

**OLIVE VIEW-UCLA MEDICAL CENTER
DEPARTMENT OF ANESTHESIOLOGY
POLICY & PROCEDURE**

**NUMBER: 454
VERSION: 3**

SUBJECT/TITLE: 055-POWER FAILURE

POLICY: Procedure for power failure

PURPOSE: To define a standard procedure and the safest course if electrical power fails in the operating rooms.

DEPARTMENTS: ANESTHESIOLOGY

DEFINITIONS: Loss of primary electricity normally delivered from the power utility.

PROCEDURE: KEY CONCEPTS:
Providing adequate oxygenation, ventilation, anesthesia levels and monitoring of vital signs are some of the challenges faced with a power failure. It is important that the Anesthesiologist be familiar with an anesthesia machine's backup battery supply, routinely checking that the battery is charged and in good condition and ensuring that appropriate and sufficient supplies are readily available for an emergency (such as a working flashlight and extra batteries). Exercise calm leadership with clear communication.

BACKGROUND: OVMC has backup systems for electrical failure.

If the power fails, notify the Chief of Anesthesiology or the acting Chief as soon as possible if that person is not in the Hospital.

1. PROCEDURE IF CASE UNDER WAY:

Procedure if the *Anesthesia machine* battery is totally depleted:

a) switch to hand ventilation.

Procedure if the *monitor battery* is totally depleted:

a) consider using portable (transport) monitor.

b) If this fails, measure blood pressure by auscultation/ manual blood pressure cuff and

c) monitor heart rate and rhythm with the esophageal or precordial stethoscope while waiting for the emergency power to come on.

When the case is over, evaluate whether to proceed with additional cases after consulting with the nursing administrator, facilities or the control room

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about whether another backup power system is available. If another system is available, it may be safe to proceed with additional cases. If no additional power system is available, cases should be evaluated on an individual basis to evaluate the risk/benefit of performing the case vs. delaying the case. In most instances in which there are immediately life-threatening situations, the case should proceed.

2. PROCEDURE IF CASES NOT UNDERWAY: Find out from Facilities, the Nursing Administrator or the Control Room whether a backup system is available. If so, cases can begin.
3. Transport of postoperative patients should be in the north service elevator, if possible. That elevator is designated to operate when the hospital is on the backup generator.
4. The Department's Anesthesia technician(s) will check weekly that a working flashlight and regular blood pressure cuff are present in the bottom drawer of each anesthesia machine.

Notes on Drager Perseus Anesthesia machine:

Drager Perseus A500 - See the Instructions for use provided by the manufacturer.

Mains Power Supply Failure

If the mains power supply fails, Perseus automatically switches to the internal battery. A fully charged battery will maintain operation for at least 30 minutes.

Remaining battery charge is displayed on the status display.

The breathing system heating is deactivated during battery operation. The peak inspiratory pressure PIP may be limited, but it will equal at least 55 hPa (cmH₂O).

NOTE

If mains power fails, devices connected to the auxiliary power sockets are not supplied from the internal battery.

Ensure an alternative power supply for connected devices.

Mains Power Supply Failure and Empty Batteries

If mains power fails and the batteries are empty, a signal tone is emitted. Manual ventilation and spontaneous breathing remain available. O₂ and anesthetic agent can still be delivered using the emergency O₂ delivery (with electronically controlled gas mixer) or the flow control valves (with mechanically controlled gas mixer) and connected vaporizers.

The following are not available with both power failure and empty batteries:

- Ventilator; therefore, manually ventilate the patient
- Electronically controlled gas mixer
- Device monitoring and patient monitoring.

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After Power Supply is Restored

1. Restart the device
2. Charge empty batteries for at least 8 hours.
3. Check the displays for mains voltage and battery on the status display

References:	
1) Drager Perseus Operator's Manual	
2) http://www.apsf.org/newsletters/html/2016/February/ltr03-QA_ORPowerFailure.htm Anesthesia Patient Safety Foundation APSF Newsletter: "How Do I Prepare for OR Power Failure?"	
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