

CONSIDERATION ON THE ERGONOMICS EQUIPMENT IN A DENTAL OFFICE

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Abstract: Ergonomics is a recent term in the field of dentistry, with the general aim of making the work of human factors in the dental office easier, in order to draw clear regulations regarding work. Ergonomics in its entirety represents the synchronization of the physical and emotional aspects of the human factor with the type and tools of the activity performed. In order to ensure the level of maintenance and performance appropriate to the purpose for which the medical devices are made and to avoid the generation of incidents, users have the obligation: to ensure that they only use medical devices when, within the framework of professional activities, they use equipment for the purpose of diagnosing

KEY WORDS: *dental unit, medical equipment, biomedical. maintenance, biomedical engineer.*

1. INTRODUCTION

The efficiency of medical equipment management is the result of interaction mechanisms created between clinical and administrative structures, of the organization and coordination of technical and financial actions carried out by qualified personnel from clinical engineering (CI) structures, which include activities of evaluation, planning, scheduling and budgeting, selection and procurement, records and monitoring,

maintenance and training, elimination, quality assurance, safety, cost control during the life cycle and profitability of the medical organization. These have determined the need to establish, at the level of each health unit, multidisciplinary medical equipment management groups to analyze and evaluate existing technologies in the hospital, to select the most appropriate future investments, appropriate to the specifics and requirements of the institution, to study the associated costs

and to implement the equipment policy, [1.2.3.4.6.7.8.9.]
figure 1 medical device facility.

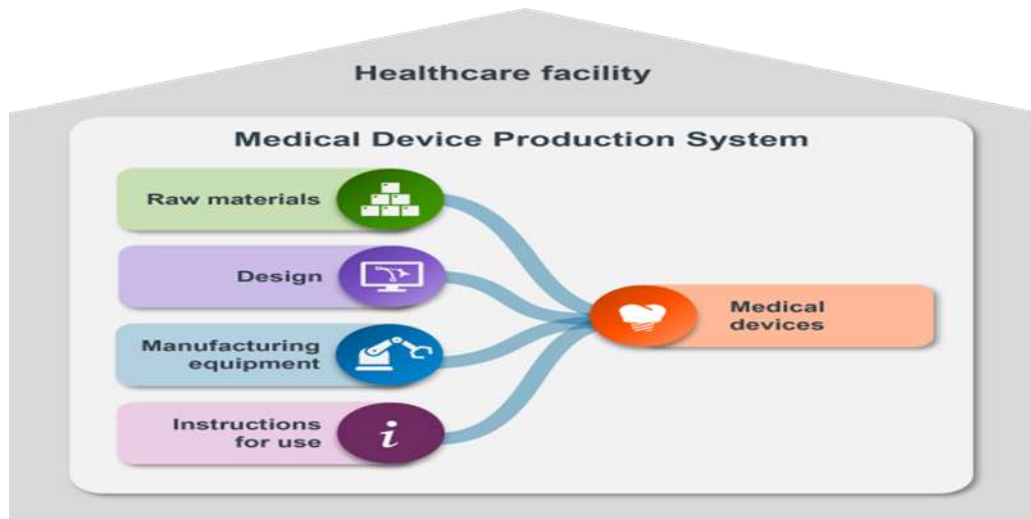


Figure1. Medical device facility

2. EXPERIMENTAL - Monitoring and maintenance

The Corrective maintenance or repair is a procedure for identifying and resolving malfunctions of medical devices, so that they are restored to normal functional condition and within the appropriate limits of the parameters established by the manufacturer, involving the replacement of certain spare parts and/or consumables. The verification and maintenance activities of the equipment in the CMI are the responsibility of the medical support staff, biomedical engineers and technicians, who

are contracted by the medical office and can provide information regarding:

- the purchase of medical equipment and its inventory, consumables and spare parts,
- the disposal of medical devices.

This information is managed by the medical team and by the company that ensures the maintenance of the medical equipment, in order to ensure a periodic review of the medical equipment in the office, in the form of table 1.

Tabel 1.							
rt. o	Name/ standardized by MS	Model	Manufacturer	Year of manufacturer	Frequency of use	Repair history	Department to which it belongs
	Dental Unit			2015	Daily		CMI
	Compressor unit			2015	Daily		CMI
	Electrohydraulic seat			2015	Daily		CMI

The certainty that the medical devices used during the medical act are at the functional and professional parameters, they must be checked periodically. At the same time, it was found that the metrological verification does not provide for checks of general safety, electrical safety, functionality and alarm control, and most importantly - of performance, which does not guarantee the safety and quality of the medical act.

The same type of information will be recorded for consumables or spare parts, according to the needs of the CMI.

Medical technologies are developing very rapidly, which implies a greater difficulty for technical support personnel, biomedical engineers, requiring a punctual specialization. And the maintenance of the equipment takes into account the maintenance recommendations in table 2.

Table 2. Maintenance

Crt.No	Medical Device	Device	Recommendation
1	Sophisticated Technologies	Computed tomography (CT) scanner, angiography machine, automated laboratory analyzer	Outsourced maintenance contracts with the medical device manufacturer or its authorized representative.
2	Advanced Technologies	General X-ray machine, fluoroscope, mobile X-ray machine, patient monitor, electrosurgery unit, artificial ventilation machine	Internal maintenance, if human and technical resources are sufficient.
3	Simple Technologies	Surgical suction pump, surgical lamp	Internal maintenance.

Unit /Scaun electrohidraulic

The centerpiece of the office is the electrohydraulic chair-dental unit, driven by silent motors. It has evolved greatly due to the need for patient comfort, as well as

the ease of contact between the doctor and the patient. Therefore, the choice of the unit must meet the laws of ergonomics, figure 2.



Figure 2. Dental Unit

Based on comfort. In general, we can say that the dental unit consists of the electrohydraulic chair and its control.

Inspections and maintenance are vital for the safe operation of medical equipment, sufficient technical and medical knowledge is also required to ensure adequate maintenance of medical devices, we can say that maintenance of medical equipment must be ensured by technical support personnel. Maintenance of medical devices includes: preventive maintenance and corrective maintenance

The dental unit is equipped with reliable and silent motors, ensuring easy control of its functions, has 2 consoles with handy buttons and a foot pedal for operating the hydraulic chair. The model is chosen for the ease of use of the equipment, and ergonomic working facilities.

3.CONCLUSION

Medical equipment represents one of the most critical resources of the healthcare system around the world, used for the diagnosis, treatment, monitoring and care of patients, and the management of these vital health technologies, developed as a broad, patient-centered process, aims to achieve the performance of healthcare facilities, through rapid accessibility and availability, through viability and safety, through quality services and satisfaction of end beneficiaries, as well as through cost control throughout the life cycle, through the optimal allocation and use of resources and through the overall profitability of the medical institution.[5,7,8,9,10,11,12]

The upholstery of the unit is made by pouring a foam type foam and dressing in seamless material, ensuring increased comfort for the patient.

The unit lamp ensures good punctual lighting and long-term operation with maximum efficiency. The console-type instrument support can be pneumatically locked.

The responsibility for reporting incidents with medical devices lies primarily with medical personnel, medical and healthcare institutions, other users, the manufacturer or its authorized representative. Incidents are reported, in accordance with the legislation in force, to the responsible authority in this field, namely the Agency for Medicines and Medical Device.

- In accordance with the objectives of the dental office, the human factor is the main piece through which the ergonomics of dentistry have been developed. Because the activity of the office is not possible without the existence of the doctor, we can say from the beginning that the ergonomics of this system are unequal.
- In dental medicine, ergonomics has developed under the influence of three factors: the human factor, represented by the medical team; the scientific factor, representing the improvement of the medical team; and the technical factor.

- The verification and maintenance activities of the equipment in the CMI are the responsibility of the medical support staff, biomedical engineers and technicians, who are contracted by the medical office. Presenting the ergonomics of the furniture elements in the CMI, it is shown that the centerpiece of the cabinet is the electrohydraulic chair, operated by silent motors. It has evolved greatly due to the patient's need for comfort, as well as the ease of contact between the doctor and the patient. Therefore, the choice of the unit must respond to the laws of ergonomics, based on comfort.
- The dental unit is equipped with reliable and silent motors, ensuring easy control of its functions as well as 2 consoles with handy buttons and a foot pedal for operating the hydraulic chair. The recommendation for choosing a Dental Unit is the responsibility of the CMI support technician, the biomedical engineer, who together with the work team studies the equipment on the market, taking into account elements of ergonomics and reliability of the equipment. So that any repairs and the provision of consumables can be ensured by the technical team that performs maintenance.
- Occupational safety standards must be respected to maintain a healthy climate, and to prevent incidents and accidents inherent in this type of activity, a legislative framework has been created that complies with international standards and the risks in dental offices.
- Keeping a medical device in circuit with a large number of operating hours leads to a waste of the financial resources of the medical institution, to avoid this phenomenon, the biomedical engineer recommends purchasing new and more efficient devices, with innovative technologies. To comply with the provisions for medical devices put into operation according to Government Ordinance no. 37/2022 amending Law no. 95/2006.
- We can certify that the activities related to medical devices are the responsibility of specialized personnel, technical support personnel, therefore they must govern the adequate management of medical devices, which includes the accumulation, implementation and modification of all data that influence the operation of the equipment in the USM.
- We can certify that activities related to medical devices are the responsibility of specialized personnel, technical support personnel.

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