Quality Assurance & Quality Control:

An Overview

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Quality Assurance & Quality Control (QA/QC)

- What is it?
- Why is it important?
- 24 elements of a Quality Assurance Project Plan (QAPP)
- SWAMP Requirements & Guidance
PLANNING

PAEP

Monitoring Plan

QAPP
What is a Quality System?

- A management system that ensures quality of work process, products, and services.
- Quality Management Plan (QMP) documents elements of the quality system.
- Quality Assurance (QA) is the management activities described in the QMP.
What is a QA Project Plan?

- Document describing the *technical* and *quality* activities of a *specific* project.

- Quality Control (QC) is the set of procedures implemented as part of the QA program.
Why is QA/QC Important?

- Focuses efforts
- Standardizes activities
- Prevents waste
- Insures a useable product of known quality
Quality Assurance Project Plan (QAPP)

A written, approved document that describes:

- A. Project planning & management
- B. Data generation & acquisition
- C. Assessment & oversight
- D. Data validation & usability
A. Project Planning & Management

1. Title & approval sheet
2. Table of contents
3. Distribution list
A. Project Planning & Management

1. Title & approval sheet
2. Table of contents
3. Distribution list
4. **Project/task organization**
5. **Problem definition & background**
6. **Project/task description**
A. Project Planning & Management

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7. Quality objectives & criteria
7. Quality Objectives & Criteria

Precision, Bias, & Accuracy
7. Quality Objectives & Criteria

Representativeness

Ceriodaphnia Mortality (%)
7. Quality Objectives & Criteria

Comparability – Performance Based Methods System (PBMS)

*ELISA v. GC/MS Method for Measuring Diazinon Example*
7. Quality Objectives & Criteria

Completeness

How much of the data planned to be collected must be valid to meet the project objectives?
7. Quality Objectives & Criteria

Sensitivity

<table>
<thead>
<tr>
<th>CONCENTRATION</th>
<th>Action Level</th>
<th>MDL</th>
<th>Action Level</th>
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<tbody>
<tr>
<td>SAMPLES</td>
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8. Special training & certification
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7. Quality objectives & criteria
8. Special training & certification
9. *Documentation & records*
B. Data Generation & Acquisition

10. Study design
B. Data Generation & Acquisition (cont’d)

10. Study design
11. Sampling methods
12. Sample handling & custody
13. Analytical methods
B. Data Generation & Acquisition (cont’d)

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12. Sample handling & custody
13. Analytical methods
14. Quality control
14. Quality Control

- Duplicates – intra-laboratory precision
- Splits – inter-laboratory precision
- Blanks – contamination
- Spikes – accuracy & bias
B. Data Generation & Acquisition (cont’d)

10. Study design
11. Sampling methods
12. Sample handling & custody
13. Analytical methods
14. Quality control
15. *Equipment testing, inspection, & maintenance*
16. *Equipment calibration & frequency*
17. *Acceptance of supplies & consumables*
B. Data Generation & Acquisition (cont’d)

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18. *Non-direct measurements*
B. Data Generation & Acquisition (cont’d)

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15. Equipment testing, inspection, & maintenance
16. Equipment calibration & frequency
17. Acceptance of supplies & consumables
18. Non-direct measurements
19. Data management
C. Assessment & Oversight

20. Assessments & response actions
C. Assessment & Oversight

20. Assessments & response actions
21. *Reports to management*
D. Data Validation & Usability

22. *Data review, verification & validation*

23. *Verification & validation methods*
D. Data Validation & Usability

22. Data review, verification & validation

23. Verification & validation methods

24. Reconciliation with user requirements
QA Overview Summary

- Utilize all project planning documents
- Utilize SWAMP tools
- Utilize available resources
- Refer to the QAPP throughout the project
Questions?

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