**Model SOP**

**Standard Operating Procedure**

**Name of the facility / activity : Quality control of Blood Storage**

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| **SOP no.** | **Effective Date** | **Pages** | **Prepared by** | **Authorised by** |
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| **LOCATION** : Blood Component Laboratory & Serology Lab. | | | | |
| **SUBJECT** : Quality control of Blood Storage. | | | | |
| **FUNCTI FUNCTION** : Ensure that therapeutic efficacy of whole blood components is maintained for  the stated Shell life. | | | | |
| **DISTRIBUTION**: Supervisor Blood bank  Master File | | | | |

1. **SCOPE & APPLICATION:**

Safe storage and transportation of blood is needed to:

1. Ensure that therapeutic efficacy of whole blood components is maintained for the stated Shell life.

2. Minimize and prevent any bacterial overgrowth

Equipments are integral part of any blood bank and their regular checking and calibrations are important to maintain quality of testing as well as producing blood product.

1. **RESPONSIBILITY:**

It is the responsibility technical, nursing and all other associated staff of blood bank to ensure storage of blood and prepared components at recommended temperatures to ensure the quality for all components as per the guidelines of drugs and cosmetic act.

1. **PROCEDURE:**
2. **Quality Control of Blood Storage**

The importance of correct storage and transportation of blood and blood components has been emphasized. It is imperative that all laboratory personnel are well-oriented to maintain and check the equipment necessary for storage and transport. Some of the checks need to be carried out daily while others are done weekly or monthly as indicated. Simple precautions such as placing the refrigeration unit in the coolest part of the building with good air circulation around it, should always be taken.

1. **Monitoring the temperature**

* Blood storage equipment must be able to maintain the critical temperature uniformly and be equipped with an alarm system to register any variation in temperature.
* Mostly refrigerators meant specifically for blood storage are equipped with an alarm system or temperature recording device.
* It is mandatory for the staff of transfusion laboratory to maintain a daily temperature record of all storage equipment. A good thermometer can be used to record the inside temperature of the unit at 8 hourly intervals. A. temperature record sheet as shown must be affixed on the outside of each unit.
* 8 hourly temperature record

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| --- | --- | --- | --- | --- |
| Date | Time | Shift | Temperature | Signature |
|  |  |  |  |  |

* Maximum and minimum thermometers can also be used to detect how low or high the temperature had reached. Care should be taken to record the temperature of individuals shelves as usually the lowest shelf of storage refrigerator has the highest temperature. If the temperature in the lowest shelf is constantly above 8oC, it should not be used for storage of blood units.
* Similarly the freezer compartment and the door of a domestic refrigerator should not be used for storage of blood bags.

* Never overstuff the refrigerator. Arrange the blood bags upright in the racks and allow for sufficient space for cold air to circulate.
* Only open the refrigerator when necessary i.e. to take out or put in blood units.
* Do not keep food or drinks in the 'Blood Storage' refrigerator.
* Check for ice formation on the evaporator every week. If necessary, defrost the fridge.
* Clean the compressor and condenser plate with a soil cloth every month.
* Check the alarm system of the refrigerator / freezer unit every month.

1. **Power cuts** 
   * It is important to have all storage equipment linked to alternative power source. If this is not possible and long periods of power cuts are expected, alternative space for transferring the blood units should always be planned. All personnel in the blood transfusion centre should be aware of the exact procedure to be followed in cases of extended power cuts.
   * The 'hold over time' i.e. the time it takes for the refrigerator or freezer to reach temperatures above -80oC or -20oC is usually between 90 minutes to 2 hrs, therefore in case of power failures lasting over this period the blood must be shifted carefully to all alternative storage space or stored in cold boxes packed with ice.
2. **DOCUMENTATION:**

Maintain the record file and registers daily

1. **REFERENCES:**
2. Technical Manual of the American Association of Blood Banks – 15th edition 2005.
3. Introduction to Transfusion Medicine – Zarin Bharucha and D.M. Chouhan; 1st Edition, 1990.
4. Training module for laboratory technologists. National AIDS Control Organization, Ministry of Health and Family Welfare, Govt. of India publication, 1995.

**6. END OF DOCUMENT.**