Standard Operating Procedure (SOP)

Functionality Check of Anesthesia and Monitoring Equipment

This SOP details the **functionality check of anesthesia and monitoring equipment**, ensuring all devices are properly calibrated, operational, and safe prior to use. It covers pre-use inspection procedures, verification of system alarms, battery and power supply status, sensor accuracy, and troubleshooting protocols. The objective is to guarantee reliable performance of anesthesia and monitoring equipment to maintain patient safety and support effective clinical outcomes during medical procedures.

1. Scope

This SOP applies to all clinical staff responsible for the setup, operation, and maintenance of anesthesia and patient monitoring equipment within the facility.

2. Responsibilities

- Clinical staff must perform pre-use checks and report malfunctions immediately.
- Biomedical engineers are responsible for periodic in-depth maintenance and calibration.
- Supervisors are to ensure all checks are documented and procedures are strictly followed.

3. Equipment Covered

- Anesthesia machines (all models)
- Patient monitors (ECG, SpO_2, NIBP, $EtCO_2$, temperature, etc.)
- Syringe and infusion pumps (as applicable)
- Other ancillary monitoring devices

4. Procedures

1. **Pre-use Visual Inspection**
    - Check physical integrity of all equipment, wires, connections, and external devices.
    - Ensure all disposable components (e.g., sensor probes, breathing circuits) are new or properly sterilized.
    - Verify that gas supply lines are connected securely and gas levels are adequate.
2. **Power and Battery Status**
    - Ensure equipment is properly connected to power supply and backup battery systems are functional.
    - Check battery status indicators and charge if necessary.
3. **Operational Function Tests**
    - Switch on devices and confirm successful startup (observe for error codes or warnings).
    - Check display screens, indicator lights, and control panel functionality.
    - Test proper ventilation and flow of gases (for anesthesia machines).
4. **Verification of System Alarms**
    - Test all system alarms (audible and visual) for proper functionality.
    - Adjust alarm thresholds in accordance with clinical protocols.
5. **Sensor, Probe, and Module Check**
    - Connect monitoring sensors to simulated or real inputs and verify accurate readings.
    - Check cable insulation and connector integrity.
6. **Troubleshooting**
    - If fault is found, document issue and report to supervisor and biomedical engineering.
    - Do not use equipment until cleared for service.

5. Documentation

- Log all checks and findings in the **Equipment Pre-Use Checklist** (see sample table below).
- Record any corrective actions taken and submit reports for unresolved issues.

Date	Equipment	Check Performed	Status	Comments/Issues	Staff Initials
2024-06-18	Anesthesia Machine #2	Full pre-use check	Pass	-	JS
2024-06-18	Patient Monitor #5	Alarm test	Fail	Alarm volume low; reported.	AK

6. References and Associated Documents

- Manufacturer's user manuals and quick guides
- Hospital biomedical maintenance policies
- Anesthesia workstation checklist (institution-specific)

7. Review and Update

This SOP should be reviewed annually and updated as equipment, policies, or clinical practices change.