

# INTEGRATING GERIATRICS INTO THE ACUTE HOSPITAL SETTING: NOW OR IN THE FUTURE?

## **Leuca Mirela**

*University of Oradea Traian Goga Str. Nr. 3, 410601 Oradea, Romania E-mail: m.leuca@web.de Tel.: +40259423143*

## **Fastenmeier Heribert**

*Klinikum Ingolstadt GmbH Krumenauerstr. 25, 85049 Ingolstadt, Germany E-mail: Heribert.Fastenmeier@klinikum-ingolstadt.de Tel.: +498418801000*

*The demographic ageing of the population and its impact on social systems, economies or labor markets have often been analyzed and discussed in Germany. The German health care system is expected to face great challenges due to the “double-ageing” of the population. German hospitals have already started searching for solutions in order to eliminate the existing deficits of the (acute) hospital care for the elderly patients. This paper analyzes and reveals data provided by a German acute hospital with regard to the hospitalized elderly patients in order to underline their complex needs and the problems faced by the hospital. The paper ends with suggestions for integrating successfully geriatrics into the acute hospital settings.*

*Keywords: multimorbid elderly patients, department of acute geriatrics, acute hospital care.*

*JEL Classification Code: I10 M10 J01*

## **1. Introduction**

The demographic evolution has (already) increased the number and percentage of the elderly population in Germany; in the future, almost all (highly-developed industrial) European countries will be facing the demographic challenge of an ageing society. Hospitals and other health care providers will be confronted with the special and often complex needs of the elderly patients. The wish and effort for achieving the objective of preserving health, autonomy and self-determination till high ages will have a strong impact on social and health care structures. In this context, the geriatric medicine plays a very important role. In Germany, the geriatric care takes place at national level almost exclusively in the rehabilitation and hospital sector, but with some (major) differences between the different German States. Referring to the geriatric care structures in Germany, three scenarios can be found in practice: geriatric care takes place only in the hospital sector (in hospitals and day hospitals), or only in rehabilitation centers (inpatient and outpatient care), or in both hospitals and rehabilitation centers. In 2007, the number of clinical-geriatric care capacities (calculated per 10 000 residents older than 65 years) averaged 11.7 hospital beds, day hospital places, rehabilitation beds and outpatient rehabilitation places; with regard to the average clinical-geriatric care capacities, the differences are very high between the German States (the highest value of 26.9 in Hamburg, the lowest value 4.5 in Saxony). In Bavaria, the clinical-geriatric care capacities averaged 13.8 in 2007.<sup>61</sup>

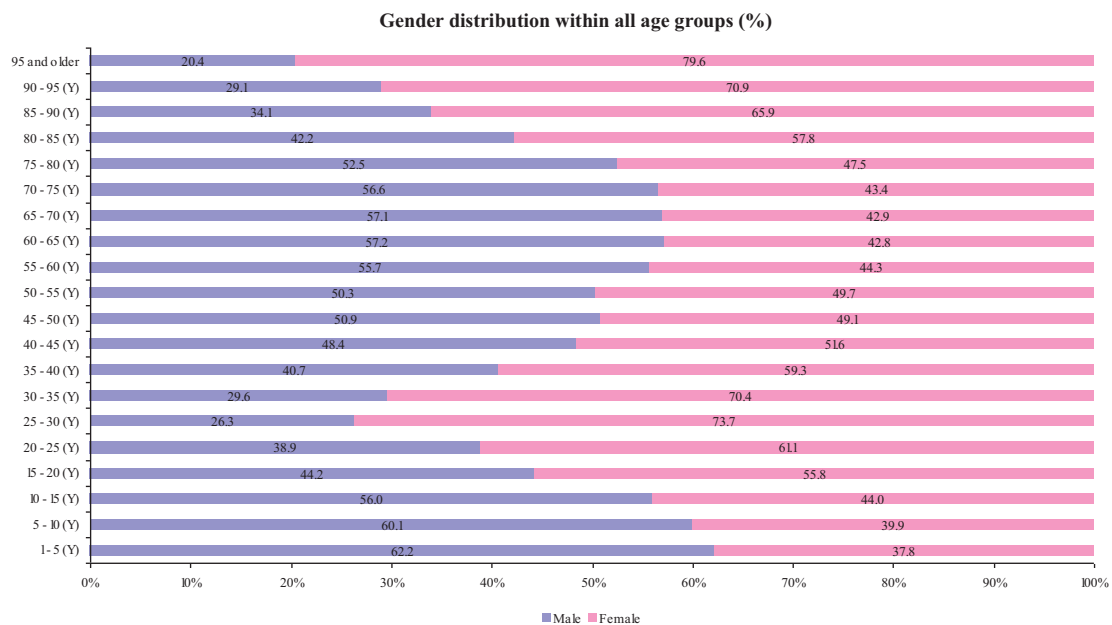
The Bavarian Geriatrics Concept has set the focus of geriatric care in rehabilitation centers and has (almost never) allowed so far for the planning of acute geriatric departments. At present, the authorization of such acute geriatric departments in Bavaria is in discussion. This paper will underline the importance and necessity of establishing acute geriatric departments using the example of Klinikum Ingolstadt, an acute German hospital situated in Bavaria.

## **2. Hospitalized elderly patients: case study in a German acute hospital**

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61 Kompetenz - Centrum Geriatrie, Info-Service des KCG – geriatrische Versorgungsstrukturen in Deutschland, 2009.

Klinikum Ingolstadt is the health care centre of Ingolstadt and of the region with 1.132 beds distributed to 20 clinics and institutes. The average length of stay of the full-inpatient DRG-cases was 9 days at a bed utilization rate of 84.3% in 2008. Klinikum Ingolstadt has grown in the respective medical specializations in absolute compliance with the market evolution. The population growths in the region and in Ingolstadt are reflected in the bed occupancy, capacity utilization and case configuration of Klinikum Ingolstadt. The bed occupancy and utilization have grown further from 2006 to 2008 and also in the first quarter of the year 2009 in spite of increased number of beds. Klinikum Ingolstadt has adapted itself at an early stage to the changing market conditions and the state-regulated measures with regard to the catalogue of ambulatory surgeries and applied them adequately. Modern, actual and high-quality process structures that have been developed so far should now be expanded with the element of the geriatric medicine. The number of the hospital cases of the younger and slightly ill patients has decreased considerably in spite of the increase in the total number of hospital cases connected with a higher degree of severity and age of the hospital patients. The analysis of the age structure evolution from 1992 to 2008 of the hospitalized DRG-patients of Klinikum Ingolstadt revealed that the percentage of the patients aged 65 years and over has almost doubled, whereas the percentage of the patients aged 75 and over has more than doubled. The yearly hospitalization frequency of elderly, more often multimorbid patients has increased substantially. In 2008, the patients hospitalized (full-inpatient discharged DRG-cases, without patients aged less than 1 year) in Klinikum Ingolstadt had an average age of 57.4 years (and median age of 62 years); more than 45% of them were aged 65 and over, whereas the patients aged 70 to 80 accounted for more than 20% and those aged 80 and over for almost 14% of the total number of full-inpatient discharged DRG-cases.

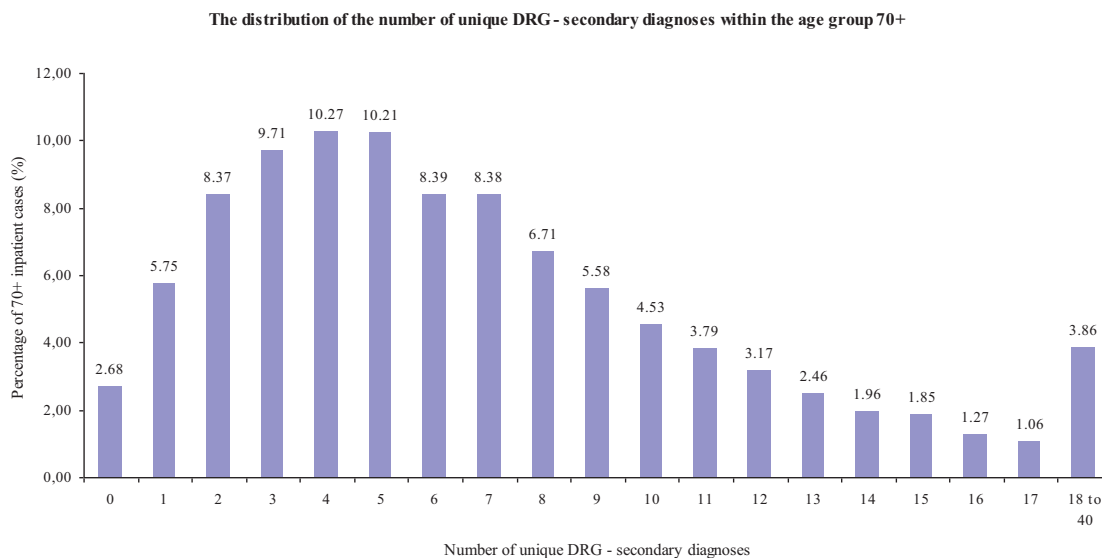


**Figure 1: Gender distribution within all age groups (%).**  
**Source:** authors' own calculations based on the data provided by Klinikum Ingolstadt GmbH, Germany.

Analyzing the gender distribution in 2008 within all age groups (figure 1), one can notice that the percentage of the female patients is very substantial in the high age groups. Starting with the age group 65-70 (including patients aged 65 and less than 70) years, the percentage of the female patients starts to increase from 42.9% to 79.6% in the highest age group (95 years and older), whereas the percentage of the male patients decreases from 57.1% (65-70 years) to 20.4% (95 years and older). The presence of the female patients in high age groups is amplified by the

difference between the life expectancy of women and men and thus their social environment (including living arrangements). In 2007, the life expectancy of the 60-years old women was 24.5 years, whereas the life expectancy of the 60-years old men accounted for 20.6 years (3.9 years less than women). With regard to the life expectancy at birth, this was 82.1 years for women and 76.6 years for men (5.5 years less than women).<sup>62</sup> Over the last years, both the life expectancy at birth and at 60 years have increased; this trend is expected to continue in the next years, thereby exacerbating the demographic ageing of the population and of the hospitalized patients.

At the same time, the multimorbid elderly patients need extensive medical and nursing care. The number of the unique DRG – secondary diagnosis can be used as indicator for case complexity or co-morbidity degree. The latest definition of the geriatric patient underlines the importance of the geriatric multimorbidity (and of a high age of 70 years and over predominantly), whereas generally, every patient aged 80 years and over is considered to be a geriatric patient due to the age-specific increased vulnerability (frailty).<sup>63</sup> Figure 2 shows the distribution of the number of the unique DRG – secondary diagnosis of the patients aged 70 years and over. Only 16.8% of the patients aged 70 and over have less than 3 secondary diagnoses; 63.8% of them have 3 to 10 secondary diagnosis and 19.4% have more than 10 secondary diagnoses. This data underlines the extensive medical and nursing needs of a large number of these patients and helps at estimating the geriatric patient potential in Klinikum Ingolstadt. Another noticeable trend refers to the increase in the number of hospital patients coming from elderly and nursing homes in the region. An additional aggravating factor has been the rise in the number of the methicillin-resistant *Staphylococcus aureus* (MRSA) carriers. A MRSA - network pilot project is being currently established in Ingolstadt in cooperation with the Bavarian State Office for Health and Food Safety and the local health authority.



**Figure 2: The distribution of the number of unique DRG-secondary diagnoses within the age group 70+**  
**Source:** authors' own calculations based on the data provided by Klinikum Ingolstadt GmbH, Germany.

The increase in the number of the multimorbid elderly patients causes problems for the classic (“organ”) clinics that are not prepared with the adequate personnel and premises for the more extensive medical and nursing efforts required by these patients. A lot of benchmark data have

62 Statistisches Bundesamt Deutschland, Pressemitteilung Nr. 336 vom 27.08.2007, Wiesbaden, 2007.

63 Definiton of the Deutschen Gesellschaft für Geriatrie (DGG), Deutschen Gesellschaft für Gerontologie und Geriatrie (DGGG) and Bundesarbeitsgemeinschaft klinisch-geriatrischer Einrichtungen (BAG).

also confirmed these observations. Due to these changes in the patient population, Klinikum Ingolstadt faces increasingly capacity and revenue problems, as the elderly patients have for e.g. in the Departments of Urology, Gynecology, Cardiology, Gastroenterology, Orthopedics, General and Trauma Surgery higher average lengths of stay as provided for in the DRG-system. These so-called “costliers” (with length of stay over the average DRG-catalogue length of stay – which is considered to be the break-even point – and till the upper DRG-catalogue limit of the length of stay) and “longliers” (patients that are hospitalized longer than the upper DRG-catalogue limit of the length of stay) generate high bed capacity utilization due to their long lengths of stay, which has meanwhile caused bed occupancy shortages in the entire Bavaria, so that patients must switch more frequently to clinics with other medical specialization than their diseases. This switch is time-consuming, cost intensive and requires increased logistical efforts for the internal case transfers and monitoring. At the same time, the DRG-case revenue does not cover the hospitalization period over the average DRG-catalogue length of stay, so that the case revenues are less than the induced costs. The analysis of the distribution of the hospitalization days over the average DRG-catalogue length of stay in 2007 in Klinikum Ingolstadt reveals that the highest percentages of such days are generated in the high age groups 65 to 87 years, but they decrease considerably after the age of 87 (partially due to the high number of short-stay hospitalizations of these elderly patients). At the same time, the disease spectrum of the elderly patients is very large. Generally, the multimorbid elderly patients need multi-, interdisciplinary care teams and often more specialists from different medical departments. Table 1 indicates the percentage distribution of the primary diagnoses of the patients aged 65 years and over (by 10-year age groups) hospitalized in Klinikum Ingolstadt in 2008 (full-inpatient discharged DRG-cases). The percentage of neoplasms is very high in the age groups 65-70 (29%) and 70-75 years (24.4%) and decreases in the highest age groups (lowest value in the age group 90-95 years). The frequency of the diseases of the circulatory system is also (very) high in each observed age group (20.3% in the age group 65-70 years and 28.8% in the age group 90-95 years). Other major disease categories with high frequency in many or all age groups are the diseases of the digestive system, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system and the category of injury, poisoning and certain other consequences of external causes.

The distribution of the primary diagnoses within the age groups 65+ (%)

International Statistical Classification of Diseases and Related Health Problems (10th Version): primary diagnoses	65 - 70	70 - 75	75 - 80	80 - 85	85 - 90	90 - 95	95 and older
Certain infectious and parasitic diseases	2.5	2.1	2.9	3	3.4	2.8	2.2
Neoplasms	29	24.4	17	12.4	11.5	6.4	9.7
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	0.4	0.5	0.8	0.7	0.7	1.7	1.1
Endocrine, nutritional and metabolic diseases	2.3	2.3	3.8	4.3	5.1	7.5	10.8
Mental and behavioural disorders	0.4	0.3	0.3	0.3	0.7	0	0
Diseases of the nervous system	3.5	3.6	3.6	3.2	3.2	2.2	3.2
Diseases of the eye and adnexa	0.8	0.7	0.6	0.6	0.3	0	0
Diseases of the ear and mastoid process	0.8	0.7	0.6	0.6	0.3	0	0
Diseases of the circulatory system	20.3	20.9	26.6	27.4	26.9	28.8	20.4
Diseases of the respiratory system	3.8	3.8	4.6	6.4	6.7	6.9	15.1
Diseases of the digestive system	8.4	8.6	8.7	10	10.8	12.5	11.8
Diseases of the skin and subcutaneous system	0.4	0.5	0.4	0.4	0.7	0.6	1.1
Diseases of the musculoskeletal system and connective tissue	8.1	9.0	9.1	7.2	4.4	4.2	3.2
Diseases of the genitourinary system	7.9	8.9	8.2	7.0	6.9	4.2	8.6
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	3.8	4.5	4.5	5.0	4.3	6.6	1.1
Injury, poisoning and certain other consequences of external causes	6.6	7.8	7.6	10.2	13.4	15.2	11.8
Factors influencing health status and contact with health services	0.7	0.9	0.5	0.8	0.6	0.3	0

Table 1: The distribution of the primary diagnoses within the age groups 65+ (%)

Source: authors' own calculations based on the data provided by Klinikum Ingolstadt GmbH, Germany.

Besides the similarities of the different high age groups, one can also notice analyzing the data from table 1 the shift in the disease spectrum by age: the percentages of the endocrine, nutritional and metabolic diseases (2.3% in the age group 65-70 years and 10.8% in the age group 95 years and older), of the diseases of the respiratory system (3.8% in the age group 65-70 years and 15.1% in the highest age group) and of the category of the injury, poisoning and certain other consequences of external causes (6.6% in the age group 65-70 years and 15.2% in the age group 90-95 years) increase almost linearly with the age. The data provided by Klinikum Ingolstadt reveals some of the challenges the (acute) hospitals will face due to the phenomenon of the “double-ageing“ of the population: hospitals will be confronted with larger numbers of multimorbid elderly patients – geriatric patients that will require more extensive medical, nursing and therapeutic efforts and new acute care concepts due to their individual, often complex needs.

### 3. Conceptual suggestions for establishing acute geriatric departments

Many acute hospitals have anticipated the demographic impact and have consequently adopted appropriate measures for ensuring optimal acute care for the elderly multimorbid patients. One of these examples is Klinikum Ingolstadt; in this context, the most recent project has been the development of a concept for integrating the geriatric medicine in the acute hospital setting. Over the last years many other activities have been performed in order for the hospital to be able to prepare the acute geriatric medicine project. One important step has been the establishment of two rehabilitation centers, one for geriatric rehabilitation, the other one for orthopedic and neurological rehabilitation on the premises of the hospital (in form of a modified private-public partnership – rehabilitation services provided by an external partner in the premises built by the hospital). The discharge of the hospitalized patients to these rehabilitation centers takes place “just-in-time”, this principle being very appreciated by the elderly patients. The project started with the geriatric centre in 2007 has shown very good results: the number of the yearly transferred cases increased from 400 in 2007 to more than 1000 cases these days. The opening of

the new medical specialist center with 27 medical practices represents another step in enlarging (completing) and improving the offer of health care services on the hospital premises (from the pre-hospital/outpatient up to the post-hospital/rehabilitation phase); the vicinity of these institutions provides high benefits especially for the elderly patients. Altogether, the demographic evolution has had an impact on the age structure of the population in our region, so that the percentages of the population and of the hospital patients aged 65 years and older have accounted for disproportionately high increases. In the present context, acute hospitals (with clinics organized in a divisional structure and having no department of geriatric medicine or elderly wards) can only hardly (and with limitations) provide the patients of the higher age groups with appropriate professional health care services. The development and implementation of new concepts (referring to personnel, premises and hospital (medical) processes) have become imperative. In this context, it is essential for each acute hospital to integrate the geriatrics into the acute hospital setting and allow it to accompany and undertake for certain time intervals the medical process of the specialized clinics. The data analyzed above has presented important evidence in favor of the establishment of a main department of acute geriatrics (with elderly wards) in Klinikum Ingolstadt. The concept developed by Klinikum Ingolstadt in order to obtain the authorization for such a department can be summarized as follows:

- the establishment of this new department (with 42 acute beds) aims at professionalizing the medical care, admission, treatment and aftercare of the elderly patients allowing for the nursing and therapeutic activities necessary for this age group; Klinikum Ingolstadt aims also at establishing a geriatric day hospital with 10 places, so that the patients cared for in the department of acute geriatrics and in the geriatrics day hospital can be discharged as soon as possible in their familiar home environment;
- acute hospital beds are to be transferred from the hospital clinics - in accordance with the number of the treated (potential) geriatric patients - into the department of acute geriatrics and thus the establishment of the new department would not cause any increase in the number of the hospital beds;
- the hospital admission procedure has to take into consideration the facts that the elderly patients are often referred to the hospital emergency departments and that they have special needs; in Klinikum Ingolstadt the emergency admission rate of the patients aged 65 years and over is about 46%, so that the geriatric screening must be also ensured and performed in the case of emergency admissions; more than this, the acute geriatric care must be induced as soon as possible, parallel to the organ therapy, in case of a positive screening result and appropriate medical indication;
- after the completion of the significant parts of the organ therapy, the geriatric patient should be transferred from the normal clinic ward to the acute geriatric department (elderly wards) as soon as possible in order for the patient to be able to continue intensively with the geriatric care measures;
- the multidisciplinary team working in the department of acute geriatrics must consist of a geriatrician, nursing personnel, different therapeutic professions and social workers; at the same time, many other experts are to be involved in this team if necessary; due to the (future) increase in the number of patients suffering from dementia, it seems necessary for the department of acute geriatrics to collaborate well and closely with the psychiatric clinic;
- at an early stage must be clarified whether geriatric rehabilitation is needed; in case of a positive answer, these measures are to be initiated in adequate time; this procedure is already now in practice and the experience shows that this process can be streamlined and harmonized if rehabilitation institutes and acute hospitals work closely together.

For the department of acute geriatrics to be successful it is imperative that the collaboration with all the clinics of the acute hospital and rehabilitation providers is optimal. By establishing this main department of acute geriatrics and integrating it adequately (and efficiently) into the acute

hospital setting and medical processes, the hospital might also reduce the actual deficits of the medical care of the elderly patients, such as long lengths of stay, delayed discharges, unnecessary pre-hospital examinations and missing housing arrangements; in this context, an optimized health care can contribute to the increase in the economic efficiency of the health care system.<sup>64</sup>

#### **4. Conclusions**

The data provided by the German acute hospital Klinikum Ingolstadt with regard to the evolution of the age structure of the hospitalized patients, to the complexity degree, length of stay and disease spectrum of the elderly patients reveal the importance and the necessity of establishing hospital departments of geriatrics. The existing care deficits will be exacerbated by the demographic ageing of the population unless new concepts and health care structures will be developed and implemented. In order to be able to manage the demographic challenge, hospitals will have to orientate themselves to the complex needs of the multimorbid elderly patients. The practice has shown that the integration of acute geriatrics into hospital settings has benefits for both patients and hospitals.

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<sup>64</sup> Steinhagen-Thiessen et al., Geriatrie – quo Vadis? – Zur Struktur geriatrischer Versorgung, in: *Z Gerontol Geriat*, 36, 2003, p. 367.