Accounting for What Matters to Patients in the G-DRG System: A Stakeholder's Perspective on Integrating Functioning Information

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ABSTRACT: Functioning information constitutes a relevant component for determining patients' service needs and respective resource use. Diagnosis-Related Group (DRG) systems can be optimized by integrating functioning information. First steps toward accounting for functioning information in the German DRG (G-DRG) system have been made; yet, there is no systematic integration of functioning information. The G-DRG system is part of the health system; it is embedded in and as such dependent on various stakeholders and vested interests. This study explores the stakeholder's perspective on integrating functioning information in the G-DRG system. A qualitative interview study was conducted with national stakeholders in 4 groups of the G-DRG system (health policy, administration, development, and consultations). Interviews were analyzed using inductive thematic analysis. In total, 14 interviews were conducted (4 administration and 10 consultation group). Three main themes were identified: (1) functioning information in the G-DRG system: opportunities and obstacles, (2) general aspects concerning optimizing G-DRG systems by integrating additional information, and (3) ideas and requirements on how to proceed. The study offers insights into the opportunities and obstacles of integrating functioning information in the G-DRG system. The relevance of functioning information was evident. However, the value of functioning information for the G-DRG system was seen critically. Integrating functioning information alone does not seem to be sufficient and a systems approach is needed.

KEYWORDS: G-DRG system, functioning information, stakeholder interviews

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Background

In 2001, World Health Organization (WHO) initiated a paradigm shift toward a more complete understanding of health by endorsing the *International Classification of Functioning, Disability and Health* (ICF) and introducing functioning as a third health indicator, joining mortality and morbidity.[1] Information about functioning comprises information about biological health—intrinsic physiological, psychological functions, and anatomical structures—as well as information about lived health, the performance of activities in light of health conditions, and in the context of the physical, social, and attitudinal environment.[2] Lived health is what matters to people about their health in their daily lives. The need for functioning information is becoming increasingly apparent in light of ongoing sociodemographic and epidemiologic trends.[3,4]

Population aging and the growing number of people living with chronic noncommunicable health conditions will result in more people experiencing limitations in functioning or disability.[5,6] Functioning information not only complements information about health conditions but it constitutes an integral source of our understanding of people's health and their lived experience. To ensure that health service delivery is responsive to people's functioning needs, we should ensure that our health systems reflect this comprehensive understanding of health, especially in our financing mechanisms.

One of the most widely used tools for reimbursing inpatient health services around the world is Diagnosis-Related Groups (DRGs).[7,8] DRGs are classification systems that group patients into groups that are clinically meaningful and similar in acute care utilization to underwrite payment rates. DRGs are based on sociodemographic information, diagnostic information coded with the *International Classification of Diseases* (ICD), and therapeutic information routinely collected during hospitalization.[9] Therapeutic information is coded with country-specific procedure coding systems such as the Operation and Procedure Code (OPS) used in Germany.

An essential goal of DRG systems is the successful prediction of health service utilization as measured by costs and length of stay. To do so, DRG systems rely on the most important determinants for resource consumption that capture resource use while accounting for case complexity. Patients with the same diagnosis and similar treatment can differ in their service needs because of difference in their functioning. DRG systems, as they relying only on diagnosis and procedure information, are increasing unable to adequately capture case complexity and explain differences in costs, length of stay, and resource utilization.[10]

We know that patient functional status is a predictor of mortality, discharge destination, readmission rate,[11] length of stay,[12,13] and costs.[14] A systematic literature review conducted by Hopfe et al[15] reviewed evidence that integration of functioning information into DRG systems optimizes the system's cost predictive capacity and more adequately captures differences in patient's needs for services. This is especially true for frail elderly and patients with severe impairments and multimorbidity.[15] In short, DRG systems can improve their efficiency and responsiveness to patient's needs if they take into account functioning information.[16]

DRG systems differ widely in country-specific modifications reflecting differences in the health system in which they are embedded. The German DRG (G-DRG) system, for example, is one of the most complex and comprehensive casemix system in Europe that covers almost all inpatient cases. First efforts have been made to take advantage of functioning information in the determination of patient's needs. Procedure codes for complex early rehabilitation treatments in the acute hospital setting, based on the functional status of patients measured by common instruments such as the Barthel Index, have been introduced. In addition, since 2017, motor function impairment (U50) and cognitive impairment (U51) can be coded as additional revenue-relevant ICD codes in the G-DRG system. Although these initial steps have been helpful, a system-wide and standardized integration of functioning information into the G-DRG system is needed to ensure responsiveness to patient's functioning needs.

There are, however, challenges to taking further steps to incorporate functioning information into the G-DRG system. A key characteristic of the G-DRG system is the recognition of shared competences for decision making between self-regulated organizations of payers and providers, and health professional associations, patient organizations, or advisory councils are given the formal right to contribute.[17] The G-DRG system strongly links the underlying classification variables in the grouping algorithm and these are directly translated into reimbursement rates. Taken together, these features mean that it is difficult to making changes to the G-DRG system:

To gain a better understanding of these challenges, the objective of this study is to explore stakeholder's perspectives on integrating functioning information in the G-DRG system. Qualitative interviews are conducted to account for the wide range of perspectives, experiences, and vested interests in the field of the G-DRG system and to obtain rich and in-depth information. The aim is to get insights into the following 2 areas of interest:

- The current debate and perspectives on integrating functioning information or a more comprehensive description of patients into the G-DRG system.
- Potentials and challenges of integrating functioning information into the G-DRG system.

Methods

Data

A qualitative interview study was conducted with national stakeholders and experts in the G-DRG system. The interviews took place between February and July 2017.

The stakeholder matrix for the G-DRG system developed by Geissler and the EuroDRG group[18] was used to identify relevant stakeholders. The matrix identifies 4 groups: health policy, administration, development, and consultations. The stakeholders and respective tasks are shown in Table 1 (modified from Geissler[18]). In total, 26 stakeholders (health policy n = 1, administration n = 8, development n = 2, consultation area n = 15) were identified and invited to participate in the study. The stakeholders were either named in the original matrix or identified as relevant stakeholders in the course of the interviews. Invitation letters were sent out via email and in case of nonresponse followed up by one reminder email (n = 11). The invitation letters informed the participants about the aims of the research project and that participation in the study was voluntary. The study adhered to the ethical principles of the Declaration of Helsinki[19] and all participants had the right to withdraw from the study at any time.

In total, 14 interviews were conducted with 15 participants (1 interview included 2 participants), 4 from the administration area and 10 from the consultation area. None of the invited stakeholders from the other 2 areas was available for an interview.

Analysis strategy

All interviews were conducted by the first author (M.H.) and lasted on average 58 minutes (33-92 minutes). The interviews were audio-recorded, transcribed, and coded verbatim using MAXQDA software. When audio-recording was not possible or interviewees did not agree to be audio-taped due to reasons of anonymity (n = 1), notes and memory protocols were written and also imported into MAXQDA software for coding. All interviews were analyzed using inductive thematic analysis to allow a detailed and rich description of the data.[20-22] All identified themes were checked for accuracy, internal consistency, and meaningfulness. A second researcher (B.P.) reviewed parts of the transcripts, coding, and identified themes to increase credibility of the results. All interviews were conducted in German, and preliminary codes and themes were identified based on the German transcripts. The final themes, codes, and quotations were translated into English.

Results

Although the perspectives and perceptions of the interviewed stakeholders differed in terms of their background, experiences with the G-DRG system, and political interest, there were common considerations raised about integrating functioning information into the G-DRG system. The findings are grouped into (1) functioning information in the G-DRG system: opportunities and obstacles; (2) general aspects concerning optimizing the G-DRG system by integrating

Table 1. Contacted stakeholders by G-DRG (German Diagnosis-Related Group) matrix modified from Geissler.[18]

AREA	TASK	STAKEHOLDERS CONTACTED (GERMAN)	STAKEHOLDERS CONTACTED (ENGLISH)
Health Policy (no. of interviews conducted: 0)	Setting goals and monitoring the system	• Bundesministerium für Gesundheit	• Ministry of Health
Administration (no. of interviews conducted: 4)	Forming the legal framework	• Spitzenverband Bund der Krankenkassen • Verband der privaten Krankenversicherung e. V. • Deutsche Krankenhausgesellschaft e. V. • Dachverband der Betriebskrankenkassen e. V. • Bundesverband der Allgemeinen Ortskrankenkassen • Verband der Ersatzkassen e. V. • Deutsche Gesetzliche Unfallversicherung Spitzenverband • Institut für Qualitätssicherung im Gesundheitswesen	• National Association of Statutory Health Insurance Funds • Association of Private Health Insurers • German Hospital Federation • Umbrella organization of the Company Health Insurance Funds • General Health Insurance Federal Association • Association of replacement funds • German Social Accident Insurance (umbrella association) • Institute for Quality Assurance in Health Care
Development (no. of interviews conducted: 0)	Technical management	• Deutsches Institute für Medizinische Dokumentation und Information • Institut für das Entgeltsystem im Krankenhaus	• German Institute of Medical Documentation and Information • Institute for the Hospital Remuneration System
Consultation (no. of interviews conducted: 10)	Contribution of expertise	• Kassenärztliche Bundesvereinigung • Bundesärztekammer • Patientenvertreter im Gemeinsamen Bundesausschuss • Sachverständigenrat zur Begutachtung der Entwicklung im Gesundheitswesen • Deutscher Pflegerat e. V. • Deutsche Gesellschaft für Gesundheitsökonomie e. V. • Deutsche Gesellschaft für Pflegewissenschaften • Deutsche Gesellschaft für Physikalische Medizin und Rehabilitation • Deutsche Gesellschaft für Psychiatrie und Psychotherapie, Psychosomatik und Nervenheilkunde e. V. • Deutscher Verband der Ergotherapeuten e. V. • Der Deutsche Verband für Physiotherapie • Deutscher Bundesverband für Logopädie e. V. • Berufsverband Deutscher Psychologinnen und Psychologen e. V. • (Inter)nationaler Experte für Psychiatrie • (Inter)nationaler Experte für Frührehabilitation	• National Association of Statutory Health Insurance Physicians • German Medical Association • The patient involvement represents patients in the Joint National Committee • Advisory Council on the Assessment of Developments in the Health Care System • German Nursing Council • German Society for Health Economics • German Society for Nursing Science • German Society of Physical Medicine and Rehabilitation • German Association for Psychiatry, Psychotherapy and Psychosomatics • German Association of Occupational Therapists • German Association of Physiotherapy • German Federal Association of Speech Therapists • Professional Association of German Psychologists • (Inter)national expert for Psychiatry • (Inter)national expert for Early rehabilitation care

additional information; and (3) ideas and requirements on how to proceed. Within each theme, relevant subthemes were identified as shown in Tables 2 to 5.

The subthemes presented within the themes were widely supported by participants. Specific aspects of the subthemes mentioned sporadically are not presented here.

Functioning information in the G-DRG system: opportunities and obstacles

Opportunities.

Outcomes relevant from the patient's perspective: Overall, participants agreed that taking into account the functional status of patients and integrating this information into the system would contribute to a better and more comprehensive, accurate, and detailed description and understanding of the patient, resulting in care that optimizes patients' needs and goals (Table 2, Q1). Some participants believed that integrating functioning information into the G-DRG system would also improve efficiency of the care process and ultimately result in cost savings (Table 2, Q2).

Most of the participants believe that some patient groups would profit more from integrating functioning information in the G-DRG system than others. Patients experiencing a decrease in their physical and/or cognitive functioning—such as elderly, multimorbid, psychiatric, chronic, or severely injured patients—would benefit more because currently the G-DRG system does not adequately capture and reimburse the needs for services of these patients (Table 2, Q3).

Patients presenting in emergency care unit with an undefined mix of symptoms and no clear diagnosis could also benefit (Table 2, Q4), as would patients who experience some degree of limitation in functioning before being admitted to the hospital. These are patients with either a predefined degree of disability (Grad der Behinderung) or who have been assigned a care degree

Table 2. Functioning information in the G-DRG (German Diagnosis-Related Group) system: opportunities and obstacles.

SUBTHEMES	#	QUOTATIONS
Opportunities		
Outcomes relevant from the patient's perspective	Q1	"Yes. In any case, I see potential because I do not believe that this will result in patients being inefficient. On the contrary. I think that one would be more to the point on how the patient should be treated during his hospital stay, so that he/she can achieve his goals and can be discharged quickly." (Participant 11, Consultation)
	Q2	"So the question is, well, that's a hypothesis, whether one can take this purely for the financing system of the DRG to better finance if one takes into consideration functioning information in contrast. So to say, if the patient has achieved this and this and is faster ready for discharge, hypothetically, this would cost less. This is basically how the incentive mechanisms in the DRG works. Keeping the average length of stay. (. . .) You watch the financing and if you take into consideration functioning maybe you could also save money there." (Participant 8, Consultation)
	Q3	"And many patients are not in the hospital to be cured. Because either they are chronical ill, like MS, Parkinson's or multi-infarct syndrome or whatever, dementia. They are in fact not curable. And there you have to look, what are the actual goals? And that's the actual difficulty." (Participant 12, Consultation)
	Q4	"(. . .) but of course those are also the cases that are admitted via the emergency departments, that stay overnight and are discharged the next day, and where, of course, where the DRG logic is undermined because they stay in hospital for an overnight observation and the efforts the hospital has, actually are not related to a diagnosis in the first place." (Participant 6, Consultation)
Interdisciplinary team work	Q5	"Well, I think we, what the ICF offers, and the ICD-10 to some extend as well is, so what I think what is crucial is, that we need something interdisciplinary for the reimbursement system. And I think in this regard the ICF has its advantages compared to the ICD-10." (Participant 11, Consultation)
Allocation of resources	Q6	"And then you would see, then you could see the one who has no difficulty swallowing and where early rehabilitation care would lead to the assignment of a higher rated DRG for this patient, there you would be able to detect oversupply. Because then you would have a patient that actually does not need it but where the hospital may provide a unit of early rehabilitation care so that he enters the higher valued DRG. On the other hand you might have those patients, who would actually benefit from it but cannot receive it. But where despite the correct lower reimbursement rate one has to account for the quality argument, whether he has been withheld from necessary treatment." (Participant 6, Consultation)
Care across settings	Q7	"(. . .) and on the other hand, I wanted to say that one sees that the quantification is reliable, which is anyway, we also need this information for the transition from the hospital. It's data that does not end up in a data graveyard because it's only suitable for one purpose, but this data is versatile useful, actually, in my opinion also to improve post discharge treatment." (Participant 11, Consultation)
Obstacles		
Awareness of the relevance of functioning information	Q8	"That's the problem I just mentioned, that hardly anybody of the physicians knows about it or still too many don't know it, right? So of course you cannot introduce a system. First of all, you have to provide the knowledge and the added value of it for a physician." (Participant 15, Consultation)
	Q9	"What I've seen in 20 years in the hospital, in many older doctors who were still from the old school, but also in the very young once, who just graduated medical school, that there is still a huge, how should I say focus on diagnosis or deficit in medical studies nowadays and that they still teach too little about what might be important for the patient." (Participant 12, Consultation)
	Q10	"In other words, from my perspective, the entire hospital organization is more geared towards revenue orientation. (. . .) But this means that hospitals have a non-holistic approach, which is, in my opinion a result of the DRG system. Meaning, it is based on what is intended in the DRG system." (Participant 14, Consultation)
Operationalization of functioning	Q11	"So this means that, in order to apply such classification or graduation measures, whether it is actually ICF, in a broader area, you need a reliable operationalization." (Participant 14, Consultation)
	Q12	"As I said, I do not know if in perspective it is okay to overload each individual case even more with certain characteristics. You get even more, probably even more DRGs or whatever they're called then and yes, eventually you end up not in a case rate reimbursement but rather with individual service remuneration, right? You could, well, every additional ICF point leads towards individual service remuneration." (Participant 3, Administration)
	Q13	"(. . .) I do not want to be disrespectful, but we are not in a nursing home, but patients rather come to the hospital because they are in need of treatment and of course I have to worry about how the patient gets around in everyday life at home but at the same time it limits the frame in which I can act. (. . .) This differentiation of what is part of which service and setting, I think this is above all a big barrier from the payer perspective because they might ask what are you going to put in there?" (Participant 11, Consultation)
	Q14	"And Barthel is so rough that we often didn't see any difference at all from admission to discharge." (Participant 12, Consultation)

Table 2. (Continued)

SUBTHEMES	#	QUOTATIONS
	Q15	"And FIM is, so FIM is again an instrument, it's a gigantic instrument in itself. So, filling in the FIM alone for a patient sometimes takes longer than the patient is with them." (Participant 14, Consultation)
Economic considerations	Q16	"(. . .) we just like to spend something on, for something, which was really done, where a service was provided. So the disease itself, okay, but what kind of effort does this disease imply? Actually, it must imply some kind of provided service, a procedure or somehow a diagnostic proceeding and so forth. (. . .) what's more important is that this performance has led, at best, to an improvement in health. And these are the two factors, so compensation if performance was provided and then improvement in health." (Participant 5, Administration)
	Q17	"The code for showing functioning as an ICD code (U code) was first included in the psych area (. . .) One could see in the PEPP system after a year that it is a strong split criteria for DRGs. In the first year for one, in the second already for four. This code is a cost divider. This can also be seen in the DRG system." (Participant 2, Administration)
	Q18	"But we have the problem that we do not know if this actually leads to homogeneity in costs. This means, as an example, people who lets say have a stroke and so far, there are about ten stroke DRGs, well, people who are in a particular stroke DRG and additionally have been assigned a degree of disability of over 50%. Are they actually more expensive? Is this a cost-homogeneous group? Are they significantly more expensive, statistically significant than others? I have my doubts." (Participant 13, Consultation)

(Pflegegrad). As the assignment of these degrees already take into account functioning information, the predefined degree could be incorporated into the coding mechanism of the G-DRGs.

Interdisciplinary team work: Integrating functioning information into the G-DRG system would also strengthen interdisciplinary teamwork in the hospital. A better description of the patient and his or her needs and goals facilitates a more precise distribution of goal-oriented work among health professionals. Some participants mentioned that the integration of functioning information would also mean that the work of nurses and therapists would become more visible in the G-DRG system (Table 2, Q5).

Allocation of resources: The potential for better resource allocation was also mentioned. The process of care would not only be more targeted toward patient goals but the inclusion of this information would also make it possible to identify the oversupply of services. Functioning information could aid the clinical decision whether a patient actually needed a procedure, therapy, or treatment. In this way, economically driven provisions of care and services could be identified and reduced (Table 2, Q6).

Care across settings: It was acknowledged that fragmentation of information leads to fragmentation of services and care. Functioning information was seen as helping to determine what happens to the patient after discharge—for example—Is the patient able to care for himself? Does he or she need follow-up care? What can be done to keep him/her independent and to prevent complications? Participants anticipated a huge benefit from integrating functioning information by coordinating care across settings.

It was mentioned that the current focus of the G-DRG system and respective data collection in hospitals is focused on the inpatient treatment episode and neglects postdischarge needs. Integrating functioning information would be an incentive for a more patient-oriented focus and facilitate better care across settings. Well-documented and standardly reported information about functional status of patients during hospitalization was seen as important for institutions providing postdischarge treatments, such as rehabilitation clinics and community doctors. Standardized reporting of functioning information would facilitate a cross-cutting information flow and thus optimize care across settings (Table 2, Q7).

Obstacles.

Awareness of the relevance of functioning information: Although all participants were aware of functioning information, they questioned whether this was well known. Concerns were expressed about the awareness of the importance of functioning information by medical doctors in inpatient care, who tend to focus only on basic body functions, blood values, and other physiological signs (Table 2, Q8). Participants agreed that the value of functioning information is not standardly taught in medical education for health professionals (Table 2, Q9). As the G-DRG system focuses on medical, procedural, and economic information, there is no incentive to use or report functioning information (Table 2, Q10).

Operationalization of functioning information: Although participants agreed that integrating functioning information into the G-DRG system might add value for patients, health professionals, and the health system as such, many stakeholders were concerned about its feasibility. In particular, there were questions about how to operationalize functioning information: what domains need to be included, how information relevant to each domain would be collected, and the validity and meaningfulness of the information for the inpatient episode of care (Table 2, Q11).

Several participants mentioned the difficulty of finding a generic set of functioning domains for patient groups with diverse problems (eg, patients in an ophthalmic ward as opposed to patients undergoing cardiac transplantation). Participants also saw a challenge in deciding on the depth and breadth of information, in light of underlying grouping logic of the G-DRG system. Although everyone agreed that a more detailed description of patients' needs is valuable, moving the

Table 3. General aspects concerning optimizing the G-DRG (German Diagnosis-Related Group) system by integrating additional information.

SUBTHEMES	#	QUOTATIONS
Complexity of the system	Q1	"(. . .) in the end no one has an overview, we finance only based on patient classification systems but the system itself, the single component of the classification is only understood by some experts, maybe six seven experts, who really have profound knowledge and some institutions calculating it back and forth and the complexity is huge, which no one can understand anymore. (. . .) Everyone relies on the statements of consultants, thinking, yes, they will do the job." (Participant 5, Administration)
	Q2	"(. . .) I have a huge DRG catalogue, which needs to be checked somewhere and this is already a lot of work for the self-government, both on the payer side and for the hospitals. They need to develop a huge administration system, there is an incredible amount of transaction costs included." (Participant 4, Administration)
Efforts vs benefits	Q3	"So the question I always ask myself is, we collect a lot of data and we try to classify it, but what is the actual benefit, which may be rather minimized by bureaucracy or legal interpretations and then disappear into insignificance." (Participant 4, Administration)
	Q4	"General tendency in the system: not to code things because the effort is too high and the additional compensations are too low. So less and less is assessed and coded." (Participant 2, Administration)
	Q5	"(. . .) we have a barrier again because the costs may arise at a different payer than the savings. No, that's an extreme barrier. Because there are pilot studies showing, if I provide early rehabilitation more intensively, then return to work is better. (. . .) But that's probably going to be extremely difficult, because others benefit than those who have to invest." (Participant 9, Consultation)
Vested interests	Q6	"But it's, as I said, if I design a system the way I design it, then at some point those who work in that system will follow this system. Well, and I have a sectoral system and that's how I train people, right? I will train them through this system." (Participant 1, Administration)
	Q7	"(. . .) because with transparency I buy myself of course also a lot of bonus malus options (. . .). What's the benefit of transparency and of course that are also political considerations that are generally taken, if I increase transparency (. . .)." (Participant 4, Administration)

Table 4. Vested interests in the system that influence decisions on integrating additional information.

STAKEHOLDER/LEVEL	INTERESTS	VALUE/BENEFIT
Patients	Care that is tailored toward needs No increase in contribution rates for health insurance	Improve health outcomes Ensure patient pathways along the continuum of care Ensure patient centeredness
Health Professionals	Spending time at the patient	
• Medical doctors	No increase in burden of documentation	Improvement of day to day work flow Translation into clinical language
• Therapists & nurses	Adequate representation of work	Visibility in the system Facilitating interdisciplinary team work
Hospitals	Adequate reimbursement Survival in the system Reduction LOS	Ensure economic benefit Ensure adequate length of stay according to G-DRGs
Insurance companies	Transparency	Improve transparency Control costs
Politics / Health system	Re-election No increase in costs	Ensure stability of the system Control costs & the system Ensure good health outcomes

reimbursement system toward a more individualized reimbursement scheme was risky (Table 2, Q12).

Some participants wondered how to decide which domains of functioning and respective services fell within the responsibility of inpatient hospital care and which were the responsibility of another care provider, such as rehabilitation clinics (Table 2, Q13).

Another concern mentioned was the selection of the right tool—for example, the Barthel Index or the Functional Independence Measure (FIM)—to capture and report functioning information, in light of both the practicability of data collection and the meaningfulness of reported results. Because the average length of stay is continuously decreasing, the tool needs to be sensitive enough to capture relevant changes in functioning over a short period of time. Participants mentioned that the Barthel Index is a good tool for quick assessment of functioning, but it is not sensitive enough to capture changes in

Table 5. Ideas and requirements on how to proceed.

SUBTHEMES	#	QUOTATIONS
Within the current structures	Q1	"And there we are to the point to what is the real incentive of capturing it? And we only know so much for the billing systems DRG because it is all coded and respectively reimbursed. Therefore, I believe, it is not going to work without the incentive to get reimbursement." (Participation 5, Administration)
	Q2	"We need a political level with respective expert committees. But we also need a level of expertise that simply provides information, data, to technically support these political requests." (Participant 14, Consultation)
	Q3	"Lobbying is very strong and it is like where the wind blows. There are possibilities for specific stakeholders to set specific things and less possibilities to set other things." (Participant 4, Administration)
Alternative approaches	Q4	"In general it's a good idea to take the coding of functioning as competition to the tens of thousands of OPS codes. Not to code various OPS codes for each patient, but rather one description of the degree of functioning." (Participant 2, Administration)
	Q5	"(. . .) we need something like a result-oriented reimbursement, oriented on outcomes and most of all, we would like (. . .) that even health maintenance is financed." (Participant 5, Administration)

a short period of time, whereas the FIM is comprehensive and sensitive enough to capture changes but too long and complex for quick use (Table 2, Q14 and Q15).

Economic considerations: Interviewees stated that in general every improvement in the depiction of the patient and needs leads to a better performance-related reimbursement. In order for functioning information to be integrated into the G-DRG system participants identified preconditions. First, to follow the G-DRG logic, coded functioning information must be linked to identifiable procedures or treatments. This is especially important for payers and funders of services as they only reimburse services or actions associated with improved health outcomes (Table 2, Q16).

Second, functioning information must provide a strong enough predictor of outcome to cause a split in costs. Some participants believed it is (Table 2, Q17), others were rather sceptical (Table 2, Q18). Participants agreed, however, that a precondition for functioning information to be considered in the G-DRG system is proof that it would lead to a revenue-relevant split in costs and would inform resource homogeneous groups.

General aspects concerning optimizing the G-DRG system by integrating additional information

The interviews revealed that there are 3 challenges in the overall design of the G-DRG system that need to be considered when integrating additional information into the grouping mechanism. These challenges are not unique to this topic but apply more broadly to the overall task of optimizing the G-DRG system.

Complexity of the system: The current G-DRG system is already very complex and complicated. Adding additional information adds another level of detail and further contributes to its complexity. Participants saw the risk that this would lead to a situation in which only a few experts were able to understand the mechanisms underlying the system, making all other stakeholders dependent on their opinions (Table 3, Q1).

Associated with this complexity is a need for building up infrastructures to document, report, and monitor the coding of additional information. Participants thought that this added to the workload for hospitals and health professionals, as it did to payers to monitor and evaluate the information. Maintaining and governing the G-DRG system also requires an infrastructure. There has already been a huge increase in procedural codes (OPS codes) since the implementation of the G-DRG system. Participants saw a risk that capturing additional information would have the same effect and questioned the political, economic, and personal motivation of all stakeholders to expand the system this way (Table 3, Q2).

Efforts vs benefits: The need to assess efforts and benefits also adds complexity. Participants raised concerns that many changes in the G-DRG system are accompanied by additional efforts, mostly in terms of administrative burden. In the case of integrating additional information, such as functioning information, the burden was mostly seen in increased documentation in the hospitals. In general, participants raised concerns whether the efforts would be worth the added value (Table 3, Q3).

Participants reported that the current trend in the G-DRG system is moving toward reduction in coding as the effort of documentation is higher than the economic benefit in terms of actual reimbursed money. Hospitals that are performing well in the current G-DRG system are not incentivised to code more information; on the contrary, they try to code only what is economically relevant (Table 3, Q4).

Nor is it clear who will invest in and receive the benefits from adding information, given the distinction between inpatient and outpatient care, acute and rehabilitation services as well as health, accident and pension insurances. If, for example, a hospital invests in prevention of severe long-term outcomes or complications in inpatient care, the patient may need less rehabilitation services and pension insurances. Participants therefore questioned the incentive to invest in optimizing functioning in inpatient care if no direct benefit to the investor results (Table 3, Q5).

Vested interests: The analysis of the interviews revealed diverse underlying interests, such as the perceived need to tailor

care to patient needs, not to increase insurance rates, to achieve stable costs, to adequately represent work in the DRG system, to reduce length of stay, as well as political interests such as the need to increase transparency. A detailed description is provided in Table 4. These interests are partially shaped by the design and incentive mechanisms of the current G-DRG system (Table 3, Q6).

Considering transparency, it is one of the main goals of the G-DRG system. But there are various perspectives on it. Additional information can be used by payers to determine adequate payment and stable costs. But this can also lead to the development of bonus-malus regulations, such as reduction in reimbursement if a patient has limitations in functioning (Table 3, Q7). This is of particular concern with functioning information that patient cannot walk after a knee surgery, where no reason is given for why this is. The patient may be unable to walk due to medical issues, may not want to walk or does not walk for reasons independent of health. Hospitals and health professionals may believe that this result of transparency of information is nothing more than an unwanted regulation of their work.

Ideas and requirements on how to proceed

Within the current structures: In general, participants believed that accounting for functioning information in the G-DRG system in the future is valuable and feasible. Ideas on how to integrate it ranged from using the ICF as an additional tool to complement ICD-10-GM and OPS and extending the current requirements of functioning assessments in the OPS codes, to developing new clinical guidelines.

One challenge involved the design of G-DRG system itself. The G-DRG system was developed to be a learning system that adapts in terms of the data that hospitals feed it in combination with proposal procedures. However, hospitals only report data that are revenue-relevant to ensure adequate reimbursement. To become revenue-relevant, data need to be collected and calculated within the G-DRG system. To see whether functioning information has the potential to split costs and form homogeneous groups of patients, this information needs to be fed into the system. But it will not be if functioning data are not collected as it is perceived not to be revenue-relevant. In order to challenge this vicious circle, participants agreed that there needs to be some kind of incentive mechanism for hospitals to collect and provide data on functioning information. This incentive mechanism is invariably economically driven (Table 5, Q1).

It also became obvious that decisions must be top down and so need to be made initially at a political level. The findings revealed that there are 2 main issues in pushing a change in the G-DRG system to integrate functioning information: first, evidence on the value of functioning information for the G-DRG system needs to be generated, and second, strong lobbying with relevant stakeholders needs to be done (Table 5, Q2).

Everyone agreed that more evidence is needed to convince relevant stakeholders of the value of functioning information for the G-DRG system. Nevertheless, there were different opinions on how to obtain this evidence and how to document an additional value or benefit. Table 4 summarizes various aspects that were mentioned in this context from the perspective of the participants.

But evidence is not enough. Participants highlighted the power and influence of personal networks and lobbying to make changes in the G-DRG system. This does not necessarily mean influencing the Ministry of Health as such, but starting with local politicians to raise awareness about the relevance of functioning information in the G-DRG system. A challenge mentioned in this regard was the duration of the legislative period and the political changes that happen every 4 years. The need to determine the right time to bring up the topic in public and political debates was identified (Table 5, Q3).

Alternative approaches: In light of current debates and trends in health systems in general, some participants formulated ideas for improvement that go beyond changes in the existing G-DRG system. The first was to integrate functioning information into the grouping mechanism of G-DRGs instead of procedure codes to deal with the already high burden of documentation. Participants pointed out that they do not want additional work even though they see functioning information to be more relevant and meaningful than the abundance of OPS codes (Table 5, Q4).

A second idea focused on revenue-relevant quality indicators that are based on the new bill to Reform Hospital Care Structures (the Hospital Structures Act) from 2016. Revenue-relevant quality indicators are still under development and it is unclear how they will be integrated. However, participants mentioned that integrating functioning information to assess outcome quality could be a promising way forward.

Finally, some participants mentioned that a single-minded focus on diagnosis and procedures simply fails to address the reality of patients with multimorbid and often chronic conditions and that a more outcome-oriented approach toward patient care is needed. In general, participants saw a huge potential for functioning information to capture these changes in functioning and outcomes across settings and to develop a reimbursement system based on those integrated patient pathways (Table 5, Q5).

Discussion

The study offers insights into the opportunities and obstacles of integrating functioning information in the G-DRG system and the associated technical, economic, and political complexity from the perspective of those stakeholders that play a key role in the design and governing of the reimbursement system in Germany. The relevance of functioning information for health systems in general was evident in all interviews. Accounting for functioning information in the G-DRG system was seen to have the potential to provide a more comprehensive picture of health of patients and respective resource use and so to facilitate provision of services tailored toward patient's needs and to

improve interdisciplinary team work ultimately leading to better health outcomes. However, it was questioned if the benefits of integrating functioning information outweigh the costs.

From the interviews it emerges that the G-DRG system is primarily driven by economic interests. Accounting for functioning information and focusing on a more patient-oriented perspective challenges the economic incentives of the system. There is little evidence of the extent to which functioning information would economically optimize the current system. The findings of this study therefore emphasize the need to define the role and purpose of functioning information in the G-DRG system.

From a purely technical perspective, merely adding functioning information as an additional variable into the grouping mechanism would improve the predictive power for costs and adequate grouping based on resource use of the system.[15] This is in line with current research on the potential of functioning information to optimize DRG systems predictive ability in terms of resource use and costs.[23,24] Once this information is added, a better allocation of reimbursement based on actual resource consumption can be achieved. Nonetheless, the available evidence and the findings of this study are at best indicative and further research is needed to explore the impact of standardized integration of functioning information into the G-DRG system on the grouping mechanism for different patient groups and the respective effects on service delivery and subsequently patient outcomes.

The results of this study do show that the reasons to include functioning information in the G-DRG system are perceived by key stakeholders to go beyond the technical features of the G-DRG system. Functioning information has the potential to increase visibility of specific health professional groups, namely, therapists and nurses, to improve interdisciplinary team work, and to facilitate care across settings. We already know from existing studies that using functioning information enhances clarity and holism in interprofessional communication,[25] clarifies the roles of team members, and fosters communication within and beyond multidisciplinary teams.[26] However, to achieve these goals, integrating functioning information in the G-DRG system is not sufficient. As Hopfe et al[27] argued, a systems approach must be used, one that takes into account all of the components of the health system as well as their interplay, to improve interprofessional collaboration and strengthen health systems response to patients functioning needs to ultimately improve patients outcomes.[27]

Yet, the findings of this study emphasize the strong relationship between financial incentives and changes in the overall system that have an impact on day-to-day work in hospitals. Implementing a more complete understanding of health by introducing functioning as a third health indicator cannot be achieved without the involvement of financing systems, such as the G-DRG system. The G-DRG system sets important financial incentives to collecting and reporting functioning information. However, based on the results of this study, no conclusion can be drawn on the impact of accounting for functioning information in the grouping mechanism of G-DRGs on actual service delivery and patient outcomes. Although the findings suggest an overall positive impact, further research is needed to consolidate the effects on a technical, patient and service delivery level in a standardized way.

Limitations

Engaging stakeholders from policy, management, civil society, and other relevant fields in research has become increasingly prominent.[28,29] Stakeholder engagement helps to understand current issues, identify needs, and align research to support the implementation of meaningful research agendas that, on the one hand, meets the needs of health systems and, on the other hand, successfully promotes innovative ideas and changes based on the latest evidence supported by key stakeholders.

Nonetheless, the study has several limitations. First, discussions concerning changes in the G-DRG system are highly political and involve vested interests from various stakeholders. The sensitivity of the topic is reflected in the response rate of the participants, with the highest response rate from stakeholders in the consultation area and lower from stakeholders directly involved in decisions about shaping the system. The qualitative and explorative approach of conducting interviews allows the researcher to capture rich and in-depth information on participants' views and experiences while it does involve the risk of hearing only official political statements. Other methods that provide a balance between anonymity and political positioning (eg, involving a safer environment for researchers and stakeholders to interact and exchange ideas, that is, the Chatham House Rule[30]) might be worthwhile to consider in future research on this topic to gain a comprehensive understanding of all views, interests, and challenges of accounting for functioning information in the G-DRG system.

As a result, the findings of this study are not generalizable. Still, they provide a good starting point for further exploring the potential of a systematic integration of functioning information in any DRG system. Second, although researchers cannot entirely part from their beliefs and expectations, we tried to mitigate this bias by a nonjudgmental and neutral interview style as well as regular meetings in the study team to discuss and interpret the data from different perspectives. Finally, the G-DRG system is unique in terms of the strong linkage between classification and reimbursement mechanisms. It is highly dependent on the health system and political structures it is embedded in. This limits the transferability of the findings to other countries and DRG systems. However, it would be beneficial to replicate the study in other countries and to investigate the potential of functioning information in other DRG systems and to consolidate learning across countries.

Conclusions

The relevance and importance of functioning information for health systems in general were evident throughout all interviews. It became evident both conceptually and clinically that

functioning information complements disease information and constitutes an important addition to the understanding of the differences in patients' needs for services that go beyond those of diagnosis and treatment. This is consistent with the approach of WHO to incorporate functioning characteristics into the 11th revision of the ICD (ICD-11) to facilitate the joint use of disease and functioning information. Further exploring this joint use of international standards for functioning and diseases as promoted by the ICD-11 is a promising way forward. However, the value of integrating functioning information into the G-DRG system was also criticized as not being worth that disruption to the system: Do the benefits of integrating functioning information outweigh the costs of obtaining the information?

Based on the findings, it can be concluded that a precise operationalization of functioning information, addressing what domains to cover, how to collect the information, as well as the validity and meaningfulness of the information are key factors that foster implementation of functioning information in the G-DRG system.

However, integrating functioning information into financing systems alone does not seem to be sufficient and a systems approach is needed to facilitate system-wide implementation of functioning information to ensure responsiveness to what matters to patients and in particular functioning needs.

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Author Contributions

MH developed and designed the study, collected, analyzed and interpreted the data. Furthermore she prepared and drafted the manuscript. BP assisted in the design of the study, in the analysis and interpretation of the data and provided feedback on the draft manuscript. GS and JB provided feedback on the design of the study and the draft manuscript. All authors were involved in continuous discussions that informed the development of the manuscript. All authors critically revised the draft manuscript and approved the final version.

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