American Association of Tissue Banks

STANDARDS FOR TISSUE BANKING

Also contains: Accreditation Policies and Guidance Documents


13th Edition

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AMERICAN ASSOCIATION OF TISSUE BANKS

STANDARDS FOR TISSUE BANKING

Co-Editors

Nancy L. Dock, PhD (Chair, Standards Committee, 2007-2011)
Joel C. Osborne, CTBS (Vice Chair, Standards Committee, 2007-2011)
Scott A. Brubaker, CTBS (AATB Chief Policy Officer)

Contributing Editors

Jason Ballew, CTBS
Michael J. Bauer, MD
Sandra Bausback-Aballo, RN, BSN
Jeffrey Cartmell, PhD
Michael Roberts, MA, CTBS, RAC
W. Brent Hazelrigg
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Timothy Maye, CTBS
Murray L. Anderson, CTBS (AATB Inspections Liaison)
Simon Bogdansky, PhD (ASTM Liaison)
Jennifer de Matteo (EBAA Liaison)
Elling E. Eidbo, MBA (AATB Inspections Liaison)
Liz Anne Gillham-Eisen (Health Canada Liaison)
Amanda Nerone, CEBT (EBAA Liaison)
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Catherine Springford
Lance Trainor, MD
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Debbie Seem, RN, MPH (CDC Liaison)
Arjun Srinivasan, MD, (CDC Liaison)
Robert E. Stevenson, PhD (AATB Inspections Liaison)
Marianne Tang (Health Canada Liaison)
Nick Tongson (EBAA Liaison)
Martell Winters (AAMI Liaison)

The Association acknowledges the contribution of the following FDA Liaisons:

Ruth Solomon, MD (retired)
Director
Division of Human Tissues
Office of Cellular, Tissue and Gene Therapies
Center for Biologics Evaluation and Research
U.S. Food and Drug Administration

CDR Melissa A. Greenwald, MD, USPHS
Division of Human Tissues
Chief, Human Tissues and Reproduction Branch
Office of Cellular, Tissue and Gene Therapies
Center for Biologics Evaluation and Research
U.S. Food and Drug Administration

LT Elizabeth Lybarger, USPHS
Division of Human Tissues
Human Tissues and Reproduction Branch
Office of Cellular, Tissue and Gene Therapies
Center for Biologics Evaluation and Research
U.S. Food and Drug Administration

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PREFACE

The American Association of Tissue Banks (AATB) was founded in 1976 as a voluntary, scientific, and educational not-for-profit organization to promote the exchange of information, methods, and procedures that would increase donation and provide safe, transplantable tissues of uniform high quality in quantities sufficient to meet national needs. A year later, a book of Proceedings [1] from the first annual meeting was published that offered a detailed overview of current tissue banking practices and described the ethics of donation and transplantation.

Between 1978 and 1981, provisional ‘Guidelines’ for proposed standards were drafted, discussed, adopted and published. They encompassed specific cells, tissues, and organs divided into the following categories: renal, ocular, cell and tumor tissues, bone marrow, musculoskeletal, semen and skin.

The first edition of AATB’s Standards for Tissue Banking was published in 1984, combining similar, general operational standards from all of these categories. This collection marked the first professional standards ever developed in the field of banking transplantable human tissues, other than ocular. An excerpt from the Scope and Purpose of this inaugural edition reads:

“These general Standards are intended to be applicable to any and all forms of tissue banking: retrieval, storage, and distribution of human tissues for medical use. They represent the current thinking of a diversified group of experienced practitioners of tissue banking who have pooled their efforts to extract general principles and philosophies of banking operations common to all and to highlight specific considerations which pertain to certain categories of tissues.”[2]

A voluntary accreditation program for tissue banks was launched in 1986 with inspection and accreditation based upon adherence to these Standards. This first publication of Standards was followed by the publication of a Procedures Manual (1986) aimed at assisting musculoskeletal, skin, and ocular tissue banks to standardize methods being used.

The following year was notable for another AATB publication titled, Technical Manual for Tissue Banking. It contained individual tissue-specific manuals for the banking of musculoskeletal, skin, reproductive, and (living donor) surgical bone. These manuals described step-by-step procedures to facilitate successful tissue banking operations for each tissue type. They were created by their respective councils, which had been formed within the Association.

The Technical Manual was updated with a final publication in 1992. It contained a new section for cardiovascular tissues as well as introducing the “Protocol for Reporting an Event with the Potential for Disease Transmission.” In time, much of the contents of these manuals were incorporated into a subsequent edition of the Standards, since tissue bank accreditation inspections included assessment of compliance with these technical manuals as well as Standards.

In the 1993 sixth edition, a section first appeared in Standards titled, “Medical Facility Tissue Storage and Issuance.” This section was directed at medical facilities to offer structural and functional guidelines for the handling of human tissue allografts and autografts. It required the establishment of procedures and maintenance of records for tissue storage and disposition to ensure safety and traceability of tissue from receipt through clinical transfer or destruction. Other requirements included: supervision by a licensed physician (or dentist for a dental facility); monitoring of freezers and
refrigerators used to store tissue; maintenance of records that included documentation of condition of tissue upon receipt; and steps involved with storage, issuance, return, disposal, recall and handling of adverse outcome reports. These standards were sent to The Joint Commission on Accreditation of Hospitals as well as the College of American Pathologists (CAP) resulting in inclusion of similar tissue handling requirements in their standards and checklists in 1996 and 1993 respectively.

By the seventh edition (1996), the AATB Standards had grown from 21 pages to a book of 108 pages. It included new sections, such as: Records Management; Release and Transfer of Tissues; General Operations (i.e., procedure manual, staff training/competency, safety practices, and facilities/equipment requirements); and, Quality Assurance and Quality Control. The application of a quality systems approach to all tissue banking operations, and the establishment and maintenance of a quality program became required in Standards. Additions to the Standards resembled concepts related to good manufacturing practices (GMPs), which had been adopted by a handful of AATB-accredited tissue banks that were processors of cryopreserved allograft heart valves. At that time, this group of cardiovascular tissue processors was mired in an investigational device exemption (IDE) application with the Food & Drug Administration (FDA). This resulted from FDA’s unforeseen and surprising designation of these tissue banks as a “manufacturer of a replacement heart valve” [3], or better known as a Class III medical device manufacturer, the strictest device classification.

The 11th edition in 2006 was the first to provide the Standards on a CD-ROM and the style of the publication changed dramatically. The cover was modernized and the publication size expanded from a 6” x 9” booklet to an 8.5” x 11” notebook with a durable, coiled spine, which allowed the book to lie flat when opened. Three-hole punches along the spine provided an option to maintain the book in a binder and the capability to insert printable updates when issued to the Standards. Frequent revisions became commonplace during modern times and the format changes increased user satisfaction so this publication style remains.

Similar to the 12th edition (2008), the 13th edition of Standards includes a number of guidance documents developed by the Association’s constituency to fill gaps and complement specific standards. For ease of reference regarding expected compliance, the current version of the AATB’s Accreditation Policies is included in this new edition.

From the inception of the AATB in 1976 to the present, the passionate dedication of numerous, knowledgeable tissue banking professionals has led to improvements to a variety of published guidelines, manuals, and standards. Their willingness to share experiences and best practices, to educate each other, and their ability to be forward-thinking regarding application of a quality culture to tissue banking operations, has led the way to maintaining a template (the Standards) that continues to be referenced not only by tissue banks, but also by end-user healthcare facilities, other standards-setting associations, and regulators worldwide. Global cooperation and the sharing of information among tissue banking professionals continues today, the same spirit that led to the formation of the AATB and the development of these Standards.

Scott A. Brubaker, CTBS
Chief Policy Officer

References:
AMERICAN ASSOCIATION OF TISSUE BANKS

STANDARDS FOR TISSUE BANKING

INTRODUCTION

Progress in medical science and cell biology has resulted in the transplantation of human cells and tissue from one human into another, enhancing the quality of life by restoring form and function and facilitating reproduction. For more than 50 years, society has recognized the medical and humanitarian value of donating and transplanting organs and tissues. The universal significance of this is made apparent by the enactment of legislation based on the Uniform Anatomical Gift Act. The American Association of Tissue Banks (AATB), through its constituency, is committed to providing stewardship for gifts of donated human tissue and promoting the public trust in donation and transplantation.

A mission of the AATB is to establish and promulgate standards to provide Tissue Banks with performance requirements intended to prevent disease transmission and support quality measures that assist clinical performance of transplanted tissue. Furthermore, the AATB fosters education and research, and promotes Quality and Safety in cell and tissue banking and transplantation.

The AATB’s “Standards for Tissue Banking” (Standards) reflect the collective expertise and conscientious efforts of tissue bank professionals to provide a comprehensive foundation for the guidance of tissue banking activities. The Standards are reviewed periodically and revised by the AATB Standards Committee to incorporate scientific and technological advancements. The Standards Committee receives input from the Association’s Councils (Accredited Tissue Bank, Physicians’, Processing and Distribution, Quality, Recovery and Donor Eligibility, and Reproductive) and appropriate standing committees and/or ad hoc task forces, as needed. All revisions are subject to approval by the AATB Board of Governors.

These Standards establish performance requirements for Informed Consent or Authorization, Donor Suitability Assessment through Donor screening and testing, as well as for the Recovery, Processing, Storage, packaging, labeling, and Distribution of transplantable human cells, musculoskeletal, skin, reproductive, cardiac, and vascular tissue. The Standards are intended to be applied to tissue bank functions that relate to quality, staff, donor, and tissue, but do not encompass the clinical use of cells and tissue.

Use of the words “Shall” or “Must” in Standards indicate mandatory compliance, whereas use of the words “Should” and “May” indicate recommended compliance. If an accredited tissue bank, or one seeking accreditation, does not comply with any mandatory standard, a written rationale that sufficiently demonstrates equivalency is required. Details regarding the process to request a variance from Standards are specified in Appendix I. Accreditation by the AATB is based on verified compliance with these Standards and is strongly encouraged.

The format of this edition of Standards is that of general requirements applicable to all tissue with subsections delineating Donor and Tissue standards for:

(A) autologous tissue,

(C) cardiac tissue,

(CT) cellular tissue,

(DM) dura mater,
Living Donors,

musculoskeletal tissue,

osteoarticular,

reproductive cells and tissue,

skin,

Living Donor surgical bone for allogeneic use, and

vascular tissue.

• For all Living Donors, (LD) standards apply, then tissue-specific standards apply.
• For tissue that falls into one or more of these categories, both the general and tissue-specific standards apply and they should be referenced.
• When a particular numbered item appears in both the general section and tissue-specific subsection, both requirements shall apply unless noted otherwise.
• The tissue-specific standard is not a replacement for the general standard for that item, except as noted.
• For tissue not included in these categories (e.g., parathyroid tissue, islet cells, neural tissue), the general standards shall apply.
• In addition, unless otherwise stated, these Standards apply only to tissue intended for clinical use or transplantation to Recipients (including use in Assisted Reproductive Technology procedures). Accreditation will be based upon compliance with these Standards and the Accreditation Policies for Transplant Tissue Banks.

In the Standards, words that are defined in A2.000 Definitions of Terms appear in italics and are capitalized (e.g., Audit). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these Standards.
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Appendix II: CRITERIA FOR PREVENTING TRANSMISSION of RCDADs (Relevant Communicable Disease Agents and Diseases) THROUGH TRANSPLANTATION OF HUMAN TISSUE

Reference I: AATB ACCREDITATION POLICIES FOR TRANSPLANT TISSUE BANKS.....*(not included in this version; see the AATB website)*

Reference II: AATB GUIDANCE DOCUMENTS ......*(not included in this version; see the AATB website)*

Guidance Document No. 1, v2 Tissue Donor Physical Assessment Form (June 27, 2005)

Guidance Document No. 3, Current Good Tissue Practice (June 27, 2006)

Guidance Document No. 4, v2 Providing Service to Tissue Donor Families (March 9, 2015)

Interim Guidance Document No. 5, Standard K2.210 Pre-Sterilization/Pre-Disinfection Cultures (January 4, 2011)

Guidance Document No. 6, Recovery Partner Audit Tool (September 1, 2011)

Guidance Document No. 7, v2 Evaluation of Body Cooling at Standard D5.400 (December 9, 2013)

SECTION A
GENERAL INFORMATION

Words that are defined in A2.000 Definitions of Terms appear in italics
and are capitalized (e.g., Audit). Some terms are used frequently; therefore,
these words may be italicized only when they first appear in the text of these Standards.

A1.000 ACCREDITATION

AATB accredited tissue banks must comply with these Standards, the Accreditation Policies for
Transplant Tissue Banks, as well as all applicable laws and regulations.

A1.100 Failure to Comply with Standards

Failure of an accredited tissue bank to comply with Standards and the Accreditation Policies
for Transplant Tissue Banks, as judged by a majority of the AATB’s Board of Governors,
shall be reviewed and corrective action will be considered in accordance with the bylaws.
Accreditation may be rescinded upon a determination by the Board of Governors that
significant non-compliance, such as repeated violations, one or more egregious violations,
uncorrected violations, or deliberate falsehoods, have occurred.

A1.200 Requesting a Variance to Standards

Tissue banks wishing to implement a Variance from current Standards must provide the
following information to the AATB Chief Policy Officer, by using the Request for Variance to
AATB Standards Submission Format. The format must be completed in entirety and include:

1) A request for Variance or modification including the particular standard number(s) that
   applies to the request;

2) Justification of the alternative procedure(s), policy or process that assure(s) equivalency to
   the intent of Standards; and

3) Supporting information such as worksheets, records, data, or other information (e.g.,
   Validation of the protocol to be used in the proposed Variance, including the scientific data
   and Quality Assurance steps).

Until the Board of Governors approves the Variance request, the tissue bank must comply with
existing Standards. See Appendix I.

A2.000 DEFINITIONS OF TERMS

Unless otherwise defined in the tissue-specific standards or otherwise used in another context in these
Standards, the following terms shall be defined as follows:

AAMI – Association for the Advancement of Medical Instrumentation

ACCIDENT – Any occurrence, not associated with a deviation from Standard Operating Procedures
(SOPs), standards, or applicable laws and regulations, during donor screening or testing, or tissue
recovery or collection, processing, quarantining, labeling, storage, distribution, or dispensing that may
affect the performance, biocompatibility, or freedom from transmissible pathogens of the tissue or the
ability to trace tissue to the donor.
ADEQUATE INFORMATION – Information sufficient for the Donor, the Authorizing Person or the Living Donor to make a voluntary decision regarding the gift of tissues for transplantation, therapy, research and/or education. The parameters of what constitutes Adequate Information must include “Core Elements” contained in Standard D2.400 or D3.400, and such additional information as the Donor, Authorizing Person, or Living Donor requests or which the Donation Coordinator reasonably believes the Donor, Authorizing Person or Living Donor should know. When the Donor is authorizing the gift of tissue, publicly available information concerning the scope and use of the gift shall be deemed Adequate Information.

ADVERSE OUTCOME – An undesirable effect or untoward complication in a recipient consequent to or reasonably related to tissue transplantation.

ALLOGENEIC – used as an adjective to modify donation, tissue, donor or recipient when transplantation is intended for a genetically different person.

ALLOGRAFT – Tissue intended for transplantation into another individual of the same species.

ANONYMOUS DONOR (R) – A reproductive donor of cells or tissue whose identity is unknown to the recipient.

ANSI – American National Standards Institute

AORN – Association of periOperative Registered Nurses

AORTOILIAC GRAFT (C) - The distal segment of the abdominal aorta including the bifurcation and proximal segments of both the left and right common iliac arteries.

ART – Assisted Reproductive Technology—All clinical treatments and laboratory procedures that include the handling of both human oocytes and sperm, or embryos, with the intent of establishing a pregnancy.

ARTERIAL GRAFT (V) – A segment of peripheral artery that is recovered, processed and preserved.

ARTIFICIAL INSEMINATION (R) – The placement of semen within the reproductive tract of a recipient.

ASEPTIC PROCESSING – The processing of tissue using methods to prevent, restrict or minimize contamination with microorganisms from the environment, processing personnel, and/or equipment.

ASEPTIC RECOVERY – The recovery of tissue using methods that restrict or minimize contamination with microorganisms from the donor, environment, recovery personnel, and/or equipment.

ASRM – American Society for Reproductive Medicine

ASSISTED REPRODUCTIVE TECHNOLOGY PROCEDURE – A medical procedure intended to result in conception, including, but not limited to, therapeutic insemination, in-vitro fertilization (including intracytoplasmic sperm injection), and gamete intrafallopian transfer.

ASYSTOLE – The reference time for cardiac death. A documented pronounced time of death is used as ‘asystole’ when life-saving procedures have been attempted and there were signs of, or documentation of, recent life (e.g., witnessed event, agonal respirations, pulseless electrical activity). If a death was not witnessed, ‘asystole’ must be determined by the last time known alive. Asystole will
be ‘cross clamp time’ if the tissue donor was also a solid organ donor.

AUDIT – A documented review of procedures, records, personnel functions, equipment, materials, facilities, and/or suppliers to evaluate adherence to the written SOPM, standards, applicable laws and regulations.

AUTHORIZATION – Permission given after Adequate Information concerning the donation, recovery and use of tissues is conveyed.

AUTHORIZING PERSON – Upon the death of the Donor, the person, other than the Donor, authorized by law to make an anatomical gift.

AUTOGRAFT (A) – Tissue intended for implantation, transplantation or infusion into the individual from whom they were recovered.

AUTOLOGOUS – Used as an adjective to modify donation, tissue, donor or recipient when transplantation to only one’s self is involved.

BATCH – A specific quantity of tissue that is intended to have a uniform character and quality, within specific limits, which is produced according to a single processing protocol during the same processing cycle, precluding mixing of tissue from two or more donors.

BIOBURDEN – The number of contaminating organisms found on a given amount of material.

BLOOD COMPONENT – Any part of a single-donor unit of blood separated by physical or mechanical means.

CBER – Center for Biologics Evaluation and Research

CDC – Centers for Disease Control and Prevention

CELLULAR TISSUE (CT) – cells that are autologous or allogeneic, committed or uncommitted, and non-expanded.

CERTIFIED COPY – relating to a death certificate, an original, authenticated form produced by a governing authority.

CFR – Code of Federal Regulations. Published by the Office of the Federal Register, National Archives and Records Administration, Washington, DC

CLAIM – Any written or oral communication alleging the quality, durability, reliability, infectious disease risk, or performance of tissue.

CLEAN ROOM – A room in which the concentration of airborne particles is monitored and controlled to defined specification limits.

CLIENT DEPOSITOR (R) – A person, or persons, who store(s) reproductive cells or tissues for future use in artificial insemination or assisted reproductive technology procedures for themself(ves) or a sexually intimate partner; not considered a reproductive tissue donor.

COLD ISCHEMIC TIME (C) – The time interval from subjecting cardiac tissue to cold rinse (or transport) solution at recovery to the beginning of disinfection.

COLD ISCHEMIC TIME (V) – The time interval from subjecting vascular tissue to transport
solution and wet ice temperatures at recovery to the beginning of disinfection.

**COLLECTION** – The acquisition of semen or retrieval of oocytes from a donor or *Client Depositor* by surgical or non-surgical procedures.

**COLLOID** – A protein or polysaccharide solution that can be used to increase or maintain osmotic (oncotic) pressure in the intravascular compartment such as albumin, dextran, hetastarch, or certain blood components, such as plasma and platelets.

**COMPLAINT** – Any written or oral communication concerning dissatisfaction with the identity, quality, packaging, durability, reliability, safety, effectiveness, or performance of tissue.

**COMPETENCY** – The ability of an employee to acceptably perform tasks for which he/she has been trained.

**COMPETENCY ASSESSMENT** – The evaluation of the ability of an employee to acceptably perform tasks for which he/she has been trained.

**CONSIGNEE** – Any *Tissue Bank, Tissue Distribution Intermediary, Tissue Dispensing Service, or End-User* (whether individual, agency, institution, or organization) that receives *Finished Tissue*.

**CONTAINER** – An enclosure for one finished unit of transplantable tissue.

**CONTRACT SERVICES** – Those functions pertaining to the recovery, screening, testing, processing, storage, and/or distribution of human tissue that another establishment agrees to perform for a tissue establishment.

**CONTROLLED AREAS** – Restricted work areas of low microbial and particulate content in which non-sterile materials are prepared.

**CORRECTION** – The repair, modification, adjustment, relabeling, destruction, or inspection (including patient monitoring) of distributed tissue without its physical removal to some other location. Reference 21 CFR Part 7, 7.3(h).

**CRITICAL** – Classification of a supply, reagent, material, or equipment that can affect the quality and/or safety of tissue.

**CRITICAL AREAS** – Restricted work areas where cells, tissue, containers and/or closures are exposed to the environment.

**CROSS-CONTAMINATION** – The transfer of infectious agents from tissue to other tissue from the same donor or from one donor’s tissue to another donor’s tissue.

**CRYOPRESERVED** – Tissue frozen with the addition of, or in a solution containing, a cryoprotectant agent such as glycerol or dimethylsulfoxide.

**CRYOPROTECTANT** – An additive that serves to minimize osmotic imbalances that occur with the progression of freezing fronts through a substance, and is intended to limit the amount of cell damage caused by cell shrinkage and intracellular ice formation.

**CRYSTALLOID** – A balanced salt and/or glucose solution used for electrolyte replacement or to increase intravascular volume, such as saline solution, Ringer’s lactate solution, or 5 percent dextrose in water, or total parenteral nutrition (TPN).
DEHYDRATION – The removal of water from tissue.

DEVIATION – An event that is a departure from a procedure or normal practice.

DIRECTED DONOR (R) – A reproductive cell or tissue donor who is known to the recipient but is not her sexually intimate partner.

DISINFECTANT – An agent that reduces the number of viable cellular microorganisms.

DISINFECION – A process that reduces the number of viable cellular microorganisms, but does not necessarily destroy all microbial forms, such as spores and viruses. Use of antibiotics, while not normally described as disinfection, is included here.

DISINFECTION TIME (C, V) – The time interval between subjecting tissue to disinfection solution and transferring tissue to rinsing solutions in preparation for preservation.

DISPENSING SERVICE – A facility responsible for the receipt, maintenance and delivery to the ultimate user (e.g., transplanting surgeon, surgical center or research facility) of tissue for transplantation or research.

DISPOSITION – The final destination of tissue, including use for transplantation, research, or discard.

DISTRIBUTION – A process that includes receipt of a request for tissue, selection of appropriate Finished Tissue, preparation for transport, any required inspections, and subsequent shipment and delivery of tissue to another Tissue Bank, Tissue Distribution Intermediary, Tissue Dispensing Service, or End-User.

DOCUMENT OF AUTHORIZATION – Legal record of the gift of tissue, permitting and defining the scope of the postmortem recovery and use of tissues for transplantation, therapy, research and/or education Signed or otherwise recorded by the Authorizing Person, pursuant to law.

DOCUMENT OF GIFT – The Donor’s legal record of the gift of tissue permitting and defining the scope of the postmortem recovery and use of tissues for transplantation, therapy, research and/or education. It must be Signed or otherwise recorded by the Donor or person authorized under law to make a gift during the Donor’s lifetime.

DOCUMENT OF GIFT/AUTHORIZATION – Term used when the standard refers to both a Document of Gift and a Document of Authorization as defined above.

DONATED EMBRYO – An embryo designated for implantation into a recipient other than the oocyte donor.

DONATED HUMAN TISSUE – For the purposes of labeling, this is tissue provided for storage or transplantation, either allogeneic or autologous.

DONATION COORDINATOR – A Responsible Person who seeks Authorization from an Authorizing Person, or who makes Notification concerning donation, recovery and use of the gift, or in the case of a Living Donor or Client Depositor, the Responsible Person who seeks Informed Consent. For Authorization purposes, this person may also be referred to as a “designated requestor.”

DONOR – A living or deceased individual whose body is the source of the Tissue.

DONOR RISK ASSESSMENT INTERVIEW – A documented dialogue in person or by telephone
with an individual or individuals who would be knowledgeable of the donor’s relevant medical history and social behavior. For example this may be: the donor, if living; the next of kin; the nearest available relative; a member of the donor’s household; other individual with an affinity relationship (e.g., caretaker, friend, significant life partner); and/or the primary treating physician. Alternatively, a living donor may complete a written questionnaire. The relevant social history is elicited by questions regarding certain activities or behaviors that are considered to place such an individual at increased risk for a relevant communicable disease agent or disease (RCDAD).

**DONOR REFERRAL SOURCES** – Entities such as hospitals, medical examiners, coroners and individual allied health care professionals who identify potential tissue donors and refer them, or their next of kin, to tissue banks.

**DONOR REGISTRY** – A database established in accordance with law, consisting of legally valid *Documents of Gift*.

**DONOR SUITABILITY ASSESSMENT** – The evaluation of all available information about a potential donor to determine whether the donor meets qualifications specified in the SOPM and Standards. This includes, but is not limited to: medical, social, and sexual histories; laboratory test results; physical assessment or physical examination; and autopsy findings (if performed).

**DOSIMETRIC RELEASE** – Tissue release based on dosimetry instead of sterility testing.

**DURA MATER (DM)** – A type of soft tissue that includes the pachymeninx (thick, membranous) tissue covering the brain.

**ELECTRONIC SYSTEMS** – Computerized systems that create source documents (electronic records).

**EMBRYO** – Pre-implantation, reproductive tissue resulting from the combination of oocyte and sperm.

**EMBRYO BANK** – A facility that performs cryopreservation or storage of embryos intended for use in creating pregnancy.

**EMBRYO CLIENT DEPOSITOR (R)** – A woman and/or man who provides gametes or contracts with a gamete donor(s) responsible for creation of an embryo(s) intended for transfer.

**EMBRYO DONOR (R)** – Embryo client depositor(s) who choose(s) to donate her (their) embryos. Ownership of the embryos is transferred to a new client depositor(s) who was (were) not gamete providers.

**END-USER** – A health care practitioner who performs transplantation procedures.

**EQUIPMENT QUALIFICATION STUDIES** – Protocols designed to adequately evaluate, prior to use, whether pieces of equipment will perform to expectations, and normally function within the required tolerance limits.

**ERROR** – A departure from the *SOPM, Standards*, or applicable laws or regulations.

**ESTABLISH(ED)** – define, document and implement.

**FDA** – The United States Food and Drug Administration

**FETAL TISSUE** – Tissue recovered during embryonic or fetal stages of development.
FIELD NOTIFICATION – The provision of additional information pertaining to the safety, quality, identification, function and/or use of distributed tissue.

FINISHED TISSUE – Tissue that has been fully processed, enclosed in its final container, labeled, and released to distribution inventory.

FREEZE DRIED/LYOPHILIZED – Tissue dehydrated for storage by conversion of the water content of frozen tissue to a gaseous state under vacuum that extracts moisture.

GAMETE – Mature human germ cell, whether an oocyte or sperm.

GESTATIONAL CARRIER (R) – A woman contracted by the embryo client depositor(s) for pregnancy gestation under the supervision of the embryo client depositor’s(s’) physician.

INFORMED CONSENT – Permission given by a Living Donor (LD) or Client Depositor who is presented with a description of the scope, use and any risks or benefits to her or him of the proposed donation, and who has been given the opportunity to ask questions and receive accurate answers. An LD who gives her or his Informed Consent to donation shall Sign an Informed Consent Record.

IN-PROCESS CONTROLS – Any tests, samples, evaluations, monitoring, or measurements performed during processing or preservation that are designed to evaluate the processing or preservation procedure of the tissue subjected to processing or preservation for conformance to specifications in the SOPM.

IN-PROCESS MATERIAL – Any material that is used in the processing of tissue, including, but not limited to, incoming tissue, water, alcohol, acid, containers, and closures.

ISO – International Organization for Standardization

LABEL – Any written, printed, or graphic material used to identify tissue, cultures, blood specimens or other donor specimens.

LABELING MATERIAL – Any printed or written material, including labels, advertising, and/or accompanying information (e.g., package insert, brochures, and pamphlets), related to the tissue.

LIVING DONOR (LD) – An individual who consents to the Recovery or Collection of his or her Tissue, where Recovery or Collection is to take place while she or he is alive. For all Living Donors, (LD) standards apply, then tissue-specific standards apply. A Living Donor is a type of Donor and, unless otherwise specified, standards that apply to Donors in general apply to Living Donors.

LOT – Tissue produced from one donor at one time using one set of instruments and supplies. Also refers to a quantity of reagents, supplies, or containers that is processed or manufactured at one time and identified by a unique identification number.

MANAGEMENT WITH EXECUTIVE RESPONSIBILITY – Those senior employees of a tissue bank who have the authority to establish or make changes to the tissue bank’s quality policy and quality system.

MARKET WITHDRAWAL – A Correction or Removal of distributed tissue that involves a minor violation that would not be subject to legal action by the FDA or that involves no violation (e.g., normal stock rotation practices). Reference 21 CFR Part 7, 7.3(j).

MAY – Used to indicate an acceptable method that is recognized but not essential.
MICROORGANISMS – microscopic organisms (e.g., bacteria and fungi); viruses, while sometimes included in this classification, are not included here.

MUST – Used to indicate a mandatory requirement. The same as SHALL.

NON-TERMINAL IRRADIATION – Ionizing radiation used to reduce microbes prior to processing.

NON-VALVED CONDUIT (C) – A length of cardiac outflow tract (aortic or pulmonic) from which the valve structure has been removed or intentionally rendered completely non-functional.

NOTIFICATION (OF GIFT) – Provision and documentation of notice concerning an anatomical gift that was made by the Donor during the Donor’s lifetime.

OOCYTE DONOR (R) – One who donates oocytes for use in assisted reproductive technology procedures. An oocyte donor can be further categorized as a directed donor or an anonymous donor.

OSTEOARTICULAR GRAFT – A large weight bearing allograft with intact articular surfaces, consisting of a joint with associated soft tissue and bone.

PACKAGE – A labeled carton, receptacle, or wrapper containing one or more containers and accompanying labeling material.

PACKAGE INSERT – The written material accompanying tissue allograft or autograft bearing further information about the tissue, directions for use, and any applicable warnings.

PATCH GRAFT (C) – A segment of cardiac allograft conduit to be used in cardiovascular repair, replacement, construction, or reconstruction.

PERFUSION SOLUTION (V) – A room temperature, sterile isotonic solution such as tissue culture media or PlasmaLyte® utilized to gently perfuse veins at recovery. This solution may also contain an antithrombotic agent (i.e., sodium heparin).

PERFUSION TIME (V) – The time interval from asystole to subjecting the vascular tissue to perfusion solution.

PHYSICAL ASSESSMENT – a recent ante-mortem or postmortem documented evaluation of a deceased donor’s body that can identify evidence of: high-risk behavior and signs of HIV infection or hepatitis infection; other viral or bacterial infections; or, trauma to the potential recovery sites.

PHYSICAL EXAMINATION – a recent documented evaluation of a living donor’s body to determine whether there is evidence of high risk behavior and that determines overall general health of the donor. After a donor risk assessment interview is completed and if any history is suspect, the physical examination should also encompass a directed examination (of a body part or region).

PLASMA DILUTION – A decrease in the concentration of the donor’s plasma proteins and circulating antigens or antibodies resulting from the transfusion of blood or blood components and/or infusion of fluids, e.g., colloid(s) and/or crystalloid(s).


POOLING – The physical contact or mixing of tissue from two or more donors in a single receptacle.

PRE-STERILIZATION/PRE-DISINFECTION CULTURE - a culture obtained prior to exposing
the tissue to antibiotics, disinfecting chemicals, or sterilizing agents.

**PRESERVATION** – The use of chemical agents, alterations in environmental conditions or other means during processing to prevent or retard biological or physical deterioration of tissue.

**PROCEDURE** – A series of steps, which when followed, is designed to result in a specific outcome.

**PROCESS CONTROLS** – A system of checks and balances incorporated into standard operating procedures involving critical operations to prevent errors.

**PROCESS VALIDATION STUDIES** – The process of demonstrating that a specific process or procedure will consistently produce expected results within predetermined specifications.

**PROCESSING** – Any activity performed on tissue other than donor screening, donor testing, tissue recovery and collection functions, storage or distribution.

**PROFICIENCY** – An evaluation of laboratory methods and test results that assesses the quality of standard operating procedures, equipment, supplies, and reagents, as well as the skill of the personnel performing the testing.

**QUALIFICATION** – The process of establishing confidence that equipment, reagents, and ancillary systems are capable of consistently operating within established limits and tolerances. Process performance qualification is intended to establish confidence that the process is effective and reproducible.

**QUALITY** – The conformance of tissue or a process with pre-established specifications or standards.

**QUALITY ASSURANCE (QA) PROGRAM** – The policies and environment required to meet standards of quality and safety, and provide confidence that the processes and tissue consistently conform to quality requirements.

**QUALITY CONTROL (QC)** – Specific tests defined by the QA Program to be performed to monitor recovery, processing, preservation and storage, tissue quality, and test accuracy. These may include but are not limited to, performance evaluations, inspection, testing, and controls used to determine the accuracy and reliability of the tissue bank’s equipment and operational procedures, as well as the monitoring of supplies, reagents, equipment, and facilities.

**QUALITY POLICY** – The overall intentions and direction of an organization with respect to quality, as established by Management with Executive Responsibility.

**QUALITY SYSTEM** – The organizational structure, responsibilities, procedures, processes, and resources for implementing quality management.

**QUARANTINE** – The identification of human tissue as not suitable for transplantation, including human tissue that has not yet been characterized as being suitable for transplantation. Quarantine includes the storage of such tissue in an area clearly identified for such use, or other procedures, such as automated designation, to prevent the release of this tissue for transplantation.

**RECALL** – A Correction or Removal of distributed tissue initiated to reduce a risk to health posed by the tissue or to remedy a violation of regulatory requirements that may present a risk to health.

**RECIPIENT** – A person into whom tissue is transplanted.

**RECIPIENT (R)** – A woman undergoing an assisted reproductive technology procedure.
RECORD - Information that is inscribed on a tangible medium or that is stored in an electronic or other medium and is retrievable in perceivable form.

RECOVERY – Obtaining tissue from a donor that is intended for use in human transplantation, therapy, research or education.

RECOVERY SITE – The immediate area or room where a tissue recovery takes place (e.g., dedicated tissue recovery suite, healthcare facility operating room, autopsy suite).

RELEVANT MEDICAL RECORDS – a collection of documents including a current donor risk assessment interview, a physical assessment/physical examination of the donor, laboratory test results (in addition to results of testing for required relevant communicable disease agents), relevant donor records, existing coroner and autopsy reports, as well as information obtained from any source or records which may pertain to donor suitability regarding high risk behaviors, and clinical signs and symptoms for any relevant communicable disease agent or disease (RCDAD), and/or treatments related to medical conditions suggestive of such risk.

REMOVAL – The physical removal of distributed tissue from its point of use to some other location for repair, modification, adjustment, relabeling, destruction, or inspection. Reference 21 CFR Part 806, 806.2(i).

REPRODUCTIVE TISSUE – Any cells and/or tissue from the reproductive tract intended for use in assisted reproductive technology procedures. This includes, but is not limited to: oocytes, ovarian tissue, embryos, semen, spermatozoa, spermatids, testicular tissue, and epididymal tissue.

REPRODUCTIVE TISSUE BANK – A tissue bank that collects, processes, stores, and/or distributes human reproductive tissue for use in assisted reproductive technology procedures.

RESOLUTION – Adjustment, clarification, and/or correction of practices and/or procedures that results in compliance with the SOPM and/or standards.

RESPONSIBLE PERSON – A person who is authorized to perform designated functions for which he or she is trained and qualified.

SAFETY – A quality of tissue indicating handling according to standards and substantial freedom from the potential for harmful effects to recipients.

SATELLITE FACILITY – An establishment in a physically separate location where any activities occur that contribute to recovery, transport, processing, storage, packaging, labeling or distribution of human tissue under the management or direct supervision of the same corporate entity or its employee(s).

SEmen (R) – The fluid of man’s reproductive system consisting of spermatozoa and secretions of accessory glands.

SEmen Bank (R) – A tissue bank that collects, processes, stores, and/or distributes semen for use in artificial insemination or assisted reproductive technology procedures.

SEmen Donor (R) – One who donates semen for use in artificial insemination or assisted reproductive technology procedures where the recipient is not a sexually intimate partner. A semen donor can be further categorized as a directed donor or an anonymous donor.

SERVICES TO DONOR FAMILIES – A defined policy or support program describing tissue
donation follow-up offered to the Authorizing Person (or party). This may include written communications regarding: potential uses of tissue; recovery outcome information; bereavement information and support; provision of a copy of the Document of Gift/Authorization: and/or guidance describing how to contact the tissue bank if any questions arise regarding the donation. Frequency of follow-up and program maintenance is at the discretion of the tissue bank, however, periodic evaluation of services is required.

**SHALL** – Used to indicate a mandatory standard, same as MUST.

**SHOULD** – Used to indicate a recommendation; advisory, indicating a commonly accepted activity for which there may be effective alternatives.

**SIGN (SIGNED, SIGNATURE)** – A Record is signed when it has been authenticated or adopted by the signer by means in writing, or an electronic signature, symbol, sound, process or recording pursuant to applicable law.

**SKIN PREP** - The application of antiseptic solution to decontaminate the skin. This is a continuous process that is performed without delay between steps; it does not include shaving hair, although this can be done if preferred. The manufacturer’s written recommendations must be followed, including that the antiseptic agent should remain in place for the full time.

**STANDARD OPERATING PROCEDURES MANUAL (SOPM)** – A group of standard operating procedures (SOPs) detailing the specific policies of a tissue bank and the procedures used by the staff/personnel to carry out the functions of the tissue bank.

**STANDARDS** – AATB Standards for Tissue Banking

**STERILE** – The absence of detectable, viable, Microorganisms (refer to ANSI/AAMI ST67:2003).


**STERILIZATION** – A validated process used to render tissue free from viable microorganisms (refer to ANSI/AAMI ST67:2003) including spores.

**STOCK RECOVERY** – A Correction or Removal of tissue that has not left the direct control of the tissue bank (manufacturer), i.e., the tissue is located on the premises owned, or under the control of, the tissue bank (manufacturer), and no portion of the affected tissue has been released for use. Reference 21 CFR Part 7, 7.3(k).

**STORAGE** – The maintenance of tissue for future use.

**STRUCTURAL SUPPORT** – Those tissue grafts that contribute biomechanical strength to a surgical construct.

**SUMMARY OF RECORDS** – A condensed version of the donor testing and suitability determination records. This can be combined with the package insert.

**TERMINAL STERILIZATION** – A validated process whereby tissue within its primary package is sterilized (refer to ANSI/AAMI ST67:2003).

**THIRD PARTY RECORDS** – records produced by an entity not involved in tissue recovery or donor screening. Examples of third party records include: hospital medical records; emergency medical services records; coroner/medical examiner records; and police reports.
TISSUE – A functional group of cells. The term is used collectively in Standards to indicate both cells and tissue.

TISSUE BANK – An entity that provides or engages in one or more services involving tissue from living or deceased individuals for transplantation purposes. These services include assessing donor suitability, recovery, processing, storage, labeling, and distribution of tissue.

TISSUE DISPENSING SERVICE – Any entity that receives, stores, and provides tissue directly to an End-User for transplantation. Tissue dispensing services may or may not be tissue banks, depending on what other functions they perform.

TISSUE DISTRIBUTION INTERMEDIARY – An intermediary agent who acquires and stores tissue for further distribution and performs no other tissue banking functions.

TISSUE IDENTIFICATION NUMBER – Any unique combination of letters, numbers, and/or symbols assigned to tissue and linked to a donor, from which the complete history of the collection, processing, packaging, quarantine, labeling, storage, and distribution of tissue can be traced. Identical tissue processed under the criteria defined in “lot” may be assigned the same tissue identification number.

TOLERANCE LIMITS – The limits that define a range of acceptable values that are established for each testing procedure which, when exceeded, require the implementation of corrective actions designed to produce results within the acceptable range in future tests.

TOTAL ISCHEMIC TIME (C, V) – The time interval from asystole to subjecting tissue to disinfection solution. This is the sum of warm ischemic time and cold ischemic time.

TRACEABILITY – The ability to locate tissue during any step of its donation, collection or recovery, processing, testing, storage, distribution or disposition. It implies the capacity to identify the medical facility receiving the tissue and, at the medical facility, the ability to identify the recipient.

TRANSFER (R) – The placement of human reproductive tissue into a human recipient.

TRANSPLANTATION – The transfer of allograft tissue to a Recipient.

TRANSPORT MEDIUM – Any microbiological medium capable of maintaining cellular viability during the transport of a culture from field to laboratory.

VALIDATION – The process of establishing documented evidence that provides a high degree of assurance that a specific process will consistently produce the predetermined outcome.

VALVED CONDUIT (C) – An allograft heart valve with an attached length of cardiac outflow tract (aortic or pulmonic).

VARIANCE – A departure from Standards that is pre-approved by the AATB Board of Governors prior to implementation.

VEIN GRAFT (V) – A segment of vein that is recovered, processed and preserved.

VERIFICATION – The confirmation by examination and provision of objective evidence that specified requirements have been fulfilled.

VETERINARY USE – Treatment of a condition or disease in a non-human animal.
WARM ISCHEMIC TIME (C) – The time interval from asystole to subjecting cardiac tissue to cold rinse (or transport) solution at recovery.

WARM ISCHEMIC TIME (V) – The time interval from asystole to subjecting vascular tissue to transport solution and wet ice temperatures at recovery.

WET ICE TEMPERATURES – Temperatures ranging from above freezing (0°C) to 10°C.

WITNESS – An individual who signifies in writing, or in electronically recorded format, that he or she has observed the execution or verbal authorization of the Document of Gift/Authorization or Informed Consent. The Witness’ signification must be contemporaneous with execution and the Witness must be identified by name, address and/or such other contact information as is relevant and feasible. A Witness Should not be an employee or agent of the tissue bank or requesting entity.
SECTION B
GENERAL ORGANIZATIONAL REQUIREMENTS OF A TISSUE BANK

Words that are defined in A2.000 Definitions of Terms appear in *italics* and are capitalized (e.g., *Audit*). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these *Standards*.

**B1.000 GENERAL INSTITUTIONAL REQUIREMENTS**

**B1.100 Purpose, Institutional Identity, and Affiliations**

The purpose of the *Tissue Bank* shall be clearly formulated and documented. The tissue bank shall state whether it is a freestanding entity or part of an institution.

**B1.200 Governing Body**

The *Tissue Bank* shall have a Governing Body that *May* consist of a Board of Trustees, Board of Governors, Board of Directors or a designated responsible individual in whom policy-making authority resides, unless otherwise provided by the institution of which it is a part. A Board shall consist of individuals from various professions. This Board or designated individual shall determine the scope of activities to be pursued by the *Tissue Bank*.

The Governing Body shall designate one or more senior employees as Management with Executive Responsibility. Issues of liability, ethical considerations, fiduciary responsibility, and compliance with applicable laws and regulations, these *Standards*, and the tissue bank’s *SOPM* shall be the responsibility of the Governing Body and Management with Executive Responsibility.

**B1.300 Medical/Scientific Support**

A tissue bank *Should* establish and maintain a mechanism to access medical, technical, and scientific advice as needed. Decisions shall be documented.

**B1.400 Satellite Facilities**

*Satellite* facilities shall be operated in accordance with the tissue bank’s *SOPM*.

**B1.500 Multi-Facility Tissue Banking**

When two or more *Tissue Banks* participate jointly in *Recovery, Processing, Storage, and/or Distribution*, the relationship and responsibilities of each shall be delineated in writing and that documentation shall be maintained at each participating bank or facility. Any records necessary to demonstrate compliance shall be readily accessible to the distributing tissue bank. Compliance with *Standards* by all parties shall be required and documented.

If an AATB-accredited bank obtains from and processes tissue for a tissue bank not accredited by the AATB that is located outside of the United States (U.S.), the requirement for compliance with *Standards* does not apply to the foreign tissue bank if the processed tissues will not be distributed within, or to, the U.S. All cells and tissues imported from entities that do not follow AATB *Standards* shall be appropriately *Quarantined* throughout import, *Storage, Processing*, and export. The AATB-accredited tissue bank must verify that the foreign tissue bank not accredited by the AATB complies with regulations of the
governmental authority having jurisdiction in their country for the functions they perform (e.g., consent/authorization, Donor screening, Recovery, donor testing). Additionally, the tissue bank not accredited by the AATB should be verified to be in compliance with existing standards or guidelines, as appropriate. Examples of established standards include the current editions of: Health Canada’s “Safety of Human Cells, Tissues and Organs for Transplantation Regulations;” the Directive (and Commission Directives) 2004/23/EC of the European Parliament and the Council; or, expectations as described in the World Health Organization’s “Aide Mémoires for Human Cells and Tissues for Transplantation.”

B1.510 Written Agreements/Contracts

Each Tissue Bank shall have written agreements or contracts with all other organizations that perform or for whom they perform Authorization, Informed Consent, donor screening, donor acceptability, tissue Recovery, Processing or Distribution for their organization. Written agreements or contracts shall indicate the nature of the relationships, division of tasks performed, division of issues of liability, specific responsibilities of each party and a summary of the protocols and procedures relating to the services provided. The tissue bank shall maintain a copy of each such agreement, which shall be made available for review if requested by AATB inspectors.

1) A tissue bank that recovers tissue that is processed and/or distributed by another tissue bank shall be responsible for being in compliance with these Standards for all operations it performs. This includes, but is not limited to, the requirement to have a Medical Director (See B2.220 Responsibilities) and to share records (see D4.500 Information Sharing, and K1.100 Basic Elements of a Quality Assurance Program).

2) A tissue bank that processes tissue recovered and/or distributed by another tissue bank shall be responsible for being in compliance with these Standards for all operations it performs. The tissue Processing organization must bear the burden of proof, and document in writing, that operations performed by other organizations prior to the receipt of tissue for Processing were performed in a manner consistent with these Standards as well as the Processing tissue bank’s requirements.

3) A tissue bank that distributes tissue recovered and/or processed by other tissue banks shall be responsible for being in compliance with AATB Standards for all operations it performs. The distributor must also bear the burden of proof, and document in writing, that operations performed by other organizations prior to its receipt of tissue for Distribution were performed in a manner consistent with AATB Standards.

4) A tissue bank that determines donor suitability shall develop and maintain policies and procedures that clearly describe donor records they deem relevant to their operations. Agreements must address how this information is to be communicated in a timely fashion and clearly define expectations and responsibilities of the appropriate entities.

5) A tissue bank that provides another tissue bank with Critical supplies, reagents, materials, and/or equipment shall develop and maintain policies and procedures that clearly describe responsibilities for notification of changes and recalls, and both entities should report problems (e.g., defects). The tissue bank providing
supplies containing labels is responsible for archiving and notification responsibilities described at standard G2.330.

B1.520 On-site Inspections

(Refers to AATB accreditation/re-accreditation inspections.)

A tissue bank that has any of its activities or services performed by another entity will be inspected and accredited only for the specific activity(ies) or service(s) that the tissue bank itself performs.

B1.521 Inspections/Audits of Other Facilities

(Refers to inspections/Audits that an accredited tissue bank must perform for activities/services rendered by another entity.)

Before an entity performs any activity/service under contract, agreement or other arrangement, the accredited tissue bank must ensure that the entity will comply with applicable Standards, laws and regulations. Thereafter, the accredited tissue bank is responsible for verifying, at least biennially, that the activities or service(s) has/have been performed in conformance with applicable Standards, laws and regulations. This requirement does not apply to any other AATB-accredited entity. When applicable, this must be documented on a form provided by, or pre-approved by, the AATB Director of Accreditation (refer to the AATB Accreditation Policies for Transplant Tissue Banks). The Verification of activities or services performed by others shall be documented (e.g., a paper Audit, on-site Audit, on-site inspections, etc.).

Regardless of whether the facility performing activities or services for others is accredited, it is the responsibility of the tissue bank receiving those activities/services to periodically verify that Procedures related to the activities/services are in compliance with these Standards, the written agreement/contract, and applicable laws and regulations. The inspection/Audit plan, policies, and procedures shall be specified in the SOPM.

Documentation that an Audit/inspection specific for activities or services performed shall be maintained by the tissue bank. Such documentation shall itemize all operational systems that were verified to determine compliance with these Standards, the agreement/contract and applicable laws and regulations. This itemization of the systems reviewed shall be provided to AATB on-site inspectors upon request. For an audit tool and guidelines to be used for a partner performing recovery services, refer to Guidance Document No. 6.

If, during the course of this contract, agreement, or other arrangement, information suggests that the entity may no longer be in compliance with such requirements, the accredited bank must take steps to ensure compliance. If it is determined that the entity will not comply, the contract, agreement, or other arrangement must be terminated.
B1.600 Contracted and Non-contracted Laboratory Services

*Tissue Banks* that contract for laboratory services shall retain in their records the name and address of the contracted facility and documentation of the inclusive dates of the contract period. Proof of current laboratory licensure and accreditation must be maintained. *Tissue Banks* that obtain testing results from non-contracted laboratory services (e.g., other tissue banks, organ procurement organizations) shall maintain the name, address, licensing and accreditation information for each laboratory from which test results are obtained for the purpose of donor suitability or tissue qualification assessments. Appropriate *Management with Executive Responsibility* shall be responsible for understanding the principles of bacteriological and/or infectious disease test procedures employed by a laboratory as well as the interpretation of results. Records of laboratory results used to determine final release shall become part of the donor or *Processing* record.

NOTE: For international members that do not export tissues to the U.S., applicable requirements of the government/competent authority having jurisdiction apply regarding establishment registration, laboratory certification, test kit licensing/approval, and test run record retention.

The tissue bank must ensure (and maintain documentation of activities obtained by either paper audit or on-site audit) that a laboratory performing donor infectious disease testing for the tissue bank is:

1) registered with the *FDA* as a tissue establishment and lists ‘testing’ as a function;

2) using the appropriate FDA-licensed, approved, or cleared donor screening tests;

3) following manufacturers’ instructions for these tests;

4) certified in accordance with the Clinical Laboratory Improvement Amendments of 1988 (42 U.S.C. 263a) and 42 CFR part 493, or has met equivalent requirements as determined by the Centers for Medicare and Medicaid Services;

5) retaining donor infectious disease test run records for ten years; and

6) aware of the requirement of the Tissue Bank to comply with Standard D4.357 Archived Samples.

The tissue bank must ensure (and maintain documentation of activities obtained by either paper audit or on-site audit) that the contracted laboratory(ies) performing microbiology testing related to determination of tissue suitability is:

1) registered with the FDA as a tissue establishment and lists ‘processing’ as a function;

2) following applicable manufacturers’ instructions for these tests; and

3) retaining tissue microbiological identification records for ten years.
B2.000 FUNCTIONAL COMPONENTS OF A TISSUE BANK

B2.100 Management Responsibility

B2.110 Quality Policy

*Management with Executive Responsibility* shall ensure the establishment of the tissue bank’s policy and objectives for, and commitment to, quality, and shall ensure that the quality policy is understood, implemented, and maintained at all levels of the organization.

B2.120 Organization

Each tissue bank shall establish and maintain an adequate organizational structure to ensure that donors are consented/authorized, screened and tested, and tissue is recovered or collected, processed, stored, packaged, labeled, and distributed in accordance with the requirements of these *Standards*.

B2.121 Responsibilities and Authority

Each tissue bank shall establish the appropriate responsibility, authority, and interrelation of all personnel who manage, perform, and assess work affecting quality, and provide the independence and authority necessary to perform these tasks in accordance with these *Standards*. The tissue bank shall ensure that responsibilities and authorities are defined, documented and communicated within the tissue bank.

B2.122 Resources

The *Tissue Bank* shall have sufficient resources, including the assignment of trained personnel, for management, performance of work, and assessment activities to meet the requirements of these *Standards*.

B2.123 Management Representative

*Management with Executive Responsibility* shall appoint a member of management who, irrespective of other responsibilities, shall have established authority over and responsibility for ensuring that quality system requirements are effectively established and effectively maintained. The management representative shall periodically report on the performance of the quality system to *Management with Executive Responsibility* for their review.

B2.130 Management Review

*Management with Executive Responsibility* shall review the suitability and effectiveness of the *Quality System* at defined intervals and with sufficient frequency according to established procedures to ensure that the quality system satisfies the requirements of these *Standards* and the tissue bank’s established quality policy and objectives. The dates and results of quality system reviews shall be documented.
B2.140 Technical Policies and Procedures

Technical policies and procedures utilized in the operation of the tissue bank must be established and maintained. The tissue bank may adopt current standard procedures, such as those in a technical manual prepared by another organization, provided that the tissue bank has verified that the procedures are consistent with, and at least as stringent as, the requirements of these Standards and appropriate for operations.

B2.150 Quality Assurance Program

A Quality Assurance (QA) Program shall be established and maintained to ensure that the entire operation is in conformity with the tissue bank’s SOPM, Standards, and applicable laws and regulations. A documented annual internal review or Audit to ensure compliance must be performed. The Self-assessment Tool/Audit Report (STAR) must be completed annually and documented on a form provided by, or pre-approved by, the AATB Director of Accreditation (refer to the AATB Accreditation Policies for Transplant Tissue Banks).

B2.200 Medical Director

B2.210 Qualifications

The Tissue Bank shall have a Medical Director who maintains a valid state license from any state (or for international members, the physician must maintain an equivalent medical license). He/she should have training and experience in evaluating and determining donor suitability particularly with regard to infectious diseases, or use a Medical Advisory Committee or consultants to assist in those areas.

B2.220 Responsibilities

B2.221 Donor Suitability Criteria

The Medical Director shall establish donor suitability criteria as well as evaluate and determine each donor’s acceptability. Prior to the release of tissue for transplantation, the Medical Director, or licensed physician designee, shall make a determination regarding the acceptability of each donor based on a comparison with predetermined donor criteria as established in the SOPM by the Medical Director and in accordance with these Standards. The Medical Director shall review and approve all the SOPs of a medical nature prior to implementation.

B2.222 Adverse Outcomes

The Medical Director shall establish policies and procedures regarding Adverse Outcomes and shall require that all potential Adverse Outcomes are investigated and documented. Corrective actions shall also be documented. All final summary reports shall be reviewed and approved by the Medical Director. Adverse Outcomes must be reported as required by applicable laws or regulations.
B2.223 Confirmed Positive Test Results

The Medical Director shall be responsible for notifying appropriate parties of confirmed positive infectious disease test results, in accordance with Standard D4.356.

B2.300 Technical Staff

B2.310 Qualifications

Staff must possess the educational background, experience, and training sufficient to assure assigned tasks are performed in accordance with the tissue bank’s established procedures. Donor Authorization, informed consent for living donors, donor screening and testing, Recovery or Collection, Processing, packaging, labeling, storage, and Distribution, shall be performed by trained personnel. Staff training shall be documented in individual employee training files.

B2.320 Responsibilities

Staff shall be responsible for implementation of policies and procedures as established by the tissue bank. Duties of each staff member shall be described in written job descriptions. Staff must demonstrate Competency in the operations to which they are assigned.

B2.400 Quality Assurance Program

B2.410 Staff Qualifications

A designated individual, generally familiar with, but not having performed, the specific work being reviewed, shall be responsible for each Quality Assurance review.

B2.420 Staff Responsibilities

Quality Assurance Program personnel shall have responsibility for assuring compliance with the SOPM regulatory requirements. The individual responsible for the Quality Assurance review shall have the responsibility and authority to approve or reject tissue, as well as discontinue Processing and/or release of tissue when Deviations from SOPM warrants. Quality Assurance personnel shall be responsible for managing Audits.
SECTION C
RECORDS MANAGEMENT

Words that are defined in A2.000 Definitions of Terms appear in italics and are capitalized (e.g., Audit). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these Standards.

C1.000 RECORDS MANAGEMENT

C1.100 General

Each tissue bank shall develop a donor record management system that will allow the detailed documentation of the tissue banking process(es) for which the bank is responsible. Documentation must be made concurrent with each significant step and must include, but not be limited to:

1) Informed Consent Record, or Document of Gift/Authorization;
2) Donor Suitability Assessment and donor identification;
3) Tissue Recovery or Collection, transport, and Processing;
4) Quarantine and infectious disease testing;
5) In-process testing;
6) Record review;
7) Tissue labeling, storage, release, and Distribution;
8) Quality Control; and
9) Services to Donor Families.

Records shall be created beginning with donor screening documentation. Such records shall indicate the responsible party(ies) and must delineate the dates, times, and locations of subsequent procedures as well as the individuals performing them in order to facilitate Traceability. The records shall be considered confidential and shall be kept in a location with controlled access; precautions for their safety and security should be evident.

(A) Records shall include, at a minimum, donor identification, and the date and time of Recovery.

(R) Names of donors shall be encoded; only designated personnel shall have the authority to link the donor’s name to the identification code. No records shall exist which link the Anonymous Donor to the Recipient by name.

C1.110 Required Processing Documentation

Results of laboratory tests used to determine final release of tissue for transplantation (e.g., sterility testing and testing for residual water, ethylene oxide, residual calcium) shall be maintained by the tissue bank that determines the suitability of the Allograft for Distribution (“distributor”). All other Processing records shall be available at the tissue bank or available by facsimile, within the same workday.
C1.120 Electronic Records

If records are maintained electronically, there shall be a system in place to ensure that data integrity of the electronic records is maintained, and that information is retrievable, and able to be printed as a hard copy.

C1.200 Availability for Inspection

Records shall be readily accessible for inspection by authorized personnel from accreditation programs, regulatory agencies, and tissue banks involved with the bank in multi-facility tissue banking. Access to donor identity and medical, social, and sexual histories shall be restricted to tissue bank staff with a need for access and to inspectors from accreditation programs and regulatory agencies. Should records be maintained electronically, there must be a system in place to retrieve information, and print a hard copy for review during inspection.

C1.300 Retention

Informed Consent Records, Documents of Gift/Authorization, and records pertaining to donor suitability, Recovery, Collection, Processing, storage, date of Distribution, QA, and identity of person/entity to whom distributed, shall be retained at least 10 years beyond the date of Distribution, date of transplantation (if known), date of Disposition, or date of expiration of the tissue (whichever is latest) or longer if required by applicable laws and regulations. Records shall be maintained in a manner to preserve their completeness and accuracy over time. Donor suitability records of Dura Mater donors shall be retained indefinitely. Tissue banks that have their tissues processed by another agency must assure that Processing and QC records are retained for at least ten years.

(R) The Reproductive Tissue Bank should maintain current donor and Client Depositor addresses until tissues are used or destroyed.

C1.400 Traceability

A tissue bank’s records management system shall identify tissue by use of a unique identifier. Each subsequent entity involved in the process of Recovery or Collection through tissue dispensing shall be required to correlate its donor identifier with the donor identifier of the entity from which it acquired the tissue. Records shall also indicate the dates and the identities of the staff involved in each significant step of the operation from the time of Recovery or Collection through final Disposition of the tissue.

Laboratory and QC specimens related to a donor of tissue shall also be traceable to the donor. Records shall indicate which specimens were used for testing and shall also permit tracing from the donor to the specimen and from the specimen to the donor.

Whenever an accredited tissue bank consigns tissue to a non-accredited entity, the accredited bank shall:

1) require the non-accredited entity to comply with the requirements of this section; and

2) impose the requirements of this section on all subsequent Consignees, up to and including the Tissue Dispensing Service.
C1.500 Revisions

Revisions to records shall be made with a single line drawn through the altered text. The revision shall be initialed and dated by the individual making the revision. Additions to a completed record shall be initialed and dated by the individual making the additions.

C2.000 CONSTRUCTION OF RECORDS

Before tissue is released or transferred, the Relevant Medical Records must be reviewed. The content of records that originate or are sourced from outside of a Tissue Bank (i.e., Third Party Records) is not under control of the Tissue Bank. The information in these records is considered the best available information. Records that are produced by Tissue Bank staff must be complete, indelible, legible and accurate. Records must be in English or, if in another language, must be retained and translated to English and accompanied by a statement of authenticity by the translator that specifically identifies the translated document.

Tissue Banks shall not utilize documentation related to Informed Consent/authorization or Donor Risk Assessment Interviews that are obtained by unauthorized parties. Authorized parties must be identified in agreements and personnel performing these functions shall be qualified, trained, and competent.

(A) Autologous tissue records shall be maintained either in a separate log, or, if incorporated into general records, in such a manner that the autologous tissue may not be released for non-autologous use.

(C) Records additionally shall include the following information:

1) ABO/Rh, if available;

2) Date/time of Asystole;

3) Date/time of Recovery of the heart (time when subjected to cold rinse solution);

4) Date/time of subjection of cardiac Allograft tissue to Disinfection solution;

5) Start and stop times when tissue was subjected to Disinfection solution; and

6) Date/time

   (a) when Preservation began and

   (b) when placed in final Container.

(V) Records additionally shall include the following information:

1) ABO/Rh, if available;

2) Date/time of Asystole;

3) Date/time vascular tissues subjected to Perfusion Solution;

4) Date/time vascular tissues placed in transport solution and subjected to wet ice temperatures;

5) Date/time of subjection of vascular tissue to Disinfection solution;
6) Start and stop times when tissue was subjected to *Disinfection* solution; and

7) Date/time (a) when *Preservation* began and (b) when placed in final *Container*.

**C3.000 DONOR RECORDS TO BE MAINTAINED**

_Tissue Banks_ shall maintain records of their activities in accordance with these _Standards_.

(R) Donor records shall include documentation of *Informed Consent, Relevant Medical Records,* results of all laboratory screening tests, and outcome of prior *Assisted Reproductive Technology* procedures (if known) including number of successful pregnancies and any reports that would affect the donor’s acceptability. Records shall also include the following personal attributes: height, weight, eye color, hair color, complexion, racial group, and body type.

**C4.000 PROCESSING RECORDS TO BE MAINTAINED BY OTHERS**

Tissue banks that have their tissues processed by another entity must assure that the *Processing* and QC records of that entity are retained for a period as required by applicable laws and regulations.
SECTION D
ACQUISITION OF TISSUE: AUTHORIZATION, INFORMED CONSENT, DONOR SCREENING, AND TISSUE RECOVERY AND COLLECTION

Words that are defined in A2.000 Definitions of Terms appear in *italics* and are capitalized (e.g., Audit). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these Standards.

D1.000 GENERAL POLICIES FOR TISSUE RECOVERY OR COLLECTION ORGANIZATIONS

In addition to the requirements at the series of standards at B1.500 Multi-Facility Tissue Banking, all referral arrangements with organ procurement organizations, Donor Referral Sources and other tissue banks shall be documented.

(LD) Except for a Reproductive Tissue Bank, written procedures for interacting with operating room staff, the patient’s physician, or other sources/facilities shall be established.

(R) Procedures for accepting tissue collected from a Client Depositor, and for recruiting, accepting or excluding potential reproductive tissue donors, shall be established by the Medical Director.

D1.100 Monetary Compensation or Other Valuable Consideration to Donors

Monetary compensation or other valuable consideration, including goods or services, shall not be offered to a Donor, Authorizing Person, the Donor’s estate, or any other third party, except in the following instances:

1) the tissue bank may reimburse responsible third parties for costs directly associated with a donation.

2) the tissue bank may reimburse Living Donors for costs associated with an acceptable donation, including compensation for restoration of lost earnings when directly attributable to donation, if and as authorized by law.

(R) The Reproductive Tissue Bank may provide monetary compensation to donors of reproductive tissue if the compensation is compliant with current ASRM Guidelines for Gamete and Embryo Donation.

Donors or their families should not be responsible for any expenses related to the Recovery of allogeneic tissue.

D2.000 AUTHORIZATION

D2.100 Requirements

*Authorization* to acquire tissues and make them available for transplantation, therapy, research or education shall be obtained from a Donor or Authorizing Person in accordance with applicable anatomical gift acts and other laws or regulations. This Authorization shall be expressed in a Document of Gift/Authorization, the original or a copy of which shall be maintained in the Donor’s record at the tissue bank responsible for recovery, as well as in the Donor’s record at the tissue bank whose Medical Director is responsible for donor
suitability determination. In the case of an electronic or voice recorded *Document of Gift/Authorization*, the original recording should be maintained in reproducible form.

NOTE: For international members, terminology used by the government/competent authority having jurisdiction applies regarding lawful authorization for donation of tissues for transplantation, therapy, research, or education.

**D2.200 Conditions**

*Adequate Information* concerning the donation and *Recovery* of tissue shall be presented in a language in which the *Authorizing Person* is conversant and in terms that are easily understandable by the *Authorizing Person*. The *Donation Coordinator* should be trained to appropriately answer the questions the *Authorizing Person* may have. Neither coercion nor inaccurate information shall be used in any manner to obtain *Authorization*.

**D2.300 Signatures and Documentation**

**D2.310 Document of Gift**

In cases where a *Donor* has executed a *Document of Gift* it may be acted upon (permits *Recovery*) provided it meets applicable laws and regulations. Acceptable documentation may include a state driver’s license, living will, advanced directive, state ID card, donor card, or photocopy thereof, and documentation that the donor registered in a *Donor Registry*.

**D2.320 Document of Authorization**

When a *Document of Authorization* is used it must contain the following Signatures and related information:

1) the *Authorizing Person’s Signature* and:
   a) name;
   b) address;
   c) phone number; and
   d) relationship to the *Donor*;

2) the *Donation Coordinator’s Signature* and:
   a) the date; and
   b) identity of their organization;

3) the *Signature* of each *Witness* if witnessing is required by law or regulation;

4) documentation that the *Core Elements* were used; and

5) a statement granting *Authorization* for tissue *Recovery*. 
D2.330 Methods of Obtaining Authorization

Legal Authorization can be obtained using different methods. When Authorization is obtained:

1) **in person**, the Authorizing Person must read and **Sign** the Document of Authorization.

2) **by telephone**, the person obtaining the Authorization shall read to the Authorizing Person the Document of Authorization or, alternatively, shall present each of the Core Elements described in Standard D2.400.

This telephone conversation shall be recorded. There shall be documentation that the Authorization was obtained by telephone.

A sampling plan must be adopted that verifies that recordings match the content in the written Document of Authorization. This verification must be performed by someone other than the Donation Coordinator or Witness. In the rare event that the telephone conversation cannot be recorded (e.g., equipment failure), and no facsimile or electronic means is feasible for documenting Authorization, the conversation Should be witnessed by a third person.

3) **using a facsimile transmission**, a copy of the Document of Authorization is provided to the Authorizing Person. The Authorizing Person shall return the signed Document of Authorization by facsimile transmission. A Donation Coordinator shall be available to respond to questions posed by the Authorizing Person.

A sampling plan must be adopted that verifies signatures received by facsimile. This verification must be performed by someone other than the Donation Coordinator or Witness.

4) **using an electronic transmission**, a copy of the Document of Authorization is provided to the Authorizing Person. The Authorizing Person shall electronically respond (e.g., by e-mail) that he/she has read the Document of Authorization, is authorized to grant Authorization, and is granting such Authorization. A Donation Coordinator shall be available to respond to questions posed by the Authorizing Person.

A Document of Authorization received by electronic transmission should be verified pursuant to the relevant law on electronic signatures, such as the Uniform Electronic Transactions Act of the relevant state. An electronically transmitted, read-only or otherwise protected Document of Authorization may be used.

D2.400 Core Elements for Authorization

The Document of Authorization shall contain Adequate Information. No Document of Authorization from an Authorizing Person shall be acted upon if it does not contain the following Core Elements. These Core Elements also apply to Standard D2.500.

**Core Elements:**

1) the name of the Donor;

2) the name, address, and telephone number of the Authorizing Person, and his/her
3) an explanation that the tissue is a gift, and that neither the Donor’s estate nor the Authorizing Person will receive monetary compensation or valuable consideration for it;

4) a description of the general types of tissue to be recovered;

5) a description of the permitted use(s) of the recovered tissues (i.e., transplant, therapy, research, or education);

6) an explanation that recovery of tissue requires the following actions, and the Document of Gift/Authorization thus specifically authorizes:

   a) access to, and required disclosure of, the Donor’s medical and other relevant records;

   b) testing and reporting for transmissible diseases;

   c) the removal of specimens which may include, but are not limited to, the spleen, lymph nodes, and blood samples, for the purpose of determining suitability and/or compatibility of donor and recipient;

   d) the release to the tissue bank of any and all records and reports of a Medical Examiner, Coroner or Pathologist; and

   e) such other requirements as may be applicable for the specific donation or tissue bank, such as transport of body, archiving of samples, etc.

7) contact information for the organization represented by the Donation Coordinator; and

8) any additional information required by laws or regulations.

The following information should be provided to an Authorizing Person:

1) a general description of the recovery e.g., timing, relocation of donor if applicable, contact information, etc.;

2) an explanation that costs directly related to the evaluation, recovery, preservation, and placement of the tissues will not be charged to the family;

3) an explanation regarding the impact the donation process may have on burial arrangements and on appearance of the body; and

4) an explanation that the Document of Authorization is available.

Any explanation required by law, such as an explanation that multiple organizations (nonprofit and/or for profit) may be involved in facilitating the gift(s) and/or reference to the possibility that tissue may be transplanted abroad, must be included.

When an Organ Procurement Organization (OPO), or other entity (e.g., hospital), has initiated the process of obtaining Authorization for a potential organ and tissue donation, the Tissue Bank for which the Authorization is being obtained shall request that the OPO or other entity follow the procedure and utilize a Document of Authorization that satisfies the requirements of Standard D2.000.

For a Donor one month (28 days) of age or less, adequate consent pursuant to law shall
be obtained for collection of blood from the birth mother needed for testing.

D2.500 Notification of Gift

In cases where the gift is authorized by a Donor’s own Document of Gift (i.e., first person consent), including a Document of Gift recorded in a Donor Registry (i.e., donor designation), and where law mandates notification, such notification shall be made pursuant to law.

In all other cases, prior to transport of the body or Recovery, the Donation Coordinator should attempt to notify the person who would have been an Authorizing Person had no gift been made during the life of the Donor or the person who is authorized to make arrangements for final disposition. The information to be provided in the Notification should contain, at a minimum, Core Elements of Authorization but at no time shall the Donation Coordinator indicate that the recipient of the information is empowered to revoke or amend the gift made by the Donor.

The Donation Coordinator should inquire during the Notification whether the notified person is aware of any revocation or refusal made by the Donor. Notification, if made, shall be documented.

Where good faith efforts to notify an appropriate person of the gift fail to result in actual notification within a time frame compatible with the successful recovery of the tissue, the attempt to notify shall be documented, and recovery may proceed.

D2.600 Services to Donor Families

Services to Donor Families or referral to a support system must be offered to the Authorizing Person. Subsequent communications and periodic evaluation of services shall be documented, maintained, and readily available. See AATB Guidance Document No. 4.

D3.000 INFORMED CONSENT FOR LIVING DONORS AND CLIENT DEPOSITORS

D3.100 Requirements

Informed consent to acquire tissues and make them available for transplantation, therapy, research or education shall be obtained from a Living Donor or Client Depositor in accordance with applicable laws or regulations. This Informed Consent shall be documented in an Informed Consent Record, the original or a copy of which shall be maintained in the Living Donor’s or Client Depositor’s record at the tissue bank responsible for recovery or collection, as well as in the Living Donor’s record at the tissue bank whose Medical Director is responsible for donor suitability determination. In the case of an electronic or voice recorded Informed Consent Record, the original recording should be maintained in reproducible form.

NOTE: For international members, terminology used by the government/competent authority having jurisdiction applies regarding lawful informed consent for donation of tissues for transplantation, therapy, research, or education.

D3.200 Conditions

Adequate Information concerning the Recovery or Collection of tissue shall be presented in a language in which the Living Donor or Client Depositor is conversant and in terms that are easily understandable by a Living Donor or Client Depositor. The Donation Coordinator should be trained to appropriately answer the questions the Living Donor or
Client Depositor may have. Neither coercion nor inaccurate information shall be used in
any manner to obtain Informed Consent.

The potential donor shall not be under the influence of anesthesia or any drug that
could influence his/her ability to give Informed Consent.

Informed Consent must be obtained prior to the Recovery, or, when not possible and Recovery
has already occurred, as soon as practical after the Recovery and before use of the tissue.

D3.300 Signatures and Documentation

The Informed Consent Record must comply with applicable laws and regulations. It must
contain, at a minimum,

1) the Living Donor’s or Client Depositor’s Signature and:
   a) name;
   b) address; and
   c) phone number;

2) the Donation Coordinator’s Signature and:
   a) the date; and
   b) identity of their organization;

3) the Signature of each Witness if witnessing is required by law or regulation;

4) documentation that the Core Elements for Informed Consent were used;

5) a statement that the Living Donor or Client Depositor understands what has been read
   or explained and is granting Informed Consent for tissue Recovery or Collection; and

6) a statement that the Living Donor or Client Depositor has been informed that his/her
   name and address, as well as required records, shall be kept on file by the Tissue Bank or
   Reproductive Tissue Bank.

D3.310 Methods of Obtaining Informed Consent

Informed Consent can be obtained using different methods, if and as authorized by
law or regulation. The methods below appear in preferential order. When Informed
Consent is obtained:

1) in person, the Living Donor or Client Depositor must read and Sign the
   Informed Consent Record.

2) by telephone, the person obtaining the Informed Consent shall read to the
   Living Donor or Client Depositor the Informed Consent Record or, alternatively,
   shall present each of the Core Elements described at Standard D3.400.

   This telephone conversation shall be recorded and it shall be documented that
   the Informed Consent was obtained by telephone. A sampling plan must be
   adopted that verifies that recordings match the content in the written Informed
Co does not contain.

D3.400

3) **using a facsimile transmission**, a copy of the Informed Consent Record is provided to the Living Donor or Client Depositor. The Living Donor or Client Depositor shall return the signed Informed Consent Record by facsimile transmission. A Donation Coordinator shall be available to respond to questions posed by the Living Donor or Client Depositor.

A sampling plan must be adopted that verifies signatures received by facsimile. This verification must be performed by someone other than the Donation Coordinator or Witness.

4) **using an electronic transmission**, a copy of the Informed Consent Record is provided to the Living Donor or Client Depositor. The Living Donor or Client Depositor shall electronically respond (e.g., by e-mail) that he/she has read the Informed Consent Record, and is granting such Informed Consent. A Donation Coordinator shall be available to respond to questions posed by the Living Donor or Client Depositor.

An Informed Consent Record received by electronic transmission should be verified pursuant to the relevant law on electronic signatures, such as the Uniform Electronic Transactions Act, of the relevant state. An electronically transmitted, read-only or otherwise protected Informed Consent Record may be used.

**D3.400 Core Elements for Informed Consent**

No Informed Consent from a Living Donor or a Client Depositor shall be acted upon if it does not contain the following Core Elements.

**Core Elements:**

1) the name of the Living Donor or Client Depositor; or

2) the identity of the person authorized by law to consent on behalf of the Living Donor or Client Depositor and his/her relationship to the subject including name, address, and telephone number;

3) if applicable, an explanation that the tissue is a gift, and that the Living Donor will not receive monetary compensation or valuable consideration for it;

4) a description of the general types of tissue to be Recovered or Collected, and any information pertinent to the specific Recovery or Collection contemplated;

5) a description of the permitted use(s) of the tissues (i.e., transplant, therapy, research, or education);

6) a description of the general purposes for which the tissue may be used;

7) a legally adequate release of the Living Donor’s or Client Depositor’s relevant medical records;
8) permission to test for disease, if applicable;

9) a statement that confirmed positive test results will be reported or disclosed if required by law or regulation (e.g., to the Living Donor or Client Depositor, to the attending physician, to appropriate health officials);

10) contact information for the organization represented by the Donation Coordinator;

11) information concerning possible risks and benefits to the Living Donor or Client Depositor, if applicable; and

12) any additional information required by laws or regulations.

(R) In the case of a Client Depositor the Informed Consent Record shall also include details about costs of tissue cryopreservation, storage, distribution and disposition options.

In the case of an Anonymous Donor, the Informed Consent Record shall also include details about monetary compensation. See Standard D1.100.

D4.000 DONOR SUITABILITY

D4.100 General

Donor suitability criteria shall be established by the Medical Director and shall not conflict with these Standards. Each donor shall be evaluated according to established criteria. The suitability of each donor shall be determined by the Medical Director or licensed physician designee upon review of all records as specified in F1.100 and in accordance with the SOPM.

(A) Donor suitability criteria shall be established and documented by a licensed physician caring for the patient-donor. It is not necessary to document a Physical Examination, a Donor Risk Assessment Interview, or medical history and medical record review for autologous tissue in the tissue bank records.

(LD) Criteria for accepting Living Donors shall be established by the Medical Director or licensed physician designee.

(S) Potential donors shall be evaluated on an individual basis by chart review and visual assessment for size, current medical status, and skin condition.

(C) Heart donors shall also meet the following criteria:

1) Recovery of a heart from an anencephalic infant shall begin only after Asystole;

2) In the case of suspected Sudden Infant Death Syndrome (SIDS), an autopsy should be performed and results reviewed to confirm the cause of death; and

3) Heart valve donors shall be evaluated for the risk of Chagas’ disease.

(R) Criteria for accepting Client Depositors and potential reproductive cell and tissue donors shall be established by the Medical Director or licensed physician designee.
Prior to the Recovery of tissue from a potential deceased donor, a Physical Assessment shall be performed by a Responsible Person. This shall be a recent ante-mortem or postmortem Physical Assessment to identify evidence of: high risk behavior and signs of HIV infection or hepatitis infection; other viral or bacterial infections; or, trauma to the potential Recovery sites. If any of the following signs are observed or noted in any other available record, and are deemed to be an indication of these risks, then the tissue shall be rejected:

Note: Each risk type is followed by observational wording in parentheses suggestive of terminology that correlates with each listing (see AATB’s Guidance Document No. 1, Tissue Donor Physical Assessment Form).

1) Physical evidence for risk of sexually transmitted diseases such as genital ulcerative disease, herpes simplex, chancroid (genital lesions);

2) Physical evidence for risk of, or evidence of, syphilis (genital lesions, rash, skin lesion [non-genital]);

3) For a male donor, physical evidence consistent with anal intercourse including perianal condyloma (insertion trauma, perianal lesions);

4) Physical evidence of non-medical percutaneous drug use such as needle tracks (and/or non-medical injection sites), including examination of tattoos (which may be covering needle tracks);

5) Disseminated lymphadenopathy (enlarged lymph nodes);

6) Unexplained oral thrush (white spots in the mouth);

7) Blue or purple spots consistent with Kaposi’s sarcoma (blue/purple [gray/black] spots/lesions);

8) Physical evidence of recent tattooing, ear piercing, or body piercing (tattoos/piercings should be described);

9) Unexplained jaundice, hepatomegaly, or icterus. Note: Hepatomegaly may not be apparent in a Physical Assessment unless an autopsy is performed (enlarged liver, jaundice, icterus);

10) Physical evidence of sepsis, such as unexplained generalized rash/generalized petechiae, or fever (rash);

11) Large scab consistent with recent smallpox immunization (scab);

12) Eczema vaccinatum (lesion, scab);

13) Generalized vesicular rash, generalized vaccinia (rash);

14) Severely necrotic lesion consistent with vaccinia necrosum (lesion); and/or
15) Corneal scarring consistent with vaccinial keratitis (abnormal ocular finding, scarring).

Specific documentation methods (a form) and a standard operating procedure for performing a tissue donor Physical Assessment can be found by referencing AATB Guidance Document No. 1. This method, or an equivalent method, shall be implemented.

(S) The Physical Assessment shall include documentation of findings and conditions that may affect the Quality or quantity of skin recovered.

**D4.211 Physical Examination**

(LD) Except for autologous and embryo donations, prior to the donation of tissue from a potential Living Donor, a Physical Examination shall be performed by the Medical Director or physician designee, or by a physician involved with the individual’s medical care, or designee as permitted by law. If an examination of a Living Donor was performed for other reasons, review of the findings of such an examination shall be performed and documented in the donor’s record, as well as all other examination findings. After a Donor Risk Assessment Interview is completed, if any history is suspect, a directed Physical Examination shall be performed. The directed examination shall include any of the above applicable items (see D4.210) that would assist with information to determine whether there is evidence of high risk behavior. The Physical Examination should be used to determine overall general health of the donor.

(R) A Physical Examination must be performed on all anonymous and directed Semen and Oocyte Donors. A repeat Physical Examination shall be performed on anonymous Semen Donors at least every 6 months (180 days) while the donor is actively collecting samples in the program.

**D4.220 Donor Risk Assessment**

An inquiry, shall be conducted with the donor (if living) or the deceased donor’s next of kin, the nearest available relative, a member of the donor’s household, other individual with an affinity relationship (caretaker, friend, significant life partner) and/or the primary treating physician), using a standardized questionnaire. Questions shall be formulated using these Standards, current federal regulations and guidance.

Questions shall be included that evaluate past medical history for conditions that could constitute a contraindication to the release of tissue for transplantation (e.g., certain infectious diseases, malignancies, and degenerative neurologic disorders), as defined in these Standards (see Appendix II).

The inquiry record shall document the donor’s name, and the relationship between the donor and the interviewee(s) and shall indicate the name(s) of the interviewer(s) and interviewee(s). The questionnaire shall be maintained as part of the donor’s record.

(R) The donor’s risk assessment shall include a review of personal alcohol and
drug use and sexually transmissible diseases in the donor and partner(s). The screening process also
shall include any history of chemical and/or radiation exposure as well as family medical history and genetic
background. An abbreviated donor screening must be obtained at each repeat donation and reviewed by a Responsible Person. The abbreviated screening must determine and document any changes in the donor’s medical, social, and sexual history (including risk factors) since the previous donation that would make the donor ineligible.

D4.221 (R) Family History and Genetic Background

A minimum of a three-generation family history shall be elicited from each prospective donor. The genetic history should be evaluated by an individual with appropriate clinical genetics education and/or training. Any condition in a prospective donor or donor’s family history that would pose a risk of producing an offspring with a genetic disease or defect greater than the risk in the general population shall disqualify him/her as a donor, with the following exceptions:

1) Donors whose family history indicates that he/she is at risk for carrying a genetic defect may be accepted only if a test to detect carrier status is performed and is negative for the mutation; or

2) Family members selected as Directed Donors by the prospective donor and Recipient.

If indicated by medical history, family history, or ethnic background, donors should be screened for Tay-Sachs disease, thalassemia, sickle cell trait, and/or cystic fibrosis.

D4.230 Relevant Medical Records Review

Prior to tissue donation, a preliminary review of readily available Relevant Medical Records shall be conducted by a trained individual.

Prior to release of tissue for transplantation, the Medical Director or licensed physician designee shall determine donor suitability. If the donor’s death did not occur in a hospital, or when no Third Party Records are available that can be used to establish a likely cause of death, and if no autopsy was performed, a Certified Copy of the death certificate must be included in the donor record. The Medical Director or licensed physician designee shall determine donor suitability based on a review and evaluation of the donor’s Relevant Medical Records or a summary of these generated by a trained individual. The determination of suitability shall be based on the SOPM, these Standards and applicable laws and regulations.

D4.240 Donor Autopsy Report

If an autopsy was performed, the tissue bank’s Medical Director or licensed physician designee shall review the autopsy report or a summary of findings prior to the release of tissue to inventory. If a copy of the autopsy report is not available for the donor’s record, the cause of death and other pertinent autopsy findings shall be documented in the donor’s record. If it is determined that an autopsy was not performed due to infectious disease risk or, if an autopsy was performed, if any special precautions were taken that would suggest risk of a communicable disease in the donor, this information should be considered.
D4.300 Disease Screening

(A) The tissue bank shall have a policy for obtaining information from the patient’s physician as to whether the patient/donor is at high risk for hepatitis or HIV infection.

D4.310 Infections

The Medical Director or licensed physician designee shall not release allogeneic tissue for transplantation from donors who exhibit any of the following findings:

1) Evidence, detected by review of Relevant Medical Records, of significant active infection at the time of donation for Relevant Communicable Disease Agents or Diseases (RCDADs). These include, but are not limited to: septicemia, viral disease (e.g., HIV, viral hepatitis, WNV, rabies, etc.), human transmissible spongiform encephalopathies, untreated syphilis, clinically active tuberculosis, leprosy (Hansen’s disease), or systemic mycosis; and/or

2) Risk factors for Relevant Communicable Disease Agents and Diseases (RCDADs) as specified in Appendix II.

(A) Except for skin, autologous donation should not be undertaken when the donor-patient has, or is being treated for, bacteraemia or other significant bacterial infection that can be associated with bacteraemia, unless such tissue will be secondarily Sterilized prior to transplantation or treated in such a manner to minimize microbial contamination.

(R) Semen Donors shall not exhibit an infectious skin disease that creates a risk of contamination of the Semen. For all reproductive donors, there shall not be evidence of infection within the past twelve months with Chlamydia trachomatis and/or Neisseria gonorrhoea unless the reproductive tissues are recovered by a method that ensures freedom from contamination of the cells or tissue by infectious disease organisms that may be present in the genitourinary tract.

(DM) After the Dura Mater has been recovered, a qualified pathologist shall perform an examination of the donor’s brain. Following fresh examination, the brain should be fixed and sliced, gross examination of the entire brain should be conducted (including multiple cross sections), and multiple specimens of tissue should be obtained (from different parts of the brain, e.g., frontal and occipital lobes) for histological examination. The gross and histologic findings must be assessed for any evidence suggestive of transmissible spongiform encephalopathy (TSE).

D4.320 Miscellaneous Adverse Conditions

Tissue from donors with any of the following conditions shall be evaluated by the Medical Director for suitability for transplantation in accordance with the tissue bank’s SOPM:

1) History of autoimmune diseases; or

2) Ingestion of, or exposure to, toxic substances.
In addition to the general exclusion criteria, the following medical conditions shall also preclude musculoskeletal tissue donation:

1) Rheumatoid arthritis;
2) Systemic lupus erythematosus;
3) Polyarteritis nodosa;
4) Sarcoidosis; and
5) Clinically significant metabolic bone disease.

Heart donors shall also meet the following criteria:

1) There shall be no history of bacterial endocarditis, rheumatic fever, or a cardiomyopathy of viral or idiopathic etiology;
2) Any history of previous cardiac surgery (i.e., CABG), semilunar valvular disease, closed chest massage (CPR), cardiac defibrillations, penetrating cardiac injury, or other potentially deleterious cardiac intervention shall be evaluated on a case-by-case basis; and
3) Mitral valve donors shall not have a history of mitral valve disease, including mitral valve prolapse.

Vascular donors shall also meet the following criteria:

1) Veins—There shall be no history of vein stripping, varicose veins, or evidence of venous insufficiency;
2) Arteries—There shall be no known (reported) history of peripheral vascular disease or systemic vasculitis; and
3) Trauma shall be evaluated on a case-by-case basis for any vascular tissue recovery.

D4.330 Risk Factors

Tissue shall not be distributed from donors, including maternal donors of Fetal Tissue or neonatal tissue, who have engaged in behaviors defined as high risk for transmission of Relevant Communicable Disease Agents or Diseases (RCDADs). See Appendix II. This information shall be obtained via a Donor Risk Assessment Interview, Physical Assessment/Physical Examination, and by review of other available Relevant Medical Records.

D4.340 Malignancies

Donors with current or prior diagnosis of malignancy shall be evaluated by the Medical Director or licensed physician designee for suitability in accordance with the tissue bank’s SOPM. The evaluation shall include: the type of malignancy, clinical course, and treatment prior to acceptance of a donor. The evaluation and reasons for acceptance shall be documented in the donor’s record.
D4.350 Blood Tests

D4.351 Specimens

Except as otherwise specified in tissue-specific standards, infectious disease testing of donor blood specimens shall be performed for each tissue donor (including maternal donors of Fetal Tissue or neonatal tissue), on a specimen collected at the time of donation or within seven days prior to or after donation. If the donor is one month (28 days) of age or less, a blood specimen from the birth mother must be collected within seven days prior to or after tissue donation and tested instead of a specimen from the donor. There shall be written procedures for all significant steps in the infectious disease testing process, including collection, documentation of the verification of specimen labeling, and use of appropriate blood specimen types, labels, and instructions for specimen handling. Procedures shall conform to the test kit manufacturer’s instructions for use contained in the package inserts. Specimen collection, storage, and handling procedures shall be described in the SOPM.

(R) For oocytes, the donor blood specimen must be collected within 30 days prior to oocyte retrieval, or within 7 days post donation. For repeat Semen Donor requirements, see D4.360 Repeat Testing of Living Donors (R).

D4.352 Plasma Dilution

Tissue from a donor who is older than 12 years of age shall be determined to be not suitable for transplantation if blood loss is known or suspected to have occurred and there has been transfusion/infusion of more than 2,000 milliliters (mls) of blood (e.g., whole blood, or red blood cells) or Colloids within 48 hours; or more than 2,000 mls of Crystalloids within one hour; or any combination thereof, prior to Asystole or the collection of a blood specimen, whichever occurred earlier, unless:

1) a pre-transfusion or pre-infusion blood specimen from the tissue donor is available for infectious disease testing; or

2) an algorithm is utilized that evaluates the volumes administered in the 48 hours prior to collecting the blood specimen from the tissue donor to ensure that there has not been Plasma Dilution sufficient to affect test results.

Tissue from a donor who is 12 years of age or less who has been transfused or infused at all, shall be determined to be not suitable for transplantation unless a pre-transfusion or pre-infusion blood specimen from the tissue donor is available for infectious disease testing, or an algorithm is utilized that evaluates the volumes administered in the 48 hours prior to collecting the blood specimen from the tissue donor to ensure that there has not been Plasma Dilution sufficient to affect test results.

When the fluids transfused are in the “blood” category (alone, or in combination with Colloids and/or Crystalloids), a comparison of the total volume of these fluids with the donor’s estimated blood volume shall be performed, in addition to a comparison of the total volume of Colloids
and/or Crystalloids with the donor’s estimated plasma volume. Since every possible clinical situation cannot be described where Plasma Dilution may affect test results, the SOPM should describe how to address additional circumstances when Plasma Dilution may have occurred (e.g., large volumes of transfusions/ infusions administered in the absence of blood loss). It may be necessary to use a pre-transfusion/infusion blood specimen or apply an algorithm in those instances.

Alternative algorithms to evaluate plasma dilution can be used if justified.

**D4.353 Infectious Disease Testing**

Results of initial infectious disease and/or confirmatory testing shall be used as one component of determining donor suitability. Testing used for donor suitability shall be performed by laboratories that are registered with FDA as a tissue establishment for testing and are either certified to perform such testing on human specimens in accordance with Clinical Laboratory Improvement Amendments of 1988 (42 U.S.C. 263a) and 42 CFR part 493, or that have met equivalent requirements as determined by the Centers for Medicare and Medicaid Services.

NOTE: For international members that do not export tissues to the U.S., applicable requirements of the government/competent authority having jurisdiction apply regarding establishment registration, laboratory certification, and test kit licensing/approval.

FDA-licensed, approved, or cleared donor screening tests must be used, except:

1) for syphilis testing, treponemal-specific or non-treponemal donor screening tests OR diagnostic tests may be used, but both types must be FDA-licensed, cleared, or approved; and

2) when testing for chlamydia or gonorrhea, an FDA-licensed, cleared or approved diagnostic test must be used.

A new test shall be implemented when AATB and/or FDA issues notification to that effect. Prior to that time, use of the new test, even if FDA-licensed, approved, or cleared for donor screening specimens, is voluntary. Tests specifically labeled for cadaveric specimens instead of a more generally labeled test shall be used when applicable and when available.*

A list of donor screening tests that have been licensed for use with specimens collected after the donor’s heart has stopped beating can be accessed at the FDA/CBER website.

*See AATB Bulletin No. 06-45 “Intent of Update to Standard D4.353.”

If a laboratory that performs organ donor testing performs the initial testing in duplicate or triplicate, the Tissue Bank must obtain and review the results of all individual tests performed. Individual test results shall be shared in accordance with B1.510 Written Agreements/Contracts, D4.500 Information Sharing, and K1.100 Basic Elements of a Quality Assurance Program.

All tissue from donors who test repeatedly reactive on a required screening
test shall be *Quarantined* and shall not be used for transplantation. There shall be written procedures for all significant steps in the infectious disease testing process that shall conform to the manufacturer’s instructions for use contained in the package inserts for required tests. These procedures shall be readily available to the personnel in the areas where the procedures are performed unless impractical. The manufacturer’s instructions shall be followed in regard to acceptable donor specimens and their handling. Donor sample testing shall be performed and test results interpreted according to the manufacturer’s instructions in the package insert for the particular infectious disease marker.

Additional testing to confirm or supplement infectious disease test results may be performed at the discretion of the Medical Director using FDA-licensed, confirmatory test kits when commercially available. Results of infectious disease testing shall be evaluated prior to disclosure of positive test results (see Standard D4.356).

**D4.354 Required Infectious Disease Tests**

Excluding autologous tissue, oocytes and embryos, all human tissue intended for transplantation shall be from donors who are tested and found to be negative for:

1) antibodies to the human immunodeficiency virus, type 1 and type 2 (anti-HIV-1 and anti-HIV-2);

2) nucleic acid test (NAT) for HIV-1;

3) hepatitis B surface antigen (HBsAg);

4) total antibodies to hepatitis B core antigen (anti-HBe—total, meaning IgG and IgM);

5) antibodies to the hepatitis C virus (anti-HCV);

6) nucleic acid test (NAT) for HCV; and

7) syphilis (a non-treponemal or treponemal-specific assay may be performed).

Donors of viable leukocyte-rich tissue (e.g., semen, *certain (CT)*) shall also be tested and found to be negative for antibodies to human T-lymphotropic virus type I and type II (anti-HTLV-I and anti-HTLV-II). Note: HTLV testing of donors of other tissue types may be required by law and/or regulation, including, where applicable, foreign laws and/or regulations.

All test results shall be documented in the donor’s record.

(R) In addition to the infectious disease tests listed above, all anonymous and directed *Semen* and *Oocyte Donors* shall undergo testing for *Neisseria gonorrhoea* and *Chlamydia trachomatis*. The manufacturer’s requirements for specimens must be met. If the reproductive tissue is procured by a method that ensures freedom from contamination of the tissue by infectious disease organisms that may be present in the
genitourinary tract, then these tests are not required.

All anonymous and directed Semen Donors shall also be tested for total antibody to cytomegalovirus (anti-CMV—total, meaning IgG and IgM).

All anonymous and directed Oocyte Donors shall be tested for all above listed tests, excluding antibodies to human T-lymphotropic virus type I and type II (anti-HTLV-I and anti-HTLV-II) and total antibody to cytomegalovirus (anti-CMV).

Required tests for anonymous and directed embryo donors are listed in D4.360 Repeat Testing of Living Donors.

Client Depositors who deposit Semen, testicular fluid or tissues, oocytes or ovarian tissue, or embryos, shall be tested prior to use for:

1) antibodies to the human immunodeficiency virus, type 1 and type 2 (anti-HIV-1 and anti-HIV-2);
2) hepatitis B surface antigen (HBsAg); and
3) antibodies to hepatitis C virus (anti-HCV).

All Oocyte Donors must undergo required testing within 30 days prior to egg retrieval, or within 7 days post donation. Samples for infectious disease testing of anonymous and directed Semen Donors must be obtained within 7 days of initial Semen Collection.

D4.355 Interpretation of Infectious Disease Test Results

Disposition of allogeneic tissue shall be based upon the interpretation of all infectious disease test results and shall be as follows:

1) Human tissue shall be determined not to be suitable for transplantation if from a donor whose specimen has tested repeatedly reactive on an FDA-licensed, approved, or cleared donor screening test for anti-HIV-1, anti-HIV-2, HBsAg, anti-HBc, or anti-HCV. When a birth mother’s specimen is used for testing, these same rules apply.

2) Viable leukocyte-rich tissue (e.g., semen) shall be determined not to be suitable for transplantation if from a donor whose specimen has tested repeatedly reactive (RR) on an FDA-licensed, approved, or cleared donor screening test for anti-HTLV-I or anti-HTLV-II.

The suitability of other human tissue for transplantation from donors whose specimens test RR for anti-HTLV-I or anti-HTLV-II shall be determined by the Medical Director.

Note: Law and/or regulation, including, where applicable, foreign laws and/ or regulations, may differ in regard to a RR HTLV antibody test result and how this impacts the suitability of the donor’s tissues for transplantation.
3) Human tissue shall be determined not to be suitable for transplantation if from a donor whose specimen had a final test result of positive, repeat reactive, or repeatedly reactive on a screening test using a NAT assay.
When a birth mother’s specimen is used for testing, these same rules apply.

4) If a laboratory that performs organ donor testing performs the initial testing in duplicate or triplicate, the Tissue Bank must obtain and review the results of all individual tests performed. If any one of those initial tests is reactive or positive, the tissue shall be determined not suitable for transplantation.

5) Tissue from a donor reactive for syphilis using an FDA-licensed, cleared, or approved non-treponemal screening assay may be used for transplantation only if the sample is found to be negative using an FDA-licensed, cleared or approved treponemal-specific confirmatory assay. If initial testing was performed using an FDA-licensed, cleared, or approved treponemal-specific confirmatory assay and was reactive, the tissue shall not be used for transplantation.

6) If results of additional infectious disease testing are received for tests that are not required, such test results must be included in the donor’s medical record and any results from those tests must be considered when determining donor suitability. Procedure(s) shall be established for the interpretation of additional infectious disease test results.

NOTE: For international members that do not export tissues to the U.S., applicable requirements of the government/competent authority regarding test kit licensing/approval apply.

(A) Determination of the final Disposition of tissue in which a donor’s blood sample tests positive is the responsibility of the donor-patient’s licensed physician. If tissue from a donor who tests positive is to be stored in a tissue bank, refer to E4.400 Segregation of Tissue.

(R) Determination of the use of Client Depositor and/or Directed Donor reproductive tissues in cases where required test results are positive or repeatedly reactive must be documented according to protocols described at F2.200 Special Circumstances in Release of Reproductive Tissues (see note for CMV below).

Tissue from an anonymous Semen Donor who tests reactive for an active, acute infection with cytomegalovirus (CMV) shall not be deemed suitable for use. Tissue from an anonymous Semen Donor determined to be in a latent CMV status may be acceptable. Each individual bank shall develop a procedure for determining suitability for both anonymous and Directed Donors. Procedures must also include provisions for communicating CMV status to the end user physician such that a decision can be made regarding use of a CMV positive (total IgG plus IgM) donor.

Tissue from a donor testing positive for chlamydia or gonorrhea shall not be suitable for use.
D4.356 Disclosure and Availability of Positive Infectious Disease Test Results

The donor, if living, shall be provided test results as required by applicable law or regulation. For deceased donors, the Authorizing Person should be contacted regarding the availability of infectious disease test results that may be of medical significance as determined by the Medical Director or licensed physician designee. Contact should include the means by which available test results should be requested. If a Document of Gift was used (i.e., there is no Authorizing Person), contact regarding the availability of infectious disease test results should be made to the person who would have been the Authorizing Person had no gift been made during the life of the Donor, or to the person authorized to make arrangements for final disposition of the body. These records should be provided upon written request as permitted by law or regulation. Positive test results shall be reported to state and/or local health department(s) as required by law or regulation.

Contact regarding availability and/or disclosure of test results shall be documented.

D4.357 Archived Samples

A serum or plasma sample from each donor shall be archived if any sample remains after testing. A policy shall be established to collect and archive serum, plasma, or hematopoietic tissue samples from donors. Samples shall be retained for ten years after the Recovery or Collection date. If a donor is determined to be unsuitable, archived serum, plasma, or hematopoietic tissue samples should still be retained for use for possible unforeseen future investigational purposes (e.g., emerging infectious diseases, medical/legal, blood borne pathogen exposure, etc.).

(DM) Appropriate brain tissue specimens (i.e., formalin-fixed brain tissue, histological sections from examination of brain, donor serum) from each donor of Dura Mater shall be archived under appropriate storage conditions, and for the appropriate duration.

(R) Archived serum or plasma from reproductive donors whose tissue has been stored but subsequently destroyed and never distributed does not require retention.

D4.360 Repeat Testing of Living Donors

(R) All donated Semen from both directed and Anonymous Donors shall be frozen and Quarantined for at least 6 months (180 days). After such time and prior to release of Semen, the donor shall be retested for anti-HIV-1, anti-HIV-2, HBsAg, anti-HBc, anti-HCV, anti-HTLV-I, anti-HTLV-II, and for anti-CMV. Anonymous Donor Semen shall not be made available for use unless results of all tests, excluding CMV and syphilis, are negative or nonreactive. Results of all testing performed must be interpreted as in D4.355. All tests for infectious diseases shall be repeated at least every 6 months while the Semen Donor remains an active participant in the donor program and after any lapse exceeding 6 months.
*Oocyte Donor* tissue is not subject to *Quarantine* and the donor is not subject to repeat testing.

For directed or anonymous donation of embryos created by sexually intimate *Client Depositors*, the embryos shall be *Quarantined* (stored) for at least 6 months from the date of creation. After the 6-month *Quarantine* and prior to release of the embryo(s) for transfer, the sexually intimate *Client Depositor male and female* shall be tested for anti-HIV-1 anti-HIV-2, HBsAg, anti-HBc, anti-HCV, and for HIV-1 NAT, HCV NAT, and syphilis. In addition, the male shall be tested for anti-CMV, anti-HTLV-I, and anti-HTLV-II.

For directed or anonymous donation of embryos created using one anonymous or directed egg or sperm donor, embryos shall be *Quarantined* (stored) for at least 6 months from the date of creation. After such time and prior to release of the embryo(s) for transfer, the *Client Depositor* shall be tested for anti-HIV-1, anti-HIV-2, HBsAg, anti-HBc, anti-HCV, and for HIV-1 NAT, HCV NAT, and syphilis. If the *Client Depositor* is male, he shall also be tested for anti-CMV, anti-HTLV-I, and anti-HTLV-II. A *Summary of Records* must be provided prior to release. If the embryos were acquired from a non-accredited facility and a directed sperm donor was used without a 6-month *Quarantine* and re-test, the directed sperm donor must also be re-tested for anti-HIV-1, anti-HIV-2, HBsAg, anti-HBc, anti-HCV, HIV-1 NAT, HCV NAT, and syphilis in addition to anti-CMV, anti-HTLV-I, and HTLV-II.

For directed or anonymous donation of embryos created using both an anonymous or directed egg and sperm donor, a donor *Summary of Records* must be obtained for both donors. If the embryos were acquired from a non-accredited facility and a directed sperm donor was used without a 6-month *Quarantine* and re-test, the directed sperm donor must be re-tested following a 6-month *Quarantine* for anti-HIV-1, anti-HIV-2, HBsAg, anti-HBc, anti-HCV, HIV-1 NAT, HCV NAT, and syphilis in addition to anti-CMV, anti-HTLV-I and anti-HTLV-II.

**D4.370 Semen Analysis**

**(R)** **Semen Donors:** Prior to enrollment of a donor in the sperm donor program, his *Semen* shall be tested for sperm quality and found acceptable for such parameters as sperm motility, concentration, and post-thaw motility. Donors shall be excluded unless the specimen meets criteria set by the Medical Director and, when appropriate, the Medical Advisory Committee. Criteria for *Directed Donors* may differ from those for *Anonymous Donors*. Sperm quality tests shall be repeated at a frequency determined by the tissue bank.

**Client Depositors:** A *Semen* analysis, that includes sperm concentration and motility, at a minimum, shall be performed. The *Semen Bank* shall make pertinent test results available to the *Client Depositor’s* physician.

**D4.400 Age Criteria**

The Medical Director and/or tissue bank Medical Advisory Committee shall determine age criteria for donor suitability.
There are no age limits for autologous tissue donation.

Semen donors shall be younger than 40 years of age to minimize the risk of genetic anomalies except with the written agreement of the user physician. For Donated embryos, the female (Oocyte) Donor shall be younger than 35 years, unless an exception has been made by the Medical Director with documented agreement of the user physician.

D4.500 Information Sharing

The Tissue Bank that recovers tissues must have a procedure(s) for receiving, investigating, evaluating, and documenting donor information as well as how they will share records with all establishments who are known to have also recovered tissues, or to have received recovered tissues, from the same donor:

1) Record sharing should occur as new information is received and this must be documented and included in the records.

2) Relevant records that could affect suitability determinations must be sent without delay to tissue banks that will determine donor suitability of recovered tissues and/or the donor.

3) The Tissue Bank that recovers tissue must share tissue recovery culture (Pre-sterilization/ Pre-Disinfection Culture) information with all tissue banks to which tissue from shared donors was sent. If defined in a written agreement, an eye bank can choose not to receive Pre-sterilization/Pre-Disinfection Culture results.

4) If any tissue bank determines a donor to be unsuitable, this determination must be communicated in writing to the Tissue Bank that recovered tissues, and the Tissue Bank that recovered tissues must share this information with all establishments that are known to have recovered tissues, or to have received recovered tissues, from the same donor.

Written procedures must describe how this information is received, evaluated, and disseminated in a timely fashion.

Any tissue testing performed after it has been decontaminated/disinfected or subjected to processing (e.g., in-process testing, post-processing microbiological testing, final cultures, graft suitability tests) is not considered relevant donor records for the Tissue Bank that recovered tissues and, if such results are reported, would not be expected to be shared with tissue banks who received recovered tissues from a shared donor.

D5.000 RECOVERY AND COLLECTION POLICIES AND PROCEDURES

Policies and procedures shall be established for the Recovery or Collection of tissue in accordance with Standards. Reagents, supplies, materials, and equipment shall be of appropriate grade for intended use, and approval for use shall be documented. All tissue must be uniquely identified and traceable to the donor from recovery or collection through transport and receipt at the processing or storage facility. The environment in which tissue can be obtained, and techniques that should be used, shall be specified. Recovery, Collection and Preservation shall occur within a time interval appropriate for retention of biological functions and shall be compatible with intended use of the tissue. Detailed records of the tissue donation shall be maintained that include information regarding relevant packaging, transportation, and donor reconstruction steps.
D5.100 Reagents, Supplies, Materials, and Equipment

All Critical supplies, reagents, materials, and equipment approved for use for Recovery or Collection shall be identified and specifications (e.g., Sterile where applicable) documented. A record shall be made of all reagents, supplies, and materials following receipt including, as applicable, the type, quantity, manufacturer, Lot number, date of receipt, and expiration date or manufacturing date (as applicable). Inspection shall be documented, including identification of the staff performing the inspection. The tissue bank shall maintain records of all supplies, reagents, materials, and equipment from receipt through period of time used.

All non-disposable surgical instruments and parts of mechanical/electrical equipment which come in contact with tissue shall be properly cleaned, disinfected, and Sterilized prior to use for Recovery or Collection according to written procedures prepared to prevent contamination or Cross-Contamination. Records shall be maintained that document sterilization steps. All reagents, supplies, and materials shall be used and stored in accordance with manufacturers’ instructions.

D5.110 Stock Rotation

Reagents, supplies, and materials with expiration dates or production dates shall be stored in a manner to facilitate inventory rotation. Items not bearing an expiration or production date shall be labeled with the date of acquisition and stored in a manner to facilitate inventory rotation. Older items should be used first and not used if expired or quality has been compromised.

D5.200 Donor Identification

Each donor shall be assigned a unique donor identifier to facilitate tracing of the tissue from the donor and to final Disposition of each tissue.

D5.210 Verification Procedures

D5.211 Confirmation

Prior to Recovery or Collection, staff shall confirm that in the case of a deceased donor, Authorization for donation has been obtained and documented in a Document of Gift/Authorization, and in the case of a Living Donor, Informed Consent has been obtained and documented. If Informed Consent was not obtained prior to Recovery, confirmation must occur as soon as practical after Recovery and before use of the tissue.

D5.212 Donor Identity

Prior to initiation of tissue Recovery or Collection procedures, at least one staff member shall verify the potential donor’s identification with the donor’s name as stated on the Informed Consent Record or Document of Gift/Authorization. Donor identity Verification shall be documented in the donor record prior to tissue Recovery or Collection. Records shall indicate the staff member(s) involved and include the source of the Verification information (e.g., hospital wristband, medical examiner number, driver’s license, government issued identification with photograph).

(A) Identification of the donor shall be the responsibility of the hospital staff involved with the Autograft Recovery.
D5.300 Tissue Recovery and Collection — General

D5.310 Recovery

Recovery shall be performed using aseptic or clean techniques appropriate to the specific tissue recovered and intended use of the tissue. The SOPM shall specify the time limits for the postmortem Recovery of tissue consistent with tissue-specific standards, where applicable. If Recovery is to be delayed for a deceased donor, the body should be refrigerated/cooled as specified in the tissue-specific standards. To prevent cross-contamination or mix-ups, Recovery from one donor shall be the exclusive activity taking place at one time at a Recovery Site. Other activities (e.g., embalming, autopsy, another tissue donor recovery) cannot occur simultaneously in the same room as Recovery. Tissue recovery shall not occur after embalming procedures have begun (i.e., injection of embalming fluid, application of drying agents either internally or topically).

(LD) Methods for Recovery of perioperative tissue shall be safe, aseptic, and ensure accurate identification of tissue.

D5.320 Collection

(R) Collection of donor Reproductive Tissue shall be made at the Reproductive Tissue Bank using a sterile collection container. The collection container shall be labeled with the date of Collection and the donor’s identification or, in the case of Client Depositors, the name. The time of Collection shall also be recorded. If the tissue requires transportation to the Processing laboratory, it should be transported within a reasonable time period as specified in the SOPM, so as to maintain the utility of the tissue.

D5.400 Time Limits for Postmortem Tissue Recovery

When Recovery of tissue has begun, subsequent recovery steps must proceed without delay.

(C, V) Cardiac and vascular tissue Recovery and Processing time limits (i.e., Warm and Cold Ischemic Times, Disinfection Times, and the Perfusion Time [specific to vascular tissues]) shall be established by each individual tissue bank; however, the following upper time limits for initiation of Recovery of specific tissue types shall not be exceeded.

(C) Warm Ischemic Time (C) shall not exceed 24 hours from Asystole if the body was cooled (e.g., application of sufficient amounts of wet ice or a cooling blanket, cold weather conditions) or refrigerated within 12 hours of Asystole. The time limit shall not exceed 15 hours if the body was not cooled or refrigerated. If the body is cooled for a period of time then not cooled for a period of time, the time period the body is not cooled cannot exceed 15 cumulative hours.

(V) 1) Perfusion Time shall not exceed 12 hours from Asystole; and

2) Warm Ischemic Time (V) shall not exceed 24 hours from Asystole if the body was cooled (e.g., application of sufficient amounts of wet ice or a cooling blanket, cold weather conditions) or refrigerated within 12 hours of Asystole. The time limit shall not exceed 15 hours if the body was not cooled or refrigerated. If the
body is cooled for a period of time then not cooled for a period of time, the time period the body is not cooled cannot exceed 15 cumulative hours.

(MS, OA, S)
The Skin Prep shall begin within 24 hours of Asystole provided the body was cooled (e.g., application of sufficient amounts of wet ice or a cooling blanket, cold weather conditions) or refrigerated within 12 hours of Asystole. The Skin Prep shall begin within 15 hours of death if the deceased donor has not been cooled or refrigerated. If the body is cooled for a period of time then not cooled for a period of time, the time period the body is not cooled cannot exceed 15 cumulative hours.

For expectations when evaluating body cooling, refer to Guidance Document No. 7.

**D5.500 Recovery Environment**

All tissue shall be recovered in an aseptic or clean fashion using standard surgical preparation with Sterile packs, instrumentation, and technique. Prior to recovery, the Recovery Site must be evaluated for suitability using pre-established criteria designed to control contamination and cross-contamination (see AATB Guidance Document No. 2). The Recovery Site evaluation must be documented.

**D5.501 Recovery Site Suitability Parameters**

These must address the control of:

1) size/space;
2) lighting;
3) plumbing and drainage for the intended use;
4) the physical state of the facility (i.e., state of repair);
5) ventilation;
6) cleanliness of room and furniture surfaces;
7) pests;
8) traffic;
9) location;
10) other activities occurring simultaneously;
11) sources of contamination; and
12) the ability to appropriately dispose of biohazardous waste and handle contaminated equipment.

**D5.510 Recovery Cleansing and Preparation**

Environment:
An evaluation of the Recovery Site must be performed to identify potential sources
of contamination (see AATB Guidance Document No. 2). All working surfaces (e.g., back table, Mayo stand, recovery table) used during Recovery must be disinfected using a bactericidal/antimicrobial agent. All cleansing and disinfecting events performed by tissue bank personnel shall be documented. For guidance, refer to AORN’s Recommended Practices for Environmental Cleaning in the Surgical Practice Setting (current edition).

Technician:
Technician gowning, gloving, and movement shall be accomplished with the same diligence as used routinely for operative procedures. Aseptic technique shall be followed. For guidance, refer to AORN’s Recommended Practices for Maintaining a Sterile Field (current edition). Persons performing the surgical Recovery shall perform a surgical scrub or wash of their hands and forearms prior to Recovery. For guidance, refer to AORN’s Recommended Practices for Surgical Hand Antisepsis/Hand Scrubs (current edition). A head cover, eye shields and mask shall be worn at the time of scrub, and a Sterile gown and gloves shall be donned after the scrub/wash. For guidance, refer to AORN’s Recommended Practices for Surgical Attire (current edition).

Donor:
Cleansing, preparing (i.e., Skin Prep), and draping the skin shall be accomplished with the same diligence as used routinely for operative procedures. Agents used shall be antimicrobial skin preparation products, as specified in the SOPM, and shall be used in accordance with manufacturers’ guidelines/instructions. For guidance, refer to AORN’s Recommended Practices for Preoperative Patient Skin Antisepsis (current edition).

D5.520 Recovery Technique
Specific tissue Recovery operations that control contamination and Cross-Contamination (e.g., sequencing of the tissue Recovery, use of well-defined zone recovery techniques, and isolation draping in the presence of trauma; see AATB Guidance Document No. 2) shall be implemented. Areas of skin that have abrasions or puncture wounds should be avoided. All tissue shall be recovered using aseptic technique.

D5.521 Cultures Obtained at Recovery

(MS, OA, S, SB)
If performed, the technique used to obtain cultures of recovered tissues shall be appropriate for the tissue type, and performed according to written instructions. See K2.210 Pre-Sterilization/Pre-Disinfection Cultures.

D5.600 Recovery Records

For tissue other than autologous tissue, details of the tissue donation shall be documented in the Recovery record. Recovery records shall include, but not be limited to:

1) Name, and address of the Recovery agency;

2) Date, time and staff involved in all significant steps performed during the Recovery (documentation shall be as per C1.100 General—Records Management);
3) Location and assessment of the suitability of the Recovery Site;

4) Documentation of the Physical Assessment or Physical Examination;

5) Documentation of any Errors, Accidents, or Deviations that occurred;

6) Donor name, age, and sex;

7) The type, Lot number, manufacturer, and expiration date of Critical reagents, supplies and materials, and the identification of equipment, used to recover, rinse, and/or transport tissue; and

8) Specific tissue recovered; and

9) Other available Relevant Medical Records.

The tissue bank or agency recovering the tissue shall provide a record of the tissue recovered, date of Recovery, name and address of the Recovery agency, and name of the donor to the Recovery Site facility.

(A) The following information regarding autologous tissue Recovery shall be documented:

1) Name and address of the institution in which the Autograft was recovered;

2) Date and time the Autograft was recovered;

3) Name of the physician recovering the Autograft;

4) Donor name, age, sex, and hospital medical record number and/or social security number; and

5) Type of tissue recovered.

D5.700 Post-Recovery Labeling and Handling

Immediately following Recovery of each individual tissue at the Recovery Site, recovered tissue shall be individually and aseptically wrapped or enclosed and shall be immediately labeled with the unique donor identifier and the description according to the SOPM (see G1.100). Tissue shall be maintained at defined environmental temperatures until the time of transport to the Processing center. Maintenance of such temperatures shall be documented.

(A) Immediately following Recovery of the Autograft, the tissue shall be individually and aseptically wrapped in a manner to prevent contamination of the contents, preserve cellular structure and viability, if desired, and to allow for aseptic delivery of the specimen at time of Processing, if necessary, or reimplantation. The receptacle shall be labeled immediately with the donor’s name, age, sex, hospital medical record number and/or social security number, and institution name, and shall be prominently labeled “FOR AUTOLOGOUS USE ONLY.”

(C) Recovered cardiac tissue shall be rinsed and packaged in an isotonic, Sterile solution such as normal saline, lactated Ringer’s solution, PlasmaLyte®, transplant organ perfusate (e.g., Belzer’s UW solution, Collin’s solution) or tissue culture media, immediately following Recovery. The volume of the transport solution should be adequate to cover the entire heart, including the vessels and valves. The type, Lot number, manufacturer, and expiration date shall be documented. The transport
container should be fluid tight, designed to prevent contamination of the contents, and allow for aseptic delivery of the specimen at the time of Processing.

(V) Immediately following Recovery, vascular tissue shall be gently flushed and packaged in an isotonic Sterile solution such as tissue culture media. Normal saline solution should not be used. The type, Lot number, manufacturer, and expiration date of all reagents used for Recovery and packaging shall be documented. The transport container should be fluid tight, designed to prevent contamination of the contents, and allow for aseptic delivery of the specimen at the time of Processing.

(S) Recovered skin tissue shall be packaged in a Sterile solution immediately following Recovery or packaged by another method that maintains the integrity of the tissue for its intended use (e.g., decellularized dermis). If in solution, the volume of transport solution must be adequate to cover the entire skin. The type, Lot number, manufacturer, and expiration date(s) shall be documented. If in solution, the transport container must be fluid tight and designed to prevent contamination of the contents.

D5.800 Transportation Following Recovery

Following Recovery, tissue shall be transported in a manner that permits required environmental conditions to be maintained for the duration of transportation. Transportation temperatures do not require monitoring if the packaging and transport conditions have been validated to maintain the required environmental conditions, including temperatures. The transportation receptacle containing tissue must indicate that “DONATED HUMAN TISSUE” is enclosed as well as include the name and address of the Recovery agency and Processing center (if different) in accordance with applicable laws and regulations. All human tissue processed or shipped prior to determination of donor suitability must be under Quarantine, accompanied by records assuring identification of the donor and indicating that the tissue has not been determined to be suitable for transplantation (e.g., “Quarantine”; “Donor Eligibility Has Not Been Completed”; and “Not Suitable for Transplant in its Current Form”).

(A) Autologous tissue shall be transported to the Processing/storage center on wet ice in the time limits appropriate for the particular tissue.

(LD, CT) When Wet Ice Temperatures would be injurious to the tissue recovered, it may be transported at appropriate temperatures and within time limits that maintain the integrity of the tissue for its intended use.

(C, V) The transport container shall be transported at Wet Ice Temperatures. Time of acceptance of the tissue into the Processing center shall be documented. Cardiac and vascular tissues shall be received at the Processing location within sufficient time following Recovery to allow for the start of Disinfection within the established Cold Ischemic Time limit.

(MS) The recovered tissue shall be wrapped in an aseptic fashion with at least one moisture barrier and shall be transported at Wet Ice Temperatures or colder. The maximum time that recovered tissue shall remain at Wet Ice Temperatures, prior to either Processing or freezing, shall be no longer than 72 hours.

(OA) The recovered tissue shall be transported at Wet Ice Temperatures. The maximum time that recovered tissue shall remain at Wet Ice Temperatures prior to Processing shall be no longer than five days.
If the tissue is to be cryopreserved, the skin transportation container shall be transported at *Wet Ice Temperatures* or packaged by another method that maintains the integrity of the tissue for its intended use.

**D5.900 Post-Recovery Reconstruction of a Deceased Donor**

Unless there is a specific request from a medical examiner, pathologist, or a funeral home, the surgical incision(s) shall be closed in an aesthetic fashion and the body prepared for the next portion of the *Recovery* or for transportation to an appropriate facility. The body shall be reconstructed in accordance with the *SOPM*. Donor reconstruction should employ techniques consistent with funeral home guidelines and/or medical examiner or pathologist requests. Documentation of donor reconstruction (if applicable) and disposition of the body shall be maintained in the donor’s record.
SECTION E
PROCESSING, PRESERVATION, QUARANTINE, AND STORAGE

Words that are defined in A2.000 Definitions of Terms appear in italics and are capitalized (e.g., *Audit*). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these *Standards*.

**E1.000 PROCESSING, PRESERVATION, QUARANTINE, AND STORAGE—GENERAL**

*Processing* and *Preservation* methods shall be established in accordance with *Standards* and applicable laws and regulations. All tissue shall be processed, preserved, *Quarantined*, and/or stored pursuant to such methods so as to render them suitable for clinical use.

(A) If autologous tissue is not to be processed, it should be retained in its original wrapping. (C, V) *Processing* shall include a *Disinfection* period followed by rinsing, packaging, and *Preservation*.

**E1.010 Receipt of Tissue at Processing/Storage Facility**

Approval or rejection of the receipt of tissue into the processing or storage facility must be documented. The receipt and movement into storage, to immediate processing or to removal, shall be documented, including, at a minimum:

1) the condition of the transport *Package*;

2) confirmation each tissue is labeled with a *Tissue Identification Number*, or other traceable unique identifier;

3) evidence proper environmental conditions were maintained (e.g., presence/absence of ice/ coolant);

4) the date and time of receipt and movement; and

5) personnel involved.

**E1.020 Processing Environment**

(A) If *Processing* of autologous tissue is required, it shall occur in a bacteriologically and climate-controlled environment utilizing aseptic technique.

(C, V, CT) *Processing*, which includes dissection, *Disinfection* and packaging of *cellular*, cardiac and vascular tissues, shall be performed in a certified and qualified ISO 5 (Grade A, Class 100) or cleaner laminar flow environment. Tissue shall be processed in an aseptic fashion using *Sterile* drapes, packs, solutions, instruments, and packaging material.

(MS, OA) Tissue shall be processed in a bacteriologically and climate-controlled environment.
(S) Processing of exposed skin shall be performed in a bacteriologically and climate-controlled environment.

E1.030 Processing Methods

Tissue shall be processed by methods known to be validated to prevent contamination and Cross-Contamination.

E1.031 Documentation of Tissue Condition

(C, V) A detailed description of the condition of the Allograft shall be recorded in the permanent donor Processing records. Records shall be made of any observed tissue abnormalities and/or imperfections.

E1.032 Temperature Limits

(C) To prevent additional warm ischemia and potential cellular or matrix damage caused by temperature cycling, methods shall be employed that maintain the tissue and solutions during heart dissection above freezing (0°C) to 10°C. Methods/equipment shall be qualified to maintain the appropriate temperatures.

(V) Methods shall be employed that maintain the tissue at desired Processing temperatures as required by reagents used and as described in written procedures.

(S) If additional warm ischemia and potential cellular or matrix damage caused by temperature cycling impact integrity for intended use (e.g., cryopreserved), methods shall be employed that maintain the tissue or solutions above 10°C for no longer than 2 hours. The methods/equipment shall be qualified to maintain the appropriate temperatures.

E1.033 Time Limits for Processing and Preservation Phases

Time limits and/or other valid process-control end points or limits for the completion of each phase of Processing and Preservation shall be established.

(C, V) Disinfection of cardiac and vascular tissue shall be accomplished via a time-specific, validated incubation and regimen (Disinfection Time). The Total Ischemic Time shall not exceed 48 hours.

(OA) Processing of Osteoarticular tissue shall be completed within five days of Recovery.

(R) After Collection, examination and/or Processing of donor Semen specimens shall be initiated within a time period appropriate for retention of functional integrity, as specified in the SOPM.

(S) Processing of skin that is to be frozen/Cryopreserved shall be initiated within 10 days of Recovery, provided the skin is placed in tissue storage media which is replaced at least every 72 hours. If the media is not changed, Processing shall be initiated within 96 hours of Recovery.
E1.034 Prevention of Matrix Deterioration

(C, V, S)
To prevent drying and possible cellular, tissue, and matrix deterioration, the tissue shall be kept moist at all times during Processing using a Sterile, isotonic solution/medium. If drying does not impact integrity for intended use (e.g., decellularized dermis), the requirement to prevent drying is not applicable.

E1.035 Additives

When applicable, the type, amount, concentration, and method of incorporation/addition of all media, Cryoprotectants, and any other additives used in Processing shall be specified in the SOPM. This information about the Allograft shall be made available to the implanting/transplanting physician, upon request.

E1.040 Sterilization/Disinfection of Tissue

Individual Processing facilities shall establish, validate, and document disinfection or sterilization regimens and microbial surveillance methods. The SOPM shall establish a list of organisms that necessitate discard, Sterilization and/or Disinfection of tissue. The list shall be based upon not only the category type of tissue but also the method by which the tissue was processed (e.g., Cryopreserved MS tissues that cannot be “sterilized” and can only be “disinfected”).

(C, V, CT)
The following are considered to be pathogenic, highly virulent Microorganisms that result in tissue discard:

1) fungi (yeasts, molds);
2) Clostridium; and
3) Streptococcus pyogenes (group A strep.).

(S) The following are considered to be pathogenic, highly virulent Microorganisms that result in tissue discard unless treated with a disinfection or sterilization process validated to eliminate the infectivity of such organisms:

1) Staphylococcus aureus;
2) Streptococcus pyogenes (group A strep.);
3) Enterococcus sp.;
4) gram negative bacilli;
5) Clostridium; and
6) fungi (yeasts, molds).
E1.041 Non-Terminal Irradiation

A dose is selected to reduce or eliminate Bioburden. Selected dose shall be justified and any Claims made must be supported by data. The type of irradiation shall be indicated on the container Label or Package Insert of all tissue exposed to Non-Terminal irradiation.

E1.042 Terminal Sterilization by Irradiation

The most common sources of ionizing radiation are Cobalt 60, electron beam, and X-ray. Identification of the irradiation source, the dosimetry, and completed certificate of irradiation shall be documented in the Processing record. The Sterilization dose used selected and the Sterilization dose must be shown to be capable of achieving that SAL. Validation methods used may include, but are not limited to, Biological Indicators (BIs), Bioburden-based methods (e.g., AAMI/ISO 11137), or it may be based on a group of pre-selected organisms. The type of irradiation shall be indicated on the container label or Package Insert of all tissue exposed to irradiation.

E1.043 Sterilization by Other Methods

Tissue Sterilization by other methods (other than by irradiation) shall be documented in the Processing record. This includes the type of Sterilization, the Processing parameters, and certification of Sterilization. The process utilized to Sterilize the tissue must be validated and supported by data. A Sterility Assurance Level (SAL) shall be selected and the method must be shown to be capable of achieving that SAL. Validation methods used may include, but are not limited to, Biological Indicators (BIs) (e.g., AAMI/ISO 11135), Bioburden-based methods (similar to AAMI/ISO 11137), or it may be based on a group of pre-selected organisms. The type of Sterilization method used shall be indicated on the container label or Package Insert of all tissue exposed to the method.

Following ethylene oxide Sterilization, procedures shall be established to ensure appropriate aeration has eliminated residual ethylene oxide and/or its breakdown products.

<p>| Residual Level in Parts per Million |
|-------------------------------|-----------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>Tissue Size/Weight</th>
<th>Ethylene Oxide</th>
<th>Ethylene Chlorohydrin</th>
<th>Ethylene Glycol</th>
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<td>2,500</td>
<td>5,000</td>
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<tr>
<td>Small (&lt;10 grams)</td>
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<td>250</td>
<td>5,000</td>
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<tr>
<td>Medium (10–100 grams)</td>
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<td>2,000</td>
</tr>
<tr>
<td>Large (&gt;100 grams)</td>
<td>25</td>
<td>25</td>
<td>500</td>
</tr>
</tbody>
</table>

E1.044 Disinfection by Chemical Agents

(MS) Iodophors, ethanol, and other solvent/detergent combinations may be used as Disinfectants of bone in a validated Processing procedure. The following shall not be used (except for ear drums and ear ossicles): mercurials, quaternary compounds, formaldehyde, beta propiolactone, glutaraldehyde, and chloroform. In any instance where a chemical Disinfectant or antibiotic agent is used, the Package Insert shall be labeled as to identify presence of...
possible trace residuals.

**E1.045 Other Disinfection Agents**

(MS) Other agents such as heat, ultraviolet radiation, or exposure to antibiotics may be used as Disinfection agents. Procedures for Processing with such agents shall be documented and validated to ensure consistency in tissue Processing.

**E1.050 Tissue Evaluation**

Written criteria for evaluation and assessment of tissue Quality must be established.

(C, V, OA)

Standardized evaluation and classification system is required (e.g., valve with no visible abnormalities or aberrations, implantable Allograft with some imperfection(s), and discard/non-implantable Allograft). The Allograft evaluation system shall be made available to the implanting surgeon.

**E1.060 Tissue Preservation/Cryopreservation**

**E1.061 Techniques**

(CT) If tissue is to be preserved using any method, appropriate protocols shall be validated with respect to cell Quality.

(C, V) The Allograft shall be removed from the Disinfectant solution then rinsed in a disinfectant-free solution. If tissue is to be Cryopreserved it will be packaged with a Cryoprotectant medium then frozen at a steady, controlled, predetermined rate with compensation for heat of crystallization/latent heat of fusion. The tissue shall be frozen at a specific rate to a predetermined specific end-point. If tissue is to be preserved using other methods, appropriate protocols shall be validated with respect to tissue integrity.

(S) When the tissue is to be cryopreserved, freezing of skin shall be done in a manner that ensures a slow cooling rate to maintain the structural integrity of the skin. Variable-rate cooling using insulated heat sink boxes or programmed control-rate freezing techniques are acceptable methods of skin Cryopreservation. When programmed control-rate techniques are utilized, they must allow the tissue to freeze at a steady, predetermined rate with heat of crystallization compensation. The tissue shall be frozen at a specific rate to a predetermined specific end-point, not warmer than -40°C.

**E1.062 Control-Rate Freezing: Surrogate Packages**

(C, V) If freezing surrogates are used for monitoring the freezing program, the packaging shall be regularly inspected and solutions and tissue changed when indicated. Monitoring for deterioration of the packaging shall be performed. The Processing center shall have a procedure describing the assembly of such surrogates and a means for monitoring the surrogates.
E1.063 Termination of Freezing Program

(C, V, S) Upon termination of the freezing program, the Cryopreserved tissue shall immediately be placed in storage. Temperature fluctuation and cycling should be avoided.

E1.064 Freezing Profile

(C, V, S) If a programmed control-rate freezing method is employed, a record of the freezing profile shall be evaluated and approved and become a permanent part of the Processing records.

E1.065 Lyophilization

(MS) Procedures for lyophilizing musculoskeletal tissue shall be established and described in the SOPM. Each lyophilization cycle shall be monitored for shelf temperature, condenser temperature, and vacuum; values shall be recorded daily. Additionally, each lyophilization cycle shall document, if applicable, the method/length of Disinfection of the tissue. Residual moisture analysis shall not exceed 6% of initial weight by gravimetric or Karl Fischer analysis or 8% by nuclear magnetic resonance spectrometry (NMR). Final Container shall maintain these moisture requirements for the indicated expiration period.

E1.066 Dehydration

(MS) Procedures for Dehydration of musculoskeletal tissue shall be established. Temperature shall be monitored during each Dehydration cycle, and shall not exceed the maximum temperature for Dehydration.

E1.067 Freezing Tissue

(CT) If tissue is to be frozen/cryopreserved, a specific freezing rate to a predetermined specific end-point must be selected. When applicable, procedures for freezing shall be established and the method controlled to maintain cell Quality.

(MS) Procedures for freezing musculoskeletal and soft tissue shall be established and documented.

(R) Procedures for controlled rate freezing of embryos shall be established. Freezer chamber temperature shall be monitored during each freezing cycle. The thermal profile for each vial or Batch shall be logged with the specimen records.

E1.068 Cryopreservation

(OA, MS, CT) Procedures for the Cryopreservation of tissue shall be established and documented. Documentation of the concentrations of Cryoprotectant and nutrient or isotonic solutions in the
cryopreservative solution shall be maintained.

E1.069 Chemical Preservation

(MS) Procedures for the Preservation of musculoskeletal tissue by chemical means shall be validated and documented. When chemical Preservation has been used, the Package Insert shall so indicate.

E1.100 Tissue Identification

Except for reproductive tissue, each unit of tissue shall be assigned a Tissue Identification Number, which shall serve to relate the tissue to the donor from whom it was recovered and the associated records at any phase of the operation. Tissue units shall be assigned the same Tissue Identification Number only if they are identical and processed as a “Lot.”

(R) Each specimen of reproductive tissue shall be assigned, in addition to generic designation, a unique identification number, which shall be used to identify the tissue during steps of Collection, Processing, storage, and Distribution. For donors and Client Depositors giving multiple specimens, a secondary code shall be used to distinguish between dates of Collection. Identification number shall include an identifier unique to the tissue bank that collects, processes, stores, and distributes the reproductive tissue.

E1.200 Pooling

Tissue from multiple donors shall not be Pooled during Recovery, Processing, Preservation, or storage.

E1.210 Tissue Cross-Contamination

Written procedures shall be prepared, validated, and followed for prevention of infectious disease contamination or Cross-Contamination by tissue during Processing.

E1.300 Reagents, Supplies, Materials and Equipment

All Critical supplies, reagents, materials, and equipment approved for use for Processing and Preservation shall be identified and specifications (e.g., Sterile where applicable) documented. It is expected that the tissue bank has the ability to link all supplies, reagents, materials, and equipment to tissue processed over the period of time they were in use.

A record shall be made of all reagents, supplies, and materials following receipt including, as applicable, the type, quantity, manufacturer, Lot number, date of receipt, and expiration date or manufacturing date (as applicable). Inspection shall be documented, including identification of staff performing the inspection. All reagents, supplies, materials and equipment shall be used and stored in accordance with manufacturers’ instructions.

(C, V, MS, OA, S, CT)

All non-disposable surgical instruments and mechanical/electrical equipment used in tissue Processing shall be cleaned, disinfected, and Sterilized between use for tissue from different donors according to written procedures. For non-disposable surgical instruments and mechanical/electrical equipment deemed Critical, written procedures must be prepared and should be Validated, to prevent contamination or Cross-Contamination during Processing.
E1.310 Stock Rotation

Reagents, supplies, and materials with expiration dates or production dates shall be stored in a manner to facilitate inventory rotation. Items not bearing an expiration or production date shall be labeled with the date of acquisition and stored in a manner to facilitate inventory rotation. Older items should be used first and not used if expired or quality is compromised.

E1.400 Tracing of In-Process Tissue

There shall be a means to identify and trace tissue at all times at any phase (e.g., Quarantined, unprocessed, processed inventory) of Processing.

E1.500 Tolerance Limits of Processed Tissue

Tissue banks that process and preserve tissue shall include in their SOPM a description of the final types of tissue, any specifically required or specifically prohibited dimensions or characteristics, and the means used to assess these characteristics. At or near the end of Processing, tissue shall be evaluated according to these procedures to determine whether it is in conformance with the SOPM. Relevant tissue dimensions or characteristics shall be recorded. All tissue deemed to be out of conformance shall not be released for transplantation.

This inspection, the staff involved, and the Disposition of each tissue unit shall be documented.

E1.510 Specimen Sizing

(C) Allograft heart valve grafts shall be inspected, evaluated, and sized by internal valve annulus diameter, and recorded in millimeters (mm).

The length of the aortic conduit, main pulmonary artery, and right and left pulmonary artery remnants shall be recorded in millimeters (mm) or centimeters (cm), as measured along the anterior midline of each conduit.

(V) Vascular grafts shall be inspected, evaluated, and sized by diameter and recorded in millimeters (mm).

The length of the vascular segment shall be recorded in centimeters (cm).

(MS, OA) Specimen sizing, as applicable, shall be performed according to volume, actual measurements, or by radiographic techniques.

(S) In addition to a unique package identification, the actual dimensions of the contents (metric or non-metric) must be documented.

E1.520 Calcium Residuals: Demineralized Bone

(MS) Representative samples of each Lot shall be tested for residual calcium. Residual calcium content shall not exceed 8% by a standard method.
E1.600 In-Process Controls

In-Process Controls shall be applied as necessary and according to the SOPM during Processing and packaging to ensure that each process meets requirements specified in the SOPM. The tissue bank shall determine when, which, and how controls are to be performed (e.g., residual moisture testing, microbial cultures of tissue, solutions, packaging, equipment, pH measurements, or post-thaw sperm quality). Sampling for In-Process Controls shall be designed to be representative of the materials to be evaluated.

Process Control procedures shall be designed to assure that tissue has the identity, characteristics, and quality intended. Procedures and any changes in these procedures, shall be reviewed to ensure that such changes are verified, or where appropriate validated, before implementation.

E1.700 Processing and Preservation Records

A record shall be created to document the Processing and Preservation of tissue. Processing and Preservation records shall include the following:

1) Processing dates and responsible Processing personnel;
2) Tissue Identification Number(s) and type(s) of tissue being processed;
3) Tissue measurements (e.g., weight, dimensions, volume), as appropriate;
4) Expiration where applicable;
5) Type and quantity of tissue sampled for In-Process Controls;
6) Final Disposition of each tissue obtained and/or processed; and
7) The type, Lot number, manufacturer (unless recorded in other records), and expiration date, where applicable, of Critical reagents, supplies and materials, and the identification of Critical equipment, used to process and/or preserve tissue.

E1.800 In-House Laboratory Testing

If the tissue bank performs laboratory tests and results are used to determine acceptability of tissue for transplantation, staff performing the tests shall have specific training in the procedures and shall be certified competent to perform the tests required.

E1.810 Laboratory Records

Records of in-house laboratory testing shall include:

1) Sample source and quantity;
2) Tissue Identification Number;
3) Test date and identification of the person performing the test;
4) Assay methods;
5) Calculations, graphs, and charts, if used;
6) Test results as well as interpretation of results;

7) Testing or standardization of reference standards, reagents, or standard solutions; and

8) Documentation of record review by an individual other than the operator generating the records to ensure compliance with Standards.

**E1.820 Laboratory Controls**

Laboratory control procedures shall include documentation of adequate provisions for monitoring the reliability, accuracy, precision, and performance of laboratory test procedures and instruments.

**E2.000 CONTAINERS**

**E2.100 Physical Properties**

The Container shall maintain its integrity, withstand Sterilization and storage conditions, not produce toxic residues during storage, and maintain tissue integrity and quality for the labeled shelf life. Containers shall not interfere with the effective use of appropriate agents applied to Sterilize or disinfect the tissue.

(C, V) Final packaging Containers shall be adequate for use at defined storage temperatures and documented to remain stable and impervious to microbial particles under normal environmental conditions at the specified temperature and throughout the recommended thawing regimen.

**E2.200 Receipt of New Shipments**

Containers shall be stored under Quarantine until the containers have been tested, sampled, or examined, as appropriate, and released for use.

**E2.300 Storage**

Unused containers shall be handled and stored to maintain integrity.

**E2.400 Integrity and Sterility**

Sterilized containers shall be handled in a manner to preclude contamination.

**E2.500 Visual Inspection**

Each container shall be examined visually for damage or evidence of contamination prior to use and immediately after filling. Containers not meeting specifications shall not be used.

**E3.000 QUARANTINING**

**E3.100 Quarantine Areas**

Quarantine tissue storage areas including storage areas within freezers, refrigerators or other tissue storage units, shall be physically separated and clearly labeled to distinguish Quarantine tissues from tissues not suitable for transplant and from tissues available for
E3.200 Situations Requiring Quarantine

Human tissue shall be Quarantined until the tissue is either determined to be suitable for transplantation or appropriate Disposition is accomplished. All tissue shall be Quarantined until the following criteria for donor suitability are satisfied:

1) All required infectious disease testing has been completed, reviewed by the Responsible Person, and found to be negative or non-reactive; and

2) Donor screening has been completed, reviewed by the Responsible Person, and determined to indicate freedom from risk factors for and clinical evidence of HIV, hepatitis B, and/or hepatitis C infection.

(R) Cryopreserved Reproductive Tissues from untested Client Depositors shall be stored in a physically separate area clearly defined from those of tested Client Depositors. Tissues from Client Depositors known to be reactive on tests for anti-HIV-1, anti-HIV-2, anti-HCV, or HBsAg or any other test excluding CMV without subsequent negative confirmatory testing as approved by the Reproductive Tissue Bank’s Medical Director shall be stored in a physically separated area clearly identified from tissue of seronegative Client Depositors. See F2.200 for documentation required for release.

Tissue shall be Quarantined at any phase of the operation when its release could affect the Safety, effectiveness, or quality of the tissue, and subsequently, the health of the Recipient. The following tissue shall be Quarantined:

1) Tissue that is pending completion of Processing, packaging, Preservation, or labeling and final-release-approval signature;

2) Tissue collected from donors not meeting established donor suitability criteria, including unacceptable test results;

3) Tissue involved in a Recall pending investigation, documentation, and Resolution;

4) Tissue failing to meet technical or Quality Assurance specifications;

5) Tissue pending discard as medical waste; and

6) Tissue returned by a Consignee, pending evaluation.

E3.300 Labeling Quarantined Tissue

All human tissue processed or shipped prior to determination of donor suitability must be under Quarantine. Such tissue shall be accompanied by records assuring identification of the donor and indicating that the tissue has not been determined to be suitable for transplantation. Tissue determined to be unsuitable for transplantation and intended for release for other purposes shall be identified accordingly.

E3.400 Quarantine Records

Quarantine records for tissue Quarantined post-release shall indicate the reason for Quarantine and the final Disposition of the tissue. Release dates or disposal dates shall be indicated as well.
E4.000 STORAGE

E4.100 Storage Temperatures

Each tissue bank shall establish acceptable temperature-range limits for the storage of tissue at each phase of the operation in accordance with these Standards, applicable laws and regulations.

(A) Storage temperatures and conditions shall be the same as for comparable allogeneic tissue. Any exception shall require written approval of the Medical Director of the tissue bank.

(CT) Procedures for storing cells should be established and methods controlled to maintain or preserve cell Quality.

E4.110 Refrigerated Tissue

(OA) Procedures for storing refrigerated musculoskeletal tissue to assure tissue viability shall be written. Refrigerated musculoskeletal tissue shall be recovered aseptically and placed in an isotonic or nutrient medium with suitable antibiotics at 1°C to 10°C. If any additional Processing of refrigerated musculoskeletal tissue is necessary, the total wet ice/refrigeration time should be no longer than 5 days from Recovery.

(S) Refrigerated skin shall be stored at temperatures above freezing (0°C) to 10°C. Refrigerated skin shall be stored in a refrigeration system that is monitored, with a permanent record made of the temperature.

E4.120 Frozen and Cryopreserved Tissue

(MS, OA) Procedures for storing processed frozen and Cryopreserved tissue to ensure graft Safety and function shall be written. Processed frozen or Cryopreserved musculoskeletal tissues shall be stored at temperatures of -40°C or colder. Temporary storage of processed frozen or Cryopreserved musculoskeletal tissue between -20°C and -40°C is limited to six months total, and grafts stored at this temperature range must then be transferred to -40°C or colder, used or discarded.

(C, V) Cryopreserved cardiac and vascular Allografts shall be maintained at temperatures of -100°C or colder.

(R) Reproductive tissues shall be stored either in liquid nitrogen or in the vapor phase of liquid nitrogen.

(S) Frozen or Cryopreserved skin shall be stored at ultra-low (-40°C or colder) temperatures.

E4.130 Lyophilized/Dehydrated Tissue

(MS) Lyophilized or dehydrated tissue must be stored at ambient temperature or colder.
E4.140 Monitoring Storage Temperatures

A temperature monitoring system shall be utilized to document temperatures and to alert staff when temperatures have strayed outside acceptable limits. Procedures shall be in place for reviewing temperatures. Documentation of such review shall be indicated with the reviewer’s initials and the date. If temperature recording charts are used, they shall be initialed and dated when placed on and removed from the storage unit. Completed charts shall be retained for the duration specified in C1.300. If storage utilizes liquid nitrogen, either liquid nitrogen levels or temperature shall be monitored and documented at an interval specified in the SOPM.

E4.141 Storage Conditions for Commonly Transplanted Human Tissue

Cardiac tissue includes, but is not limited to, Valved Conduits, Non-Valved Conduits, and Patch Grafts; vascular tissue includes, but is not limited to, Arterial Grafts and Vein Grafts; musculoskeletal tissue includes, but is not limited to, bone and cartilage, and soft tissue such as tendon, ligament, nerve, fascia, pericardium, amniotic membrane, chorionic membrane, peritoneal membrane, adipose tissue, and Dura Mater.

<table>
<thead>
<tr>
<th>Human Tissue</th>
<th>Storage Conditions</th>
<th>Temperature (°C) *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac, Vascular</td>
<td>Frozen, Cryopreserved</td>
<td>-100°C or colder</td>
</tr>
<tr>
<td><strong>Cellular</strong></td>
<td>Refrigerated</td>
<td>Above freezing (0°C) to 10°C</td>
</tr>
<tr>
<td></td>
<td>Frozen, Cryopreserved</td>
<td>Established by tissue bank</td>
</tr>
<tr>
<td><strong>Musculoskeletal</strong></td>
<td>Refrigerated</td>
<td>Above freezing (0°C) to 10°C</td>
</tr>
<tr>
<td></td>
<td>Frozen, Cryopreserved</td>
<td>-20°C to -40°C</td>
</tr>
<tr>
<td></td>
<td>Frozen, Cryopreserved</td>
<td>-40°C or colder</td>
</tr>
<tr>
<td><strong>Lyophilized</strong></td>
<td></td>
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<tr>
<td><strong>Reproductive</strong></td>
<td>Frozen, Cryopreserved</td>
<td>LN₂ (Liquid or Vapor Phase)</td>
</tr>
<tr>
<td><strong>Skin</strong></td>
<td>Refrigerated</td>
<td>Above freezing (0°C) to 10°C</td>
</tr>
<tr>
<td></td>
<td>Frozen, Cryopreserved</td>
<td>-40°C or colder</td>
</tr>
<tr>
<td></td>
<td>Lyophilized</td>
<td>Ambient **</td>
</tr>
</tbody>
</table>

* Warmest target temperature unless noted to be a range
**Ambient temperature monitoring not required for lyophilized tissue

E4.150 Emergency Transfers

Policies and procedures shall be developed for the emergency transfer of tissue to designated alternative storage facilities and for alternative monitoring methods in the event of mechanical failure or loss of coolant. These shall include specification
of Tolerance Limits or temperatures and time limits after which the initiation of the emergency transfer is required. Actions to be taken when limits have been exceeded shall also be specified in the SOPM.

E4.200 Expiration Date/Storage Period

The maximum storage period for tissue shall be appropriate to the type of tissue, required storage temperature, packaging, and Processing, as well as to its intended application. Expiration dates should be qualified to demonstrate that the packaging is suitable to maintain product integrity (e.g., sterility, moisture content) for the entire shelf life.

(A) The implanting physician shall be informed of any expiration dates.

E4.210 Refrigerated Tissue

(MS, OA) The expiration time of refrigerated musculoskeletal tissue shall be 5 days from the date of Recovery or established in the SOPM using a validated method for determining expiration dating.

(S) Skin that has not been processed or preserved shall be stored refrigerated for no longer than 14 days. NOTE: This standard is currently under review.

E4.220 Frozen and Cryopreserved Tissue

(MS, OA) Expiration dates of frozen and frozen Cryopreserved tissue shall not exceed five years from the date of Processing unless a longer expiration date has been validated. NOTE: This standard is currently under review.

(C, V) Each tissue bank shall determine a maximum storage period allowable for grafts to be distributed. Limitations imposed by packaging, or by anticipated untoward effects of long term storage on tissue characteristics related to function, shall be validated and taken into account.

E4.230 Lyophilized/Dehydrated Tissue

(MS) Expiration dates of Lyophilized or dehydrated tissue shall not exceed five years from the date of initial Processing unless a longer expiration date has been validated. NOTE: This standard is currently under review.

E4.300 Segregation of Tissue

(A) Autologous tissue, for which a donor’s sample tests positive or reactive for infectious diseases, should be appropriately segregated during storage.

(R) Procedures for storage of tissues from Client Depositors or Directed Donors whose test results are positive or repeatedly reactive must be established and maintained.
SECTION F
RELEASE AND TRANSFER OF TISSUE

Words that are defined in A2.000 Definitions of Terms appear in italics and are capitalized (e.g., Audit). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these Standards.

F1.000 TISSUE RELEASE—GENERAL REVIEW REQUIREMENTS

All necessary information shall be complete and compiled in a standardized format prior to final review and determination of donor suitability and tissue acceptability for transplantation. Each donor record shall contain a Disposition/release statement and signature of both the Medical Director or licensed physician designee who is assuming responsibility for donor suitability determination and, if different, the individual(s) responsible for reviewing all technical and Quality Control specifications. If Processing was performed, there shall be documentation of a review by designated personnel of all technical and Quality Control specifications. An SOPM shall clearly define the responsibilities of each reviewer.

F1.100 Donor Suitability Review

Although the Donor Risk Assessment Interview may be preliminarily reviewed by technical staff to evaluate acceptability for Collection, Recovery or Processing, tissue shall not be released for transplantation without determination of donor suitability by the Medical Director or licensed physician designee. The donor suitability review shall include, but is not limited to:

1) Acceptability of the Authorization or Informed Consent;

2) Suitability of the Recovery Site or where Collection took place;

3) Pertinent information from the medical records generated at the time of death, including any pathology and laboratory reports, physician summaries, and transfusion/infusion information;

4) Donor Risk Assessment Interview;

5) All results of laboratory testing relevant to donor suitability;

6) Any Plasma Dilution calculations used to determine the acceptability of the blood sample used for testing;

7) All relevant culture results up to and through the completion of Recovery (e.g., blood cultures, if performed; Pre-Sterilization/Pre-Disinfection Cultures, if available);

8) Applicable time limits for tissue recovery;

9) Pertinent circumstantial and donor screening information relayed to Tissue Bank staff;

10) Results of the Physical Assessment or Physical Examination;

11) Autopsy report, if an autopsy was performed; and

12) Any other information gathered for the purposes of disease screening as required by
Standards and applicable laws or regulations.

In the case of pediatric donors who have been breastfed within the past 12 months and/or are 18 months of age or less, the birth mother’s risk for transmissible disease shall be evaluated for HIV, HBV, HCV and other infectious agents when indicated. See Appendix II.

For all donors one month (28 days) of age or less, the infant and the birth mother shall be screened for risk of Relevant Communicable Disease Agents and Diseases and the mother’s blood must be tested.

Once the determination is made, the suitability statement shall be documented, dated, and signed by the Medical Director or licensed physician designee.

F1.200 Technical Review

Tissue may be released for transplantation only with notation in Processing records by processing technicians or their supervisor that tissue produced meets technical specifications set forth in the SOPM (e.g., dimensions, quality) and that Processing was performed according to the SOPM. There must be a signature by technical staff indicating that all technical elements were reviewed.

For contractual Processing arrangements, tissue shall be released for transplantation by the distributing tissue bank only with a signature and written Disposition/release statement or equivalent documentation from the Processing center indicating that all Quality Assurance and Control measures were reviewed and determined to be acceptable according to the written SOPM. The written Disposition/release statement or equivalent documentation shall indicate that the following conditions, at a minimum, have been met:

1) Review of tissue processed for consistency with specific tissue requirements;

2) Review of all Processing and packaging bacteriologic testing results for completeness and acceptability;

3) Review for completeness and acceptability of any test or environmental testing results generated;

4) Review of all Lot numbers and expiration dates recorded for Verification of completeness and that all were within acceptable ranges (e.g., Recovery kits, culture media, Processing solutions);

5) Review of all Processing records for completeness and accuracy, and Verification that tissue was processed in accordance with the SOPM and met defined specifications;

6) Review and comparison of tissue obtained and units produced from each tissue for Verification that the Disposition of each tissue recovered or collected is traceable;

7) Verification that all (if any) Error and Accident reports potentially related to the Safety or quality of the tissue to be released are resolved and corrections made where appropriate;

8) Verification that all Processing was accomplished within time limits specified in the SOPM and within applicable technical specifications in the SOPM (e.g., acceptable residual moisture, irradiation exposure limits, temperatures, and freezing curves); and

9) If tissue was recovered or collected by another entity, Verification that the shipment was acceptable when it arrived at the Processing center (e.g., with respect to
temperature and time limits).

(A) If autologous tissue is processed, the Autograft may be released for transplantation only upon notation in Processing records by technicians or their supervisor that Processing was performed according to the SOPM. There must be a signature by technical staff indicating that all technical elements were reviewed.

**F1.300 Quality Assurance/Quality Control Review**

Except for reproductive tissue, tissue shall be released for transplantation only with a documented Disposition/release statement from the person responsible for authorizing release at the site of Distribution, indicating that, at some time prior to release, all Quality Assurance and Control measures were performed and found acceptable according to the written SOPM. The written Disposition/release statement or equivalent documentation shall indicate that the following conditions, at a minimum, have been met:

1) Review of tissue processed for consistency with specific tissue requirements;

2) Review and comparison of tissue obtained and grafts produced from tissue for Verification that the Disposition of tissue recovered is traceable;

3) Verification that all (if any) Error and Accident reports, potentially related to the Safety or quality of the tissue from each donor, are resolved and corrections made where appropriate;

4) Verification that all Processing was accomplished within time limits specified in the SOPM and within applicable technical specifications in the SOPM (e.g., acceptable residual moisture, irradiation exposure limits, temperatures, and freezing curves);

5) If tissue was recovered by another entity, Verification of the acceptability of the shipment upon arrival at the Processing center (e.g., with respect to temperature and time limits);

6) Verification that the Medical Director or licensed physician designee has made a decision regarding donor suitability and that all directives of the Medical Director regarding the donor were implemented.

(R) Reproductive tissue shall not be released for clinical use without a signed, written Disposition/release statement of the person responsible for authorizing release, at the site of Processing, indicating that all Quality Assurance and Control measures were reviewed and found acceptable according to the written SOPM. This includes, but is not limited to:

1) Review of donor age and of tissue processed for consistency with specific tissue requirements;

2) Record and Verification that all Lot numbers and expiration dates were complete and that all were within acceptable ranges (e.g., Cryopreservation media);

3) Review of all Processing records for completeness and accuracy and Verification that the tissue was processed in accordance with the SOPM and meets defined technical specifications;

4) Review of tissue obtained and specimens produced from each Collection for Verification that the Disposition of each tissue specimen is traceable;
5) Verification of Resolution of all Error or Accident reports (if any) potentially related to the Safety or quality of the tissue;

6) Verification that all Processing was accomplished within time limits specified in the SOPM and within applicable technical specifications in the SOPM (e.g., ejaculate volume, sperm motility, concentration, morphology, and post-thaw motility);

7) If reproductive tissue was collected by another entity, Verification of the time of receipt at the Reproductive Tissue Bank and condition of the sample upon receipt; and

8) Verification that the Medical Director has made a decision regarding donor suitability and that all directives of the Medical Director regarding the donor were implemented.

F1.310 Review of On-Site Processing Records

If Processing was performed on site, there shall also be written documentation that all Quality Assurance and Control measures were performed and acceptable according to the written SOPM. This includes but is not limited to:

1) Review of all Processing and packaging bacteriologic testing results for completeness and acceptability;

2) Review of all test or environmental testing results generated for completeness and acceptability;

3) Review of all Lot numbers and expiration dates recorded (e.g., materials such as Recovery kits, culture media, Processing solutions) for Verification that all were within acceptable ranges; and

4) Review of all Processing records for: completeness and accuracy; for Verification that tissue was processed in accordance with the SOPM; and meets defined technical specifications.

F2.000 OTHER RELEASE

F2.100 Tissue Release Based on Tissue Utility

Pre-established release criteria based on tissue utility must be developed. If tissue other than Reproductive Tissue is distributed or dispensed for transplantation, there shall be in each instance, documentation of:

1) Donor suitability and tissue Processing information available at the time of release. All donor suitability requirements in F1.100 Donor Suitability Review must be met with the exception of a review of the autopsy report (if applicable) and pending culture results;

2) Medical Director or licensed physician designee review of all relevant information present;

3) Approval of the release by the Medical Director or licensed physician designee;

4) A written statement issued to the End-User physician indicating what information required by the SOPM and/or these Standards is available and what information is not
available for review, and when it is expected that the information will be available; and

5) A statement from the End-User physician indicating his/her understanding that the tissue is being released using available information.

Relevant final results shall be forwarded promptly to the End-User physician upon completion of testing. Documentation of the release based on tissue utility shall be maintained in the donor record. These records shall be maintained together or summarized in a log.

F2.200 Special Circumstances in Release of Reproductive Tissues

(R) Release of reproductive tissue may be considered in the special cases of:

1) Reproductive Tissues from Client Depositors known to be reactive on tests for anti-HIV-1, anti-HIV-2, anti-HCV, HBsAg, or any other test, excluding CMV, without subsequent negative confirmative testing as approved by the Medical Director; or

2) Reproductive Tissues from Client Depositors that have not been tested or do not meet current Standards; or

3) Directed Donors who have completed all required testing and screening according to Standards who had reactive test results on either initial or repeat tests or are determined ineligible according to screening criteria; or

4) Directed Donors who have not completed the 180-day quarantine and re-testing requirement.

In the case of release for one of the four circumstances listed above, the following documentation is required (refer to G3.210 Summary of Records Content, and G3.220 Package Insert Content, for labeling requirements):

1) A written statement signed by a Responsible Person at the Reproductive Tissue Bank disclosing the Deviation(s) from Standards and description of potential risks to the Recipient; and

2) Acknowledgement from the medical provider indicating he/she:

   a) has received the written statement from the Reproductive Tissue Bank and acknowledges the Deviation(s) from Standards;

   b) has had ample opportunity to discuss the implication(s) with a Responsible Person at the Reproductive Tissue Bank and other medical authorities;

   c) agrees to fully explain the implication(s) to the Recipient and provide her ample opportunity to ask questions and consult with experts of her choice; and

   d) will document Informed Consent from the Recipient.

F2.300 Shipping Reproductive Tissue in Quarantine

If donor Reproductive Tissue is to be released before completion of the donor suitability assessment, the tissue must be kept in quarantine during shipment. The labeling must include a statement that the donor suitability assessment has not yet been completed. It must also include a
statement indicating the Reproductive Tissue must not be transplanted or transferred until the donor suitability assessment is complete.

**F3.000 TISSUE FAILING REVIEW PROCESS—GENERAL REQUIREMENTS**

Tissue failing any portion of the review process shall be maintained in quarantine pending Resolution or disposal and shall not be released for transplantation. Unexplained discrepancies or Deviations from specifications shall be fully investigated and documented.

**F3.100 Unsuitable Donors**

If a donor is deemed unsuitable as a result of Donor Suitability Assessment or disease screening procedures, the finding shall be specifically stated in the donor record and in the release/Disposition decision statement, and this determination must be described and communicated in writing in a timely manner to the Tissue Bank that recovered tissue. If the tissue is to be made available for nonclinical purposes from a donor who has been determined to be ineligible based on the results of required testing and/or screening, it must be labeled:

(1) “For Nonclinical Use Only” and (2) with the biohazard legend.

(SB) Permanent and temporary deferrals of living surgical bone donors and the reason(s) for such deferral shall be documented in the donor record.

**F3.200 Technical or Quality Assurance Assessments**

If tissue is deemed unsuitable for release for transplantation for reasons other than donor suitability, the Processing and release/Disposition decision records shall specifically describe the reason(s) for the unsuitability determination. If this tissue is to be made available for nonclinical purposes it must be labeled “For Nonclinical Use Only.”

**F4.000 TISSUE RELEASE—GENERAL**

**F4.100 Release to Distribution Inventory**

Before tissue is transferred from quarantine to Distribution inventory, the staff involved shall verify that the appropriate release documentation (donor suitability and tissue Processing) has been completed. Records of donor suitability that shall be verified, include but are not limited to: donor selection criteria, storage conditions, infectious disease testing results, microbiological results, and Quality Assurance requirements. Tissue to be transferred shall be identified, inspected for integrity of packaging, and tissue and label accuracy. Final labeling, if applied at this time, shall be performed in accordance with the SOPM and Standards. Tissue for transplantation may then be placed in Distribution inventory. These checks, the transfer, date of transfer, and staff performing the transfer and Verifications shall be documented. A second staff member should review each step to ensure accuracy and completeness.

**F4.200 Transfer to Other Inventory Locations**

Disposition of tissue that is transferred shall be documented (e.g., discard, research, further Processing). Date of transfer, staff involved, and Verification of tissue identity shall also be documented.
SECTION G
LABELING

Words that are defined in A2.000 Definitions of Terms appear in *italics* and are capitalized (e.g., *Audit*). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these *Standards*.

G1.000 LABELS AND LABELING

G1.100 Nomenclature

Nomenclature used to describe tissue, cultures, blood specimens and other donor specimens (e.g., lesions, lymph nodes) shall be specified in the *SOPM* and be applied consistently. *For Finished Tissue*, units of measurement and the *Processing* that tissue has received shall also be specified in the *SOPM*.

G1.200 Label List

A list of *labels used* shall be maintained, as well as an example of every label that is utilized by the tissue bank. Dates of use (start and discontinuance) shall be recorded. *Changes pertaining to labels and communicating changes shall be expected from tissue banks that supply labels to other tissue banks.*

G1.300 Labeling Integrity

Labels shall be designed and qualified to be legible, indelible, and affixed firmly to the *Container* under anticipated storage conditions for *length of use*. *Labels* applied by tissue bank staff shall not be removed, altered, or obscured except to correct labeling *Errors*. *When applicable, this also applies to Labeling Materials*. *Suppliers of labels deemed Critical are responsible for establishing specifications.*

G1.400 Claims

All labeling *Claims* shall be clear, accurate, substantiated, and not misleading.

G2.000 LABELING PROCESS

G2.100 General Requirements

There shall be SOPs designed and followed to ensure that correct labels, labeling, and packaging material are used for tissue. Each labeling phase for all tissue (e.g., unprocessed, processed, *Quarantined*, and released for *Distribution*) shall be documented.

G2.200 Re-Labeling

If tissue is to be re-labeled for any reason, such as label detachment or to correct a labeling *Error*, the tissue bank shall establish a re-labeling procedure delineating the methods to be utilized, conditions under which tissue may be re-labeled, and the staff authorized to perform such activities. *The reasons for, and events surrounding, the re-labeling of tissue shall be documented in the records. Re-labeling methods shall consider storage conditions and label integrity (see G1.300).*

G2.300 Controls—General

There shall be appropriate labeling control procedures based upon the system and equipment used in labeling operations. *SOPMs* shall incorporate controls including the review of labels.
to ensure accuracy and the establishment of checks to prevent transcription and other labeling Errors. Electronic labeling systems shall possess adequate controls to prevent the erroneous labeling of tissue. There shall be documentation in the records to verify label accuracy and that labeling checks were performed. The labeling area shall be inspected prior to the start of labeling activities to ensure that all labels and packaging materials from previous labeling have been removed.

**G2.310 Label Inspection**

Labels shall meet appropriate written specifications and be approved by quality assurance staff prior to release for use by a designated person. Labels not meeting such specifications shall be discarded. Date of receipt, date of inspection, and the names of the staff involved in receipt and inspection shall be documented.

**G2.320 Label Storage**

The storage area for labels and Labeling Materials shall be clearly identified. Access should be restricted to authorized personnel only. This is not applicable to labels included in tissue recovery packs.

**G2.330 Labeling Process Controls—Obsolete Labels**

Procedures shall be established to retrieve obsolete and/or outdated labels and Labeling Materials from all labeling areas and inventory locations. As each type of label is removed from inventory, one label shall be retained for the archives and the surplus labels shall be discarded. The Master Label List and the SOPM shall be updated accordingly.

**G2.340 Tissue and Container Visual Inspection**

Prior to labeling a unit of processed tissue, the Container shall be inspected for evidence of impurities, defects, broken seals, or contamination that could compromise the quality, integrity, or Safety of the tissue. A sufficient area of the Container shall remain uncovered to permit inspection of the contents whenever possible. Any tissue or Container suspected to be of questionable quality shall be Quarantined immediately pending further investigation and Resolution following established procedures in the SOPM. This review shall be documented.

**G3.000 LABELING INFORMATION**

**G3.100 Container Labels**

**G3.110 Design**

Container labels shall be designed to facilitate the use of uniform labeling techniques for each type of tissue.

**G3.120 Content**

Container labels shall include the Tissue Identification Number.

The following information shall be included on the container label unless space limitations require use of a corresponding insert:

1) Descriptive name of the tissue;
2) Name(s) and address(es) of tissue bank(s) responsible for determining donor suitability, Processing and Distribution. Should more than two banks be involved, the name of all banks are required but the address is only required for the bank determining donor suitability;

3) Expiration date (if applicable), including the month and year;

4) Acceptable storage conditions, including recommended storage temperature and/or acceptable storage temperature range;

5) Disinfection or Sterilization procedure utilized (if applicable);

6) Preservative (if utilized) and/or method of Preservation (if applicable);

7) Quantity or other characteristics of tissue expressed as applicable (e.g., volume, weight, dimensions, cell density, number of viable cells or a combination of these);

8) Potential residues of Processing agents/solutions (e.g., antibiotics, ethanol, ethylene oxide, dimethylsulfoxide); and

9) A reference to the Package Insert.

G3.130 Additional Labeling Requirements

(A) The following information shall be included on the container label for autologous tissue unless space limitations require use of a corresponding insert:

1) The donor classification statement ‘AUTOLOGOUS DONOR’;

2) The patient’s name and, if available, the name of the facility where the patient is being transplanted and the patient’s hospital registration number or, if unavailable, social security number, birth date, or similar definitive identifying information;

3) A label or attached tag ‘FOR AUTOLOGOUS USE ONLY’; and

4) If infectious disease testing or donor screening is not complete or has not been performed, a label indicating ‘NOT EVALUATED FOR INFECTIOUS SUBSTANCES’ is required; or

5) If infectious disease testing was performed and any results were positive, or if donor screening was performed and risk factors identified, then labeling with a ‘BIOHAZARD’ label is required.

(R) Cryocontainers (vials, straws or ampules) shall be labeled so as to identify:

1) Donor or Client Depositor identification and Batch number and/or other code that can be used by the Reproductive Tissue Bank to identify the date the specimen was cryopreserved and the stage of development at cryopreservation, where applicable; and

2) Name, initials, or other code that can be used to identify the Reproductive
Tissue Bank at which the specimen was processed.

G3.200 Summary of Records and Package Insert

Tissue determined to be suitable and released for transplantation shall be accompanied by a Summary of Records and Package Insert. A Summary of Records is not required if a donor suitability determination is not required (i.e., autologous tissue and certain types of reproductive tissue).

G3.210 Summary of Records Content

A Summary of Records is required when donor suitability determination has been completed and shall include:

1) A statement that the tissue was prepared from a donor determined to be suitable based on the results of screening and testing. All results of relevant communicable disease tests performed on specimens from the donor and used for release of tissue shall be listed. Relevant tests include those tests that are required (see D4.354 Required Infectious Disease Tests). If a test for anti-HTLV I and/or anti-HTLV II was performed it must be reported. To clarify expectations and to offer an example, the CMV test result used must be listed for reproductive tissue;

2) The name and address of the establishment that made the donor suitability determination; and

3) A statement that the communicable disease testing was performed by a laboratory registered with FDA to perform donor testing and certified to perform such testing on human specimens in accordance with the Clinical Laboratory Improvement Amendments of 1988 (CLIA) and 42 CFR part 493, or that has met equivalent requirements as determined by the Centers for Medicare and Medicaid Services (CMS).

NOTE: For international members that do not export tissues to the U.S., applicable requirements of the government/competent authority having jurisdiction apply in regard to required labeling involving donor infectious disease test results.

(R) A statement noting the reason for the determination of ineligibility in the case of a cell or tissue from a donor who is ineligible based on screening and/or testing.

G3.220 Package Insert Content

The Summary of Records may be included in the Package Insert. The Package Insert shall contain the following information:

1) A statement limiting use to specific health professionals (e.g., physicians, dentists, and/ or podiatrists);

2) A statement that the tissue is intended for use in one patient, on a single occasion only, or as is applicable for Reproductive Tissue;

3) Known contraindications (if any) to the use of the tissue;

4) Warnings and list of known possible significant adverse reactions;
5) A statement that *Adverse Outcomes* potentially attributable to the tissue must be reported promptly to the tissue supplier;

6) Presence of known sensitizing agents (if any);

7) A statement that indicates that the tissue may transmit infectious agents;

8) A statement, if applicable, that the tissue may not be *Sterilized* or re-sterilized.

9) Dosage information (if applicable);

10) Description of how the tissue was supplied (e.g., frozen, lyophilized, irradiated);

11) Type of antibiotics present (if applicable);

12) Concentration of preservative(s) and/or cryoprotectant(s) in final package solution (if applicable);

13) Instructions for opening the *Package* and/or *Container*;

14) Instructions for preparation of tissue for transplantation;

15) Expiration time of tissue following reconstitution (*upon preparation for use*);

16) Instructions indicating that once a *Container* seal has been compromised, the tissue shall be either transplanted, if appropriate, or otherwise discarded;

17) **Acceptable** storage conditions and *Tolerance Limits*;

18) Special instructions required for the particular tissue, when applicable (e.g., “DO NOT FREEZE,” “DO NOT X-RAY,” “DO NOT IRRADIATE”);

19) A statement that it is the responsibility of the *Tissue Dispensing Service, Tissue Distribution Intermediary*, and/or *End-User* clinician to maintain tissue intended for transplantation in appropriate storage conditions prior to further *Distribution* or transplant and that *Recipient* records must be maintained for the purpose of tracing tissue post-transplantation;

20) A statement that the tissue is “DONATED HUMAN TISSUE,” when applicable; and

21) Effective date or other traceable version identifier.

**NOTE:** Except for directed reproductive donations and autologous tissues, the accompanying records required by this section must not contain the donor’s name or other personal information that might identify the donor.

(C, V) Inserts for cardiac and vascular tissue shall contain the following additional information:

1) Warning against using a graft if there is evidence that the *Container* has broken or the contents have thawed;

2) Statement that the *End User* may not subject the tissue to sterilization
(e.g., DO NOT STERILIZE the allograft by any method. Exposure of the allograft and the packaging to irradiation, steam, ethylene oxide, or other chemical sterilants will render the allograft unfit for use);

3) Donor age (and blood type, if available);

4) Date of dissection or Preservation;

5) Tissue Warm Ischemic Time;

6) Tissue Cold Ischemic Time;

7) Graft sizes (e.g., diameter and length);

8) Graft physical descriptions and evaluations, including description of imperfections and evaluation criteria;

9) The type of Cryoprotectant (if applicable) and clear statement regarding the possibility of residuals;

10) A description of the temperature-sensitive nature of the grafts; and

11) Instructions for preparation of tissue for use.

Center-specific protocols shall be established for control of proper thawing, removal of Cryoprotectant, and restoration of isotonic balance within the Cryopreserved tissue. These protocols shall be provided with each cardiovascular Allograft distributed for transplantation.

The preparation instructions shall be sufficiently detailed and unambiguous to allow operating room personnel of average skill to follow and complete the procedure successfully.

(R) See F2.200 Special Circumstances in Release of Reproductive Tissues for additional requirements regarding release of tissue from Directed Donors with reactive test results, incomplete 180-day quarantine, or who are ineligible based on screening, as well as Client Depositors with reactive test results or incomplete test results.

Reproductive Tissue in the following categories require additional information in Package Inserts as listed below:

1) If the intended recipient is the sexually intimate partner of the gamete provider(s):

   Note: a Summary of Records is not required for this category.

   a) For all reproductive tissue, include the statement: “For use by Sexually Intimate Partner Only.”

   b) For all reproductive Client Depositors who were not tested or screened using all parameters required for either a semen or egg donor, including the required tests and time limits for donor testing, include the statements:
1. “Not evaluated for Infectious Substances”; and

c) For all reproductive Client Depositors who have reactive or positive test results:
   1. Biohazard symbol; and
   2. “WARNING: Reactive test results for (insert name of test).”

2) If the intended recipient is NOT the sexually intimate partner of either gamete provider, the following labeling is required in addition to a Summary of Records:

   a) Directed donors (semen, oocyte, and/or embryo) with reactive test results:
      1. Biohazard symbol;
      2. “WARNING: Reactive test results for (insert name of test)”; and

   b) Directed (semen, oocyte, and/or embryo) donors determined to be ineligible based upon risk factors for or clinical evidence of relevant communicable disease agents or diseases, including the physical examination:
      1. Biohazard symbol; and

   c) Directed donors not completing 180-day quarantine and re-testing requirements and/or have incomplete re-testing:
      1. “Not evaluated for Infectious Substances”; and

3) If the intended recipient is NOT the sexually intimate partner of either gamete provider, and the tissue is from anonymous or directed embryo donors in cases where the gamete provider(s) was (were) not initially tested as donors, but were re-tested following 180-day quarantine:

   (Note: A Summary of Records is not required for this category, however, a summary of the test results must be included.)

   a) “Advise recipient that screening and testing of the donor(s) were not performed at the time of cryopreservation of the reproductive tissue, but have been performed subsequently.”

4) Reproductive Tissue intended for Research:

   a) Client Depositor reproductive tissue when gamete provider(s) were not
tested or screened using all parameters required for either a semen or egg donor, including the required tests and time limits for donor testing, or donor (anonymous or directed) tissue has not completed 180-day quarantine release requirement:

1. “For Non-Clinical Use Only”; and
2. “Not evaluated for Infectious Substances.”

b) Donor (anonymous or directed) tissue that has completed 180-day quarantine release requirement:

1. “For Non-Clinical Use Only.”

c) Client Depositor or donor (anonymous or directed) tissue from gamete provider(s) who had reactive test results OR have been determined to be ineligible:

1. Biohazard label;
2. “For Non-Clinical Use Only”; and
3. If applicable, “WARNING: Reactive test results for (insert name of test).”

G3.300 Transport Package Label Content

G3.310 Domestic Shipments

The transport package label shall include the following information:

1) Name, address and telephone number of the Distribution facility;

2) Name and address of the destination;

3) Unless the shipment contains reproductive tissue, prominent identification of contents as “DONATED HUMAN TISSUE”;

4) Recommended storage conditions and transport expiration date (if applicable);

5) Type and quantity of refrigerant or other hazardous materials enclosed in the transport package; and

6) Any special handling instructions, when applicable (e.g., “DO NOT FREEZE,” “DO NOT X-RAY,” “DO NOT IRRADIATE”).

G3.320 International Shipments

Labels for international shipments shall contain all of the information required for domestic shipments; however, information may be modified to meet requirements of the federal government and those of the receiving country.
SECTION H
DISTRIBUTION AND DISPENSING

Words that are defined in A2.000 Definitions of Terms appear in *italics* and are capitalized (e.g., *Audit*). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these *Standards*.

**H1.000 DISTRIBUTION AND DISPENSING—GENERAL**

There shall be SOPs for the following: receipt of tissue orders, unit selection, final *Container*, and/or package inspection, shipping, and transportation of tissue for transplantation.

**H1.010 Solutions**

(S, CT) Any specifically required solutions needed to prepare the tissue for use shall be made available to the utilizing facility.

(V) Any specially required solutions (not readily available in an operating room) needed to complete the vascular *Allograft* operative preparation procedure shall be made available to the utilizing facility. Each tissue bank should have procedures detailing proper storage, handling, and return of any required solutions.

**H1.100 Tissue Distribution and Dispensing Restrictions**

Provision of tissue for transplantation shall be restricted to hospitals, free-standing medical facilities, tissue banks, *Tissue Dispensing Services*, and *End-Users* (e.g., physicians, dentists, podiatrists or other medical professionals) *for use in Recipients*. Human tissue for transplantation shall not be offered, distributed or dispensed for *Veterinary Use*. If tissue is provided to a *Tissue Distribution Intermediary*, the *Tissue Distribution Intermediary* shall meet the requirements of Section M of these *Standards*.

**H1.110 Client Depositor Authorization**

(R) Cryobanked *Reproductive Tissue* for potential therapeutic insemination, use in another *Assisted Reproductive Technology* procedure, or for other specified *Disposition* shall be released only upon written authorization of the *Client Depositor*, if of legal age or, if not, by that of parent, legal guardian, or his/her legally appointed designee.

Cryobanked *Reproductive Tissue* shall be released for *use by the Client Depositor or the Client Depositor’s* sexually intimate partner only. Prior to release of the specimens, a statement *containing a verified signature* from the *Client Depositor* shall be obtained indicating the relationship between the intended *Recipient* and the *Client Depositor*.

**H1.120 Reproductive Tissue Distribution Restrictions**

(R) A *Client Depositor* who requests that his/her cryobanked *Reproductive Tissue* be distributed to a *Recipient, who is not the Client Depositor or who is not the sexually intimate partner of the Client Depositor*, shall be treated as a *Directed Donor(s)*. All *Directed Donor(s)* must be fully tested and *screened* in a manner
consistent with donor protocols and these Standards. Alternatively, the Client Depositor Reproductive Tissue may be distributed in Quarantine with proper labeling to clearly identify the donor suitability assessment is not yet complete. See F2.300.

Reproductive Tissue shall not be distributed to private individuals unless the request is in the form of a physician’s written order for such Distribution.

**H1.130 Donor Conceived Offspring Limitations**

(R) A written policy addressing limitation of the number of offspring by a gamete donor shall be established. The policy shall include the upper limits deemed acceptable to the Reproductive Tissue Bank and shall describe the methods that will be used to comply.

**H1.200 Transfer of Tissue to Other Tissue Banks/Dispensing Services**

When a tissue bank forwards tissue obtained from another tissue bank or Tissue Distribution Intermediary, all accompanying original Labeling Materials or other enclosures shall be forwarded with the tissue.

**H1.300 Requests for Donor Status and Tissue Processing Information**

Donor risk assessment, tissue-related information, and tissue Processing details shall be made available to the End-User upon request, except such information that may infringe upon the confidentiality of donor information.

**H1.400 Distribution Records**

Distribution records shall be maintained by the tissue bank that ships tissue (including unfinished or as yet unreleased tissue) to other entities. These records shall be designed to permit tissue to be traced from the donor to a Consignee or End-User, and from a Consignee or End-User back to the donor. Tissue Distribution records shall include:

1) Date of order placement;
2) Name and address of Consignee;
3) Name of individual placing the order;
4) Type and quantity of tissue ordered;
5) Information pertaining to tissue shipped including:
   a) Identification number(s) of tissue(s);
   b) Collection and/or expiration date of tissue;
   c) Date of shipment;
   d) Type and amount of refrigerant, if any, used for shipment;
   e) Mode of transportation and/or courier; and
f) Name of the staff member filling the order.

6) Identifying information, if available, about the intended Recipient.

**H1.410 Responsibility**

The tissue bank shall establish Recipient follow-up data collection protocols.

**H2.000 TISSUE FOR RESEARCH—GENERAL POLICIES AND PROCEDURES**

Facilities providing tissue for research and other non-transplantation purposes shall develop detailed relevant specific policies and procedures. Informed Consent or Authorization for research and/or education shall be obtained. See Standards D2.000 and D3.000.

**H2.100 Written Requests**

All requests for human tissue intended for research use shall be submitted in writing. The request shall indicate the type of tissue requested and how it will be used as well as the name, address and affiliation of the principal investigator accepting responsibility for receipt of the tissue.

**H2.200 Review and Approval**

Tissue requests for research purposes shall be reviewed and approved based on legal, ethical, and technical considerations defined in the SOPM.

**H3.000 PACKAGING AND SHIPPING**

**H3.100 Integrity**

Packaging shall be designed to ensure tissue integrity and prevent contamination of the contents of the final Container(s).

**H3.200 Tissue Storage Environment**

Maintenance of defined environmental conditions during transit shall be required. Specific environmental conditions shall be in accordance with the SOPM, these Standards and applicable laws and regulations.

**H3.300 Validation and Expiration of Transport Container**

If tissue to be shipped requires specific environmental conditions other than ambient temperature, the capability of the transport container to maintain the required environmental conditions shall be demonstrated and documented in a Validation study. The length of time that these conditions can be maintained by the transport container shall also be determined and documented. Expiration dates of the transport container shall be noted on the outside of the transport container.

**H3.400 Quality Control**

If tissue to be shipped requires specific environmental conditions other than ambient temperature, QC monitoring of shipping packaging must be performed according to the SOPM to verify maintenance of the required environmental conditions. These QC checks shall be documented.
H3.410 Residual Levels in Packaging

(C, V) If ethylene oxide is used to Sterilize processing or packaging components that come in contact with the Allografts (e.g., Disinfection jars or packaging pouches), residues of ethylene oxide, ethylene glycol, and ethylene chlorohydrin should be evaluated. Refer to ISO 10993-7.

H3.500 Final Inspection

All packages shall be subjected to a final inspection to ensure that the Containers are intact, the Labels are accurate, the Package Insert is present, and that the final package is appropriate for the type and requirements of the tissue being shipped.

The exterior of the transport container shall be inspected to verify that requirements in Standard G3.310 are met. These inspections shall be documented, including identification of staff conducting inspections.

H3.600 Transportation

The mode of transportation selected shall be determined by any special shipping and handling requirements of the tissue and/or shipping refrigerants, by shipping restrictions of commercial carriers, and the urgency of the tissue request.

H4.000 RETURN OF TISSUE

A tissue bank shall establish a policy authorizing or prohibiting the return of tissue in its original, unopened Container. If returns are permitted, the integrity of the Container, package, and labeling shall be examined for evidence of contamination or tampering. If there is any evidence of contamination, tampering, mishandling, or failure to maintain required storage temperatures, tissue shall not be returned to Distribution inventory. Information pertaining to the return of tissue shall be recorded in the Disposition records for that shipment of tissue as follows:

1) Documentation of package and/or Container examination;

2) Documentation of End-User handling, storage, and shipping conditions;

3) Reason for the return;

4) Disposition of the returned tissue(s); and

5) Date and name of the staff member authorized to evaluate and determine the Disposition of the tissue(s).

(R) Cryopreserved donor reproductive tissue that has been released to a physician or designee and subsequently not used and returned to the Reproductive Tissue Bank in the frozen state shall not be redistributed for use by any other physician or designee.

H4.100 Temperature Records

For tissue that requires controlled environmental temperatures, at a minimum, documentation is required that attests the tissue was maintained at required storage temperatures.

(S) Refrigerated skin may be returned to inventory if it has been maintained above freezing (0°C) to 10°C in a closed Container.
Frozen/cryopreserved skin that has been thawed shall not be returned to the skin bank inventory. Frozen/cryopreserved skin shall not be assigned for use to another patient if the package has been opened.

H5.000 CORRECTIONS AND REMOVALS — GENERAL

Tissue banks shall have specific written policies and procedures for the initiation and performance of a Correction or Removal, if applicable. Procedures shall include, but are not limited to, the following:

1) Evaluation and determination by a Responsible Person(s);

2) Timely identification and management of affected inventory;

3) Assessment of associated health risk;

4) Field communications (e.g., Field Notification);

5) Types of Corrections or Removals (e.g., Recall, Market Withdrawal, Stock Recovery);

6) Reporting requirements;

7) Evaluation of effectiveness;

8) Termination or closure;

9) Documentation and record requirements; and

10) Review by Management with Executive Responsibility.

Tissue banks not directly responsible for conducting Corrections or Removals, but that perform activities that could lead to the need for a correction or removal (e.g., tissue recovery, donor screening, donor testing) shall have policies and procedures for the timely notification of all affected parties regarding information related to tissue safety or regulatory requirements.

H5.100 Circumstances That May Require Correction or Removal

The need to perform a Correction or Removal may be identified as a result of a Complaint, Adverse Outcome, Accident, Error, Deviation, Audit, or by any other means. An evaluation to determine if correction or removal is warranted should be made whenever distributed tissue may not meet specifications related to safety, quality, identification, function and/or use. This evaluation must consider both risk to health posed by the tissue and applicable regulatory requirements, and be documented.

H5.200 Notification Responsibilities

Upon discovery of the need for Correction or Removal, the tissue bank shall promptly notify all entities to which affected tissue was distributed or dispensed as well as the tissue bank that recovered the tissue, if applicable.

H5.300 Handling of Tissue

All tissues not already transplanted, which are subject to Correction or Removal, shall be
located and Quarantined pending Resolution of the issue.

H5.400 Reporting Requirements

Tissue banks shall comply with all Correction and Removal reporting requirements for applicable federal, state and international government/competent authorities under which they operate or distribute tissue.

For additional information, refer to FDA Guidance for Industry: Product Recalls, Including Removals and Corrections at: http://www.fda.gov/safety/recalls/industryguidance/ucm129259.htm

H5.500 Correction and Removal Records

All information relating to the Correction or Removal of tissue and resulting communications shall be documented and retained on file at least 10 years beyond the date of Distribution, the date of transplantation (if known), Disposition, or expiration of the tissue, whichever is latest. The file shall include the following information:

1) Events precipitating the Correction or Removal;

2) Identification and location of affected tissue, including quarantine steps;

3) Associated risk assessment;

4) Type of Correction or Removal (e.g., Recall, Market Withdrawal, Stock Recovery);

5) Steps taken to correct or retrieve tissue;

6) Documentation of all related communications (e.g., phone calls and/or written correspondence, including copies of Field Notifications or letters and a list of those to whom notice was sent);

7) Final Disposition of the tissue;

8) Copies of reports to regulatory authorities, accreditation organizations and certification bodies, if required;

9) Corrective actions recommended and implemented; and

10) Documentation of review; if of a medical nature, review by the Medical Director or licensed physician designee.
SECTION J
GENERAL OPERATIONS

Words that are defined in A2.000 Definitions of Terms appear in italics and are capitalized (e.g., Audit). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these Standards.

J1.000 STANDARD OPERATING PROCEDURES MANUAL (SOPM)

Each tissue bank shall develop written detailed policies and procedures in a standardized format, which shall be collected into a Standard Operating Procedures Manual (SOPM). These shall be available at all locations for which they are designated, used, or otherwise necessary, and shall be utilized to ensure that all tissue released for transplantation is in compliance to these Standards and applicable laws or regulations.

J1.100 Identification and Control

Policies and procedures shall be established for identification and control of procedures and forms including requirements for:

1) approval for adequacy prior to use;

2) the review, revision and re-approval as needed;

3) identification of the current revision status and of changes to previous revisions;

4) distribution to points of use (i.e., all locations where access to procedures is needed);

5) legibility and ease of identification; and

6) prevention of the unintended use of obsolete documents and suitable identification controls if obsolete documents are retained for any reason.

J1.200 Contents

The SOPM shall specifically include, but shall not be limited to:

1) Donor policies and procedures, including Informed Consent or Authorization, donor suitability criteria, donor screening methods, time limits for tissue recovery, notification of confirmed positive test results, information sharing and, if applicable, reconstruction and final disposition of a deceased donor’s body (D2.000, D3.000, D4.000 and D5.000);

2) Tissue Collection, Recovery and handling policies and procedures, including supplies and methods used in all aspects of the operation involving the assessment of the Recovery Site, Recovery, Processing, packaging, quarantine, labeling, storage, donor suitability review, and/or release of tissue (D5.000, D6.000 and Sections E, F and G);

3) Laboratory procedures for tests performed in-house, including establishment of appropriate specifications, standards, and test procedures to assure that tissue is safe; and for contracted laboratory testing, policies and procedures defining which tests shall be performed and how test results shall be received, reviewed, interpreted, and managed (D4.350);
4) Policies and procedures for purchasing controls, order receipt, unit selection, final inspection of Container, and package and shipping of tissue, as well as criteria for returning and reissuing tissue (K1.300, M3.000, M4.000, M5.000 and Section H);

5) Record management policies and procedures designed to maintain Traceability and facilitate (if necessary) product Recall and Recipient notification by documentation of each step of tissue production from the point of Collection, Recovery and identification to final Distribution of the tissue (C1.000, C1.400, H5.000, L4.000, M6.000 and M7.000);

6) Quality Assurance and Quality Control policies and procedures for supplies, equipment, instruments, reagents, labels, and processes employed in tissue Collection, Recovery, Processing, packaging, labeling, storage, Distribution, and preparation of tissue for transplantation, including policies and/or procedures:

   a) for labeling of cultures, blood specimens and other donor specimens (e.g., lesions, lymph nodes) (D4.350, D5.000 and Section G);

   b) for monitoring storage temperatures, for defining Tolerance Limits, and for describing what, when, and how corrective actions are to be taken for implementing emergency transfers and determining alternative storage and monitoring methods for tissue and reagents (E4.000, F4.200 and M2.000);

   c) the investigation, documentation, and reporting of Accidents, Errors, Complaints, and Adverse Outcomes (K4.000);

   d) for the performance of Corrections and Removals, if applicable, and/or the timely notification of affected parties regarding information related to tissue safety or regulatory requirements (H5.000, L6.000 and M6.000);

   e) requiring notification of Management with Executive Responsibility of any Corrections or Removals, investigations, inspection reports, or regulatory actions (H5.000 and K4.000);

   f) that establish which supplies, reagents, materials and equipment are considered Critical (D5.100, E1.300, J5.100);

   g) and schedules for equipment inspection, maintenance, repair and calibration for the purpose of maintaining equipment (J5.000);

   h) describing the receipt, identification, storage, handling, sampling, testing, and subsequent approval or rejection of Containers, packaging materials, labels, reagents, and supplies (D5.000, E1.000, E2.000, J5.500 and Section G); and

   i) for monitoring In-Process Controls and managing events such as failed test runs and failure of a Lot to meet established specifications (Section K).

7) Policies and procedures for assigning expiration dates (E4.200, H3.300 and K1.200);

8) Policies and procedures for handling requests for research tissue (H2.000);

9) Procedures for disposal of medical waste and other hazardous waste (J3.000);
10) Emergency and safety policies and procedures, including reporting of staff injuries and potential exposure to blood-borne pathogens (J3.000);

11) Procedures assigning responsibility for the sanitation of facilities and describing the cleaning schedules, methods, equipment and materials to be used (J4.000);

12) Policies and procedures describing manual methods for tissue banking activities in the event of electronic or equipment malfunction (K6.000);

13) Policies and procedures describing requirements of training programs for technical and QA staff (J2.000); and

14) Policies and procedures for identification and control of procedures and forms including requirements (J1.100, J1.400).

J1.300 Implementation

The SOPM and associated process-Validation studies shall be reviewed and approved by appropriate individuals as dictated by content. All medically-related portions of the SOPM shall be reviewed and approved by the Medical Director. Upon implementation, all portions of the SOPM must be followed as written. Minor Deviations from the SOPM may be authorized in writing by the Medical Director, or QA designee provided the Deviation is in compliance with these Standards.

J1.400 Modifications

The SOPM shall be updated to reflect modifications or changes, and shall include a description of the change, justification for the change, identification of the affected documents, the signature of the approving individual(s), the approval date, and when the change becomes effective.

Prior to implementation, each modification shall be approved by appropriate individuals or the Medical Director, as dictated by content, and training shall be provided to pertinent staff. Implementation dates shall be recorded for all affected procedures. Obsolete documents shall be promptly removed from all points of use or otherwise prevented from unintended use.

J1.500 References

Copies of publications cited in support of policies or procedures shall be maintained at the tissue bank.

J1.600 Annual Review

An annual review of all policies and procedures shall be performed and documented. The Medical Director shall perform and document an annual review of the SOPs for donor suitability and Adverse Outcomes.

J1.700 Staff Access and Review

Current copies of the SOPM applicable to specific staff functions shall be in designated locations and available to the staff at all times. New and revised policies and procedures shall be reviewed by applicable staff prior to implementation. Documentation of their review and any associated training shall be maintained at least 16 years after termination of
employment or as required by applicable laws or regulations, whichever is longer.

**J2.000 TECHNICAL AND QUALITY ASSURANCE STAFF—TRAINING/CONTINUING EDUCATION**

**J2.100 Training**

Training shall be conducted for technical and QA staff to maintain Competency in procedures and familiarity with applicable regulations and AATB Standards. Training shall encompass the following areas, as applicable: new employee orientation; the SOPM; technical training; QA; Electronic Systems; and continuing education. All training activities shall be documented. Training records shall be retained for 16 years after termination of employment or as required by law, whichever is longer.

1) As part of their training, personnel shall be made aware of the consequences of the improper performance of their specific jobs.

2) Personnel who perform Verification and Validation activities shall be made aware of Accidents and Errors that may occur and be encountered as part of their job functions.

(SB) Training shall be conducted to maintain Competency in procedures and familiarity with appropriate regulations and AATB Standards. Training shall be conducted for all staff whether they are employees of the tissue bank, contracted employees, or other individuals (e.g., hospital staff) who are responsible for determining donor suitability, or recovering, or packaging the tissue.

**J2.200 Competency**

Technical staff must demonstrate Competency in the particular operations for which they have received training (including a thorough understanding of the policies, procedures, Process Controls, and regulatory requirements) and to which they are assigned.

**J2.300 Continuing Education**

Technical staff shall participate in continuing education, which may include training courses, technical meetings, and any other educational programs pertaining to assigned functions. Such participation shall be documented.

**J2.400 Training Records**

Training records shall be maintained for each employee with documentation of the following:

1) Training checklist for new employees and employees with newly assigned tasks;
2) Delineation of functions that each employee is authorized and trained to perform;

3) Documentation of review and training prior to implementation of new and/or revised sections of the SOPM;

4) Annual review of policies and procedures for which the employee has been trained, including safety procedures;

5) Annual attendance at hazardous materials training; and

6) Attendance at workshops, seminars, meetings, or other continuing education programs.

J3.000 SAFETY PRACTICES

J3.100 Work Environment

Each tissue bank shall provide and promote a safe work environment by developing, implementing, and enforcing safety procedures. These procedures shall be incorporated into the SOPM or reside in a specific Safety Manual which is referenced by the SOPM. The procedures shall be written in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations, guidelines established by the CDC, and applicable laws or regulations. All safety procedures shall be approved and reviewed annually.

J3.200 Procedures

Safety procedures shall include, but are not limited to, the following:

1) Instructions for contacting emergency personnel and the establishment of evacuation routes and procedures in the event of fire or disaster;

2) Procedures for management of worker injury including possible exposure to hazardous materials or blood-borne pathogens. Such procedures shall require a written report of the incident, including documentation of medical care received, management notification, and actions to prevent recurrence;

3) Delineation of Universal Precautions as defined by the CDC;

4) Procedures specifying the proper storage, handling, and utilization of hazardous materials, reagents and supplies, including pertinent Materials Safety Data Sheets; and

5) Procedures outlining the steps to be followed in cleaning biohazardous spills.

J3.300 Hazardous Materials Training

A training program shall be designed to inform employees about chemical, biological, and radioactive hazards of the workplace as well as the use of personal protection devices to reduce the risk of exposure to these hazards.

J3.400 Universal Precautions

Universal Precautions, as defined by the CDC, shall be implemented and enforced to reduce the potential exposure of staff to communicable diseases.
J3.500 Immunization

Hepatitis B vaccination shall be offered free of charge to all non-immune personnel whose job-related responsibilities involve the potential exposure to blood-borne pathogens. Personnel files shall include documentation of receipt of vaccination or refusal of immunization with hepatitis B vaccine.

J3.600 Hazardous Waste Disposal

Biohazardous human tissue, medical waste, and other hazardous materials utilized shall be disposed of in accordance with applicable laws or regulations in such a manner as to minimize environmental impact and exposure of personnel. Medical waste and hazardous material tracking records shall be maintained in accordance with the regulations of the regulatory agency charged with management oversight.

J3.700 Personnel

J3.710 Attire

Personnel engaged in the Recovery, Processing, Preservation, or packaging of tissue shall be suitably attired. Attire shall include personal protection devices to minimize the spread of transmissible pathogens among and between donors, tissue, and staff.

J3.720 Infections

Any staff member shown (either by medical examination or supervisory observation) to have a serious infectious condition (e.g., an apparent illness or open lesion) that may adversely affect the Safety of the tissue shall be excluded from the Recovery, Processing, Preservation, or packaging of tissue until the condition is determined to be resolved. All staff members shall be instructed to report, to supervisory personnel, any health conditions that may have an adverse affect on tissues.

J4.000 FACILITIES

J4.100 General

The physical plant shall be designed or arranged to meet operational needs. The premises shall be maintained in a clean, sanitary, and orderly manner with adequate plumbing, drainage, lighting, ventilation, and space. Adequate, clean, and convenient hand washing facilities shall be available for personnel and for donors when applicable. Specific suitability parameters for the Recovery Site (see D5.500 Recovery Environment), or where Collection of anonymous semen donation takes place, shall be evaluated.

J4.200 Designated Space

To prevent Errors and Cross-Contamination of tissue, the following critical procedures shall be performed in designated areas of adequate size:

1) Processing;

2) Quarantine storage of In-Process Materials;

3) Other Quarantining;
4) Labeling;
5) Storage of distributable inventory;
6) Quality Assurance/Control functions;
7) Receipt and storage of Containers, Container labels, supplies, and reagents;
8) Storage of medical waste;
9) Irradiation and other Sterilization procedures; and
10) Final product inspection and Distribution activities.

J4.210 Routine Cleaning

Facilities used for Collection, Recovery, Processing, or Preservation, or for other activities where there is potential for Cross-Contamination of tissue or exposure to blood-borne pathogens, shall be subjected to routine, scheduled, documented sanitation procedures. Cleaning events performed by tissue bank personnel shall be documented.

J4.300 Environmental Monitoring

Environmental monitoring procedures shall be established, where appropriate, as part of the QA Program. Monitoring procedures may include, but are not limited to, particulate air samplings (e.g., air bacterial content assays) equipment and personnel monitoring if product contact occurs, and work-surface cultures. Frequency of sampling shall be based on the results of prior samplings or suitable justification or related industry guidelines. Procedures shall include acceptable test parameters and corrective actions to be implemented in the event that parameters are exceeded. Each monitoring activity shall be documented and results trended.

Environmental monitoring at the Recovery Site is not required, however pre-established parameters designed to prevent contamination and cross-contamination must be met (see D5.500 Recovery Environment).

Rooms used for storage of liquid nitrogen tanks should be periodically monitored for oxygen levels if not appropriately ventilated.

J4.400 Security

Tissue banks shall maintain adequate physical security to safeguard tissue inventory and records as well as to prevent the entry of unauthorized individuals. Such security may be in the form of personnel, electronic or mechanical devices or barriers, or configuration of the physical plant. Only those personnel (including persons conducting inspections) who are authorized by supervisory personnel shall enter those areas of the building or facility designated as limited-access areas.
J5.000 EQUIPMENT

J5.100 Selection

Equipment and instruments should be of appropriate quality for their intended function. Equipment used in the Recovery, Processing, Preservation, packaging, or storing of tissue shall be appropriately sized, designed, and located to facilitate use, cleaning, and maintenance. Equipment shall be constructed so that surfaces contacting tissue shall not alter the Safety or quality of the tissue. See E1.300.

J5.200 Operation

Equipment shall be operated according to manufacturer’s recommendations unless it is demonstrated that modifications to operating procedures will not adversely affect either the quality of tissue or personnel safety.

J5.300 Qualification and Maintenance

Equipment, laboratory instruments, apparatus, gauges, and recording devices shall be qualified and routinely calibrated, maintained, inspected, monitored, cleaned, Sterilized, disinfected, decontaminated, and repaired at appropriate intervals in accordance with the SOPM and schedules. Calibration procedures shall include specific directions and limits for accuracy and precision. When accuracy and precision limits are not met, there shall be provisions for remedial action to reestablish the limits and to evaluate whether there was any adverse effect on quality. Where appropriate, Tolerance Limits shall be specified. Documentation of such activities shall be made and maintained in equipment files for 10 years. Such records shall include documentation of repairs, rejection, return, and/or disposal of defective equipment.

J5.310 Requalification/Recalibration

Following repairs and system upgrades, equipment should be requalified and/or recalibrated according to procedures in the SOPM that have been designed to be in compliance with the manufacturer’s requirements and recommendations.

J5.400 Decontamination/Sterilization

Equipment shall be cleaned, Sterilized, or decontaminated at appropriate intervals in accordance with the SOPM to prevent malfunction, contamination, Cross-Contamination, or accidental exposure to blood-borne pathogens. Equipment for Sterilizing materials used in tissue Recovery, Processing, or packaging shall be designed, qualified, maintained, and utilized to ensure adequate function.

Instruments used to recover and/or process Dura Mater, vertebrae, or ocular tissue that are known to have come in contact with tissue from a donor suspected or confirmed to have a prion- associated disease, must be removed and destroyed. Tissues from other donors for which those instruments were subsequently used for Recovery or Processing shall be identified, Quarantined, withdrawn and/or Recalled pending further evaluation.

J5.500 Storage Equipment

Equipment used for storage of tissue shall be identified to facilitate monitoring of temperature and location of in-process, quarantine, and Distribution inventory. Equipment shall be labeled with the general nature of the contents.
Storage equipment used for storing tissue, reagents, media, refrigerants, or other laboratory solutions shall not be utilized for the storage of food and/or liquids for human consumption and shall be marked accordingly.
SECTION K
QUALITY ASSURANCE

Words that are defined in A2.000 Definitions of Terms appear in *italics* and are capitalized (e.g., Audit). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these Standards.

K1.000 QUALITY ASSURANCE PROGRAM

All tissue banks shall have a QA Program.

**K1.100 Basic Elements**

QA programs shall include, at a minimum:

1) Designation and management of *Quality Control* functions, including:
   a) Environmental monitoring at designated intervals;
   b) Performance and documentation in maintenance records or logs of periodic equipment and facility inspections;
   c) Review of equipment monitoring records for maintenance within specified *Tolerance Limits*, and reviewing records of other equipment or *Processing* functions that have specified *Tolerance Limits*;
   d) Inspection and monitoring *In-Process Control* results, including collection and testing of representative samples;
   e) Performing *qualification* of reagents, *supplies, materials, or equipment* when deemed *Critical* or applicable; and
   f) Monitoring laboratory performance, if applicable.

2) *Process Validation Studies* are performed where the results of a process cannot be fully verified by subsequent inspection and test. Each tissue bank shall establish and maintain procedures for monitoring and control of process parameters for validated processes to ensure that the specified requirements continue to be met. Each tissue bank shall ensure that validated processes are performed by qualified individual(s). For validated processes, the monitoring and control methods and data, the date performed, and, where appropriate, the individual(s) performing the process or the major equipment used shall be documented. When changes or process deviations occur, the tissue bank shall review and evaluate the process and perform revalidation where appropriate. These activities shall be documented;

3) *Equipment Qualification Studies* are performed as necessary;

4) Purchasing controls are established;

5) Procedures are established for implementing corrective and preventive action is taken when appropriate. The procedures shall include requirements for:
   a) Analyzing processes, work operations, concessions, quality audit reports, quality records, errors, accidents, complaints, returns, and other sources of quality data to identify existing and potential causes of nonconforming tissue, or other quality
problems. Appropriate statistical methodology shall be employed where necessary to detect recurring quality problems;

b) Investigating the cause of nonconformities relating to tissue, processes, and the quality system;

c) Identifying the action(s) needed to correct and prevent recurrence of quality problems;

d) Verifying or validating the corrective and preventive action to ensure that such action is effective and does not adversely affect the Finished Tissue;

e) Implementing and recording changes in methods and procedures needed to correct and prevent identified quality problems;

f) Ensuring that information related to quality problems is disseminated to those directly responsible for assuring the quality of Finished Tissue or the prevention of such problems; and

g) Submitting relevant information on identified quality problems, as well as corrective and preventive actions, for management review;

6) Review and approval of donor screening, Informed Consent or Authorization, Recovery or Collection, and Processing records prior to release of tissue for transplantation;

7) Performance of audit procedures;

8) Documentation of formal conclusion of all Accident, Error, Complaint, Adverse Outcome, and Correction or Removal incidents;

9) Maintenance of documentation including, but not limited to:

   a) Master copy of current SOPMs;

   b) For those authorized to perform or review tasks, records of names, signatures, initials or identification codes and inclusive dates of employment shall be maintained (e.g., by Human Resources, Quality Assurance, or by department);

   c) Reports and conclusions of process Validation and Equipment Qualification Studies;

   d) Records of supply and reagent acceptance or rejection;

   e) Archived documents; and

   f) Master lists of preprinted labels.

10) Evaluation of training of personnel and, where possible, the Competency of personnel, and requiring that staff are appropriately oriented and trained concerning any modifications to the SOPM;

11) Maintenance of labeling controls, including all brochures, pamphlets, and promotional materials; and

12) A process for sharing information with other Tissue Banks that are known to have recovered and/or received tissue from the same donor.
K1.200 Qualification, Verification, and Validation Requirements

Protocols shall be developed, implemented, and documented for the Qualification, Verification, or Validation of significant components of facilities, processes, equipment, reagents, labels, Containers, packaging materials, and electronic systems. Process validations shall be performed where the results of a process cannot be fully verified by subsequent inspection and test. Validations shall be assessed when process changes are made and revalidation performed as indicated. Determination of the frequency and which elements or items are to be qualified, verified, or validated shall be made by individuals responsible for Quality Assurance and regulatory compliance. Evaluation of parameters tested shall be performed and adequacy of the study to demonstrate necessary outcomes shall be determined.

K1.210 Validation of Shipping Containers

(C, V, CT) Qualification studies of the transportation devices and methods for temporary storage shall demonstrate maintenance of the temperature and appropriate characteristics of the tissue at required storage temperatures for the entire requisite time.

K1.220 Validation Procedures—Packaging and Freezing Protocols

(C, V, CT) Packaging and freezing protocols, to meet pre-specified tissue characteristics, shall be established and documented.

K1.300 Purchasing Controls

Each tissue bank shall establish and maintain procedures to ensure that all purchased or otherwise received products and services conform to specified requirements. Each tissue bank shall establish and maintain the requirements, including quality requirements that must be met by suppliers, contractors, and consultants. Each tissue bank shall:

1) Evaluate and select potential suppliers, contractors, and consultants on the basis of their ability to meet specified requirements, including quality requirements. The evaluation shall be documented.

2) Define the type and extent of control to be exercised over the product, services, suppliers, contractors, and consultants, based on the evaluation results.

3) Establish and maintain records of acceptable suppliers, contractors, and consultants. Each tissue bank shall establish and maintain data that clearly describe or reference the specified requirements, including quality requirements, for purchased or otherwise received product and services. Purchasing documents shall include, where possible, an agreement in which the suppliers, contractors, and consultants agree to notify the tissue bank of changes in the product or service so the tissue bank can determine whether the changes may affect quality.

K2.000 QUALITY CONTROL PROGRAM

The QA Program shall establish and maintain QC procedures that include the following:

1) Environmental monitoring;
2) Equipment maintenance and monitoring;
3) Tolerance Limits;
4) In-Process Controls monitoring;
5) Reagent and supply monitoring; and
6) Laboratory performance monitoring.

**K2.100 Proficiency Testing**

Proficiency testing shall be performed and encompass routine and alternate test procedures. Samples shall be tested by Responsible Persons. Procedures shall incorporate a plan for remedial action for poor performance on Proficiency testing.

**K2.200 Microbiological Tissue Cultures**

**K2.210 Pre-Sterilization/Pre-Disinfection Cultures**

Except for Reproductive Tissue Banks and skin (S), each Tissue Bank shall establish appropriate Pre-Sterilization/Pre-Disinfection Culture methods and sampling strategies to represent all tissues received from a particular donor. The Pre-Sterilization/Pre-Disinfection Culture results shall be documented in the donor’s record. See AATB Interim Guidance Document No. 5, Standard K2.210 Pre-Sterilization/Pre-Disinfection Cultures for required expectations.

The Medical Director or his/her physician designee [see exception that follows for (S)] shall review these Pre-Sterilization/Pre-Disinfection Culture results prior to release of tissue for transplantation.

(MS, OA, SB)
Tissues with Pre-Sterilization/Pre-Disinfection Cultures positive for Clostridium, Streptococcus pyogenes (group A strep.), or any other microorganisms determined by the processor to be virulent or difficult to eliminate, shall be discarded unless treated with a disinfection or sterilization process validated to eliminate the infectivity of such organisms. Other individual tissues from the same donor that were recovered under conditions that could result in Cross-Contamination must be discarded unless they will be treated with a disinfection or sterilization process validated to eliminate the infectivity of such organisms.

(C, V, CT)
Standard E1.040 Sterilization/Disinfection of Tissue (C, V, CT) applies.

(S) Pre-processing skin cultures from representative anatomical areas shall be obtained prior to exposure of the tissue to antibiotic-containing Processing solutions or other disinfecting/sterilization methods. Culture results shall be documented in the donor’s record. Individual anatomic areas yielding cultures positive for Microorganisms considered to be pathogenic, highly virulent must be discarded unless the tissue can be disinfected/sterilized with a validated process (See E1.040 Sterilization/Disinfection of Tissue). The Medical Director or designee shall review all available pre-processing skin culture results prior to releasing the tissue for transplantation. Skin Recovery shall be performed as a separate zone from other tissue types so that culture
results can be independently reviewed.

K2.220 Final/Pre-PACKAGING

Except for autologous and reproductive tissues, all tissue to be released for human transplantation shall have representative microbiological cultures obtained which includes testing to detect bacteria and fungi. The results must be documented in the donor record, unless Dosimetric Release has occurred by a validated process according to E1.042. Appropriate final packaging cultures (aerobic and anaerobic) shall be obtained and the results shall meet established parameters defining acceptable final packaging cultures before tissue is released for transplantation. All culture results shall be reviewed prior to release of tissue for transplantation. Any variance in the culture results from established parameters shall be reviewed and approved by the Medical Director or his/her designee prior to release. Except as described for skin below (S), no Allografts contained within the Processing Batch may be released for transplantation if post-processing final sterility test results show organism contamination. Allograft rework is permitted with an established program validated to eliminate the organism identified.

(A) Except for skin, if autologous tissue is being processed, microbiologic cultures, which includes testing to detect bacteria and fungi, should be obtained immediately prior to Processing.

(C, V) Representative cardiac and vascular tissue samples shall be cultured for fungal growth.

(MS, OA, SB, C, V, CT)
Microbiologic testing of processed tissue, which includes testing to detect bacteria and fungi, shall be performed on each donor Lot.

(S) Representative fresh or cryopreserved skin samples shall be cultured for the presence of fast-growing fungal organisms. Fresh or cryopreserved skin shall not be used for transplantation if any one of the following is noted at final culture:

1) Staphylococcus aureus;
2) Streptococcus pyogenes (group A strep.);
3) Enterococcus sp.;
4) gram-negative bacilli;
5) Clostridium; and
6) fungi (yeasts, molds).

K2.300 Testing for Residues

(C, V) Representative samples from processed tissue that have been thawed, rinsed and prepared as if for use should be tested to evaluate the concentration of residual Cryoprotectant(s) (if applicable), initially and after any change in Processing.
K2.400 Other Quality Control Procedures

K2.410 Lyophilized/Dehydrated Tissue

(MS) QC programs for monitoring performance of either a lyophilizer or a dehydrator shall be documented. Either one representative sample for each type of tissue dried or duplicate cortical bone samples from each drier run shall be tested for residual moisture.

K2.420 Annual Calibrations

Mechanical devices used for storage shall be subjected to no less than annual calibration with a National Institute of Standards and Technology-traceable thermometer. Calibration records shall be maintained as part of the overall QA program.

K3.000 MICROBIOLOGIC TESTING

All microbiologic cultures of tissue to be released for transplantation shall be performed by a laboratory that is either certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88) or is certified or accredited by another laboratory accrediting organization that has deemed status for CLIA (the College of American Pathologists, The Joint Commission, certain state licensure). If the services of an outside laboratory are used, the procedures used by that laboratory and results of testing by that laboratory shall be reviewed by the Responsible Person at the tissue bank and recorded in the donor’s record. The facility must also have a procedure in their SOPM for determining the acceptability of outside testing laboratories.

If microbiologic testing is to be performed by the tissue bank, the requirements as outlined in Standards E1.900-E1.920 (In-House Laboratory Testing, Laboratory Records, and Laboratory Controls) shall apply and the Tissue Bank must ascribe to proficiency testing programs and/or certification to appropriate ISO Standards.

K3.100 Transport Medium

The Transport Medium shall be such that it maintains the viability of aerobic and anaerobic, bacterial and fungal organisms.

K3.200 Selection of Growth Medium

Microbiologic growth media should be carefully selected to provide the optimal conditions to support the growth of aerobic and anaerobic, bacterial and fungal organisms commonly encountered from a particular site or type of specimen.

K3.210 Quality Control of Growth Medium

Tissue banks or contracted microbiology laboratories shall follow standards developed by the Clinical and Laboratory Standards Institute (CLSI) specifying the requirements for Quality Assurance testing of culture media (QA for Commercially Prepared Microbiological Culture Media, M22-A).

Media that has been purchased commercially does not require in-house QC testing; however, the testing laboratory should receive, along with each new Lot of media purchased from the manufacturer, a statement indicating that the medium meets the standards of the CLSI or any equivalent standards. These manufacturer’s statements shall be retained for at least 10 years as QC records for each batch of medium.
Tissue banks that prepare their own growth medium must perform the following QC checks on each batch of media prepared:

1) Each batch of media that is autoclaved or filtered during preparation shall be checked for sterility; a sample of the batch is sufficient for this check; and

2) Each batch of media shall be checked for ability to support growth, using Staphylococcus aureus ATCC 25923 to check for aerobic growth; and Bacteroides fragilis ATCC 23745 or 25285 for anaerobic growth.

If the batch or Lot is not used within 30 days, another check is recommended. Records must be kept for all QC procedures listed above. Batches of media that do not meet the above criteria shall not be used.

K3.300 Microbiologic Subcultures

Any positive microbiologic culture, as demonstrated by conventional criteria or automated instrumentation, shall have the organism identified to the genus, and, where appropriate, the species level.

K4.000 INVESTIGATIONS

The QA Program shall provide for the conclusion of investigation of Accidents, Errors, Complaints, and Adverse Outcomes. Precipitating events, recommendations, and Resolutions shall be documented in a summary report by the staff involved and reviewed for completeness by the QA Program. All reports generated shall be retained on file for 10 years.

K4.100 Errors and Accidents

Errors and Accidents obtaining Informed Consent or Authorization, in donor screening, Collection or tissue Recovery, Processing, quarantining, releasing, labeling, storing, and Distribution or dispensing, shall be investigated and documented. If the Error or Accident has medical consequences or may affect the Safety of the tissue, the Medical Director or designee shall also review and evaluate the incident. When tissue may have been contaminated, Processing procedures shall be reviewed and other tissue processed simultaneously or from the same donor shall be evaluated.

K4.200 Complaints

All written and oral Complaints regarding tissue quality, Safety, packaging, or effectiveness shall be expeditiously investigated to determine whether the Complaint is related to an Error, Accident, Adverse Outcome, or other factor, unless such investigation has already been performed for a similar complaint. If it is determined that no investigation is necessary, the tissue bank shall maintain a record that includes the reason no investigation was made and the name of the individual responsible for the decision not to investigate. Each investigation shall determine whether associated tissue may be affected. If it is determined that they may be affected, those associated tissue shall be located and Quarantined until Resolution of the incident (which may involve initiation of a Recall). Complaints that are medical in nature shall be reviewed by the Medical Director or licensed physician designee.

When an investigation is made, a record of the investigation shall include:
1) The date the complaint was received;
2) The name of the tissue;
3) The unique tissue identifier;
4) The name, address, and phone number of the complainant;
5) The nature and details of the complaint;
6) The dates and results of the investigation;
7) Any corrective action taken; and
8) Any reply to the complainant.

K4.300 Adverse Outcomes

All reported Adverse Outcomes that are potentially related, directly or indirectly, to an Allograft shall be investigated thoroughly and expeditiously. The Medical Director or licensed physician designee shall review all potential Adverse Outcome reports and be involved in determination of the impact and Resolution of any Adverse Outcome. If investigation indicates that the Adverse Outcome is related to an Error or Accident, then procedures for Errors and Accidents (K4.100) shall also be followed.

K4.310 Reporting

Cases of transmissible disease in a Recipient attributed to the Allograft shall be reported in writing in a timely fashion to public health authorities, organ procurement organizations and Tissue Banks involved in any manner with tissue recovered from the same donor and the physician(s) involved in the transplantation of tissue from that donor. Reporting shall be documented in the donor’s record.

K5.000 INTERNAL AUDITS

All tissue banks shall establish policies and procedures regarding the scope and frequency of routine and focused QA Audits. The Self-assessment Tool/Audit Report (STAR) must be completed annually and documented on a form provided by, or pre-approved by, the AATB Director of Accreditation (refer to the AATB Accreditation Policies for Transplant Tissue Banks). The QA Program staff shall perform audits, at least annually, of the major tissue banking operational systems to identify trends or recurring problems in: donor evaluation and acceptance; tissue, Recovery or Collection, Processing, Preservation and packaging; donor and tissue testing; quarantining; labeling; storage; Distribution; electronic systems; and records management. Focused audits shall be conducted to monitor Critical Areas (unless the annual routine audit covers all Critical Areas); they shall also be conducted when problems with quality have been identified. If the routine or focused audit is not conducted by the QA Program staff, the audit shall be performed by persons who do not have direct responsibility for the process being audited. Corrective action(s), including a re-audit of deficiencies, shall be taken when necessary. A report of the results of each quality audit, and re-audit(s) where taken, shall be made and such reports shall be reviewed by management having responsibility for the systems audited. The dates and results of quality audits and re-audits shall be documented.
K6.000 ELECTRONIC SYSTEMS CONTROLS

K6.100 Authorized Access

Appropriate controls shall be exercised over Electronic Systems to assure that general access is limited to authorized personnel and that changes in master production and control records or other records are instituted only by authorized personnel.

K6.200 Error Reduction

When automated data processing is used for decision-making in Processing, adequate procedures shall be designed and implemented to prevent inaccurate input or output of data and programming Errors.

K6.300 Backup Files

A backup file should be maintained of all data that are entered into an electronic system and subsequently used for decision-making purposes, and of all data that are not otherwise recorded and accessible.

K6.400 Security

Electronic systems shall be designed to assure data integrity and maintained in a secure manner to prevent alteration or loss.
SECTION L
TISSUE DISPENSING SERVICES

Words that are defined in A2.000 Definitions of Terms appear in italics and are capitalized (e.g., Audit). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these Standards.

L1.000 TISSUE DISPENSING SERVICES—GENERAL

Medical, dental, and hospital facilities, and physician offices that are Tissue Dispensing Services shall establish policies and procedures regarding tissue receipt, storage, and final Disposition to ensure the Safety and Traceability of tissue from receipt through clinical use, transfer, or destruction.

L1.100 Responsibilities

Activities of a Tissue Dispensing Service shall be supervised by a physician, dentist, podiatrist, or other qualified medical professional.

L2.000 STORAGE

L2.100 General

Tissue storage shall be in conformance with guidelines established by the distributing tissue bank.

L2.200 Equipment

Freezers and refrigerators shall be regularly maintained, calibrated, and monitored using QC written procedures.

L2.300 Labeling

Tissue shall not be re-labeled. Existing labels shall not be altered.

L3.000 RELEASE

L3.100 Dispensing

Tissue shall not be dispensed for use in Recipients without an order from a physician or other authorized health professional. Human tissue shall not be offered or dispensed for Veterinary Use. Tissue shall be transported and prepared for transplantation in accordance with the source tissue bank’s written procedures and directions. All associated Labeling Material, including the Package Insert, shall be made available to the End-User physician and/or other qualified medical professionals.

L3.200 Release to Another Tissue Dispensing Service or Tissue Distribution Intermediary

When a tissue bank forwards tissue obtained from another tissue bank or Tissue Distribution Intermediary, all accompanying original Labeling Materials or other enclosures shall be forwarded with the tissue. A record shall be made of such transfers, including type and quantity of tissue, Tissue Identification Number(s), date of transfer, and destination.
L3.300 Tissue Disposal

Tissue that is unused, partially used, or expired, damaged or otherwise unsuitable for Distribution shall be disposed of in such a manner as to minimize any hazards to staff or the environment, in conformance with applicable laws and regulations. The Tissue Dispensing Service shall notify the tissue bank, or the Tissue Distribution Intermediary from whom the tissue was obtained, of the final Disposition of the tissue. Documentation of such notification shall be recorded.

1) There shall be a written policy for the discard of autologous tissue;

2) The Tissue Dispensing Service, in consultation with the patient-donor’s physician, shall approve discard of the tissue, and shall be responsible for documentation of the method and date of discard;

3) Autologous tissue should not be used for transplantation after the expiration date, and should not be retained beyond the expiration date, unless relabeled for research or QC purposes or otherwise indicated by the tissue bank Medical Director.

(R) For reproductive tissue, tissue discard and disposal shall be authorized by the Reproductive Tissue Bank, the tissue donor, and/or their designees.

L3.400 Return of Tissue

(R) Cryopreserved donor reproductive tissue that has been released to a physician or designee and subsequently not used and returned to the Reproductive Tissue Bank in the frozen state shall not be redistributed for use by any other physician or designee.

L4.000 RECORDS

Tissue Dispensing Services shall concurrently record all steps in the receiving, storage, and dispensing of tissue so that all steps can be clearly traced. Records shall be maintained for a minimum of ten years after expiration of the tissue or, in the case of tissue with no expiration date, ten years after dispensing.

L4.100 Tissue Receipt Records

Each tissue specimen shall have a Tissue Identification Number. Tissue receipt records shall contain, at a minimum, the following information:

1) Name and address of tissue supplier;

2) Description of tissue and quantity received;

3) Date of tissue receipt;

4) Condition of tissue upon receipt; and

5) Expiration date, if applicable, of tissue.

L4.200 Dispensing Records

Disposition of tissue shall be documented. When tissue is dispensed for transplantation, the following information shall be recorded:
1) Name, address, and telephone number of the tissue bank from whom the tissue was obtained;

2) Type and quantity of tissue and unique Tissue Identification Number(s);

3) Recipient’s name and medical record number, or social security number or similar unique identifier;

4) Transplantation site and date and time of release;

5) Name of the ordering physician or other authorized health professional;

6) Name of the person dispensing the tissue; and

7) Name of the person preparing the tissue(s) for use, if tissue is prepared at the site of dispensing.

This information shall be maintained in the Tissue Dispensing Service records in a log format. The tissue Recipient’s medical records shall contain, at a minimum, the first five items to permit tracing of each tissue from the source tissue bank to each Recipient.

The tissue bank’s tissue tracing forms shall be completed, specifying the Disposition of the tissue, and returned to the tissue supplier.

L5.000 ADVERSE OUTCOMES

Potential adverse reactions, suspected transmission of disease, or other complications, directly or indirectly related to the Allograft, shall be reported to the tissue processor and thoroughly investigated and documented.

L6.000 CORRECTIONS AND REMOVALS

The Tissue Dispensing Service shall have specific written policies and procedures for the performance of a Correction or Removal, if applicable. Procedures shall include, but are not limited to, the following:

1) Designation of a Responsible Person(s);

2) Location and quarantine of affected inventory, in a timely manner;

3) Communication with the tissue bank (manufacturer, tissue source facility);

4) Communication with the End-User; and

5) Documentation and record requirements.
SECTION M
TISSUE DISTRIBUTION INTERMEDIARIES

Words that are defined in A2.000 Definitions of Terms appear in italics and are capitalized (e.g., Audit). Some terms are used frequently; therefore, these words may be italicized only when they first appear in the text of these Standards.

M1.000 TISSUE DISTRIBUTION INTERMEDIARIES—GENERAL

An agent who acquires distributed tissue for storage and further Distribution shall establish policies and procedures regarding receipt, storage, and final Disposition of tissue, to ensure the Safety and Traceability of tissue from receipt through clinical use, transfer, or destruction.

M2.000 STORAGE

M2.100 General

Tissue storage shall be in conformance with guidelines established by the distributing tissue bank.

M2.200 Equipment

Freezers and refrigerators shall be regularly maintained, calibrated, and monitored according to written QC procedures.

M2.300 Labeling

Tissue shall not be re-labeled. Existing labels shall not be altered.

M3.000 DISTRIBUTION—GENERAL

There shall be written procedures for the receipt of tissue orders, unit selection, final Container, and/or package inspection, shipping, and transportation of tissue for transplantation.

M3.100 Tissue Distribution Restrictions

Distribution of tissue for transplantation shall be restricted to requests from tissue banks and Tissue Dispensing Services for use in Recipients. Tissue Distribution Intermediaries shall have procedures that describe evaluation of requests from new customers for tissue. Human tissue for transplantation shall not be offered or distributed for Veterinary Use.

M3.200 Transfer of Tissue to Other Tissue Banks/Dispensing Services

When a Tissue Distribution Intermediary forwards tissue, all accompanying Labeling Materials or other enclosures shall be forwarded with the tissue.

M3.300 Requests for Donor Status and Tissue Processing Information

Donor risk assessment, tissue condition(s), and tissue Processing details, with the exception of information that may infringe upon the confidentiality of donor information, shall be made available to the transplanting physician upon request.
M3.400 Distribution Records

*Tissue Distribution Intermediaries* shall maintain *Distribution* records. These records shall be designed to permit tissue to be traced from the donor to a *Consignee* or *End-User*, and from a *Consignee* or *End-User* back to the donor. Records shall indicate the final *Disposition* of all tissue handled by a *Tissue Distribution Intermediary*. *Tissue Distribution* records shall include, but not be limited to:

1) Date of order placement;
2) Name and address of *Consignee*;
3) Name of the individual placing the order;
4) Type and quantity of tissue ordered; and
5) Information pertaining to tissue selected for shipment, including:
   a) Identification number(s) of tissue;
   b) *Collection* or expiration date of the tissue;
   c) Date of shipment;
   d) Type and amount (if applicable) of refrigerant used for shipment;
   e) Mode of transportation; and
   f) Name of the staff member filling the order.

Prior to *Distribution*, the labeled tissue shall be reviewed to verify that tissue has been properly identified and labeled. Such inspection shall be documented.

M3.500 Tissue Disposal

Unused, partially used, or expired tissue shall be disposed of in such a manner as to minimize any hazards to staff or the environment in conformance with applicable laws or regulations. The *Tissue Distribution Intermediary* shall notify the tissue bank of the final *Disposition* of the tissue and all actions taken must be documented.

M4.000 PACKAGING AND SHIPPING

M4.100 Tissue Storage Environment

If specific environmental conditions are required for storage of tissue, maintenance of those conditions during transit shall be required. Specific environmental conditions shall be in accordance with the *SOPM* and these *Standards*.

M4.200 Validation and Packaging Expiration

If tissue to be shipped requires specific environmental conditions other than ambient temperature, the capability of the transport container to maintain the required environmental conditions shall be demonstrated and documented in a *Validation* study. The length of time those conditions can be maintained by the packaging (assuming normal handling) shall also be determined. Expiration dates of the packaging shall be noted on the outside of the
shipping package.

**M4.300 Quality Control**

If tissue to be shipped requires specific environmental conditions other than room temperature, periodic Quality Control monitoring of shipping and packaging must be performed to verify capability to maintain the required environmental conditions for the defined time periods. These QC checks shall be documented.

**M4.400 Final Inspection**

All packages shall be subjected to a final inspection to verify that the Containers are intact, the labels are complete, the Package Insert is present, and each transport container is sufficient for the type and requirements of the tissue being shipped. The exterior of the transport container shall be inspected to verify that the name and address and telephone number of the distributing facility and the name and telephone number of the Consignee are present. Verification that any hazardous materials, type of refrigerant used, transport (shipping) expiration date (if applicable) and prominent identification as “DONATED HUMAN TISSUE,” is clearly visible.

**M4.500 Transportation**

The mode of transportation selected shall be determined by any special shipping and handling requirements of the tissue and/or shipping refrigerants, shipping restrictions of commercial carriers, and the urgency of the tissue request.

**M5.000 RETURN OF TISSUE**

A Tissue Distribution Intermediary shall establish a policy authorizing or prohibiting the return of tissue in its original, unopened Container. If returns are permitted, the integrity of the Container, package, and labeling shall be examined for evidence of contamination or tampering. If there is any evidence of contamination, tampering, mishandling, or failure to maintain required storage temperatures, tissue shall not be returned to Distribution inventory. Information pertaining to the return of tissue shall be recorded in the disposition records for that tissue as follows:

1) Documentation of Container examination;

2) Documentation of End-User storage and shipping conditions;

3) Reason for the return;

4) Disposition of the returned tissue; and

5) Date and name of the staff member who evaluated and determined the Disposition of the tissue.

**M6.000 CORRECTIONS AND REMOVALS — GENERAL**

Tissue Distribution Intermediaries shall have specific, written policies and procedures for the performance of a Correction or Removal. Procedures shall include, but are not limited to, the following:

1) Designation of a Responsible Person(s);

2) Location and quarantine of affected inventory, in a timely manner;
3) Communication with the tissue bank (manufacturer, tissue source facility);

4) Communication with the End-User; and

5) Documentation and record requirements.

**M6.100 Correction and Removal Records**

All information relating to the Correction or Removal of tissue and resulting communications shall be documented and retained on file for at least 10 years beyond the date of Distribution, the date of transplantation (if known), Disposition, or expiration of the tissue, whichever is latest. The file shall include, but not be limited to:

1) Reason for the Correction or Removal;

2) Identification and location of affected tissue in a timely manner, including quarantine steps;

3) Steps taken to correct or retrieve tissue;

4) Documentation of all related communications (e.g., phone calls and/or written correspondence, including copies of Field Notifications or letters and a list of those to whom notice was sent);

5) Final Disposition of the tissue;

6) Corrective actions recommended and implemented; and

7) Documentation of review.

**M7.000 RECORDS**

The Tissue Distribution Intermediary shall concurrently record all steps in the receiving, storage, and dispensing of tissue so that all steps can be clearly traced. Records shall be maintained for a minimum of ten years after the expiration date of the tissue, or in the case of tissue with no expiration date, ten years after Distribution.

**M7.100 Tissue Receipt Records**

Each tissue specimen shall have a Tissue Identification Number. Tissue receipt records shall contain, but not be limited to, the following information:

1) Name and address of tissue supplier;

2) Description of tissue and quantity received;

3) Date of tissue receipt;

4) Condition of tissue upon receipt; and

5) Expiration date, if applicable, of tissue.
M7.200 Distribution Records

When tissue is transferred to another facility, the following information shall be recorded:

1) Name, address and telephone number of the source tissue bank;
2) Type and quantity of tissue and unique Tissue Identification Number(s);
3) Name of the person releasing the tissue;
4) Name of the site to which the tissue is distributed; and
5) Date of Distribution.

Any completed tissue tracing forms, specifying the Disposition of the tissue, shall be returned to the tissue supplier.

M8.000 ADVERSE OUTCOMES

Reports of Adverse Outcomes, transmitted disease, or other complications shall be reported to the supplier of the tissue in a timely fashion and in accordance with applicable laws or regulations.
Appendix I:
REQUEST FOR VARIANCE FROM STANDARDS

Introduction

AATB-accredited Tissue Banks may request a Variance when a policy, process, or procedure is in conflict with requirements in current AATB Standards. A Variance request may be submitted for specific AATB Standards appearing in this edition or in announced, approved updates to this edition. AATB-accredited Tissue Banks may request a Variance to Standards but may not violate current Standards by implementing the change without first receiving notice of written approval from the AATB Executive Office.

A Tissue Bank seeking AATB accreditation for the first time may submit a Variance request for operations being performed prior to applying for accreditation. Requests for Variance cannot be acted upon if they are sent by an entity that is not an AATB-accredited Tissue Bank, or has not applied for AATB accreditation.

The timeline for reviewing a request for Variance can be affected by additional requests for information by those who review the submission as well as by the time associated with response(s) by the requestor. The burden is on the Tissue Bank to provide supporting documentation that adequately describes how the proposed practice will meet the ultimate intent of Standards.

Process

SUBMISSION:

1) Tissue Banks requesting a Variance from current Standards must provide the following information to the AATB Chief Policy Officer by using the Request for Variance to AATB Standards Submission Format that follows. The format must be completed in entirety and include:

   a) The request for Variance, including the particular Standards number(s) that apply to the request;

   b) Justification of the alternative procedure(s), policy or process which assure(s) equivalency to the intent of Standards; and

   c) Supporting information such as worksheets, records, data, or other information (e.g., Validation of the protocol to be used in the Variance or modification, including the scientific data and Quality Assurance steps).

2) Within thirty (30) days of a request for Variance, the Chief Policy Officer and the Chairperson of the Standards Committee will review the information submitted for applicability and completeness. These individuals may request more information to complete the submission and may consult with officers of appropriate committees and/or councils.

REVIEW:

1) The Chief Policy Officer will forward the request and supportive information to the Standards Committee. These documents may or may not be blinded, depending on the nature of the submission and whether withholding the Tissue Bank’s identity could adversely affect appropriate review of their submission. This decision will be made in consultation with the person who submitted the Variance request.
2) Variance are reviewed without prejudice, and individuals involved in the preparation of the request or who have any conflict relating to the request are to exclude themselves from committee or council discussion. Subject matter experts may be sought for consultation at the discretion of the Standards Committee Chairperson and/or Board of Governors.

3) At the next scheduled meeting, the Standards Committee will review and evaluate the acceptability of the request.

a) If adequate information has been received, the Standards Committee may vote to approve or disapprove the request. Within thirty (30) days, this recommendation will be forwarded to the Board of Governors.

b) If additional information is required, the Chief Policy Officer or Chairperson will request information directly from the contact person who submitted the request.

The Standards Committee may determine that the request must be reviewed by another committee or council, or may seek consultation with other subject matter experts. For example, requests of a scientific nature may be forwarded to the Scientific and Technical Affairs Committee for review and recommendation, and those of a medical nature may be forwarded to the Physicians’ Council for review and recommendation.

If consultation with another committee or council has been requested, the recommendation regarding the request shall be sent to the Standards Committee Chairperson and Chief Policy Officer within sixty (60) days of receipt. This time period may be extended if additional supportive information is desired by reviewers, but should be no longer than ninety (90) days from receipt.

Within thirty (30) days of receipt of the recommendation from another committee, a council, or subject matter expert(s), the Standards Committee will forward its recommendation, and rationale that supports the recommendation, to the Board of Governors.

RESPONSE:

1) Within thirty (30) days of its receipt of the Standards Committee’s recommendation, the Board of Governors shall take formal action on the request for Variance and shall issue a written response to the Tissue Bank regarding its request. Requests for Variance may be approved, delayed pending receipt of more information requested by the Board of Governors, rejected, or approved in modified form.

2) The Standards Committee shall provide notice of action on a request for Variance to the Accreditation Program Manager for placement in the Tissue Bank’s file.

The Board of Governor’s action on a request shall be communicated by the Chief Policy Officer to the Chairperson of each committee and/or council that reviewed the request.

Notice of the grant or rejection of a Variance from the Standards shall be published in the AATB Newsletter.

OTHER CONSIDERATIONS:

1) All data and proprietary information provided to the AATB by the Tissue Bank in connection with a request for Variance shall be treated in accordance with AATB’s policy governing confidential and proprietary information.

2) A Variance from Standards may not be implemented by the Tissue Bank until the request for
Variance has been approved by the Board of Governors.

3) Any Variance from Standards approved by the Board of Governors is applicable only to the Tissue Bank that requested the Variance. However, should the Standards Committee consider the Variance to have universal application, the Standards Committee may recommend that the Board of Governors make the approved Variance applicable to all accredited members under such conditions as may be prescribed.

4) If a Variance is granted, it shall remain in effect until:

   a) the Variance is rescinded;
   
   b) the applicable standard, law or regulation on which the Variance is based, are amended or deleted thereby rendering the Variance null and void; or
   
   c) the Variance becomes meaningless due to changes in other circumstances.
Request for Variance to AATB Standards (current edition)
— Submission Format —

Standard for which a Variance is submitted

Standard number and title:

Enter current text of standard: **Reason**

Describe justification of Variance request:

Supporting Information

Attach worksheets, records, data, or other documentation that supports your request. List them here by title.

Accredited Tissue Bank Name & Representative

(This is the contact person for this request) Name:

Title:

Accredited Tissue Bank

Name: Email address:

Phone number:

Statement of Tissue Bank Representative

I request that for purposes of AATB accreditation our Tissue Bank should be granted a Variance from this standard.

Signature: Date Submitted:
Appendix II:
CRITERIA FOR PREVENTING TRANSMISSION of RCDADs
(Relevant Communicable Disease Agents and Diseases)
THROUGH TRANSPLANTATION OF HUMAN TISSUE

Behavior/History Exclusionary Criteria

1) Men who have had sex with another man within the preceding five years;

2) Persons who have injected drugs for a non-medical reason in the preceding five years, including intravenous, intramuscular, and subcutaneous injections;

3) Persons with hemophilia or related clotting disorders who have received human-derived clotting factor concentrates in the preceding five years;

4) Persons who have had sex in exchange for money or drugs in the preceding five years;

5) Persons who have had sex in the preceding 12 months with any person described in the 4 items above or with any person who has HIV infection, including a positive test for HIV, hepatitis B infection, or clinically active (symptomatic) hepatitis C2 infection;

6) Persons who have been exposed within the preceding 12 months to known or suspected HIV, HBV, and/or HCV infected blood through percutaneous inoculation (e.g., needlestick) or through contact with an open wound, non-intact skin, or mucous membrane;

7) Children born to mothers known to be infected with, or at risk for, HIV, HBV or HCV infection, who are 18 months of age or less and/or have been breastfed within the preceding 12 months, regardless of the child’s (donor’s) HIV, HBV or HCV status;

NOTE: Children over 18 months of age born to mothers infected with, or at risk for, HIV, HBV or HCV infection, who have not been breastfed within the preceding 12 months and whose infectious disease testing, Physical Examination/Physical Assessment, and review of medical records do not indicate evidence of HIV, HBV or HCV infection, may be accepted as donors.

8) Persons who have been in a juvenile correctional facility, lockup, jail or prison for more than 72 consecutive hours in the preceding 12 months;

9) Persons with a generic history of hepatitis of an unspecified etiology or a current or past diagnosis of clinical, symptomatic viral hepatitis unless evidence from the time of illness documents that the hepatitis was diagnosed as either hepatitis A or due to cytomegalovirus or Epstein-Barr virus hepatitis. (Note: A verbal history of viral hepatitis occurring before the age of 11 years is acceptable);

10) Persons who have lived with (resided in the same dwelling) another person who has hepatitis B or clinically active (symptomatic) hepatitis C2 infection in the preceding 12 months;

11) Persons who had or have been treated for syphilis or gonorrhea during the preceding 12 months. Donors may be acceptable if evidence is presented that the treatment occurred more than 12 months ago and was successful;

12) Persons who within 12 months prior to donation have undergone tattooing, acupuncture, ear or body piercing in which shared instruments are known to have been used;
13) Persons with a diagnosis of any form of Creutzfeldt-Jakob disease (CJD) or known family history (blood relative) of a person with non-iatrogenic CJD;

14) Persons with a diagnosis of dementia or any degenerative or demyelinating disease of the central nervous system (CNS) or other neurological disease of unknown etiology. Note: Tissues from donors with dementia, confirmed by gross and microscopic examination of the brain to be caused by cerebrovascular accident, brain tumor, head trauma, or toxic/metabolic dementia and who are confirmed not to have evidence of TSE on microscopic examination of the brain, may be acceptable based on an evaluation of this information by the Medical Director;)

15) Persons who have received injections of human pituitary-derived growth hormone (pit-hGH);

16) Persons who are known to have received transplants of human Dura Mater;

17) Persons with encephalitis or meningitis of viral or unknown etiology that is active;

18) Persons who have received transfusions of blood or blood products outside of the United States during specific time periods in the following countries:

   a) From 1980 to present: France or the United Kingdom (includes England, Northern Ireland, Scotland, Wales, the Isle of Man, the Channel Islands, Gibraltar, and the Falkland Islands); and/or

   b) After 1977 to present: Central or west Africa (includes Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Niger, or Nigeria);

19) Persons determined to be at risk for variant CJD (vCJD) because they are known to meet any of the following criteria:

   a) Spent three months or more cumulatively in the United Kingdom (U.K.) from the beginning of 1980 through the end of 1996;

   b) Lived cumulatively for 5 years or more in Europe from 1980 until the present (note this criterion includes time spent in the U.K. from 1980 through 1996); and/or

   c) Is a current or former U.S. military member, civilian military employee, or dependent of a military member or civilian employee who resided at U.S. military bases in Northern Europe (Germany, Belgium, and the Netherlands) for 6 months or more from 1980 through 1990, or elsewhere in Europe (Greece, Turkey, Spain, Portugal, and Italy) for 6 months or more from 1980 through 1996;

20) Persons who, within the previous 120 days, have been told by a healthcare professional that they were suspected or known to have had a West Nile Virus (WNV) infection based on symptoms, and/or those who are known to have tested positive for WNV by a NAT assay within this time frame;

21) Persons who are known to have risks associated with xenotransplantation (i.e., receipt of a xenotransplantation product or who has had intimate contact with a Recipient of a xenotransplantation product);

22) Persons who have been permanently deferred as a blood donor for unknown reasons or who have a history of positive infectious disease test results for HIV, HBV, or HCV;

23) Persons who, within the past six months, were bitten by an animal suspected to be infected
with rabies. Individuals with suspected rabies shall not be accepted as donors under any circumstances (see Title 10 of New York Codes, Rules and Regulations, Section 52-3.4);

24) Persons who had known or suspected sepsis at the time of death, or at the time of donation in the case of a Living Donor;

25) Persons who, since 1977, were born in or have lived in any area of central or west Africa (includes Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Niger, and Nigeria) and persons known to have had sexual contact with any such person;

26) Persons who have had a recent smallpox vaccination (vaccinia virus) and persons who acquired a clinically recognizable vaccinia virus infection by close contact with someone who received the smallpox vaccine;

27) Persons whose cause of death (COD) cannot be determined and there is likelihood of other exclusionary criteria;

28) Persons who are known to have malaria or be at risk for malaria; and

29) Reproductive donors who have had or have been treated for Chlamydia trachomatis or Neisseria gonorrhoea infection in the preceding 12 months. If infection and treatment occurred more than 12 months ago, evidence of successful treatment such as a negative test result must be documented.

1RELEVANT COMMUNICABLE DISEASE AGENT OR DISEASE (RCDAD)—a potentially infectious Microorganism, virus, or other disease agent that may pose a risk of transmission to Recipients of, or those who come in contact with, tissues. These disease agents/diseases: have sufficient incidence and/or prevalence to affect the potential donor population; could be fatal, life-threatening, result in permanent impairment, or necessitate medical or surgical intervention to preclude permanent impairment; and, for which appropriate screening measures have been developed or an appropriate screening test for donor specimens has been cleared, approved, or FDA-licensed, and is available. There can also be those disease agents or diseases that could place potential donors and/or Recipients at risk for infection due to accidental or intentional release. RCDADs applicable to all cell and/or tissue donors are (but are not limited to): HIV 1/2, HBV, HCV, human TSE, syphilis, communicable disease risks associated with xenotransplantation, WNV, vaccinia, and sepsis. Donors of viable, leukocyte-rich tissues must additionally consider HTLV 1/II, and donors of reproductive tissues must generally consider Chlamydia trachomatis and Neisseria gonorrhoea.

2CLINICALLY ACTIVE HEPATITIS C - infection with hepatitis C virus when it is symptomatic. This means that: the person demonstrates related symptoms such as jaundice, icterus, fatigue, abdominal pain, loss of appetite, nausea, vomiting, diarrhea, low grade fever, headache, joint pain, and/or “flu- like symptoms” AND, HCV infection is suspected or has been diagnosed or anti-HCV (EIA) testing is positive. Also, knowledge of a recent/current positive test for HCV NAT would qualify as a clinically active HCV infection.

3Tissue Banks using an HIV test that has been approved by FDA to include a donor screening claim for detection of HIV Group O antibodies are not required to screen for this risk history.

4European countries to be used for deferral of donors based on geographic risk of Bovine Spongiform Encephalopathy (BSE): Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Liechtenstein, Luxembourg, Macedonia, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, and Yugoslavia.
XENOTRANSPLANTATION—any procedure that involves the transplantation, implantation, or infusion into a human recipient of either: (1) live cells, tissues, or organs from a nonhuman animal source; or (2) human body fluids, cells, tissues, or organs that have had ex vivo contact with live nonhuman animal cells, tissues, or organs.

XENOTRANSPLANTATION PRODUCT—live cells, tissues, or organs used in xenotransplantation. Biological products, drugs, or medical devices sourced from nonliving cells, tissues, or organs from nonhuman animals, including but not limited to porcine insulin and porcine heart valves, are not considered xenotransplantation products.

XENOTRANSPLANTATION INTIMATE CONTACT: An “intimate contact of a xenotransplantation product recipient” is a person who has engaged in activities that could result in the intimate exchange of body fluids with a xenotransplantation product recipient. Examples of intimate contacts include, but are not limited to, sexual partners, household members who share razors or toothbrushes, and health care workers or laboratory personnel with repeated percutaneous, mucosal, or other direct exposures. Mere sharing of domicile or casual contact, such as hugging or kissing without the exchange of saliva, would not be interpreted as intimate contact.

CLOSE CONTACT: SMALLPOX—Physical contact with the vaccination site, touching the bandages or covering of the vaccination site, or handling bedding or clothing that had been in contact with an un-bandaged vaccination site.

Sources:
