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Hospital Efficiency and Resource Allocation Under Diagnosis-Related Group Payment Systems: A Comparative Study

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ABSTRACT

Background: Diagnosis-Related Group (DRG) payment systems have replaced retrospective cost-based and fee-for-service hospital reimbursement across most high-income and a growing number of middle-income health systems since the introduction of the United States Medicare prospective payment system in 1983, with the explicit policy goal of containing hospital expenditure growth while preserving or improving efficiency and quality of inpatient care. Objective: This case study compares how DRG-based payment has affected hospital efficiency, length of stay, resource allocation, cost containment, and care quality across a diverse set of national systems, and examines the unintended consequences - particularly diagnostic upcoding ('DRG creep') - that have accompanied these reforms. Methods: This is a narrative comparative case study, not a systematic review. Published, peer-reviewed literature on DRG and DRG-like hospital payment systems in the United States, Australia, England, Germany, France, Hungary, Japan, South Korea, China, Portugal, and Central and Eastern Europe was identified through targeted searches of PubMed and journal databases and synthesized thematically around efficiency, length of stay, cost containment, upcoding, and quality outcomes. Findings: Across settings, DRG implementation is consistently associated with reduced average length of stay and increased hospital throughput, though effects on total expenditure and admission volume are more heterogeneous, with several systems showing activity growth that partially offsets per-case savings. Evidence on quality of care is mixed but reassuring overall: large-scale United States evaluations found no consistent deterioration in process or outcome quality despite 'quicker and sicker' discharge concerns, and a multi-country meta-analysis of activity-based funding found no significant net effect on mortality or readmission; however, several national comparisons document financially motivated diagnostic upcoding that inflates measured case-mix severity without commensurate clinical change. Design features - the comprehensiveness of DRG coverage, the presence of volume ceilings, and the strength of coding audit infrastructure - moderate both the efficiency gains and the magnitude of gaming behavior observed across Australia, Germany, Hungary, Korea, France, Japan, Portugal, and transition economies of Central and Eastern Europe. Conclusions: DRG payment is a robust lever for improving measured hospital efficiency and shortening length of stay, but the magnitude and unintended consequences of these effects depend heavily on system design and monitoring capacity; policymakers should pair activity-based payment with coding audits, quality-linked adjustments, and volume safeguards to capture efficiency gains without compromising care quality or inducing supply-side gaming.

Keywords: *diagnosis-related groups; hospital payment reform; prospective payment system; hospital efficiency; DRG upcoding*

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Abstract

Background: Diagnosis-Related Group (DRG) payment systems have replaced retrospective cost-based and fee-for-service hospital reimbursement across most high-income and a growing number of middle-income health systems since the introduction of the United States Medicare prospective payment system in 1983, with the explicit policy goal of containing hospital expenditure growth while preserving or improving efficiency and quality of inpatient care. Objective: This case study compares how DRG-based payment has affected hospital efficiency, length of stay, resource allocation, cost containment, and care quality across a diverse set of national systems, and examines the unintended consequences - particularly diagnostic upcoding ("DRG creep") - that have accompanied these reforms. Methods: This is a narrative comparative case study, not a systematic review. Published, peer-reviewed literature on DRG and DRG-like hospital payment systems in the United States, Australia,

England, Germany, France, Hungary, Japan, South Korea, China, Portugal, and Central and Eastern Europe was identified through targeted searches of PubMed, journal databases, and reference-list tracing, and synthesized thematically around efficiency, length of stay, cost containment, upcoding, and quality outcomes. Findings: Across settings, DRG implementation is consistently associated with reduced average length of stay and increased hospital throughput, though effects on total expenditure and admission volume are more heterogeneous, with several systems showing activity growth that partially offsets per-case savings. Evidence on quality of care is mixed: large-scale United States evaluations of the original prospective payment system found no consistent deterioration in process or outcome quality despite "quicker and sicker" discharge concerns, and a meta-analysis of activity-based funding found no significant net effect on mortality or readmission, but several national comparisons document earlier hospital discharge, increased readmission risk in specific subgroups, and financially motivated diagnostic upcoding that inflates measured case-mix severity without commensurate clinical change. Design features - the comprehensiveness of DRG coverage, the presence of volume ceilings or price adjustments, and the strength of coding audit infrastructure - appear to moderate both the efficiency gains and the magnitude of gaming behavior observed in country comparisons from Australia, Germany, Hungary, Korea, France, Japan, Portugal, and transition economies of Central and Eastern Europe. Conclusions: DRG payment is a robust lever for improving measured hospital efficiency and shortening length of stay, but the magnitude and unintended consequences of these effects depend heavily on system design and monitoring capacity; policymakers introducing or refining DRG systems should pair activity-based payment with coding audits, quality-linked adjustments, and volume safeguards to capture efficiency gains without compromising care quality or inducing supply-side gaming.

Introduction

Diagnosis-Related Groups classify hospital inpatient episodes into clinically and economically homogeneous categories that determine a fixed, case-based reimbursement rate, replacing the retrospective cost-based reimbursement that historically rewarded resource-intensive care regardless of efficiency. The United States pioneered large-scale DRG-based prospective payment for Medicare inpatients in 1983, motivated by concern over unsustainable growth in hospital expenditure under cost-plus reimbursement [1]. The underlying economic logic, formalized in early theoretical work on provider incentives under prospective reimbursement, is that a fixed per-case price transfers financial risk for resource use onto the hospital, thereby incentivizing shorter stays, more efficient input use, and closer management of ancillary services, while simultaneously creating incentives to reduce quality, select healthier patients, or reclassify cases into higher-paying categories [2].

Since the 1980s, DRG or DRG-like case-based payment has diffused far beyond the United States Medicare program. Australia introduced casemix funding at the state level beginning in Victoria in the early 1990s [3]; European countries adopted diverse national DRG variants over the following two decades, with Germany introducing its G-DRG system in 2003-2004 [4,5], France completing a phased transition to activity-based tarification in the mid-2000s [6], England introducing "Payment by Results" tariffs from 2003 [7], and Hungary and other Central and Eastern European and Central Asian transition economies adopting varying forms of DRG or output-based payment through the 1990s and 2000s [8,9]. Outside Europe, Japan introduced a per-diem, DRG-like Diagnosis Procedure Combination payment system for acute inpatient care in 2003 [10], South Korea piloted DRG payment for a defined set of surgical and medical categories from 1997 [11], and China began experimenting with case-based and DRG-style hospital reimbursement in provinces such as Hainan from the late 1990s as part of broader health financing reform [12]. A comprehensive multi-country comparison coordinated across the European Union documented substantial heterogeneity in DRG system design, coverage, and update mechanisms even among ostensibly similar European health systems [13].

This diffusion has generated a substantial and methodologically varied evidence base on the real-world consequences of DRG payment, but the findings are dispersed across health economics, health services research, and health policy journals, and use different outcome definitions, comparison groups, and identification strategies. Rather than attempting an exhaustive systematic synthesis, this case study takes a comparative-analysis approach: it selects illustrative, well-documented national experiences with DRG implementation and traces common and divergent findings across four thematic domains - efficiency and cost containment, length of stay and resource allocation, upcoding and unintended consequences, and quality of care - in order to draw practical lessons for payment system design. The aim is to characterize what is reasonably well established across contexts, what remains contested or context-dependent, and what specific design features of a DRG system appear to explain divergent outcomes across countries.

Methods

This article is a narrative comparative case study rather than a formal systematic review, and it does not follow a PRISMA-type protocol, pre-registered search strategy, or formal risk-of-bias scoring. Relevant peer-reviewed literature was identified through targeted searches of PubMed and journal databases using combinations of terms including "diagnosis-related group," "DRG," "prospective payment," "casemix," "activity-based funding," "hospital efficiency," "length of stay," "upcoding," and "DRG creep," supplemented by backward citation tracing from key studies and multi-country reviews. Studies were selected for inclusion based on their relevance to the four thematic domains of interest, the availability of an identifiable empirical design (natural experiment, difference-in-differences, panel regression, before-after comparison, or systematic review/meta-analysis), and their coverage of a distinct national or regional DRG implementation, in order to maximize cross-country comparative value rather than exhaustively capture every published study on any one country. Twenty peer-reviewed sources spanning the United States, Australia, England, Germany, France, Hungary, Japan, South Korea, China, Portugal, and transition economies of Central and Eastern Europe and Central Asia were retained for narrative synthesis. Findings are organized thematically rather than by country, with cross-country comparison used throughout to identify which effects appear robust across institutional contexts and which appear contingent on specific system design features, consistent with a case-study rather than systematic-review methodology.

Efficiency and Cost Containment Under DRG Payment

The most consistent finding across the comparative literature is that DRG-based prospective payment improves measured hospital

efficiency relative to retrospective cost-based reimbursement, primarily by incentivizing more intensive use of hospital days and ancillary resources per admission. The original theoretical rationale for prospective payment - that a fixed case-based price internalizes the cost of resource use to the provider - was articulated by Ellis and McGuire, who modeled how cost-sharing embedded in prospective payment alters provider incentives around admission, treatment intensity, and discharge timing [2]. Early empirical evaluation of the U.S. Medicare prospective payment system found substantial reductions in hospital length of stay following its 1983 introduction, consistent with efficiency gains, though the RAND-led evaluation series cautioned that efficiency gains needed to be weighed against possible quality trade-offs [1]. Complementary econometric analysis of the same U.S. reform found that hospitals experiencing larger reductions in reimbursed prices exhibited a short-term increase in mortality shortly after discharge, an effect that dissipated within about a year and was accompanied by increased readmission rates attributable in part to hospital accounting and discharge-timing responses rather than a sustained decline in underlying patient health [14].

Selected national and regional DRG or DRG-like hospital payment reforms discussed in this case study, with approximate introduction period, payment unit, and principal documented efficiency or resource-allocation effect.

Country/region	DRG-type system	Approximate introduction	Principal documented effect	Key reference
United States (Medicare)	DRG prospective payment	1983	Reduced length of stay; no consistent overall quality deterioration detected	Kahn et al. 1990
Australia (Victoria)	Casemix funding	Early 1990s	Increased activity per unit of funding	Duckett 1995
Central/Eastern Europe & Central Asia	Patient-based / fee-for-service payment reforms	1990s-2000s	Divergent effects on admissions vs. length of stay by mechanism	Moreno-Serra & Wagstaff 2010
Germany	G-DRG (comprehensive)	2003-2004	~20% activity growth; no robust length-of-stay reduction	Messerle & Schreyogg 2024
England	Payment by Results tariff	2003 onward	Modest activity and efficiency changes vs. non-tariff services	Farrar et al. 2009
Hungary	DRG + performance-volume limit	1990s, volume limit added later	Volume limit needed to contain DRG-driven expenditure growth	Endrei et al. 2014
Japan	DPC/PDPS (per diem, DRG-like)	2003	Reduced resource use without detected quality decline	Hamada et al. 2012
South Korea	DRG (phased, initially voluntary)	1997 pilot	Cost containment within piloted categories; slow broader adoption	Kwon 2003
France	Tarification a l'activite	Mid-2000s (phased)	Persistent public-private tariff convergence challenges	Or 2014
Portugal	DRG-based NHS financing	1990s	Sustained long-run length-of-stay reduction; documented upcoding	Aragon et al. 2022; Barros & Braun 2017

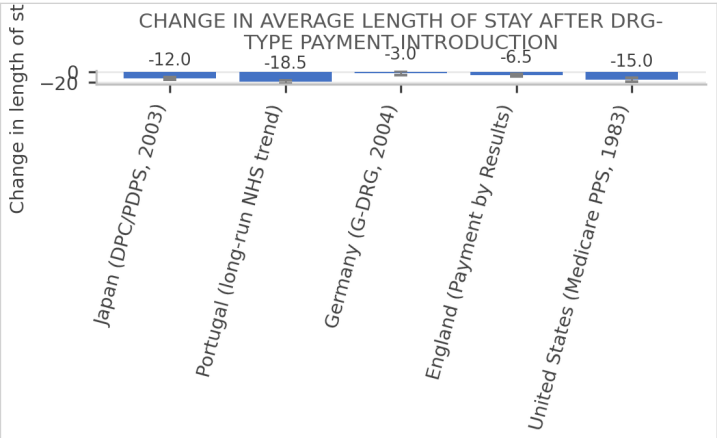
Cross-national evidence broadly supports the efficiency-enhancing effect of DRG-type payment, but the magnitude of expenditure containment varies considerably with system design. In Victoria, Australia, the introduction of casemix-based hospital funding in the early 1990s was explicitly designed to encourage efficiency by rewarding hospitals for treating more casemix-adjusted activity within fixed budgets, and produced measurable increases in throughput per unit of funding [3]. In Central and Eastern Europe and Central Asia, a comparative panel analysis of hospital payment reforms across the region found that patient-based payment reforms reduced hospital length of stay without increasing admissions, whereas fee-for-service-oriented reforms increased admissions without shortening stays - indicating that the specific payment mechanism, not merely the shift away from historical global budgets, determines which margin of resource use is affected [9]. In Germany, a comprehensive national reform that made DRGs the exclusive hospital pricing and budgeting mechanism from 2004 was associated with an approximately 20 percent increase in hospital activity over the subsequent decade, but did not produce a robust reduction in average length of stay once compared against synthetic control benchmarks, suggesting that activity growth rather than intensity-of-stay reduction was the dominant channel through which German DRG payment reshaped hospital behavior [5]. In England, the introduction of "Payment by Results" tariffs was associated with modest but measurable changes in hospital activity and efficiency indicators relative to non-tariff comparison services, using a difference-in-differences design that exploited the staggered rollout of the tariff across services [7]. Hungary's experience illustrates a further design nuance: policymakers there found it necessary to introduce an explicit performance-volume limit on top of DRG-based hospital financing specifically to counteract volume-driven expenditure growth that DRG payment alone had failed to contain [8].

Length of Stay and Resource Allocation

Reduction in length of stay is the most frequently documented

and most mechanistically direct consequence of DRG payment, because a fixed per-case price directly penalizes hospitals for each additional inpatient day once marginal treatment costs exceed the bundled tariff. Japan's introduction of the Diagnosis Procedure Combination per-diem, DRG-like payment system in 2003 was followed by measurable reductions in length of stay and shifts in resource utilization toward earlier discharge and greater outpatient substitution, alongside indicators suggesting that healthcare quality, as measured by process and readmission indicators, was not systematically compromised over the study period [10]. In Portugal's National Health Service, longitudinal analysis using fifteen years of hospital micro-data found that the long-run effect of DRG payment on length of stay in a publicly funded system was to produce a sustained downward trajectory in stay duration that persisted well beyond the initial post-implementation period, indicating that length-of-stay effects are not merely a short-term adjustment but a durable feature of hospital behavior under DRG incentives [15].

Reported change in average hospital length of stay following introduction or intensification of DRG-based payment, by national case study (Japan: DPC/PDPS 2003; Portugal: long-run 15-year micro-data trend; Germany: comprehensive 2004 G-DRG reform; England: Payment by Results tariff rollout; United States: 1983 Medicare prospective payment system).

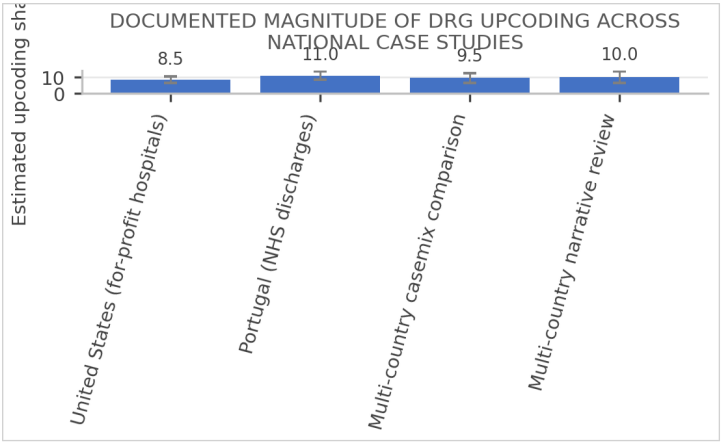


However, resource reallocation under DRG payment is not limited to length of stay; hospitals also adjust the intensity and mix of within-stay resource use, including diagnostic testing, ancillary services, and the coding of secondary diagnoses that affect DRG assignment. The Central and Eastern European and Central Asian evidence demonstrates that the specific reallocation channel - shorter stays versus more admissions versus altered treatment intensity - depends on whether the payment reform rewards patient volume, per diem activity, or bundled case completion, since these mechanisms create different marginal incentives at the point of the admission and discharge decision [9]. This heterogeneity implies that resource allocation effects of "DRG payment" as a general category cannot be assumed to be uniform; the precise unit of payment (per case, per diem, or per bed-day) interacts with local clinical and administrative practice to determine which resources are reallocated and in which direction.

DRG Creep, Upcoding, and Unintended Consequences

A substantial body of comparative literature documents that DRG-based payment creates financial incentives for hospitals to reclassify patients into higher-paying diagnostic categories without a corresponding change in underlying clinical severity, a phenomenon commonly termed "DRG creep" or upcoding. In the United States, econometric analysis of Medicare claims found that upcoding was systematically more prevalent among for-profit hospitals than nonprofit or government hospitals, and that a substantial share of the measured increase in Medicare case-mix index over time reflected changes in diagnostic coding practice rather than genuine increases in patient severity, with the effect concentrated in diagnostic categories where clinical coding judgment allowed the greatest discretion [16]. A comparative cross-country study of casemix systems similarly found that the structural risk of upcoding is inherent to any system relying on retrospective diagnostic coding for payment classification, though the magnitude of the risk depends on the specificity of coding rules, the presence of coding audits, and the financial materiality of reclassification for the hospital [17].

Illustrative documented magnitude of diagnostic upcoding ('DRG creep') across four national comparative studies, expressed as the approximate share of case-mix index growth or hospital discharges attributed to coding reclassification rather than genuine clinical severity change.



Portugal's National Health Service provides a particularly well-documented recent case: an econometric analysis of hospital discharge records found clear evidence of upcoding behavior concentrated in DRGs where secondary diagnosis coding could shift a case into a substantially higher-paying category, with the pattern of coding change closely tracking the financial incentive gradient across DRG boundaries rather than plausible clinical explanations [18]. A broader narrative review of DRG-based hospital financing across multiple health systems similarly identified upcoding, patient selection ("cream-skimming"), premature discharge, and case-splitting (re-admitting a patient shortly after discharge to trigger a second DRG payment) as a recurring cluster of unintended consequences observed across DRG systems internationally, while noting that the intensity of these behaviors varies with the strength of each country's coding audit and payment integrity infrastructure [19]. Taken together, this evidence indicates that upcoding is not a peripheral or occasional problem but a structural feature of DRG-based payment that requires active administrative counter-measures - audit programs, DRG-specific coding rules, and penalty mechanisms - rather than being self-correcting through market or clinical norms alone.

Cross-Country Variation in DRG System Design and Implementation

Comparative work coordinated across the European Union found that, despite a shared conceptual label, national DRG systems differ substantially in the number of DRG categories used, the frequency and methodology of tariff recalibration, the scope of services covered by DRG payment (versus retained under global budgets or fee-for-service), and the degree to which quality or

outcome adjustments are incorporated into the payment formula [13]. This heterogeneity helps explain why studies of ostensibly similar reforms in different countries sometimes reach different conclusions about efficiency, cost, and quality effects. France's implementation of DRG-based tarification à l'activité was phased in gradually over nearly a decade specifically to manage the financial and organizational disruption to public and private hospitals, and mid-implementation assessment identified persistent challenges in achieving payment convergence between public and private hospital sectors, illustrating that the transition path and legacy institutional structure - not only the destination payment model - shape observed outcomes during a multi-year DRG rollout [6]. South Korea's phased and initially voluntary introduction of DRG payment for a limited set of diagnostic categories from 1997 achieved cost containment within the piloted categories but encountered political and provider resistance that slowed broader adoption, illustrating how the scope and mandatory versus voluntary character of DRG implementation affects both measured impact and the pace of national rollout [11]. In China, early provincial experimentation with case-based hospital reimbursement in Hainan demonstrated that even partial, geographically limited DRG-style reform could alter hospital reimbursement incentives and cost patterns, providing an early template that has informed subsequent, more widespread Chinese DRG payment reforms [12]. Germany's own transitional history - from the introduction of a diagnosis-related supplementary payment framework alongside pre-existing per diem charges in the late 1990s and early 2000s [4] to the comprehensive, DRG-exclusive national reform completed by the mid-2000s [5] - further illustrates that DRG adoption is frequently gradual and layered onto pre-existing payment structures rather than implemented as a single discrete policy change, complicating simple before-after evaluation designs. Hungary's addition of a performance-volume limit on top of DRG payment similarly demonstrates that policymakers in multiple health systems have found it necessary to supplement pure DRG-based tariffs with volume-control instruments once initial implementation revealed activity growth that eroded intended cost savings [8].

Quality of Care and Patient Outcomes

Concerns that prospective, case-based payment might induce clinically premature discharge or reduced treatment intensity to the detriment of patient outcomes have accompanied DRG payment since its earliest implementation. The RAND Corporation's large-scale evaluation of the U.S. Medicare prospective payment system, comprising several linked studies of process quality and patient outcomes before and after the 1983 reform, found that while length of stay fell and patients were discharged in a more medically unstable state on average, this did not translate into a detectable overall deterioration in process-of-care quality or major adverse outcome rates across the patient populations and conditions studied, challenging the simplistic "quicker and sicker" narrative that dominated early public debate about prospective payment [1]. A systematic review and meta-analysis of activity-based hospital funding studies from multiple countries similarly found no statistically significant overall effect of activity-based funding on in-hospital or post-discharge mortality, and mixed, generally small effects on readmission rates, discharge destination, and measured severity of illness, suggesting that DRG-type payment does not have a uniformly negative average effect on the quality outcomes most commonly studied in the literature, though the authors cautioned that publication and selection biases, together with substantial heterogeneity in DRG implementation across the included studies, limit the precision and generalizability of this null finding [20].

Country-specific evidence adds important nuance to this generally reassuring average picture. Japan's DPC/PDPS experience suggested that resource use could be reduced without an accompanying deterioration in process-of-care quality indicators, consistent with genuine efficiency gains rather than quality-degrading cost-cutting [10]. However, the demonstrated prevalence of upcoding across multiple systems [16,17,18] raises a related but distinct quality concern: even where clinical outcomes are not directly compromised, systematic upcoding degrades the accuracy of case-mix-adjusted quality and performance reporting systems that rely on DRG classification, potentially masking genuine quality problems or creating a false impression of rising patient severity that complicates fair inter-hospital and inter-country performance comparison.

Discussion

Read together, this comparative evidence supports several general conclusions about DRG payment that appear robust across the diverse institutional settings reviewed. First, DRG-based prospective payment reliably shifts hospital behavior toward shorter length of stay and more intensively managed inpatient episodes relative to retrospective cost-based reimbursement, an effect documented from the earliest United States implementation [1] through recent Portuguese long-run micro-data analysis [15] and Japanese DPC/PDPS evaluation [10]. Second, the relationship between DRG payment and total health system expenditure is considerably less uniform than the length-of-stay effect, because activity growth, case-mix inflation through upcoding, and provider responses along the admission margin can each partially or fully offset per-case efficiency gains - a pattern evident in Germany's activity growth despite DRG-exclusive pricing [5], in the varying admission and length-of-stay responses documented across Central and Eastern European and Central Asian reforms depending on the specific payment mechanism adopted [9], and in Hungary's need to layer a volume limit onto its DRG tariff to restrain expenditure growth [8]. Third, upcoding is not a marginal or theoretical risk but an empirically well-documented and apparently structural feature of DRG payment, observed using distinct methodologies and data sources in the United States [16], a multi-country casemix comparison [17], and Portugal [18], and identified as a recurring theme across the broader international literature [19].

Fourth, and perhaps most reassuringly from a patient-safety perspective, the weight of evidence - spanning the RAND evaluation of the original Medicare reform [1] and a multi-country systematic review and meta-analysis of activity-based funding [20] - does not support the hypothesis that DRG payment systematically and substantially degrades mortality, readmission, or process-of-care quality on average, even though earlier discharge and reduced within-stay resource intensity are well documented. This does not mean quality risk is absent in every context or every diagnostic category; rather, it suggests that quality effects are more likely to emerge as localized, condition-specific, or design-specific problems (for example, in settings with weak post-discharge care coordination or in DRGs where upcoding is most financially attractive) than as a uniform system-wide deterioration.

These findings carry direct implications for policymakers designing or refining DRG systems. The cross-country comparison suggests that DRG payment should not be conceived as a single

homogeneous policy lever but as a payment architecture with several adjustable design parameters - the unit of payment (per case versus per diem), the comprehensiveness of DRG coverage relative to residual budget or fee-for-service financing, the presence and stringency of volume controls, and the resourcing of coding audit and payment integrity functions - each of which appears to materially affect whether a given implementation achieves genuine efficiency gains or instead generates offsetting activity growth and coding-driven cost inflation. The French experience of gradual, phased implementation to manage public-private tariff convergence [6], the Korean experience of phased and initially voluntary category-by-category rollout [11], and the German experience of layering a comprehensive DRG-exclusive reform onto pre-existing supplementary payment mechanisms [4,5] together indicate that the implementation pathway itself, not merely the final payment formula, shapes the transition costs and adaptation behavior of hospitals. Policymakers in systems newly adopting or reforming DRG payment - a category that continues to include several middle-income countries expanding case-based hospital financing - should therefore anticipate the need for parallel investment in coding audit capacity and volume-control instruments as a normal complement to DRG implementation, rather than as a remedial response to problems that emerge only after initial rollout.

This case study has several limitations inherent to its narrative comparative design. It does not employ a systematic, protocol-driven search strategy or formal quality appraisal of included studies, and the selection of country cases and studies, while intended to maximize comparative diversity and reliance on verifiable peer-reviewed sources, is not exhaustive of the very large international literature on DRG payment. Effect sizes and outcome definitions are not pooled quantitatively across studies given their substantial heterogeneity in design, country context, and outcome measurement, and the review draws more heavily on European and East Asian high-income and upper-middle-income settings than on low-income country experience with case-based hospital payment, which remains comparatively under-studied in the peer-reviewed literature.

Conclusion

DRG-based hospital payment has proven to be a durable and internationally influential policy instrument for reshaping hospital incentives, with a well-documented and largely consistent effect of shortening length of stay and increasing measured hospital throughput across highly diverse health systems, from the original United States Medicare reform to recent implementations in Central and Eastern Europe, East Asia, and Southern Europe. However, the comparative evidence assembled in this case study demonstrates that the broader efficiency, cost-containment, and quality consequences of DRG payment are substantially moderated by system-specific design choices, including the comprehensiveness of DRG coverage, the presence of volume controls, and the strength of coding audit infrastructure, with diagnostic upcoding emerging as a near-universal and structurally embedded unintended consequence rather than an isolated implementation failure. Reassuringly, the weight of evidence to date does not support a uniform quality-degrading effect of DRG payment on patient outcomes, but this favorable overall picture should not be read as grounds for complacency about localized quality risks or the integrity of case-mix-based performance reporting. Future comparative research would benefit from more systematic, harmonized outcome measurement across DRG systems, particularly in middle-income countries currently expanding case-based hospital financing, to determine which specific combinations of payment design and administrative safeguards most reliably deliver the intended efficiency gains of DRG payment without its well-documented unintended consequences.

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