

# Practitioner Error vs. Deficient Procedures

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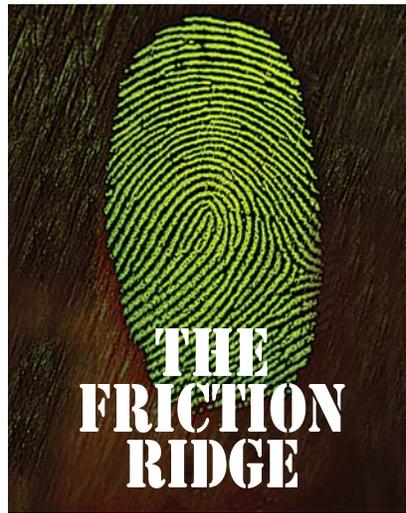
**F**OR MANY YEARS, forensic science has embraced the idea that any errors made were due to practitioner shortcomings or malfeasance. Testimony reflected that belief and we were trained that “two competent examiners must always arrive at the same conclusion”.

As we entered the 21st Century, the accreditation requirements and a general adherence to scientific principles made agencies and practitioners more aware of concepts such as *root-cause analysis* and *process improvement*. A practitioner is certainly responsible for an error that is the result of conclusions based on his own judgment—but thorough analysis may determine that the practitioner is not solely responsible. When practitioners are required to use judgment, results may not always meet the expectations of others. If specific procedures and results are desired, then clearly stating expectations may be an easy, yet underutilized, solution.

Proper *root-cause analysis* and suitable *corrective action* are essential for those committed to quality results.

## Introduction

An error is not always the result of poor decisions. Indeed, a lack of stated expectations by management is a systemic error, and may contribute to an error made by a practitioner. This deficiency requires that policies and procedures be rewritten. A thorough investigation into both the system and the practitioner’s job performance should be conducted to find the cause of an error and to establish appropriate corrective action. Accepting responsibility for an error should begin at the management level and progress to examine



the practitioner’s actions. Only then can an appropriate solution be found. The list of possible causes of errors (in the center of this page) is a starting point and can be expanded further.

*Low tolerance levels* and *overconfidence* may appear to be practitioner errors, but it is the responsibility of an agency (or discipline) to set the criteria and parameters. The agency must ensure that practitioners understand expectations and are capable of achieving them.

*Bias* may be considered a system error because an agency or discipline should have measures to reduce the potential for bias. Appropriate protocols (see *1c* in the chart) can diminish

pressures and influences that may affect conclusions. An agency could require additional review of a situation in which bias may have a greater influence. Applying a deductive scientific method to derive a conclusion can diminish bias as well. Such methods include: relying on objective data; attempting to falsify an assumption instead of trying to confirm it; considering data that does not fit; and reviewing the process as well as the conclusion, as opposed to simply reproducing the conclusion.

Even a *difference of opinion* could be a system error when expectations are vague. If a difference of opinion is troublesome, then an agency (or discipline) should set parameters to control deviation. An agency can establish a policy that conclusions must have enough justification to hold up to the satisfaction of other practitioners.

Once the cause behind an unacceptable result is established, suitable corrective action (controls to prevent unacceptable

## Root Cause Analysis

- 1) System Errors
  - a) Use of a deficient method.
    - i) Allowance of human judgment in lieu of a defined method or criteria.
    - ii) Poorly stated or improperly communicated expectations.
      - (a) The method or criteria were followed but did not produce desired results.
      - (b) The criteria may need to account for differences of opinion and or different tolerance levels.
  - b) Practitioner competence not established (knowledge, ability and skill).
    - i) Lack of adequate training.
    - ii) Inadequate competency testing prior to allowing a practitioner to perform casework.
  - c) Lack of appropriate protocols, environment and tools.
    - i) Failure to address and limit external pressure or reduce bias.
    - ii) Inadequate lighting or poorly maintained equipment.
    - iii) Unavailability of appropriate consultation.
- 2) Practitioner Errors (Understanding the Criteria but Not Applying it)
  - a) Medical problem that influences results
    - i) Degradation of cognitive abilities.
    - ii) Use of medication.
  - b) Lack of thoroughness
    - i) Carelessness, laziness, complacency.
    - ii) Physical or mental fatigue.
    - iii) Standards and procedures not followed.
  - c) Ethics
    - i) Intentionally disregarding the method.
    - ii) Fabrication / Falsification.

results from reoccurring) can be taken to improve any system, especially one that requires human decision-making. Corrective action may include revising procedures, establishing more specific criteria, additional training, and implementing competency testing.

### Significance of Errors

It may be important to determine the significance of an error. Suppose an error occurred but was detected prior to any ill effects. There would be no *actual* consequences from the error, but the *potential* consequences could have been substantial. The significance of an error should be determined by considering the *potential* effects in lieu of the *actual* effects, so that serious errors are addressed appropriately.

In both the medical field and forensic comparative sciences, some may assume a false-negative decision is not significant since no one is given an incorrect medical treatment or falsely imprisoned due to the error. In general, this idea is known as the precautionary principle: "It is better to err on the side of caution." Forensic science has often quoted Blackstone's ratio: "...it is better that ten guilty persons escape, than that one innocent suffer."

It is true that no one is wrongfully treated or falsely imprisoned due to a false-negative conclusion, but it may leave a patient untreated or a suspect free in the community to commit more crimes. On the other hand, an erroneous exclusion may be harmless if a latent print, shoe print, or tire track should have been identified to the victim. Until an agency gains experience in determining the root cause of an error, perhaps it is better to address all errors instead of trying to determine the significance of an error.

### Discussion

A hypothetical example can demonstrate this form of root-cause analysis and possible corrective action. Suppose some analysts in an office believe a piece of evidence is linked to a specific exemplar, while others disagree. Of course, varying conclusions are not acceptable. It is tempting for management to try to decide which practitioners are in error. Evaluating the conclusion against the written cri-

teria will determine where the error lies. Analyzing the six sections from the chart will determine potential reasons behind errors.

*Question 1: Were clear parameters in place to establish the identification?* One reason people disagree is because they do not have a clear idea of the criteria that must be met. Without a clearly stated expectation, practitioners are free to use self-imposed criteria that may differ from person to person. If written criteria did not exist, then this may have contributed to the inconsistent conclusions (an error by management in not stating an expectation). A standard could be implemented, requiring that conclusions be based on clearly visible data—not training and experience; or that conclusions require general consensus.

*Question 2: Was each practitioner competent?* Many times the competency of practitioners is presumed. If this is the case, then competency has not been established and this may have led to the problem (an error by the agency). The agency should implement a formal system to establish practitioner competency. This is a basic requirement of accreditation and should be universally adopted by agencies performing forensic comparative analysis.

*Question 3: Were appropriate tools provided?* If practitioners use differing tools, perhaps a 4.5x magnifier compared to digital enlargement, then it is possible for conclusions to differ between analysts. Management should ensure that practitioners have appropriate tools available, and are adequately trained to use the tools properly.

*Question 4: Did one or more of the examiners have medical or visual issues?* Although not a frequent occurrence, this is a realistic concern, and it should not be dismissed as a possibility.

*Question 5: Did one or more of the examiners lack thoroughness?* If an experienced practitioner becomes complacent, thoroughness may decrease. It can be difficult to find suitable corrective action for a practitioner who lacks thoroughness. Many supervisors simply ask practitioners to try harder, but this seldom works.

Implementing additional safeguards to ensure thoroughness can resolve this problem. This may include requiring additional documentation, ensuring that practitioners perform work more methodically. Changing an environment can reduce pressures and limit distractions that may contribute to a lack of thoroughness. Limiting extra duties may help a person focus on a specific responsibility as well.

*Question 6: Were the errors due to ethical issues?* It may seem unlikely that ethics would be the problem, but it should always be considered.

The answers to these questions show there are several reasons analysts could have differing conclusions. The cause of an error may be systemic and not simply a practitioner error. A lack of good policies and procedures (i.e., the cause) by an agency can result in an error made by a practitioner (i.e., the resulting problem).

### Conclusion

Quality results come from a quality system. Just like the airline industry learns from crash data and implements better procedures, so too should forensic science learn from the errors as they occur and implement better practices to mitigate their occurrence. In the past, practitioners have been blamed for most unacceptable results. After reassessing various situations, it can be concluded that many errors can be avoided if suitable expectations and procedures are in place. Agencies and disciplines should continually re-evaluate their expectations and procedures in an effort to strive for improvement. True leadership is displayed by accepting responsibility for and correcting systemic mistakes. ☺

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