

ECONOMIC EVALUATION OF MEDICAL EQUIPMENT MAINTENANCE IN MOLDOVAN HOSPITALS

N. Fota¹, C. Nogier²

¹*CRED Foundation – Romanian-Swiss Centre for Health Sector Development,
Bucharest, Romania;*

²*Swiss Tropical and Public Health Institute / Swiss Centre for International Health,
Basel, Switzerland*

E-mail: nicu.fota@cred.ro, cyril.nogier@unibas.ch

The two main health projects of the Swiss Agency for Development and Cooperation (SDC) in Moldova, “Modernising Moldovan Perinatology System” (PERINAT) and “Regionalization of the Paediatric Emergency and Intensive Care Medical Services in Moldova” (REPEMOL) have upgraded medical equipment at numerous facilities and supported the establishment of adequate policies, structures and procedures to improve Health Technology Management (HTM).

This study aims at providing a first evaluation of the hospitals costs to set up and operate in house - HTM services and at estimating their effectiveness. The overall objective of the study is to support the HTM policy development and inform key stakeholders on the relevance of scaling-up the HTM services as supported by the two Moldovan-Swiss projects.

The study **methodology** combines the standard step down cost accounting (SDCA) method with an evaluation of the activity of the newly introduced HTM workshops. Perception of the users of the HTM services complements the previous activities. Eight hospitals out of ten benefiting either from the support of PERINAT and/or the REPEMOL projects in 2011 and 2012 were included in the study. Specific data collection forms were developed and data has been collected by hospital enumerators.

Results: the **total costs of operating HTM** services ranged from MDL 36,100 to 611,822 in 2011 (USD 2,627 – 44,536 respectively) and from MDL 13,621 to 526,629 (USD 1,013 – 38,328) in 2012. The main cost driver in seven out of eight hospitals was human resources (HR) representing over 70% of total costs in 2012.

The study attempted to measure efficiency of the HTM services by computing **unit costs** per type of activities performed and time worked. For technical interventions the average unit cost was MDL 285, or USD 20.7 (range MDL 91-674, or USD 6.7-49.1), for administrative activities average unit cost was MDL 1.175, or USD 85.8 (range MDL 66-6,924 or USD 4.8-504) and MDL 176.8, or USD 12.9 per hour worked (range MDL 32.1-310.2, or USD 2.3-22.6). It was not possible to compare the hospital HTM services costs to those of the external maintenance services providers as contents of external contracts were not made available.

The **general perception of HTM services** was overall very satisfactory with 86% of respondents (equipment users and department or hospital managers) having a positive or very positive opinion of the hospital HTM services.

The study underlines that the strategy of the introduction of in-house HTM services is a complex health system intervention with substantial investment in HR development, management capacity and processes, and physical assets (equipment and infrastructure).

The **conclusions and recommendations** include priority measures to be considered by policy makers, health system administrators and hospital managers.