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An Economic Analysis of Money Follows the Patient

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An Economic Analysis of Money Follows the Patient

1. Introduction

The Irish Government's radical plans to re-design the Irish health care system were outlined in the Department of Health strategy document *Future Health* [1] and subsequent policy documents [2-4]. As part of the proposed changes, the Department of Health [3] outlined a new funding model for publically funded Irish hospitals – Money Follows the Patient (MFTP). This would mean a shift from the current model of a prospective block grant to retrospective activity based funding (ABF), whereby episodes of care will be funded rather than hospitals themselves. Thus, hospital revenue will be directly linked to activity, resulting in a shift in incentives. It is proposed that MFTP be fully implemented by 2014. This paper reviews the current system and the principal weaknesses therein; outlines the new model; examines the principal economic issues anticipated with its introduction; describes some feasibility issues specific to Ireland and provides conclusions.

2. Review of Current System

To date funding for Irish hospitals has been predominately prospective, whereby hospitals receive an historic block grant. Since 1993 with the introduction of the 'National Casemix Programme' there has been modest progress towards ABF through the introduction of diagnostic related groups (DRGs) in the largest Irish hospitals [5, 6]. Over time the number of DRGs employed has increased and its application has broadened to include inpatient and day case activity. In addition, there has been an increase in both the number of hospitals involved in the programme and in the proportion of funding received through the programme by hospitals (15% in 2000 to 80% by 2011 [7]). Consequently, by 2011 80% of hospitals' inpatient funding was based on the national average costs of its case-mix adjusted peer group, rather than its own costs [5]. However peer-groups are large which dilutes case-mix adjustments to the extent that hospital budgets are still predominantly generated by historic cost on a prospective basis [8]. (For detailed description of Irish hospital system and hospital financing see Wiley [6] and incentives therein see Brick et al. [9]).

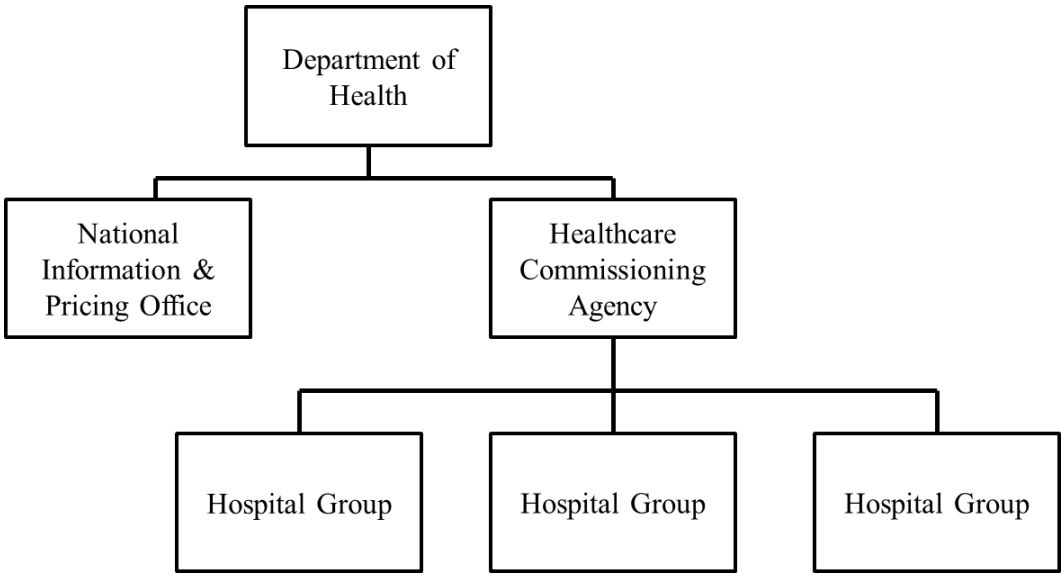
3. Money Follows the Patient

The proposed MFTP system will fund episodes of care, not hospitals. Therefore, hospital revenue will be a direct consequence of a hospital's activity, adjusted for case complexity,

and the link to the historic budget will be broken. ABF has been adopted in over 25 countries worldwide [10] including Medicare in the US, the NHS in England [11] and many health systems in Europe [12, 13].

Department of Health [3] set out the governance structures for the proposed MFTP system. This is presented in Figure 1. Under MFTP two new entities will be established. Firstly, the Health Care Commissioning Agency will be established. It will have responsible for the purchasing function, namely negotiating contracts with hospitals regarding cost, volume of activity and potentially performance against quality indicators. This agency will also pay hospitals quarterly on a case mix basis [4]. Secondly, an independent National Information and Price Office for the price setting function will be established.

Figure 1 Money Follows the Patient, Governance Structure



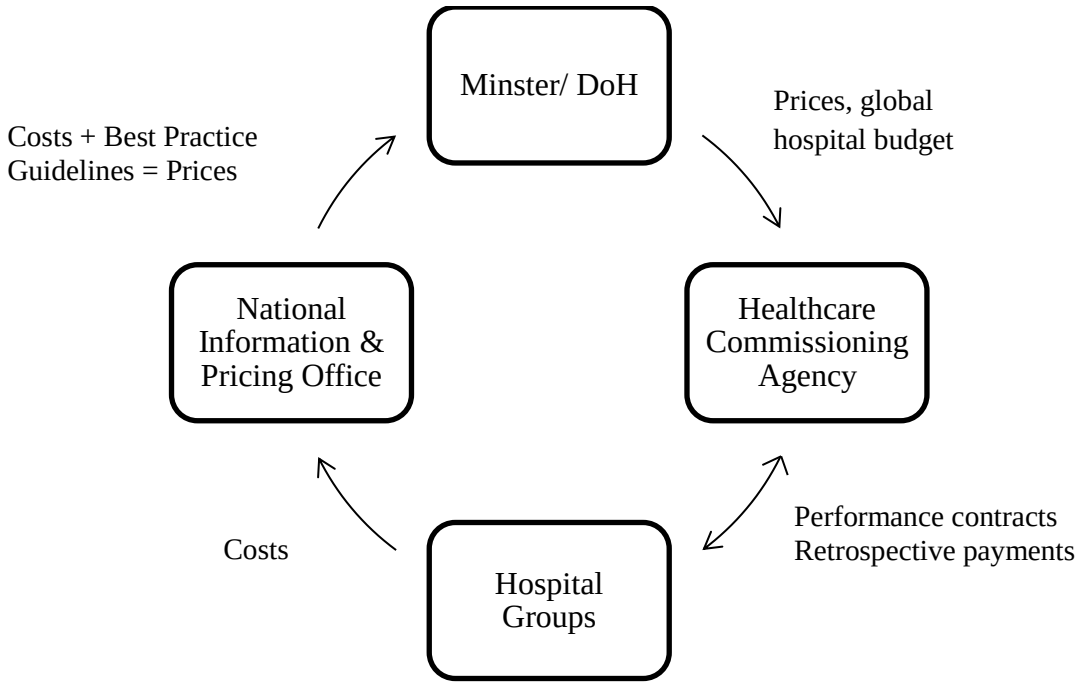
Source: Adapted from Department of Health [3]

Figure 2 presents the resource and information flows within the new structure. It is proposed that hospitals will collate patient level costing data and report this to a newly formed National Information and Price Office on a regular basis. In the interim, these patient level cost and activity data will be utilised by the National Information and Price Office to set prices for episodes of care and in the long term, the cost of best practice guidelines will form the basis of prices. Episodes of care will be defined using the pre-existing Hospital Inpatient Enquiry

Scheme (HIPE) (see ESRI [14] for description) and related Australian Refined DRG (AR-DRG) grouper initially. There will also be an outlier payment mechanism, based on length of stay thresholds, to take exceptionally high cost cases into consideration [3]. The prices will include all pay and non-pay costs; diagnostic, medical services and associated overhead costs and costs associated with clinical indemnity schemes. Capital, depreciation, superannuation and bad debts will be excluded initially [3].

Once the Minister for Health approves the prices, they will be presented to the Health Care Commissioning Agency along with the global hospital budget. The Minister also will ensure that appropriate legislation is in place for the smooth running of the financing system. Hospital Groups and the Health Care Commissioning Agency will agree contracts on activity and quality. Hospital Groups will be paid retrospectively on a quarterly basis by the Agency.

Figure 2 Money Follows the Patient, Data and Resource Flows



DoH = Department of Health

Source: Adapted from Department of Health [4]

It is proposed that MFTP will apply to episodes of care provided in medical assessment unit/acute medical assessment unit/acute medical unit, clinical decision units, day ward or

inpatient ward and all comparable episodes of care which are or could be delivered on an outpatient basis [4]. Emergency services (including emergency department and minor injury units), outreach services, as well as teaching and research costs will be excluded. In addition, owing to complexities, outpatient services ancillary to an episode of care are to be considered outside the main bundle payment, though this arrangement will be reviewed. Furthermore, while it is envisaged that mental health should be considered in a similar manner to other episodes of care, given its complexity it will be phased in at a later date [3].

4. Principal Economic Issues with MFTP

MFTP does not fund hospitals; it funds episodes of care, which establishes a direct link between the hospital's activity and its revenue [15]. This contrasts with the current system and is a boon to understanding the system for all stakeholders from taxpayer and patient through to manager and clinician. Moving from a system where hospitals were constrained to spending within a fixed budget, to one where a hospital has to generate its own revenue causes significantly changes to the incentive structure for hospitals, as well as other providers and purchasers in the health system.

ABF systems generate incentives to increase number of patients treated, reduce cost per case [11] and increase the quality of coding [16, 17]. However, unintended and less desirable incentives emerge, include skimping on quality, which imposes pressures on other parts of the health system [11, 18, 19], upcoding [19, 20] and cream-skimming [18, 19]. As well as these there are additional economic issues associated with MFTP such as its role in increasing competition between hospitals; the effects of procedure pricing on behaviour; distorting health system priorities and the role of economic evaluation in designing best practice pathways. This section discusses the advantages and disadvantages for each issue where relevant and provides supporting evidence.

Reducing cost per case

Establishing a regime whereby hospitals get paid for activity delivered may shift their objective function to revenue maximisation from delivery of Service Level Agreements within a fixed budget. If so, hospitals will seek to maximise their revenues by generating as many (non-lossmaking) episodes of care per annum as possible. This has the advantage of

increasing volume with the potential to reduce cost per episode in a number of ways. First, it allows fixed costs to be spread over a greater number of episodes. Second, it may allow greater 'learning by doing', that is, clinical teams may deliver outcomes at reduced length of stay, so that as the volume of episodes increase, clinical practices become more routine, for instance. Third, there is a greater incentive to use resources more intensively, by increasing the use of day wards for instance.

However, there may also be disadvantages. These include early discharging [15, 21], including from high dependency wards to general wards or from hospital altogether. The former would have implications on the quality of care and consequent speed and quality of recovery for patients. The latter places greater demand on services in the community, such as primary care and long term care.

Similarly, there are greater incentives to discharge so called 'bed blockers' i.e. those who are medically fit for discharge but have not been discharged, typically because they are awaiting beds in long-term care settings or the establishment of appropriate home supports. Gallagher et al. [22] found that these represented 2,436 bed days or approximately 4% of the total bed days available in one Irish general hospital. These patients represent a barrier to the hospital admitting more patients and therefore earning additional revenue under MFTP, given that according to DoH [3:32] '*[e]pisode of care begins at point of admission and ends when patient is deemed medically fit for discharge"*. This also puts additional demands on services in the community.

The MFTP proposal [3] and supporting documentation [4] somewhat neglects services in the community [23]. The Department of Health [3:31] states that acute to step-down or long-term care requires *'very careful consideration'* but does not elaborate on these considerations. Proposals to enhance the integration of acute services and services in the community , such as universal general practice (GP) care free from fees and increased number of Primary Care centres (many of which have low levels of GP involvement), have progressed slowly.

It is proposed that MFTP be rolled out to the remainder of the health system so that funds can follow the patient out of the hospital via an integrated payment system [1]. This concept has been tested in the US. For example, Casale et al. [24] report its use on coronary artery bypass grafting wherein outcomes improved and resource use decreased. Details on how this would function for the Irish health care system however are not addressed under the MFTP proposals.

Evidence on the net outcome of these incentives is mixed. There is some Irish and international evidence to suggest ABF results in increased volumes and/or reductions in length of stay. For example, according to Minster Reilly, when MFTP was piloted in number of Orthopaedic sites in Ireland volume increased and length of stay reduced [25, 26] by approximately two days [27]. Similarly, in England following the introduction of 'Payment by Results' (PbR) in the NHS, modest increases in volumes and ratio of day cases to inpatient were found [11]. In addition, average lengths of stay reduced (by 0.8 days) as did unit costs without changes in quality [11]. However, the quality indicators used lacked, by the authors' own admission, the specificity needed to properly test the effect of PbR on patient care [11]. Moreover, observed volume increases have also been attributed to increased government pressure at the time to reduce waiting times for non-emergency care [11]. A similar finding was reported by Kjerstad [28]. Also, where hospitals are already operating at full (or near full) capacity there is little scope to increase volume [19].

A key concern discussed above is the increased pressure MFTP could place on services in the community. According to Sussex and Farrar [19] in a survey of health managers, this was less of a concern in the NHS owing to the close relationship and altruistic culture between hospital trusts and primary care trusts (PCTs). Those surveyed felt that both hospital trusts and PCTs took joint responsibility for the local health economy, focusing on serving patients rather than advancing the interest of individual organisations at the expense of others [19]. In Ireland, Ruane [29] referred to Primary, Community and Continuing Care (PCCC) structures as being fragmented, with a mix of public and private hospitals and public and private payers. Thus, responsibility for the local health economy is presumably more obscure than Sussex and Farrar [19] found for the UK.

Other measures which could be taken in the Irish system to ensure quality of care is not compromised under MFTP include firstly, the adoption of best practice clinical pathways earlier rather than later and their inclusion in contracts between the Health Care Commissioning Agency and the Hospital Groups, coupled with clinical audit. Secondly, contracts should include warranties to purchasers on episodes of care completed. For instance, any same-diagnosis re-admission within a specified time period should not be paid for more than once or even a discount should be applied to the initial payment, if the purchaser was particularly keen on maintaining quality standards.

Potential for efficient reallocation of resources

Owing to the inherent transparency of MFTP it would be readily identifiable which hospitals make profits on each episode of care. Consider hip replacements as an example: Table 1 shows an extract from the Irish National Casemix Programme report on DRG costs [30]. The majority of hip replacements are classified to I03B, which have an average cost per case of €10,931, and average length of stay of 8.88 days. Under the interim arrangements for pricing, as proposed in the Department of Health [3], €10,931 would represent the price paid for all hip replacements coded to I03B. The 'low' of 4 and 'high' of 19 represent the lowest and highest lengths of stay that would receive this price. Therefore there is considerable variation in length of stay, and presumably cost, around the average. Upon collation of patient level data at the National Information and Pricing Office, hospitals making losses on hip replacements, perhaps by having a higher than average length of stay, would be easily identified, as would hospitals making profits on hip replacements. Thus, notwithstanding the potential for political interference, MFTP may lead to a more efficient allocation of resources by allowing hospitals that are efficient at performing hip replacements to do more of them and those that are inefficient to perform less.

Table 1 Cost and length of stay of Hip Replacement cases, 2011

ARDRG	Description	N	Inpatient casemix cost per case (€)	Avg. LOS	Low	High
I03A	Hip Replacement +CCC	368	20,096	29.78	13	47
I03B	Hip Replacement -CCC	4,298	10,931	8.88	4	19

Notes: 1. ARDRG is Australian Refined Diagnostic Related Group

2. CCC is catastrophic complication and/or comorbidity

Source: National Casemix Programme, 2013.

Sussex and Farrar [19], in an early examination of the effects of PbR, found that its introduction made loss-making activities more readily identified, but that they did not cease immediately.

Opportunities for Gaming: Cream-skimming and Upcoding

Table 1 also illustrates the possibility for strategic behaviour on the part of the hospitals. If hospitals can identify a patient's probable length of stay, then they have an incentive to cherry pick or 'cream-skim' the low lengths of stay and select against the high lengths of stay. This is analogous to cherry picking customers in the health insurance market, which appears to have become a feature of the Irish health insurance market [31, 32]. Additionally, hospitals may decide to focus on those procedures where variation in length of stay is low, owing to lower levels of complexity, ensuring that their revenue flow is stable.

Despite the opportunities for such activities, Sussex and Farrar [19] found little evidence of 'cream-skimming' in the NHS, or evidence that hospitals were focusing on high margin procedures.

An alternative means for hospitals to maximise revenue would be to influence the reporting of the quality of activities performed. That is to say, to exaggerate case complexity thereby increasing the quantity of higher priced episodes, a practice known as upcoding [19]. Thus, even if hospital activity remains unchanged, recorded activity and subsequent revenues could increase. In a survey of health managers, Sussex and Farrar [19] found that some attribute this to "better" coding resulting from increased number of coders and more vigilance. However, it could also result from misreporting. For example, returning to Table 1 if it were possible for a hip replacement that is currently classified as I03B to have been coded as I03A, then over €9,000 extra could be added to hospital revenue.

The incentive to upcode under MFTP is much greater than under the current block grant system, where the effect of the case-mix adjustment on hospital income is far less. While no evidence of this was found following the introduction of PbR in the NHS [19] , it has been well documented in other health care systems [33-35].

Pricing:

Control of prices gives the purchaser an additional lever to promote their priorities. If the purchaser wants more hip replacements to be delivered, then an increase in the price paid per hip replacement will help to ensure that this occurs. This could be extended to designing care pathways that are more primary care-focused than those currently in place, paying hospitals

only for their more modest input into the care pathway, and freeing up resources for the delivery of the remainder of the care in primary care. Applications to waiting times or priority disease groups can also be considered.

Under MFTP each hospital submits patient level cost data to the National Information and Pricing Office. Before the introduction of best practice-based prices, these data will generate national prices. Given the tendency for activity to change annually, there could be volatility in national tariff prices year on year, resulting in price uncertainty as experienced in the NHS [19]. Increased uncertainty may cause reductions in planned activity by providers, under conditions of provider risk aversion. Thus expected increases in activity may not emerge.

There may be considerable price differentials between hospital groups because some may face unavoidably higher costs than the national average. For instance, to recruit specialist staff to less attractive, such as remote, areas may require hospital groups to offer them positions at higher grades than they would accept in more attractive areas. This unavoidably high cost puts hospital groups operating hospitals in less attractive areas at a disadvantage if prices are set at a national average and vice versa for hospitals in more attractive areas facing lower costs. Over time the application of a national price schedule could lead to regional differences in quality of care.

While the long term objective of Government policy is to have a single tier health system, it appears that it will be some time before this is achieved. Currently, private care delivered in public hospitals uses an ABF mechanism, whereby a fee per episode of care is negotiated in advance with private health insurance companies, and paid for retrospectively. This arrangement is subject to the statutory regulation that no more than 20% of total hospital care in public hospitals can be delivered to private patients. Therefore, hospitals that are confident that they can meet their obligations to public patients have the incentive to earn extra revenue from private payers, subject to the 20% limit. Under MFTP, a hospital's preference for public versus private patients will depend on the price paid by each payer. Ultimately, if and when Universal Health Insurance is introduced, all payers will be private insurance companies and the relative preference of hospitals to treat insurance company's patients will depend on the relative prices on offer.

Cost effectiveness of best practice guidelines

Best practice guidelines will be designed by the National Information and Pricing Office in consultation with stakeholders. As with any good or service, purchase of health care needs to be on the basis of value for money (equity issues notwithstanding). Since, a best practice clinical pathway is a health technology; it should be subject to the economic evaluation of health technologies following the Health Information and Quality Authority (HIQA) guidelines. In its absence, pathways may be developed that over- (or under-) estimate the health outcomes produced per unit costs, leading to an inefficient allocation of scarce resources.

Compatibility with Government Health Policy

In examining the compatibility of MFTP with Government health policy, three areas are worth noting: Universal Health Insurance, competition and community-focused health care delivery.

Universal Health Insurance, with multiple competing purchasers, is a cornerstone of government policy [1]. Retrospective payment of hospitals for episodes of care completed, via MFTP, is more compatible with universal health insurance than the current system of prospective budgeting.

The Department of Health [1] states Hospital Groups will compete for patients, driving gains in efficiency. The pricing structure in MFTP facilitates this competition. However, given the size of hospital groups, the opportunity for intra-group competition for patients is more likely than inter-group competition. This will be particularly the case at the level below the hub hospital, where many hospitals have similar skills and infrastructure and may compete for the same patients.

As outlined by the Department of Health [1] [2], health care should be delivered at the lowest level of complexity. Many chronic disease management programmes are attempting to take disease management from a hospital setting to a community setting. In fact it is proposed in *Future Health* [1] that up to 95% of care could be delivered in the community in the future. Given experience in Ireland and elsewhere with policy implementation, one can expect MFTP to take several years to fully implement. In the interim the proposed system has to be

made feasible, which will require considerable investment, as outlined in Section 5 below. There is a risk that care pathways in the hospital setting will be prioritised at the expense of Primary Care focused care pathways. Thus there is a risk that MFTP will focus resources, including managerial effort, to the hospital sector, contrary to the stated priorities of the Department of Health.

In addition, given the shift in incentive structures for hospitals to maximise revenue, while cost per episode may decrease, activity may increase which has the potential to increase total health sector budget devoted to hospital settings [11]. The Department of Health [3] pre-empts this with the proposal of setting a global hospital budget. However, this can create a silo mentality, leading to cost shifting from hospital to community based services and vice versa.

5. Feasibility in Ireland

Data collection, coding and classifying capacity are crucial for the success of MFTP. Given that the National Casemix programme in Ireland is in existence since 1993, Ireland's 20 years' experience of using DRGs compares favourably to levels of experience in other European countries [5]. Thus, rather than having to build a coding system from scratch, MFTP builds on the existing system. However, there are long delays in coding patients in the current system and concerns over precision [23, 36]. The intention of MFTP is to pay hospitals quarterly for episodes of care completed. If so, a significant investment in coding and classifying capacity is required [37].

In addition, it is proposed that MFTP will be operated in shadow form in 2013, and fully implemented in the hub hospital of each hospital group by 2014 [3]. As of July 2013, hospital groups had not been statutorily established and a full list of hub hospitals had not been identified. Moreover, significant investment is needed in infrastructure and skills for patient-level costing; contracting, commissioning, auditing, IT and performance monitoring systems [37]. Between 2007 and 2012 employment in management and administration categories in health care (which would incorporate the skill sets mentioned above) decreased by 13% [38]. For the same period, expenditure on capital in the health service decreased by 33% [38]. Thus, the investment required for MFTP faces strong competition.

The implementation plan is to go from a pilot in one specialty - Orthopaedics – in selected sites, to full implementation across the hospital system. As such, the likelihood of a smooth transition seems very optimistic.

Consequently, it is anticipated that MFTP will be implemented on a phased basis. The proposed phasing option seems to be 'hub' hospital first and 'spoke' hospitals later. An alternative, as employed in the NHS [11], would be to introducing the system to a number of codes across the entire hospital system and building from there. It would test the system in smaller hospitals, which may identify difficulties that are not apparent when applied to 'hub hospitals'. Furthermore, in order to develop a 'Hospital Group identity' it might be wise to involve smaller hospitals from the start.

Establishing identity and empowering clinicians through buy-in could minimise the risk of opportunistic behaviour, owing to adverse incentives resulting from MFTP discussed earlier [39]. U.K. evidence demonstrated that the creation of an altruistic culture and non-adversarial relationships between organisation components contributed to fewer than expected incidences of opportunistic behaviour [19].

6. Conclusions

The implementation of MFTP to Irish hospital funding could contribute to a more transparent system compared to the existing system. Since the majority of funds entering the hospital system are from the Exchequer, this would also contribute to improved democratic accountability. Additionally, should hospitals' relative efficiencies with regards to procedures be identified, there is potential for more efficient allocation of resources. International literature indicates that ABF has contributed to reduced unit costs and length of stay; increased utilisation of day case opportunities and increased overall activity. No significant reductions in quality of care have been detected in literature outside the US system [10]. Other potential advantages of MFTP include its compatibility with universal health insurance and the ability for prices to act as levers in the delivery of purchasers' priorities.

However, there are a number of problems with ABF, and MFTP in particular. A poorly managed interface with community based services could lead to patients being discharged 'sicker and quicker', and to inappropriate care settings. The incentive for upcoding is greater than in the current system and there is an incentive to cream-skim patients and/or procedures.

Particular to MFTP is the ambitious timescales laid out by the Government coupled with considerable feasibility issues. Significant investment is required in coding skills, IT systems, financial management systems and health care contracting.

Nonetheless a change to hospital financing in Ireland is warranted. The current financing system for Irish hospitals lacks transparency. If the downside risks are managed, there is potential for MFTP to confer significant benefits to Irish hospital care.

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