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The American Society of Crime Laboratory Directors / Laboratory Accreditation Board was formed in 1980, by its parent association, the American Society of Crime Laboratory Directors.

ASCLD itself (the parent organization), was formed in 1973. Over the next few years, members of that organization felt that it would be beneficial to crime laboratories and the criminal justice system to create a means of standards-setting and accreditation for US crime labs.

ASCLD/LAB was created as a voluntary program, and it remains voluntary today.

The first accreditation inspections were performed in 1982.

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The objectives of the ASCLD/LAB accreditation program are:

First, to improve the quality of crime laboratory services provided to the criminal justice system

Secondly, to develop and maintain criteria which can be used by a crime laboratory to assess its level of performance and strengthen its operation

Third, to provide an independent, impartial and objective system by which laboratories can benefit from a total operational review

And also, to offer to the general public and to users of laboratory services a means of identifying those laboratories which have demonstrated that they meet established standards

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The strength of ASCLD/LAB is its delegate assembly, which is now at approximately 375 members. Each accredited laboratory has one vote in the delegate assembly. Any substantial changes in the program (for example, significant changes to requirements) – are taken to a vote of the delegate assembly. That body meets annually.

The board of directors makes day to day decisions for ASCLD/LAB – whether a laboratory has met all the accreditation standards and is to be accredited, or re-accredited; hearing appeals brought forward by laboratories regarding findings; clarifying standards and criteria through the issuing of interpretations, which we do for the benefit of laboratories AND staff inspectors

The board members are voted in by the delegate assembly, and serve 4-year terms.

There are 7 current lab directors from federal, state and local laboratories, plus a member representing law enforcement and prosecuting attorneys, and one member representing the public. The past chair of the board and the president of ASCLD are non-voting ex officio members.

We have a paid executive director, and 24 other paid employees, including 13 paid assessors, quality manager, legacy and international program managers, proficiency test program manager, training manager, business manager and administrative office staff.

The only way we can successfully operate, though, is to have hundreds of volunteer assessors who have expertise in a particular discipline and receive training from us in the assessment process. An assessment team for a laboratory with 60 employees may consist of about 8-10 assessors. An assessment team for a lab system like Calif. DOJ requires 40 or 45 assessors. These volunteer assessors also learn from going out on these assessments, and bring useful information and ideas back to their own laboratories.

In addition to volunteer assessors, we have Technical Advisory Committees for each discipline. These technical advisory committees provide technical information to the board of directors when the board needs to make a decision, for example on an appeal of some technical finding.

And yet another pool of volunteers that supports the ASCLD/LAB accreditation program are members of Proficiency Review Committees. These committees are discipline-specific, so there is a Latent Print proficiency review committee, a Biology proficiency review committee, a trace evidence committee, etc. When a laboratory gives an answer to a proficiency test that does not meet the target value, the proficiency review committee contacts the laboratory and makes sure the laboratory follows its corrective action procedure to find the root cause of the problem, determine what re-training might be needed, etc.

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ASCLD/LAB is the largest forensic science laboratory accreditation program in the world. There are other forensic laboratory accreditation programs in Europe, Australia, and elsewhere, but ASCLD/LAB accredits more forensic laboratories than any other accrediting body.

There are currently 375 laboratories accredited under ASCLD/LAB. This represents approx. 80% of crime labs in the country. 80% of multidiscipline crime laboratories. This does not include the small "forensic units" in small police departments and sheriffs offices that only do crime scene and latent print work. There are thousands of those across the country. We haven't even identified them all yet.

The other 20% are either unaccredited or accredited by FQSI, a competing forensic laboratory accrediting body. (Forensic Quality Services International).

In California, ASCLD/LAB accredits 39 laboratories (and Ventura County twice, once as a testing lab, and once as a calibration lab). To my knowledge, one crime lab is accredited (DNA only) by FQSI.

The California labs we accredit are 13 labs in the State system, 11 County crime labs, 1 county coroner's lab, 7 City labs, 5 federal labs, and 2 private labs.

To see a listing of accredited laboratories, you can visit our website at [ascl-d-lab.org](http://ascl-d-lab.org).

The ASCLD/LAB program is a comprehensive program. If a crime laboratory is doing work in DNA, trace evidence, firearms, drug analysis and latent print comparison, the laboratory must seek accreditation in all of those disciplines. They cannot pick and choose which disciplines they want to accredit. At this time the only optional discipline is crime scene. Crime scene accreditation was a late addition to our program, and when it was added, it was added as an optional discipline. I would expect that to change over the next few years and it will also be mandatory.

The number of Legacy laboratories is still greater than the number of labs in the International (ISO 17025) program. This is rapidly changing, as I will discuss in just a minute.

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The ASCLD/LAB Legacy program began 28 years ago. There are approximately 150 criteria in the Legacy program, covering the areas of management, quality system, training, proficiency testing, evidence control, note taking, reports, etc. The Legacy Program divided those criteria into Essential, Important and Desirable. Any critical criterion would be an Essential, such as "Are conclusions and opinions in reports supported by data available in the case record?"

An example of an important would be "Does the laboratory have an employee development program?"

And an example of a desirable would be "Does an effective means of communication exist within the laboratory?"

100% of essential criteria must be satisfied, and at least 75% of Important and 50% of desirable criteria need to be met to achieve accreditation in the Legacy program.

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It was decided (by the Delegate Assembly) in about 2003 or 2004 that the accreditation program would transition to an ISO standards based program. The last applications for the Legacy program were accepted on March 31, 2009. Since then, applications for accreditation or re-accreditation must be in the ISO program, which is known as ASCLD/LAB International. So many applications for Legacy accreditation were received in March of 2009 that those inspections are still occurring, and will be occurring for the next several months. As a result, since we have a 5-year re-accreditation cycle, those labs that are being accredited under Legacy for the next several months will be in that program until 2015. In late 2015, however, all labs will be accredited to ISO standards.

When I say that we have a 5-year re-accreditation cycle, I mean that a full assessment is done every five years. In the International program, in each successive year for the next 4 years after the full assessment, there is a surveillance visit, - a more brief visit, looking at key documentation, making sure

the lab is keeping up with the quality program. Then the 5<sup>th</sup> year the lab undergoes another full assessment.

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ISO stands for “International Organization for Standardization” or the French equivalent of that.

The International Organization for Standardization is headquartered in Geneva, Switzerland. ISO assembles working groups to develop and update standards as needed.

The ISO standards sets are numbered.

There are many sets of ISO standards – about 18,000 of them. ISO 17025 for testing and calibration labs is one of those sets of standards.

What are some others?

ISO 1629 is a set of standards that establishes a system of nomenclature for polymers.

ISO 2636 is a set of standards that establishes conventions for incorporating flowchart symbols into flowcharts

ISO 15971 is a set of standards for measuring the properties of natural gas.

ISO 17025 are not specific to crime laboratories. These standards would also be used by a laboratory that does, for example, steel hardness testing. So the 17025 are more general standards.

ASCLD/LAB has developed a set of Supplemental standards that are forensic lab specific. They are called the “Supplemental requirements for accreditation of forensic science testing laboratories.” There is also a set of “supplemental requirements for accreditation of breath alcohol calibration laboratories.”

So when an accreditation assessment is done, it is to the 17025 standards and to the supplemental requirements for forensic science laboratories.

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Taking the ISO 17025 standards and the supplemental requirements, there are a total of approximately 400 criteria that have to be met in order to achieve accreditation. All of these must be met. There are no important or desirables in the International program.

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Here I’ve taken an example of a more general ISO 17025 standard, and also show how an ASCLD/LAB supplemental standard makes it more specific to forensic science.

ISO 17025, clause 5.8.4 states that the laboratory shall have procedures and appropriate facilities for avoiding deterioration, loss or damage to the test or calibration item during storage, handling and preparation.

Very general – for example – back to the steel hardness testing lab, this clause would tell the lab, for example, to not allow a layer of rust to develop on the steel sample prior to the hardness test.

For us, it means don't lose, damage or change the evidence when you're handling it prior to or after testing.

The ASCLD/LAB Supplemental requirement 5.8.4.1, which may be just one of several supplemental requirements related to the ISO clause, states "Any evidence not in the process of examination that must be placed in a container to protect it from loss, cross-transfer or contamination shall be stored under proper seal."

So that's just an example of how the ISO Standards and the Supplemental requirements for forensic science laboratories work together to make the program more specific and focused.

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One of the criticisms I've heard over the years is that the ASCLD/LAB Accreditation program is a "good ol boy" system – "you sign off on us, and we'll sign off on you."

It just isn't so.

It is a rigorous, difficult process to achieve accreditation. It is generally accepted that an unaccredited laboratory needs 2 to 3 years to prepare for accreditation – developing policies, procedures, a system of document control, validations, etc.

The lab needs another year to actually go through the process. An application is submitted, and the lead assessor and other assessors spend a month or two going over the application, the policies and procedures, to make sure the lab seems to be ready. Then an assessment team is assembled and the assessment takes about a week. Typically 5 to 15 findings or "CARS" (corrective action requests) are generated by the team. The laboratory then takes the next few months to make the corrections to the satisfaction of the lead assessor. The lead assessor then recommends the lab to the board of directors for accreditation. Accreditation is conferred by a vote of the ASCLD/LAB board of directors.

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The ASCLD/LAB accreditation program is recognized by the InterAmerican Accreditation Cooperation, which covers North and South America.

The program is also recognized by the International Laboratory Accreditation Cooperation.

These accreditation cooperations actually send teams to watch us conduct accreditation inspections. When they are satisfied that we are doing a thorough job of inspections, and we are in compliance with ISO 17011 (yes, there is an ISO standard for accrediting bodies), we receive their recognition. These are external, international bodies making sure we're not just a "good ol boy network."

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Any laboratory that achieves accreditation under the International program receives a document stating what the scope of accreditation is. This slide shows a listing of the accreditable disciplines in the testing lab program. There is a list of subdisciplines (categories of work) that would also be in the scope document for a given lab, which might include, for example, Paint, Fibers, Glass, Fire Debris, and Explosives under the Trace Evidence discipline and Latent Print development and Latent print comparison in the Latent Print discipline.

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This slide shows a listing of the general headings under the Management Requirements portion of the ISO 17025 standards. This is just to give you an idea of the areas the clauses fit into.

So for example, under 4.11 Corrective Action, there are seven clauses. As an example, Clause 4.11.2 states “The procedure for corrective action shall start with an investigation to determine the root cause or causes of the problem.”

And as another example under 4.14 Internal Audits, clause 4.14.1 states “The laboratory shall periodically, and in accordance with a predetermined schedule and procedure, conduct internal audits of its activities to verify that its operations continue to comply with the requirements of the management system and this International standard.”

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Similarly, for the technical requirements, this slide shows the general headings

As we move into the NAS report and how the International accreditation program responds to it, you’ll be seeing some examples of these criteria.

### Slide 16

The National Academy of Sciences report on Forensic Science was published just over a year ago. Titled “Strengthening Forensic Science in the United States – A Path Forward”. I’d like to explain how the ASCLD/LAB accreditation program responds to several of the recommendations in the NAS report.

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The meat of the NAS report is in the 13 recommendations it makes. This slide and the next briefly state the recommendations.

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As I was reading the NAS Report, for several of the recommendations I found myself saying, “ASCLD/LAB is the response to that, or has a response to that.”

Recommendation 1 supports the establishment of a National Institute of Forensic Science (NIFS), and assigns NIFS some things to do:

Recommendation 1b states that NIFS will establish standards for the mandatory accreditation of forensic science laboratories and the mandatory certification of forensic scientists, and identify the entity to implement accreditation and certification.

And recommendation 1i states that NIFS will assess the development and introduction of new technologies.

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ASCLD/LAB supports mandatory accreditation. We have seen what accreditation has done for the quality of crime laboratories over the past 28 years. ASCLD/LAB, however, cannot make it mandatory. That has to be accomplished by some other mechanism.

In California, all crime laboratories that are truly crime laboratories are already accredited. Only some small police forensic units (and there may be many of those) and some private laboratories are not accredited.

As far as identifying the entity to implement accreditation, I suggest ASCLD/LAB is in the best position to take that on, and we already have the ISO 17025 standards and the Supplemental requirements for forensic science testing laboratories in place.

Certification - There are a number of certifying bodies – ABC (American Board of Criminalistics), the IAI (the International Association for Identification, the ABFT (American Board of Forensic Toxicology), and ABFDE (American Board of Forensic Document Examiners). Some people currently working in crime laboratories are certified by these groups, and some are not.

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There may be a different approach to certification. As part of the accreditation process, we look at the education, training, competency testing, proficiency testing and a sampling of at least 5 cases completed by each analyst – so we’re seeing the casework documentation (notes) and the reports generated by these examiners.

To me, this is a much more rigorous examination of a crime lab employee than just taking a test and passing.

There is a clause in ISO 17025 which states that management must give formal written authorization for each analyst to perform certain types of analyses, to use certain instrumentation, and to issue reports.

Why couldn't this be the equivalent of certification?

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Briefly reviewing NAS recommendation 1i, it said NIFS will assess the development and introduction of new technologies in forensic investigations.

So I've gathered a couple of ISO 17025 standards and one supplemental requirement that address this.

Clause 5.4.3 says "new method development shall be a planned activity, and it shall be carried out by qualified people.

Supplemental 5.4.2.1 says even if a new method you want to use in your laboratory has been validated in some other lab, you still have to do a performance check of that new method in your lab before you can use it on casework. And you need to keep documentation of the performance check you did.

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Clause 5.4.5.2 says that if a lab wants to use a non-standard method or a method not validated elsewhere, the lab has to do an appropriate validation.

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NAS recommendation 2 states that NIFS should establish model laboratory reports, and establish the minimum information that should be included.

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Here is what ISO 17025 says about report content:

It lays out what information needs to be in the report (Slide gives list)

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ISO clause 5.10.3.1 addresses the need to include information when deviations from the standard test method are used, a statement of the uncertainty of measurement, and when opinions and interpretations are in the report (often called CONCLUSIONS in our reports,) that we clearly state those conclusions.

5.10.3.5 states that its no longer ok to just say "the hair from the victim's hand "matches" the hair from the suspect's head. What does that mean? The glass on the roadway "matches" the headlamp glass from the hit/run suspect vehicle. What does that mean? The fibers are 'consistent with' the fibers from the victim's sweater? This clause states that it is incumbent on the analyst to clearly convey the significance of the association.

And 5.10.3.6 says that if we reach an inconclusive finding, we need to say why it is inconclusive. Was the bullet too damaged for comparison? Was the latent print too smudged to establish a sufficient number of points of comparison? Inconclusive conclusions need to be explained.

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NAS Recommendation 4 suggests that all crime labs be removed from police agencies and prosecutor's offices, "To maximize independence from" those agencies.

This recommendation was dead on arrival.

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The dollars just don't exist. And it would take a tremendous amount of money to accomplish this.

Personally, I'd love to have the federal government (I know the City and State governments don't have the money to do it) build a new regional laboratory in San Diego, separate from the police dept., separate from the Sheriff's office, and separate from the DA's office. As long as the revenue stream to support it continued. I'm probably speaking for most laboratory directors when I say "my tie is to the laboratory and the work we do", much more so than to the police agency we work for.

The genesis of this recommendation seems to be perceived bias on the part of the laboratories.

We have all read about or experienced first hand a forensic scientist who succumbs to pressures either external or internal to say something in a report or in a court of law that is not supported by the evidence he/she examined. Fred Zain stories are still discussed, even though his malpractice occurred some 20 years ago or more. He probably succumbed to the overwhelming need to feed his ego through detectives patting him on the back. This sort of aberrant employee costs the rest of us in the forensic profession by setting up or reinforcing a perception of bias on the part of forensic scientists.

Lets look at the ISO standard that addresses this:

4.1.5.b – the lab will have arrangements to ensure that management and personnel are free from undue internal and external pressures and influences that may affect the quality of their work.

How does that translate? In my lab, for example, we have a policy that states that the chief of police and assistant police chief can set priorities for cases to be examined, but they do not and will not have any influence on test results, reports or testimony. So if the chief's neighbor is burglarized, the chief can have us work the burglary ahead of a sex crime. But that's the extent of his power. He can't tell us what to find, how to report it, or how to testify about it in court.

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NAS recommendation 7 is largely a restatement of recommendation 1.

Mandatory accreditation

Mandatory certification of individual forensic scientists, both in public and private labs

NIFS should consider ISO standards

And then also what certification should include: Written exams, supervised practice, proficiency testing, continuing education, recertification procedures, adherence to a code of ethics, and effective disciplinary procedures.

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In recommendation 1, the NAS recommended setting up NIFS, and NIFS should set up a system of mandatory laboratory accreditation and certification. Here it is restated.

And, so, I'm just restating my response in the last 3 bullets in this slide.

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NAS Recommendation 8 would have forensic labs set up routine quality assurance procedures.

And these procedures would be designed to identify mistakes, fraud and bias.

These procedures would also ensure the validity of the methods used, and that best practices are followed.

Looking at that second piece – mistakes, fraud and bias.

Do ASCLD/LAB-accredited labs have, and do the ISO criteria do anything to help us identify mistakes, fraud and bias?

Mistakes? Certainly. One of the most important things we do to ensure quality of work is to technically review reports before they leave the laboratory. We also conduct an administrative review of reports. The technical review is a means of showing that the conclusions reached are based on observations made and data collected. Competency testing is mandatory before someone is allowed to work casework. Proficiency testing is mandatory every year, to show continued competence. These are mandated by the accreditation program.

What about fraud and bias? These are much more difficult to uncover, because if a person has the intent of going bad, then that person is not likely to leave clear evidence of it. No clear trail. Fraud, whether it be drylabbing or pilfering drugs for personal use - these are most likely to be uncovered by suspicion by coworkers:

“There’s no way he could have completed that work in that short an amount of time”

“Why does this drug bag have 2 sets of staple holes instead of one?”

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Routine quality assurance procedures are the heart of the ASCLD/LAB Accreditation program.

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NAS Recommendation 9 states that NIFS should establish a national code of ethics for forensic scientists.

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In December 2008, ASCLD/LAB adopted a set of guiding principles of professional responsibility.

There are 19 guiding principles, falling into the categories of professionalism, competence and communications.

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These next two slides briefly state the 19 guiding principles

#2, again, in addition to the ISO standard, says we reach conclusions based on the evidence, but should not be swayed by outside influences. This reflects back on NAS Recommendation 4 that would have the laboratories removed from police agencies to remove external influence.

#5 states that when we see unethical activity, we report it.

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Continuing with the guiding principles of professional responsibility

14 and 15 have to do with being complete and accurate and clear in notes and reports

These guiding principles were sent out to numerous forensic organizations for input. Input was received from a number of people, and much of the input was incorporated.

I believe that these guiding principles are general enough to be applied across forensic sciences, generally, and yet specific enough to be used as the basis for discipline, when appropriate.

I have adopted these guiding principles as standards of conduct in my lab, and as such, can back them up with a disciplinary procedure if they are not followed.

Whether these guiding principles become the national code of ethics for forensic science or not remains to be seen. In any event, I think it's as good a start as any.

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