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OPPORTUNITIES FOR THE IMPROVEMENT OF COST ACCOUNTING SYSTEMS IN PUBLIC HOSPITALS IN ITALY AND CROATIA: A CASE STUDY

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Aim of the research

- In this paper, we investigate the different approaches to the implementation of cost accounting systems in two public hospitals, aiming to highlight the differences between the managerial control systems in public hospitals in Italy and Croatia.

- The two countries have different regulatory frameworks; by comparing the healthcare management's needs in those two environments, we can gain some valuable insights on the benefits of switching from cash-based public sector accounting to accrual accounting, in terms of quality and usefulness of information generated by the managerial accounting systems in public hospitals,

Accrual accounting vs. Cash Accounting

- Adoption of accrual accounting in public entities is normally a prerequisite for the development of advanced cost accounting methodologies that allow to correctly determine the costs of the services provided. Introducing accrual accounting for financial reporting and bookkeeping has become a movement in the public sector over the past twenty years (Mehrolhassani and Emami, 2013).

- This improvement is strongly connected with the principles of new public management (NPM) which advocates for accounting reforms in public bureaucracies, introducing performance measurement and managerial control procedures in public sector entities (Eriotis, Stamatiadis and Vasiliou, 2011).

Cost accounting in healthcare

- Accurate cost measurement in health care is a difficult task, mainly because of the inherent complexity of healthcare itself. In fact, every treatment involves the consumption of many different types of resources - personnel, equipment, space, and supplies - each with different capabilities and costs.

- Lack of standardization, due to the fact that medical practices allow for considerable discretion - physicians in the same organizational unit performing the same medical process often use different procedures, drugs, devices, tests, and equipment.

- Simply transferring systems and methods from for-profit corporations to providers of healthcare services could lead to erroneous results (Alexander and Weiner, 1998).

Regulatory framework: Croatia and Italy

- In **Croatia**, public hospitals in the healthcare system are financed through contributions from CHIF, and behave in accordance with the established standards at the central government (Ministry of Health). Public hospitals in Croatia abandoned the concept of cash accounting and fund accounting and introduced **modified accrual accounting.** Under this method, most revenues and expenses follow an accrual accounting logic, but capital expenditures, instead of being capitalized and depreciated, are considered expenses of the period in which they are incurred. Funds received in connection to capital expenditures are considered revenues of the period (contrary to international accounting practices).
- **Italy's** healthcare spending accounted for 9.1% of its GDP in 2015 (OECD Health Statistics, 2016). **Accrual accounting** was first introduced in public Italian healthcare institutions in 1992; by 1999, all healthcare institutions completed the switch from public government accounting to accrual accounting. In 2011, a new regulation imposed standardized formats for the financial statements of healthcare institutions, introducing the same accounting standards used by the private sector.

Research objectives

From the legislation framework of Italy and Croatia it can be concluded that Italian public hospitals have better preconditions for usage of cost accounting methodology. In order to investigate to what extent cost accounting methodology is used in Croatian and Italian public hospitals, and whether accounting officers are ready for the implementation of the full cost approach for calculation of costs in order to track costs per patient or healthcare service, we examined and tried to answer the following research questions:

RQ1: To what extent do public hospitals in Italy and Croatia use cost accounting methodology?

RQ2: Is there a calculation of costs per patient or per service provided?

RQ3: Are the accountants and accounting officers in public hospitals ready for the implementation of the full cost approach for calculation of costs in order to track costs per patient or healthcare service?

Case Study

In 2016 we interviewed the Chief Financial Officers of two hospitals: the Clinical Hospital Centre Zagreb in Croatia and the University Hospital of Trieste, Italy (*Azienda Sanitaria Universitaria Integrata di Trieste)*. Both hospitals engage in medical research and in the education of medical students.

	Univ. Hospital of Trieste, Italy	CHC Zagreb, Croatia
Number of medical employees	2,478	4,024
Number of non-medical employees	509	1,079
Number of contracted beds with National Health Insurance Fund (NHIF)	774	1,795
Used capacity in beds in 2015	82.2%	80%
Percentage of processed cases in 2015:	21.03%	5.5%
- **Hospitalization**	2.48%	4.8%
- **Daily hospital**	76.48%	90.7%
- **Policlinics**		
Public funding through NHIF	96.35%	85%

Cost structure of the two hospitals

The cost structure of the two hospitals is not directly comparable, because CHC Zagreb does not include depreciation charges in its overhead, while the Univ. Hospital of Trieste does. However, salaries are the main cost item for both institutions:

	Univ. Hospital of Trieste, Italy	CHC Zagreb
Expenses for salaries:	49.02%	56.93%
Expenses for drugs, blood products, medical supplies:	19.55%	25.17%
Expenses for overheads (utilities):	17.94%	9.83%
Administration costs:	13.49%	8.07%
Total:	100%	100%

Cost objects

The Croatian hospital tracks its costs at the organizational units level and by type of DRG service. The Italian hospital does not attempt to calculate costs per patient or per service provided. Both hospitals track their total costs by nature at the hospital level. The answered are ranked on a five-point scale, ranging from 1 (that corresponds to the lowest degree) to 5 (the highest).

Cost objects	Univ. Hospital of Trieste	CHC Zagreb
1. by nature in whole hospital	5	5
2. by the organizational units (departments, services	4	5
3. the types of services and delivery of the DRG	1	5
4. the type of service delivery (internal classification)	1	1
5. per patient	1	1

Extent of cost accounting implementation

The usage of cost accounting is limited in both hospitals. In fact, even if the Croatian hospital attempts to calculate the cost of the services provided, the full cost it determines does not include depreciation charges. Moreover, the hospital employs traditional allocation bases (materials, direct labor...) that rarely provide realistic result, especially in healthcare.
The Italian hospital, despite collecting all the necessary information on an accrual basis for its external financial reporting, does not allocate direct and indirect costs of the hospital or of the organizational units to the health care service rendered.

The two hospitals cannot correctly measure the performances of the healthcare services provided. However they both attempt to price their services, when offered on the market, in a manner that covers their costs (including depreciation for the Croatian hospital, excluding depreciation for the Italian hospital.

Performance evaluations conducted by the two hospital are therefore affected by the incomplete or conventional cost calculations they conduct.

Full cost of healthcare services

Both the interviewees believe it would be acceptable to determine the prices of their health care services using full costing, determined using an Activity Based Costing methodology, that would ensure precise monitoring of all the direct and indirect costs for individual health care services or health care programs.

In the case of the Croatian hospital, this would mean a decision at the institutional level to switch to a full accrual accounting basis that would allow to develop more appropriate cost accounting methodologies. This solution is preferable to developing a separate cost accounting information system used for internal purposes, and still use modified accrual basis for external financial reporting purposes.

The Italian hospital is in a better position, since all the preconditions are satisfied. However, developing a cost accounting systems that delivers realistic results is not a simple task, especially in healthcare, given the complexity and the unpredictability of the activities performed.

Conclusions

International literature often mentions ABC and Time-Driven ABC methods as the most appropriate in healthcare environments. The most prominent advantage of ABC methods is that their results, the determination and allocation of costs, provide more realistic cost estimates than traditional cost accounting methods. This is achieved mainly by allocating costs to patients or to provided services according to factors with which they are most closely associated (causality principle).

ABC systems, however, are costly to implement and prone to a high rate of obsolescence, despite providing cost information of higher quality than traditional cost accounting systems.

Further research is needed to assess the full relevance of cost accounting systems in public hospitals in Italy and Croatia, especially by extending the survey to other hospitals. It is possible to assume, however, that in both countries the management's information needs are not yet completely fulfilled by the existing managerial accounting systems, based on traditional cost allocation methods.

Thank you.

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