

Features

Crime labs under the microscope after a string of shoddy, suspect and fraudulent results

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By [Mark Hansen](#)

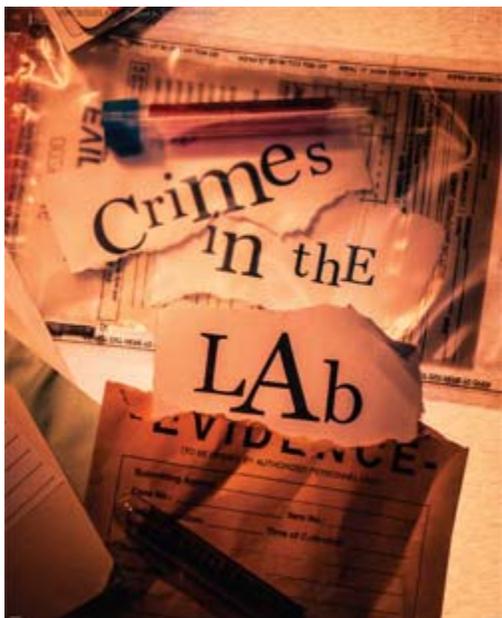


Photo illustration by Stephen Webster

In January, the New York City medical examiner's office confirmed that it was reviewing more than 800 rape cases from a 10-year period during which DNA evidence may have been mishandled by a lab technician who resigned in 2011 after an internal review uncovered problems with her work.

The review, then about half complete, had already turned up 26 cases in which the former technician failed to detect the presence of DNA evidence, including one in which the evidence has since led to an arrest in a 10-year-old rape case. The review uncovered 19 cases in which DNA evidence was commingled with DNA evidence from other cases.

A month earlier, a former chemist at a now-shuttered state drug lab in Boston was indicted on 27 counts of obstructing justice, tampering with evidence, perjury and other charges in connection with her handling of some of the tens of thousands of drug cases she worked on during her nine years there. "Little Annie" Dookhan is accused of faking test results, intentionally contaminating and padding suspected drug samples, forging co-workers' signatures on lab reports, and falsely claiming to have a master's degree in chemistry.

The ongoing investigation into her work—which could upend thousands of drug convictions—has already led to the closing of the lab, the release of hundreds of convicted drug offenders, and the termination of one lab official and resignation of another. It also led to the resignations of state Public Health Commissioner John Auerbach, whose office oversaw the lab, and Norfolk Assistant District Attorney George Papachristos, who was found to have had an inappropriately personal (albeit not romantic) relationship with Dookhan.

A few months before that, the St. Paul, Minn., police department's crime lab suspended its drug analysis and fingerprint examination operations after two assistant public defenders raised serious concerns about the reliability of its testing practices. A subsequent review by two independent consultants identified major flaws in nearly every aspect of the lab's operation, including dirty equipment, a lack of standard operating procedures, faulty testing techniques, illegible reports, and a woeful ignorance of basic scientific principles.

Assistant public defender Lauri Traub stumbled onto the lab's problems when she asked to meet with the analyst who tested suspected drugs one of her clients was accused of possessing. Traub says she was horrified by what she found: The lab, an old-fashioned "cop shop," was run by a police sergeant with no scientific background, had no written operating procedures,

didn't clean instruments between testing, allowed technicians unlimited access to the drug vault, and didn't have anyone checking anyone else's work. Analysts didn't know what a validity study was, used Wikipedia as a technical reference, and in their lab reports referred to "white junk" clogging an instrument.

"In some ways, this is even worse than what has happened in Boston and elsewhere," Traub says. "These people didn't know what they were doing. They had no business running a lab in the first place. And yet they came into court every day and acted as if they did."



Annie Dookhan, center, is escorted from a Boston courthouse after refusing to testify in a drug case last October. Dookhan has been accused of faking drug results, forging signatures and mixing samples at a state police lab. Police say Dookhan tested more than 60,000 drug samples involving 34,000 defendants during her nine years at the lab. AP Photo/Josh Reynolds

The city has since hired a certified fingerprint examiner to run the lab, who has announced plans to resume its fingerprint examination and crime scene processing operations, and begin the procedure for seeking accreditation. But it has no plans to reopen its troubled drug testing unit.

Those are just three of the most recent in a long line of forensics lab scandals that have roiled the U.S. criminal justice system over the past two decades or more. All are different, but all have the potential to put innocent people behind bars—or worse—and spawn litigation that could end up costing taxpayers dearly.

Such scandals have been occurring with mind-numbing frequency since 1993, when the long-running fraud perpetrated by former West Virginia state police crime lab serologist Fred Zain first came to light. But what else should we expect from a system so diverse, so fragmented, so unregulated, so lacking in uniform and enforceable standards—and so beholden to the interests of law enforcement?

Zain, whose work came under scrutiny after the DNA exoneration of a convicted rapist he had positively identified as the perpetrator, was eventually found to have falsified test results in as many as 134 cases during a 10-year period.

In fact, Zain was found to have tainted so many trials with false and misleading testimony, the judge assigned to investigate his work concluded that everything Zain ever said and did should be deemed "invalid, unreliable and inadmissible" as a matter of law. Zain died in 2002 while awaiting a retrial in West Virginia on fraud charges for which a jury had previously been unable to reach a verdict.

Zain has few rivals in the lab fraud department, but Joyce Gilchrist, who spent more than a decade as a chemist in the Oklahoma City Police Department's crime lab, would have to rank right up there. Gilchrist, who testified as a prosecution expert in 23 death penalty cases, including those of 12 inmates who were later executed, was fired in 2001 for doing sloppy work and giving false or misleading testimony. Nicknamed "Black Magic" by detectives for her seeming ability to get lab results no other chemist could, Gilchrist was never prosecuted for her alleged misdeeds, though she reportedly was named a defendant in at least one lawsuit against the city by a convicted rapist who was later exonerated.



Photo of Jill Spriggs by Jonah Light.

UNKNOWN NUMBERS

Nobody really knows how many crime lab failures there are because we usually only hear about them when somebody who has been wrongfully convicted of a crime is exonerated through DNA testing.

But we do know that there have been 310 post-conviction DNA exonerations in this country through the end of July, according to the Innocence Project, which works to free the innocent through DNA testing. And studies show that unverified or improper forensic science (defined as fraud, misconduct or the use of scientifically untested evidence) played a role in about 55 percent of those cases.

That's kind of ironic because DNA testing—arguably the most scientific of all forensic disciplines—is highly regulated, while many other forensic techniques with questionable scientific pedigrees are completely unregulated in all but a few states. And DNA testing accounts for less than 4 percent of the work crime labs do, though that figure will likely rise now that the U.S. Supreme Court has held that police can take DNA samples from people charged with serious crimes.

Jill Spriggs, director of the Sacramento County district attorney's crime lab and immediate-past president of the American Society of Crime Lab Directors, points out that neither the Massachusetts nor the St. Paul crime labs were accredited.

"Accreditation is vitally important to the success and quality of the product crime labs put out," she says.

But accreditation alone won't do the job, Spriggs says. Crime labs must engage in rigorous hiring practices, including detailed background checks on prospective employees, and have strong monitoring and management procedures in place to detect quality control issues early on, which neither the Massachusetts nor St. Paul crime labs apparently had.

"If you have one chemist doing three or four times as many cases a month as anyone else in the lab [as Dookhan reported doing], you should be looking into how and why that is," Spriggs says.

Forensics lab directors say most accredited labs do a good job under difficult circumstances; and given the sheer volume of cases they handle, labs can't be expected not to make an occasional mistake. But cases of outright fraud are rare, they say. But the *ABA Journal* counted dozens of scandals of all shapes and sizes in both accredited and unaccredited crime labs from one end of the country to the other in the last decade alone. And that count was by no means exhaustive.

Even the much vaunted FBI crime lab, long considered the nation's premier forensic facility, has been rocked by scandal: first in its explosives unit, then its DNA unit, then its comparative bullet-lead analysis unit, and most recently in its hair microscopy unit.

Myrna Raeder, a professor at Southwestern Law School in Los Angeles and an expert on evidence and criminal procedure, is not sure whether there are more such scandals occurring these days or if we're just finding out about them more than we used to. But as they seem to pop up so frequently, it reminds her of an arcade game: "It's sort of like Whac-a-Mole." Peter Neufeld, co-founder of the Innocence Project, says such scandals are definitely more "observable" thanks to the passage of the Innocence Protection Act in 2004, which requires states that receive federal funding for DNA databanks to certify the existence of an independent entity to investigate labs against which serious allegations of misconduct or negligence have been raised.

"There was a tendency before to just sweep these things under the rug, which they can't do anymore," says Neufeld, a founding partner of New York City's Neufeld Scheck & Brustin.

SYSTEMIC PROBLEMS

Paul Giannelli, a law professor at Case Western Reserve University in Cleveland who has been studying crime lab failures for 20 years, says he used to think the problem was limited to the occasional misdeeds of a few bad apples. But given the many lab scandals that have gone undiscovered for so long, he's come to the conclusion the problem is a systemic one that can only be remedied through regulation.

"And we can't delegate to a private organization what should rightfully be a function of the government," Giannelli says.

The shortcomings of the existing system have been well-documented, most notably in the National Academy of Sciences' 2009 study of forensic science, which exposed serious flaws in the way crime labs operate.

The report found:

- The field is highly fragmented. Of the 389 publicly funded forensics labs operating in the United States in 2005, 210 were state or regional labs, 84 were county labs, 62 were municipal labs and 33 were federal labs. Some major cities and counties have their own labs, as do some big-city medical examiner offices.
- There is wide variability in forensic science disciplines, not only in techniques and methodologies but also in reliability, error rates, reporting, research, general acceptability and published material.
- There is a dearth of peer-reviewed, published studies establishing the scientific bases and reliability of many forensic disciplines.
- Many labs are underfunded and understaffed, which contributes to case backlogs and likely makes it more difficult for lab workers to do as much as they could to inform investigations, provide strong evidence for prosecutions and avoid errors.
- Most labs operate under the auspices of law enforcement agencies, making them susceptible to pressures—overt and otherwise—to produce the kinds of results that police and prosecutors are looking for.
- Rigorous and mandatory accreditation and certification programs are lacking, as are strong standards and protocols for analyzing and reporting on forensic evidence. Only a few states require crime labs to be accredited, though in 2005 more than three-quarters of all such labs were voluntarily accredited by private accrediting agencies—the vast majority of them by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board, aka ASCLD/LAB.

"In short, the quality of forensic practice in most disciplines varies greatly because of the absence of adequate training and continuing education, rigorous mandatory certification and accreditation programs, adherence to robust performance standards and effective oversight," the report said.

The National Academy of Sciences report presented 13 recommendations for improving the system, including one calling for creation of an independent national institute of forensic science to lead research efforts, establish and enforce accreditation and certification standards for labs and practitioners, and oversee educational programs.

The report also recommended removal of all crime labs from the administrative control of law enforcement agencies and prosecutors' offices, creation of standard terminology for reports and testimony, and increases in funding for peer-reviewed research into the scientific validity of various forensic techniques. And it called for more research into human observer bias, establishment of routine quality control and quality assurance measures, and development of a national code of ethics for all forensic science disciplines.

To date, virtually nothing has been done to implement any of the study's recommendations. Meanwhile, the drumbeat of crime lab scandals goes on.

TWO MORE SCANDALS

One need look no further than what occurred at the Nassau County, N.Y., police department's forensic evidence bureau in 2011 and what happened at the North Carolina State Bureau of Investigation in 2010 to see the consequences of continued inaction.



Photo of Myrna Raeder by Jonah Light.

The Nassau County crime lab was shut down in February 2011 after county officials learned police had known for months about serious problems with its drug analysis testing without informing anyone. The closure came two months after the lab was placed on probation for the second time in four years following a scathing inspection report by accreditor ASCLD/LAB, about which police officials never informed the district attorney or the county executive. (Neither apparently did anybody from ASCLD/LAB.)

The report documented 26 areas of noncompliance with ASCLD/LAB accreditation requirements, 15 of which were considered "essential," 10 deemed "important," and one characterized as "desirable." The drug chemistry and latent print sections received the most citations, including improper maintenance of equipment and instruments, failure to properly mark and store evidence, and failure to secure the lab and adequately maintain records.

After the closure, New York Gov. Andrew Cuomo ordered the state's inspector general, Ellen Biben, to investigate. Her findings, detailed in a [166-page report](#), cited a litany of failures she described as profound, including weak leadership, a dysfunctional quality management system, inconsistently trained and qualified analysts, and outdated and inconsistent testing procedures. The report also said the lab's "significant and pervasive" problems were exacerbated by the New York State Commission on Forensic Science, which oversees the operation of the state's 22 forensic labs, and which the report said had almost completely abdicated its responsibility for lab accreditation and monitoring.

"The confluence of these failures in oversight enabled the [lab] to operate as a substandard laboratory for far too long," Biben wrote in her report. "In so doing, these failures deprived Nassau County, the criminal justice system and the public of their right to have complete and unfettered confidence in forensic testing."

As bad as that scandal was, it pales in comparison with one uncovered the year before at the North Carolina State Bureau of Investigation's crime lab. An independent audit by two retired FBI agents showed that analysts there had systematically withheld or distorted evidence in more than 230 cases over a 16-year period, including three cases that resulted in executions.

The audit, precipitated by the exoneration of an innocent man who had served 16 years of a life sentence in the murder of a prostitute in 1991, found the lab's serology section had long had a policy of reporting that presumptive tests for the presence of blood were positive, while failing to reveal when confirmatory tests proved to be negative or inconclusive. As a matter of practice, analysts also filed reports that overstated their test results and contradicted their bench notes.

A subsequent investigation by the *Raleigh News & Observer* found overwhelming evidence of a pro-prosecution bias at the lab, including training materials advising analysts on how to improve their conviction rates and instructing them to be wary of defense experts, whom it referred to as "defense whores." Performance reviews were written by prosecutors praising individual analysts for their favorable testimony, and a video showed two blood-spatter experts congratulating each other when, after several failed attempts, they successfully re-created a scenario supporting the prosecution's theory of the case.

The scandal also raised serious questions about ASCLD/LAB's accreditation procedures. The crime lab, accredited by ASCLD/LAB since 1988, had been inspected five times during the period in which the serology section was found to be misrepresenting blood test results. It didn't help that ASCLD/LAB, based in a Raleigh, N.C., suburb, is headed by two retired state crime-lab agents who held supervisory posts at the lab during the time the reporting policy was in place. Ralph Keaton, ASCLD/LAB's executive director, was the deputy assistant director of the crime lab until 1995.

And the agency did itself no favors when it released a position statement defending the lab's reporting practices as "consistent with the wording commonly used by forensic laboratories in the United States during that era."

A TARNISHED SEAL?

ASCLD/LAB accreditation is supposed to signal that a lab's work is scientifically sound. Lab directors wear it as a badge of honor that they proudly cite as a seal of approval. And Keaton has been quoted as calling it the gold standard for forensic accreditation around the world, which he told the *ABA Journal* he never said but wouldn't disagree with.

Most observers say voluntary accreditation is better than no accreditation at all because it has nipped some crime lab scandals in the bud and lets the labs know somebody is looking over their shoulders. But critics say the ASCLD/LAB seal of approval is not all it's cracked up to be.

Labs like North Carolina's, which are accredited under a "legacy" program, are inspected only once every five years. Inspections are conducted by directors of other accredited labs that are also subject to inspection. The labs are always informed in advance that inspectors are coming. And the labs themselves choose the cases the inspectors review, though Keaton says inspectors always ask to see additional cases.

- ASCLD/LAB's website lists the status of [all accredited labs whose status has been revoked](#); it shows that no lab's accreditation is currently revoked.

In 2004, however, ASCLD/LAB implemented a second accreditation program, ASCLD/LAB-International, which retained the forensic-specific requirements of the legacy program but incorporated additional, more rigorous requirements, including an annual audit. ASCLD/LAB is phasing out the legacy program and stopped accepting applications for it in 2009. But the last of the 125 labs still in the legacy program won't have to apply for accreditation under the new program until their current accreditation expires. There are 271 labs already accredited under ASCLD/LAB-International.

- ASCLD/LAB's website also lists the status of [all accredited labs which have been suspended](#); it shows that no lab's accreditation is currently suspended.

New York City criminal defense lawyer Marvin Schechter, a member of the committee that produced the NAS report, is one of ASCLD/LAB's biggest critics. Schechter, also a member of the New York State Commission on Forensic Science, wrote a lengthy memo to his fellow commissioners in 2011 recommending that they look for a new accreditor. He characterized ASCLD/LAB as an organization more interested in protecting its members' images than in promoting accountability.

"In fact, ASCLD/LAB could more properly be described as a product service organization," Schechter wrote, "which sells for a fee a 'seal of approval' covering diverse laboratory systems, which laboratories can utilize to bolster their credibility through in-court testimony by technicians, plus ancillary services such as protection from outside inquiry, shielding of internal activities and, where necessary, especially in the event of public condemnation, a spokesperson to buffer the laboratory from media inquiry."

Keaton refuses to respond directly to Schechter's remarks except to say that he disagrees with them. He also refuses to discuss the specifics of the North Carolina lab scandal, whose ripple effects are still being felt, although he does assert that a lot of what has been reported as fact is not factual.

But Keaton says that crime lab scandals fall into two categories: those involving fraud or other egregious misconduct, which are few and far between but suggest a complete breakdown in the integrity of a lab; and those based on human error, which are far more common but much easier to identify and correct. And he says the most serious problems he's aware of have occurred in labs that were not accredited.

"I absolutely think the accreditation process is rigorous and demanding," he says. "If you don't believe me, ask one of the labs that have gone through it."

If the accreditation process is so rigorous and demanding, critics wonder, then why have so few labs been sanctioned? ASCLD/LAB's website lists the status of all accredited labs and shows that no lab's accreditation is currently revoked or suspended; there are also no labs on probation. And Keaton says he can count on one hand the number of labs whose accreditation has ever been revoked or suspended, though he says it would probably take two hands to count the number of labs that have ever been placed on probation.

Keaton says that has a lot to do with the overall quality of accredited labs. But critics say it has more to do with the chummy nature of the inspection process, which creates a tendency to "go along to get along" among inspectors, and the agency's own interest in keeping labs accredited.

LEGISLATIVE SALVES

In the wake of the scandal, the North Carolina legislature enacted several reforms. It amended its accreditation statute to have the crime lab accredited by two agencies, ASCLD/LAB and Forensic Quality Services. It reworded the statute to identify the public and the criminal justice system as the lab's client. It made a crime the willful omission or misrepresentation of information subject to disclosure. And it created a forensic science advisory board to oversee the lab's operation.

But while that may have solved North Carolina's immediate problem, it doesn't do anything to address the larger issue, Southwestern law professor Raeder says—how to prevent such scandals from occurring in the first place. "We can't just keep stumbling from one scandal to the next," she says.

There are two forensic science reform bills now pending in Congress, but neither has gotten out of committee. The Criminal Justice and Forensic Science Reform Act, sponsored by Senate Judiciary Committee Chairman Patrick Leahy, D-Vt., would require all forensic labs that receive federal funding to be accredited and all relevant personnel to be certified. The Forensic Science and Standards Act, introduced in the Senate by Commerce, Science and Transportation Committee Chairman Jay Rockefeller, D-W.Va., and in the House by Rep. Eddie Bernice Johnson, D-Texas, would establish a national forensic science research program to fund research and develop forensic science standards.

The federal government has also announced establishment of a National Commission on Forensic Science aimed at strengthening and enhancing the practice of forensic science. The 30-member commission will develop policy recommendations for the U.S. attorney general on national forensic science standards, a uniform code of professional responsibility, and minimal training and certification requirements for forensic practitioners.



Photo of Paul Giannelli by Wayne Slezak.

The move was widely hailed as a step in the right direction, albeit a small one. But a lasting solution will require government regulation, many say, just as is done with clinical, environmental and nuclear labs.

There's no reason, Giannelli says, why the clinical lab that does Pap smear tests should be held to higher standards than the crime lab, whose work could put a defendant on death row.

"They're both a matter of life and liberty," he says.

Giannelli says there's no need to start from scratch. The DNA lab regulations already in place could serve as a model for other types of forensic testing.

Others agree. But they wouldn't stop there.

Raeder says pretrial discovery procedures and jury instructions must be changed to prevent forensic analysts from "fudging" the results of lab tests and "overreaching" when they testify.

To that end, the ABA House of Delegates adopted two resolutions at its 2012 midyear meeting. One urges governments at all levels to adopt pretrial discovery procedures requiring crime labs to produce "comprehensive and comprehensible" reports that spell out the procedures used in an analysis; the results of the analysis; the identity, qualifications and opinions of the analyst and anybody else who participated in the testing; and any additional information that could bear on the validity of the test results. The other urges judges and lawyers to consider several factors in determining how expert testimony should be presented to a jury and in instructing juries how to evaluate that testimony.

But before we do anything else, Neufeld says, we need to make sure that many of these forensic disciplines, developed by law enforcement agencies for use in law enforcement, are grounded in science.

"Let's start by putting forensic science on the scientific track," he says.

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