Guidelines for the Use of Root Cause Analysis (RCA) to Reduce Error and Improve Quality in Forensic Science Laboratories
The Quattrone Center is a national research and policy hub created to catalyze long term structural improvements to the US criminal justice system.

A SYSTEMS APPROACH TO ERROR REDUCTION IN CRIMINAL JUSTICE

John F. Hollway
February, 2014
Errors in Forensic Science Labs
“Errors are caused by faulty systems, processes, and conditions that lead people to make mistakes or fail to prevent them.”
Nat’l Commission on Forensic Science

HUMAN FACTORS SUBCOMMITTEE

Human Factors is a multidisciplinary field that examines ways in which human performance (e.g., the judgments of experts) can be influenced by cognitive, perceptual, organizational, social and cultural factors, and other human tendencies. The Human Factors Subcommittee will examine factors that influence the performance of forensic scientists as they draw conclusions from physical evidence and communicate their findings in the legal system and recommend policies and procedures to improve the performance of forensic laboratories and their personnel in the various roles they perform. Specific areas of focus will include minimizing cognitive bias, reducing the risk of human error, testing and evaluating human performance, and improving communication of scientific findings.
Procedure for NCFS
Recommendations on RCA

1. 1st Draft - Interim Solutions Subcomm.
   - HF Subcomm. permitted review/comment
   - Public comments received, reviewed

2. Presentation of draft to full Commission
   - Add’l public comments received, reviewed

3. 2nd draft – Interim Solutions Subcomm.

4. Publication for comment by 7/27/2015
   - http://www.justice.gov/ncfs/meetings

5. Presentation to full Commission for vote 8/10/2015

6. Recommendations to U.S. Atty Gen
Corrective Action in Forensic Science

• Required by ISO 17025
  – Labs shall implement corrective action for all nonconforming work or departures from policies/procedures (4.9)
  – Procedure begins with an investigation to determine the root cause(s) of the problem. (4.11.2)
RCA: A Learning Tool

• Create team to review nonconformity, identify core causative factors
  – “Why?” not “who?”

• Create action plan to prevent recurrence

• Identify necessary system/process redesign, improvements to reduce risk

• Conducted in a blame-free manner
Sample RCA Process: VHA

1. **Adverse Event Occurs**
2. **Safety Manager Notified**
3. **Safety Manager Assigns SAC Score to Event**
4. **Safety Manager Charters Interdisciplinary Team**
5. **Determine How to Measure Outcomes**
6. **Determine Actions to Address Root Cause**
7. **Determine Root Cause and Contributing Factors**
8. **Gather and Analyze Info Leading to AE**
9. **Present Analysis and Proposed Actions to Leadership**
10. **Implement Actions and Examine Outcomes for Effectiveness**
A “Just Culture” Is Essential

“People still must be vigilant and held responsible for their actions. But when an error occurs, blaming an individual does little to . . . prevent someone else from committing the same error.”

1998
When to Conduct RCA

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<td>Clerical nonconformity affecting result but corrected during the review process prior to reporting; nonconformity that does not affect outcome or reported result</td>
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RCA Required for 3, Recommended for 2, Optional for 1
“Near Miss” = Nonconformity

• Nonconformity with potential to cause damage; damage prevented through a fortuitous intervention

• Should be evaluated in the same way they would be if the injury had actually occurred

• Emotionally easier “teachable moment”
Recurring Nonconformity

- Assess extent of nonconformity
- Re-analyze & address additional cases
- Communicate nonconformity to affected internal/external individuals
Transparency and “Safe Harbor” to Incent RCA

- Goals: promote both transparency and incentives that encourage RCA

- Anonymization
  - Discipline is private

- Use immunity
  - No punishment from participating

- Limit use in civil discovery
RCA: Culture of Constant Quality Improvement