



Chapter XIII

Demonstrating Value-Added Utilization of Existing Databases for Organizational Decision-Support

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ABSTRACT

Managers of healthcare organizations are increasingly aware that the potential of medical information systems exceeds mere support of routine administrative and clinical transaction processing. This chapter describes a case study about Maccabi Health Services, the second largest health maintenance organization in Israel and the first one to computerize clinical records resulting from routine transactions in doctors' offices, laboratories, and pharmacies. In this case about decision-making support practices, recycling the content of existing databases made it possible to discover patterns of sub-optimal treatment without having to invest time and money in additional data-collection procedures. The case study thus demonstrates value-added utilization of patient data, beyond uses intended at the

beginning, for effectively supporting the implementation and evaluation of disease-management programs. Lessons learned about organizational benefits reaped from the organization's decision-support practices include implications for such initiatives as data warehousing, data mining, and online analytical processing.

INTRODUCTION

Currently, new technologies such as data warehousing and data mining are considered necessary for harnessing organizational data for decision support. In practice, however, utilization of data, beyond transactional uses intended upon creation of the databases, took place for many years prior to the emergence of these technologies. Even today in fact, without applying specific data warehousing or data mining technologies to its existing databases, organizations may gain experience in value-added utilization of existing databases. This practice allows reaping some of the benefits of data warehousing and mining, on the basis of existing database systems, even before the respective technologies have matured. It should also be helpful eventually in adoption of and adaptation to these technologies. In this chapter we study such practice at Maccabi Healthcare Services, the second largest health maintenance organization (HMO) in Israel.

Administrative information systems in healthcare organizations were developed as a tool for controlling and increasing the efficiency of billing and payment transactions between them and caregivers. Clinical information systems were developed somewhat later, mainly for the purpose of enhancing medical diagnosis, treatment, and follow-up. While the main use of administrative and clinical systems has been for transactional purposes, parts of the resulting databases have been utilized for purposes other than transaction processing, such as identifying areas of medical care that could be targeted for savings, designing clinician compensation schemes, and attempting to change physician behavior towards adaptation to clinical guidelines.

Following the next two sections, which review the literature and the case-study methodology used in this chapter, the fourth section focuses on a case of value-added utilization of existing databases for decision support purposes, in the context of disease management for asthma. The case demonstrates how being an early adopter of medical information systems for transaction processing paved the road to value-added utilization of existing databases for supporting disease-management decisions. The discussion section following presentation of case facts is devoted to the organizational benefits that were reaped in this case as well as to the lessons that can be learned and the limitations of using existing databases for decision-support. Finally, the concluding section presents implications for such initiatives as data warehousing, data mining, and online analytical processing, and proposes possible directions for future research.

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