

Financing within the scope of the Integrated Disease Management – pay for comprehensive price

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1. Introduction

The Western society has been assisting significant demographic changes including the ageing of the population, the growing life expectancy and the increasing incidence of chronic diseases, or changes that produce high level of disabilities, and the increasing incidence of communicable and non communicable diseases. Frequently, the combination of these factors requires the repeated interventions at all the levels of healthcare services, exponentially increasing the costs, causing great strain on health systems.

The health systems are faced with new paradigms, on one hand in the healthcare services delivered to the populations, and on the other hand, in the need to control costs in the health sector, forcing organizations to adapt and provide the most appropriate response to the individuals growing needs.

The magnitude of this problem, in terms of public health, requires the adoption of a directed, targeted, planned and integrated action, based on clear and well defined strategies in order to obtain health gains, improving the quality of care and streamlining the costs (Diniz, 2002).

In some countries, with emphasis on the United States, the response to these challenges was the adoption of disease management models (Krumbholz, 2000).

In Portugal, the application of those principles forming the basis of the disease management models, led to the Integrated Disease Management model which, apart from the clinical management of the disease, also incorporates the healthcare delivery structure reorganization, a specific financing model based on an information system that allows the process monitoring and evaluation.

2. Context

According to the WHO (2005), the chronic diseases have been the biggest cause of death in the last decade and will be, clearly, the main cause of disability by the year 2020, in which the highest costs are usually associated to a small group of patients' usually with one or more chronic diseases.

Traditionally, health systems and their health institutions, offer integrated treatments oriented to the identification of signs and symptoms, which usually occurs in more advanced stages of the disease, involving very high costs and conditioning the patients' quality of life. While the benefits of the disease prevention and health promotion are long identified, the compromise of health systems with the needed investments is still very low, when compared to the investments made for diagnosing and treatment of the diseases - about 3% for the OECD countries.

Several authors acknowledge the chronic diseases as pathologies to be addressed within the disease management scope because they are the most complex, difficult to manage and more costly to the health system, requiring a higher allocation of resources. The existing differences within the professional practices is so notorious, that the standardization of clinical action based on scientific evidence significantly increases the results in health and rationalization of resources available to a certain population group (Norris, 2003; Department of Health, 2004; Nesse, 2000; Krumbholz, 2000).

The designation "disease management" started being used in the 80s, in the Mayo Clinic in the U.S., without a direct association to chronic diseases, where it was used to mean cutting costs (Zitter, 1996, cited by Norri *et al*, 2003).

The disease management strategies, applied to chronic diseases, started during the 90s, in an atmosphere of patients' dissatisfaction with the healthcare provided, during a transitional period in the health services delivery system in the U.S., as panacea for the sustainability of the health system and increasing satisfaction of patients.

These models of disease management were developed, firstly, by financing stakeholders and the pharmaceutical industry, which main objective was to add value to their services. They identified medium and high risk chronic patients, and offered educational and promotional services for therapy adherence as well as the adoption of more healthy life-styles (Krumbholz, 2000).

The term "disease management" entered the current language without a common definition of its real meaning, existing now, many definitions or models. This diversity makes it more difficult to compare and evaluate the programmes, especially when related to its results and or effectiveness, as well as the agreed and fundamented definition of best policies. Moreover, regarding the alternative healthcare models, focused on case management or coordinated multidisciplinary care, they have often been given the designation of disease management (Krumbholz, 2000).

The literary review also demonstrated that disease management can differ its focus of attention, purpose, depth and intervention level (primary or secondary), and is clearly influenced by the profile and perspective of the author (researcher, economist, medical doctor) (Norris *et al*, 2003).

The Disease Management Association of America (DMAA, 2005), defines disease management as "a multi-disciplinary, continuum-based approach to healthcare that proactively identifies populations with, or at risk for established medical conditions commonly involves a population identification process, evidence-based practice guidelines, risk identification and matching of interventions with need, patient self-management education, process and outcomes measurement, evaluation and

management, routine reporting/feedback loop, appropriate use of information technology”.

According to the DMAA, the multidisciplinary approach to chronic diseases must begin with the identification of those populations with one disease or at greater risk of having it. The physician should feel supported in establishing a relationship with the patient, jointly planning the healthcare, emphasizing the prevention of acute episodes and complications, using guidelines and evaluating the clinical results and quality of life, on a regular basis.

As a consequence of its own history, the concept of disease managing, has been associated with a depreciative sense, related to the outsourcing and marketing services, with cost reduction associated to the short term disease based results, not patient focused nor in his/her health status or quality of life (Noris, 2003).

Despite the criticism and weaknesses identified, the programme implementation for disease management has been able to increase and improve the results both in health and economic outcomes, through advanced planning, evidence based practice, and corrected structural deficiencies (Faulkner, 2003). It is fundamental to identify patients at higher risk, because disease prevention is the area where the results are more visible.

3. National Framework

The health systems and policy makers are sensitive to these dynamics, with the growing concern of addressing the populations' needs, making it imperative to create response mechanisms, ensuring the universality and equity of access, while facing with increased budget and resources restrictions.

In fact, people living with chronic diseases tend to have multiple contacts within the health system, attending several healthcare providers at different levels of care, without any of them monitoring the evolution of their disease(s) (OECD, 2007). The transition between different levels of care is still an important and significant barrier that patients are constantly faced with.

Although there have been major changes in recent years, we have in Portugal a healthcare delivery structure based on two parallel systems, primary healthcare and hospital healthcare with serious communication difficulties, focused on the acute episodes of the disease, poor community involvement, mainly public funded and not related to the results and not accountable.

There are significant doubts regarding the implementation feasibility of the disease management "traditional models", if they are not streamlined with a broader approach that integrates a number of other areas - clinical, organizational, financial and informational - essential to the implementation of a more efficient and effective action on chronic diseases - Integrated Disease Management Model.

In Portugal, using a qualitative methodology of data analysis – the Delphi Panel - with the participation of recognized experts, representing the main institutions involved in the

Portuguese health system, sought to generate consensus on the definition of priority diseases that needed assistance within the scope of the Integrated Disease Management.

According to the opinion of national experts, the conditions identified are those which are set as priorities in terms of strategic action from the Integrated Disease Management point of view, as are those that more significantly have, the possibility of standardizing clinical practice, capable care coordination, epidemiological magnitude, high budget share, severe and early disability and possibility of self-management (Table 1).

N.º	PATHOLOGY
1	Diabetes
2	Heart Failure
3	Hypertension
4	Asthma
5	Chronic Obstructive Pulmonary Disease
6	HIV/AIDS
7	Female Breast Cancer
8	Depression
9	Rectal Cancer
10	Degenerative Arthritis and Rheumatic Diseases

Table 1 – Prioritization of diseases in need of a strategic action

4. Disease Management

The use of models, independent from their nature, must always be done in an adaptive perspective to the environment/characteristics of the reality where they are intended to be used. The implementation of the disease management model in Portugal should not be an exception.

The development of Integrated Disease Management models is a central strategy and a tool for improving healthcare delivery, more effectively and efficiently, and can even be an important and permanent vehicle of information for health decision support.

The Integrated Disease Management model differs from the traditional chronic diseases approach model, because the healthcare delivered is done in an integrated manner during the *continuum* of the disease, including the co-morbidities and the prevention of complications in a clearly identified and monitored population, where their healthcare needs are anticipated, aiming at short, medium and long term goals and results.

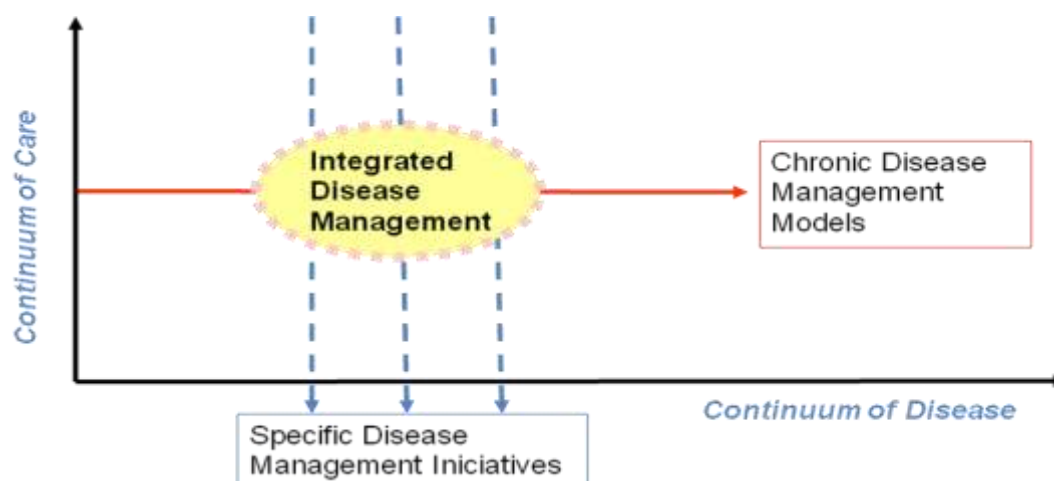


Figure 1 – Integrated Disease Management in the Health System Organization

The Integrated Disease Management is an organized, pro-active and focused on patients' healthcare approach, with the involvement of all stakeholders, mostly, populations at risk, providers from different sectors, interest groups and policy makers, throughout all stages of the disease evolution.

There are intervention key areas, which differ depending on the condition addressed in this model, and where it is included the information and knowledge production relating to the patient and the pathology; patient education (develop information access, improving self-management, enabling patients to decide, while increasing their individual and social responsibility concerning the natural evolution of the disease); standard clinical guidelines production; healthcare planning, access to medicines and self-monitoring instruments; improved access to services - articulation between healthcare levels - developing their core competencies as continuity, research, measurement, monitoring and promotion of quality of care improvement; adjusted financing model and promoting the implementation of the disease management models.

According to the OECD (2007), in order to achieve consistent performance from the health systems, using approaches like Integrated Disease Management, the interventions of coordinated healthcare should be scaled up and must be focused on patient care, replacing the expensive reactive and unplanned healthcare, through effective, equitable and anticipated healthcare provision.

In order to increase the patients' knowledge about their disease, they must be educated, enabling and making them accountable for their self-management. Increased self-management of the disease allows the institutions to coordinate the healthcare provision in a most appropriate way, providing better quality healthcare services.

Therefore, it is important to promote a concerted action towards achieving a precise intervention, mobilizing the resources, improving the health status, quality of life and the overall patients' wellbeing. This action passes by increasing collaboration and coordination of the different levels of care, offering integrated healthcare services with high quality levels regarding prevention, diagnosis, treatment, rehabilitation and monitoring.

5. Integrated Disease Management Conceptual Model

The Integrated Disease Management model can be defined as a, directed, oriented, planned and integrated, intervention in different areas, through well-defined strategies, to determine concrete objectives for the health gains, of quality improvement and resources rationalization. This model intends to accomplish what some authors have advocated for: a "comprehensive approach, integrated care and finance/payment, based on the natural evolution of the disease" (Todd, 2002; Nash, 1997).

The related activities to the implementation of the Integrated Disease Management model were mainly focused on the design and consolidation of the theoretical matrix that allowed the future action framework for the four fundamental aspects of the model: clinical disease management, healthcare delivery reorganization, financing model and information system.

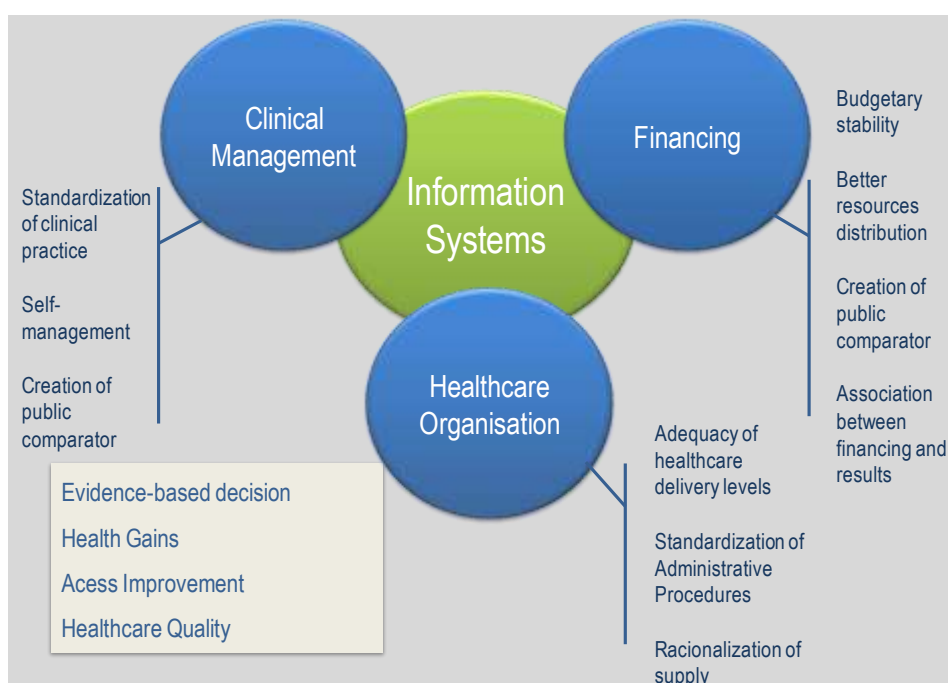


Figure 2 –Conceptual Integrated Disease Management Model

The research in health services has shown that the application of techniques for resources management, evidence-based guidelines and continuous monitoring of clinical performance has gradually improved the results and also the processes, by reducing the differences within the professional practice (Nesse, 2000).

According to the Department of Health (2004), the international scientific evidence shows that there are essential components of a proper disease management, which also served as a basis for the conceptualization of the Integrated Disease Management model:

- Use of an integrated information system with individual and aggregated data of the population

- Identification of patients with chronic disease
- Stratification of populations at risk
- Patients involvement in self-management of the disease
- Care Coordination (using different managers in particular, case, patient and disease managers)
- Use of multidisciplinary teams
- Expert specialists and general Integration
- Care Integration throughout the different levels of healthcare delivery without organizational barriers
- Permanent concern with decreasing the number of visits and unnecessary hospital admissions

5.1. Clinical Disease Management

The clinical disease management requires a profound knowledge of the disease itself: definition, incidence and prevalence, manifestations of the disease, available treatments and most common prognosis.

The patients' stratification by risk levels is the first task in the clinical management process, allowing an adequate adaptation to the populations' healthcare needs, giving them the most appropriate response.

The pyramid used by the Kaiser Permanente (Figure 3), stratifies the patients into three levels of risk. In the first level we have the population diagnosed with a chronic disease, needing only supportive care to achieve a proper self-management of the disease; the second level, we have individuals at high risk of the disease progression, requiring healthcare delivery management. The third and last level, patients need a more systematic follow up due to the complexity of their clinical situation.

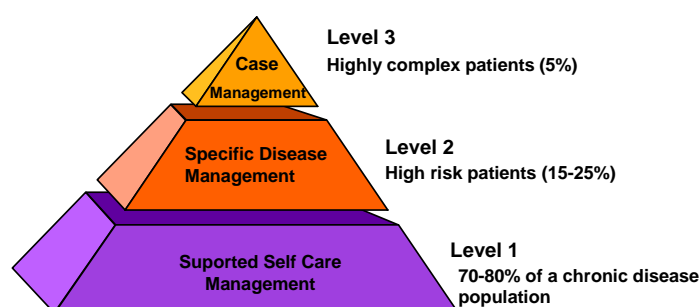


Figure 3 – Patients Stratification by risk levels
(Adapted from Kaiser Permanente, 2004)

The input from the experts at different healthcare areas - doctors, nurses, pharmacists, among others - has been the main method used to obtain consensus, discussing national and international practices related to each specific pathology, and identifying strengths and weaknesses that characterize the current situation of healthcare delivery.

As chronic diseases are now subject to significant variations regarding the performance of the healthcare professionals, the conceptualization of a healthcare profile was essential and considered as an ideal approach and treatment to the disease - the clinical procedures, medicines and treatments – and where it could be included, the specific characteristics of certain groups of patients. Though there is a specific definition of care to each chronic disease, it is not compulsory to comply with it, being the adherence done voluntarily. Nevertheless, by defining a set of care tailored to each specific chronic disease, expectations are created regarding the results to be achieved with this procedure and that must be clearly stated since the beginning of the process, as well as consensually agreed by the experts.

5.2. Organization of the Healthcare Delivery

The Integrated Disease Management approach requires the reorganization of the healthcare delivery, taking advantage of the possibilities inherent to the use of information technology and communication, according to the levels of activity (primary, secondary and tertiary), while ensuring that this provision of healthcare takes place in the appropriate level and with the best possible use of the resources.

In response to a European Commission consultation, in June 7, 2007, on "Health Services", different Member States of the European Union declared the importance of creating Centres of Excellence, capable of responding effectively to the healthcare needs in Europe, to patients' mobility in the European territory, as well as to the needs of standardization and dissemination of the healthcare best practices.

In Portugal, the translation of this European trend materialized with the creation of *Centres of High Differentiation* (CHD), which can be defined as units developing clinical and research capabilities, aiming at structuring the diagnosis approach and the patients' full treatment. These centres, assuming a public comparative role vital to the Integrated Disease Management, will act as models for the improvement, effectiveness and efficiency, positioning themselves at the top of the hierarchy, when referring to the existing knowledge.

Among the specificities that turn these into innovative projects in Portugal there are promoting the integration of different components from the health system and the creation of *Centres of Treatment* and the above mentioned *Centres of High Differentiation*, which are fundamental for the prevention, diagnosis, treatment, rehabilitation and monitoring of several pathologies, showing the innovation at the structural organization's support structure.

The recognition of existing units to be designated *Centres of High Differentiation* in certain areas/specialties depends on the incidence and prevalence of the disease, the available resources, expertise and technology to pursuit its objective.

The main characteristics of the *Centres of High Differentiation* will be the capacity to:

- Organize mechanisms and structures to ensure that the collection of information and databases is done in order to achieve an effective disease management;
- Ensure internal and external multidisciplinary learning with the treatment centres which they interact with
- Ensure the knowledge, learning and sharing, with the Centres actively contributing to the informatics platform for the disease management
- Ensure the high differentiation in medical or surgical diagnoses and treatments
- Concentrate its action in the response efficiency, through an intensive analysis of the issues raised;
- Master the most advanced techniques in healthcare delivery.

The *Centres of Treatment* must have a multidisciplinary and full-time dedication team to the CT, be empowered and recognized by the CHD with whom they articulate and develop intensive and exclusive activities, in the area where they are recognized.

5.3.Financing Model

Systematic advances at the medical science level have an effect in the available technologies, which are now more assertive and more active regarding the diagnoses, new methods and therapeutic associations, which create more pressure on health systems once they incorporate high investment and production costs.

Financing is among the more important aspects of the Integrated Disease Management implementation model. In this sense, the challenge is to adopt the "pay for comprehensive price" financing model, which is similar to the "pay for results" model.

The "pay for comprehensive price" is defined as an average value, per patient and considering a given period of time, covering all clinical procedures, medicines and other interventions considered to be essential for adequate care delivery, and can integrate some specificities of each patient, but whose implementation depend on meeting the quality and safety parameters of the patient, measured by a set of outcome indicators.

The main objective here, is incorporate the financing as the modulating force of the health care management, allowing it to overcome some of the constraints and problems that currently is faced with, such as: the pay per act regardless of the results, deficiencies in the cost and activity control, unclear sharing of responsibilities for several stakeholders, the insufficient integration of care with reflections on the quality of service and the lack of systematic and consistent information at clinical, economical and financial level.

This type of financing model, using flexible implementing methods and adjustable to the specificities of each disease, has the following basic principles:

- Reflect the most appropriate clinical practice, by the developing and adopting the clinical guidance standards and therapeutic protocols;

- Require the provision of information per patient
- Establish a direct relation between financing and compliance with the patients' quality and clinical safety parameters;
- Shaping the practices and the organization of care;
- Encourage the risk sharing between the different stakeholders;
- Incorporate auditing and monitoring mechanisms.

However, the adoption of "pay for comprehensive price" for chronic diseases, has some associated risks, such as the possibility of generating the adverse selection of patients, the under delivery of healthcare provision, the creation of barriers in the achievement of consistent objectives and high quality care for all patients and particularly, the restriction in introducing innovative therapeutics.

Nevertheless, the results focalization, not minimizing the importance of the processes, will surpass these questions and contribute to a greater efficiency of the system, by explaining the price components, which shall become known to all. It will also allow a more rational behaviour from the providers, once the relation to the results will lead to the adoption of those cost effective innovations and the ongoing practices; will also be associated to the imposition of audit and monitoring mechanisms, such as the existence of public comparisons ensured by the creation of *Centres of High Differentiation*, a support for the corrective implementation of this model.

5.4. Information Systems

The implementation of integrated disease management models is based on the concept of integrating the healthcare delivery and the sharing of responsibilities and information. The information systems are thus critical factors of success for the implementation of these models, and must ensure the integration of the existing systems, compliance with confidentiality and security rules and permanent availability of information.

The information management systems, while ensuring the data collection and processing from several areas - clinical, financial, organizational - are themselves tools for monitoring and surveillance, facilitating the permanent support, consolidation and the deepening of various aspects related to the model, such as health gains, costs rationalization, quality healthcare improvement and increasing patients' and professionals' satisfaction.

However, existing information systems have significant constraints, particularly in its use for chronic disease management, with emphasis on: spreading the information by several entities and different information systems, data recorded with different criteria depending on the institution. There is also the existence of unrecorded data on electronic support and data not recorded at all. These situations have the practical consequence of rendering impossible for the Portuguese Health System, to determine with precision the current evolutionary state of the chronic diseases, with inevitable implications for the management model currently at use.

The information system, called Platform for Integrated Disease Management, guarantees a national data base record of patients using programs of Integrated Disease Management, which allows the follow up and monitoring of the quality of care, the disease evolution and the generation of indicators concerning the production of each healthcare delivery unit.

The Integrated disease Management Platform requires, namely:

- Integration of cutting-edge technology and use of best practice regarding the systems used which can be extensible and changeable, allowing a regular evolution without constraints;
- Abstract extraction, from the occurrences from the different information systems by developing a generic and abstract software component, adaptable to any information system, that extracts the necessary data, converts them into a determined protocol and transmits them into the information system;
- Collection of data carried out by indirect and secure interconnection of various information systems that will feed the Platform, ensuring the data security and confidentiality and respecting the Portuguese law regarding the protection of personal data.

6. Conclusion

The integrated disease management approach is cost-effective but not "cost-saving." However, some randomized studies have demonstrated improvements in clinical and economic results in diseases like diabetes, heart failure and chronic renal disease (Krumbholz, 2000).

While the programs of disease management have been conceived, mainly to reduce the costs, in specific groups of patients, the Congressional Budget Office Report, 2004, demonstrated that this did not always so evident. According to the Department of Health (2004) and OECD (2007), the economic gains with the implementation of these programs may not be immediate, but the results in health and in the improvement of the quality of life are unquestionable. The economic benefits expected to be achieved relate to the reduction of unplanned hospital admissions, reduction of the total number of hospital admissions and the average length of stay, increased patient and professionals satisfaction.

The continuing implementation of disease management projects is essential for the introduction of significant innovations in the Portuguese health system. The main innovation is the concept of integration, considered essential to an efficient approach posed by the challenges, and by the demographic and epidemiological changes facing society.

Also, the emphasis given to the patient with this process by recognising his/her capability as self-manager of the disease, and the adoption of the pay for comprehensive price financing model, which includes the results obtained by different

institutions, indexes them to the quality of care delivery, makes it urgent to consolidate the implementation of these projects and the assurance of its monitoring and follow-up.

The adoption of an active role by the patient, in the self-management process of his/her disease, the assurance of access to appropriate services, the provision of integrated healthcare with special concern with the technical efficiency, safety and continuous monitoring of the quality of care, security and the patients' satisfaction are the main elements of success of the Integrated Disease Management model.

Regarding the providers, the success of this type of approach to chronic diseases involves the assurance of more technical and financial efficiency and effectiveness. The Portuguese Health Service needs monitoring instruments constantly updated, useful, relevant, reliable and timely information, in order to identify and reduce accessibility inequalities, efficiency and quality of service, thereby contributing to increasing the patients quality of life and desired health gains .

In addition to this complex variables combination, is the need to define and create the appropriate budgetary frameworks so that the implementation of financing packages is covered from the financial point and to make them a part of the current health care financing model.

Thus, is essential to ensure the continuity and a deeper implementation of these projects, particularly in the monitoring and evaluation areas, as a way to measuring the effectiveness and efficiency of this approach, its long term viability and relevance.

The completion of this project even before its evaluation, depends on an important set of variables, from which we underline the commitment and political support, the capacity to involve and mobilize a broad set of stakeholders (central and regional authorities, patients' associations, providers' associations, scientific societies, professional associations and universities) and the maintenance of a project management group, united, constant and identified with the aims and objectives of the project.

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