

## **Design and Application of Methodologies for Medical Equipment Acquisition and Replacement, 2003**

### Summary:

This project studied the design of a methodological tool for decision-making with regard to medical equipment investments. The only methodology available was a general one for assessing the construction, replacement, and expansion of urgent care clinics, medical clinics, and hospitals or for replacing equipment in general, but there was no methodology specifically designed for medical equipment.

The new methodology requested from CIAPEP needed to include acquisitions for expanding installed capacity as well as those for replacement capacity and had to be applied to concrete cases. The expansion initiatives were aimed at increasing the number of patients served or providing service when it was lacking, while the replacement initiatives were focused on replacing equipment whose operating costs were increasing or whose productivity was decreasing. In the study, it was assumed that the hospitals would need to meet the demand for services, and so in both cases, the potential for acquiring or selling services in both the public and private health care sectors were included.

The methodology was applied to diagnostic equipment: Axial Tomography in the Carlos Van Büren Hospital (HCVB) in Valparaíso and Digestive Endoscopy in the San Camilo Hospital (HSC) in San Felipe. The team defined the criteria for determining the advisability of acquiring equipment and for replacing equipment.

In both scenarios described, the assessment horizon was equal to the expected useful life of the new equipment. Where the project appeared profitable, the optimum time for acquiring or replacing equipment would be identified, i.e., the year in which the benefit is maximized.

To project the “demand to be met” for services that required the medical equipment, the team considered the characteristics of the relevant population in the hospital’s area of influence, applying statistically significant technical coefficients to the projection for each relevant group. These relevant groups were obtained through the analysis of historic demand by age group, sex, type of coverage, and other characteristics.

Furthermore, the pertinent authorities were able to establish an optimum coverage coefficient on the estimated demand, which for the practical application of the methodology was given a unitary value. The results of the assessment found that the quality of management of hospital resources was a determining factor when evaluating the purchase of medical equipment, whether to expand or replace productive capacity, and that productive resources – especially human resources – should first be optimized.