



Service Priorities and Programmes
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Strategy of managing uninterrupted power supply (UPS) in hospitals

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Introduction

Stable and reliable electrical power is essential in hospitals. It is a challenge for the facility management team to achieve 100% uptime of electrical power supply and ensure good power quality. In existing hospitals, there are a few practical issues, namely 1) Ageing of electrical system; 2) Humidity and water risks; 3) Works related local power interruption; 4) On-load test of generators; and 5) Maintenance of electrical distribution system. It is a standard practice to install uninterrupted power supply (UPS) for critical clinical facility and datacenter in addition to essential power supply. Many examples of UPS are found in wards, accident & emergency department, operation theatre, intensive care unit and renal dialysis. The medical equipment and information system concerned cannot afford to have power fluctuation or outage. The installation of UPS upstream of critical facilities is a proven preventive measure. However, there have been reports of facility failure even though a UPS has been connected. It is necessary to understand why. The UPS did not function at time of power outage or the battery level might be inadequate to sustain online power until backup power is arranged or normal power is resumed. It is necessary to identify possible failure modes and review the management strategy of UPS. The findings will shed light to improving life cycle management of UPS in hospitals.

Objectives

1. To review performance of UPS in buildings; 2. To review design, operation and maintenance of UPS in hospitals; 3. To identify potential risks and failure modes; 4. To explore technical and operational options; 5. To propose preventive measures in design, operation and maintenance.

Methodology

Through critical review of literature and qualitative research, major issues of managing UPS in hospitals are identified and analysed.

Result

By means of FMEA framework, the failure modes, risks and preventive measures of UPS are studied. The findings will shed light to improving the strategy of managing UPS in hospitals.