February, 2001

Myopia of Health-Care Reform Using Business Models

MacInnes Kenneth, *Dalhousie University*
Vivian C. McAlister, *Dalhousie University*

Original Article

Myopia of Health-Care Reform Using Business Models

J. Kenneth MacInnes, Vivian C. McAlister*

Abstract

Background: Health-care institutions have looked to business for models to respond to the requirement for reform. This has changed the perspective of institutions that were founded on charitable principles, and managed with liberal employment policies and deficit budgeting. Using lessons from supply-side management, hospitals are fragmenting into independent programs with demands to balance budgets regardless of the source of cost.

Methods: Costs from the institution's perspective are compared with those of the payer (province) using an example of a proposal to reduce costs in the surgical program by buying disposable drapes.

Results: The actual cost of disposable drapes bought from the United States seems favourable at $100,000 per annum compared with $110,000 for the purchase and laundry of reusable linen. However, 80 per cent of the reusable system's costs are generated by wages, which from the province's perspective, should be reduced by income tax, by total consumption taxes, and by other impacts of employment. The net cost to the province of the reusable system is $62,348 accounting for taxes alone. The disposable system would represent a loss of $37,652 to the province.

Interpretation: Cost-referenced decisions in health care may differ depending on the perspective taken. Discounting labour costs by taxes collected may enable governments to understand the impact of such decisions.

This article has been peer-reviewed.

Résumé

Contexte — Les établissements de soins ont tendance à s'inspirer des modèles qu'utilise le monde des affaires lorsqu'il s'agit de proposer des réformes, ce qui modifie les perspectives puisque ces établissements ont été fondés au départ sur la notion de charité puis administrés libéralement au point de vue du recrutement du personnel et avec la certitude de déficits de fonctionnement. Ils fragmentent par conséquent leurs activités en programmes indépendants, qui doivent équilibrer leurs budgets quelle que soit l'origine des coûts.

Méthode — Les coûts, du point de vue de l'établissement, ont été comparés à ceux de l'organisme payeur (le gouvernement de la province) quand il s'est agi de réduire le fardeau financier du programme de chirurgie par l'achat de draps jetables.

Résultats — L'achat aux États-Unis de draps jetables semble favorable puisqu'il représente une dépense de 100 000 $ contre 110,000 $ par année pour des draps réutilisables après lavage.Cependant, 80 pour cent du coût des draps réutilisables sont attribuables aux salaires, lesquels, du point de vue de l'organisme payeur, devraient être réduits par l'impôt, les différentes taxes à la consommation et diverses mesures portant sur l'emploi. Le coût net du système réutilisable pour le trésor de la province est de 62,348 $ financés par la seule taxation. Le système jetable représente donc une perte de 37,652 $ pour la province.

Interprétation — Dans le domaine des soins, les décisions portant sur les coûts peuvent différer selon le point de vue adopté. En se rappelant que le coût du travail est payé par la taxation, les fonctionnaires peuvent comprendre l'impact de ce genre de décisions.

Cet article a fait l'objet d'une évaluation externe.

Introduction

Although Canada ranks 13th worldwide in health-care expenditure per person, reform continues to focus on cost reduction.[1] Hospitals, which are responsible for a large portion of expenditures, have been reorganized along industrial lines in an effort to contain costs. Granted limited budgetary independence from government, hospitals have merged and undertaken programs of "re-engineering." These programs derive from the

*J.K. MacInnes is from the department of political science, Dalhousie University.

Dr. McAlister is from the department of surgery, Dalhousie University. Address for reprints: V.C. McAlister, Dept. of Surgery, Dalhousie University, 8813 Victoria Bldg., QEII Health Sciences Centre, Halifax NS B3H 2Y9, e-mail v.mcalister@dal.ca.

economics of supply-side management popularized in the 1960s.[2] Businesses or hospitals are reduced to separately funded functional groups that are given the task of developing the most cost-efficient system from the group's perspective. The group's survival in the institution depends on its economic and not its functional success. Uneconomic services are outsourced if they are required by the institution, or terminated if not. In hospitals, this system is called program management. From the program's perspective, the origin of cost is irrelevant to the goal of achieving maximum efficiency.

This is a radical change in perspective for hospitals. Founded as charitable institutions with chronic cash starvation, hospitals survived by deficit budgeting and relying on the community's goodwill. Hospitals repaid this goodwill by employing many local residents with a wide range of skills. In the 20th century, as hospitals were taken into public ownership, these practices persisted. Employment policies continued to be liberal, and were often charitable in providing a sheltered environment for challenged workers. This resulted in declining efficiency. Deficit budgeting underwritten by government allowed costs to increase with each financial year so that inefficiency was not penalized. Despite this, the number of hospitals grew. That the system survived so long suggests that it served the community's needs. In both rural and urban areas of Canada, the local hospital's survival was considered essential to the community's survival. Closure of many community hospitals in Saskatchewan during the 1990s was achieved by replacing them with long-term care facilities that maintained local employment. The role of economic perspective in decision-making in the health-care system is rarely studied, even in other jurisdictions.[3]

There would not seem to be common ground between the business ethic of the modern hospital and the charitable ethic of its founders, who would have found current practices to be shortsighted. We examine the economic aspects of a hypothetical proposal by a hospital program, and compare the hospital's perspective with that of the payer (province).

Methods

The surgical program of a medium-sized regional hospital proposes to use disposable operating drapes manufactured by Allegiance Healthcare Corporation (McGaw Park, Ill.), because it costs less than the purchase, laundry, and repair of linen. The example highlights the different perspectives of the hospital and the province, and as a result, several assumptions are needed.

- There is no difference between the disposable and reusable systems other than the cost.
- The disposable system does not generate employment, whereas the care of reusable linen represents 80 per cent of its cost.
- The average federal and provincial income taxes paid by Canadians is 20 per cent and 10 per cent respectively.[4]
- The harmonized sales tax (HST) is 15 per cent.
- The provincial multiplier (number of times money circulates in the economy before it "leaks" out) is 2.3.[5]
- Federal taxes return to the province in transfer payments and other services.
- The cost of unemployment is accounted for by taxes.
- Money placed in savings is equal to that returning to the economy from savings, so that after-tax wages are considered to be consumed.
- Actual cost is discounted by income tax and total consumption tax generated to determine cost from the provincial government's perspective.

Results

The actual cost of reusable surgical linen is $110,000 per annum (p.a.). The use of disposable drapes would save the surgical program $10,000 each year at an actual cost of $100,000. The purchase price of reusable linen, amortized over its lifetime, is $22,000 p.a., and the wage cost of cleaning and repair is $88,000 p.a. Of the salaries, $26,400 is retained in combined federal and provincial income taxes. This leaves $61,600 to enter the local economy, where it circulates 2.3 times, generating $21,252 consumption tax ($61,600x2.3x15 per cent HST). The net cost to the government of labour to maintain reusable linen is $40,348 ($88,000 less $26,400 and $21,252) or 37 per cent of the actual cost. The total net cost, from the provincial government's perspective, of reusable linen is $62,348 p.a., while the purchase of disposable drapes continues to cost $100,000. Thus, a saving of $10,000 from the hospital's perspective represents a cost to the provincial government of $37,652 accounting for taxes alone.

Interpretation

Hospitals have no choice but to seek the lowest cost for the services that they provide. The payroll is the largest component of operating costs, and thus, employment is the main target of cost-cutting manoeuvres. In the example given, the charges are hypothetical, but they reflect real choices recently made by several Canadian hospitals. The assumptions, although necessary, represent simplifications of reality. The labour costs for the supply and disposal of drapes are excluded. The offset effect of return trade from the region supplying the disposable linen is not accounted for. Average tax and other indices are fixed, and sensitivity analysis is not attempted. If the disposable drapes (or other cost-cutting items) were manufactured in the province, the tax benefit and multiplier effect would also be applied to this side of the comparison. The model could be refined to include the cost of unemployment, such as employment insurance and the cost of additional social services (policing, addiction care). These costs vary depending on whether other employment opportunities existed in the province. The maintenance of a skilled workforce has a positive impact on the province, and even more so on the institution's locality. This impact is difficult to quantify financially.

Other examples of cost cutting by reduction in numbers employed include laboratory automation to increase the productivity of each technician, computerization to allow each nurse to look after more patients, closed-circuit television to reduce security staff, and new drug therapies. Referenced-based pricing has become a means to limit the cost of drugs and other therapies by establishing a common reimbursement level for

comparable therapies.[6] A factor in determining price is the cost of in-patient care. The thrust of most cost-cutting strategies has been to reduce the period of hospitalization for each patient so that fewer staff members must be employed. New therapies are often priced based on the actual cost savings of the expected reduction in the length of stay. As each day in a Canadian teaching hospital is thought to cost about $1,200, the resulting price for these medications can be large.[7] In our model, 80 per cent of the actual cost of in-patient care is accounted for by wages. This should have been reduced by 65 per cent to account for tax revenue (income and consumption). Thus, the real cost to the province of the new therapy may be greater than appreciated.

In the example given, the province's perspective is compared to the actual cost, but the model can be applied to derive a perspective for the cost of health care for the town where the hospital is located. Town taxes and the impact of salaries on the community would be considered. Part of the money paid to hospital employees is spent in the community, where it becomes another person's salary. These salaries circulate in the community until leakage reduces the sum to zero. This is the concept of the economic multiplier. Recently, it was applied to analyze the effect of tourism on regions.[5] It was first described by the economist Kahn,[8] then popularized by John Maynard Keynes in the economist's crusade to end the madness of the Great Depression.[9] In this study, we only looked at the impact of money circulating in the province.[5] Each cycle is subject to consumption tax or to secondary income tax. We only discounted salaries by consumption taxes collected on net salaries as they circulate through the community, and by income tax on the primary salary. Other systems of economic analysis suggest that this underestimates the contribution of hospitals to regional economies.[10]

Our purpose is not to deny the social benefits of improvements in efficiency or to suggest that cross-border trade is improper. The cost of health care is a public expense, even in a system that allows privatized care. It is ironic that the perspective used to determine cost should be that of a private business, and that the stimulus for this should come from the government. Even if the cost of labour were appropriately discounted, it still cannot be equated economically with an imported device or service. While an import can be terminated at any time, the replacement of lost skills is not as easy. This results in a risk of becoming dependent on imports, which tend to increase in cost as the dependency increases. Only the payer can reverse the short-sightedness of applying unmodified business models to health-care reform. An operational formula that accounts for both perspectives is needed to appropriately value the economic benefit of regional employment. Such a formula would apply not only to health care but also to any area of public endeavour.

References

1. Deber R, Swan B. Canadian health expenditures: where do we really stand internationally? Can Med Assoc J 1999;160:1730-4.
2. Peters T. Liberation management: necessary disorganization for the nanosecond 90s. New York: A.A. Knopf, 1992.
3. Davidoff AJ, Powe NR. The role of perspective in defining economic measures for the evaluation of medical technology. Int J Technol Assess Health Care 1996;12:9-21
4. Statistics Canada. Average income, income tax, and transfer payments for selected family types and unattached individuals. Catalogue number 13-210-XPB.
5. Frechtling DC, Horvath E. Estimating the multiplier effects of tourism expenditures on a local economy through a regional input-output model. J Travel Research 1999;37:324-32.
6. Narine L, Senathirajah M, Smith T. Evaluating reference-based pricing: initial findings and prospects. Can Med Assoc J 1999;161:286-8.
7. Bourgault C, Elstein E, Le Lorier J, Suissa S. Referenced-based pricing of prescription drugs: exploring the equivalence of angiotensin-converting enzyme inhibitors. Can Med Assoc J 1999;161:255-60.
8. Kahn RF. The relation of home investment to unemployment. Economic J 1931 June;XLL:173-98.
9. Keynes JM. General theory of employment, interest, and money. London: MacMillan & Co. Ltd., 1957:113-31.
10. Vaughan M, Hilsenrath P, Ludke RL. The contribution of hospitals to a local economy: a case study in Iowa and Illinois. Health Care Management Rev 1994;19:34-41.

Received May 24, 2000

Accepted November 6, 2000