

GUEST EDITORIAL



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Developing a Forensic Science Laboratory Operating Strategy

In my travels and talks with forensic scientists in the United States and other countries, one impression never fails to surprise me. Despite differences in our political systems, dissimilarities in our criminal justice procedures, and a myriad of ways forensic science laboratories are organized, we all have many things in common: we are scientists, generally employed by nontechnical parent agencies, who provide a highly specialized scientific service to individuals and organizations possessing little or no scientific or technical knowledge. We practice our profession in an environment where those who use our services see us as a cross between Sherlock Holmes and television's Quincy.

How do we wish to be seen by law enforcement, prosecution and defense attorneys, the courts, our nontechnical administrators, and the public? How do we raise the profile of forensic science?

These questions, of course, assume that we should seek to raise our visibility. Is this premise valid? Maybe it's better to maintain a low profile. Maybe, if they don't know we're here, they'll leave us alone. But the very fact that we operate in an environment where few outside our profession truly understand the value and importance of forensic science makes it necessary to raise our profile—to “beat our own drum”—to upgrade forensic science and help it to reach its true potential. An unwillingness to aim for excellence in forensic science will result in the trivialization of our profession.

I would like to turn to the question of how we are seen by others. This is not such a simple matter. Forensic science seems different to each of the user groups we serve in the criminal justice system. Each of the entities in our environment sees us differently and has different expectations of us. And while some of my descriptions that follow may seem exaggerated, I do this to make a point.

The police investigator sees us as a scientific resource to help prove his case. He is delighted when we can substantiate his theory of how a crime occurred and usually wants more strongly worded opinions that we often like to give. He cringes at the use of what he calls “weasel words” in laboratory reports, for example, “consistent with” and “similar to.” He wants absolute statements. The concept of class characteristics is foreign to him and he would like nothing better than reports stating that, for example, the white cotton fiber found on the victim came from the defendant and no other.

The prosecuting attorney has little appreciation for forensic scientists. After all, how many lawyers successfully made it through physical chemistry for their baccalaureate? For the most part, although there are exceptions, lawyers are intimidated by us. We are indispensable in driving under the influence (DUI) of alcohol cases, required in drug prosecutions, and downright handy in rapes, assaults, and murders. Yet many will argue that forensic scientists often confuse the jury as often as they help the case.

Defense attorneys see us as extensions of the police and prosecution. I once gave a talk to a group of public defenders in Los Angeles. You may know these publicly funded defense lawyers as “legal aid lawyers.” In my address to them I explained how I saw our role as an independent, scientific evaluator of the physical evidence. The lawyers in that group laughed at me. They saw me and all government employed forensic scientists as being on the side of the prosecution and not at all unbiased.

The courts see us as a bottleneck. If your laboratories are at all similar to mine, I'm certain that at one time or another you have had a backlog in driving under the influence cases or in narcotics cases. And what happens when the laboratory begins to fall behind in those cases? The courts are likely to be in an uproar about continuances.

Administrators see us as a bottomless pit into which is continuously poured money—money to buy spectrophotometers, gas chromatographs, mass spectrometers, and other high priced laboratory equipment of that ilk. One administrator once mused to me, “Do you know how many patrol cars that gas chromatography system could buy?”

Finally, the public sees forensic scientists in the most romantic terms. We are a modern day incarnation of the legendary Sherlock Holmes. Quincy, the fictional TV forensic pathologist cum criminalist plays a key role in each of our institutions. The public believes that we all have unlimited time and resources to expend on each and every case we examine. Each case receives the highest priority. Our scientific staffs are permitted to work cases to the fullest—thoroughly and completely examining every last shred of evidence.

While the way in which we are perceived by others is important, we should also look at the image we ourselves project. Here I am drawing primarily from my own experiences; however, I suspect there are many similarities elsewhere. I am of course portraying a caricature of forensic scientists that is not universally correct.

We as forensic scientists tend to isolate ourselves. We see ourselves as different from most of the others in our circle of professional colleagues. That circle is peopled by lawyers, police, administrators, an occasional pathologist, and once in a while, the press. For the most part,

our nonscience peers do not speak our language and are often apathetic about our concerns. The very environment we exist in causes us to become introspective in our view of the system in which we live.

Many on our staffs cannot even effectively communicate with those to whom we provide forensic science services. Consultations with prosecutors and detectives are laced with technical "buzz words" and scientific jargon which are often unintelligible to nonscientists. We seem to relish in the use of multisyllabic words which only those of us "in the know" can fathom.

I have listened to many a laboratory director sigh, "*they* don't understand *our* problems." The "they" usually refers to administrators in the parent organization. This "we-they" attitude breeds what I call "the tail wagging the dog" syndrome. The forensic science laboratory becomes an abstract entity unto itself—divorced from its real world environment and purpose. Forensic scientists lose sight of their function within the criminal justice system. We perceive our role as the primary part of an investigation rather than the supportive part. I once listened in horror as a forensic scientist told a detective who had been working 72 hours straight on a murder case that he would not start on the evidence because he was busy with more important cases.

A colleague of mine likes to say that our job is to "uncover the truth." In the most abstract sense he is correct. We are independent seekers of the truth in criminal cases. But, unless we temper that abstraction with a strong dose of pragmatism we will never be much more than an administrative afterthought—ignored when things are going well and criticized when problems arise. We will wind up as nothing more than blood alcohol or narcotics laboratories rather than forensic scientific institutions that can truly make a difference in a criminal investigation.

I offer no prescriptions. There is no panacea to improve our image. What I can offer to you is a number of observations I have made over the years that seem to work in my jurisdiction and may very well work in yours.

First, we must ask, "What image do we want to project to the various people and groups that make up our environment?" We cannot lose sight of the fact that we are service providers. Our product is forensic science and our customers are the agencies represented in our local criminal justice community.

Above all, our customers or constituency expect quality. After all, people's lives and liberty are at stake. The reality is that errors in our work can potentially convict the innocent or free the guilty. We can afford no margin for error.

The laboratory's policy should stress quality in the work product. Some sort of quality assurance program should be built into the laboratory's operation. While a double blind quality assurance program might be the optimum, other programs, such as examination of proficiency samples, reanalysis of cases, case review by superiors or peers, formal training programs, contacts with police investigators and prosecutors, and so on, each insure quality work in the forensic science laboratory.

Forensic scientists should be encouraged to join and participate actively in professional scientific organizations. I know of no better process to breed confidence in new employees, provide peer recognition to the individual and to laboratory, and in the long run, upgrade the entire forensic science profession than participation in professional societies.

Training is another component that insures quality. Most laboratories have some sort of on-the-job training program, usually an apprenticeship training process. New employees work closely with experienced senior scientists until they are trained. While this process works, it has a tendency to foster inbreeding. Techniques and procedures are handed down from one generation to the next. While there may be nothing inherently wrong with such a training program, new procedures are less likely to be implemented. Outside training is likely to generate new techniques and different ways of approaching problems.

Beyond the obvious programs of quality assurance and staff development, there are a

number of strategies laboratory administrators and scientists could adopt to improve the image of forensic science laboratories.

Energetically Market Laboratory Services to Users

Principal users of forensic science laboratories, the police and prosecutors, focus their energies on their many and varied duties and responsibilities. Forensic science matters are usually not on the top of their lists of important things about which to worry. I think it would be fair to say that most police and prosecutors do not have a very good idea of what their local crime laboratory is capable of doing for them over and above the standard level of service they have come to expect.

Laboratory managers and their staffs need to get out of their laboratories to meet with their users and discuss matters of mutual interest. Periodic contacts serve two purposes: they tend to keep laboratories in tune with forensic science issues facing police and prosecutors and they establish open lines of communications between the laboratory and the forensic science consumer.

Adopt a Pragmatic Concept of the Laboratory's Mission

Why do crime laboratories exist? What is our "raison d'être?" In an abstract sense, our purpose is to determine truth by the application of science to physical evidence in criminal investigations. The problem with this abstraction is that it does not adequately define the laboratory's function in the real world.

Forensic science laboratories are part of governmental entities. To get the continuing support of their parent organizations, I believe that forensic science laboratories must have a purpose, or mission, that is consistent with their parent agency's purpose. A police colleague of mine is fond of saying that it is the business of the police "to throw bad guys in jail." Laboratories exist to support law enforcement whose mandate is to bring the wrongdoer to justice while it seeks to protect society and individual rights. Forensic science administrators will be more successful in advancing their laboratories cause by keeping the basic purpose of law enforcement in mind and incorporating it as part of the laboratories mission.

Aggressively Seek Out All Funding Sources

The realities of today's fiscal climate is that budgets are lean. It is unlikely that laboratories can obtain all that is needed in the way of personnel, equipment, training, and travel funds, and so forth. Funding sources outside of the traditional budget process need to be explored.

In California, for example, a conservative swing in state government allowed for passage of a form of "user tax" for crime laboratory services. The California Association of Crime Laboratory Directors was able to lobby the State Legislature to pass two bills which tacked on a \$50 fine for persons convicted of driving under the influence or narcotics violations. Fine money derived from these sources are used to partially fund laboratory efforts involving driving under the influence and narcotics cases.

Some laboratories have been successful in obtaining grants from industries, such as, insurance companies who have funded laboratory equipment related to arson.

Volunteers

The Los Angeles County Sheriff's Department has developed a successful volunteer program which is also used in the crime laboratory. Each year we receive dozens of inquiries regarding forensic science employment. Most of the requests are from people who have re-

cently graduated from school. These prospects are advised that we have a volunteer intern program. A surprisingly large number of applicants are willing to volunteer their time to the laboratory. Their motivation is experience which can be added to a resume and the possibility of employment in our laboratory. For the laboratory the program provides a ready pool of workers to help out, under supervision, in routine case work and in various research projects underway in the laboratory.

Another source of volunteers comes from public speaking engagements. We are regularly asked to career days at local colleges and universities, civic groups, and hospitals. These groups are told of our volunteer program and are another potential source of assistance.

Volunteers offer another benefit to the laboratory besides serving as auxiliary staff. In our experience, volunteers go on to become full-time forensic scientists. Those who remain at the laboratory at which they volunteered are well into their training. Those who are hired by other laboratories often enhance the reputation of the laboratory from whence they came.

Routinely Advise Upper Management of Laboratory Achievements

Many of the day-to-day activities of a typical forensic science laboratory go unnoticed. What may seem routine to us may capture someone else's imagination. It is important to "toot our own horn" and let others know when we have made a significant contribution to a case or have solved a problem.

Each of us, as individuals and as representatives of forensic science laboratories, has examples of things we are particularly proud of as well as major mistakes we've made. From time to time it becomes necessary to cash in those examples of exceptional performance to offset the occasional error in judgement or mistake.

Insist on Ethical Conduct in All Professional Activities

It takes many years to establish a laboratory's credibility in the criminal justice community wherein one practices. Ethical conduct counts for a great deal. In my experience, our laboratory's credibility affects the high percentage of court stipulations which result in only having to appear in court on a small percentage of cases. When, in 1983, we discovered a major series of clerical errors which necessitated the recall of 2400 blood alcohol cases, our reputation for professionalism and honesty and our willingness to "tell it like it is" saved us from serious criticism.

Laboratory management must also strive to develop a sense of proper professional conduct on the part of the scientific staff. For example, conclusions expressed in laboratory reports should be reviewed. Are forensic scientists taking a reasonable position when explaining the value of evidence which has class characteristics or do they tend to favor one side over the other? Sometimes it is important to instruct younger, less experienced staff that because they examine evidence for the police does not mean that they must take the role of an advocate on the police side every time.

Demand Professional Competency

Forensic science is a dynamic field. Each year scientific advances are made, new techniques and procedures are developed, and new technologies come to the fore. The courts are similarly busy. New legal decisions and opinions are made that impact forensic science. Forensic scientists must stay current in their profession.

Maintaining professional competency requires commitment on the part of both the employee and also laboratory management. New personnel should receive formal, in-house training. Such training should include mock court training and exposure to field investigations with experienced personnel. Laboratory training criteria for each discipline or subject

area should be developed and should be in writing so that the new employee understands what is expected of him.

Scientists should be encouraged to devote a portion of their time to research and development and to present their findings at scientific meetings and to publish them in journals. Both the individual and the forensic science laboratory benefit from such activity. The scientist establishes a level of technical credibility for himself and the laboratory is able to showcase its technical accomplishments.

Laboratories should establish and maintain adequate training and travel budgets. Funds should be available for personnel to attend courses, go to scientific meetings, and to visit other forensic science, industrial, and government laboratories when required.

Promote Ways of Upgrading Law Enforcement Capabilities Through the Application of Science and Technology

Police, prosecutors, and other users of forensic science services come to expect some basic level of service. That level is usually defined by historical usage. Sometimes new laws or public pressure redefine the service level. Laboratory managers should offer new services to users to assist police and prosecutors with their functions.

Often, users are unaware of the potential of forensic science and the ways it can be used to provide assistance on specific problems. Several years ago, we were able to add gunshot residue (GSR) testing to our capabilities. Our department was interested in upgrading its efforts to control street gang related violence and the laboratory had recently obtained the instrumentation to analyze for gunshot residue. The laboratory was able to convince the department of the importance of GSR testing and a county-wide GSR program was started.

Be Visible

As noted earlier, operating a forensic science laboratory is costly. Laboratories must compete with many other parts of the parent organization for funds. How do we as forensic science laboratory managers and staff convey a sense that our needs are greater than others?

Realistically, those that make budget decisions in an organization will fund projects and programs that capture their interest. Naturally, some fiscal choices are made because of exigent situations or for political or social reasons. But there is always a certain level of discretionary funding available. Visibility, and of course I mean this in a positive sense, improves the chances of attracting discretionary funding available in a budget.

Visibility enhances the worth of the laboratory. When the laboratory makes a significant contribution to the solution of a case, when forensic science proves that the wrong man stands accused of a crime, the value of the forensic science laboratory is enhanced.

Be Aware of "Environmental Factors"

As scientists or administrators whose training is in the sciences, we sometimes forget about "environmental factors." What are environmental factors? In any enterprise there are many events, situations, and activities external to the organization that affect it. Sometimes these factors are obvious and have a direct impact. For example, passage of a new law may have a direct effect on some part of the laboratory's operation.

In other instances, environmental factors may be less obvious and managers need to develop a sensitivity to detect their presence. Sometimes, for example, an especially heinous crime may capture the public's attention or the press may focus in on a particular kind of crime, such as drugs, DUI, rape, or child molestation. Laboratory management must seize the initiative at such times.

At the least, the laboratory should be making that extra effort beyond the usual level

expected under “ordinary” circumstances. Beyond that, words such as creativity, innovation, and imagination describe attributes of forensic science laboratory managers and staff that seize upon the opportunity and turn it to the advantage of the laboratory and the parent organization. A new laboratory program, perhaps an evidence collection kit to go along with a newly defined public concern, represents creativity along with sensitivity to outside factors affecting the laboratory.

Develop a Spirit of Cooperation with All Elements of the Criminal Justice System

Criminal investigation is a team effort. The many elements of the system must come together harmoniously for the process to work. Police, forensic scientists, pathologists, prosecutors, defense attorneys, and court officials must work cooperatively together toward a common goal.

Behind the “line” elements in the criminal justice system, that is, the police investigators, prosecutors, and so forth, there are a host of “staff” units. Staff units are those that provide support to the functions actually doing the work. Cooperation with the personnel, budget, supply, facility maintenance, repair, automotive, and other such areas within the parent agency or government is critical to the operation of the laboratory. You never know when a laboratory car will break down or when plumber or electrician will be needed immediately. Close working relationships serve to lubricate the engine to keep the forensic science laboratory running.

Develop Networks with Other Organizations and Individuals

Just as cooperation and close working relationships are important with line and staff groups, it is also worthwhile to establish networks with other organizations and individuals not formally tied to the laboratory. Contacts with colleges; universities; museums; hospitals; various industries; other entities in local, state, and federal government; the press; and so on, are ever so helpful to have when needed.

The forensic scientist is akin to a modern day “Renaissance Man”—a highly cultivated individual who is skilled and well-versed in many or, ideally, all of the arts and sciences. Perhaps we are not fully skilled in all the arts and sciences, however, we should be able to direct the detective or prosecutor to someone who has the skills or is the expert.

Set High Goals and Strive for Excellence

Does your laboratory set goals or does it seem to drift about? Organizations, like people, need to have goals to achieve and grow. Goals serve as a focus to which resources and effort can be directed. Without goals, organizations tend to stagnate.

Leaders, whether the laboratory director or the informal laboratory leader, set goals. Sometimes a laboratory’s staff may take it upon itself to strive to upgrade capabilities. Other times it is the formal leadership that decides on goals.

Setting goals is difficult. Goals should be achievable, reasonable, and measurable. They should not be so easy to achieve as to require no effort at all nor so difficult as to be impossible to achieve. But goals should be set high.

Personnel should be expected to perform well. Achievement should be rewarded with praise or anything else managers can do to encourage such behavior. Managers should press for excellence in all endeavors. We should all strive to work at the finest forensic science laboratory anywhere. We may never actually arrive but, unless we try, we will never succeed either. We may not feel that the task can be completed but we should at least try to get the job underway.

Achievement should be recognized. Laboratory management should compliment individ-

uals for a job well done. Case workers should know that management appreciates when extra efforts are made.

Be Patient

Unfortunately, we live in an era of instant gratification. We like to be rewarded for our efforts right away. Often this is not the case. We have to learn to be patient and to keep trying. Government is by nature slow. Change may be difficult to accomplish. Sometimes new programs or projects may seem to take a very long time to accomplish. Don't give up! Be patient!

Adopt an Attitude of Positive Expectancy

My last suggestion is to develop the attitudes of optimism and enthusiasm. People do not like to hear negativeness and despair. Enthusiasm is infectious and optimism breeds success.

Conclusion

I've made a great many suggestions to help improve the image of forensic science. Some of the ideas may be applicable to your laboratory's situation while others are not. My goal is to get you thinking about developing an operating strategy that works for your laboratory. Developing a strategy starts with analyzing your laboratory's environment and deciding what it is you want to achieve for your organization. I wish you the best of luck in that process.

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