

## PROBLEMS AND CHANCES AT THE INTERFACE BETWEEN HOSPITAL CARE AND GERIATRIC REHABILITATION

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*Available statistical data offer valuable information on recent demographic changes and developments within European healthcare and welfare systems. The demographic evolution is expected to have considerable impact upon various, major aspects of the economic and social life in all European countries. The healthcare system plays an important role especially in the context of ageing societies, such as Germany. This paper focuses on the evolution of the prevention or rehabilitation service sector during the last years in Germany, analyzes the specific characteristics of the elderly patients being cared for in these facilities and underlines important aspects at the interface between (acute) hospital and geriatric rehabilitative care. Networking, integrated care services and models will be of even greater importance in the future demographic setting generating (most probably) increasing numbers and percentages of elderly, multimorbid hospitalized patients. More than this, the cooperation at regional level between acute geriatric hospital departments and geriatric rehabilitation facilities has become a mandatory quality criterion in the Free State of Bavaria. This paper presents and analyzes issues referring to a precise cooperation model (between acute and rehabilitative care) recommended for implementation even by the Free State of Bavaria while emphasizing several examples of good practice that have guaranteed the success of this cooperation model. The analysis of the main causes leading to longer length of stay (and thus “delayed discharges”) for the elderly patients transferred to geriatric rehabilitation facilities within the reference model for acute-rehabilitative care provides important information and points at the existing potential for optimization in the acute hospital setting. Vicinity, tight communication and cooperation, early screening, implementation of standard procedures and case management are some of the activities that have contributed considerably to the improvement of the hospital length of stay and transfer management for elderly patients benefiting from (follow-up) inpatient geriatric rehabilitation services. The presented facts are important not only for the German health setting.*

*Keywords: acute-rehabilitative care interface, demographic impact, process optimization, care networking, geriatric patients.*

*JEL Classification Codes: I11, J11, M10.*

### **I. Introduction**

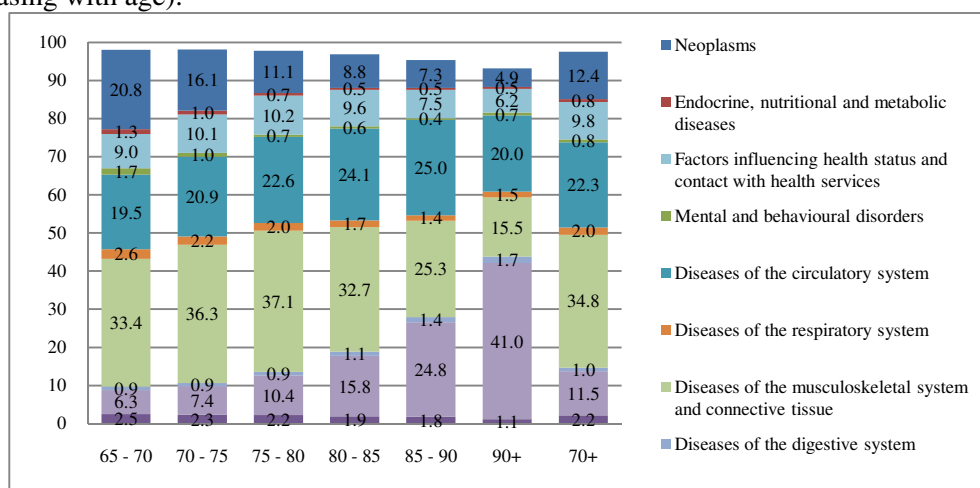
An increasing number of publications have picked out issues referring to demographic changes and their impact on healthcare and welfare systems as a central theme. The expected increasing number of elderly inpatients in German hospitals emphasizes the need for detailed analyses with regard to the specific needs of the elderly, (often) multimorbid hospitalized patients; one of these specific needs refer to the benefits provided by geriatric rehabilitation services. The fragmentation of the service provision in the German healthcare sector implies a separation of the acute hospital care from the geriatric rehabilitative care, and thus the existence of an interface between these different healthcare sectors. This paper focuses on the analysis of recent developments in the rehabilitative care sector in Germany and of possibilities for its integration with the acute hospital care illustrating opportunities and benefits resulting from strategic

partnerships and cooperation between hospitals and geriatric rehabilitation facilities by means of a best practice model (from the Free State of Bavaria).

## **II. Selected data on German hospitals and prevention or rehabilitation facilities**

Data analysis and calculations performed on statistical data (Statistisches Bundesamt 2006, 2007, 2008, 2009c, 2011c: Worksheet 2.1) have indicated following evolutions for the German inpatient prevention or rehabilitation service sector during the time period 2005–2009: the number of facilities, established beds and average inpatient length of stay decreased (by respectively 2.4%, 1.7% and 1.1%), whereas the bed utilization rate, number of inpatient care days and cases showed a positive trend (with percentage increase of respectively 11.2%, 9.3% and 10.6%); in addition, the direct inpatient admissions from hospitals increased by 15.9% (and to about 36.7% from the total number of the direct inpatient admissions to prevention or rehabilitation facilities in 2009), whereas the direct discharges (transfers) from these facilities into (to) hospitals increased by 4% (accounting for a relatively stable percentage of about 2.0 - 2.2% of the total number of discharges from prevention or rehabilitation facilities in the selected period of time). When focusing on the evolution of geriatric departments in prevention or rehabilitation facilities during the time period 2007-2009, the calculations performed on the available statistical data (Statistisches Bundesamt 2008, 2009c, 2011c: Worksheet 2.1) have indicated positive evolutions for the main analyzed indicators, such as: number of departments (+10.0%), establishes beds (+11.1%), inpatient care days (+13.7%), inpatient cases (+16.2%), accompanied by a decrease in the inpatient length of stay by 2.2%; at the same time, the number of direct inpatient admissions to geriatric departments increased by 16.9%, whereas the direct inpatient admissions to these departments from hospitals by (only) 11.2% (accounting in 2009 for 79% of all direct inpatient admissions to these departments, compared to 83% in 2007); in addition, the direct discharges (transfers) from these departments into (to) hospitals increased by about 11.2% (accounting for about 10.2–11.2% of the total number of direct discharges from these departments in the analyzed period of time). As a very high percentage of inpatient admissions to geriatric departments in prevention or rehabilitation facilities represent transfers from hospitals, we consider that it is important to point at the evolution of the inpatient hospital cases for specific age groups, as these evolutions are of high importance in the context of present and expected demographic changes. We analyze in this paper the interface between inpatient hospital care and inpatient geriatric prevention or rehabilitation services so that we will focus on the age group 70+ years according to the reference age in the definition of geriatric patients from the new program for acute geriatric medicine adopted in the Free State of Bavaria (Bayerisches Staatsministerium für Umwelt und Gesundheit 2009: 3). In 2009, the age group 70+ accounted for about 33.6%, respectively 35.0% of the inpatient hospital cases according to the hospital diagnosis statistics (Statistisches Bundesamt 2011a: Worksheet 2.1.1.1), respectively DRG-statistics (Statistisches Bundesamt 2010a: Worksheet 2.1.1.1) in Germany; comparing the statistical data available for 2007 and 2009 (Statistisches Bundesamt 2009a, 2009b, 2010a, 2011a: Worksheet 2.1.1.1), one can notice that the percentage increase in the number of inpatient hospital cases of the age group 70+ of almost 10% (according to both hospital diagnosis and DRG-statistics) accounted for about 80%, respectively 90% of the cumulated increase in the hospital inpatients (according to the hospital diagnosis statistics, respectively to the DRG-statistics). Considering some of the expected demographic effects (population decrease, considerable change of the population age structure), one could expect an increase in the hospital inpatients of the older age groups (and of the high-age related diseases) and thus an increase in the geriatric patients benefiting from geriatric rehabilitation after/during hospitalization. The statistical data available for 2009 referring to inpatients discharged from prevention or rehabilitation facilities having a bed capacity of more than 100 (Statistisches Bundesamt 2011b: Worksheet 2.1.1.1) show that the age group 70+ accounted for about 26% of the discharged

inpatients; the highest percentage of the primary diagnoses for this age group referred to diseases of the musculoskeletal system and connective tissue, followed by diseases of the circulatory system, neoplasms and injury, poisoning and certain consequences of external causes in prevention or rehabilitation facilities (see figure 1). The data in figure 1 point at differences in the importance of selected diagnosis groups between the older age groups discharged from prevention or rehabilitation facilities (expressed as percentage in the total number of inpatients in the respective age groups), such as for e.g. for the neoplasms (decreasing with age) or for the diagnosis group referring to injury, poisoning and certain other consequences of external causes (increasing with age).



**Figure 1: Percentage of the number of inpatient cases of a specific diagnosis and age group in the total number of inpatient cases of the selected age groups discharged in 2009 from prevention or rehabilitation facilities with more than 100 beds (%)**

Source: authors' own figure and calculations based on the statistical data from Statistisches Bundesamt (2011b): Worksheet 1.1.1.  
 Explanation: age group x – y implies at least x years and less than y years.  
 \* - only facilities with more than 100 beds.

The analysis of statistical data has so far indicated the importance of transfers from acute hospital care for the geriatric medicine departments in prevention or rehabilitation facilities; more than that, geriatric rehabilitation plays an important role as it can significantly contribute to avoiding hospital re-admissions and nursing home placement of the elderly persons (as long as possible). The mandatory quality criteria of the new program for acute geriatric medicine in the Free State of Bavaria point at the necessity for acute geriatric departments (in hospitals) to cooperate at least with one regional geriatric rehabilitation facility and underline the importance of establishing care networks for the elderly persons, the acute geriatric medicine being an important, integral part of these networks (Bayerisches Staatsministerium für Umwelt und Gesundheit 2009: 8).

### III. Identifying optimization potential and best practice for hospitals at the interface with inpatient geriatric rehabilitation facilities

How can a connection, (more precisely) an interconnected model of care between acute hospitals and geriatric rehabilitation facilities emerge in the present German healthcare setting? The German Subsidies (and Funding) Law is in this context problematic, as a general “merger (fusion)” of rehabilitation facilities with acute geriatric hospital departments (and even hospitals) and the follow-up out-patient care cannot take place in publicly-subsidized institutions (hospitals). In this situation, one alternative could consist in finding reliable partners that provide inpatient geriatric rehabilitation services (and that could also provide geriatric rehabilitative day care and out-patient care) and that are ready to engage themselves in establishing geriatric

rehabilitation facilities on the premises of hospitals. At this stage, it must be clarified whether the initial location of the geriatric rehabilitation facility (in Bavaria most of them being located in the Bavarian Alps in an idyllic position) can be changed when considering procedural and structural requisites and whether there will be a sufficient large incentive for the inpatient rehabilitation service providers to establish (move) their facilities in the vicinity of the acute care hospitals. The demographic changes facilitate such interconnected models of care (with one major advantage consisting in the provision of acute care and geriatric rehabilitation services within a campus structure, close to domicile) for the elderly persons in the context that an increasing number of this age group (with geriatric multimorbidity) is expected to be admitted to hospitals and benefit from acute geriatric medicine and geriatric rehabilitation services in a setting compatible with their social environment, domicile and actual home. One should also not underestimate the “marketing-effect” of such models of care that allow regular visits from family members during the hospital and geriatric rehabilitation facility stays (thus supporting the continuous contact of the elderly, often multimorbid patients with their social environment). The vicinity between the two institutions provide further benefits (for patient transfer, service provision etc.) when the building structures are connected. It is obvious that not only the patients and their families, but also both healthcare service providers (and partners) must and do benefit from such cooperation models. The acute care hospital may follow further objectives, such as: achievement of a better (hospital) inpatient length of stay management (process optimization, process duration reduction etc.), better treatment result for elderly patients, unique market positioning, ensuring care continuity, quality, uniformity and support within the network of care for the elderly population, the avoidance (decrease) of (in) hospital re-admissions, improve patient satisfaction and enhance patient loyalty, brand building and enhancement, establishment of an important, indispensable care structure within a network of care for elderly persons etc. At the same time the geriatric rehabilitation facility in the vicinity of the acute care hospital may aim at achieving following objectives: continuous, high bed occupancy and utilization rate, ensuring high (optimal) number of inpatient cases, improvement of the patient transition process between acute care and geriatric rehabilitation, high degree of reliability regarding the rehabilitation potential of admitted patients, that should and do benefit from the provided inpatient rehabilitation services. As shown in the specific case of the selected German acute care hospital having developed this kind of strategic partnership (the so-called “Ingolstadt-Neuburg acute-rehabilitative care cooperation model”) has continuously been expanded and intensified thus generating process optimization (also process duration reduction) in the acute care hospital, higher number of admissions in the geriatric rehabilitation facility and better transition from acute into rehabilitative care. The analyzed German acute care hospital has been characterized by large and increasing numbers of elderly hospitalized patients who often need follow-up inpatient (geriatric) rehabilitative services after the acute hospital stay. This specific acute care hospital (like many others) anticipates a significant increase in the number of inpatients that will follow this treatment (and care) process. The length of stay analysis conducted on all transfers from the selected German acute care hospital to geriatric rehabilitation service providers during one year (before process optimization) revealed a very high percentage of cases (more than 65%) with hospital length of stay over the average inpatient length of stay as published in the annual DRG-catalogue for Germany (and thus generating too high costs). The major causes for the high degree of “delayed discharges / transfers” to geriatric rehabilitation facilities that were identified within the conducted analysis revealed not only suboptimal internal structures and processes, but also potential for optimization in the cooperation with the geriatric rehabilitation facilities and in the communication with the agents and companies responsible for processing the approval forms for inpatient geriatric rehabilitation services. In this context, based on the conducted internal analysis, following aspects need to be mentioned:

- *when referring to the causes related to human resources know-how, internal structures and process organization in the acute care hospital:* duration of the application process (for inpatient rehabilitative care) too long, inappropriate timing of filling in the application forms (often after having exceeded the average inpatient, catalogue-length of stay), insufficient know-how for justifying the need for inpatient rehabilitative care, incomplete (and late) identification of patients that could benefit from inpatient geriatric rehabilitation services etc.;
- *when referring to causes related to capacity and admission times limitations of the geriatric rehabilitation service providers:* high bed capacity fluctuations in geriatric rehabilitation facilities (leading to transfer problems and delays for the hospitalized elderly patients), limited admission hours/days in these facilities etc.;
- *when referring to the communication with the companies/agents responsible for processing the approval forms:* degree of further enquiries, declined applications and successful objections, (sometimes) human resource shortage (leading to long processing times) etc.

Since this analysis many activities have been performed in order to minimize waste and improve the situation. A recent analysis in the selected German acute care hospital showed that many of the implemented measures (early screening, standard procedure for filling in the approval forms, specific employee training, targeted case management etc.) led to better results. The very early, coordinated participation of the rehabilitation facility (by embedding the rehabilitation partner in the acute clinical process) and the tight communication between the two partners guarantee uninterrupted, high-quality care. The extension of the admission hours/days of the geriatric rehabilitation facility emphasized the willingness to cooperate and adapt on both sides. The basis for these activities is established via a cooperation treaty that provides the appropriate legal basis. One should not be surprised that this established (specific) networking model at the interface between acute care and geriatric rehabilitation (the so-called “Ingolstadt-Neuburg acute-rehabilitative care cooperation model”) is being recommended for implementation by the Bavarian State. This kind of strategic cooperation (for establishing care structures within networks of care for the elderly population) will become integral part of hospitals and rehabilitation facilities and thus indispensable when considering the expected demographic changes and the major factors that determine and control considerably the profitability and sustainability of hospitals and geriatric rehabilitation facilities – processes, structure, attractiveness of the medical care and treatment, “safety-thinking” and social environment of the patients. Both the increasing specialization of medical disciplines, complexity of technical requirements and the increasing financing difficulties emphasize the fact that this kind of cooperation is not only of great importance, but even inevitable - the specialization degree has become too high and the labour market too tight, so that single inpatient healthcare service providers are not able to provide and ensure comprehensive medical care without cooperating. In order for this cooperation model to be successful, the process structure of (between) the partners must be synchronized; the collaboration between the partners plays also a considerable role. Different healthcare service suppliers are also active with different priorities and needs in this context. A question that should be taken into consideration when referring to such cooperation model is whether this kind of strategic partnership could be even further expanded (intensified) in terms of establishing and developing a medical holding company (under a common corporate link). Such structural developments could determine the establishment of more efficient cost structures in areas that are not assigned exclusively to medicine. In addition, the existing interface between acute hospital care and geriatric rehabilitation would become smoother and one could further consider integrating the so-called “low-care-department (area)” between the acute clinical and rehabilitative care. Such a construct could serve patients waiting for the approval to be transferred from the acute care hospital into the geriatric rehabilitation facility: these patients could get accommodation in this department (area) and thus already benefit from the services, competence and expertise of the geriatric rehabilitation service partner (provided in advance).

This care construct would create the interface between a “low-med-” and “high-care-” department (area), which would ensure that patients could be treated in the transitional phase (between acute hospital care and geriatric rehabilitation) according to advanced concepts of care. When establishing such a care setting, it would be of great importance for the acute care hospitals and geriatric rehabilitation providers to persuade the health insurance companies to remunerate both (hospital and geriatric rehabilitation) services together by means of a complex flat rate. It seems that health insurance companies have already started (in 2011) to search for partners who are able to provide such concepts.

#### **IV. Concluding remarks**

Both the demographic changes and the increasing financing difficulties emphasize the need for analyzing, optimizing and monitoring internal processes and structures related to the transition of elderly patients between the acute hospital and geriatric rehabilitative care. The presented facts and figures from the German acute care hospital reveal clear potential for internal optimization and for optimization at the interface between hospitals and geriatric rehabilitation facilities. The presented model of acute-rehabilitative care emphasizes opportunities and benefits resulting from the vicinity and the tight cooperation between acute care hospitals and geriatric rehabilitation facilities. This model does not only guarantee high-quality care for elderly patients, but also generates economic advantages for both partners.

#### **Bibliography:**

##### ***Statistical data and official reports***

1. Bayerisches Staatsministerium für Umwelt und Gesundheit. *Fachprogramm Akutgeriatrie*. 2009. Accessed April 29, 2011. [http://www.stmug.bayern.de/gesundheit/krankenhaus/behandlungszentren/geriatrie/doc/fachprog\\_akutgeriatrie\\_ba.pdf](http://www.stmug.bayern.de/gesundheit/krankenhaus/behandlungszentren/geriatrie/doc/fachprog_akutgeriatrie_ba.pdf).
2. Statistisches Bundesamt. *Grunddaten der Vorsorge- oder Rehabilitationseinrichtungen – Fachserie 12 Reihe 6.1.2 – 2005 (Excel): Worksheet 2.1*. Wiesbaden, 2006. Accessed 29 April 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/AlteAusgaben/GrunddatenVorsorgeRehaAlt,templateId=renderPrint.psml>.
3. Statistisches Bundesamt. *Grunddaten der Vorsorge- oder Rehabilitationseinrichtungen – Fachserie 12 Reihe 6.1.2 – 2006 (Excel): Worksheet 2.1*. Wiesbaden, 2007. Accessed 29 April 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/AlteAusgaben/GrunddatenVorsorgeRehaAlt,templateId=renderPrint.psml>.
4. Statistisches Bundesamt. *Grunddaten der Vorsorge- oder Rehabilitationseinrichtungen – Fachserie 12 Reihe 6.1.2 – 2007 (Excel): Worksheet 2.1*. Wiesbaden, 2008. Accessed 29 April 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/AlteAusgaben/GrunddatenVorsorgeRehaAlt,templateId=renderPrint.psml>.
5. Statistisches Bundesamt. *Diagnosedaten der Patienten und Patientinnen in Krankenhäusern (einschl. Sterbe- und Stundenfälle) - Fachserie 12 Reihe 6.2.1 – 2007 (Excel): Worksheet 2.1.1.1*. Wiesbaden, 2009a. Accessed 29 April, 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/AlteAusgaben/DiagnosedatenKrankenhausaAlt,templateId=renderPrint.psml>.

- 6.** Statistisches Bundesamt. *Fallpauschalenbezogene Krankenhausstatistik (DRG-Statistik). Diagnosen, Prozeduren und Fallpauschalen der vollstationären Patientinnen und Patienten in Krankenhäusern – Fachserie 12 Reihe 6.4 – 2007: Worksheet 2.1.1.1.* Wiesbaden, 2009b. Accessed 29 April 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/AlteAusgaben/FallpauschalenKrankenhausAlt,templateId=renderPrint.psml>.
- 7.** Statistisches Bundesamt. *Grunddaten der Vorsorge- oder Rehabilitationseinrichtungen – Fachserie 12 Reihe 6.1.2 – 2008 (Excel): Worksheet 2.1.* Wiesbaden, 2009c. Accessed 29 April 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/AlteAusgaben/GrunddatenVorsorgeRehaAlt,templateId=renderPrint.psml>.
- 8.** Statistisches Bundesamt. *Fallpauschalenbezogene Krankenhausstatistik (DRG-Statistik). Diagnosen, Prozeduren und Fallpauschalen der vollstationären Patientinnen und Patienten in Krankenhäusern – Fachserie 12 Reihe 6.4 – 2009: Worksheet 2.1.1.1.* Wiesbaden, 2010a. Accessed 29 April 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/Krankenhaeuser/FallpauschalenKrankenhaus,templateId=renderPrint.psml>.
- 9.** Statistisches Bundesamt. *Diagnosedaten der Patienten und Patientinnen in Krankenhäusern (einschl. Sterbe- und Stundenfälle) - Fachserie 12 Reihe 6.2.1 – 2009 (Excel): Worksheet 2.1.1.1.* Wiesbaden, 2011a. Accessed 29 April, 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/Krankenhaeuser/DiagnosedatenKrankenhaus,templateId=renderPrint.psml>.
- 10.** Statistisches Bundesamt. *Diagnosedaten der Patienten und Patientinnen in Vorsorge- oder Rehabilitationseinrichtungen - Fachserie 12 Reihe 6.2.2 – 2009 (Excel): Worksheet 1.1.1.* Wiesbaden, 2011b. Accessed 29 April, 2011. <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/VorsorgeRehabilitation/DiagnosedatenVorsorgeReha,templateId=renderPrint.psml>.
- 11.** Statistisches Bundesamt. *Grunddaten der Vorsorge- oder Rehabilitationseinrichtungen – Fachserie 12 Reihe 6.1.2 – 2009 (Excel): Worksheets 1.4, 2.1.* Wiesbaden, 2011c. Accessed 29 April 2011. [tp://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/VorsorgeRehabilitation/GrunddatenVorsorgeReha,templateId=renderPrint.psml](http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Publikationen/Fachveroeffentlichungen/Gesundheit/VorsorgeRehabilitation/GrunddatenVorsorgeReha,templateId=renderPrint.psml).