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# Efficiency is dependent on the control of supply

## 效率對供應管制的依賴

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At a time when health care systems are undergoing reform, it is useful to review the causes of inefficiency in health care, along with potential solutions. Such solutions can affect suppliers (supply-side measures) or users of care (demand-side measures). This paper argues that to have an efficient health care system, supply-side measures must be implemented. Some examples of supply-side measures, with particular relevance to the Hong Kong situation, are discussed. By their nature, supply-side measures require government intervention. Only then, can allocative efficiency, as well as technical efficiency, be achieved. Once a health care system is operating efficiently, it is an easier task to determine whether the system requires more resources, either currently, or in the future.

在醫護體制正在進行改革之時，有需要檢討醫療護理低效率的原因及潛在的解決方法。這些解決方法可能會影響醫護的提供者(供方措施)和使用者(需方措施)。本報告認為，要有一個有效率率的醫護體制，必須實施針對供方的措施。本文特別討論了一些適合於香港情況而針對供方措施的例子。很自然地，針對供方的措施需要政府干預，而只有這樣，才可達至有效率率的分配及有成效的技術。一旦醫護體制有效地運作起來，決定現在或將來的制度是否需要投入更多資源便相對較容易了。

### Key words:

*Delivery of health care;*  
*Efficiency, organizational;*  
*Health care reform;*  
*Health services needs and demands*

### 關鍵詞：

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### Introduction

Health care systems around the world have recently been undergoing reform because of concerns about cost containment, efficiency, or underserved populations. The UK National Health Service (NHS), for example, was transformed to create an internal market, with the primary intention of addressing efficiency. In reviewing the experience of the UK reforms, Maynard<sup>1</sup> pointed out that the maintenance of existing labour and capital markets which occurred, facilitated cost containment but frustrated resource reallocation, and hence, efficiency. Policies which were intended to shift care from acute to community services in the interests of efficiency, were not accompanied by a redistribution of resources and hence, were bedevilled by the wrong incentives.

Unfortunately, the UK NHS reforms were not carried out within any sort of evaluation framework, greatly hampering assessment of their impact. Nonetheless, Maynard's analysis points out a weakness in these and many other reform initiatives. That is, technical efficiency (achieving more benefit per dollar by streamlining procedures) is often vigorously pursued, whereas allocative efficiency (achieving more benefit per dollar by redistributing resources) tends to be neglected. This neglect may be deliberate, as the required changes could be politically unpalatable.

Alternatively, it may reflect a lack of identification of factors contributing to the efficient working of the health care system. Such a lack of identification is easier to address and will be discussed in this paper. Further, measures which affect the cost and efficiency of health care systems are identified, with *supply-side* measures distinguished from *demand-side* measures.

This paper is written at a time when Hong Kong is itself about to undergo reforms in health care delivery and funding.<sup>2</sup> One of the most important messages to be conveyed to the reader, is that the Hong Kong reforms, or indeed any reform, should not be undertaken without first establishing an evaluation framework to allow the impact of the changes to be identified, measured and valued. Without this, it is not possible to assess whether the reforms are having the desired effect, or in fact what effect the reforms are having.

The UK NHS reforms were intended to improve efficiency but, as Maynard states, such “an unintelligent process (ie one which is lacking evaluation) will achieve the object of improved efficiency only by chance!”<sup>1</sup> Leaving greater efficiency to chance in this way should not be a feature of the Hong Kong health care system reforms.

### **Supply-side and demand-side measures for efficient health gains**

These two approaches are distinguished by whether the incentives or restraints produced affect suppliers or users of health care, and hence, whether it is the demand or supply of care which is altered. Demand for health care is determined by patients and, to some extent, by providers, for example general practitioners (GPs) who refer patients to specialist services. The supply of health care is determined by providers, and those who fund and manage the services.

#### ***Supply-side measures***

Supply-side instruments are currently commonly used in Organisation for Economic Cooperation and Development countries to control the quantity and kinds of services produced.<sup>3</sup> They include:

- (1) Caps on spending by health care providers;
- (2) Price controls, such as those for pharmaceuticals;
- (3) Regulations governing clinical practice and use of health care technology;
- (4) Organisational initiatives, such as managed care and capitation; and
- (5) Distribution of resources, and reallocation between services to improve allocative efficiency.

Once factors influencing cost, so called ‘cost-drivers’ (such as expensive procedures or drugs), have been identified, providers will normally accept the need to limit their use. Focusing on ‘cost-drivers’, however, only takes account of the cost side of the equation. It must be kept in mind that the benefit side is equally important, that some expensive procedures or drugs may be more efficient than cheaper ones, and that an evidence-based approach must be taken to limiting supply of care.

On the other hand, reallocation of resources from less efficient to more efficient services can be very difficult to achieve without strong political will. Reallocation always involves leaving one or more services and providers with fewer resources than previously, and often leads to the cessation of some established activities. This is frequently perceived negatively and will be obstructed if the providers involved have the power to resist the changes. It is impossible, however, to achieve allocative efficiency without being able to reallocate resources. An example would be the shifting of care from acute services, such as specialist inpatient and outpatient services, to community-based services. This has been shown over many years to be an efficient practice.

#### ***Shared-care***

Shared-care denotes a coordinated approach to sharing care between GP, specialist and other providers. It has been shown to be a cost-effective means of maintaining patients with chronic illness in the community, with reduced need for visits to specialist clinics.<sup>4</sup> The shared-care approach facilitates the matching of need for care to supply of care, thus maximising the benefits from the resources spent. It, however, transects conventional approaches to follow-up care and its operation has proved difficult in most places where it has been trialled, including the mixed medical economy of Hong Kong. One of the principal reasons for the difficulty in implementing shared-care in Hong Kong is the demand-led and private practice nature of first contact medicine. Private practice GPs may be willing to collaborate with their public health care colleagues but the question remains of who will pay the private doctor’s fees, and how will that doctor ensure the patient is recalled for follow-up, without a register of enrolled patients.

The structure and funding of the primary care system is one of the main barriers to the implementation of shared-care in Hong Kong. Another barrier is the absence of agreed standards of care in general practice. This may lead to reluctance on the part of

specialists to refer a patient back to the primary practitioner. A third potential problem is the patient perception that a specialist will provide better care, resulting in reluctance of the patient to accept referral back to a GP. It is important that providers actively endeavour to counter such misguided beliefs among patients.

### ***Community care***

Australia<sup>5</sup> and the UK have undertaken to shift responsibility for the long-term care of chronic illness and mental illness from the hospital to the community. In both countries, this was met with opposition from hospital services, fearing a reduction in services. Such a change represents an opportunity for services to be delivered in a way that maximises use of the professional skills available. Money has to follow patients in order to achieve an efficient balance of care, however. This may be a difficult measure to implement within an established service but allocative efficiency cannot be achieved without it.

Commitment to public education and the building of good relations between providers and community groups is also required. Adequate preparation is essential to allay public fears and misconceptions, as was demonstrated at the time of establishment of a psychiatric half-way house in the New Territories.<sup>6</sup> Educating and informing the public is an important role for government and health care providers.

### ***New opportunities for specialist services***

When patient services are directed away from a particular sector, such as the hospital, the opportunity for new services arises. An example is the development of a consultative specialist service to meet the needs of less experienced GPs, or for the management of more complicated clinical cases. The Hospital Authority has already begun experiments with *integrated clinics*, providing a service which differs from both specialist clinics and private general practice. If service providers are genuinely interested in improving efficiency, to maximise benefits without increasing costs, they must be prepared to continue to shift resources into new services, as required.

In Hong Kong, changes such as those described above, would require strengthening of primary care and community services. This would provide a sound basis from which to facilitate shorter stays in hospital wards or clinics, the increased need for coordination between services, and increased use of informal care. The recent consultation paper on health care reform, produced by the Hong Kong government,<sup>2</sup> does propose

strengthening primary care and family medicine services. The authors fully endorse this proposal, because without that development, any improvements in patient flow across the secondary to primary care interface will be very difficult to achieve.

### ***Management of working patterns***

Another simple supply-side measure which could be easily (but is rarely) applied, is the manipulation of follow-up intervals in specialist clinics. A simulation based on clinicians' perceptions of individual patients' needs, showed that a 20% increase in the interval between visits (eg from 6.7 months to 8 months on average) would be clinically acceptable, and could free over 650 fifteen-minute consultation slots in one clinic over a year.<sup>7</sup> Such small marginal changes could make a large difference in the proportion of work in a clinic which is appropriate to the skills available in that clinic.

### ***Screening***

A further example of the need for supply-side regulation is in the use of screening tests in well populations. The development of tests, and their efficiency and utility in different clinical settings, is poorly understood by the majority of medical practitioners in Hong Kong and elsewhere. Even tests with high specificity and detection rates will deliver large numbers of false positives in populations where the prevalence of the abnormality, or factor to be detected, is low.<sup>8</sup> A major source of supply-side induced consumption of scarce health care resources occurs in the use of tests when the result is unlikely to materially affect management, or where a large number of false positive results will be generated. Although, in the private sector, initial costs are borne by the patient, continuing costs (eg the investigation of false positives) may be transferred to the public sector. Reallocation of costs from the private to the public sector is an aspect of supply-side demand which deserves detailed analysis and attention in Hong Kong's public-private mix of care.

### ***Monitoring of chronic disease***

Another supply-side issue concerns the delivery of appropriate preventive services. It is known, for example, that regular and relevant monitoring of patients with chronic diseases such as diabetes, can detect developing target organ damage at an early stage, when treatment may be both effective and efficient.<sup>9</sup> The efficiency arises from the fact that, if not treated at an early stage, the condition is likely to progress to a stage where more expensive and less effective treatment cannot be avoided. In Hong Kong, many diabetic patients progress to blindness due to retinopathy, or amputation due to arteriopathy and neuropathy.<sup>10</sup> This



loss of quality of life and extra expense for the public health care system, could be largely avoided with regular monitoring services. Currently, such services are insufficient for the numbers of patients who need them—another instance of allocative inefficiency. It is also appreciated that, in many cases, the reason for development of complications is poor adherence to treatment, or lack of necessary behavioural modification. Unfortunately Hong Kong's specialist outpatient clinics are not the ideal places for reinforcing adherence to treatment and lifestyle changes, no matter how important they may be to the patient's well-being.

### *Supply of pharmaceuticals*

Drug formularies are used successfully in some countries to limit the cost of drugs supplied and encourage the use of cost-effective medications. Formularies are currently used in the public sector in Hong Kong and, equally, there is a case for using evidence-based drug formularies in the private sector. Care, however, must go into the application of such measures or the effect can be the opposite to that intended—for example, restrictions in the supply of particular drugs in the community sector can necessitate patients' attendance at specialist clinics. This may result in a patient attending a specialist clinic solely for the supply of drugs, when their clinical state is such that management in primary care would be feasible. This is another area where good information, carefully evaluated, might enable Hong Kong health care services to improve efficiency and increase benefits within existing resources.

### **Demand-side measures**

Demand-side measures have grown in importance worldwide, with the widespread trend of promoting market forces in health care. Demand-side measures are intended to limit the demand for services, and include systems and activities designed to enhance awareness of service costs among both consumers and providers. Measures include deterrents to the uptake of services such as user charges, rationing by waiting lists, 'gatekeeping' in an attempt to prevent inappropriate use of more expensive services, and more emphasis on health promotion and disease prevention, to encourage more appropriate demand for services.

Both 'gatekeeping' and the emphasis on health promotion and disease prevention are highly dependent on a good primary care system. Although the UK is considered to have such a good primary care system<sup>11</sup>

with respect to 'gatekeeping', it has been noted that the majority of referrals to a service may come from a minority of GPs—in one study, 82% of referrals were shown to come from only 33% of GPs.<sup>12</sup> This finding may reflect overuse of the service by some patients who do not need referral, or alternatively, underuse of the service and unmet need for referral in some sections of the community. Whichever explanation is accurate, the UK system is clearly not achieving the efficiency which it could attain. How could this situation be improved? By obtaining data to determine which explanation is correct (probably they are both true to some extent), and then possibly by implementing guidelines encouraging appropriate referral practice.

What is the situation with regard to referral practice in Hong Kong? This question cannot easily be answered at present due to inadequate data. Currently, Hong Kong has a primary care system with an organisation and current pattern of usage that does not lend itself to such assessment and appropriate management initiatives. Some demand-side management measures would require major reform in the organisation of services before they could succeed in Hong Kong.

Evidence indicates that to control costs in any health care system, while at the same time maintaining access to care in the interests of equity, the government must play a major role, and impose supply-side control measures.<sup>3</sup> In particular, user charges should not be used for cost control because of the negative impact on access to needed care, resulting in greater inequity in the delivery of health care. Unfortunately for Hong Kong, raising user charges for public services is currently being considered as a means of raising revenue and attempting to manage demand for care in the public sector.

### *Research and development*

The identification of potential improvements in any health care system requires information. Furthermore, monitoring of the impact of any changes is essential to ensure good outcomes. This requires an evaluation framework and appropriate processing of information collected.

The need for such research and development cannot be neglected by any service genuinely determined to improve efficiency. Hong Kong desperately needs to maintain and strengthen its fledgling research and development programme, which the Government established in 1994 through the Health Services Research Committee.<sup>13</sup>

## Message for Hong Kong today

What message can we take from this discussion? Hong Kong is to make reforms to its health care system, primarily with a view to restructuring the funding of health care, while maintaining the commitment to choice, equity, access, and efficiency. Much of what is described in the government's current consultation paper<sup>2</sup> cannot be disputed, since it is clearly based on worldwide experience to date. While there is much in that document outlining demand-side measures to be implemented, however, supply-side measures have been largely avoided.

For reforms to succeed, the issue of how resource reallocation can be achieved to supply more efficient services, must be addressed. Will the government take a strong position to ensure that services which enhance prevention and health promotion are adequately funded, and that patients, and resources, are redirected towards community-based services as required? How will a strong primary care sector be achieved, if the voluntary measures described in the document do not work? How will incentives be altered so that providers only provide care which has been shown to be effective? How will the negative effects of increased user fees on equity be countered? If new money is required to achieve reforms, perhaps Hong Kong could take the initiative to raise tobacco taxes substantially. This could achieve, in one action, both greater revenue for the health care system and a reduced need for expenditure on care of smokers, due to higher quit rates.

de Beyer et al<sup>14</sup> point out that, to improve health outcomes, structural reforms are at least as necessary as additional investments in infrastructure, training, drugs, and other inputs. Hong Kong's health care structure badly needs reform, but this structural reform must address issues of allocative efficiency, and must include evaluation of the impact of any changes. Health care professionals in Hong Kong must work hard to ensure that a reformed Hong Kong health care system does not find itself in the situation aptly described by Maynard,<sup>1</sup> as having achieved "shorter waiting times but possibly for health damaging procedures".

## Declaration of conflict of interest

SM McGhee and AJ Hedley are members of the Health Services Research Committee, Expert Subcommittee on Grant Applications and Awards.

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