Systematically evaluating the impact of diagnosis-related groups (DRGs) on health care delivery: A matrix of ethical implications

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1. Introduction

From the beginning of 2012, Swiss hospitals were required to implement a diagnosis-related groups (DRGs) based prospective reimbursement system for in-patient hospital care. Many hospitals had already been operating under a DRG system for several years, although this was the first time that a specific Swiss DRG system (developed from the German system)–'SwissDRG'–was made obligatory for acute somatic care in most hospitals [1,2]. Under the DRG-based system, hospitals are reimbursed a standard amount according to the number and type of cases they treat, rather than, for example, being reimbursed in the form of fee-for-service or per diem payment [1,3,4]. The Swiss system was implemented as part of a wider reform of hospital financing constituting a partial revision of the Federal Health Insurance Law ('KVG') [5].

After they were first introduced as a payment system for medicare in the US in 1983, a range of DRG-based systems have been implemented worldwide, including many European countries [6]. This kind of payment system is often implemented with the expectation that it will increase the transparency of hospital performance and resource

Abbreviations: DRGs, diagnosis-related groups; HCP, health care practitioner; IDoC, Assessing the Impact of Diagnosis Related Groups (DRGs) on patient care and professional practice; LOS, length of stay; PHE framework, public health ethics framework; PPS, provider payment system.

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consumption by standardizing reimbursement, and result in greater efficiency by encouraging appropriate care and discouraging unnecessary care [4,7]. Indeed, in Switzerland a primary goal of the implementation of DRGs has been cited as an increase in efficiency and cost control by improving transparency and by increasing comparability between Swiss hospitals [1,8].

Any health care reform can have a significant impact on health care delivery and, as such, needs to be assessed [9,10]. Since their introduction, DRGs have generated research to determine their impact on, for example, cost and efficiency, the quality of health care, access to health care and the work satisfaction of health care practitioners [1,3,7,11–25]. Despite the literature that DRGs have already generated, it is essential to understand precisely how DRGs work within the context of a particular country and its health care system. As part of a multidisciplinary group, we are conducting empirical and normative research in understanding the impact of DRGs in the Swiss context: the IDoC Project (Assessing the impact of DRGs on patient care and professional practice) [26]. There are also important gaps in the international literature that we aim to address. While concern has been raised about the impact of DRGs, for example, on ethically relevant factors such as the quality of health care and access to care, no systematic attempt has been made to identify the potential ethical implications of the implementation of DRG-based systems.

When we claim that something is 'ethically relevant' or has 'ethical implications' we mean that it is relevant to or has implications for significant social values, such as justice, for example. The problem with literature on DRGs and their ethical implications is that where DRGs and ethics are discussed at all, they are often discussed in relation to only one or two ethical values. What would be useful, particularly to policy-makers, would be to attempt to identify systematically which ethical values may be relevant to DRG-based systems overall.

With this in mind, we have developed the matrix presented in this paper. The matrix has helped us to group our research questions into categories according to the underlying ethical values, which enables us to understand the ethical implications of our research. However, it is not only intended as a means for our specific research. We have also explicitly developed this matrix for other researchers and policy-makers to help them to identify the ethical implications of DRG-based provider payment systems (PPS) and potentially other PPS, as well as to understand how their research or policies fit into a wider framework of ethics.

2. Material & methods

The research culminating in the matrix can be divided into three parts: (1) a literature review and empirical research on DRGs, (2) a review and analysis of ethical frameworks and (3) the analysis and systematization of steps 1 and 2.

2.1. Literature review and empirical research on DRGs

We have been conducting research on DRGs since 2008. Our initial research led to the development of the IDoC project, which started in the beginning of 2011 and is currently in the process of assessing the impact of the DRG-based reimbursement system in Switzerland. The initial research consisted of a literature review of DRGs, as well as various empirical studies. In our literature review, we aimed at gaining an overview of the potential ethically relevant aspects of health care on which DRGs are likely to have an influence or have been shown to have had an influence.[1] Our initial empirical studies aimed at collecting data to elucidate the specific Swiss context and included a Delphi study, and qualitative interviews [27–29].

The IDoC project consists of five sets of studies conducted across four disciplines: medical ethics; law; nursing sciences; and health services research. Its aims are to provide: (1) empirical data on the impact of DRGs in Switzerland; (2) a critical analysis of the relevant ethical and legal issues; and (3) a set of tools for the long-term evaluation and monitoring of the impact on ethically relevant aspects. Most of the studies in the project are empirical, including a clinical study, quantitative surveys, and qualitative interviews, although within the field of medical ethics, we are also conducting further literature reviews and normative philosophical analysis in order to explore the ethical implications of DRGs in detail.

Although neither the initial nor the ongoing research has been conducted purely for the purpose of developing the matrix presented in this paper, they have been instrumental in its development. Particularly, this research has helped to indicate (1) a gap in the literature on the ethical implications of DRGs, which makes the matrix necessary, and (2) the ethically relevant aspects of health care on which DRGs are likely to have an impact. In response to our initial findings, we developed a preliminary matrix to identify the ethical implications of our research questions [30]. However, our ongoing research indicated that we needed to develop this matrix further, and that we needed a stronger normative basis for it. For these reasons, we added a further step to the process of developing the matrix—a review of ethical frameworks.

2.2. Review of ethical frameworks relevant for DRGs

Numerous ethical frameworks have been developed in clinical, research and public health ethics in order to identify and assess the ethical implications of health and health care policies. These frameworks are normative tools which aim to identify the significant ethical values underlying particular policies and may also provide guidance on how these values should be weighed against each other when they come into conflict.[2] We aimed to review a range of

[1] To gather as much information as possible, we conducted a 'snowball' system search with broad search terms (e.g. "DRG" OR "prospective payment system" AND "ethics", "ethical", "access", "autonomy", "physician's perception", "nurses") in search engines such as Google Scholar, Pubmed and DIMDI, but also hand searched in relevant journals or with the help of cited literature in relevant papers.

[2] Ultimately, ethical analysis and assessment occurs at the normative level. Normative ethics is concerned with determining moral status, e.g. of acts, character traits or even policies and institutions. Determining the moral status of an act (or a health care policy) means establishing whether

ethical frameworks to determine whether they could be applied to DRG-based systems and, if so, to help to provide a normative basis for our matrix, which was, thus far, primarily practice-based. In order to identify the frameworks for public health ethics, the fairness of health care reform, and clinical ethics, we conducted a search of databases (Pubmed, Embase and Cinahl) using the search term “ethics framework”, and we also hand searched cited literature.[3]

2.3. Systematizing the results

In order to capture the empirically grounded aspects of health care on which DRGs are likely to have an influence, as well as to present these aspects in light of a normative framework of ethical values, we systematically analysed the results from research on DRGs (step 1) in light of the review of ethical frameworks (step 2), and vice versa. The ultimate result of this combination of top-down and bottom-up analysis is the matrix presented in this paper.

3. Results

3.1. Literature review and empirical research on DRGs

Our literature review and empirical research identified three major parameters of health care on which DRGs are most likely to impact: (1) the cost of health care and the efficiency with which it is provided, (2) the quality of care, and (3) equitable access to care. For example, DRGs are often expected to reduce patients’ average length of stay at hospitals (LOS) [18,31], and subsequently, health care provisions might become more efficient. However, while some studies have indicated that DRGs do help to contain costs, others report that efficiency has actually decreased after the introduction of DRGs [12]. Even if costs are contained, however, concerns have been raised that necessary care is being sacrificed in order to achieve a reduced LOS and that patients are being discharged too early which may increase readmission rates or shift costs to outpatient sectors [3,13,18]. On the other hand, the counter-claim has been made that the reduced LOS is actually improving the quality of care by cutting unnecessary or wasteful, perhaps even harmful, treatment [21]. There is also concern about access to care as DRGs may, for example, incentivize admitting more patients who will cost less on average or make access more difficult for patients who are likely to cost more [3,14,18]. For example, certain kinds of patients, such as those with lower functional status, may cost hospitals more than average patients do [15] and this could potentially discourage hospitals from treating them [13]. This is not intended to be a comprehensive discussion of the debate about DRGs. We aim here only to indicate in which ways DRGs have been said to influence these three parameters.

Besides these three parameters, much research on the impact of DRGs is concerned with a fourth parameter, which is (4) the influence that DRGs have on health care practitioners (HCP) in clinical settings. These concerns can be divided into two groups—concerns about the impact that DRGs have on the professional standards of HCP, and concerns about the impact on their work environment.[4] In terms of the effect on professionalism, for example, concern has been raised that the financial incentives implicit in DRGs could clash with physicians and nurses’ ethical standards and responsibilities [12,20,32,33]. Concerns have also been raised that a DRG-based prospective payment system could have an effect on working conditions, for example, by increasing bureaucracy [32] or decreasing job satisfaction [11].

Identifying these four parameters provides us with a practice-based understanding of the impact that the implementation of DRGs is likely to have or has had. To differing degrees, and as we will discuss in the next section, each of these parameters can be related to ethical values, and thus each is represented in our matrix. If a DRG-based system has an impact (whether positive or negative) on equitable access to care, for example, it can be said to have an impact ethically through the value underlying this parameter. The four parameters provide us with a basis for starting to identify the ethical values underlying the implementation of a DRG-based system; however, it requires a stronger normative basis.

3.2. Review and analysis of ethical frameworks

We identified and analyzed 13 ethical frameworks for health and health care to determine whether we could find a normative framework which could be applied to DRGs [34–46]. Particularly, we found that Childress et al’s public health ethics framework (PHE framework [42]) seemed to highlight many of the most important values likely to be relevant to the implementation of a DRG-based PPS, and subsequently, we decided to use this framework as a basis for our matrix (although we do not claim that it is the only framework that could be used). As we will explain below, however, we could not simply directly apply this framework to DRGs–it needed to be adapted.

The PHE framework could be seen to highlight the ethical values underlying the first three parameters of health care indicated by our empirical research:

(1) The value of ‘utility’ could be said to underlie the cost and efficiency of health care.
(2) ‘Producing benefits’ could be said to underlie the quality of health care, and
(3) ‘Distributive justice’ to underlie equitable access to care.

It may not be clear at first sight that the costs and the quality of health care—and not merely the equitable access to care—are ethically highly significant. However, a very costly health care system, or one which does not deliver

it is permissible, obligatory or forbidden, for example. See Kagan [53], for example, on determining moral status.

[3] For a summary and comparison of a number of the frameworks we considered, see Lee [54].

[4] Professional standards would include, e.g., physicians’ commitments to professional competence, scientific knowledge, and improving quality of care [55].

good quality care, or both, may not, for example, be able to meet a population's health care needs adequately. In turn, there is widespread agreement within the literature on public health ethics and health justice that governments are ethically obliged to provide, at least, a basic level of well-being for its citizens, through for example, health care.[5] Subsequently, it is not controversial to associate the parameters of cost and quality with ethics.

Where debate may lie is with which values to associate these aspects, rather than whether or not they are ethically relevant (and also what weight to assign to each value should it come into conflict with others). There is a range of feasible options. For example, cost, quality and access could all be subsumed under a heading of 'distributive justice' as one can claim that we cannot have a fair distribution of social goods, including health care benefits, without finding a balance between all three of these aspects. The costs of care and its quality could also, for example, both be subsumed under 'utility'. Although there are a number of options, we have decided that for identifying the ethical issues associated with DRGs, it is important to tease out and recognise each of these parameters as independent, and subsequently to associate them with independent values. The (practical) reason why is that DRGs may have negative effects on certain parameters while having positive effects on others, and subsequently we would be in danger of ignoring this distinction in effects if they are subsumed under the same value.[6]

Besides indicating which values could be associated with the parameters of cost, quality and access, the PHE framework helped to highlight certain ethical aspects that seldom seem to appear in the ethical analyses and empirical research on the impact of DRGs. The first of these is the value of transparency ("disclosing information as well as speaking honestly and truthfully") [42]. Having hospitals use the same classification and payment system is meant to increase the transparency of the hospital reimbursement system. Indeed a primary goal of the implementation of DRGs has been reported as the improvement of transparency [8]. However, although transparency has been mentioned in some studies on DRGs [47], it appears not to be discussed in great depth from an ethical perspective. We have therefore included transparency in our matrix as one of the primary ethically relevant parameters on which DRGs could have an impact.

Secondly, an additional value identified by the PHE framework is autonomy—"respecting autonomous choices, including liberty of action" [42]. While we did not find studies that explicitly focused on the impact of DRGs on patient autonomy we included this as a primary ethically relevant parameter in our matrix, as, for example, the increased comparability between hospitals using DRG-based payment systems, could be said to enhance patient autonomy.

Lastly, the PHE framework also inspired us to add 'procedural justice' to the matrix. This factor emphasises the importance of, among others, public participation and accountability in the decision-making and evaluation of health policy. The ethics of procedures that led up to the implementation of DRGs, as well as the ethics of the procedures in place for monitoring and evaluating DRGs, have been neglected in the literature. However, the fairness of the procedures of health care policy is also a significant ethical value that should be taken into account when identifying and assessing the impact of a PPS.

Thus, the analysis of ethical frameworks showed us that we cannot rely only on the research on DRGs to indicate which ethical values might underlie the implementation of a DRG-based system. There seem to be ethical values that could be relevant—transparency, autonomy and procedural justice—which do not seem to be discussed much in the literature on DRGs.

In turn, our literature review and empirical research highlighted that the values in the PHE framework would need to be supplemented if it were to provide a normative basis for analysing DRG-based payment systems specifically. As indicated, much empirical research on DRGs is focused on the experience of HCPs such as the impact of DRGs on practitioner-patient relationships and on HCPs' work environment (our fourth empirical finding). The PHE framework does not seem to capture this dimension, in all likelihood because this dimension is relevant to clinical settings but it is often not relevant to many public health policies. For this reason, our matrix was designed in a way that would take these factors into account.

The first necessary adaptation to capture this influence on HCP in clinical settings was to divide the impact of DRGs in the matrix into three levels, represented by three columns—the macro-, meso- and micro-levels of health care.[7] The ethically relevant values at a population health level (represented in public health ethics frameworks) may not capture the specific effects that DRGs have on meso- and micro-levels of health care, since public health is concerned with the health of entire populations and thus what can be called a macro-level of health care [42]. As emphasised by clinical health ethics frameworks (such as the Beauchamp and Childress 'principlism' model) [46], at least some of the values identified in the public health ethics frameworks are also important values at play at the meso- and micro-levels, and unless this is made clear in our matrix, we would be concerned that these potential effects of DRGs might be neglected. For example, if DRGs were shown to have an impact on specific rules that physicians follow in order to promote patient autonomy, such as

[5] See, for example, Daniels [56,57] for one of the various ways of expressing and justifying this obligation.

[6] See also, for example, Daniels, Light and Caplan [9] who divide 'value for money' (which includes both costs and quality) into two separate benchmarks to reflect their independence as important values (pg. 53-57).

[7] At the macro-level, broad institutional decisions about the health of an entire population or population groups are made. At the meso-level, decisions for particular health care settings are made, e.g. the board and management of a specific hospital deciding how to distribute their budget. Health care practitioners often make decisions at the micro-level, e.g. decisions about which particular tests to perform on a patient or which patients should be assigned hospital beds in an intensive care unit. See, for example, Nord [58] who distinguishes between these three levels of health care, although he describes them as the budget, admissions and clinical levels.

obtaining informed consent, this may not necessarily have an influence on population health, but it may still be an ethically relevant impact that needs to be identified and can thus be recorded as an example of the impact on autonomy at a micro-level.

The second means we have used to attempt to take the influence that DRGs have on HCPs into account was to add two parameters to the matrix, beyond the specific parameters clearly associated with the PHE. Even after the division of our matrix into macro-, meso- and micro-levels, this influence seemed not to be appropriately reflected in the matrix without further adaptation. Thus, we added the parameters (1) the professional standards of HCP, and (2) HCPs' work environment and job satisfaction to the matrix. These factors can be directly related to ethics as, for example, professional standards often reflect the ethical obligations of HCPs. However, they may only have an indirect, secondary effect on the primary ethically relevant parameters. For example, if DRGs negatively impact on the work environment of HCP, this could lead to effects on the quality of care. At times, effects on work environment may have no ethical implications. As many of the effects of DRGs on clinical settings may only have indirect effects or we may not even be sure that they have any clear effects on ethical aspects, we have referred to them in the matrix as 'secondary ethically relevant parameters' as distinguished from the primary parameters of cost, quality, access, patient autonomy and hospital transparency.

4. Systematizing the results

Systematizing the results from steps 1 to 2, led to the development of our matrix for identifying the ethical values associated with DRG-based PPS (see Table 1 below).

The matrix consists of 3 primary columns:

(1) The ethical values underlying the potential effects of the implementation of DRGs.
(2) The primary and secondary ethically relevant parameters of health care systems on which DRGs are likely to have an effect, as well as the processes of decision-making leading to the implementation of DRGs.
(3) Illustrative examples of research or policy-related questions or results for each cell of the matrix.[8]

Many of the examples used in the matrix were derived from the IDoC project which was developed in light of our initial empirical research and literature review of DRGs.

We have found that for each cell of the matrix, examples could be classified as (i) descriptive, (ii) methodological or (iii) normative corresponding to these three modes of inquiry into ethics:

(i) It may be necessary to answer descriptive research questions that are often posed in other disciplines, such as health services research, in order to determine if the ethically relevant parameters are indeed being affected by DRGs, and if so, in what way. For example, in order to know if the parameter of quality of care is being affected by the implementation of DRGs, and in turn if the value of 'producing benefits' is being affected, we will need to consult empirical studies.
(ii) While the descriptive questions focus on trying to determine the influence that DRGs have on such parameters as cost and quality, methodologically we need to ask, for example, how this influence can be measured. Take the effects of DRGs on quality of care. This leads back to the question of how quality of care should be defined and how its effects can be measured. There is disagreement on how to answer both of these questions [48–50] as well as how to evaluate these answers from an ethical perspective. Thus in order to understand the influence that a DRG-based system has on certain parameters, and in turn on the underlying ethical value, we may need to address a number of methodological questions.
(iii) In identifying the implications of DRGs we may need to answer further normative questions. For example, in trying to determine the influence that DRGs have on the value of 'distributive justice' we may aim to examine normatively whether a certain threshold of health care access may be a fundamental requirement of justice.

However, although it may be important to answer descriptive and methodological questions in order to try to identify the influence of DRGs on ethically relevant parameters of health care, the overall framework is normative as it connects these parameters to ethical values. Ultimately, it can be used as a basis to evaluate whether DRG-based systems or certain aspects of them are morally problematic and may thus be in need of revision.

5. Discussion

Developing a matrix for the ethical assessment of DRGs has several advantages. We believe that our framework can help researchers and policy-makers in health care to identify and address in a systematic manner the ethical implications of the implementation of DRGs. It can also be used to guide future research by indicating gaps in research on some of the ethical implications of DRGs. Additionally, this research and its classification according to the matrix can help to indicate areas of concern which may need to be addressed through policy at macro-, meso- or micro-levels of health care.

Furthermore, the framework has the advantage that it may also be useful for identifying the ethical impact of other PPS, such as case-based payment systems which are not based on DRG classifications; fee-for-service systems; or hospital global budgets. It could also be used to assess the ethical implications of DRGs in other countries. Currently, a modified version of our matrix is being used for a study in China which is assessing case-based payment

[8] The matrix is designed to be a useful analytic tool and for this purpose we have divided it into cells according to ethical parameters and levels of health care. However, the fact that the cells have been divided in this way should not result in the impression that each cell is independent of the others. On the contrary, the cells are often interdependent and tend to overlap–for example, a rigid distinction cannot be drawn between the macro-, meso- and micro-levels.

Table 1
Matrix for identifying the ethical implications of the implementation of DRGs.

1. Value/s	2. DRG-specific factors	3. Examples		
		Macro-level	Meso-level	Micro-level
	Effects of DRGs on primary ethically relevant parameters:			
i. Utility	Cost & efficiency	(D) Do DRGs help to contain costs for the health care system?	(D) Is efficiency under DRGs correlated with the kind of hospital providing the service?	(M) What, if anything, can we learn about the impact of DRGs from HCPs' perceptions of efficiency?
ii. Producing benefits	Quality of care	(N, M) How should we define and measure good quality of health care?	(D) How is patient safety affected by the implementation of DRGs at specific hospitals?	(D) How, if at all, do DRGs influence the quality of care for individual patients?
iii. Distributive justice	Access to health care	(N) Is sufficient access to health care a fundamental requirement of justice?	(D) Do DRGs affect access to care at specific hospitals?	(D) What are HCPs' perceptions of how vulnerable groups are affected by DRGs?
iv. Transparency	Hospital transparency	(D) Do DRGs result in greater pricing transparency?	(D) Are hospital procedures conducive to promoting transparency?	(M) How, if at all, can hospital transparency be judged at a micro-level?
v. Autonomy	Patient autonomy	(N, M) What is patient autonomy and how should it be measured?	(D) Do DRGs lead to greater competition between specific hospitals and does this impact on patient choice?	(D) How, if at all, do DRGs affect the autonomy of individual patients, e.g. through an impact on informed consent?
	Effects of DRGs on secondary ethically relevant parameters:			
vi. Professionalism (and links to above values)	Adherence to ethical standards	(N) Which ethical obligations should be contained in HCPs' professional standards?	(D) Have hospitals adapted their policies on professionalism in response to the implementation of DRGs?	(D, N) Does cost containment cause conflict with the professional standards of HCPs?
vii. (Potential links to above values)	Work environment & job satisfaction	(N, M) What impact, if any, does HCPs' job satisfaction have on the primary parameters?	(D) Which procedures, if any, do hospitals have for counter-acting any effects of DRGs on workload?	(D) How do DRGs influence HCPs' perceptions of workload and job satisfaction?
	Ethics of DRG-related decision-making procedures:			
viii. Procedural justice	The fairness of the procedures of health care reform	(D, N) Did the processes leading to DRG-based health care reform comply with 'public accountability'?	[Not applicable at a meso-level]	[Not applicable at a micro-level]

D: descriptive.
M: methodological.
N: normative.
HCP: Health care practitioner.

[51]. The matrix is suitable for other types of PPS or contexts as it identifies the primary ethical issues that tend to be influenced by DRGs worldwide as well as by other payment systems—cost and efficiency, quality of care and equitable access to care [3,4,12,52].[9] This, of course, does not mean that there might not be further ethical issues at stake for other countries or other provider systems but the core matrix can be used as a base to be modified and extended as appropriate in particular contexts.

Although we believe the matrix can be practical in a number of contexts and it fills a gap in the literature, we must highlight certain qualifications and limitations.

[9] Although Brügger [12] and the World Bank Report [3] do not refer specifically to these as ethical issues, they do discuss the incentives associated with different hospital payment methods, including aspects such as the under-provision of services, reduced length of hospital stay and unnecessary hospitalizations, which are often indicators of the primary ethical dimensions.

The application of the matrix should not result in setting the focus too small. Instead, the identification of the ethical implications of the implementation of DRGs should be understood within the wider context of the specific health care system in which a DRG-based reform takes place. For example, DRGs are often implemented as part of a broader package of health care reforms. This is indeed the case in Switzerland where new hospital financing regulations came into force in 2007, which included but was not limited to the requirement to introduce a DRG-based system [5]. The broader health care reforms may have their own ethical implications or implications for the DRG-based system, and ethical analysis is likely to be much more broadly required than merely at the level of the DRG-based revisions. Additionally, establishing any causal links between DRGs and measurable outcomes is particularly challenging (see, for example, Ljunggren and Sjödén's discussion [50]) and this needs to be kept in mind when attempting to identify the ethical implications of a particular DRG-based system.

Furthermore, DRG-based systems should not be evaluated in isolation from alternatives. If DRGs have negative implications, this needs to be considered in comparison to the negative implications of their alternatives. As we have pointed out, our matrix may be useful in identifying the ethical implications of other PPS and thus could be fruitfully used to compare a DRG-based system to other systems.

A limitation of the matrix is that it relies on a specific approach to bioethics—the use of ethical frameworks as a means for identifying and evaluating ethical values—which we do not defend theoretically. In order to make progress with developing this matrix, we have accepted this well-established approach as given. Ethical frameworks, however, need themselves to be theoretically justified and one could argue, for example, that unless a framework rests on a specific normative ethical theory, it may be attempting to combine inconsistent ethical values by isolating them from a detailed and consistent philosophical basis. Furthermore, we are aware that our matrix may raise further theoretical concerns of its own considering that we adapt the PHE framework, meaning that even if we were to accept that this framework is theoretically sound, our adaptation may require further theoretical defence. However, it is not within the scope of this paper to defend this ethical framework nor our adaptation of it theoretically.

Lastly, even though the matrix is the result of much research, we do not present it as complete or exhaustive. On the contrary, we understand it as a starting point to address a gap in the literature—it is thus a preliminary matrix which could be further refined or adapted on the basis of ongoing normative analysis, or through the results of empirical studies on DRGs.

6. Conclusion

Research on the ethical implications of DRGs tends to focus on isolated, ethically relevant parameters, for example, the focus is on how, if at all, a DRG-based PPS affects quality of care, and by implication, the ethical value underlying the quality of care. While this research is indeed very desirable, only having such research means that we lack scope—the focus on isolated ethically relevant issues does not indicate how research and policy questions on DRGs fit into a broader context of explicitly identified ethical values, and how DRGs may have a range of influences on a range of ethically relevant parameters of health care. In order to address this gap, we have developed the matrix presented in this paper, which can be used to identify ethically relevant aspects of DRG-based PPS, or potentially other PPS. We have illustrated its use through examples of research or policy-related questions, particularly those relevant to the current DRG-based system being implemented in Switzerland. The matrix should not be understood as static or complete—it is a preliminary matrix which can be used as a basis for discussion, and for further refinement and adaptation in different contexts.

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