Chapter 3.8
Web & RFId Technology:
New Frontiers in Costing and Process Management for Rehabilitation Medicine[1]

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ABSTRACT

Radio frequency identification (RFId) has recently begun to receive increased interest from practitioners and academics. This type of technology has been widely used in healthcare organizations for different purposes, like to localize patients, devices, and medical instruments. This chapter presents the results of a study in which we used RFId technology and modern systems of cost management methodologies (e.g., activity-based costing, activity-based management, and process management) in a "proof of application" aimed at defining some specific data on care needs of a person with a disability, costs of the main activities performed during the person's rehabilitation process, and level of performance which could be reached in order to improve the "disability management" process, from a clinical as well as a managerial perspective.

INTRODUCTION

In recent times there has been a sustained trend of growth of healthcare and rehabilitation services demand coming from people affected by different types of psycho-physical disabilities related even

to genetic characteristics and/or different type of traumatic events (e.g., stroke, traumatic brain injury, spinal cord injuries, anoxia, etc.).

In order to have an idea about the "dimension" of this phenomenon, it is useful to refer to the World Health Organization (WHO), who has estimated a total of around 600 million people with some kind of disability all over the world.

Some reasons for this rapid growth may be found in the interaction among different variables:

- Demographic, referred to population growth and/or progressive aging.
- Social, mainly related to the higher probability of traumatic events related to traffic crashes, domestic and/or sportive accidents, work accidents, war-related, and/or violence-related event injuries.
- Medical, related to a higher surviving rate after critical events due to the use of new trauma management techniques mainly in the acute phase and in general, to the higher survival rate of subjects with some kind of disability coming from congenital and/or acquired malformation of the central nervous system.

As an answer to such a growing demand, rehabilitation medicine has became a specific discipline aimed at the integral recovery of physical, psychical, social, and functional capacities of people with disabilities.

These change-drivers have an important impact on the organization of activities in rehabilitation which, inevitably, follow different criteria if compared with acute care services. In rehabilitative medicine it is necessary to deal with "long term complexity" coming from the different potential development of a disability itself as time passes by. This characteristic, which is not present in acute care, is usually concentrated on short-term care. Furthermore this long-term

feature has promoted a progressive trend toward home care vs. the option of in-hospital stay. This trend has been supported by the development of technological devices able to guarantee an appropriate quality of life for the person with disability while staying at home.

Beside these issues, which are mainly referred to clinical factors, there are others mainly related to managerial aspects such as the way the healthcare service is organized, how much it costs, and how the rehabilitation process may be evaluated. In fact, rehabilitative medicine, as a fundamental aspect of disability treatment and even more than acute care field, poses some difficult questions about the measurement of type and quality of service offered and/or performed. Up to now those questions have received only partial answers through experimentation. Furthermore, experimentation in rehabilitation management has been considered a nonclear and nonprecise experimental field.

Obviously, it is not just a trivial problem of working-load identification. Rather, its objective is to know if the care service performed is suitable to the diverse needs a person with a disability presents. This includes in-hospital as well as home care, in a continuous-care perspective. In rehabilitative medicine it is necessary to define what to do, how many people should be involved, which kind of professional must be involved, how long they will be involved, during which part of the day-time service will be provided, and which type of knowledge should the caregiver have in order to be able to assist the person with a disability. Therefore, the critical points are: Which and how much care service should be provided, who should be responsible for each activity, how it must be performed, and, finally, how much it costs.

The answer to such questions depends on the possibility to measure costs through a structure that permits taking into consideration the specific nature of chronic care clinical paths. Those clinical paths may be considered as very complex "produc-

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