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# Purpose

The purpose of NBE-Therapeutics Quality Management Handbook (QMH) is to describe the Quality Organization and Quality Management System (QMS) including management responsibilities associated with it.

It is the responsibility of the Head of Quality Management (QM) to ensure compliance with the requirements of this QMH at the function/entity level.

# Company Profile

NBE-Therapeutics is <CompanyMainFunction01>.

NBE-Therapeutics is currently developing <CompanyMainFunction02>.

NBE-Therapeutics is committed to <CompanyMainFunction03>.

# Quality Management System

NBE-Therapeutics has <Doc01\_CompanyQualityManagementSystem>

The NBE-Therapeutics QMS provides a systematic, risk-based approach to achieving the desired level of product quality consistently and effectively.

# Quality Organization

The NBE-Therapeutics Quality Organization is an independent function responsible for the development, implementation, and maintenance of the QMS. It consists of a formal organization with defined lines of accountability, as well as advisory and decision-making bodies, and is responsible for Quality Assurance (QA), Quality Management (QM) and Quality Control (QC) throughout the organization. In cases when all parts of Quality are impacted the term Quality Organization may be used, and until Quality Management is formally separated QA and QM are effectively used interchangeably.

The Quality Organization is led by the Head of QM and consists of two (2) main functions, the QA function and the QC function:

* + The QA function is responsible for ensuring that products, devices and materials comply with the requirements for their intended use throughout their life cycle, and for verifying that GxP-related activities comply with the approved procedures.
	+ The QC function is responsible for testing products, devices and materials using approved methods to determine compliance with analytical and physical specifications.

Responsibilities of the Quality Organization include:

* + participating in all GxP decision making processes and liaise with relevant business units regarding any quality or compliance risk,
	+ final authority for all GxP related decisions,
	+ final authority for interpretation of and compliance with GxP requirements,
	+ release or disposal of products, devices, materials and components,
	+ approval of all documents and records related to GxP,
	+ overseeing the status of GxP compliance and product quality/safety in relation to applicable corporate and regulatory requirements,
	+ appointment of key quality personnel such as Head of QC and Release Manager (or Qualified Person),
	+ monitoring changes in regulations, enforcement trends and inspection results for their impact on Quality System,
	+ development of Quality Plans, Quality Objectives, and monitoring their implementation and effectiveness in the organization,
	+ ensuring the effectiveness and appropriateness of the QMS,
	+ implementing of QC in the company,
	+ analysis of key quality indicators and their compliance status,
	+ overseeing quality improvement projects and other initiatives,
	+ conducting monitoring and periodic audits and inspections,
	+ establishing and provide adequate and appropriate resources and infrastructure necessary to implement and maintain the Quality Management System and to continuously improve its effectiveness,
	+ ensuring a timely and effective communication and escalation process to raise quality issues to the appropriate levels of management, and
	+ monitoring the results of inspections and audits, analysis of deviations, complaints, recalls, and withdrawals and falsifications.

The NBE-Therapeutics Quality Organization has the right to:

* + enter all areas of NBE-Therapeutics's facilities and gain access to all records necessary to fulfill QM responsibilities,
	+ suspend product distribution, if necessary, until quality or compliance issues are resolved, implement mandatory market action up to and including product recall,

Quality representatives may delegate their tasks, but the primary responsibility remains with the QM Department. Quality Organization responsibilities may not be delegated to any person performing tasks that could create a conflict of interest in the performance of QM responsibilities.

# Governance

Quality oversight and governance is achieved through several committees across NBE-Therapeutics.

# Executive Committee (Leadership Team)

Consists at a minimum of the C-Level representatives, the highest-ranking Quality representative, and may be amended as appropriate. In terms of quality and compliance, the Executive Committee ensures that the following are in place and visible:

* + long-term planning and strategy for quality and compliance.
	+ the quality plan and strategy for Quality Organization is in place.
	+ compliance with applicable laws, regulations and corporate policies.
	+ quality plan that includes review, approval and monitoring of implementation effectiveness.

# Quality Steering Team

The Quality Steering Team consists of the highest-ranking Quality Leader, his/her direct reports and the quality functional managers and is responsible for communicating regulatory and QMS requirements throughout the organization and providing updates to leaders and the Quality Organization on the effectiveness or changes required to the QMS. In addition, Management is responsible for:

* + ensuring compliance with the requirements of this QMH,
	+ ensuring that Quality Objectives are included in the overall company strategy, communicated and supported by all relevant functions/levels
	+ establishing a quality commitment that outlines the company's overall intentions and direction regarding quality
	+ demonstrating strong and visible support for the QMS,
	+ ensuring that customer requirements and applicable regulatory requirements are identified and met, and
	+ as necessary, participating in the development and implementation of quality plans or corrective actions.

# Management Review

The continued suitability, adequacy and effectiveness of the QMS is ensured through periodic reviews of the Quality Plan(s), key performance indicators, and product quality. At a minimum the Management Review should consist of the following representatives:

* + Chief Executive Officer (CEO),
	+ Chief Financial Officer (CFO),
	+ Chief Scientific Officer (CSO),
	+ Head of Manufacturing (MAN),
	+ Head of QM, and
	+ Head of Regulatory Affairs (RA)

Multiple functions may be held or represented by a single person.

Management Review meetings shall be conducted by the Quality Organization on at least an annual basis to assess the ongoing suitability and adequacy of the QMS and to identify risks and/or opportunities for continuous improvement.

The purpose of Management Review is:

* + to demonstrate product compliance with regulations/standards and certificate of registration, certification and/or registration dossier,
	+ ensure that the products do not put patients at risk due to lack of safety, quality, or efficacy
	+ identify and evaluate trends and risks to promote continuous improvement of the QMS,
	+ ensure that quality systems are effective, appropriate, adequate, and efficient,
	+ address resources necessary to support the QMS,
	+ review audit, inspection, and monitoring activities,
	+ review the quality plan, including the Quality Objectives and quality commitment to ensure alignment and continued applicability to the company's strategy, and
	+ review follow-up actions from previous Management Review meetings.

Management Reviews shall be documented and shall include a conclusion on the adequacy of the QMS and a list of appropriate actions. The results of Management Review shall be used as input into the review and revision of quality plans.

# Resource Management

Resources are provided in order to effectively support the needs of the QMS, regulatory requirements, and to meet customer needs. Resource needs are addressed during Management Review and the quality planning cycle.

# Quality Objectives

NBE-Therapeutics strives to supply clients with high quality, easy to use and reliable products. To achieve these outputs, Quality Objectives are established related to design, execution, manufacturing, distribution, monitoring and continuous improvement of quality in all functions.

# Quality Strategy and Planning

The Leadership Team develops

* + quality plans that outline the company's quality strategy as well as the Quality Objectives and quality commitment. Quality Plans are reviewed and updated periodically.
	+ Quality Objectives and priorities to ensure the implementation of the quality strategy. Changing business priorities and needs are reflected in periodic reviews of the quality plans.

The planning cycle is aligned with the budget cycle to ensure that the necessary resources are allocated to implement the plan(s). Targets are set based on various inputs, e.g., risk assessments, product evaluations, quality system assessments, audit and inspection findings, industry trends, changing regulatory environments and employee/cultural surveys.

The continued suitability, adequacy and effectiveness of the QMS is ensured through periodic reviews of the QM plan, key performance indicators and Product Quality Review (PQR) at various levels of the organization.

The purpose of QC and QM review process is:

* + to demonstrate product compliance with regulations/standards and certificate of registration, certification and/or registration dossier.
	+ ensure that the products do not put patients and customers at risk due to lack of safety, quality or efficacy.
	+ identify and evaluate trends and risks to promote continuous improvement.
	+ ensure that QS is effective, appropriate, adequate and efficient.

The quality monitoring and Management Reviews shall be documented and shall include:

* + a conclusion on the adequacy of the quality system,
	+ the potential impact of the deficiencies on the product, and
	+ a list of appropriate actions.

Monitoring of key indicators should include as a minimum the results of:

* + inspections and audits,
	+ analysis of deviations, complaints, recalls, withdrawals and falsifications, and
	+ follow-up actions from previous Management Reviews.

Management Review shall be conducted by the quality system owners on an annual basis to assess the ongoing suitability and adequacy of the quality system and to identify risks and/or opportunities for continuous improvement.

The results of the Management Review shall be used as input into the review and revision of QM plans.

# Leadership Responsibilities

Senior Leadership is responsible for implementing an effective and appropriate quality system to improve the quality and availability of reliable products.

Quality leaders, together with their respective business partners (e.g., functional leaders), have the following responsibilities:

* + ensure compliance with the requirements of this QMH,
	+ ensure that Quality Objectives are defined in line with the overall company strategy, communicated and supported by all relevant functions/levels,
	+ establish a quality commitment that outlines the company's overall intentions and direction regarding quality,
	+ participate in the development, implementation, monitoring and maintenance of an effective QMS to ensure the achievement of Quality Objectives,
	+ demonstrate strong and visible support for the QMS, ensure its implementation in the organization and support continuous improvement,
	+ ensure that customer requirements and applicable regulatory requirements are identified and met,
	+ participate in the development of quality plans and ensure their implementation, maintenance and review, and
	+ define the individual and collective roles, responsibilities, authorities and relationships of all organizational units related to the quality system.

Ensure that these interactions are communicated and understood at all levels of the organization and further:

* + establish and provide adequate and appropriate resources and infrastructure necessary to implement and maintain the QMS and to continuously improve its effectiveness,
	+ ensure a timely and effective communication and escalation process to raise quality issues to the appropriate levels of management,
	+ ensure that product and process knowledge is managed from development through the product's commercial life cycle to product discontinuation by applying a systematic approach to the collection, analysis, storage and dissemination of information related to products, production processes and components,
	+ carrying out process and Product Quality Review assessments of process and quality effectiveness, and of the QMS, and
	+ participate in the appointment of key management personnel, such as the production manager.

# Quality Management System

The QMS is a structured and documented approach that outlines NBE-Therapeutics ' expectations of GxP requirements and other relevant standards/recommendations to ensure the quality of GxP processes, products and services. It provides a systematic, risk-based approach to achieving the desired level of quality consistently and effectively.

A QMS promotes innovation and continuous improvement and strengthens the link between development and production throughout the product life cycle.

# Purpose

The purpose of a QMS is to comply with applicable regulatory requirements and customer expectations and to ensure that products and/or clinical trial materials are of the required quality for their intended use.

# Scope

NBE-Therapeutics has a single QMS for all aspects of our GxP business that covers GxP processes across the entire product lifecycle, from the early stages of product creation and development, through manufacturing and market delivery, product launch or recall, simplifying manufacturing and speed up delivering drug to the patients.

# Strategy and structure of the QMS

NBE-Therapeutics uses a QMS approach based on a system aiming to meet regulatory requirements related to specific GxP processes, including elements such as organization, management, standards, procedures, training, IT tools and respective metrics.

All quality subsections with the associated systems have a designated owner who is responsible for developing and maintaining an appropriate, purposeful, effective quality system. The owner ensures the effective and efficient implementation of regulatory requirements in applicable areas at NBE-Therapeutics. Changes in regulations, enforcement trends and inspection results are monitored for their impact on quality systems, gaps are evaluated, and the owner determines the need for new or revised documentation.

Each owner is responsible, at a minimum, for:

* defining the quality strategy for the respective system and its implementation in cooperation with all affected functions,
* defining, developing and maintaining procedures for the implementation of the quality system strategy,
* defining, develop and maintain an appropriate level of harmonization within the systems., and
* monitoring performance and evidence of continuous improvement.

# Documentation of the QMS

The QMS and its requirements are outlined in the formal QMS documentation. The documentation system consists of four (4) levels of documentation, as described in [***Figure 1***](#_bookmark17) below.

***Figure 1:*** NBE-Therapeutics  ***documentation system***

# Tier One - Master Documents

The first tier documents like Master Documents define NBE-Therapeutics 's key principles based on the regulatory requirements for quality system. The quality system Owner is responsible for overseeing the content of the Quality Module.

First tier documents are no working documents. Other QMS documentation e.g., Standard Operating Procedures (SOP) describe how principles are applied to operations.

The QMH is a Master Document and describes the QMS, its scope, the fundamental processes, procedures and the responsibilities of management. The QMH may be shared on request, for example, with external stakeholders like Health authorities or inspectors.

The QMH is defined by the Head of QM, approved and signed by NBE-Therapeutics's CEO>, and reviewed during Management Review. The QMH is revisited least every three (3) years to ensure alignment with the company's strategy.

# Tier Two – Policies

Policies are not working documents and describe the general policies which apply within the company.

# Tier Three – Operating Procedures (SOPs, Working Instructions)

Standard Operating Procedures (SOP) describe overarching general technical standards or NBE-Therapeutics policies related to the QMS. Working Instructions (WI) describe how to conduct processes, methods, or activities. Their aim is to achieve a certain tier of standardization in an organization. Whenever a standardized process is described, the standards define the key steps of the process and the roles involved in performing the process, as well as their respective responsibilities. SOPs and Wis include templates for forms or other documentation required by legislation, such as protocols, master files or specifications.

# Tier Four – Records, Reports

Quality Tier four documents include filled quality records, reports are evidence, plans, forms, and checklists indicating that procedures and related instructions have been followed to achieve the expected results. These documents shall be managed by the relevant body in which the process is carried out.

# Applicability of QMS documentation

The NBE-Therapeutics Master Documents and Policies applies to all GxP sectors and organizations.

The quality modules, SOPs and WIs apply to all relevant Departments depending on the processes and/or technologies applied in them.

NBE-Therapeutics operations using specific technologies that require compliance with certain regulatory requirements will apply the NBE-Therapeutics SOPs and WIs on an individual assessment basis. Such specific regulatory requirements will be included in the QMH of these organizations.

# Fundamental Quality Systems and Processes

# Risk Management

The quality management and governance system cover the definition of the QMS strategy and its documentation, as well as the quality monitoring and planning processes and Quality Risk Management (QRM). The continued suitability, adequacy, and effectiveness of the QMS shall be monitored and evaluated through periodic Management Reviews.

A QRM process is to be established to provide a proactive approach to identifying potential risks to the quality, safety and effectiveness of products and processes. As part of the assessment, the quality risk assessment considers the severity and impact of the event. Results of risk assessments are implemented, as necessary, in quality plans or CAPAs.

# Data and Records

A NBE-Therapeutics Document Management System (LDMS) has been implemented that defines the creation, control, distribution, periodic review, storage, and destruction of GxP documents and records. This includes documents related to the execution (e.g., SOPs, Wis, protocols), recording (e.g., forms, worksheets), and evaluation (e.g., reports) of quality-related actions and decisions.

Records and data must be managed to ensure their accuracy, completeness, consistency, and security. Established standards applicable to printed or electronic records must be followed. Data must be attributable, legible, current, original, accurate, and complete, consistent, permanent, and accessible. Data integrity must be maintained throughout the product lifecycle. Record retention times must be defined and aligned with Regulatory.

# Events

A process is in place to ensure that all events (e.g., deviations, complaints, nonconformances, CAPAs, exceptions) that may adversely affect the identity, potency, quality, purity, product safety, or effectiveness of a commercial product or clinical trial material are documented, investigated, addressed, closed, and controlled appropriately in a timely manner.

Non-conforming products and materials are closely monitored, tracked, and quarantined as necessary.

# Change Management

The change management process ensures that changes that may affect product quality, validation status, or regulatory compliance are properly managed. Changes must be evaluated for their impact on quality and reviewed, approved, implemented, and documented by appropriate personnel.

# Audits and Inspections

A program for auditing internal processes and external service providers/contractors and conducting self-audits is to be implemented. This ensures ongoing compliance with NBE-Therapeutics’s regulatory requirements and standards.

The Regulatory Inspection Management Process is to be established to coordinate and manage regulatory inspections, including the follow-up and closure of inspection results, and to ensure communication both internally and with the appropriate regulatory agency on any findings. It should also ensure proper communication within the organization on specific compliance issues.

# Escalation Event Management

The company has established process for the necessary escalation of product related events and includes:

* + - escalation of quality-related issues to the appropriate management levels
		- assessment of the need for market action related to such issues (recalls, product withdrawals), and
		- informing regulatory authorities of potential product quality and compliance issues, as required by applicable law.

Reporting to health authorities should be done in a timely manner. The system ensures that all regulatory obligations and corrective and preventive actions (CAPAs) are implemented and adhered to.

# Material Management

Procedures are in place to control the components used in the manufacture or development of products to receive, process, store, control, and release materials throughout the life cycle of a product. These controls ensure that the product is approved and released by the responsible person and documented.

# Third Party Management

A system has been introduced to control outsourcing activities related to GxP activities and the quality of purchased materials. These processes should include selection, evaluation, monitoring and control of third parties and third-party materials related to GxP processes and QRM.

# Computerized Systems

A system is in place that outlines the requirements for validation of computerized systems and lifecycle management of computerized systems regulated by GxP to ensure patient safety, product quality, and the integrity of regulated data. Continuous Improvement of Process Efficiency, Product Quality and Quality Management System

Monitoring information at each stage of the lifecycle is used to continuously improve process efficiency, product quality and QMS performance. The results of regular Management Review meetings and monitoring of internal and external factors affecting the QMS are used to determine corrective and preventive actions (CAPA) that improve the system and related processes, allocate or reallocate resources, and/or revise the quality plan and Quality Objectives. These reviews and results shall be documented and communicated to Leadership Team.

# Definitions, Terms and Internal Communication

The following and further definitions and terms are found additionally in the Glossary of the ConSense database.

|  |  |
| --- | --- |
| **Term/abbreviation** | **Definition at NBE-Therapeutics** |
| QMS | Quality Management System (outlines the individual systems in order to tackle the strategy outlined int the QMH) |
| CAPA | Corrective and Preventive Action |
| GxP | Good x Practices (whereas x is a placeholder including, manufacturing, distribution, clinical, laboratory, or any other regulated environment applicable) |
| GMP | Good Manufacturing Practices means the part of quality assurance which ensures that products are consistently produced and controlled in accordance with the quality standards appropriate to their intended use |
| QMH | Quality Management Handbook, synonym for Quality Manual (outlines the organizations approach to quality) |
| QA | Quality Assurance (assures adherence to outlined processes and compliance guidelines) |
| QC | Quality Control (responsible for analytical testing against a predefined specification) |
| QM | Includes all Quality Processes from systems, production processes to labor and employee quality |
| Head QC | Head of Quality Control (per 2003/94/EC) responsible for acceptance or rejection of raw materials, bulk, intermediates and final product; creation of test protocols and procedures, acceptance of specifications, and all validations). |
| Head of MAN | Head of Manufacturing/Producion (per 2003/94/EC, AMWHV §12(1); Ensures appropriate production of goods, training of employees, validation of equipment and processes and approval of production documentation |
| QP | Qualified Person (Article 48 of Directive 2001/83/EC) The qualified person referred to in Article 48 shall in the case of medicinal products intended to be placed on the market in the Union, ensure that the safety features referred to in point (o) of Article 54 have been affixed on the packaging |
| Quality Objectives | The quality objectives are the main method used by companies to focus the goal(s) from the Quality Policy into plans for improvement. |

# Applicable documents

n/a

# Appendices

Appendix 01 Quality Commitment

Appendix 02 Organigram

# Document revision history

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Valid from** | **Description of the revision** | **Reason for the revision** |
| 01 | See header | Document created | QMS implementation |

## Approval Flow for Main Documents, Appendices or Templates

|  |  |  |  |
| --- | --- | --- | --- |
| **Author** | **Technical Reviewer** | **Compliance Inspector** | **Approver** |
|  |  |  |  |
| *<Doc01\_ApprovalFlow\_Author\_EmployeeName01>*  | *<Doc01\_ApprovalFlow\_TechnicalReviewer\_EmployeeName02>* | *<Doc01\_ApprovalFlow\_ComplianceInspector\_EmployeeName03>* | *<Doc01\_ApprovalFlow\_Approver\_EmployeeName04>*  |
|  |  |  | *<Doc01\_ApprovalFlow\_ApprovalDate\_Employee04>*  |
| *<Doc01\_ApprovalFlow\_ApprovalDate\_Employee01>*  | *<Doc01\_ApprovalFlow\_ApprovalDate\_Employee02>* | *<Doc01\_ApprovalFlow\_ApprovalDate\_Employee03>* |  |