Sampling Crime

Crime labs in the United States have been overwhelmed with impossible work loads now for decades. With limited budgets set for those labs legislators have mistakenly accepted that the analysts can accomplish enormous tasks without giving those analysts real relief. The result has been very public scandals which have seriously affected the public perception of our justice system. That has to stop. Where crime labs are concerned, legislators have to craft laws that take into account the limitations of crime labs while at the same time effectively controlling crime. This paper offers an example of a potential legislative solution to this crime lab problem which is simple, effective and requires no more expense on the part of cash strapped governments. The lesson to be learned here is that effective laws can be passed which take into account the limited resources of crime labs while at the same time allowing effective law enforcement.

A Failure of Controlled Substance Forensic Analysis

In order to understand this issue the following article which appeared in the August 2011 issue of Trial Briefs is represented here in its entirety:

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If we accept that forensic crime laboratories are completely overwhelmed, understaffed, underequipped, and exhausting environments in which to function, we see reality. Despite political rhetoric to the contrary, there has been little, if any, relief for those folks in crime labs who are toiling everyday under impossible workloads. The US War on Drugs is brought to the doors of crime labs hundreds of times a day because, finally, powders and vegetable materials must be chemically and physically analyzed in order to charge offenders properly. If we believe the Chemical Abstracts Registry, which tells us that there are over 70,000,000 known chemical compounds, and if we realize that a large portion of those materials can occur as powders, then we see the daunting task faced by forensic chemists. White powders seized by law enforcement personnel are not proven to be controlled substances simply because they are white powders which give positive results for presumptive field tests. Those powders must be subjected to rigorously validated scientific analytical protocols in order to test the hypotheses of seizing officers that the materials are actually controlled substances. These tests take an enormous amount of time, time that crime labs do not have. In order to address the issue of limited resources in controlled substance analyses, the North Carolina State Bureau of Investigation (NC SBI) Crime Laboratory in the past has turned to case law, State v. Brenda Harding, and sampling protocols which allow one to determine the whole from an analysis of a part of that whole in order that all samples seized are not having to be analyzed.

When law enforcement officers seize suspected controlled substances, often those seizures are in many small units of powders. An investigation may end in the seizure of hundreds or thousands of small bags or bindles. The chemical analyst cannot realistically analyze every small bag; therefore, for many years the NC SBI Lab utilized a sampling protocol referred to as the "square root of n plus 1" protocol. That protocol in its entirety is produced here:

"**Name of Procedure**:

Random Sampling
Random Sampling of Multiple Packages or Units

Suggested Uses:

Random sampling is a procedure that is used when analyzing an item of evidence that consists of multiple packages or units. This procedure allows a chemist to determine the composition of the evidence by analyzing some randomly selected packages or units and extrapolating the results. Random sampling is an accepted procedure used in forensic science and has been upheld by the Appellate Courts of North Carolina (see literature references).

Random Sampling Procedures:

1. Visually examine all of the packages or units in the item of evidence, as well as the contents, for differences in size, weight, color, packaging, markings, signs of tampering, labeling or other characteristics. If there are no appreciable differences, all of the packages or units should be considered together for the selection of random samples. If there are appreciable differences, segregate the packages or units into individual groups, based upon such observed differences.

2. To determine the number of random samples to be selected from a total number of packages or units, where **n** equals total number of packages or units:

   a. If **n** is less than or equal to 4, then random sampling is not done.
   b. If **n** is greater than or equal to 5, then the number of random samples selected is equal to the square root of **n** plus 1, expressed as:

$$\text{random samples} = \sqrt{n} + 1$$

   c. Weight determination - the total weight of all packages or units may be extrapolated from the weight of a random sample of the packages or units.

   d. Weight count - the total number of all packages or units may be extrapolated from the weight of a random sample of the packages or units.

Classification of Evidence:

There are three main forms of controlled substances:

1. Plant material.

2. Controlled substances consisting of marked dosage units from legitimate pharmaceutical manufacturers.

3. Controlled substances derived from clandestine manufacturers.

    a. Packages or units containing powder or solids.
    b. Packages or units containing liquid.
    c. Packages or units consisting of any substance which is used as a median to absorb or contain a controlled substance (plastic bags, glassine bindles, paper bindles, blotter paper, gelatin, sugar cubes, tea leaves, parsley, etc.)

Application of Procedure on Evidence:

1. Random sampling of plant material:

    a. Visual examination of all packages or units and a complete analysis of one package or unit is required to confirm identification (minimum requirements).

2. Random sampling of marked dosage units from legitimate pharmaceutical manufacturers:

    a. The visual examination and the markings on the dosage units provide identification of the controlled substance and a complete analysis of one dosage unit is required to confirm identification (minimum requirement).

3. Random sampling of controlled substances derived from clandestine manufacturers:

    a. Random samples of packages or units must be selected and subjected to at least one screening test. A complete analysis of a portion of the random samples is required to confirm identification (minimum requirement).

Safety Concerns:

Not applicable.

Literature References:

Colon, Rodriguez, and Diaz, "Representative Sampling of 'Street' Drug Exhibits," **Journal of Forensic Sciences**, Vol. 38, No. 3, May 1993, pp. 641-648.

Siegel, and Saferstein, "Forensic Identification of Controlled Substances," **Forensic Science Handbook**, Vol. 2, Prentice Hall, 1988.

Tzidony and Ravreby, "A Statistical Approach to Drug Sampling: A Case Study," **Journal of Forensic Sciences**, Vol. 37 November, 1992, pp. 1541-1549.

Frank, Hinkley, and Hoffman, "Representative Sampling of Drug Seizures in Multiple Containers," **Journal of Forensic Sciences**, Vol. 36, March 1991, pp. 350-357.

Waggoner, R.W., "*t* Distribution and Prediction Intervals," North Carolina State Bureau of Investigation, 1996.

State v. Myers, 301 S.E. 2d 401, 402 (N.C. App. 1983)

State v. Wilhelm, 296 S.E. 2d 664, 667 (N.C. App. 1982)

State v. Absher, 237 S.E. 2d 1325, 1328 (N.C. App. 1977)

State v. Clark, 197 S.E. 2d 81, 82 (N.C. App. 1973)

Literature References (continued):

State v. Riera, 172 S.E. 2d 535, 539 (N.C. App. 1970)

State v. Harding, 429 S.E. 2d 416 (N.C. App. 1993)"

Complete with scientific literature references and case law, the protocol might at first seem to be an unaddressable issue when one is questioning its validity. Indeed State v. Harding seems at first glance to stand solidly behind the protocol. Recall that Harding stands for the premise that one can determine the whole from an analysis of a part. However, Harding does not address which sampling protocol one must utilize. Furthermore, Harding does not support the use of the protocol listed above. In order to demonstrate this lack of support, let us look at an example of a bindle of heroin seized as evidence.

Figure 1

This bindle is a glassine container which has been folded twice over and then sealed with a piece of tape. Powder within the bindle cannot be seen. One cannot, therefore, follow the protocol that is repeated in part below by visually examining the contents for differences in size, weight, or color…:

1. Visually examine all of the packages or units in the item of evidence, as well as the contents, for differences in size, weight, color, packaging, markings, signs of tampering, labeling or other characteristics. If there are no appreciable differences, all of the packages or units should be considered together for the selection of random samples. If there are appreciable differences, segregate the packages or units into individual groups, based upon such observed differences.

The opaque nature of the bindle stops an examiner from determining the color and the morphology (size/shape) of the powder crystals inside the individual packages. Furthermore, street samples of heroin found in these bindles are usually in the hundredths of a gram size. To give us some idea of the size of those samples, notice that a package of sugar substitute that one finds on the table in a restaurant contains 1 gram of material. Now imagine two to four hundredths of a gram is all the powder within the bindle. Imagine then closing your eyes while someone removes 10% of the powder in that package without your knowledge and being asked to look back at the material. One cannot really detect such an appreciable change in such a small amount of material. Therefore, the protocol set forth above does not accurately function for such samples. Additionally color is not a very probative characteristic of materials when numerous chemicals and combinations of chemicals in the world might very well have the same color.

Because the visual examination through a multilayered semi-opaque material is not possible, the examiner must open all the bindles in order to visually analyze the contents of those bindles. In the experience of the author, Dr. Whitehurst, at the point of opening these packages, very often the analyst will simply mix the contents of the packages, thus destroying information concerning those contents. The undisturbed contents of these packages is evidence which a defendant has a right to review and an act, such as mixing these contents, is a direct violation of N.C. GS 14-221.1 and 15-11.1 which prohibit the destruction of evidence without court authorization. Mixing contents often accomplishes the aim of anyone wishing to establish guilt of trafficking. However, assuming that the prosecution's duty is to uphold justice, this mixing circumvents both the role of the prosecution as well as defense counsel.

The random sampling protocol above also neglects to instruct an analyst regarding how to actually conduct a random sampling. Analysts should be instructed that in order to prove a lack of bias in choosing which samples to weigh and analyze one must "randomly" select samples. One way to achieve this random sample is to assign a number to each sample. Then, utilizing a random number generator computer program, select those samples directed by that program. An inexpensive version of the random sampling consists of putting all the samples into a box or bag and picking out samples without looking at the samples chosen for analysis. Thus, despite being named "Random Sampling" procedure, the randomness of the sampling is not defined to ensure random selection.

Let's review how this protocol directs us to look at the number of samples to be analyzed:

2. To determine the number of random samples to be selected from a total number of packages or units, where **n** equals total number of packages or units:

   a. If **n** is less than or equal to 4, then random sampling is not done.
   b. If **n** is greater than or equal to 5, then the number of random samples selected is equal to the square root of **n** plus 1, expressed as:

$$\text{random samples} = \sqrt{n} + 1$$

c. Weight determination - the total weight of all packages or units may be extrapolated from the weight of a random sample of the packages or units.

d. Weight count - the total number of all packages or units may be extrapolated from the weight of a random sample of the packages or units.

For the reader who successfully may have forgotten any lessons from math classes in high school the “square root” of a number is another number which when multiplied by itself will equal the first number. For example the square root of one hundred is ten. The square root of sixteen is four. Therefore, if there are one hundred bindles in a seizure, one will then randomly select ten plus one and analyze eleven samples. In Dr. Whitehurst’s experience, examiners in the NC SBI lab will sometimes choose the square root of n plus one samples and then immediately mix them together. Once mixed, the court will never know which samples contained what material. Using our common sense we know that if we mix unknown powders together (in order to prove a trafficking weight), this mixture is a newly created mixture. Because NC statutes criminalize the manufacture of powder containing controlled substance x, the state’s analyst is possibly in violation of these manufacturing statutes by mixing together samples of this powder containing x.

Furthermore, suppose, for example, that the defendant has 100 bags of powder, produced by an average street pharmacist (consisting of unreliable contents), and some of those bindles contain a controlled substance while others consist of a non-controlled substance. There is no quality control in those street pharmacies. This problem is evidenced by statutes in NC which prohibit the sale of false controlled substances. We will not assume naively that the buyer, upon finding he has been cheated by purchasing a non-controlled substance, will go to the better business bureau. In fact the level of lawlessness in the illicit drug business is legendary.

Complicating this picture further, the US Drug Enforcement Scientific Working Group on Drugs has published its 2008 “Scientific Working Group for the Analysis of Seized Drugs

(SWGDRUG) Recommendations" which can be found at www.swgdrug.org. Page 8 of that document describes sampling strategy and notes that the sampling procedures are divided into statistical and non-statistical procedures. Among the statistical procedures the hypergeometric, Bayesian, and other probability-based approaches are listed and among the non-statistical procedures are the square root n, management directive, and judicial requirements standards. One can infer from this list that the NC SBI lab's random sampling protocol is a non-statistical sampling procedure. Furthermore page 9 explains that:

"If an inference about the whole population is to be drawn from a sample, then the plan shall be statistically based and limits of the inference shall be documented."

Page 11 goes on to say:

"Depending upon the inference to be drawn from the analysis for a multiple unit population, the sampling plan may be statistical or non-statistical…Statistical approaches are applicable when inferences are made about the whole population. For example: b) The total net weight of the population is to be extrapolated from the weight of a sample."

Page 12 also indicates that:

"Non-statistical approaches are appropriate if no inference is to be made about the whole population."

Based on these passages, , iIt seems as though the NC SBI lab has been utilizing a non-statistical sampling protocol from which one cannot determine the total weight of a sample of multiple units. Furthermore, these passages indicate that the total net weight for multiunit samples has been determined without valid foundation. If one reviews the protocol as provided under discovery by the NC SBI lab during past cases, one will see that this protocol has been in use since 1996. The use of this non-statistical protocol for nearly 15 years is troubling and leads us to A.J. Izenman's "Statistical and Legal Aspects of the Forensic Study of Illicit Drugs in Statistical Science, 2001, Vol. 16, No. 1, 35-57. On page 47 Izenman writes:

"The square-root and other popular rules. A worldwide survey of sampling practices and choices of sample sizes for forensic drug analysis …found that the most popular rule for deciding how many containers or items, whether homogeneous or not, to sample for drug testing was not a statistically motivated one. Instead, the most popular rule was the square-root rule, … used by laboratories in Australia, Austria, Canada, England, New Zealand, Hong Kong, Northern Ireland and the United States and U.S.A. Army-Europe. One would assume, therefore, that the square-root rule would be an accepted part of sampling practice. Yet, in an informal, but extensive, survey of sampling practitioners, we found that most sampling experts had never encountered the square-root rule and no textbook on sampling theory or practice nor review of the field…even refers to it…

The square-root rule apparently originated in the 1920's from a need to provide agricultural regulatory inspectors (specifically, those who knew how to extract a square root) with a convenient, memorizable rule for sample size determination."

The historic context of the use of this protocol versus its present application is troubling. Since 1996 the North Carolina SBI laboratory has been deciding weight of total population in drug trafficking cases with a sampling protocol which the community of statisticians opines is not valid for such a use? Have law enforcement, prosecutors and juries decided a defendant possessed a certain amount of material when in fact the NC SBI Laboratory could not accurately make that determination with the protocol that it utilized?

Recently a colleague requested a review of the lab discovery material in a criminal matter. Under Item 1 on the SBI Laboratory report dated September 2010 one can read that a statistical sampling plan that demonstrates 95% confidence was utilized. That report goes on to call that plan the "hypergeometric" sampling plan. Does this protocol change indicate that the NC SBI lab is now recognizing that the previous non-statistical sampling plan was indeed fundamentally flawed? If there truly is a new sampling plan—a statistical sampling plan—what consequences will this changed protocol have not only for post conviction relief matters, but also for the many trafficking cases which were analyzed using the square root of n plus one sampling plan, a plan which the NC SBI lab may now admit to itself, if not to defendants in courts of law under Brady, proliferated mistakes and possibly caused miscarriages of justice?

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The New Sampling Plan

On September 17, 2012 the North Carolina Crime Laboratory publicly introduced a new sampling protocol which takes into account the need to analyze a statistically valid subpopulation. This procedure can be found at :

http://www.ncdoj.gov/getdoc/ebd6172a-0f08-419a-9a52-07adde5066ae/Sampling-Procedure.aspx

An issue has arisen with this procedure which can be understood first by reading the text from the protocol itself:

"5.7 Population Determination

5.7.1 Evaluate the number of packages, units or tablets present in an exhibit carefully. If there is only one package, unit or tablet present in an exhibit, the Technical Procedure for Sampling shall not be used. (See Drug Chemistry Technical Procedure for Drug Chemistry Analysis.)

5.7.2 Visually inspect each of the packages, units or tablets in the exhibit carefully as well as any contents for homogeneity in size, weight, color, packaging, markings, labeling, indications of tampering and other characteristics. For analysis purposes, each intact piece of blotter paper shall be considered a unit. The Forensic Scientist shall document any perforations or indications of dosage units.

5.7.3 If after careful visual inspection it is determined that the contents of the packages, units or tablets are homogenous, the population shall consist of all of the packages, units or tablets.

5.7.4 If there are differences, segregate the packages, units or tablets into individual groups, based upon such observed differences. Each group shall be analyzed as separate populations.

5.7.5 If in the course of analysis it becomes apparent that the population is not homogenous, new populations may be formed based upon individual chemical test results. Samples which are no longer available for indiscriminate selection may not be considered a part of the new population.

5.7.6 If no groups can be formed based upon visual examination, then sampling shall not be performed."

The problem can be understood by review of actual data from laboratory work product from analyses of seized controlled substance samples. For example heroin samples are being seized in small glassine packages referred to as "bindles" shown in Figure 1. The bindles are about two and one half inches long, and an inch wide, and come generally folded over twice, taped shut to avoid the heroin spilling out. One can see such bindles seized as evidence in photographs found by simply looking for images in a Google search of "glassine envelopes heroin". The relative opaqueness of the glassine bindle and its being folded does not allow the analyst to view the material without removing it from the bindle. As can be seen from the photograph in Figure 1 the analyst must actually remove the powder from within the bindle before rendering any judgment as to whether the size, weight, and coloring are homogeneous.

But can the analyst determine if the weight or size of the contents of the different bindles is homogeneous? What does that mean? Is the analyst supposed to determine if there are significant differences between the individual bindles and if so how significant must the differences be? Can the analyst visually determine difference in size and weight between samples either before or after removing those samples from the bindles?

We look at a first year chemistry text[1] for an understanding about homogeneity and find

"Homogeneous substances consist of only one phase, that is, of only one region of stuff which has uniform properties and discernible boundaries."

That certainly does not fit our situation here. Possibly the author of this protocol referred to a standard dictionary for a definition of "homogeneous" and so we also will refer to a dictionary [2] and find for the definition"

[1] Bruce Mahan, "College Chemistry", Addison Wesley Publishing Company , 1966
[2] The American Heritage Dictionary, The American Heritage Publishing Company, 1975

“Like in nature or kind; similar, congruous, uniform in structure or composition throughout.”

As scientists we concern ourselves with measurement and therefore “similar”, “uniform”, “congruous” and “like” do not provide us more than minimal guidance. A more recent text[3] describes “homogeneous” as “the composition is the same everywhere.” But that also leaves us wondering how size and weight can be discerned to be homogeneous among different bindles of heroin. And finally referring to Wikipedia at: http://en.wikipedia.org/wiki/Mixture. we see the definition:

“A homogeneous mixture is a type of mixture in which the composition is uniform and every part of the solution has same properties.”

Maybe the author has misused the word “homogeneous” and actually means “significantly the same” but that leaves us without an understanding of “significantly” in this context.

The goal here is to be able to choose a small subset of a total population of samples which subset once chosen will allow the analyst not to have to analyze all samples in the total population. The analyst has to show that the subset chosen does not have a bias built in. For instance, suppose that for some reason, the analyst were to look through all the population of heroin samples and choose only those bindles which seemed to contain the largest quantity of powder. That would impose a systematic error on the sampling procedure and the subset could not be used to infer the weight of the total population. Let us look at some data from actual case work.

In a heroin trafficking case in North Carolina in which the author actually weighed 50 samples not previously weighed by the SBI Crime lab technician, there was a spread of weights from .0171 grams to .0620 grams, an approximate 360% range in values from the lowest to the highest amounts of heroin in the bindles sampled. (At first glance we see that this is consistent with the obvious fact that there is little if any quality control adhered to by street vendors of

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[3] Daniel C. Harris, “Quantitative Chemical Analysis” 6th Edition, W.H. Freeman and Company, 2003

controlled substances. We might infer from this one example that street sample units will weigh very different even among samples from a single seizure.) How would one group those bindles into subsets which were homogeneous in weight or size. What cut off differences would the analyst use for the subsets? If there is a five percent difference is that enough of a difference to separate a bindle by weight into another group? Who decides what difference is an obvious difference?

In another heroin trafficking case the North Carolina Crime Lab analyst utilized the new sampling protocol, the "hypergeometric" sampling method. In that case the range of weights for the 23 samples analyzed was from a low of .0215 grams to .1398 grams, a 650% range in values from the lowest to the highest sample analyzed.

If one were to follow the protocol as written:

> "**5.7.4** If there are differences, segregate the packages, units or tablets into individual groups, based upon such observed differences. Each group shall be analyzed as separate populations."

then surely some of those samples would have been segregated into smaller subsets. But they weren't.

The problem appears to be that the authors of the protocol have not validated the protocol for street samples. The protocol appears to be able to function with samples that appear as pills but not with those samples which present in multiunit seizures and which are in containers which hide the appearance of the controlled substances themselves. This leads to a vulnerability in the government's ability to carry the burden of proof in drug trafficking cases. Unless the analyst is willing to weigh each sample, in itself a very time consuming and tedious process, the government will not be able to prove the mass of the total population from an analysis of a subset using this protocol. Drug trafficking cases in these situations will have to be reduced to possession or possession with intent to manufacture, sell, or distribute.

But this protocol, like that before it, is now in use in North Carolina. What will happen to the many cases in which this protocol is used which will result in findings of guilt of trafficking in controlled substances when in fact the crime lab does not know from its data the total mass of all the samples? In a normal scientific laboratory this protocol would be discussed, evaluated, and validated. The opponents in arguments could talk together without the hindrance of the court system and the myriad of attorneys who must involve themselves in case after case. In the world of forensic science the opponents, scientific colleagues, are generally not allowed to discuss differences of opinion. It is not until cases reach the point of trial (a very rare circumstance in today's world of pleas negotiations) that any such discussions take place. And those discussions take place through the mouths of attorney advocates, abysmally ignorant of scientific issues, defending their positions before judges, also abysmally ignorant of scientific issues.

Solutions

Recent revelations concerning enormous failures in crime laboratories tell the truth that this system of review of science has failed too often. The saga of Annie Dookhan, in a Massachusetts crime lab, is frightening .[4] Ms. Dookhan put into jeopardy 60,000 past cases in which she had analyzed drug samples. While Massachusetts is reeling from the scandal, the state is simply following the lead of the most recent scandal at the Federal Bureau of Investigation crime laboratory.[5] There tens of thousands of hair analysis cases have come under review finally despite the fact that the FBI lab and the US DOJ knew for years that the practice was seriously flawed.

North Carolina can set a precedent where crime lab failures are concerned by passing responsible legislation which recognizes the limits of the crime lab system while insuring that criminal actions are dealt with correctly. In this particular instance, the crime lab analyst is required to prove the elements of the trafficking crime. Of course one of those elements is the identity of the material analyzed and another is the amount of material present. Heretofore,

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[4] "How a chemist circumvented her lab's safeguards", The Boston Globe, Kay Lazar, September 30, 2012
[5] "Convicted defendants left uninformed of forensic flaws found by Justice Department", The Washington Post, Henry Chu, April 16, 2012

NC has passed laws which broadly define the material determined to be illegal. For instance, NC controlled substance statutes define not solely trafficking in the controlled substance, heroin, itself but define that heroin as "any mixture containing opium or heroin".[6] Possibly without realizing it the legislature relieved the crime lab analysts of very labor intensive quantitative analyses, leaving them with simply identifying the presence of heroin in any mixture and then weighing the total mixture. As any analytical chemist realizes, quantitative analysis takes a lot more time than simple qualitative analysis. The logic is simple behind these laws. If an individual knowingly possesses a large amount of powder containing heroin then he or she is obviously a trafficker, not the simple consumer of small amounts of material. This same logic can be relied upon in defining a combination drug paraphernalia and controlled substance statute. If the perpetrator has in his possession a large number of bindles and any one of those contains heroin then he should be viewed as a trafficker, logically knowingly a seller, manufacturer, deliverer, transporter or possessor of a large amount of powder containing heroin. The weight of the controlled substance found in one bindle chosen at random can be multiplied by the number of bindles or individual packets to give a total weight for the purposes of determining trafficking. Changes in legislation can save the chemical analyst countless hours of analysis time. With a crime lab overrun with controlled substance samples the work load can be reduced significantly while satisfying legislators' intent. The argument that the weight determined will not reflect true weight can be countered by another proposed protocol. Simply combine the number of bindles/containers with a finding of heroin (or any other controlled substance) in any one of those bindles to describe the seized material as supporting a trafficking violation conviction. For instance, if the analyst found one bindle to contain heroin and then counted out over 25 bindles then the combination of the drug paraphernalia and the controlled substances could be used to support a conviction of trafficking. Before the reader argues against this it is informative to read the North Carolina statute concerning marijuana in which mature stalks are not considered illegal. In other words, the whole marijuana plant is not illegal though it is marijuana. It is just the leaves, flowers and

[6] NC General Statute §90-95(h)(4)

fertile seeds, a fiction that nevertheless reflects the desires of our society's need to control these substances.

Conclusion

For years we have realized in this nation that crime laboratories have been involved in very public and horrendous failures. We have sought the easy solution, blame the crime lab. We have seen so many instances of failure in crime laboratories that we are convinced that we must shut the laboratories down, turn the work over to private laboratories, and then with solution in hand move on blindly. If we follow the lead set in Great Britain we see that private crime laboratories are beset with the same problems as government labs: overwhelming workloads, underfunded programs, and too often poor work product. Common sense tells us that we need another solution. Crime laboratories conduct forensic analyses to answer questions posed by the criminal justice system. They follow standards, such as the Daubert standard, which are defined by law. There is no way to get around those parameters. Legislators who pass laws without the input of the knowledge of those individuals who have actually practiced in a crime laboratory pass laws and set standards that are impossible to reach when forensic science is involved. The example in this paper offers a solution and hopefully should be considered as a possible way forward, an inexpensive way forward, unless thought on the part of legislators is considered more expensive than the coming civil litigations as more and more citizens who were mistreated by the criminal justice system seek to be made whole. The heroin example given here is simply one of others that might be offered. Pass a law that can be enforced or deal with the loss of faith citizens have in the criminal system and its courts.