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Politiques de Santé

Health Services, Management and Policy Research
Services de santé, gestion et recherche de politique

Volume 3 • Number 2

Data Matters • Discussion and Debate • Research Papers
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Healthcare Policy/Politiques de Santé seeks to bridge the worlds of research and decision-making by presenting research, analysis and information that speak to both audiences. Accordingly, our manuscript review and editorial processes include researchers and decision-makers.

We publish original scholarly and research papers that support health policy development and decision-making in spheres ranging from governance, organization and service delivery to financing, funding and resource allocation. The journal welcomes submissions from researchers across a broad spectrum of disciplines in health sciences, social sciences, management and the humanities and from interdisciplinary research teams. We encourage submissions from decision-makers or researcher–decision-maker collaborations that address knowledge application and exchange.

While *Healthcare Policy/Politiques de Santé* encourages submissions that are theoretically grounded and methodologically innovative, we emphasize applied research rather than theoretical work and methods development. The journal maintains a distinctly Canadian flavour by focusing on Canadian health services and policy issues. We also publish research and analysis involving international comparisons or set in other jurisdictions that are relevant to the Canadian context.

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Healthcare Policy/Politiques de Santé cherche à rapprocher le monde de la recherche et celui des décideurs en présentant des travaux de recherche, des analyses et des renseignements qui s'adressent aux deux auditoires. Ainsi donc, nos processus rédactionnel et d'examen des manuscrits font intervenir à la fois des chercheurs et des décideurs.

Nous publions des articles savants et des rapports de recherche qui appuient l'élaboration de politiques et le processus décisionnel dans le domaine de la santé et qui abordent des aspects aussi variés que la gouvernance, l'organisation et la prestation des services, le financement et la répartition des ressources. La revue accueille favorablement les articles rédigés par des chercheurs provenant d'un large éventail de disciplines dans les sciences de la santé, les sciences sociales et la gestion, et par des équipes de recherche interdisciplinaires. Nous invitons également les décideurs ou les membres d'équipes formées de chercheurs et de décideurs à nous envoyer des articles qui traitent de l'échange et de l'application des connaissances.

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CONTENTS

From The Editor in Chief

Guest Commentary

Discussion and Debate

Data Matters

Knowledge Translation, Linkage & Exchange

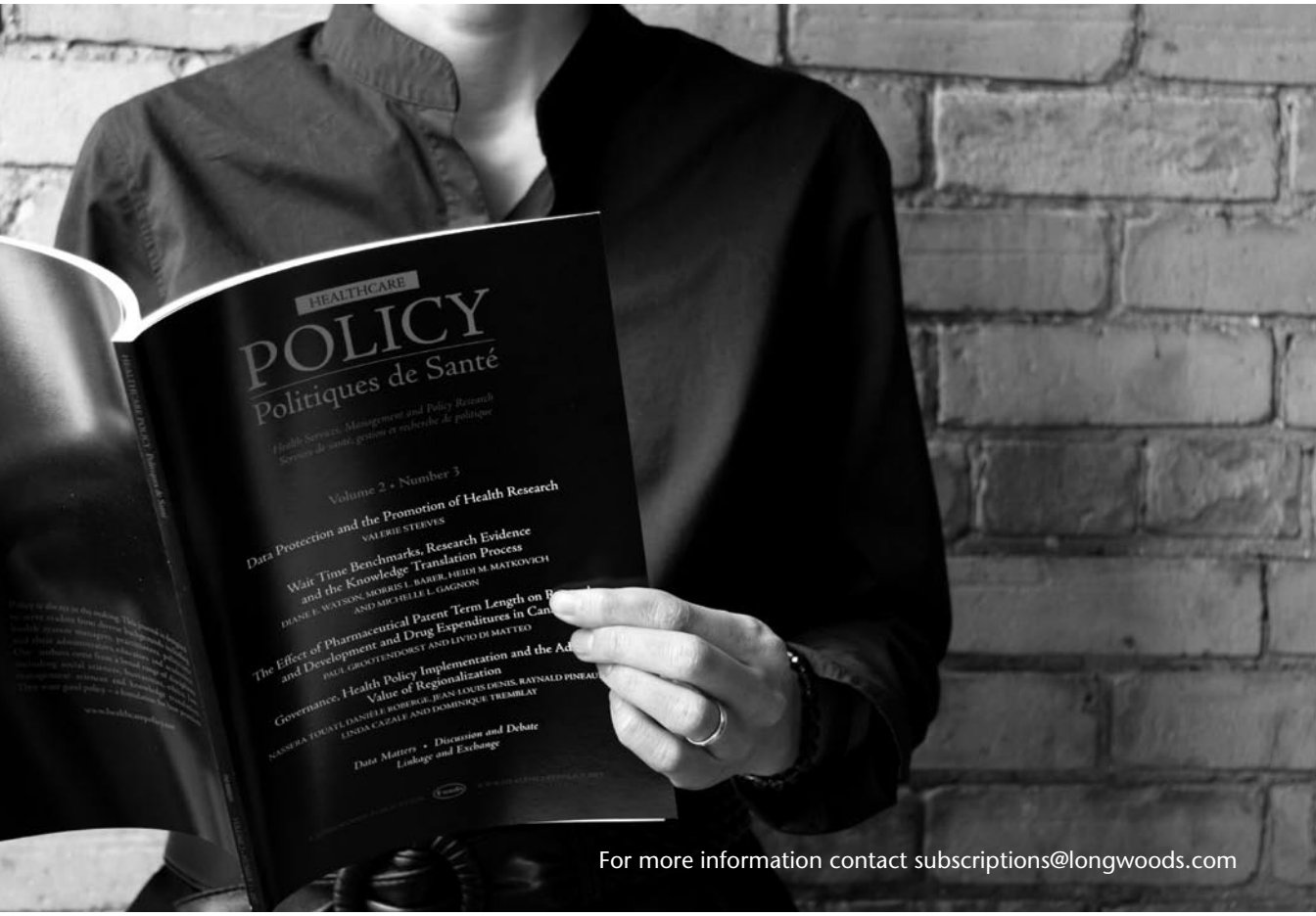
Research Papers

Questions de données

Application des connaissances, liens et échanges

Documents de recherche

 Examen par les pairs  Texte intégral en ligne



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EDITORIAL

Disparities in Healthcare Access and Use: Yackety-yack, Yackety-yack

Despite change, uncertainty and disarray in Canada's healthcare system(s), some observations about Canadian medicare still seem beyond challenge:

- access to healthcare based solely on need is the core value that gave rise to and sustains medicare;
- the advent, through medicare, of universal, publicly funded physician and hospital services substantially reduced disparities in access to, and outcomes of, healthcare based on socio-economic status (Enterline et al. 1973; James et al. 2007);
- despite those gains, disparities remain – factors other than need continue to influence access to and use of services.

The last point deserves elaboration. A growing body of research evidence indicates that use of hospital services in Canada is generally consistent with relative need across income groups (e.g., Manga et al. 1987; van Doorslaer and Masseria 2004; Allin 2006). Some studies (van Doorslaer and Masseria 2004; Allin 2006) show greater use of hospital services by those with lower income after controlling for healthcare need – perhaps calling into question the adequacy of existing measures of need. On the other hand, studies of specialist services have demonstrated a direct relationship between use and income, education or both (McIsaac et al. 1993, 1997; Roos and Mustard 1997; Dunlop et al. 2000; Finkelstein 2001; van Doorslaer et al. 2006; Allin 2006) – wealthier and better-educated Canadians use more specialist services independent of need.

The picture with respect to primary care physicians' services is less clear. Some studies show an equitable (i.e., needs-based) distribution across education and income groups (McIsaac et al. 1993, 1997; Roos and Mustard 1997; Dunlop et al. 2000), while others do not. For example, Birch et al. (1993) found the use of family physician services to be positively associated with level of education (and extent of contact with friends and relatives). Based on data from the 2001 Canadian Community Health Survey (CCHS), van Doorslaer et al. (2006) found that, after standardizing

for healthcare need, higher income was associated with a greater likelihood of seeing a primary care physician but a lower number of visits. Using 2003 CCHS data and a similar methodology, Allin (2006) observed a pro-rich inequity in the probability of visiting a family physician, a finding that was inconsistent among the provinces and territories. In the 2002/03 Joint Canada/US Survey of Health, Canadians with low income were less likely to have a regular doctor and more likely to report unmet healthcare needs than those with high income (Lasser et al. 2006). In an earlier international population survey, Canadian respondents with below-average income were more likely than those with above-average income to report having difficulty getting needed care (Shoen et al. 2000).

Data from the 1994/95 National Population Health Survey showed that the likelihood of women in the appropriate age groups having either a Pap smear or a mammogram was associated with higher education level and being born in Canada (Gentleman and Lee 1997; Lee et al. 1998). Income level was also independently associated with having a Pap test (Lee et al. 1998). In the 2005 CCHS, respondents in the highest two (of four) income categories were more likely than those in the lowest income category to report having a flu shot in the previous 12 months (Kwong et al. 2007).

Ontario-based studies have shown a positive association between income and access to coronary angiography and revascularization (Alter et al. 1999) and to in-hospital occupational therapy, physiotherapy and speech pathology following a stroke (Kapral et al. 2002). Patients from the lowest-income neighbourhoods waited much longer for coronary angiography (Alter et al. 1999) and carotid artery surgery (Kapral et al. 2002) than those from the highest-income neighbourhoods. Recently published studies in *Healthcare Policy/Politiques de Santé* point to inequities in access to radiation therapy for breast cancer based on income level (Fortin et al. 2006) and to mental health services for anxiety or depression provided by both family physicians and psychiatrists based on education level (Steele et al. 2007).

This summary, reflecting a brief and unsystematic scan of the literature, describes only the tip of a much larger evidence iceberg. Clearly, Canadian medicare has failed to achieve healthcare access (and use) based on need, even for those services within the purview of the *Canada Health Act*: hospital and physicians' services. Being poor, poorly educated or both impairs access to specialist and (probably) family physician services, to preventive care (e.g., Pap tests, mammograms and flu shots) and to services for specific health problems (e.g., cardiovascular and mental health).

But income and education are not only associated with access to services; they are themselves determinants of health, and often cluster together with other determinants such as Aboriginal status, early life experiences, employment and working conditions, food security, housing, social exclusion, social safety net, unemployment and employment security (Raphael 2004). The very people who need care the most are the least likely to get the care they need.

Evidence of the continuing relationship between socio-economic characteristics and access to health services under medicare is abundant, long-standing and persistent. This evidence is without doubt well known (at least in part) to health system decision-makers.

Why, then, is there so little sign of concerted heath policy or health system design and management initiatives at the federal or provincial/territorial levels to address this violation of the fundamental rationale for Canadian medicare? It may be more than coincidence that those on the receiving end of inequitable access are among the least politically and economically powerful members of Canadian society. Although many Canadians are passionately committed to the principle that access to essential health services should be based only on need, they may, given a lack of media and political attention to the issue, assume that the elimination through medicare of (most) financial barriers to obtaining hospital and physicians' services has solved the access problem. Under these circumstances, politicians and governments at the federal and provincial/territorial levels are under little or no pressure to mount a response. As a result, current policy complacency seems likely to continue unless equity of access emerges as a public issue that resonates with Canadians who support the core principles of medicare and mobilizes civil society. Now, *there's* a challenge for knowledge translation. Meanwhile, there will undoubtedly be lots of talk (research on access inequities and acknowledgment – out of public view – of their existence), but little policy action.

BRIAN HUTCHISON, MD, MSC, FCFP
Editor-in-chief

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Disparité dans l'accès aux soins de santé et dans leur utilisation : encore du bla-bla

En dépit des changements, de l'incertitude et de la confusion qui affectent le système de soins de santé au Canada, certaines observations concernant le régime d'assurance-maladie canadien semblent toujours incontestables :

- L'accès aux soins de santé accordé uniquement en fonction des besoins est la valeur fondamentale qui a fait naître le régime d'assurance-maladie et qui le soutient.
- L'apparition, grâce au régime d'assurance-maladie, de services hospitaliers et médicaux universels financés par l'État a substantiellement réduit les disparités dans l'accès aux soins médicaux, ainsi que dans leurs résultats, entre les gens de statut socio-économique différent (Enterline et coll., 1973, James et coll., 2007).
- Malgré ces gains, on constate encore des disparités; le besoin n'est toujours pas le seul facteur qui détermine l'accès et l'utilisation des services.

Ce dernier point mérite plus d'explications. Les conclusions d'un nombre toujours croissant de recherches sur la question indiquent que le recours aux services hospitaliers au Canada correspond habituellement au besoin relatif peu importe la catégorie de revenu (Manga et coll., 1987, van Doorslaer et Masseria, 2004, Allin, 2006, etc.). Certaines études (van Doorslaer et Masseria, 2004, Allin, 2006) révèlent que les personnes au revenu plus faible font une plus grande utilisation des services hospitaliers proportionnellement à leurs besoins (ce qui peut soulever des questions sur l'exactitude des mesures existantes du besoin). D'autre part, les études concernant les services des spécialistes ont établi une relation directe entre l'utilisation des services et le revenu, le niveau d'instruction ou les deux (McIsaac et coll., 1993, 1997, Roos et Mustard, 1997, Dunlop et coll., 2000, Finkelstein, 2001, van Doorslaer et coll., 2006, Allin, 2006); ainsi, les membres plus riches et instruits de notre société ont plus souvent recours aux services de spécialistes, indépendamment de leur besoin réel.

La situation n'est pas aussi claire en ce qui concerne les services des médecins de premier recours. Certaines études indiquent qu'il s'en fait une utilisation équitable (c.-à-d. en fonction des besoins) dans toutes les catégories de revenu et d'instruction (McIsaac et coll., 1993, 1997, Roos et Mustard, 1997, Dunlop et coll., 2000), alors que d'autres disent le contraire. Birch et coll. (1993) ont établi un lien positif entre le recours aux services des médecins de famille et le niveau d'instruction (ainsi que le degré de contact avec les amis et les parents). En s'appuyant sur les données de l'Enquête sur la santé dans les collectivités canadiennes (ESCC) de 2001, van

Doorslaer et coll., (2006) ont découvert, après normalisation des besoins en soins de santé, qu'une personne au revenu plus élevé était plus susceptible de consulter un médecin de premier recours, mais que ses visites étaient moins nombreuses. Utilisant une méthode similaire et les données de l'ESCC de 2003, Allin (2006) a observé une certaine inégalité, en ce sens que les gens mieux nantis sont plus susceptibles de consulter un médecin, bien que cette inégalité ne soit pas constante dans toutes les provinces et tous les territoires. Selon l'Enquête conjointe Canada/États-Unis sur la santé de 2002-2003, les Canadiens à faible revenu sont proportionnellement moins nombreux à avoir un médecin de famille et rapportent plus souvent des besoins insatisfaits en soins de santé que ceux à revenu élevé (Lasser et coll., 2006). Dans une étude internationale antérieure sur la population, les répondants canadiens au revenu inférieur à la moyenne faisaient plus souvent état de difficultés dans l'obtention des soins dont ils avaient besoin que ceux au revenu supérieur à la moyenne (Shoen et coll., 2000).

Les données de l'Enquête nationale sur la santé de la population de 1994-1995 ont démontré que les chances qu'une femme appartenant à un des groupes d'âge concernés passe un test de Papanicolaou ou une mammographie augmentent avec le niveau d'instruction et le fait d'être née au Canada (Gentleman et Lee, 1997; Lee et coll., 1998). Le niveau de revenu a aussi été associé indépendamment avec la probabilité de se soumettre à un test de Papanicolaou (Lee et coll., 1998). De plus, à l'ESCC de 2005, les répondants des deux catégories de revenu les plus élevées (sur quatre) étaient proportionnellement plus nombreux que ceux de la catégorie de revenu inférieure à mentionner avoir reçu un vaccin antigrippal au cours des 12 mois précédents (Kwong et coll., 2007).

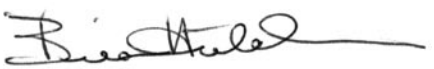
Des études ontariennes ont démontré qu'il y a une association positive entre le revenu et l'accès à la coronarographie et à la revascularisation (Alter et coll., 1999), ainsi qu'à l'ergothérapie, à la physiothérapie et à l'orthophonie en milieu hospitalier à la suite d'un accident cérébrovasculaire (Kapral et coll., 2002). Les patients des quartiers les plus pauvres doivent attendre beaucoup plus longtemps avant d'obtenir une coronarographie (Alter et coll., 1999) ou une chirurgie de l'artère carotide (Kapral et coll., 2002) que ceux des quartiers les plus riches. Des études publiées récemment dans *Healthcare Policy/Politiques de Santé* semblent indiquer des inégalités dans l'accès à la radiothérapie pour les cas de cancer du sein au Québec en fonction du niveau de revenu (Fortin et coll., 2006) et dans l'accès aux services de santé mentale, selon le niveau d'instruction, pour les Canadiens qui souffrent d'angoisse ou de dépression, et ce, autant auprès des médecins de famille que des psychiatres (Steele et coll., 2007).

Ce compte rendu sommaire, basé sur un survol rapide et peu systématique de la documentation, ne révèle que la pointe d'un iceberg bien plus imposant de preuves. De toute évidence, le régime d'assurance-maladie du pays n'a pas réussi à garantir l'accès aux soins de santé (et leur utilisation) en fonction des besoins, même dans le cas des services hospitaliers et de médecins, pourtant touchés par la *Loi canadienne*

sur la santé. Le fait d'être pauvre ou d'avoir peu d'instruction, ou les deux, constitue un obstacle à l'accès aux services d'un spécialiste et même, généralement, d'un médecin de famille, aux soins préventifs (p. ex., test de Papanicolaou, mammographie et vaccin antigrippal) et aux services médicaux concernant des problèmes précis (p. ex., maladies cardiovasculaires et problèmes de santé mentale).

Cela dit, le revenu et l'instruction n'ont pas seulement une incidence sur l'accès aux services. Il s'agit en soi de facteurs déterminants pour la santé, souvent liés à d'autres facteurs déterminants comme l'appartenance à un groupe autochtone, les expériences de jeunesse, l'emploi et les conditions de travail, la sécurité alimentaire, le logement, l'exclusion sociale, la protection sociale, le chômage et la sécurité d'emploi (Raphael, 2004). Dans les faits, les personnes qui ont le plus besoin de soins sont celles qui ont le moins de chances d'obtenir les soins dont elles ont besoin.

On peut donc se demander pourquoi on attend toujours des signes de concertation sur le plan des politiques, de la conception du système et des initiatives de gestion en santé, que ce soit au palier fédéral ou provincial et territorial, dans le but de corriger ce non-respect des fondements du régime canadien d'assurance-maladie. Ce n'est peut-être pas une coïncidence si ceux qui ne jouissent pas d'un accès équitable aux soins de santé sont aussi les membres les moins influents, économiquement et politiquement, de la société canadienne. De nombreux Canadiens croient fermement dans le principe qui veut que le besoin de services essentiels de santé soit le seul facteur qui y détermine l'accès. Malheureusement, étant donné le manque d'attention que portent les politiciens ou les médias à la question, la population peut croire à tort que l'élimination par le régime d'assurance-maladie (de la plupart) des barrières économiques à l'obtention de services médicaux a résolu le problème d'accès aux soins. Dans ces circonstances, les politiciens et les gouvernements des paliers fédéral et provincial/territorial ne sentent aucunement de pression pour réagir à cette situation. L'indifférence politique actuelle risque fort de continuer à moins qu'on parvienne à rassembler l'opinion publique sur la question de l'égalité d'accès aux soins et à mobiliser les Canadiens qui appuient les principes fondamentaux du régime d'assurance-maladie. Ça, c'est tout un défi sur le plan de l'application des connaissances. D'ici à ce qu'on y parvienne, il y aura sans doute encore beaucoup de discussions (recherches sur les inégalités en matière d'accès et reconnaissance, en secret, de leur existence), mais très peu d'initiatives politiques.



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GUEST COMMENTARY

Can a Learning-Disabled Nation Learn Healthcare Lessons from Abroad?

Un pays en difficulté d'apprentissage peut-il tirer une leçon de l'étranger en matière de soins de santé?

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Abstract

Canada's apparent capacity to reform its health system is inversely proportionate to the volume of high-quality reports that document its need to do so. One of the principal causes of this inertia is our unusual preoccupation with the financial sustainability of the public system, despite compelling evidence that this is a fundamental misdiagnosis. The case made here is that we need to declare a moratorium on the sustainability debate, become more adept at learning which features of international systems we can and cannot easily import, and recognize that what ails our system originates in design rather than the laws of nature.

Résumé

La capacité apparente du Canada de réformer son système de santé est inversement proportionnelle au volume de rapports très valables qui rendent compte du besoin de cette réforme. Une des causes principales de cette inertie est notre étrange souci de la durabilité financière du système public, malgré les preuves convaincantes que ce souci constitue une erreur d'analyse fondamentale. Cet article préconise le besoin de déclarer un moratoire sur le débat sur la durabilité, d'apprendre à mieux distinguer quels éléments des systèmes internationaux nous pouvons ou ne pouvons pas facilement importer et de reconnaître que les maux de notre système tiennent à la conception de ce dernier plutôt qu'aux lois de la nature.

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> Never ascribe to malice that which is adequately explained by incompetence.
> – *Napoleon Bonaparte*

Napoleon was not renowned for his generous impulses, but this is surely one of them. Incompetence is a condition; malice is a motive. The presence of the former is hardly proof of the absence of the latter (indeed, the two often make a nice combo). Canada's healthcare system is, like everybody else's, large, complex, expensive and imperfect. We get many things right, we get some things wrong, and we aim to preserve what is right and remedy what is wrong. Yet our reforms seem timid and ineffective, and suffer enormous energy loss on the path from conception to outcome (e.g., physician payment systems; primary healthcare renewal; nurse practitioners; electronic health records; interprofessional education; patient safety and quality improvement, among others).

The connection between intention and action seems stronger and more immediate elsewhere. Other countries aren't Nirvana, but their errors are braver – sins of commission rather than omission. The United Kingdom exhausts its system with perpetual change; we exhaust ours with endless talk and death by a thousand demonstration projects. Wherein lies the difference? Are we incompetent, maliciously hostile to large-scale improvement, gridlocked by federalism and vested interests, or too easily contented with what we have? We look to pockets of excellence for inspiration, but history and interest accommodation set policy. We accept great performance but never insist on it. If the status quo isn't good enough, we add money.

A perpetual question in Canada is what we can learn from other countries. Here we make two kinds of errors. Sometimes we claim we can learn nothing from other countries' experiences because they are so context-specific, culturally rooted, historically conditioned and structurally unique. Some are, but some aren't, and we need to know the difference. And sometimes we claim we can cherry-pick one feature – say,

co-payments for physician visits in France – with no understanding of how it is connected to a broad and intricate policy regime. We obsess about the pathway to change while losing sight of the destination. Denmark hasn't built a nursing home bed in over a decade, and Kaiser Permanente patients use fewer than half as many hospital bed-days per capita as Canadian patients. Am I the only one who thinks it's odd that Canadians spend endless hours debating whether and how to organize a wait list and no time setting clear targets that match the best of elsewhere? What accounts for our innovation learning disability?

Canada's Strange Obsession with Sustainability

There are 30 countries in the Organisation for Economic Co-operation and Development. By my reckoning 19 of them are, broadly speaking, Canada's economic peers, with a GDP per capita no more than 20% lower or higher than ours.[1] Here are some basic facts about their economies and healthcare spending (all data from OECD Principal Economic Indicators 2007 and OECD Health Data 2007).

- Canada's real per capita GDP grew by 16.6% between 2000 and 2006, about two percentage points more than the 20-country average, and four percentage points more than the G7 countries.[2]
- In 2005 all spent between 7.5% and 11.6% of their GDP on healthcare. Canada, at 9.8%, ranked sixth of 20.
- The government-financed share of total health spending ranged from 59% (Switzerland) to 87% (UK). Canada, at 70%, was next to last, and five countries exceeded 80%.
- Between 1970 and 2003, the average rate of real per capita spending increase in healthcare was 4%. Canada's rate was 3% – the sixth lowest of the 20 countries. On top of this, our governments are in excellent fiscal shape, with a long run of big federal surpluses, balanced budgets the norm among provinces, and all achieved while cutting taxes. Among the G7 countries our fiscal performance has been spectacular: our debt-to-GDP ratio has declined by two-thirds in a decade and continues downward, while others' are flat or rising.

In summary, governments have left a larger share of healthcare spending to the private sector than all but one of our peers; our cumulative rate of spending increases has been unexceptional; our fiscal houses are in order; and our economy is humming. It's hard to imagine a less daunting sustainability situation. Yet sustainability appears to be a uniquely Canadian preoccupation. How do I know? Google, of course.

In an earlier draft of this paper I included the results of a number of Google searches, such as "sustainable healthcare" AND "Canada OR Canadian." The numbers

are unstable within very short time periods, and sometimes the results make no sense: "New Zealand" AND "sustainable healthcare" yields 884 hits, but the same search WITHOUT "Canada OR Canadian" yields 885, and the same search WITHOUT "Canadian OR Canada" yields 853. (This erratic behaviour is somewhat disconcerting from the genius search engine of all time and a company with market capitalization of $158 billion.)

So the exact numbers are not worth reproducing here, but there is a pattern. In a search for "country name" + "sustainable healthcare," Canada has slightly more hits than the United Kingdom, twice as many as Australia and 2.5 times as many as Sweden. But excluding references to Canada from searches for other countries reduces the UK total by half, and Australia's and Sweden's by 95%. Conversely, excluding references to the UK from the Canadian search reduces our hits by a quarter; to Australia, by 30%; and to Sweden, by 17%.

The overall picture starts to get pretty clear. Canada appears to drive a good deal of the worldwide talk on sustainability even though not a single objective economic indicator points to a Canadian problem. Needless to say, objective reality is not always the arbiter of conviction.

The sustainability crisis mantra is traceable to three sources of inspiration. One is ideology: those who want to privatize the system need to persuade the public and politicians that even if we think public healthcare is a good idea that serves us well, what we could afford then we can barely afford now, and certainly cannot afford in the future. Let's all pay our respects at the funeral and move on. A second is adherence to the contention that an aging population will bankrupt the system. And the third is concern about the growing proportion of provincial government spending consumed by healthcare. The first two have been refuted so well by so many that if you still believe either or both, your beliefs rely on other than fact and logic, and fact and logic are all that I have to offer, so I'll spend my words elsewhere.

… governments have left a larger share of healthcare spending to the private sector than all but one of our peers; our cumulative rate of spending increases has been unexceptional; our fiscal houses are in order; and our economy is humming.

The third claim is or has been factual, and merits examination. Governments have spent increasing proportions of their budgets on healthcare over the past decade. Bear with me here; how this occurs requires some parsing.[3] Following is a list of possible

explanations for the increasing percentage of spending going to healthcare, and what has actually occurred.

1. *Governments can decide to increase the rate of healthcare spending faster than the rate of spending on other programs and services*. Over the past decade they have, and the percentage of the budget spent on healthcare has risen.
2. *Governments can slow the rate of increase, or outright reduce total spending in order to reduce or eliminate deficits, pay down debt, accumulate surpluses and/or build up a rainy-day fund (notably, the Alberta Heritage Fund)*. This reduction can occur even while revenues are stable or increasing. If at the same time healthcare spending increases at the same rate or higher than before, its share of total spending will rise even if it is not taking a larger share of total revenues. This, too, was the case when provinces decided to get their fiscal houses in order. It is not generally the case now because provincial budgets are balanced or in surplus.
3. *Governments can limit the rate of growth in total revenues by cutting taxes*. They have done so dramatically. One result has been that the growth rate in healthcare spending has sometimes exceeded the growth rate in total government revenues.

None of these phenomena, either individually or in tandem, is cause for alarm. On top of this, healthcare spending rate changes are variable and controllable by governments. If healthcare spending is rising faster than some think it should, remember that governments formally have determined that this is good public policy – it is they who draw up the budget and decide on its component parts. Furthermore, since 2000 Ottawa has committed itself to huge and mostly unconditional additional cash transfers to the provinces for healthcare, with built-in escalator clauses, a situation that, among other things, sends signals to the sellers of labour and goods to increase their prices. (The rate of inflation in healthcare tends to be somewhat higher than the overall inflation rate.) Repeated polls suggest that the public in general supports higher healthcare spending, and governments occasionally do what the people want.

The key point is this: a proportion or percentage derives from a numerator (healthcare spending) and a denominator (the total pool of funds available to spend). Governments have deliberately determined the size of both; the deception is to claim that the changing proportion is an inexplicable act of nature, a fiscal crop circle drawn by aliens. If healthcare is eating others' lunch (as some, but not all, would concede), it does so by design, and government has a number of levers at its disposal to get some of it back if that's what's desired.

That said, there is nothing intrinsically unsustainable about gradually increasing the proportion of provincial budgets spent on healthcare. Relative expenditures change all the time. The important question is whether the redistribution produces good value for money. The percentage of household spending on computers and vacation

properties has skyrocketed in the past generation, yet no one terms this a crisis. In a federal system like Canada's, the chances of at least one of 14 governments declaring a healthcare spending crisis at any given time are about the same as picking the winner if you bet on every horse in the race.

But let's put away the calculator and make the groundless concession that yes, healthcare has a sustainability crisis, we're spending too much, we're getting poor value for money (true) and we have to fix it. What can we learn from other countries? What measures hold some promise of improvement, and which are dead losers? Briefly, here's a buyer's guide to international healthcare innovation.

Is for-profit healthcare cheaper or better?

No. It is certainly more expensive (Devereaux et al. 2004), and in some cases – notably, dialysis in the US – it is of lower quality (Devereaux et al. 2002). In long-term care, for-profit institutions provide less direct and supportive care per resident (McGregor et al. 2006). Then-Senator Michael Kirby remained agnostic on the subject, but as a member of the board of directors of the for-profit nursing home chain Extendicare Ltd. and holder of over a million dollars' worth of company stock and options prior to releasing his report, his objectivity might reasonably be doubted.[4]

Are PPPs (public–private partnerships) cheaper?

No. They are more expensive. The government can borrow money more cheaply than private firms. Private firms expect, and almost always receive, a built-in, guaranteed profit, lucrative lease-back terms and so on. Pollock and colleagues (2002) have done the math in the UK. The verdict: the private partner makes off with huge returns, the public sector overpays and the risk stays with all of us.

Do user fees solve any problems?

No. They deter poor and sick people from seeking care, and have little effect on others. Where they are modest they raise little cash; where they are substantial – as for drugs – prices do not fall, utilization does not become more rational, but many people forgo effective treatment. Healthcare spending is highly concentrated – a mere 2% of people can account for over 40% of health spending in any given year. Nickeling and diming – or even looneying and tooneying them – will accomplish nothing.

Is it better to have too few or too many healthcare workers?

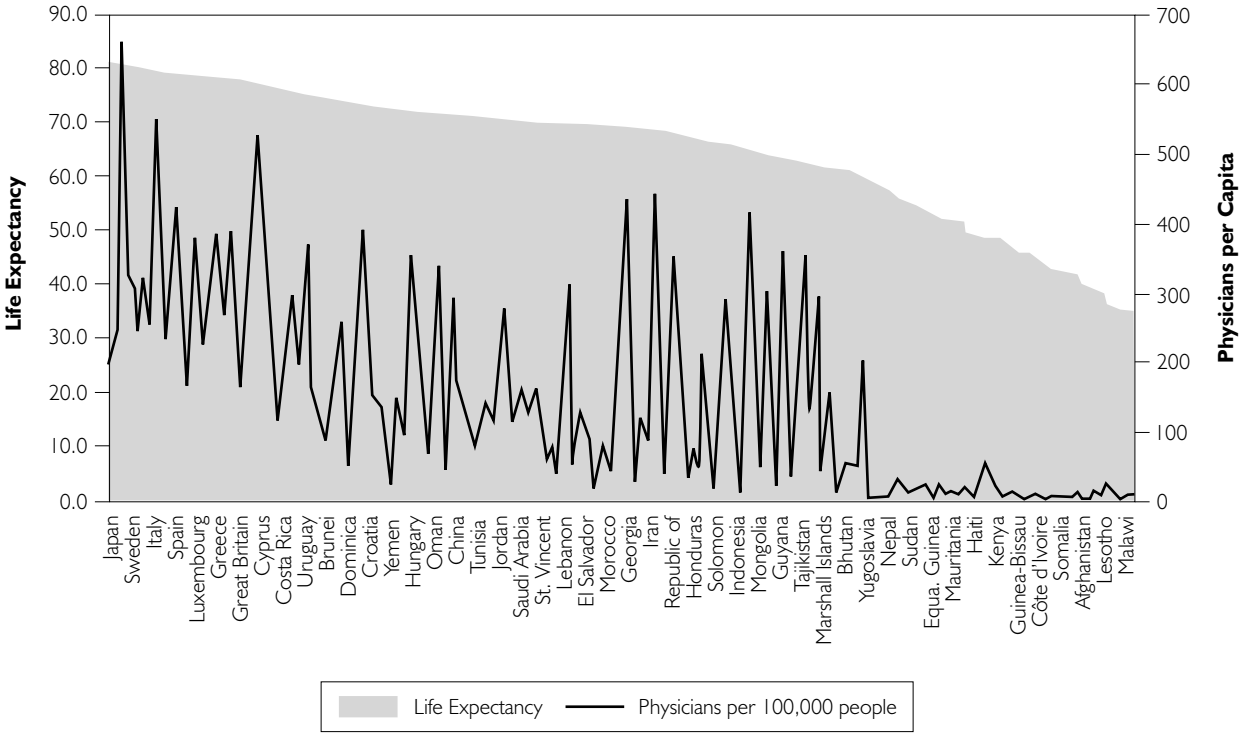
For the workers, too few is better financially, but not necessarily for their overall

well-being; for the public, a modest oversupply is better both financially and in terms of access. Europe has much higher physician-to-population ratios than Canada and, in some countries, significant physician unemployment (Rechl et al. 2006). It's just basic economics that if Canada tightly controls its workforce supply and guarantees every graduate a job, wages will rise and labour of all types will substantially control the agenda.

How many healthcare workers is enough?

No one knows. Canada is in constant turmoil about the doctor shortage. Many Canadians do not have a regular family physician. Curiously, the same physician-to-population ratio that was seen as a surplus 20 years ago became a serious and growing shortage by about 1995. It is still not clear why; per capita use of physicians' services has continued to grow throughout this time. But how does the physician-to-population ratio affect overall population health status? If you can figure out the connection from Figure 1 below, they'll name a statistical test after you. And remember that it's

FIGURE 1. Life expectancy vs. physicians per capita



Source: Univ. of California Atlas of Global Inequality, http://ucatlas.ucsc.edu/spend.php

not all about doctors. Three dozen randomized, controlled trials have shown that nurse practitioners can deliver huge swaths of primary care as effectively as physicians (Horrocks et al. 2002), yet we continue to deploy them gingerly. At its August 2007 meeting, the Canadian Medical Association yet again attempted to turn back the clock on the sensible delegation of limited prescribing authority to pharmacists.

Left to their own devices, most healthcare professions want to maintain exclusive scope of practice over certain territory and move onto others' turf when it suits them. There has also been a marked trend towards increasing entry-to-practice credentials (e.g., to a baccalaureate degree for nursing, an added year of residency for family doctors, a master's degree for physiotherapy). Both the inflexibility of the workplace and the creation of barriers to entry into health professions contribute to shortages and inefficiencies. Thus far the policy response has been to increase enrollments. Before doing so, we should have figured out how to allow healthcare workers to use all their knowledge and skills, acquire new capacities efficiently and replace a mainly credential-based framework to ensure safety and quality with a competency-based approach.

What's the key to controlling costs?

European countries with much older populations than Canada's appear to have better access, shorter wait times, as much or more high-end technology and similar or lower costs. How do they do it? They pay doctors less. They use more home care and less long-term residential care. They have more egalitarian societies and more extensive social programs. The government covers a larger share of health costs, particularly drugs.

That's all fine, but we're not Europe. What can we do?

Identify and shrink variations in costs. In Canada, three- and fourfold variations in intervention rates among identical populations are far from rare. South of the border, seniors in Miami use twice as much healthcare as seniors in Minneapolis, with poorer outcomes. We're terrified by underuse and oddly unconcerned about overuse. Pay attention to both and we'll save money.

What about information technology?

We're proven laggards. Denmark has a universal electronic health record accessible to patients on the Web. Its physicians estimate they save an hour a day previously spent chasing down test results and other information. The dramatic ascent of the Veterans Affairs health system in the United States from "worst to first" went hand in hand with major investment in and use of health information technology. We're haltingly building ground-up systems that may not be able to talk to one another, with different

data definitions. In the move to alternative payment plans for physicians (a fine idea), we've actually lost data (a potential disaster). In the usual Canadian way, we don't invest enough, and we don't have a solid policy framework to ensure that the systems are useful for clinical care, management, governance, resource allocation and evaluation.

FIGURE 2. Completely invalid inferred estimate of action-to-talk ratio in four countries

What's the biggest lesson we can learn from other countries?

They think, they plan and they act, often decisively. Somehow, the risks of innovation and policy experimentation seem lower. They are less afraid to set meaningful targets and shoot at them. In Canada, the 2003 Health Accord promised that 50% of Canadians would have access to an undefined primary healthcare system on a 24/7/365 basis by 2011. England today offers you a physician's appointment within 48 hours, 99% of the time. We set vague and distant wait time targets and oil the squeaky wheels; England foresees that within two years the maximum wait time from first walking into a GP's office to completion of whatever procedure is necessary will be four months. I'm no fan of much of what New Zealand does, but it had the guts to set needs-based, measurable thresholds for surgical interventions, and it has bargained brilliantly to secure very low drug prices. You can raise or lower the bars in Figure 2 in accordance with your own perceptions of the healthcare world, but it is incontestable that many countries have lapped us in the race to reform.

Which brings us back to sustainability. If we're going to get better at change, we need to declare a moratorium on the sustainability argument for at least five years. It is a monumental distraction that takes up too much deliberative time. Let's move on to more worthy preoccupations, such as quality improvement, aligning incentives with goals,

making excellence mandatory and reducing health (and healthcare) disparities. Canada talks like other countries; now it's time to act like them. Only our refusal to embrace large-scale change that serves the public rather than private interests is unsustainable.

NOTES

1. To illustrate, Greece is in, Hungary out (too poor); Luxembourg is out (too rich); the United States is out because its healthcare structure and data are real but absurd, and hence of no interest here.

2. Calculated using 2000 prices and exchange rates.

3. This version is highly truncated. For a much fuller explanation, see R.G. Evans, "Economic Myths and Political Realities: The Inequality Agenda and the Sustainability of Medicare," UBC Centre for Health Services and Policy Research, July 2007. <http://www.chspr.ubc.ca/node/791>.

4. Many, including newspaper editorialists, have doubted it – see http://www.healthcoalition.ca/kirby.html.

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Private Health Insurance in Germany: Consequences of a Dual System

Assurance-maladie privée en Allemagne : conséquences d'un système à deux vitesses

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Abstract

A variety of financial and non-financial incentives has resulted in a considerable degree of adverse selection against social health insurance in Germany. Enrollees in private health insurance are healthier, have higher incomes and have fewer dependents than enrollees in social health insurance. Adverse selection decreases average premium income and at the same time increases average healthcare expenditures in social health insurance. As a consequence, financial sustainability of the public system declines. Moreover, financial incentives for healthcare providers have led to preferential treatment for privately insured patients in outpatient care. The dual health insurance system in Germany is therefore inequitable as well as inefficient, and cannot be considered a role model for post-*Chaoulli* Canada.

Résumé

Diverses mesures incitatives financières ont entraîné un haut niveau d'antisélection contre l'assurance-maladie publique en Allemagne. Les personnes qui se prévalent d'une assurance-maladie privée sont en meilleure santé, ont un revenu plus élevé et moins de personnes à charge que celles qui participent au système d'assurance-maladie public. L'antisélection fait baisser les recettes moyennes provenant des cotisations, tout en faisant augmenter les dépenses moyennes du système de santé public, compromettant ainsi la durabilité financière de ce dernier. De plus, les encouragements financiers offerts aux fournisseurs de services de santé ont mené à un traitement préférentiel des patients détenant une assurance privée dans les soins en clinique externe. Le système d'assurance-maladie à deux vitesses d'Allemagne est donc inéquitable et inefficace et ne peut être considéré comme un modèle valable pour l'ère post-Chaoulli au Canada.

In post-*Chaoulli* Canada, the demand for information on the consequences of private health insurance arrangements is high. In this paper I analyze the German experience with a dual (private and public) health insurance system. I conclude that this experience cannot be considered a role model for Canadian provinces.

Private health insurance serves three distinct functions. The first is as an *alternative* to social health insurance arrangements. In Germany, some people are permitted to choose between joining private health insurance and remaining in social health insurance. The second function is to *supplement* basic health insurance, providing coverage for services not covered by social insurance or to cover the financial risks of co-payments and co-insurance. A third function of private insurance is to provide what can be termed *complementary* or *double-cover* coverage, in which individuals purchase additional private insurance even while they have to participate in existing public schemes.

This terminology is not standardized. Sometimes the term "substitute private health insurance" is used instead of "alternative private health insurance" (Mossialos and Thomson 2004), and the term "complementary private health insurance" is sometimes used instead of "supplementary private health insurance" (Colombo and Tapay 2004). Double-cover private health insurance is rather rare in social health insurance countries. As a rule, budgetary constraints – especially with regard to capacity planning (number of physicians, number of hospitals, etc.) – are less severe in social health insurance countries than in tax-financed countries. If waiting times are not a severe problem, there is no demand for double-cover private health insurance. Double-cover private health insurance, however, would be allowed in Quebec after the Supreme Court of Canada's decision in *Chaoulli*.

Although almost 90% of the population in Germany is covered by social health insurance, there is also a considerable market for alternative private health insurance

(Wasem et al. 2004). About 10% of the population has taken out alternative private health insurance as a substitute for social health insurance. In contrast, the market for supplementary health insurance, providing coverage for services not covered by social insurance or to cover the financial risks of co-payments and co-insurance, is less pronounced than in Canada. This is the consequence of a more comprehensive standardized benefits package in the German social health insurance schemes, which includes prescription drugs as well as long-term care. Moreover, there is no market for double-cover private health insurance in Germany (Greß 2005). If people are unsatisfied with the public system and they are eligible to opt out, they take out alternative private health insurance and leave the public system entirely. Obviously, the latter course is almost impossible in tax-financed Canadian medicare.

In this paper I will focus only on the duality of social health insurance and alternative private health insurance. The purpose in doing so is to illustrate the mechanisms and the consequences of private health insurance and to do some myth busting about the alleged benefits of double-cover private health insurance in Canada. The next section describes the basic features of both systems (opting-out provisions, premium calculation, benefits and provider reimbursement). Then, I will present evidence of adverse selection against the public system, which is the consequence of financial and non-financial incentives. Thus, financial sustainability of the public system declines. Moreover, financial incentives for healthcare providers have resulted in preferential treatment for privately insured patients in outpatient care. In the final section, I will discuss the implications of the German experience with a dual health insurance system for Canadian provinces.

Whether or not individuals who are eligible to opt out of the public system actually do so is determined by financial and non-financial incentives.

Basic Features of the Dual Health Insurance System

Social health insurance coverage in Germany is voluntary only for the self-employed and high-income employees (47,700 € per year or more). As a consequence, only these groups may opt out of social health insurance. In contrast, social health insurance is mandatory for most low- and middle-income employees, students, pensioners and recipients of unemployment benefits (Busse and Riesberg 2004). Whether or not individuals who are eligible to opt out of the public system actually do so is determined by financial and non-financial incentives.

Probably the most important difference between social health insurance and private health insurance is the method of premium calculation. Social health insurers in Germany charge premiums that are not related to individual health risk but to the income of the insured. Income-related premiums lead to income solidarity, which is equivalent to redistribution from the rich to the poor. More importantly, there is also risk solidarity – which is equivalent to redistribution from the healthy to the sick – as premiums do not depend on health status. Moreover, free coverage for non-working spouses and children of enrollees leads to solidarity between single persons and families, another dimension of redistribution.

In contrast, private health insurers charge risk-related premiums. Individuals pay a premium according to individual risk: people with high health risks (typically, the old, the sick and the chronically ill) pay high premiums; people with low health risks (typically, the young and healthy) pay low premiums. Private health insurance therefore achieves neither risk solidarity nor income solidarity. What is more, each family member must be insured separately in private health insurance, and women pay higher premiums than men, which is not the case in social health insurance. Table 1 illustrates the financial consequences for a single person and a hypothetical family.

TABLE 1. Illustration: premium calculation

	Social Health Insurance	**Private Health Insurance**
Man, 35 years, healthy, income p.a. 60,000 euros	506 €	230 €
Employer's contribution	237 €	115 €
Out-of-pocket premium (single)	269 €	115 €
Dependent 1: Woman, 35 years, healthy, no income	—	325 €
Dependent 2: Child, 5 years, healthy	—	130 €
Dependent 3: Child, 2 years, chronic condition	—	200 €
Employer's contribution	237 €	237 €
Out-of-pocket premium (family)	269 €	648 €

All sums per month. Employer's contribution in private health insurance is 50% per enrollee (including dependents). However, the maximum employer's contribution is 237 € per month. The chosen benefits package of private health insurance is roughly comparable to social health insurance (no supplementary benefits).
Source: Market Research

Table 1 shows clearly that the diverging methods of premium calculation determine the financial incentives for remaining in or opting out of the public system.

However, the decision of individuals to opt out of social health insurance is also determined by non-financial incentives: the range of benefits and provider reimbursement.

In social health insurance, benefits are standardized for all enrollees. Moreover, as in other countries, new technologies – including pharmaceuticals – increasingly are scrutinized by health technology assessment (Greß et al. 2005): new technologies with little or no incremental clinical effectiveness may be excluded from reimbursement in social health insurance. Since private health insurers do not apply health technology assessment, benefits in private health insurance are more comprehensive. As a consequence, enrollees with private health insurance probably gain higher benefits from new, and more expensive, prescription drugs than individuals in social health insurance (Ziegenhagen et al. 2004).

Except for a small minority, healthcare providers – outpatient as well as inpatient – treat patients from both health insurance systems. Thus, privately insured patients and social insurance patients will be treated in the same hospital and by the same general practitioner or specialist. The payment system in hospitals is identical in both insurance systems. In contrast, reimbursement for general practitioners and outpatient specialists depends on the insurance status of patients. Social health insurers as well as private health insurers pay general practitioners and specialists on a fee-for-service basis. However, private health insurers pay higher prices or tariffs than social health insurers do. More importantly, they do not impose volume restrictions on GPs as social health insurers do. This difference in payment systems creates tremendous incentives for preferential treatment of individuals with alternative private health insurance in the outpatient setting (Greß et al. 2006). Moreover, it also creates another non-financial incentive for individuals to opt out of the public system.

Social health insurers as well as private health insurers pay general practitioners and specialists on a fee-for-service basis.

Adverse Selection and Preferential Treatment

It is hardly surprising that enrollees in alternative private health insurance have different characteristics than enrollees in social health insurance (see Table 2). First, they are healthier, which is due to the fact that bad health risks have no incentive to leave the public system. The average number of acute and chronic conditions is higher for enrollees with social health insurance. Moreover, the proportion of respondents with

a poor self-assessed health status is considerably higher in social health insurance (Kriwy and Mielck 2006; Mielck and Helmert 2006). Although benefits in private health insurance are more comprehensive than in social health insurance, consumption of healthcare services is lower (Leinert 2006b; Lüngen et al. 2005). Second, average income is considerably higher for enrollees with private health insurance (Kriwy and Mielck 2006; Leinert 2006a). The reason for income differences is straightforward: only high-income employees are eligible to opt out of social health insurance. Income differences are somewhat moderated by the fact that the income ceiling does not apply to self-employed individuals.

TABLE 2. Income, morbidity and consumption of healthcare services of enrollees in social health insurance and private health insurance

Characteristics	Social Health Insurance	Private Health Insurance
Individual gross income (in euros per year, average)	22,658	38,109
Number of acute and chronic conditions (average)	3.52	2.89
Poor self-assessed health status (%)	17.9	9.1
Average number of hospital nights during last 12 months	2.21	2.05
Average number of physician visits during last 12 months	6.21	5.1
Share of respondents with continuous consumption of prescription drugs (%)	47.07	41.67

Source: Kriwy and Mielck 2006; Leinert 2006b.

The consequences of adverse selection against social health insurance are twofold. First, average premium income in social health insurance goes down because premiums are income dependent and high-income earners choose to opt out. This effect is exacerbated by the fact that individuals with dependents are likely to remain in the public system (Dräther 2006). Second, average healthcare expenditure in social health insurance goes up, since good risks are likely to opt out while bad risks remain in the public system. Thus, adverse selection against social health insurance puts considerable pressure on the sustainability of the public system. Moreover, the differences in outpatient care increasingly lead to preferential treatment of patients with private health insurance (Jacobs et al. 2006; Kassenärztliche Bundesvereinigung 2006). Although waiting times are rather short compared to waiting times in Canada (Sawicki 2005), inequitable conditions in the provision of outpatient healthcare increasingly become a matter of public concern (Herbert 2006).

Implications for Canada

Obviously, the function of private health insurance in Germany is different from what the Quebec Supreme Court had in mind in its *Chaoulli* decision (Flood 2006). In Germany, individuals stop paying social health insurance premiums when they take out alternative private health insurance. In contrast, individuals who take out double-cover private health insurance in Canada do not stop paying taxes. However, the consequences of the dual system in German health insurance are relevant for Canadian provinces – at least in order to bust some myths about the superiority of private health insurance in the European context (Flood and Lewis 2005).

First, proponents of double-cover private health insurance in Canada seem to assume that queue-jumping by the wealthy will lead to a situation that economists call Pareto efficiency: nobody will be worse off, but some will be better off. On first view, this analysis has some merit. In contrast to the German situation, individuals in Canada are not able to opt out of the public medicare system – except if they move out of the country and stop paying taxes (in which case they will not need to consume healthcare in Canada). However, the supply of healthcare providers is limited, in Canada more so than in Germany. If this is the case, and treatment of private patients is financially more attractive than the treatment of patients in the public system – which is the only way for private health insurers to guarantee that their clients will indeed be able to jump the queues – private health insurance will drain capacities that are available to medicare patients. As a consequence, waiting times for those unable to take out private health insurance will increase. Although some (the wealthy and the healthy) definitely will be better off, others (the not so wealthy and not so healthy) will be worse off. Therefore, the consequences of private health insurance would not only be inequitable (a situation that might be acceptable from an economic point of view); they would also be inefficient.

… proponents of double-cover private health insurance in Canada also seem to assume that private health insurance will provide additional funding, and that this will relieve the fiscal pressure on provincial budgets.

Second, proponents of double-cover private health insurance in Canada also seem to assume that private health insurance will provide additional funding, and that this will relieve the fiscal pressure on provincial budgets. This certainly is an argument that is made by German private health insurers. They argue that higher reimbursement rates for outpatient physicians relieve the pressure on social health insurers' budg-

ets for outpatient care (Niehaus and Weber 2005). However, this argument hardly justifies financial incentives for preferential treatment in favour of privately insured patients (remember: the healthy and the wealthy) at the expense of those patients who are forced to remain in the public system (remember: the not so wealthy and not so healthy). Private health insurance might be an easy answer to the increasing difficulty of public systems to finance healthcare. However, it is not an adequate answer – either in Canada or in Germany.

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Spiralling Medical Costs: Why Canada Needs NICE Medicine

Escalade des frais médicaux : le Canada pourrait tirer profit des lignes directrices du NICE

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Abstract

Healthcare spending in Canada has grown rapidly in recent years, especially for drugs. This paper discusses the causes of the problem and makes policy proposals. Conflicts of interest (COIs) are a frequent occurrence in medical research and lead to bias. Published studies, especially in the area of clinical trials on drugs, are much more likely to produce findings favourable to the drug when funded by the manufacturer. Bias can occur by various means, including inappropriate study design (such as giving a placebo to control subjects rather than an existing drug) and selective publication of results. COIs also frequently occur with clinical practice guidelines. High-priced (particularly new) drugs are often marketed by inappropriate means. Drug costs in Canada could be greatly reduced if doctors prescribed lower-cost alternatives where appropriate (therapeutic substitution). Proposals are made for changes in the regulatory agencies responsible for the approval of drugs, drug marketing and post-marketing surveil-

lance. In addition, a new regulatory agency is proposed that would examine the value of drugs and medical devices in terms of clinical effectiveness and cost-effectiveness. Such an agency would set the rules for therapeutic substitution and would determine which medical interventions can be used based on agreed cost-effectiveness criteria.

Résumé

Les dépenses en santé ont connu une croissance rapide au Canada au cours des dernières années, surtout pour ce qui est des médicaments. Cet article examine les causes du problème et propose des politiques. Les conflits d'intérêts sont chose courante dans la recherche médicale et entraînent des biais. Les études publiées – en particulier dans le domaine des essais cliniques portant sur les médicaments – sont beaucoup plus susceptibles de parvenir à des conclusions favorables au médicament lorsque ces études sont financées par le fabricant. Les biais peuvent se manifester de diverses façons, y compris une méthodologie inappropriée (comme, par exemple, donner aux sujets-témoins un placebo au lieu d'un médicament existant) et une publication sélective des résultats. De plus, des conflits d'intérêts surviennent fréquemment avec les lignes directrices sur la pratique clinique. De nombreux médicaments coûtent excessivement cher et sont souvent commercialisés par des moyens inappropriés. Le coût des médicaments au Canada pourraient être considérablement réduits si les médecins prescrivaient des solutions thérapeutiques moins coûteuses lorsque possible (substitution thérapeutique). On propose des changements à apporter aux organismes réglementaires responsables de l'approbation, de la commercialisation et de la surveillance post-commercialisation des médicaments. On propose également de créer un nouvel organisme réglementaire qui serait chargé d'examiner la valeur des médicaments et des appareils médicaux tant du point de vue de leur efficacité clinique que de leur rapport coût-efficacité. Un tel organisme mettrait en œuvre la substitution thérapeutique et déterminerait quelles interventions médicales peuvent être utilisées d'après les limites de dépenses convenues.

Introduction

Whenever the subject of cost escalation in medicine arises, attention often turns to the United States, where spending increases have outstripped those in Canada. But spending on medicine in Canada has also grown rapidly in recent years, as it has across most of the Western world. In Canada, healthcare spending per capita by the government (in constant dollars) has almost doubled over the last 30 years (CIHI 2005a), while drug spending increased 150% between 1985 and 2002 (CIHI 2005b). These num-

bers reveal not only the rapid pace of inflation in medical costs, but also that drug costs are central to the problem. This paper discusses the causes of this problem and makes policy proposals.

Problems in the Reliability of the Medical Literature

COIs are a frequent occurrence in medical research and lead to bias in various ways (Fraser 2007). If bias is introduced, it can affect any stage of a clinical study, including its design, the types of subjects used, the collection of the data and the reporting and publication (or non-publication) of the results. The main focus here is in the design and conduct of randomized, controlled, double-blind clinical trials (RCTs).

Doctors are often paid large sums to recruit patients for clinical trials; this practice may lead to the enrollment of patients who are not really eligible (Angell 2004). Another way in which COI in patient recruitment can distort the conduct of trials is through the selection of patients who are more likely to react positively to the drug. Bodenheimer (2000) suggested that by selecting patients who are younger and healthier and who have milder symptoms of the disease, a drug will likely appear to be more effective and show fewer side effects than might be the case in the actual target population. For example, Rochon et al. (1998) noted that in major trials of non-steroidal anti-inflammatory drugs (NSAIDs), only 2.1% of the participants were over 65 years old, even though the principal users of these drugs, and those who are likely to have more serious side effects, are the elderly. Another possible design flaw in RCTs is that drugs are often tested for relatively short periods of time.

Doctors are often paid large sums to recruit patients for clinical trials; this practice may lead to the enrollment of patients who are not really eligible.

Drug companies commonly test new drugs against placebos (Rothman and Michels 2003), thus maximizing the chance that the new drug will appear effective. However, this practice can cause systematic bias. If the control group were given an existing drug, the trial might reveal that the new drug is, in reality, no better than, or even inferior to, the existing drug. In Canada, under the Tri-Council policy, placebo treatment of controls is not usually permitted. However, much of the marketing of drugs in Canada is based on the results of clinical trials done in other countries; the results typically show only that the drug is better than a placebo, not that it is superior to an existing treatment.

Predictably, the above problems in the design of clinical trials are more likely to lead to unreliable results when COIs are also present. How common is this situation? In a study of the scope and impact of financial COIs in biomedical research, Bekelman et al. (2003) found that approximately one-quarter of researchers have industry affiliations, and roughly two-thirds of academic institutions hold equity in start-up companies that sponsor research undertaken in those institutions. There is considerable evidence that such close financial relationships have a strong impact on the results of clinical trials. Several investigations over the last decade or so have reported that when studies of new drugs or other medical products are funded by drug companies, the results are appreciably more likely to favour the new product than when funding comes from other sources (Bekelman et al. 2003; Bhandari et al. 2004; Lexchin et al. 2003; Perlis et al. 2005).

One means by which pharmaceutical and other companies manage to transform their funding for RCTs into such high levels of "success" is by the selective publication of results. This practice was documented in a review of 38 published RCTs of selective serotonin reuptake inhibitors (SSRIs) that were sponsored by drug companies (Melander et al. 2003). Over half the studies contributed to two or more publications each, and studies showing significant effects of drugs were published more often than studies with non-significant results. Many publications ignored negative results.

This problem is exemplified by the episode concerning celecoxib (Celebrex®), a COX-2 selective NSAID (Schafer 2003). Although the full data set was available, only partial results of the clinical trial of the drug were published. These results, based on six months of data, indicated that the drug causes lower rates of stomach and intestinal ulcers than two existing drugs used for treating arthritis. Following publication of the trial results, celecoxib became a "blockbuster" drug. However, the full year of data revealed that it is no safer than existing arthritis drugs. These latter data had been available on the FDA website but had been excluded from publications. The fact that eight of the study's authors were paid medical consultants for Pharmacia, which funded the study, and the other eight were company employees, underscores the problem with COI.

After RCTs have been published, their significance is interpreted. Here again, COIs have an impact (Jorgensen et al. 2006). For example, Stelfox et al. (1998) reviewed 70 reports in order to examine the links between doctors' published support of the use of calcium channel antagonists to treat high blood pressure and their financial relationship with drug manufacturers. These researchers reported that among authors who supported the use of this class of drugs, 96% had received funding from drug manufacturers, while those who criticized their safety were much less likely (43%) to have financial ties.

Another important area where COI is involved is in the preparation of clinical practice guidelines (CPGs). Choudhry and colleagues (2002) examined 44 published

guidelines. They reported that 87% of authors had some form of interaction with the pharmaceutical industry, while a mere 2% declared a financial relationship with the drug company and none declared any potential COI.

An important aspect of evaluating a treatment is to estimate its cost-effectiveness, and even here COI may exert a major impact. This situation was well demonstrated in the case of statins for treatment of patients at relatively low risk for coronary disease. When the investigators who published the estimates were funded by government or universities, then the cost of statins, relative to benefit achieved, was around twice as high for lower-risk patients than when the funding came from the pharmaceutical industry (Franco et al. 2005). This finding strongly suggests that the drug manufacturers have exerted undue influence so that published estimates make statins appear to be cost-effective for millions of extra potential patients. Similar findings have been reported with respect to numerous other drugs (Baker et al. 2003; Bell et al. 2006).

The evidence documented above reveals a systemwide problem related to corporate sponsorship in the whole research and publication process. As a result, new products of dubious value are often reported in the medical literature as being superior to existing products, and are then marketed, usually at a much higher price than the older product. The evidence is especially strong with regard to drugs. The likely result is that doctors will change their prescribing habits in directions that serve the profits of the drug industry rather than the health of their patients (Kassirer 2004).

Pricing of Drugs

The pharmaceutical industry typically charges high prices for its products. It attempts to justify this practice by exaggerating the benefits of new drugs, as discussed above, while claiming that high prices are essential to pay for the high costs of research and development, a claim that is also greatly exaggerated (Goozner 2004; Light 2007).

A major activity of the pharmaceutical industry is the production and marketing of "me-too" drugs. These are chemical variations of existing drugs. Indeed, according to an independent European review, only a tiny fraction of all new drugs have the potential to offer an important therapeutic gain over existing drugs (*Prescrire International* 2003).

The Marketing of Overpriced Drugs and the Need for Therapeutic Substitution

An integral part of the "business plan" of the pharmaceutical industry is intensive marketing of drugs, often by inappropriate methods. There is ample evidence that great effort is expended to promote the sale of drugs that maximize profit (Balay-Karperien et al. 2007; Angell 2004; Abramson 2004). As a result, society pays high prices for

drugs that are often no better than cheaper alternatives.

Cassels and Lexchin (2007) examined the 10 most costly drugs prescribed in Canada, based on budgetary impact. Their findings show that expenditures would be reduced by up to 45% if doctors switched to lower-cost alternatives (therapeutic substitution). As these drugs represent $2.2 billion of the $18 billion spent in 2004 on prescription drugs (Morgan 2005), some one billion dollars a year is wasted. If therapeutic substitution were applied to many prescribed medicines, several billions more in savings would be achievable. Supporting evidence for this conclusion came from a study that revealed that 80% of the increase in drug prices in Canada in recent years was due to new, high-priced, patented, me-too drugs (Morgan et al. 2005).

One example is rosuvastatin (Crestor®). While it has been shown to lower blood cholesterol, its effect on risk for heart disease and its safety profile have never been tested in a long-term trial. Despite this shortcoming, and costing 50% more than generic statins, rosuvastatin has achieved 10th spot in Canada for all drugs, based on value of sales. This position was achieved, in part, by heavy advertising, including frequent direct-to-consumer advertising (DTCA) on American TV (which can be seen by viewers in Canada, although the impact of such viewing is not known). The TV ads do mention that the drug has not actually been shown to prevent heart disease, but this point is unlikely to be noticed by most members of the target audience. An editorial in *The Lancet* demanded that AstraZeneca, the manufacturer, "… desist from this unprincipled campaign" (*Lancet* 2003).

If therapeutic substitution were applied to many prescribed medicines, several billions more in savings would be achievable.

A similar problem is seen with drugs for hypertension. The pharmaceutical companies have achieved considerable success in persuading doctors to prescribe calcium channel blockers and angiotensin-converting enzyme inhibitors: three of these drugs are among the top 10 most costly drugs prescribed in Canada (Cassels and Lexchin 2007). Yet, enormous cost reductions could be achieved by using diuretics.

The most effective way to implement therapeutic substitution is by way of government policy. In Canada, this approach could also be applied to employer-sponsored drug plans. The approach has been adopted, with some success, by governments in several countries (Cassels and Temple 2007). One such program was implemented in British Columbia in 1995: the Reference Drug Program (RDP). It was applied to only five classes of drugs. The rationale behind RDP is simple: if there is no evidence that

a newer, more expensive drug is therapeutically superior to a cheaper treatment, then the program funds the least expensive alternative first.

Drugs and Regulatory Agencies

Drugs are regularly approved for use but are later found to have a far less favourable risk–benefit profile than was claimed at the time of their approval. Unfortunately, the ability of regulatory agencies to act effectively is limited by the reliability of the information they are given: like computers, it is a case of "junk in, junk out." An important part of the problem is the bending of the rules in the design, conduct and publishing of drug trials. But we cannot be optimistic about major improvements while pharmaceutical companies have a strong financial incentive to corrupt the system. Accordingly, a strong case can be made for the establishment of independent agencies to carry out clinical trials of new medical products, especially drugs. However, for reasons of cost, such agencies would have to be international in scope. While it is easy to argue for the advantages of such agencies, there are certain to be many obstacles to overcome in their establishment.

Furthermore, there is much evidence of a lack of vigilance by the regulatory agencies responsible for approving new drugs (Lexchin 2007). The problem extends to serious deficiencies in the post-marketing surveillance of drugs. Lexchin (2007) proposed a radical reform in the regulatory approach.

Implementing Cost Controls in Medicine

Based on current trends, it is highly predictable that medical costs, especially drug costs, will continue their upward spiral for years to come. Contributing factors include the aging of the baby boomers, the rapid pace of development of new (and expensive) medical technologies and the ever-rising cost of drugs. This situation requires bold policy initiatives. New policies related to drugs, as proposed in this paper, would help to reduce the problem. But much more is required. One approach is to set limits on the maximum permitted cost of medical expenditures, expressed as dollars per quality-adjusted life-year (QALY).

The great advantage of measuring the real cost of medical interventions on the basis of dollars per QALY is that this method allows a direct comparison of medical interventions that extend life and those that improve its quality. Thompson and Temple (2007) proposed a twin set of cost limits: a medium-term goal of US$50,000 (C$59,000) per QALY and a lower limit of US$27,000 (C$32,000) as both an ideal limit and a longer-term goal. They emphasize that these figures are very rough estimates and therefore open to debate. Such limits should be used as guidelines for public funding of medical practice. I propose that Canada set a medium-term goal of C$59,000 per

QALY, to be achieved within five to 10 years, and a lower limit of C$32,000 as both an ideal limit and a longer-term goal, to be achieved within 10 to 15 years.

The country that appears to come closest to implementing such a policy is the United Kingdom. The National Institute for Health and Clinical Excellence (NICE) examines the value of drugs and medical devices in terms of both clinical effectiveness and cost-effectiveness. This agency is independent of government and releases detailed reports. Drugs or devices costing above about US$31,000 to US$46,000 per QALY are likely to be rejected (Henry et al. 2005; Pearson and Rawlins 2005).

Conclusion

There are serious deficiencies in the approval of drugs, the regulation of their marketing and their post-marketing surveillance. COI is the root cause of many of the problems. Two new types of regulatory agencies are required, with both types being free of COI and having both independence and the required resources. One type of agency would carry out both clinical trials of new medical products, especially drugs, and post-marketing surveillance. Because of the high costs involved, such an agency would have to be international.

The other proposed new regulatory agency would be modelled on NICE. It would be established and funded by the Canadian government but would work independently. It would examine the value both of drugs and of medical devices in terms of clinical effectiveness and cost-effectiveness. As part of its mandate, it would set the rules for therapeutic substitution. By this means, governments and other bodies that pay for drugs can be advised as to how to obtain the best value for money and avoid paying for more expensive drugs that are not therapeutically superior. The proposed agency would also be given guidelines by government that public funding of drugs and medical procedures would be allowed only where the cost does not exceed an agreed limit, expressed as dollars per QALY. By this means, society would have a clear understanding that it should spend on healthcare only what it deems it can afford. Such a policy would also help ensure that limited funds are directed to where they can achieve the most benefit, rather than allocating them based on pressure by industry, its lobbyists and other special-interest groups.

The proposed agency already exists in an underdeveloped form as the Canadian Agency for Drugs and Technologies in Health (CADTH; www.cadth.ca). However, in its present form, CADTH lacks the authority we see in NICE, and is therefore failing to achieve the necessary impact.

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Breaking the Deadlock: Public Health Policy Coordination as the Next Step

Sortir de l'impasse : la coordination des politiques de santé publique comme prochaine étape

NICOLE F. BERNIER AND NATHALIE BURLONE

Abstract

Recent public health crises have revealed the extent to which coordinated government activity is crucial for ensuring the efficacy of public policies aimed at protecting, maintaining and improving the health of the population. The need for coherent and effective interventions in many areas of human activity always comes up against the challenges related to the division of responsibilities, power and jurisdictions inherent in public administration. The recently initiated renewal of public health structures in Canada opens up new possibilities for public health and could foster better coordination of public health efforts. This paper shows, however, that the eventual broadening of the traditional mandate of Canadian public health to include the social (non-medical) aspects of health and the articulation of healthy public policies requires intervention at the central policy level. We offer practical observations about the need to foster better policy coordination across sectors of governments, with a view to contributing to the emergence of a comprehensive public health policy in Canada.

Résumé

Les récentes crises en santé publique ont révélé l'importance cruciale d'une activité gouvernementale coordonnée pour assurer l'efficacité des politiques publiques visant à protéger, maintenir et améliorer la santé de la population. Le besoin d'interventions cohérentes et efficaces dans de nombreux domaines d'activité humaine fait toujours face au défi lancé par le partage des responsabilités, des attributions et des compétences inhérentes à l'administration publique. Le renouvellement récemment amorcé des structures de santé publique au Canada ouvre de nouvelles possibilités en matière de santé publique et pourrait favoriser une meilleure coordination des efforts en santé publique. Cet article montre cependant que l'élargissement futur du mandat tradition-

nel de la santé publique, au Canada, pour inclure les aspects sociaux (non médicaux) de la santé et la formulation de politiques favourables à la santé en matière de santé publique, nécessite une intervention au niveau des politiques centrales. Des observations pratiques concernant le besoin de mieux coordonner les politiques d'un secteur gouvernemental à l'autre sont présentées dans le but de contribuer à l'émergence véritable d'une politique globale de santé publique au Canada.

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DATA MATTERS

Retention of International Medical Graduates Following Postgraduate Medical Training in Newfoundland and Labrador

Maintien en poste des diplômés internationaux en médecine après leur formation médicale postdoctorale à Terre-Neuve et Labrador

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Abstract

We linked the Memorial University of Newfoundland (MUN) postgraduate database with Scott's Medical Database to determine 2004 work locations of physicians who started residency training at MUN by 1998 to assess whether international medical graduates (IMGs) are as likely as MUN and other Canadian medical graduates (CMGs) to work in Canada and Newfoundland and Labrador (NL). In 2004, 66.8% of the residents were in Canada (87.8% MUN graduates, 47.3% IMGs, 67.3% CMGs) and 18.8% were in NL (43.2% MUN graduates, 7.9% IMGs, 4.8% CMGs). Compared to MUN medical graduates, IMGs and CMGs were less likely to work in Canada and NL.

Résumé

Nous avons établi un lien entre la base de données des diplômés de la Memorial University of Newfoundland (MUN) et la Scott's Medical Database en vue de déterminer quel était le lieu de travail, en 2004, des médecins qui ont entrepris leur programme de résidence à la MUN dès 1998 afin de savoir si les diplômés internationaux en médecine (DIM) sont tout aussi susceptibles que les diplômés en médecine de la MUN ou que les autres diplômés canadiens en médecine (DCM) de travailler au Canada et à Terre-Neuve et Labrador (T.-N. L). En 2004, 66, 8 % des résidents se trouvaient au Canada (87,8 % étaient des diplômés de la MUN, à savoir 47,3 % de DIM, 67,3 % de DCM) et 18,8 % se trouvaient à T.-N. L. (43,2 % étaient des diplômés de la MUN, à savoir 7,9 % de DIM et 4,8 % de DCM). Comparativement aux diplômés en médecine de la MUN, les DIM et les DCM étaient moins susceptibles de travailler au Canada et à T.-N. L.

Although postgraduate training location is a predictor of future work location among Canadian medical graduates (Mathews et al. 2006; McKendry et al. 1996), little is known about the impact of residency training on international medical graduate (IMG) retention. This study examines the 2004 work location of physicians who did some or all of their residency training at Memorial University of Newfoundland (MUN) to assess whether IMG residents are as likely as MUN graduates and other Canadian medical school (CMG) graduates to work in Canada and Newfoundland and Labrador (NL). Each year, MUN accepts approximately 60 residents into its postgraduate programs, which are open to MUN graduates, CMGs and IMGs through the Canadian Resident Matching Service (CaRMS) (MUN 2004; CaRMS 2004). The training and recruitment of physicians

require a substantial investment of health and educational resources. This study provides an estimate of the "return on investment" in postgraduate medical education in relation to physician supply. In addition, it explores whether residency training is a viable strategy to recruit and retain physicians, particularly IMGs.

Method

The MUN Human Investigations Committee approved this study. We linked data from the MUN postgraduate database with the 2004 Scott's Medical Database (formerly known as the Southam Medical Database), an annually updated listing of 56,000 physicians in Canada who are members of the Canadian Medical Association and who permit release of their information (MD Select 2004). Data were linked using first, last and maiden names; gender; and year and school of graduation, as this information was common to each data source.

We included all residents who began their residency by 1998 (residents after this date may still have been completing their postgraduate training in 2004). We excluded deceased and retired graduates (no longer part of workforce), military physicians (limited choice of work location), students sponsored by the Malaysian government (required to return to Malaysia) and residents whose medical school was unavailable from the databases used in the study.

Residents were grouped as MUN, other CMGs or IMGs based on their medical school. The two outcomes, (1) working in Canada in 2004 and (2) working in NL in 2004, were coded as "yes" or "no/unknown." Physicians may have been working full- or part-time, in clinical, research or administrative positions. Work locations of physicians were based on the work addresses reported in the Scott's Medical Database.

We examined four covariates: gender, graduation year, MUN residency start year and residency program. We grouped graduation year and MUN residency start year into "before 1973," "1973–1979," "1980–1989" and "1990–1998." We selected 1973 as a cut-off year, as this was the first MUN class to graduate. Residency programs were family medicine, general internship or specialist. Residents' program was based on the program in which they were most recently registered (i.e., if a resident completed a general internship before entering a specialist program, the resident was considered to have been in the specialist program).

Analyses were done using Statistical Program for the Social Sciences (SPSS) 14.0. We used chi-square tests to identify differences between MUN, Canadian and international graduates. Because the variables "graduation year" and "year residency started" were highly correlated (r=0.88), only "year residency started" was considered in the logistic regression models in order to avoid multi-colinearity. The final regression models include only significant covariates.

As Scott's Medical Database describes only Canadian work locations, a large proportion (29.4%) of residents were missing location data. This number was significantly higher for IMGs (65.4%) than for Canadian (31.4%) or MUN (3.1%) graduates. In a previous study of MUN medical graduates (Mathews et al. 2006), we used the alumni database to supplement the Scott's Medical Database and increased the number of cases with work locations from 65% to 98%. In that study, using the alumni database, we found that 47% of MUN graduates whose locations were not listed in the Scott's Medical Database were in Canada and 16.7% were in NL. We did not use the alumni database in the present study of residents because this would bias the results by overrepresenting MUN graduates.

In this study, we included all cases in the analysis but defined the outcomes as "yes" or "no/unknown" (e.g., yes – in Canada; no – not in Canada or unknown) to reduce the potential bias from excluding a large number of cases with missing data. To assess the impact of this approach on the results, we estimated the proportion of "unknown" cases that may have been in Canada or NL using rates from our previous study (47% and 16.7%, respectively) and calculated unadjusted odds ratios using both approaches for each outcome.

Results

Of the 2,495 physicians who began their residency at MUN by 1998, we excluded 14 deceased physicians, eight retired, one military, one sponsored by the Malaysian government and 19 whose medical school was not known, leaving a total of 2,452 residents.

In our study sample, 34.1% of residents were MUN graduates, 37.2% were IMGs and 28.7% were CMGs. The largest proportion of residents was male (70.1%), graduated in the 1980s (36.2%) and started their postgraduate residency training in the 1980s (38.6%). Over half (51.2%) were enrolled in a specialist residency program. In 2004, 1,639 (66.8%) of the residents were working in Canada (87.8% MUN graduates, 47.3% IMGs, 67.3% CMGs) and 460 (18.8%) were working in NL (43.2% MUN graduates, 7.9% IMGs, 4.8% CMGs).

A larger proportion of IMGs than MUN or Canadian graduates were male, graduated before 1973, started their residency between 1973 and 1979 and were in a specialist program (Table 1). Since 1980, IMGs have made up a smaller proportion of the residents at MUN than either MUN or other Canadian graduates. After controlling for other significant predictors, compared to MUN graduates, IMGs and CMGs were 0.16 and 0.29 times as likely, respectively, to have worked in Canada in 2004, and 0.12 and 0.07 times as likely to have worked in NL in 2004 (Table 2). Supplementary analyses suggest our coding strategy does not change the overarching result: IMGs and CMGs were less likely than MUN graduates to have worked in Canada and NL in 2004 (Table 3).

TABLE 1. Characteristics of MUN medical residents by medical school

Characteristic	MUN n (%)	IMGs n (%)	CMGs n (%)	*p* value
Gender				0.000
Male	501 (60.1)	743 (81.8)	469 (66.8)	
Female	332 (39.9)	165 (18.2)	233 (33.2)	
Graduation Year				0.000
Before 1973	0 (0)	366 (40.9)	46 (6.6)	
1973–1979	197 (23.6)	299 (33.4)	138 (19.9)	
1980–1989	338 (40.4)	219 (24.5)	320 (46.0)	
1990–1998	301 (36.0)	11 (1.2)	191 (27.5)	
Year Residency Started				0.000
Before 1973	0 (0)	103 (11.3)	17 (2.4)	
1973–1979	180 (21.5)	371 (40.7)	144 (20.5)	
1980–1989	344 (41.1)	264 (28.9)	337 (47.9)	
1990–1998	312 (37.3)	174 (19.1)	205 (29.2)	
Residency Type				0.000
Family	184 (22.1)	34 (4.0)	237 (33.9)	
General Internship	264 (31.8)	207 (24.1)	239 (34.2)	
Specialist	383 (46.1)	617 (71.9)	223 (31.9)	
In Canada				0.000
No	102 (12.2)	481 (52.7)	230 (32.7)	
Yes	734 (87.8)	432 (47.3)	473 (67.3)	
In NL				0.000
No	482 (57.7)	841 (92.1)	669 (95.2)	
Yes	354 (42.3)	72 (7.9)	34 (4.8)	

TABLE 2. Predictors of MUN medical residents who worked in Canada and NL in 2004

Variable	Odds Ratio (95% confidence interval)
In Canada in 2004	
Medical School	
MUN	1.00
International	0.16 (0.13–0.21)
Canadian	0.29 (0.23–0.38)
Year Residency Started	
Before 1973	0.46 (0.30–0.71)
1973–1979	1.00
1980–1989	1.77 (1.42–2.21)
1990–1998	2.04 (1.59–2.62)
In NL in 2004	
Medical School	
MUN	1.00
International	0.12 (0.09–0.15)
Canadian	0.07 (0.05–0.10)

Discussion

The physician's medical school was a strong predictor of working in Canada and in NL. During the last two decades, between 25% and 31% of physicians migrating from Canada to the United States were IMGs (Tyrrell and Dauphinee 1999; Stoddart and

Barer 1999). The Task Force on Physician Supply in Canada concluded that IMGs are as likely as CMGs to migrate to the United States (Tyrrell and Dauphinee 1999). Our findings suggest, however, that IMGs who train at MUN are more likely than their Canadian counterparts to leave Canada following their training. Further study is needed to determine whether this is unique to MUN or common to other training centres.

TABLE 3. Impact of alternative strategies of handling missing work location data on unadjusted odds ratios

	In Canada in 2004			**In NL in 2004**		
Medical School	**Yes n (%)**	**No n (%)**	**Odds Ratio**	**Yes n (%)**	**No n (%)**	**Odds Ratio**
	Assume 0% of cases with unknown location are in Canada			Assume 0% of cases with unknown location are in NL		
MUN	734 (44.8)	102 (12.5)	1.00	354 (77.0)	482 (24.2)	1.00
IMGs	432 (26.4)	481 (59.2)	0.12	72 (15.7)	841 (42.2)	0.12
CMGs	473 (28.9)	230 (28.3)	0.29	34 (7.4)	669 (33.6)	0.07
	Assume 47% of cases with unknown location are in Canada			Assume 16.7% of cases with unknown location are in NL		
MUN	738 (37.3)	98 (20.6)	1.00	356 (61.4)	480 (25.6)	1.00
IMGs	658 (33.3)	255 (53.7)	0.34	152 (26.2)	761 (40.7)	0.27
CMGs	581 (29.4)	122 (25.7)	0.63	72 (12.4)	631 (33.7)	0.15

IMGs make up a larger proportion of the total physician workforce in NL (42%) than in Canada (23.5%) (CIHI 2001, 2004). Based on these proportions, 323 of the physicians in NL are IMGs (Newfoundland Medical Board 2003). However, our results suggest that only 72 (22.3%) entered practice through the MUN residency program. These findings suggest that residency programs offer a modest "return on investment" as a physician recruitment strategy. This finding is particularly noteworthy in NL, where IMGs form a substantial portion of the physician workforce.

Between 1973–1998, only 28.2% of IMGs were in either a family medicine or a general internship residency. In contrast, the majority of MUN (68.1%) and other Canadian graduates (53.9%) were in the family medicine or general internship programs. A Canadian survey of IMGs registered in the second iteration of the 2002 CaRMS reported that 45.6% of IMG applicants chose these programs (Crutchner et al. 2003). This difference may stem from the matching process. Until 2006/07, only CMGs had the opportunity to choose residency positions in the first round of the CaRMS match in the winter of each year. IMGs entered the second round of the match (conducted in spring) and were eligible for unfilled positions. Historically, the MUN family medicine program has been a popular choice among MUN graduates, and few of these spots are available to IMGs. The two-stage residency match-

ing process may discourage IMGs from family medicine programs and contribute to poor retention of IMGs; previous studies have reported lower national retention of specialists than family physicians (Mathews et al. 2006; McKendry et al. 1996). As of 2006/07, IMGs may apply for residency positions in the first round of the CaRMS. Future studies should assess whether this new policy changes the proportion of IMGs in family and specialty medicine residency and affects national and/or provincial retention of IMGs, Canadian and MUN graduates.

Like recent MUN graduates (Mathews et al. 2006), recent residents (those who began residency in 1990–1998) were more likely to remain in Canada than their earlier counterparts. This finding may be related to generational differences; more recent graduates have been suggested to place greater value on a "balanced lifestyle" (Moody 2002; Watson et al. 2004, 2006) and may choose positions in Canada that allow physicians to limit practice commitments. Further study is underway to explore generational differences in physician mobility.

In conclusion, we found that 66.8% of MUN postgraduate medical residents were working in Canada in 2004, 18.8% in NL. After residency training in NL, IMGs were less likely than MUN medical graduates to remain in Canada or NL, suggesting that location of postgraduate training is not positively associated with retention of IMGs. Although providing postgraduate training opportunities facilitates the entry of IMGs to medical practice in Canada, it is not a highly effective means of recruiting or retaining IMGs. This study underscores the need for further investigation of the factors related to IMG retention.

Study limitations

The cross-sectional design allowed us to consider only 2004 locations. We do not know whether physicians have remained in one location over their entire career or returned after an absence. From the MUN postgraduate database, we could not determine whether residents had completed their training when they exited the MUN program, whether they had met licensing requirements and were eligible to practise or whether they continued their training elsewhere. The use of secondary administrative data limited the number and scope of the predictor variables we were able to consider in this study. Although the use of administrative data limits our ability to determine the location of a large number of residents in the study, our sensitivity analyses support the robustness of our findings.

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The Role of Evidence in Public Health Policy: An Example of Linkage and Exchange in the Prevention of Scald Burns

Le rôle des preuves sur le plan des politiques sur la santé publique : un exemple des liens et des échanges dans la prévention des brûlures par liquides chauds

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Abstract

Is sound evidence sufficient to change public health practice and policy? In this paper, we describe a campaign to reduce scald burns among children based on compelling evidence of the effectiveness of an intervention to reduce hot tap water temperature. We provide an overview of the problem and the evidence to support our efforts, the context for addressing the scald problem and the lessons learned about why the relationship between evidence and change in practice is not straightforward.

Résumé

Des preuves évidentes sont-elles suffisantes pour provoquer un changement dans les pratiques et politiques en matière de santé publique? Cet article décrit une campagne visant à réduire les brûlures par liquides chauds chez les enfants fondée sur les preuves indéniables de l'efficacité d'une intervention consistant à réduire la température de l'eau chaude du robinet. L'article offre une vue d'ensemble du problème des brûlures par liquides chauds ainsi que des données qui soutiennent les efforts accomplis, puis décrit le contexte de cette problématique pour finalement conclure sur les leçons apprises qui indiquent que le lien entre les preuves fournies et les changements de pratique n'est pas évident.

On April 3, 1875, a young girl named Maggie was scalded by hot water from a pail. Maggie was the first patient of The Hospital for Sick Children in Toronto, Canada. To mark the 120th anniversary of the hospital, a health education campaign was launched with the theme of preventing scalds among children. Although much has changed over 120 years, hot water scalds remain a cause of preventable injuries to children.

Scald Burns: The Problem

Burns are among the most devastating of all injuries. They may be associated with surgery and skin grafting, as well as other long-term consequences such as disfigurement, physical disability and emotional trauma. Each year in Canada, burn injuries are responsible for an average of 77 deaths and 1,740 hospitalizations in children and youth (0–19 years) (Choiniere et al. 1997). Of these, scald injuries account for 70% of hospitalizations and 45% of emergency department visits (Choiniere et al. 1997). Of all scald injuries, 5%–10% are tap water scalds (Choiniere et al. 1997; Feldman et al. 1978).

Tap water burns are of particular importance from an injury prevention focus because these burns can cause extensive and deep injuries covering a large body surface

area. Children (and seniors) are at increased risk for tap water scalds because they cannot react as quickly to hot water and remove themselves from the exposure. There is a logarithmic relationship between water temperature and scald severity. Third-degree (full thickness) burns occur in 2–5 seconds at 60° Celsius, in 10–30 seconds at 55° Celsius and in 5–10 minutes at 49° Celsius (Moritz and Henriques 1947). Current regulations in Canada allow for domestic water heaters to be factory-set at 60° Celsius.

Tap water scalds are preventable. Interventions such as turning down the temperature of household hot water, anti-scald devices and public education programs may be associated with a reduction in the number of scald burns to children (DiGuiseppi and Roberts 2000). In the United States, the state of Washington passed legislation in 1983 that required new water heaters to be set at 49° Celsius (Erdmann et al. 1991). In addition, the legislation required warning labels on heaters and annual notices warning of the hazards of hot water and the energy savings associated with lower water temperatures. Following this legislation, Erdmann et al. (1991) showed that tap water scald hospitalizations in children younger than 15 years in two hospitals in Washington declined by 56%. Further, total body surface area burned, surgical intervention, scarring and length of hospital stay were also all reduced. A Canadian study (Webne and Kaplan 1993) demonstrated that when new hot water heaters were installed with the thermostat dial at a lower temperature, the majority of households did not change their pre-set thermostats to higher temperatures.

The Context

Moving towards an evidence-based approach

Founded in 1992, Safe Kids Canada is the national injury prevention program of The Hospital for Sick Children in Toronto. In 1997, the organization sought to raise its profile as a source of trusted messages on injury prevention for Canadian parents, public health departments, children's hospitals and community coalitions interested in children's safety. The chosen method was to increase Safe Kids Canada's role in research – its promotion, use and integration of research evidence to inform programs and messages.

One quick solution was to strengthen a fledgling science advisory committee to become a strong active committee of leading experts in injury and related issues. This group – the National Expert Advisory Committee (NEAC) – would help ensure the scientific credibility of the organization as well as the evidence supporting specific programs and messages.

Turning evidence into action

Building on The Hospital for Sick Children's scald prevention campaign, NEAC made a decision for Safe Kids Canada to focus on tap water scald prevention. At the time, the initiative was viewed as a potential "quick win" with respect to making a difference in childhood safety. As discussed later in the section Lessons Learned, however, the prevention journey was anything but "quick," and "wins" were difficult and hard fought.

The case for support was developed by conducting an extensive review of interventions for scald prevention in the scientific literature and quantifying the burden of scalds among Canadian children. These data were the foundation for an internal Safe Kids Canada background position paper that examined the issue and provided the rationale for interventions and messages. A dedicated public policy and advocacy staff member was hired to broaden the staff skill set. She was charged with leading the advocacy campaign to reduce water temperature in Canadian hot water heaters. A member of NEAC led the evaluation study to assess the impact of a public education campaign on hot water scald prevention during an annual injury prevention awareness campaign week. The study was subjected to research ethics board approval, peer review of the protocol and ongoing monitoring by other NEAC members. At the same time, a cost-effectiveness study was conducted with the help of a health economist. She assessed the savings to the healthcare system if preventive legislative/regulatory measures were successful in reducing tap water scalds. The results showed (from a direct healthcare cost perspective only) that there would be a $531 cost saving per scald prevented through reduction of tap water temperatures.

Conflicting evidence?

Although Safe Kids Canada had collected evidence to support its campaign direction and corresponding messages, other "evidence" was surfacing that would cause controversy. In particular, an electrical company was communicating contrary evidence that a reduction of water temperature in hot water heaters would result in increased exposure to *Legionella pneumophila* among the general population (and particularly in vulnerable populations, such as children and seniors). Legionella is a form of bacterial pneumonia, most commonly affecting immuno-compromised individuals, the elderly and children. The opinion of Safe Kids Canada experts was that this "evidence" was weak and reflected an adversarial stance from an organization that could be damaged by the campaign. In other words, a reduction in the setting of hot water temperature might result in reduced electrical consumption and therefore less revenue.

Legionella is a ubiquitous organism that has been detected in domestic hot water systems (Murray 2005). In a study of domestically acquired legionella infection, however, Strauss et al. (1996) failed to demonstrate an association between hot water

temperature and infection. Furthermore, the incidence of legionellosis in the United States over the period 1984–1999 has shown no discernible change, despite the fact that 28 states adopted legislation to reduce hot water temperature subsequent to the Washington experience (CDC 2001). Both scald burns and legionella infection are public health concerns. A prevailing industry perspective, however, is that prevention of legionella infection takes priority over prevention of tap water scalds (Hockey 2002). This debate warrants an objective review of the scientific evidence and clinical experiences. Such a review could be widely disseminated to relevant interested parties using diverse channels (e.g., hydro and electrical trade publications, plumbing journals and public health communiqués).

Developing expertise

This opposition drove Safe Kids Canada advisers and staff to become experts in such technical issues as the design of hot water tanks and water heating methods (gas versus electrical heaters) as well as regulatory processes (building and plumbing codes and standards, and the relationship between national and provincial regulatory bodies). It was also important to identify the many players involved in water temperature setting and raise their awareness of this issue and of the overall importance of injury prevention.

Building Consensus: Dealing with Opposition

It became clear that a lone voice (Safe Kids Canada) would not be sufficient to effect regulatory change, given the opposing views. Endorsement and support from like-minded organizations for changing water temperature in tanks would be critical. To that end, Safe Kids solicited over 300 letters of support from various organizations and also advocated for organizational positions on the issue (e.g., the Canadian Paediatric Society, Canadian Public Health Association and Canadian Medical Association). The general public was also made aware of the importance of reducing water temperature through a Safe Kids Week annual campaign. The focus of this week-long event was to promote national, provincial and local messaging related to scald prevention. Testing and lowering household water temperature was a key message within the campaign in an effort to promote behavioural and environmental changes by parents. The scald campaign evaluation study showed that one in eight parents exposed to the campaign tested their water temperature, with 50% lowering the water temperature. Also, most parents (>70%) expressed support for legislation to lower water temperature in hot water heaters (Macarthur 2003).

Notably, the scald prevention campaign included most of the elements in the framework for successful tobacco control identified in the Surgeon General's report, *Reducing Tobacco Use* (US Department of Health and Human Services 2000). This

report identifies five key elements: (1) clinical intervention and management, (2) educational strategies, (3) regulatory efforts, (4) economic approaches and (5) the combination of all these into comprehensive programs. Tobacco control has been widely cited as one of the most successful public health campaigns.

FIGURE 1. Campaign outcomes

For the Public
- Change to the Ontario Building Code to ensure that hot water heaters are set at the safe temperature of 49° C; this decision is still under review at the national level
- 35 million media impressions, including national, regional and local prime-time coverage
- Extensive retail campaign across the country (point-of-purchase educational displays) through partnership with Johnson & Johnson in national department stores and pharmacy chains
- Popular new water testing tool created; 600,000 were disseminated across Canada in 2001

For the NGO and Public Health Communities
- Won International Association of Business Communicators Ovation Award of Excellence
- Change in practice with respect to messaging on burn prevention

For the Research/Academic Community
- 4 peer-reviewed publications
- 1 national and 1 local resident research award
- Career advancement

For the Research and NGO/Public Health Communities
- Creation of ongoing research and practice coalition (Injury Prevention Across the Life Span, or IPALS), which has secured funding for other joint initiatives related to injury prevention
- New collaborations with public health, health economists, infection control experts, as well as between NGOs and science representatives
- National and international presentations at scientific meetings/conferences, including "A Productive Conversation" – a meeting promoting dialogue between the NGO and research communities, sponsored by the Canadian Institutes of Health Research

Campaign outcomes

As shown in Figure 1, the campaign led to a range of outcomes. A change in policy on setting of hot water heaters was realized through changes to the Ontario Plumbing Code; however, consensus was not reached to change the Canadian Building Code. Public health departments and other organizations interested in child safety are aware of scald prevention messaging and actively include evidence-based scald prevention messages within their health promotion activities. However, it was by no means a "quick win" campaign. Six years later, the work is ongoing – not only advocating for change, but attempting to ensure that there is not a reversal in Ontario's position with respect to the Plumbing Code.

Other campaign outcomes included public awareness (35 million media impressions, distribution of a water temperature testing instrument), academic outputs

(peer-reviewed publications, presentations) and development of new injury prevention partnerships and research collaborations.

Lessons Learned

Interpretation of the evidence

The same body of evidence was interpreted and weighted differently by researchers, NGOs, policy makers and industry. Context and expert opinion as well as evidence played important roles in decision-making.

Industry interactions

NGOs need to understand early the language and culture of the private sector and to be realistic about the resource implications required for policy change when it affects the private sector. The process is dynamic and resource-intensive.

Academic lessons

Timelines for researchers and NGOs often do not correspond. This tension forces the researcher to appreciate the need for timely information for policy decision-making. Likewise, the NGO needs to understand the rigour required to provide methodologically sound data. Attempting to balance the motivations and agendas of both the public health sector and the private sector was also a learning experience for the academics involved. A successful collaboration requires active listening, mutual respect as equal partners, and early discussion of timelines and outputs of meaning to all participants.

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Turning the Tide on Chronic Disease: How a Province Is Using Evidence to Build Quality Improvement Capacity

Renverser le courant des maladies chroniques : le cas d'une province utilisant des données probantes pour renforcer la capacité en matière d'amélioration de la qualité

by CANADIAN HEALTH SERVICES RESEARCH FOUNDATION

Abstract

Saskatchewan's Chronic Disease Management Collaborative is a quality improvement model that brings together healthcare providers to learn about, test and share experiences with improvement ideas in diabetes and coronary artery disease care. This innovative initiative was recently featured in *Promising Practices*, a monthly series produced by the Canadian Health Services Research Foundation highlighting organizations that have invested their time, energy and resources to try to improve their ability to use research in the delivery of health services. The *Promising Practices* inventory can be found at www.chsrf.ca/promising/index_e.php.

Résumé

L'initiative *Chronic Disease Management Collaborative* de la Saskatchewan est un modèle visant à améliorer la qualité qui rassemble les fournisseurs de services de santé pour apprendre et mettre à l'essai des idées ainsi que partager leur expérience en vue d'améliorer les soins offerts aux patients atteints du diabète ou de coronaropathie. Cette initiative novatrice a fait l'objet d'un article dans *Pratiques prometteuses*, une série mensuelle produite par la Fondation canadienne de la recherche sur les services de santé, qui présente des organismes ayant investi temps, argent et ressources afin d'améliorer leurs capacités à utiliser la recherche dans la prestation des services de santé. La liste des numéros de la série *Pratiques prometteuses* se trouve à : http://www.chsrf.ca/pratiques/index_f.php.

In November 2005, Saskatchewan embarked on its largest healthcare quality improvement initiative to date. How big is big? The Saskatchewan Chronic Disease Management Collaborative involves:

- 28 percent of the province's family physicians and about 30 percent of its primary care practices;
- more than 600 health professionals;
- all 13 of Saskatchewan's health regions; and
- more than 14,000 people living with diabetes and coronary artery disease.

The collaborative aims to improve the care and health of residents living with these diseases, as well as access to care. It is sponsored by the province's Health Quality Council, an independent agency that not only measures and reports on quality of care but also takes action to promote quality improvement.

Council research showed that less than half of those with diabetes were meeting recommended targets for blood sugar and blood pressure levels and that many heart attack patients did not receive key medications proven to prevent second heart attacks and save lives.

"The evidence on optimal diabetes and coronary artery disease care is well known," says Karen Barber, the council's director of quality improvement, "so it's not the 'what to do' that healthcare professionals struggle with. Their challenge is how to do it in routine practice."

Helping with how to do it is what the Chronic Disease Management Collaborative is all about. A collaborative is an improvement method that spreads existing knowledge to multiple settings. Key features include learning quality improve-

ment techniques, sharing "on-the-ground" experiences and conducting small tests of change known as plan-do-study-act cycles.

Participants in the Chronic Disease Management Collaborative – doctors and other healthcare professionals – work in teams, meeting in workshops where they discuss new ideas for improving care. Once back in their care settings, they test these and their own ideas and share their experiences with other team members.

Key Messages

- Saskatchewan's Chronic Disease Management Collaborative is a quality improvement model that brings together healthcare providers to learn about, test and share experiences with improvement ideas in diabetes and coronary artery disease care.
- A web-based toolkit tracks and helps manage patient care, allows all of a patient's care providers to share information and creates reports documenting care improvement and identifying gaps.
- People with diabetes and coronary artery disease are demonstrably receiving better care.
- The model can be used to improve quality in other care areas.

The use of technology to better manage patient care is another key feature. Participants track patient progress via the Chronic Disease Management Toolkit, a web-based disease registry and support tool originally developed in British Columbia. It tracks a patient's care and reminds care providers of required tests, services or medications. It allows all of a patient's care providers to share information and creates reports documenting care improvement and identifying gaps.

"For providers, there's a difference between thinking they are providing good care and knowing it," says Bonnie Brossart, the council's interim CEO. "With the toolkit, they can see at a glance how their patients are doing. They can also see which practices are doing well in a particular area and find out if there's something to learn from them."

Positive changes in diabetes and coronary artery disease care have already been seen among collaborative participants. Access is improving, with almost 85 percent of patients being seen on their day of choice. As well, more patients are receiving the recommended drugs and services for their condition:

- among patients with diabetes, 25 percent more have had a urine microalbumin screening test and 10 percent more have been prescribed a drug to help control blood cholesterol levels; and

- 85 percent of patients with coronary artery disease have been prescribed antiplatelet therapy, 11 percent more than when the collaborative began.

Early results are also showing positive trends:

- about 700 more patients with diabetes have achieved good control of their blood sugar, a five-percent improvement; and
- three percent more coronary artery disease patients have reached a healthy blood pressure level.

"Though we're not completely there yet, these initial results are encouraging," says Ms. Barber. "Even more encouraging are the many requests we've had to use the collaborative model in other areas. We're now considering how and when we might do that."

"It's exciting to be part of an organization that doesn't just point out the evidence about what's wrong or needs improvement, but can also help promote positive change," adds Ms. Brossart.

"Participants now have the tools and skills they need to continue making quality improvements, not only in diabetes and heart disease, but in other care areas as well."

The Canadian Institutes of Health Research Institute of Health Services and Policy Research (CIHR - IHSPR) is a proud supporter of *Healthcare Policy/Politiques de Santé*.

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Saskatchewan Health Research FOUNDATION

RESEARCH PAPER

Features of Primary Healthcare Clinics Associated with Patients' Utilization of Emergency Rooms: Urban–Rural Differences

Aspects des cliniques de soins primaires de santé publique associés à l'utilisation plus des services d'urgence – les différences entre les milieux urbains et ruraux

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Features of Primary Healthcare Clinics Associated with Patients' Utilization of Emergency Rooms

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Abstract

Objective: A 2002 survey of primary healthcare sites found that 51% of rural and 33% of urban primary care patients reported using the hospital emergency room (ER) in the last 12 months. We did a secondary analysis to identify urban–rural differences in accessibility-related organizational features that predicted ER use.
Methods: We collected information on clinic organization and physicians' practice profiles from 100 primary healthcare sites across Quebec and 2,725 of their regular patients, who reported on ER use. We used hierarchical logistic regression to identify organizational features that predict the probability of ER use by patients.
Results: Patient confidence in rapid access at their clinic decreases ER use (OR=0.73). Rural sites offer fewer walk-in services or on-site medical procedures and less proximity to laboratory and diagnostic services, but paradoxically, rural patients are more confident that their own physician will see them for a sudden illness. Patients from clinics offering a larger range of medical procedures on site have lower ER use (OR=0.92 per procedure). Rural physicians tend to divide their time between hospital and primary care; doing in-patient care increases ER use (OR=1.64).
Discussion: Decreased ER use is found in patients of clinics organized to enhance responsiveness to acute needs, especially in rural areas. Although the high rates of ER use in rural areas partly reflect problems with the accessibility of primary care clinics, in a resource-scarce context rural hospital ERs may cover both primary care urgent problems and emergencies.

Résumé

Objectif : Une enquête réalisée en 2002 auprès de sites de soins de première ligne a révélé que 51 % des patients recevant des soins primaires en milieu rural et 33 % des patients recevant des soins primaires en milieu urbain ont déclaré avoir utilisé le service des urgences d'un hôpital au cours des 12 derniers mois. Nous avons effectué une analyse secondaire pour repérer les différences entre les milieux urbains et ruraux sur

le plan des caractéristiques organisationnelles reliées à l'accessibilité permettant de prédire l'utilisation des services d'urgence.
Méthodes : Nous avons colligé des informations relatives à l'organisation clinique et aux profils de pratique des médecins de 100 sites de soins de santé primaires dans tout le Québec et pour 2 725 de leurs patients réguliers qui ont rapporté sur l'utilisation de l'urgence. Nous avons employé une régression logistique hiérarchique pour cerner les caractéristiques organisationnelles permettant de prédire la probabilité de l'utilisation par les patients des services d'urgence.
Résultats : La confiance des patients dans l'accès rapide à leur clinique fait tomber le taux d'utilisation du service des urgences (OR=0,73). Les sites ruraux offrent moins de services sans rendez-vous ou d'interventions médicales sur place, et la proximité des services de laboratoire et services diagnostiques est moindre mais, paradoxalement, les patients en milieu rural pensent avoir plus de chances d'être vu par leur propre médecin en cas de maladie subite. Les patients de cliniques offrant une gamme plus large d'interventions médicales sur place rapportent une utilisation moindre de l'urgence (OR=0.92 par intervention). Les médecins en milieu rural tendent à diviser leur temps entre l'hôpital et les soins primaires; la pratique hospitalière fait augmenter l'utilisation de l'urgence par leurs patients (OR=1,64).
Discussion : Les patients de cliniques organisées dans le but d'améliorer la réponse aux soins urgents sont moins susceptibles d'utiliser l'urgence, en particulier dans les cliniques rurales. Bien que le taux élevé d'utilisation de l'urgence en milieu rural reflète en partie des problèmes d'accessibilité aux cliniques de soins primaires, dans un contexte de manque de ressources, l'urgence des hôpitaux ruraux pourraient couvrir à la fois les soins aigus de première ligne et les urgences médicales.

In Canada, emergency room (ER) crowding and waiting times have long made headlines. The ER is the safety net for emergency health problems, the last resort for accessing care. High rates of ER use often indicate problems elsewhere in the system, ranging from inadequate management of clinical problems to problems with access for many reasons (Oster and Bindman 2003; Baer et al. 2001; Ansell et al. 2002; Noseworthy 2004; Canadian Association of Emergency Physicians and National Emergency Nurses Affiliation 2000; Rondeau and Francescutti 2005).

In 2002, we conducted a survey of Quebec primary healthcare users and found that 41% reported using the ER in the last year: 51% in rural and 33% in urban areas (Haggerty et al. 2007). We postulated that higher rural ER use was unlikely to be due to a higher proportion of "real" emergencies and that a higher probability of rural ER use is related to inadequate accessibility or availability of primary care clinics.

We undertook a secondary analysis of the data to determine whether accessibility-related organizational characteristics predict ER use and could explain observed differences between urban and rural areas.

Method

Our method, described elsewhere (Haggerty et al. 2007), is summarized here. The study was approved by the ethics review board of the Université de Montréal Hospital Research Centre. We believed that scarcity of healthcare resources was the defining feature of rural and remote areas. Rural clinics were those located in transport zones (approximately equivalent to census subdivisions) requiring more than one hour of travel to the nearest hospital offering subspecialty services and with fewer than four primary care clinics located within a 15-minute radius of the zone's centre. To link patients' experience to physician and clinic characteristics, we conducted a cross-sectional, multilevel survey of 100 primary care practice settings in Quebec between December 2001 and October 2002. Using random sampling within geographic and clinic-type strata in five health regions, we selected 60 private clinics and community health centres in urban and suburban areas and 40 in rural and remote areas. Within each, we selected up to four physicians and recruited 20 consecutive patients per physician in the waiting room prior to their consultation. Data collection days represented both scheduled and walk-in care.

Information collected

We collected information about patients' care experiences, physicians' practice profiles and clinic organization using self-administered questionnaires. Research technicians administering the study on site made observations and obtained information from front-desk staff about clinic organization, physician availability, time to third-next appointment (Institute for Healthcare Improvement 2005) and the physician's preferred modalities for coping with urgent care needs. Each practice director or administrator reported on physical and human resources, governance and management structures and operational links with other healthcare establishments. All participating physicians reported on their practice profile; they and the director reported on practice culture by rating the importance of such elements as rapid access for patients.

Patients' experience of accessibility was assessed using the "First-Contact Accessibility" scale of the Primary Care Assessment Tool (PCAT, French versions validated) (Cassady et al. 2000; Shi et al. 2001), which measures patients' confidence of being seen within one day in cases of sudden illness, and the "Organizational Accessibility" scale of the Primary Care Assessment Survey (Safran et al. 1998), in

which patients rate the clinic's hours, wait times and telephone accessibility of office and physician. All questions relate to the patient's regular provider or clinic. In addition, 40% of respondents provided comments at the end of the questionnaire.

TABLE 1. Healthcare use, personal characteristics and experience of care of 2,725 patients reporting a study clinic as their usual source of care – comparing urban and rural areas

	Overall n=2725 (100%)	Urban areas n=1506 (55.3%)	Rural areas n=1219 (44.7%)	Test value (*p*) for urban–rural difference
Patient healthcare use in the past year				
At least one ER visit	1117 (41.0%)	490 (32.5%)	627 (51.4%)	χ^2 = 99.5(<0.0001)
Among users:				
1–2 visits	750 (67.1%)	373 (76.1%)	377 (60.1%)	χ^2 = 31.9 (<0.0001)
3 or more visits	367 (32.9%)	117 (23.9%)	250 (39.9%)	
Mean number of primary care visits Mean (± SD)	7.3 (±6.8)	6.8 (±6.8)	7.8 (±6.6)	*t* = 3.70 (0.0002)
Personal characteristics				
Level of education Percentage with secondary completed	52.7%	59.3%	44.6%	χ^2 = 58.81 (<0.0001)
Self-rated health status Percentage rating poor or fair	27.9%	26.2%	29.9%	χ^2 = 4.42 (0.04)
Self-rated stress level Percentage rating very to somewhat stressful	69.0%	70.9%	66.6%	χ^2 = 5.65 (0.02)
Mean age (± SD)	51.6 (±18.3)	52.3 (±17.8)	50.6 (±18.8)	*t* = -2.45 (0.01)
Patient perceptions of primary care accessibility				
Confidence in being seen within a day for a sudden illness				
On nights and weekends	13.6%	9.6%	18.6%	χ^2 = 47.02 (<0.0001)
During working hours	68.9%	72.5%	64.4%	χ^2 = 20.69 (<0.0001)
Percentage rating elements of organizational accessibility as very good or excellent				
Waiting time to see doctor when sick	41.2%	47.7%	56.6%	χ^2 = 17.01 (<0.0001)
Capacity to speak to doctor over the phone	50.1%	44.2%	57.3%	χ^2 = 46.85 (<0.0001)
Waiting time in doctor's office	50.2%	45.7%	58.2%	χ^2 = 57.07 (<0.0001)

Analysis

The main outcome was the probability of having used the ER in the last 12 months. Analysis was based only on patients whose regular source of care was the participating clinic. We described patient characteristics that might explain differences in ER use. We also explored whether their perceptions of clinic accessibility were associated with ER use. We attempted to build a multilevel logistic regression model that would explain clinic and physician characteristics associated with likelihood of ER use among sampled patients; all variable selections were driven by hypothesized associations with clinic or physician practice. For valid comparisons, all models controlled for patient age, education level, perceived health status and number of primary care visits in the previous year. We used the HLM multilevel software (Raudenbush et al. 2001), which takes into account the nesting of patients in physicians and of physicians in practice sites (Snijders and Bosker 1999). We looked for modification of clinic effects by urban and rural area.

Because organizational characteristics tend to be highly correlated (Contandriopoulos et al. 2001; Lamarche et al. 2003), it was often difficult to enter two related characteristics in the model. We ultimately selected variables that provided the most robust and global explanation of the phenomenon.

Results

Table 1 gives the characteristics, ER use and reported care experience of the 2,725 eligible patients. Likelihood and frequency of ER use are remarkably higher in rural than urban patients; use of primary care services is also slightly higher. Rural patients report less education and higher percentages of poor or fair health – factors reported among frequent ER users (CIHI 2005; Meng et al. 2006; Carrière 2004) – but these do not fully explain the observed differences in ER use. Paradoxically, rural patients provide higher ratings of their clinics' accessibility. Patients confident of rapid clinic access when ill were significantly less likely to have used the ER in the last year, compared to those who were not: odds ratios (ORs) were 0.78 (95% CI: 0.64–0.97) in rural areas and 0.69 (95% CI: 0.56–0.85) in urban areas.

The characteristics of the geographic areas where urban and rural clinics were located are described in Table 2. Clinic and physician characteristics that we hypothesized to be associated with accessibility also differed significantly between rural and urban areas (Table 3). While clinics did not differ on self-ratings of rapid-access culture, urban clinics showed a wider variation of opening hours, though none were open 24 hours day, 7 days a week, unlike community health centres in remote areas of Quebec. Most rural clinics (75%) either had no walk-in services or offered them only during the day. Urban clinics were more likely to offer walk-in services over longer periods and to have specialists, radiology and laboratory services in immediate proximity. In contrast, most rural clinics (82.5%) provided hospital care compared to 25% in

urban areas, and rural physicians spent on average 70% of their time at the clinic compared to 90% among their urban counterparts. While more rural physicians worked at the ER, urban physicians tended to be more available at the clinic on evenings and weekends. Finally, rural physicians expressed greater attachment to the clinic's community than urban physicians.

TABLE 2. Geographic and service availability characteristics of urban and rural census subdivisions in which the study clinics were located

	Urban (n=60)	**Rural (n=40)**
Number of municipalities (census subdivisions)	29	34
	Mean (± Standard Deviation)	**Mean (± Standard Deviation)**
Geographic Characteristics		
Average population density (persons / km^2)	2,261 (±2,035)	251 (±326)
Average distance to nearest metropolitan centre (Montreal or Quebec) in kilometres	29 (±14)	400 (±300)
Service Availability[1]		
Average number of primary healthcare clinics within a 15-minute transport route radius[2]	136 (±151)	5 (±3)
Average number of primary healthcare clinics within a 30-minute transport radius	413 (±186)	8 (±12)
Average minutes travelled[3] to closest community hospital offering basic services	10 (±6)	19 (±41)
Average minutes travelled[3] to closest referral hospital offering subspecialty services	11 (±6)	147 (±347)
Average minutes travelled[3] to closest tertiary care hospital	19 (±10)	330 (±430)

1 Data provided by the Development and Information Service (SDI) of the Quebec Ministry of Health and Social Services (MSSSQ).
2 The transport radius is calculated from the centre of the municipality within the transport zone or the geographical centre of the transport zone in a metropolitan area.
3 The transport route is calculated from the centre of transport zone where the clinic is located to the centre of the nearest transport zone containing the health infrastructure of interest, expressed in the number of minutes required to cover the transport route by car on existing transportation networks. Data provided by the Quebec Ministry of Transport.

Table 4 shows which clinic and physician variables are significantly associated with the likelihood of ER use. Significant variables differ markedly between urban and rural settings. The only organizational variable associated with ER use in both settings was whether the clinic offered in-hospital follow-up. This increased the likelihood of ER use by 1.47 in urban and 1.57 in rural areas.

We tried to fit a single model (overall model, Table 5) with interaction terms between clinic factors and geographic location to account for expected effect modifi-

cation by strata. After adjusting for age, health status, education and healthcare use, rural patients were almost five times more likely than urban patients to have used the ER in the last year. Only the interaction term for rapid-access culture approached statistical significance, suggesting that such a culture reduces likelihood of ER use in rural but not in urban areas. We consequently fitted separate models by geographic location (see Table 5).

TABLE 3. Characteristics of participating clinics and physicians – comparing urban and rural areas for elements hypothesized to predict clinic accessibility and likelihood of ER use

Clinic Characteristics	**Overall n=100 (100%)**	**Urban areas n=60 (60%)**	**Rural areas n=40 (40%)**	**Test value (*p*)**
Practice culture: mean importance given to rapid access (scale of 1 to 5) (± SD)	4.0(±0.7)	4.0(±0.7)	4.0(±0.8)	t = -0.53 (0.6)
Opening hours per week (percent)				
Less than 30 hours	6.0%	6.7%	5.0%	χ^2 = 12.9 (0.03)
31 to 40 hours	23.0%	18.3%	30.0%	
41 to 50 hours	36.0%	31.7%	42.5%	
51 to 60 hours	15.0%	20.0%	7.5%	
61 to 90 hours	17.0%	23.3%	7.5%	
Open 24 hours 7 days a week[4]	3.0%	0%	7.5%	
Percentage offering walk-in services				
Days, evenings and weekends	27.0%	33.3%	17.5%	χ^2 = 4.8 (0.2)
Days and evenings	11.0%	13.3%	7.5%	
Daytime only	36.0%	31.7%	42.5%	
None	26.0%	21.7%	32.5%	
Percentage offering hospital in-patient follow-up to patients	48.0%	25.0%	82.5%	χ^2 = 31.8 (<0.0001)
Level of technical support available at the clinic: Mean number of medical procedures available on site (out of 14)[5] (± SD)	2.7(±1.7)	2.8(±1.7)	2.6(±1.6)	t = –0.7 (0.5)
Presence of specialists on site	43.0%	63.3%	12.5%	χ^2 = 25.3 (<0.0001)
Radiology services on site	25.0%	35.0%	10.0%	χ^2 = 8.0 (0.005)
Laboratory services on site	35.0%	51.7%	10.0%	χ^2 = 18.3 (<0.0001)
Average number of formal and operational links with other healthcare establishments (± SD)	1.0 (±1.3)	0.6 (±1.0)	1.7 (±1.3)	t = 4.58 (<0.0001)
Average number of family physicians per clinic (± SD)	5.8 (4.4)	5.3 (4.2)	3.6 (3.2)	t = 2.43 (0.02)

TABLE 3. Continued

Physician characteristics	Overall n=215 (100%)	Urban areas n=127 (59.1%)	Rural areas n=88 (40.9%)	Test value (*p*)
Days to 3rd next available appointment Mean (± SD)	23.8(±21.9)	25.0(±25.0)	22.1(±16.4)	$t = -1.02$ (0.3)
Availability at the clinic Evenings Weekends	29.3% 20.8%	36.2% 23.6%	19.3% 15.9%	$\chi^2 = 9.2$ (0.009) $\chi^2 = 3.1$ (0.2)
Distribution of time spent in various settings				
Mean number of clinical hours per week (± SD)	47.5 (±18.7)	44.9 (±17.6)	51.3 (±19.7)	$t = 2.5$ (0.01)
Mean percentage of time in primary care clinic Mean (± SD)	82.1 (±23.2)	90.3 (±17.6)	70.3 (±25.1)	$t = -6.44$ (<0.0001)
Mean percentage of time in hospital in-patient care Mean (± SD)	9.7(±16.1)	4.4(±12.0)	17.4 (±18.0)	$t = 5.9$ (<0.0001)
Mean percentage of time in ER Mean (± SD)	5.1(±15.4)	0.8(±4.8)	11.2(±22.0)	$t = 4.3$ (<0.0001)
Distribution of percentage of time spent in walk-in services per week None >0 – <25 25 – <50 50 or more	36.7% 25.6% 15.8% 21.9%	35.4% 15.0% 20.5% 29.1%	38.6% 40.9% 9.1% 11.4%	$\chi^2 = 25.6$ (<0.0001)
Mean attachment to the community served by the clinic (scale 1 to 7) Mean (± SD)	5.7 (±1.0)	5.5 (±1.0)	5.9 (±0.9)	2.63 (0.009)

4 These are community health centres (Centres de santé) found only in remote areas that have integrated emergency rooms and 10- to 15-bed capacity to admit patients for observation or testing. The facility is open 24 hours a day, 7 days a week.
5 Audiometry, refraction, ECG interpretation, pulmonary function testing, Pap smears, IUD insertion, D+C aspiration, lumbar puncture, musculoskeletal (includes joint) injection/aspiration, casting/splinting, anoscopy, needle aspiration (for diagnosis/biopsy), skin biopsy, suturing

Only two variables predicted urban ER use: offering in-patient follow-up (OR=1.64) and offering a wider range of procedures on site (OR=0.92 per additional procedure, compared to the mean). Rural models were more complex to build because significant organizational variables tended to be highly correlated and could not be entered together. For instance, correlation between rapid-access culture and number of procedures available was 0.34. Indeed, correlations between a practice culture of rapid access and key accessibility variables such as availability on evenings and week-

TABLE 4. Clinic and physician characteristics significantly associated with likelihood of ER use by clinic patients. Results show odds ratio of ER use after controlling for patient age, level of education, self-rated health status and number of primary care visits in the last year (confidence intervals are provided only for statistically significant or suggestive findings)

Clinic Characteristics	**Overall n=2725**	**Urban areas n=1506**	**Rural areas n=1219**
Opening hours	1	1	1
Clinic offers walk-in services:			
Days, evenings and weekends	1	1	0.54 (0.30–0.98)
Days and evenings	0.71 (0.48–10.6)	1	0.55 (0.30–1.04)
Daytime only	0.78 (0.59–1.02)	0.74 (0.51–1.07)	1
None (reference)	—	—	—
Clinic offers in-hospital follow-up to patients (compared to none offered)	1.53 (1.15–2.04)	1.47 (1.04–2.07)	1.57 (0.95–2.58)
Level of technical support available at the clinic:			
Medical procedures available on site (effect of each procedure relative to the mean of 2.7 out of 14)	0.93 (0.86–1.01)	1	0.88 (0.77–1.01)
Presence of specialists on site	1	1	1
Radiology services on site	1	1	1
Laboratory services on site	1	1	1
Number of formal and operational links with other healthcare establishments	1	1	1
Practice culture: importance given to rapid access (effect of each unit of importance relative the mean of 4)	0.85 (0.71–1.01)	1	0.77 (0.61–0.97)
Physician Characteristics	**Overall n=2677**	**Urban areas n=1473**	**Rural areas n=1204**
Days to 3rd next available appointment	1	1	1
Physician availability at the clinic:			
Evenings	1	1	0.59 (0.41–0.85)
Weekends	0.77 (0.61–0.96)	1	0.59 (0.46–0.76)
Time spent in various settings:			
Percentage of time spent in primary care:			
<50	1.41 (1.06–1.9)	1	1.72 (1.17–2.53)
50 – <70	1	1	1
70 – <90	1	1	1
≥90 (reference)	—	—	—
Percentage of time spent in hospital in-patient care	1.01 (1.00–1.02)	1	1.01 (1.00–1.02)
Percentage of time spent in ER	1	1	1

TABLE 4. Continued

Distribution of percentage of time spent in walk-in services per week:			
None (reference)	—	—	—
>0 – <25	1	1	1
25 – <50	1	1	0.67 (0.45–1.00)
≥50	0.77 (0.59–0.99)	1	0.69 (0.50–0.96)
Attachment to the community served by the clinic (scale 1 to 7)	0.90 (0.79–1.02)	1	0.81 (0.67–0.97)

ends are stronger in rural than in urban clinics (data available on request). Our final model includes the variable of rapid-access culture, which we considered foundational in determining the clinic's organizational features. The mean importance attached to rapid access in clinics was 3.97 (on a scale of 1 to 5). In clinics that rated the importance of rapid access at 5, patients were 22% less likely to use the ER (OR=0.78). If their clinic also offered evening walk-in services, likelihood of ER use was 23% less than among patients of clinics that did not (OR=0.77). However, if their physician's working time at the clinic was less than 50%, likelihood of ER use was 47% higher (OR=1.47) compared to patients of physicians spending 90% of their time on site.

Discussion

This study highlights not only the large difference in ER use between urban and rural primary healthcare clients, but also differences in primary care organization. Rural clinics have fewer accessibility-related features, and rural physicians spend less time at their clinics and offer less walk-in care (even though they work longer hours, overall). These factors reduce rapid-response capacity for urgent problems, which may partly account for higher rural ER use, especially since there are considerably fewer primary care alternatives in rural areas. When the usual clinic is not readily available, the ER may be the principal alternative for both minor and major urgent care needs. Lower clinical severity scores among rural ER users are found in Ontario (CIHI 2005), supporting the possibility that rural hospital ERs may be filling a primary care role in rural areas. Our interpretations should be accepted with caution because they are based on secondary analysis of data collected for another objective, and our findings are predicated on the assumption, which we had no way of testing, that higher ER use in rural areas does not reflect "true" emergencies.

We found that when the clinic physicians also provide in-hospital services, their patients are more likely to use the ER. Again, this finding may be due to lower clinic accessibility and/or to a higher probability of patients' seeing their own physician in the ER. In rural areas, the ER can provide both continuity of care and accessible services.

We found that patients' confidence in being seen rapidly at their clinic for sudden

illness decreases their likelihood of using the ER, but rural patients expressed higher confidence levels than their urban counterparts. This paradox may be explained by the fact that more rural physicians work in the local hospital. Clinic secretaries reported that almost a quarter of rural physicians managed urgent care for their regular patients by meeting them at the ER, whereas this situation was rare in urban areas. Rural patients and physicians also tend to belong to the same community network, and rural patients may know where to find their doctor, including at the ER, hence their confidence in being seen rapidly and their tendency to use the ER. This interpretation would need to be explored in future studies.

TABLE 5. Final logistic regression models of clinic and physician characteristics associated with likelihood of ER use in clinic patients. Results show odds ratio of ER use, controlling for other variables in the model including clinic case mix, patient age, level of education, self-rated health status and number of primary care visits in the last year

	Odds ratio	95% CI
Overall Model (2,677 patients)		
Rural location	4.74	1.78–12.60
Number of medical procedures on site	0.92	0.85–1.00
Interaction term between rapid-access culture and rural location	0.80	0.63–1.02
Urban Model (1,473 patients)		
Offering in-patient follow-up	1.64	1.11–2.41
Number of medical procedures on site	0.92	0.82–1.00
Rural Model (1,204 patients)		
Culture of rapid access	0.78	0.64–0.96
Availability of evening walk-in services	0.77	0.58–1.03
Physician time spent in primary care site less than 50% (reference ≥ 90%)	1.47	1.01–2.14

These findings call for prudence in interpreting high or repeated ER use as an indicator of poor control of health problems (Oster and Bindman 2003; Ansell et al. 2002). Our study suggests ER use is more common in rural areas and may not constitute an ambulatory-care-sensitive indicator in studies using provincewide administrative data. Rather, it is possible the ER intentionally fulfills a slightly different function in rural areas, attending to both emergency and urgent primary care. Likewise, primary care clinics may fulfill a slightly different function, seemingly more oriented towards continuity and follow-up than acute episodic care, which is consistent with lower

patient volume and fewer procedures on site. The rural ER may be more integrated with the primary healthcare system, with physicians being the principal agents of integration through involvement in both areas.

Still, high rural ER use is not necessarily alarm-free. Our study reinforces the association between poor primary care accessibility and ER use. And in rural areas with fewer alternatives, patients are very dependent on clinic organizational structures and their physician's practice style. Rural physicians may need to enhance their community practice accessibility or integrate more formally and transparently with the ER for walk-in care. In the open comments, patients expressed strong preferences to be seen by their own physician at their own clinic rather than going to the ER. Using the ER for acute and episodic care may indeed be an efficient way to organize scarce resources in rural and remote areas, but it should be part of a clear policy that maximizes efforts by both patients and health professionals.

This study reinforces the notion that ER utilization is associated with problematic primary healthcare accessibility for urgent needs, especially in rural contexts where there are fewer primary care alternatives. However, it also provokes reflection on an expanded function of rural ERs and cautions against monolithic interpretation of ER rates. In a 2004 five-country Commonwealth survey, Canada had the highest ER utilization rate (Schoen et al. 2004). A high rate of non-urgent ER use is interpreted as an indicator of primary care system failure (Afilalo et al. 2004; McGill 1994), and the clear message is that primary healthcare accessibility in Canada must be enhanced, including appropriate integration with the ER in rural and remote areas.

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RESEARCH PAPER

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Is There a Tension between Clinical Practice and Reimbursement Policy? The Case of Osteoarthritis Prescribing Practices in Ontario

Existe-t-il une tension entre la pratique clinique et les politiques en matière de remboursement? Le cas des pratiques de prescription pour l'ostéoarthrite en Ontario

PARMINDER S. RAINA, AMIRAM GAFNI, SANDRA BELL, SUSAN GRANT, ROLF J. SEBALDT, AIMEI FAN, ANNIE PETRIE AND KEVIN SKILTON

Abstract

Background: Reimbursement policies, such as those used to manage the public drug program for senior citizens in Ontario, focus on providing access to cost-effective drug therapies. These policies may create a dilemma for physicians who want to prescribe a particular drug to a patient, but must factor reimbursement restrictions affecting patient-level access into the prescribing decision.
Methods: Information was collected from 102 physicians about prescriptions given to osteoarthritis patients (n=2,147) aged 65 years or older. Patients' access to prescribed drugs was determined from their insurance coverage and the reimbursement criteria set out in the formulary of the public Ontario Drug Benefit Program (ODBP). Starting from the assumption that physicians would follow published consensus guidelines respecting gastroprotection when prescribing NSAIDs in these at-risk elderly patients, three groups of physicians were identified from the record of their actual prescriptions. Group A physicians (n=14) prescribed non-selective NSAIDs alone to >60% of their patients. Group B physicians (n=26) prescribed an NSAID + gastroprotective agent or a Cox-2 selective NSAID to >70% of their patients. Group C physicians (n=62) were those that fit into neither category. An open-ended question was included in the study questionnaire to elicit physicians' own interpretation of what impact drug coverage had on their prescribing behaviour.
Results: No significant differences were found across groups with respect to years or type of practice, or to patient characteristics (LR=3.00, p>.2). Group C physicians were most likely to change their treatment choice in favour of restricted (limited use) drugs when patients met the criteria for reimbursement or had private insurance and therefore did not have to bear the additional cost out-of-pocket (LR=58.5; p<.0001).
Interpretation: Most elderly at-risk patients are prescribed NSAIDs according to the prevailing guidelines. We found, however, that 40% of physicians have prescribing

behaviour that favours non–evidence-based (Group A) or evidence-based (Group B) prescribing in this clinical setting irrespective of drug coverage. The remaining 60% of physicians appeared to be more responsive in their prescribing behaviour to financial constraints on patients' access to drugs. They also self-identified as most likely to change treatment if drug coverage had been different. These results have important implications for equity and quality of patient care. They also confirm that physicians' knowledge, values and self-efficacy are key determinants of prescribing behaviour and require further study to better understand how medical education and third-party policies and programs that govern pharmaceutical care are integrated into physicans' decision-making.

Résumé

Généralités : Les politiques en matière de remboursement, comme celles qui sont utilisées dans la gestion du programme de médicaments gratuits pour les personnes âgées de l'Ontario, se concentrent sur l'accès aux thérapies médicamenteuses efficientes. Ces politiques peuvent cependant causer un dilemme aux médecins qui souhaitent prescrire un médicament particulier, mais qui doivent prendre en considération, lors de la décision touchant à la prescription, les restrictions en matière de remboursement applicables au patient.
Méthodes : Des renseignements ont été recueillis auprès de 102 médecins concernant les ordonnances fournies à des patients atteints d'ostéoarthrite (n=2,147) âgés de 65 ans et plus. L'accès aux médicaments prescrits par les patients a été déterminé d'après leur couverture d'assurance et les critères de remboursement précisés au formulaire du Programme de médicaments de l'Ontario (PMO). Partant de l'hypothèse que les médecins se basent sur les lignes directrices publiées fondées sur la preuve concernant la gastroprotection quand ils prescrivent des AINS chez ces patients âgés exposés au risque, on a identifié trois groupes de médecins à partir de la documentation de leurs ordonnances. Les médecins du groupe A (n=14) ont prescrit des AINS non sélectifs seulement à >60 % de leurs patients. Les médecins du groupe B (n=26) ont prescrit un AINS + un agent gastroprotecteur ou un AINS cox-II sélectif à >70 % de leurs patients. Les médecins du groupe C (n=62) étaient ceux qui ne se plaçaient pas dans ces deux catégories. Une question ouverte a été incluse au questionnaire de l'étude demandant aux médecins de fournir leur propre interprétation de l'incidence de l'assurance-médicaments sur leurs pratiques de prescription.
Résultats : Aucune différence significative n'a été découverte entre les différents groupes en ce qui concerne les années ou les types de pratique, ou les caractéristiques des patients (LR=3.00, p>0.2). Les médecins du groupe C avaient le plus tendance à modifier leur choix de traitement en faveur de médicaments à utilisation limitée ou restreinte quand les patients répondaient aux critères de remboursement ou avaient

une assurance privée (LR=58.5; p<0.0001).
Interprétation : La plupart des patients âgés à risque reçoivent une ordonnance d'AINS selon les lignes directrices fondées sur la preuve. Nous avons trouvé cependant que 40 % des médecins présentaient un comportement distinct en matière de prescription favorisant la méthode de prescription non fondée sur la preuve (groupe A) ou fondée sur la preuve (groupe B) dans ce milieu clinique, quelle que soit l'assurance détenue par le patient. Les médecins restants (60 %) semblaient davantage tenir compte, dans leurs pratiques de prescription, des contraintes financières limitant l'accès des patients à des médicaments. Ils ont également indiqué qu'ils aurait fort probablement prescrit un traitement différent si l'assurance avait été différente. Ces résultats ont des répercussions importantes sur l'égalité et la qualité des soins aux patients. Ils confirment aussi le fait que les connaissances, les valeurs et l'efficacité des médecins sont des déterminants clés en matière de comportement relié à la prescription et nécessitent une étude plus approfondie qui permette de mieux comprendre comment l'enseignement médical et les politiques et programmes des tiers qui gouvernent les soins pharmaceutiques sont intégrés au processus de prise de décisions des médecins.

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RESEARCH PAPER

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Improving the Quality and Capacity of Canada's Health Services: Primary Care Physician Perspectives

Amélioration de la qualité et de la capacité des services de santé du Canada : points de vue des médecins de premier recours

DAVID G. MOORES, DOUGLAS R. WILSON, ANDREW J. CAVE, SANDRA C. WOODHEAD LYONS AND MICHEL G. DONOFF

Abstract

Objective: This study set out to identify the perspectives of family physicians (FP/GPs) on the quality and capacity of the services they provide and of the system in which they work, to assess their responsiveness to potential changes and to determine their suggestions for future directions to enhance primary care services.
Methods: Thematic results from prior focus groups with FP/GPs provided direction for a questionnaire sent to practitioners in the urban study area. Seventy-four questions, most using a five-point Likert scale, were grouped into 10 sections: physician issues (based on themes from the focus groups), access to specialist services, workload, scope of practice, primary care physician networks, interdisciplinary collaborative practice, complexities and challenges of family practice, future directions, comments and demographics.
Results: Five hundred and eighty-three FP/GPs were surveyed, and 300 responses (52%) were analyzed for frequencies and comparisons using SPSS. In addition to informative responses to the various survey sections noted above, specific physician suggestions for future directions to improve quality and capacity were identified. These included access to specialists/consultants, teamwork/collaborative practice, access to diagnostics, electronic records/technology, time and remuneration.
Conclusions: The identified suggestions by FP/GPs to enhance the quality and capacity of health services contribute to a framework for policy development at national, provincial/territorial and regional levels and can be used as a reference point for the progress of primary care reform initiatives.

Résumé

Objectif : L'étude vise à déterminer le point de vue des médecins de famille (MF/MG) sur la qualité et la capacité des services qu'ils offrent et sur le système dans lequel ils tra-

vaillent, à évaluer leur souplesse face aux changements potentiels et à déterminer leurs suggestions sur les orientations futures en vue d'améliorer les services de soins primaires.
Méthodes : Les résultats thématiques découlant de groupes de travail antérieurs avec les MF/MG ont déterminé l'orientation du questionnaire envoyé aux praticiens de la zone d'étude urbaine. Soixante-quatorze questions, dont la plupart sont élaborées à partir d'une échelle à cinq points de Likert, ont été regroupées en 10 catégories : problématiques des médecins (selon les thèmes dégagés lors des groupes de discussion), accès aux services de spécialistes, charge de travail, champ d'exercice, réseaux de médecins de premier recours, pratique collaborative interdisciplinaire, complexités et défis de la pratique familiale, orientations futures, commentaires et démographie.
Résultats : On a envoyé un questionnaire à 583 MF/MG, et analysé 300 réponses (soit 52 %) en utilisant le programme SPSS en vue de déterminer la fréquence et d'effectuer des comparaisons. En plus des réponses informatives aux diverses sections de l'enquête susmentionnées, on a dégagé des suggestions particulières formulées par les médecins au sujet de futures orientations pour améliorer la qualité et la capacité. Ces orientations comprenaient l'accès à des spécialistes ou à des consultants, des pratiques faisant appel au travail d'équipe et à la collaboration, les dossiers électroniques et la technologie, l'accès au diagnostic, le temps et la rémunération.
Conclusions : Les suggestions formulées par les MF/MG en vue d'améliorer la qualité et la capacité des services de santé contribuent à un cadre d'élaboration de politiques aux échelons national, provincial, territorial et régional et peuvent servir de référence pour faire avancer les initiatives de réforme des soins primaires.

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RESEARCH PAPER

How Good Is Good Enough? Standards in Policy Decisions to Cover New Health Technologies

Comment savoir si c'est suffisamment bon? Normes relatives aux décisions stratégiques qui portent sur les nouvelles technologies de la santé

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Abstract

Health technology coverage decisions require reasonable criteria, for example, the requirement that a technology be effective, efficient, legitimate in purpose, acceptable in its effects, safe and so on. The leap from such criteria to decisions requires not only evidence, but also *standards*. Decision-makers must specify their values, which apply in general, regarding what is "good enough" before they can judge any technology in particular. This paper will do the following: (1) describe the key analytic tasks involved in defining coverage criteria and their standards, (2) identify some of the policy applica-

tions of *explicit* standards to coverage decisions and (3) review the policy uses of such standards, including some challenges they pose. The problem of identifying cost-effectiveness standards will be used to illustrate key issues. It is argued that a precedent-based understanding of standards is relevant in the Canadian policy context, where fairness is crucial. Studies of actual decision-making that seek standards inductively have been misguided in their focus on central tendencies to the neglect of outliers (precedents), while deductive analyses and rules of thumb have been ungrounded in prevailing values.

Résumé

Les décisions relatives à la protection des technologies de la santé exigent des critères raisonnables, par exemple, qu'une technologie soit efficace, efficiente, légitime dans ses fins, acceptable dans ses effets, sécuritaire, et ainsi de suite. De franchir le pas entre ces critères et la prise de décision requiert non seulement des preuves, mais aussi des normes. Les décideurs doivent préciser leurs valeurs – qui s'appliquent de façon générale – sur ce qui est « suffisamment bon », avant de pouvoir évaluer une technologie en particulier. Dans cet article : (1) on décrit les principales tâches d'analyse nécessaires afin de définir les critères quantitatifs et de protection et leurs *normes*, (2) on identifie certaines applications stratégiques des normes *explicites* pour les décisions relatives à la protection, et (3) on examine l'utilisation stratégique de telles normes, de même que certains des défis qu'elles posent. Le problème de l'identification de normes économiques sera utilisé pour illustrer des enjeux majeurs. On avance qu'une compréhension des normes fondée sur les précédents est pertinente dans le contexte des politiques canadiennes, où l'équité est essentielle. Des études de prises de décision réelles qui cherchent des normes de façon inductive ont fait fausse route en insistant sur les tendances centrales et en négligeant les aberrations (précédents), alors que les analyses déductives et les règles empiriques n'étaient pas fondées dans les valeurs prédominantes.

Fair public policy decisions require reasonable processes and criteria. Many bodies charged with making decisions on health technology coverage now strive for more systematic, evidence-based and transparent bases for their recommendations. Common criteria for judging new technologies include, for example, effectiveness, safety and efficiency. A fuller set of criteria normally includes both quantitative considerations of how well a technology performs and categorical considerations regarding the appropriateness of its purposes and effects. To formulate an evaluative judgment, decision-makers must collect and interpret evidence regarding

each criterion. The leap from evidence to decision requires standards. That is, beyond the knowledge of how "good" a given technology is, evaluators require pre-formed ideas about how good would be "good enough" and what kinds of technologies would be the "good" ones. This paper outlines key analytic tasks involved in applying criteria and evidence to coverage decisions in any context where a systematic, evidence-based approach is pursued. Particular attention is given to the challenge of defining standards – the underappreciated values that link evidence to decisions.

Criteria, Evidence and Standards Are Different Things

It is important to distinguish among criteria, evidence and standards in evidence-based decision-making. A *criterion* is a general principle (e.g., effectiveness) by which we value any health technology. *Evidence* is evaluative information that tells us how good or fitting a particular technology is, in relation to a given criterion (e.g., research evidence of effectiveness). *Standards* are values that indicate how good would be good enough to qualify for coverage (e.g., how effective is effective enough). The nature, development and application of standards has received comparatively little policy analytic attention.

Quantitative evaluation criteria are measured and expressed in numerical terms. The most familiar of these are effectiveness and efficiency; others include safety, efficacy, budget impact, likely demand and disease burden. Because quantitative evidence is expressed as a matter of degree, quantitative standards take the form of *thresholds* that distinguish adequate technologies from inadequate ones – for example, a relative risk of <0.5 or >2.0 as a compelling effect size for any intervention (GRADE Working Group 2004). Applying such standards to decisions is straightforward: if the technology's performance is above a threshold level, it passes that criterion and may qualify for coverage.

Categorical criteria are those that require more descriptive information. An example is the purpose of a technology: is it preventive or curative, for lifestyle or life-saving? Does it provide information or intervention? Does it target special needs of the poor, elderly or children? Some categories (e.g., whether a physician or hospital service, whether a drug or device) are pragmatically driven by the institutional organization and funding of healthcare (Giacomini 1999). Many other types of categorical criteria may apply, for example, whether the technology affects others besides the patient, or whether it requires adjunct technology. Such distinctions can matter for ethical, political and social reasons, and often help answer fundamental policy questions such as the "medical necessity" of a service for coverage under Canadian medicare. Categorical standards call for *categorical priorities*, not thresholds. To construct these, technology types are sorted into higher- and lower-priority commitments, or acceptable and unacceptable types. Decision-makers classify a given technology using inductive judgments of how well it fits into a qualifying priority category.

Standards Are Always Used, Whether They Are Apparent or Not

Both quantitative thresholds and categorical standards share key features. First, *standards apply in general*, across all technologies that are candidates for coverage within the relevant policy mandate. Whether a standard is actually followed in decision-making, and the extent to which a given standard is used to justify a given decision, are separate issues. Second, each evaluative criterion entails its own standard. If six criteria are applied, there will be at least six distinct standards that pertain to a decision about a given technology. A standard for one criterion could be conditional on standards for other criteria. Finally, all coverage decision-making involves the use of standards – whether implicit or explicit, consistent or capricious. Explicit, consistent and transparent standards are an important feature of accountability. However, decision-makers may be reluctant to articulate and apply standards transparently when prevailing standards are tacit or do not rest on a clear understanding of consensual values.

Coverage standards remain implicit and intuitive in most Canadian health technology assessment and coverage decision-making. Some advisory committees explicate their criteria for their decision-making, and tremendous strides have been made in the use of evidence. However, few committees can yet articulate their standards. Fugitive standards operate nevertheless, as decisions are made – we can presume that "good enough" judgments underlie coverage recommendations, and they are not completely arbitrary. Unfortunately, these tacit standards may fluctuate with the vagaries of institutional memory, membership and politics of advisory committees. The next stage in the development of rational, evidence-based coverage decisions should involve the critique and improvement of our fugitive standards.

Explicit Standards Support Fairness

Explicit standards offer several advantages. The first is consistency and fairness. Standards serve the equity imperative to "treat like technologies alike." To the extent that we judge health technologies equally, we also give their human stakeholders and beneficiaries fairer treatment. Standards resonate with the rule of precedent in common law. Decisions that exceed established standards set new precedents and imply new standards for future decisions. In practice, decision-makers often forge standards not from abstract principles, but from analogical comparisons to past coverage decisions that serve as implicit precedents for acceptability (Giacomini 2005). Transparent criteria and standards give concrete meaning to the values governing the health system, and make it easier to hold decision-makers accountable to them. When decisions based on prevailing standards seem nonsensical, the standards – and underlying values – can be re-examined. Explicit attention to standards also expedites decision-making because policy makers need not deliberate "what's good enough" each time they face a specific

case. This is especially important for committees of diverse and fluctuating membership, where repetitive conflict among individuals' tacit standards can cost time and focus.

Explicit standards also shift moral burden from the shoulders of advisory committees who routinely make discrete coverage recommendations to those who would periodically set the standards, in general. Ideally, standards should be set outside the pressing context of decision-making, and by a legitimate body constituted for the purpose of values clarification and interpretation (Giacomini 2005). Even so, the coverage decision-making process must provide some feedback and input to the standard-setting process, especially as new technologies challenge pre-existing ideas about what is acceptable or valuable. In case-by-case decisions, the task of applying explicit criteria and standards requires decision-makers to face and reconcile diverse criteria into a summative judgment. If a decision seems to violate one standard (e.g., a cost-effectiveness threshold), this calls for explanation in terms of another criterion and its standard (e.g., a worthy medical purpose or a needy target population). Arguments from analogy to other technologies and precedents help to highlight true evaluation criteria, and to move deliberations from less relevant criteria to more relevant ones (Giacomini 2005). As a classic example, some suggest that Viagra® is far more cost-effective than renal dialysis (J. Smith, Health Management Research Centre, University of Birmingham, personal communication 2003) – yet insurers balk at covering Viagra® (Titlow et al. 2000). Many would reject dialysis as a *relevant* precedent for comparison. This thinking reveals that the crucial criterion is perhaps not cost-effectiveness, but rather, categorical differences between the two technologies' purposes.

When it becomes clear "how good is good enough," innovators can make technologies "good enough" – or more perversely, seem to be.

Explicit coverage standards may affect the development of health technologies. When it becomes clear "how good is good enough," innovators can make technologies "good enough" – or more perversely, seem to be. For categorical criteria, this may entail clearer articulation of a technology's uses and effects – reframing clinical endpoints, target populations and rationales. To meet a quantitative threshold – for example, for effectiveness – developers may design the technology for greater success, or enhance apparent effectiveness by refining patient selection or presuming adjunct resources such as supportive care. Cost standards create pressures to lower prices, but also to offload adjunct costs to other payers. Thresholds for cost-effectiveness may send signals to increase effectiveness or to lower prices. They may also lead developers to raise

the price of a new, effective technology to achieve a cost-effectiveness ratio just beneath threshold – raising both proprietary profits as well as health system costs.

Illustration: The Search for a Standard of Cost-Effectiveness

One concerted effort to establish coverage standards has been the quest for a cost-effectiveness threshold for publicly insured health services. This case study illustrates the gap between our compelling need for standards and our incapacity to specify and apply them systematically. To establish a standard, scholars have proposed rules of thumb, imputed thresholds from actual decisions, or imported dollar values for human life from outside the health sector. Table 1 summarizes such estimates of a dollar-per-QALY threshold. A more ad hoc approach has been to identify individual covered technologies – the cervical Pap test, beta-interferon, mammography, Viagra® and others – as precedents for acceptable cost-effectiveness. References to allegedly precedent-setting technologies are found throughout the cost-effectiveness literature in healthcare, as well as in published opinions, news media and court records (Giacomini, 2005).

One threshold deserves special attention: the $50,000 quality-adjusted life-year (QALY) figure. This popular rule of thumb is often cited as the accepted ceiling for fundable health services, with little justification, in US and Canadian cost-effectiveness research. Ubel (1999) notes that this standard originated in 1982, based on the estimated cost-effectiveness of renal dialysis, which has special significance in US health policy because a federal entitlement program for end-stage renal disease guarantees its public funding. Thus, it is considered an important precedent for US government willingness to pay. Ubel notes two important misconceptions. First, the precedent should probably be viewed as a floor, not a ceiling: by covering renal dialysis, the United States made a commitment to technologies costing *at least* $50,000 per QALY, but we do not know if a higher cost per QALY would have changed the decision. A case in which a technology has been rejected for coverage because of unacceptable cost-effectiveness gives a more precise estimate of a precedent threshold. Second, the figure of exactly $50,000 per QALY has persisted in policy and research literature since 1982, remarkably with no adjustment for inflation (Ubel 1999). It has crossed the border into Canada without adjustment for currency or inflation; cost-effectiveness evaluations from the United States and Canada still cite the $50,000/QALY threshold. The present-day Canadian value of the 1982 US figure is approximately Cdn$114,487/QALY.

Studies that impute cost-effectiveness thresholds from observed, usual patterns of policy decisions should not neglect outliers in their search for central tendencies. Exceptions can set precedents and become new standards in the minds of stakeholders. Outliers tell us how far decision-makers are willing to go – and in so doing, they locate the real thresholds. Rational arguments from fairness and other criteria, if loud enough, may succeed in holding decision-makers to extremes. For example, a study

asking "does NICE have a threshold?" (Towse and Pritchard 2002) neglected some outliers to induce that NICE's threshold must be roughly £30,000 per QALY. Table 2 lists all the NICE decisions concerning technologies less cost-effective than this ostensible threshold. Three such technologies were recommended: riluzole, trastu-

TABLE 1. Some possible standards for cost-effectiveness of health technologies

Jurisdiction and origin	Reference: First author, year	Original value/ QALY*	2004 Cdn$†
Canada			
Rule of thumb, intuitive	Laupacis 1992	1992 Cdn$100,000	$124,600
Rule of thumb, from US	Ubel 2003	1982 US$50,000	114,487
United Kingdom			
National Institute for Clinical Excellence (NICE), mention in orlistat guidance	NICE 2001	2001 £30,000	63,191
NICE, imputed, 1999–2002 recommendations	Towse 2002	2002 £30,000	62,317
Value of life, unspecified method, road accident fatalities	Loomes 2002	2002 £30,000	62,317
Australia			
Pharmaceutical Benefits Advisory Committee, imputed, drug coverage recommendations, 1991–1996	George 2001	1999 Au$76,000	77,848
New Zealand			
Pharmaceutical Management Agency, imputed from drug coverage recommendations, 1998–2001	Pritchard 2002	2002 NZ$20,000	17,648
United States			
Value of life, median, 19 empirical WTP job risk studies	Hirth 2000	1997 US$428,286	600,102
Value of life, median, 35 empirical WTP studies	Hirth 2000	1997 US$265,345	371,794
Rule of thumb, proposed interim	Ubel 2003	2003 US$200,000	254,702
Value of life, median, 8 empirical WTP contingent evaluation studies	Hirth 2000	1997 US$161,305	226,016
Value of life, median, 8 empirical WTP safety studies	Hirth 2000	1997 US$93,402	130,872
Rule of thumb, US standard, original year	Ubel 2003	1982 US$50,000	114,487
Value of life, median, 6 human capital studies	Hirth 2000	1997 US$24,777	34,717

WTP = willingness to pay

*Where original values were expressed as ranges, the top of the range is given.

†2004 Cdn$ based on Canadian currency values for original year based on purchasing power parity ratios, updated to 2004 values using the Canadian Consumer Price Index.

zamab/paclitaxel and etanercept/infliximab. Per QALY, these cost up to £43,500, £37,500 and £35,000, respectively. The least cost-effective technology reviewed was beta-interferon, at up to £104,000 per QALY; it was not recommended. Viewing this pattern with an eye to precedence and thus a focus on the outliers, the actual NICE threshold appears to lie somewhere between £43,500/QALY and £104,000/QALY, not at £30,000/QALY.

TABLE 2. NICE recommendations concerning technologies costing over £30,000 per QALY

	Recommendation	2002 £	2004 Cdn$ per QALY
Beta-interferon and glatiramer acetate for MS	Reject	£104,000	$216,032
Laparoscopic surgery for inguinal hernia	Restrict	50,000	103,861
Riluzole for motor neurone disease	Accept	43,500	90,359
Zanamivir (Relenza®) – all adults	Reject	38,000	78,935
Trastuzamab for metastatic HER2 breast cancer	Accept	37,500	77,896
Etanercept and infliximab for rheumatoid arthritis	Accept	35,000	72,703
Temozolomide for brain cancer – GBM	Restrict	35,000	72,703*
Temozolomide for brain cancer – AA	Restrict	35,000	72,703*
Topotecan for advanced ovarian cancer (per year of response)	Restrict	32,500	67,510**
Zanamivir (Relenza®) – at-risk adults	Reject	31,500	65,433
Cox-2 selective inhibitors	Reject	30,000	62,317

*Per life-year gained (LYG), not QALY
**Per year of response
Source: Adapted from Towse et al. 2002, appendix

Such inductive searches for standards can mislead for several reasons. Despite the appeal of a strict cut-off, cost-effectiveness thresholds appear malleable. Experience shows that even where there is an apparent threshold, "political" exceptions are made, as for example in the case of the New Zealand decision to cover beta-interferon (Pritchard 2002), or the UK decision to cover Relenza® (Smith 2000) contrary to negative, cost-effectiveness–based recommendations. However, dismissing such exceptions as "politics" neglects the fact that criteria other than efficiency may legitimately and rationally mitigate a cost-effectiveness threshold. Recommendations may be misattributed to one criterion (cost-effectiveness) without accounting for other criteria and

their associated standards. The upper limit of £104,000/QALY in this NICE example assumes that the reason for rejecting beta-interferon was based significantly on low cost-effectiveness. If the decision were based primarily on another criterion, then the cost-effectiveness ceiling was in fact not tested in this set of cases, and the inductive threshold may be higher. Indeed, many call for additional values to supplement cost-effectiveness information (despite methodological controversies about what the QALY does and does not capture), e.g., "perceived need in the community" and "seriousness of the intended indication" (George et al. 2001), equity (Pearson and Rawlins 2005) or life-threatening conditions (Neumann et al. 2005). Cost-effectiveness thresholds are commonly mistaken for affordability thresholds – but a "good enough price" per QALY says little about whether a budget can afford the QALY that a technology "sells," or the real sacrifices required to afford it (Birch and Gafni 2006). More fundamentally, to search for a cut-off point presumes that a point exists. Some suggest that the relationship between incremental cost-effectiveness values and probability of rejection is "S"-shaped (Rawlins and Culyer 2004), with reluctance to approve rising gradually with the cost per QALY. To the extent that individual decisions are understood as precedents, extreme cases will steadily pull standards upwards. Finally, the necessary evidence is often missing or biased, and available evidence is sensitive to value-laden assumptions. Indeed, 13 of 54 NICE decisions were made in the absence of cost-effectiveness information (Towse and Pritchard 2002).

Standards operate whether acknowledged or not, but they are fairest when predetermined, explicit and consistently applied.

Conclusions

We require standards to make coverage decisions that are consistent, principled and evidence-based. Standards operate whether acknowledged or not, but they are fairest when predetermined, explicit and consistently applied. Because we use multiple criteria to assess technologies for coverage, we need multiple standards – at least one for each criterion – and we need to understand better how these standards interact with one another in the formulation of recommendations and decisions. Quantifiable criteria require standards in the form of thresholds, representing, for example, categorically impressive effect sizes or the limit of our willingness to pay for any new service and its benefits. Categorical criteria require standards in the form of prioritized categories

of service, representing, for example, special health problems or clinical goals that have priority for public funding. Standards intended as hurdles for coverage may evolve into goals for research and development, organization, marketing or targeting of services. Policy signals about what is "good enough" can have both positive and perverse effects on technological innovation.

The example of cost-effectiveness thresholds offers important lessons for policy making. Current methods for articulating such thresholds are intuitive and ad hoc. Simple, round figures such as $50,000 or £30,000 per QALY persist, despite inadequate justification and changes of inflation or currency. Induced thresholds from actual decisions could be misleading: "usual practice" does not point to real limits, limits may not yet have been tested in past cases and the role of other criteria (effectiveness, affordability, priorities among categorical purposes and populations and so forth) must be understood and interpreted. Standards for criteria other than cost-effectiveness are less well examined. The identification and application of standards should become a focus for more accountable and deliberative methods in decision-making related to health technology assessment and coverage (Abelson et al. 2007).

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RESEARCH PAPER

Patient and Surgeon Views on Maximum Acceptable Waiting Times for Joint Replacement

Point de vue des patients et des chirurgiens sur le temps d'attente maximum acceptable pour le remplacement d'une articulation

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Abstract

Objective: To assess patient and surgeon views on maximum acceptable waiting times (MAWT) for hip and knee replacement, their determinants and their relationship to levels of urgency based on the Western Canada Waiting List Priority Criteria Score (PCS).
Methods: At the decision date for surgery, orthopaedic surgeons assessed consecutive patients with the PCS and MAWT. Patients were surveyed 3–12 months post-surgery for MAWT and potential determinants.
Results: The patient sample of 208 was 56% female, mean age 69 years (SD 11). Mean MAWT for patients was 18 weeks (SD 11) and for surgeons, 17 weeks (SD 11). Median MAWT for three levels of urgency (PCS) ranged from 13–17 weeks (patients) and 9–26 weeks (surgeons). Patient MAWT was unrelated to the surgeon-rated measures: MAWT (r=.05) and the PCS (r=–.10). Multiple regression analysis showed that males, knee vs. hip replacement, a longer waiting time and a perception of fairness in regard to waiting time were significant predictors of longer patient MAWT. Knee replacement, a better ability to walk without significant pain and less potential for progression of the disease were significant predictors of longer surgeon MAWT.
Conclusions: Patient and surgeon perspectives on MAWT are important to the development of waiting time benchmarks. Benchmarks based on levels of urgency ensure a more transparent and fair process for waiting time management. Knowledge of determinants of MAWT should inform better management of waiting time and access, by understanding the basis of patient and physician views on acceptable waiting times.

Résumé

Objectif : Évaluer le point de vue des patients et celui des chirurgiens sur le temps d'attente maximum acceptable (TAMA) pour l'arthroplastie de la hanche et du genou, les facteurs qui déterminent ce temps d'attente et la relation entre celui-ci et différents degrés d'urgence, selon un système de cote fondé sur des critères de priorité (CCP) élaborés par la *Western Canada Waiting List*.
Méthodes : À la date de la décision, les chirurgiens orthopédiques ont évalué des patients consécutifs au moyen de la CCP et du TAMA. On a interrogé les patients entre 3 et 12 mois après la chirurgie relativement au TAMA et à ses facteurs déterminants potentiels.
Résultats : L'échantillon de 208 patients était composé à 56 % de femmes dont la moyenne d'âge était de 69 ans (écart-type de 11). Chez les patients, le temps médian du TAMA était de 18 semaines (écart-type de 11) et chez les chirurgiens, de 17 semaines (écart-type de 11). Le temps médian du TAMA pour trois degrés d'urgence (CCP) allait de 13 à 17 semaines (patients) et de 9 à 26 semaines (chirurgiens). Chez les patients, le TAMA n'était pas lié aux mesures évaluées par les chirurgiens : TAMA (r = 0,05) et le CCP (r = −0,10). De multiples analyses de régression ont révélé que chez les hommes, pour l'arthroplastie du genou par rapport à la hanche, un temps d'attente plus long et un sentiment d'équité relativement au temps d'attente étaient des indices importants d'un TAMA plus long chez les patients. L'arthroplastie du genou, une meilleure capacité de marcher sans douleur importante et une moins grande possibilité de progression de la maladie étaient des indices importants du TAMA plus long chez les chirurgiens.
Conclusions : Les points de vue des patients et des chirurgiens sur le TAMA sont importants pour l'établissement de temps d'attente de référence. La référence fondée sur le degré d'urgence assure un processus de gestion des temps d'attente beaucoup plus transparent et équitable. La connaissance des facteurs déterminants du TAMA devrait documenter une meilleure gestion du temps d'attente et un meilleur accès en comprenant la base des points de vue des patients et des médecins sur les temps d'attente acceptables.

Timely access to elective healthcare is a major issue in Canada and other countries with publicly funded health systems (Noseworthy et al. 2003; Hanning 1996). Hip and knee replacement are two of the most common scheduled procedures with typically long waiting times (WTs).

In an attempt to manage waiting lists for scheduled surgical services, a number of strategies have been proposed or implemented in Canada and other OECD countries (Siciliani and Hurst 2005). These include prioritization of patients, WT guarantees

or benchmarks, booking systems, performance indicators and increasing the capacity of hospitals and staff. Priority setting is increasingly being considered to manage wait lists for scheduled surgical services (MacCormick et al. 2003; Noseworthy et al. 2003). The Health Council of Canada (2007) has recommended that the urgency of a patient's condition be factored into a patient's wait list placement. The Western Canada Waiting List (WCWL) Project Hip and Knee Replacement Priority Criteria Score (PCS) is intended to improve fairness of access by providing a standardized method to assess patient priority for surgery based on the relative urgency for patients waiting for surgery (Arnett et al. 2003). A key feature of this approach is to link the PCS to a maximum acceptable waiting time (MAWT) for surgery.

In 2004, Canada's First Ministers agreed to establish benchmarks for WTs for five priority areas, including arthroplasty. Benchmarks used in other countries have generally been based on consensus with clinical input, but there is little published literature on the rationale and evidence used in their formulation. There is increasing recognition that patient views should be taken into account (Woolhead et al. 2002), but there is little understanding of patient and physician perspectives of MAWT and the factors that affect them. Identifying the determinants of patients' acceptance of WTs has been identified as necessary to provide guidelines for prioritizing access to healthcare services (Ho et al. 1994). Longer WTs, older age, worse pain and function and dissatisfaction with the surgical outcome have been associated with less patient acceptance of WTs for joint replacement (Ho et al. 1994; Coyte et al. 1994; Llewellyn-Thomas et al. 1998; Conner-Spady et al. 2005; Sanmartin et al. 2007). Other factors that may influence patient views on acceptable WTs are perceived equity and patient information. Equity includes the perception that both the process and outcome are fair. Notifying patients of their expected WT in an urgent care department increased patient perception of fairness and satisfaction (Naumann and Miles 2001). In a survey of the general public, Edwards et al. (2003) found that 83% accepted that their WT depended on the medical and social circumstances of others. In patients waiting for an arthroplasty in the United Kingdom, the main information they would have liked was certainty about an admission date (Rigge 1994).

This study was designed to assess patient and surgeon perspectives on MAWT and to link MAWT to levels of urgency based on the PCS. We also built explanatory models to assess the possible determinants of patient and surgeon MAWT. Although long WTs were found to be a significant predictor of acceptability in other studies, we hypothesized that other variables would also be significant predictors. We hypothesized that, in addition to their actual WT, patient MAWT would be influenced by factors such as prior knowledge of their expected WT and their perception of fairness. We also hypothesized that surgeons' MAWT would be influenced by their assessment of patient urgency based on priority criteria.

Methods

Four hundred and thirty-two consecutive patients were surveyed by a mailed questionnaire in November 2004 following arthroplasty. Inclusion criteria were individuals 18 years and older who had undergone a scheduled hip or knee replacement within the preceding three to 12 months in one of three health regions in Saskatchewan and who had been assessed with a PCS. With the 2003 implementation of the Saskatchewan Surgical Registry, surgeons routinely assess each patient's urgency at the decision date for surgery (Glynn et al. 2003). The three health regions provide approximately 70% of joint replacements in the province, with one of the three health regions serving the majority of these patients. The three regions have five hospitals, and all 16 orthopaedic surgeons who do joint arthroplasty in these regions were included in the study.

Patients could return their survey anonymously or they could consent to link their responses to the PCS in the Surgical Registry. Two reminder letters and surveys were sent to all potential respondents at six and 12 weeks following the initial mailing. This paper is based on the 208 patients who agreed to the link. Ethics approval was obtained from the University of Saskatchewan Research Ethics Board. A parallel qualitative paper reports on patient views on waiting (Conner-Spady et al. 2007).

The survey was designed to assess patient views on acceptable WTs and included questions that were potential determinants of MAWT. These questions were based on prior WCWL research and a review of the literature on patient acceptability of WTs in clinical populations. The survey items were pre-tested by three individuals who had joint replacement and involved completion of the questionnaire followed by an interview to probe their comprehension and interpretation of the items.

Patient measures

Patients were asked their perspectives on MAWT, ideal WT and the acceptability of their actual WT (Figure 1). A MAWT is the maximum length of time that an individual perceives that he or she should wait for surgery, while an ideal WT is a desired WT. We included as potential determinants of patient MAWT variables that had been shown to be associated with shorter MAWT or less acceptability of WTs for arthroplasty. These included age, actual WT, dissatisfaction with the surgical outcome, health-related quality of life (HRQL) and the perception that their HRQL had deteriorated while waiting. Based on research in other clinical populations (Naumann et al. 2001; Rigge 1994), we hypothesized that patients would be more tolerant of longer WTs if they felt that they were being treated fairly, if they were satisfied with their surgical outcome and if they had knowledge of their expected wait. Finally, we included other socio-economic variables (sex, marital status, education), joint (hip or knee), first or second replacement and the time interval between surgery and the survey as it may affect patient recall of the waiting experience. HRQL was assessed with the

EuroQol (EQ-5D index and EQ VAS), which has been tested in arthroplasty patients (Ostendorf et al. 2004).

FIGURE 1. Patient questionnaire items

1. In your view, what should be the maximum acceptable waiting time for you or a person like yourself to wait for hip or knee replacement surgery?
2. In the best of all possible worlds, what would be the ideal length of time that you would choose to wait for surgery once you and your surgeon decided to go ahead with your surgery?
3. How acceptable is the length of time that you actually waited for your most recent surgery? (4-point scale)
4. Did your surgeon, or another healthcare worker, tell you how long you should expect to wait for surgery? (yes/no)
5. How fairly did you feel you were treated in regard to the length of time that you waited for your most recent joint replacement surgery? (5-point scale)
6. During the time that you waited for surgery, how did your quality of life change as it related to your hip or knee? (5-point scale)
7. How satisfied are you with your hip or knee replacement? (5-point scale)

Surgeon measures

At the decision date for surgery, surgeons assessed each of their patients with the seven priority criteria, a visual analogue scale (VAS urgency) and a MAWT (Figure 2). The PCS is the summative score of the seven priority criteria. Potential independent variables for the MAWT surgeon model included patient age, sex, joint (hip or knee) and the seven priority criteria. Actual WT was the length of time from the booking date to surgery as recorded in the Surgical Registry minus patient-initiated delays for a non-clinical reason (four cases). With the implementation of the Surgical Registry, the booking date is typically close to the decision date for surgery.

Data analysis

Patient and surgeon MAWTs were compared for three urgency groups that represent clinically distinct groups of patients based on the PCS: 0–30 (least urgent), 31–74 and 75–100 (most urgent) (WCWL 2005). The Spearman correlation coefficient was used to assess the relationships between patient and surgeon measures of urgency.

Multiple linear regression analysis was used to determine the independent effects of each predictor variable adjusting for the other variables in the model. We first performed separate simple linear regression of MAWT on each of the potential predictor variables (Stevens 1986). The significant variables were entered into the multiple regression analysis. The final explanatory model included the significant predictors, adjusted for age and sex.

FIGURE 2. Surgeon measures

Priority Criteria (number of response options/coding)[1]
1. Pain on motion (3): 1=none/mild; 3=severe
2. Pain at rest (4): 1=none; 4=severe
3. Ability to walk without significant pain (4): 1=over 5 blocks; 4=household ambulator
4. Functional limitations (4): 1=no limitations; 4=severe limitations
5. Abnormal findings on physical exam related to affected joint (3): 1=none/mild; 3=severe
6. Potential for progression of the disease documented by radiographic findings (4): 1=none; 4=severe
7. Threat to role and independence (3): 1=not threatened; 3=immediately threatened

VAS Urgency[2] – All things considered, how would you rate the urgency or relative priority of this patient?
MAWT[3] – In your clinical judgment, what should be the maximum acceptable waiting time for this patient?

1 The WCWL Hip and Knee Replacement priority criteria are each scaled with three to four response options, with higher numbers indicating more urgency. The Priority Criteria Score (PCS) is the weighted summative score of the seven criteria. The tool and user guide are available at www.wcwl.ca.
2 Visual Analogue Scale of Urgency scaled 0 (least urgent) to 100 (most urgent)
3 Maximum acceptable waiting time

Results

Three hundred and three patients returned surveys (70% response rate) and of these, 208 patients (69%) consented to linking their survey answers to the Surgical Registry data. The sample of 208 was 56% female (mean age 69 years, SD 11). Seventy percent were married and 75% had a high school education or better. Fifty-one percent had knee surgery, 49% hip surgery and 31% reported a previous arthroplasty. There were no significant differences in demographic variables between individuals who did and did not agree to data linkage. The sample was similar in demographics to the 432 eligible individuals (59% female, mean age 70 years, SD 12). The mean PCS for individuals who consented to the link (60.03) was similar to the mean for those who were sent the survey but did not consent to the link (61.44). The average interval from the surgery date to the survey mail-out was 32 weeks (SD 7).

Sixteen surgeons were included with a mean number of patients of 13 (SD 9). Eighty percent of the patients had surgery in the largest of the three health regions.

Table 1 compares patient and surgeon variables for those individuals who agreed to data linkage. Patients had an average MAWT of 17.97 weeks compared to an average surgeon MAWT of 17.23 weeks. Ideal WT was shorter than patient MAWT. Seventy-eight percent of patients found their WT acceptable and 22% unacceptable. The median WT for those who found their WT acceptable was 16 weeks, compared to 20 weeks for those who found it unacceptable. Twenty-six patients reported that their surgery had been cancelled because of either hospital or physician-related reasons. The actual WT did not take these delays into account, as these data were not available from the Surgical Registry. There was no significant difference in patient MAWT based on self-reported surgery cancellations.

TABLE 1. Measures of urgency and waiting times in weeks

		Patient MAWT[1]	Patient Ideal WT	Surgeon MAWT[1]	Waiting Time[2]	VAS Urgency[3]	PCS[4]	EQ-5D index[5]	EQ VAS[6]
Mean		17.97	11.77	17.23	19.52	64.65	60.03	0.75	77.01
SD		11.03	10.03	10.64	17.89	19.42	20.05	0.17	13.89
Percentiles	25	8.60	4.30	8.60	9.57	50.00	47.00	0.62	70.00
	50 (Median)	17.20	8.60	12.90	17.57	70.00	55.00	0.76	80.00
	75	25.80	17.20	25.80	24.79	80.00	69.75	0.85	86.50

Note: Sample includes individuals who agreed to data linkage (n=208).
1 Maximum Acceptable Waiting Time
2 Actual waiting time
3 Surgeon-rated Visual Analogue Scale of Patient Urgency 0 (least urgent) to 100 (most urgent)
4 Surgeon-rated Priority Criteria Score 0 (least urgent) to 100 (most urgent)
5 Euroqol index scaled from –0.59 (health state worse than death) to 1.00 (full health)
6 Euroqol Visual Analogue Scale scaled from 0 (worst imaginable health state) to 100 (best imaginable health state)

There was no significant relationship between patient MAWT and surgeon-rated measures, including surgeon MAWT (r=.05), VAS Urgency (r=–.10) and the PCS (r=–.10). The PCS was significantly related to the VAS urgency (r=.64) and surgeon MAWT (r=–.50) and weakly correlated with actual WT (r=–.27).

Table 2 shows the descriptive statistics for patient and physician urgency measures for each of the three urgency categories. Median patient MAWT ranged from 13 to 17 weeks and surgeon MAWT from 9 to 26 weeks.

For the patient model, significant univariate predictors of MAWT were type of joint, waiting time and fairness. Table 3 summarizes the findings from the patient MAWT multiple regression model. Adjusting for the other variables in the model, sex, type of joint, waiting time and perception of fairness were significant predictors of MAWT. Males had a significantly longer predicted MAWT by 2.8 weeks; for an increase of one week of actual WT, the predicted patient MAWT increased by 1.4 days (0.20 weeks); for one level of increase in patient perception of fairness, the predicted MAWT increased by 2.5 weeks; and knee replacement patients had a predicted MAWT of 2.8 weeks longer than hip replacement patients. The multiple regression model with all the predictor variables explained 14% of the variance in patient MAWT.

For the surgeon MAWT model, type of joint, ability to walk without significant pain and potential for progression of the disease documented by radiographic findings were significant predictors (Table 4). Adjusting for age, sex, joint and the other priority criteria, for a deterioration of one level in the ability to walk without significant pain (for example, from one to five blocks to less than one block), the predicted surgeon MAWT was shorter by five weeks. Adjusting for the other variables, for an increase of one level in the severity of potential for progression of the disease (e.g.,

from mild to moderate), the predicted surgeon MAWT was shorter by 4.8 weeks. For knee replacement patients, the predicted surgeon MAWT was longer by 3.2 weeks.

TABLE 2. Patient and surgeon urgency measures for three levels of urgency based on the Priority Criteria Score

PCS[1] in 3 groups		MAWT[2] Surgeon	MAWT[2] Patient	Ideal Wait Time	Actual Wait Time	VAS Urgency Surgeon[3]
0–30	Mean	30.10	18.63	7.90	16.00	46.25
	SD	9.19	15.10	6.30	11.79	13.02
	Median	25.80	17.20	6.45	14.07	45.00
31–74	Mean	18.66	18.47	12.30	20.32	60.75
	SD	11.66	10.75	10.80	18.35	17.93
	Median	12.90	17.20	8.60	18.00	60.00
75–100	Mean	12.28	15.52	10.48	13.54	79.75
	SD	8.65	11.17	8.93	11.54	16.09
	Median	8.60	12.90	8.60	8.14	80.00

1 PCS (Priority Criteria Score): 0–30 (n=9) least urgent; 31–74 (n=153); 75–100 (n=46) most urgent
2 MAWT (Maximum Acceptable Waiting Time)
3 Surgeon-rated Visual Analogue Scale of Patient Urgency 0 (least urgent) to 100 (most urgent)
MAWT, ideal and actual wait times are reported in weeks.

Discussion

In conditions with non–life-threatening implications, patient and physician perspectives of MAWT are important inputs to establishing benchmarks for acceptable WTs. The MAWT provides information for an outer bound, whereas the ideal WT may inform an inner bound of a range of acceptable WTs. Our findings show that, although patients' perceptions of an ideal WT are generally less than a MAWT, patients would prefer to wait on average about three months before undergoing arthroplasty.

An average patient MAWT of four months was comparable to acceptable WTs from three to six months in other clinical studies (Ho et al. 1994; Conner-Spady, Estey et al. 2004; Lofvendahl et al. 2005; Derrett et al. 1999; Snider et al. 2005), while surgeon MAWT was slightly longer than that reported in a different province (Conner-Spady et al. 2005). Study differences could be due to such factors as the timing and method of assessment, severity of the condition and local area conditions, such as actual WT and patient and surgeon expectations of WT. Compared to an average survey assessment time of 32 weeks post-surgery in our study, other study

assessment times ranged from pre-surgery (Conner-Spady et al. 2005) to two to seven years post-surgery (Coyte et al. 1994). Other studies of physician MAWT that used standardized cases reported similar values for the most urgent and least urgent groups (Conner-Spady, Arnett et al. 2004; Naylor and Williams 1996).

TABLE 3. Multiple regression model for determinants of patient maximum acceptable waiting times

	Coefficient	Std. Err.	*p*
Age	–0.05	0.06	0.38
Sex	2.79	1.31	0.04
Joint	2.79	1.31	0.04
Waiting time (weeks)	0.20	0.06	0.00
Fairness	2.46	0.59	0.00
Constant	16.87	4.19	0.00

The dependent variable is patient-rated maximum acceptable waiting time (MAWT).
Sex (male=1; female=0)
Joint (knee=1; hip=0)
Fairness (1=very unfairly; 5=very fairly)
Adjusted R^2 = 0.14

TABLE 4. Multiple regression coefficients for the determinants of surgeon maximum acceptable waiting times

	Coefficient	Std. Err.	*p*
Age	0.07	0.06	0.28
Sex	1.24	1.39	0.37
Joint	3.20	1.38	0.02
Ability to walk without significant pain	–4.99	0.99	0.00
Potential for progression (radiographic)	–4.82	0.86	0.00
Constant	39.45	5.21	0.00

The dependent variable is surgeon-rated maximum acceptable waiting time (MAWT).
Sex (male=1; female=0)
Joint (knee=1; hip=0)
Ability to walk: 1=over 5 blocks; 5=household ambulatory
Potential for progression of disease based on radiographic findings: 1=none; 4=severe
Adjusted R^2 = 0.28

For use as an input to benchmarks for WTs based on urgency, MAWT must be assessed for patients with different levels of urgency. As expected, the length of MAWT for physicians generally increased as the level of urgency (PCS) lessened.

However, patient MAWTs changed very little across urgency levels. Surgeon MAWTs were longer than patient MAWTs in the less urgent levels and shorter in the more urgent levels. Ideal WTs showed no consistent pattern across the urgency groups, suggesting that the desired wait is unrelated to urgency as assessed by the surgeon. Although the majority of both patients and surgeons rated their MAWT at six months or less, there was no linear relationship between patient and surgeon MAWT.

Several possible explanations may account for these findings. First, the proportion of patients in the least urgent category is small compared to the proportions in the middle and highly urgent categories; thus, estimates are less stable. Second, patient MAWT was unrelated to the other surgeon-rated measures of urgency (PCS and VAS urgency). Differences in patient and physician perceptions of pain and urgency have been reported in other studies (Suarez-Almazor et al. 2001). The surgeon's frame of reference is different from that of the patient who experiences the problem and its impact on the patient's quality of life. The surgeon's assessment of patient urgency includes not only pain and function but also radiographic and physical findings. Third, surgeon MAWTs were assessed pre-surgery, while patient MAWTs were assessed post-surgery. Differences in timing of assessment and patient recall could affect perceptions of urgency. Post-operatively, much of the anxiety of the wait, which may have influenced attitudes, would have been removed. Finally, in addition to patient urgency, other factors may influence patient and physician perceptions of MAWT. Our study showed that patient perception of fairness is a significant predictor of patient MAWT. Patient expectation of the length of wait, certainty of a scheduled date and preference for a health provider (Burge et al. 2004) are other factors that may affect the maximum length of wait acceptable to patients.

The surgeon's frame of reference is different from that of the patient who experiences the problem and its impact on the patient's quality of life.

Determinants of patient and surgeon MAWTs

Although other studies have shown that a longer WT is associated with a perception that the WT is unacceptable (Lofvendahl et al. 2005; Coyte et al. 1994), few studies have examined other factors that influence patient MAWT or patient acceptance of waits. Similar to our study, Lofvendahl et al. (2005) found no association between

acceptance of the wait and the EQ-5D, socio-economic variables or patient opinion of the overall surgical outcome. Our study showed that the longer patients waited for surgery, the longer was their maximum acceptable waiting time. Willingness to wait may be influenced by expectation of the wait. For example, in a study of patients waiting for joint arthroplasty, the longer that surgeons estimated a patient would be likely to wait in their practice, the longer the patient-rated MAWT (Conner-Spady et al. 2005). Additionally, patients who waited longer may have tended to have less pain and dysfunction and thus may have been willing to wait longer.

To our knowledge, determinants of patient MAWT, such as perception of fairness and prior knowledge of the expected wait, have not been previously assessed. Patients who felt that they were treated fairly in regard to their WT were willing to wait longer. Strategies to increase a perception of fairness, such as giving patients certainty of a surgical date or keeping them informed about their status on the waiting list, may increase acceptability of the wait.

… in a study of patients waiting for joint arthroplasty, the longer that surgeons estimated a patient would be likely to wait in their practice, the longer the patient-rated MAWT.

In both patient and surgeon models, knee replacement vs. hip replacement was predictive of a longer MAWT. This finding is consistent with typically longer waiting times for knee replacement patients across Canada (Health Council of Canada 2007). Similar to findings in another clinical population of patients waiting for joint replacement, our study showed an association between increased potential for progression of the disease documented by radiographic findings and a shorter surgeon-rated MAWT (Conner-Spady et al. 2005).

Our study suggests that in addition to the length of WT, other factors influence patient and surgeon perceptions of MAWT and may help to explain the lack of association between patient and surgeon MAWTs. A better understanding of these factors is important in managing waiting lists and developing benchmarks for WTs that are acceptable to patients, surgeons and the public.

Limitations

A study limitation is that not all patients returned the questionnaire or agreed to data linkage. Patient characteristics and urgency, however, were similar for those who

agreed to the linkage versus those who did not. Another limitation is that although the target sample included all consecutive patients who met the study criteria, it did not include those who waited over one year. As the Surgical Registry was recently implemented, patients who were already on the waiting list at the time of implementation were not assessed with a PCS and therefore were not included in the study. Finally, although physician, hospital and system factors may influence MAWT and actual WTs, these factors were beyond the scope of this paper.

Conclusions

Patient and surgeon perspectives on MAWT are important inputs to the development of benchmarks for acceptable WTs. An upper limit of six months for the least urgent patients is consistent with many of the benchmarks in OECD countries (Siciliani et al. 2005; Bourne et al. 2005; WCWL 2005). Although there is some consensus on overall WT, patients enter the queue at different levels of urgency. Thus, benchmarks based on levels of urgency should ensure a more transparent and fair process of access to care. Various models have been proposed to implement prioritization systems and deal with issues such as the inclusion of time waiting to ensure that low-urgency cases receive treatment (Mullen 2003). Evaluation of these systems in practice is essential to assess the effects of implementation on access to care and patient outcomes.

In addition to the level of urgency, differences in surgeon and patient perspectives of MAWT may be due to such factors as a perception of fairness and local area conditions, such as actual WT and timing of assessment. It is therefore important to ensure that patient and surgeon inputs are representative of the population to which the benchmarks will apply. It is also important that patients perceive that they are being treated fairly. Our ongoing research is examining the perspectives of representative samples of patients who are waiting and those who have had surgery. We will also be able to determine whether there is a difference in patient perspectives of MAWT based on the timing of assessment.

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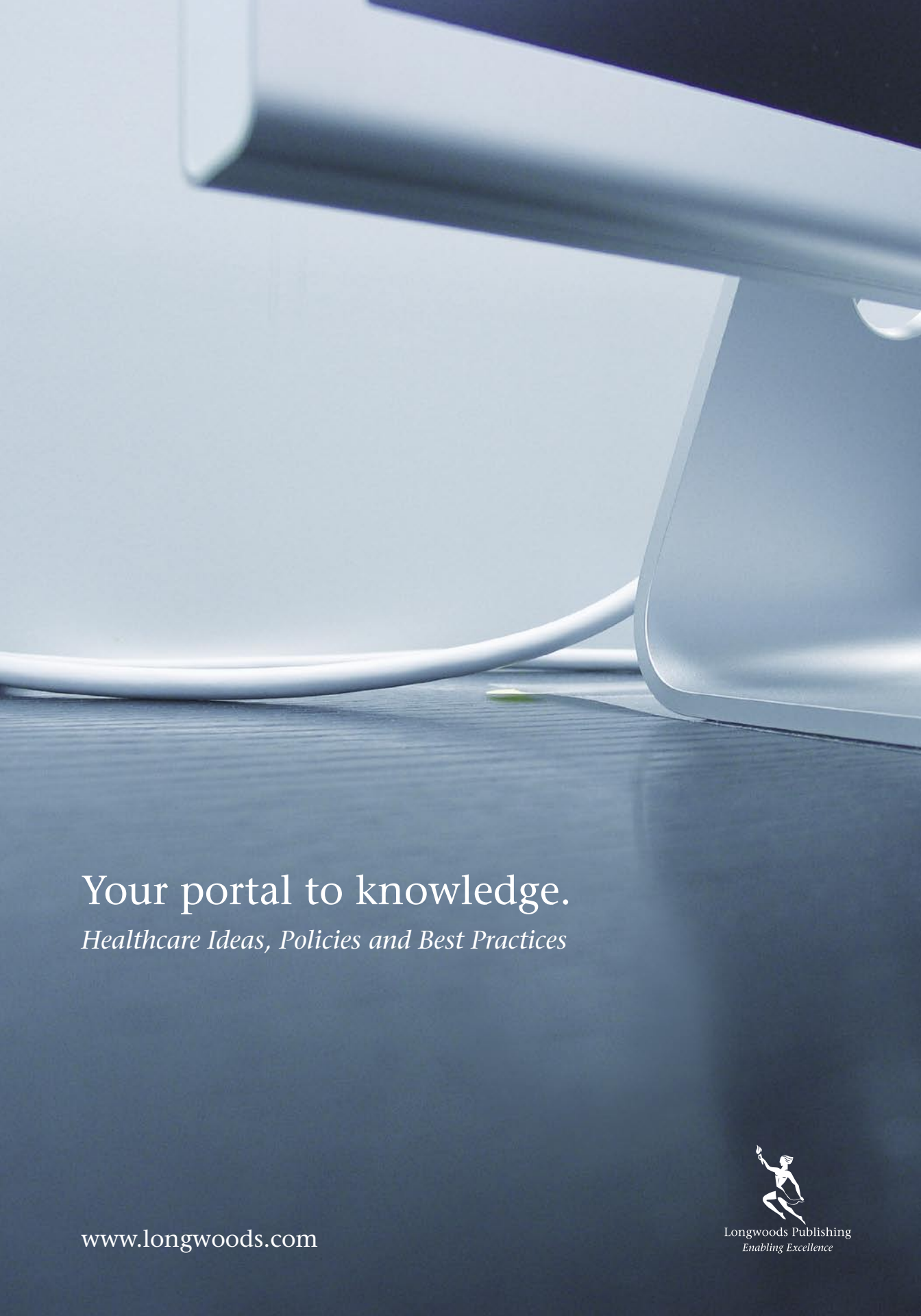
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