

Medical Equipment Maintenance And Repair

This volume presents the Proceedings of the 6th European Conference of the International Federation for Medical and Biological Engineering (MBEC2014), held in Dubrovnik September 7 – 11, 2014. The general theme of MBEC 2014 is "Towards new horizons in biomedical engineering" The scientific discussions in these conference proceedings include the following themes: - Biomedical Signal Processing - Biomedical Imaging and Image Processing - Biosensors and Bioinstrumentation - Bio-Micro/Nano Technologies - Biomaterials - Biomechanics, Robotics and Minimally Invasive Surgery - Cardiovascular, Respiratory and Endocrine Systems Engineering - Neural and Rehabilitation Engineering - Molecular, Cellular and Tissue Engineering - Bioinformatics and Computational Biology - Clinical Engineering and Health Technology Assessment - Health Informatics, E-Health and Telemedicine - Biomedical Engineering Education

EVERY DAY, COUNTLESS LIVES DEPEND on life-saving medical apparatus. Hospital rooms, surgery suites, and emergency rooms are filled with technological wonders like defibrillators, ventilators, and heart monitors. If any one of these machines breaks down, a person's life could be at risk. Keeping them up and running properly is the responsibility of biomedical equipment technicians. These professionals, also known as BMETS, are highly skilled in the installation and repair of a wide variety of modern medical equipment. Some biomedical equipment technicians have generalized skills, while others specialize in particular types of equipment. Generalists are trained to install, inspect, test, calibrate, maintain, repair, and sometimes modify all kinds of biomedical equipment. Junior technicians may start by

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repairing hydraulic chairs and beds, performing routine maintenance like cleaning monitors, or doing simple calibrations. More experienced BMETs are able to troubleshoot and repair more complex equipment, such as electrosurgical units and anesthesia machines. There are also specialists who work solely on apparatus like dialysis machines, ultrasound scanners, or surgical robots. Biomedical equipment technicians spend much of their time working hands-on with machines and equipment, but they often have other duties. They may perform some administrative duties like maintaining inventories of parts and components, reviewing product manuals, reordering supplies, and keeping records of maintenance and repair jobs. Those who install new equipment may need to train medical staff how to use it. When medical devices are to be used at home, it may be the BMET who instructs the patient in the use and care of the equipment. Most biomedical equipment technicians work in hospitals or clinics. Others work in laboratories or manufacturers' facilities. Wherever they work, the environment is exceptionally clean and well equipped. The hours are generally steady, but it is common for BMETs to be on call around the clock for one week out of the month. However, because medical equipment is well maintained, after-hours emergency repair calls do not come often. It is possible to enter this field with only a high school diploma. Newcomers who have done well in math and science classes may be offered on-the-job training to perform simple tasks. However, most employers prefer candidates with an associate degree. Technicians who have graduated from a biomedical equipment technology or engineering program will have the knowledge and skills to work on most types of medical equipment. They are also eligible to become certified. Certification is voluntary, but it increases your chances of employment and advancement. BMETs who intend to

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specialize in more sophisticated equipment, such as imaging equipment or laboratory equipment, usually need a bachelor's degree. A career as a biomedical equipment technician is a good choice for individuals with a mechanical aptitude and an interest in working with the latest technology. It is a constantly changing field that continues to advance in complexity. If you enjoy working with your hands, solving problems, and the idea of spending your days in a medical environment, this may be the career for you.

The disruption of the national economy and the delay in delivery of military supplies which developed during World War I convinced Congress of the wisdom of industrial preparedness. The National Defense Act of 1920 charged the Assistant Secretary of War with the 'supervision of the procurement of all military supplies and other business of the War Department pertaining thereto and the assurance of adequate provision for the mobilization of materiel and industrial organizations essential to war-time needs.' The italicized phrase conveyed authority for the far-reaching procurement planning program which began in 1920 and continued until our entrance into World War II.

In addition to being essential for safe and effective patient care, medical equipment also has significant impact on the income and, thus, vitality of healthcare organizations. For this reason, its maintenance and management requires careful supervision by healthcare administrators, many of whom may not have the technical background to understand all of the relevant factors. This book presents the basic elements of medical equipment maintenance and management required of healthcare leaders responsible for managing or overseeing this function. It will enable these individuals to understand their professional responsibilities, as well as what they should expect from their supervised staff and how to measure and benchmark staff performance against equivalent performance

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levels at similar organizations. The book opens with a foundational summary of the laws, regulations, codes, and standards that are applicable to the maintenance and management of medical equipment in healthcare organizations. Next, the core functions of the team responsible for maintenance and management are described in sufficient detail for managers and overseers. Then the methods and measures for determining the effectiveness and efficiency of equipment maintenance and management are presented to allow performance management and benchmarking comparisons. The challenges and opportunities of managing healthcare organizations of different sizes, acuity levels, and geographical locations are discussed. Extensive bibliographic sources and material for further study are provided to assist students and healthcare leaders interested in acquiring more detailed knowledge.

Table of Contents: Introduction / Regulatory Framework / Core Functions of Medical Equipment Maintenance and Management / CE Department Management / Performance Management / Discussion and Conclusions

Although Reliability Engineering can trace its roots back to World War II, its application to medical devices is relatively recent, and its treatment in the published literature has been quite limited. With the medical device industry among the fastest growing segments of the US economy, it is vital that the engineering, biomedical, manufacturing, and design communities have up-to-date information on current developments, tools, and techniques. Medical Device Reliability and Associated Areas fills this need with broad yet detailed coverage of the field. It addresses a variety of topics related - directly and indirectly - to reliability, including human error in health care systems and software quality assurance. With emphasis on concepts rather than mathematical rigor, a multitude of examples, exercises, tables, and references, this

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is one resource that everyone connected to the medical device industry must have.

Recent growth in the field of biomedical equipment technology has been rapid, producing a proliferation of increasingly complex medical devices. In order to assure continuous, efficient, and accurate utilization of equipment, a comprehensive, well designed maintenance and repair program is mandatory. Many facilities use service contracts to assist indigenous biomedical staffs in maintaining their equipment. This study attempts to determine the optimal method for a cost effective management system to be used in deciding whether individual medical equipment items are to be contracted out for maintenance and repair, or serviced by in house Biomedical Equipment Technicians. The cost effective model was developed specifically for the NRM C at Camp Pendelton, but nothing would preclude its use at other Navy hospitals. Keywords: Health care facilities, Biomedical equipment maintenance, Preventive management. (sdw/kt). The format is particularly suited to the quick, effective repair of equipment malfunctions. Wherever possible, a description of the equipment is followed by diagrammatic description and numbered check lists for service. Also included are photographs and schematics of equipment currently in use.

A practical guide to the maintenance and repair of essential laboratory and hospital equipment. Intended for use in institutions that do not have specially trained technicians or engineers the book responds to the situation frequently seen in developing countries where much of the equipment is imported and adequate information on maintenance and repair is rarely provided by suppliers. With these special needs in mind the

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manual aims to help staff using specific types of equipment to understand basic principles of construction and operation adopt good working practices avoid common errors perform routine maintenance and spot the early signs of defects or deterioration. Advice on equipment repair concentrates on common causes of problems that can be solved without expertise in engineering. Throughout the manual line drawings illustrate features of construction and design while numerous checklists offer advice on periodic inspection and cleaning good working practices and the essential do's don'ts must's and never's of routine operation and maintenance. Information ranges from the steps to follow when recharging batteries through advice on how to protect microscopes in hot climates to instructions for changing a blown fuse in an ultrasound scanner. Basic safety procedures for protecting staff as well as patients are also described. The most extensive chapter covers the maintenance and repair of basic laboratory equipment moving from autoclaves and incubators to cell counters and systems for water purification. The remaining chapters describe the correct use maintenance and repair of diagnostic equipment anaesthetic and resuscitation equipment operating room equipment and ultrasound and X-ray diagnostic equipment.

A workbook that can help health care organizations use mock (practice) tracers to identify unrecognised environment of care (EC), emergency management (EM), and life safety (LS) compliance and safety issues and implement changes as part of an ongoing

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improvement process-before a survey takes place. Contains a list of all manufacturers and other specified processors of medical devices registered with the Food and Drug Administration, and permitted to do business in the U.S., with addresses and telephone numbers. Organized by FDA medical device name, in alphabetical order. Keyword index to FDA established standard names of medical devices.

Learn to maintain and repair the high tech hospital equipment with this practical, straightforward, and thorough new book. Biomedical Instrumentation Systems uses practical medical scenarios to illustrate effective equipment maintenance and repair procedures.

Additional coverage includes basic electronics principles, as well as medical device and safety standards.

Designed to provide readers with the most current industry information, the latest medical websites are referenced, and today's most popular software simulation packages like MATLAB and MultiSIM are utilized. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

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