CHALLENGES IN IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM AND REGULATORY COMPLIANCE"

AQEX PHARMA SOLUTIONS

By- Dr. DEO NARAIN DIKSHIT
DIRECTOR - AQEX PHARMA SOLUTIONS PVT LTD

Pharmaceutical Quality System- ICH Q10

The pharmaceutical quality system "assures that the desired product quality is routinely met, suitable process performance is achieved, the set of controls are appropriate, improvement opportunities are identified and evaluated, and the body of knowledge is continually expanded."

ICH Q10, Section 3.1.3 Commercial Manufacturing

Why Quality Management system (QMS) Is important for Pharmaceutical Industry

If implemented properly, a QMS for pharmaceutical industry offers numerous benefits such as:

1. It is fundamental requirement to current Good manufacturing practices
2. Ensure Safety to Patient
3. Ensure the consistent Product Quality
4. Increased operational efficiency
5. Ensure Compliance with Regulatory regulations /acts
6. Reduced wastage
7. Improved customer satisfaction
8. Reduced training time of new employees

Role of Regulatory Compliance in Pharma Industry

Regulatory Compliance is essential for Pharmaceutical Industry –

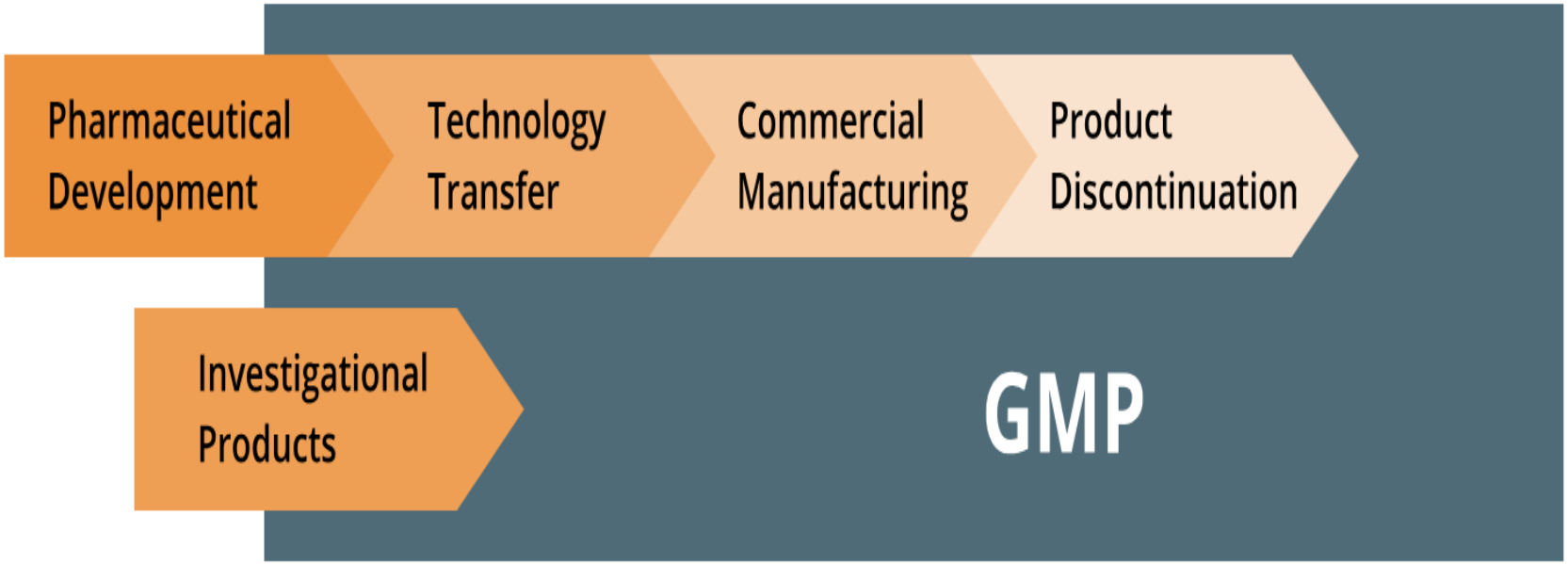
1. It ensure that the products are safe & Effective reducing the Risk to Patient
2. It helps to maintain integrity of the Industry and builds the trust to consumers
3. The Pharmaceutical organizations that donot comply with regulations damages their reputation , loose the trust of Patients and Health care Professional , loose trust of Regulatory bodies and ultimately loose the business opportunities

Pharmaceutical Quality Management System – A holistic Approach (Shedule-M)

“Pharmaceutical Quality system shall ensure that-the Pharmaceutical Product are Designed and developed in with compliance with appropriate requirement of GXP applies (GMP+GLP+GCP+G…..)

All manufacturing and Quality operations are in compliance with CGMP and GLP requirement.”

Quality management system Conceptualizes from Product Development



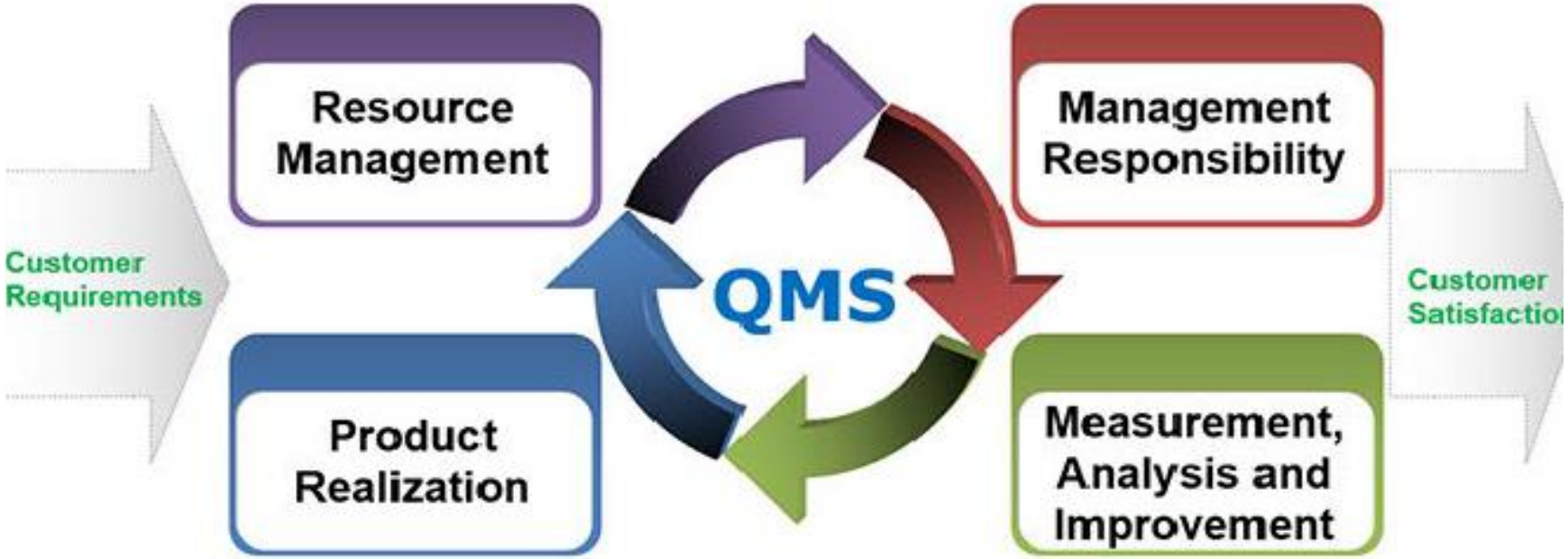
Standards of QMS syetm -ICH Q10 Pharmaceutical Quality System

1. ICH Q10 Pharmaceutical Quality System Model provides guidelines and principles for establishing, implementing, and maintaining a quality management system in the pharmaceutical industry and consists of four core areas.
2. Pharmaceutical Quality System: Encompasses the overall quality system, including objectives, quality manual, quality risk management, and knowledge management.
3. Management Responsibility: Focuses on the role of management in establishing quality objectives, allocating resources, and ensuring appropriate communication within the company.

ICH Q10 Pharmaceutical Quality System Model

4. Continual Improvement of Process Performance and Product Quality: Emphasizes the need for ongoing improvement in process performance and product quality through data analysis, corrective and preventive actions, and customer feedback.
5. Continual Improvement of the Pharmaceutical Quality System: Highlights the importance of continually improving the quality system itself through the use of management review, revisions to quality policy, and assessment of system performance.

Quality Management System Implementation - Model



Pharmaceutical Quality Management system

Management Responsibilities

PQS Elements

- Process Performance & Product Quality Monitoring System
- Corrective / Preventive Action (CAPA) System
- Change Management System
- Management Review

Enablers

- Knowledge Management
- Quality Risk Management

Pharmaceutical Quality System in New Schedule M –Part-1

Pharmaceutical Quality System

1. Quality Risk Management
2. Good Manufacturing Practices for Pharmaceutical Products
3. Sanitation and Hygiene
4. Qualification and Validation
5. Complaints
6. Product Recall
7. Change Control
8. Product under Loan License or Contract and Contract Analysis and other activities

Pharmaceutical Quality System in New Schedule M –Part-1

10. Self Inspection , Quality Audit , Vendor/supplier’s audit and approval
11. Personnel
12. Training
13. Personal Hygiene
14. Premises
15. Equipments
16. Materials
17. Reference Standards
18. Waste Materials

Pharmaceutical Quality System in New Schedule M –Part-1

19. Documentation
20. Good Practices at Production
21. Good Practices and Quality Control
22. Computerized System

Challenges in Implementation of Quality Managemnt system

Improving product or service quality and increasing customer satisfaction requires an organization to implement quality management. However, organizations face a number of challenges when attempting to implement quality management.

1. Lack of Commitment and unclear responsibility of Management
2. Absence of right Organizational structure for Quality Governance –Quality Assurance and Regulatory affairs are two pillars in Implementation of Quality Management system.
3. Narrow objectives and short term goal in implementation of Quality management Systems- Getting regulatory Audit cleared with minimum observations
4. Managing the Paper based Documentations for Regulatory fillings , Applications , CMC Documents , Specifications , Reguatory Responses to queries , Commitments in a Large Set-up .
5. Managing Huge Data of cGMP operations – (Manufacturing , Quality Controls , Quality Assurance , Electronic Records , Paper based records under cGMP / GLP) over a period of operations -5 years -10 years becomes challenge

Quality Management System Implementation Challenges

6. Quality Management System Updating issues – SOPs , Specifications , Test Procedures , Qualifications , Validations , Maintenance of regulatory submissions , filled Dossier updates (with respect to Changes in Pharmacopoeial Monographs and general Chapters, Manufacturing –Process , Equipment , and Premises)-…….are not updated with changes in accordance with guidance and Standard regulations.
7. Lack of buy-in for a Culture of Quality and lack of ownership of Quality Management system principles by every one working in Pharmaceutical manufacturing , Research and development (product development) , Material management , Plant operations , Quality assurance and Quality Control , Regulatory affairs , Technology development and transfer , Validations , Engineering , Supply Chain management and Marketing
8. Lack of knowledge for implanting the Quality System requirement under current Good manufacturing practices

Quality Management System Implementation Challenges

9. Lack of employee training and development for Continuous Improvement ,
10. Employee resistance to adopt improvement in Quality management system
11. Lack of effective Quality Review System – Quality Review at Plant level and Management Review at Corporate Level
12. Limited resources and budget constraints-
13. Difficulty measuring Quality metrics,- Data are not realistic
14. Insufficient communication and coordination,
15. Supplier and partner resistance, and .

Quality Management System Implementation Challenges

Limited Resources and Budget Constraints

- One of the difficulties in implementing Quality Management is a lack of resources and a limited budget. This means that organizations may lack the necessary funds or personnel to fully implement a quality management system.
- The American Society for Quality found that 57% of organizations cited a lack of resources as a barrier to implementing quality management. This can result in a lack of employee training, insufficient equipment or technology, and a failure to invest in continuous improvement initiatives.

Lack of Employee Training and Development

- One of the biggest obstacles to introducing quality management is training and developing employees. There could be errors, inefficiency, and low-quality results because workers lacked the knowledge and skills needed to do their jobs properly.
- The Association for Talent Development found that organizations that invest in their employees' professional growth saw a 218% increase in earnings per worker compared to those who did not.

Quality Management System Implementation Challenges

Difficulty in Maintaining Quality Standards Over Time

- When implementing quality management, it can be difficult to maintain consistent quality standards over time. This is because ensuring that products or services meet high-quality standards on a consistent basis necessitates ongoing effort and attention to detail.
- Changes in production processes, technology, or staff turnover can all have an impact on quality standards. Furthermore, as customer expectations and market trends shift, quality standards must evolve to meet these new demands.
- To address this issue, organisations must establish clear quality objectives and review and adjust their quality management systems on a regular basis. This can include implementing ongoing training programmes, conducting regular quality audits, and soliciting feedback from customers and stakeholders on a continuous basis to identify areas for improvement.

Quality Management System Implementation Challenges

Insufficient Communication and Coordination

- A lack of communication and coordination is one of the most common obstacles to Quality Management implementation. This points to a breakdown in communication between the various groups responsible for ensuring quality in the management process.
- Misunderstandings, confusion, delays, and mistakes are all possible outcomes of sub-par communication in the quality management process. The standard of the final Products or services may suffer as a result.
- The same is true when teams or stakeholders fail to communicate with one another Specially during implementing changes, resulting in wasted time, resources, and effort.
- Quality improvement process can be slowed if multiple teams work on the same quality issues without sharing information with one another.

Quality Management System Implementation Challenges

Difficulty in Measuring Quality and Performance Metrics

- Measuring Quality is challenging, which is a problem for Quality management.
- An effective Pharmaceutical Quality System (PQS) ensures both sustainable compliance and supply chain robustness.
- Quality metrics can contribute to a manufacturer's ability to develop an effective PQS because these data provide insight into manufacturing performance and enable the identification of opportunities for updates and innovation to manufacturing practices.
- The Challenges are with Variations in the data – the data should be realistic , accurately measured , and evidenced with documents . The corrective actions are delayed because the data sample is very small small , like number of batches manufactured for a dosage form are less than 10 in a month , Many a organisations donot report all lab incidences , deviations and product Quality complaints in real time

Quality Management System Implementation Challenges

Difficulty in Measuring Quality and Performance Metrics

- Performance Metrics (TAT ,OEE,OTIF) used to assess the quality of a service, process, or product.
- However, quality metrics can be tricky to quantify due to their subjectivity and inherent variation from one person to the next. Furthermore, quality metrics may be affected by external factors such as market conditions, regulatory changes, or customer preferences.
- In addition, a well-defined system that can reliably and consistently capture data is required for measuring quality metrics.

Quality Management System Implementation Challenges

Insufficient Communication and Coordination

- This difficulty can be overcome by establishing and adhering to transparent channels of communication and protocols, and by making sure that everyone involved knows their place. The quality management process and the consistent attainment of quality standards can be streamlined with the help of effective communication and coordination.

Resistance from Suppliers and Partners

- One obstacle in introducing Quality Management is pushback from suppliers and partners. Some vendors and business associates may be hesitant to assist in quality enhancement efforts. They could be unwilling or unable to adapt to the company's new quality standards. As a result, the company may be unable to meet the needs of its customers with superior goods and services. The company may need to educate its vendors and partners on the merits of Quality Management and work with them to create a win-win strategy for enhancing quality.

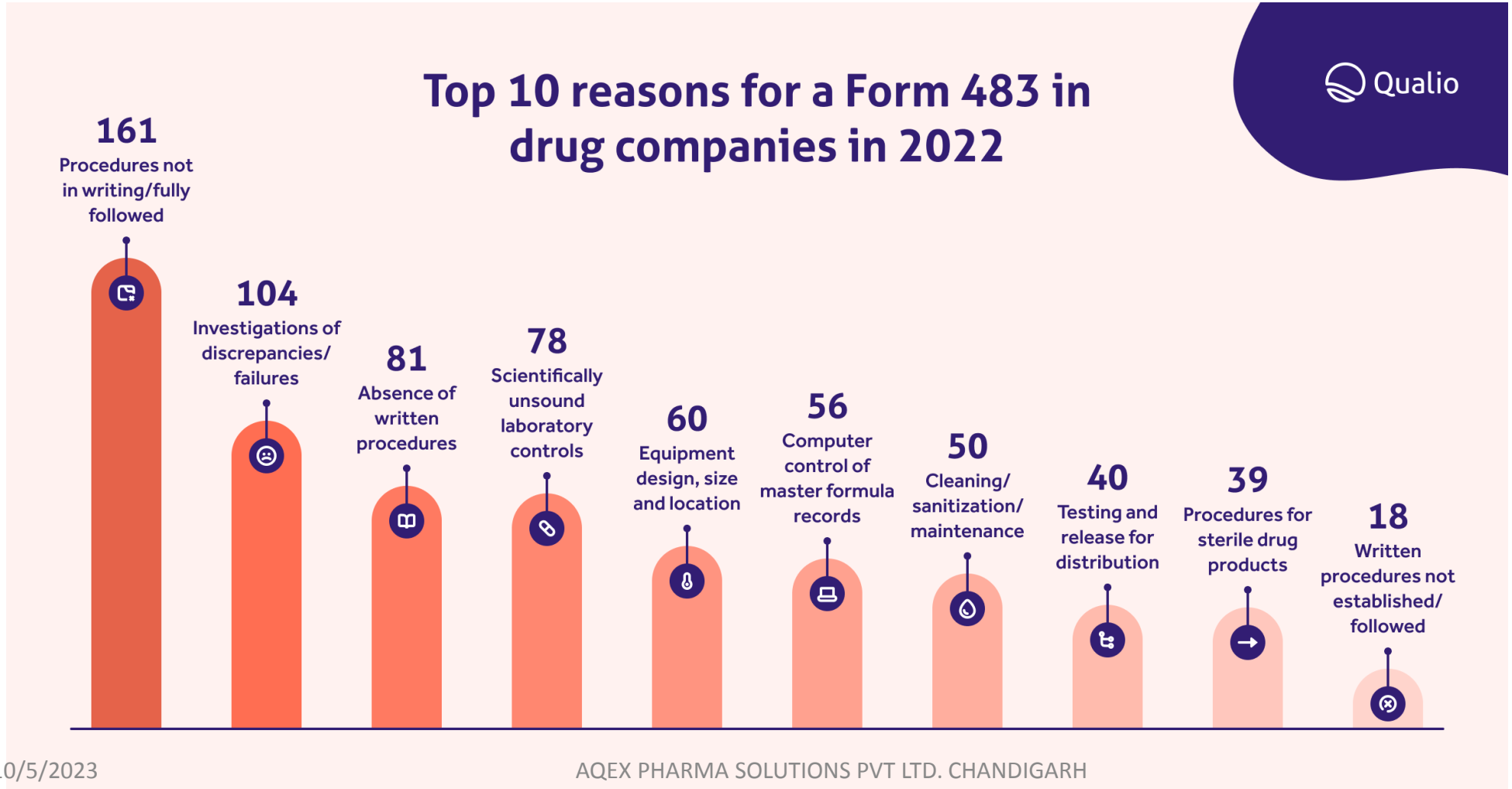
Ten Classic Examples of Non Compliance

1. Absence of written procedures or failure to follow written procedures 21 CFR 211.22 (d) , The SOPs are either very big running in number of pages , difficult to fallow or having very limited information .
2. Failures in laboratory controls 21 CFR 211.11 (b) , Failure to establish effective controls for raw data management in Quality Control activities – Sampling to Release , failure to establish effective controls in Electronic Records and electronic data management .The Data Integrity not maintained , Sufficient evidences during the generation , review and processing of data to be in ALCOA + compliance
3. Batch Manufacturing Process Instructions are not adequate , The limits for Critical Process Parameters are not realistic based on scientific Data and Rationale
4. The Batch production record reviews (21 CFR 211.192 ...) are inadequate, The process related deviations are not addressed adequately
5. Improper cleaning /sanitizing/maintenance 21 CFR 211.67 (a) ., The SOP in Cleaning of equipment are mostly written in general , the specific instructions for cleaning of equipment's are not having details of difficult to clean, not specific to ..

Ten Classic Examples of Non Compliance

6. Regulatory non Compliance with respect to Marketing authorization document – Deviations with respect to Process (Batch Size , Equipment , CPP and Capabilities to produce consistently), Speciation , Test Procedures , Packaging and presentations , PIL statutory information , Changes and Impacts (Variations – Cost , Time lines and Compliance) , Compliance with committed CAPA and response in Time
7. Inadequate Computerized system management – Lack of Risk based Qualification and Validation of Computerized system – in Analytical and manufacturing environment Control control of master formula records
8. Inadequate Investigation of non conformances – Product Quality Complaint , OOS , Regulatory audits observations , Deviations
9. Product Quality Failures (OOS in manufacturing or in Stability) – Product Recall
10. Repeated nature of Failures (In effective CAPA , different CAPA for same issues over period

Top 10 non conformances reported in PQS system in FDA's audit 2022



Major Challenge in Compliance for Pharma industry in India

The Major Challenge comes from – Costs of Operations , Upgradation of Facility & Utility , Qualifications &Validations , Management of knowledge and Compliance with Data integrity . **The Major Cost elements for Compliance are –**

1. Product – Development , Stability and Manufacturing process consistency and performance efficiencies – Small scale manufacturers can not afford to setting Up and running cost of Product Development , Hence the Stability of the products becomes major concern .
2. Lack of the scientific approach to handle the Product Quality Failures in routine as well as in Stability – Lack of knowledge and lack information for investigations of Non conformances , the CAPA is either not known or taken with in correct rootcause

Major Challenge in Compliance for Pharma industry in India

. **The Major Cost elements for Compliance are –**

3. HVAC and Facility Upgradations – Around 70% of the Small scale and medium scale manufacturers are mostly either Converters (Third party or contract manufacturing) , There is huge capex required for upgradation of their facility to meet desired level of protection of product with suitable area Class (for non sterile and sterile operation) It is very difficult to keep operational cost viable with energy expenses in running the HVAC , Chillers , boilers for desired duration .

4. Human Resources – To comply the regulations of Quality management system in true sense an optimal resource is essential in all sections – Production , Packaging &Distribution, QC , QA , Validation , RA and Maintenance, the desired level of documentation . The high percentile of turn around is also adding cost to maintaining desired number of personnel to keep operations managed effectively.

Major Challenge in Compliance for Pharma industry in India

- The Major Cost elements for Compliance are –

5. Increasing cost of input materials – specially those which are imported , Cost of specialized tests under monograph (test of Impurities), Changes in political situations affects the imports and thus cost escalations are quite common .
6. Multiple Standards – There are different Pharmacopoeial grades of API and related grades of Finished Products – such as USP, BP, EP , IP , the cost of reference standards , impurities are un affordable by small scale manufacturers , Similarilry the test procedures are also different , hence the same material or product are tested multiple time , because the regulators expect the compliance to pharmacopoeial procedures and monographs
7. Availability of right quality of skilled work forces - the operations like material handling & packaging are mostly contracted , the education and training with regulation to these forces are major Challenges

Culture of Quality and Mindset

The basic issues in implementing the culture of Quality are – The investment in training and development is very low

- The leadership development is adopted by very few organisations
- The mindset is still on managing the inspections , not compliance in true sense
- Casual approach
- Lack of Competence mapping and people development
- Lack Performance profiling using KRA and other HR tools
- Rewards , Empowerments and employee encouragement

These are collations of some important the points in journey of Implementing QMS and Compliance

! There is a lot !

Thanks for Attentions