American Association of Tissue Banks

STANDARDS FOR TISSUE BANKING

14th Edition (current updates)

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14th Edition

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About the cover: Scanning electron micrograph of freeze-dried, decellularized cancellous bone, taken with a Carl Zeiss Sigma FESEM, magnification 99x. Colorization has been used to accentuate the porous structure of the bone. Used with permission from the owner, Scott Bible, at Wright Medical, Memphis, Tennessee.

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AMERICAN ASSOCIATION OF TISSUE BANKS

STANDARDS FOR TISSUE BANKING

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 College of American Pathologists (CAP) as well as The Joint Commission on Accreditation of Hospitals resulting in inclusion of similar tissue handling requirements in their standards and checklists in 1993 and 1996 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 10th edition was published in 2002 and was the first edition to be numbered. 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* included 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 for Transplant Tissue Banks was also included.

The 14th edition (2016) of *Standards* includes three new appendices. To clarify expectations for compliance, three documents previously referred to as "AATB Guidance Documents" each became incorporated as a separate appendix to the *Standards*. Where their title previously included reference as a "Guidance Document," the title was changed to reflect they are "Requirements". Therefore, the following appendices are unambiguous, and compliance is mandatory:

- Appendix III Tissue Donor Physical Assessment Form Requirements (formerly AATB Guidance Document No. 1, v2 Tissue Donor Physical Assessment Form, 6-27-05)
- Appendix IV Prevention of Contamination and Cross-contamination at Recovery: Practices & Culture Results Requirements (formerly AATB Guidance Document No. 2, v2 Prevention of Contamination and Cross-contamination at Recovery: Practices & Culture Results, 6-29-07).

The 14th edition is the first to be published online but the printed book continues to also be available for

purchase. Notice of updates to the 14th edition was provided via publication of two documents; one shows additions and deletions made throughout [4], and another provides a descriptive overview [5].

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*.

References:

[1] Sell KW, Perry VP, Vincent MM, *Proceedings of the 1977 Annual Meeting*, American Association of Tissue Banks, Rockville, MD, 1978

[2] *Standards for Tissue Banking*, American Association of Tissue Banks (AATB), 1984, Arlington, Virginia

[3] U.S. Department of Health and Human Services, Food and Drug Administration, Center for Devices and Radiological Health, ‘‘Requirement for Pre-market Approval; Replacement Heart Valve Allograft,’’ 6/26/91

[4] 14th Edition of AATB’s *Standards for Tissue Banking* with Amendments.pdf

[5] Overview and Updates – 14th Edition of AATB’s *Standards for Tissue Banking*.pdf

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 60 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 Suitability, 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.

In the *Standards*, terms and related words with a similar meaning that are defined in A2.000 Definitions of Terms appear in italics [e.g., *verification* (*verify*, *verified*)]. If a word defined in *standard* A2.000 is used without italics, then the intent is to apply the common meaning of the word and not the strict definition of A2.000.* Additionally, the *Standards* contain appendices that *must* be followed.

**Announced 1/31/2020; Effective 7/31/2020*

These *Standards* establish performance requirements for *informed consent* or *authorization*, *donor eligibility assessment* through *donor* screening and testing, as well as for the *recovery*, *processing*, *storage*, *packaging*, *labeling*, and *distribution* of *transplantable* human *tissue*. The *Standards* are intended to be applied to *tissue bank* functions that relate to *quality*, staff, *donors*, and *tissue*, but do not encompass the clinical use of *tissue*. 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 by the AATB is based on *verified* compliance with these *Standards* and the Accreditation Policies for Transplant Tissue Banks and is strongly encouraged. 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.

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*,

(BT) *birth tissue*,

(C) *cardiac tissue*,

(CT) *cellular tissue*,

(DM) *dura mater*,

(LD) *living donors*,

(MS) *musculoskeletal tissue*,

(OA) *osteoarticular graft*,

(R) *reproductive tissue*,

(S) *skin*,

(SB) *living donor* surgical bone for *allogeneic* use, and

(V) *vascular tissue*.

- For all *living donor*s, (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.
- 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*), the general standards shall apply.

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Appendix III: TISSUE DONOR PHYSICAL ASSESSMENT FORM REQUIREMENTS

Appendix IV: PREVENTION OF CONTAMINATION AND CROSS-CONTAMINATION AT RECOVERY: PRACTICES & CULTURE RESULTS REQUIREMENTS

Reference I: AATB ACCREDITATION POLICIES FOR TRANSPLANT TISSUE BANKS

Reference II: AATB GUIDANCE DOCUMENTS

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)

Guidance Document No. 5, v2 Microbiological Process Validation & Surveillance Program (July 18, 2016)

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

Guidance Document No. 8, Environmental Controls & Monitoring of a Dedicated Tissue Recovery Site, (date forthcoming)

Guidance Document No.9, Qualification of Packaging and Validation of Shipping/Transport Procedures *(announced 10-23-17)*

Guidance Document No.10, Training and Competency *(announced 12-19-17)*

AATB-AOPO-EBAA Guidance Document, Effective Quality Assurance of the DRAI, v2 (September 16, 2013)

AATB-AOPO-EBAA Implementation Guidance Document, UDRAI Forms, v2 (May 20, 2015)

SECTION A
GENERAL INFORMATION

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/or the Accreditation Policies for Transplant Tissue Banks *shall* be reviewed in accordance with the Accreditation Policies for Transplant Tissue Banks. Accreditation *may* be denied, suspended, or withdrawn upon a determination that significant *noncompliance*, 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 Senior Vice President of Policy 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. A *record* of the approved *variance must* be maintained at the requesting *tissue bank* as well as at any other accredited *tissue bank* directly affected by the approval. Evidence of approval of the request for *variance must* be available during an accreditation inspection.

A2.000 DEFINITIONS OF TERMS

Words that are defined here also appear in italics throughout the *Standards*. Related words with a similar meaning in the form of a noun, verb, or adjective, or in the plural form or as past tense, as applicable, may also be italicized, but are not defined separately. Examples include "*recovery/recover/recovered*," "*establish/established/establishment* (of)," "*verification/verify/verified*," "*validation/validate/validated*" and "*distribution/distribute/distributed*." If a word defined in standard A2.000 is used without italics in these *Standards*, then common usage is intended and the definition in A2.000 does not apply. *

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:

**Changes announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020*

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, *collection* or *acquisition*, *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*.

ACQUISITION (BT) – The point after delivery at which *tissue* is under the control of the *tissue bank*.

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 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 a genetically different person.

ANNUAL - A frequency of activity defined by each tissue bank as 12 months including reasonable tolerance limits (up to 3 months). Justification for the tolerance limits shall be documented by the tissue bank with consideration for the risk associated with the specific activity scheduled.

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

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.

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* (R).

ASEPTIC PROCESSING – The *processing* of *tissue* using aseptic techniques where *tissue*, *containers* and/or devices are handled in a controlled environment in which the air supply, materials, equipment and personnel are regulated to prevent microbial contamination of *tissue*.

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

ASSISTED REPRODUCTIVE TECHNOLOGY PROCEDURE (R) – 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.

AUDIT TRAIL - A process that captures details such as additions, deletions, or alterations of information in an electronic *record* without obliterating the original *record*. An *audit* trail facilitates the reconstruction of the course of such details relating to the electronic *record*. (FDA Guidance for Industry, Computerized Systems Used in Clinical Investigations, May 2007)

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 *living donor* from whom it was *recovered*.

AUTOLOGOUS – Used as an adjective to modify donation, *tissue*, *donor* or *recipient* when donation is intended only from him/herself and *transplantation* is intended only to him/herself.

BATCH – A specific quantity of *tissue* produced according to a single *processing* protocol during the same *processing* cycle.

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

BIRTH TISSUE (BT) – gestational *tissue* donated at the time of delivery of a living newborn. This includes placenta, Wharton's jelly, amniotic fluid, chorionic membrane, amniotic membrane, placental/chorionic disc, umbilical veins, and umbilical cord tissue.

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

CARDIAC TISSUE (C) – *Tissue* type that includes, but is not limited to, *valved conduits*, *non-valved conduits*, *aortoiliac grafts*, and *patch grafts*.

CELLULAR TISSUE (CT) – viable 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.

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

CLIENT DEPOSITOR (R) – A person who consents to *collection* and/or *storage* of *reproductive tissues* for *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 (R) – The acquisition of *reproductive tissue* 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.

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

CORRECTION – Related to conformity, remedial action to eliminate a detected *nonconformity*.

CORRECTIVE ACTION – Action to eliminate the cause and prevent recurrence of a *nonconformity* or other undesirable situation; *may* be performed in conjunction with *preventive action(s).*

CRITICAL – Classification of a supply, reagent, material, instrument 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 one *tissue* to another from either the same *donor* or a different *donor*.

CRYOPRESERVED – 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).

DECONTAMINATION - Cleaning the environment, facilities, and/or surfaces (sanitation), or instruments, supplies, and equipment (sanitization), with intent to remove or reduce pathogenic microbes.

DEHYDRATION – The removal of water from *tissue*. For example, dehydration methods *may* include chemical (alcohol), critical/supercritical drying, simple air drying, or drying in a dehydrator.

DESICCATION – The removal of water from *tissue*. For example, desiccation methods *may* include chemical (alcohol), critical/supercritical drying, simple air drying, or drying in a desiccator.

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

DIRECTED DONOR (R) – A *reproductive tissue donor* who is known to the *recipient* (R) but is not the *recipient's* (R) sexually intimate partner.

DISINFECTANT – An agent (e.g., heat or a chemical) capable of reducing the number of viable *microorganisms*. A disinfectant might not kill spores. Use of antimicrobials in *tissue processing* is included here.

DISINFECTION – A process that reduces the number of viable *microorganisms* on *tissue*, but *may* not destroy all microbial forms, such as spores and viruses. Use of antimicrobials in tissue processing 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*, e.g., use for *transplantation*, therapy research, education, or discard; also, the final destination of *critical* supplies, reagents, materials or equipment that can affect the *quality* and/or *safety* of *tissue*, e.g., release for use 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 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* a *responsible person* who seeks *informed consent* from a *living donor*, a birth mother, or a *client depositor*. 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 ELIGIBILITY ASSESSMENT – The evaluation of all available information about a potential *donor* to determine whether the *donor* meets qualifications specified in the *SOPM* and *Standards*. See *relevant medical records*.

DONOR RISK ASSESSMENT INTERVIEW (DRAI) – 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*.

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.

DYNAMIC – Operational condition during *aseptic processing* where the controlled environment is functioning in the specified manner, with the specified number of personnel present and working in the manner agreed upon [ISO 14644-1].

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

ELECTRONIC QUALITY MANAGEMENT SYSTEMS – Software used in the automation or monitoring of an organization's quality system that may apply, but is not restricted, to the following: product design and development; supply and/or component acceptance; testing; manufacturing; labeling; packaging; distribution; handling of a complaint, CAPA, error, nonconformity; or any other aspect of the Quality Management Systems.

EMBRYO (R) – 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* (R).

EMBRYO DONOR (R) – *Embryo client depositor(s)* who choose(s) to donate his/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*.

ENVIRONMENTAL CONTROL – Activities performed to control the environment for the purpose of minimizing the potential for contamination or *cross-contamination* of *tissue.*

ENVIRONMENTAL MONITORING – Activities performed to systematically observe and *record* data to characterize the environment to identify conditions under which the potential *may* exist for contamination or *cross-contamination* of *tissue.*

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 *deviation* from the *SOPM, Standards*, or applicable laws or regulations.

ESTABLISH – Define, document and implement.

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

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.

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

IMAGE(s) – A representation of the external form of an object, place or person in a photographic, digital, or videographic format. *(Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

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* a record of the *informed consent*.

IN-PROCESS CONTROLS – Any tests, samples, evaluations, monitoring, or measurements performed during *processing* or *preservation* that are designed to ensure 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.

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) – A person 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.

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

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 *field 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.

MICROORGANISM – A microscopic organism including bacteria and fungi; viruses, while sometimes included in this classification, are not included here.

MUSCULOSKELETAL TISSUE (MS) – *Tissue* type that includes, but is not limited to, bone and cartilage, and soft *tissue* such as tendon, ligament, nerve, fascia, pericardium, peritoneal membrane, adipose, and *dura mater*.

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

NONCONFORMITY - A finding that identifies non-fulfillment of an accreditation requirement, a standard, policy, process, *procedure*, or specification.

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) – A person 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* but

is not a *client depositor*.

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

PACKAGE – A *labeled* box, carton, receptacle, or wrapper containing *tissue* and may contain one or more *containers* and accompanying *labeling materials*.

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

PACKAGING SYSTEM - The combination of primary package, secondary package, and additional protective packaging, as deemed necessary. *(Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

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 d*onor'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)*.

POLICIES AND PROCEDURES MANUAL – See Standard Operating Procedures Manual (SOPM).

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

PRE-STERILIZATION/PRE-DISINFECTION CULTURE - A culture of *tissue* obtained prior to exposure 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*.

PREVENTIVE ACTION – Action to eliminate the cause of a potential *nonconformity* or other undesirable situation; *may* be performed in conjunction with *corrective action(s)*.

PRIMARY PACKAGE - Layer of packaging in direct contact with tissue. *(Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

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 – Establishing by objective evidence that a process consistently produces *a* result~~s~~ meeting predetermined specifications.

PROCESSING – Any activity performed on *tissue* other than *donor* screening, *donor* testing, *tissue recovery*, *collection*, or *acquisition* functions, *storage*, *distribution* or dispensing. It includes but is not limited to *disinfecting*, *sterilizing*, *packaging*, *labeling*, and testing *tissue*.

PROFICIENCY TESTING – The evaluation of an individual laboratory's performance against pre-established criteria by means of inter-laboratory comparisons. (Adapted from ISO/IEC 17043:2010 Conformity assessment – General requirements for proficiency testing)

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

QUALITY – Conformance to pre-established specifications, attributes, requirements, regulations, and/or standards.

QUALITY AGREEMENT – an agreement that establishes the *quality* specifications or standards that *must* be met for defined activities and delineates responsibilities of each entity involved. It *may* be a separate document or included as part of a written agreement/contract.

QUALITY ASSURANCE (QA) PROGRAM – The policies and environment required to meet standards of *quality* and safety, and to 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 tissue, reagents, supplies, materials and equipment as not suitable for use, or that has not yet been characterized as being suitable for use.

RECALL – A *field 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*. A *recipient* (R) can be an intended parent, a gestational carrier, or a gestational surrogate.

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* other than *reproductive 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 site*, 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*, laboratory test results (in addition to results of testing for required relevant communicable disease agents), relevant *donor records*, existing coroner and autopsy reports, a *certified copy* or *verified copy* of the death certificate (when applicable), as well as information obtained from any source or *records* which *may* pertain to *donor* eligibility 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 (R) – Any *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 (R) – 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 – A facility operated or owned by the *tissue bank* and located in a physically separate location from its primary address, and where any tissue banking activities occur or where any tissue banking services are provided.

SECONDARY PACKAGE - The barrier that surrounds the primary package (e.g., the tissue can be sterile tissue inside, aseptically processed tissue, recovered, or acquired tissue.) *Refer to Guidance Document No.9, Figures 1 and 2. (Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

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

SEMEN DONOR (R) – A man 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* but is not a *client depositor*.

SERIES OF STANDARDS – A group of standards related to a particular topic presented as a capitalized heading (e.g., B2.000) followed by indented subsections (e.g., B2.100, B2.120, B2.121). The heading and everything indented under it are considered part of the series.

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.

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 (S) - A membranous soft *tissue* type that includes, but is not limited to epidermis and dermis.

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. Unless otherwise qualified/validated, the manufacturer's written recommendations must be followed, including that the antiseptic solution should remain in place for the recommended contact time and be allowed to air dry completely before the surgical drapes are placed.

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*

STATIC - At-rest condition during *aseptic processing* where the controlled environment is complete with equipment installed and operating in a manner agreed upon, but with no personnel present [ISO 14644-1].

STERILE – For *tissue*, the absence of detectable, viable, *microorganisms* (refer to ANSI/AAMI ST67:2011). For reagents, supplies, materials and equipment, free from viable *microorganisms*.

STERILITY ASSURANCE LEVEL (SAL) – The probability of a single viable *microorganism* occurring on a product after *sterilization* (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 – Retrieval 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 eligibility determination
records. This can be combined with the *package insert*.

SURGICAL BONE (SB) – Any bone from a *living donor* for *allogeneic* use such as a femoral head removed during surgery.

TERMINAL STERILIZATION – A validated process whereby *tissue* within its final *sterile* barrier system (e. g., *package, container*) is *sterilized* (refer to ANSI/AAMI ST67:2011).

THIRD PARTY RECORDS – *Records* produced by an entity not involved in *tissue recovery*, *acquisition*, or *donor* screening. Examples of third party *records* include: hospital medical *records*; emergency medical services *records*; coroner/medical examiner *records*; prenatal *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 persons for *transplantation* purposes. These services include obtaining *authorization* and/or *informed consent*, assessing *donor* eligibility, *recovery*, *collection*, *acquisition*, *processing*, *storage*, *labeling*, *distribution* and dispensing 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 *recovery*, *collection* or *acquisition*, *processing*, packaging, *quarantine*, *labeling*, *storage*, *distribution* and dispensing 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, *recovery*, *collection*, or *acquisition*, *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* (R).

TRANSPLANTATION – The transfer of an *allograft* or *autograft* to a *recipient*.

TRANSPORT MEDIUM – Any microbiological medium capable of maintaining cellular viability

during the transport of a culture from field to laboratory.

TRANSPORT SYSTEM - The combination of the packaging system and the container utilized to transport tissue. *(Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

VALIDATION – Confirmation through the provision of documented objective evidence that predefined specifications have been fulfilled and can be consistently reproduced.

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.

VASCULAR TISSUE (V) – *Tissue* type that includes, but is not limited to *arterial grafts* and *vein grafts*.

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.

VERIFIED COPY - A copy of a death certificate without the raised seal but issued by an authorizing agency.

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.

A3.000 ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used in *Standards*:

AAMI – Association for the Advancement of Medical Instrumentation

AATB – American Association of Tissue Banks

ANSI – American National Standards Institute

AORN – Association of periOperative Registered Nurses

ASQ – American Society for Quality

ASTM – ASTM International

CAP – College of American Pathologists

CBER – Center for Biologics Evaluation and Research

CDC – Centers for Disease Control and Prevention

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

e.g. – *exempli gratia*; for example, such as; the list is not finite

FDA – The United States Food and Drug Administration

i.e. – *id est*; that is; indicates a finite list

ISO – International Organization for Standardization

USP – United States Pharmacopeia

SECTION B
GENERAL ORGANIZATIONAL REQUIREMENTS OF A TISSUE BANK

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 Written Agreements/Contracts

Each *tissue bank shall* have written agreements or contracts with all other individuals or organizations that perform or for whom they perform tissue banking activities or services such as, but not limited to:

1) *donor* referral;

2) *authorization;*

3) *informed consent*;

4) *donor eligibility assessment*;

5) *recovery, collection,* and/or *acquisition*;

6) post-delivery functions;

7) laboratory services (see exception at B1.600);

8) testing services;

9) *processing*;

10) *storage*;

11) *tissue* release;

12) *distribution*; and/or

13) consignment.

For additional controls regarding testing services and other services performed by others, see the *series of standards* at K1.300.

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. Compliance with *Standards* by all parties *shall* be required and documented in a *quality agreement*. The following examples provide a few of these expectations:

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) unless the *tissue bank* that *recovers tissue* and the *tissue bank* responsible for the *processing* and/or *distribution* of such *tissue* have a written agreement that defines the responsibilities of the *processing tissue bank's* Medical Director to provide required oversight over *donor screening* and *donor testing**, to follow applicable standards in Section D and Appendix II, and to share records (see D4.300). A *tissue bank* that *recovers tissue* is not required to *audit* its contracted *tissue bank* processor(s).

   **Implementation period extended from 7/31/2019 to 1/31/2020 (Bulletin No.19-5) and from 1/31/2020 to 7/31/2020 (Bulletin No.19-7)*

   (BT) There *shall* be a written agreement/contract with the entity that performs post-delivery functions and/or *acquisition* on behalf of the *tissue bank*; or, if there is no written agreement or contract, there *must* be an attestation *record* from a *responsible person* that post-delivery protocols and *procedures* are followed.

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*. Any *records* necessary to demonstrate

compliance *shall* be readily accessible to the *distributing tissue bank*.

4) A *tissue bank* that determines *donor* eligibility *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 G2.330.

6) A *tissue bank* that *distributes tissue* for *transplantation shall* restrict *distribution* to entities described in *Standards* (see H1.100). If *tissue* is provided to a *tissue distribution intermediary*, the *tissue distribution intermediary shall* meet the requirements of Section M of these *Standards*.

If an AATB-accredited *tissue 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 *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., *informed consent*/*authorization*, *donor eligibility assessment*, *recovery*, *acquisition*, *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 On-site Inspections

(Refers to any AATB accreditation inspection.)

A *tissue bank* will be inspected and accredited for the specific activity(ies) or service(s) that it performs. However, if the *tissue bank* participates jointly with other entities that provide *tissue banking* activities or services on their behalf, the accredited *tissue bank* is responsible for providing evidence of compliance to these *Standards* for all *tissue banking* activities or services performed by other entities on its behalf.

B1.520 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 activity(ies) 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. 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 requirements to be used for a partner performing *recovery* services, refer to Appendix V.

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 *tissue 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 for Donor Infectious Disease Testing

Tissue banks that contract laboratory services for donor infectious disease testing *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. Additionally, all requirements in the *series of standards* at K1.300 *shall* apply. *Tissue banks* that obtain *donor* infectious disease test 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* eligibility or *tissue* suitability assessments. Appropriate *management with executive responsibility shall* ensure a *responsible person* understands the principles of bacteriological and/or infectious disease test *procedures* employed by a laboratory as well as the interpretation of results. *Records* of infectious disease laboratory results used to assess *donor* eligibility *shall* become part of the *donor 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 D4.240.

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 all *tissue banking* activities or services comply 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*, these *Standards*, and applicable laws and regulations. A documented annual internal review or *audit* to ensure compliance *must* be performed.

B2.160 Contingency Plan

The tissue establishment shall have a contingency plan in place for tissue that remains in inventory and record retention in the event of merger, acquisition or dissolution.

B2.200 Medical Director

B2.210 Qualifications

The *tissue bank shall* have a Medical Director who maintains a valid medical license from any state or U.S. territory (or for international members, the physician *must* maintain an equivalent medical license). He/she *should* have training and experience in evaluating and determining *donor* eligibility particularly with regard to infectious diseases or use a Medical Advisory Committee or consultants to assist in those areas. An AATB-accredited *tissue bank recovering tissue* for an AATB-accredited *processing tissue bank* may fulfil this requirement by securing a written agreement with the processing tissue bank that defines the responsibilities of the *processing tissue bank's* Medical Director to provide required oversight over *donor screening* and *donor testing* operations conducted by the *recovery tissue bank.**

**Implementation period extended from 7/31/2019 to 1/31/2020 (Bulletin No.19-5) and from 1/31/2020 to 7/31/2020 (Bulletin No.19-7)*

B2.220 Responsibilities

The Medical Director *shall* establish, review and approve all policies and *procedures* of a medical nature. See J1.300, J1.400, J1.600.

B2.221 Donor Eligibility Criteria

The Medical Director *shall* be responsible for establishing *donor* eligibility criteria. See the *series of standards* at D4.000 and Appendix II.

The *tissue bank's donor* eligibility criteria *may* be adopted from criteria used by another organization, provided that the Medical Director has *verified* the criteria are consistent with, and at least as stringent as, the requirements of these *Standards* and applicable laws and regulations.

When a *tissue bank* is responsible for determining *donor* eligibility, the Medical Director, or licensed physician designee, *shall* make a determination regarding the eligibility of each *donor* based on a comparison with predetermined *donor* criteria as established in the *SOPM.* This determination *must* occur prior to the release of *tissue* for *transplantation*. See Section F.

B2.222 Adverse Outcomes

The Medical Director *shall* establish policies and *procedures* regarding *adverse outcomes.* See K4.300.

B2.223 Positive Infectious Disease Test Results

The Medical Director *shall* be responsible for notifying appropriate parties of the availability of positive infectious disease test results, and for reporting positive test results when required, in accordance with D4.232.

B2.300 Technical Staff

B2.310 Qualifications

Staff *must* possess the educational background, experience, and training sufficient to assure assigned tasks will be performed in accordance with the *tissue bank's* established *procedures*. 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* 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* 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

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 it is responsible. Documentation *must* be made concurrent with each significant step and *must* include, but not be limited to:

1) information from the *donor referral source*;

2) *donor eligibility assessment* information;

3) *record* of *informed consent*, or *document of gift/authorization*;

4) *donor physical assessment* or *physical examination*, and donor identification;

5) *tissue recovery* or *collection*, transport, and *processing*;

6) *quarantine* and infectious disease testing;

7) in-process testing;

8) *record* review;

9) *tissue labeling*, *storage*, release, and *distribution*;

10) *quality control*; and

11) *services to donor families*.

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* by name to the *recipient*.

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 to the *tissue bank* within a reasonable amount of time.

C1.120 Electronic Records

If *records* are maintained electronically, there *shall* be an *electronic 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. Compliance with K7.000 is expected.

C1.200 Availability for Inspection

Tissue banking *records shall* be readily accessible for inspection by authorized personnel from accreditation programs and regulatory agencies. Access to *donor* identity and medical, social, travel, and sexual behavior 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 or for a period as required by applicable laws and regulations.

C1.300 Retention

Records of the *informed consent, documents of gift/authorization*, and *records* pertaining to donor eligibility, *recovery*, *collection*, *acquisition*, *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* eligibility *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, collection* or *acquisition* 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, collection* or *acquisition* through final *disposition* of the *tissue*.

Laboratory and *QC* specimens related to a *donor 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 *tissue 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 paper *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.

Records revised electronically *must* have an *audit trail* that includes the altered information, date of the revision, and the individual that made the revision. See K7.000.

C2.000 CONSTRUCTION OF RECORDS

Relevant medical records must be reviewed by the *responsible person(s)* at each *tissue bank* involved with *recovery*, *collection* or *acquisition*, or the determination of *donor* eligibility. 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 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* eligibility. *Records shall* also include personal attributes of the donor such as: height, weight, eye color, hair color, complexion, racial group, and/or body type.

SECTION D
AUTHORIZATION, INFORMED CONSENT, DONOR SCREENING, AND TISSUE RECOVERY, COLLECTION, AND ACQUISITION

D1.000 GENERAL POLICIES

In addition to the requirements at the *series of standards* at B1.500, 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*.

D1.100 Monetary Compensation or Other Valuable Consideration

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 acting on behalf of the *donor*, except in the following instances:

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

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 professional standards of practice.

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

D1.200 Tissue for Research

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 the *series of standards* at D2.000 and D3.000.

D1.210 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*.

D1.220 Review and Approval

Tissue requests for research purposes *shall* be reviewed and approved based on legal, ethical, and technical considerations defined in the *SOPM*.

D1.300 Consideration for the Donor

A policy shall be established requiring the donor always be treated with dignity and respect.

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 the *donor* eligibility 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) mailing address (NOTE: If requested by the *authorizing person*, only an email address *may* be documented as the address but, in such cases, the *authorizing person should* permit its use and *should* be informed that if the email address changes or if email communication is blocked, there *may* be no effective forwarding or receipt of information.);

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 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. Sampling plans and methods *must* be established, *must* be adequate for their intended use, and *must* be based on valid statistical rationale (e.g., such as the FDA Guide to Inspection of Quality Systems).

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*. Sampling plans and methods *must* be established, *must* be adequate for their intended use, and *must* be based on valid statistical rationale (e.g., such as the FDA Guide to Inspection of Quality Systems).

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 D2.500.

Core Elements:

1) the name of the *Donor*;

2) the name, mailing address, and telephone number of the *authorizing person*, and his/her relationship to the *donor* (NOTE: If requested by the *authorizing person*, only an email address *may* be documented as the address but, in such cases, the *authorizing person should* permit its use and *should* be informed that if the email address changes or if email communication is blocked, there *may* be no effective forwarding or receipt of information.);

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 blood or *tissue* samples for the purposes of biopsy or other testing necessary for determination of *donor* eligibility;

   d) the release to the *tissue bank* of any and all *records* and reports of a Medical Examiner, Coroner or Pathologist (e.g., autopsy report); and

e) such other requirements as may be applicable for the specific donation or *tissue bank*, such as transport of the *donor's* body, archiving of samples, photographic or other imaging, 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 *donor's* 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 distributed internationally, *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 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 that will be used 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 *donor's* 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

D3.100 Requirements

Except for autologous tissue, *informed consent* to acquire *tissues* and make them available for *transplantation*, therapy, research or education *shall* be obtained from a *living donor* or their legal representative, or from a *client depositor* in accordance with applicable laws or regulations. This *informed consent shall* be documented in a *record* of *informed consent*, the original or a copy of which *shall* be maintained in the *donor's* or *client depositor's record* at the *tissue bank* responsible for *recovery, collection* or *acquisition*, as well as in the *donor's record* at the *tissue bank* whose Medical Director is responsible for the *donor* eligibility determination. In the case of an electronic or voice recorded *record* of *informed consent*, 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, collection*, or *acquisition* of *tissue shall* be presented in a language in which the *living donor* or their legal representative, or the *client depositor* is conversant, and in terms that are easily understandable by them. The *donation coordinator should* be trained to appropriately answer the questions the *living donor*, their legal representative, or the *client depositor* may have. Neither coercion nor inaccurate information *shall* be used in any manner to obtain *informed consent*.

The potential *donor* or their legal representative *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 *recovery or acquisition*, or when not possible and *recovery* or acquisition has already occurred, as soon as practical before use of the *tissue*.

D3.300 Signatures and Documentation

The *record* of *informed consent must* comply with applicable laws and regulations. It *must* contain, at a minimum,

1) the *living donor's signature* or their legal representative's *signature*, or the *client depositor's signature* and:

a) name;

b) mailing address (NOTE: If requested by the *living donor*, their legal representative, or the *client depositor*, only an email address *may* be documented as the address but, in such cases, the *living donor*, their legal representative, or the *client depositor should* permit its use and *should* be informed that if the email address changes or if email communication is blocked, there may be no effective forwarding or receipt of information.);

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* (see D3.400) were used;

5) a statement that the *living donor* or their legal representative, or the *client depositor* understands what has been read or explained and is granting *informed consent* for *tissue recovery, collection,* or *acquisition*; and

6) a statement that the *living donor* or their legal representative, or the *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*, their legal representative, or the *client depositor must* read and *sign* the *record* of *informed consent*.

2) **by telephone**, the person obtaining the *informed consent shall* read to the *living donor*, their legal representative, or the *client depositor* the *record* of *informed consent* or, alternatively, *shall* present each of the Core Elements described at 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 *record* of *informed consent*. 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 are feasible for documenting *informed consent*, the *informed consent may* be made telephonically and *should* be *witnessed* by a third person. Sampling plans and methods *must* be established, *must* be adequate for their intended use, and *must* be based on valid statistical rationale (e.g., such as

the FDA Guide to Inspection of Quality Systems).

3) **using a facsimile transmission**, a copy of the *record* of *informed consent* is provided to the *living donor*, their legal representative, or the *client depositor.* The *living donor*, their legal representative, or the *client depositor shall* return the *signed record* of *informed consent* by facsimile transmission. A *donation coordinator shall* be available to respond to questions posed by the *living donor*, their legal representative, or the *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.* Sampling plans and methods *must* be established, *must* be adequate for their intended use, and *must* be based on valid statistical rationale (e.g., such as the FDA Guide to Inspection of Quality Systems).

4) **using an electronic transmission**, a copy of the *record* of *informed consent* is provided to the *living donor*, their legal representative, or the *client depositor.* The *living donor*, their legal representative, or the *client depositor shall* electronically respond (e.g., by e-mail) that he/she has read the *record* of *informed consent*, and is granting such *informed consent.* A *donation coordinator shall* be available to respond to questions posed.

   A *record* of *informed consent* 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 *record* of *informed consent may* be used.

D3.400 Core Elements for Informed Consent

No *informed consent* from a *living donor*, their legal representative, 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* or their legal representative will not receive monetary compensation or valuable consideration for it;

4) a description of the general types of *tissue* to be *recovered*, *collected*, or *acquired* and any information pertinent to the specific *recovery*, *collection*, or *acquisition* 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 *relevant medical records* of the *living donor*, their legal representative (when applicable), or of the *client;*

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*, their legal representative, or the *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*, their legal representative, or the *client depositor*, if applicable; and

12) any additional information required by laws or regulations.

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 *distributed* internationally, *must* be included.

(R) In the case of a *client depositor* the *record* of *informed consent shall* also include details about costs of *tissue cryopreservation*, *storage*, *distribution* and *disposition* options.

In the case of an *anonymous donor*, the *record* of *informed consent shall* also include details about monetary compensation. See D1.100.

D3.500 Services Involving Living Donors

(BT) Services *shall* be developed that provide answers to questions posed by the birth mother after delivery.

D4.000 DONOR SCREENING AND TESTING

D4.100 Donor Screening

Donor screening and *donor* testing procedures *shall* be *established* under the supervision of a contracted licensed physician possessing the qualifications outlined in B2.210. *Donor* eligibility criteria *shall* be established by the Medical Director of the *tissue establishment* responsible for the determination of *donor* eligibility (ref. Section 1271.50) and *shall* not conflict with these *Standards*. Each *donor shall* be evaluated according to *established* criteria. If *donor* screening and testing is under the supervision of a Medical Director other than the Medical Director responsible for final *donor* eligibility determination, the former *shall* be available upon request from the latter to provide clarification about results of *donor* screening and testing if needed.

(A) *Donor* eligibility *shall* be documented by a physician caring for the *autologous 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*.

(BT) Except for *autologous* donations, the health status of the infant(s) *shall* be assessed in

regard to information that could affect the *quality* or *safety* of the *tissue* for *transplantation*. Protocols *shall* be *established* for reviewing information at the time of the infant's delivery. Policies and *procedures should* be developed to handle information regarding the health status of the infant reported voluntarily after delivery. Written *procedures must* describe how information is evaluated.

(C) Heart *donors shall* also be evaluated for the risk of Chagas' disease.

(LD) Criteria for accepting *living donors shall* be *established* by the Medical Director or licensed physician designee.

(R) Criteria for accepting *client depositors* and potential *reproductive tissue 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.

D4.110 Age Criteria

The Medical Director and/or *tissue bank* Medical Advisory Committee *shall* determine *donor* age criteria.

(A) There are no age limits for *autologous tissue* donation.

(BT) There is no age limit for the birth mother, however, policies and *procedures shall* be written regarding gestational age limits.

(R) *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. *Oocyte donors shall* be younger than 35 years, unless an exception has been made by the Medical Director with documented agreement of the user physician.

D4.120 Physical Assessment

Prior to the *recovery* of *tissue* from a 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, signs of trauma or infection to the body where *recovery* of *tissue* is planned. 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 Appendix III.

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).

The form and instructions in Appendix III *must* be used to document the *tissue donor physical assessment*.

(S) The *physical assessment shall* include documentation of findings and conditions that may affect the *quality* or quantity of *skin recovered*.

D4.130 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 licensed 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 D4.120) that would assist with information to determine whether there is evidence of high risk behavior.

(BT) In addition to the (LD) standard above, a *physical examination* of the birth mother *must* be performed during admission for delivery or within 14 days prior to delivery.

(R) A *physical examination must* be performed on all *anonymous* and *directed semen* and *oocyte donor*s. A repeat *physical examination shall* be performed on *anonymous semen donor*s at least every 6 months (180 days) while the *donor* is actively collecting samples in the program.

Semen donors shall not exhibit an infectious skin disease that creates a risk of contamination of the *semen.*

D4.140 Donor Risk Assessment Interview (DRAI)

A documented dialogue *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).

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* (RCDADs) and the birth mother's blood *must* be tested. Refer to D4.100 (BT) for expectations to obtain the health status of the infant *donor* of *birth tissue.*

The *donor risk assessment interview 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*.

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

(BT) The *donor risk assessment interview* of the birth mother *shall* be obtained, or previous *donor risk assessment interview* information *verified*, no more than 14 days prior to delivery. If this interview is performed after delivery it *must* be completed within 14 days of delivery.

(LD) Interviews *must* be administered by trained staff, or if self-administered, a trained staff member *must* review and *verify* answers with the *donor* in order to facilitate comprehension and provision of accurate answers.

(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, travel, and sexual behavior history (including risk factors) since the previous donation that would make the *donor* ineligible.

D4.141 Family History and Genetic Background

(BT) If genetic testing has been performed or a genetic history has been obtained and the information is available, it *should* be considered for the determination of *donor* eligibility.

(R) A minimum of a three-generation family history *shall* be elicited from each prospective *donor*. If a biological family member in the prospective *donor's* family is adopted, Medical Director discretion *must* be made to determine if sufficient family history is provided to determine *donor* eligibility. The genetic history *should* be evaluated by an individual with appropriate clinical genetics education and/or training. Any significant condition in a prospective *donor* or *donor's* family history that would pose a risk of producing an offspring with a serious genetic disease or defect greater than the risk in the general population *shall* disqualify him/her as a *donor*, with the following exceptions:

1) *Anonymous 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 that is known to occur in the family; or

2) *Directed gamete donors* and *anonymous* or *directed embryo donors* with any family history indicating he/she is at risk for carrying a genetic defect/condition *may* be accepted, provided the genetic risk to offspring is evaluated in writing and the *recipient(s) (R)* has reviewed the evaluation, been offered additional genetic testing, and completed an informed consent.

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

D4.150 Relevant Medical Records Review

Prior to *tissue* donation, a preliminary review of readily available *relevant medical records shall* be conducted by a trained individual.

This review *shall* include but *may* not be limited to:

1) evidence of significant active infection at the time of donation for *relevant communicable disease agents or diseases* (RCDADs) including signs and/or symptoms of viral and fungal infection, bacteremia or sepsis;

2) risk factors for *relevant communicable disease agents or diseases* (RCDADs) as specified in Appendix II; and

3) additional *tissue donor* specific criteria as documented in the *SOPM* and compliant with written agreements/contracts.

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

D4.200 Donor Testing

D4.210 Blood Specimens

Except as otherwise specified for certain *reproductive tissue donors*, infectious disease testing of *donor* blood specimens *shall* be performed for each *tissue donor* on a specimen collected at the time of donation or within 7 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 7 days prior to or after *tissue* donation and tested instead of a specimen from the infant *donor*. There *shall* be written *procedures* for all significant steps in the infectious disease testing process, including blood specimen collection (i.e., documentation of date/time of collection, a *donor* identifier), 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 *anonymous* and *directed oocyte donors*, the blood specimen *must* be collected within 30 days prior to *oocyte collection*, 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*. See D4.360 for testing requirements for *embryo donors*.

D4.211 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 (mL) of blood (e.g., whole blood, or red blood cells) or *colloids* within 48 hours; or more than 2,000 mL 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.

D4.220 Infectious Disease Testing

Results of initial infectious disease and/or confirmatory testing *shall* be used as one component of determining *donor* eligibility. Testing used for *donor* eligibility *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 when testing for *Chlamydia* or *gonorrhea* in which case, 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, is voluntary. Tests specifically labeled for use with specimens collected after the *donor's* heart has stopped beating 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.’’ (Note: this

standard is currently D4.220)

Rapid antigen and/or antibody testing for infectious disease *may* be performed in addition to the required tests. Results of these tests *must* be evaluated (see F1.140) and shared (see D4.300) in accordance with policies and *procedures*.

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, D4.300, and K1.100.

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 availability of positive test results (see D4.232).

D4.230 Required Infectious Disease Tests

Excluding *autologous*, *embryo donor*, and *client depositor tissue*, 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) nucleic acid test (NAT) for the hepatitis B virus (HBV);

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

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

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

8) 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 d*onors* of other *tissue* types *may* be required by law and/or regulation, including, where applicable, foreign laws and/or regulations.

(LD) For *tissue* establishments located within the United States (U.S.), all living *donors*, excluding *autologous donors*, shall be tested and found to be negative for WNV NAT when *recovery*, *collection*, or *acquisition* occurs from June 1st through October 31st every year. Ref. D4.231 (R)

For *tissue* establishments located outside the U.S. importing *tissues* to the U.S., all *living donors*, excluding *autologous donors*, shall be tested year-round and found to be negative for WNV NAT.

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 gonorrhea* and *Chlamydia trachomatis*. The manufacturer's requirements for specimens *must* be met. If the reproductive *tissue* is *collected* 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).

Required tests for *anonymous* and *directed embryo donors* are listed in D4.231.

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).

D4.231 Repeat Testing of Living Donors

(R) All donated *semen* from *anonymous donors shall* be frozen and *quarantined* for at least 6 months. After such time and prior to release of *semen*, the *donor shall* be retested for anti-HIV-1, HIV-1 NAT, anti-HIV-2, HBsAg, anti-HBc, HBV NAT, anti-HCV, HCV NAT, anti-HTLV-I, anti-HTLV-II, syphilis, 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 F1.140. 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. For repeat semen *donors* who have already had testing performed and for whom retesting at ≥ 6 months is required, *testing* at each *donation* is not required. For such repeat semen

*donor*s, WNV NAT testing shall be performed at the time of, or within 7 days before or after the first donation that is recovered within the June 1st through October 31st testing period, even if an earlier specimen was already collected and tested.

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*, appropriate measures *should* be taken to test the sexually intimate *client depositor* male and female for anti-HIV-1 anti-HIV-2, HBsAg, anti-HBc, anti-HCV, and for HIV-1 NAT, HBV NAT, HCV NAT, and syphilis. In addition, the male *should* 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*, appropriate measures *should* be taken to test the *client depositor* for anti-HIV-1, anti- HIV-2, HBsAg, anti-HBc, anti-HCV, and for HIV-1 NAT, HBV NAT, HCV NAT, and syphilis. If the *client depositor* is male, he *should* also be tested for anti-CMV, anti-HTLV-I, and anti-HTLV-II. A *Summary of Records* for the *gamete donor must* be provided prior to release.

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.

"Appropriate measures" means using available resources to accomplish the testing. If the *client depositor* cannot be tested due to death or inability to locate the person, *directed* or *anonymous donation* of the *embryos* can still be completed.

D4.232 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.

D4.240 Archived Samples

A policy *shall* be *established* to collect and preserve serum, plasma, or hematopoietic *tissue* samples from *donors* for an appropriate duration after the *recovery*, *collection*, or *acquisition* date as/if prescribed by a *quality*, safety, and legal risk assessment conducted by the *tissue* bank to mitigate the establishment's specific risk exposure. For samples from *donors* determined to be ineligible/unsuitable, or samples from eligible donors approaching expiration of their preservation term as defined by organizational policy, *tissue* establishments may have written agreements with third parties for long-term archiving of serum, plasma, or hematopoietic *tissue* samples 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.

D4.250 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 *reproductive tissue bank shall* make pertinent test results available to the *client depositor*'s physician.

D4.300 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 eligibility determinations *must* be sent without delay to *tissue banks* that will determine *donor* eligibility 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; and

4) if any *tissue bank* determines a *donor* to be ineligible, 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 *disinfected* or subjected to *processing* (e.g., in-*process* testing, post-*processing* microbiological testing, final cultures) 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, COLLECTION, AND ACQUISITION

Policies and *procedures shall* be established for the *recovery, collection,* or *acquisition* 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, collection,* or *acquisition* 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, acquisition* and *preservation shall* occur within a time interval appropriate for retention of *tissue quality* 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, when applicable, *donor* reconstruction steps.

D5.100 Reagents, Supplies, Materials, and Equipment

All critical supplies, reagents, materials, and equipment approved for use for recovery, collection, or acquisition 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 reagents, supplies, materials and equipment shall be used and stored in accordance with manufacturers' instructions, unless qualified/validated for intended use or storage.

All non-disposable surgical instruments and parts of mechanical/ electrical equipment which come in contact with tissue shall be properly cleaned, decontaminated, and sterilized prior to use for recovery, collection, or acquisition 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 unless qualified/validated for intended use or storage. Adequate controls must exist to prevent mix-ups between acceptable and unacceptable items.

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*. Except for autologous tissue, *informed consent must* be obtained and documented prior to the initial *collection* from living donors. If *informed consent* was not obtained prior to *recovery* (e.g., *surgical bone*) or *acquisition*, it *must* be obtained as soon as practical after *recovery* or *acquisition.*

D5.212 Donor Identity

Prior to initiation of *tissue recovery, collection,* or *acquisition* the potential *donor's* identification *shall* be *verified* with the *donor's* name as stated on the *record* of *informed consent* or *document of gift/authorization. Donor* identity *verification shall* be documented in the donor record prior to *tissue recovery, collection,* or *acquisition*. *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, or government issued identification with photograph).

(A, SB) Identification of the *donor shall* be the responsibility of the hospital staff involved with the *recovery*.

(BT) Identification of the birth mother *shall* be the responsibility of the hospital staff, or the *tissue bank* staff member involved with *acquisition.*

D5.300 Tissue Recovery, Collection, and Acquisition

Recovery, collection, or *acquisition shall* be performed using aseptic or clean techniques appropriate to the specific *tissue* type and intended use. *Tissue must* be *labeled* using a *donor*

identifier and a description according to the *SOPM* (see G1.100).

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 *donor's* 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 *anonymous donor semen shall* be made at the *reproductive tissue bank* using a *sterile collection* container. 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*. The *collection* container *shall* be *labeled* with the date of *collection* and the *donor's* identification or, in the case of *client depositors or directed donors*, the name. The time of *collection shall* also be recorded.

D5.330 Acquisition

(BT) Methods for *acquisition* of *birth tissue shall* be safe, aseptic, and ensure accurate identification of *tissue* post delivery.

Birth tissue shall be *packaged* post-delivery using a *sterile* receptacle/transport package in a controlled environment. Prior to *acquisition*, the *birth tissue* receptacle/transport package *shall* be *labeled*.

D5.340 Pooling

Pooling tissue from multiple *donors shall* not occur during *recovery*, *collection*, *acquisition* or *storage*.

D5.400 Time Limits for Postmortem Tissue Recovery

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

(C, V) *Cardiac tissue* and *vascular tissue recovery* and *processing* time limits (i.e., *warm* and *cold ischemic time*, *disinfection time*, 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 *donor's* 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 *donor's* body was not cooled or refrigerated. If the *donor's* body is cooled for a period of time then not cooled for a period of time, the time period the *donor's* 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 *donor's* 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 *donor's* body was not cooled or refrigerated. If the *donor's* body is cooled for a period of time then not cooled for a period of time, the time period the *donor's* body is not cooled cannot exceed 15 cumulative hours.

(MS, OA, S)

The *skin prep shall* begin within 24 hours of *asystole* provided the *donor's* 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's* body has not been cooled or refrigerated. If the *donor's* body is cooled for a period of time then not cooled for a period of time, the time period the *donor's* body is not cooled cannot exceed 15 cumulative hours.

For expectations when evaluating cooling of a *donor's* body, 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 Appendix IV). The *recovery site* evaluation *must* be documented, however, if the *recovery site* is an operating room in a heath care facility, no documented site evaluation is required.

D5.510 Recovery Site Suitability Parameters

These *must* address the control of:

1) size/space;

2) lighting;

3) plumbing and drainage for the intendeduse;

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.

D5.520 Recovery Cleansing and Preparation

Environment:
An evaluation of the *recovery* site *must* be performed to identify potential sources of contamination (see Appendix IV). All working surfaces (e.g., back table, Mayo stand, *recovery* table) used during *recovery must* be *decontaminated* using a bactericidal/antimicrobial agent. All cleansing and *disinfecting* events performed by tissue bank personnel shall be documented. For guidance, refer to Guideline for environmental cleaning in Guidelines for Perioperative Practice. Denver, CO: AORN, Inc. (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 Guideline for sterile technique (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 for hand hygiene (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 Guideline 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. Unless otherwise *qualified*/*validated*, 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 Guideline for preoperative patient skin antisepsis (current edition).

D5.530 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 Appendix IV *shall* be implemented. Areas of *skin* that have abrasions or puncture wounds *should* be avoided. All *tissue shall* be *recovered* using aseptic technique.

D5.531 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.

D5.600 Delivery Environment and Cultures Obtained Prior to Acquisition

D5.610 Delivery Environment

(BT) If the delivery location is an operating room or a designated delivery room in a specialized health care facility, no documented site evaluation is required, however, any other location of delivery *must* meet the requirements at D5.500 and D5.510. Such an evaluation *must* be documented. *(Amended 1/31/2020)*

D5.620 Cultures Obtained Prior to Acquisition

(BT) If performed, the technique used to obtain cultures prior to *acquisition shall* be appropriate and performed according to written instructions.

D5.700 Records

D5.710 Recovery Records

For *allogeneic 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);

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 r*ecovering* 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 *autologous tissue* was *recovered*;

2) date and time the *autologous tissue* was *recovered*;

3) name of the physician *recovering* the *autologous tissue;*

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

5) type of *tissue recovered*.

D5.720 Delivery and Post-Delivery Records

Details of the delivery and post-delivery time period through *acquisition shall* be documented in the *donor's record*. These *records shall* include, but not be limited to the:

1) birth mother's name;

2) infant *donor's* gestational age;

3) name and address of the health care facility and the identification of the delivery environment/location;

4) date and time of the delivery;

5) the physician or other authorized practitioner involved with the delivery, or designee as permitted by law;

6) information to allow tracking of *critical* reagents, supplies and materials provided by the *tissue bank*;

7) specific *tissue(s) acquired*;

8) other available *relevant medical records*; and

9) documentation of any *errors*, *accidents*, or *deviations* that occurred.

D5.800 Packaging, Labeling, and Transport

D5.810 Post Recovery Packaging and Labeling

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. The receptacle/transport package *must* be designed to prevent contamination of the contents and allow for aseptic presentation of the *tissue* at the time of *processing*.

(A) Immediately following *recovery* of the *autologous tissue, it shall* be individually and aseptically wrapped. The package *shall* be *labeled* immediately with definitive *autologous donor* identifying information such as the patient's name, hospital registration number, security number, birth date, etc., 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.

(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.

(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.

D5.820 Post Delivery Packaging and Labeling

(BT) Following delivery, *tissue shall* be aseptically contained. *Labeling* that includes a unique *donor* identifier and the description according to the *tissue bank's SOPM* (see G1.100) *shall* be performed prior to transport. The receptacle/transport package *must* be designed to prevent contamination of the contents and allow for aseptic presentation of the *tissue* at the time of *processing*.

Tissue shall be maintained at defined environmental temperatures until the time of transport to the processing center. Maintenance of such temperatures *shall* be documented.

D5.830 Tissue Transport

Tissue shall be transported in a manner *established* by the *tissue bank* that permits required environmental conditions for the duration of transport necessary to maintain the integrity of the *tissue* for its intended use. Transportation temperatures do not require *verification* if the *packaging* and transport conditions have been *validated* to maintain the required environmental conditions, including temperatures. The receptacle/*transport package must* indicate that ''*DONATED HUMAN TISSUE*'' is enclosed and *must* include the name and address of the originating agency and *processing* center (if

different). All human *tissue processed* or shipped prior to determination of *donor* eligibility *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, 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 *quality* of the *tissue* for its intended use.

(C, V) The transport *package shall* be transported at *wet ice temperatures*. Time of acceptance of the *tissue* into the *processing* center *shall* be documented. *Cardiac tissue* and *vascular tissue 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 a time limit *established* by a *validated procedure* that maintains *tissue quality*.

(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 a time limit *established* by a *validated procedure* that maintains *tissue quality*.

(S) If the *tissue* is to be *cryopreserved*, the *skin* transport *package shall* be transported at *wet ice temperatures* or *packaged* by another method that maintains the *quality* of the *tissue* for its intended use.

D5.900 Reconstruction of a Deceased Donor’s Body

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 deceased *donor’s* body prepared for the next portion of the *recovery* or for transportation to an appropriate facility. The *donor’s* body *shall* be reconstructed in accordance with the *SOPM*. 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 *donor’s* body *shall* be maintained in the *donor’s record*.

D6.000 STORAGE OF TISSUE

Storage, including temporary *storage*, of *recovered, acquired, or collected tissue shall* be in conformance with *storage* temperature and monitoring expectations provided by the t*issue bank* that will *process* the *tissue*. See C1.300, E3.330, E3.331, and E3.340.

D6.100 Quarantine Controls

Adequate controls *must* exist to prevent mix-ups, contamination, *cross-contamination*, and ensure *tissue* is identified as acceptable or unacceptable during all stages of *recovery*,

receipt, *storage*, *processing* and *distribution*. If physical segregation is deemed unnecessary, justification *must* be *established*, and *must* include a risk assessment and use of a *validated electronic system*. Considerations for the risk assessment *shall* include:

1) potential severity of impact if controls fail to prevent mix-up, contamination or *cross-contamination*;
2) probability of failure to occur;
3) likelihood of identifying a failure before it reaches a customer;
4) existing controls to prevent failure; and
5) back-up plan for failure of *validated electronic system*.

If physical segregation is deemed necessary, segregated areas *must* be appropriately *labeled*.

D6.200 Segregation

The *SOPM must* address when the segregation of *tissue* during *storage* is indicated and how it will be appropriately segregated to avoid contamination, *cross-contamination* and mix-ups.

Considerations for assessment of risk include, where applicable:

1) *donor* infectious disease test results are unavailable or this testing will not be performed;

2) the intended use of the *tissue* is primarily for *transplantation* or is restricted to research or education;

3) *autologous tissue* is segregated from *allogeneic tissue*;

4) the *donor* has been determined to be ineligible;

5) the ability of *packaging* and *labeling* to withstand *storage* temperatures, and/or

6) the ability to *decontaminate storage* equipment or the *storage* area should an accident occur.

Appropriate segregation *must* include considerations above and *storage must* be in clearly defined and labeled areas (shelves or compartments) of the *storage* equipment or *storage* area.

D6.300 Storage Equipment

Freezers and refrigerators used for *storing tissue shall* be regularly maintained, calibrated, and monitored according to written *QC procedures*. See the *series of standards* at J5.000.

SECTION E
PROCESSING AND STORAGE

E1.000 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). Refer to H3.300;

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

5) personnel involved.

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* or *acquired* and the associated *records* at any phase (e.g., *quarantined*, unprocessed, processed inventory) of the operation. *Tissue* units *shall* be assigned the same *tissue identification number* only if they are identical and processed as a *lot.*

(R) R*eproductive tissue donors* and *client depositors shall* be assigned a unique identifier, which *shall* be used to identify the *tissue* during steps of *collection*, *processing*, *storage*, and *distribution*. The unique identifier can be a *directed donor's* or a *client depositor's* name. For *donors* and *client depositors* giving multiple specimens, a secondary code *shall* be used to distinguish between dates of *collection.* The *reproductive tissue bank* that *collects* and *processes* the *reproductive tissue shall* be identified by name, code, or other identifier on the final *container*.

E1.200 Pooling

Tissue from multiple *donors shall* not be *pooled* during *processing*, *preservation*, or *storage*.

E2.000 PROCESSING

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*.

E2.100 Tissue Evaluation

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

(C, V, OA)

A standardized evaluation and classification system is required that describes the attributes of each *allograft*. A detailed description of the condition of the *allograft shall* be *recorded* in the permanent *donor processing records*. The *allograft* evaluation system *shall* be made available to the implanting surgeon.

E2.200 Processing Environment

Except for *reproductive tissue*, when *tissues* are exposed to the environment during *processing*, these activities *shall* be consistent with the requirements of *aseptic processing*. There *shall* be demonstrated and documented evidence that the chosen environment achieves the *quality* and *safety* required for the type of *tissue*, *processing*, and intended use.

Without a subsequent *validated* microbial inactivation process, *aseptic processing shall* be performed in a certified and qualified bacteriologically and climate-controlled environment.

E2.210 Environmental Control and Monitoring

Where environmental conditions could reasonably be expected to cause contamination or *cross-contamination* of *tissue* or equipment, or accidental exposure of *tissue* to communicable disease agents, there *must* be adequate *environmental control* and monitoring of viable and non-viable particles under *dynamic* as well as *static* conditions. Effectiveness of these controls *shall* be *validated*. See AATB Guidance Document No. 5.

Adequate control is defined by justifying and documenting the following:

1) type and frequency of *environmental monitoring*;
2) when the samples are to be taken (e.g., during or at the conclusion of operations);
3) sampling locations and number of sites to be sampled;
4) sample duration;
5) sample size (e.g., surface area, air volume);
6) action and alert levels for test results; and
7) potential *corrective actions* when alert and/or action levels are exceeded.

E2.300 Tissue Contamination

Written *procedures shall* be prepared, *validated*, and followed for control and prevention of contamination or *cross-contamination* by *tissue* during *processing*.

E2.400 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. Unless otherwise *qualified*/*validated*, all reagents, supplies, materials and equipment shall be used and stored in accordance with manufacturers' instructions.

All non-disposable surgical instruments and mechanical/electrical equipment used in *tissue processing shall* be cleaned, *decontaminated*, and, where applicable *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 methods shall be *validated*, to prevent contamination or *cross-contamination* during *processing*. Adequate controls must exist to prevent mix-ups between acceptable and unacceptable items.

E2.410 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.

E2.420 Containers

E2.421 Physical Properties

The *container shall* maintain its integrity, withstand *sterilization* and *storage* conditions, not produce toxic residues during *storage*, and maintain *tissue quality* through the *labeled* expiration date. *Containers shall* not interfere with the effective use of appropriate agents applied to *sterilize* or *disinfect* the *tissue*.

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.

(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.

E2.422 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. *Containers* not meeting specifications *shall* not be used.

E2.423 Storage

Unused *containers shall* be handled and stored to maintain integrity.

E2.424 Integrity and Sterility

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

E2.425 Visual Inspection

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

E2.500 Processing Methods

Tissue shall be *processed* using *validated* methods to prevent contamination and *cross-contamination* and to maintain tissue quality for its intended use.

E2.520 Time Limits for Pre-processing, 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* and *validated* with reference to *tissue quality*. Additionally, a time limit and temperature for pre-*processing quarantine storage* that address *tissue quality must* be *established* and justified.

(C, V) *Disinfection* of *cardiac* and *vascular tissue shall* be accomplished via a time-specific, *validated process* (*disinfection time*). The *total ischemic time shall* not exceed 48 hours.

(R) After *collection*, analysis *shall* be performed within an appropriate time period, and *processing*, if performed, *shall* be initiated within a time period appropriate for retention of functional *quality*, as specified in the *SOPM*.

(S) When *preservation* of cellular viability is desired, *processing* of *skin shall* be initiated within 10 days of *recovery*, provided the *skin* is placed in tissue storage media that is replaced at least every 72 hours. If the media is not changed, *processing shall* be initiated within 96 hours of *recovery*.

E2.530 Prevention of Matrix Deterioration

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

E2.540 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.

E2.600 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.

E2.610 Tolerance Limits of Processed Tissue

Tissue banks that *process 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.

E2.611 Tissue Measurement

Tissue measurement *shall* be performed and documented and *must* include the quantity or other characteristics of the *tissue* expressed as applicable (e.g. volume, weight, dimensions, cell density, number of viable cells or a combination of these).

(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 the left and right pulmonary arteries *shall* be *recorded* in millimeters (mm) or centimeters (cm).

(V) *Vascular tissue* 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)
Radiographic techniques *may* be used as needed.

E2.612 Calcium Residuals: Demineralized Bone

(MS) Unless bone is treated by a *validated* process to reduce minerals, representative samples of each *lot shall* be tested for residual calcium by

a standard method.

Residual calcium content for bone *labeled* as demineralized *shall* not exceed 8% by a standard method.

For bone that has been subjected to a demineralization process with a residual calcium content target that exceeds 8% when tested, the *tissue must* not be *labeled* as demineralized and *should* be labeled as partially demineralized to describe the extent of demineralization.

E2.620 In-House Laboratory Testing

If the *tissue bank* performs laboratory tests and results are used to determine acceptability of *tissue* for *transplantation*, the requirements at K2.100 and K2.200 *shall* apply.

E2.621 Laboratory Records

Records of in-house laboratory testing *shall* include, at a minimum:

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

E2.700 Tissue Preservation

E2.710 Lyophilization

Validated procedures for *lyophilizing tissue shall* be established and described in the *SOPM*. Each *lyophilization* cycle *shall* be monitored and *recorded* for shelf temperature, condenser temperature, and vacuum. Residual moisture measurement *shall* not exceed a limit linked to *tissue quality*. The analytical method selected *must* be *validated* for its intended use. The final *container shall* maintain these moisture requirements for the indicated expiration period.

E2.720 Dehydration/Desiccation

Validated procedures for *dehydration* or *desiccation* of *tissue shall* be *established* and described in the *SOPM*. *Quality control* parameters *shall* be established and *verified* for each *batch*.

If a residual moisture limit has been established for *finished tissue*, the *container shall* maintain the limit for the duration of the expiration period. The residual moisture level *shall* not exceed a limit linked to *tissue quality*. The analytical method selected *must* be *validated* for its intended use.

E2.730 Freezing Tissue

Procedures for freezing *tissue shall* be *established* and documented to maintain *tissue quality*.

E2.740 Cryopreservation

Except for *reproductive tissue*, *tissue* to be *cryopreserved must* be frozen at a controlled and monitored, predetermined rate with compensation for heat of crystallization/latent heat of fusion to a predetermined end-point. Documentation of the concentrations of *cryoprotectant* and nutrient or isotonic solutions in the *cryopreservative* solution *shall* be maintained. When applicable, *procedures* for *cryopreservation shall* be *established* and the method controlled to maintain *tissue quality*.

(R) *Procedures* for *cryopreservation* of *reproductive tissue shall* be *established* and documented. If a controlled rate chamber is being utilized, the thermal profile for each *cryopreservation* cycle *shall* be logged with the specimen *records*.

E2.741 Control-Rate Freezing: Surrogate Packages

If 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 their integrity.

E2.742 Termination of Freezing Program

Upon termination of the freezing program, the *cryopreserved tissue shall* immediately be placed in *storage*. Temperature fluctuation and cycling *should* be avoided.

E2.743 Freezing Profile

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*.

E2.750 Chemical Preservation

(BT, MS)
Procedures for the *preservation* of *tissue* by chemical means *shall* be *validated* and documented. When chemical *preservation* has been used, the *package insert shall* so indicate.

E2.800 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* and rendered culture negative).

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

(C, V, CT)

1) *Clostridium*;

2) fungi (yeasts, molds); and

3) *Streptococcus pyogenes* (group A strep.).

(MS, OA)

1) Clostridium; and

2) Streptococcus pyogenes (group A strep.).

(S)

1) *Clostridium*;

2) *Enterococcus* sp.;

3) fungi (yeasts, molds);

4) gram negative bacilli;

5) *Staphylococcus aureus*; and

6) *Streptococcus pyogenes* (group A strep.).

E2.810 Non-Terminal Irradiation

A dose is selected to reduce or eliminate *bioburden*. The 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*.

E2.820 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 *must* be *validated* and supported by data. A *sterility assurance level* (SAL) *shall* be selected and the *sterilization* dose *must* be shown to be capable of achieving that SAL.

Validation methods generally are *bioburden*-based methods (e.g., AAMI/ISO 11137), but other methods can be justified. The type of irradiation *shall* be indicated on the *container*

label or *package insert* of all *tissue* exposed to irradiation.

E2.830 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 generally are *bioburden*-based methods (e.g., AAMI/ISO 11137), but other methods can be justified. 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.

Residual Level in Parts per Million			
Tissue Size/Weight	**Ethylene Oxide**	**Ethylene Chlorohydrin**	**Ethylene Glycol**
Very Small (<100 mg)	2,500	2,500	5,000
Small (<10 grams)	250	250	5,000
Medium (10–100 grams)	100	100	2,000
Large (>100 grams)	25	25	500

E2.840 Disinfection by Chemical Agents

(MS) Iodophors, ethanol, and other solvent/detergent combinations *may* be used as *disinfectants* of bone in a *validated processing procedure*. In any instance where a chemical *disinfectant* or antibiotic agent is used, the *container label* or the *package insert shall* identify presence of possible trace residuals. Refer to G3.120.

E2.850 Other Disinfection Agents

(BT, 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*.

E2.900 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*.

E3.000 STORAGE

E3.100 Quarantine

E3.110 Quarantine Controls

Refer to D6.100 for requirements related to quarantine controls.

E3.120 Situations Requiring Quarantine

Human *tissue shall* be *quarantined* until the *tissue* is either determined to be suitable for *processing*, *transplantation* or another appropriate *disposition* is accomplished. All *tissue shall* be *quarantined* until the following criteria for *donor* eligibility 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.

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 recovered*, *collected*, or *acquired* from *donors* not meeting *established donor* eligibility 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.

E3.130 Labeling Quarantined Tissue

All human *tissue processed* or shipped prior to determination of *donor* eligibility *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.

E3.140 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.

E3.200 Segregation of Tissue

(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.

E3.300 Storage Temperatures

Each *tissue bank shall establish* acceptable temperature-range limits for the *storage* of *tissue* before and after *processing* in accordance with these *Standards*, applicable laws and regulations and in consideration of *tissue quality* and the *packaging* system for the *tissue*.

(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*.

E3.310 Frozen and Cryopreserved Tissue

(MS, OA) *Procedures* for *storing processed* frozen and *cryopreserved tissue* to ensure graft *safety* and *quality 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.

(C, V) *Cryopreserved cardiac tissue* and *vascular tissue 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.

E3.320 Lyophilized/Dehydrated/Desiccated Tissue

Lyophilized, dehydrated, or *desiccated tissue must* be *stored* at ambient temperature or colder.

E3.330 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 also when 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*.

E3.331 Storage Conditions for Commonly Transplanted Human Tissue

Storage Conditions for Commonly Transplanted Human Tissue		
Human Tissue	**Storage Conditions**	**Temperature (°C) ***
Birth tissue (BT)	Frozen, refrigerated, *cryopreserved*, *lyophilized*, *dehydrated*, *desiccated*	*Established* by the *tissue bank*
Cardiac (C), *vascular tissue* (V)	Frozen, *cryopreserved*	-100°C or colder
Cellular tissue (CT)	Refrigerated	Above freezing (0°C) to 10°C
	Frozen, *cryopreserved*	*Established* by the *tissue bank*
Musculoskeletal tissue (MS), *osteoarticular graft* (OA)	Refrigerated	Above freezing (0°C) to 10°C
	Frozen, *cryopreserved* (temporary *storage* for 6 months or less)	-20°C or colder to -40°C (this is warmer than -40°C but colder than -20°C)
	Frozen, *cryopreserved* (long term *storage*)	-40°C or colder
	Lyophilized, *dehydrated*, *desiccated*	Ambient **
Reproductive tissue (R)	Frozen, *cryopreserved*	LN_2 (Liquid or Vapor Phase)
Skin (S)	Refrigerated	Above freezing (0°C) to 10°C
	Frozen, *cryopreserved*	-40°C or colder
	Lyophilized, *dehydrated*, *desiccated*	Ambient **
* Warmest target temperature unless noted to be a range **Ambient temperature monitoring not required for *lyophilized*, *dehydrated*, or *desiccated tissue*		

E3.340 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*.

E3.400 Expiration Date/Storage Period

The maximum *storage* period for *tissue shall* be appropriate to the type of *tissue*, method of *preservation*, required *storage* temperature, *packaging*, and *processing*, as well as to its intended application. Expiration dates *shall* be qualified to demonstrate that the *packaging* system or *container* is suitable to maintain *tissue quality* (e.g., sterility, moisture content) through the expiration date.

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

E3.410 Refrigerated Tissue

(A) *Autologous skin* that has not been *processed* or *preserved should* be *stored* refrigerated for no longer than 14 days.

SECTION F
TISSUE RELEASE

F1.000 TISSUE RELEASE

Prior to release of *tissue* for *transplantation*, the Medical Director or licensed physician designee *shall* determine *donor* eligibility. All necessary information *shall* be complete and compiled in a standardized format prior to final review and determination of *donor* eligibility 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* eligibility 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 Eligibility Review

The eligibility of each *donor shall* be determined by the Medical Director or licensed physician designee upon review of all *records* as specified below and in accordance with the *SOPM*.

Although the *donor risk assessment interview* may be preliminarily reviewed by technical staff to evaluate acceptability for *recovery*, *acquisition*, *collection*, or *processing*, *tissue shall* not be released for *transplantation* without determination of *donor* eligibility by the Medical Director or licensed physician designee.

F1.110 Records for Review

The Medical Director or licensed physician designee *shall* determine *donor* eligibility 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 eligibility *shall* be based on the *SOPM*, these *Standards* and applicable laws and regulations. The *donor* eligibility review *shall* include, but is not limited to these *records*:

1) acceptability of the *authorization* or *informed consent*;

2) suitability of the *recovery site*, delivery environment, 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) *the donor risk assessment interview*;

5) all results of laboratory testing relevant to *donor* eligibility;

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) the autopsy report, or a summary of findings, 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* (RCDAD) and the mother's blood *must* be tested. Refer to D4.100 (BT) for expectations to obtain the health status of the infant *donor* of *birth tissue.*

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

F1.111 Absence of Third Party Records

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*. If it is not possible to obtain a *certified copy*, a *verified copy* of the death certificate *must* be included in the *donor record*.

When *third party records* are available that can be used to establish a likely cause of death, or if an autopsy was performed, obtaining a *certified copy* or *verified copy* of the death certificate is voluntary.

F1.112 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.

In the case of suspected Sudden Unexpected Infant Death (SUID), an autopsy *should* be performed and results reviewed to confirm the cause of death.

(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).

F1.120 Infectious Disease Risk Review

Tissue shall not be *distributed* from a *donor* who, or a *donor* whose birth mother, has engaged in behaviors defined as high risk for transmission of *relevant communicable disease agents or diseases* (RCDADs). This information *shall* be obtained via a *donor risk assessment interview*, *physical assessment* or *physical examination*, and by review of other available *relevant medical records*.

The Medical Director or licensed physician designee *shall* not determine an *allogeneic donor* eligible with any of the following findings:

1) evidence 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, West Nile virus, rabies, Ebola virus disease, Zika virus infection, 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 or diseases* (RCDADs) as specified in Appendix II.

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

F1.130 Other Medical Conditions

In addition to the infectious disease risk review, the Medical Director *shall* establish criteria and evaluate *tissue donors* for conditions that may adversely affect the *safety* or utility of the specific types of *tissue processed* and/or *distributed* by the *tissue bank*. Such conditions include, but are not limited to:

1) history of autoimmune diseases;

2) current or prior diagnosis of malignancy and the evaluation *shall* include the type of malignancy, clinical course, and treatment prior to acceptance;

3) ingestion of, or exposure to, toxic substances;

4) genetic, metabolic, traumatic, or infectious diseases that may adversely affect the *quality* of specific *tissues*;

5) previous surgery; and

6) diseases of unknown etiology.

F1.140 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 eligibility 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 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 record* and any results

from those tests *must* be considered when determining *donor* eligibility. 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 *autologous donor's* physician. If *tissue* from a *donor* who tests positive is to be *stored* in a *tissue bank*, refer to ~~E3.200~~D6.100 and D6.200. *(Announced 1/31/2020; Effective 7/31/2020)*

(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 (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 *reproductive tissue bank shall* develop a *procedure* for determining eligibility 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 *tissue* from a CMV positive (total IgG plus IgM) *donor*.

Tissue from a *donor* testing positive for *Chlamydia* or *Gonorrhea shall* not be suitable for use.

F1.200 Technical Review

Tissue may be released for *transplantation* only with notation in *processing records* by *responsible persons* 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* 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, acquired,* 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 *clinical use* 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 Review

Except for *reproductive tissue, tissue shall* not be released for *transplantation* without a *signed disposition*/release statement from the *responsible person(s)* at the site of *distribution*, indicating that, at some time prior to release, all *quality* 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* eligibility and that all directives of the Medical Director regarding the *donor* were implemented; and

7) *verification* that final *labeling* of *tissue* was performed in accordance with *SOPM* and *Standards*.

(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* 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* eligibility 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* 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; *verification* that *tissue* was *processed* in accordance with the *SOPM*; and conformance to 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* eligibility and *tissue processing* information available at the time of release. All *donor* eligibility requirements in F1.100 *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 *Standard* but:

   a) had reactive test results; or

   b) are determined ineligible according to screening criteria.

In the case of release for one of the three circumstances listed above, the following documentation is required (refer to G3.210 and G3.220 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 eligibility assessment*, the *tissue must* be kept in *quarantine* during shipment. The labeling *must* include a statement that the *donor eligibility 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 eligibility assessment*, is complete.

F3.000 TISSUE FAILING REVIEW PROCESS

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 Ineligible Donors

If a *donor* is deemed ineligible as a result of *donor eligibility 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* eligibility, the *processing* and release/*disposition* decision *records shall* specifically describe the reason(s) for the determination. If this *tissue* is to be made available for nonclinical purposes it

must be *labeled* ‘‘For Nonclinical Use Only.’’

F4.000 TISSUE TRANSFER

F4.100 Transfer to Distribution Inventory

Before *tissue* is transferred to *distribution* inventory, appropriate release documentation *shall* be v*erified*. *Tissue* for *transplantation may* then be placed in *distribution* inventory. The identification of the *tissue* transferred, date of transfer, and staff performing the *verification*s and transfer *shall* be documented.

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

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* and *tissue distribution intermediaries*.

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. See K1.200. *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 established* and followed to ensure that approved *labels*, *labeling*, and *packaging* materials are used for *tissue*. *Tissue labeling shall* be documented at each step (e.g., *unprocessed*, *in-process quarantined*, rejected, released.

G2.200 Relabeling

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

G2.300 Controls

Labeling control procedures *shall* be *established* to ensure *label* integrity, legibility and 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*. *Labeling* reviews and checks *shall* be documented and *shall* be included in the *records*. If a sampling plan is used, it *must* follow a statistically valid method, such as ANSI/ASQ Z1.4: Sampling Procedures and Tables for Inspection by Attributes. 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. The inspection of the area *shall* be documented and included in the *records.*

G2.310 Label Inspection

Labels shall meet 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 *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*, 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 of not meeting specifications *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

Except for *autologous tissue* and *reproductive tissue*, *container labels shall* include:

1) the *tissue identification number;*

2) descriptive name of the *tissue* and other information necessary for selection or use (e.g., size, right/left, medial/lateral, anterior/posterior);

3) expiration date (if applicable), including the month, day, and year or, if only the month and year are used, the expiration date *must* be clearly described in *labeling* as occurring at the beginning or the end of the month;

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

5) 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);

6) a reference to the *package insert*.

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

1) *disinfection* or *sterilization procedure* utilized (if applicable);

2) *preservative* (if utilized) and/or method of *preservation* (if applicable);

3) potential residues of *processing* agents/solutions (e.g., antibiotics, ethanol, ethylene oxide, dimethylsulfoxide); and

4) name(s) and address(es) of *tissue bank*(s) responsible for determining *donor* eligibility, *processing* and *distribution*. Should more than two *tissue banks* be involved, the name of all *tissue banks* are required but the address is only required for the *tissue bank* determining *donor* eligibility.

(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) definitive *autologous donor* identifying information such as the patient’s hospital identification number, social security number, birth date, etc.;

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 (e.g., vials, straws or ampules) *shall* be *labeled* so as to identify:

1) *donor* or *client depositor* unique identifier 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* eligibility 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 eligibility assessment* has been completed and *shall* include:

1) a statement that the *tissue* was prepared from a *donor* determined to be eligible 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 D4.230). For example, the CMV test result used *must* be listed for *reproductive tissue*. If a test for anti-HTLV I and/or anti-HTLV II was performed it *must* be reported;

2) the name and address of the establishment that made the *donor eligibility assessment*; 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 *tissue* from a *directed 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, demineralized or partially demineralized, see E2.612);

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 *client depositors*, *directed donors* of *reproductive tissues*, and *autologous tissues*, the accompanying r*ecords* 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 tissue* 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 havethawed;

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 for additional requirements that *may* be applicable in certain *directed*

donor or *client depositor* situations.

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

2. ''WARNING: Advise Recipient of Communicable Disease Risks.''

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

3. ''WARNING: Advise Recipient of Communicable Disease Risks.''

b) *Directed donors* (*semen*, *oocyte*, and/or *embryo*) 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

2. "WARNING: Advise Recipient of Communicable Disease Risks.''

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 6-month *quarantine*, include the statement: ''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.''

(Note: A *summary of records* is not required for this category, however, a summary of the test results *must* be included.)

4) If the intended *recipient* is NOT the sexually intimate partner of a *gamete* provider who initially *cryopreserved reproductive tissue* as a *client depositor* but was subsequently screened and tested as a *directed donor* in cases where additional *collections* are unavailable, include the statement: "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."

5) *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 6-month *quarantine* release requirement:

1. ''For Non-Clinical Use Only''; and

2. ''Not evaluated for Infectious Substances.''

b) *Anonymous donor tissue* that has completed 6-month *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;

5) *validated* expiration date/time of the transport *package* when the *storage* temperature *must* be controlled;

6) type and quantity (when the quantity is applicable) of refrigerant or other hazardous materials enclosed in the transport *package*; and

7) 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

H1.000 DISTRIBUTION AND DISPENSING

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*.

H1.100 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* with the *veterinary use* exception that follows. Human *tissue* for *transplantation shall* not be offered, *distributed* or dispensed for *veterinary use* unless such use is specifically granted in a *document of gift/authorization* or in a *record* of *informed consent.* If *tissue* is provided to a *tissue distribution intermediary*, the *tissue distribution intermediary shall* meet the requirements of Section M of these *Standards*. Controls *must* exist to ensure distribution restrictions are met such as those found on the *document of gift/authorization* or in a *record* of *informed consent*. *Distribution* restrictions *must* be communicated to distributors. Periodic *verification* of activities performed by the *tissue distribution intermediary shall* be documented (e.g., a paper *audit*, on-site *audit*, on-site inspections, etc.). See B1.520.

H1.110 Client Depositor Authorization

(R) *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.*

Reproductive tissue for potential therapeutic insemination, use in another *assisted reproductive technology procedure*, or for other specified *disposition shall* be released as per 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.

H1.120 Reproductive Tissue Distribution Restrictions

(R) A *client depositor* who requests that his/her *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*. If additional *collections* of *reproductive tissue* are unavailable due to the infertility or health condition of the now *directed donor*, appropriate measures *should* be taken to screen and test the *directed donor* prior to *distribution* (excluding testing for *Neisseria gonorrhea* and *Chlamydia trachomatis*). Alternatively, the *client depositor reproductive tissue may* be *distributed* in *quarantine* with proper *labeling* to clearly identify the *donor* eligibility 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 Distributing Tissue to Other Tissue Banks/Dispensing Services

When a *tissue bank distributes tissue* obtained from another *tissue bank* or *tissue distribution intermediary*, all accompanying original *labeling materials* or other enclosures *shall* be *distributed* with the *tissue*.

H1.210 Consignment Inventory Management

If *tissue* is provided on *consignment*, the *distributing tissue bank shall* maintain *procedures* to ensure *traceability* and that appropriate *storage* conditions are maintained during *consignment*, transfer or return.

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

Records shall be maintained by the *tissue bank* that *distributes 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 of refrigerant, and quantity of refrigerant when applicable, in the 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, and *procedures* to evaluate information received.

H2.000 TISSUE FOR RESEARCH

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 the *series of standards* at 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 Solutions

Any specifically required solutions not readily available to the *end-user* that are needed to prepare the *tissue* for use *shall* be made available to the utilizing facility.

H3.200 Integrity

Packaging shall be designed to ensure *tissue* quality and prevent contamination of the contents of the final *container(s)*.

H3.300 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.

H3.400 Validation and Expiration of Transport Package

If *tissue* to be shipped requires specific environmental conditions other than ambient temperature, the capability of the transport *package* 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 *package shall* also be determined and documented. Expiration date (and time if applicable) of the transport *package shall* be noted on the outside of the transport *package*.

H3.500 Quality Control of Reusable Shipping Packages

If *tissue* to be shipped requires specific environmental conditions other than ambient temperature, and the transport *package* can be reused, *QC* monitoring of *the* transport *packaging must* be performed according to the *SOPM* to verify package integrity has been maintained. These QC checks *shall* be documented.

H3.600 Pre-shipping Inspection

Prior to shipping, *packages shall* be *inspected* to ensure the external *packaging* and *labels* are undamaged, the *tissue* is not expired and the *tissue* being shipped is consistent with the *tissue* requested. The exterior of the transport *package shall* be inspected to *verify* that requirements in G3.310 are met. These inspections *shall* be documented, including identification of staff conducting inspections.

H3.700 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).

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.

H5.000 FIELD CORRECTIONS AND REMOVALS

Tissue banks shall have specific written policies and *procedures* for the initiation and performance of a *field 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 *field corrections* or *removals* (e.g., *recall*, *market withdrawal*) and *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 *field corrections* or *removals*, but that perform activities that could lead to the need for a *field 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 Field Correction or Removal

The need to perform a *field 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 *field correction* or *removal* is warranted *should* be made whenever *distributed tissue may* not meet specifications related to *safety*, *quality*, *traceability*, 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 *field 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 *field correction* or *removal*, *shall* be located and *quarantined* pending *resolution* of the issue.

H5.400 Reporting Requirements

Tissue banks shall comply with all *field 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 Field Correction and Removal Records

All information relating to the *field 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 *field correction* or *removal*;

2) identification and location of affected *tissue*, including *quarantine* steps;

3) associated risk assessment;

4) type of *field correction* or *removal* (e.g., *recall*, *market withdrawal*) and *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

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 with these *Standards* and applicable laws or regulations.

J1.100 Identification and Control

Policies and *procedures shall establish* a document control system for *procedures* and forms including requirements for:

1) approval prior to use for intent and compliance to relevant regulatory requirements and standards;

2) reviewing revisions 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 for archived documents.

J1.200 Contents

The *SOPM shall* specifically include, but *shall* not be limited to policies and *procedures* for:

1) *informed consent* or *authorization*, *donor* eligibility criteria, *donor* screening methods, time limits for *tissue recovery*, notification of confirmed positive test results, information sharing, construction of *records*, and, if applicable, reconstruction and final disposition of a deceased *donor's* body (*series of standards* at C2.000, D2.000, D3.000, D4.000 and D5.000);

2) *tissue collection*, *recovery*, *acquisition* and handling, including *recovery site* assessment, *recovery*, materials management/supplies management, *processing*, packaging, *quarantine*, *labeling*, *storage*, *donor* eligibility review, and release of *tissue* (*series of standards* at D5.000, D6.000 and Sections E, F and G);

3) laboratory tests performed in-house, including establishment of appropriate specifications, standards, and test *procedures* to assure that *tissue* is safe and *quality* is addressed; and for contracted laboratory testing defining which tests *shall* be performed and how test results *shall* be received, reviewed, interpreted, and managed (B1.600, *series of standards* at D4.200, *series of standards* at F1.100, F1.200, F1.300 and F2.000, *series of standards* at K1.300, *series of standards* at K2.000);

4) purchasing controls, order receipt, *finished tissue* selection, final *container* inspection and packaging

and shipping of *tissue*, as well as criteria for returning and reissuing *tissue* (K1.300, *series of standards* at M3.000, M4.000, M5.000 and Section H);

5) external audits for services, suppliers, contractors, and consultants, when indicated (*series of standards* at K6.000, and K1.300 and B1.521);

6) record management to maintain *traceability*, retain records, and facilitate (if necessary) *field corrections* and *removals*, 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* (*series of standards* at C1.000, H5.000, L4.000, M6.000 and M7.000);

7) *quality assurance* and *quality control* of supplies, equipment, instruments, reagents, *labels*, and processes employed in *tissue collection*, *recovery*, *acquisition*, *processing*, packaging, *labeling*, *storage*, *distribution*, and preparation of *tissue* for *transplantation*, including policies or *procedures* for:

   a) labeling of cultures, blood specimens and other *donor* specimens (e.g., lesions, lymph nodes) (D4.350, *series of standards* at D5.000, and Section G);

   b) 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 (F4.200, *series of standards* at E4.000 and M2.000);

   c) investigating, documenting and reporting *accidents*, *errors*, *complaints*, and *adverse outcomes* (*series of standards* at K4.000);

   d) performing *field corrections*, *removals*, and *stock recoveries*, if applicable, and~~/or~~ the timely notification of affected parties regarding information related to *tissue* safety or regulatory requirements (*series of standards* at H5.000, L6.000 and M6.000);

   e) of notifying *management with executive responsibility* of any *field corrections*, ~~or~~ *removals*, *stock recoveries*, investigations, inspection reports, or regulatory actions (*series of standards* at H5.000 and K4.000);

   f) supplies, reagents, materials and equipment and identifying those that are considered *critical* (D5.100, E1.300, E2.000, J5.100);

   g) maintaining equipment management programs that include inspection, maintenance, repair and calibration for the purpose of maintaining equipment (*series of standards* at J5.000);

   h) describing the receipt, identification, storage, handling, sampling, testing, and subsequent approval or rejection of *containers*, packaging materials, *labels*, reagents, and supplies (*series of standards* at D5.000, E1.000, and E2.000, J5.500 and Section G); and

   i) monitoring *in-process controls* and managing events such as failed test runs and failure of a *lot* to meet established specifications (Section K).

8) assigning time limits and temperature for pre-*processing quarantine storage*, *processing*, and expiration dates (E2.520, E3.400, H3.400 and K1.200);

9) handling requests for research *tissue* (*series of standards* at D1.200, H2.000);

10) disposing of medical waste and other hazardous waste (*series of standards* at J3.000);

11) covering emergency and safety including reporting of staff injuries and potential exposure to blood-borne pathogens (*series of standards* at J3.000);

12) maintaining the sanitation of facilities and describing the cleaning schedules, methods, equipment and materials to be used (*series of standards* at J4.000 and J5.000);

13) describing the design or arrangement of the physical plant to meet operational needs such as designation of spaces, environmental monitoring, and security (*series of standards* at J4.000);

14) describing manual methods for tissue banking activities in the event of electronic or equipment malfunction (*series of standards* at K7.000);

15) describing training program requirements for technical and *QA* staff (*series of standards* at J2.000); and

16) identifying and controlling *procedures* and forms including requirements (J1.100,J1.400).

17) defining appropriate use, confidentiality, security and retention of captured *images* of the donor and/or tissues. *(Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

J1.300 Implementation

The *SOPM* and associated *process validation* studies *shall* be reviewed and approved by appropriate individuals as dictated by content. All policies and *procedures* of a medical nature *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 the *SOPM*, and the safety manual if separate, *shall* be performed and documented:

1) the Medical Director *shall* review relevant policies and procedures of a medical nature (e.g., *donor* eligibility, *adverse outcomes*);

2) *management with executive responsibility*, or a *responsible person* designee, *shall* review policies and *procedures* to ensure adequacy in regard to current practice, and applicable standards, laws or regulations; and

3) staff *shall* review policies and *procedures* for which they have been trained and are currently responsible.

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 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.

J1.800 Inspections

The *SOPM shall* be made available for inspection upon request by the AATB or authorized regulatory agencies.

J1.900 Archives

A file of archived *SOPs shall* be maintained in historical sequence for 16 years after discontinuation. The *records shall* indicate the inclusive dates that each policy and/or *procedure* (including forms, letters, *labels*, and other specific documents) was in use.

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) Personnel *shall* be made aware of their designated functions and of the consequences of the improper performance of their designated functions.

2) Personnel performing *verification* and *validation* activities *shall* be made aware that *accidents* and *errors may* occur during the performance of their designated 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* eligibility, or recovering, or packaging the tissue.

J2.200 Competency

Technical staff *must* demonstrate *competency* for their designated functions (including a thorough understanding of relevant policies, *procedures*, *process controls*, and regulatory requirements).

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 designated functions. Such participation *shall* be documented.

J2.400 Training Records

Training *records shall* be maintained for each employee with documentation of the following:

1) delineation of functions that each employee is authorized and trained to perform;

2) initial training of new employees;

3) initial training of newly designated functions of existing employees;

4) review and training prior to implementation of new and/or revised sections of the *SOPM*;

5) annual review of policies and procedures for the employee's designated functions, including safety *procedures* (see J1.600);

6) annual safety training; and

7) 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*.
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 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 Safety Data Sheets; and

5) *procedures* outlining the steps to be followed in cleaning bio-hazardous spills.

J3.300 Hazardous Materials Training

A training program *shall* be designed to inform employees about chemical, biological, and, if applicable, radioactive hazards of the workplace as well as the use of personal protective equipment 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 *shall* be disposed of in accordance with applicable laws or regulations in such a manner as to minimize environmental impact and exposure to 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 *protective equipment* 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), or where *collection* of anonymous *semen* donation takes place, *shall* be evaluated. Areas of the facility where *donor* screening and/or obtaining *authorization* or *informed consent* takes place *should* be arranged to prevent *errors* and maintain confidentiality of information discussed.

J4.200 Designated Space

To prevent *errors* and/or *cross-contamination* of tissue, the following critical procedures shall be performed in designated areas of adequate size:

1) *donor* screening;

2) obtaining *authorization* or *informed consent*;

3) *processing*;

4) *quarantine* storage of *in-process materials*;

5) other *quarantining*;

6) *labeling*;

7) *storage* of *distributable* inventory;

8) *quality assurance/control* functions;

9) receipt and storage of *containers*, *container labels*, supplies, and reagents;

10) storage of medical waste;

11) irradiation and other *sterilization procedures*; and

12) final product inspection and *distribution* activities.

J4.210 Routine Decontamination and Record Retention

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 *decontamination* (sanitation) *procedures*. Cleaning events performed by *tissue bank* personnel *shall* be documented and retained for three (3) years after their creation.

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, *static* and *dynamic* particulate air samplings (e.g., air bacterial content assays) equipment and personnel monitoring where *tissue* contact occurs, and work-surface cultures. Frequency of sampling *shall* be based on *related industry guidelines*, the results of prior samplings or suitable justification. *Procedures shall* include *tolerance limits* and *corrective actions* to be implemented in the event that *limits* 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).

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. Limited access areas *shall* be established as appropriate, permitting entry of only those personnel (including auditors and inspectors) who are authorized by supervisory personnel.

J5.000 EQUIPMENT AND INSTRUMENTS

J5.100 Selection

Equipment and instruments *should* be of appropriate quality for their intended function and use. Equipment used in the *recovery*, *processing*, *preservation*, *packaging*, or *storing* of *tissue shall* be appropriately sized, designed, and located to facilitate use, cleaning, *decontamination*, 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. Use of instruments *shall* be appropriate for the task.

J5.300 Qualification and Maintenance

Instruments, apparatus, gauges, and recording devices shall be calibrated or verified and routinely maintained, inspected, monitored, cleaned, decontaminated, sterilized (when applicable), and repaired per the manufacturer's requirements and recommendations. When equipment, instruments, apparatus, gauges, and recording devices are found out of tolerance, there shall be provisions for remedial action to evaluate whether there was any adverse effect on quality.

J5.310 Requalification/Recalibration

Following repairs and system upgrades, equipment should be recalibrated or verified according

to procedures in the SOPM that have been designed to be in compliance with the manufacturer's requirements and recommendations.

J5.400 Decontamination

Equipment and instruments *shall* be cleaned, or *decontaminated*, and *sterilized* (when applicable) at appropriate intervals in accordance with the *SOPM* to prevent malfunction, contamination, *cross-contamination*, or accidental exposure of *tissue* or staff to blood-borne pathogens. *Procedures shall* be established to track *critical* instruments that are cleaned and *decontaminated* with any other instruments. Reusable basins or bath units used for instrument soaks/washes/rinses *must* be cleaned and *decontaminated* between uses. See recommendations in AATB Guidance Document No. 3.

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 Sterilization

Equipment and instruments *shall* be *sterilized* if they are intended to come into contact with *tissue* or if they have the potential of contaminating *tissue*, if not *sterilized*. *Sterilization must* be performed in a manner that is consistent with applicable industry standards.

To ensure that *sterilization* is successful during routine processing of equipment and instruments, it is important that the following be performed at required or recommended intervals:

1) Regular maintenance of the *sterilization* equipment: The *sterilization* equipment manufacturer's maintenance recommendations *must* be met.

2) Use of routine *lot* release controls: Routine *lot* release controls *must* be performed according to the specifications, and at the intervals, outlined in the following table.

3) Performance of efficacy monitoring: The specifications and intervals for required efficacy monitoring are outlined in the following table. In addition to the specifications found in the table, additional efficacy monitoring *may* be necessary, such as leak testing, dynamic air removal testing (DART test), and Bowie-Dick testing, and process challenge device (PCD) testing. Guidance on efficacy monitoring *may* be found in *sterilization* equipment manuals, consulting with the *sterilization* equipment manufacturer, or can be found in applicable industry standards:

   a) steam *sterilizers*: ANSI/AAMI ST79; or

   b) ethylene oxide sterilizers: ANSI/AAMI ST41.

In the event that routine *lot* release controls indicate failure of the load to achieve necessary *sterilization* conditions, the *sterilizer* load contents *must* be exposed to a subsequent successful *sterilization* cycle. Frequent *sterilization* failures are often indicative of a process problem and *should* be investigated to determine the cause of failures. Investigation *may* need to include increased efficacy monitoring.

All *sterilization* accessories, to include but not limited to biological indicators, commercially available PCDs, wrappers, pouches, and *sterilization* containers, *must* be used in a manner consistent with the

accessory manufacturer's instructions for use or be *validated* appropriately for the use.

* **Table of Common Sterilization Methods, Cycle Parameters, Controls & Monitoring**

Method (other methods may be used)	**Cycle Parameters**	**Routine Release Controls (for each load)**		**Efficacy Monitoring**	
		Required	**Recommend -ed**	**Required**	**Recommend -ed**
Steam	Use the recommended parameters (e.g. exposure times, temperatures, pressures, drying times, weight and geometric complexity of load, etc.) specified in the sterilizer manufacturer's operator's manual, or *validate* other cycle parameters in accordance with industry standards.	*Verify* cycle parameters were met	1. Utilize internal and external chemical indicators 2. Utilize appropriate PCD and *verify* as negative prior to release of load	Weekly: Utilize appropriate PCD*	Daily: Utilize appropriate PCD
Ethylene Oxide (EO)					
Vaporized Hydrogen Peroxide (VHP)					
Irradiation (i.e. Gamma, x-ray, electron beam)	Use *validated* cycle per ISO 11137	*Verify* cycle parameters were met	N/A	Bioburden testing, dose audits and dose mapping per ISO 11137	N/A
Other (e.g., novel, nontraditional)	Follow manufacturer's instructions for method selected. *Validation* is expected if manufacturer's instructions are not followed.				

Weekly use of a PCD is not required if a PCD is already being used in each load as recommended for "Routine Release Controls."

J5.600 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.

J5.700 Record Retention

Documentation of equipment and instrument cleaning, *decontamination*, *sterilization*, qualification, calibration, and maintenance *shall* be maintained in records for 10 years after their creation. Such *records shall* also include documentation of repairs, rejection, return, and/or disposal of defective equipment.

SECTION K
QUALITY ASSURANCE

K1.000 QUALITY ASSURANCE PROGRAM

All tissue banks shall have a *QA program*.

K1.100 Basic Elements

The *QA program shall* include, at a minimum:

1) designating and managing *quality control* functions, including:

   a) environmental monitoring at designated intervals;

   b) performing periodic equipment and facility inspections and documenting in maintenance *records* or logs;

   c) reviewing equipment monitoring *records* for maintenance within specified *tolerance limits*, and reviewing *records* of other equipment or *processing* functions that have specified *tolerance limits*;

   d) inspecting and monitoring *in-process control* results, including collection and testing of representative samples;

   e) performing *qualification* of reagents, supplies, materials, instruments, or equipment when deemed *critical* or applicable; and

   f) monitoring laboratory performance, if applicable.

2) performing *process validation* studies when 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 controlling 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, each *tissue bank shall* document the monitoring and control methods and data, the date performed, and, where appropriate, the individual(s) performing the process and the major equipment used. When changes or process deviations occur, the *tissue bank shall* review and evaluate the process and perform *revalidation* where appropriate, and *shall* document these activities.

3) performing equipment *qualification studies* as necessary;

4) establishing purchasing controls;

5) establishing procedures for implementing *corrective action* and *preventive action* and taking action 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 action* 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 action* and *preventive actions*, for management review;

6) reviewing, as applicable at each *tissue bank* involved, *donor* screening, *informed consent* or *authorization*, *recovery*, *acquisition*, or *collection*, and *processing records*;

7) approving, as applicable, all *processing records* and *relevant medical records* prior to release of *tissue* for *transplantation*;

8) *auditing*;

9) documenting formal conclusions of all *accident*, *error*, *complaint*, *adverse outcome*, and *field correction*, *removal*, or *stock recovery* incidents;

10) maintaining documentation including, but not limited to:

a) master copy of current *SOPM*;

b) *records* of names, *signatures*, initials or identification codes and inclusive dates of employment for those authorized to perform or review tasks (e.g., onsite or at a central location);

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*.

11) evaluating training of personnel and, where required, the *competency* of personnel, and requiring that staff are appropriately oriented and trained concerning any modifications to

the *SOPM*;

12) maintaining *labeling* controls, including all brochures, pamphlets, and promotional materials; and

13) establishing 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

Elements or items that *must* be *qualified*, *verified*, or *validated shall* be determined from a risk assessment that has been approved by the *tissue bank's quality* department and the frequency of these activities will be determined by the risk assessment and results of the initial and follow up *validations*.

Each *tissue bank shall*:

1) develop, document, and implement protocols for the *qualification*, *verification*, or *validation* of significant components of:

a) facilities;

b) processes;

c) equipment;

d) reagents;

e) *labels*;

f) *containers*;

g) packaging materials;

h) *electronic systems* including *quality* management systems; and

i) *donor* eligibility criteria.

2) perform process *validations* for processes whose results cannot be fully *verified* by subsequent inspection and test;

3) assess process changes and perform *revalidation* as appropriate; and

4) evaluate parameters tested and determine the adequacy of the study to demonstrate necessary outcomes.

For information and guidance on validations, see Process Validation: General Principles and Practices (Jan. 2011) FDA Guidance for Industry, AATB Guidance Document No. 5 Microbiological Process Validation & Surveillance Program, and AATB Guidance Document No. 9 Qualification of Packaging and Validation of Shipping and Transport Procedures.

K1.210 Validation Methods

Where *validation* is required or desired, evidence supporting *validation must* be demonstrated. Acceptable methods to demonstrate *validation* are:

1) studies conducting challenges such as temperature, time, with indicator organisms, as appropriate, and/or other factors determined by the risk assessment that potentially affect *tissue quality*, as well as studies demonstrating consistency when the steps are repeated lot to lot; or

2) identification of an established procedure or process known to be effective, with implementation of the same *procedure* or process, without modification; such *procedure* or process *shall* be *verified*, as specified in K1.230. [For example, the implementation of a literature based *disinfection* process *shall* include conducting at least method suitability testing (Bacteriostasis/Fungistasis testing) per USP <71> prior to implementation (see AATB Guidance Document No. 5)]; If any steps are modified, all such modifications *shall* undergo documented evaluation (e.g., through a risk assessment) for potential impact, and a potential result may be that a *re-validation* is necessary per method 1 of this section.

K1.220 Packaging Qualification and Transport/Shipping Validation

*Packaging Systems** used to transport *recovered, acquired, collected, or in-process tissue,* or to *distribute finished tissue shall* be designed or *qualified* for their intended use. Transport System ~~/shipping container~~* *validation* is required unless each transport/shipping event is adequately *verified* and documented. Adequacy of the *verification* method *shall* be *established* and justified. *Finished tissue* packaging shall be *validated* to maintain the required conditions to meet the *finished tissue quality* at the end of its stated expiration date. (*For information and guidance see AATB Guidance Document No. 9 Qualification of Packaging and Validation of Shipping and Transport Procedures*) *.

**Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020*

K1.230 Verification Methods

Where *verification* is required or desired, evidence supporting *verification must* be produced by one or more of the following methods:

1) review, examination, inspection, or testing of a defined number of samples (the justification of the number of samples *must* be documented) in order to establish and document that the *tissue*, service or system meets specified regulatory or technical standards;

2) *verification* of the implementation of an established, previously *validated*, *procedure* or process without modification; *such verification shall* be conducted using a defined number of samples/processing events (the justification of the number of samples/processing events *must* be documented); or

3) a documented review such as when a *tissue recovery* program *must verify* that a *processor's donor* eligibility criteria is compliant with federal regulations, state law, and AATB *Standards*.

K1.300 Purchasing Controls

Each *tissue bank shall* establish and maintain *procedures* to ensure that all purchased or otherwise received products and services, including testing 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; and

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*.

For contracted services involving *donor* screening, *donor* eligibility, *tissue recovery*, *acquisition*, *collection*, *processing*, *storage*, and/or *distribution*, refer to B1.500 for additional requirements. Also refer to specific information at B1.600 for contracted and non-contracted laboratory services for infectious disease testing.

K1.310 Contracted Testing Services

Contracted testing services *may* be performed remotely at the contracted laboratory or on-site at the *tissue bank*, and evaluation of testing services is expected.

K1.311 Types of Testing Services

Examples of contracted testing services include, but are not limited to, the following:

1) donor infectious disease testing (also see B1.600);

2) microbiology testing (e.g., cultures on *tissue*, bioburden determination);

3) *environmental monitoring*;

4) *sterilization validation*;

5) irradiation dose auditing;

6) *lot* release testing (e.g., residual moisture, residual calcium, endotoxin levels);

7) calibration services (e.g., pipettes, temperature monitoring devices, equipment); and

8) cleanroom certification.

K1.312 Evaluation of Testing Services

Each *tissue bank* utilizing outside testing services *shall* ensure the testing facility and test methods are adequate for the intended use of the test results. This evaluation *may* include, but is not limited to, the following:

1) FDA registration, if required;

2) applicable state licenses, certifications and accreditations;

3) maintenance of an adequate *quality assurance program* to ensure the validity of results (e.g., test sample integrity, *quality control* samples, personnel *competency*, equipment maintenance, materials management);

4) participation in a laboratory *proficiency testing* program, if available;

5) adherence to relevant standards (e.g., CAP, ISO, ASTM, AAMI, USP);

6) follow manufacturers' instructions (e.g., package inserts, equipment manuals, electrical, and/or environmental conditions);

7) appropriate test method selection and *validation/qualification*;

8) use of traceable reference materials and calibration standards, where applicable; and

9) results from a paper, virtual, or on-site *audit*.

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 Laboratory Proficiency Testing

Laboratories *shall* participate in relevant *proficiency testing* programs for all analytes, if available. *Proficiency testing shall* be conducted in accordance with the laboratories' normal testing and reporting procedures, unless otherwise specified in the instructions from the proficiency test provider.

Procedures shall incorporate a plan for *corrective action* for poor performance on *proficiency*

testing.

K2.200 Laboratory Quality Assurance Program

Laboratories *shall* establish and maintain a *quality assurance program* adequate to ensure the validity of test results. The laboratory *quality assurance program shall* include, but is not limited to, the following:

1) appropriate test method selection and *validation/qualification*;

2) monitoring/trending internal *quality control* samples;

3) test sample specifications and integrity (e.g., identification, transportation, type, quantity, rejection criteria, preparation, storage);

4) personnel qualification, training and *competency*;

5) equipment selection, *validation/qualification*, calibration and maintenance;

6) use of traceable reference materials and calibration standards, where applicable;

7) follow manufacturers' instructions (e.g., package inserts, equipment manuals, electrical and/or environmental conditions);

8) materials management;

9) adherence to relevant standards (e.g., CAP, ISO, ASTM, AAMI, USP);

10) result *verification*, review and release; and

11) *records*/data management.

K2.300 Microbiological Tissue Cultures

K2.310 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 Guidance Document No. 5 for expectations.

If tissue *sterilization* or *disinfection* will not occur a *pre-sterilization/pre-disinfection culture* is not required, however, refer to culture requirement at K2.320.

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.

(BT, C, V, CT)
E2.800 applies.

(S) Cultures *shall* be obtained prior to *processing*. Culture methods *shall* be *validated* to ensure the suitability of the culture method selected. Inhibitory substances (e.g., *skin prep* solution(s), transport media, antibiotics, etc.) that *may* be added to unprocessed *skin* during *recovery* or for transport *must* not interfere with culture results. (i.e., produce false negative results).

Culture results *shall* be documented in the *donor's record*. Cultures positive for *microorganisms* considered pathogenic, highly virulent *must* be discarded unless the *tissue* can be *disinfected/sterilized* with a *validated* process (see E2.800). 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.

K2.320 Final/Pre-Packaging Cultures

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 E2.820. 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* (S) below, 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 tissue* 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 detected 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).

K2.400 Testing for Residues

(C, V) Initially, and as required at K1.200, each *tissue bank shall* thaw, rinse and prepare representative samples from *processed tissue* as if for use and test them to evaluate the concentration of residual *cryoprotectant(s)* (if applicable).

K2.500 Other Quality Control Procedures

K2.510 Lyophilized/Dehydrated/Desiccated Tissue

QC programs for monitoring performance of either a lyophilizer, a dehydrator or desiccator *shall* be established and *verified* for each *batch*. When a residual moisture limit has been established, a representative sample that demonstrates the worst-case scenario for that *batch shall* be tested and *shall* not exceed the limit. Refer to E2.710 and E2.720.

K2.520 Calibrations of Storage Devices

Each tissue bank shall ensure calibrations of devices used for storage are performed according to manufacturer's requirements and recommendations, but no less frequently than once per year using a National Institute of Standards and Technology-traceable standard. The overall QA program shall include maintenance of calibration records.

K3.000 MICROBIOLOGIC TESTING

All microbiologic testing of *tissue* to be released for *transplantation shall* be performed by a qualified laboratory using appropriate test methods. If microbiologic testing is to be performed by the *tissue bank*, the requirements at K2.100 and K2.200 *shall* apply. If the services of an outside laboratory are used, the requirements at K1.300 and K1.310 *shall* apply.

NOTE: For international members that do not export *tissues* to the U.S., applicable requirements of the government/competent authority having jurisdiction apply regarding qualification of laboratories via accreditation, designation, authorization and/or licensure.

K3.100 Microbiologic Subcultures

The testing lab *shall* subculture a positive microbiologic culture to identify the organism(s) by genus, and species where appropriate. See Guidance Document No. 5.

K4.000 INVESTIGATIONS

The *QA program shall* ensure that there is an investigation and review for completeness of *accidents*, *errors*, *complaints*, *deviations*, and *adverse outcomes*. Investigation *shall* include a summary report, precipitating events, recommendations, and resolutions. The *QA program shall* retain for 10 years all reports generated.

K4.100 Errors and Accidents

The *QA program shall* ensure a documented investigation of any *errors* and or *accidents* in obtaining *informed consent* or *authorization*, in *donor* screening, *collection*, *acquisition*, or *tissue recovery*, *processing*, *quarantining*, releasing, *labeling*, *storing*, and *distribution* or dispensing. If the error or accident may affect the *safety* of *tissue* to be released or that has been released, the Medical Director or licensed physician designee *shall* also review and evaluate the incident. When *tissue may* have been contaminated, the *QA program shall* ensure the documented review and evaluation both of *processing procedures* and of any other *tissue processed* simultaneously or from the same donor.

K4.200 Complaints

The *QA program shall* ensure that a written and oral *complaints* regarding *tissue quality*, *safety*, packaging, or effectiveness are 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, a *responsible person shall* document the reason that 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, *then* those associated *tissues shall* be located and *quarantined* until *resolution* of the incident (which *may* involve initiation of a *recall*). The Medical Director or licensed physician designee *shall* review *complaints* that are medical in nature.

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 identification number*;

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

The *QA program shall* ensure that all reported *adverse outcomes* that are potentially related, directly or indirectly, to an *allograft* are investigated thoroughly and expeditiously. The Medical Director or licensed physician designee shall review all potential *adverse outcome* reports and participate 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 the *tissue bank shall* follow *procedures* for *errors* and *accidents* (see K4.100).

K4.310 Reporting

The *QA program shall* ensure that all cases of transmissible disease in a *recipient* attributed to the *allograft* are reported in writing as required by public health authorities, and in a timely fashion to organ procurement organizations and *tissue banks* involved in any manner with *tissue recovered* from the same *donor* and to the physician(s) involved in the *transplantation* of *tissue* from that *donor*. Reporting *shall* be documented in the *donor's record.*

See the Accreditation Policies for Transplant Tissue Banks for other required reporting.

K5.000 INTERNAL AUDITS

All *tissue banks shall* establish policies and *procedures* regarding the scope and frequency of routine and focused *QA audits*. 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*, *acquisition* or *collection*, *processing*, *preservation* and *packaging*; *donor* and *tissue* testing; *quarantining*; *labeling*; *storage*; *distribution*; *electronic systems*; and *records* management. The *QA program shall* perform focused *audits* of *critical areas* (unless the annual routine *audit* covers all *critical areas*), and of any area with a pattern of *quality* problems. All *audits shall* be performed by persons who do not have direct responsibility for the process being *audited*. The *tissue bank shall* take *corrective action(s)* when necessary, including a re-*audit* of deficiencies. The *QA program* staff *shall* document and report the dates and results of each quality *audit* (and re-*audit*) to management responsible for the *audited* systems, who *shall* review each report. *(Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

K6.000 EXTERNAL AUDITS

External *audits may* be indicated for certain services, suppliers, contractors, and consultants. See K1.300 and B1.521.

K7.000 ELECTRONIC SYSTEMS CONTROLS

K7.100 Authorized Access

Each *tissue bank shall* exercise appropriate controls over *electronic systems* to *limit* general access to authorized personnel and to permit only authorized personnel to alter master production and control *records* or other.

K7.200 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*.

K7.300 Backup Files

A backup file *shall* 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.

K7.400 Security

Electronic systems shall be designed to assure data integrity and maintained in a secure manner to prevent alteration or loss.

K7.500 Audit Trail

Records revised electronically *must* have an *audit trail* that includes the altered information, date of the revision, and the individual that made the revision.

SECTION L
TISSUE DISPENSING SERVICES

L1.000 TISSUE DISPENSING SERVICES

Medical, dental, and hospital facilities, and physician offices that are *tissue dispensing services shall* establish policies and *procedures* to ensure the *safety* and *traceability* of *tissue* from receipt through *storage* and final *disposition* such as *transplantation*, further *distribution*, 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 *labeling materials*.

L2.200 Equipment

Freezers and refrigerators *shall* be regularly maintained, calibrated, and monitored using *QC* written *procedures*.

L2.300 Labeling

Tissue shall not be *relabeled*. Existing *labels shall* not be altered.

L3.000 DISPENSING, FURTHER DISTRIBUTION AND DISPOSAL

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 *labeling materials*. 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 Further Distribution

When further *distributing tissue*, all accompanying original *labeling materials* or other enclosures *shall* be forwarded with the *tissue*. A *record shall* be made of the type and quantity of *tissue*, *tissue identification number(s)*, *redistribution* date 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. When applicable, 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*.

(A) Disposal of *autologous tissue shall* consider the following:

1) there *shall* be a written policy for the discard of *autologous tissue*;

2) the *tissue dispensing service*, in consultation with the *autologous donor's* physician, *shall* approve discard of the *tissue*, and *shall* be responsible for documentation of the method and date of discard; and

3) *autologous tissue should* not be used for *transplantation* after the expiration date.

(R) There *shall* be a written policy for discard of *reproductive tissue* from a *client depositor* or *directed donor*. The *reproductive tissue bank shall* approve discard of *reproductive tissue* from *anonymous donors* and *shall* document the date of discard.

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* (*tissue* supplier or *tissue* processor);

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 *tissue bank* (*tissue* supplier or *tissue* processor) to each *recipient*.

The *tissue bank's tissue tracing* forms *shall* be completed, specifying the *disposition* of the *tissue*, and returned as instructed in *labeling materials*.

L5.000 ADVERSE OUTCOMES

Potential adverse reactions, suspected transmission of disease, or other complications, directly or indirectly related to the *allograft*, *shall* be reported as instructed in *labeling materials* and thoroughly investigated and documented.

L6.000 FIELD CORRECTIONS AND REMOVALS

The *tissue dispensing service shall* have specific written policies and *procedures* for the performance of a *field 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* (*tissue* supplier or *tissue* processor);

4) communication with the *end-user*; and

5) documentation and *record* requirements.

SECTION M
TISSUE DISTRIBUTION INTERMEDIARIES

M1.000 TISSUE DISTRIBUTION INTERMEDIARIES

An agent who acquires *distributed tissue* for *storage* and further *distribution shall* establish policies and *procedures* to ensure the *safety* and *traceability* of *tissue* from receipt through *storage*, clinical use, further *distribution*, or destruction. See relevant parts of Section B and Section J.

NOTE: When any *tissue banking* activities are performed beyond the few functions that identify an entity as a *tissue distribution intermediary* (i.e., an agent that only acquires and *stores tissue* for further *distribution*), relevant *tissue bank* standards apply and compliance is required for accreditation. *Tissue bank* functions that surpass functions solely under the definition of a *tissue distribution intermediary* include:

1) designing, creating, maintaining, or controlling the specifications for *finished tissue*, relevant parts of Section E apply (e.g., the *series of standards* at E2.600 and E2.421);

2) designing, creating, specifying, or maintaining responsibility for the contents of the *label* for *finished tissue*, relevant parts of Section G apply;

3) performing any *labeling* functions to include the physical application of a *label* to *finished tissue*, relevant parts of Section G apply; and/or

4) final review for *tissue* release, relevant parts of Section F apply (e.g., F1.300, *series of standards* at F4.000).

M2.000 STORAGE

M2.100 General

Tissue storage shall be in conformance with the *package insert* and monitoring expectations. See E3.330, E3.331, E3.340, and C1.300.

M2.200 Equipment

Freezers and refrigerators *shall* be regularly maintained, calibrated, and monitored according to written *QC procedures*. See the *series of standards* at J5.000.

M3.000 LABELING

Tissue shall not be *relabeled*. Existing *labels shall* not be altered. Additional *labels shall* not be applied unless pre-approved by the *tissue bank* processor that applied the original *label*. Refer to the *series of standards* at G1.000.

M4.000 DISTRIBUTION

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*. When a *tissue distribution intermediary* further *distributes tissue*, all accompanying *labeling materials* or other enclosures *shall* be forwarded with the *tissue*.

M4.100 Tissue Distribution Restrictions

Provision of *tissue* for *transplantation shall* be restricted to hospitals, free-standing medical facilities, *tissue banks*, *tissue dispensing services*, another *tissue distribution intermediary*, and *end-users* (e.g., physicians, dentists, podiatrists or other medical professionals) for use in *recipients* with the *veterinary use* exception that follows. *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* unless such use is specifically granted in a *document of gift/authorization* or in a *record* of *informed consent*. Controls *must* exist to ensure *distribution* restrictions are met such as those found on the *document of gift/authorization* or *informed consent*.

M4.200 Distribution to Another Tissue Distribution Intermediary

If *tissue* is distributed to another *tissue distribution intermediary*, that *tissue distribution intermediary shall* meet the requirements of Section M.

M4.300 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.

M5.000 CONSIGNMENT INVENTORY MANAGEMENT

If *tissue* is provided on *consignment*, the *tissue distribution intermediary shall* maintain *procedures* to ensure *traceability* and that appropriate *storage* conditions are maintained during *consignment*, further *distribution* or return.

M6.000 PACKAGING AND SHIPPING

M6.100 Pre-Shipping Inspection

Prior to shipping, *packages shall* be inspected to ensure the external *packaging* and *labels* are undamaged, the *tissue* is not expired and the *tissue* being shipped is consistent with the *tissue* requested. The exterior of the transport *package shall* be inspected to *verify* that requirements in G3.310 are met. These inspections *shall* be documented, including identification of staff conducting inspections.

M6.200 Validation and Packaging Expiration

If *tissue* to be shipped requires specific environmental conditions other than ambient temperature, the capability of the transport *package* 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 transport *package*.

M6.300 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.

M6.310 Domestic Shipments

The transport *package label shall* include the following information:

1) name, address and telephone number of the *tissue distribution intermediary*;

2) name and address of the *consignee* or *end-user*;

3) telephone number of the organization to whom issues related to shipping should be communicated,

4) prominent identification of contents as ‘‘DONATED HUMAN TISSUE.’’ Note: If the *reproductive tissue* in the shipment was collected from a *client depositor*, prominent identification as ‘‘HUMAN TISSUE’’;

5) recommended *storage* conditions and transport expiration date (if applicable);

6) type and quantity of refrigerant or other hazardous materials enclosed in the transport *package*;

7) transport (shipping) expiration date (if applicable), and

8) any special handling instructions, when applicable (e.g., “DO NOT FREEZE,” “DO NOT X-RAY,” “DO NOT IRRADIATE”).

M6.320 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.

M7.000 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*, transport *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*.

M8.000 FIELD CORRECTIONS AND REMOVALS

The need to perform a *field correction* or *removal may* be identified as a result of a *complaint*, *adverse outcome*, *accident*, *error*, *deviation*, *audit*, or by any other means. (For applicable *quality assurance* requirements, see relevant parts of Section K. An evaluation to determine if *field 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.

Tissue distribution intermediaries shall have specific, written policies and *procedures* for the performance of a *field 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* (*tissue* supplier or *tissue* processor);

4) communication with the *end-user*; and

5) documentation and *record* requirements.

M8.100 Field Correction and Removal Records

All information relating to the *field 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 *field 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.

M9.000 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*. See applicable requirements of Section C.

M9.100 Tissue Receipt Records

Each *finished tissue 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*.

M9.200 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 of the site to which the *tissue* is *distributed*;

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 person releasing the *tissue*.

Prior to *distribution*, the *labeled tissue shall* be reviewed to *verify* that *tissue* has been properly identified and *labeled*. Such inspection *shall* be documented.

Any completed *tissue tracing* forms, specifying the *disposition* of the *tissue*, *shall* be returned

as instructed in *labeling materials*.

M9.300 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.

M10.000 ADVERSE OUTCOMES

Reports of *adverse outcomes*, transmitted disease, or other complications *shall* be documented and reported to the *tissue processor* 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 bank 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 initial AATB accreditation *may* submit a *variance* request with a completed application for accreditation. A request for *variance* to *Standards* cannot be submitted when noncompliance is discovered during application for re-accreditation, and such a request cannot be used as a *corrective action* in response to a *nonconformity* cited at an AATB accreditation inspection.

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 Vice President and Chief Science Officer (VP/CSO) 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 standard 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 process to be used in support of the *variance* or modification, including the scientific data and *quality assurance* steps). 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) Within thirty (30) days of a request for *variance*, the AATB VP/CSO and the Chairperson of the Standards Committee will review the information submitted for applicability and completeness. These individuals may:

    a) request more information to complete the submission;

    b) consult with officers of appropriate committees and/or councils; and/or

c) determine the submission does not satisfy requirements for a request for *variance*.

REVIEW:

1) The AATB VP/CSO 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) *Variances* 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 AATB VP/CSO 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 AATB VP/CSO 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 Manager for placement in the *tissue bank's* file.

The Board of Governor's action on a request *shall* be communicated by the AATB VP/CSO 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 may* be included in AATB published materials or reports.

APPROVED VARIANCES:

1) 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.

2) A *variance* from *Standards* approved by the Board of Governors is applicable only to the *tissue bank* that requested the *variance*. It *may* also be applicable to a *tissue bank* performing activities directly related to the approved *variance* under written agreement/contract with the requesting *tissue bank*.

3) 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) A *record* of the approved *variance must* be maintained at the requesting *tissue bank* as well as at any other accredited *tissue bank* directly affected by the approval. Evidence of approval of the request for *variance must* be available during an accreditation inspection.

5) Approved *variances shall* remain in effect until:

   a) the *variance* is rescinded;

   b) the applicable standard on which the *variance* is based is 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

Accredited *tissue bank* name:

Email address:

Phone number:

Representative (this is the contact person for this request)

Name:

Title:

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)[1]
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 who have had **sex in exchange for money** or drugs in the preceding five years;

4) persons who have had **sex** in the preceding **12 months** with any person described in the 3 items above or with any person who has HIV infection, including a positive test for HIV, hepatitis B infection, or clinically active (symptomatic) hepatitis C[2] infection;

5) 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;

6) 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*.

7) persons who have been in a juvenile correctional facility, lockup, **jail or prison** for more than **72 consecutive hours** in the preceding **12 months**;

8) 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);

9) persons who have lived with (**resided in the same dwelling**) another person who has **hepatitis B** or clinically active (symptomatic) **hepatitis C**[2] infection in the preceding **12 months**;

10) 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;

11) 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;

12) 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;

13) 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 transmissible spongiform encephalopathy (TSE) on microscopic examination of the brain, *may* be acceptable based on an evaluation of this information by the Medical Director;

14) persons who have received injections of **human pituitary-derived growth hormone** (pit-hGH);

15) persons who are known to have received **transplants of human *dura*** *mater;*

16) persons with **encephalitis** or **meningitis** of viral or unknown etiology that is active;

17) persons who have received transfusions of blood or **blood products** outside of the United States (U.S.) 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)[3].

18) 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 19**80** through the end of 19**96**;

b) lived cumulatively for **5 years** or more in Europe[4] from 19**80** 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 (i.e. Germany, Belgium, and the Netherlands) for **6 months** or more from 19**80** through 19**90**, or elsewhere in Europe (i.e. Greece, Turkey, Spain, Portugal, and Italy) for 6 months or more from 1980 through 19**96**; *(Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

19) 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;

20) persons who are known to have risks associated with **xenotransplantation**[5] (i.e., receipt of a xenotransplantation product[6] or who has had intimate contact[7] with a recipient of a xenotransplantation product);

21) 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;

22) 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);

23) 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*;

24) 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[3];

25) persons who have had a **recent smallpox vaccination** (vaccinia virus) and persons who acquired a clinically recognizable vaccinia virus infection by close **contact**[8] with someone who received the smallpox vaccine;

26) persons whose **cause of death** (COD) **cannot be determined** and there is likelihood of other exclusionary criteria;

27) persons who are known to have **malaria** or be at risk for malaria;

28) *reproductive donors* who have had or have been treated for ***Chlamydia*** *trachomatis* or *Neisseria* ***gonorrhea*** 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.

29) *living donors* who received a **blood transfusion** within the preceding **12** months unless approved by the Medical Director in conformance with generally accepted standards of practice (see Title 10 of New York Codes, Rules and Regulations, Section 52-3.4);

30) ***birth tissue*** donated at **vaginal delivery** when there is significant local viral, parasitic, mycotic, or bacterial infection of the birth canal and, for any delivery, a current **intrauterine infection***;*

31) persons with a history of being diagnosed with **Ebola** virus disease or who are at risk based on current CDC risk information; and

32) based on current recommendation published in FDA guidance, persons who have been determined to be at **risk** for infection with **Zika** virus.

[1]RELEVANT 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 *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 I/II, and *donors* of *reproductive tissues* must generally consider *Chlamydia trachomatis* and *Neisseria gonorrhea*.

[2]CLINICALLY 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.

[3]*Tissue 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.

[4]European 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~~, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, or former Yugoslavia, Republic of Macedonia, and Czechoslovakia. *(Announced 1/31/2020; Bulletin No.20-2; Effective 7/31/2020)*

[5]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.

[6]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.

[7]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.

[8]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:

U.S. Department of Health and Human Services, Food and Drug Administration, Eligibility Determination for Donors of Human Cells, Tissues, and Cellular and Tissue-Based Products; Final Rule (69 FR 29785, May 25, 2004).

U.S. Department of Health and Human Services, Food and Drug Administration, Final Guidance for Industry: Eligibility Determination for Donors of Human Cells, Tissues, and Cellular and Tissue-Based Products (HCT/Ps) dated August 8, 2007.

U.S. Department of Health and Human Services, Food and Drug Administration, Final Guidance for Industry: Recommendations for Donor Questioning, Deferral, Reentry and Product Management to Reduce the Risk of Transfusion-Transmitted Malaria dated August 2013. Updated August 2014.

Title 10 (Health) New York Codes, Rules and Regulations, Part 52. February 24, 2007

Appendix III:
TISSUE DONOR PHYSICAL ASSESSMENT FORM REQUIREMENTS

Introduction

This new appendix was derived from a document formerly titled "AATB Guidance Document No 1, v2 Tissue Donor Physical Assessment Form, 6-27-05." As an appendix, compliance is mandatory. The form and instructions that follow *must* be used to document the *tissue donor physical assessment*.

There are specific requirements related to *tissue donor* identification and *physical assessment*. Standard D4.120 requires that, "Prior to the *recovery* of *tissue* from a deceased *donor*, a *physical assessment shall* be performed by a *responsible person*." This standard also lists physical findings that may be an indication of infection with, or high risk behavior for, HIV or viral hepatitis, observations that may alert *recovery* personnel to signs related to an active infection (communicable disease) or to contamination due to trauma or medical intervention, all of which can affect *donor* eligibility. Other standards related to significant steps of this process are found in Section C and parts of Section D and Section F such as: *authorization*, *relevant medical records* review, autopsy report, *donor* identification *verification procedures*, and disease screening for infections and conditions that include risk factors and malignancies. These standards cover and exceed expectations in relevant FDA guidance[1].

In 2004, to completely and properly document the *physical assessment* of a *donor*, the AATB membership developed a "Tissue Donor Physical Assessment Form" and a corresponding "Standard Operating Procedure (SOP)". The original version was a guidance document and it was updated once. Version 2 was issued in 2005 after a work group, comprised mostly of the members who created the original version, suggested improvements to the form after it was in use for about a year.

Six years later, new volunteers headed by the officers of the Recovery and Donor Suitability (RADS) Council, began to meet by conference call and online meetings to modernize the form and the instructions. Their expertise provided many improvements and added a page to the form. Review opportunities were provided to the Quality Council, the Processing and Distribution Council, all members of the RADS Council, as well as to the Physicians' Council, and their comments were deliberated before sending final recommendations to the Standards Committee. The Standards Committee reviewed the updates and sent the recommendations to the Board of Governors who approved it as a new appendix to the *Standards*.

Tissue banks can adapt and personalize forms and *SOPs* for use in either paper or electronic format, however, all of the contents of this form *must* be included in any format used. *Tissue donor physical assessment* is a significant step in the *donor* eligibility process therefore staff training and periodic evaluation of *competency* is expected. Electronic documentation systems *shall* meet the same requirements for compliance as paper documentation *records*. Uploads (e.g., photos, documents, etc.) can occur during certain steps of the documentation expectations for *physical assessment*. The size of the body schematic is important to optimize documentation; the size of the schematic *must* not be reduced to the point that a reviewer is unable to distinguish the many notations that can be made.

Instructions

The purpose of these instructions is to describe how to properly complete the three-page AATB Tissue Donor Physical Assessment Form. The information contained on these pages and in *relevant medical records* will be used as an aid to determine *donor* eligibility in order to proceed with *tissue recovery*.

This form *shall* be completed in its entirety, prior to *recovery* of *tissues*. Internal findings *should* also be documented in *tissue recovery records* but, except for documenting whether lymph nodes appear

abnormal, this aspect is not addresses here. An "internal findings form" *may* be developed separately.

This *record* identifies the staff involved in each significant step of the *physical assessment procedure*, and documents: *donor* identification and *authorization verification procedures*; the *donor's* appearance and evidence of donation of organs and/or ocular tissues; the status of an autopsy (if any); a description of each finding; whether photos were taken and if consultations occurred; if there were personal effects and their disposition; and, a summary that attests to acceptability to proceed with *recovery*.

Abbreviations

The following abbreviations are used:

- □ e.g. - *exempli gratia*; for example, such as; the list is not finite
- □ i.e. - *id est*; that is; indicates a finite list
- □ ft - feet
- □ cm - centimeters
- □ in - inches
- □ kgs - kilograms
- □ lbs - pounds
- □ ET - endotracheal
- □ ID - identification
- □ IV - intravenous
- □ N/A - not applicable
- □ NG - nasogastric
- Ortho – orthopedic
- □ UNOS - United Network for Organ Sharing

Materials

- □ Indelible ink (blue or black);
- □ AATB Tissue Donor Physical Assessment Form or fully compliant version (paper or electronic substitute); and
- □ *Relevant medical records*, including but not limited to: the *document of gift* or *document of authorization*, the *donor risk assessment interview* form, and available, *relevant medical records*.

Safety

Follow established blood borne pathogen precautions.

Instructions for Completing Page 1

Completion of this page: 1) describes how the *donor* was identified; 2) describes the *donor's* appearance and documents evidence of previous donation of ocular tissues and/or organs; 3) describes the status of an autopsy; 4) documents the *recovery* team's *physical assessment* findings using a required list of potential risk factors; and, 5) identifies personnel who *verify donor* identification. Information may be derived from available *relevant medical records*, source documents, and/or personnel involved with the care of the patient/*donor*.

Step	Action
Identification	
1	Document the complete name of the *donor* as written on the *document of gift/authorization*.
2	Document the recovery agency's unique *donor* ID.
3	The manner in which the *donor* was identified is documented by checking the box next to the

	applicable word(s): "ID Band," "Body/Toe Tag," or "Other." If "Other" is selected, it *must* be described. Multiple identifiers *may* be checked.
4	Recreate the ID Band/Tag containing the most information. All identifying tags/bands *should* match. Or check N/A ID not present if there is no ID band/tag present, or check N/A Photo taken/saved if a photo of the ID Band/Tag was taken/saved instead.
5	Check the "Yes" or "No" box to indicate if there is agreement among *recovery* team personnel that the body's physical characteristics (e.g., age, gender, race, height, weight, signs associated with the cause of death, or information on the *DRAI* form) are consistent with available *relevant medical records* and the identification is consistent with other documents. If "No," appropriate management *shall* be contacted for guidance before proceeding with *recovery*. The *SOPM shall* include directions when the *donor's* identification is discrepant or questionable.
6	On the line provided, print the names or initials of the *tissue recovery* personnel present that *verified* the *donor's* identification. Document the date and time noting when this step was completed. Identify the appropriate time zone per *SOPM*.
Appearance/Evidence of Donation	
7	Enter a number for the height of the *donor* followed by checking a box indicating the appropriate selection designating whether this is inches (in.) or centimeters (cm.).
8	Check the box that indicates the method the team used to obtain the height: use "estimated/team" if estimation by the team's *responsible person(s)*; use "actual" if direct measurement was performed; use "reported" if *relevant medical records* (for "source", enter the specific source). The *responsible person(s)* of the team *must* agree upon and document one value for height. Check multiple boxes if the team used multiple methods.
9	Enter a number for the weight of the *donor*. Check the box for units used [pounds (lbs) or kilograms (kgs)].
10	Check the box that indicates the method the team used to obtain the *donor's* weight: use "estimated/team" if estimation by the team's *responsible person(s)*; use "actual" if direct weighing; use "reported" if relevant medical records (for "source", enter the specific source). The *responsible person(s)* of the team *must* agree upon and document one value for weight. Check multiple boxes if the team used multiple methods.
11	Upon initial body assessment, check the box to describe the state in which the body was found such as: evidence of decomposition (e.g., skin sloughing, putrefaction); or, "cleanliness" (e.g., presence on the body of broken glass, dirt, leaves, grime, road abrasions). If "Poor", describe condition.
12	Check "No" or "Yes" to document evidence of ocular donation. If "Yes", then check either "corneas only" or "whole eyes" as appropriate.
13	Check "No" or "Yes" to document evidence of organ donation. If "Yes", then enter the UNOS #.
Autopsy Status	
14	Check appropriate box to indicate if *tissue recovery* is "pre" or "post" autopsy, if no autopsy is planned, or, if the autopsy plan is unknown.
15	If an autopsy has been done or is planned, indicate the appropriate type describing it as "full", "limited (e.g., head only)," "view only," "toxicology screen only," or if the plan for autopsy is "unknown." Check only one. Intent can be met if knowledge of the autopsy plan is documented on a form other than the Tissue Donor Physical Assessment Form, however, the information included on the Tissue Donor Physical Assessment Form *must* be covered in entirety (i.e., all the options listed *must* be covered). In cases where some *tissue* is *recovered* pre-autopsy (e.g., ocular) and more tissue (e.g., bone) is recovered post-autopsy, the events *should* be documented in the *donor record* and reflected on the schematic."

Assessment	
16	For each step #17 through # 28 inclusive, check "No" or "Yes". If "Yes", then describe the finding thoroughly. If visualization or palpation is not possible, then check the box and explain why.
17	Are abnormal ocular findings (e.g., icterus, scarring) present? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes"). If ocular tissue was *recovered* prior to this assessment, then check "Unable to visualize" and follow-up with personnel at the local Eye Bank to obtain document.
18	Are white or yellow spots in the mouth present? Check "No" or "Yes". If "Yes", then describe. Check "Unable to visualize" if oral cavity is not accessible to visualize and explain why. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").
19	Is jaundice present? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").
20	Are signs of trauma or infection present on the body where *recovery* of *tissue* is planned (*tissue recovery* areas)? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").
21	Is a rash, scab, or non-genital *skin* lesion present? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").
22	Are blue/purple (gray/black) spots/lesions present? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").
23	Are signs of non-medical injections present? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").
24	Document if no enlarged lymph/abnormal node(s) is (are) observed ("No"), or if any are observed ("Yes"). Explain any "Yes" findings here or, if space is limited, document where the description can be found (e.g., see schematic, see Notes, etc.). Lymph nodes can be palpated bilaterally just under the *skin* of the neck, axilla, and groin. When lymph nodes can be visualized and are found to be enlarged/abnormal, such findings *must* be documented in the *recovery records* however there is not an expectation to identify them on the body schematic. An enlarged lymph node can appear swollen [a node that is an inch (2.5 centimeters) or more in diameter in an adult], and abnormal findings can be if it is draining pus or feels hard [2].
25	Is evidence of an enlarged liver (hepatomegaly) present? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes"). If the liver cannot be assessed, then check "Unable to assess" and explain. If liver is not present, there is an expectation to follow-up to obtain documentation of the description of the liver (e.g., with OPO personnel, a pathologist, a researcher).
26	Are genital lesions present? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").
27	Are perianal lesions or anal trauma present upon rectal examination? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").
28	Are tattoos/piercing present? Check "No" or "Yes". If "Yes", then describe. If additional space is needed, then write where to find details (e.g., "see schematic", "see Notes").

Instructions for Completing Page 2 (Schematic)

Completion of this page documents all of the *physical assessment* findings by team members by recording them on anterior and posterior body diagrams (schematics) using a standardized Key. This will include

those findings documented during assessment on page 1 plus any other observations. Documentation also occurs if no findings are seen on either schematic view. Personnel who perform the *physical assessment* are identified as well as when it was performed.

1	Document the recovery agency's unique *donor* ID.
2	All gross findings are appropriately drawn or otherwise identified (i.e., such as when using electronic *records*) on the anterior and posterior body schematics using the lettered Key provided. Blank schematic Key spaces are available to document gross findings not listed and/or to provide areas to further describe any listing [e.g., (H), (N)]. Piercing location, body jewelry, and each tattoo's location and content are important to describe on this form or in additional notes.
3	If no findings are evident on either schematic view, check the appropriate box below it to indicate "no observations noted."
4	Document the name or initials of each team member who performed the *physical assessment*. Document the date and time noting when this step was performed. Identify the appropriate time zone per *SOPM*.

Instructions for Completing Page 3 (Summary)

Completion of this page documents: 1) if any photos of the body were taken; 2) if consultation occurred regarding *physical assessment* findings; 3) if personal effects were with the body and if so a description of which ones and their disposition; and, 4) a summary and whether this *donor* is acceptable or not to proceed with *tissue recovery*.

1	Document the recovery agency's unique *donor* ID.
2	Were photos of the body taken? Check "No" or "Yes". If "Yes", then provide relevant information about the photos in the "Notes" section. A process *should* be established to share photos upon request from the *tissue bank* determining donor eligibility. This question regarding taking of photos *must* be addressed but intent is met if this information is captured on a form other than the Tissue Donor Physical Assessment Form.
3	Did consultation of *physical assessment* findings occur? Check "No" or "Yes". If "Yes", then provide relevant information about any consultation in the "Notes" section. This area can also be used for documenting details regarding whether a biopsy was requested and taken.
4	Document if there are no personal effects with the *donor* body ("No") or check "Yes" if personal effects are present. Personal effects can be, for example, clothing, a wallet/purse, cash, credit cards, drug paraphernalia, mobile phone, and/or jewelry but, if present, require a description and their disposition. Intent is met if personal effect information is documented on a form other than the Tissue Donor Physical Assessment Form.
5	After a review of available *relevant medical records* and the *physical assessment* findings have been completed, a *responsible person* from the *recovery* team must indicate "acceptable" or "not acceptable," then document their name or initials and date of completion of this process. Identify the appropriate time zone per *SOPM*.
6	After all documentation has been reviewed for legibility, completeness and accuracy, the form is appropriately forwarded.

Notes Regarding Documentation

Standard C1.100 requires that "Documentation must be made concurrent with each significant step." All findings *must* be documented concurrently with the performance of the physical assessment. Any changes made to the document after the examination *must* include the date the change was made, initials of the person making the change, and the reason/rationale for the change. Changes to actual findings *should* be

based on photos that support the change.

The spaces provided on this form for documenting observations *may* be expanded to meet local policy, such as adding a listing for "lividity" or "rigidity/contractures" in the Key, adding space reserved for documenting more notes, or increasing the space for documenting names, numbers, or identifiers. Other additions *may* be made but the content of this form *must* be included in entirety. For example, the letter selected to identify any listing in the Key can be different but all of the listings in the Key to this guidance document *must* be used. The size of the body schematic is important to optimize documentation; the size of the schematic *must* not be reduced to the point that a reviewer is unable to distinguish the many notations that can be made.

Proper methods of documentation *must* be utilized, including revisions to *records*. Revisions *shall* be made with a single line drawn through the altered text with the revision initialed and dated by the person making the revision. Additions to a completed *record shall* be initialed and dated by the individual making the additions (see C1.500). All entries *must* be legible.

It's preferred that documentation concerning "time" be based on a 24-hour clock (military time). Use of the notations "pm" and "am" is not preferred. *Tissue recovery* documentation *shall* use the time zone appropriate to the time and place of *recovery*.

Deviations from written *procedures shall* be documented and shared with all entities that determine *donor* eligibility and approve release of *tissue*.

References

1. U.S. Department of Health and Human Services, Food and Drug Administration, Final Guidance for Industry: Eligibility Determination for Donors of Human Cells, Tissues, and Cellular and Tissue- Based Products (HCT/Ps), August 8, 2007.
2. The Merck Manual, Home Health Handbook for Patients and Caregivers, http://www.merckmanuals.com/home/heart_and_blood_vessel_disorders/lymphatic_disorders/swollen_lymph_nodes.html (accessed April 30, 2016)

Historical Changes

Previous Page #	Summary of Changes
New on 2/23/04 (SAB/AM/AG)	
Version 2 effective date 6/27/05 (PA Workgroup/SAB)	
1	Added reference to this being "Version 2", new date, and address updated
3	Table of Contents pages and titles updated
4	Provided listing of standards that are related; verbiage changes and additions made for clarification; reference to staff training and competency added.
5	Updates made to abbreviations in B.; addition of "available, relevant" to medical records; and punctuation changed in part E.
6	Verbiage additions and changes made for clarification.
7	Verbiage additions and changes made for clarification. "Globes" replaced with "whole eyes" to match EBAA terminology.
8	Removed "icterus" in step 17 and placed it in later step (28); adjusted wording accordingly.
8	Step 19 amended to document the new observation listing for "tattoos/piercings" to

	accommodate new federal guidance (Donor Eligibility).
8	Removed instruction in step (old 22) that is no longer considered part of *physical assessment*: "Document by checking the appropriate box, if infectious precautions are known for this patient ("Yes"), or not ("No")."
8	Changed "perianal warts" to "perianal lesions" to encompass more possibilities that may be seen.
8	Added provision for documenting evidence of rash, scab, or skin lesion (non-genital) to accommodate new federal guidance (Donor Eligibility).
9	Change to step 28 is to address documentation of abnormal ocular findings that was added to accommodate new federal guidance (Donor Eligibility).
9	Documenting limitations of visualization when it's restricted is offered as needed.
9	Body Appearance section amended to report "Cleanliness" instead of "Basic Hygiene" to accurately reflect intent; and, "Body Profile" deleted since height and weight is previously reported.
9	Step numbers updated and order of last two steps changed.
10	In step 2, use of blank schematic Key spaces is now described.
10	Ampersand (&) included in deletion example.
10	Part G. amended to include general instruction to document/share any deviations from written procedures that occur.
13	Identification area updated by: 1) adding "/gender" to "sex"; 2) adding checkbox for height measurement in centimeters; 3) addition of "source:" and lines for documenting it for both "reported" height and weight assessments. "Actual" assessment box for height and weight moved to last selection in the row since it likely occurs less often than others. Changed case for capitalizations of measurements.
13	Evidence of Donation/ Autopsy area changed to list "whole eyes" instead of "globes".
13	Recovery Team Assessment area updated by: 1) removal of icterus from first checklist item, then added later in listing for ocular findings; 2) addition of individual checklist item for "tattoo/piercing"; 3) addition of individual checklist item for "rash, scab, skin lesion (non-genital)"; 4) additional individual checklist item for "abnormal ocular finding (i.e. icterus, scarring)" with further checkbox provision for "unable to visualize", if applicable; 5) limitation for visualization of "oral cavity" removed since there are two scenarios that can occur now. Added "Notes/" to "Explain if unable to visualize…" to clarify intent to document anything relevant in space provided.
13	In the General Appearance area, deleted "Basic Hygiene" and changed to "Cleanliness"; entirely deleted Body Profile and selections.
13	Switched order of last two line items.
14	Added a selection for labeling a 'scab' by using the letter W. Changed "for" to "prior to" in Summary.
15, 16	Added example pages of the sample form completed in entirety for a fictitious donor.
13–16	Removed all checkboxes and spaced selections appropriately.
6–8	Changed all references to "checking" or "box" and replaced them with directions to circle appropriate selection or word.
Appendix III (RADS Council Workgroup/SAB)	
1	The title was changed from a guidance document to an appendix. This was done to clarify original intent that using this form and following the instructions are mandatory.
3	The list of latest contributors was added.
4	Section listings have been expanded with new subsections; pages and titles updated.
5	The Introduction was expanded to include: a broader description of other standards related to significant steps of the *donor* eligibility determination process; a description that this method, or an equivalent method, *shall* be implemented, and that periodic evaluation of

	competency is expected for staff performing *physical assessment*; clarification that electronic documentation systems *shall* meet the same requirements for compliance as paper documentation records; and, a description of this version's development and the approval process.
6, 7	The Purpose is described in more detail, more Definitions and Abbreviations were added, and the Materials section updated to clarify that full compliance is expected. It is additionally described that, except for documenting whether lymph nodes appear enlarged/abnormal, this guidance document does not address internal findings and that an "internal findings form" can be developed separately.
8 to 11	On each page, the procedural steps were updated to align with changes to the form in regard to: the new order of the listing of signs in the Assessment box; the switched order of documenting "No" and "Yes" which are now further separated on the form to provide better documentation practice; and, descriptions changed to documenting "No" or "Yes" instead of using directions to "circle appropriate selection or word."
8	In the Identification box, procedural steps have been revised to meet changes to the form such as: documentation of agreement among *recovery* team personnel that the body's physical characteristics and identification are consistent with available *relevant medical record*s; direction provided to contact appropriate management for guidance prior to *recovery* if there is a discrepancy regarding identification of the body; the procedure describes an expectation that the SOPM shall include directions when the donor's identification is discrepant or questionable; and, there was an addition made to document not only the date and time when these critical steps were performed but also the appropriate time zone.
9	Procedural steps were updated to describe more detail how the donor's weight was derived and that the weight documented was agreeable to all recovery personnel, and a new selection was added to the type of autopsy (i.e., toxicology screen only).
10	Procedural steps were updated to describe more detail, especially: when there is an expectation to contact the local Eye Bank and obtain documentation of their ocular assessment; the possible color of spots in the mouth was expanded to include not only white but also yellow; the locations on the body where lymph nodes can be palpated were added; findings of abnormal lymph nodes *must* be documented but there is not an expectation to identify them on the body schematic; a description was added to provide background on the size of an enlarged lymph node and that abnormal findings can relate to draining pus and/or if it feels hard; and, a reference to the Merck Manual was added. For a few listings that have multiple terms in a listing, a new description states there is no longer an expectation to also circle the word(s) in the listing to indicate which finding(s) were identified, but it (they) *must* be clearly explained and identified on the schematic.
11	Procedural steps were updated to describe more detail, especially: to allow documentation when the liver cannot be palpated and space to explain why; that there is an expectation to document if a tattoo is suspected to be recent/new and descriptive examples are now provided (i.e., scabbing is present on tattoo, tattoo area is shaved, tattoo has vibrant colors, or if there is inflammation/swelling/redness within the tattoo), and that providing a description (location and content/subject) of any tattoos and the location of piercings and type of body jewelry are also expectations; and, the observation for "perianal lesions or insertion trauma" was changed to "perianal lesions or anal trauma" because referencing "insertion trauma" could be subjective. At "Instructions for Completing Page 2 (Schematic)" it now states that a standardized Key is used, and that documentation also occurs if there are no findings on either schematic view. A summary was added that completion of a new page expects the following additional documentation: 1) if any photos of the body were taken; 2) if consultation occurred regarding *physical assessment* findings; and 3) if personal effects were with the body. Direction includes that any consultation be explained in the "Notes" section, and that this area can also be used for documenting details

	regarding whether a biopsy was requested and taken. If personal effects are present a description and their disposition is now required documentation.
12	A new section (Notes Regarding Documentation) gives a description that spaces provided on this form for documenting observations can be expanded to meet local policy and that additions can be made to the form but the content of this form *must* be included in entirety. It's now clarified that documentation concerning "time" is preferable when based on a 24-hour clock (military time). Use of the notations "pm" and "am" are now described as not preferred. Documenting the appropriate time zone for the respective region has been added. Documenting and sharing deviations is now required when the deviation can affect the eligibility determination of the donor or release of tissue. The list of references was updated and a few added. The section on Historical Changes was reformatted.
13	A comment period produced a number of recommendations that were accepted in full, accepted in part, or rejected. Refer to "Compiled Comments & Responses to Tissue Donor Physical Assessment Form".

The AATB recognizes the efforts of the following individuals who generously donated their time and expertise to creating these requirements.

Versions 1 & 2
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Appendix III
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AATB Tissue Donor Physical Assessment Form

Identification:
Name on Document of Gift/Authorization: _____ Recovery Agency ID: _____

Manner identified by: ❑ ID Band ❑ Body/Toe Tag ❑ Other (describe): _____

Identification Band/Tag:

ID re-created:

Or:

❑ N/A Photo taken/saved
❑ N/A ID not present

The body's physical characteristics (e.g., age, gender, race, height, weight, signs associated with the cause of death, or information on the DRAI form) are consistent with available relevant medical records, and the identification is consistent with other documents.

❑ Yes ❑ No

If answered "NO," contact appropriate management for guidance before proceeding with recovery.

Personnel verifying donor ID: _____ **Date/Time/Zone:** _____ / _____ / ___

General Appearance/Evidence of Donation:

Height: _____❑in ❑cm **Height is:** ❑ estimated/team ❑ actual ❑ reported (source :_____)
Weight: _____❑lbs ❑kgs **Weight is:** ❑ estimated/team ❑ actual ❑ reported (source :_____)

Cleanliness: ❑ Good ❑ Poor (Describe if poor): _____

Ocular Donation: ❑ No ❑ Yes If "Yes," ❑ corneas only ❑ whole eyes
Organ Donation: ❑ No ❑ Yes If "Yes," UNOS #_____

Autopsy Status: ❑ Pre-Autopsy Recovery ❑ Post-Autopsy Recovery ❑ No Autopsy Planned ❑Unknown

Type: ❑ Full ❑ Limited ❑ View only ❑Toxicology screen only ❑Unknown

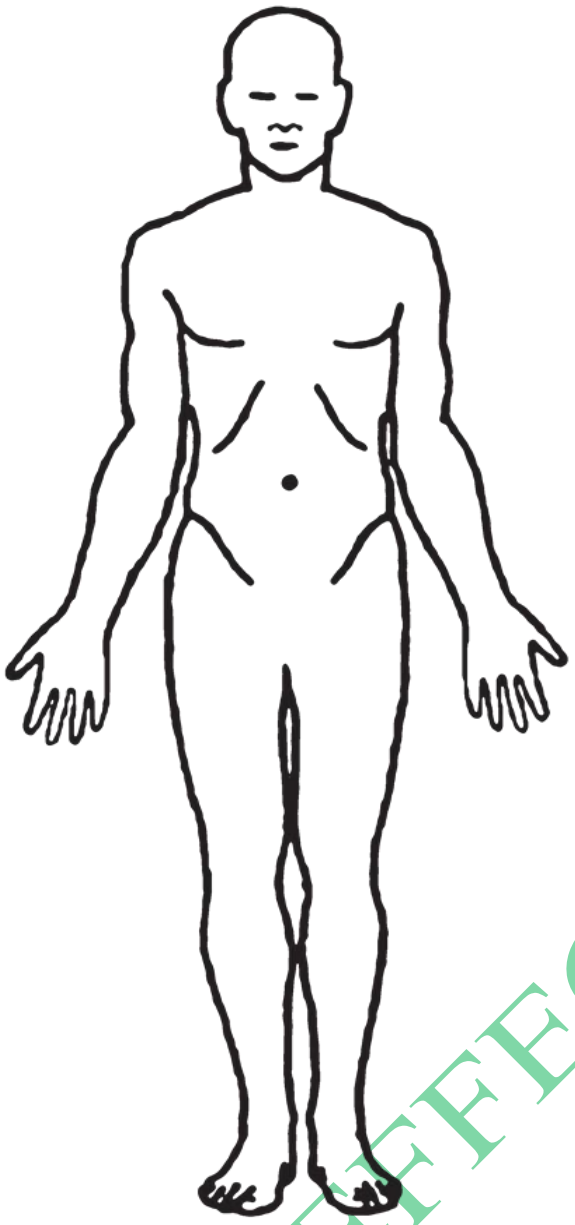
Assessment:

Are there signs of any of the following? Explain "Yes" answers, or any if "unable to visualize/palpate."

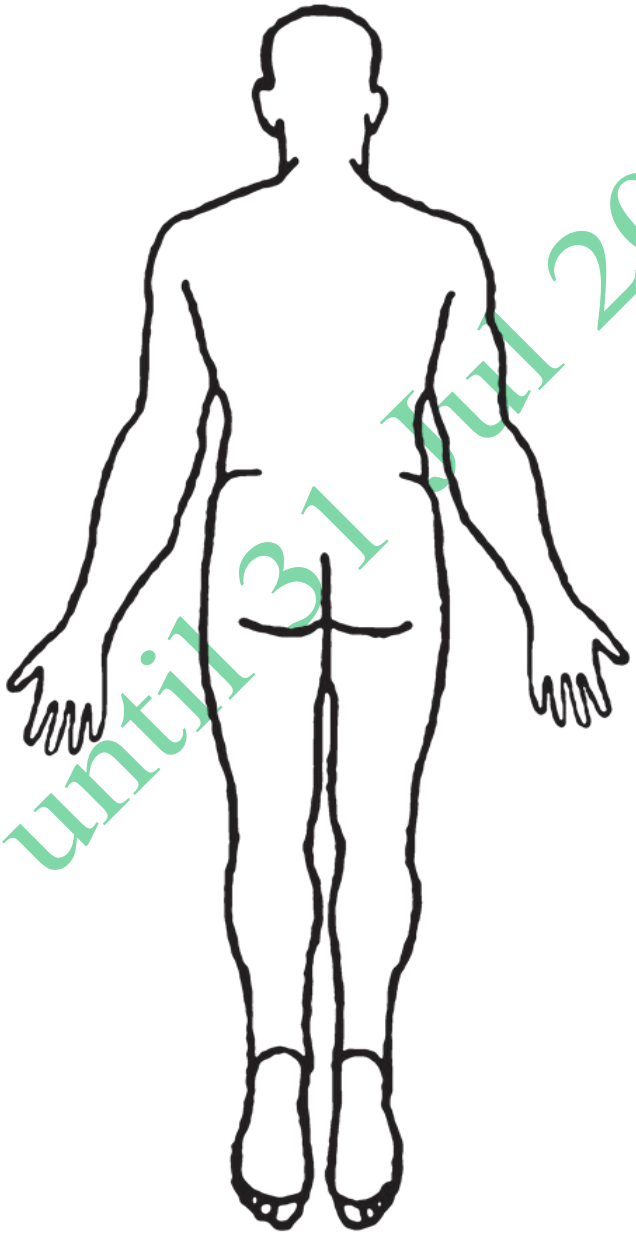
❑No….Abnormal ocular findings (e.g. icterus, scarring) … ❑ Yes ❑Unable to visualize: _____
❑No….White/Yellow spots in the mouth …… ❑ Yes ❑Unable to visualize: _____
❑No….Jaundice …… ❑ Yes: _____
❑No….Trauma/Infection to tissue recovery areas …….. ❑ Yes: _____
❑No….Rash/Scab/Skin lesion (non-genital) …… ❑ Yes: _____
❑No….Blue/Purple (gray/black) spots/lesions …… ❑ Yes: _____
❑No….Non-medical injection site …….. ❑ Yes: _____
❑No….Enlarged/Abnormal lymph node(s) …… ❑ Yes: _____
❑No….Enlarged liver …… ❑ Yes ❑Unable to assess: _____
❑No….Genital lesions …… ❑ Yes: _____
❑No….Perianal lesions or Anal trauma …….. ❑ Yes: _____
❑No….Tattoos/piercing …… ❑ Yes: _____

Tissue Donor Physical Assessment Schematic

Recovery Agency ID: _____



❑ Check if no observations noted



❑ Check if no observations noted

Key to Schematic:

(A) Abrasion	(N) Body piercing – requires description
(B) Bruise/Contusion/Hematoma	(O) Urethral catheter
(C) Cast/Ortho device	(P) Skin lesion – requires description
(D) Dressing/Bandage	(Q) Scar (surgical/trauma)
(E) ET tube/NG tube	(R) Rash
(F) Fracture/Dislocation	(S) Ocular Donation
(G) IV/IO/Arterial Line	(T) Tattoo – requires description (also note if suspected to be new)
(H) Skin Tag(s)	(U) Stretch mark(s)
(I) ID Band/ Tag	(V) Mole
(J) Laceration/Wound	(W) Team Blood Draw Site
(K) Autopsy Incision	(X) _____
(L) Needle entry site	(Y) _____
(M) Organ Recovery Incision	(Z) _____
	(AA) _____

Physical Assessment performed by: _____ Date/Time/Zone: _____ / _____ / ___

Tissue Donor Physical Assessment Summary

Recovery Agency ID #: _____

❑ No……. Were photos of the body taken?…… ❑ Yes

❑ No……. Did consultation of physical assessment findings occur? ... ❑ Yes

Notes:

_____

_____

_____

_____

_____

_____

_____

_____

_____

❑ No……. Personal effects with body……❑ Yes

If yes, check only those that apply and describe:

❑ Clothing …… Describe: _____

_____

❑ Wallet/purse…… Describe: _____

❑ Jewelry …… Describe: _____

❑ Other …… Describe: _____

❑ Other …… Describe: _____

❑ Other …… Describe: _____

❑ Other …… Describe: _____

Disposition:

_____

_____

Summary:

A review of available relevant medical records and physical assessment findings were completed prior to recovery and found to be: ❑ **acceptable.** ❑ **not acceptable**.

_____ _____ /_____ /____

Responsible Person Date/Time/Zone

Appendix IV:
PREVENTION OF CONTAMINATION AND CROSS-CONTAMINATION AT RECOVERY: PRACTICES AND CULTURE RESULTS REQUIREMENTS

Introduction

In the spring of 2002, the Board of Governors assembled a Task Force to review reports of recipient infections that were allegedly associated with *tissue allografts*. In 2003, the Task Force made several recommendations that were considered by the Standards Committee. It was determined that additional steps could be taken to control the possibility of contamination and/or *cross-contamination* during *recovery* of *tissue* from deceased *donors*, and that the presence of certain *microorganisms* would necessitate discard of the *tissue*. The Committee also agreed that the interpretation of associated *recovery* (pre-processing) cultures from the same *donor* warrant scrutiny, and that sharing culture results is important.

The Board of Governors decided to include some of these recommendations in the AATB's *Standards for Tissue Banking*. Other recommendations were more representative of good practice, and these recommendations were published in the original version of this work when it was titled "Prevention of Contamination and Cross-contamination at Recovery: Practices & Culture Results, Guidance Document (No. 2), October 20, 2004."

In early 2006, a technical work group was formed to expand the content of the guidance to include another factor that could prevent contamination and *cross-contamination* at *recovery*. Suitability of the site where *tissue recovery* takes place *must* be evaluated and determined to be acceptable prior to *recovery, and* revisions were made to D5.500. The goal is to set specific guidelines/suitability parameters that define required controls. There is not an expectation that actual detailed monitoring be performed at each *recovery site*. Parameters have been developed that, when applied, can ensure that the environment in which *recovery* occurs meets minimum specifications and *should* not introduce, transmit, or spread contamination. These additional controls are appropriate and reasonable and have been formulated by this work group from practices tested and used by AATB-accredited *tissue banks*.

In January of 2007, another work group of subject matter experts was organized to collect information regarding how *tissue banks* were applying the *zone recovery* concept and *sequencing* to their *recovery* operations. These practices were reviewed for consistency and common practices were added to this work. There is consensus that documentation methods that describe zones and *sequencing* facilitate *tissue* suitability determinations. Version 2 of the guidance document was published on May 29, 2007 and included updates for *zone recovery* and *sequencing*, and added *recovery site* suitability parameters along with a sample form.

In 2016, the guidance document became an appendix to the *Standards* when the 14th edition was published.

Definitions

As used in this appendix, the following definitions apply:

> **SEQUENCING** - A procedure utilized at *tissue recovery* that documents the order (sequence) that *tissues* were *recovered* from one *donor*.

ZONE RECOVERY - A *tissue recovery* method by which specific, well-defined areas of the body are identified as zones and from which individual *tissues* are *recovered* using the same sterile instrumentation/equipment and sterile gloves. It is recommended that *skin recovery* be performed as a separate zone so that *pre-sterilization/pre-disinfection culture* results of other *tissues* can be independently reviewed.

ISOLATION DRAPING - A method used whereby areas adversely affected by trauma are first segregated (isolated) by entirely covering them to contain potential contamination and prevent *cross-contamination* to other *tissues recovered* from the same *donor*. If *tissues* from these areas are retrieved, they *should* be sequenced as the last to be recovered.

Recovery Practices

RECOVERY TECHNIQUES:

Certain *tissue recovery* practices may be helpful in controlling contamination and *cross-contamination* of individual *tissues*. These include *recovery* techniques such as *sequencing* of the *tissue recovery*, use of well-defined *zone recovery* techniques, and *isolation draping* in the presence of trauma (see D5.530). *Recovery* activities *should* be reviewed to help determine the likelihood of *cross-contamination* of individual *tissues*.

RECOVERY SITE QUALIFICATION:

Parts of applicable federal regulations can be referenced (at §1271.190 Facilities, and at §1271.195 Environmental Controls and Monitoring) and used as guides for practical application when determining that a *recovery site* is satisfactory. The evaluation of the suitability of the site of *recovery must* be documented and this *record* shared with entities that receive *tissues* from the *donor* [at §1271.160 Quality Program, (b) Functions (2)]. Due to many circumstances related to events that could occur after death, the donor body may be moved to various sites (e.g., dedicated tissue recovery site, healthcare facility operating room, autopsy suite). The room in the building where *tissue recovery* takes place *must* offer a level of control that will not increase the potential to introduce contamination or cause *cross- contamination*. Minimum qualification parameters have been established that *should* ensure control of this environment and be *qualified* for *tissue recovery*.

Prior to *recovery*, the following evaluations are performed and there *must* be:

1) adequate floor and tabletop space to allow separation of sterile instrumentation and performance of *aseptic recovery procedures* (i.e., *zone recovery*, *sequencing*, draping, *tissue* wrapping);
2) adequate lighting to perform *physical assessment* and *tissue recovery*;
3) adequate plumbing and drainage for the intended purpose to include access to an adjacent or suitably located hand-washing area that can be used to perform a hand/forearm surgical scrub or wash;
4) a controlled, closed airflow system in the *recovery* area. This means there is no direct access to the outside of the building from the room at any time during, before, or after *tissue recovery* (e.g., doors, windows that can open, fans, air conditioners); In addition, all vents appear clean and there is no vented airflow noted to be directed and flowing onto sterile fields;
5) walls, floor, and work surfaces that are easily cleanable (i.e., non-carpeted, not porous) and in a good state of repair;
6) no visible signs of insects, rodents, or other pests;

7) an evaluation for any standing fluids or contaminated waste in the room that could be a source of airborne bacteria, mycobacteria, yeasts or fungi, and if present, it *must* be rectified prior to *recovery*; and

8) proper preparation of the *recovery site* by cleaning and *decontaminating* all working surfaces prior to *recovery* of *tissue*;

Concurrent with *tissue recovery*, the following site parameters *must* be controlled:

1) human traffic is restricted and all personnel entering the *recovery* area must be properly outfitted and their movement controlled; and

2) no other activities (i.e. embalming, autopsy, another *tissue donor recovery*) can occur simultaneously in the same room as this *tissue recovery*;

After *tissue recovery*, the following activities *must* be performed:

1) all contaminated/biohazardous re-usable supplies were *decontaminated*, and adequately contained for transport, and that contaminated/biohazardous waste was properly disposed, or contained and transported to a disposal site; and

2) all working surfaces and the floor were *decontaminated* using approved solutions and equipment.

Note: If there is an ability to rectify certain parameters that may not be initially met (e.g., there is a need to cover room furniture, drains, sinks, or walls), this *must* be described in *procedures*, and such a scenario warrants review by a designated, *responsible person* prior to proceeding with *recovery*. There *must* be assurance that there is no evidence that the scenario would compromise the suitability of the *recovery site* by being a source of contamination or *cross-contamination*.

Recovery personnel *must* document whether the above parameters have been met, and if the *recovery site* has been determined to be suitable. See "Sample Tissue Donor Recovery Site Assessment Form" in this appendix.

ZONE RECOVERY AND SEQUENCING:

The primary objective of *zone recovery* is to reduce the potential spread of *microorganisms* (*cross-contamination*) from one region of the body to another by employing isolation techniques. Isolation is accomplished through evaluation of trauma, specific draping if necessary, placement of drapes after the *skin prep* has occurred, and by using dedicated instruments for each zone. The recovery technician *must* also make glove changes between zones and *may* change their gown when indicated (e.g., when it becomes soiled or contaminated, or when *sequencing recovery* from a zone that is at increased risk for contamination to a zone of lesser risk). By performing these functions and documenting actions this will facilitate suitability determinations made from *pre-sterilization/pre-disinfection culture* results. These guidelines are reproducible in multiple settings and scenarios and, when followed, can reduce the risk of contamination and *cross-contamination* at *recovery*.

A zone is identified as a region of the body. Zones are recovered in a sequence that is recorded, but the sequence order cannot be prescribed due to many possible variables. If preferred, gloves can be changed following each *tissue recovered* within a zone. In the presence of trauma when *isolation draping* methods are used, these areas become zones that are prepped and *tissue* excised only after *recovery* of all other *tissue* has occurred.

Some zones (i.e., *skin*, vertebrae/spine, the pelvis, thoracic cavity, traumatized areas) *should* be treated as inherently possessing an increased risk for contamination and warrant special consideration when *recovering tissue* in that zone (e.g., deciding the sequence of *zone recovery* and whether extra gown changes *should* occur). *Recovery records should* include space to document unanticipated zones due to trauma or other factors.

Common zones:

- *skin* - back, abdomen, left anterior leg, right anterior leg, left posterior leg, right posterior leg;
- ocular - corneas, sclera, whole globes;
- intracranial *tissue* - *dura mater*, brain;
- mandible;
- thoracic - heart, thoracic aorta, pericardium, ribs, nerves;
- abdomen - abdominal aorta, iliac artery and vein, nerves;
- upper extremity left - rotator cuff, humerus, radius, ulna, metacarpals, nerves;
- upper extremity right - rotator cuff, humerus, radius, ulna metacarpals, nerves;
- lower extremity right - vessels, assorted tendons, fascia lata, femur, tibia (with patellar ligament), tibia, fibula, Achilles tendon with calcaneous, talus, nerves;
- lower extremity left - vessels, assorted tendons, fascia lata, femur, tibia (with patellar ligament), tibia, fibula, Achilles tendon with calcaneous, talus, nerves;
- left hemi-pelvis/ilium - due to proximity of the hemi-pelvis to the viscera, these *tissues should* be *recovered* after all other *musculoskeletal tissues* from the respective extremity have been *recovered* and *packaged*;
- right hemi-pelvis/ilium - due to proximity of the hemi-pelvis to the viscera these *tissues should* be *recovered* after all other *musculoskeletal tissues* from the respective extremity have been *recovered* and *packaged*; and
- vertebrae/spine - cervical, thoracic, lumbar; due to the proximity of the vertebrae/spine to central nervous system fluids and *tissues*, these *tissues must* be considered a separate zone.

DOCUMENTATION:

Practices to control contamination and *cross-contamination* at *recovery must* be utilized as described and *recovery* agencies *must* document these significant steps. *Recovery records* (forms) *must* reflect the sequential *recovery* of all *tissues* and there *should* be a written statement to acknowledge "*zone recovery* techniques were utilized." The individual zones for each *donor must* be identified on the paperwork so all processors can utilize this information along with the results of the *pre-sterilization/pre-disinfection cultures*. The order of *recovery* of each zone cannot be prescribed but the sequence of zones *must* be recorded in the *recovery records*. It is recommended that order of *recovery* within a zone be recorded. Any *deviation* from established protocols for *isolation draping*, *zone recovery*, or *sequencing*, *must* be approved by a *responsible person* and details documented.

Records must be maintained and shared demonstrating that pre-established suitability parameters for the *recovery site* were determined to be acceptable prior to *tissue recovery*. See "Sample Tissue Donor Recovery Site Assessment Form" in this appendix.

Pre-sterilization/pre-disinfection Cultures Results

RESULTS REPORTING AND SHARING:

To facilitate *tissue* suitability determinations, *pre-sterilization/pre-disinfection cultures* results *must* be provided to recovery agencies by testing laboratories or *tissue* processors within a reasonable amount of time after *recovery*.

Knowledge of a *donor's pre-sterilization/pre-disinfection cultures* results could affect the eligibility determination made by different processors. Therefore, recovery agencies *must* share relevant *tissue recovery* culture information (*pre-sterilization/pre-disinfection cultures*) with all tissue establishments who are known to have also *recovered tissues*, or to have received *recovered tissues*, from the same *donor* (see D4.300). Procedures *must* be used that describe how this information is received and disseminated in a timely fashion so that proper *tissue* disposition decisions can be made. The "Current Good Tissue Practices for Human Cells, Tissues, and Cellular and Tissue-Based Product Establishments, Final Rule[1]" (CGTPs) describes the need for *procedures* for sharing of results from the same *donor* that relate to the possible contamination of the product or potential transmission of disease [at §1271.160 Quality Program, (b) Functions (2)]. For details regarding expectations for sharing of *records*, refer to B1.500, D4.300, F3.100, J1.200, and K1.100.

PATHOGENIC, HIGHLY VIRULENT MICROORGANISMS:

Two *microorganisms* (and others that have been identified for specific *tissue* types, see E2.800), are considered pathogenic, highly virulent organisms. Individual *tissues* with culture results yielding *Clostridium* or *Streptococcus pyogenes* (group. A strep.) *should* be discarded (see K2.310). Other individual *tissues* from the same *donor* that were *recovered* under conditions that could result in *cross- contamination should* also be discarded unless they can be treated with a *validated sterilization* process (see K2.320). Tissue establishments (i.e., processors) that determine final *donor* eligibility *may* consider that more *microorganisms* fit this classification.

Considerations

CULTURING METHODS:

There are different *pre-sterilization/pre-disinfection culturing* methodologies in use. The filter-culturing technique that is used for *tissue* types such as *cardiac tissue* (C) and *vascular tissue* (V) has a sensitivity that is likely higher than that experienced by the swabbing techniques that are most popular for use with *musculoskeletal tissue* (MS) types. Establishing quantifiable bioburden, actual colony forming units per mL (CFU/mL), can be accomplished via filter-culturing and fluid-extraction techniques[2] but not by limitations of swabbing techniques and protocols used. The low accuracy, sensitivity, and reliability of swab culturing[3-11] plays heavily upon the decision to discard *tissues* with positive cultures of pathogenic, highly virulent *microorganisms*, since the level of bioburden cannot be established. Also, a negative swab culture may be a false negative result and any result can under-represent all organisms present[3-11]. This is especially suspect if one *tissue* grows *Clostridium* or *Streptococcus pyogenes* yet another *tissue* sequentially *recovered* in the same *recovery* zone does not. *Validated sterilization* processes *must* be in place to allow *processing tissues* meeting this scenario.

PROCESSING METHODS:

Generally, there are two *processing* methods: *disinfection* and *sterilization*. If a *tissue* type is *processed* in a fashion where it is not *sterilized*, only *disinfected* [e.g., *cryopreserved* (MS) like tendons, (OA), (C) and (V)], then considerations *must* be made if there is an associated culture result from that *donor* that is considered pathogenic, highly virulent. If *tissue recovery* controls are in place and documented that offer assurance that *cross-contamination* did not occur, then that *tissue may* be suitable if its own culture result is acceptable. If such controls are not in use and documented (i.e., *sequencing*, *zone recovery*, trauma *recovery* protocols such as *isolation draping*), the intent of this appendix is to discard all *tissues* that were only *disinfected* (not *sterilized*).

References

1. 21 CFR Part 1271 Current Good Tissue Practice for Human Cell, Tissue, and Cellular and Tissue-Based Product Establishments; Inspection and Enforcement; Final Rule, Department of Health and Human Services, FDA, November 24, 2004.

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3. von Garrel T, Knaepler H, Mutters B: "Quality of Microbiological Testing Methods for Evaluation of Bacterial Contamination of Allogeneic Cancellous Bone Grafts"; AATB Abstracts, 16th Annual Meeting (1993), and, in *Transfusion*, Vol. 33, No. 7, 1993.

4. Veen MR, Petit P, Bloem RM: "Sensitivity of Swab Cultures in Musculoskeletal Allograft Procurement"; AATB Abstracts, 16th Annual Meeting (1993), and, in *Transfusion*, Vol. 33, No. 7, 1993.

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8. Perry JL: "Inhibitory Properties of a Swab Transport Device"; *Journal of Clinical Microbiology*. Vol. 35, p. 3367-3368, 1997.

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10. Mills AR, Roberts MR: "Evaluation of Culturing Methods at Predicting Allograft Sterility for Aseptically Processed Tissue"; AATB Posters and Abstracts, 25th Annual Meeting (2001).

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Sample Tissue Donor Recovery Site Assessment Form

Tissue Donor ID #:_____ **Recovery Site Name:**_____

Recovery Site Location (circle one):
Dedicated Tissue Recovery Site Healthcare Facility Operating Room Autopsy Suite
Other Area (describe):_____

Check the appropriate box. Any "No" answer *must* be described in detail, rectified if possible, and requires review by a *responsible person*.

Pre-Recovery Evaluation:	Yes	No
1. Adequate floor and tabletop space to allow separation of sterile instrumentation and performance of aseptic recovery procedures (i.e., zone recovery, sequencing, draping, tissue wrapping) is present.		
2. Adequate lighting to perform physical assessment and tissue recovery is present.		
3. Adequate plumbing and drainage for the intended purpose to include access to an adjacent or suitably located hand-washing area that can be used to perform a hand/forearm surgical scrub or wash is present.		
4. The recovery area has a controlled, closed airflow system. This means there is no direct access to the outside of the building from the room at any time during, before, or after tissue recovery (i.e., doors, windows that can open, fans, air conditioners, etc.); In addition, all vents appear clean and there is no vented airflow noted to be directed and flowing onto sterile fields.		
5. The walls, floor, and work surfaces are easily cleanable (i.e., non-carpeted, not porous) and in a good state of repair.		
6. Signs of insects, rodents, or other pests are not visible.		
7. Standing fluids or contaminated waste in the room, that could be a source of airborne bacteria, mycobacteria, yeasts or fungi, are not present.		
8. The recovery room was properly prepared by cleaning and disinfecting all working surfaces prior to recovery of tissue.		

Concurrent with Recovery:	Yes	No
1. Human traffic is restricted and all personnel entering the recovery area are properly outfitted and their movement controlled.		
2. Other activities (e.g., embalming, autopsy, another tissue donor recovery) did not occur simultaneously in the same room as this tissue recovery.		
Post-Recovery Activities:	Yes	No
1. All contaminated/biohazardous re-usable supplies were decontaminated, and adequately contained for transport, and that contaminated/biohazardous waste was properly disposed, or contained and transported to a disposal site.		
2. All working surfaces and the floor were cleaned using approved solutions and equipment.		

Comments: _____

The above parameters have been met and the *recovery site* has been determined to be suitable (check one): Yes_____**No** _____

Completed By:_____Date/Time:_____
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