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**The advantages and disadvantages of needs-based resource allocation in
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health care provider reimbursement**

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ABSTRACT

This paper reviews the vital health care resource allocation in integrated systems and contrasts it with the market-based health care resource provisions. It is believed that among several alternatives a method of centrally managed needs-based resource distribution is best suited for universally appraised code of “equal treatment of equals”. However, the main problem hides in identification and measurement of “need” and in economic effectiveness of the methodology. Supposedly, from the 1980s, as an innovative approach, the market system of health care provider reimbursement had to resolve the problems associated with centralised needs-based resource allocation, maintaining the main achievements and improving the effectiveness of the systematic distribution. Nonetheless, as this paper shows, so far there is little evidence that the market-based health care provider reimbursement advances the allocative performance of various health care systems.

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INTRODUCTION

The concept of needs based resource allocation across the different public services provides scope for the intensive debate. In most cases, resource allocation relies on selection and weighting of various indicators that are often politically influenced (Midwinter 2002). However, from the 1970s, needs-based capitation systems of health care resource allocation became the seminal approach for financing health care needs within many countries. The central problem was the designing of reliable methodology and practical tools that would correctly estimate population needs. In such a system, resource allocation is based on the central principle of horizontal and vertical equity which advocates a policy of “equal treatment of equals”, while those who are different in relevant respects are treated proportionally differently (Rice & Smith 2001, p. 256). Nevertheless, today, in most health systems, the allocation of resources is a complicated procedure and consists of direct needs-based resource allocation alongside more recently developed market mechanisms of health care resource allocation (Talbot-Smith 2006, p. 83). Overall, the aim of this paper is to demonstrate the complexity of resource allocation in modern health systems, by presenting a brief overview of needs based resource allocation in integrated health systems and contrasting it with the positive and negative aspects of resource allocation in market systems of health care provider reimbursement.

NEEDS-BASED RESOURCE ALLOCATION IN INTEGRATED HEALTH SYSTEMS

All health care systems in the world have to design effective allocative mechanisms for the available scarce health care resources. Considering resource allocation in the broadest sense, different countries spend different shares of their gross domestic product on health care activities¹. However, in the narrower sense, within the integrated health systems, McMillan (2002) indicates three major theoretical attempts that have been made to resolve the complexity of resource allocation: (i) method of quality-adjusted life-year (QALY), which focuses on cost-effectiveness of treatments; (ii) lottery theory, which uses random allocation of resources when there is no fair option to choose among patients; (iii) and needs-based resource allocation, which pays attention to the significance of health care needs (p.120).

Presumably, the most influential and universally appraised code of health care resource allocation is the notion that health care should be distributed on an equitable basis according to the needs of the population. However, a central problem that obscures this approach is that there is no universal definition of the term “need”. Scholars from various disciplines express different and often controversial views explaining “need”². For instance, Frankel (1991) provides simultaneously neutral – “circumstances in which a thing/course of action is required” and moral – “lack of necessities, poverty” definitions of the term. Consequently, these semantic distinctions may determine what and how needs are assessed, or whether any action should follow the assessment leading to the difference “between the appropriate level of supply and extra supply or undersupply” for different areas and communities (Carr-Hill et al 1994).

¹ Though, Retzlaff-Roberts et al (2004, p. 70) demonstrate that it is not possible to correlate reasonably any county’s health care resources and its health systems’ performance.

² The conventional form of needs analysis derives from the work of Engels, Dickens, Chadwick, Wakley, and other social reformers in the nineteenth century (Petrou & Wolstenholme, 2000).

Despite this ambiguity, from the 1970s, many alternative approaches were developed to improve needs-based methods of resource allocation. Since 1977, the British National Health Service (NHS), an innovator in many aspects of health system arrangements, introduced qualitatively new method of health care resources allocation, initially to geographically-defined planners and then to health authorities, primary health trusts and other health care purchasers.³ (Talbot-Smith, 2006). According to Coast et al (1996) consequently in various integrated health systems two broad conceptual approaches for needs-based resource allocation have been developed: (i) by the first method, resources are allocated taking into account the general burden of disease in the population measured by healthcare utilisation data, registration of cases, or population self-reports of morbidity or, indirectly, using data derived from censuses or surveys (Petrou & Wolstenholme 2000, p. 37); (ii) while the second approach simultaneously seeks to consider clinical concerns, ethical norms, and economic considerations of need and determines “priorities which incorporate clinical and cost effectiveness and patients' perspectives” (Wright et al, 1998). Both these mechanisms mostly employ a block contractual system with little uncertainty about the expected level of available sources for health care intervention and restricted prospects for opportunistic behaviour by medical staff (Marini & Street 2006).

In various forms, almost all direct needs based resource allocation methods use formulas of weighted capitation which, theoretically, should secure distribution of resources according to the principle of equal opportunity of access to health care for people of equal need because they try to identify and meet health care needs by taking into account the most relevant socioeconomic and demographic factors that determine health status and healthcare needs. However, there is a big debate about statistical techniques and explanatory indicators that must be included in the formula (Rice et al. 2000). Among others, Carr-

³ A new RAWP (after Resource Allocation Working Party on whose recommendation it was designed) formula replaced previous allocation model in which regional health authorities received resources based on populations adjusted by caseloads and hospital beds (Eyles et al. 1991; DHSS, 1976)

Hill and Sheldon (1992) warn that proper allocation is not just a technical problem of application of statistical techniques. But, the fundamental challenge is to “find a combination of factors reflecting dimensions of need and then appropriate weights with which to combine them, within the context of the guiding principles of equity and efficiency” (p. 117)⁴. Besides, to take into account the specifications of different health care services, distinct formulas must be applied in different services (Talbot-Smith 2006, p. 83). Geography also plays a role: an area’s social capital, price variation and geographical distribution of facilities create different opportunities of access to services and by that establishes a biased picture of true need of population⁵ (Rice & Smith, 2001).

In addition to functional and spacial distribution of resources, communitarian and individual approaches to the problem also must be distinguished. The opponents of the model are concerned that relying on the concept of “needs” as the basis for allocating countries' resources in health care systems does not sufficiently take into account “the values of the community whose needs are to be served by that health service” because medical professionals, health service planners and politicians, rather than the community, have the final word in the allocative decisions (Mooney 2006, p. 1173). Nevertheless, even if it is assumed that health systems manage to allocate resources equally to all communities according to their needs and interests, as Miller and Stokes (1978, p. 263) show, increasing the supply of health care to population is not always directly associated with improved health. This notion leads to a distinct, individualistic approach to the problem of resource allocation that is concerned with inequalities in access to health care

⁴ However, Petrou and Wolstenholme (2000) point out that often unavailable “time, resources and commitment are required to collect the necessary information” (p. 38)

⁵ Carr-Hill et al (2002) and Judge et al (1994) suggest that employing relatively sophisticated measures of socioeconomic condition and more advanced statistical methods with the strong theoretical justification should be a far better tool for resource allocation purposes than using indirect census based proxies.

services, “a circumstance that exists when race, income, or the availability of insurance predicts utilization rather than need” (Litaker & Love 2005, p. 184)⁶.

Furthermore, integrated health systems do not always manage to distinguish between legitimate and illegitimate health care needs. The former assumes that “the average level of care as historically delivered to each type of person equates to the desired package of health care”, while the latter emphasises the unmet needs of a deprived population that “is a difference between the desired package of care and the package actually received” (Rice & Smith, 2001). In reality, a formulae approach unilaterally hardly determines actual allocations. In the United Kingdom real financial flows are based on the earlier allocations adjusted over the current financial year⁷ (Talbot-Smith, 2006: 85). Maybe that is why Oliver (2005, p. S80) argues that this system secures the opportunity for provision according to the principle of equal access to equal needs rather than the actual provision of this principle. At the same time, this system is nonflexible and can lead to unmet needs when demand does not match the purchaser’s expectations. In addition, these arrangements created little incentives for providers to exceed activities over already contracted resources or to reduce their costs (Marini & Street 2006).

RESOURCE ALLOCATION IN MARKET SYSTEMS OF HEALTH

CARE PROVIDER REIMBURSEMENT

Through the last decades and especially from the 1990s, many countries throughout the world started the movement from integrated models of needs-based resource allocation to funding arrangements defined by markets, though the outcomes of the changes are controversial and there are no clear explanations as to what rational factors drive such transformation. Nonetheless, according to a new wave

⁶ In other words, various socioeconomic factors (unemployment, insurance status, environment, etc.) that determine access to health service are not affected by policies of effective resource allocation (Grumbach et al, 1997).

⁷ For example, primary care prescribing budgets have largely been determined by spending on previous periods

of neo-liberal ideology, the main justification of the reforms is to make resource allocation “more efficient, more innovative and more responsive to consumers’ preferences” than centrally integrated health systems (Ven 1996, p. 655). Contrary to this statement, Besley and Gouveia (1994) argue that the revision of health care resource allocation, besides of a paternalistic norm on the universal access to certain level of health care, is in large caused by innovations because technology that is widely employed in all sectors of health systems is continuously changing, affecting costs and methods of health care delivery (p. 201-2).

Proponents of private sector involvement argue that such a model is capable of improving needs-based resource allocation through an explicit account of disadvantaged groups and communities and enhancing a degree of democratisation and accountability of the medical profession because resource allocation now is determined by purchasers (Primary Care Trust, Regional Health Authority, an insurer, etc) who are close to and represent the interests of their populations (Saltman & Figueras 1997, p. 143). Moreover, in comparison with the old integrated health care system, a new model potentially has an advantage in its flexibility in adapting to continuously changing health care needs⁸. In addition, the private market is more innovative and better informed and thus is capable of encouraging per capita cheaper and cost effective decisions for a given level of needs (Rice et al. 2000). However, all these judgments need more scrupulous evaluations.

Due to market-oriented reforms, health care takes more traits of commodity affected by the fundamental market laws of demand and supply. However, an important point for understanding the reforms is that a rise of markets involves an incremental application of various market tools to different aspects of the health care system rather than the complete alteration of one kind of system to another

⁸ Whereas, purchaser, by contracting with different type of care providers, is still able to stimulate the coordination of various health services, to collect and assess quality of providers’ performance, and to develop a long-term relationship and enhance planning among providers and to use its market power while negotiating with providers, which makes “the system less provider-dominated and more consumer-oriented” (Ven 1996, p. 658).

(Ranade, 1998). Ven (1996) identifies three major trends that are observed in health systems and have a major implication for health care resource allocation: (1) the depletion of vertically integrated systems and the separation of the health care purchasers and the providers, establishing contractual relationships with each other; (2) the tendency towards managed competition among health care providers; (3) the introduction of policies on patient mobility and the free choice of providers.

The decisive implication of these reforms is the introduction of activity-based resource allocation and funding as a system of paying hospitals and other health care providers on the basis of the work they perform rather than previously applied defined budgets based on needs assessment methodology (Marini & Street, 2006). The contracting process between suppliers and providers is also undergoing modifications. Unlike the integrated systems where budgets were defined by the bloc contracts, a new system relies on cost-and-volume and cost-per-case contractual relationships, in which payments are closely linked with the services offered. Although new contracting practices differ widely across countries and the types of contracts vary along with contracting parties and mechanisms, legal status and comprehensiveness, the central characteristics remain the same (Saltman & Figueras 1997, p. 144-6).

Simultaneously, the market oriented health care systems introduce the new or modify the old mechanisms of health care provider reimbursement. Along with direct regulations, reimbursement incentives are the mechanisms by which governments attempt to influence providers' performance. Generally, the most common reimbursement practices across health care services now tend to be becoming direct payments to providers based on DRG casemix cost evaluation (Oliver, 2005). In primary and preventive care, different forms of capitation are intensively applied, typically adjusted to the main socioeconomic and morbidity indicators in order to promote equity and/or encourage efficiency. Whereas for out-patient health care the dominant financing method is the fee-for-service payment (Szende &

Mogyorosy, 2004). Nonetheless, most often the different methods of reimbursement coexist within the same health care system.

According to Gay and Kronedfeld (1990), the gradual evolvement of an activity based resource allocation can be traced to the United States, where from 1983 most reimbursement for health care providers had been based upon the Diagnosis-Related Group (DRG) where patients within different categories were classified as clinically similar and were expected to use the same level of hospital resources⁹. However, DRG represented only the first attempt to employ a market approach for productivity and to control scarce resources through enacting expenditure limits, and had substantial effects on improving the utilisation of resources rather than on their reallocation (Bardsley et al, 1989). Nonetheless, the role of fixed DRG prices is indispensable and its scope is further enhanced for the United Kingdom's version of comprehensive activity based payment policy – “Payment by Results”¹⁰. Within such a system hospitals are reimbursed with fixed prices after the treatments or operations take place. The disadvantages associated with this kind of resource allocation are significant as well. Providers can gain if they manage to bring down the costs that might be achieved poorly at the expense of reduced quality of services. They can also reclassify the status of treatment to a more expensive one in order to get more money (King's Fund, 2005).

Resource allocation is also substantially affected by rising transaction costs, which is not mainly and only associated with insurance-based health care systems, but also with national health systems' emerging contractual arrangements. Replacing the practice of block contracting by activity based resource allocation is increasing transactional costs associated with control of volume, collection of data,

⁹ DRGs almost immediately were transferred to France (1985), West Germany (1986), Norway (1987), Australia (1988) and Italy (1988). More recently, Lowe (2000) after evaluation of DRG coding in large hospital in New Zealand also finds that a new casemix budgeting was instrumental “to make a difference within organization” (p. 207).

¹⁰ Being introduced in 2002, “Payment by Results” policy will be fully operational only by 2009.

monitoring and enforcement of contracts (Marini & Street, 2006). However, the extremely high transaction costs of private insurance systems still remain one of the main barriers for entrance into insurance coverage for a significant proportion of the population with a high degree of health care problems. For example, in the United States, the transaction costs can reach 30 per cent of all money spent on health care (Pollock 2004, p. 230).

The increasing application of user fees¹¹ and co-payments paid by patients as a form of health care provider reimbursement also directly affects resource allocation, generally decreasing demand on providers' services even if this policy does not intend to do so. According to Creese (1997), proponents of these methods recommend them in two distinct situations: firstly, when total health spending is low (mostly in developing countries) fees are seen as a way to mobilise more money for health than budgetary allocations may afford; and secondly, when health expenditure is high (mostly in developed countries) fees are seen as a way of moderating demand and hence controlling growing health care costs. However, Evans et al (1993) identify this approach as politically driven, which breaches the fundamental principles of the health care system by allocating resources according to ability to pay rather than needs assessment.

In countries of compulsory social or voluntary insurance systems the nature of health care provider reimbursement also determines resource allocation. According to Manning and Marquis (1996) profit-oriented insurers (health care purchasers in this case) focus on average risk and premiums, a strategy which does not attract a majority of low risk individuals, leaving health care purchasers with a small number of high risk patients. This in turn leads to increased premiums and an even smaller number of people with lower risk in the pool (p. 35). In addition, the cost sharing in insurance systems reduces the out-of-pocket price paid by the individual patient, which increases the amount of health care demanded ("moral hazard"). Because consumers would not purchase this additional care if they had to reimburse its full cost

¹¹ In many developing countries user charges can take informal form.

directly to providers, the extra services' value to consumers is far behind that of the social cost of producing the service causing biased resource allocation (p. 610).

As a consequence of these trends, resource allocation becomes less determined by a populations' health care needs. As early experience of deprived areas in the United States indicates, activity-based resource allocation may result in the abolishment of less profitable services, including the vital accident and emergency units, while more resources are unreasonably gravitated to fewer financially attractive treatments and localities, deteriorating the principle of equity in health care (Pollock, 2005). Moreover, according to Koivasulo (2003) in recent European experience there is also little evidence that market instruments of health care provider reimbursement lead to improved and lower cost health care systems with better resource allocation. To the contrary, she finds more verification that marketisation brings new problems in terms of cost-containment and equity considerations. Light (2000), while trying to explain these faults, also argues that contractual relationships are too underdeveloped "to prevent excessive profits by selecting healthier enrollees", whereas prices often do not reflect costs because of anti-competitive conduct by market forces through which "a great number of horizontal price-fixing, market-sharing and collective bargaining agreements" is taking place (p. 972).

CONCLUSION

Overall, a comparison of needs based resource allocation in the traditional integrated systems with market models of health care provider reimbursement reflects continued disagreement that often goes beyond a common academic dispute. However, it is also one more indication of how extremely sensitive and compound are health systems that determine the most important thing – the lives of humans. For this reason, allocation of health care resources always consists of a mixture of public and private components, and cannot be properly described just as a state-market and public-private dichotomy (Ranade 1998).

Simultaneously, allocation of resources according to population needs and market forces are only two methods among several alternatives. While it is hard to compare which method's advantages exceed most other applications, needs-based resource allocation, in spite of its disadvantages, best meets the fundamental principle of equity in health care. Further research needs to be done to design a superior method of resource allocation which will also prioritise other important health care principles, whereas ongoing reforms should seek effective ways to combine the positive aspects of different approaches minimizing negative consequences associated with these methods, and not substituting old disadvantages with the new ones. Theoretically, there is no indication that this policy goal is unachievable: quite the opposite. Nonetheless, in this regard, as practical evidence indicates, little success has been achieved so far.

REFERENCES

- Al, M.J., Feenstra T., Brouwer W.B.F. (2004). "Decision makers' views on health care objectives and budget constraints: results from a pilot study." Health Policy. 70, pp. 33-48.
- Bardsley, M., Coles, J., and Jenkins, L. (ed.) (1989) DRGs and health care. The management of case mix. King's Fund Publishing Office.
- Besley, T., Gouveia, M. and Drèze, J. (1994). "Alternative Systems of Health Care Provision." Economic Policy. 9 (19), pp. 199-258.
- Carr-Hill, R.A., Jamison, J.Q., O'Reilly, D., Stevenson, M.R., Reid, J. Merriman, B. (2002). "Risk adjustment for hospital use using social security data: cross sectional small area analysis". BMJ. 324, 16 Feb 1-4.
- Carr-Hill R.A, Sheldon T. (1992). "Rationality and the use of formulae in the allocation of resources to health care". Journal of Public Health Medicine. 14 (2), pp. 117-26.
- Coast, J., Bevan, G. and Frankel S. (1996). "An equitable basis for priority setting?" In: Coast, J., Donovan, J., and Frankel, S. (eds). (1996). Priority setting: the health care debate. Chichester: Wiley, pp. 141-66.
- Creese, A. (1997). "Editorials: User fees." BMJ, 315, pp. 202-203.
- Culyer, A.J. (1992). "The morality of efficiency in health care: some uncomfortable implications." Health Economics. 1, pp. 7-18.
- Department of Health and Social Security (1976). Sharing resources for health in England: Report of the Resource Allocation Working Party. London: Her Majesty's Stationary Office.
- Donaldson C, Mooney G. (1991). "Needs assessment, priority setting, and contracts for health care: an economic view". BMJ. 303, pp. 1529-1530.

- Enthoven, A.C. (1993). "The history and principles of managed competition". Health Affairs (Supplement). 12, pp. 24-48.
- Evans, R.G., Barer, M.L., Stoddart, G.L. (1993). "User fees for health care: why bad idea keep coming back". Toronto: CIAR program in Population Health, Working Paper 26.
- Eyles, J., Birch, S., Chambers, S. Hurley, J., and Hutchison, B. (1991). "A needs-based methodology for allocating health care resources in Ontario, Canada: Development and an application". Social Science and Medicine. 33 (4), pp. 489-500.
- Frankel S. (1991). "Health needs, health-care requirements, and the myth of infinite demand". *Lancet* 337 1588-1590.
- Gay E.G. and Kronedfeld J.J. (1990). "Regulation, retrenchment – the DRG experience: problems from changing reimbursement practice". Social Science and Medicine. 31 (10), pp. 1103-1118.
- Grumbach, K., Vranizan, K., and Bindman, A.B. (1997). "Physician supply and access to care in urban communities". Health Affairs. 16 (1), pp. 71-86.
- Judge, K. and Mays, N. (1994). "A new approach to weighted capitation". BMJ. 309, 22 Oct, 1031-1032.
- King's Fund. (2005) Payment by Results. Available at:
http://www.kingsfund.org.uk/resources/briefings/payment_by.html
- Koivasulo, M. (2003). "Euroean health policies – moving towards markets in health?" Eurohealth. 9 (4), pp. 1-4.
- Light, D.W. (2000). "Sociological perspectives on competition in health care". Journal of Health Politics, Policy and Law. 25 (5), pp. 969-974.
- Litaker, D. and Love, T.E. (2005). "Health care resource allocation and individuals' health care needs: examining the degree of fit." Health Policy. 73, pp. 183-193.

- Lowe, A. (2000). "Accounting in health care: some evidence on the impact of casemix systems". British Accounting Review. 32, pp. 189-211.
- Manning, W.G, and Marquis M. S. (1996). "Health insurance: the tradeoff between risk pooling and moral hazard." Journal of Health Economics. 15 (5), pp. 609-639.
- Marini, G, and Street, A, (2006). "A transaction costs analysis of changing contractual relations in the English NHS". Health Policy. Dec. 11 [Electronic publication ahead of print edition]. Available at: <http://www.sciencedirect.com>
- McMillan, J. (2002). "Allocation of resources." Surgery (Oxford). 20 (5), pp. 117-120.
- Midwinter, A. (2002). "Territorial resource allocation in the UK: a rejoinder on needs assessment". Regional Studies. 35 (5) pp. 563-577.
- Miller, M.K. and Stokes, C.S. (1978). Health Status, health resources, and consolidated structural parameters: implications for public health care policy. Journal of Health and Social Behavior. 19 (3), pp. 263-279.
- Mooney, G. (2006). "Communitarian claims as an ethical basis for allocating health care resources". Social Science and Medicine. 47 (9), pp. 1171-1180.
- Oliver, A. (2005). "The English National Health Service: 1979-2005". Health Economics. 14, pp. S75-S99.
- Petrou, S. and Wolstenholme, J. (2000) "A review of alternative approaches to healthcare resource allocation". Pharmacoeconomics. 18 (1), pp. 33-43.
- Ranade, W. (ed) (1998). Markets and health care: a comparative analysis. Essex: Longman.
- Retzlaff-Roberts, D., Chang, C.F., Rubin, R.M. (2004). "Technical efficiency in the use of health care resources: a comparison of OECD countries". Health Policy. 69, pp. 55-72.

- Rice, N., Dixon, P., Lloyd, D.C.E.F, Roberts, D. (2000). "Derivation of a needs based capitation formula for allocating prescribing budgets to health authorities and primary care groups in England: regression analysis". BMJ. 320, 29 Jan. pp. 284-8.
- Rice, N. and Smith, P.C. (2001). "Ethics of Geographical equity in health care". Journal of Medical Ethics. 27, pp. 256-261.
- Saltman, R.B. and Figueras, J. (1997). European health care reform: analysis of current strategies. World Health Organisation, Regional Office for Europe. WHO regional publications. European series, No 72. Copenhagen.
- Sullivan, K. (1997). Strangled competition II: the quality of health care under managed competition – the promise and the reality. St. Paul, MN: Coact Foundation.
- Szende, A., and Mogyorosy, Z. (2004). "Health care provider payment mechanisms in the new EU members of Central Europe and the Baltic states: Current reforms, incentives, and challenges". European Journal of Health Economics. 5, pp. 259-262.
- Ven, W.P.M.M., van de. (1996). "Market-oriented health care reforms: trends and future options". Social Science and Medicine. 43 (5), pp. 655-666.
- Vladeck, B. C. (1984). "Comment on hospital reimbursement under medicare". The Milbank Memorial Fund Quarterly. 62, pp. 269-278.
- Williams, I. and Bryan, S. (2007). "Understanding the limited impact of economic evaluation in health care resource allocation: A conceptual framework". Health Policy. 80, pp. 135-143.
- Wright, J., Williams, R. and Wilkinson, J.R. (1998). "Development and importance of health needs assessment". BMJ. 316, 25 Apr. pp. 1310-1313.