

# Optimization of Medical Supervision, Management, and Reimbursement of Contemporary Homecare

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## INTRODUCTION

The concepts of health, sickness, and illness are subject to the specific sociocultural conditions under which they are considered, and, on the basis of which medical care is provided (Spyropoulos & Papagounos, 1995). The concepts and the methods involved in diagnosis and treatment are subject to the prevalent at the time theoretical model of disease. Hospitals, as a social institution, emerged as a response to particular needs and corresponded to the specific level of the understanding of health and disease. About 2,500 years ago, the temples of Asklepeios, the god of medicine, were probably the first well organized houses of refuge for the sick and training schools for physicians. Hospitals also existed in India under Buddhist auspices as early as the 3rd century BCE. The number of hospitals grew in the first centuries of the Christian era. In the 4th century AD, hospitals were founded in Caesarea and in Rome. Throughout the Byzantine time, the Middle Ages, the Arab and Ottoman dominance periods, the Renaissance, and even later, hospitals were almost entirely run by religious Christian or Islamic groups. During all these centuries, home care remains the main and usually the unique mode of treatment for the majority of the people world-wide. Only during the 18th century, hospitals ceased to be purely philanthropic institutions and they started to assume the character of a social institution where a systematic and theory-infused approach to disease prevailed. From the middle of the 19th century on, the number of hospitals, particularly in Europe and in

the USA, increased, principally because of the discovery of anesthesia, aseptic surgical techniques, and, by the end of the century, the introduction of the x-rays. The demand for hospital services expanded further with the spread of prosperity, and with the introduction of various forms of hospitalization insurance, especially in England and in Germany, where the first obligatory and generalized social insurance system is introduced. It is the first time in the human history that home care ceased to be the main way of providing healthcare, and hospital treatment became gradually an important social right.

The modern hospital emerged gradually and successively, during a very long historical development, from a religious philanthropy institution to the contemporary managed care Establishment. The civil structure, the social demands, and the individual performance were always and are still reflected, on the hospital, throughout the centuries. Therefore, the 21st century hospital will provide a radically different professional activity environment, and a quite different professional-patient interaction modus; it will increasingly encourage telemedicine (De Leo, 2002) supported home care because of the increase of mean life expectancy, and the hospital care cost avalanche (Wipf & Langner, 2006; Woolhandler, Campbell, & Himmelstein, 2003). Its mission will be completed by a network of various associated Institutions, providing care rather closer to home care, than to that of the traditional hospital-care (Brazil, Bolton, Ulrichsen, & Knott, 1998).

Adapting medical and managerial decision-making (Spyropoulos, 2006a) in the modern home care environment is a cardinal prerequisite, in order to ensure, first, an economically sustainable development of the aging population healthcare (Scarcelli, 2001); second, the rehabilitation services required for impaired persons; and finally, the psychosomatic support necessary in the developed countries, during the next decades. Thus, a strategic question emerges that is how home care will be medically supervised and financially reimbursed. The present study attempts to describe the present situation and the contemporary technological trends in home care; more specific, it is focused on a system developed by our team that intends first, to enable the optimal documentation of the provided home care, and second, to facilitate the acquisition of all relevant financial data, leading to a fair remuneration of the services offered.

## **BACKGROUND**

Contemporary home care is evolving on the foundation of a variety of applications in healthcare support services, and we argue that a qualitatively new “mobile” home care is presently emerging out of the combined employment of, first, the modern wireless mobile telephony networks and equipment, second, the contemporary digital entertainment electronics, and third, the commercially available computer hardware and software. This new mobile home care allows us for to be optimistic about the reduction of patients’ unnecessary hospitalization in the near future, as well as, the dramatic reduction of the home care costs. It is essential to summarize the most important emerging innovative aspects of modern home care before describing in detail the developed therefore Management System.

Adapting medical decision-making and treatment in the home care environment begins with the effort to carry out periodically preventive examinations, as a kind of ambulant and emergency home care. The miniaturization of equipment, and the falling prices trend that could be developed by the opening of Biomedical Technology to the immense population of potential consumers, if combined with a “smart” home environment, then it may result in periodical, individually adapted, preventive medical examinations, and, consequently, a decreasing number of patients in hospitals and other

costly traditional ambulatory services. Diagnosis and Treatment of an emergency patient at home is inevitable, in order to reduce morbidity, following acute pathological reasons or an accident, and it is paramount that the patient is first evaluated and stabilized on site. In such cases, there are two complementary ways to intervene: First, the continuous monitoring of high-risk groups suffering from chronic cardiovascular, respiratory, and other diseases; and second, equipping and training the “first responder” with appropriate hardware and standardized guidelines (Spyropoulos, 2006b). These two main options allow for an improvement of the efficiency of ambulant emergency services, especially if supported by telematics.

Concerning home-based in vitro diagnostics, “Dry Clinical Chemistry” offers today a variety of products, covering the whole range of important parameters, like metabolites, enzymes, electrolytes, and so on. Although diabetes every-day strip-based monitoring (Lewis, 2001) is a routine for the last two decades, a little has been done to establish a “home-based” in vitro diagnostics laboratory that would be very useful, especially in facilities offering housing and some kind of medical care for elderly people (Gill, 2002). In vitro testing, combined with biosignals monitoring at home, provide for a safe and pleasant living environment for sensible populations. Concerning home imaging, although several mobile systems have been developed, most of them, with the exception of ultrasonic equipment, will remain for the near future the “status symbols” of the hospitals. However, external patient-imaging, together with high-quality biological sound processing and transmission capabilities, are already available.

Although surgery will remain more or less the “monopoly” of the hospital, the postoperative hospital stay will be further dramatically shortened and replaced by home care in a familiar and pleasant room, instead of the impersonal, sterile ward. This becomes feasible, first, because of the recently developed minimally invasive surgical techniques, and second, as a result of decentralizing postoperative care to general practitioners and nurses, and finally, due to the emerging option of, the acquisition at home of vital-signs, postoperative wound images, and so on, and their transmission to the specialized surgical center, if necessary.

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