PROPOSED 1st Edition of Cell and Gene Therapy Standards for Pharmacy

A Note to Readers

Individuals not familiar with the standards-setting practices of AABB should be aware of the following:

- Requirements, once stated, are not repeated. For example, standard 5.0 requires that all processes and procedures be validated. Therefore, it is not necessary to require in other areas that a specific process or procedure be validated.

- Words or phrases used in a way different from their usual meaning are defined in the glossary.

- The term "specified requirements" is defined broadly to include accreditation requirements, national, state, or local laws, and any other applicable requirement.

- Please note, that the Summary of Significant Changes to the proposed 1st edition begins on page 2 and runs through page 17. The proposed 1st edition begins on page 18 and runs through page 74.

Significant Changes to the Proposed 1st edition of Cell and Gene Therapy Standards for Pharmacy

Scope of these Standards

The Cell and Gene Therapy Standards for Pharmacy will include requirements for the receipt, handling, storage, dispensation, and/or disposal of approved (e.g., FDA, Competent Authority, local, federal and regulatory body) cell and gene therapy products to maintain the product quality and safety while in possession of the pharmacy.

However, the following are beyond the scope of these Standards and are not addressed in this 1st edition:

- *Products under IRB or Investigational New Drug Application*
- *Products not approved for use by the appropriate Competent Authority*
    - *Products deemed nonconforming but not approved for administration*
    - *Compounding processes not included in the approved instructions for use*
- *Collection of cellular starting material*
- *CGT product manufacturing, characterization, or administration*

In future editions, the Standards could be expanded to include these concepts

Specific Standards Edits and Additions

Please note, this set of Standards is based on the Quality System Essentials and the 11th edition of Standards for Cellular Therapy Services.

1.1 Executive Management
The organization shall have a defined executive management. Executive management shall have:
2) Responsibility for compliance with these *Standards* and applicable laws and regulations ~~including all applicable current good manufacturing practice (cGMP) requirements~~.
4) Responsibility for appointing a qualified responsible pharmacist.

The committee edited standard 1.1 to mirror the pharmacy space.
#2 - The committee removed the clause requiring that all applicable laws and regulations include those covered by the cGMPs. The committee noted that this does not apply to the CGT space.
#4 – The committee created subnumber 4 ensure that the executive management appoints a qualified pharmacist, the individual who serves in the management and lead role in the CGT space.

1.1.1 The facility shall register and maintain licensure for all applicable CGT product activities with the relevant Competent Authority.

The committee created this standard to ensure that all CGT pharmacies maintain a licensure to conduct business with their relevant Competent Authority, which in this case is typically a state regulator.

1.1.2 Responsible Pharmacist
The Responsible Pharmacist shall have oversight and ultimate responsibility for all activities covered by these Standards. The Responsible Pharmacist shall be qualified

by relevant education, training, and experience. When the Responsible Pharmacist delegates this oversight to another qualified pharmacist, the responsible pharmacist shall retain ultimate responsibility.

The committee created this standard to detail the requirements for the individual that leads the pharmacy that will be accredited. The term responsible pharmacist is one that is understood by the community, however, unlike medical director or laboratory director is not universal. For the responsible pharmacist, they typically have a designee, however, the responsible pharmacist maintains ultimate responsibility.

1.2.1 Quality Representative
The quality system shall be under the supervision of a designated person who reports **on quality system activities** to executive management **on a quarterly basis, at a minimum**.

The committee edited standard 1.2.1 to mirror the pharmacy space. The committee added the clause in bold for clarity.

1.2.3 The facility shall establish and maintain a quality system to ensure that activities related **receipt, storage, handling, and dispensing and/or disposal** of CGT products conform to specified requirements.

The committee built standard 1.2.3 off of an existing standard in the 11th edition of CT Standards. The elements in bold are highlighted to show the scope of work for the CGT Standards.

1.3.1 The ~~medical director and/or laboratory director (as applicable)~~ **responsible pharmacist** shall approve all ~~medical~~ **pharmacy** policies, processes, and procedures.

The committee edited standard 1.3.1 to mirror the pharmacy space. The committee updated standard 1.3.1 to focus on the pharmacy space, recognizing that the other mentioned roles in this space do not apply.

1.3.2 Any exceptions to **pharmacy** policies, processes, and procedures shall require justification and preapproval by the ~~medical director and/or laboratory director~~ **responsible pharmacist**.

The committee edited standard 1.3.2 to mirror the pharmacy space. The committee updated standard 1.3.2 to focus on the pharmacy space, recognizing that the other mentioned roles in this space do not apply.

2.1.3.1.1 The facility shall ensure that personnel receive training focused on the receipt, handling, storage, dispensing and disposal of CGT products. Standard 2.1.4 applies.

The committee noted that in the CGT space, that training is of paramount importance and as such included this new standard to ensure that the training is focused on the defined scope of these Standards.

2.1.3.2 Ongoing Job Training ~~and Continuing Education~~
The organization shall ensure that ~~continuing~~ **personnel receive and complete**

ongoing training for activities relevant to their role and ~~education requirements~~ applicable to these *Standards* ~~are met when applicable~~. **Standard 2.1.3.1, #3 applies.**

The committee edited Standard 2.1.3.2 to mirror the pharmacy space. The committee noted that in the CGT space, the term continuing education has a very specific meaning. As such the committee updated Standard 2.1.3.2 to focus on ongoing job training, as opposed to traditionally understood CE/CMEs.

✎ **3.5.2** The organization shall:

7) Determine the impact of a manufacturer's recall and other notifications affecting critical equipment, and take action, as necessary. Standard 1.4 and 3.5.2 apply.

Subnumber 7 is a new requirement to ensure that organizations have a plan in place to review the impact of a recall of equipment has on a facility and what steps to take as necessary.

✎ **3.5.3.1** When equipment is found to be out of calibration or specification, the validity of previous inspection and test results and the conformance of potential affected CGT products or services (including those that have already been released or delivered) shall be verified.

This standard's content has not changed, but previously appeared as standard 3.5.2.

✎**3.6 Equipment Traceability**

The organization shall maintain records of equipment use in a manner that permits:

2) Tracing of any given product to all equipment associated with the **receipt, handling, storage, dispense and/or disposal** of the CGT product or service.

The committee edited standard 3.6 to mirror the pharmacy space. The committee updated standard 3.6 to ensure that the content reflected the scope of the CGT Standards.

✎**3.7 Information Systems**

The organization shall have controls in place for the implementation, use, ongoing support, and modifications of information system software, hardware, and databases. Elements of planning and ongoing control shall include:

10) System design that ~~establishes and~~ maintains unique identity of ~~the donor~~ the CGT product, or service, and the **patient** ~~recipient~~ (as applicable).

The committee edited standard 3.7 to mirror the pharmacy space. The committee updated subnumber 10 to reflect the scope of the CGT Standards.

✎**3.8 Alarm Systems**

Storage devices for CGT products shall have alarms and shall conform to the following standards:

3.8.1 The alarm shall be set to activate under conditions that will allow enough time for proper action to be taken before CGT products reach unacceptable conditions.

3.8.2 Activation of an alarm shall initiate a process for immediate action, investigation, and appropriate corrective action.

The committee added standards 3.8 – 3.8.2 for completeness. These standards appear in other sets of AABB Standards as well.

4.2.3.1 Before acceptance of a documented verbal or written agreement(s), the agreement(s) shall be reviewed by the facility to ensure that:

1) The requirements are adequately defined ~~in compliance with these~~ and in accordance with **the applicable Standards and/or** relevant ~~FDA~~ Competent Authority requirements.

This standard is based on a similar standard in the CT Standards.
#1 – has been edited to require that programs follow the CGT Standards and the requirements set forth by their Competent Authority.

4.2.3.1.1 For facilities that manipulate (e.g., compounding, thawing, diluting) CGT product(s), the agreement shall define the conditions for receipt, handling, storage, dispensing and/or disposal. Standard 4.3.2 applies.

The committee added standard 4.2.3.1.1 to better define for facilities that receive and manipulate the product before dispensing.

4.2.3.2.2 Roles and responsibilities of each facility involved in the **receipt, handling, storage, dispensing and/or disposal** of a CGT product to maintain the chain of identity, chain of custody, and **chain of condition**.

The committee updated standard 4.2.3.2.2 to ensure that the content reflected the scope of the CGT Standards, while also including the concept of chain of condition.

4.2.3.2.4 Inspection requirements of incoming received CGT products.

Recognizing that receipt is a key component to these CGT Standards, the committee added this standard for completeness.

4.2.3.2.6 Specifications and requirements for **CGT product** ~~donor and patient care~~ quality, safety, and other defined critical parameters.

The committee adjusted this standard, which appears in the 11th edition of CT Standards to mirror the requirements of the CGT space.

C 5.1.2 Quality Control

A program of quality control shall be established ~~that is sufficiently comprehensive~~ to ensure that CGT products, and equipment ~~materials, and analytical functions~~ perform as intended. **Standard 2.1.3 and 2.1.4 apply.**

The committee edited standard 5.1.2 to mirror the pharmacy space.

5.1.4.1 Validation activities shall include the following:

4) Review and approval of **validation** ~~actual~~ results.

The committee revised this standard for clarity.

5.1.9.1 Transfer of CGT products

When products are transferred, the following items shall be defined:

1) Responsibility for maintaining the chain of identity during transfer.
2) Responsibility for maintaining the chain of custody during transfer.
3) **Responsibility for maintaining the chain of condition.**
4) Timing of product receipt and delivery.

The standard appears in the 11th edition of CT Standards and in chapter 4. The committee felt that this standard was appropriate and moved it to chapter 5 where it was deemed appropriate. Subnumber 3 concerning "chain of condition" was added to the standard to mirror similar additions throughout the edition.

5.2 CGT Product Management

There shall be policies, processes, and procedures for the qualification, receipt, handling, storage, **dispensing, and/or disposal** ~~and utilization~~ of all materials related to CGT products.

The committee mirrored a standard from the 11th edition of CT Standards while adjusting the language to align with the scope of the CGT Standards.

5.2.1 Receipt of and Qualification of CGT Products

The facility shall ensure that CGT products are not ~~used~~ **dispensed** until they have been inspected or otherwise verified as conforming to requirements.

5.2.1.1 Records of the following shall be maintained:

1) **CGT product, concentration, quantity, as applicable.**
2) Name of CGT product and manufacturer.
3) **Unique identifiers (e.g. lot number, patient identification, purchase order).**
4) Chain of identity, if applicable.
5) Chain of custody.
6) Date of and time of receipt.
7) Date of CGT product manufacture and/or expiration date or retest date.
8) **Chain of condition, including results of visual inspection and conformance upon receipt, including:**
   a) **Appropriate packaging and labeling.**
   b) **Integrity of the shipping container(s).**

c) Presence or absence of visible evidence of contamination or tampering of product container.

d) Temperature acceptability.

9) Indication of acceptance or rejection and documentation of the identity(ies) of the person determining acceptance or rejection of the CGT product.

10) Manufacturer's insert, or equivalent, if applicable.

11) Accompanying documents or materials, if applicable.

The committee mirrored a standard from the 11th edition of CT Standards and updated the language to mirror the requirements for a CGT pharmacy, specifically in subnumbers 1, 3, 8, and 11.

#1 is focused on the dose of the product, if available.
#3 includes the concept of a purchase order which is tied to the pharmacy in the CGT space.
#8 is included to mirror the addition of the concept chain of condition throughout the edition.
#11 is included to provide a space for programs that receive documents along with the product, however, this is not uniformly the case.

5.3.1 CGT Product Handling

CGT product handling shall address the following:

1) Risk assessment of receipt and handling of CGT products.

2) Applicable staff training and adequate resources for the handling of CGT products. Standard 2.1.3 applies.

3) Staff attire, gowning, and use of **appropriate** personal protective equipment **and environmental controls relevant to the task performed**.

4) Use of biologic safety cabinets or other environmentally controlled spaces, if applicable.

5) Materials and equipment for each specific process.

6) Manipulation **and preparation** of materials, if applicable.

7) Critical calculations.

8) Transfer of CGT products between containers, if applicable.

9) Acceptable control limits for temperature, humidity, and gases such as oxygen and CO2, if applicable.

10) Disposition **quarantine (if applicable) and handling** of CGT by-product and waste.

Standard 5.1.1 applies.

The committee mirrored a standard in the 11th edition of CT Standards and updated the language to align with the requirements for a CGT pharmacy, specifically in subnumbers 1, 2, 3 and 10.
#1 is to ensure that staff consider risk when handling CGT products, which can be delicate in nature.
#2 is to stress the importance of staff training, especially as it pertains to the handling of these products.
#3 has been expanded to include content surrounding the need to be aware of the environment within which the product is being handled.
#10 has been expanded to include handling.

5.3.2 Aseptic Methods

Facilities shall establish and maintain policies, processes, and procedures designed to minimize contamination of the CGT product and infection patient. The following shall be addressed:

1) Environmental controls and monitoring commensurate with the risk of product contamination.
2) Process controls.
3) Staff training in aseptic technique.
4) Attire, gowning, and use of personal protective equipment.
5) **Use of appropriate materials and equipment to maintain sterility.**
6) Workflow and movement of personnel through workspaces.
7) **Applicable Competent Authority requirements.**

The committee mirrored a standard in the 11th edition of CT Standards and updated the language to align with the requirements for a CGT pharmacy, specifically in subnumbers 5 and 7.
#5 has been added to ensure that that sterility is maintained when CGT products are handled.
#7 has been added to ensure that when handling CGT products, facility staff are following all applicable requirements set forth by the Competent Authority.

5.3.3 Operational Controls

Operational controls shall prevent **errors** ~~mix-ups~~ and contamination. The following shall be defined:

1) Movement and storage of materials (including waste) and equipment within workspaces.
2) Physical, **spatial,** and/or temporal segregation of equipment or materials.
3) Physical, **spatial,** and/or temporal segregation **of inventory of** ~~for processing~~ different CGT products or CGT product lots.
4) Use and storage of materials that may adversely affect the quality of the CGT product.
5) **Appropriate** cleaning and setup of spaces and equipment between ~~production runs~~ **preparations of each individual CGT product**.
6) **Appropriate** CGT product labeling.
7) **Final pharmacist verification** ~~Clerical identification checks at critical steps~~.

The committee mirrored a standard in the 11th edition of CT Standards and updated the language to align with the requirements for a CGT pharmacy, specifically in subnumbers 2, 3, 5, 6, and 7.
The committee also felt that the term "mix-ups" was not as clear as "errors." It was noted that "mix-ups" is a term used by the FDA, which did not feel appropriate for this community.
#2 and 3 have added the clause of "spatial" in terms of the operational space that the product is handled in.
#5 has been updated to reflect requirements in the CGT space. With the inclusion of "appropriate" as there are different requirements for each state.
#6 has added the term "appropriate" recognizing that there are different labeling requirements for each state and facility.
#7 has been updated to reflect the step in which the pharmacist will review the product to ensure that there are no errors or potential contamination.

5.4 Product Identification and Traceability

The facility shall establish and maintain policies, processes, and procedures that ensure the chain of identity, chain of custody, **and chain of condition** for identification and traceability of each CGT product from receipt to **dispensing and/or disposal**.

The committee mirrored a standard in the 11th edition of CT Standards and updated the language to align the requirements for a CGT pharmacy, including the clause, "chain of condition" and "dispensing."

✎5.5 Labels, Labeling, and Labeling Controls

The facility shall have policies, processes, and procedures for the approval and use of pharmacy labels and labeling of products. At a minimum, they shall address:

1) The information contained on labels shall be defined by the appropriate Competent Authority.

2) The training of personnel for labeling and auxiliary labeling (e.g., hazardous precaution), as applicable. Standard 2.1.3 applies.

3) The maintenance of chain of identity.

4) The verification of labels for accuracy and completeness by the pharmacist at facility defined steps.

Standard 5.4.3 applies.

The committee mirrored a standard in the 11th edition of CT Standards focused on product labeling. The entries in subnumbers 1 – 5 are all pharmacy labeling specific.
It was noted that in the pharmacy space, that in the case of #1, labeling information is defined by a local/regulatory Competent Authority.
#2 has been written in a way to ensure that training for labeling is included in the proposed edition. The training aspect surrounding the handling of these products is of paramount importance to this committee.
#3 has been included to mirror other requirements in the Standards.
#4 has been included for completeness.

5.5.1 Facilities that perform intermediate steps (e.g., compounding, dose preparation) shall have a labeling system that ensures traceability from receipt to dispense and/or disposal.

The committee created standard 5.5.1 to ensure that in the case where a facility that may perform an intermediate step on a product (e.g., manipulation) that traceability is maintained.

5.5.2 The facility shall label shipping containers in conformance with specified requirements. Local, FDA relevant or Competent Authority, Boards of Pharmacy, and/or relevant transport/shipping regulations apply.

As a supplement to subnumber 1 of standard 5.5.2 has been created by the committee to ensure that shipping containers are labeled as per the requirements set forth by the appropriate Competent Authority.

✎5.6 Packaging, Transport, and Shipping

The facility shall establish and maintain policies, processes, and procedures that are intended to limit deterioration, prevent damage, ensure timely delivery, and protect the quality of the CGT

products during packaging, transport, and shipping while maintaining chain of custody, chain of identity, **and chain of condition**.

The committee mirrored a standard in the 11th edition of CT Standards focused on product transport and shipping with the added inclusion of "packaging."
The addition of the clause "chain of condition" was included for completeness, mirroring the addition throughout the edition.

5.6.1 The facility shall control packaging to ensure conformance with specified requirements **including the package insert included with the CGT product**. Local, FDA or relevant Competent Authority, Boards of Pharmacy, and/or international transport/shipping regulations apply.

The committee mirrored a standard in the 11th edition of CT Standards with the inclusion of the clause in bold to ensure that packing requirements of CGT products are in conformance with the package insert. This edit was made for clarity.

✎ **5.6.3** When CGT products are transported or shipped, the ~~continuous~~ temperature **ranges** ~~monitoring~~ shall be ~~performed, appropriate temperature ranges~~ defined**, maintained, and continuously monitored** ~~and shall be~~ ~~appropriate~~**, where applicable, for** ~~to~~ the duration of transport or shipping.

The committee mirrored a standard in the 11th edition of CT Standards focused on product transport and shipping with the added inclusion of maintenance and monitoring of the product. This language mirrors standard 5.6.2.

✎ **5.6.4** Facilities shall maintain records of CGT product origin, **chain of** custody, **chain of condition, chain of** identity, dispense **and/or disposal**, transfer, and acceptability.

The committee mirrored a standard in the 11th edition of CT Standards, with the inclusion of the "chain of condition" to parallel inclusions of this concept throughout the edition.

5.7 Storage, Preservation, and Dispensing

The facility shall establish and maintain policies, processes, and procedures for storage, preservation and CGT products in order to prevent errors and limit deterioration, contamination, and improper ~~distribution~~ **dispensing and/or disposal** of CGT products. This shall include the use of designated, secure dispensing, and storage areas with controlled access. Chapter 7, Deviations, Nonconformances, and CGT Product Related Unanticipated Events applies.

The committee mirrored a standard in the 11th edition of CT Standards, adding the concept of "dispensing" which is the final element of the scope of this proposed 1st edition. This addition mirrors similar inclusions to the standards.

5.7.1 The facility shall define storage specifications and storage conditions, including temperature range for all CGT products as per manufacturer's written instructions.

The committee created this standard ensuring that pharmacies define all specifications and conditions

surround the storage of CGT products in accordance with manufacturer's written instructions.

✎ **5.7.2** Storage and dispensing areas shall have the capacity and design to ensure that proper temperature and humidity, **if applicable**, are maintained.

The committee mirrored a standard in the 11th edition of CT Standards, however with the inclusion of "if applicable" was included recognizing that there are circumstances where facilities do not record and determine appropriate humidity ranges.

✎ **5.7.2.1** If CGT products are stored and dispensed in an open storage area, the ambient temperature shall be **continuously monitored** ~~recorded at a minimum of every 4 hours~~.

The committee mirrored a standard in the 11th edition of CT Standards, however with the added adjustment for facilities that do maintain products at room temperature, that they have to be continuously monitored.

5.7.4.1 **If the CGT product is immersed in liquid nitrogen the temperature and/or liquid nitrogen levels** shall be recorded every 24 hours at a minimum.

The committee mirrored a standard in the 11th edition of CT Standards, recognizing that products that are immersed in liquid nitrogen have their temperature or levels recorded at least every 24 hours.

5.7.4.2 **If the CGT product is not immersed in liquid nitrogen, the temperature** shall be recorded every 4 hours at a minimum.

The committee mirrored a standard in the 11th edition of CT Standards, recognizing that products that are not immersed in liquid nitrogen have the temperature of refrigerator or freezers be recorded every 4 hours at a minimum.

5.7.5.1 **The facility shall have policies to address when CGT products are exposed to temperature excursions and appropriate corrective action. Standard 9.1 applies.**

The committee created this standard to ensure that when facilities have products that exceed their defined temperature ranges, they have a policy to take corrective action.

✎**C5.8Verification**

Upon verification of prescription **(e.g., order, medical order for prescription)**, the following items shall be reviewed at a minimum:

1) Documentation that the CGT product was requested.
2) **Instructions for administration, if applicable.**
3) The accuracy and completeness of the CGT product **prescription** labeling and identification.
4) CGT product condition by visual inspection.
5) **Patient** identification.
6) Supporting documentation review.

7) Identification of the **pharmacist(s) performing** the **verification of the** CGT product **for the intended patient.**
8) Date and time of **verification**.

The committee mirrored a standard in the 11th edition of CT Standards, focused on verification, the step that takes place prior to dispensing in the scope of these Standards.
Subnumber 2 has been included to ensure that the product administration instructions are included.
Subnumber 5 has included the term "patient" which is the individual receiving the product in these proposed Standards at the time of administration.
Subnumber 7 has included the individual receiving the product, in this case the pharmacist, is identified as they will be approving the product for the patient.
Subnumber 8 has included the term "verification" to mirror the title of the standard and the step in the process.

5.9 Dispensing

At the time of dispensing, the following items shall be maintained and in conformance with Competent Authority regulations:

1) Chain of identity.
2) Chain of custody.
3) Chain of condition.
4) Date and time of dispense.

Standard 5.9 is new to the edition and focuses on the final element of the scope of the standard. The content of standard 5.9 mirrors many of the elements in other sections of the standards, including receipt, handling, and labeling.

✎**5.10 Disposal**

The facility shall have policies, processes, and procedures regarding ~~discard~~ **disposal** of CGT products ~~that are consistent with requirements outlined in the facility's process and~~ **in accordance with** applicable laws and regulations. Standard 4.1 applies

The committee mirrored a standard in the 11th edition of CT Standards, focused on disposal of a CGT product.

6.2.2 Record Traceability

The records system shall ensure traceability of **the following as applicable**:

1) Critical activities performed
2) The individual who performed the activity.
3) Date the activity was performed.
4) Time the activity was performed~~, if applicable~~.
5) Results obtained.
6) Method(s) used.
7) Equipment used.
8) Critical materials used.
9) The organization where the activity was performed.

The committee edited standard 6.2.2 recognizing that all 9 elements are not applicable in all cases for the pharmacy space.

6.2.5.1 Changes to records (including electronic records) shall be verified for accuracy and completeness **by an authorized individual**.

The committee edited standard 6.2.5.1 (a QSE) to mirror the pharmacy space. The addition of the clause in bold will ensure that the individual changing records are authorized to do so.

6.2.9.1 These records shall be retained in accordance with the pharmacies' existing record retention policy or for at least **2** years. Applicable relevant Competent Authority, or local law may exceed this period.

The committee mirrored a standard in the 11th edition of CT Standards. The committee reasoned that in the pharmacy space typically keep facility records for a time period as defined by the pharmacy or local regulatory body. Recognizing the length of time between assessments is 2 years, the committee set an initial record retention time of 2 years.

QSE 7 - Deviations, Nonconformances, and CGT Product Related Unanticipated ~~Adverse~~ Events

In the pharmacy world, the term "adverse event" has a very specific patient centered definition. As these Standards do not reflect pharmacies that have patients, the committee felt it would be appropriate to adjust the terminology to allow for the concept of the standards (7.3 – 7.3.2) to be included in the document while recognizing the space these Standards will be accredited in.

7.1 Deviations

The organization shall capture, assess, investigate, and report events that deviate from **approved** ~~accepted~~ policies, processes, or procedures. The assessment shall ensure timely and appropriate clinical management of the **patient** ~~recipient~~, if applicable.

The committee edited standard 7.1 to mirror the pharmacy space. The committee replaced the term "recipient" with "patient" to reflect the scope of the Standards and the eventual receiver of the CGT product.

7.1.3 The facility shall have policies, processes, and procedures for the determination of when a reported deviation requires escalation.

The committee added standard 7.1.3 recognizing that when a deviation occurs, that there are steps to take concerning the reporting of a deviation. This can include executive management, the product manufacturer, or competent authority.

7.1.3.1 For deviations having the potential to adversely affect the CGT product; employee safety; or the safety of a patient; ~~approval of~~ the **responsible pharmacist** ~~individual qualified to~~ **shall** evaluate the deviation ~~shall be obtained before final~~ dispensing ~~release of the CGT product~~. **Standard 1.1.2 applies.**

The committee mirrored a standard in the 11th edition of CT Standards with the focus of the standard shifted to focus on the pharmacy space with the inclusion of the "responsible pharmacist" and the term "dispensing."

7.1.3.2 The release approval shall be made by the **responsible pharmacist** ~~procurement medical director, the laboratory medical director, the laboratory director, clinical program director and/or the patient's physician, depending upon the circumstances.~~

The committee mirrored a standard in the 11th edition of CT Standards with the focus on the responsibility of the individual in charge, "responsible pharmacist", for the approval of release of a CGT product that could be classified as a deviation.

7.1.3.3 The prescribing physician shall be notified, if appropriate.

The committee created standard 7.1.3.3 to ensure that in the case where the prescribing physician should be informed of a deviation, the standards would reflect that.

7.2.1 Nonconforming CGT products ~~or services~~ shall be quarantined and **disposed of, if applicable** ~~and/or destroyed~~.

The committee edited standard 7.2.1 based around what is expected of a pharmacy.

7.2.2 The unintended **dispensing** ~~distribution or use~~ of products ~~or services~~ that do not conform to specified requirements shall be prevented.

The committee edited standard 7.2.2 based around what is expected of a pharmacy.

7.2.3 The organization shall:

1) Identify, quarantine, retrieve, recall, and determine the disposition of nonconforming CGT products **and critical supplies**.
2) Identify and manage nonconforming CGT products.

The committee added the clause in bold for completeness.

7.2.4 Dispensed ~~Released~~ Nonconforming CGT Products ~~or Services~~

CGT products ~~or services~~ that are determined after **dispensing** ~~release~~ not to conform to specified requirements shall be evaluated to determine the effect of the nonconformance on the quality and/or safety of the CGT product **and/or risk to the patient**.

The committee edited standard 7.2.4 based around what is expected of a pharmacy.

7.2.4.1 Records shall include the **assessment** ~~disposition~~ of the nonconforming CGT product ~~or service~~, the rationale, and the name(s) of the **responsible** individual(s).

The committee edited standard 7.2.4.1 based around what is expected of a pharmacy. The term "disposition" was deemed as inappropriate in the pharmacy space and felt that the term "assessment"

was more appropriate.

7.2.5 Notification

The facility shall report **to the appropriate party** ~~customer~~:

1) Any CGT products lost, damaged, or otherwise unsuitable for use.
2) **Dispensed** ~~Released~~ CGT products ~~or delivered services~~ that are determined to be nonconforming, as soon as possible.

Standard 4.3 applies.

The committee mirrored a standard in the 11th edition of CT Standards, editing the notification requirements surrounding nonconformances. In this case, in the pharmacy area the individual notified is determined to be either, the manufacturer, or the administration facility.
The term "dispense" has replaced "release" for accuracy.

7.2.6 Determination ~~Review and Disposition~~ of Nonconforming CGT Products ~~and Services~~

Authority for **the determination** ~~determining~~ **the status** ~~disposition~~ of nonconforming CGT products, ~~and review of nonconforming services~~ shall be defined.

The committee mirrored a standard in the 11th edition of CT Standards, editing the requirement to read specific to the pharmacy space.

7.2.6.1 A nonconforming CGT product shall be handled in one of the following ways:

1) **Prepared** ~~Reworked~~ to meet the specified requirements **for dispensing as agreed to by the manufacturer, ordering provider, and the responsible pharmacist, as applicable**.
2) Accepted by the **Competent Authority** ~~customer~~, after disclosure of the nonconformance, **and dispensed with Competent Authority approval**.
3) Disposed of ~~Destroyed~~.

The committee mirrored a standard in the 11th edition of CT Standards to articulate the requirements of what should occur when a nonconforming CGT product is found. Those being that the CGT product could be dispensed, or that the appropriate Competent Authority requirements.

7.2.6.2 Authorized Release of Nonconforming CGT Products

A nonconforming CGT product shall be released by exception only when there is a documented clinical need for the CGT product and when approved by the **manufacturer, ordering provider, and the responsible pharmacist** ~~medical director~~.

The committee mirrored a standard in the 11th edition of CT Standards however with edits made to focus on the pharmacy space. For the authorized release of CGT products, the approval would come from three sources dependent upon who has authorization.

7.3 CGT Product Related Unanticipated ~~Adverse~~ Events

The organization shall detect, monitor, evaluate, manage, and report CGT product **related unanticipated events** ~~related to safety and quality~~.

7.3.1 Records of CGT product **related unanticipated** ~~adverse~~ events and the related investigations, evaluations, and notifications shall be maintained.

The committee edited standards 7.3 and 7.3.1 to remain parallel with the changes made to the title of QSE 7 to mirror the pharmacy space.

9.1 Corrective Action

The organization shall have a process for corrective action that includes:

2) Investigation of the root cause(s) of nonconformances relating to the **handling, receipt, storage, dispense, and/or disposal of the** CGT product ~~or service~~, the process, and the quality system.

The committee edited standard 9.1, #2 to include the scope of the Standards as a part of the entry for completeness.

10.1.1.1 The facility shall post signage reflecting the hazards present that pose a risk to health and safety.

The committee created new standard 10.1.1.1 to ensure that the program has adequate signage to ensure that all relevant hazards are noted for the health and safety of all individuals that could be impacted.

10.1.2 Biohazardous **or hazardous** materials shall be handled **and/or disposed of according to safety data sheets**, in a manner that minimizes the potential for human **and environmental** exposure to infectious agents.

The committee mirrored a standard in the 11th edition of CT Standards however with edits reflecting the pharmacy space. The committee noted that the term biohazardous may not be fully understood to include other hazards present in a facility.

The committee also included the clause "and/or disposed of according to safety data sheets" to ensure that facilities are handling biohazardous and hazardous materials according to safety data sheets for completeness.

The committee also added the clause "…and environmental…" for completeness, recognizing that there are elements that should not be merely focused on human exposure.

10.1.3 Where liquid nitrogen is present, specific hazards shall be addressed. **Standard 2.1.3 applies.**

The committee added a crossreference to the standard focused on training to ensure that individuals handling liquid nitrogen are trained to do so.

10.1.3.1 The facility shall have a system in place to monitor oxygen levels and an alarm system set to activate under conditions that will allow action to be taken.

10.1.3.1.1 Alarm activation shall require personnel to investigate and document the condition activating the alarm and to take immediate corrective action as necessary.

The committee added standards 10.1.3.1 and 10.1.3.1.1 which exist in many other sets of AABB Standards that have product stored in liquid nitrogen.

✎**10.3 Handling, Disposing of Biological Materials**

Biological materials shall be handled, and/**or disposed** of in a manner that minimizes the potential for human **and/or environmental** exposure to **biohazardous** ~~infectious~~ agents and in keeping with the Competent Authority.

The committee mirrored a standard in the 11th edition of CT Standards however with edits reflecting the pharmacy space. The inclusions of "and/or disposing" mirrors the scope of the standards as detailed throughout the edition.

The committee added the clause "…and/or environmental" for completeness, recognizing that there are elements that should not be merely focused on human exposure.

The committee removed the term "infectious" recognizing that there are agents in the environment that could be hazardous but are not only infectious in nature.

Glossary Edits

Chain of Condition: Permanent documentation available for recall outlining the evaluation and maintenance of cell or gene therapy storage conditions, including temperature, from origin to final disposition or other defined time point(s). Any occurrence of out of specification events and conditions must be included as part of the documentation.

Compounding: The preparation, combining, admixing, diluting, pooling, or otherwise altering of a drug CGT product or bulk drug substance to create therapies tailored to the unique and specific needs of a patient.

Disposal: The defined process for the appropriate removal of biohazardous and hazardous CGT products from the pharmacy

Handling: The act of moving a cell and gene therapy product through the supply chain for pharmacy dispensing.

Human Prescription Labeling: A summary of the information required to ensure the safe and effective use of a prescribed drug or CGT product, and would include the prescribing information (e.g., medication guides, patient package inserts, and/or Instructions for Use).

Pharmacy (Noun): The facility in which the receipt, handling, storage, dispensing and disposal of CGT products occurs under the supervision of appropriately licensed pharmacy personnel (i.e., Responsible Pharmacist).

Pharmacy (Verb): The art, practice, or profession of preparing, preserving, compounding, and dispensing gene and cell therapy medications.

Pharmacy Label: The label affixed to the exterior of a CGT product that includes patient-specific drug information.

Responsible Pharmacist: A registered, licensed and qualified by training and experience licensed pharmacist with overall accountability for the safe, effective, and compliant pharmacy operations relative to CGT products.

The terms in bold were added to reflect the terminology added to the Standards.

QSE 1 – Organization

Key Concepts:
This quality system essential (QSE) describes the responsibilities of executive management, the nature of the quality system, and the need for ongoing attention to operational and quality issues through demonstrated management commitment.

Key Terms:
Customer: The recipient of a CGT product or service. A customer may be internal (eg, another organizational unit within the same organization) or external (eg, a patient, client, donor, or another organization).

Emergency Management: Strategies and specific activities designed to manage situations in which there is a significant disruption to organization operations or a significantly increased demand for the organization's CGT products or services.

Executive Management: The highest-level personnel within an organization, including employees, clinical leaders, and independent contractors, who have responsibility for the operations of the organization and who have the authority to establish or change the organization's quality policy. Executive management may be an individual or a group of individuals.

Organization: An institution, or a location or operational area within that organization; the entity assessed by the AABB and receiving AABB accreditation for specific activities.

Policy: A set of basic principles or guidelines that direct or restrict the organization's plans, actions, and decisions.

Procedure: A defined series of tasks and instructions that specify how an activity is to be performed.

Process: A set of related activities that transform inputs into outputs.

Quality Management System: The organizational structure, responsibilities, policies, processes, procedures, and resources established by executive management to achieve quality.

Examples of Objective Evidence:
- Policies, processes, and procedures related to this chapter.
- Organizational charts or documents describing roles, responsibilities, and decision-making authority.
- Evidence of executive management review of a quality system.
- Applicable federal, national, state, and local laws and regulations, as well as copies of any required certificates.
- Defined quality system.
- Process for approving exceptions to policies, processes, and procedures, as well as documented examples, if applicable.
- Risk assessments and mitigation strategies.
- Emergency operation and disaster continuity plan(s).
- Executive management review of customer feedback.

1.0 Organization

The organization shall define the parties responsible for the provision of Cell and Gene Therapy products (hereinafter CGT products).

1.1 Executive Management

The organization shall have a defined executive management. Executive management shall have:
1) Responsibility and authority for the quality system and operations.
2) Responsibility for compliance with these Standards and applicable laws and regulations.
3) Authority to establish or make changes to the quality system.
4) Responsibility for appointing a qualified Responsible Pharmacist.

1.1.1 The facility shall register and maintain licensure for all applicable CGT product activities with the relevant Competent Authority.

1.1.2 Responsible Pharmacist

The Responsible Pharmacist shall have oversight and ultimate responsibility for all activities covered by these Standards. The Responsible Pharmacist shall be qualified by relevant education, training, and experience. When the Responsible Pharmacist delegates this oversight to another qualified pharmacist, the responsible pharmacist shall retain ultimate responsibility.

1.2 Quality System

The organization shall have a quality system. The organization's executive management shall ensure that this quality system is implemented and followed at all levels of the organization.

1.2.1 Quality Representative

The quality system shall be under the supervision of a designated person who reports on quality system activities to executive management on a quarterly basis, at a minimum.

1.2.1.1 The quality representative shall have defined independent authority for ensuring that the facility establishes, implements, and maintains a quality system that meets the requirements of these Standards. When the quality representative delegates these responsibilities to a designee, the quality representative shall retain ultimate responsibility.

1.2.1.1.1 These reports shall be used for management review and improvement of the quality system.

1.2.2 Management Reviews

Management shall assess the effectiveness of the quality system at defined intervals.

1.2.3 The facility shall establish and maintain a quality system to ensure that activities related to receipt, storage, handling, and dispensing and/or disposal of CGT products conform to specified requirements.

1.3 Policies, Processes, and Procedures

Policies, processes, and procedures shall be implemented and maintained to satisfy the applicable requirements of these *Standards*. All such policies, processes, and procedures shall be in writing or captured electronically and shall be followed.

1.3.1 The responsible pharmacist shall approve all pharmacy policies, processes, and procedures.

1.3.2 Any exceptions to pharmacy policies, processes, and procedures shall require justification and preapproval by the responsible pharmacist.

1.4 Risk Assessment

The facility shall have a process to perform risk assessments for activities at defined intervals. Standards 5.1.1 and 6.1.5 apply.

1.4.1 Mitigation strategies shall identify, assess, and address the level of risk associated with quality and safety.

1.5 Operational Continuity

The organization shall address continuity in the event that operations are at risk.

1.5.1 The facility shall have a policy to address critical supply shortages.

1.6 Emergency Preparedness

The organization shall have an emergency operation plan(s) to respond to the effects of internal and external disasters.

1.6.1 The emergency management plan, including emergency communication systems, shall be tested at defined intervals.

1.7 Communication of Concerns

The organization shall have a process for personnel to anonymously communicate concerns about quality or safety. Personnel shall be given the option to communicate such concerns either to their organization's executive management, AABB, or both. AABB's contact information shall be readily available to all personnel.

1.8 Customer Focus

Executive management shall identify the organization's customers and their needs and expectations for CGT products or services.

Excerpt of Reference Standard 6.2.9A Relevant to Organization

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
1.1.1	Pharmacy licensure	2
1.2.1.1.2	Quarterly reports by quality representative to executive management	2
1.2.2	Management review of effectiveness of the quality system	2
1.3	Policies, processes, and procedures	2
1.3.2	Exceptions to policies, processes, and procedures	2
1.4	Risk assessment	2
1.6.1	Emergency operation plan tested at defined intervals	2 years, or two organizational testing intervals (whichever is longer)

[1]Applicable state or local law may exceed this period.

QSE 2 – Resources

Key Concepts: This QSE describes the need for resources—human, financial, and otherwise—to support the work performed. It also describes personnel issues such as the qualification of staff, assessments of competence, and continuing education requirements.

Key Terms:
Competence: An individual's demonstrated ability to apply knowledge and skills needed to perform the job tasks and responsibilities.

Qualification (individuals): The aspects of an individual's education, training, and experience that are necessary for the individual to successfully meet the requirements of a position.

Examples of Objective Evidence:

- Policies, processes, and procedures related to this chapter.
- Current job descriptions.
- Evaluation of staffing levels and workload, if performed.
- Process for recruiting and hiring.
- Personnel records (eg, certifications, qualifications, competence assessments, diplomas, transcripts).
- Training records.
- Evaluations of competence records.
- Evidence that job qualifications are met.

2.0 Resources

The organization shall have adequate resources to perform, verify, and manage all the activities described in these *Standards*.

2.1 Human Resources

The organization shall employ an adequate number of individuals qualified by education, training, and/or experience.

2.1.1 Job Descriptions

The organization shall establish and maintain job descriptions defining the roles and responsibilities for each job position related to the requirements of these *Standards*.

2.1.2 Qualification

Personnel performing critical tasks shall be qualified to perform assigned activities on the basis of appropriate education, training, and/or experience.

2.1.3 Training

The organization shall provide training for personnel performing critical tasks.

2.1.3.1 This training shall include:

1) Orientation.
2) Initial job specific training.
3) Quality-systems-related training.

2.1.3.1.1 The facility shall ensure that personnel receive training focused on the receipt, handling, storage, dispensing and disposal of CGT products. Standard 2.1.4 applies.

2.1.3.1.2 The facility shall define the qualifications and approve subject matter experts who provide training.

2.1.3.2 Ongoing Job Training

The organization shall ensure that personnel receive and complete ongoing job training for activities relevant to their role and applicable to these *Standards*. Standard 2.1.3.1, #3 applies.

2.1.4 Competence

Evaluations of competence shall be performed before independent performance of assigned activities and at specified intervals.

2.1.4.1 Action shall be taken when competence has not been demonstrated. Standard 9.1 applies.

2.1.4.2 Competence shall be evaluated annually for defined tasks and activities.

2.1.4.3 Competence shall be assessed when new or novel processes or procedures are introduced. Standard 2.1.3.1, #3 and 5.1.4 apply.

2.1.5 Personnel Records

Personnel records for each employee shall be maintained.

2.1.5.1 For those authorized to perform or review critical tasks, records of names, signatures, initials or identification codes, and inclusive dates of employment shall be maintained.

Excerpt of Reference Standard 6.2.9A Relevant to Resources

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
2.1.1	Job descriptions	2
2.1.2	Qualification of personnel performing critical tasks	2
2.1.3	Training records of personnel	2
2.1.3.1	Identification of qualifications required for trainers	2
2.1.3.2	Ongoing job training requirements	2
2.1.4	Evaluations of competence	2
2.1.4.1	Corrective action when competence has not been demonstrated	2
2.1.5	Personnel records of each employee	2

[1]Applicable state or local law may exceed this period.

QSE 3 – Equipment

Key Concepts: This QSE describes the selection, use, maintenance, and monitoring of equipment, including information systems. It also describes the use and testing of alternative systems when primary systems fail.

Key Terms:
Backup: Digital data and/or physical storage containing copies of relevant data.

Calibrate: To set or align measurement equipment against a known standard.

Corrective Action: Actions taken to address the root cause(s) of an existing nonconformance or other undesirable situation in order to reduce or eliminate recurrence.

Critical Equipment/Materials: A piece of equipment or material that can affect the quality of the organization's CGT products.

Data Integrity: The accuracy, completeness, and consistency of information resources.

Equipment: A durable item, instrument, or device used in a process or procedure.

Installation Qualification: Verification that the correct equipment is received and that it is installed according to specifications and the manufacturer's recommendations in an environment suitable for its operation and use.

Operational Qualification: Verification that equipment will function according to the operational specifications provided by the manufacturer.

Performance Qualification: Verification that equipment performs consistently as expected for its intended use in the organization's environment, using the organization's procedures and supplies.

Validation: Establishing evidence that a process, executed by users in their environment, will consistently meet predetermined specifications.

Verification: Confirmation by examination and provision of objective evidence that specified requirements have been met.

Examples of Objective Evidence:

- Policies, processes, and procedures related to this chapter.
- Processes for equipment selection, qualification, and maintenance.
- List or tool used for critical equipment identification.
- Equipment calibration and maintenance records, if applicable.
- Equipment qualification records.
- Manufacturer's written instructions.
- Records of investigation of equipment malfunction, failure, repair, and requalification, if applicable.
- Alarm system testing and records of alarm management, if appropriate.
- Evidence of information system backup and records of testing.

3.0 Equipment

The organization shall define and control critical equipment.

3.1 Equipment Specifications

Equipment specifications shall be defined before purchase.

✎3.2 Qualification of Equipment

All critical equipment shall be qualified for its intended use. Equipment shall be requalified, as needed, after repairs and upgrades.

3.2.1 Installation Qualification

Equipment shall be installed per manufacturer specifications.

3.2.2 Operational Qualification

Each piece of equipment and component of an information system shall be verified before actual use.

3.2.3 Performance Qualification

Equipment shall perform as expected for its intended use.

3.3 Use of Equipment

Equipment shall be used in accordance with the manufacturer's written instructions.

✎3.4 Unique Identification of Equipment

Equipment shall have unique identification.

3.5 Equipment Monitoring and Maintenance

Equipment shall be monitored and maintained in accordance with the manufacturer's written instructions.

✎ 3.5.1 Calibration and Accuracy of Equipment

Calibrations and/or adjustments shall be performed using equipment and materials that have adequate accuracy and precision. At a minimum, calibrations and/or adjustments shall be confirmed as described below unless otherwise indicated by the manufacturer:

1) Before use.
2) After activities that may affect the calibration.
3) At prescribed intervals.

3.5.1.1 Calibration of equipment shall include details of equipment type, unique identification, location, frequency of checks, check method, acceptance criteria, and specified limitations.

3.5.1.2 Equipment used for calibration, inspection, measuring, and testing shall be certified to meet nationally recognized measurement standards. Certification shall occur before initial use, after repair, and at prescribed intervals. Where no

such measurement standards exist, the basis for calibration shall be described and recorded.

3.5.1.3 Equipment shall be safeguarded from adjustments that would invalidate the calibration setting.

✎ **3.5.2** The organization shall:

1) Define cleaning and sanitization methods and intervals for equipment.
2) Ensure that environmental conditions are suitable for the operations, calibrations, inspections, measurements, and tests carried out.
3) Remove equipment from service that is malfunctioning/out of service and communicate to appropriate personnel.
4) Monitor equipment to ensure that defined parameters are maintained.
5) Ensure that the handling, maintenance, and storage of equipment are such that the equipment remains fit for use.
6) Ensure that all equipment maintenance and repairs are performed by qualified individuals and in accordance with the manufacturer's recommendations.
7) Determine the impact of a manufacturer's recall and other notifications affecting critical equipment, and take action, as necessary. Standard 1.4 and 3.5.2 apply.

3.5.3 Investigation and Follow-up

Investigation and follow-up of equipment malfunctions (e.g., out of calibration), failures, or CGT product related unanticipated events shall include:

1) Assessment of CGT products or services provided since the equipment was last known to be functioning per the manufacturer's written instructions or organization-defined specifications.
2) Assessment of the effect on the safety of individuals affected.
3) Removal of equipment from service, if indicated.
4) Investigation of the malfunction, failure, or CGT product related unanticipated event, and a determination if other equipment is similarly affected, as applicable.
5) Requalification of the equipment.
6) Reporting the nature of the malfunction, failure, or CGT product related unanticipated event to the equipment manufacturer, when indicated.

✎ **3.5.3.1** When equipment is found to be out of calibration or specification, the validity of previous inspection and test results and the conformance of potential affected CGT products or services (including those that have already been released or delivered) shall be verified.

✎ **3.6 Equipment Traceability**

The organization shall maintain records of equipment use in a manner that permits:

1) Equipment to be uniquely identified and traceable.
2) Tracing of any given CGT product or service to all equipment associated with the receipt, handling, storage, dispense and/or disposal of the CGT product.
3) Identification of all CGT products associated with a specific piece of equipment.

3.7 Information Systems

The organization shall have controls in place for the implementation, use, ongoing support, and modifications of information system software, hardware, and databases. Elements of planning and ongoing control shall include:

1) Numeric designation of system versions with inclusive dates of use.
2) Validation/verification/qualification of system software, hardware, databases, and user-defined tables before implementation.
3) Fulfillment of life-cycle requirements for internally developed software.
4) Defined processes for system operation and maintenance.
5) Defined process for authorizing and documenting modifications to the system.
6) System security to prevent unauthorized access.
7) Policies, processes, and procedures and other instructional documents developed using terminology that is understandable to the user.
8) Functionality that allows for display and verification of data before final acceptance of the additions or alterations.
9) Defined process for monitoring of data integrity for critical data elements.
10) System design that maintains unique identity of the CGT product, or service, and the patient (as applicable).
11) Training and competency of personnel who use information systems.
12) Procedures to ensure confidentiality of protected information.

3.7.1 Alternative Systems

An alternative system shall be maintained to ensure continuous operation in the event that computerized data and computer-assisted functions are unavailable. The alternate system shall be tested at defined intervals. Processes and procedures shall address mitigation of the effects of disasters and include recovery plans.

3.7.2 Personnel responsible for management of information systems shall be responsible for compliance with the regulations that affect the use of the system.

3.7.3 The organization shall support the management of information systems.

3.7.4 A system designed to prevent unauthorized access to computers and electronic records shall be in place.

3.7.5 The organization shall have measures in place to minimize the risk of internal and external data breaches.

3.8 Alarm Systems

Storage devices for CGT products shall have alarms and shall conform to the following standards:

3.8.1 The alarm shall be set to activate under conditions that will allow enough time for proper action to be taken before CGT products reach unacceptable conditions.

3.8.2 Activation of an alarm shall initiate a process for immediate action, investigation, and appropriate corrective action.

Excerpt of Reference Standard 6.2.9A Relevant to Equipment

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
3.2	Equipment qualification	2 years after retirement of the equipment
3.4	Unique identification of equipment	2
3.5.1	Equipment calibration activities	2
3.5.3	Equipment monitoring, maintenance, calibration, and repair	2
3.5.3.1	Equipment found to be out of calibration	2
3.6	Equipment traceability	2
3.7	Implementation and modification of software, hardware, or databases	2 years after retirement of system
3.7.1	Testing of alternative systems	2
3.8	Alarm system check	2

[1]Applicable state or local law may exceed this period.

QSE 4 – Suppliers and Customers

Key Concepts: This QSE describes the need for agreements between the organization and its suppliers and customers. The agreements define expectations between both parties and measures taken when one entity fails to meet the expectations of an agreement.

Key Terms:
Agreement: A contract (either intercompany customer or external customer), or understanding between two or more parties, such as between an organization and one of its customers.

Agreement Review: Systematic activities carried out before finalizing the agreement to ensure that requirements are adequately defined, free from ambiguity, documented, and achievable.

Customer: The receiver of a CGT product or service. A customer may be internal (eg, another organizational unit within the same organization) or external (eg, a patient, client, donor, or another organization).

Quality: Characteristics of a CGT product or service that bear on its ability to fulfill customer expectations. The measurable or verifiable aspects of a CGT product or service that can be used to determine if requirements have been met.

Quality Control: Testing routinely performed on materials and equipment to ensure their proper function.

Supplier: An entity that provides a material, CGT product, or service.

Supplier Qualification: Evaluation of a supplier to assess its ability to consistently deliver CGT products or services that meet specified requirements.

Examples of Objective Evidence:
- Policies, processes, and procedures related to this chapter.
- Processes for defining and updating or changing agreements.
- Process for recording verbal agreements, if practiced.
- Agreement records.
- Agreement review records.
- Supplier qualification records.
- Supplier evaluation records.
- Supplier selection process.
- Evidence of action taken when a supplier fails to meet expectations, if applicable.
- Evidence of receipt of CGT product(s) as stipulated in agreements.
- Records of inspection and testing.

4.0 Suppliers and Customers

The organization shall ensure that agreements to provide or receive CGT products or services are reviewed, approved, and meet supplier and customer expectations.

4.1 Supplier Qualification

The organization shall evaluate the ability of suppliers of critical materials, equipment, and services to meet specified requirements.

4.1.1 The organization shall evaluate and participate in the selection of suppliers. If executive management is not included in the selection process, there shall be a mechanism to provide feedback to management with contracting authority.

4.1.2 When a supplier fails to meet specified requirements, it shall be reported to the management with contracting authority.

4.2 Agreements

Agreements and any incorporated changes shall be reviewed and communicated.

4.2.1 Agreements shall be reviewed at defined intervals to ensure that the terms of the agreement continue to meet requirements.

4.2.2 Changes to agreements shall be communicated to affected parties.

4.2.3 The responsibilities for activities covered by these *Standards* when more than one organization is involved shall be specified by agreement.

4.2.3.1 Before acceptance of a documented verbal or written agreement(s), the agreement(s) shall be reviewed by the facility to ensure that:

1) The requirements are adequately defined and in accordance with the applicable Standards and/or relevant Competent Authority requirements.
2) Any differences between the agreement requirements and the CGT products or services offered under the agreement are resolved.
3) The facility has the capability to meet the requirements detailed in the agreement.
4) Chain of identity is maintained.
5) Chain of custody is maintained.
6) Conformance with accepted policies and procedures is maintained.
7) Conformance with safety requirements is maintained.

4.2.3.1.1 For facilities that manipulate (e.g, compounding, thawing, diluting) CGT product(s), the agreement shall define the conditions for receipt, handling, storage, dispensing, and/or disposal. Standard 4.3.2 applies.

4.2.3.2 Agreements shall define and describe the following:

4.2.3.2.1 Roles and responsibilities of key personnel.

4.2.3.2.2 Roles and responsibilities of each facility involved in the receipt, handling, storage, dispensing and/or disposal of a CGT product to maintain the chain of identity, chain of custody, and chain of condition.

4.2.3.2.3 Communication of critical information, including deviations, and nonconformances, and CGT product related unanticipated events. Standard 5.5 applies.

4.2.3.2.4 Inspection requirements of incoming received CGT products.

4.2.3.2.5 Reporting of CGT product related unanticipated events and nonconformances to regulatory bodies, Competent Authorities, and registries, if applicable.

4.2.3.2.6 Specifications and requirements for CGT product quality, safety, and other defined critical parameters.

4.2.4 Changes to Agreements
The facility shall define how changes to agreements are proposed, accepted, and communicated to affected parties.

4.2.5 Agreements Relating to CGT products, and Materials
When the responsibilities for activities covered by these Standards involve more than one facility or department, there shall be agreements that define the following for the CGT product from point of origin to administration including but not limited to:

4.2.5.1 Medical Authorization for Dispense
The facility shall have medical authorization (e.g., prescription) for dispensing of CGT products.

C4.3 Notification
The agreement between the receiving facility and the supplier shall include a process to notify the shipping facility and the manufacturer (if applicable) when CGT products are received in an unacceptable condition. Chapter 7, Deviations, Nonconformances and Product Related Unanticipated Events, applies.

Excerpt of Reference Standard 6.2.9A Relevant to Suppliers and Customers

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
4.1	Evaluation and participation in selection of suppliers	2
4.2	Agreements	2
4.2.1	Agreement review	2
4.2.3	Agreements concerning activities involving more than one organization	2
4.2.4	Agreement changes communicated to affected parties	2
4.2.5.1	Agreements for the timing and responsibility of medical orders	2
4.3	Notification of shipping facility and manufacturer (if applicable) when materials are received in an unacceptable condition	2

[1]Applicable state or local law may exceed this period.

QSE 5 – Process Control

Key Concepts: This QSE covers the organization's operations and CGT production functions. It describes the need to ensure that this work is controlled, that processes function as expected, and that expected outcomes are met. This QSE encapsulates what occurs in each organization and forms the basis of its accreditation.

Key Terms:
Change Control: A structured method of revising a policy, process, or procedure, including hardware or software design, transition planning, and revisions to all related documents.

Critical Equipment/Materials/Tasks: A piece of equipment, material, service, or task that can affect the quality of the organization's CGT products.

Executive Management: The highest-level personnel within an organization, including employees, clinical leaders, and independent contractors, who have responsibility for the operations of the organization and who have the authority to establish or change the organization's quality policy. Executive management may be an individual or a group of individuals.

Process Control: Activities designed to ensure that processes are stable and consistently operate within acceptable limits of variation in order to produce predictable output that meets specifications.

CGT product: A tangible output from a process.

Reference Standard: Specified requirements defined by the AABB. Reference standards define how or within what parameters an activity shall be performed and are more detailed than quality system requirements.

Service: An intangible output of a process.

Standard: A set of specified requirements upon which an organization may base its criteria for the CGT products, components, and/or services provided.

Validation: Establishing evidence that a process, executed by users in their environment, will consistently meet predetermined specifications.

Verification: Confirmation by examination and provision of objective evidence that specified requirements have been met.

Examples of Objective Evidence:
- Policies, processes, and procedures related to this chapter.
- Implementation records.
- Records enabling traceability.
- Storage records.
- Quality control records.
- Process planning, process validation, and change control records.
- Records of material storage, handling, and use.
- Records of inspection of materials.

- CGT product inspection records.
- Testing records.

5.0 Process Control

The organization shall ensure the quality of CGT products or services.

5.1 General Elements

The organization shall ensure that processes are carried out under controlled conditions.

5.1.1 Change Control

When the organization develops new processes or procedures or changes existing ones, they shall be validated before implementation.

C 5.1.2 Quality Control

A program of quality control shall be established to ensure that CGT products, and equipment perform as intended. Standards 2.1.3 and 2.1.4 apply.

5.1.3 Process Planning

Quality requirements shall be incorporated into new or changed processes, CGT products, services, and novel methods. Planning and implementation activities shall include the following:

1) Evaluation of accreditation, regulatory, and legal requirements related to the new or changed process, CGT product, or service.
2) Review of current available knowledge (eg, review of medical practice and/or literature).
3) Evaluation of risk.
4) Identification of affected internal and external parties and mechanism to communicate relevant information.
5) Identification of performance measures applicable to the new or changed process, CGT product, or service.
6) Evaluation of resource requirements.
7) Evaluation of the impact of the new or changed process, CGT product, or service on other organization (or program) processes. Standard 2.1.3 and 10.0 apply.
8) Evaluation of the need to create or revise documents for the new or changed process, CGT product, or service.
9) Review and approval of the output of process development and design activities (eg, pilot or scale-up study results, process flow charts, procedures, data forms).
10) Evaluation of the extent and scope of process validation or revalidation depending on the level of risk and impact of the new or changed CGT products or services.

5.1.4 Process Validation

Before implementation, the new or changed processes and procedures shall be validated.

5.1.4.1 Validation activities shall include the following:

1) Identification of objectives, individual(s) responsible, expected outcomes, and/or performance measures.
2) Criteria for review of outcomes.

3) Approval of validation plan.
4) Review and approval of validation results.
5) Actions to be taken if objectives are not met.

Standards 2.1.3 and 2.1.4 apply.

5.1.5 Process Implementation
The implementation of new or changed processes and procedures shall be planned and controlled.

5.1.5.1 Postimplementation evaluations of new or changed processes and procedures shall be performed.

5.1.6 Use of Materials
All materials shall be stored and used in accordance with the manufacturer's written instructions and shall meet specified requirements.

5.1.7 Inspection
The organization shall ensure that CGT products or services are inspected at organization-defined stages.

✎ **5.1.8 Identification and Traceability**
The organization shall ensure that all CGT products are identified and traceable.

5.1.9 Handling, Storage, and Transportation
The organization shall ensure that CGT products are handled, stored, and transported in a manner that prevents damage, limits deterioration, and provides traceability.

✎ **5.1.9.1 Transfer of CGT products**
When CGT products are transferred, the following items shall be defined:
1) Responsibility for maintaining the chain of identity during transfer.
2) Responsibility for maintaining the chain of custody during transfer.
3) Responsibility for maintaining the chain of condition.
4) Timing of CGT product receipt and delivery.

✎ **5.2 CGT Product Management**
There shall be policies, processes, and procedures for the qualification, receipt, handling, storage, dispensing, and/or disposal of all materials related to CGT products.

5.2.1 Receipt of and Qualification of CGT Products
The facility shall ensure that CGT products are not dispensed until they have been inspected or otherwise verified as conforming to requirements.

✎ **5.2.1.1** Records of the following shall be maintained:
1) CGT product, concentration, quantity, as applicable
2) Name of CGT product and manufacturer.

3) Unique identifiers (e.g. lot number, patient identification, purchase order).
4) Chain of identity, if applicable.
5) Chain of custody.
6) Date of and time of receipt.
7) Date of CGT product manufacture and/or expiration date or retest date.
8) Chain of condition, including results of visual inspection and conformance upon receipt, including:
    a) Appropriate packaging and labeling.
    b) Integrity of the shipping container(s).
    c) Presence or absence of visible evidence of contamination or tampering of CGT product container.
    d) Temperature acceptability.
9) Indication of acceptance or rejection and documentation of the identity(ies) of the person determining acceptance or rejection of the CGT product.
10) Manufacturer's insert, or equivalent, if applicable.
11) Accompanying documents or materials, if applicable.

5.3 Methods and Operational Controls

5.3.1 CGT Product Handling

CGT product handling shall address the following:

3) Risk assessment of receipt and handling of CGT products
4) Applicable staff training and adequate resources for the handling of CGT products. Standard 2.1.3 applies.
3) Staff attire, gowning, and use of appropriate personal protective equipment and environmental controls relevant to the task performed.
4) Use of biologic safety cabinets or other environmentally controlled spaces, if applicable.
5) Materials and equipment for each specific process.
6) Manipulation and preparation of materials, if applicable.
7) Critical calculations.
8) Transfer of CGT products between containers, if applicable.
9) Acceptable control limits for temperature, humidity, and gases such as oxygen and CO2, if applicable.
10) Disposition, quarantine (if applicable), and handling of CGT by-product and waste.

Standard 5.1.1 applies.

5.3.2 Aseptic Methods

Facilities shall establish and maintain policies, processes, and procedures designed to minimize contamination of the CGT product and infection of the patient. The following shall be addressed:

1) Environmental controls and monitoring commensurate with the risk of CGT product contamination.
2) Process controls.

3) Staff training in aseptic technique.
4) Attire, gowning, and use of personal protective equipment.
5) Use of appropriate materials and equipment to maintain sterility.
6) Workflow and movement of personnel through workspaces.
7) Applicable Competent Authority requirements.

✎ **5.3.2.1** The effectiveness of such measures shall be monitored and reviewed at defined intervals.

5.3.3 Operational Controls

Operational controls shall prevent errors and contamination. The following shall be defined:

1) Movement and storage of materials (including waste) and equipment within workspaces.
2) Physical, spatial, and/or temporal segregation of equipment or materials.
3) Physical, spatial, and/or temporal segregation of inventory of different CGT products or CGT product lots.
4) Use and storage of materials that may adversely affect the quality of the CGT product.
5) Appropriate cleaning and setup of spaces and equipment between CGT product preparations of each individual CGT product.
6) Appropriate CGT product labeling.
7) Final pharmacist verification.

Chapter 7, Deviations, Nonconformances, and Product Related Unanticipated Events, applies.

5.4 CGT Product Identification and Traceability

The facility shall establish and maintain policies, processes, and procedures that ensure the chain of identity, chain of custody, and chain of condition for identification and traceability of each CGT product from receipt to dispensing and/or disposal.

✎5.5 Labels, Labeling, and Labeling Controls

The facility shall have policies, processes, and procedures for the approval and use of pharmacy labels and labeling of CGT products. At a minimum, they shall address:

1) The information contained on labels shall be defined by the appropriate Competent Authority.
2) The training of personnel for labeling and auxiliary labeling (e.g., hazardous precaution), as applicable. Standard 2.1.3 applies.
3) The maintenance of chain of identity.
4) The verification of labels for accuracy and completeness by the pharmacist at facility defined steps.

Standard 5.4.3 applies.

5.5.1 Facilities that perform intermediate steps (e.g., compounding, dose preparation) shall have a labeling system that ensures traceability from receipt to dispense and/or disposal.

5.5.2 The facility shall label shipping containers in conformance with specified requirements. Local, FDA or relevant Competent Authority, Boards of Pharmacy, and/or relevant transport/shipping regulations apply.

✎5.6 Packaging, Transport, and Shipping

The facility shall establish and maintain policies, processes, and procedures that are intended to limit deterioration, prevent damage, ensure timely delivery, and protect the quality of the CGT products during packaging, transport, and shipping while maintaining chain of custody, chain of identity, and chain of condition.

5.6.1 The facility shall control packaging to ensure conformance with specified requirements including the package insert and additional product labeling and guidance. Local, FDA or relevant Competent Authority, Boards of Pharmacy, and/or international transport/shipping regulations apply.

✎ **5.6.2** Packaging, transport, or shipping containers shall be qualified at defined intervals to ensure that they maintain temperatures within the acceptable range for the expected duration of transport or shipping.

✎ **5.6.3** When CGT products are transported or shipped, the temperature ranges shall be defined, maintained, and continuously monitored where applicable, for the duration of transport or shipping.

✎ **5.6.4** Facilities shall maintain records of CGT product origin, chain of custody, chain of condition, chain of identity, dispense and/or disposal, transfer, and acceptability.

5.7 Storage, Preservation, and Dispensing

The facility shall establish and maintain policies, processes, and procedures for storage, preservation, and dispensing of CGT products in order to prevent errors and limit deterioration, contamination, and improper dispensing and/or disposal of CGT products. This shall include the use of designated, secure dispensing, and storage areas with controlled access. Chapter 7, Deviations, Nonconformances, and CGT Product Related Unanticipated Events, applies.

5.7.1 The facility shall define storage specifications and storage conditions, including temperature range for all CGT products as per manufacturer's written instructions.

✎ **5.7.2** Storage and dispensing areas shall have the capacity and design to ensure that proper temperature and humidity, if applicable, are maintained.

✎ **5.7.2.1** If CGT products are stored and dispensed in an open storage area, the ambient temperature shall be continuously monitored.

5.7.3 Storage devices shall have the capacity and design to ensure that proper temperature and/or liquid nitrogen level is maintained.

✎ **5.7.4** Storage devices containing CGT products shall have a system to continuously monitor and record at defined intervals the temperature and/or liquid nitrogen levels. Standard 5.6 applies.

5.7.4.1 If the CGT product is immersed in liquid nitrogen, the temperature and/or liquid nitrogen levels shall be recorded every 24 hours at a minimum.

5.7.4.2 If the CGT product is not immersed in liquid nitrogen, the temperature shall be recorded every 4 hours at a minimum.

✎ **5.7.5** Storage devices containing CGT products shall have an alarm system that is set to activate under conditions that will allow proper action to be taken before CGT products reach unacceptable conditions. Alarm activation shall require personnel to investigate and document the condition activating the alarm and to take immediate corrective action as necessary. Standards 3.8 and 5.1.2 apply.

5.7.5.1 The facility shall have policies to address when CGT products are exposed to temperature excursions. Standard 9.1 applies.

✎**C5.8Verification**

Upon verification of prescription (e.g., order, medical order for prescription), the following items shall be reviewed at a minimum:

3) Documentation that the CGT product was requested.
4) Instructions for administration, if applicable.
3) The accuracy and completeness of the CGT product prescription labeling and identification.
4) CGT product condition by visual inspection.
5) Patient identification.
6) Supporting documentation review.
7) Identification of the pharmacist(s) performing the verification of the CGT product for the intended patient.
   CGT product.
8) Date and time of verification.

5.9 Dispensing

At the time of dispensing, the following items shall be maintained and in conformance with Competent Authority regulations:

5) Chain of identity.
6) Chain of custody.
7) Chain of condition.
8) Date and time of dispense.

✎**5.10 Disposal**

The facility shall have policies, processes, and procedures regarding disposal of CGT products in accordance with applicable laws and regulations. Standard 4.1 applies

Excerpt of Reference Standard 6.2.9A Relevant to Process Control

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
5.1.1	Validation of new or changed processes and procedures	2
5.1.2	Quality control records and review of quality control results	2
5.1.8	Identification and traceability of CGT products	2
5.2	Qualification of all materials used in the procurement, processing, and/or administration of CGT products	2
5.2.1.1	Complete records of the inspection of incoming materials that come into contact with the CGT productor that directly affect the quality of the CGT product	2
5.3.2.1	Monitoring and review of the effective-ness of aseptic methods	2
5.5	Labeling controls	2
5.6	Transport of CGT products	2
5.6.2	Qualification of shipping containers and periodic requalification	2
5.6.3	Monitoring of temperature for non-cryopreserved CGT products	2
5.6.6	CGT product acceptance and shipper temperature upon receipt	2
5.7.2	Storage area temperature and humidity	2
5.7.2.1	If CGT products are stored in an open storage area, the ambient temperature recorded as per manufacturer's written instructions	2
5.7.4, 5.7.5	Monitoring of temperature and/or liquid nitrogen levels in storage devices and documentation of alarm activation	2
5.8	Request for verification	2
5.10	Disposition of CGT products consistent with informed consent and laws and regulations	2

[1]Applicable state or local law may exceed this period.

QSE 6 – Documents and Records

Key Concepts: This QSE focuses on the need to maintain all documents and records in a manner that ensures their confidentiality, traceability, completeness, uniformity, and ability to be retrieved and located in a time deemed adequate. This QSE also includes the need to ensure data integrity and that all data can be backed up and retrieved.

Key Terms:
Backup: Digital data and/or physical storage containing copies of relevant data.

Confidentiality: The protection of private, sensitive, or trusted information resources from unauthorized access or disclosure.

Data Integrity: The accuracy, completeness, and consistency of information resources.

Document (noun): Written or electronically generated information and work instructions. Examples of documents include quality manuals, procedures, or forms.

Document (verb): To capture information through writing or electronic media.

Label: An inscription affixed or attached to a CGT product for identification.

Labeling: Information that is required or selected to accompany a CGT product, which may include content, identification, description of processes, storage requirements, expiration date, cautionary statements, or indications for use.

Master List of Documents: A reference list, record, or repository of an organization's policies, processes, procedures, forms, and labels related to the *Standards,* including information for document control.

Record (noun): Information captured in writing or through electronically generated media that provides objective evidence of activities that have been performed or results that have been achieved, such as test records or audit results. Records do not exist until the activity has been performed and documented.

Record (verb): To capture information for use in records through writing or electronic media.

Examples of Objective Evidence:

- Policies, processes, and procedures related to this chapter.
- Records of activities performed.
- Record system.
- Master list of documents.
- An electronic record system, if applicable.
- Uniform storage media and ability to track newer technologies to older ones as needed.
- Evidence of document and record review.
- Evidence of standardized formats for all documents and records.
- Record retention periods.
- Record traceability.
- Data backup plans.

- Record change process.
- Obsolescence of records and disposition.
- Record destruction.

6.0 Documents and Records

The organization shall ensure that documents and records are created, stored, and archived in accordance with record retention policies.

6.1 Document Control

The organization shall control all documents that relate to the requirements of these *Standards*. Documents shall be protected from unauthorized access and accidental or unauthorized modification, deletion, or destruction.

6.1.1 Format

Documents shall be in standardized formats. Additional policies, processes, and procedures (such as those in an operator's manual or published in the AABB *Technical Manual*) may be incorporated by reference.

6.1.2 Document Review, Approval, and Distribution

The document control process shall ensure that documents:

1) Are reviewed by personnel trained and/or qualified in the subject area.
2) Are approved by an authorized individual.
3) Are identified with the current version and effective date.
4) Are available at all locations where operations covered by these *Standards* are performed.
5) Are not used when deemed invalid or obsolete.
6) Are identified as archived or obsolete when appropriate.

6.1.3 Document Changes

Changes to documents shall be reviewed and approved by an authorized individual.

6.1.3.1 The organization shall track changes to documents.

6.1.4 Master List of Documents

The organization shall maintain complete lists of all active policies, processes, procedures, labels, forms, and other documents that relate to the requirements of these *Standards*.

6.1.5 Review of Policies, Processes, and Procedures

Review of each policy, process, and procedure shall be performed by an authorized individual at a minimum of every 2 years.

6.1.6 Document Retention

The organization shall determine which documents shall be archived, destroyed, or made obsolete.

6.1.7 Document Storage

Documents shall be stored in a manner that preserves integrity and legibility; protects from accidental or unauthorized access, loss, destruction, or modification; and ensures accessibility and retrievability.

6.1.8 Document Retrieval
The organization shall ensure that documents are retrievable in a timely manner.

6.1.9 The organization shall use only current and valid documents. Applicable documents shall be available at all locations where activities essential to meeting the requirements of these *Standards* are performed.

6.2 Record Control

The organization shall maintain a system for identification, collection, indexing, accessing, filing, storage, maintenance, and disposition of original records.

6.2.1 Records
Records shall be complete, retrievable in a period appropriate to the circumstances, and protected from accidental or unauthorized destruction or modification.

6.2.2 Record Traceability
The records system shall ensure traceability of the following as applicable:

1) Critical activities performed
2) The individual who performed the activity.
3) Date the activity was performed.
4) Time the activity was performed.
5) Results obtained.
6) Method(s) used.
7) Equipment used.
8) Critical materials used.
9) The organization where the activity was performed.

6.2.3 Information to Be Retained
Records shall demonstrate that a material, or CGT product conforms to specified requirements and that the quality system is operating effectively.

6.2.4 Legibility
All records shall be legible and indelible.

6.2.5 Record Change
The organization shall establish processes for changing records. The date and identity of the person making the change shall be recorded. Record changes shall not obscure previously recorded information.

6.2.5.1 Changes to records (including electronic records) shall be verified for accuracy and completeness by an authorized individual.

6.2.6 Records shall be created concurrently with the performance of each critical activity.

6.2.7 Copies
Before destruction of original records, copies of records shall be verified as containing the original content and shall be legible, complete, and accessible.

6.2.8 Confidentiality
The organization shall ensure the confidentiality of records.

6.2.9 Retention
Records required by these *Standards* shall be retained for a period indicated in the record retention table at the end of each chapter.

6.2.9.1 These records shall be retained in accordance with the pharmacy's existing record retention policy and/or for at least 2 years. Applicable relevant Competent Authority, or local law may exceed this period.

6.2.10 Record Review
Records shall be reviewed for accuracy, completeness, and compliance with applicable standards, laws, and regulations.

6.2.11 Storage of Records
Records shall be stored to:
1) Preserve record legibility and integrity for the entire retention period.
2) Protect from accidental or unauthorized access, loss, deterioration, damage, destruction, mix-up, or modification.
3) Permit ready identification.
4) Allow retrieval in a defined time frame.

6.2.12 Destruction of Records
Destruction of records shall be conducted in a manner that protects the confidential content of the records.

6.3 Electronic Records
The organization shall support the management of information systems.

6.3.1 Access to Data and Information
Access to data and information shall be controlled.

6.3.1.1 The authorization to access and release data and information shall be defined, and individuals authorized to enter, change, and release results shall be identified.

6.3.1.1.1 Electronic records shall include the date and identity of the person making a change.

6.3.1.2 Individuals shall be identified and defined by job description that are authorized to create, modify, maintain, or transmit records in a controlled and approved manner in conformance with the relevant Competent Authority requirements.

6.3.2 Data Integrity

Data integrity shall ensure that data are retrievable and usable.

6.3.2.1 Data shall be accurately, reliably, and securely sent from the point of entry to final destination.

6.3.2.2 Data shall be retrievable for the entire retention period.

6.3.2.2.1 The organization shall archive records or data from media and platforms no longer in use.

6.3.2.3 There shall be a process in place for routine backup of all critical data.

6.3.3 Storage Media

Data storage media shall be protected from damage or unintended access and destruction.

6.3.4 Backup Data

The organization shall back up all critical data.

6.3.4.1 Backup data shall be stored in a secure off-site location.

6.3.4.2 Backup data shall be protected from unauthorized access, loss, or modification.

6.3.4.3 The ability to retrieve data from the backup system shall be tested at defined intervals.

Excerpt of Reference Standard 6.2.9A Relevant to Documents and Records

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
6.1.2	Document control, including review and approval of all documents before use	2
6.1.3	Review and approval of changes to documents	2
6.1.4	List of all active policies, processes, procedures, labels, and forms	2
6.1.5	Biennial review of each policy, process, or procedure	2
6.1.6	Documents that are archived, destroyed, or made obsolete	2
6.2.5	Record change	2
6.2.7	Verification that copies of records contain the original content and are legible, complete, and accessible before the original records are destroyed	2
6.2.10	Review of records for accuracy, completeness, and compliance with applicable standards, laws, and regulations	2
6.3	Electronic records	2
6.3.1.1.1	Date and identity of person making change(s) to electronic records	2

[1]Applicable state or local law may exceed this period.

Reference Standard 6.2.9A – Retention of Records

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
1.1.1	Pharmacy licensure	2
1.2.1.1.1	Quarterly reports by quality representative to executive management	2
1.2.2	Management review of effectiveness of the quality system	2
1.3	Policies, processes, and procedures	2
1.3.2	Exceptions to policies, processes, and procedures	2
1.4	Risk assessment	2
1.6.1	Emergency operation plan tested at defined intervals	2 years, or two organizational testing intervals (whichever is longer)
2.1.1	Job descriptions	2
2.1.2	Qualification of personnel performing critical tasks	2
2.1.3	Training records of personnel	2
2.1.3.1	Identification of qualifications required for trainers	2
2.1.3.2	Ongoing job training requirements	2
2.1.4	Evaluations of competence	2
2.1.4.1	Corrective action when competence has not been demonstrated	2
2.1.5	Personnel records of each employee	2
3.2	Equipment qualification	2 years after retirement of the equipment
3.4	Unique identification of equipment	2
3.5.1	Equipment calibration activities	2
3.5.3	Equipment monitoring, maintenance, calibration, and repair	2
3.5.3.1	Equipment found to be out of calibration	2
3.6	Equipment traceability	2
3.7	Implementation and modification of software, hardware, or databases	2 years after retirement of system
3.7.1	Testing of alternative systems	2
3.8	Alarm system check	2

4.1	Evaluation and participation in selection of suppliers	2
4.2	Agreements	2
4.2.1	Agreement review	2
4.2.3	Agreements concerning activities involving more than one organization	2
4.2.4	Agreement changes communicated to affected parties	2
4.2.5.1	Agreements for the timing and responsibility of medical orders	2
4.3	Notification of shipping facility and manufacturer (if applicable) when materials are received in an unacceptable condition	2
5.1.1	Validation of new or changed processes and procedures	2
5.1.2	Quality control records and review of quality control results	2
5.1.8	Identification and traceability of CGT products	2
5.2	Qualification of all materials used in the procurement, processing, and/or administration of CGT products	2
5.2.1.1	Complete records of the inspection of incoming materials that come into contact with the CGT product or that directly affect the quality of the CGT product	2
5.3.2.1	Monitoring and review of the effective-ness of aseptic methods	2
5.5	Labeling controls	2
5.6	Transport of CGT products	2
5.6.2	Qualification of shipping containers and periodic requalification	2
5.6.3	Monitoring of temperature for non-cryopreserved CGT products	2
5.6.6	CGT product acceptance and shipper temperature upon receipt	2
5.7.2	Storage area temperature and humidity	2
5.7.2.1	If CGT products are stored in an open storage area, the ambient temperature recorded as per manufacturer's written instructions	2
5.7.4, 5.7.5	Monitoring of temperature and/or liquid nitrogen levels in storage devices and documentation of alarm activation	2
5.8	Request for verification	2
5.10	Disposition of CGT products consistent with informed consent and laws and regulations	2

6.1.2	Document control, including review and approval of all documents before use	2
6.1.3	Review and approval of changes to documents	2
6.1.4	List of all active policies, processes, procedures, labels, and forms	2
6.1.5	Biennial review of each policy, process, or procedure	2
6.1.6	Documents that are archived, destroyed, or made obsolete	2
6.2.5	Record change	2
6.2.7	Verification that copies of records contain the original content and are legible, complete, and accessible before the original records are destroyed	2
6.2.10	Review of records for accuracy, completeness, and compliance with applicable standards, laws, and regulations	2
6.3	Electronic records	2
6.3.1.1.1	Date and identity of person making change(s) to electronic records	2
7.1	Deviations	2
7.2	Nonconforming CGT products or services	2
7.2.4	Nature of nonconformances discovered after dispensed CGT products and subsequent actions taken, including acceptance for use	2
7.2.4.1	Assessment of the nonconforming CGT product	2
7.2.5.3	Impact of nonconforming CGT products on purity, potency, safety or efficacy of the CGT product.	2
7.2.6.2	Authorized release of nonconforming CGT products	2
8.1	Internal assessments	2
8.2	External assessments	2
8.3	Management of assessment results	2
9.0	Implementation of changes to policies, processes, and procedures resulting from corrective and preventive action	2
9.1	Corrective action	2
9.2	Preventive action	2
10.1.3.1.1	Alarm investigation	2
10.2	Monitoring of biological, chemical, and radiation safety	2
10.3	Appropriate disposal of CGT products	2

[1]Applicable state or local law may exceed this period.

QSE 7 – Deviations, Nonconformances, and CGT Product Related Unanticipated Events

Key Concepts: This QSE focuses on the need to ensure capture of, management of, and response to deviations, nonconformances, or unanticipated events. This also includes the need to maintain records of resolution.

Key Terms:
CGT Product Related Unanticipated Event: A complication. CGT product related unanticipated events may occur in relation to organization-defined activities.

Conformance: Fulfillment of requirements. Requirements may be defined by customers, practice standards, regulatory agencies, or law.

Deviation: A departure from policies, processes, procedures, applicable regulations, standards, or specifications.

Disaster: An event (internal, local, or national) that can affect the safety and availability of the organization's CGT products or the safety of individuals.

Near-Miss Event: An unexpected occurrence that did not adversely affect the outcome but could have resulted in a serious CGT product related unanticipated event.

Nonconformance: Failure to meet requirements.

Root Cause(s): The underlying cause(s) of an event or nonconformance that, if eliminated, would prevent recurrence.

Traceability: The ability to follow the history of a CGT product or service from source to final distribution or disposition using records.

Examples of Objective Evidence:

- Policies, processes, and procedures related to this chapter.
- Records and evaluation of deviations, nonconformances, and CGT product related unanticipated events.
- Notification to customer(s) following investigation, if appropriate.
- Records of evidence that measures were taken to ensure deviations, nonconformances, and CGT product related unanticipated events do not recur.
- Planned deviation records, if any.
- Records of deviation reporting to appropriate parties [eg, Food and Drug Administration (FDA)].

7.0 Deviations, Nonconformances, and CGT Product Related Unanticipated Events

The organization shall capture, assess, investigate, and monitor failures to meet specified requirements. The responsibility for review and authority for the assessment of nonconformances shall be defined. These events shall be reported in accordance with specified requirements and to outside agencies as required.

7.1 Deviations

The organization shall capture, assess, investigate, and report events that deviate from approved policies, processes, or procedures. The assessment shall ensure timely and appropriate clinical management of the patient, if applicable.

7.1.1 Deviations shall be reported as soon as possible after detection.

7.1.2 Deviations shall be evaluated to determine the need for corrective and preventive action. Standards 9.1 and 9.2 apply.

7.1.3 The facility shall have policies, processes, and procedures for the determination of when a reported deviation requires escalation.

7.1.3.1 For deviations having the potential to adversely affect the CGT product, employee safety, or the safety of a patient, the responsible pharmacist shall evaluate the deviation. Standard 1.1.2 applies.

7.1.3.2 The release approval shall be made by the responsible pharmacist.

7.1.3.3 The prescribing physician shall be notified, if appropriate.

7.2 Nonconformances

Upon discovery, nonconforming CGT products or services shall be evaluated and their disposition determined.

7.2.1 Nonconforming CGT products shall be quarantined and disposed of, if applicable.

7.2.2 The unintended dispensing of CGT products that do not conform to specified requirements shall be prevented.

7.2.3 The organization shall:

1) Identify, quarantine, retrieve, recall, and determine the disposition of nonconforming CGT products and critical supplies.
2) Identify and manage nonconforming CGT products.

7.2.4 Dispensed Nonconforming CGT Products

CGT products that are determined after dispensing not to conform to specified requirements shall be evaluated to determine the effect of the nonconformance on the quality and/or safety of the CGT product and/or risk to the patient.

7.2.4.1 Records shall include the assessment of the nonconforming CGT product, the rationale, and the name(s) of the responsible individual(s).

7.2.5 Notification

The facility shall report to the appropriate party:

1) Any CGT products lost, damaged, or otherwise unsuitable for use.
2) Dispensed CGT products that are determined to be nonconforming, as soon as possible.

Standard 4.3 applies.

7.2.6 Determination of Nonconforming CGT Products

Authority for the determination of the status of nonconforming CGT products, shall be defined.

7.2.6.1 A nonconforming CGT product shall be handled in one of the following ways:

1) Prepared to meet the specified requirements for dispensing, as agreed to by the manufacturer, ordering provider, and the responsible pharmacist, as applicable.
2) Accepted by the Competent Authority, after disclosure of the nonconformance, and dispensed with Competent Authority approval.
3) Disposed of.

7.2.6.2 Authorized Release of Nonconforming CGT Products

A nonconforming CGT product shall be released by exception only when there is a documented clinical need for the CGT product and when approved by the manufacturer, ordering provider, and the responsible pharmacist.

7.2.6.2.1 The following are required:

1) Notification to the appropriate parties of the out-of-specification or nonconforming values or results.
2) Documentation of the appropriate parties approval for use of the CGT product.

7.3 CGT Product Related Unanticipated Events

The organization shall detect, monitor, evaluate, manage, and report CGT product related unanticipated events.

7.3.1 Records of CGT product related unanticipated events and the related investigations, evaluations, and notifications shall be maintained.

7.3.2 Investigation results and analysis shall be communicated among all facilities involved, if applicable.

Excerpt of Reference Standard 6.2.9A Relevant to Deviations, Nonconformances, and CGT Product Related Unanticipated Events

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
7.1	Deviations	2
7.2	Nonconforming CGT products or services	2
7.2.4	Nature of nonconformances discovered after dispensed CGT products and subsequent actions taken, including acceptance for use	2
7.2.4.1	Assessment of the nonconforming CGT product	2
7.2.5.3	Impact of nonconforming CGT products on purity, potency, safety or efficacy of the CGT product.	2
7.2.6.2	Authorized release of nonconforming CGT products	2

[1]Applicable state or local law may exceed this period.

QSE 8 – Internal and External Assessments

Key Concepts: This QSE addresses the organization's internal quality assessment functions as well as processes to support external assessments by accreditors, health authorities, and regulators This chapter also describes the need for the organization to engage in ongoing quality monitoring and utilization review.

Key Terms:
CGT product Related Unanticipated Event: A complication. CGT product related unanticipated events may occur in relation to organization-defined activities.

Assessment: A systematic examination to determine whether actual activities comply with planned activities, are implemented effectively, and achieve objectives. Types of assessments include external assessments, internal assessments, peer review, and self-assessments.

Competent Authority: The agency responsible under its national law for regulations applicable to the organization.

Conformance: Fulfillment of requirements. Requirements may be defined by customers, practice standards, regulatory agencies, or law.

Corrective Action: Actions taken to address the root cause(s) of an existing nonconformance or other undesirable situation in order to reduce or eliminate recurrence.

Deviation: A departure from policies, processes, procedures, applicable regulations, standards, or specifications.

Nonconformance: Failure to meet requirements.

Preventive Action: An action taken to reduce or eliminate the potential for unexpected deviations, nonconformances, or other undesirable situations.

Quality Indicator Data: Information that may be collected and used to determine whether an organization is meeting its quality objectives as defined by top management in its quality policy. Indicators are measured by data for movement or regression with regard to those quality intentions. The data used for monitoring a quality indicator may consist of single-source data or multiple-source data, as long as it is clear how the data will come together to define the indicator.

Root Cause(s): The underlying cause(s) of an event or nonconformance that, if eliminated, would prevent recurrence.

Examples of Objective Evidence:

- Policies, processes, and procedures related to this chapter.
- Records of internal assessments scheduled and conducted.
- Records of evidence that deficiencies discovered during assessments and inspections have been addressed, including changes to quality or operational functions.
- Records of external assessments being conducted.
- Quality indicator data collection and review.

8.0 Internal and External Assessments

The organization shall conduct assessments of operations and quality systems.

8.1 Internal Assessments

The organization shall conduct internal assessments. Internal assessments shall be performed by personnel independent of those having direct responsibility for the activity being assessed.

8.2 External Assessments

The organization shall participate in an external assessment program applicable to the activities performed in the organization.

8.3 Management of Assessment Results

The results of assessments shall be:

1) Reviewed by the personnel having responsibility for the area assessed.
2) Evaluated to determine the need for corrective and preventive action.
3) Communicated to the appropriate staff.
4) Reported to executive management.

8.4 Quality Monitoring

The organization shall collect and evaluate quality indicator data on a scheduled basis, including CGT product related unanticipated events.

8.4.1 The organization shall provide data generated to the personnel who have responsibility for the quality indicator data collected.

Excerpt of Reference Standard 6.2.9A Relevant to Internal and External Assessments

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
8.1	Internal assessments	2
8.2	External assessments	2
8.3	Management of assessment results	2

[1]Applicable state or local law may exceed this period.

QSE 9 – Process Improvement

Key Concepts: This QSE focuses on the use of corrective and preventive actions to drive process improvement. It describes measures to ensure that the root causes of nonconformances are effectively addressed.

Key Terms:
CGT Product Related Unanticipated Event: A complication. CGT product related unanticipated events may occur in relation to organization defined activities.

Assessment: A systematic examination to determine whether actual activities comply with planned activities, are implemented effectively, and achieve objectives. Types of assessments include external assessments, internal assessments, peer review, and self-assessments.

Corrective Action: Actions taken to address the root cause(s) of an existing nonconformance or other undesirable situation in order to reduce or eliminate recurrence.

Deviation: A departure from policies, processes, procedures, applicable regulations, standards, or specifications.

Near-Miss Event: An unexpected occurrence that did not adversely affect the outcome but could have resulted in a serious CGT product related unanticipated event.

Nonconformance: Failure to meet requirements.

Preventive Action: An action taken to reduce or eliminate the potential for unexpected deviations, nonconformances, or other undesirable situations.

Root Cause(s): The underlying cause(s) of an event or nonconformance that, if eliminated, would prevent recurrence.

Examples of Objective Evidence:

- Policies, processes, and procedures related to this chapter.
- Records of collected data analysis and corrective action taken when near-misses, deviations, or CGT product related unanticipated events are discovered.
- Tracking of relevant data that affect the organization's current and future operations.
- Records indicating that corrective and preventive action was taken.
- Records indicating that corrective and preventive action taken was effective and is being monitored.
- Documentation that process improvement data are included in executive management review.

9.0 Process Improvement

The organization shall collect data, perform analysis, and follow up on issues requiring corrective and preventive action, including near-miss events.

9.1 Corrective Action

The organization shall have a process for corrective action that includes:

1) Description of the event.
2) Investigation of the root cause(s) of nonconformances relating to the handling, receipt, storage, dispense and/or disposal of the CGT product, the process, and the quality system.
3) Determination of the corrective action needed to eliminate the cause of nonconformances, as applicable.
4) Ensuring that corrective action is reviewed and found to be effective.

9.1.1 Investigation and corrective action shall include consideration of deviations, nonconformances, and complaints.

9.2 Preventive Action

The organization shall have a process for preventive action that includes:

1) Analysis of appropriate sources of information to detect, analyze, and eliminate potential causes of nonconformances.
2) Determination of steps needed to address any problems requiring preventive action.
3) Initiation of preventive action and application of controls to ensure that it is effective.

9.3 Performance Improvement

The organization shall track and identify trends in information related to its operational and quality system performance to identify opportunities for improvement.

Excerpt of Reference Standard 6.2.9A Relevant to Process Improvement

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
9.0	Implementation of changes to policies, processes, and procedures resulting from corrective and preventive action	2
9.1	Corrective action	2
9.2	Preventive action	2

[1]Applicable state or local law may exceed this period.

QSE 10 – Facilities and Safety

Key Concepts: This QSE addresses the safety and adequacy of areas where the work required by these *Standards* is performed. This includes occupational safety, biohazardous material disposal, environmental monitoring, and compliance with applicable local and national regulations.

Key Terms:
Environmental Monitoring: Policies, processes, and procedures used for monitoring any or all of the following: temperature, humidity, particulates, and microbial contamination in a specific area. Where appropriate, the program shall include sampling sites, frequency of sampling, and investigative and corrective actions that should be followed when specified limits are exceeded.

Executive Management: The highest-level personnel within an organization, including employees, clinical leaders, and independent contractors, who have responsibility for the operations of the organization and who have the authority to establish or change the organization's quality policy. Executive management may be an individual or a group of individuals.

Organization: An institution, or part thereof, that has its own functions and executive management.

Examples of Objective Evidence:
- Policies, processes, and procedures related to this chapter.
- Safe environmental conditions for all individuals in the organization.
- Local, state, and national regulations being followed.
- Proper disposal of hazardous and potentially hazardous materials.
- Personal protective equipment (PPE) is available and in use.

10.0 Facilities and Safety

The organization shall ensure safe environmental conditions. The work area shall be suitable for the activities performed. Safety programs shall meet local, state, and national regulations.

10.1 Safe Environment

The organization shall minimize and respond to environmentally related risks to the health and safety of all individuals and CGT products or services. Suitable quarters, environment, and equipment shall be available to maintain safe operations.

10.1.1 Policies, processes, and procedures shall identify and address the hazards present in the facility—including biological, chemical, and, where applicable, radiation safety—and appropriate intervention to limit exposure. The facility shall maintain a system for monitoring training and compliance.

10.1.1.1 The facility shall post signage reflecting the hazards present that pose a risk to health and safety.

10.1.2 Biohazardous or hazardous materials shall be handled and/or disposed of according to safety data sheets, in a manner that minimizes the potential for human and environmental exposure to infectious agents.

10.1.3 Where liquid nitrogen is present, specific hazards shall be addressed. Standard 2.1.3 applies.

10.1.3.1 The facility shall have a system in place to monitor oxygen levels and an alarm system set to activate under conditions that will allow action to be taken.

10.1.3.1.1 Alarm activation shall require personnel to investigate and document the condition activating the alarm and to take immediate corrective action as necessary.

✎10.2 Biological, Chemical, and Radiation Safety

The organization shall monitor adherence to biological, chemical, and radiation safety standards and regulations.

✎10.3 Handling, Disposing of Biological Materials

Biological materials shall be handled, and/or disposed of in a manner that minimizes the potential for human and/or environmental exposure to biohazardous agents and in keeping with the Competent Authority.

10.4 General Operational Controls

Access to facilities used for dispensing shall be limited to authorized individuals.

Excerpt of Reference Standard 6.2.9A Relevant to Facilities and Safety

Standard	Record to be Maintained	Minimum Retention Time (Years)[1]
10.1.3.1.1	Alarm investigation	2
10.2	Monitoring of biological, chemical, and radiation safety	2
10.3	Appropriate disposal of CGT products	2

[1]Applicable state or local law may exceed this period.

Glossary

Administration: With respect to CGT products, the act of delivering the CGT product into a patient, including, but not limited to, infusion, transplantation, implantation, or injection.

Agreement: A contract, order, or understanding between two or more parties, such as between an organization and one of its customers.

Agreement Review: Systematic activities carried out before finalizing the agreement to ensure that requirements are adequately defined, free from ambiguity, documented, and achievable.

Aseptic Methods: Methods designed to eliminate the risk of microbial contamination to a CGT product, reagent, sample, or person in a laboratory or clinical-care setting.

Assessment: A systematic examination to determine whether actual activities comply with planned activities, are implemented effectively, and achieve objectives. Types of assessments include external assessments, internal assessments, peer review, and self-assessments.

Backup: Digital data and/or physical storage containing copies of relevant data.

CGT Product: A tangible output from a process.

CGT Product Related Unanticipated Event: A complication. CGT product elated unanticipated events may occur in relation to organization-defined activities.

Calibrate: To set or align measurement equipment against a known standard.

Chain of Condition: Permanent documentation available for recall outlining the evaluation and maintenance of cell or gene therapy storage conditions, including temperature, from origin to final disposition or other defined time point(s). Any occurrence of out of specification events and conditions must be included as part of the documentation.

Chain of Custody (COC): Concurrent, permanent, auditable documentation illustrating the guardianship of a cell or gene therapy CGT product from its origin through its final disposition.

Chain of Identity (COI): The permanent and transparent association of a cell or gene therapy's unique identifiers from procurement of tissue or cells throughout the full CGT product(s) lifecycle including post treatment monitoring.

Change Control: A structured method of revising a policy, process, or procedure, including hardware or software design, transition planning, and revisions to all related documents.

Competence: An individual's demonstrated ability to apply knowledge and skills needed to perform their job tasks and responsibilities.

Competent Authority: The agency responsible under its national law for regulations applicable to the organization.

Compliance: See Conformance.

Compounding: The preparation, combining, admixing, diluting, pooling, or otherwise altering of a drug CGT product or bulk drug substance to create therapies tailored to the unique and specific needs of a patient.

Confidentiality: The protection of private, sensitive, or trusted information resources from unauthorized access or disclosure.

Conformance: Fulfillment of requirements. Requirements may be defined by customers, practice standards, regulatory agencies, or law.

Contamination: Introduction of unwanted chemical or biologic matter from the environment or from another cellular therapy CGT product.

Continuous Monitoring: A mechanism that allows for surveillance of a process or system intended to ensure proper operation and the detection of control exceptions.

Controlled-Rate Freezing: A procedure using a device to control the temperature of a CGT product during the freezing process.

Corrective Action: Actions taken to address the root cause(s) of an existing nonconformance or other undesirable situation in order to reduce or eliminate recurrence.

Critical Equipment/Materials/Tasks: A piece of equipment, material, service, or task that can affect the quality of the organization's CGT products or services.

Cryopreservation: The process of low-temperature freezing and storage of CGT products in order to preserve cells that, after thawing, retain a significant measure of their prefreeze viability and function.

Cryoprotectant: A solution or additive that, when combined with living cells, provides protection from damage otherwise induced by the freezing and/or thawing process.

Customer: The patient or recipient of a CGT product or service. A customer may be internal (eg, another organizational unit within the same organization) or external (eg, a patient, client, donor, or another organization).

Data Integrity: The accuracy, completeness, and consistency of information.

Designee: An individual with appropriate experience or expertise who is given the authority to assume a specific responsibility.

Deviation: A departure from policies, processes, procedures, applicable regulations, standards, or specifications.

Disaster: An event (internal, local, or national) that can affect the safety and availability of the organization's CGT products or the safety of individuals.

Dispensing: The process or procedure by which the pharmacy fulfills a CGT product order including processing, packaging (if applicable) and dispensing of CGT product to the customer.

Disposal: The act or process of removing gene and cell therapy waste from the pharmacy environment

Distribution: The act of releasing a finished CGT product for human use.

Document (noun): Written or electronically generated information and work instructions. Examples of documents include quality manuals, procedures, or forms.

Document (verb): To capture information through writing or electronic media.

Emergency Management: Strategies and specific activities designed to manage situations in which there is a significant disruption to organization operations or a significantly increased demand for the organization's CGT products or services.

Environmental Monitoring: Policies, processes, and procedures used for monitoring any or all of the following: temperature, humidity, particulates, and microbial contamination in a specific area. Where appropriate, the program shall include sampling sites, frequency of sampling, and investigative and corrective actions that should be followed when specified limits are exceeded.

Equipment: A durable item, instrument, or device used in a process or procedure.

Establish: To perform all of the activities required to plan, validate, and implement a system or process.

Exception: An action or condition that is not part of normal operations.

Executive Management: The highest-level personnel within an organization, including employees, clinical leaders, and independent contractors, who have responsibility for the operations of the organization and who have the authority to establish or change the organization's quality policy. Executive management may be an individual or a group of individuals.

Facility: A location or operational area(s) within an organization where these activities occur. The part of the organization that is assessed by the AABB and receives AABB accreditation for its specific activities.

Final Disposition: The terminal status of the CGT product after which no further action can be taken, eg, disposal or infused.

Final Inspection and Testing: An activity (such as measuring, examining, or testing one or more characteristics of a CGT product or service) that compares the results with specified requirements in order to establish whether conformance is achieved for each characteristic.

Function: The special, normal, or proper physiologic activity of a CGT product that can be qualitatively or quantitatively evaluated (eg, by in-vitro or in-vivo assays).

Handling: The act of moving a cell and gene therapy product through the supply chain for pharmacy dispensing.

Health-Care Professional: An individual employed by a facility qualified by education, training, and experience to perform the duties assigned.

Human Prescription Labeling: A summary of the information required to ensure the safe and effective use of a prescribed drug or CGT product, and would include the prescribing information (e.g., medication guides, patient package inserts, and/or Instructions for Use).

Identity: A set of factors that distinguishes one CGT product from another. For CGT products, identity is often stated in terms of specific positive and negative markers expressed by the cells.

Incoming Materials: Materials at the time of receipt into a facility.

Inner Shipping Container: A box, container, or bag that holds a labeled CGT product during shipping inside an outer shipping container.

Inspect: To measure, examine, or test one or more characteristics of a CGT product or service and compare results with specific requirements.

Installation Qualification: Verification that the correct equipment is received and that it is installed according to specifications and the manufacturer's recommendations in an environment suitable for its operation and use.

Investigator's Brochure: A compilation of clinical and nonclinical data about the investigational cellular therapy CGT product(s) used in research of human subjects. It describes the CGT product's formulation and effects, including information related to the safety, effectiveness, risk of CGT product related unanticipated events, and monitoring relevant to the investigational CGT product.

Issue: To release a final CGT product for clinical use (eg, physical transfer of the CGT product to the medical service responsible for administering the CGT product to the patient by infusion, injection, or other method).

Issuing Facility: The facility that issues the CGT product for clinical use.

Key Quality Functions: Essential job functions that affect the services provided by the organization.

Label: An inscription affixed or attached to a CGT product for identification.

Label (Accompanying): CGT product information is available with the CGT product or is available electronically.

Label (Affixed): A label that is in physical contact with the container.

Label (Attached): A label that is securely fastened to the CGT product container by means of a tie-tag or alternative method.

Labeling: Information that is required or selected to accompany the CGT product, which may include content, identification, description of processes, storage requirements, expiration date, cautionary statements, or indications for use.

Laboratory Attire: Attire worn in the laboratory as protection against contamination of the person or of the CGT product. This may include gloves, laboratory coats, hair covers, face covers, shoe covers, and sterile sleeves.

Life-Cycle Requirements: The stages and time span from initial planning of an information system software program to its retirement; ie, from concept, to software development, to business changes, to revisions, to retirement.

Maintain: To keep in the current state; to preserve or retain; to keep in a state of validity.

Manufacture: All steps in the preparation and testing of a CGT product, from donor evaluation to making the CGT product available for distribution.

Maintain: To keep in the current state; to preserve or retain; to keep in a state of validity.

Master List of Documents: A reference list, record, or repository of an organization's policies, processes, procedures, forms, and labels related to the Standards, including information for document control.

Material: A supply item used in a process or procedure.

Near-Miss Event: An unexpected occurrence that did not adversely affect the outcome but could have resulted in a serious CGT product related unanticipated event.

Nonconformance: Failure to meet requirements.

Nonconforming CGT Product: A CGT product that does not satisfy one or more specified requirements.

Off-Site Location: A physical storage facility or electronically supported storage medium that provides reliable redundancy of data.

Operational Qualification: Verification that equipment will function according to the operational specifications provided by the manufacturer.

Operational Systems: Processes, resources, and activities that work together to result in a CGT product or service.

Organization: An institution, or a location or operational area within that organization; the entity assessed by the AABB and receiving AABB accreditation for specific activities.

Outer Shipping Container: A container made of material adequate to withstand leakage of contents, impact shocks, pressure changes, temperature changes, puncture, and other conditions incident to ordinary handling.

Output: The CGT product, information, or service that results from performing a process or procedure.

Parties: Entities or individuals who have entered into an agreement.

Patient: An individual receiving a CGT product.

Performance Qualification: Verification that equipment performs consistently as expected for its intended use in the organization's environment, using the organization's procedures and supplies.

Pharmacy (Noun): The facility in which the receipt, handling, storage, dispensing and/or disposal of CGT products occurs under the supervision of appropriately licensed pharmacy personnel (i.e., Responsible Pharmacist).

Pharmacy (Verb): The art, practice, or profession of preparing, preserving, compounding, and dispensing gene and cell therapy medications.

Pharmacy Label: The label affixed to the exterior of a CGT product that includes patient-specific drug information.

Policy: A set of basic principles or guidelines that direct or restrict the organization's plans, actions, and decisions.

Potency: The therapeutic activity of a CGT product as indicated by appropriate laboratory tests or adequately developed or controlled clinical data.

Preventive Action: An action taken to reduce or eliminate the potential for unexpected deviations, nonconformances, or other undesirable situations.

Procedure: A defined series of tasks and instructions that specify how an activity is to be performed.

Process: A set of related activities that transform inputs into outputs.

Process Control: Activities designed to ensure that processes are stable and consistently operate within acceptable limits of variation in order to produce predictable output that meets specifications.

Protected Health Information (PHI): Individually identifiable health information that can be linked to a particular person that is related to the physical or mental health status, type of health-care provided, or payment for the health-care provided. Common identifiers of health information include names, social security numbers, addresses, and birth dates. PHI can be in electronic, oral, or written format.

Purity: Dominance of a targeted cellular population defined by specific cell markers and with minimal to no contamination of cells negative for the same markers.

Qualification (equipment or suppliers): Verification that specified attributes required to accomplish the desired task have been met.

Qualification (individuals): The aspects of an individual's education, training, and experience that are necessary for the individual to successfully meet the requirements of a position.

Qualification (materials): For materials that come into contact with the CGT product, verification that the materials are sterile, the appropriate grade and suitability for the intended use, and, whenever possible, approved for human use by the US Food and Drug Administration (FDA) or relevant Competent Authority.

Quality: Characteristics of a CGT product or service that bear on its ability to fulfill customer expectations. The measurable or verifiable aspects of a CGT product or service that can be used to determine if requirements have been met.

Quality Control: Testing routinely performed on materials and equipment to ensure their proper function.

Quality Indicator Data: Information that may be collected and used to determine whether an organization is meeting its quality objectives as defined by executive management in its quality policy. Indicators are measured by data for movement or regression with regard to those quality intentions. The data used for monitoring a quality indicator may consist of single-source data or multiple-source data, as long as it is clear how the data will come together to define the indicator.

Quality Management System: The organizational structure, responsibilities, policies, processes, procedures, and resources established by executive management to achieve quality.

Quality Manual: A document that describes a facility's quality system.

Quality Policy: The overall vision, intentions, and direction of an organization to achieve quality, formally expressed by executive management.

Quarantine: Storage of CGT products, reagents, or materials, in order to prevent improper release and/or cross contamination, either in a physically separate area clearly identified for such use, or by identification of a CGT product through the use of other procedures, including automated designation, for the same purpose.

Receiving Facility: A facility receiving CGT products or services.

Record (noun): Information captured in writing or through electronically generated media that provides objective evidence of activities that have been performed or results that have been achieved, such as test records or audit results. Records do not exist until the activity has been performed and documented.

Record (verb): To capture information for use in records through writing or electronic media.

Reference Standard: Specified requirements defined by the AABB. Reference standards define how or within what parameters an activity shall be performed and are more detailed than quality system requirements.

Regulation: Rules promulgated by federal, national, state, or local authorities to implement laws enacted by legislative bodies.

Release: Removal of a CGT product from quarantine or in-process status for the purpose of distribution.

Responsible Pharmacist: A registered, licensed and qualified by training and experience licensed pharmacist with overall accountability for the safe, effective, and compliant pharmacy operations relative to CGT products.

Risk: The threat of quantifiable damage or any other negative occurrence that is caused by external or internal vulnerabilities and that may be avoided through preemptive action.

Root Cause(s): The underlying cause(s) of an event or nonconformance that, if eliminated, would prevent recurrence.

Service (noun): An intangible output of a process.

Service (verb): An action that leads to the creation of a CGT product or a result that can affect donors, patients, and/or patients.

Shall: A term used to indicate a requirement.

Shipping: The physical act of transferring a CGT product within or between facilities. During shipping the CGT product leaves the control of trained personnel at the originating or receiving facility.

Shipping Facility: A facility responsible for delivering a CGT product in its custody to another location.

Specified Requirements: Any requirements in these Standards, including, but not limited to, Competent Authority requirements; requirements of a facility's internal policies, processes, and procedures; manufacturers' instructions; customer agreements; practice standards; and requirements of accrediting organizations such as the AABB.

Standard: A set of specified requirements upon which an organization may base its criteria for the CGT products, components, and/or services provided.

Sterility: An aseptic condition, meaning an absence of living microorganisms.

Storage: The state of being kept in a place while not being used or transferred, shipped, or transported

Storage Device: A piece of equipment used to keep a CGT product in the physical state of storage.

Subject Matter Expert: A person who is qualified, competent, and experienced in a particular task or functional area.

Supplier: An entity that provides a material, CGT product, or service.

Supplier Qualification: Evaluation of a potential supplier to assess its ability to consistently deliver CGT products or services that meet specified requirements.

System: A subgroup of related activities performed by a particular organization. Activities dealing with maintaining CGT product and service quality are organized into a quality system.

Traceability: The ability to follow the history of a CGT product or service from source to final distribution or disposition using records.

Transfer: The act of relocating a final CGT product or its intermediate in-process precursors.

Transport: The physical act of transferring a CGT product within or between facilities. During transport the CGT product does not leave the control of trained personnel at the originating or receiving facility.

Validation: Establishing evidence that a process, executed by users in their environment, will consistently meet predetermined specifications.

Verification: Confirmation by examination and provision of objective evidence that specified requirements have been met.

Workflow: The planned physical movement of people, materials, or data associated with a process, or the planned temporal sequence of activities associated with a process.