



FDA Regulations and Recommendations for Failure Investigations

Hoi-may Wong, BS, MT(ACSP)SBB

Blood and Plasma Branch

Division of Blood Applications, FDA, CBER, OBRR

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Regulations

- **21 CFR 211.192, Product Record Review**

All drug product production and control records...shall be reviewed ... before a batch is released or distributed. Any unexplained discrepancy or failure ... shall be thoroughly investigated... The investigation should extend to other batches ... that may have been associated with the specific failure or discrepancy. A written record of the investigation ... shall include the conclusions and followup.

Regulations (continued)

- **21 CFR 606.100(c), Standard Operating Procedures**

All records pertinent to the lot ...shall be reviewed before the release or distribution ... of final product. The review ... may be performed at appropriate periods during or after collecting, processing, or compatibility testing and storing. A thorough investigation, including the conclusions and followup, of any unexplained discrepancy or failure...shall be made and recorded.

Examples of manufacturing process deviations that warrant investigation

- **Equipment validation**
- **Donor suitability/eligibility**
- **Device**
- **QC**
- **Components not meeting product specifications**

What is a Thorough Investigation?

An investigation of the critical steps or areas where an unexplained discrepancy or failure resulted.

- What's the problem?**
- When / where did it happen?**
- Why did it happen?**
- How to prevent it from recurring?**
- Documentations**

Examples of critical steps or areas

- Donor
- Operator
- Supplies and reagents
- Device
- Components
- Environment
- SOPs
- Samples

Examples of critical steps or areas

(continued)

- **Donors**
 - **characteristics**
 - **specifications**
- **Operator**
 - **performance**
 - **training/competency**

Examples of critical steps or areas

(continued)

- **Supplies and reagent**
 - **lots**

- **Device**
 - **performance**
 - **operation**
 - **controls**
 - **device validation / calibration**
 - **maintenance**

Examples of critical steps or areas

(continued)

- **Components**
 - **specification**
 - **collection**

- **Environment**
 - **storage**
 - **shipping**

Examples of critical steps or areas

(continued)

- **SOPs**
 - adherence to
 - adequacy of
- **Samples**
 - type
 - collection
 - storage / shipping

Closing Notes

- **Any unexplained discrepancy may have more than a single cause.**
- **An apparent deviation may have multiple impacts on the final products.**
- **Shifts and trends enable the detection of unexplained discrepancies or failures.**