Benin

The Health pyramid in Benin is built on 34 areas hospitals, National university hospital, departmental hospitals, and clinics. Medical devices in these hospitals are multiple and various, coming from different suppliers. Long time the country lacks technicians, but since 2009, with the creation of the department of Biomedical engineering, things have changed qualitatively. Today there is a training department, research laboratory (bearing), association of technicians etc.

1- Training-Teaching-Research in Biomedical Engineering in Benin

In light of the lessons learned, mastering the management of medical devices will be a challenge in Benin if competent human resources and appropriate resources are available and deployed in all phases of the life cycle of medical devices in Benin health system. To do this, no actor will be too much. The main public training structure in Biomedical Engineering (GBM) in Benin is the Department of Biomedical Engineering of the Polytechnic School of Abomey-Calavi (EPAC). Created in 2009, this department formed the 7th cohort in 2018 with a total of 142 biomedical technicians, specialized in Biomedical and Hospital Maintenance. The Ministry of Health of Benin should take advantage of these skills to put sufficient biomedical technicians in each of the 34 health areas of Benin. On this point the challenge of training-teaching in Clinical Engineering is realized. On the side of medical device management-oriented research in Benin, the EPAC Department of Biomedical Engineering has developed a personalized CMMS tool adapted to the Benin health system. The availability and durability are due to the fact that the EPAC Department of Biomedical Engineering trains cohorts of biomedical technicians for the job market in the field. Since it is in this department that the personalized CMMS tool is developed, with the support of all biomedical maintenance actors in hospitals in Benin, it will be systematically taught to students, with the possibility of organizing recycle sessions for identified technicians. The innovation of this tool according to the recommendations of the WHO is that, the personalized CMMS tool is specific following a systemic approach in a context of exploitation of the medical devices of a hospital in a developing country.

2- Research – Investigation – Innovation

Still on the research side, an in-depth analysis of the situation has led us to propose a method for estimating the qualification score of a medical device as soon as it is put into service. For this, an empirical approach based on the analysis of the operating context of medical devices in hospitals in Benin, has given a new approach of qualification inspired by the traditional approach of qualification according to WHO (WHO, 2001). In the methodology, six (6) qualification phases have been identified, namely: (1) Design Qualification (Q-C); (2) Qualification of Receipt Check List (Q-RCL), (3) Qualification of Installation (Q-I); (4) Technical Reception Qualification (Q-RT), (5) Operational Qualification (Q-O) and (6) Performance Qualification (Q-P). For each phase, a non-exhaustive list of steps is associated. An integer value range of 0 to 10 is associated with each step. The sum of the different scores assigned to the steps is weighted out of 100 for the phase. The average weighted score on 100 of the six phases is the desired score. Thus, a quantifiable qualification score of between 0% and 100% is estimable for a medical device as soon as it is put into service. If the score tends to 100%, the medical device is in a very satisfactory operating situation and vice versa. The methodology reveals an audit of the acquisition chain, with a view to optimal and safe
exploitation of a medical device. It can be applied to a pool of medical devices to identify the steps that need to be taken to improve the situation of medical devices in Benin. On the side of research-investigation – Innovation in biomedical engineering, the department of GBM EPAC gradually sets up its laboratory in this regard. This is done through the partnership with the University of Warwick and the APEFE (a Belgian agency) and now we note positively the strong influence of the IFMBE in this field.

3-ASSOCIATION
The young technicians in clinical and biomedical maintenance, graduated in the department of Biomedical engineering (GBM) and some electronic engineers created groupe, association which is an organised group covering all the country for the development clinical and medical engineering in Benin.

Medenou Daton <medenou@yahoo.com>