

# DRG-type hospital payment in Germany: The G-DRG system

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Since the first use of diagnosis related groups (DRGs) for hospital payment in the United States in the early 1980s,<sup>1</sup> DRG-type hospital payment systems have become the main method of hospital payment in the majority of OECD countries. <sup>2</sup> In Germany, a national German- DRG (G-DGR) system was gradually introduced over a ten year period following a legislative decision in 2000.

## The G-DRG system

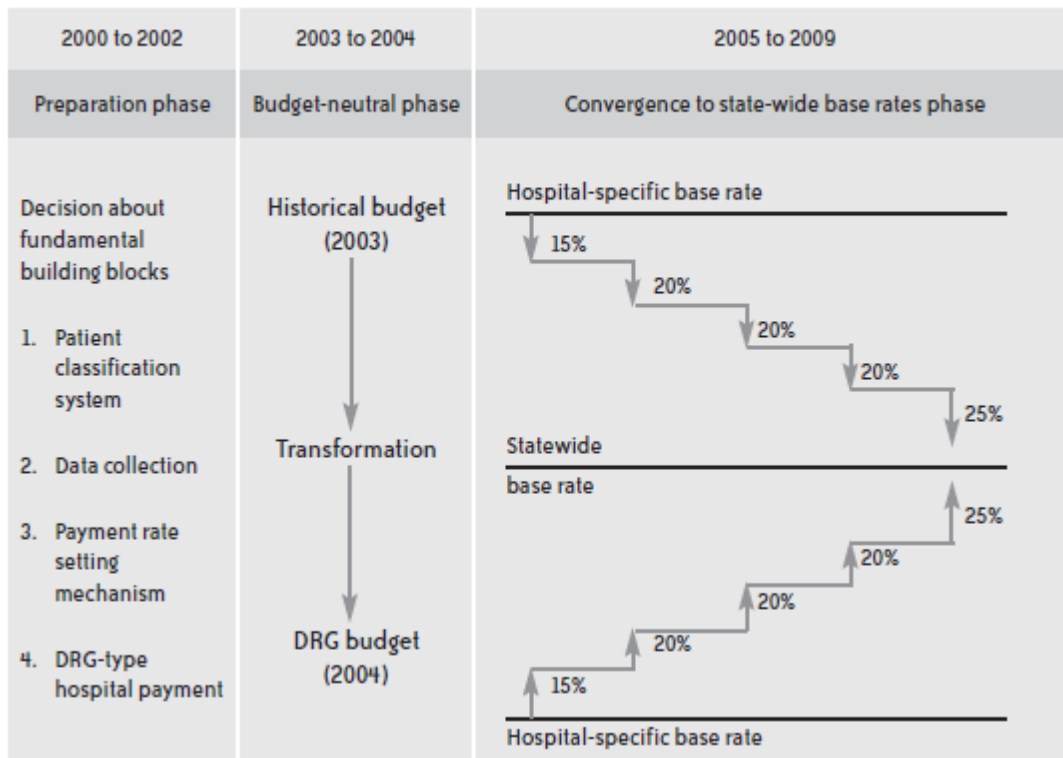
In Germany, there are about 2100 hospitals providing care for about 17 million inpatient cases per year.<sup>3</sup> Hospitals are financed through a system of 'dual financing', which means that they receive funds from two different sources: infrastructure investments are covered directly by tax-funded state budgets, whereas operating costs are paid mostly by sickness funds and private health insurers.<sup>4</sup> The introduction of DRG-type hospital payment goes back to the Statutory Health Insurance Reform Act of 2000, which reformed hospital financing for operating costs. The main objective of the reform was to replace previously existing historically-based hospital budgets (using per diem charges as the unit for reimbursement) with a more activity-oriented payment system assuming that it would promote efficiency, quality and transparency in the hospital sector.<sup>5</sup> The reform legislation outlined the fundamental characteristics of the new payment system but delegated the responsibility for developing and managing the future G-DRG system to the self-governing corporatist bodies (the then federal associations of sickness funds, the Association of Private Health Insurance, and the German Hospital Federation). The legislation further specified that the system should apply to all hospitals irrespective of ownership status. Psychiatric services were excluded since DRG-type payment was perceived to be inadequate at that time. For the technical management of the system, the self-governing bodies founded the Institute for the Payment system in Hospitals (InEK). Currently, about 1700 hospitals (80% of all hospitals but accounting for 97% of all discharges) receive reimbursements through DRG-type hospital payment.<sup>3</sup> Figure 1 illustrates three phases in the introduction process of DRG-type hospital payment in Germany. During the preparatory phase, the fundamental characteristics of the system were defined. This was followed by a budget-neutral phase, during which the payment units within the budgets were changed from per-diems into DRGs. In the 'convergence phase' the relevance of the budgets was reduced step by step in favour of a uniform statewide price system for DRGs.

## Preparation phase

### *Patient classification system*

In June 2000, the self-governing bodies decided to use the Australian Refined DRGs (AR-DRGs) as the starting point for developing the G-DRG system. In order to adapt AR-DRGs to the German context, Australian codes for procedures and diagnoses were transformed to German procedure classification codes (OPS) and ICD-10-GM (German Modification) codes for diagnoses. After pilot testing the system in hospitals in 2001, a first version with 664 DRGs was prepared by the end of the year 2002. According to G-DRG coding rules, all discharged hospital patients are assigned to a specific DRG based on a grouping algorithm using the inpatient hospital discharge dataset. In very high cost cases like transplantations or extended intensive care

**Figure 1: Three phases of introducing DRG-type hospital payment in Germany**



unit

treatment, the DRG is determined directly by the procedure. In most other cases, the algorithm considers major diagnosis, procedures, secondary diagnoses, and patient characteristics (age, sex and weight of newborns) in order to determine the DRG. Since the first version for 2003, the G-DRG catalogue has been updated annually based on data analyses (of clinical and cost data) and considering suggestions from hospitals and professional medical associations. The number of DRGs has increased continuously to 1200 in 2010. Hospital outpatient services are not included in the system. *Data collection* Clinical patient data of the hospital discharge dataset grouped into DRGs are collected from all German hospitals and transmitted to sickness funds and private health insurers for payment of hospitals. Before payments are made by sickness funds, their medical review boards check the received data in order to detect any fraudulent actions by hospitals, such as inappropriate discharges of patients or classification of patients into higher paying DRGs. In addition, clinical data from all hospitals, supplemented with hospital-related structural data (for example, number of beds, number of personnel and total costs), are sent to a Data Centre (operated by 3M Medica), which performs data checks before forwarding data on to InEK for the development of the new G-DRG catalogue. Cost data are collected from a sample of about 250 hospitals conforming to a standardized cost accounting system developed by InEK.<sup>6</sup> Participating hospitals must be able to calculate costs at the patient level by collecting information about individual services delivered to each patient. Similar to clinical and structural data from hospitals, cost data are first sent to the Data Center before being forwarded to InEK for calculation of cost weights and for developing the new G-DRG catalogue. Last but not least, information about technological innovations is needed in order to update the diagnosis and procedure classification systems (done by the German Institute for Medical Documentation and Information, DIMDI) and to support the introduction of new technologies into hospitals through additional payments. *Payment rate setting mechanism* German DRG-type hospital payment relies on a cost weight approach, meaning that hospital payment for a treated patient is calculated by multiplying the cost weight of the patient's DRG with a base rate. Cost weights for each DRG are updated annually by InEK using patientlevel cost data from the above mentioned sample of hospitals.<sup>7</sup> In order to calculate cost weights for each DRG, 'in-lier cases' are defined by excluding cases with extremely long (more than two standard deviations from the mean length of stay) or short (less than one-third of the mean) hospital stays. Average costs of the remaining in-lier cases are then divided by a reference value that is conceptually related to the average costs of treating all cases in German hospitals. The resulting cost weight of any DRG is equal to one if its costs are equal to average costs of all cases in German hospitals. They will be much higher (for example, maximum cost weight in 2010: 74 – for transplantation of liver and >999 hours of intensive care treatment) or lower (minimum: 0.13 –

for uterine contractions without delivery) if cases are much more or much less resource-consuming than the average. There is always a time lag of two years between the year of the data used to calculate cost weights and the year for which the G-DRG case fee catalogue was developed. For example, the 2010 version of G-DRGs is based on data from the year 2008; hence, 2009 was used for data checks and DRG catalogue development. *DRG-type hospital payment* G-DRGs are meant to cover medical treatment, nursing care, the provision of pharmaceuticals and therapeutic appliances, as well as board and accommodation. Since 2010, each patient's DRG cost weight is multiplied with a uniform state-wide base rate in order to calculate hospital payment. For long-stay outlier cases, hospitals receive DRG-specific surcharges for every day that the patient stays above the upper length of the stay threshold. Similarly, if patients are discharged earlier than the lower length of stay threshold, the DRG payment is reduced by per diem based deductions. DRG-type hospital payment constitutes about 80% of hospital revenues.<sup>8</sup> The rest is made up by supplementary payments for certain procedures, additional payments for technological innovations, apprenticeship and quality assurance surcharges etc.

## Budget neutral introduction phase

When DRG-type hospital payment was first introduced in Germany, it happened on a budget-neutral basis. Hospitals still received historically-based budgets as in previous years but started classifying their patients into DRGs. In 2003, hospitals could voluntarily group their patients into DRGs, with the incentive that it was possible to negotiate higher budgets. In 2004 all hospitals were mandated to do so. Based on information about DRGs of patients treated in each hospital, it became possible to calculate the 'case mix' of hospitals. The case mix of a hospital is the sum of all DRG cost weights of patients treated in that hospital. The case mix can be used as an indicator of hospital activity. The derived case mix index (case mix divided by the number of patients) is an indicator of the average complexity of treated patients. Prior to 2002 hospital budgets were divided by the negotiated number of annual patient days in order to calculate per-diem charges. During the budget neutral transformation phase negotiated hospital budgets were divided by the hospitals' case mix in order to calculate a hospital-specific base rate. Using the hospital specific base rate for DRG payments assured that the sum of all DRG-payments would amount to the same budget as negotiated for previous years. Initially, hospital-specific base rates varied considerably from ~€2200 (mostly in small rural hospitals) up to ~€3200 (for major hospitals in urban areas),<sup>9</sup> which reflected historical differences in budget negotiations and possibly that the data basis for calculation of cost weights was not sufficiently representative in the first G-DRG version.<sup>10</sup>

## Convergence phase

During the convergence phase from 2005 to 2010, hospitals' individual base rates were gradually adjusted towards statewide base rates (one for each of the 16 Länder). State-wide base rates were negotiated for the first time in 2005 and were used as a benchmark for hospital base rates in each state. Negotiated hospital budgets were still used to calculate hospital-specific base rates but each year actual base rates used to calculate hospital payments progressively approached the state-wide base rate. In 2005, actual base rates were set at 15% of the difference between the hospital specific base rates and the state-wide base rate; in 2006 at 35% (15% plus 20%) etc. – until in 2009 actual base rates were programmed to converge at state-wide base rates (see Figure 1). In order to make the reform politically more acceptable, hospitals were sheltered from excessive budget cuts by limiting losses in 2005 to 1% (compared to 2004 budgets) and increasing this percentage to 3% in 2009 (compared to 2008). In 2010, budget losses are no longer limited and all hospitals are paid using the state-wide base rates. However, hospital budgets continue to be negotiated for each year based on the expected case mix volume. If a hospital treats more cases than negotiated, the DRG payment rate is reduced by a certain percentage (and vice versa, it is increased if the number of treated cases is lower).

## Conclusion: current developments and results

The 2009 Hospital Financing Reform Act (KHRG) further modifies hospital financing in Germany:<sup>11</sup> 1. state-wide base rates are programmed to converge to a nation-wide base rate by the year 2015; 2. the self-governing bodies are mandated to develop and introduce a DRG-like payment system for psychiatric services by 2013, which will be special in that it will be based on per diem payments adjusted for patient

characteristics and treatment efforts; and 3. starting in 2012, state governments are given the choice to abandon the existing system of 'dual financing' for a monistic (single payer) system by adjusting DRG-type hospital payment using investment cost weights. All three developments show that the importance of DRG-type hospital payment in Germany is continuing to increase. At the end of a ten-year process of careful introduction of G-DRGs, the system is widely accepted and generally seen as a success. The G-DRG impact evaluation concludes that the system has increased transparency in the hospital sector.<sup>12</sup> DRG-type hospital payment is perceived to have contributed to greater efficiency while maintaining or improving the quality of care.<sup>13</sup> In particular, the annual updates of G-DRGs based on robust data analyses by InEK working in close cooperation with key stakeholders is seen as a strength of the system. However, available data are still insufficient to answer the question of whether changes in quality and efficiency of the hospital sector can be attributed to the introduction of DRG-type hospital payment.

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