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Review Article

## Quality assessment systems in rehabilitation services for people with a disability in Greece: A critical review

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### Abstract

**Background:** Despite international interest on quality assessment systems (QAS) and their importance in health care accreditation, implementation of a Rehabilitation Services Quality Measurement System still remains a neglected subject in Greece.

**Objective:** To identify appropriate tools for researchers and policy makers to assess the quality of rehabilitation services in Greece, within the current active debate on national health care reform.

**Methods:** A critical review methodology was undertaken, using a systematic approach, aiming to identify the most appropriate tools in the field. Multi-step strategy was followed to gather relevant data, including bibliographical database, internet and hand searches.

**Results:** Twenty-two studies, articles and documents were identified as meeting all inclusion criteria, representing four QAS, compared according to appropriateness, efficiency, and feasibility for general use. The European Quality in Social Services (EQUASS) was evaluated as meeting all of the desired features, such as proper certification, objective measuring, equality, education and training, established guidelines and person-centered approach.

**Conclusions:** EQUASS initiative, developed according to European standards and implemented in resource-limited settings, was recognized as the most adaptive and appropriate system for Greek rehabilitation settings. Health policy makers are urged to take findings into consideration in establishing an integrated, quality-assured rehabilitation system throughout the country. © 2013 Elsevier Inc. All rights reserved.

**Keywords:** Quality; Certification; Rehabilitation; EQUASS; Greece

There is growing consensus on the importance of rehabilitation services in the quality of life for persons with disabilities. Linking acute care services with community-based services, rehabilitation is widely viewed as central to the effectiveness of a country's health care system.<sup>1,2</sup> Thus, establishing a nationwide quality assessment and certification system for rehabilitation services has become essential in safeguarding the main principles of a national health and welfare system.

Quality Assessment Systems (QAS) are comprehensive reviews and evaluations of materials, tools, processes, and strategies leading to specific recommendations on how to improve an organization.<sup>3,4</sup> A QAS is based on cross-

organization benchmarks and best practices in specific areas, contributing to organizational excellence. Implementation of quality assessment measurement systems in the rehabilitation sector for the disabled is crucial in evaluating services offered in order to provide the best care to the disabled. Such measurement systems are essential for the implementation of Total Quality Management (TQM) which is a set of management practices ensuring that the organization consistently meets or exceeds customer requirements, focusing on process measurement and controls as a means of continuous improvement.<sup>5,6</sup>

In Greece, until today, the rehabilitation sector is encompassed within the social health care sector, sharing some common fundamental principles for quality measurement. However, when promoting quality of care in rehabilitation, it should be taken into account that these are person-centered services, following an individual plan, intending

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to minimize health care costs linked to repeated or unnecessary practices. The most important barriers to receiving appropriate client-centered care include physical obstacles, transportation limitations, communication difficulties, and client and provider attitudes.<sup>7</sup> In this context, health care providers need to embrace a multi-disciplinary approach to meet the diverse needs of persons with disabilities, developing measures of function status and quality of life to improve outcomes.<sup>7,8</sup>

Rehabilitation and full recovery of the disabled in Greece sometimes is approached in a fragmented, opportunistic manner, which has led to escalating health care expenditures. A major reason for this is that the disabled occupy high-cost acute care beds not always for the proper reasons, or end up in chronic care institutions not designed to provide rehabilitation services. Uneducated family caregivers, insufficient state allowances, lack of dissemination of skills for self-management, and disconnection from the social and familial web complete the picture.<sup>9,10</sup> The above also have economic and social implications as disabled persons, comprising 9.3% of the Greek population, widely lack proper training and employment opportunities and are often marginalized.<sup>4,6</sup> Although quality assurance and certification has been noted as a concern of the Greek National Health Care System (ESY), implementation of a Rehabilitation Services Quality Measurement System (RSQMS) remains neglected. Organizational structures and the ongoing financial downturn appear as the most important barriers to change. Despite findings from a recent governmental report on poor outcomes for the disabled seeking rehabilitation services and the lack of professionalism on that matter, interest for research and funding on this field remains scarce.<sup>6</sup>

In this context, a critical review of the current literature on RSQMS was undertaken aiming to identify the most appropriate system for Greece in an effort to contribute toward the establishment of an integrated rehabilitation system throughout the country. Special consideration was given to culture-specific factors, recorded experience from other countries and to current financial shortcomings endured by the Greek health care sector. The findings and the discussion of this study may contribute to the current active debate on health care reform in Greece.

## Methods

### *Study design*

A critical review methodology was undertaken, using a systematic approach, aiming to identify the most appropriate tools in the field. In particular, suggestions on QAS and certification for the rehabilitation sector, especially in resource-limited settings, were sought. The authors attempted to evaluate according to experience and the PICO concept<sup>11</sup> and sought to identify conceptual

contribution.<sup>12</sup> Upon the guidance of the PRISMA checklist (<http://prisma-statement.org>), this review addresses the disabled in Greece (Participants), in terms of quality improvement of rehabilitation services (Intervention), comparing various relevant systems (Comparison) with the aim to identify the most appropriate for the country's setting (Outcome).<sup>11</sup>

### *Operational definitions*

The operational definition adopted for rehabilitation was the following: “An episode of care provided for a person with an impairment, disability or handicap and for whom the primary treatment goal is improvement in functional status.”<sup>2</sup> We considered quality in rehabilitation services based on the original principles set by Avedis Donabedian; divided into structure, process and outcome.<sup>13</sup> For the purposes of this review, the rehabilitation sector was regarded to include all providers of specialized services supporting disabled persons to reclaim self-care through: 1) the prevention and reduction of functional loss, 2) the limitation of restrictions of activity and participation arising from impairments, 3) the management of disability in physical, psychosocial and vocational dimensions, and 4) improvements in function.<sup>2</sup> Furthermore, certification was assessed as the process of recognition of a program fully complying with international requirements in terms of quality<sup>8</sup>; the latter specifically taken into account in health care research as the ability to achieve desirable objectives (these are the aforementioned providers of specialized services supporting disabled persons) using legitimate means — including physical and occupational therapy, speech therapy, psychological support, vocational training, self-management aids and technology assistance.<sup>3</sup>

### *Search strategy*

A multi-step search strategy was followed in order to gather relevant data for assessing an appropriate rehabilitation system to be implemented in Greece. At first, a systematic approach to the current literature was undertaken to explore quality assessment systems and certification for the rehabilitation sector, and especially to identify extrapolated experience from other countries and centers. Publications of interest, within the past decade, were identified by two reviewers, working independently. The two reviewers appraised the documents identified in the search and a third reviewer checked the titles and the abstracts of the selected papers. Any differences of opinion were resolved through discussion and by reaching a consensus among the three reviewers. After a critical evaluation of existent resources, a search of Medline bibliographical database (as the standard database for the wider dissemination of knowledge) was undertaken using the following search algorithm: (“quality”) AND (“rehabilitation”[Title/Abstract]) AND

(“center” OR “centre” OR “certification”) AND (“disabled” OR “disability” OR “handicap”). Thereafter, reference lists were systematically searched for further relevant articles; lastly, corresponding authors were contacted for missing data.

Specific inclusion criteria were set, as follows: (i) published articles relevant to quality measurement in the rehabilitation sector, (ii) documents presenting evidence on the guidelines set for quality assessment of specific systems, (iii) websites enhancing knowledge on quality assessment and certification. Exclusion criteria comprised as follows: (i) published articles, documents and websites providing relevant information on quality measurement tools which have not been tested in rehabilitation settings, (ii) article types: opinion pieces, editorials, letters, and (iii) articles written in languages other than English or Greek.

Additionally, a pursuit of internet resources was performed using popular search engines, including Google and Yahoo, for the period up to December 2011. Search terms were used to capture relevant websites, starting from combinations of the broad keywords: ‘rehabilitation’, ‘disabled’, ‘quality’. As a standard method, the first 100 hits on each search engine were further reviewed, as a number of the identified sites provided links to others, which have also been included in our preview. Two investigators (VD, AAK), working independently, searched the internet engines and selected relevant websites, attempting to include information from rehabilitation centers, quality assessment and certification system organizations.

Once the most effective systems emerged and became recognizable, a hand-search was performed, attempting to detect relevant documents which could aid the suggestions for implementation. Organizations were contacted and were asked to provide additional information.

### **Data extraction**

Each identified article, document or website, meeting the inclusion criteria, was further processed by the two reviewers, who independently also abstracted the relevant information using a standardized form. A two-stage review was employed to assess the relevance of findings. At the first stage, a wider group of thematic fields, drawn from our background research, was included to enable mapping and exploration of the whole field of quality assessment and certification related to rehabilitation in general. At the second stage, this group was narrowed down to a subset of thematic fields focusing on implementation and policy implication at a unit/facility level. A simple tabulation of study characteristics was attempted, which, according to the study design included: First authors’ or studies’ names, scope, evidence for potentially cost-effective implementation (extracted from the article’s content either as a reference or by assessing the time

frame of care and the appropriate practices), main focus, key message.

## **Results**

### **Eligible studies**

The Medline search strategy yielded 319 potentially relevant articles. As a result of the strategy and following the exclusion criteria, 296 studies were deemed irrelevant. The remaining 23 articles were reviewed, resulting in 10 articles<sup>14–23</sup> that met all inclusion criteria (Table 1).

Fifty-six websites were initially identified using the specified search engines, of which 39 were considered irrelevant. The authors further explored 17 links from selected organizations’ websites, with 8 of them<sup>10,24–30</sup> being relevant to the rehabilitation sector (Table 2).

The hand-search retrieved 13 documents, 4 of which were judged appropriate<sup>6,31–33</sup> and were provided in full text by official organizations upon request (Table 3).

Eventually, a total of 22 electronic and hardcopy documents were found to be within the scope of the current review (Fig. 1).

### **Quality assessment systems**

Upon careful consideration of all studies, articles, websites and documents meeting all inclusion criteria, the following QAS emerged as potentially relevant to Greek practice: A) International Organization for Standardization (ISO), used both by the industry and the health sector.<sup>25,26,34</sup> B) Commission on Accreditation of Rehabilitation Facilities (CARF), mainly for the rehabilitation sector in USA and Canada.<sup>27</sup> C) European Quality in Social Services (EQUASS) Excellence (former EQRM) and EQUASS Assurance, which have been developed for the European rehabilitation sector and, since 2008, have been applied in the welfare sector in Greece.<sup>28,30,32,33</sup> D) European Foundation for Quality Management (EFQM), used both by the industry and the health sector.<sup>24,35</sup>

### **Characteristics and extrapolated message of included documents**

After careful reading and a close inspection of Tables 1, 2 and 3, the key messages were: (i) Accreditation and objective certification, mostly via self-assessment, of the involved centers; mentioned in 9/22 cases (40.1%). (ii) Need for statistics and objective measuring in rehabilitations services; mentioned in 5/22 cases (22.7%). (iii) Human rights, equity of access and equal opportunities for persons with disabilities; mentioned in 4/22 cases (18.2%). (iv) Health, welfare and continuing medical education and training for professionals involved in the rehabilitation sector; mentioned in 4/22 cases (18.2%). (v) Need for established clinical

Table 1

Medline search, characteristics of included studies ( $N = 11$ )

First author (year)	Scope	Evidence for potentially cost-effective implementation <sup>a</sup>	Main focus	Key message
Baron-Epel et al (2004) <sup>14</sup>	Quality assessment of health education	Yes	Quality assurance tools; chronic care	Health education
Farin et al (2004) <sup>15</sup>	'Quality Profile'	No	Quality assessment in rehabilitation centers; acute care	Structural, process and outcome quality
Morrison (2005) <sup>16</sup>	Disease-Specific Care (DSC) certification	No	Disease management program certification; acute care	Consensus-based national standards, use of established clinical guidelines
Hermann et al (2006) <sup>17</sup>	Benchmarks	No	Statistical measure of quality of, sub-acute and chronic, care	Quality statistics
Censullo et al (2008) <sup>18</sup>	Consensus for quality care	No	Validated assessment of quality outcomes; acute care	Quality statistics, national certification process
Killaspy et al (2009) <sup>19</sup>	European measure of best practice	Yes	Measure for assessing and reviewing living conditions; chronic care	Human rights
Andrews et al (2009) <sup>20</sup>	National health care delivery, education, board certification	Yes	Quality performance measurement	Quality measures and reporting, continuing medical education
Barelds et al (2010) <sup>21</sup>	QUALITRA-ID	No	Quality of care and service trajectory; chronic care	Specific user-oriented knowledge
De Korvin et al (2009) <sup>22</sup>	European Union directives	Yes	European accreditation system; acute and chronic care	Describe clinical activity concretely
Hall et al (2009) <sup>23</sup>	Quality improvement project	No	Quality performance measurement; chronic care	Include vocational rehabilitation

<sup>a</sup> Extracted from the article's content either as a reference or by assessing the time frame of care and the appropriate practices.

guidelines; mentioned in 3/22 cases (13.6%). (vi) Individualized approach within the defined context, mentioned in 3/22 cases (13.6%).

The EQUASS initiative emerged as the most appropriate for implementation in the Greek health care setting, since it addresses a large number of existing problems, provides a cost-effective application within resource-limited settings and has already been partially applied in the Greek welfare sector.

## Discussion

### Main findings

The critical review identified overall four quality assurance systems that have been used in the rehabilitation sector, to a lesser or greater degree. All of them display three common characteristics: a) Benchmarking, b) Total Quality Management (TQM) and c) Continuous Quality Improvement (CQI). However, as evident by the

Table 2

World wide web resources, characteristics of included sites ( $N = 9$ )

Site (year)	Scope	Evidence for potentially cost-effective implementation <sup>a</sup>	Main focus	Key message
National Confederation of Disabled – Greece (2007) <sup>10</sup>	Equality and equity	Yes	Action plan for a national strategic for the disabled	Human rights, equal opportunities
European Foundation for Quality Management (2008) <sup>24</sup>	EFQM levels of excellence	No	Organizations improvement	Self-assessment, sustainability
International Organization for Standardization (2011) <sup>25</sup>	ISO standards	No	Assistive products for persons with disability	Established standards
International Organization for Standardization Elements (2011) <sup>26</sup>	ISO standards	No	Quality strategies	Establishing application of quality strategies
Commission on Accreditation of Rehabilitation Facilities (2011) <sup>27</sup>	CARF accreditation	No	Quality standards	Standards for quality practices
European Platform for Rehabilitation (EPR) (2011) <sup>28</sup>	EQUASS excellence	Yes	QAS for rehabilitation in Europe	Self-assessment
European Platform for Rehabilitation (2011) <sup>29</sup>	European organization for disabled persons' rehabilitation	Yes	EPR strategy	Equality, independence, professionalism
European Platform for Rehabilitation (2011) <sup>30</sup>	EQUASS assurance	Yes	QAS for rehabilitation in Europe	Quality criteria and performance indicators

<sup>a</sup> Extracted from the article's content either as a reference or by assessing the time frame of care and the appropriate practices.

Table 3  
Hand-search, characteristics of included documents (N = 4)

Source (year)	Scope	Evidence for resource-limited settings	Main focus	Key message
Eurostat (2003) <sup>31</sup>	Statistical data for disabled in Europe	Yes	European statistical organization	12% of EU population is disabled. Equity, equal opportunities
National Federation of Mobility Impaired People (2008) <sup>6</sup>	Report to the ministry of health	Yes	The current situation for the disabled persons in Greece	Need for a QAS implementation
European Platform for Rehabilitation (2011) <sup>32</sup>	EQUASS excellence	Yes	Quality assessment training	Assessors' training
European Platform for Rehabilitation (2011) <sup>33</sup>	EQUASS assurance	Yes	Quality assessment training	Auditors' training

mentioned results, ISO and EFQM have been used in the rehabilitation sector but are not specifically designed for it. Therefore, based on the review outcomes, two QAS target specifically the rehabilitation sector; CARF and EQUASS.

In the authors' judgment, EQUASS is considered to be the most appropriate for the Greek setting for a number of reasons. First, CARF is a rehabilitation quality assurance and certification system mainly used in North America, whereas EQUASS has been created in response to the rehabilitation and welfare sector needs of European member countries. As of December 2011, 319 rehabilitation centers or sites in Europe had been certified with EQUASS Assurance and 11 with EQUASS Excellence.<sup>36,37</sup> Moreover, there is enough evidence that EQUASS has been successfully applied in countries facing economic constraints, including, but not limited to, Ireland, Portugal, Spain and Malta.<sup>32,33,36,37</sup> Over and above, EQUASS has already been used in Greece, with two certified centers (one by EQUASS Assurance and another one by EQUASS Excellence), hence it is more cost-effective to use implemented systems with existing trained professionals. In 2008, the EQUASS Excellence system was implemented for the first time in Greece at "Panagia Eleousa" foundation, in the Aetolia-Acarnania region, whereas in the same year the EQUASS Assurance

system was implemented at "Theotokos foundation", in the Attica region. No cultural adaptations were required for the implementation of either system, demonstrating clear potential for improvement of the rehabilitation sector in Greece. Finally, EQUASS addresses all of the important features recognized through the current analysis: proper certification, objective measuring, equity, education and training, established guidelines and person-centered approach.

Notably, the EQUASS is presented as a Quality system for enhancing social service providers in the process of quality development and continuous improvement in the social service sector. The focus is on the quality of the service by offering comprehensive set of services: self-assessment, planning, support, recognition/certification. In the EQUASS "standard", quality concept elements of business management and quality management are incorporated. However, it should be noted that EQUASS certification is not a proof a having a solid quality management system, rather it is a recognition that the EQUASS quality concept (based on EU reference model for quality in the social sector) is well implemented. This assures a certain level quality in the provision of social health care services to service users and other key stakeholders in the sector.

Impact of the study

Contemporary Greece is lagging behind in RSQMS implementation. Rehabilitation facilities for the disabled in the public sector are insufficient, with several being operated by poorly-prepared managers, perpetuating a culture of misery and defeat.<sup>6,10</sup> On the other hand, the private sector is very limited, providing specialized services and daily care mostly to persons with mental disabilities.<sup>10</sup> In contrast, most rehabilitation centers for the disabled in the European Union and the United States function as units for brief hospitalization, offering patient education, psychological and social support and not as "asylums" for marginalized disabled individuals.<sup>38</sup>

Our review intends to provide a presentation of the widespread implications of this research and the use of quality assessment systems in rehabilitation services. Though specific to the Greek health care system, we consider many of the issues presented to be universal, like the

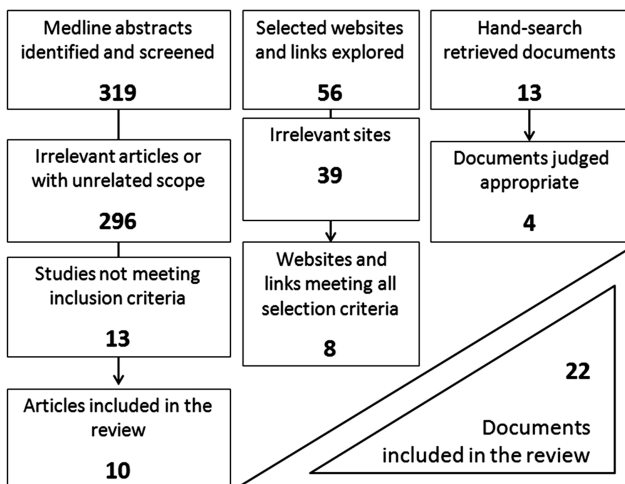


Fig. 1. Flow chart describing the multi-step data collection process.

cost-effectiveness of rehabilitation services in limiting long-term disability and secondary illness or loss of function, the limitations in reimbursement for services and economic constraints in providing needed care, and the absence of centralized outcome data. International reports stress the importance of interconnecting issues observed in different health care systems.<sup>39,40</sup>

Successful implementation of QAS in Greece would require tackling a number of issues and obstacles.<sup>41,42</sup> First, compared to their hospital counterparts, Greek rehabilitation administrators lag behind considerably in formal training and managerial capacity. Therefore, overturning the long-standing inequalities and discrimination between hospital and rehabilitation center administrators is clearly a priority for any culture change to occur in the work environment and the Greek society. Second, the subject of rehabilitation cost cannot be assessed independently. It should rather be examined in connection with the long-term financial and social burden, stemming from insufficient or improper rehabilitation (i.e., need for a full-time personal assistant, unemployment etc). When viewed under this perspective, the long-term cost is much greater than the cost for timely and comprehensive rehabilitation services. Third, rehabilitation fees for service vary according to the insurance carrier, with the Ministry of Social Insurance being the responsible entity. Last, the absence of a central data clearinghouse at the Ministry of Health and Social Solidarity seriously undermines any efforts to collect valid and reliable statistics at a national level.<sup>8,10</sup>

### Implications

Taking into account our study's outcomes and the aforementioned challenges, a set of recommendations has been formulated, as outlined in Table 4. Rehabilitation institutions and welfare agencies assigned with the task of responding to the needs of the disabled are urged to form workgroups that will carry out the proposed strategic planning. Implementing these recommendations would require intense coordinated work from a team of experts in rehabilitation, welfare, human resource administration, health policy and health economics, all of them sharing a common vision.

### Limitations and strengths

Results of the current review illustrate the urgency of restructuring the rehabilitation sector in Greece in a cost-effective manner. Strong points of our study include the authors' personal and/or professional experience with disability, involvement with QAS implementation and participation in health care reform in Greece. However, some methodological limitations of the review should be noted, pertaining to the search strategy, as the sources utilized were limited to the rehabilitation sector and to QAS within that sector. Therefore, potentially relevant

articles not indexed in Medline might have been omitted. Last, the adaptation of a critical review approach inherently implies that emphasis was placed on the conceptual contribution of each included item and not on formal quality assessment. While such a review aims to aggregate the literature on a topic, the interpretative elements are necessarily subjective and the resulting product is the starting point for further evaluation, not an endpoint in itself.<sup>12</sup> However, a critical review appeared as the most appropriate methodology because the particular field is at the point where appraisal should be based on contribution.

### Conclusions

The developing interest in Europe and Greece for EQUASS puts it at the top of the list for potentially successful implementation, making it the most appropriate for Greek settings. A Quality Assessment System cannot resolve all problems identified in Greek rehabilitation settings, as these are primarily structural problems involving the whole health care system. Hence, these structural system issues would need to be resolved, for QAS to achieve the desired quality level in each of the rehabilitation facilities. Nevertheless, QAS implementation may aid the reform, as it could result in improved organizational performance, reducing the required cost and time for rehabilitation. Thus, disabled Greeks would be more likely to remain in their home country, avoiding the tremendous out-of-pocket expenses and subsequent cost to the insurance carriers from seeking rehabilitation services abroad. Regardless of the QAS chosen, our study revealed the urgent need for a national database operated by the Ministry of Health and Social Solidarity for standardized data collection concerning the rehabilitation process and the disabled persons in Greece.

Although quality assessment and certification systems for rehabilitation centers have been extensively discussed in international literature, they have been implemented with

Table 4  
Recommendations toward a quality assessment and certification system within the Greek rehabilitation sector

- Standardizing at a national level data collection, data entry and analysis in order to establish a reliable and credible, up-to-date Rehabilitation Data Bank at the Ministry of Health and Social Solidarity.
- Carrying-out a comprehensive, comparative study of supply and demand for rehabilitation services in each of the seven health regions throughout Greece.
- Evaluating cost vs. effectiveness in public vs. private facilities as well as cost of rehabilitation abroad vs. cost in Greece.
- Promoting a culture of change in rehabilitation facilities, encouraging professional development through continuous education and on-the-job training, eliminating discriminations between hospital and rehabilitation staff and administration.
- Obtaining consensus for required reform of current legislation concerning rehabilitation facilities, services and benefits.
- Embracing the latest evidence supporting integrated care at all levels, providing a seamless continuum of care from the hospital to the rehabilitation center to the individual's home.
- Establishing a national accreditation body, responsible for issuing certification to rehabilitation facilities fulfilling QAS criteria.

various degrees of success. The absence of a QAS and subsequently, certification in rehabilitation and welfare services is evident throughout most of the public and private sector in Greece. Comprehensive and systematic national implementation of a QAS, such as EQUASS or CARF, as this review has indicated, adapted to the Greek culture and standards, has the potential to ameliorate an overall substandard situation.

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