



BIOPHARMACEUTICAL QUALITY

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What is Quality?

Quality

Quality is never an accident;
it is always the result of high intention,
sincere effort, intelligent direction and skillful execution;
it represents the wise choice of many alternatives.

[William A. Foster](#) ~

Basis for Quality Requirements

- Customer expectations
- Good Business Practice
- Good Science Practice
- Regulatory conformance

Regulatory Agencies

- FDA (US Food and Drug Administration)
 - To promote/protect public health by helping safe/effective products reach the market in a timely way.
- EMA (European Medicines Agency)
 - To protect public health thru evaluation/supervision of medicines for human.
- Other National Agencies (MHRA, IMB, ANVISA, etc.)
 - To ensure medicines sold/supplied to other countries are safe, efficacious and meet required quality.

Requirements within the Code of Federal Regulations 21CFR 211.22 for the Quality Unit

According to US regulations,
the Quality Unit
must act independently
of production/manufacturing
in executing it's responsibilities.

Current Good Manufacturing Practices 21CFR 211

- Establish requirements for the manufacture of safe, effective, potent, pure and stable products.
- These include:
 - Facilities, Equipment, Process, and Materials are appropriate for intended purpose.
 - Appropriately skilled personnel
 - Management Controls
 - Documented evidence

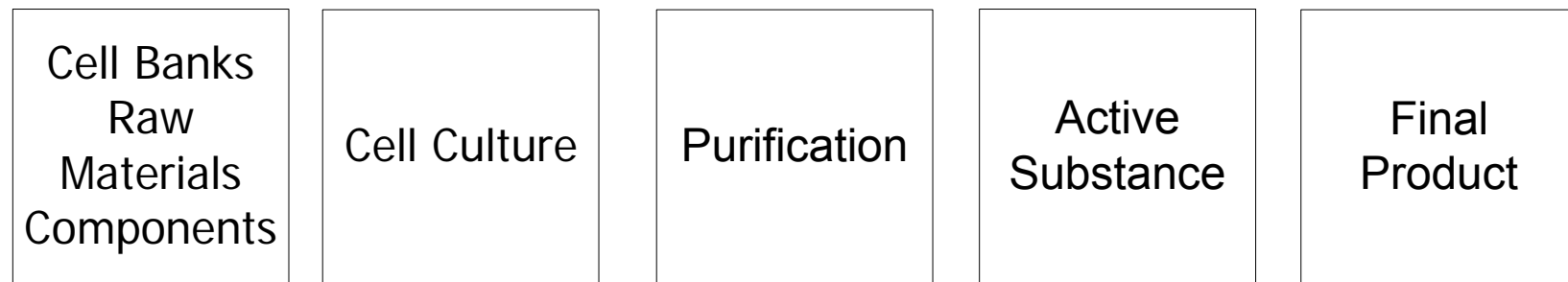
Typical Quality Unit

- Quality Control
 - +
 - Quality Assurance
-
- Quality Unit

Quality Unit Responsibilities

- Approve or reject all Production Materials
- Review and approve all
 - Procedures and Specifications
 - Validation/Qualification documents
 - Change Controls
 - Regulatory Submissions
- Ensure systems/programs are established and maintained for:
 - Adequate inspection, sampling, and testing
 - Identification of deviations, investigations and corrective actions/preventative actions
- Many, many more

Quality is maintained throughout the product life cycle...



QUALITY ASSURANCE / QUALITY CONTROL

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Key Quality Processes

- Quality Control
- Product Disposition
- Marketed Product Support

Quality Control Sampling and Testing

- Raw Materials
- Media
- Components
- Process materials
- Water
- Environment
- In-Process
- Cell banks
- Bulk drug substance
- Finished Product

Laboratory Controls

- Sample chain of custody
- Compendial standards
- Validated methods
- Reagent control
- Reference standards
- Equipment Validation
- Equipment Calibration
- Documentation

Testing Requirements

- Adventitious agent contamination control
 - Viral, microbial
- Potency
- Purity
 - Process
 - Stability
- Characterization
- Identity
- Safety
- Composition: excipients
- Forensics

Product Disposition

- Batch Record Review
- Test Record Review
- Investigations
- Change Controls

Product Disposition continued

Key responsibilities at Product Disposition

- Marketing authorization
- Compliance with cGMP's
- Understanding impact of deviations --
quality, safety, efficacy, regulatory conformance
- Engagement in quality systems supporting
product manufacture and control
- Understanding those deviations
requiring regulatory action

Marketed Product Support

- Stability
 - Cell banks
 - Active Substance
 - Final Drug Product
- Annual Product Reviews
- Field Alerts & Biological Products Deviation Report (BPDRs)
- Product Quality
 - Inquiries
 - Complaints
 - Adverse Events

Marketed Product Support continued

- **Inquiries**

A non-medical comment, question or request for information such as product availability, temperature/stability, product expiry dating, dosing, product formulations/ingredients, chemical composition of componentry, etc.

- **Complaints**

A report regarding an alleged defect associated with physical, chemical, microbiological, or other aspect of a product, component, or package.

- **Adverse Events**

Any untoward, undesired or unplanned event in the form of signs, symptoms, disease or laboratory or physiological observations occurring in a person or administered product

FDA Web Site

www.fda.gov

Product Quality Problems

- What was the problem? How identified?
- What is the root cause?
- What actions were taken?
- How could this have been prevented?

Product Quality Problems

- Baxter Heparin Recall
- NECC Steroid Meningitis Contamination
- McNeil/ J&J Recall of Smelly Over-the Counter Drug



Discussion

