

Certified Tissue Bank Specialist (CTBS) Practice Test (Sample)

Study Guide



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SAMPLE

Questions

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- 1. Which product must be included in the plasma dilution calculation if received 36 hours before death?**
 - A. Normal saline**
 - B. Packed red blood cells**
 - C. Dextrose in water**
 - D. Lactated ringers**
- 2. What type of information should NOT be provided to an authorizing person?**
 - A. A general description of the recovery**
 - B. An explanation regarding the impact the donation process may have on burial arrangements**
 - C. An explanation that costs related to evaluation and recovery will not be charged to the family**
 - D. An explanation that the document of authorization is not available**
- 3. Which types of tissue typically require processing after recovery?**
 - A. Nerve and cartilage**
 - B. Skin and bone**
 - C. Blood and plasma**
 - D. Liver and kidney**
- 4. What is the common method used for tissue preservation before transplant?**
 - A. Cryopreservation**
 - B. Lyophilization**
 - C. Formalin fixation**
 - D. Alcohol preservation**
- 5. What position is a donor in when undergoing surgical recovery of skin from the back?**
 - A. Posterior**
 - B. Supine**
 - C. Natural anatomic position**
 - D. Prone**

- 6. Which of the following is NOT a function of a tissue bank?**
- A. Distributing tissues for transplantation**
 - B. Creating synthetic tissues for medical use**
 - C. Storing human tissues for future use**
 - D. Processing tissues for safe transplantation**
- 7. What is the process of tissue prescreening before donation?**
- A. Evaluating potential donors for risk factors and contraindications**
 - B. Confirming the age of the donor only**
 - C. Testing tissue compatibility only**
 - D. Evaluating recipient needs**
- 8. Which of the following is a risk of improper tissue preservation?**
- A. Increased shelf life**
 - B. Decreased tissue viability**
 - C. High donor compatibility**
 - D. Reduced need for testing**
- 9. What service does a tissue distribution intermediary (TDI) perform?**
- A. Processing and preparation of tissue**
 - B. The recovery and storage of tissue**
 - C. The processing and distribution of tissue**
 - D. The distribution/dispensing of processed tissue**
- 10. What topics are covered in the 2021 CTBS examination?**
- A. Birth tissue**
 - B. NADO Standards**
 - C. Reproductive Tissue Standards**
 - D. All of the above**

Answers

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- 1. B**
- 2. D**
- 3. B**
- 4. A**
- 5. D**
- 6. B**
- 7. A**
- 8. B**
- 9. D**
- 10. D**

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Explanations

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1. Which product must be included in the plasma dilution calculation if received 36 hours before death?

- A. Normal saline**
- B. Packed red blood cells**
- C. Dextrose in water**
- D. Lactated ringers**

The correct answer is packed red blood cells. In the context of plasma dilution calculations, it is important to consider the timing and nature of blood products received prior to death. Packed red blood cells can significantly influence the volume and concentration of plasma components due to their high hematocrit levels. If packed red blood cells were administered, they would factor into the dilution of plasma because they increase the proportion of red blood cells within the overall blood volume, thereby affecting the ratios of various proteins and substances present in the plasma. This has implications for tissue viability and assessment in a tissue bank setting, especially given the 36-hour timeframe in which the body processes different fluids can affect lab results and tissue suitability. In contrast, normal saline, dextrose in water, and lactated ringers do not have the same impact on plasma dilution calculations as they are primarily isotonic fluids used for hydration or electrolyte balance. They do not contribute to the red cell mass or concentrated plasma components to the same degree that packed red blood cells do, making their inclusion less critical for this specific calculation.

2. What type of information should NOT be provided to an authorizing person?

- A. A general description of the recovery**
- B. An explanation regarding the impact the donation process may have on burial arrangements**
- C. An explanation that costs related to evaluation and recovery will not be charged to the family**
- D. An explanation that the document of authorization is not available**

The choice that states an explanation that the document of authorization is not available is the type of information that should not be provided to an authorizing person. In the context of tissue donation and recovery, it is crucial that the authorizing individual is kept informed regarding the active processes and relevant procedures surrounding the donation. Providing clarity and support during this sensitive time helps cultivate trust and facilitates smoother communication. The absence of the document of authorization is a procedural matter that should not lead to concern or confusion. Instead, the focus should be on the many aspects of the donation process that inform and reassure the authorizing person, such as the logistics of recovery, the implications for burial arrangements, and the financial responsibilities involved. In essence, sharing that the authorization document is unavailable serves no beneficial purpose and could lead to misunderstandings about the donation process and its legitimacy.

3. Which types of tissue typically require processing after recovery?

- A. Nerve and cartilage
- B. Skin and bone**
- C. Blood and plasma
- D. Liver and kidney

Skin and bone typically require processing after recovery because they undergo various steps to ensure their safety and efficacy for transplantation or therapeutic use. After recovery, skin must often be processed to eliminate potential pathogens, prepare it for storage, and ensure it can be effectively integrated into a recipient's body. This may involve methods such as decontamination, preservation, and preparation for grafting. Similarly, bone tissue requires processing to enhance its utility, which may include techniques like cleaning to remove contaminants, sterilizing to mitigate infection risks, and potentially treating it for use in reconstructive surgery or implantation. The processing can involve grinding, treating with chemicals, or using sterilization techniques to ensure that it can be safely used in various medical procedures. In contrast, other options like nerve and cartilage do not typically require the same level of complex processing after recovery, as nerves can be preserved and used in their retrieved state. Blood and plasma are generally processed in different ways, focusing more on separation and storage rather than comprehensive tissue processing. Liver and kidney follow specific protocols but are not categorized primarily as processed tissue like skin and bone. Therefore, skin and bone are the most representative examples of tissues that require substantial processing after recovery.

4. What is the common method used for tissue preservation before transplant?

- A. Cryopreservation**
- B. Lyophilization
- C. Formalin fixation
- D. Alcohol preservation

Cryopreservation is the common method used for tissue preservation before transplant because it involves cooling tissues to very low temperatures, typically using liquid nitrogen, which halts all biological activity and significantly slows down the processes of decay and degradation. This method allows for the long-term storage of viable tissues, including a variety of cells and organs, while preserving their functionality and structural integrity, which is crucial for successful transplantation. Other preservation methods, such as lyophilization, while valuable in specific contexts, are not typically used for tissues that require viability after thawing since they involve the removal of water through sublimation and can lead to cellular damage. Formalin fixation is mainly used for tissue preservation in histological studies to maintain the morphology of the tissue, but it renders tissues incompatible for transplantation as it cross-links proteins, which can disrupt cell functions. Alcohol preservation is often used for initial tissue transport or as a preparatory step in pathology but is not suitable for preserving tissues that need to remain alive and functional for transplant purposes.

5. What position is a donor in when undergoing surgical recovery of skin from the back?

- A. Posterior**
- B. Supine**
- C. Natural anatomic position**
- D. Prone**

The appropriate position for a donor during the surgical recovery of skin from the back is prone. When the donor is in the prone position, they are lying face down. This positioning allows for optimal access to the back, which is the intended site for skin recovery. It facilitates the surgeon's ability to effectively harvest skin grafts while also ensuring that vital structures, such as the head and neck, are not compromised during the procedure. Other positions, such as supine (lying on the back) or in a natural anatomic position, do not provide the necessary access for harvesting tissue from the back. The posterior position itself indicates being on the back but does not specifically refer to the face-down orientation that is critical for this type of surgical recovery. Thus, the prone position is the most suitable for effectively and safely performing the skin harvesting procedure from the back.

6. Which of the following is NOT a function of a tissue bank?

- A. Distributing tissues for transplantation**
- B. Creating synthetic tissues for medical use**
- C. Storing human tissues for future use**
- D. Processing tissues for safe transplantation**

Creating synthetic tissues for medical use is not typically a function of a tissue bank. Tissue banks primarily focus on the collection, processing, storage, and distribution of human tissues for transplantation. They play a critical role in ensuring that donated tissues are safe and suitable for use in surgical procedures while providing essential support for patients in need of transplants. The activities of a tissue bank include distributing tissues after thorough processing to ensure they are safe and compatible for transplantation purposes. Additionally, storing human tissues allows banks to provide materials that might be needed at a later time, catering to the needs of patients and medical practitioners. Processing tissues involves careful handling and preparation to maintain tissue integrity and safety for recipients. These processes are essential for the effective functioning of tissue banks, but the creation of synthetic tissues falls outside this scope, as it is generally associated with research and development in the fields of biomedical engineering and regenerative medicine.

7. What is the process of tissue prescreening before donation?

- A. Evaluating potential donors for risk factors and contraindications**
- B. Confirming the age of the donor only**
- C. Testing tissue compatibility only**
- D. Evaluating recipient needs**

The process of tissue prescreening before donation involves evaluating potential donors for risk factors and contraindications. This step is critical because it ensures the safety and suitability of the donor tissue for transplantation. During this evaluation, healthcare professionals assess the donor's medical history, current health status, and any lifestyle factors that might pose a risk to the integrity of the tissue being donated. This thorough screening helps to identify any conditions or factors, such as infectious diseases or previous medical issues, that could compromise the quality of the tissue or pose a risk of transmission to the recipient. By carefully assessing these risk factors, tissue banks can maximize the safety and effectiveness of the tissues they collect and later distribute for transplant. In contrast, confirming the age of the donor focuses solely on one aspect of eligibility without considering the broader spectrum of health risks. Testing tissue compatibility, while crucial, is usually conducted after the initial prescreening and is not part of the preliminary assessment. Evaluating recipient needs does not pertain to the donor evaluation process and focuses instead on the demands of the patients awaiting transplants. Thus, the comprehensive approach of evaluating risk factors and contraindications is vital for successful tissue donation and transplantation.

8. Which of the following is a risk of improper tissue preservation?

- A. Increased shelf life**
- B. Decreased tissue viability**
- C. High donor compatibility**
- D. Reduced need for testing**

Improper tissue preservation can lead to decreased tissue viability, which refers to the ability of the preserved tissue to maintain its functional and structural integrity. When tissues are not preserved correctly, it can result in cellular damage, loss of vital nutrients, and changes in the tissue's biochemical properties. This ultimately impacts the tissue's ability to successfully integrate into a recipient's body, effectively reduce the likelihood of favorable outcomes in transplant procedures, and increase the risk of complications post-transplantation. In contrast, the other options do not accurately reflect the consequences of improper tissue preservation. Increased shelf life suggests that the tissue would last longer, which is not guaranteed when preservation methods are inadequate. High donor compatibility is unrelated to preservation issues, as donor-recipient matching is determined by immunological factors rather than how well the tissue was preserved. Lastly, a reduced need for testing might imply a false sense of security regarding the safety and effectiveness of the tissue, but proper testing is essential regardless of preservation method to ensure quality and minimize risks.

9. What service does a tissue distribution intermediary (TDI) perform?

- A. Processing and preparation of tissue**
- B. The recovery and storage of tissue**
- C. The processing and distribution of tissue**
- D. The distribution/dispensing of processed tissue**

A tissue distribution intermediary (TDI) plays a crucial role in the distribution and dispensing of processed tissue, ensuring that it reaches the designated healthcare facilities or practitioners who require it for transplant or other medical uses. This function is essential within the tissue banking system, as it helps to facilitate the timely and safe delivery of tissues that have already undergone necessary processing, including sterilization and quality checks. The primary focus of a TDI is not on the initial processing or preparation of the tissue itself, nor on the recovery and storage, which are usually handled by other specialized entities within the tissue banking hierarchy. Instead, the TDI operates in the final stages of the tissue supply chain, with an emphasis on logistics, regulatory compliance, and ensuring that the tissues are dispensed correctly according to medical needs. This specialized role is essential for maintaining the efficacy and safety of tissue transplants.

10. What topics are covered in the 2021 CTBS examination?

- A. Birth tissue**
- B. NADO Standards**
- C. Reproductive Tissue Standards**
- D. All of the above**

The correct answer encompasses a comprehensive understanding of the various topics assessed in the 2021 CTBS examination. Each of the specified topics—birth tissue, NADO standards, and reproductive tissue standards—forms a critical component of the overall knowledge required for certification as a Tissue Bank Specialist. Birth tissue refers to the tissues such as umbilical cord, placental tissue, and stem cells that are collected at the time of birth and their usage in regenerative medicine. Understanding the regulations and best practices governing these tissues is essential for professionals in the field. NADO standards (National Association of Donation and Transplantation Standards) outline the necessary protocols and ethical guidelines for tissue donation and transplantation, providing a framework for ensuring quality and safety in tissue banking operations. Reproductive tissue standards involve the collection, handling, processing, and distribution of tissues such as sperm, eggs, and embryos. These standards are vital for ensuring the effectiveness and safety of assisted reproductive technologies. By recognizing that all these areas are integral to the certification exam, candidates can prepare comprehensively, ensuring a solid understanding of the diverse elements involved in tissue banking and transplantation. This breadth of knowledge is crucial for professionals aiming to maintain high standards in tissue donation and application.