

# HEALTH TECHNOLOGY MANAGEMENT MODEL APPLIED IN PRIMARY HEALTHCARE IN BRAZIL

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## ABSTRACT

Over 80.0% of the Brazilian population depends on the Unified Health System (SUS), which is a responsibility of State. In 2008, The Brazilian Federal Government launched the More Health Program: Right of all, in order to improve the system. Among the measures adopted, it could be highlighted the implementation of support and reference units for primary care (UBS), the creation of Centers for Dental Specialties (CEOs), Immediate Care and Diagnosis Support Units (UPAs), and Polyclinics. This situation directly impacts on the increase of the medical technology complexity installed in primary care and creates the need for specialized services in Clinical Engineering focused in Health Technology Management (TMH).

## INTRODUCTION

Based on the Health Technology Management Model adopted by the Institute of Biomedical Engineering - Federal University of Santa Catarina (IEB-UFSC) and presented at the First WHO Global Forum on Medical Devices, an advisory and consulting program regarding Clinical Engineering was implemented in the primary care network of Health Department in Florianopolis city (SMS-FLN), Santa Catarina state, Brazil. The model of TMH is based on three domains: infrastructure, human resources, and technology, allowing more quality to the technological process in health.

## METHODOLOGY

The advisory work provided by IEB-UFSC is based on two levels: the first one acts in operational activities conducted by the Local Center of Clinical Engineering (Celec-SMSFLN) and the second executes support activities and supervision, carried out by support areas. These levels are part of the Center of Management and Development of Healthcare Technology (Ceged-TMH) which is responsible for outreach activities of the IEB-UFSC. The Celec-SMSFLN is formed by one clinical engineer, two technical teams and one administrative assistant. Health units of SMS-FLN are divided into districts and each team is responsible to attend predefined regions. The service schedule is elaborated, so that, all units receive technical inspections at least once a week. Due to large number of units that the system has (currently sixty-two) and the physical distance between them, the organization is critical for the proper progress of the work.

Figure 1 shows health units distribution attended to Celec-SMSFLN.

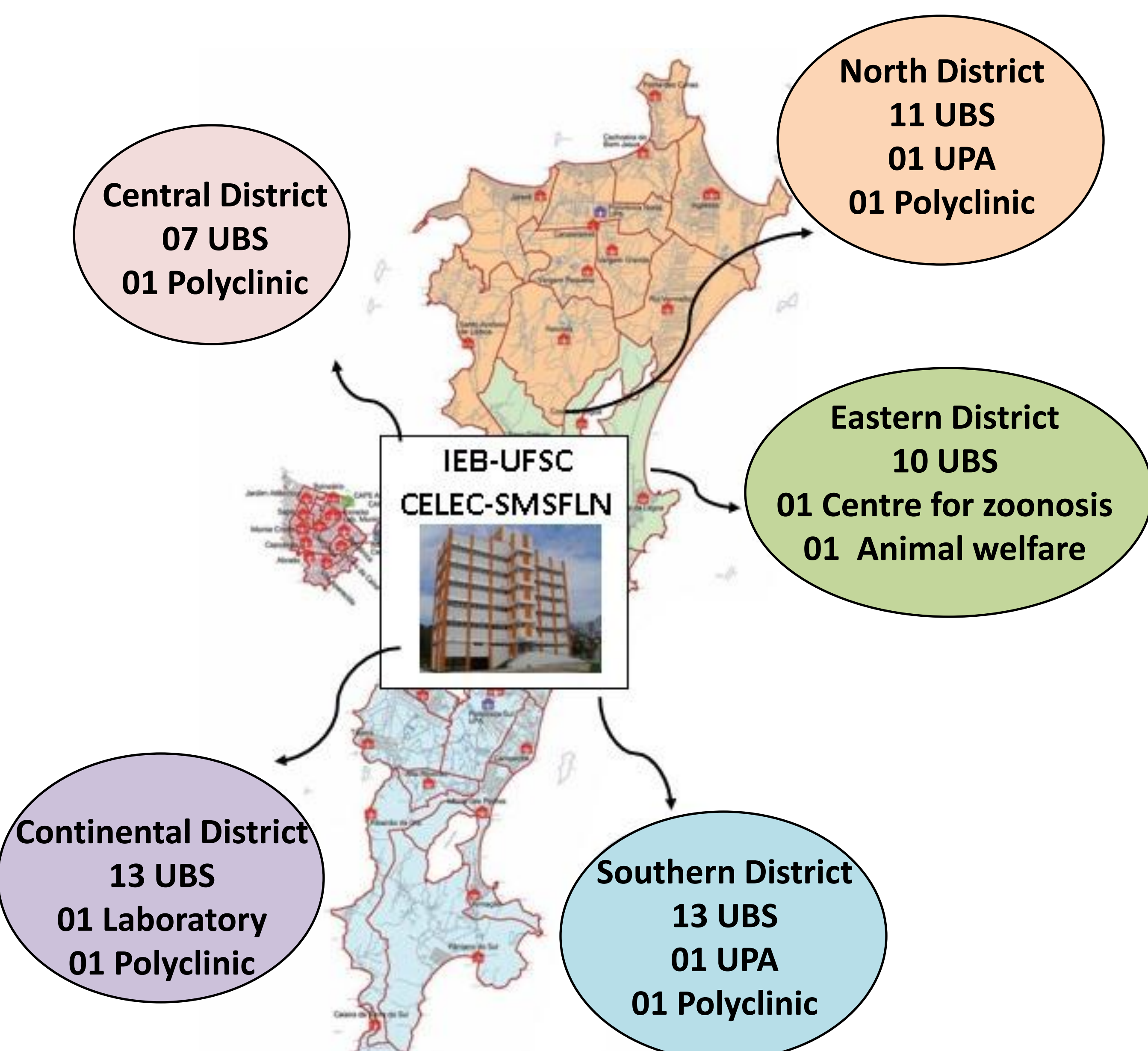


Figure 1: Health units distribution in SMS-FLN (Brazil) that IEB-UFSC attends.

The methodology of health technology management (gTMH) of IEB-UFSC is based on three pillars: infrastructure, technology and human resources. Thus, the focus of the work is not restricted to the equipment analysis but the whole technological process in which it is inserted. Operational problems are minimized through guidance for users and when problems with infrastructure are identified, the Celec-SMSFLN prepares technical reports for the construction sector of SMS-FLN to make the necessary adequacies.

The support activities are performed by the areas that compose the Ceged-TMH, among which can be highlighted the Laboratory of Technical Evaluation (LAT) that has analyzers equipment to assess the functional conditions of the equipment based on normative and recommendations. Besides, There is the area of Technology Dimensioning and Incorporation (DIT), responsible for assisting in the acquisition process of equipment.

## RESULTS

As part of this program, the IEB-UFSC advised and monitored the implementation of two polyclinics, two UPAs, besides the reform and construction of new primary healthcare units. Among other activities, consultancies are carried out about the equipment dimensioning based on relevant standards, technical analysis of the purchasing processes, receiving, installation, functionality testing and users training. In 2007 in the program's implementation, the park of equipment was approximately US\$ 1 million. Nowadays the amount is US\$ 2.4 million. The increased of the park complexity can be represented in Figure 2.

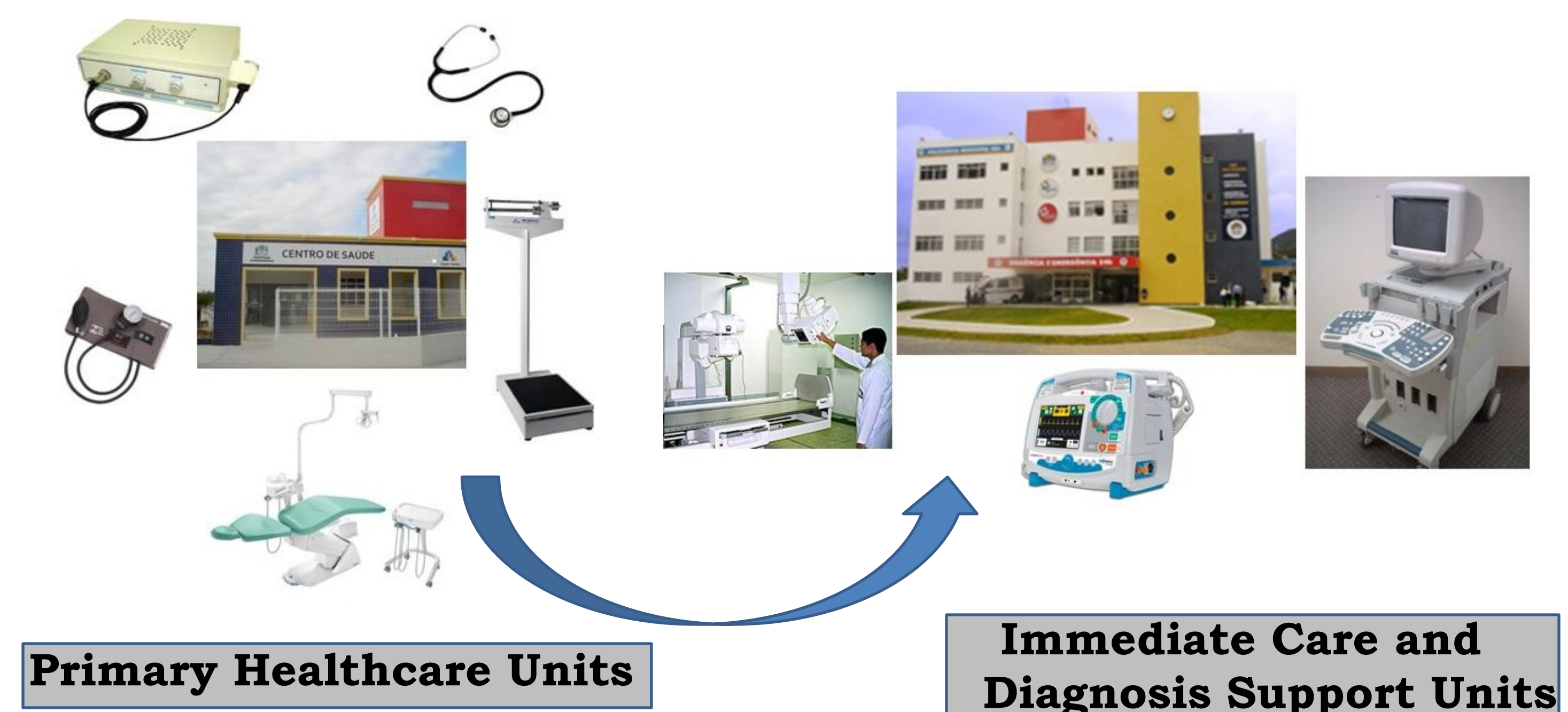


Figure 2: Representation of the increasing complexity of equipment with the deployment of UPAs.

Among other activities, the Celec-SMSFLN conducts:

- Attendance of corrective maintenance;
- Monitoring the functionality of the equipment through tests in LAT;
- Implementation of programs for equipment preventive maintenance;
- Training of users, as shown in Figure 3;



Figure 3: Clinical Engineering: Training provided about the ventilator in UPA - Southern District.

- Advice on equipment dimensioning and acquisition (purchasing processes, receiving, installation, functionality testing);
- Guidance for managers to gradual replacement of the equipment park.

## CONCLUSION

These activities of the Clinical Engineering intend to increase safety, reliability, and effectiveness of the primary care system, which are key indicators of quality of the TMH model. As well as, they are in synchronicity with the current public health policy in Brazil, which has invested in primary care as an alternative decentralization of care.