PROJECT FORESIGHT ANNUAL REPORT, 2024-2025

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

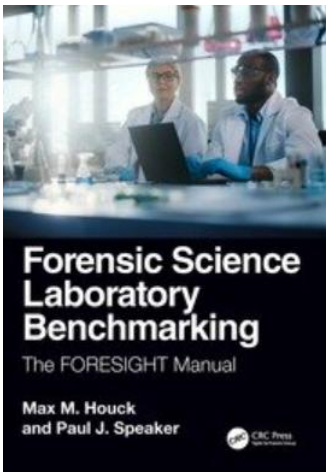
FORESIGHT—Annual Report—Idaho State Police Forensic Services

(US Dollars)

Table of Contents

Table of Tables

Table of Figures



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 2024-2025

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 2024-2025 performance period includes laboratory submissions for a variety of fiscal year definitions. However, all submissions have December 31, 2024, as part of their fiscal year accounting. The majority of submissions follow a July 1, 2024, through June 30, 2025, convention. Others follow a year that begins as early as January 1, 2024 (ending December 31, 2024), while the other extreme includes laboratories with a fiscal year originating on October 1, 2024, and ending September 30, 2025.

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 the 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, **183** laboratory or laboratory systems have contributed data to the project for the 2024-2025 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 website 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 2024-2025 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	16
State	41
Regional	35
Metro	39
Regional/Metro	53
International/Domestic	
U.S.	164
Non-U.S.	20
TOTAL SUBMISSIONS	**184**

Table 1 highlights some of the characteristics of the submitting laboratories. Note that the 183 submissions represent some laboratory systems. There are a total of 244 separate facilities represented in these submissions.

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 FY2025

- Arkansas State Crime Laboratory, Little Rock, AR
- Bexar County Criminal Investigation Laboratory, San Antonio, TX
- Canton-Stark County Crime Laboratory, Canton, OH
- Center of Forensic Sciences, Toronto, Ontario, Canada
- Chandler Police Department Forensic Service Section, Chandler, AZ
- City of Greensboro Police Department, Forensic Services Division, Greensboro, NC
- City of Tulsa Police Department Forensic Laboratory, Tulsa, OK
- Forensic Laboratory, National Bureau of Investigation, Finland, Vantaa, Finland
- Forensic Science Department, Organismo de Investigación Judicial, San Joaquín de Flores, Heredia, Costa Rica
- Idaho State Police Forensic Services, Meridian, ID
- Iowa DCI Crime Laboratory, Ankeny, IA
- Midwest Regional Forensic Laboratory, Andover, MN
- Montana Forensic Science Division, Missoula, MT
- Tennessee Bureau of Investigation-Knoxville, Knoxville, TN
- 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. This project was funded to overcome the participation hurdles with 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.

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. Greater detail about the project is available via the open-access publication in Forensic Science International: Synergy.[3]

Subsequent to the development of this original workforce calculator, the FBI changed the uniform crime reporting program, which was a key input to the workforce calculator. Project FORESIGHT developed new econometric models for greater precision in the determination of optimal staffing for each area of investigation. The modeling is updated on an annual basis, which reflects changes in technologies and the cost of delivery.

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.

---

[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.

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 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

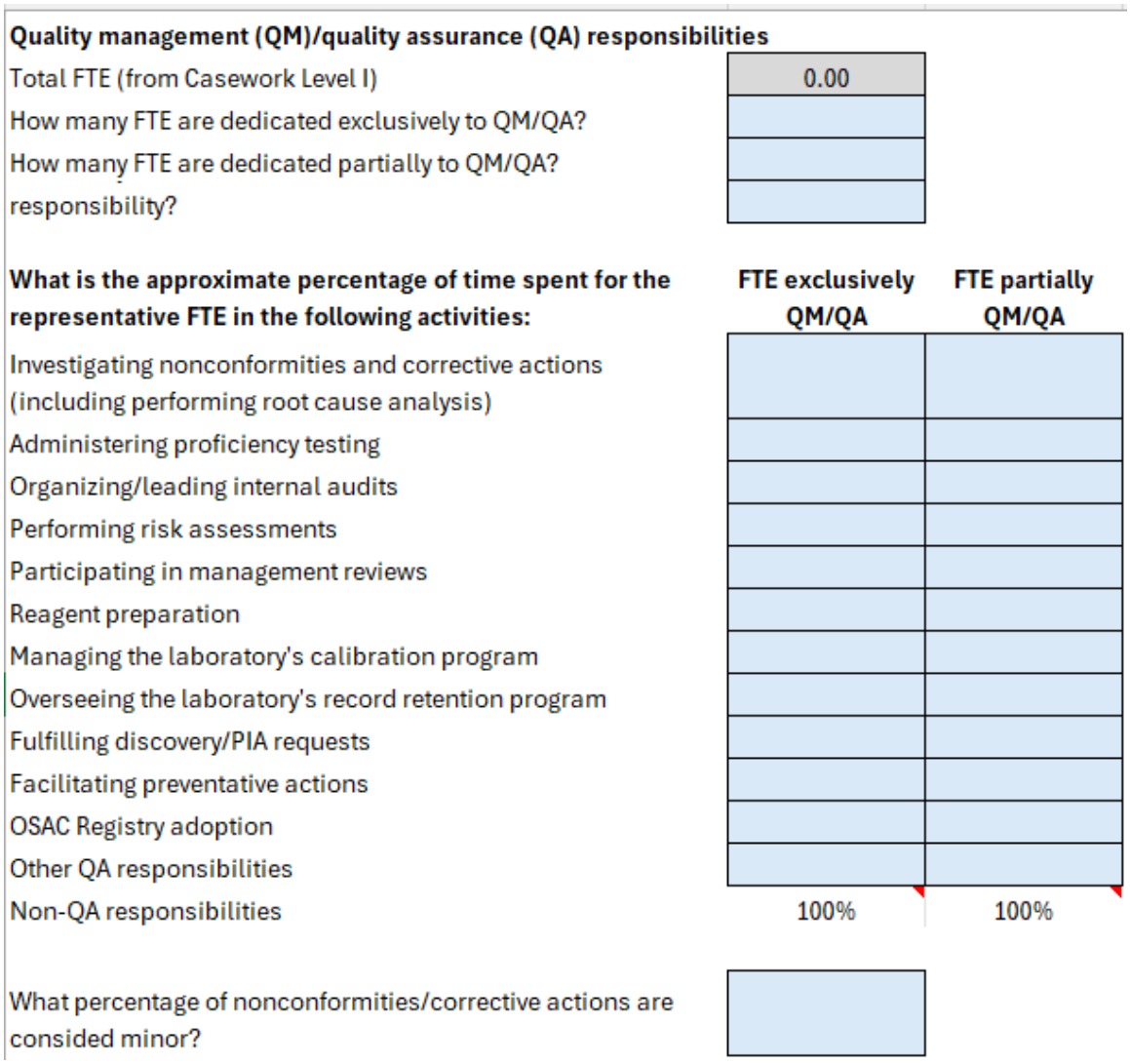
Digital Evidence Category:	Mobile	Computer	Video	Mass Storage	Other (drones, watches, Internet of Things, etc.)
Operational FTE					
Administration & Support FTE					
Cases					
items					
items outsourced					
items examined internally					
reports					
Gigabytes examined					
Median (days) turn around 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

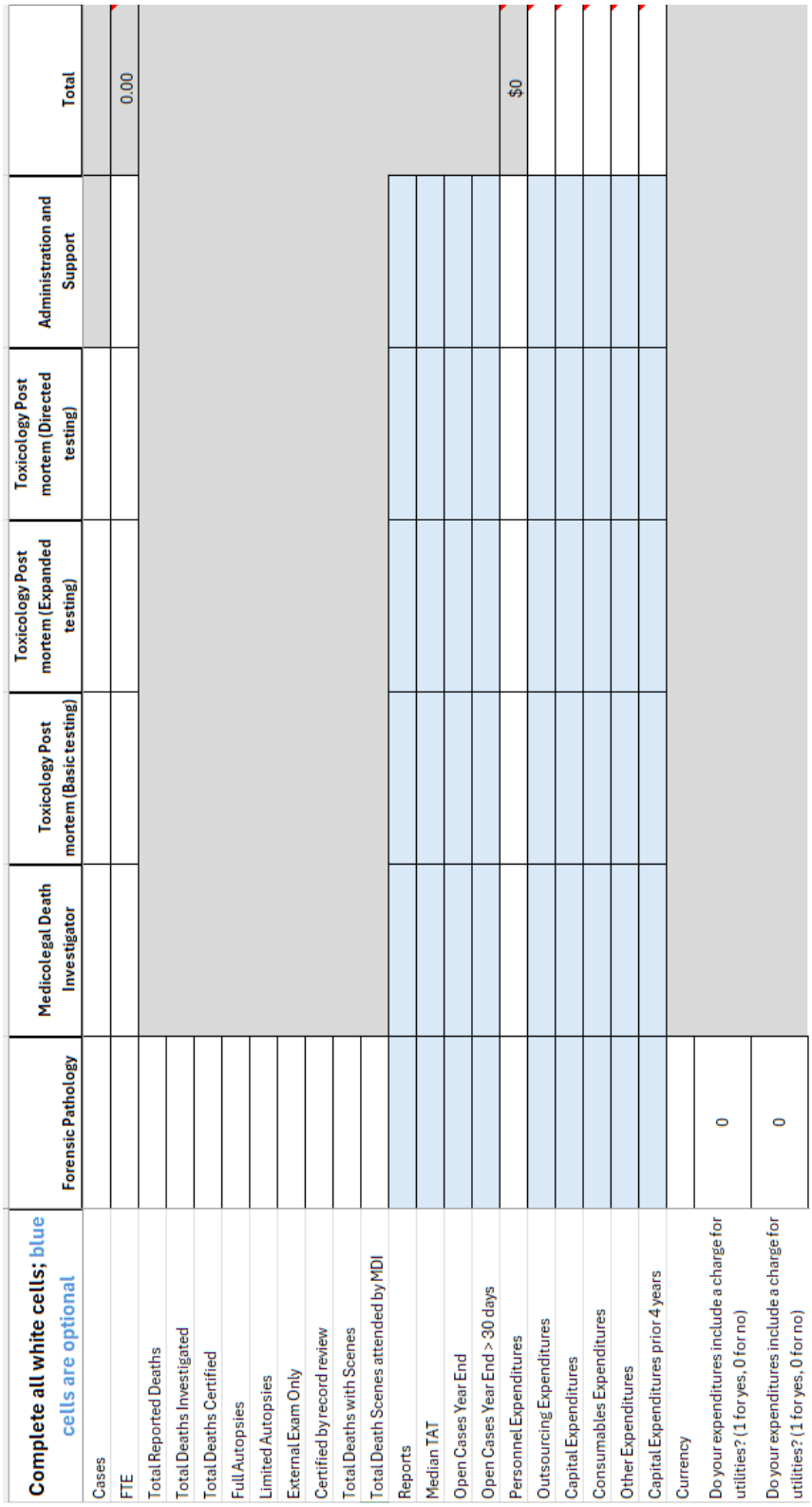
Figure 3: LabRAT Level II Quality Management



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	82.87	55.65	118.53	183.81
Crime Scene Investigation	1.72	0.67	2.37	21.82
Digital evidence	NA	4.33	24.10	56.25
DNA Casework	NA	44.72	73.41	142.82
DNA Database	NA	106.62	248.34	309.58
Document Examination	1.57	0.93	1.15	3.20
Drugs - Controlled Substances	442.74	131.35	250.61	382.55
Evidence Screening & Processing	NA	33.97	69.76	205.29
Explosives	NA	0.08	0.29	1.73
Fingerprints	47.44	18.05	28.57	98.17
Fingerprints Database (including IAFIS)	NA	5.72	21.94	135.27
Fire analysis	1.28	2.07	2.80	5.46
Firearms and Ballistics	8.02	8.73	21.16	33.18
Firearms Database (including NIBIN)	NA	30.93	57.07	302.61
Forensic Pathology	NA	71.78	155.29	202.27
Gun Shot Residue (GSR)	NA	2.34	3.35	5.93
Marks and Impressions	NA	0.17	0.60	5.15
Serology/Biology	NA	19.24	44.38	108.29
Toxicology ante-mortem (excluding BAC)	80.06	42.26	73.09	124.25
Toxicology postmortem (excluding BAC)	NA	49.07	67.88	145.61
Trace Evidence	NA	1.06	2.31	4.49

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	80.11	44.97	82.79	152.28
Crime Scene Investigation	NA	5.77	9.68	820.10
Digital evidence	NA	10.56	53.36	179.40
DNA Casework	NA	112.88	172.54	406.84
DNA Database	NA	72.32	201.94	295.17
Document Examination	5.17	2.75	8.44	24.12
Drugs - Controlled Substances	553.36	273.79	529.48	740.43
Evidence Screening & Processing	NA	66.32	123.87	418.44
Explosives	NA	0.24	0.29	0.36
Fingerprints	257.22	41.28	134.49	345.68
Fingerprints Database (including IAFIS)	19.49	13.47	850.13	1,515.53
Fire analysis	4.92	3.29	4.68	9.63
Firearms and Ballistics	76.13	62.45	129.76	208.10
Firearms Database (including NIBIN)	12.94	70.93	285.66	1,250.99
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	1.21	7.72	10.53
Marks and Impressions	NA	0.26	0.48	0.85
Serology/Biology	NA	73.09	105.31	199.35
Toxicology ante-mortem (excluding BAC)	61.17	34.93	74.84	135.86
Toxicology postmortem (excluding BAC)	NA	74.26	92.67	176.62
Trace Evidence	NA	2.20	5.64	21.18

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	80.11	28.35	72.00	125.41
Crime Scene Investigation	NA	8.33	16.71	1,226.01
Digital evidence	NA	42.73	88.73	963.70
DNA Casework	NA	134.36	283.95	457.70
DNA Database	NA	225.89	295.93	355.51
Document Examination	23.77	2.27	13.17	24.86
Drugs - Controlled Substances	601.83	382.12	574.94	1,124.36
Evidence Screening & Processing	NA	50.27	176.36	351.52
Explosives	NA	0.27	0.39	0.50
Fingerprints	250.87	52.82	119.07	490.01
Fingerprints Database (including IAFIS)	19.49	11.19	629.96	1,135.16
Fire analysis	5.46	4.55	6.36	9.96
Firearms and Ballistics	74.90	92.90	168.00	313.93
Firearms Database (including NIBIN)	12.94	79.91	292.71	1,097.77
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	7.36	10.50	19.39
Marks and Impressions	NA	0.33	0.52	0.65
Serology/Biology	NA	81.55	98.02	213.15
Toxicology ante-mortem (excluding BAC)	61.17	42.25	67.76	129.76
Toxicology postmortem (excluding BAC)	NA	59.66	152.25	182.92
Trace Evidence	NA	2.07	7.41	17.59

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	160.62	107.83	156.40	243.66
Crime Scene Investigation	NA	4.21	14.05	7,831.86
Digital evidence	NA	2.41	3.69	46.98
DNA Casework	NA	188.40	564.28	1,585.46
DNA Database	NA	74.99	169.33	391.26
Document Examination	11.66	2.12	11.66	31.18
Drugs - Controlled Substances	1,789.07	725.40	1,299.82	3,003.60
Evidence Screening & Processing	NA	50.74	416.65	1,087.63
Explosives	NA	0.52	1.02	2.73
Fingerprints	4,550.22	61.35	125.50	1,293.44
Fingerprints Database (including IAFIS)	904.47	14.36	723.92	844.93
Fire analysis	9.01	6.24	9.29	15.36
Firearms and Ballistics	46.80	91.24	163.73	320.51
Firearms Database (including NIBIN)	12.94	48.80	281.46	666.53
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	5.81	15.47	35.35
Marks and Impressions	NA	0.63	1.03	1.87
Serology/Biology	NA	108.75	151.35	235.84
Toxicology ante-mortem (excluding BAC)	184.78	123.71	184.78	328.92
Toxicology postmortem (excluding BAC)	NA	184.60	244.24	406.83
Trace Evidence	NA	4.34	20.56	89.70

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	80.11	52.01	77.19	151.31
Crime Scene Investigation	NA	2.26	4.89	22.98
Digital evidence	NA	5.07	15.33	77.52
DNA Casework	NA	41.67	67.67	116.79
DNA Database	NA	8.32	33.72	194.37
Document Examination	1.57	0.53	0.99	1.24
Drugs - Controlled Substances	430.34	116.24	244.18	346.57
Evidence Screening & Processing	NA	46.14	54.56	80.91
Explosives	NA	0.06	0.07	0.08
Fingerprints	47.44	18.98	24.17	59.86
Fingerprints Database (including IAFIS)	NA	7.73	47.89	157.98
Fire analysis	1.23	1.86	2.61	4.04
Firearms and Ballistics	7.38	13.71	20.34	49.59
Firearms Database (including NIBIN)	NA	38.07	55.90	370.91
Forensic Pathology	NA	64.37	216.44	298.25
Gun Shot Residue (GSR)	NA	0.41	2.76	4.67
Marks and Impressions	NA	0.15	0.21	0.53
Serology/Biology	NA	5.49	20.39	50.98
Toxicology ante-mortem (excluding BAC)	61.17	37.34	60.92	115.89
Toxicology postmortem (excluding BAC)	NA	31.96	51.79	94.39
Trace Evidence	NA	0.87	1.35	4.15

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	$181	$124	$186	$473
Crime Scene Investigation	$5,973	$3,065	$7,189	$12,112
Digital evidence	NA	$1,655	$2,463	$4,785
DNA Casework	NA	$1,350	$1,695	$2,448
DNA Database	NA	$63	$93	$162
Document Examination	$2,838	$1,840	$3,054	$4,750
Drugs - Controlled Substances	$264	$277	$397	$542
Evidence Screening & Processing	NA	$135	$741	$1,294
Explosives	NA	$2,673	$5,629	$11,879
Fingerprints	$1,179	$1,119	$1,792	$2,098
Fingerprints Database (including IAFIS)	NA	$290	$761	$983
Fire analysis	$1,106	$1,380	$1,937	$3,065
Firearms and Ballistics	$1,643	$1,305	$2,133	$4,066
Firearms Database (including NIBIN)	NA	$124	$311	$661
Forensic Pathology	NA	$1,422	$2,521	$4,387
Gun Shot Residue (GSR)	NA	$969	$1,611	$2,784
Marks and Impressions	NA	$2,389	$3,129	$6,491
Serology/Biology	NA	$526	$1,070	$1,447
Toxicology ante-mortem (excluding BAC)	$414	$412	$580	$795
Toxicology postmortem (excluding BAC)	NA	$461	$724	$938
Trace Evidence	NA	$2,942	$4,307	$7,405

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 the prior year's metrics to FY2025 prices.

Table 8: Real* Cost per Case across Time

Real Cost per Case over time (2024.12 = 100)				
Area of Investigation	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Blood Alcohol	$243	$229	$223	$186
Crime Scene Investigation	$4,340	$4,346	$4,224	$7,189
Digital evidence	$3,666	$3,906	$3,796	$2,463
DNA Casework	$1,776	$1,765	$1,715	$1,695
DNA Database	$113	$102	$99	$93
Document Examination	$6,140	$4,877	$4,741	$3,054
Drugs - Controlled Substances	$434	$452	$440	$397
Evidence Screening & Processing	$821	$1,047	$1,017	$741
Explosives	$9,594	$12,483	$12,133	$5,629
Fingerprints	$1,320	$1,377	$1,338	$1,792
Fingerprints Database (including IAFIS)	$774	$723	$703	$761
Fire analysis	$3,171	$2,885	$2,804	$1,937
Firearms and Ballistics	$2,460	$2,287	$2,223	$2,133
Firearms Database (including NIBIN)	$209	$218	$211	$311
Forensic Pathology	$2,242	$2,404	$2,336	$2,521
Gun Shot Residue (GSR)	$3,419	$3,464	$3,367	$1,611
Marks and Impressions	$7,402	$7,022	$6,824	$3,129
Serology/Biology	$1,327	$1,328	$1,290	$1,070
Toxicology ante-mortem (excluding BAC)	$772	$738	$718	$580
Toxicology postmortem (excluding BAC)	$882	$906	$881	$724
Trace Evidence	$6,553	$5,024	$4,883	$4,307

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	$187	$136	$181	$248
Crime Scene Investigation	NA	$308	$4,121	$12,293
Digital evidence	NA	$967	$1,141	$3,032
DNA Casework	NA	$415	$706	$914
DNA Database	NA	$90	$116	$176
Document Examination	$865	$257	$491	$812
Drugs - Controlled Substances	$211	$145	$248	$313
Evidence Screening & Processing	NA	$111	$258	$413
Explosives	NA	$3,283	$4,931	$5,432
Fingerprints	$217	$217	$345	$1,276
Fingerprints Database (including IAFIS)	NA	$31	$73	$262
Fire analysis	$288	$605	$1,369	$2,100
Firearms and Ballistics	$173	$213	$404	$714
Firearms Database (including NIBIN)	NA	$40	$110	$180
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	$439	$1,564	$2,924
Marks and Impressions	NA	$1,580	$2,008	$3,529
Serology/Biology	NA	$183	$314	$453
Toxicology ante-mortem (excluding BAC)	$541	$388	$541	$690
Toxicology postmortem (excluding BAC)	NA	$262	$441	$455
Trace Evidence	NA	$627	$1,676	$2,808

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	$187	$129	$188	$280
Crime Scene Investigation	NA	$116	$804	$13,936
Digital evidence	NA	$272	$581	$2,325
DNA Casework	NA	$260	$505	$705
DNA Database	NA	$67	$93	$118
Document Examination	$188	$223	$364	$736
Drugs - Controlled Substances	$194	$101	$139	$223
Evidence Screening & Processing	NA	$120	$391	$425
Explosives	NA	$1,369	$3,655	$11,876
Fingerprints	$223	$185	$569	$1,232
Fingerprints Database (including IAFIS)	NA	$45	$74	$593
Fire analysis	$259	$259	$1,458	$2,668
Firearms and Ballistics	$176	$183	$301	$587
Firearms Database (including NIBIN)	NA	$89	$123	$175
Forensic Pathology	NA	$175	$175	$175
Gun Shot Residue (GSR)	NA	$253	$379	$1,628
Marks and Impressions	NA	$3,284	$3,442	$4,571
Serology/Biology	NA	$225	$414	$621
Toxicology ante-mortem (excluding BAC)	$541	$217	$535	$808
Toxicology postmortem (excluding BAC)	NA	$210	$342	$645
Trace Evidence	NA	$1,087	$2,091	$3,272

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	$93	$66	$93	$153
Crime Scene Investigation	NA	$410	$804	$13,699
Digital evidence	NA	$2,114	$2,563	$4,199
DNA Casework	NA	$103	$147	$449
DNA Database	NA	$67	$96	$273
Document Examination	$383	$212	$383	$599
Drugs - Controlled Substances	$65	$42	$60	$97
Evidence Screening & Processing	NA	$83	$137	$242
Explosives	NA	$529	$951	$15,329
Fingerprints	$12	$77	$284	$1,185
Fingerprints Database (including IAFIS)	NA	$59	$75	$195
Fire analysis	$157	$194	$819	$1,414
Firearms and Ballistics	$282	$124	$232	$393
Firearms Database (including NIBIN)	NA	$108	$144	$180
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	$155	$361	$752
Marks and Impressions	NA	$1,261	$2,176	$3,242
Serology/Biology	NA	$115	$226	$385
Toxicology ante-mortem (excluding BAC)	$179	$145	$165	$210
Toxicology postmortem (excluding BAC)	NA	$121	$166	$169
Trace Evidence	NA	$119	$638	$1,869

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	$187	$134	$175	$253
Crime Scene Investigation	NA	$5,575	$8,685	$10,494
Digital evidence	NA	$1,453	$2,516	$5,986
DNA Casework	NA	$1,418	$1,788	$2,740
DNA Database	NA	$136	$1,230	$7,128
Document Examination	$2,838	$2,890	$3,060	$3,109
Drugs - Controlled Substances	$272	$312	$396	$643
Evidence Screening & Processing	NA	$747	$1,263	$1,276
Explosives	NA	$6,861	$22,597	$29,708
Fingerprints	$1,179	$1,151	$1,778	$2,297
Fingerprints Database (including IAFIS)	NA	$385	$717	$759
Fire analysis	$1,151	$1,151	$2,997	$3,699
Firearms and Ballistics	$1,786	$1,067	$1,596	$2,430
Firearms Database (including NIBIN)	NA	$225	$239	$535
Forensic Pathology	NA	$1,596	$1,907	$2,756
Gun Shot Residue (GSR)	NA	$1,522	$2,621	$6,091
Marks and Impressions	NA	$3,081	$4,212	$11,941
Serology/Biology	NA	$732	$1,311	$4,617
Toxicology ante-mortem (excluding BAC)	$541	$403	$581	$881
Toxicology postmortem (excluding BAC)	NA	$576	$737	$884
Trace Evidence	NA	$2,235	$7,156	$11,368

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	$112,586	$91,117	$108,771	$129,908
Crime Scene Investigation	$128,812	$98,175	$110,546	$131,103
Digital evidence	NA	$95,871	$111,581	$121,056
DNA Casework	NA	$96,294	$107,465	$123,972
DNA Database	NA	$89,965	$97,868	$115,537
Document Examination	$122,474	$89,907	$109,619	$125,179
Drugs - Controlled Substances	$90,735	$92,469	$109,377	$129,687
Evidence Screening & Processing	NA	$53,621	$93,285	$116,749
Explosives	NA	$83,241	$93,937	$129,838
Fingerprints	$97,171	$104,682	$116,874	$138,437
Fingerprints Database (including IAFIS)	NA	$81,059	$102,074	$129,255
Fire analysis	$112,763	$89,081	$112,763	$130,262
Firearms and Ballistics	$129,565	$95,722	$109,399	$129,064
Firearms Database (including NIBIN)	NA	$87,159	$108,771	$119,496
Forensic Pathology	NA	$86,249	$166,637	$201,531
Gun Shot Residue (GSR)	NA	$84,766	$108,771	$139,796
Marks and Impressions	NA	$93,667	$116,874	$147,983
Serology/Biology	NA	$96,854	$109,637	$131,164
Toxicology ante-mortem (excluding BAC)	$123,095	$91,618	$114,029	$128,754
Toxicology postmortem (excluding BAC)	NA	$69,239	$108,843	$112,803
Trace Evidence	NA	$77,977	$101,138	$123,257

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	0.97	1.00	1.03	1.20
Crime Scene Investigation	NA	0.96	1.25	20.24
Digital evidence	NA	1.48	1.95	3.12
DNA Casework	NA	1.88	3.16	4.01
DNA Database	NA	0.92	0.98	1.00
Document Examination	3.28	3.64	6.99	23.55
Drugs - Controlled Substances	1.25	1.52	2.22	2.69
Evidence Screening & Processing	NA	1.98	2.66	5.17
Explosives	NA	1.40	1.40	2.70
Fingerprints	5.42	2.04	2.59	5.42
Fingerprints Database (including IAFIS)	NA	2.02	4.14	11.02
Fire analysis	3.85	1.82	2.23	2.70
Firearms and Ballistics	9.49	2.27	3.57	7.50
Firearms Database (including NIBIN)	NA	1.39	2.64	3.29
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	1.02	1.74	2.27
Marks and Impressions	NA	1.86	2.54	3.25
Serology/Biology	NA	2.09	2.96	5.13
Toxicology ante-mortem (excluding BAC)	0.76	1.00	1.02	1.03
Toxicology postmortem (excluding BAC)	NA	1.81	2.00	2.37
Trace Evidence	NA	2.51	3.63	7.66

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	0.97	0.99	1.13	1.41
Crime Scene Investigation	NA	1.09	7.50	24.57
Digital evidence	NA	1.72	4.12	6.66
DNA Casework	NA	2.27	3.57	5.54
DNA Database	NA	0.96	0.99	1.07
Document Examination	15.09	5.14	10.67	18.40
Drugs - Controlled Substances	1.36	2.03	2.61	3.58
Evidence Screening & Processing	NA	2.21	3.36	9.33
Explosives	NA	1.30	3.08	4.83
Fingerprints	5.29	1.94	3.46	5.73
Fingerprints Database (including IAFIS)	NA	1.40	3.37	7.61
Fire analysis	4.27	1.76	2.37	3.57
Firearms and Ballistics	9.34	2.41	6.02	8.28
Firearms Database (including NIBIN)	NA	1.71	2.67	3.54
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	1.39	2.99	3.80
Marks and Impressions	NA	1.00	1.67	1.93
Serology/Biology	NA	1.38	2.45	5.78
Toxicology ante-mortem (excluding BAC)	0.76	0.99	1.09	1.62
Toxicology postmortem (excluding BAC)	NA	1.48	2.24	2.67
Trace Evidence	NA	2.42	4.26	8.09

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	1.94	1.40	2.05	2.19
Crime Scene Investigation	NA	0.95	7.28	61.44
Digital evidence	NA	1.58	1.70	1.89
DNA Casework	NA	3.56	11.02	19.41
DNA Database	NA	0.97	0.98	1.00
Document Examination	7.41	5.13	7.41	31.38
Drugs - Controlled Substances	4.04	3.35	6.11	11.94
Evidence Screening & Processing	NA	2.77	8.91	15.84
Explosives	NA	4.11	7.22	33.86
Fingerprints	95.92	2.79	5.60	7.56
Fingerprints Database (including IAFIS)	NA	2.62	2.88	6.71
Fire analysis	7.04	2.12	4.75	7.95
Firearms and Ballistics	5.83	4.50	7.32	8.29
Firearms Database (including NIBIN)	NA	2.16	2.44	2.85
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	2.00	3.40	5.36
Marks and Impressions	NA	1.95	2.09	2.60
Serology/Biology	NA	2.21	4.05	6.92
Toxicology ante-mortem (excluding BAC)	2.31	2.26	3.01	4.39
Toxicology postmortem (excluding BAC)	NA	3.34	3.79	4.56
Trace Evidence	NA	2.89	9.95	87.94

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	0.99	1.01	1.05
Crime Scene Investigation	NA	0.94	0.97	1.05
Digital evidence	NA	0.86	1.00	1.18
DNA Casework	NA	0.86	1.00	1.11
DNA Database	NA	0.11	0.47	0.87
Document Examination	1.00	0.99	1.00	1.00
Drugs - Controlled Substances	0.97	0.98	1.00	1.05
Evidence Screening & Processing	NA	1.02	1.04	1.71
Explosives	NA	1.00	1.00	1.00
Fingerprints	1.00	0.96	1.00	1.09
Fingerprints Database (including IAFIS)	NA	0.98	0.99	1.00
Fire analysis	0.96	0.94	1.00	1.03
Firearms and Ballistics	0.92	0.92	1.00	1.10
Firearms Database (including NIBIN)	NA	0.98	1.00	1.05
Forensic Pathology	NA	1.00	1.01	1.03
Gun Shot Residue (GSR)	NA	0.76	0.98	1.00
Marks and Impressions	NA	1.00	1.00	1.13
Serology/Biology	NA	0.55	0.99	1.00
Toxicology ante-mortem (excluding BAC)	0.76	0.96	1.00	1.02
Toxicology postmortem (excluding BAC)	NA	1.00	1.03	1.08
Trace Evidence	NA	0.99	1.01	1.09

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	0.97	1.00	1.15
Crime Scene Investigation	NA	1.00	1.00	1.07
Digital evidence	NA	1.00	1.11	1.23
DNA Casework	NA	1.00	1.01	1.64
DNA Database	NA	1.00	1.00	1.06
Document Examination	4.60	1.02	1.18	2.15
Drugs - Controlled Substances	1.09	1.00	1.07	2.46
Evidence Screening & Processing	NA	1.01	1.06	2.03
Explosives	NA	1.09	1.19	2.42
Fingerprints	0.98	0.93	1.00	1.09
Fingerprints Database (including IAFIS)	1.00	0.96	1.00	1.00
Fire analysis	1.11	1.00	1.03	1.79
Firearms and Ballistics	0.98	1.00	1.00	1.30
Firearms Database (including NIBIN)	1.00	1.00	1.00	1.00
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	1.00	1.00	1.91
Marks and Impressions	NA	0.92	1.00	1.00
Serology/Biology	NA	0.98	1.00	1.02
Toxicology ante-mortem (excluding BAC)	1.00	0.99	1.00	1.09
Toxicology postmortem (excluding BAC)	NA	0.78	1.00	1.23
Trace Evidence	NA	1.03	1.55	1.68

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	1.31	2.00	2.05
Crime Scene Investigation	NA	0.98	1.04	1.06
Digital evidence	NA	1.00	1.07	1.18
DNA Casework	NA	1.25	3.72	7.18
DNA Database	NA	0.99	1.00	1.00
Document Examination	2.26	1.09	1.10	2.26
Drugs - Controlled Substances	3.23	1.29	3.18	5.03
Evidence Screening & Processing	NA	1.44	1.74	3.11
Explosives	NA	7.67	10.16	12.64
Fingerprints	17.69	1.06	1.23	3.14
Fingerprints Database (including IAFIS)	46.41	0.87	1.11	1.78
Fire analysis	1.83	1.00	1.07	2.05
Firearms and Ballistics	0.61	1.00	1.22	1.97
Firearms Database (including NIBIN)	1.00	0.87	1.00	1.00
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	1.00	1.97	3.00
Marks and Impressions	NA	0.88	0.97	1.27
Serology/Biology	NA	1.07	1.36	3.34
Toxicology ante-mortem (excluding BAC)	3.02	1.71	2.96	4.39
Toxicology postmortem (excluding BAC)	NA	1.50	2.10	2.54
Trace Evidence	NA	1.63	4.01	10.94

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	1.00	0.93	0.97	1.01
Crime Scene Investigation	NA	0.05	0.77	1.03
Digital evidence	NA	0.31	0.52	0.71
DNA Casework	NA	0.23	0.36	0.54
DNA Database	NA	0.38	0.86	1.00
Document Examination	0.30	0.06	0.16	0.28
Drugs - Controlled Substances	0.78	0.36	0.42	0.66
Evidence Screening & Processing	NA	0.15	0.20	0.26
Explosives	NA	0.20	0.25	0.48
Fingerprints	0.18	0.20	0.32	0.56
Fingerprints Database (including IAFIS)	NA	0.12	0.22	0.43
Fire analysis	0.25	0.39	0.43	0.56
Firearms and Ballistics	0.10	0.14	0.30	0.47
Firearms Database (including NIBIN)	NA	0.25	0.39	0.59
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	0.33	0.44	0.57
Marks and Impressions	NA	0.28	0.40	0.68
Serology/Biology	NA	0.13	0.26	0.34
Toxicology ante-mortem (excluding BAC)	1.00	0.96	0.99	1.00
Toxicology postmortem (excluding BAC)	NA	0.49	0.54	0.58
Trace Evidence	NA	0.15	0.21	0.35

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	1.18	2.00	2.05
Crime Scene Investigation	NA	0.89	1.01	1.04
Digital evidence	NA	1.03	1.06	1.08
DNA Casework	NA	1.02	3.00	4.80
DNA Database	NA	0.99	1.00	1.00
Document Examination	0.49	0.74	0.92	1.03
Drugs - Controlled Substances	2.97	1.02	2.66	3.13
Evidence Screening & Processing	NA	1.57	3.09	11.76
Explosives	NA	1.21	1.42	7.08
Fingerprints	18.14	1.02	1.33	2.27
Fingerprints Database (including IAFIS)	46.41	0.97	1.10	2.01
Fire analysis	1.65	0.98	1.00	1.58
Firearms and Ballistics	0.62	1.00	1.06	1.49
Firearms Database (including NIBIN)	1.00	0.98	1.00	1.00
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	0.99	1.00	1.61
Marks and Impressions	NA	1.01	1.51	2.63
Serology/Biology	NA	1.08	1.26	2.06
Toxicology ante-mortem (excluding BAC)	3.02	1.38	3.02	3.93
Toxicology postmortem (excluding BAC)	NA	1.25	2.04	4.61
Trace Evidence	NA	1.47	2.10	2.36

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	1.00	0.68	0.91	1.00
Crime Scene Investigation	NA	0.03	0.39	0.91
Digital evidence	NA	0.08	0.15	0.60
DNA Casework	NA	0.18	0.23	0.38
DNA Database	NA	0.48	0.86	0.93
Document Examination	0.07	0.06	0.11	0.24
Drugs - Controlled Substances	0.72	0.26	0.36	0.58
Evidence Screening & Processing	NA	0.20	0.31	13.79
Explosives	NA	0.18	0.20	0.41
Fingerprints	0.19	0.18	0.30	0.48
Fingerprints Database (including IAFIS)	NA	0.10	0.17	0.41
Fire analysis	0.23	0.25	0.42	0.57
Firearms and Ballistics	0.10	0.11	0.20	0.41
Firearms Database (including NIBIN)	NA	0.29	0.45	0.58
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	0.27	0.33	0.71
Marks and Impressions	NA	0.41	0.75	1.16
Serology/Biology	NA	0.15	0.30	0.54
Toxicology ante-mortem (excluding BAC)	1.00	0.57	0.93	1.00
Toxicology postmortem (excluding BAC)	NA	0.36	0.38	1.08
Trace Evidence	NA	0.12	0.17	0.33

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	820.4	384.72	820.45	1,246.07
Crime Scene Investigation	26.2	10.62	23.46	41.40
Digital evidence	NA	31.41	59.17	113.03
DNA Casework	NA	69.98	93.84	122.61
DNA Database	NA	1,031.64	1,948.18	2,546.71
Document Examination	50.3	27.81	44.36	75.93
Drugs - Controlled Substances	427.6	257.24	422.47	531.45
Evidence Screening & Processing	NA	110.41	134.31	1,218.58
Explosives	NA	13.51	27.51	48.49
Fingerprints	104.4	74.06	100.73	176.62
Fingerprints Database (including IAFIS)	NA	120.39	176.85	370.76
Fire analysis	126.7	53.46	74.76	116.12
Firearms and Ballistics	91.8	38.84	63.52	114.83
Firearms Database (including NIBIN)	NA	226.13	391.45	1,019.83
Forensic Pathology	NA	45.31	66.10	101.19
Gun Shot Residue (GSR)	NA	44.83	98.91	129.82
Marks and Impressions	NA	19.81	44.37	58.38
Serology/Biology	NA	103.66	166.37	278.19
Toxicology ante-mortem (excluding BAC)	396.3	218.72	275.41	405.62
Toxicology postmortem (excluding BAC)	NA	165.30	212.48	243.75
Trace Evidence	NA	21.33	30.40	39.40

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	793.2	427.59	827.13	977.06
Crime Scene Investigation	NA	11.33	30.16	525.29
Digital evidence	NA	67.36	124.11	211.37
DNA Casework	NA	149.14	247.51	438.93
DNA Database	NA	1,088.23	1,858.10	2,366.92
Document Examination	165.0	168.78	226.37	515.19
Drugs - Controlled Substances	534.5	455.88	718.34	956.45
Evidence Screening & Processing	NA	338.50	849.97	1,435.96
Explosives	NA	20.28	22.27	38.40
Fingerprints	565.9	116.45	487.50	839.64
Fingerprints Database (including IAFIS)	NA	515.50	2,279.09	4,699.53
Fire analysis	487.2	62.35	119.98	310.11
Firearms and Ballistics	871.3	227.66	371.45	611.48
Firearms Database (including NIBIN)	NA	692.48	1,071.14	3,121.94
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	69.55	111.71	306.50
Marks and Impressions	NA	39.39	93.90	103.53
Serology/Biology	NA	323.90	532.88	851.17
Toxicology ante-mortem (excluding BAC)	302.8	222.65	292.70	475.43
Toxicology postmortem (excluding BAC)	NA	262.48	320.85	432.56
Trace Evidence	NA	43.88	74.47	281.40

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	793.2	767.43	813.63	1,074.85
Crime Scene Investigation	NA	14.71	92.75	723.78
Digital evidence	NA	81.31	231.58	899.54
DNA Casework	NA	178.44	369.04	458.96
DNA Database	NA	1,766.74	2,265.28	3,540.49
Document Examination	759.1	192.11	416.18	634.83
Drugs - Controlled Substances	581.3	571.90	1,002.01	1,537.79
Evidence Screening & Processing	NA	189.13	398.45	1,305.72
Explosives	NA	26.33	46.22	65.29
Fingerprints	551.9	126.60	269.02	967.45
Fingerprints Database (including IAFIS)	NA	606.79	2,273.61	2,788.82
Fire analysis	540.8	39.26	91.01	295.59
Firearms and Ballistics	857.2	331.14	445.14	604.20
Firearms Database (including NIBIN)	NA	745.36	1,069.95	1,507.14
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	110.17	400.00	519.30
Marks and Impressions	NA	28.66	30.58	37.96
Serology/Biology	NA	263.04	331.60	612.11
Toxicology ante-mortem (excluding BAC)	302.8	215.06	275.33	432.96
Toxicology postmortem (excluding BAC)	NA	226.35	336.30	480.27
Trace Evidence	NA	38.14	72.57	145.58

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	1,590.2	1,026.60	1,593.33	2,330.79
Crime Scene Investigation	NA	24.58	93.18	2,239.23
Digital evidence	NA	27.30	61.08	89.40
DNA Casework	NA	268.87	898.06	1,982.89
DNA Database	NA	886.17	2,052.44	2,903.16
Document Examination	372.5	196.64	372.47	657.60
Drugs - Controlled Substances	1,728.1	1,265.63	2,285.22	3,403.09
Evidence Screening & Processing	NA	372.50	1,098.13	1,893.23
Explosives	NA	61.29	94.89	459.87
Fingerprints	10,011.0	142.13	583.05	2,540.39
Fingerprints Database (including IAFIS)	NA	575.75	1,498.79	2,758.30
Fire analysis	891.6	98.46	168.57	515.55
Firearms and Ballistics	535.6	296.64	623.41	871.73
Firearms Database (including NIBIN)	NA	808.43	1,006.76	1,070.55
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	166.78	505.06	697.02
Marks and Impressions	NA	41.75	86.67	134.81
Serology/Biology	NA	354.34	611.82	1,234.26
Toxicology ante-mortem (excluding BAC)	914.7	611.39	841.90	1,056.82
Toxicology postmortem (excluding BAC)	NA	659.87	677.88	730.82
Trace Evidence	NA	73.36	217.72	1,294.48

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	793.2	663.34	824.80	1,187.40
Crime Scene Investigation	NA	12.64	20.31	23.15
Digital evidence	NA	28.24	53.97	119.81
DNA Casework	NA	60.25	98.73	122.75
DNA Database	NA	16.64	146.25	1,522.49
Document Examination	50.3	25.57	30.32	36.50
Drugs - Controlled Substances	415.7	243.95	387.41	509.55
Evidence Screening & Processing	NA	122.51	123.27	235.90
Explosives	NA	7.92	13.15	13.63
Fingerprints	104.4	69.25	92.03	130.13
Fingerprints Database (including IAFIS)	NA	153.62	191.74	258.74
Fire analysis	121.8	38.43	58.32	105.24
Firearms and Ballistics	84.5	52.58	84.49	145.20
Firearms Database (including NIBIN)	NA	272.38	425.28	569.92
Forensic Pathology	NA	75.94	122.15	250.74
Gun Shot Residue (GSR)	NA	27.46	74.35	108.07
Marks and Impressions	NA	12.83	36.23	54.86
Serology/Biology	NA	57.60	110.09	196.44
Toxicology ante-mortem (excluding BAC)	302.8	209.93	284.24	456.07
Toxicology postmortem (excluding BAC)	NA	176.06	229.66	257.38
Trace Evidence	NA	15.87	23.56	38.82

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	75.89%	66.85%	72.09%	77.63%
Crime Scene Investigation	82.20%	66.97%	76.18%	84.31%
Digital evidence	NA	66.41%	76.14%	88.66%
DNA Casework	NA	64.64%	71.33%	78.31%
DNA Database	NA	52.41%	68.35%	71.94%
Document Examination	85.81%	71.99%	73.56%	79.60%
Drugs - Controlled Substances	80.29%	69.79%	74.88%	80.27%
Evidence Screening & Processing	NA	64.61%	73.70%	82.81%
Explosives	NA	68.55%	71.43%	75.37%
Fingerprints	78.95%	70.68%	75.96%	85.26%
Fingerprints Database (including IAFIS)	NA	77.99%	85.23%	90.02%
Fire analysis	80.47%	67.23%	72.83%	80.23%
Firearms and Ballistics	85.89%	68.29%	75.08%	85.53%
Firearms Database (including NIBIN)	NA	68.38%	74.01%	89.21%
Forensic Pathology	NA	74.00%	77.12%	89.09%
Gun Shot Residue (GSR)	NA	63.02%	71.37%	77.86%
Marks and Impressions	NA	70.82%	77.03%	87.77%
Serology/Biology	NA	66.70%	71.82%	84.21%
Toxicology ante-mortem (excluding BAC)	75.10%	57.01%	68.62%	74.40%
Toxicology postmortem (excluding BAC)	NA	61.97%	68.35%	77.79%
Trace Evidence	NA	66.07%	72.69%	79.86%

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	0.62%	2.71%	5.46%	8.66%
Crime Scene Investigation	0.58%	2.43%	3.68%	8.26%
Digital evidence	NA	2.71%	6.34%	16.20%
DNA Casework	NA	2.74%	4.66%	8.49%
DNA Database	NA	2.08%	4.21%	9.01%
Document Examination	0.64%	1.90%	6.36%	10.11%
Drugs - Controlled Substances	0.81%	2.85%	6.42%	8.81%
Evidence Screening & Processing	NA	3.52%	6.99%	12.57%
Explosives	NA	1.39%	2.22%	9.42%
Fingerprints	4.18%	2.50%	6.36%	8.53%
Fingerprints Database (including IAFIS)	NA	0.75%	3.01%	8.84%
Fire analysis	0.65%	1.71%	3.47%	9.00%
Firearms and Ballistics	0.61%	2.82%	4.04%	8.60%
Firearms Database (including NIBIN)	NA	1.63%	3.81%	5.89%
Forensic Pathology	NA	0.92%	2.67%	4.16%
Gun Shot Residue (GSR)	NA	2.14%	7.68%	16.70%
Marks and Impressions	NA	1.73%	2.88%	5.13%
Serology/Biology	NA	2.02%	3.84%	8.06%
Toxicology ante-mortem (excluding BAC)	0.56%	2.92%	6.09%	10.53%
Toxicology postmortem (excluding BAC)	NA	1.24%	3.62%	9.54%
Trace Evidence	NA	2.25%	4.97%	8.37%

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	10.52%	3.98%	6.90%	14.84%
Crime Scene Investigation	4.92%	2.38%	6.28%	12.25%
Digital evidence	NA	0.32%	1.26%	3.84%
DNA Casework	NA	6.00%	12.42%	20.98%
DNA Database	NA	11.23%	20.29%	24.64%
Document Examination	0.06%	2.11%	3.66%	8.59%
Drugs - Controlled Substances	1.85%	3.74%	5.71%	11.38%
Evidence Screening & Processing	NA	0.63%	2.78%	6.39%
Explosives	NA	2.77%	5.46%	20.22%
Fingerprints	1.22%	1.35%	4.27%	9.52%
Fingerprints Database (including IAFIS)	NA	0.58%	2.26%	2.54%
Fire analysis	5.14%	2.83%	6.12%	10.78%
Firearms and Ballistics	0.74%	1.45%	4.01%	10.89%
Firearms Database (including NIBIN)	NA	0.69%	2.98%	16.78%
Forensic Pathology	NA	0.83%	2.15%	5.60%
Gun Shot Residue (GSR)	NA	2.21%	4.40%	18.39%
Marks and Impressions	NA	1.90%	5.90%	8.89%
Serology/Biology	NA	2.61%	5.84%	15.68%
Toxicology ante-mortem (excluding BAC)	12.59%	7.96%	10.93%	19.45%
Toxicology postmortem (excluding BAC)	NA	3.54%	8.27%	13.81%
Trace Evidence	NA	2.77%	6.23%	19.73%

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	12.98%	4.71%	8.32%	12.98%
Crime Scene Investigation	12.29%	3.00%	5.61%	13.44%
Digital evidence	NA	2.78%	7.17%	17.12%
DNA Casework	NA	3.44%	7.05%	12.71%
DNA Database	NA	4.39%	5.85%	15.71%
Document Examination	13.49%	5.16%	8.42%	15.93%
Drugs - Controlled Substances	17.05%	3.96%	8.92%	12.75%
Evidence Screening & Processing	NA	6.79%	9.72%	18.41%
Explosives	NA	5.14%	9.16%	13.93%
Fingerprints	15.65%	3.39%	6.44%	13.26%
Fingerprints Database (including IAFIS)	NA	2.46%	7.39%	11.85%
Fire analysis	13.75%	3.19%	6.50%	13.75%
Firearms and Ballistics	12.77%	3.96%	8.27%	13.68%
Firearms Database (including NIBIN)	NA	2.89%	4.86%	14.13%
Forensic Pathology	NA	5.94%	10.62%	16.48%
Gun Shot Residue (GSR)	NA	3.19%	5.96%	12.29%
Marks and Impressions	NA	4.66%	5.39%	15.89%
Serology/Biology	NA	3.05%	5.42%	14.18%
Toxicology ante-mortem (excluding BAC)	11.75%	3.93%	7.94%	16.64%
Toxicology postmortem (excluding BAC)	NA	4.59%	10.82%	17.47%
Trace Evidence	NA	3.14%	6.59%	13.56%

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	$137.23	$92.88	$124.91	$316.52
Crime Scene Investigation	$4,910.13	$1,967.44	$5,482.79	$8,623.84
Digital evidence	NA	$937.28	$2,147.22	$3,310.44
DNA Casework	NA	$900.44	$1,135.83	$1,828.27
DNA Database	NA	$37.11	$61.71	$107.40
Document Examination	$2,435.27	$1,305.47	$2,455.53	$3,281.10
Drugs - Controlled Substances	$212.18	$193.11	$295.62	$466.85
Evidence Screening & Processing	NA	$100.24	$477.73	$1,014.11
Explosives	NA	$1,967.14	$3,409.06	$8,243.31
Fingerprints	$931.03	$917.84	$1,189.06	$1,696.85
Fingerprints Database (including IAFIS)	NA	$268.62	$613.02	$928.41
Fire analysis	$890.19	$897.14	$1,367.15	$2,160.26
Firearms and Ballistics	$1,411.27	$983.44	$1,575.46	$3,154.77
Firearms Database (including NIBIN)	NA	$91.29	$226.17	$619.94
Forensic Pathology	NA	$1,129.03	$1,942.30	$3,793.13
Gun Shot Residue (GSR)	NA	$628.84	$1,078.47	$1,850.60
Marks and Impressions	NA	$1,767.52	$2,551.27	$5,587.64
Serology/Biology	NA	$355.87	$881.47	$1,092.31
Toxicology ante-mortem (excluding BAC)	$310.58	$300.02	$382.36	$538.71
Toxicology postmortem (excluding BAC)	NA	$296.81	$363.60	$648.54
Trace Evidence	NA	$1,948.07	$3,015.55	$5,329.11

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	$1.11	$2.77	$7.89	$28.68
Crime Scene Investigation	$34.79	$48.47	$273.30	$780.87
Digital evidence	NA	$43.75	$153.37	$726.80
DNA Casework	NA	$38.97	$81.74	$144.65
DNA Database	NA	$2.30	$4.58	$11.72
Document Examination	$18.15	$24.73	$129.62	$359.11
Drugs - Controlled Substances	$2.13	$8.66	$22.86	$39.22
Evidence Screening & Processing	NA	$14.97	$28.00	$44.15
Explosives	NA	$29.01	$192.15	$717.66
Fingerprints	$49.32	$22.29	$84.29	$160.06
Fingerprints Database (including IAFIS)	NA	$3.23	$7.70	$51.57
Fire analysis	$7.21	$24.53	$69.11	$164.55
Firearms and Ballistics	$9.94	$37.01	$92.40	$193.86
Firearms Database (including NIBIN)	NA	$1.07	$10.32	$27.64
Forensic Pathology	NA	$32.52	$92.07	$152.71
Gun Shot Residue (GSR)	NA	$51.67	$106.14	$253.49
Marks and Impressions	NA	$49.95	$124.04	$360.38
Serology/Biology	NA	$16.67	$30.13	$76.87
Toxicology ante-mortem (excluding BAC)	$2.30	$11.87	$28.88	$56.88
Toxicology postmortem (excluding BAC)	NA	$8.54	$17.11	$82.78
Trace Evidence	NA	$119.29	$216.12	$488.96

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	$19.02	$6.61	$17.08	$31.47
Crime Scene Investigation	$293.94	$80.49	$330.22	$876.72
Digital evidence	NA	$5.55	$59.71	$170.48
DNA Casework	NA	$93.29	$205.57	$335.22
DNA Database	NA	$9.48	$13.43	$29.82
Document Examination	$1.71	$63.22	$128.70	$171.91
Drugs - Controlled Substances	$4.90	$14.91	$25.74	$56.51
Evidence Screening & Processing	NA	$6.08	$12.46	$45.53
Explosives	NA	$300.50	$382.33	$524.96
Fingerprints	$14.39	$21.33	$57.15	$140.33
Fingerprints Database (including IAFIS)	NA	$1.01	$6.25	$36.04
Fire analysis	$56.82	$55.28	$149.67	$342.62
Firearms and Ballistics	$12.17	$20.53	$83.68	$312.84
Firearms Database (including NIBIN)	NA	$1.30	$7.84	$33.56
Forensic Pathology	NA	$24.06	$55.38	$99.93
Gun Shot Residue (GSR)	NA	$22.96	$60.14	$313.08
Marks and Impressions	NA	$116.06	$184.92	$373.66
Serology/Biology	NA	$25.69	$60.68	$134.63
Toxicology ante-mortem (excluding BAC)	$52.06	$27.68	$76.20	$127.26
Toxicology postmortem (excluding BAC)	NA	$13.37	$57.36	$117.15
Trace Evidence	NA	$157.26	$347.24	$856.20

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	$23.48	$7.10	$15.94	$33.59
Crime Scene Investigation	$734.23	$139.10	$758.15	$1,500.06
Digital evidence	NA	$49.52	$133.91	$640.27
DNA Casework	NA	$46.63	$119.70	$283.30
DNA Database	NA	$3.03	$7.40	$23.85
Document Examination	$383.00	$142.67	$258.51	$771.69
Drugs - Controlled Substances	$45.04	$12.71	$25.64	$58.59
Evidence Screening & Processing	NA	$16.85	$74.48	$92.41
Explosives	NA	$277.58	$534.17	$910.48
Fingerprints	$184.55	$26.94	$111.11	$247.26
Fingerprints Database (including IAFIS)	NA	$9.43	$28.77	$127.68
Fire analysis	$152.06	$56.74	$106.20	$292.98
Firearms and Ballistics	$209.81	$75.08	$194.56	$331.60
Firearms Database (including NIBIN)	NA	$3.58	$27.27	$60.23
Forensic Pathology	NA	$206.59	$264.47	$472.01
Gun Shot Residue (GSR)	NA	$63.47	$78.41	$271.08
Marks and Impressions	NA	$122.33	$139.33	$742.83
Serology/Biology	NA	$23.19	$39.86	$120.96
Toxicology ante-mortem (excluding BAC)	$48.60	$21.86	$29.71	$88.71
Toxicology postmortem (excluding BAC)	NA	$34.04	$54.65	$109.93
Trace Evidence	NA	$157.92	$274.20	$552.78

Personnel Expenditures per Sample

Note that **compensation** includes all personnel expenditures. This includes wages, salary, and benefits for 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	$141.95	$96.52	$106.79	$153.84
Crime Scene Investigation	NA	$36.78	$323.59	$8,287.15
Digital evidence	NA	$80.98	$520.78	$1,692.38
DNA Casework	NA	$213.01	$327.22	$452.78
DNA Database	NA	$30.25	$42.10	$58.99
Document Examination	$161.34	$184.16	$310.35	$507.16
Drugs - Controlled Substances	$156.09	$71.65	$102.39	$157.59
Evidence Screening & Processing	NA	$90.03	$253.81	$345.30
Explosives	NA	$942.86	$2,429.39	$10,097.26
Fingerprints	$176.05	$165.22	$288.05	$1,046.98
Fingerprints Database (including IAFIS)	$0.00	$24.77	$54.11	$374.17
Fire analysis	$208.51	$208.51	$1,312.11	$2,389.69
Firearms and Ballistics	$151.14	$151.96	$256.98	$381.48
Firearms Database (including NIBIN)	$0.00	$29.09	$98.46	$163.40
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	$135.00	$224.30	$1,340.90
Marks and Impressions	NA	$1,841.15	$2,235.24	$3,745.58
Serology/Biology	NA	$173.03	$282.31	$457.95
Toxicology ante-mortem (excluding BAC)	$406.53	$144.40	$381.32	$534.92
Toxicology postmortem (excluding BAC)	NA	$132.76	$155.03	$432.93
Trace Evidence	NA	$853.59	$1,361.02	$2,795.14

Capital Expenditures per Sample

Capital expenditures refer to 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	$1.15	$1.32	$6.11	$13.97
Crime Scene Investigation	NA	$1.21	$30.31	$227.04
Digital evidence	NA	$28.32	$127.84	$139.32
DNA Casework	NA	$13.64	$26.27	$42.65
DNA Database	NA	$2.97	$4.16	$11.32
Document Examination	$1.20	$0.90	$2.94	$38.45
Drugs - Controlled Substances	$1.57	$3.41	$9.44	$16.53
Evidence Screening & Processing	NA	$5.40	$11.78	$13.59
Explosives	NA	$105.08	$163.69	$429.38
Fingerprints	$9.33	$7.28	$14.32	$44.56
Fingerprints Database (including IAFIS)	$0.00	$0.00	$0.57	$1.99
Fire analysis	$1.69	$2.56	$38.81	$80.43
Firearms and Ballistics	$1.06	$6.21	$14.72	$22.77
Firearms Database (including NIBIN)	$0.00	$1.93	$5.67	$8.65
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	$25.96	$51.69	$264.18
Marks and Impressions	NA	$66.89	$131.55	$215.89
Serology/Biology	NA	$4.72	$14.45	$28.78
Toxicology ante-mortem (excluding BAC)	$3.01	$6.04	$17.44	$29.36
Toxicology postmortem (excluding BAC)	NA	$3.57	$12.11	$103.11
Trace Evidence	NA	$20.24	$107.37	$166.23

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	$19.67	$7.70	$19.38	$64.11
Crime Scene Investigation	NA	$2.47	$16.43	$137.11
Digital evidence	NA	$9.22	$32.12	$62.47
DNA Casework	NA	$39.04	$74.14	$128.98
DNA Database	NA	$22.39	$28.96	$41.22
Document Examination	$0.11	$10.33	$18.37	$28.04
Drugs - Controlled Substances	$3.60	$5.78	$9.29	$14.57
Evidence Screening & Processing	NA	$8.47	$9.06	$34.88
Explosives	NA	$60.31	$199.32	$381.20
Fingerprints	$2.72	$5.41	$8.51	$35.75
Fingerprints Database (including IAFIS)	$0.00	$0.00	$0.18	$0.81
Fire analysis	$13.31	$30.21	$97.54	$150.20
Firearms and Ballistics	$1.30	$2.32	$8.93	$20.64
Firearms Database (including NIBIN)	$0.00	$0.43	$1.12	$3.29
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	$15.83	$28.76	$58.26
Marks and Impressions	NA	$29.07	$108.12	$232.55
Serology/Biology	NA	$3.97	$19.67	$24.91
Toxicology ante-mortem (excluding BAC)	$68.14	$27.17	$63.78	$101.15
Toxicology postmortem (excluding BAC)	NA	$26.63	$46.98	$66.97
Trace Evidence	NA	$64.03	$82.09	$152.90

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	$24.28	$8.85	$22.66	$39.04
Crime Scene Investigation	NA	$0.33	$90.43	$1,191.53
Digital evidence	NA	$0.00	$12.34	$42.12
DNA Casework	NA	$8.12	$29.87	$109.24
DNA Database	NA	$4.71	$7.32	$21.73
Document Examination	$25.37	$25.31	$33.13	$165.84
Drugs - Controlled Substances	$33.13	$4.67	$14.37	$36.72
Evidence Screening & Processing	NA	$16.24	$24.65	$35.63
Explosives	NA	$127.64	$380.97	$620.99
Fingerprints	$34.90	$3.85	$34.90	$146.92
Fingerprints Database (including IAFIS)	$0.00	$0.37	$3.87	$9.22
Fire analysis	$35.62	$6.79	$35.62	$234.97
Firearms and Ballistics	$22.47	$5.08	$23.37	$46.71
Firearms Database (including NIBIN)	$0.00	$0.00	$1.69	$11.50
Forensic Pathology	NA			
Gun Shot Residue (GSR)	NA	$11.53	$37.49	$58.71
Marks and Impressions	NA	$30.50	$299.23	$670.23
Serology/Biology	NA	$3.60	$38.29	$64.46
Toxicology ante-mortem (excluding BAC)	$63.61	$17.28	$34.02	$127.38
Toxicology postmortem (excluding BAC)	NA	$15.24	$24.63	$72.21
Trace Evidence	NA	$27.75	$97.54	$345.01

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	12	12	22	27
Crime Scene Investigation	NA	81	81	81
Digital evidence	NA	35	54	65
DNA Casework	NA	60	67	246
DNA Database	NA	29	51	103
Document Examination	92	82	92	239
Drugs - Controlled Substances	14	36	46	68
Evidence Screening & Processing	NA	31	52	72
Explosives	NA	41	44	48
Fingerprints	154	53	71	105
Fingerprints Database (including IAFIS)	NA	7	8	8
Fire analysis	14	20	33	52
Firearms and Ballistics	28	24	34	54
Firearms Database (including NIBIN)	NA	2	2	6
Forensic Pathology	NA	29	29	29
Gun Shot Residue (GSR)	NA	39	46	48
Marks and Impressions	NA	67	69	70
Serology/Biology	NA	55	69	118
Toxicology ante-mortem (excluding BAC)	27	27	33	46
Toxicology postmortem (excluding BAC)	NA	31	35	47
Trace Evidence	NA	60	67	72

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	11	13	22	27
Crime Scene Investigation	NA	15	29	48
Digital evidence	NA	22	50	126
DNA Casework	NA	73	125	249
DNA Database	NA	16	59	101
Document Examination	34	46	77	88
Drugs - Controlled Substances	13	28	40	61
Evidence Screening & Processing	NA	37	62	75
Explosives	NA	42	52	117
Fingerprints	135	24	84	143
Fingerprints Database (including IAFIS)	NA	8	31	63
Fire analysis	10	18	30	45
Firearms and Ballistics	12	25	104	140
Firearms Database (including NIBIN)	NA	1	9	22
Forensic Pathology	NA	28	28	29
Gun Shot Residue (GSR)	NA	30	45	179
Marks and Impressions	NA	65	84	199
Serology/Biology	NA	52	100	152
Toxicology ante-mortem (excluding BAC)	26	25	42	84
Toxicology postmortem (excluding BAC)	NA	24	36	50
Trace Evidence	NA	71	197	263

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	NA	0.53%	2.20%	4.48%
Crime Scene Investigation	NA	1.85%	5.32%	7.24%
Digital evidence	NA	3.08%	7.32%	13.36%
DNA Casework	NA	6.35%	18.87%	62.99%
DNA Database	NA	0.95%	19.97%	77.22%
Document Examination	NA	4.36%	10.90%	16.77%
Drugs - Controlled Substances	0.07%	1.90%	4.86%	11.16%
Evidence Screening & Processing	NA	5.70%	8.59%	302.86%
Explosives	NA	66.67%	77.78%	88.89%
Fingerprints	20.33%	5.62%	14.83%	32.12%
Fingerprints Database (including IAFIS)	NA	3.64%	8.97%	99.55%
Fire analysis	NA	1.82%	4.68%	8.95%
Firearms and Ballistics	2.45%	6.31%	17.57%	42.89%
Firearms Database (including NIBIN)	NA	0.52%	1.12%	2.84%
Forensic Pathology	NA	0.65%	1.43%	2.06%
Gun Shot Residue (GSR)	NA	7.00%	24.15%	84.98%
Marks and Impressions	NA	30.95%	38.89%	133.33%
Serology/Biology	NA	1.71%	7.96%	29.55%
Toxicology ante-mortem (excluding BAC)	0.06%	0.52%	3.93%	10.91%
Toxicology postmortem (excluding BAC)	NA	0.59%	1.37%	4.17%
Trace Evidence	NA	17.24%	30.00%	127.27%

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	77.50	273.00	534.50
Mobile	N/A	89.00	254.00	509.50
Computer	N/A	16.50	36.00	85.50
Video	N/A	20.75	40.50	85.25
Mass Storage	N/A	2.00	9.00	13.00
Internet of Things	N/A	6.00	13.00	35.00
Reports				
Total		77.25	194.50	475.00
Mobile	N/A	85.75	195.50	563.75
Computer	N/A	10.00	26.00	76.00
Video	N/A	15.25	38.00	80.25
Mass Storage	N/A	0.50	3.00	53.50
Internet of Things	N/A	5.25	9.50	29.00
FTE				
Total		2.08	3.57	6.55
Mobile	N/A	0.56	1.31	3.38
Computer	N/A	0.99	1.50	4.86
Video	N/A	1.01	1.90	4.45
Mass Storage	N/A	0.17	0.64	1.73
Internet of Things	N/A	0.72	1.05	1.71

Table 44: Digital Evidence Level II Metrics

Digital Evidence Level II Metrics				
Measure	**Idaho**	**25th percentile**	**Median**	**75th percentile**
Turnaround Time (days)				
Total	NA	22	50	126
Mobile	N/A	7	9	37
Computer	N/A	35	79	137
Video	N/A	19	46	125
Mass Storage	N/A	0.00	16.00	59.25
Internet of Things	N/A	35	44	108
Gigabytes Examined				
Total	N/A	5,679	19,775	48,789
Mobile	N/A	0	1,949	13,452
Computer	N/A	0	8	25,856
Video	N/A	0	1,212	12,944
Mass Storage	N/A	0	0	1,562
Internet of Things	N/A	0	25	56
Personnel Time Allocation				
Casework	N/A	65.00%	67.63%	78.75%
Technical Review	N/A	5.00%	5.09%	10.00%
Testimony & Testimony Preparation	N/A	2.00%	3.02%	5.21%
Training	N/A	1.29%	3.75%	5.00%
Continuing Education	N/A	2.13%	4.64%	10.00%
Non-Digital Evidence Duties	N/A	0.25%	2.50%	8.82%
Other	N/A	0.00%	0.00%	2.87%
Outside Agencies Assisted	N/A	6.00	8.00	40.50

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 2018-2025, 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 considered to identify the impacts of COVID-19, inflation, and the subsequent recovery. The arithmetic mean provides an average of 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.

Tables 45-47 use the arithmetic average of annual growth in case submissions, expenditures, and productivity. In particular, Table 45 demonstrates a steady growth in the demand for services for DNA casework, drug analysis, and firearms & ballistics analysis, with corresponding increased demand for databases (CODIS, IAFIS, and NIBIN), but a drop in requests for fingerprint identification. Table 46 highlights selected areas of investigation and the corresponding increase in expenditures over a time period that averaged 3.6% inflation in the general economy. Table 47 shows that productivity (Cases processed per FTE) grew across each area of investigation.

---

[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. (2025) Project FORESIGHT Annual Report, 2023-2024. https://researchrepository.wvu.edu/faculty_publications/3304/.
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/.
Speaker, P. J. (2022) Project FORESIGHT Annual Report, 2020-2021. https://researchrepository.wvu.edu/faculty_publications/3093/.
Speaker, P. J. (2021). Project FORESIGHT Annual Report, 2019-2020. https://researchrepository.wvu.edu/faculty_publications/3008/.
Speaker, P. J. (2020). Project FORESIGHT Annual Report, 2018-2019. https://researchrepository.wvu.edu/faculty_publications/2910/.
Speaker, P. J. (2019). Project FORESIGHT Annual Report, 2017-2018. https://researchrepository.wvu.edu/faculty_publications/1139/.

Table 45: Arithmetic Average Same Lab Annual Growth in Case Submissions (FY2018-FY2025)

Average Annual Growth in Case Submissions (FY2018-FY2025)	
Area of Investigation	**Average Annual Growth**
DNA Casework	13.90%
DNA Database	35.95%
Drugs - Controlled Substances	14.01%
Fingerprint Identification	-3.96%
Fingerprints Database (including IAFIS)	20.95%
Firearms and Ballistics	20.55%
Firearms Database (including NIBIN)	17.05%

Table 46: Arithmetic Average Same Lab Annual Growth in Expenditures (FY2018-FY2025)

Average Annual Growth in Expenditures (FY2018-FY2025)	
Area of Investigation	**Average Annual Growth**
DNA Casework	12.60%
DNA Database	-10.72%
Drugs - Controlled Substances	10.24%
Fingerprint Identification	0.68%
Fingerprints Database (including IAFIS)	1.52%
Firearms and Ballistics	2.72%
Firearms Database (including NIBIN)	0.82%

Table 47: Arithmetic Average Same Lab Annual Growth in Expenditures (FY2018-FY2025)

Average Annual Growth in Cases Processed/FTE (FY2018-FY2025)	
Area of Investigation	**Average Annual Growth**
DNA Casework	7.60%
DNA Database	22.48%
Drugs - Controlled Substances	12.64%
Fingerprint Identification	0.17%
Fingerprints Database (including IAFIS)	13.55%
Firearms and Ballistics	21.51%
Firearms Database (including NIBIN)	13.12%

Tables 48 – 50 highlight the pre- and post-COVID experience through the use of the geometric mean growth to show the growth trend. In spite of the growth in productivity (Table 47), and the growth in demand for services (Table 45), there was a demonstrated growth in turnaround time for each area of investigation (Table 48).

Table 48: Geometric Average Annual Growth in Turnaround Time (FY2018-FY2025)

Annual Growth in Turnaround Time (FY2018-FY2025)	
Area of Investigation	**Geometric Annual Growth**
DNA Casework	9.55%
DNA Database	15.79%
Drugs - Controlled Substances	15.05%
Fingerprint Identification	14.54%
Fingerprints Database (including IAFIS)	15.24%
Firearms and Ballistics	13.43%
Firearms Database (including NIBIN)	17.36%

The resulting growth in cases open more than 30 days is highlighted in Table 49.

Table 49: Geometric Average Annual Growth in Cases Open 30+ Days (FY2018-FT2025)

Annual Growth in Cases Open 30+ Days (FY2018-FY2025)	
Area of Investigation	**Geometric Annual Growth**
DNA Casework	0.24%
DNA Database	58.16%
Drugs - Controlled Substances	6.29%
Fingerprint Identification	16.35%
Fingerprints Database (including IAFIS)	114.46%
Firearms and Ballistics	3.07%
Firearms Database (including NIBIN)	34.02%

Table 50: Geometric Average Annual Growth in FTE (FY2018-FY2025)

Annual Growth in FTE (FY2018-FY2025)	
Area of Investigation	**Geometric Annual Growth**
DNA Casework	5.45%
DNA Database	11.80%
Drugs - Controlled Substances	0.94%
Fingerprint Identification	-3.12%
Fingerprints Database (including IAFIS)	5.34%
Firearms and Ballistics	-1.57%
Firearms Database (including NIBIN)	4.09%

While there has been some growth in personnel (Table 50), it has not been enough to keep up with the growing demand for services.

Efficiency and Cost Effectiveness of Forensic Science Services—FORESIGHT 2024-2025 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.

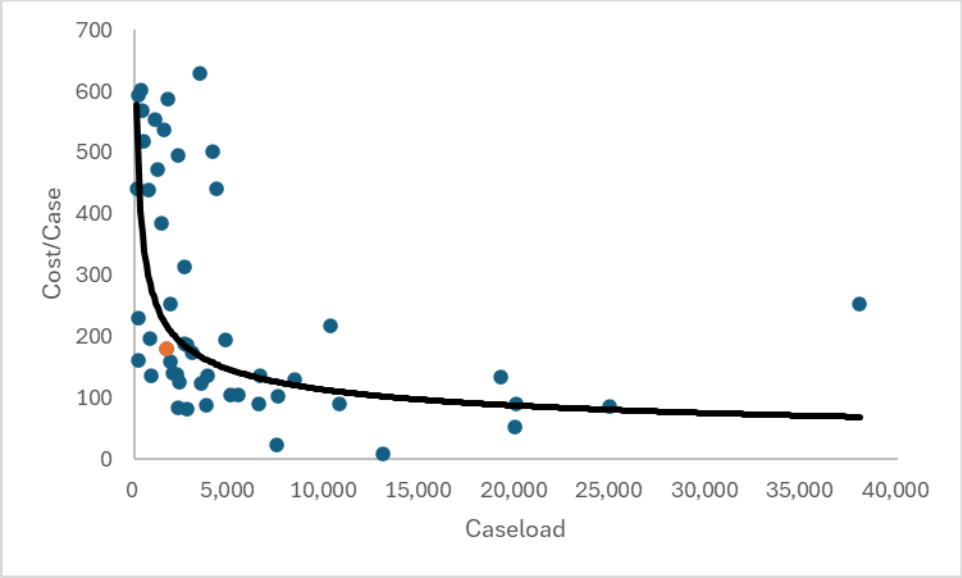
For each investigative area, the industry average total cost curve has been estimated by a series of non-linear regressions. When a laboratory performs on or near the curve, it is an indication of efficiency for the corresponding caseload. For an efficient performance that is near the bottom of the U-shaped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



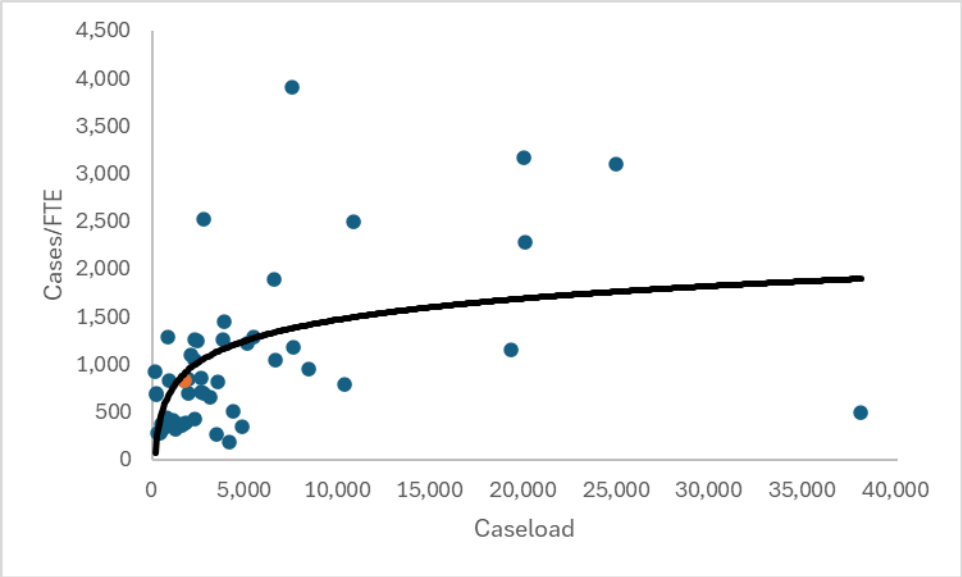


Figure 6: Efficient Frontier for Blood Alcohol Analysis—Cases/FTE v. Cases Processed

Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 51: 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	$626	298	7,500	$125	1,170
200	$483	371	8,500	$120	1,217
300	$416	422	9,500	$115	1,261
400	$373	462	10,500	$111	1,301
500	$344	496	11,500	$107	1,339
600	$321	526	12,500	$104	1,375
700	$303	552	13,500	$101	1,409
800	$288	576	14,500	$98	1,442
900	$276	598	15,500	$96	1,472
1,000	$265	618	16,500	$93	1,502
1,250	$244	663	17,500	$91	1,530
1,500	$228	703	18,500	$90	1,557
1,750	$216	738	19,500	$88	1,583
2,000	$205	770	20,500	$86	1,609
2,250	$196	799	21,500	$85	1,633
2,500	$189	826	22,500	$83	1,657
2,750	$182	852	23,500	$82	1,680
3,000	$176	875	24,500	$81	1,702
3,250	$171	898	25,500	$79	1,724
3,500	$167	919	26,500	$78	1,745
4,500	$152	995	27,500	$77	1,765
5,500	$141	1,060	29,000	$76	1,795
6,500	$132	1,118	30,500	$74	1,824

Crime Scene Investigation

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

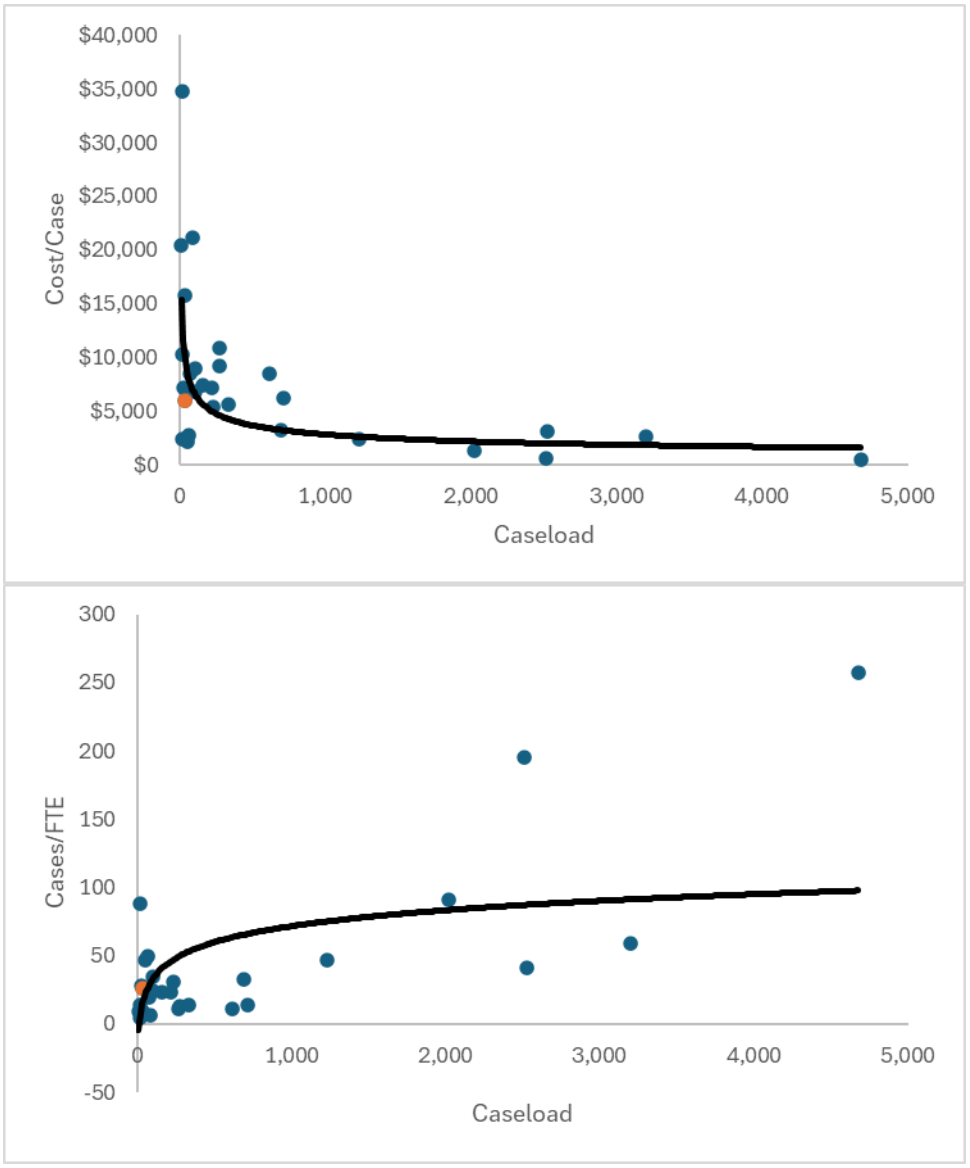


Figure 8: Efficient Frontier Crime Scene Investigation—Cases/FTE v. Caseload

Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 52: 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	$20,797	9	400	$3,998	33
10	$16,022	11	450	$3,825	34
15	$13,755	13	500	$3,676	35
20	$12,343	14	600	$3,432	37
25	$11,349	15	700	$3,239	39
30	$10,597	15	800	$3,080	40
35	$9,999	16	900	$2,947	42
40	$9,509	17	1,000	$2,832	43
45	$9,097	17	1,100	$2,732	44
50	$8,744	18	1,200	$2,644	45
55	$8,435	18	1,300	$2,566	46
60	$8,164	19	1,400	$2,495	48
65	$7,922	19	1,500	$2,431	48
70	$7,704	20	1,600	$2,373	49
75	$7,506	20	1,700	$2,319	50
100	$6,736	22	1,800	$2,270	51
125	$6,194	23	1,900	$2,224	52
150	$5,783	25	2,000	$2,182	53
175	$5,457	26	2,500	$2,006	56
200	$5,190	27	3,000	$1,873	59
250	$4,772	29	3,500	$1,768	62
300	$4,455	30	4,000	$1,681	65
350	$4,204	32	4,500	$1,608	67

Digital Evidence Analysis

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

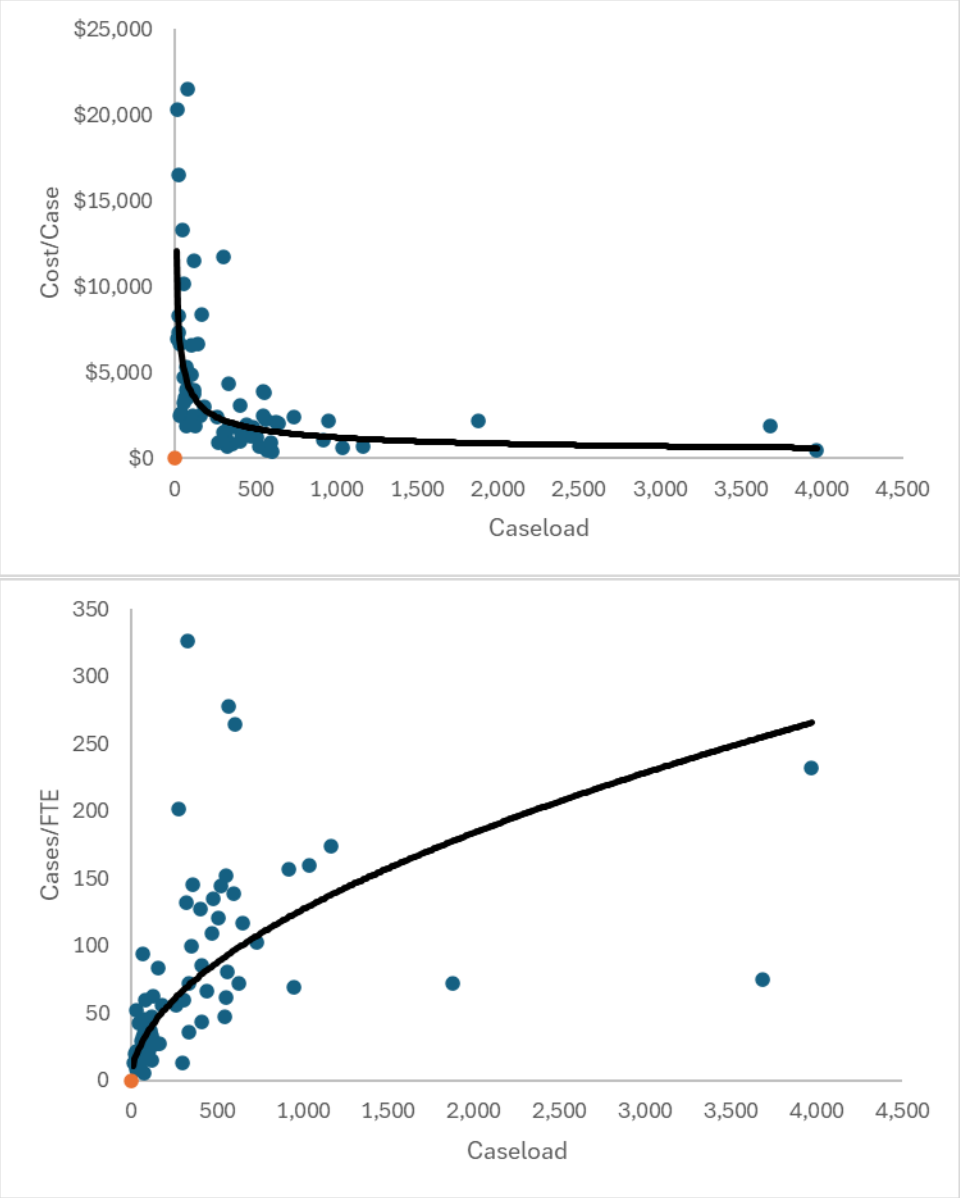


Figure 10: Efficient Frontier Digital Evidence Analysis—Cases/FTE v. Caseload

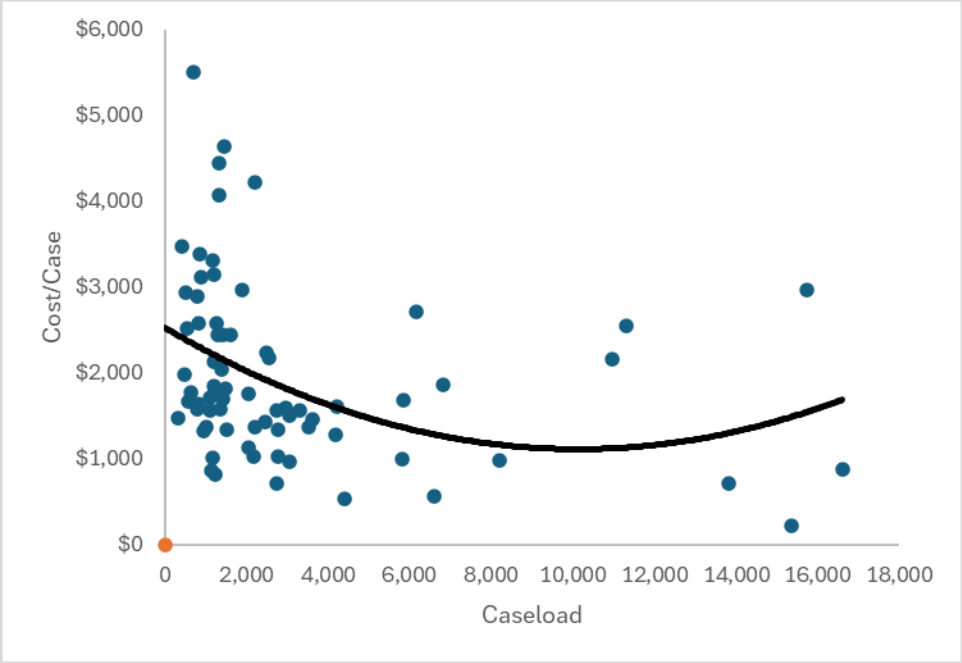
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 53: 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
5	$18,041	7	375	$1,981	75
10	$12,654	11	400	$1,916	78
15	$10,283	13	500	$1,710	88
20	$8,876	16	600	$1,557	96
25	$7,918	18	700	$1,439	105
30	$7,213	19	800	$1,344	113
40	$6,226	23	900	$1,266	120
50	$5,554	25	1,000	$1,199	127
60	$5,059	28	1,100	$1,142	133
70	$4,675	31	1,200	$1,092	140
80	$4,367	33	1,300	$1,049	146
90	$4,111	35	1,400	$1,010	152
100	$3,895	37	1,500	$975	158
125	$3,475	42	1,750	$901	171
150	$3,166	46	2,000	$841	184
175	$2,926	50	2,250	$792	196
200	$2,732	54	2,500	$750	207
225	$2,573	57	2,750	$715	218
250	$2,437	60	3,000	$684	228
275	$2,321	64	3,500	$632	248
300	$2,220	67	4,000	$590	267
325	$2,131	69	4,500	$555	284
350	$2,052	72	5,000	$526	300

DNA Casework Analysis

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



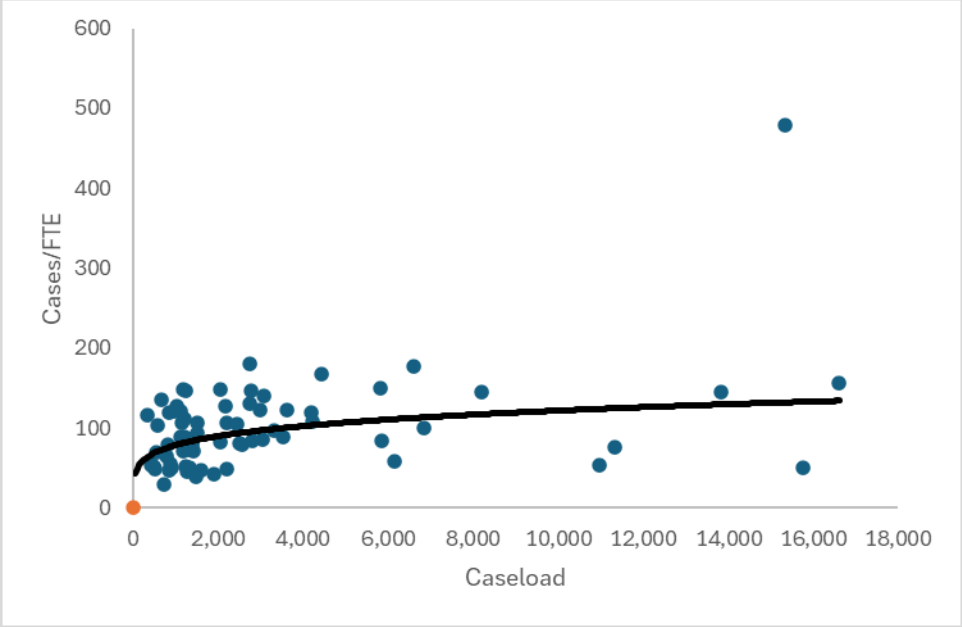


Figure 12: Efficient Frontier DNA Casework Analysis—Cases/FTE v. Caseload

Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 54: 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	$4,493	45	4,000	$1,426	102
100	$3,747	51	4,500	$1,383	105
200	$3,125	58	5,000	$1,346	107
300	$2,810	63	5,500	$1,312	109
400	$2,607	66	6,000	$1,283	110
500	$2,459	69	6,500	$1,256	112
600	$2,344	72	7,000	$1,232	114
700	$2,251	74	7,500	$1,210	115
800	$2,174	75	8,000	$1,190	117
900	$2,108	77	8,500	$1,171	118
1,000	$2,051	79	9,000	$1,154	119
1,100	$2,000	80	9,500	$1,137	121
1,200	$1,955	82	10,000	$1,122	122
1,300	$1,915	83	10,500	$1,108	123
1,400	$1,878	84	11,000	$1,095	124
1,500	$1,844	85	12,000	$1,070	126
1,750	$1,771	88	13,000	$1,048	128
2,000	$1,710	90	14,000	$1,028	130
2,250	$1,658	92	15,000	$1,009	131
2,500	$1,613	94	16,000	$992	133
2,750	$1,573	95	17,000	$977	135
3,000	$1,538	97	18,000	$962	136
3,500	$1,477	100	19,000	$949	137

DNA Database

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

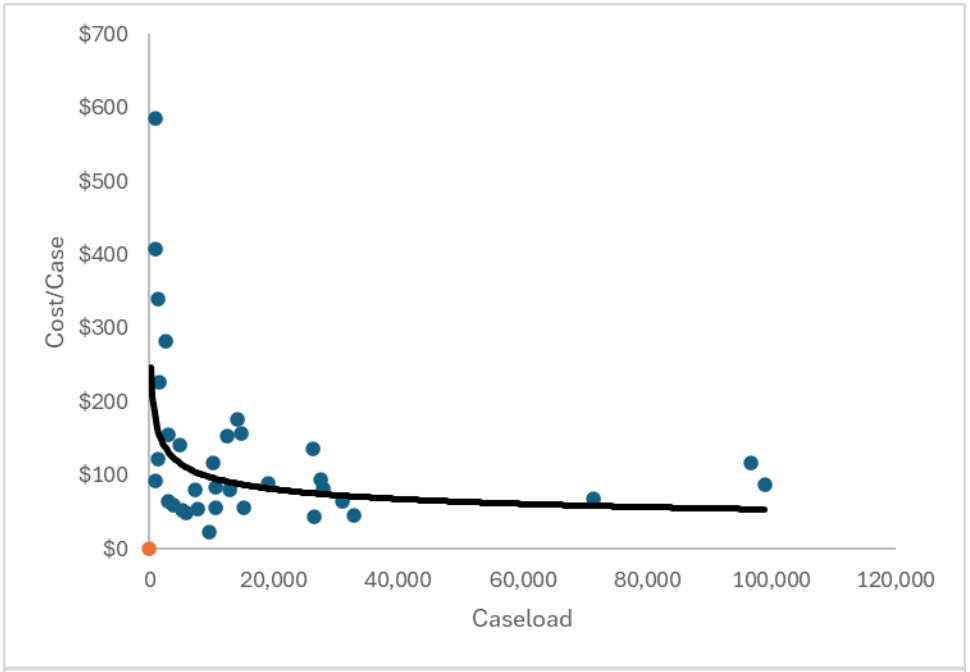


Figure 14: Efficient Frontier DNA Database—Cases/FTE v. Caseload

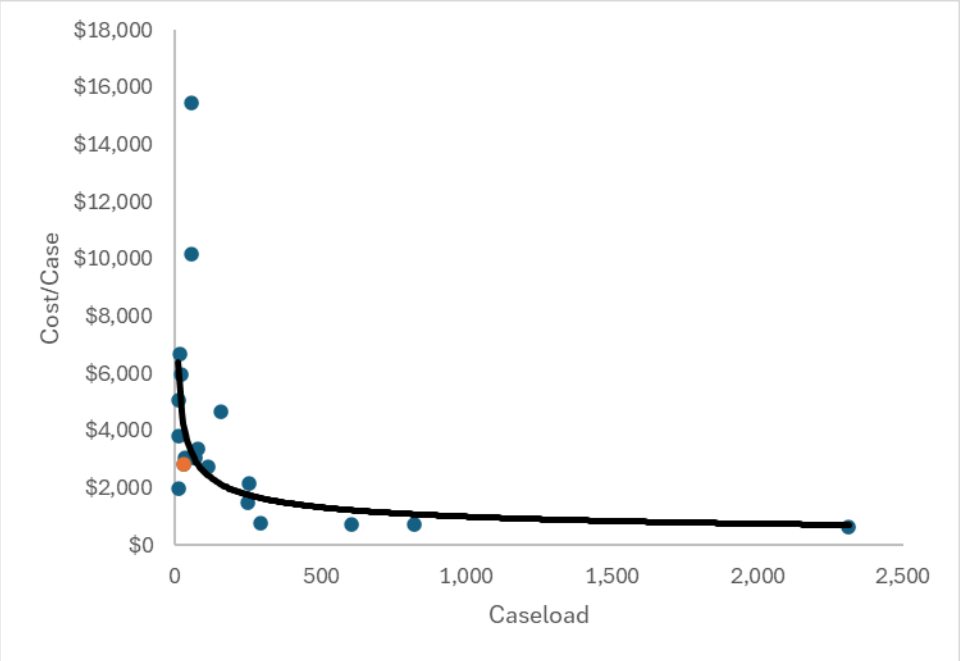
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

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

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$1,084	122	15,000	$87	1,884
200	$765	178	16,000	$85	1,951
300	$624	223	17,000	$82	2,017
400	$540	260	18,000	$80	2,081
500	$483	294	19,000	$78	2,143
1,000	$341	430	20,000	$76	2,204
1,500	$278	536	22,500	$71	2,351
2,000	$241	627	25,000	$68	2,487
2,500	$215	708	27,500	$64	2,582
3,000	$196	782	30,000	$62	2,669
3,500	$182	851	32,500	$59	2,750
4,000	$170	916	35,000	$57	2,823
4,500	$160	976	37,500	$55	2,888
5,000	$152	1,034	42,500	$52	2,998
6,000	$138	1,142	47,500	$49	3,079
7,000	$128	1,243	52,500	$47	3,131
8,000	$120	1,337	57,500	$44	3,154
9,000	$113	1,425	62,500	$43	3,149
10,000	$107	1,510	67,500	$41	3,114
11,000	$102	1,590	75,000	$39	3,008
12,000	$98	1,668	82,500	$37	2,836
13,000	$94	1,742	90,000	$36	2,600
14,000	$90	1,814	100,000	$34	2,184

Document Examination

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



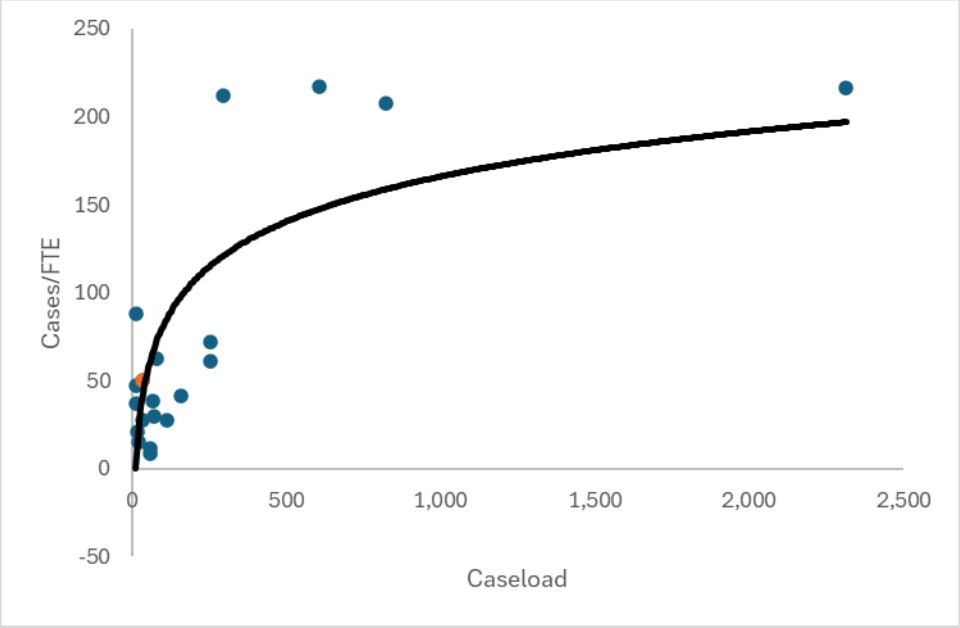


Figure 16: Efficient Frontier Document Examination—Cases/FTE v. Caseload

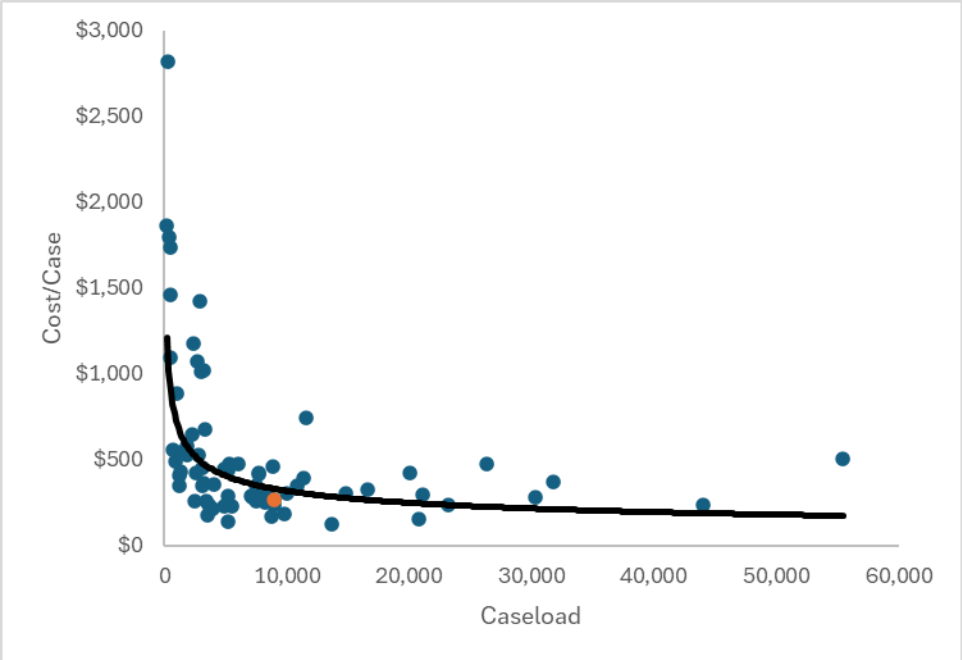
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 56: Efficient Frontier for Document Examination—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
2	$12,931	10	300	$1,632	115
4	$9,712	14	325	$1,579	122
6	$8,214	16	350	$1,531	129
8	$7,294	18	375	$1,488	135
10	$6,651	20	400	$1,449	142
15	$5,626	24	450	$1,380	154
20	$4,995	27	500	$1,322	166
25	$4,556	29	550	$1,271	178
30	$4,225	31	600	$1,226	189
40	$3,752	35	700	$1,150	208
50	$3,421	38	800	$1,088	226
60	$3,173	41	900	$1,037	242
70	$2,977	45	1,000	$993	255
80	$2,818	48	1,100	$954	266
90	$2,684	51	1,200	$921	274
100	$2,570	54	1,300	$891	281
125	$2,343	63	1,400	$864	285
150	$2,173	70	1,500	$840	286
175	$2,039	78	1,600	$817	286
200	$1,930	86	1,700	$797	283
225	$1,838	93	1,800	$779	278
250	$1,760	101	2,050	$738	255
275	$1,692	108	2,300	$704	218

Drugs—Controlled Substances Analysis

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



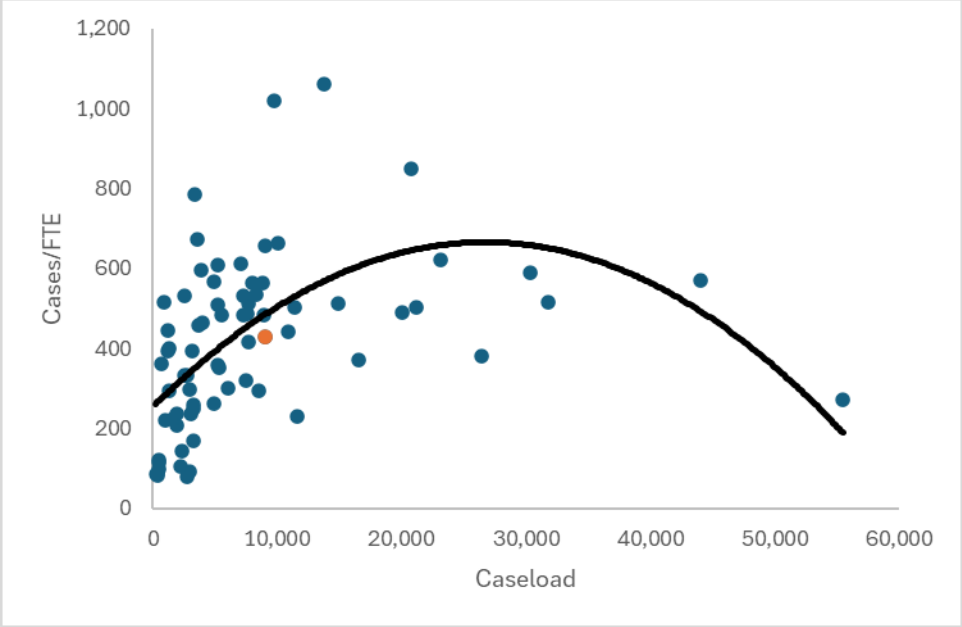


Figure 18: Efficient Frontier Drugs-Controlled Substances Analysis—Cases/FTE v. Caseload

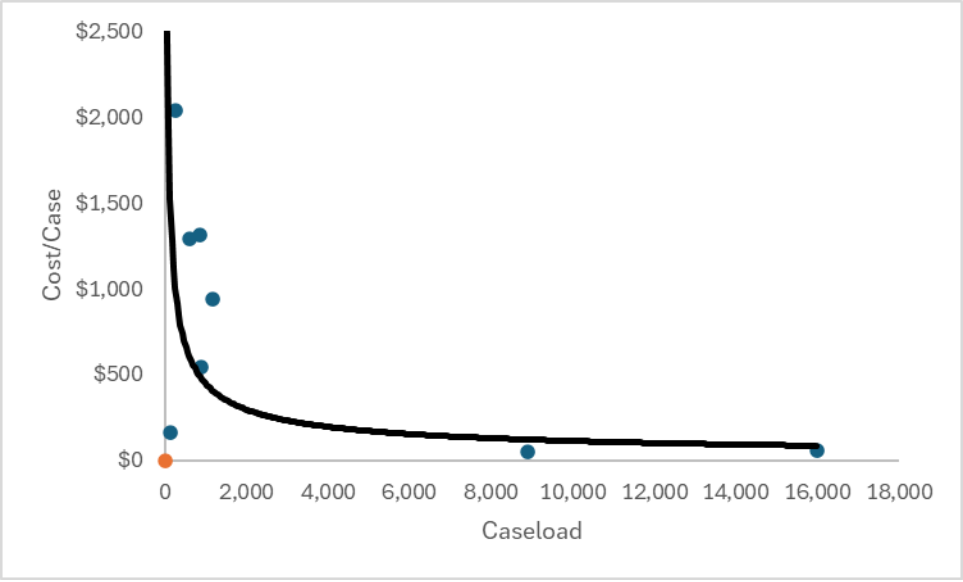
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 57: 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
200	$1,274	123	12,000	$298	488
300	$1,103	141	13,000	$290	501
400	$996	156	14,000	$282	514
500	$920	168	15,000	$275	526
600	$863	178	16,000	$269	537
850	$762	201	17,000	$263	548
1,000	$720	212	18,000	$258	559
1,250	$665	228	19,000	$253	569
1,500	$623	243	20,000	$249	579
1,750	$590	256	22,000	$240	598
2,000	$563	267	24,000	$233	615
2,500	$520	288	26,000	$227	632
3,000	$487	306	28,000	$221	648
3,500	$461	322	30,000	$215	660
4,000	$440	337	32,500	$209	647
4,500	$422	351	35,000	$204	626
5,000	$407	363	37,500	$199	599
6,000	$381	386	40,000	$194	564
7,000	$361	407	42,500	$190	522
8,000	$344	426	45,000	$186	473
9,000	$330	443	47,500	$183	417
10,000	$318	459	50,000	$180	353
11,000	$307	474	52,500	$177	283

Evidence Screening & Processing

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



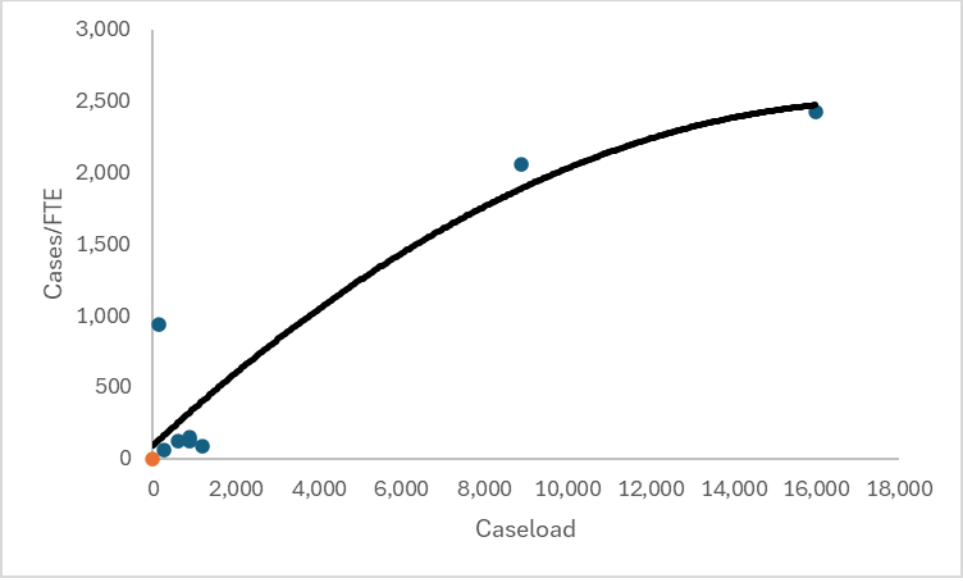


Figure 20: Efficient Frontier for Evidence Screening & Processing — Cases/FTE v. Caseload

Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

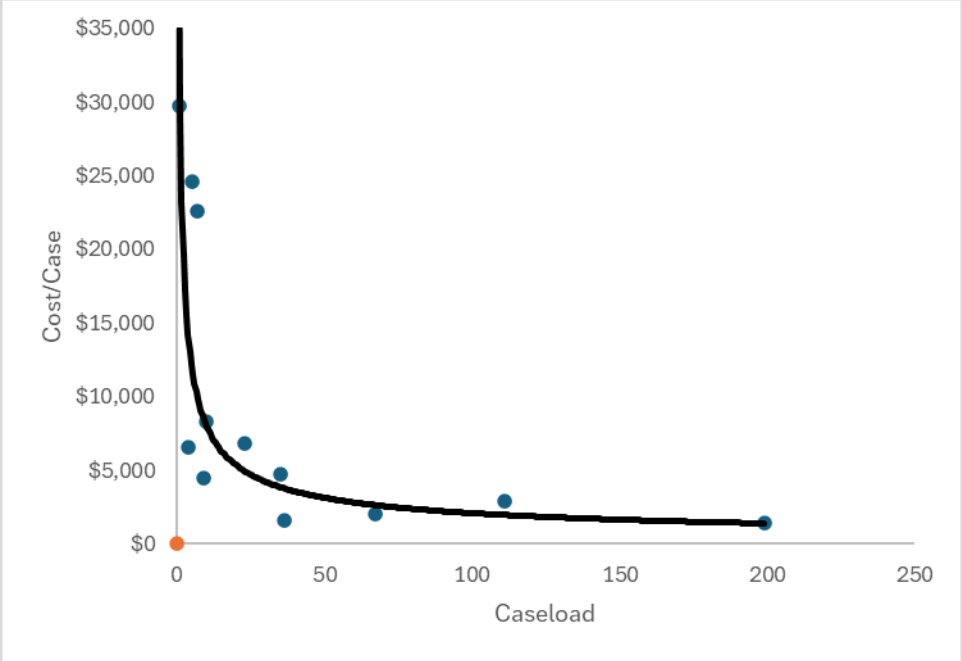
Table 58: Efficient Frontier for Evidence Screening & Processing—Efficient Cost/Case for Various Caseloads (FY2024)*

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

*There was insufficient data to estimate the efficient frontier for FY2025. The table repeats the efficient frontier estimation from FY2024.

Explosives Analysis

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



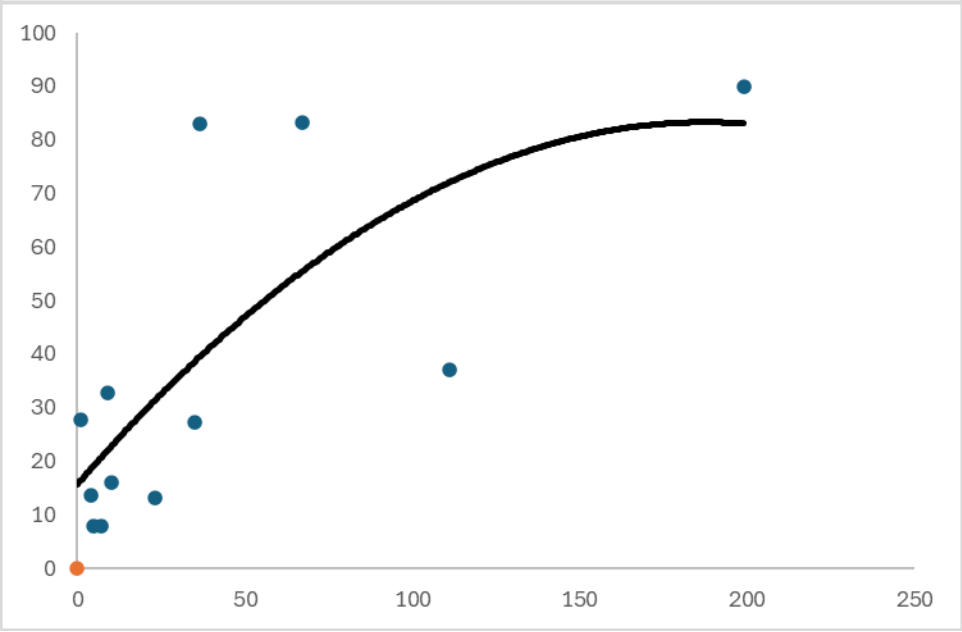


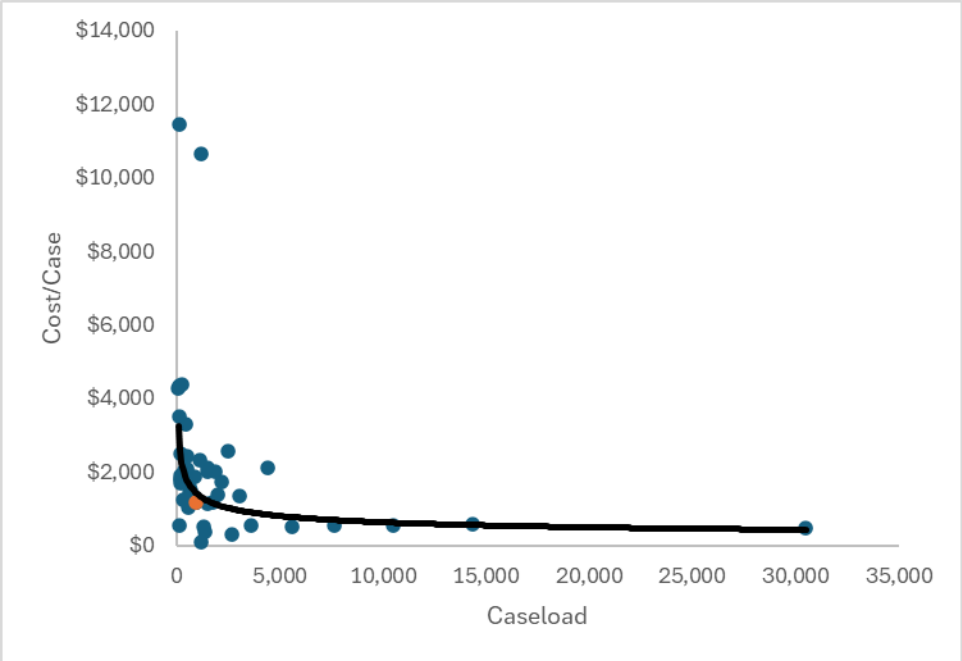
Figure 22 : Efficient Frontier for Explosives Analysis—Cases/FTE v. Caseload

Table 59: Efficient Frontier for Explosives Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
1	$30,733	9	38	$3,682	40
2	$20,512	12	40	$3,573	41
3	$16,191	14	42	$3,473	43
4	$13,690	15	44	$3,380	44
5	$12,019	17	46	$3,293	45
6	$10,806	18	48	$3,213	46
7	$9,877	19	50	$3,137	47
8	$9,137	20	55	$2,967	50
9	$8,530	21	60	$2,821	52
10	$8,022	23	65	$2,692	54
12	$7,212	24	70	$2,578	57
14	$6,592	25	75	$2,476	59
16	$6,098	27	80	$2,385	61
18	$5,693	28	90	$2,226	65
20	$5,354	29	100	$2,094	69
22	$5,064	31	110	$1,980	72
24	$4,814	32	120	$1,882	75
26	$4,594	33	130	$1,797	77
28	$4,400	34	140	$1,721	79
30	$4,226	36	150	$1,653	81
32	$4,070	37	175	$1,511	83
34	$3,928	38	200	$1,397	83
36	$3,800	39	225	$1,305	81

Fingerprint ID

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



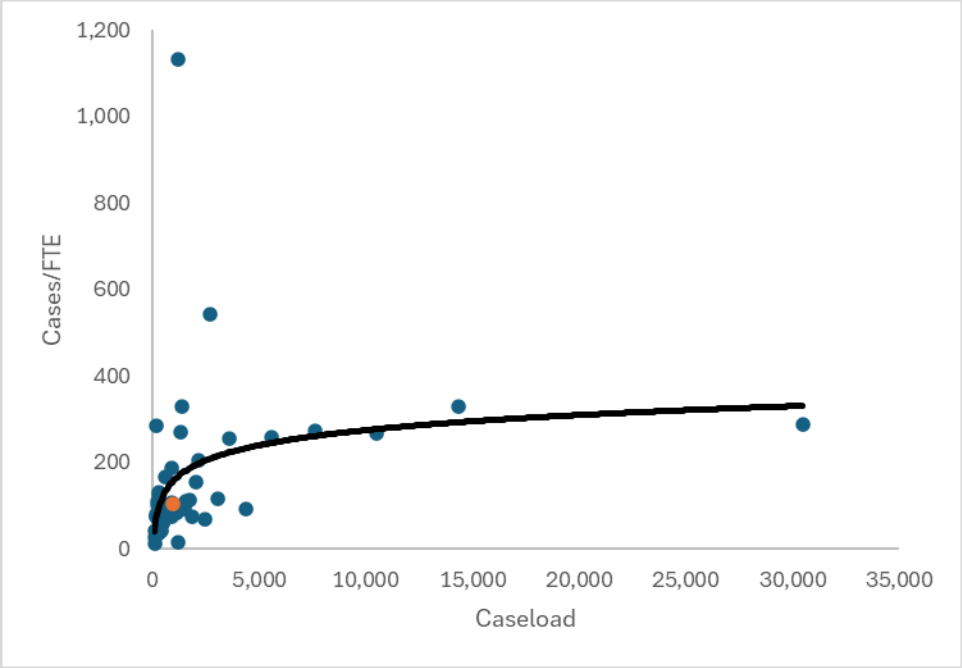


Figure 24: Efficient Frontier for Fingerprint Identification—Cases/FTE v. Caseload

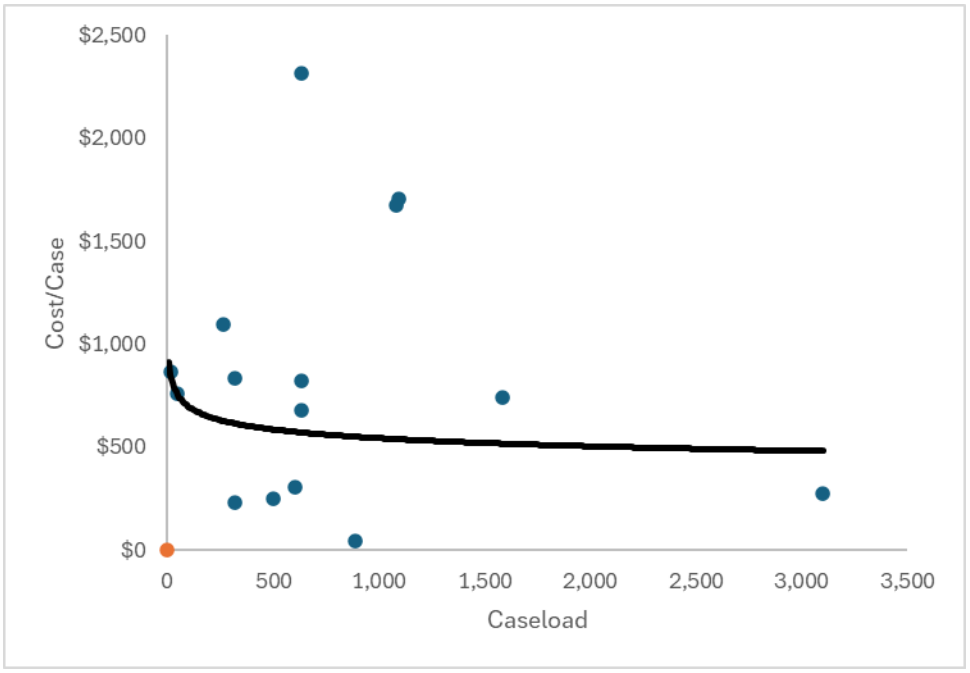
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 60: Efficient Frontier for Fingerprint Identification—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$3,156	49	8,500	$667	245
200	$2,476	63	9,000	$654	250
300	$2,149	73	9,500	$641	255
400	$1,943	81	10,000	$630	259
500	$1,797	88	11,000	$609	269
750	$1,559	102	12,000	$591	277
1,000	$1,410	113	13,000	$575	285
1,250	$1,304	122	14,000	$560	293
1,500	$1,224	131	15,000	$547	300
1,750	$1,159	138	16,000	$534	308
2,000	$1,106	145	17,000	$523	314
2,500	$1,023	157	18,000	$513	321
3,000	$960	168	19,000	$503	327
3,500	$910	177	20,000	$494	333
4,000	$868	186	21,000	$486	339
4,500	$833	194	22,000	$478	345
5,000	$803	202	23,000	$471	351
5,500	$777	209	24,000	$464	356
6,000	$753	216	25,000	$457	361
6,500	$732	222	26,500	$448	369
7,000	$714	228	28,000	$439	377
7,500	$697	234	29,500	$431	384
8,000	$681	239	31,000	$424	391

Fingerprint Database

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



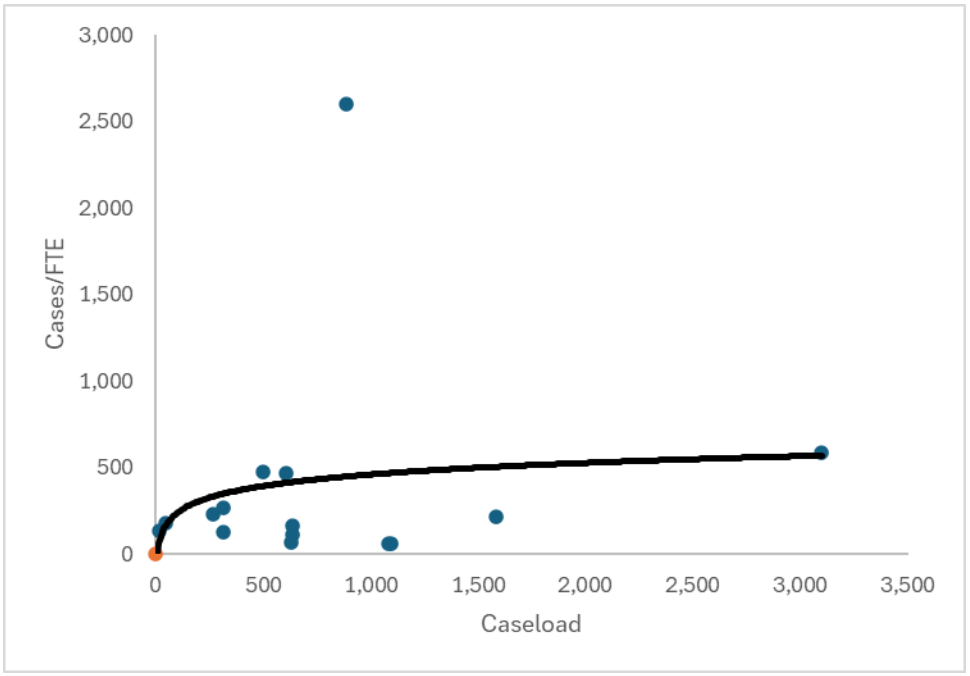


Figure 26: Efficient Frontier for Fingerprint Database—Cases/FTE v. Caseload

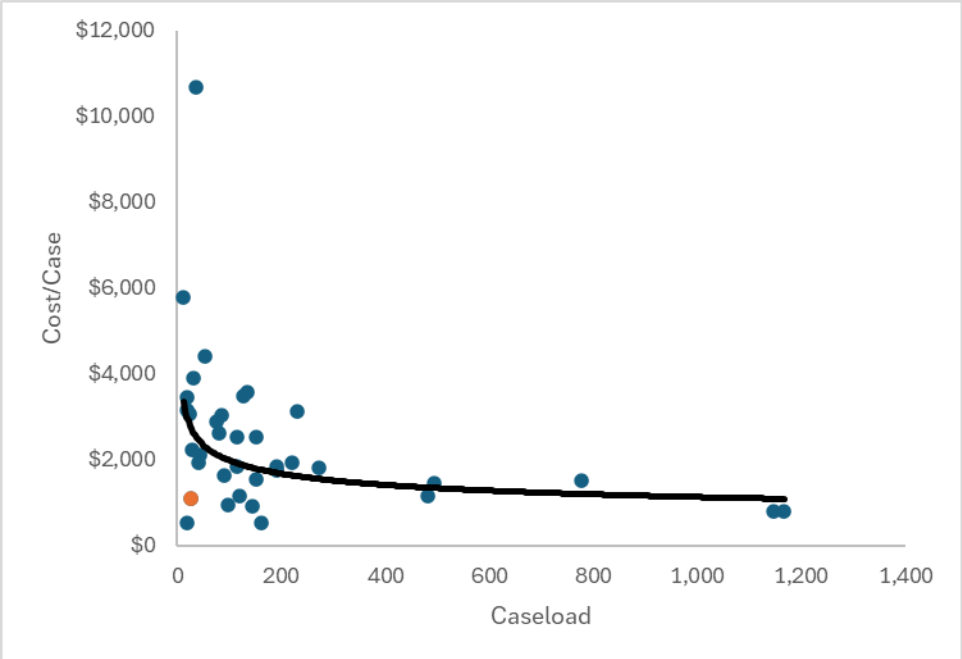
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

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

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
15	$857	54	850	$553	444
30	$795	121	950	$546	455
45	$761	161	1,050	$540	465
60	$737	188	1,150	$535	473
80	$715	216	1,250	$530	481
100	$698	238	1,350	$526	489
125	$681	259	1,450	$522	496
150	$668	277	1,550	$518	502
175	$656	292	1,650	$514	508
200	$647	304	1,750	$511	514
225	$639	316	1,850	$508	519
250	$632	326	1,950	$505	524
275	$625	335	2,050	$503	529
300	$619	344	2,150	$500	534
325	$614	351	2,250	$497	538
350	$609	358	2,350	$495	542
400	$600	371	2,450	$493	546
450	$592	383	2,550	$491	550
500	$586	393	2,650	$489	554
550	$580	402	2,750	$487	557
600	$574	411	2,850	$485	561
650	$569	418	2,950	$483	564
750	$560	432	3,050	$481	567

Fire Analysis

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



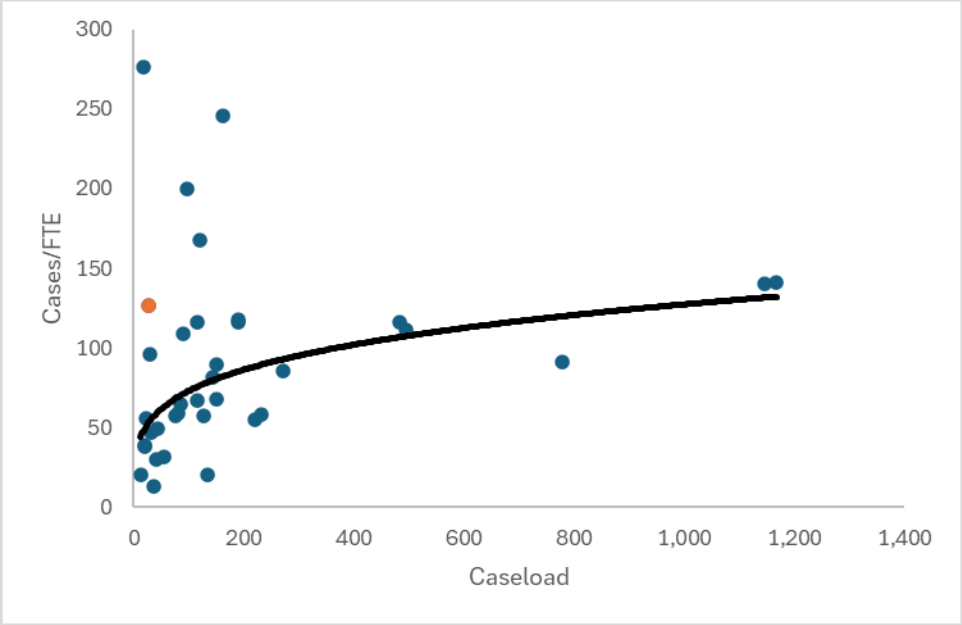


Figure 28: Efficient Frontier for Fire Analysis—Cases/FTE v. Caseload

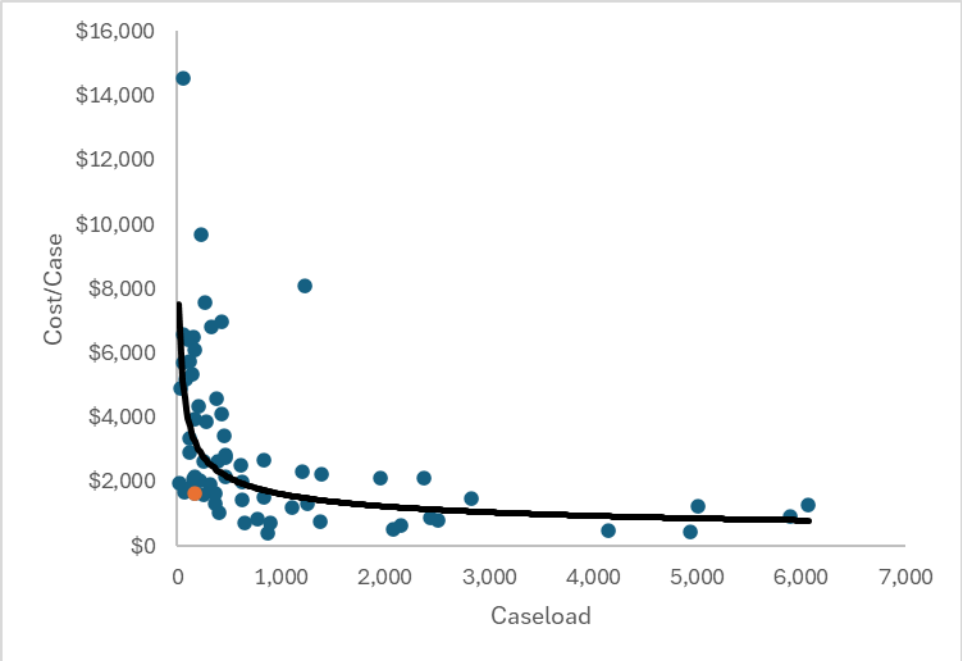
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 62: Efficient Frontier for Fire Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
10	$3,485	42	200	$1,670	86
15	$3,155	46	225	$1,623	89
20	$2,940	49	250	$1,581	91
25	$2,783	52	275	$1,545	93
30	$2,661	54	300	$1,512	95
35	$2,562	57	325	$1,483	97
40	$2,480	58	350	$1,456	99
45	$2,409	60	375	$1,432	100
50	$2,348	62	400	$1,409	102
55	$2,293	63	425	$1,388	103
60	$2,245	64	450	$1,369	105
65	$2,201	66	500	$1,334	108
70	$2,161	67	550	$1,303	110
75	$2,125	68	600	$1,276	113
80	$2,092	69	650	$1,251	115
90	$2,032	71	700	$1,228	117
100	$1,980	73	750	$1,208	119
110	$1,934	75	800	$1,189	121
120	$1,894	76	850	$1,171	122
130	$1,857	78	900	$1,155	124
140	$1,823	79	1,000	$1,125	127
150	$1,793	80	1,100	$1,099	130
175	$1,726	83	1,200	$1,076	133

Firearms & Ballistics Analysis

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



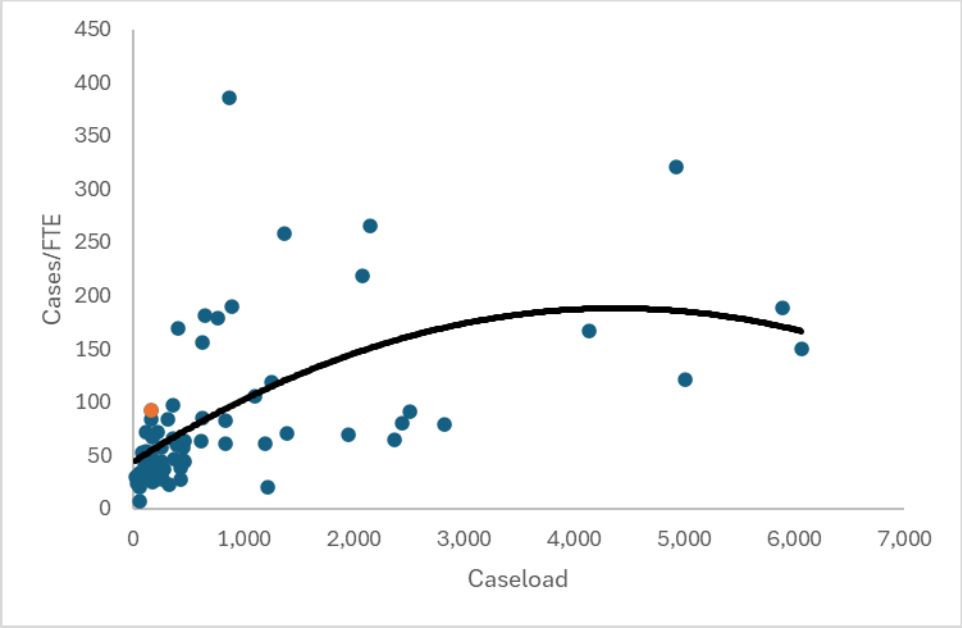


Figure 30: Efficient Frontier for Firearms & Ballistics Analysis—Cases/FTE v. Caseload

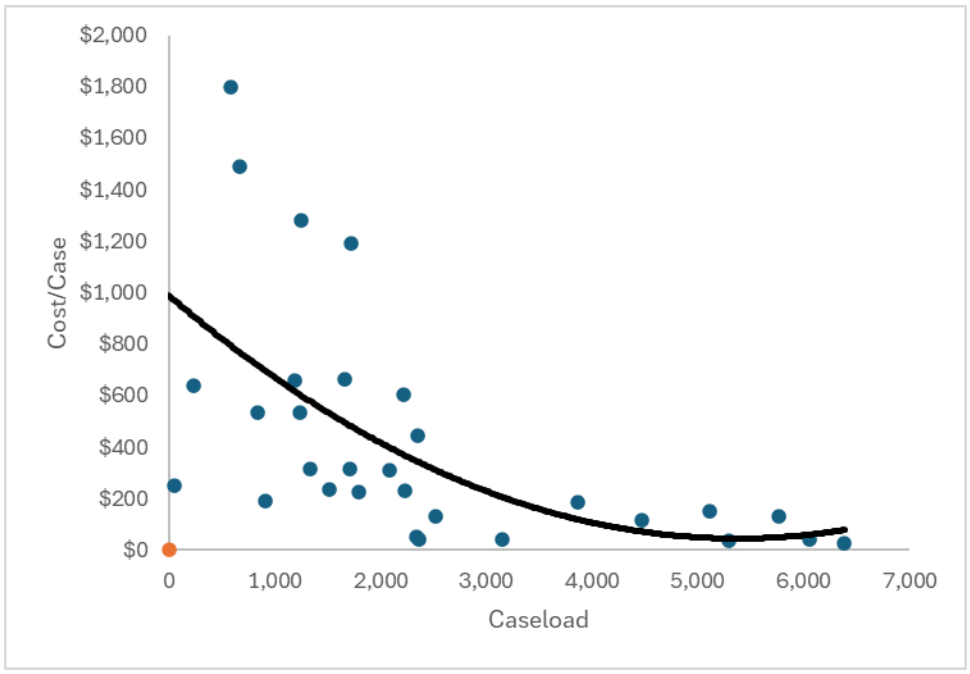
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 63: Efficient Frontier for Firearms & Ballistics Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
50	$5,252	27	750	$1,811	80
75	$4,478	32	800	$1,766	82
100	$3,999	36	850	$1,724	84
125	$3,663	39	900	$1,686	86
150	$3,410	42	950	$1,650	88
175	$3,209	45	1,000	$1,617	89
200	$3,045	47	1,100	$1,558	93
225	$2,907	49	1,200	$1,505	96
250	$2,789	52	1,300	$1,459	99
275	$2,687	54	1,400	$1,417	102
300	$2,596	55	1,500	$1,379	105
325	$2,516	57	1,600	$1,344	108
350	$2,444	59	1,800	$1,284	113
375	$2,378	61	2,000	$1,232	118
400	$2,319	62	2,250	$1,176	123
425	$2,264	64	2,750	$1,087	134
450	$2,214	65	3,250	$1,018	143
475	$2,167	67	3,750	$962	151
500	$2,124	68	4,250	$916	159
550	$2,046	71	4,750	$877	166
600	$1,977	73	5,250	$843	173
650	$1,916	75	5,750	$813	179
700	$1,861	78	6,250	$787	185

Firearms Database

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



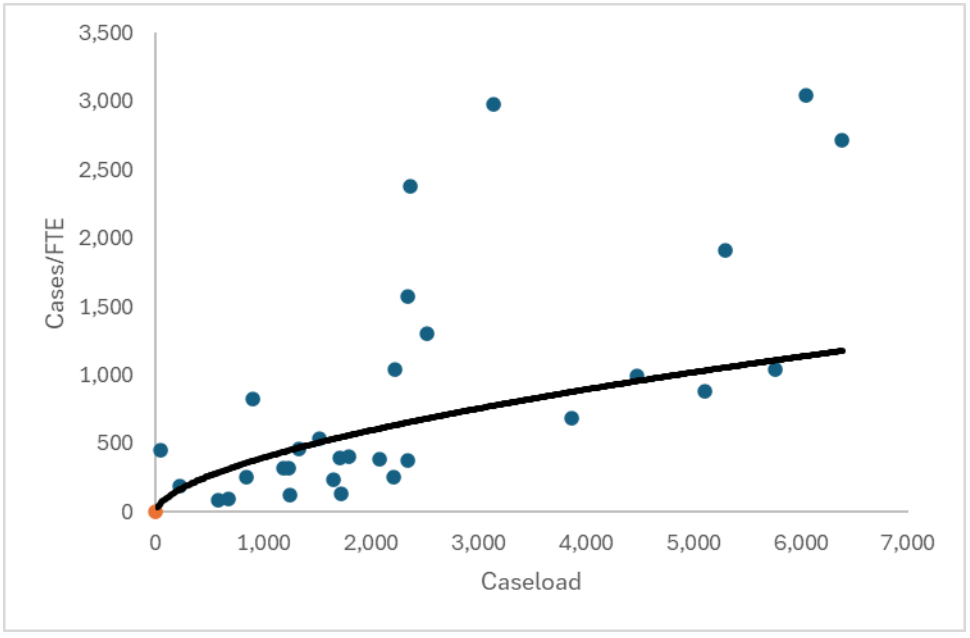


Figure 32: Efficient Frontier for Firearms Database—Cases/FTE v. Caseload

Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 64: Efficient Frontier for Firearms Database—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
50	$2,347	68	1,100	$642	431
75	$1,810	87	1,200	$614	464
100	$1,505	103	1,300	$587	497
125	$1,304	111	1,550	$523	580
150	$1,160	119	1,800	$463	663
175	$1,051	127	2,050	$406	747
200	$965	135	2,300	$354	830
225	$911	144	2,550	$306	914
250	$903	152	2,800	$262	999
275	$894	160	3,050	$222	1,084
300	$886	168	3,300	$186	1,169
325	$878	176	3,550	$154	1,254
350	$870	184	3,800	$126	1,339
400	$853	201	4,050	$103	1,425
450	$837	217	4,300	$83	1,511
500	$821	233	4,550	$68	1,598
550	$805	250	4,800	$56	1,684
600	$790	266	5,050	$49	1,771
650	$774	283	5,300	$46	1,859
700	$759	299	5,550	$46	1,946
800	$729	332	5,800	$51	2,034
900	$699	365	6,050	$60	2,122
1,000	$670	398	6,300	$73	2,211

Forensic Pathology

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

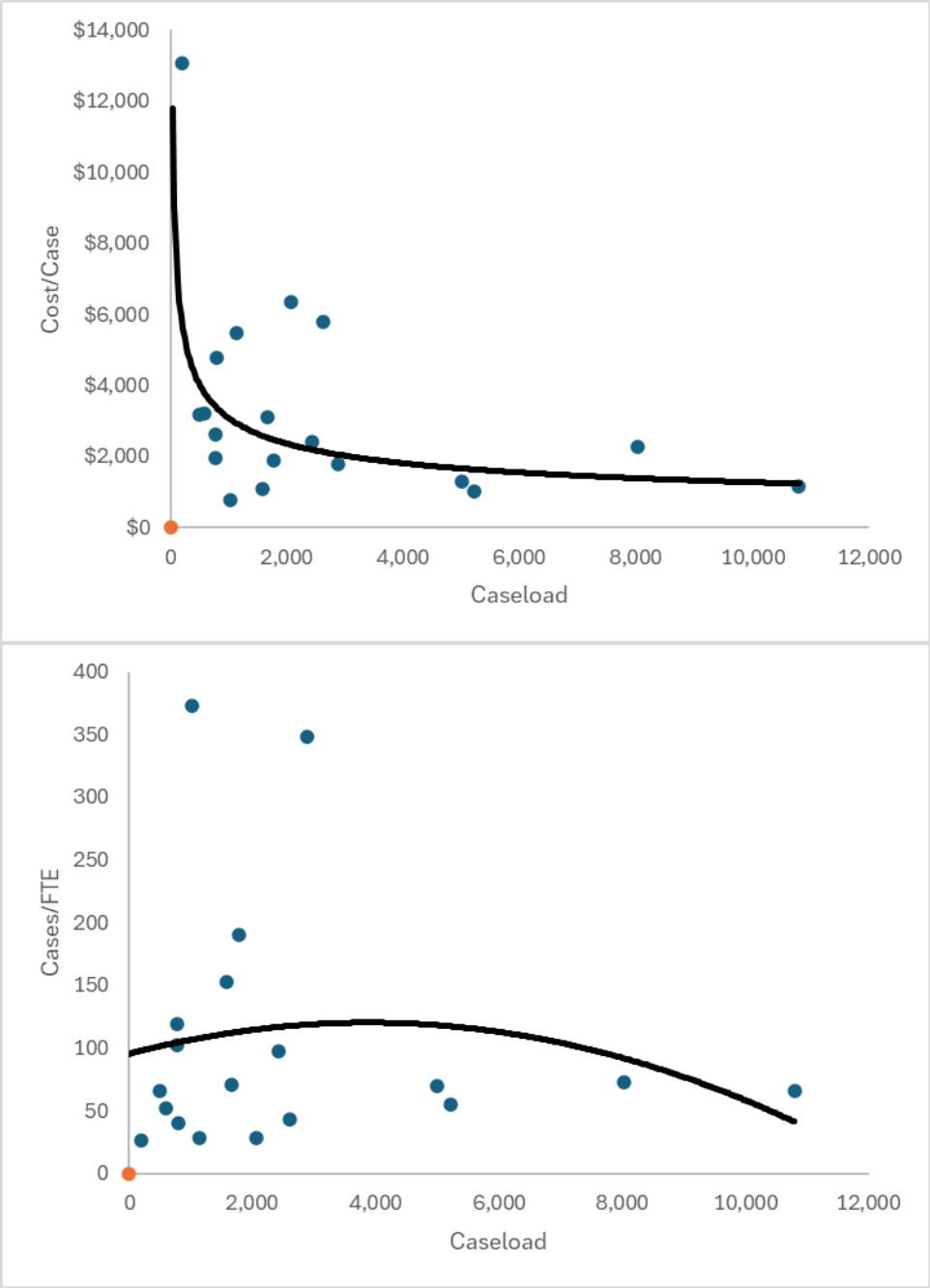


Figure 34: Efficient Frontier for Forensic Pathology—Cases/FTE v. Caseload

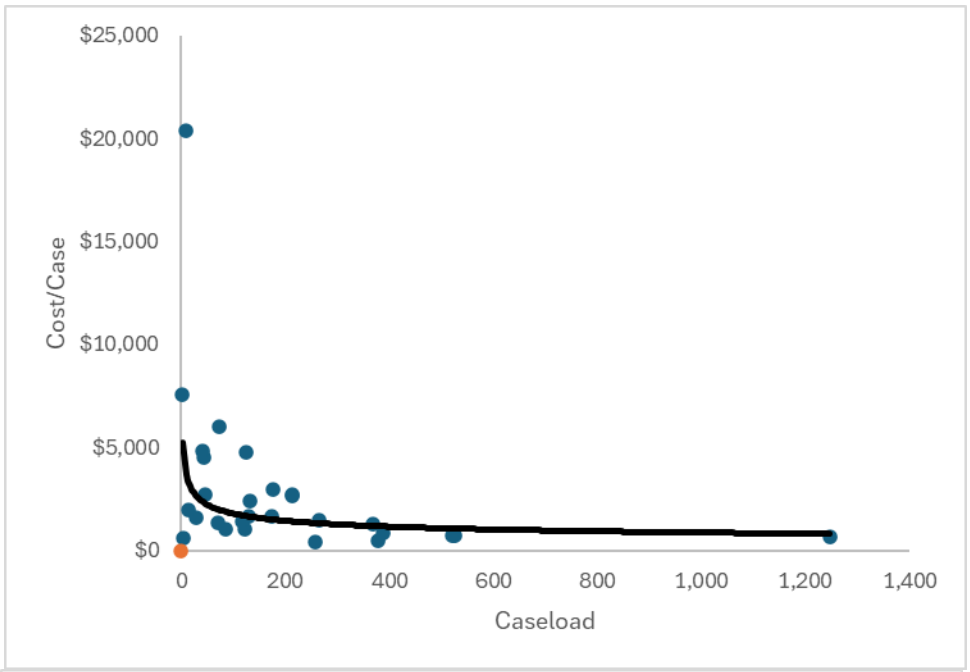
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 65: Efficient Frontier for Forensic Pathology—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
200	$5,708	62	4,250	$1,769	120
300	$4,887	64	4,500	$1,731	120
400	$4,377	100	4,750	$1,695	119
500	$4,018	101	5,000	$1,662	118
600	$3,747	103	5,250	$1,632	117
700	$3,532	104	5,500	$1,603	116
800	$3,356	105	5,750	$1,576	115
900	$3,207	106	6,000	$1,550	113
1,000	$3,081	107	6,250	$1,526	111
1,150	$2,920	108	6,500	$1,503	109
1,300	$2,786	109	6,750	$1,482	107
1,450	$2,672	111	7,000	$1,461	104
1,600	$2,573	112	7,250	$1,442	102
1,750	$2,486	113	7,500	$1,423	99
2,000	$2,362	114	7,750	$1,405	96
2,250	$2,258	116	8,000	$1,388	92
2,500	$2,168	117	8,250	$1,372	92
2,750	$2,090	118	8,500	$1,357	92
3,000	$2,022	119	8,750	$1,342	93
3,250	$1,961	120	9,250	$1,313	93
3,500	$1,906	120	9,750	$1,287	94
3,750	$1,856	120	10,250	$1,263	94
4,000	$1,811	120	10,750	$1,240	95

Gunshot Residue Analysis

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



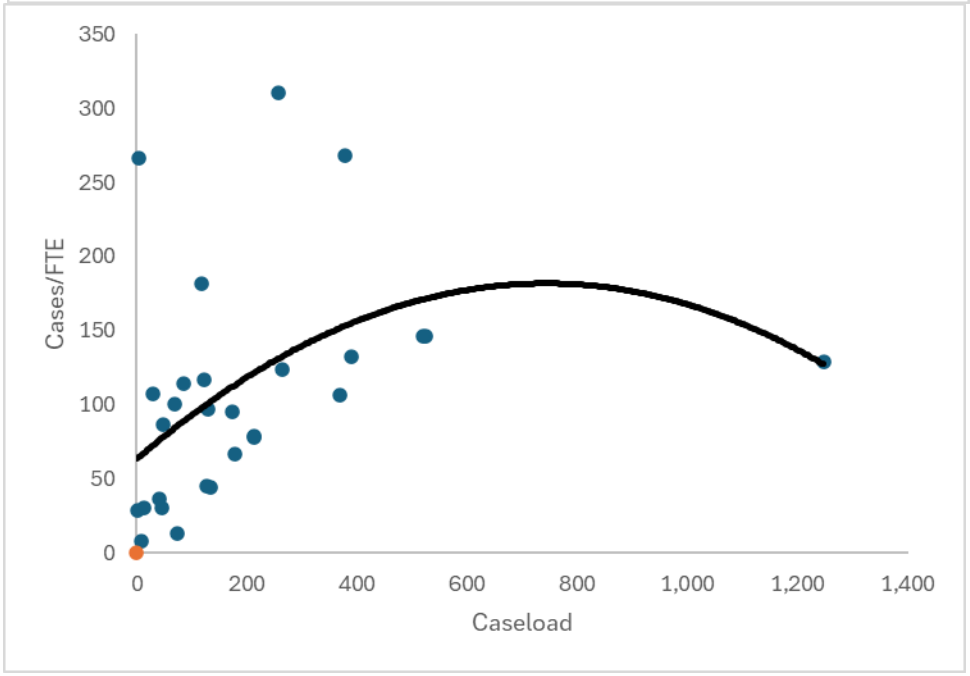


Figure 36: Efficient Frontier for Gunshot Residue Analysis—Cases/FTE v. Caseload

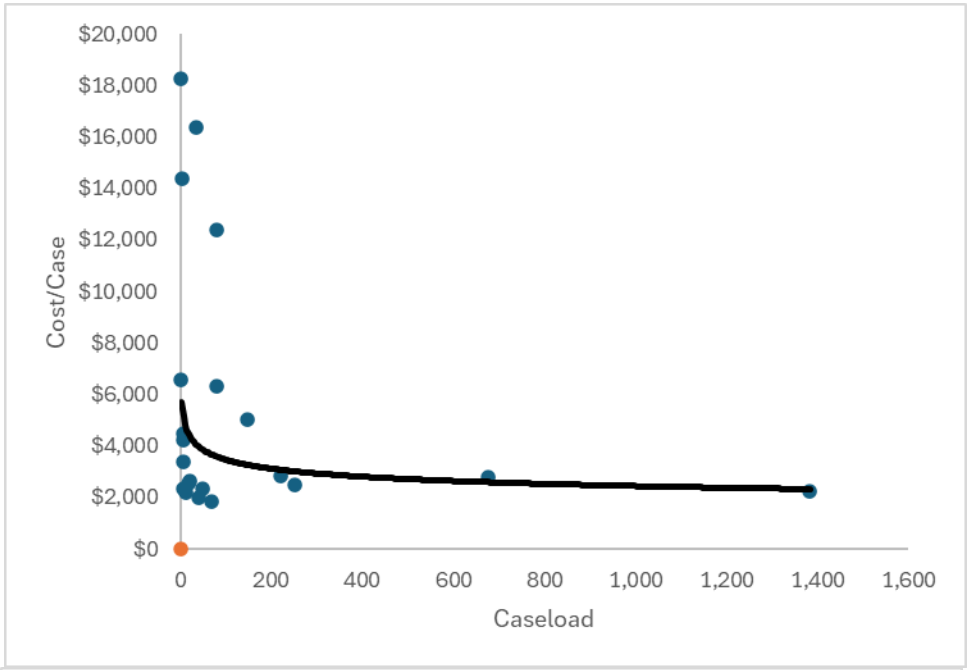
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 66: Efficient Frontier for Gunshot Residue Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
5	$4,626	35	400	$1,153	118
10	$3,713	43	425	$1,131	120
15	$3,265	48	450	$1,111	121
20	$2,981	52	475	$1,092	123
25	$2,777	55	500	$1,074	125
30	$2,621	58	525	$1,058	127
35	$2,496	60	550	$1,042	128
40	$2,392	63	575	$1,028	130
45	$2,305	65	600	$1,014	131
50	$2,229	67	625	$1,001	133
75	$1,960	74	650	$988	134
100	$1,789	80	700	$965	137
125	$1,667	86	750	$944	140
150	$1,573	90	800	$925	142
175	$1,498	94	850	$908	145
200	$1,436	97	900	$891	147
225	$1,384	100	950	$876	149
250	$1,338	103	1,000	$862	151
275	$1,298	106	1,050	$849	153
300	$1,263	109	1,100	$836	155
325	$1,231	111	1,150	$825	146
350	$1,203	113	1,200	$814	137
375	$1,177	116	1,250	$803	127

Marks & Impressions Analysis

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



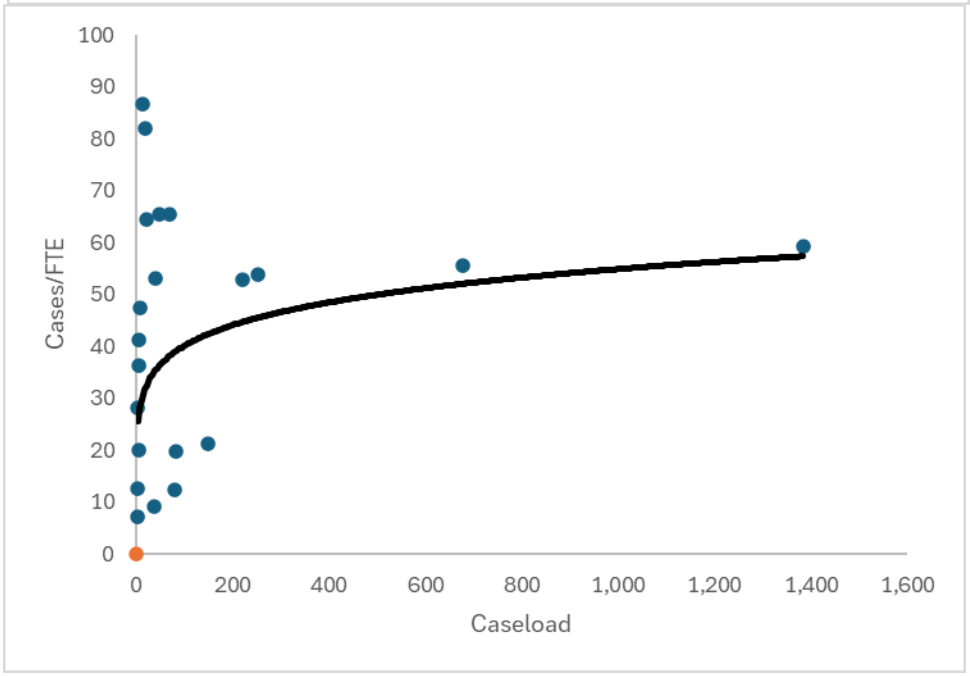


Figure 38: Efficient Frontier for Marks & Impressions Analysis—Cases/FTE v. Caseload

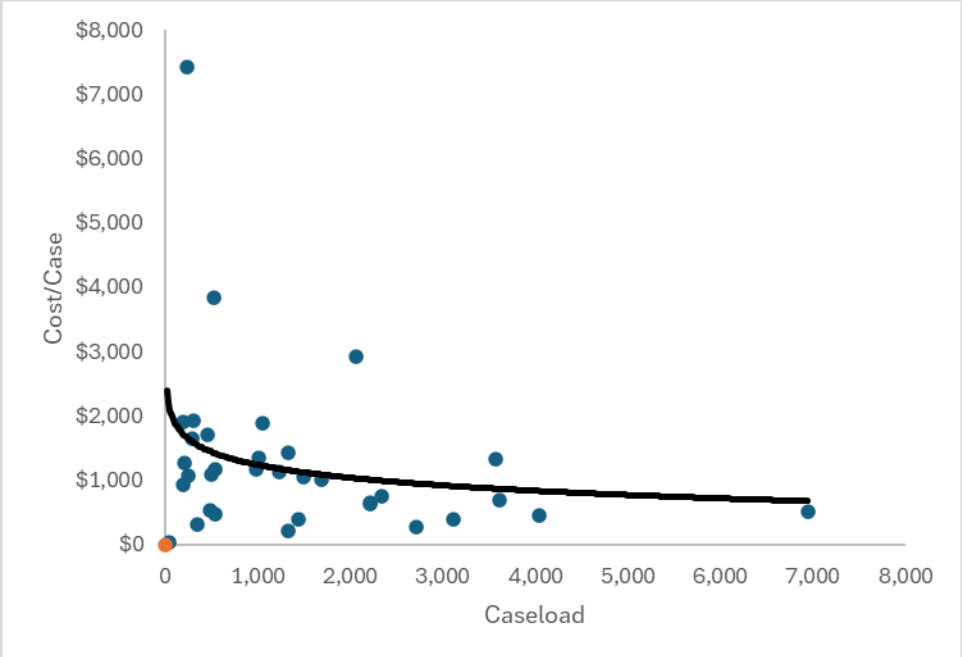
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 67: 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	$6,289	24	150	$3,259	42
4	$5,659	26	175	$3,183	43
6	$5,321	27	200	$3,119	44
8	$5,092	28	250	$3,015	45
10	$4,922	29	300	$2,932	47
12	$4,787	30	350	$2,864	48
14	$4,676	31	400	$2,807	48
16	$4,582	31	450	$2,757	49
18	$4,501	32	500	$2,713	50
20	$4,429	32	550	$2,674	51
25	$4,281	33	600	$2,639	51
30	$4,164	34	650	$2,607	52
35	$4,067	35	700	$2,577	52
40	$3,985	35	750	$2,550	53
45	$3,915	36	800	$2,525	53
50	$3,852	37	850	$2,502	54
55	$3,797	37	900	$2,481	54
60	$3,747	37	950	$2,460	54
65	$3,701	38	1,000	$2,441	55
70	$3,660	38	1,100	$2,406	56
75	$3,622	39	1,200	$2,374	56
100	$3,466	40	1,300	$2,345	57
125	$3,351	41	1,400	$2,319	57

Serology/Biology Analysis

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



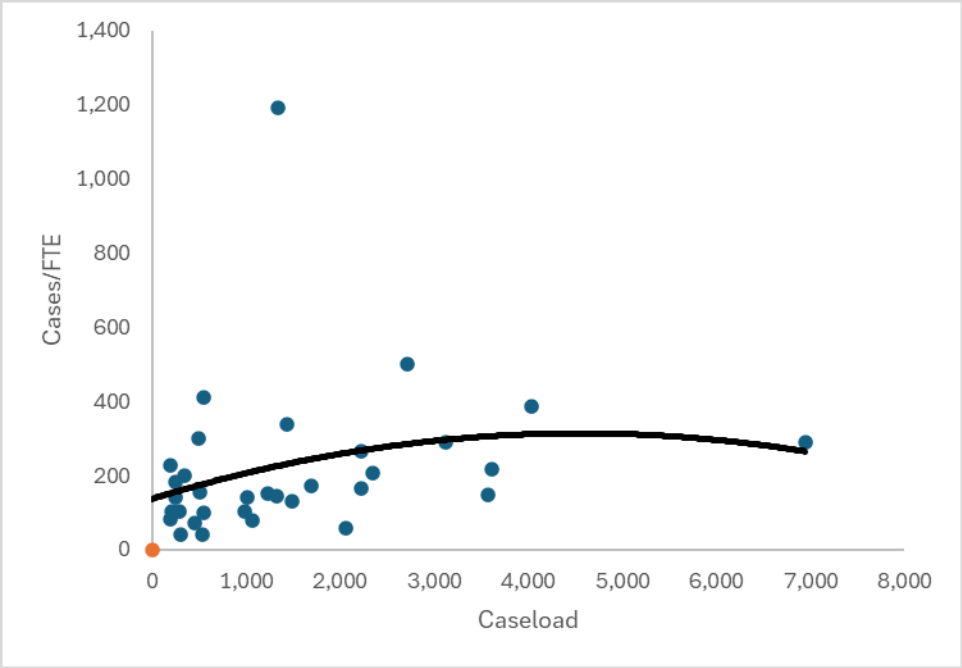


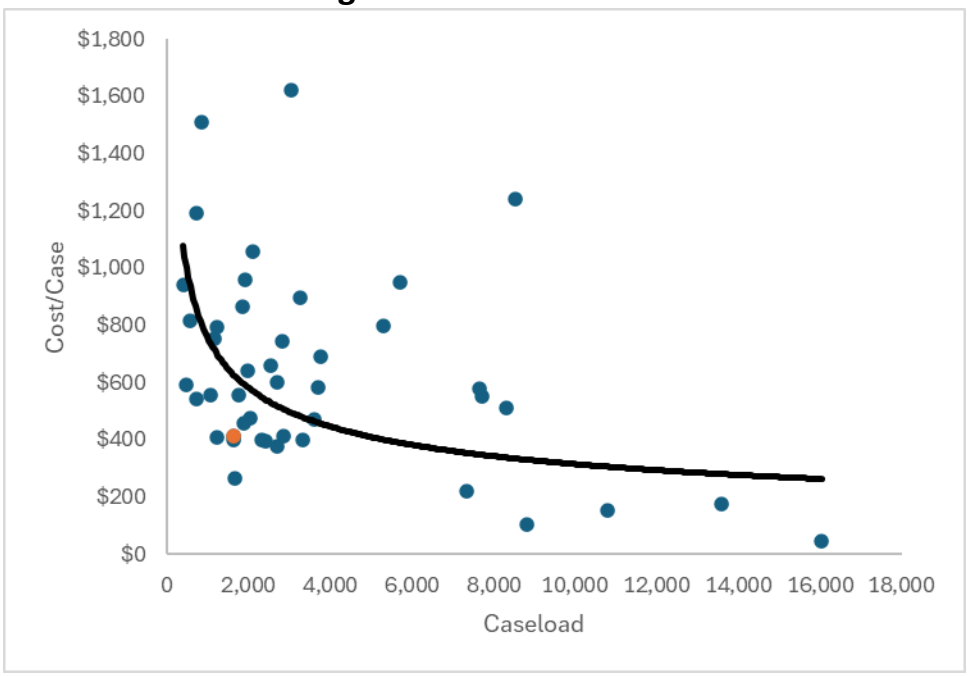
Figure 40: Efficient Frontier for Serology/Biology Analysis—Cases/FTE v. Caseload

Table 68: Efficient Frontier for Serology/Biology Analysis—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
40	$2,859	70	900	$1,346	163
50	$2,751	74	1,000	$1,294	168
60	$2,662	78	1,100	$1,248	172
70	$2,587	81	1,200	$1,206	177
80	$2,522	84	1,300	$1,167	180
90	$2,465	87	1,400	$1,131	184
100	$2,414	89	1,500	$1,097	188
125	$2,305	95	1,750	$1,022	196
150	$2,217	100	2,000	$957	203
175	$2,142	104	2,250	$900	210
200	$2,077	108	2,500	$849	216
225	$2,020	112	2,750	$803	222
250	$1,968	115	3,000	$760	227
275	$1,922	118	3,250	$721	232
300	$1,880	121	3,500	$685	237
350	$1,805	126	3,750	$652	241
400	$1,740	131	4,000	$621	246
450	$1,683	135	4,500	$590	254
500	$1,631	139	5,000	$570	261
550	$1,585	143	5,500	$553	268
600	$1,543	146	6,000	$538	274
700	$1,468	152	6,500	$525	282
800	$1,403	158	7,000	$512	263

Toxicology Analysis ante-mortem Analysis

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



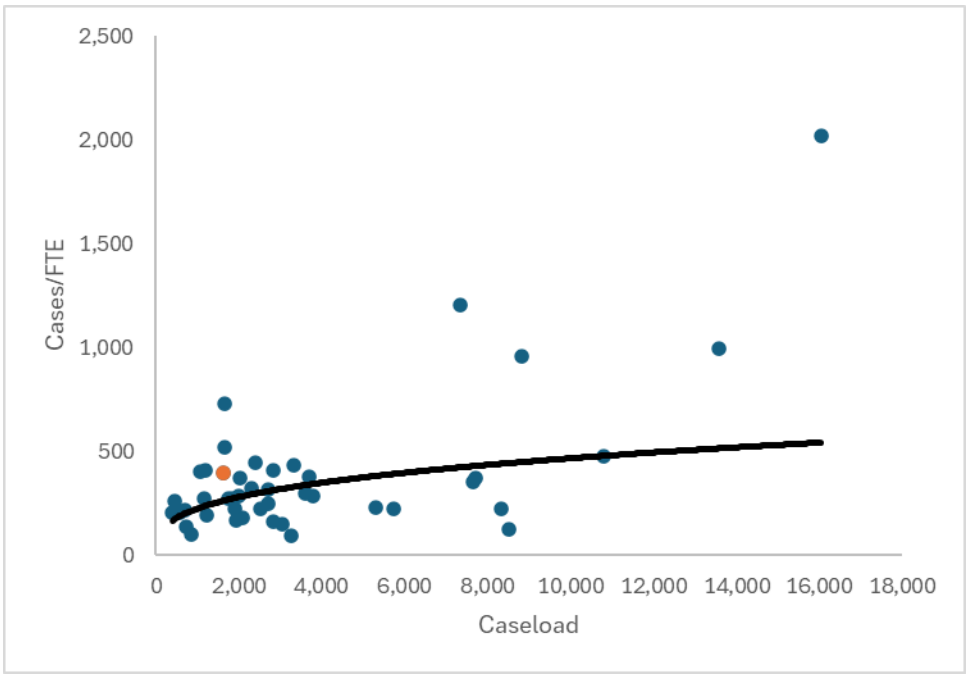


Figure 42: Efficient Frontier for Toxicology Analysis (antemortem)—Cases/FTE v. Caseload

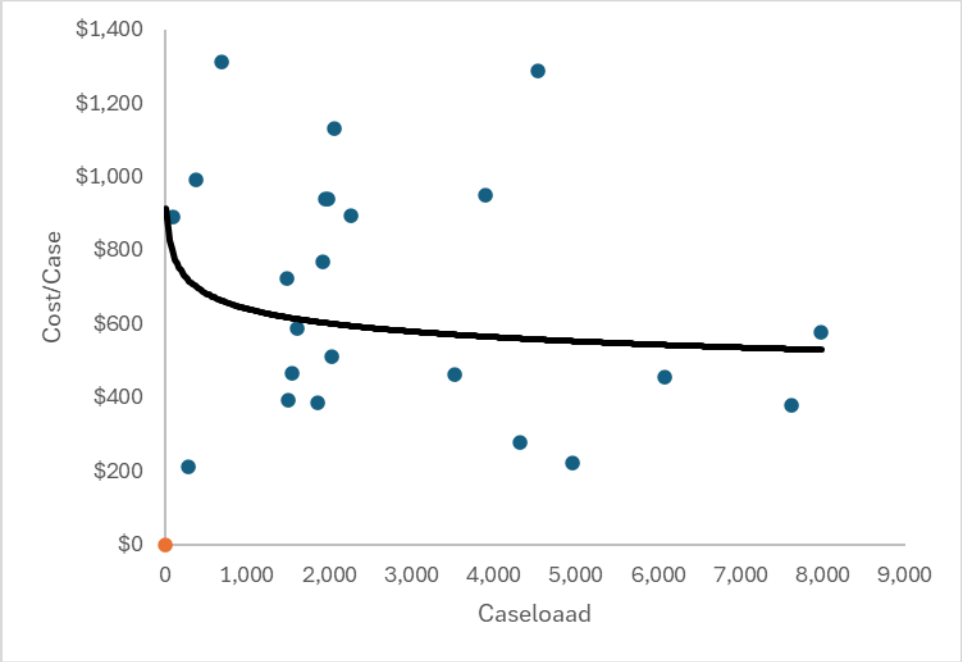
Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 69: Efficient Frontier for Toxicology ante-mortem—Efficient Cost/Case for Various Caseloads

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
400	$1,071	167	2,100	$570	284
450	$1,024	174	2,200	$560	288
500	$984	180	2,300	$550	292
550	$949	185	2,400	$541	296
600	$918	190	2,500	$533	300
650	$890	195	3,000	$497	318
700	$865	200	3,500	$469	334
750	$843	204	4,000	$446	348
800	$823	209	4,500	$426	362
850	$804	213	5,000	$409	374
900	$786	217	5,500	$395	385
950	$770	220	6,000	$382	396
1,000	$756	224	6,500	$371	406
1,100	$729	231	7,000	$360	416
1,200	$705	237	7,500	$351	425
1,300	$684	243	8,000	$342	434
1,400	$665	249	8,500	$335	443
1,500	$647	255	9,000	$327	451
1,600	$632	260	9,500	$321	459
1,700	$617	265	10,500	$309	473
1,800	$604	270	11,500	$298	487
1,900	$592	275	12,500	$289	500
2,000	$580	279	13,500	$281	513

Toxicology Analysis post-mortem Analysis

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



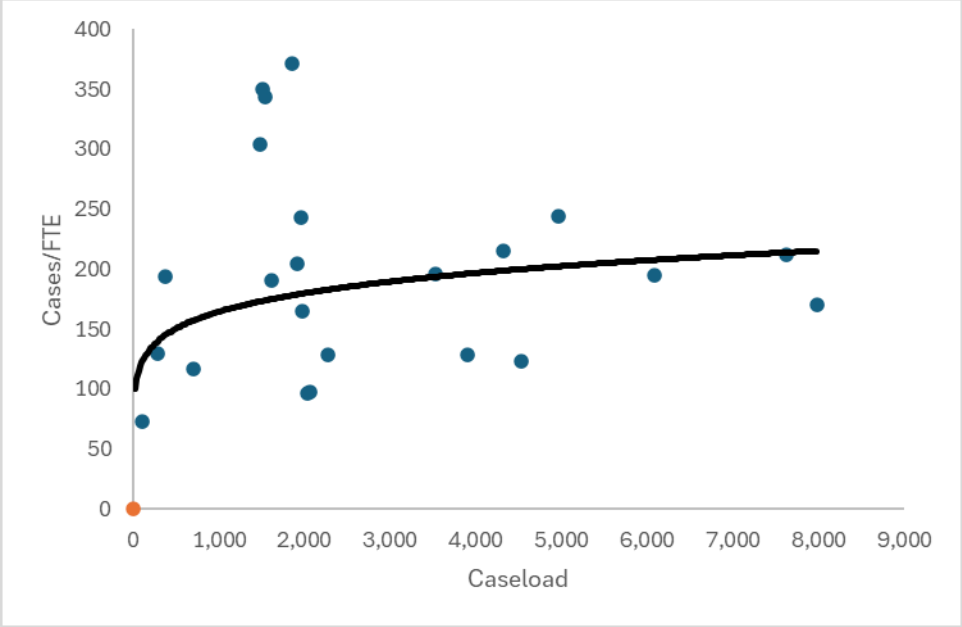


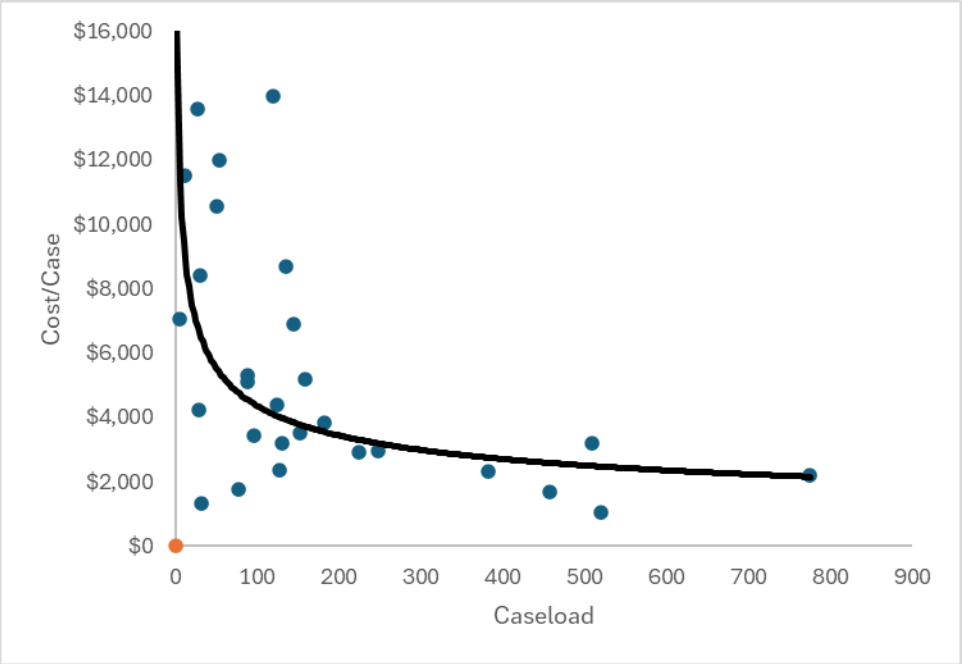
Figure 44: Efficient Frontier for Toxicology Analysis (postmortem)—Cases/FTE v. Caseload

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

Cases	Efficient Cost/Case	Cases/ FTE	Cases	Efficient Cost/Case	Cases/ FTE
100	$791	122	1,500	$617	173
150	$762	129	1,600	$613	175
200	$742	134	1,700	$610	176
250	$727	138	1,800	$606	177
300	$715	141	1,900	$603	179
350	$705	144	2,000	$600	180
400	$697	146	2,250	$594	183
450	$689	148	2,500	$588	185
500	$682	150	2,750	$583	187
550	$676	152	3,000	$578	190
600	$671	154	3,250	$574	192
650	$666	156	3,500	$570	193
700	$661	157	3,750	$567	195
750	$657	159	4,000	$563	197
800	$653	160	4,250	$560	198
850	$650	161	4,500	$557	200
900	$646	162	5,000	$552	203
950	$643	163	5,500	$547	205
1,000	$640	165	6,000	$543	207
1,100	$634	167	6,500	$539	209
1,200	$629	168	7,000	$535	211
1,300	$625	170	7,500	$532	213
1,400	$621	172	8,000	$528	215

Trace Evidence Analysis

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



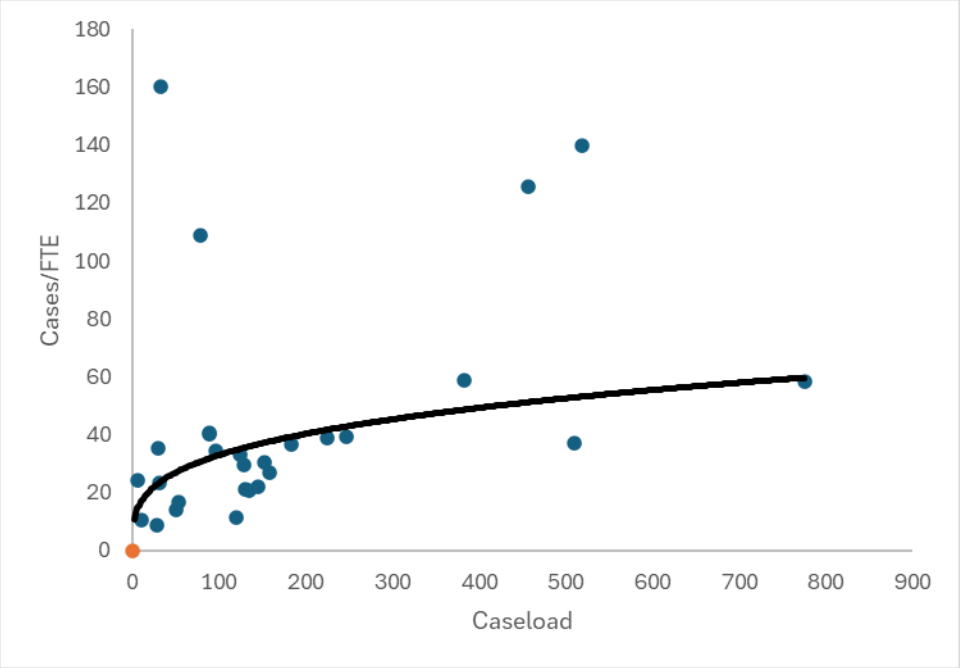


Figure 46: Efficient Frontier for Trace Evidence Analysis—Cases/FTE v. Caseload

Foresight Project 2024-2025, West Virginia University, Morgantown, WV, USA

Table 71: 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	$12,229	14	250	$3,178	43
10	$9,632	17	275	$3,076	44
15	$8,376	19	300	$2,812	45
20	$7,586	21	325	$2,532	46
25	$7,025	22	350	$2,282	47
30	$6,597	23	375	$2,064	48
35	$6,256	24	400	$1,876	49
40	$5,975	25	425	$1,719	50
45	$5,737	26	450	$1,593	51
50	$5,533	27	475	$1,498	52
60	$5,196	28	500	$1,434	53
70	$4,928	30	525	$1,400	53
80	$4,706	31	550	$1,398	54
90	$4,519	32	575	$1,426	55
100	$4,358	33	600	$1,485	55
110	$4,217	34	625	$1,576	56
120	$4,093	35	650	$1,697	57
130	$3,981	36	675	$1,848	57
140	$3,881	36	700	$2,031	58
150	$3,790	37	725	$2,245	59
175	$3,594	39	750	$2,489	59
200	$3,432	40	775	$2,765	60
225	$3,296	42	800	$3,071	60

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.

Project FORESIGHT Publications

Houck, M. M., Speaker, P. J., & Tessarolo, A. (2026). NIST recommended square footage for forensic laboratories compared with actual facilities: Size matters. Science & Justice, 66, 101376. https://doi.org/10.1016/j.scijus.2025.101376.

McAndrew, W. P. & Speaker, P. J. (forthcoming). Forensic Science Management, 2019-2022. Forensic Science International: Synergy.

Speaker, P.J. (forthcoming). FORESIGHT Synergy: Using Data to Drive Excellence. Forensic Science International: Synergy.

Speaker, P. J. (2025). Project FORESIGHT Annual Report, 2023-2024. https://researchrepository.wvu.edu/faculty_publications/3304/.

Houck, M. M., & Speaker, P. J. (2025). Forensic Science and the Administration of Justice, 2nd edition, "Developing New Business Models for Forensic Laboratories." In M. Hickman & K. Strom (Eds.), Chapter 12. SAGE.

Speaker, P. J. (2024). *Project FORESIGHT Annual Report, 2022-2023*. https://researchrepository.wvu.edu/faculty_publications/3296/

Houck, M. M., & Speaker, P. J. (2024). *Forensic Science Laboratory Benchmarking: The FORESIGHT Manual*. CRC Press.

Speaker, P. J. (2024). Intelligence and the Value of Forensic Science. *Forensic Sciences*, 4(2). https://doi.org/10.3390/forensicsci4020001

Speaker, P. J. (2023). *Project FORESIGHT Annual Report, 2021-2022*. https://researchrepository.wvu.edu/faculty_publications/3284/

McAndrew, W. P., Speaker, P. J., & Houck, M. M. (2023). Forensic Science Management, 2019-2022. *Forensic Science International: Synergy, 6(1)*. https://doi.org/10.1016/j.fsisyn.2022.100301

Ropero Miller, J. D., Mullen, L. D., Speaker, P. J., (2022). The Sentinel Role of Forensic Toxicology Laboratories to Identify and Act upon Emerging Drug Threats by Addressing Toxicology and Economic Demands. *Forensic Science International: Synergy*. https://doi.org/10.1016/j.fsisyn.2022.100292

Speaker, P. J., (October 2022). Advancements in Understanding the Cost-Effectiveness of Testing Sexual Assault Kits in *Sexual Assault Kits and Reforming the Response to Rape*, Rachel Lovell and Jennifer Langhinrichsen-Rohling, editors.

Speaker, P. J., (2022). Prioritizing the Testing of Sexual Assault Kits. *Sexual Assault Report*.

Speaker, P. J. (2022). *Project FORESIGHT Annual Report, 2020-2021*. https://researchrepository.wvu.edu/faculty_publications/3093/

Speaker, P. J., Wells, R. (2021). The Return on Investment from Rapid DNA Testing of Sexual Assault Kits: The Kentucky State Police Forensic Laboratory Experience. *Medical Research Archives, 9*(11). https://doi.org/10.18103/mra.v9i11.2600

Delgado, Y., Price, B., Speaker, P. J., Stoiloff, S. L. (2021). Forensic Intelligence: Data Analytics as the Bridge between Forensic Science and Investigation. *Forensic Science International: Synergy*. https://doi.org/10.1016/j.fsisyn.2021.100162

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

Speaker, P. J., Houck, M. M. (2021). *FORESIGHT 101: What is it, how do I get started, and what will it do for my lab?* (S1 ed., vol. 3). Forensic Science International: Synergy. https://doi.org/10.1016/j.fsisyn.2021.100170

Speaker, P. J., Houck, M. M. (2021). *FORESIGHT Interpretation: What do I do with all this Data?* (S1 ed., vol. 3). Forensic Science International: Synergy. https://doi.org/10.1016/j.fsisyn.2021.100168

Speaker, P. J. (2021). *Project FORESIGHT Annual Report, 2019-2020*. https://researchrepository.wvu.edu/faculty_publications/3008/

Houck, M. M., Speaker, P. J. (2020). Project FORESIGHT: A Ten-Year Retrospective. *Forensic Science International: Synergy, 2(1)*. https://doi.org/10.1016/j.fsisyn.2020.08.005

Speaker, P. J. (2020). *Project FORESIGHT Annual Report, 2018-2019*. https://researchrepository.wvu.edu/faculty_publications/2910/

Ropero-Miller, J. D. & Speaker, P. J. (2019). The Hidden Costs of the Opioid Crisis and the Implications for Financial Management in the Public Sector. *Forensic Science International: Synergy, 1*(1), 227-238. https://doi.org/10.1016/j.fsisyn.2019.09.003

Speaker, P. J. (2019). The Jurisdictional Return on Investment from Processing the Backlog of Untested Sexual Assault Kits. *Forensic Science International: Synergy,* 1, 18-23. https://doi.org/10.1016/j.fsisyn.2019.02.055

Houck, M. M. (2019). *FORESIGHT: Problems, Arguments, and Solutions,*). *Forensic Science International: Synergy*, S2, p. S5. https://doi.org/10.1016/j.fsisyn.2019.06.017

Speaker, P. J. (2019). The Economic Impact of the Opioid Crisis on Forensic Laboratories and Related Entities. *Forensic Science International: Synergy*, S1, pp.S9-S10. https://doi.org/10.1016/j.fsisyn.2019.02.026

Houck, M. M. (2019). Strategic Leadership Through Performance Management: FORESIGHT as PerformanceStat. *Forensic Science International: Synergy*, S1, p. S13. https://doi.org/10.1016/j.fsisyn.2019.02.037

Speaker, P. J. (2019). The Jurisdictional Return on Investment for DNA Database, pp. S13-S14). *Forensic Science International: Synergy*, S1, pp. S13-S14. https://doi.org/10.1016/j.fsisyn.2019.02.038

Houck, M. M. (2019). Strategic Leadership Through Performance Management: FORESIGHT as PerformanceStat. *Australian Journal of Forensic Sciences*, 51(3), pp. 1-11. https://doi.org/10.1080/00450618.2017.1374457

Office of Justice Programs, National Institute of Justice (2019), *Report to Congress: Needs Assessment of Forensic Laboratories and Medical Examiner/Coroner Offices* (pp. 1-200). Washington, DC: Department of Justice. https://nij.ojp.gov/library/publications/report-congress-needs-assessment-forensic-laboratories-and-medical

Speaker, P. J. (2019). *Project FORESIGHT Annual Report, 2017-2018*. https://researchrepository.wvu.edu/faculty_publications/1139/

Speaker, P. J. (2018). *Project FORESIGHT Benchmark Data 2016-2017*. https://researchrepository.wvu.edu/faculty_publications/1140/

Speaker, P. J. (2017). Process Improvement and the Efficient Frontier: Forecasting the Limits to Strategic Change across Crime Laboratory Areas of Investigation. *Forensic Science Policy & Management: An International Journal, 8*(3-4), 109-127. https://doi.org/10.1080/19409044.2017.1387204

McAndrew, W. P. (2017). National versus Local Production: Finding the Balance between Fiscal Federalism and Economies of Scale, Public Finance Review, 46(6). https://doi.org/10.1177/1091142117692874

Kurimski, L. M., Speaker, P. J., Bassler, J. R. (2017). Project FORESIGHT and Return on Investment: Forensic Science Laboratories and Public Health Laboratories. *Forensic Science Policy & Management: An International Journal, 8*(1-2), 1 - 12. http://dx.doi.org/10.1080/19409044.2017.1280099

Speaker, P. J. (2017). *Project FORESIGHT Annual Report, 2015-2016*. https://researchrepository.wvu.edu/faculty_publications/1144/

Speaker, P. J. (2016). *Project FORESIGHT Benchmark Data 2014-2015*. https://researchrepository.wvu.edu/faculty_publications/1143/

Houck, M. M., McAndrew, W. P., & Daview, B. (2015). A Review of Forensic Science Management Literature, *Forensic Science Review,* 27, pp. 53-68. https://doi.org/10.1016/j.fsisyn.2020.01.007

Speaker, P. J. (2015). Financial Management of Forensic Science Laboratories: Lessons from Project FORESIGHT 2011-2012. *Forensic Science Policy & Management: An International Journal, 6*(1-2), 7 - 29. http://dx.doi.org/10.1080/19409044.2015.1008604

Lodhi, K., Grier, R., Speaker, P. J. (2015). A Novel Approach to Forensic Molecular Biology Education and Training: It's Impact on the Criminal Justice System. *Australian Journal of Forensic Sciences, 47*(2), 182 - 193. http://dx.doi.org/10.1080/00450618.2014.925974

Speaker, P. J. (2015). *Forensic Laboratory Financial Management* (pp. 1-7). Garner, NC: American Society of Crime Laboratory Directors Crime Lab Minute. http://www.ascld.org/wp-content/uploads/2015/07/Metrics-to-Help-Guide-Laboratory-Management.pdf

Speaker, P. J. (2015). *Project FORESIGHT Benchmark Data 2013-2014*. https://researchrepository.wvu.edu/faculty_publications/1142/

Houck, M. M., Speaker, P. J. (2014). Forensic Science and the Administration of Justice, "Developing New Business Models for Forensic Laboratories." In M. Hickman & K. Strom (Eds.), Chapter 12, pp. 221 - 233. SAGE.

Speaker, P. J. (2014). *Project FORESIGHT Benchmark Data 2012-2013*. https://researchrepository.wvu.edu/faculty_publications/1141/

Speaker, P. J. (2013). *Project FORESIGHT Annual Report, 2011-2012*. https://business.wvu.edu/files/d/0e133632-0c47-4d65-8f0a-6d493f0ba6d1/fy2012examplereport-1.pdf

McAndrew, W., Speaker, P. J. (2013). Expanding Budgets via Strategic Use of Leasing. *Forensic Science Policy & Management: An International Journal, 3*(4), 169-179. https://doi.org/10.1080/19409044.2013.844214

Speaker, P. J. (2013). Forensic Science Service Provider Models: Data-Driven Support for Better Delivery Options. *Australian Journal of Forensic Sciences, 45*(4), 398 - 406. http://dx.doi.org/10.1080/00450618.2013.773076

Houck, M. M., Henry, J., Speaker, P. J. (2013). Improving the Effectiveness of Forensic Service: Using the Foresight Project as a Platform for Quality. *Journal of Forensic Sciences: Proceedings of the American Academy of Forensic Sciences,* 19(1), p. 21. https://www.aafs.org/sites/default/files/media/documents/2013_Proceedings.pdf

Dawley, D. (2013).Determinants of Turnover Intentions, Helping, and Knowledge Sharing in Crime Laboratories. *Journal of Forensic Sciences: Proceedings of the American Academy of Forensic Sciences*, 19(1), p. 230. https://www.aafs.org/sites/default/files/media/documents/2013_Proceedings.pdf

Houck, M. M., Speaker, P. J., Fleming, S., Riley, R. (2012). The Balanced Scorecard: Sustainable Performance Assessment for Forensic Laboratories. *Science and Justice, 52*(4), 209-216. https://doi.org/10.1016/j.scijus.2012.05.006

Maguire, C., Houck, M. M., Williams, R., Speaker, P. J. (2012). Efficiency and the Cost Effective Delivery of Forensic Science Services: In-Sourcing, Out-Sourcing and Privatization. *Forensic Science Policy & Management: An International Journal, 3*(2), 62-69. https://doi.org/10.1080/19409044.2012.734546

Newman, J., Dawley, D., Speaker, P. J. (2012). Strategic Management of Forensic Laboratory Resources: From Project FORESIGHT Metrics to the Development of Action Plans. *Forensic Science Policy & Management: An International Journal, 2*(4), 164-174. https://doi.org/10.1080/19409044.2012.693571

Witt, T. S., Speaker, P. J. (2012). *The Power of Information* (pp. 1-5). Forensic Magazine. http://www.forensicmag.com/articles/2012/04/power-information

Speaker, P. J. (2012). *Efficiency and Cost Effectiveness of Forensic Science Services FORESIGHT 2010-2011 Benchmark Data.* https://business.wvu.edu/files/d/b61c2bfa-8930-4c53-a869-f939df61c5e6/fy2011examplereport-1.pdf

Dawley, D., Munyun, T. (2012). The Effects of Politics on Job Satisfaction in Crime Lab Employees. *Forensic Science Policy and Management: An International Journal*, 3(4), pp. 159-164. https://doi.org/10.1080/19409044.2013.826306.

McAndrew, W. P. (2012). Are Forensic Science Services Club Goods? An Analysis of the Optimal Forensic Science Service Delivery Model. *Forensic Science Policy and Management: An International Journal*, 3(4), pp. 151–158. https://doi.org/10.1080/19409044.2013.806608

Dawley, D. (2012). Enhancing Employee Outcomes in Crime Labs: Test of a Model. *Forensic Science Policy and Management: An International Journal*, 3(4), pp. 105-112. https://doi.org/10.1080/19409044.2012.755236

McAndrew, W. P. (2012). Is Privatization Inevitable for Forensic Science Laboratories? *Forensic Science Policy and Management: An International Journal*, 3(1), pp. 42-52. https://doi.org/10.1080/19409044.2012.720641

Kobus, H., Houck, M. M., Speaker, P. J., Riley, R. A., Witt, T. S. (2011). Managing Performance in the Forensic Sciences – Expectations in Light of Limited Budgets. *Forensic Science Policy & Management: An International Journal, 2*(1), 36 - 43. https://doi.org/10.1080/19409044.2011.564271

Heames J. T., Heames J. T. (2011). Forensic Science Staffing: Creating a Working Formula. *Forensic Science Policy & Management: An International Journal,* 2(1), 5-10. https://doi.org/10.1080/19409044.2010.516796

Speaker, P. J., Fleming, A. S. (2010). Benchmarking and Budgeting Techniques for Improved Forensic Laboratory Management. *Forensic Science Policy & Management: An International Journal, 1*(4), 199-208. https://doi.org/10.1080/19409044.2010.491894

Speaker, P. J. (2010). *The KPI of CSI: A Business Application in the Public Sector* (1st ed., vol. 11, pp. 1-12). Philadelphia, PA: Journal of the Academy of Business Education. http://abeweb.org/proceedings/proceedings10/speaker2.pdf

Speaker, P. J. (2010). *A New Twist on Old Tricks: DuPont Expansions for Public Entities* (1st ed., vol. 11, pp. 1-7). Philadelphia, PA: Journal of the Academy of Business Education. http://abeweb.org/proceedings/proceedings10/speaker1.pdf

Speaker, P. J., Fleming, A. S. (2009). Monitoring Financial Performance: An Approach for Forensic Crime Labs. *The CPA Journal, 79*(8), 60-65. http://search.proquest.com/docview/212281997?pq-origsite=gscholar

Speaker, P. J. (2009). The Decomposition of Return on Investment for Forensic Laboratories. *Forensic Science Policy & Management: An International Journal, 1*(2), 96-102. https://doi.org/10.1080/19409040902800260

Houck, M. M., Riley, R. A., Speaker, P. J., Witt, T. S. (2009). FORESIGHT: A Business Approach to Improving Forensic Science Services. *Forensic Science Policy & Management: An International Journal, 1*(2), 85-95. https://doi.org/10.1080/19409040902810723

Speaker, P. J. (2009). Key Performance Indicators and Managerial Analysis for Forensic Laboratories. *Forensic Science Policy & Management: An International Journal, 1*(1), 32-42. https://doi.org/10.1080/19409040802624075

Speaker, P. J., Houck, M. M. (2009). *FORESIGHT Executive Summary 2007/2008*. https://business.wvu.edu/files/d/10ce6b15-4350-43b7-9972-671a7d186e32/fy2008examplereport-1.pdf

Forensic Science International: Synergy

An international journal dedicated to the forensic sciences and its cross-disciplinary effects on the administration of justice.

Editor-in-Chief: M. Houck

Forensic Science International: Synergy is a Gold Open Access journal which welcomes significant, insightful, and innovative original research with the aim of advancing and supporting forensic science while exceeding its expectations for excellence. By being freely available to anyone, we seek to promote and support open discourse across diverse areas of interest, avocation, and geography. Papers are invited from all forensic sciences and influencing disciplines, including but not limited to the humanities, life sciences, social sciences, and the law. Cross-disciplinary collaboration promotes innovative approaches, encourages systems-level perspectives, and seeds the literature with insightful opportunities.

Because the good management of science can be as important as the science itself, the journal welcomes articles on issues related to forensic science policy and management. Management, human resources, economic studies, policy implications of new methods or technology, and any other work intended to improve the effectiveness, efficiency, quality, and operations of forensic science laboratories as well as to the education and training of forensic scientists. In addition, the journal welcomes manuscripts on the governmental and institutional policies that affect the practice and management of forensic science.

Our goal is to publish quality work quickly so that information and results that have the potential to affect the public or a criminal justice system can be distributed, discussed, and incorporated into future research or applications. We will consider the following types of manuscripts:

- Original research
- Review articles
- Case reports
- Opinion pieces
- Policy papers
- Practitioner notes

Forensic science is central to modern criminal justice systems. It supports investigations, demonstrates associations between people, places, and things involved in criminal activity, and exonerates the innocent. Forensic services are sciences integral to a just society governed through rule of law, it is unarguably a public good and should be accessible to anyone. Transparency is key to good science, rational governance, and equitable justice.