

Drugs, Health and the Economy: Investment, Innovation, Outcomes, Growth



COMMENTARY

Terrence Montague, MD

Department of Patient Health, Merck Frosst Canada Ltd.

Siobhan Cavanaugh, MA

Corporate Affairs, Merck Frosst Canada Ltd.

Kevin Skilton, PEng

Corporate Affairs, Merck Frosst Canada Ltd.

Gregg Szabo, MBA

Corporate Affairs, Merck Frosst Canada Ltd.

Jeff Sidel, BSc

Department of Patient Health, Merck Frosst Canada Ltd.

Jean-Pierre Gregoire, PhD

Department of Patient Health, Merck Frosst Canada Ltd.



ABSTRACT

Sustainability of the Canadian health system is currently foremost in the minds of many stakeholders. Historically, health expenditures have been viewed as ever increasing and with little visible economic return. Recently, economists have recognized the health arena as an important growth area within the total economy and have begun quantitative analyses of the impact of health investments as drivers of innovation and the general economic advance of nations. In particular, evidence has focused on the discovery and diffusion of new drugs as practical reflections of the quality ladder model of innovation, largely through their provision of improved duration and quality of life and accompanying productivity. The rate of return on innovative drug therapy within the universe of patients who could benefit is, however, impeded by under-prescription of, restricted access to, and/or impaired compliance with, newer efficacious drugs. The authors support further research to assist in future health policy decisions, including wider testing of the partnership/measurement model of disease management as a feasible tool to optimize the social rate of return on already-proven drug therapy. They further recommend these partnerships be designed with enough breadth of vision to facilitate their transition to operational projects compatible with evolving public health policies.

IN THIS ISSUE of *HealthcarePapers*, Laupacis, Anderson and O'Brien provide a thought-provoking article on the licensing and public reimbursement of drug therapy. Focusing on the centrality of efficacious drugs in modern healthcare, they conclude these products of innovation can lead to improvement of outcomes, but are concerned their costs may outstrip their affordability. They suggest sustainability of the health system could be advanced by enhanced production and propagation of evidence of the clinical and fiscal efficacy of new drugs, coupled with a continuing evaluation and reporting of evidence from real-world population studies.

This commentary also concentrates on the importance of discovery and diffusion of efficacious drugs to modern health systems, but from the viewpoint of stakeholders within the innovative pharmaceutical industry. We have focused on health costs and outcomes from a system view and in terms of their overall relation to

the larger arena of the national economy. And we, too, offer suggestions as to how the social rate of return on health-dollar investment might be optimized now and in the future.

Today's Situation: How Did We Get Here?

Since public healthcare began in Canada, there have been three principal dynamic tensions driving the system: access, costs and quality. These drivers are interrelated and have vied for managerial predominance over time.

In the last decade, costs, or perhaps more accurately, the perceived need of payers to control costs, has been the dominant driver of many healthcare environments, including all the Canadian provinces. This focus on cost containment has been driven by the rising costs of healthcare, coupled with the finite ability of payers to afford the increased expenses. Cost containment may have been

facilitated, as well, by a prevailing sense within health ministries that health costs had little visible dollar return on investment, at least in short-term savings to the system. However, in the context of broader public policy, it is useful to examine pharmaceutical management beyond simply how drugs are paid for. Of great importance also is “who” is covered – that is, eligibility or access – and “what” drugs are covered.

Prudent public policy suggests the public be consulted in developing the macro-level design of publicly funded programs, prior to judging the existing design as unaffordable based on the historical cost of any one program. Increasingly, the public appears prepared to consider a balance of driving forces in decision-making. For example, the Healthcare in Canada Survey 2001 of healthcare providers, consumers and managers reported 71% of respondents preferred partial funding of several treatment options in a given disease, as opposed to full funding of only one (Healthcare in Canada Survey 2001). This preference appears to derive from an effort to increase access and choice.

In economic terms, an optimal pharmaceutical policy can be achieved by implementing measures at the demand, proxy-demand and supply side of the market. Noted Princeton University economist Uwe Reinhardt notes that an incessant focus on the supply side of the pharmaceutical market is misplaced. Prices and profits of drug companies are not large enough in health system terms to offer much relief to any cost-containment effort. A more effective effort might be to implement measures having an impact upon the demand side of pharmaceutical

policy (Reinhardt 2001). This would be particularly relevant in Ontario where the majority of management measures in the past decade have targeted the supply side of the market. For example, between December 1, 1996, and November 30, 2001, Ontario listed only 31% of new single-source products on the drug benefit formulary, one of the lowest rates of all provinces (IMS Health 2002).

It is also increasingly recognized that developers of health technology are important drivers of the general economy (Montague 2000). In the United States, currently, the health services segment is the fastest growing segment of the economy and is projected to represent 16% of that nation's economic output by 2010 (Leonhardt 2001). In 2001, research and development spending in healthcare in the United States is estimated to have reached \$43 billion.

This is a large investment by any measure. Its actual amount is obviously important in the context of an innovative investment that will drive technologic advance and further health-based economic growth. Its relative amount, in comparison to other countries' health innovation investments, is also important in the increasingly globalized and competitive world. For example, in relative terms, U.S. spending on health research is probably 20 to 30 times that of Canada.

If Canada is to compete effectively in this world of innovation driving technology we must be cognizant of the competition and our relative attractiveness as an investment environment. In practical terms for the global pharmaceutical industry, Canada must be seen to be competitive in terms of intellectual property protection and access of innovative

products to the marketplace. In the words of Alan Bernstein, President of the Canadian Institutes of Health Research, “We need to stop viewing the healthcare system as a cost centre that needs to be contained and start recognizing the money we spend on health as a valuable investment in the world’s largest knowledge-based sector” (excerpt from a speech at the fourth annual Directions for Canadian Health Care Series, *Advancing Health, Science, and the Economy*, 2001).

More difficult to quantify is the impact of increased quality of health outcomes, such as improved longevity and quality of patients’ lives, on the general economic health of a nation. While data are still scant, some recent econometric analyses have attempted to calculate the social rate of return on health innovation investments. In the United States, it has been estimated that economic growth adjusted for longevity increase is twice as large as unadjusted growth (Nordhaus 2002). In turn, longevity increases are explained via the technologic advance of the development and diffusion of new drugs. In an analysis controlling for general economic and social trends, Lichtenberg (2002) estimated the relation between the introduction of all new drugs in the U.S. market from 1970 to 1991 and longevity. He found a positive relationship across all diseases and an incremental impact in 1991 of 11,200 life years saved per year for the average new drug launched during the study interval. Moreover, he reported that the reduction in life years lost for the diseases with the highest relative utilization of new drugs was more than five times as great as the mortality reduction for the 19 diseases with the lowest relative use of new drugs.

Interestingly, the analysis showed little support for the view that initial-entry breakthrough drugs were more effective than newer, but later-entry, drugs of the same class.

In another complementary analysis of data from the 1996 Medical Expenditure Panel Survey (MEPS), the question of whether the benefits of newer drugs were worth their cost was addressed (Lichtenberg 2001). This analysis included the costs of non-drug therapy, mortality and morbidity variables, including time missed from work or school. It concluded that patients taking newer drugs were significantly less likely to die and had fewer work-loss days, lower non-drug costs and a net reduction in total treatment costs of a given condition compared to patients taking older drugs. These data support the hypothesis that drug quality is inversely related to drug age. And they are consistent with the quality ladder model of innovation, which suggests innovative goods are better than older products because they provide more services.

If one accepts the quality ladder hypothesis, an important corollary to be realized is that the optimal social rate of return on innovative drugs is not being achieved. This conclusion derives from the recognition of large gaps in drug dissemination to populations who would benefit from their use (Montague et al. 1997). For example, despite overwhelming evidence, large numbers of patients with coronary and other heart diseases still are not consistently receiving the medications proven to reduce their risk of dying or being rehospitalized. These care gaps are not allowing the maximum societal value of modern drugs to be implemented and recognized.

To address care gaps, our company, in conjunction with several other research-based pharmaceutical companies and various provincial governments, has been testing a partnership-measurement model of disease management in several disease states. The core goal of these projects, with a broad community-based and academic partnership, is to close the gaps between the efficacy evidence and its optimal application in whole populations who could benefit (Montague et al. 1998). The principal interventions are repeated measurement and feedback of actual practices and outcomes, as well as enhanced inter-partner communication and community-responsive changes to utilization of scarce care resources.

Currently, the most mature of these projects is Improving Cardiovascular Outcomes in Nova Scotia, or ICONS (Cox 1999). The clinical core of this project is the team of community physicians, pharmacists and nurses from each of the health districts of Nova Scotia. As a research project, ICONS has led to increased utilization of evidence-based therapies and has improved patients' health outcomes in the target diseases of acute ischemic syndromes and congestive heart failure. This is not, of course, unexpected, given the weight of evidence that repeated measurement and feedback of practices to stakeholder partners leads, consistently, to improved practices and outcomes, in part because of a large Hawthorne effect in clinical settings (Montague et al. 1995; Hux et al. 1999). Other important successes of ICONS include buy-in of the multidisciplinary regional teams sharing knowledge across geography and the high quality of the data being acquired and disseminated.

Presently, ICONS is in transition from a research oriented, largely privately funded project to an operating program of the Nova Scotia Department of Health. In making this sustainability decision, a major consideration of the provincial government relates to efficiency, alignment and integration of operations, particularly in terms of data collection, and a feasibility evaluation of the program's work plans in terms of likely budget realities. Other important considerations include assessments of how the program will partner with existing community-based organizations and whether it can consistently provide clear, concise and accountable policies and performance measures, within a governance structure directly linked to the Department of Health. The fact that many of the program assessment points have been part of the original ICONS design, particularly community-based buy-in and accountability, lends some degree of certainty to a successful transition.

Where Do We Go from Here?

In the cacophony of current debate, perhaps somewhat paradoxically given the complexity of issues and interests, a desire for a singular, consensual or simple solution to challenges of our system of care is sometimes perceived. This may be an impossible dream, but the commitment to develop a working paradigm – that is, an action plan – for a sustainable health system appears to be rapidly solidifying in the country. In other words, maintaining the status quo does not appear to be an acceptable choice.

We agree with Laupacis, Anderson and O'Brien that more, and better, economic analyses are likely to assist

evidence-based policy decisions. In this regard, we think it is particularly important that the cost of *not* treating people with proven therapies is part of the overall calculations, along with estimates of the cost of treating. As well, more analyses along the lines of the econometric studies outlined above would allow a higher degree of certainty about the causal relation between development and diffusion of new drugs and general economic advance.

Integral to the anticipated positive health and fiscal impact of any suggestions for system changes is the companion assumption that policy-maker and practitioner stakeholders within health systems will accept and act on evidence in a uniform manner. Experience with projects such as ICONS has demonstrated their potential to create this level of buy-in from both caregivers and policy-makers. We therefore recommend more of these community-based disease management projects, with a focus on measurement of real-world practices and cost-efficient outcomes in a consistent and continuous manner. Moreover, from our very recent experience, we feel a major success driver of projects such as ICONS is their construction as public-private partnerships with a design focus on the ultimate sustainability of such projects as strategic programs of provincial ministries of health. Thus, early engagement of key governmental consultants and partners is strongly recommended to optimize the ultimate impact of successful projects.

In Ontario, there is an immediate opportunity to bring some of these suggestions to testing in the real world. The Ministry of Health and Long-Term Care

has recently called for disease management proposals. These studies will facilitate the ongoing evaluation of evidence in large populations, with the goal of better understanding formulary management options that will advance cost-effective spending on drugs. The ongoing evaluation of evidence, in the form of disease management initiatives for the major burdens of societal illness, could have a significantly positive impact on the cost-effectiveness of provincial drug programs. In Ontario, 82% of drug expenditures are consumed by just nine disease states (Ontario Drug Benefit Program 2001). Companion studies on the impact of various formulary management techniques would provide an important additional contribution to policy decision-making, given the current paucity of Canadian literature on the health and cost outcomes of formulary management (Willison et al. 2000).

In closing, let us reiterate our belief that investment in health, particularly innovative drugs, leads to improved outcomes and general economic growth. Let us find the best areas in which to invest for the future and measure the fruits of these investments together.

References

- Cox, J.L., on behalf of the ICONS Investigators. 1999. "Optimizing Disease Management at a Health Care System Level: The Improving Cardiovascular Outcomes in Nova Scotia (ICONS) Study." *Canadian Journal of Cardiology* 15 (7): 787-96.
- Health Care in Canada Survey. 2001. The Coalition of National Voluntary Organizations, The Canadian Association for Community Care, The Canadian Home Care Association, The Canadian Nurses Association, The Canadian Healthcare Association, Merck Frosst Canada Ltd., Pollara Research.
- Hux, J.E., M.P. Melady and D. Deboer. 1999. "Antibiotic Prescribing." *Canadian Medical Association Journal* 161: 388-92.

Drugs, Health and the Economy: Investment, Innovation, Outcomes, Growth

IMS Health. 2002. Provincial Reimbursement Advisor. February.

Leonhardt, D. 2001. "Health Care as Main Engine: Is That So Bad?" *New York Times*, Sunday, November 11.

Lichtenberg, F.R. 2001. "Are the Benefits of Newer Drugs Worth their Cost? Evidence from the 1996 MEPS." *Health Affairs* 20: 241-51.

Lichtenberg, F.R. 2002 (forthcoming). "Pharmaceutical Innovation, Mortality Reduction, and Economic Growth." National Bureau of Economic Research Working Paper No. 6569. In Murphy and Topel, eds., *The Economic Value of Medical Research*. Chicago: University of Chicago Press.

Montague, T. 2000. "What Determines Health and Quality of Life? Health as Good Economics." *Association of Canadian Medical Colleges Forum* 33: 12-14.

Montague, T., J. Sidel, B. Erhardt et al. 1997. "Patient Health Management: A Promising Paradigm in Canadian Healthcare." *American Journal of Managed Care* 3: 1175-82.

Montague, T., L. Taylor, M. Barnes et al. for the Clinical Quality Improvement Network (CQIN) Investigators. 1995. "Can Practice Patterns Be Successfully Altered? Examples from Cardiovascular Medicine." *Canadian Journal of Cardiology* 11: 487-92.

Montague, T., R. Tsuyuki and K. Teo. 1998. "Improving Women's Health Quality: The Value of Closing the Care Gap." *Hospital Quarterly* 2(1): 36-39.

Nordhaus, W.D. 2002 (forthcoming). "The Health of Nations: Irving Fisher and the Contribution of Improved Longevity to Living Standard." Cowles Foundation Paper No. 1200, Yale University, September 1998. In Murphy and Topel, eds., *The Economic Value of Medical Research*. Chicago: University of Chicago Press.

Ontario Drug Benefit Program and Brogan Inc. 2001. *Report Card for the Ontario Drug Benefit Program, 2000/2001*.

Proceedings from the fourth annual conference in the Merck Frosst Directions for Canadian Health Care Series on *Advancing Health, Science, and the Economy*. 2001.

Reinhardt, U. 2001. "Perspectives on the Pharmaceutical Industry." *Health Affairs* 20(5): 138.

Willison, D., P. Grootendorst, B. O'Brien, M. Levine and S. MacLeod. 2000. Outcomes Associated with Formulary Cost-Containment Strategies – A Literature Review and Methodologic Critique. Available on-line: <http://www.thecem.net/projects.html>.



Member of the HRBoard of Best Practices
Go directly to their Careers page from our directory at:

www.longwoods.com/jobsite

MCKESSON

Empowering Healthcare

Member of the HRBoard of Best Practices
Go directly to their Canada Jobs page
from our directory at:

www.longwoods.com/jobsite

GHXTM
Global Healthcare Exchange

Member of the HRBoard of Best Practices
Go directly to their Job Opportunities page from our directory at:

www.longwoods.com/jobsite

Microsoft[®]

Member of the HRBoard of Best Practices
Go directly to their Canada Jobs page
from our directory at:

www.longwoods.com/jobsite



FRASER MILNER CASGRAIN LLP

Member of the HRBoard of Best Practices
Go directly to their Careers page from our directory at:

www.longwoods.com/jobsite



Member of the
HRBoard of Best Practices
Go directly to their
Careers page
from our directory at:

www.longwoods.com/jobsite