

Health Technology Management in the Republic of Moldova. Realizations and Perspectives.

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Abstract - Maintenance, control and management of medical devices became a priority in a health policy in many countries. Many studies proved that using coherent policies in these areas can improve the cost/efficiency use of advanced medical technologies, increase patient's safety as well as the quality of medical service. Equipping the Ministry of Public Health with advanced medical devices and ensuring an appropriate level of professionalism of healthcare workers represent key tools in certifying a proper functioning of a health system and exerts a direct impact upon operational efficacy of the system, service quality and level of beneficiaries' satisfaction. One of the actions directed at strengthening the material and technical base of medical institutions, which aims to improve it, is to provide those institutions with advanced medical devices and implementing an effective management of medical devices.

Index Terms — medical devices; management; medical technologies.

I. INTRODUCTION

The priorities in a health policy development are subordinate to the overall objective of improving the health of the population and increasing life expectancy in the upcoming years. Ensuring the implementation of citizens' rights to quality of health services remains a priority of a modern medical institution. The service quality is dependent on the material and technical basis of medical institutions, provision of medical devices and professional competence of personnel (human factor). Assessment of global experience in the field has proved that advanced medical devices are an indispensable part during a medical activity in the prevention, proper diagnosis and treatment of diseases occupying top positions in the structure of mortality and morbidity. Using them effectively requires increasing the number of investigations and cost effective and qualitative treatment. Maintenance, control and management of medical devices became a priority in a health policy in many countries[1]. Many studies proved that using coherent policies in these areas can improve the cost/efficiency use of advanced medical technologies, increase patient's safety as well as the quality of the medical activity [2-3].

II. CURRENT SITUATION

World Health Organization estimates showed that billions of dollars were spent for acquisition and management of medical devices and most countries did acknowledge that Health Technology Management (HTM) is an integral part of a public health policy. Medical institutions in developing countries, around 50% of medical equipment is not working and is not used correctly and maintained inconstantly - a situation with serious consequences for services and care. For these reasons, WHO recommends and is essential to have a national policy concerning health technology

management, including provision of medical devices, ensuring the maintenance, inspection and proper use of medical technologies, training specialists, and establishment of a continuous training system for specialists in the field.

Currently, the health system in Moldova includes 939 hospitals, of which 244 public health facilities (86 hospitals with 22031 beds, 12914 doctors and 27445 healthcare workers with secondary education. Utilization rate of the medical devices is high, both in district health facilities and in the republican ones; 20% of equipment is not functioning in districts and 10% in republican hospitals. Recently, in Moldova, the Law on Medical Devices (Law nr.92/26.04.12), was adopted but the health system lacks in sufficient institutional and functional capacity. Lack of regulatory legal acts in the field as well as effective evaluation within medical institutions and Ministry of Health, generates deficiencies while planning the purchase of medical devices, as well as uneven and irregular distribution of health facilities with medical devices.

Expensive medical devices are not used on optimal level, so there are real opportunities to improve their operation. The efficiency' use of medical devices is not monitored adequately, results that it's impossible to amend negative tendency of usage at a low level.

Local management is wrong; there is a lack of stable policies of the procedures, planning acquisition and maintenance of medical devices, lack of legislative framework regarding market placement, quality control and use of medical devices. There are problems in the provision of medical devices, consumables and other resources.

Health system does not dispose of: a strategic development plan in technology and medical devices domain, minimum standards of equipment of medical institutions moreover an uneven distribution of purchased

medical devices, causes an inefficient use of them. The devices in equipping institutions have a service life up to 30 years (10 years international norms), produced by over 300 manufacturers, supplied by over 250 companies. The procurement planning of medical devices is not based on calculations and objective analysis.

As a result, were purchased medical devices of the same type, which are used insufficiently. Delayed installation of medical devices in healthcare facilities, determined a lower rate of many medical investigations also diminished the sustainable operation term of the device.

Medical institutions have no means of maintenance and repair of medical devices which are an endowment. Furthermore they are in lack of professional personnel and proper equipment for testing and calibration. Services provided by private companies, in the absence of competition, are actually of a low quality, preventive maintenance is superficial, execution time takes longer and has a very high cost.

Acute shortage of specialists in the field of biomedical engineering, concerning the maintenance, inspection and use of medical devices and absence of

regulation regarding required continuous improvement of users and professionals working in the marketing and putting into service the medical devices, decreases considerably the efficiency of medical devices and has a negative influence on medical activity!

III. ORGANIZING A HEALTH TECHNOLOGY MANAGEMENT

Health Technology Management includes all necessary actions in order to guarantee an efficient use of medical devices, planning, maintenance, and replacement of medical devices in the environment where community services, confidentiality, reliability is essential.

HTM goal is: to assure optimal conditions in order to provide qualitative, safe and efficient medical devices for healthcare system, to ensure quality of medical services, protect and promote population's health.

Health Technology Management includes the following components (Fig.1)

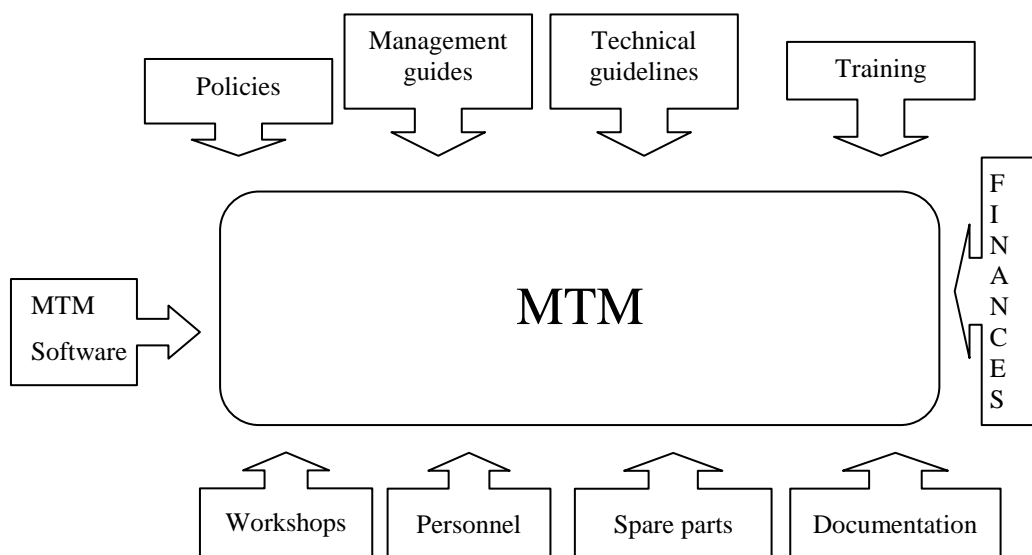


Fig.1. The structure of Management of Medical Technologies

Based on actual information from various sources, causes of defects and accidents with medical equipment can be classified as follows: 10% - technical failures; 30% - inappropriate maintenance strategy; 60% -user's fault.

A correct implementation of management of medical technologies allows 80% of problems to be solved by 20% of the resources.

The implementation of Health Medical Technologies has the following objectives:

1. Framing of activities within national (European) and local norms regarding management of medical devices.

2. Framing of usage activities and service within norms recommended by medical devices manufacturers, within a framework of a maintenance adequate to the device;

3. Reduction of inadequate use of modern technologies and ensuring a continuous and effective availability of medical equipment for services corresponding to the field of healthcare;

4. Monitoring of the activities of maintenance, correction of errors, development of specific protocols, and prediction of costs.

For a complete objective fulfilment an implementation of the strategy of mixed medical device maintenance is proposed – basic maintenance by own personnel with creation and development of a Department (workshop, section) of Management of Medical Technologies and specific maintenance through authorized firm specialists.

At the first stage, it is necessary to implement an organizational structure of Management of Medical Technologies as a component of Quality Management with defined activities and responsibilities and bonds on each level.

HTM Working Group includes head of medical services, people in charge of procurement and consumables, representatives from medical engineering department and users from different fields. HTM Working Group develops and implements Health Technology Management strategy.

At the second stage it is necessary to implement local rules in the medical facility:

- Regulation upon organization and functioning of the organizational structure;
- Job description for staff from the organizational structure;
- Call log;
- Maintenance sheet of a medical device;
- Quick user guide;
- Usage log of a medical device;
- Annual plan of medical devices maintenance;
- Annual plan for necessity of consumable;
- Card service;
- Maintenance report;
- Maintenance protocols specific for the medical facility.

The importance of the call log consists in a permanent monitoring in the medical section, controlling stand by time of a medical device from the problem appearance until its solution, observation of the already done reparations as well as serves a communication tool between a user and a bioengineer.

Usage log determines the duration of a device usage, proper planning of consumables and purchase of new devices.

Analysis of one type device using accomplished during a specific period of time showed that devices are not using at their maximum functionality – fact, that allows optimization of devices quantity and planning based on actual necessities of consumables and accessories. (fig.2)

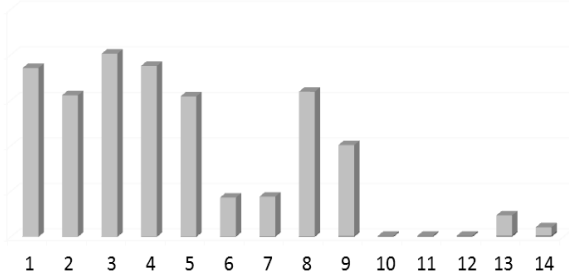


Fig 2. One type devices using

Card service allows monitoring of maintenance and repair activities performed in a time frame and cost-efficient determination of medical devices.

Maintenance report allows analyzing the work carried out in the medical facility, stand by time of the medical devices, medical device failure cause analysis, evaluation of medical devices maintenance costs. (Fig.3.)

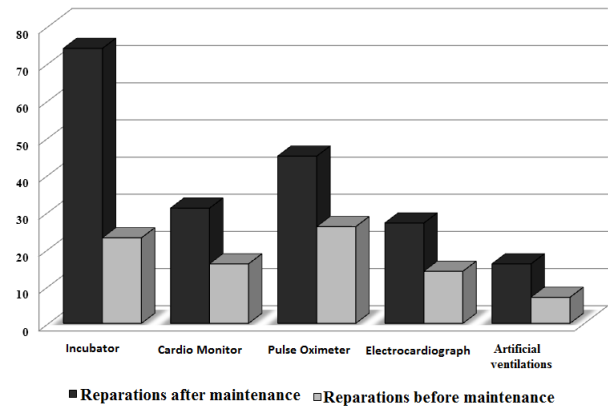


Fig. 3. The results of implementing the preventive maintenance procedures.

Implementation of Medical Technology Management significantly increased performances and security of medical devices, as well, as reduced inadequate using of modern technologies, and insured continuous disponibility, raised efficiency of medical devices, optimized the resource financing and reduced costs of medical acts.

IV. CONCLUSION

Implementation of Health Technology Management ensures healthcare institutions in providing high quality services, and as well as ensuring patient and user safety.

Equipment is used and maintained correctly henceforth the staff uses the equipment, following written procedures and good practice.

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