one forensic investigation area. A request is a subset of an institute case and is equivalent to the term "area case."
sample	An item of evidence or a portion of an item of evidence that generates a reportable result.
Scene (death)	Location or site at which a death is pronounced, and at which the decedent's body is located. This need not be the same location as the incident scene.
support personnel	Forensic laboratory staff providing various internal support services. Management and administration personnel not belonging to the operational units are included.
test	An analytical process, including but not limited to visual examination, instrumental analysis, presumptive evaluations, enhancement techniques, extractions, quantifications, microscopic techniques, and comparative examinations. This does not include technical or administrative reviews.
Turnaround time	The number of days from a request for examination in an investigative area until issuance of a report. (Note that an area case may have multiple requests, and each new request has a separate turnaround time.)

Definitions: Investigative Areas

Lab RAT	Definitions of Investigation Areas
Blood Alcohol	The analysis of blood or breath samples to detect the presence of and quantify the amount of alcohol.
Computer Analysis	The analysis of computers, computerized consumer goods, and associated hardware for data retrieval and sourcing.
Crime Scene Investigation	The collection, analysis, and processing of locations for evidence relating to a criminal incident.
Digital evidence	The analysis of multimedia audio, video, and still image materials, such as surveillance recordings and video enhancement. Includes computer analysis as defined above.
DNA Casework	Analysis of biological evidence for DNA in criminal cases.
DNA Database	Analysis and entry of DNA samples from individuals for database purposes.
Document Examination	The analysis of legal, counterfeit, and questioned documents, including handwriting analysis.
Drugs - Controlled Substances	The analysis of solid dosage licit and illicit drugs, including pre-cursor materials.
Evidence Screening & Processing	The detection, collection, and processing of physical evidence in the laboratory for potential additional analysis.
Explosives	The analysis of energetic materials in pre- and post-blast incidents.
Fingerprints	The development and analysis of friction ridge patterns.
Fingerprints Database	Analysis and entry of fingerprint samples from individuals for database purposes.
Fire analysis	The analysis of materials from suspicious fires to include ignitable liquid residue analysis.
Firearms and Ballistics	The analysis of firearms and ammunition, to include distance determinations, shooting reconstructions, NIBIN, and toolmarks.
Firearms Database	Analysis and entry of firearms & ballistics samples from individuals for database purposes.
Forensic Pathology	Forensic pathology is a branch of medicine that deals with the determination of the cause and manner of death in cases in which death occurred under suspicious or unknown circumstances.
Gun Shot Residue (GSR)	The analysis of primer residues from discharged firearms (not distance determinations).
Hairs & Fibers	The analysis of human and animal hairs (non-DNA) and textile fibers as trace evidence.

Marks and Impressions	The analysis of physical patterns received and retained through the interaction of objects of various hardness, including shoeprints and tire tracks.
Paint & Glass	The analysis of paints—generically, coatings—and glass as trace evidence.
Serology/Biology	The detection, collection, and non-DNA analysis of biological fluids.
Toxicology, ante-mortem	The chemical analysis of body fluids and tissues to determine if a drug or poison is present in a living individual, excluding blood alcohol analysis (BAC).
Toxicology, post-mortem	The chemical analysis of body fluids and tissues to determine if a drug or poison is present in a deceased individual, excluding blood alcohol analysis (BAC).
Trace Evidence	The analysis of materials that, because of their size or texture, transfer from one location to another and persist there for some time. Microscopy, either directly or as an adjunct to another instrument, is involved. Includes Hairs & Fibers and Paint & Glass as defined above.
Other Specialties	Other forensic science applications not covered by the other categories.

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