HEALTHCARE

POLICY

Politiques de Santé

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

Volume 4 • Number 3

Old Bones, New Data: Emmett Hall, Private Insurance and the Defeat of Pharmacare
ROBERT G. EVANS

Inter-Facility Patient Transfers in Ontario: Do You Know What Your Local Ambulance Is Being Used For?
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Knowledge Translation, Linkage and Exchange

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HEALTHCARE
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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.

Bien que *Healthcare Policy/Politiques de Santé* encourage l'envoi d'articles ayant un solide fondement théorique et innovateurs sur le plan méthodologique, nous privilégions la recherche appliquée plutôt que les travaux théoriques et l'élaboration de méthodes. La revue veut maintenir une saveur distinctement canadienne en mettant l'accent sur les questions liées aux services et aux politiques de santé au Canada. Nous publions aussi des travaux de recherche et des analyses présentant des comparaisons internationales qui sont pertinentes pour le contexte canadien.

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Les auteurs examinent les efforts en cours au Québec visant l'intégration de la santé publique et du système de soins. Ils se penchent sur les facteurs qui amènent cette convergence, sur les obstacles à surmonter et sur les opportunités de la réforme.

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EDITORIAL

Healthcare Policy Four Years On

This issue of *Healthcare Policy/Politiques de Santé* is my last as editor-in-chief. Launching the journal four years ago was a *Field of Dreams* experience – although less a case of "If we build it, they will come" than "If we build it, will they come?" Morris Barer, then Scientific Director of the CIHR Institute of Health Services and Policy Research, was the chief dreamer. The mission was to establish a Canadian journal of health services, policy and management research that responded to the needs of both researchers and decision-makers. My job was to lead the construction crew.

We needn't have worried. They came. Several thousand e-mails, 301 submitted manuscripts, 15 regular issues, one special issue, 142 published peer-reviewed papers, numerous editorials, columns, interviews, commissioned papers, case studies and one lone book review later, *Healthcare Policy* is a reality. The journal has been accepted for listing in PubMed Central. We've published submissions from across and outside Canada, in French and English, and on topics ranging from First Nations health, primary healthcare, cancer care and health promotion to healthcare financing, pharmaceutical policy, equity of healthcare use and health human resources planning. Research methods have been as varied as the topics and have included operations research, simulation experiments, policy analyses, case studies, surveys, focus groups, health technology assessments, international comparative studies and analyses of administrative and population survey data sets. During the first four years, the journal's manuscript acceptance rate has hovered around 50%.

Healthcare Policy now has 698 individual and 180 institutional subscribers. Most of the latter are universities and colleges (45%), government organizations (19%), healthcare organizations (16%) and research organizations (9%), through which a large but unknown number of individuals gain access to the journal. Two-thirds of the individual subscribers receive their subscription as a benefit of membership in the Canadian Association for Health Services and Policy Research (CAHSPR). Non-subscribers can download copies of individual papers from the publisher's website. Some content is available free of charge from the date of publication; downloads of the remaining papers can be purchased. All content becomes open access one year after publication. As of January 8, 2009, downloads of papers published in *Healthcare Policy* totalled 48,762, typically running between 2,000 and 4,000 per issue – more for open-access papers that have been available longer. In the absence of appropriate comparators, it's hard to know whether to be heartened or dismayed by these data. As an inveterate optimist, I'm inclined to see the glass as half full, but the ambiguity of the numbers points to the need for identifying benchmarks and targets.

Healthcare Policy seeks to "bridge the worlds of research and decision-making by presenting research, analysis and information that speak to both audiences." Accordingly, we've emphasized applied research and knowledge translation and included such features as selected *Promising Practices* and *Evidence Boosts* from the Canadian Health Services Research Foundation and *Health Technology Briefs*, which primarily target decision-makers. Our review and editorial processes include both researchers and decision-makers. The extent to which we have succeeded in "speaking to both audiences" is hard to gauge. Spontaneous feedback, although almost invariably positive, has been remarkably sparse. Respondents to the publisher's two online surveys have offered helpful suggestions and solid endorsement of what we're doing, but the low response rate doesn't warrant firm conclusions. Clearly, we will need to be more imaginative and systematic in soliciting the perceptions of our readers (and potential readers) if we want those perceptions to inform our editorial decisions.

What else needs work? Our manuscript review process remains creaky. For example, the median time from manuscript submission to reviewer selection is more than 30 days, and from receipt of completed reviews to author notification of a decision is about 40 days. The median time for completion of a full set of reviews is two months. Although we try to obtain at least two academic reviewers and one decision-maker reviewer for each manuscript, we are not always successful and sometimes settle for two reviews. Delays and bottlenecks are inevitable in a process that relies so heavily on unpaid volunteers as both editors and reviewers, but improvement is needed and should be possible.

Healthcare Policy reflects the collective efforts of its authors, reviewers, editors and production staff. We've been blessed with dedication and competence in all categories. I particularly want to express my gratitude to Senior Editors François Béland and Rick Roger, Editors Raisa Deber, John Horne, Joel Lexchin, Claude Sicotte, Robyn Tamblyn and Christel Woodward, Editorial Advisory Board Chair and regular columnist Bob Evans and Managing Editors Ania Bogacka and Rebecca Hart for their commitment, good humour and forbearance.

Healthcare Policy is launched and underway but, as English sailor and explorer Francis Drake observed over four centuries ago: "There must be a beginning of any great matter, but the continuing unto the end until it be thoroughly finished yields the true glory." (Dispatch to Francis Walsingham, May 17, 1587, in *Navy Records Society*, vol. II, 1898)

The voyage may never be "thoroughly finished," but I'm certain the best is yet to come.

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

Politiques de santé : quatre ans déjà

Ce tirage de *Politiques de Santé/Healthcare Policy* est mon dernier numéro à titre de rédacteur en chef. Le lancement de la revue, il y a quatre ans, était une expérience digne de *Jusqu'au bout du rêve* – bien que dans ce cas, la célèbre réplique « si vous le construisez, ils viendront » serait plutôt « si vous le construisez, viendront-ils? » Morris Barer, alors directeur scientifique de l'Institut des services et des politiques de la santé des IRSC, en était le principal rêveur. L'idée était de créer une revue canadienne consacrée à la gestion, aux politiques et aux services de santé, qui réponde aux besoins des chercheurs et des décideurs. Mon travail consistait à diriger l'équipe pour sa mise en place.

Nous n'aurions pas dû nous préoccuper. Ils sont venus. *Politiques de Santé* est bel et bien une réalité : plusieurs milliers de courriels reçus, 301 manuscrits présentés, 15 numéros réguliers, un numéro spécial, 142 articles revus par les pairs et publiés, de nombreux éditoriaux, entretiens, articles commandés, études de cas et une critique de livre. La revue a été admise pour la base de données PubMed Central. Nous avons publié des textes du Canada et de l'étranger, en français et en anglais, sur de nombreux sujets dont la santé des communautés autochtones, les services de première ligne, les soins contre le cancer, la promotion de la santé, le financement des services de santé, les politiques sur les produits pharmaceutiques, l'équité des services de santé et la planification des ressources humaines en santé. Les méthodes de recherche employées ont été aussi variées que les sujets traités et ont inclu : recherches opérationnelles, expériences de simulation, analyses de politiques, études de cas, sondages, groupes de discussion, évaluations des technologies de la santé, études comparatives internationales et analyses de données administratives et de sondages auprès des populations. Au cours des quatre premières années, le taux d'acceptation des manuscrits a été d'environ 50 %.

Politiques de Santé compte maintenant parmi ses abonnés 698 personnes et 180 institutions. La plupart de ces dernières sont des universités (45 %) et des organismes gouvernementaux (19 %), de santé (16 %) ou de recherche (9 %), où un grand nombre de lecteurs peuvent consulter la revue. Deux tiers des personnes abonnées reçoivent la revue comme avantage en tant que membre de l'Association canadienne pour la recherche sur les services et les politiques de la santé (ACRSPS). Les personnes qui ne sont pas abonnées peuvent télécharger des articles à partir du site de la maison d'édition. Certains textes sont gratuits dès leur publication, les autres articles peuvent être achetés. Tous deviennent universellement accessibles un an après la publication. En date du 8 janvier 2009, 48 762 téléchargements d'articles de *Politiques de Santé*

ont été effectués, soit entre 2000 et 4000 par numéro, et plus pour les articles qui sont accessibles depuis plus longtemps. En l'absence de données de comparaison, il est difficile de savoir si ces chiffres sont réjouissants ou déconcertants. Inlassable optimiste, je suis plutôt porté à voir le verre à moitié plein, mais l'incertitude face aux chiffres fait ressortir la nécessité de définir des repères et des cibles.

Politiques de Santé a comme objectif d'établir des liens entre le monde de la recherche et celui de la décision en présentant des recherche, des analyses et de l'information qui s'adressent aux deux milieux à la fois. En ce sens, nous avons mis l'accent sur la recherche appliquée et sur le transfert de connaissances et nous avons inclus des publications telles que *Pratiques prometteuses* et *Données à l'appui*, de la Fondation canadienne de la recherche sur les services de santé, et *Coup d'œil sur les technologies de la santé*, qui visent principalement les décideurs. Notre système de révision et d'édition fait appel à des chercheurs et à des décideurs. Il est cependant difficile d'évaluer à quel point nous sommes parvenus à toucher les deux auditoires visés. Les commentaires spontanés, bien que presque toujours favorables, ont été extrêmement rares. Les réponses aux deux sondages en ligne de la maison d'édition ont été très utiles et encourageants, mais le faible taux de réponse ne permet pas de tirer des conclusions définitives. Si nous voulons que notre ligne éditoriale tienne compte de l'opinion des lecteurs (actuels et potentiels), nous devrons certainement être plus systématiques et redoubler d'imagination afin d'obtenir cette information.

D'autres aspects restent à peaufiner. Le processus d'évaluation des manuscrits est encore fragile. Par exemple, le temps médian entre la proposition d'un manuscrit et le choix de ses réviseurs est de plus de 30 jours, et celui entre la réception des révisions et l'annonce de la décision à l'auteur est d'environ 40 jours. Le temps médian pour la révision d'un ensemble d'articles est de deux mois. Bien que nous tentions d'avoir au moins deux universitaires et un décideur pour chaque manuscrit, nous ne sommes pas toujours en mesure de le faire. Quand on compte sur le travail bénévole des éditeurs et des réviseurs, les délais sont inévitables, mais il y a certainement place à amélioration.

Politiques de Santé est le fruit de l'effort collectif des auteurs, des réviseurs, des éditeurs et du personnel. Nous avons été choyés par tous en termes de dévouement et de savoir-faire. Je tiens personnellement à remercier les éditeurs principaux, François Béland et Rick Roger, les éditeurs Raisa Deber, John Horne, Joel Lexchin, Claude Sicotte, Robyn Tamblyn et Christel Woodward, le président du comité de rédaction et éditorialiste Bob Evans et les directrices de rédaction Ania Bogacka et Rebecca Hart pour leur dévouement, leur bonne humeur et leur patience.

Politiques de Santé est bien sur sa lancée, mais comme l'observait, il y a quatre siècles, le navigateur et explorateur anglais Francis Drake : « Il y a un commencement à tout grand accomplissement, mais c'est le chemin qui conduit à son achèvement qui

mène à la véritable gloire. » (Adressé à Francis Walsingham, 17 mai 1587, dans *Navy Records Society*, vol. II, 1898.)

Le voyage ne sera sans doute jamais achevé, mais je suis convaincu que le meilleur reste à venir.

BRIAN HUTCHISON, MD, MSC, FCFP
Rédacteur en chef

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Old Bones, New Data: Emmett Hall, Private Insurance and the Defeat of Pharmacare

Vieille chanson, nouvelles données : Emmett Hall, assurance privée et l'echec de Pharmacare

by ROBERT G. EVANS

Abstract

A paper by Selden and Sing (2008) reminds us of what was at stake 45 years ago, when Emmett Hall recommended universal public medical insurance over private–public alternatives. While focusing exclusively on the United States, it also helps to explain why universal pharmacare is being diverted into that same private–public dead end through public "catastrophic" coverage. Governments finance, through many different programs, most US health expenditure. Spending programs – Medicaid, Medicare and others – primarily benefit the unhealthy and unwealthy. However, benefits of the largest program, the tax exemption for private insurance, are heavily tilted towards the highest incomes and are essentially unrelated to health. This pattern (also found in Canada) may help explain political support for private insurance, despite its excessive administrative cost and inability to cover those in greatest need.

Résumé

Un article de Selden et Sing (2008) nous rappelle l'enjeu qui prévalait, il y a 45 ans, alors qu'Emmett Hall recommandait un régime d'assurance maladie public et universel au détriment des options public–privé. Les auteurs du présent article indiquent pourquoi le régime d'assurance médicaments universel est voué à la même impasse public–privé, en raison d'une couverture publique « catastrophique ». Au moyen de divers programmes, les gouvernements financent la plupart des dépenses en santé aux États-Unis. Les programmes de dépenses – Medicaid, Medicare et autres – profitent principalement aux moins nantis et à ceux qui sont en moins bonne santé. Toutefois, le plus important programme, soit l'exonération d'impôt pour l'assurance privée, présente des avantages principalement pour les plus nantis, et n'est pas essentiellement lié à la santé. Ce schéma (qu'on retrouve également au Canada) peut expliquer l'appui politique en faveur de l'assurance privée en dépit de ses coûts d'administration excessifs et de son inaptitude à offrir une couverture pour les ceux qui en ont le plus besoin besoins.

One pictures paleontologists wandering the wilds of the Gobi Desert, or grubbing in the walls of the Olduvai Gorge or the Red Deer Valley. Yet searching in the musty basements of museums, among specimens collected long before, can also yield important discoveries, or re-discoveries. The analogy was brought to mind by a paper last summer in *Health Affairs* (Selden and Sing 2008) and by re-reading Barer's (2005) Hall Memorial Lecture.

Selden and Sing, while focusing exclusively on the United States, nevertheless shed light both on the "old bones" of the Hall Commission report, and on the decades-long resilience of debates over private health insurance. They also contribute to explaining why pharmacare in Canada has been driven into the blind alley of "catastrophic" (sic) coverage.

The federal and state governments in the United States spend a great deal of money, directly and indirectly, on healthcare. Despite the general impression that the American healthcare system is "private," the public sector covers more than half the total bill. But who are the beneficiaries of this massive public spending? The funds flow through a number of different channels, some openly reported in public accounts and others more hidden from view. The benefits from the different channels are distributed very differently across the population.

Selden and Sing estimate the distribution of the benefits of each form of public expenditure on healthcare across the (civilian, non-institutionalized) US population. They augment data from the Medical Expenditure Panel Survey (MEPS) with the National Health Expenditure Accounts and the TAXSIM simulation model from the National Bureau of Economic Research. Linking sources yielded a set of 70,099 indi-

vidual observations.

Table 1 shows the average level of support received from the major American public programs by persons in each of four income classes. For the whole group studied, the average benefit received from public sources was $2,612 per person in 2002. This amounted to an estimated 56.1% of the group's healthcare expenditures.

TABLE 1. Estimates of per capita public spending on healthcare, by family income and insurance coverage, for the US civilian, non-institutionalized population, 2002

Population subgroup	Medicaid/SCHIP	Medicare	Other public	Total	Tax expenditure
All	$561	$651	$655	$1,867	$745
Family income (relative to federal poverty level):					
Below poverty	$2,064	$794	$1,121	$3,979	$102
100%–199%	$961	$1,052	$818	$2,831	$348
200%–399%	$311	$596	$591	$1,498	$716
400%+	$74	$455	$474	$1,022	$1,177

Source: Selden and Sing 2008, Exhibit 4.

Medicaid is a state-based program for persons with low incomes; the federal government contributes financial support but the individual states set criteria for eligibility and levels of support within federal guidelines. (SCHIP, the State Children's Health Insurance Program, is intended to supplement Medicaid with additional benefits for low-income children.) Medicare is a federally funded and administered program for those 65 and over, plus certain special categories in the non-elderly population. "Other" covers a wide range of public programs, individually small but large in total.

Of particular importance, however, are the "tax expenditures" or tax preferences, the favourable tax treatment of particular classes of "private" expenditure on healthcare. These represent public revenue forgone rather than direct program expenditure. They are just as much a cost to government as direct program expenditures, even though they do not show up in the public accounts and must be estimated independently. Selden and Sing estimate these tax expenditures at $214.8 billion in 2002, or 28.5% of the total of $752.9 billion in public contributions. The forgone revenue through tax expenditures is thus greater than expenditures on either Medicare or Medicaid.

The largest single component of these tax expenditures, $147.9 billion, arises from the fact that the premiums for private health insurance purchased by an employer on behalf of employees are a deductible expense for the employer, but are not taxed in the hands of the employee. This creates a powerful incentive for both employers and employees to negotiate and maintain private insurance plans.

As one might expect, Medicaid expenditures are primarily on behalf of the poor. People whose family income was below the federally established poverty line received an estimated average of $2,064 in public benefits; the amount drops sharply as incomes rise until those at or above 400% of the poverty line received, on average, only $74.

Medicare benefits, on the other hand, have quite a different pattern. The criterion for eligibility is age, not income, and the benefits actually peak for those between 100% and 199% of the poverty line. Overall, though, the public expenditure programs have a very pronounced tilt in favour of those at the lowest incomes. Average benefits shrink from $3,979 at the bottom to $1,002 at the top.

The pattern for the tax expenditures is exactly the reverse. Benefits rise sharply with income, from $102 per person below the poverty line to $1,177 for those in the highest income class. The private insurance system thus provides a highly regressive form of public benefit, serving significantly to reduce the overall progressivity of the public financing programs. It reduces the transfer of income "from people who have earned it … to people who haven't," in Conrad Black's memorable, if gratuitously pejorative, description.

Moreover, the tax expenditures have the further "advantage" that these sums are not open to direct scrutiny in the public accounts. Estimating the value of these benefits requires considerable research effort, let alone allocating them by the income class or other characteristics of the recipients, and the results are always contestable. This pattern thus confirms the insight of a senior Canadian bureaucrat, who noted that programs primarily benefiting the poor are typically overt, while those primarily benefiting the rich are covert. (Well, they would be, wouldn't they?)

Nor is the mitigation of egalitarianism confined to the distribution of benefits by income class. Table 2 shows the distribution of estimated benefits according to the self-reported general health status of those studied. All the public programs are very heavily tilted in favour of the less healthy – as one would expect. Sick people need and use a lot more healthcare, and the various public programs are put in place to help them pay for it.

The tax expenditures would seem to have some other purpose. Their traditional justification was that tax expenditures (by encouraging private insurance) help people get care they need but might not otherwise be able to afford. But tax expenditures assist the sick by subsidizing the healthy – feeding the horses in order to feed the birds.

The value of the public subsidy actually rises slowly as self-reported health status improves, although it drops off for those reporting excellent health. With these subsidies included, the public sector supports an estimated 44.6% of spending for the healthiest Americans; if they were excluded, public sources would cover only 21.4%. The effect on the distribution by income is very similar. Those with the highest incomes have 45.8% of their healthcare costs covered from public sources; remove the tax expenditure subsidies and the proportion falls to 21.1%. By contrast, the contribu-

tion of the tax expenditure subsidies to the coverage of the poorest and sickest is negligible. The private health insurance system thus provides a channel for flowing a very significant amount of public money to the healthy and wealthy.

TABLE 2. Estimates of per capita public spending on healthcare, by health status, for the US civilian, non-institutionalized population, 2002

Population subgroup	Medicaid/SCHIP	Medicare	Other public	Total	Tax expenditure
All	$561	$651	$655	$1,867	$745
Self-reported general health					
Excellent	$161	$127	$326	$615	$664
Very good	$249	$284	$507	$1,040	$794
Good	$550	$720	$701	$1,971	$785
Fair	$1,876	$2,155	$1,386	$5,417	$778
Poor	$4,617	$5,170	$3,257	$13,044	$726

Source: Selden and Sing 2008, Exhibit 3.

These findings are not entirely new. Students of American healthcare have long understood that it is primarily funded by the public sector. Fox and Fronstin (2000) and Woolhandler and Himmelstein (2002) estimated the contribution of direct and indirect public sources in the United States as nearly 60% of the total. Sheils and Haught (2004), in the course of estimating the size of the tax expenditure subsidy for 2004 ($188.5 billion by their method), also estimated its distribution by income class in that year.

Sheils and Haught used a finer breakdown than Selden and Sing, with eight income classes. Tax expenditure benefits continued to increase with family income into ranges well above four times the poverty line. Families with incomes under $10,000 received an average of $102; those with over $100,000 averaged $2,789. These high-income families accounted for about 14% of the population, but received 26.7% of the benefit from tax expenditures. Selden and Sing, however, set the tax preferences in the broader context of public support for healthcare, and permit a much more detailed breakdown of the (estimated) benefits received according to the characteristics of the beneficiaries.

All of which is very interesting, but what does it have to do with Canadians, or anyone else outside the United States? The United States is the world's "odd man out" in its extraordinary reliance on private health insurance. According to the World Health Organization (2008), private prepaid health insurance funded 17.6% of healthcare expenditures worldwide in 2005, compared with 55.9% from governments and 22.5% paid out of pocket. But if one excludes the United States, these percentages change to 6.5%, 62.3% and 28.0% across the remaining 192 countries. The United

States accounts for 76.7% of all the private health insurance expenditure in the world. Outside a handful of countries, private insurance makes little or no significant contribution to financing healthcare.

But Canada is one of that handful. We may perceive ourselves as a country characterized by universal public health insurance. Few realize that the WHO places us at number 14 out of 193 countries in the proportion of health expenditures covered by private insurance (12.2% in 2005). A significant proportion of expenditures on both prescription drugs (35.0%) and dental services (52.4%) is financed through private insurance, and that private coverage enjoys exactly the same public tax expenditure subsidies as it does in the United States. And that subsidy is of much greater value to people at higher incomes for exactly the same reasons – they are more likely to have coverage, and they are in higher tax brackets.

Because private coverage does not extend (yet) to hospital care or physicians' services, the subsidies involved are not nearly as impressive as in the United States, and they have attracted very little research. But they are not trivial. Smythe (2001) estimated with 1994 data that the total value of the subsidy for private health insurance in Canada was $2.28 billion; expanding this in proportion to the subsequent growth of private insurance coverage yields $8.1 billion by 2008. Furthermore, Smythe deliberately chose conservative assumptions. Alternative assumptions yielded an estimate of $2.87 billion, or $10.2 billion today.

The "official" estimates are that the public/private split of health expenditures was 70/30 in 2008 (CIHI 2008). Accounting for the tax expenditure subsidy, however, would on Smythe's estimates shift this ratio to 75/25, or on his less conservative assumptions, 76/24. The public sector actually supports a much larger share of Canadian health spending than is indicated in the official figures. But, as in the United States, the covert public spending – revenue forgone – is extremely regressive. In Smythe's 1994 estimates, families with incomes over $80,000 received an average benefit of $225. For those with incomes under $5,000 – fifty cents.

So what does this have to do with Justice Emmett Hall? Well, Hall (like the prime minister who appointed him) was one of a species almost extinct today, a Red Tory. As Barer (2005: 46) notes, Hall "[began] from the very conservative principle that '… *community action by the people through their government should be undertaken only when voluntary action leads to lesser objectives or fails to reach essential objectives for sufficient numbers*" (Canada 1964: 742) [my emphasis]. But he really did mean both parts of the principle, the Tory and the Red. If voluntary action fails, government should act.

There were, of course, strong voices on the other side. As Barer reminds us, both the Health Insurance Association and the Canadian Medical Association brought forward proposals whose "central feature [was] that the great majority of Canadians could and would become insured through their own means and that the government would need to assist only a relatively small number" (Canada 1964). According to Hall, the

commission approached these proposals "sympathetically" and "hopefully." But Hall became convinced, on the basis of the evidence available to him, that "voluntary action [would lead] to lesser objectives or fail to reach essential objectives," and he was therefore driven to his most consequential recommendation – universal public health insurance, administered by governments and financed from taxation.

We now know, of course, that this "central feature" of the alternative proposals was fundamentally wrong. Conveniently, the United States chose, or more accurately drifted into, an insurance system very similar to that which the Canadian Medical Association (CMA) and Canadian insurers had advocated. The results have been available for all to see for nearly 30 years, and continue to grow ever more conclusive.

Private insurance can cover a significant majority of the population. But it covers only about a third of health expenditures, because those with greatest need are excluded. The American elderly are covered relatively well by their federal government; (some of) the poor are covered by more or less mingy state Medicaid programs, and over 15% have no coverage at all. Hall was bang on in worrying about the high cost to government of covering those left out of the private insurance market.

He was equally prescient in emphasizing the high administrative costs of the private insurance system. In this he was decades ahead of most students of healthcare (and, in particular, of most economists). It was left to two Harvard physicians, Steffie Woolhandler and David Himmelstein, to calculate and draw attention to the hundreds of billions of dollars of pure administrative waste generated by private insurance mechanisms. In the process, they have also shown that private health insurers in Canada have even higher administrative overheads than those in the United States. They burden our system less because their scope is more restricted.

It is less clear whether Hall appreciated that a significant proportion of the population would be left entirely uncovered by the CMA and Health Insurance Association proposals, although he did emphasize the administrative difficulties of providing coverage for the residual population left behind by private insurers.

So Hall "got it right." But this raises a couple of related questions. First, why did the private insurers and the CMA get it so badly wrong? And second, why is private insurance back on the table today? In particular, why does pharmacare on the Canadian medicare model – universal, comprehensive, first-dollar- and tax-financed – keep getting pushed off the table? Instead, we have drifted to "Little America," financing pharmaceuticals in the American way and with the same results.

The answer to the first question is, I think, pretty simple. The private insurers didn't get it wrong – follow the money. Advocates of private coverage, supplemented by government subsidies, were pursuing different, and in Hall's terms, "lesser," objectives. Private insurers, in particular, are responsible to and only to their shareholders. Hall's recommendations would, and did, push them out of a lucrative market. They may or may not have understood that their proposals would fail "to reach essential

objectives for sufficient numbers"; but that was simply irrelevant, then and now. They certainly understood that their proposals would be much more costly for Canadians. But that was exactly the point; those costs would be their revenues.

The position of the CMA is a little more nuanced, requiring a balance of the economic interests of its members against the well-being of their patients. Many Canadian physicians were genuinely concerned for their patients' access to care, as well as for the economic hardship that payment could impose. But the CMA also calculated that a universal public system would confront physicians with a public payer willing and (to some extent) able to contain their then-escalating share of national income. Private insurers have neither incentive nor capacity to do this; nor do governments that are responsible for paying for only a small "rump" of relatively poor and vulnerable people. As readers of this journal all know, the escalating share of national income devoted to healthcare slowed markedly after medicare was enacted; in the United States, it exploded. The CMA also "got it right," but had other objectives.

Private insurance can cover a significant majority of the population. But it covers only about a third of health expenditures, because those with greatest need are excluded.

Exactly the same pattern of interests has played out in the debates over pharmacare, but this time the private insurers and the pharmaceutical industry appear to have won. Public "catastrophic" coverage, with a high deductible, could remove the embarrassment of the wholly uninsured while leaving plenty of room and market for private insurers under the deductible. It also preserves a fragmented payment system in which the market power of pharmaceutical companies can be fully exploited without meeting any countervailing power from a single public purchaser. High deductible coverage will thus preserve the past trend of higher prices and expenditures for Canadian patients, taxpayers and employers, corresponding to continuing escalation of pharmaceutical industry revenues. It didn't have to be this way; there are other, much better models. But as Brennus said: "Vae victis!" ("Woe to the vanquished!") To the (political) conquerors belong the spoils.

But why has the Canadian public been so thoroughly defeated on this one? Let's return to Selden and Sing. The private insurance system provides a two-pronged mechanism by which high-income people can protect themselves against the potential redistributive impact of a public insurance system. Not only are private premiums unrelated to income, but they attract a public subsidy that actually increases with income. Tax finance requires high-income people to pay more, regardless of their needs

and use, but private insurance with public subsidy permits them to pay less, after tax, for the same coverage. And the numbers are big.

The steady growth in income inequality in Canada over the past quarter-century may thus have strengthened a silent "fifth column" in the upper half of the income distribution, a fifth column willing to open the city gates to the private insurance and pharmaceutical industries, and beginning to erode medicare as well. Total costs are higher, a lot higher, in a privately insured environment, owing to massive administrative waste, excessive advertising, misdirected research and fat pharmaceutical profits, but the share borne at the upper end of the income distribution will be much lower, thanks in no small part to the tax expenditure subsidy.

The class war? We lost. Catastrophically.

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DISCUSSION AND DEBATE

The Power of "Principles" in a National Pharmaceuticals Strategy

Le rôle des "principes" dans la stratégie nationale relative aux produits pharmaceutiques

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Abstract

The role of principles in shaping the development of public policy has garnered increasing attention. The authors explore the role of underlying principles in the development of a Canadian National Pharmaceuticals Strategy (NPS), an area in which practical policy development has been disappointing. In analyzing proposed principles for a NPS identified in government documents and by a set of major stakeholder coalitions, they find broad agreement on principles underlying a NPS, particularly regarding equity, accessibility, safety and effectiveness. However, the identification of principles for a NPS has not motivated practical policy progress in this crucial area. Some reasons

for this failure are rooted in the current state of ethics and principles in health policy and some in the value-laden, interest-dominated nature of pharmaceutical policy itself.

Résumé

Le rôle que jouent les principes dans l'élaboration des politiques publiques suscite de plus en plus d'intérêt. Les auteurs examinent le rôle des principes sous-jacents à la stratégie nationale relative aux produits pharmaceutiques (SNPP), un secteur dans lequel l'élaboration de politiques pratiques a été décevant. L'analyse des principes proposés pour la SNPP, et définis par un groupe d'intervenants importants du monde de la santé, révèle la présence d'un large consensus, notamment pour ce qui est des principes d'équité, d'accessibilité, de sécurité et d'efficacité. Toutefois, la définition de ces principes n'a pas contribué à favoriser l'élaboration d'une politique pratique dans ce secteur important. L'échec repose en partie sur l'état actuel de l'éthique et des principes dans les politiques de la santé, et en partie dans la nature même des politiques pharmaceutiques qui sont chargées de valeurs et dominées par les intérêts.

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Pharmaceuticals occupy a central role in the Canadian healthcare system. Since 2000, public and private expenditure on drugs in Canada has risen 9% or more annually (CIHI 2007). While drug costs are soaring (Federal/Provincial/Territorial Ministerial Task Force 2006), access to public coverage for drugs varies substantially among provinces (Demers et al. 2008). This resultant cost-shifting for outpatient medications – one might say, an essential component of "medically necessary care" – is deeply problematic for the central values underlying Canadian medicare: equity, fairness and solidarity (Romanow 2002). Moreover, increasing evidence suggests that financial status affects drug affordability (Demers et al. 2008) and patient adherence to recommended drug treatment regimes, both factors that can have significant negative consequences for health outcomes (Tamblyn et al. 2001; Anis et al. 2005; Lexchin and Grootendorst 2004).

The call for a national pharmaceuticals strategy in Canada has spanned several decades. The Royal Commission on Health Services (1964) identified the need for a national strategy to provide access and coverage to prescription drugs for all Canadians. The National Forum on Health (1997) expanded the call for financial coverage to a comprehensive national pharmaceuticals strategy. The Kirby Report (2002) recognized the potentially catastrophic impact of prescription drug costs on Canadians and recommended immediate and sustainable action to protect them from undue financial hardship. Many of the same sentiments were echoed a month later when the Romanow Report (2002: 210) concluded that

> [p]rescription drugs play a growing and essential role in Canada's health care system and the health of Canadians. They are a vital component of the health care system and that reality should be reflected in how we fund, cover and ensure access to quality, safe and cost-effective prescriptions drugs.

Most recently, the Ten-Year Plan to Strengthen Health Care (First Ministers 2004) promised renewed ministerial commitment to the development of a National Pharmaceuticals Strategy (NPS). This plan committed governments to the development and implementation of a NPS and to report on their progress by June 2006. The explicit goal of a NPS was to "address the challenges and opportunities across the drug life cycle using an integrated, collaborative, multi-pronged approach to pharmaceuticals within the health care system" (F/P/T Ministerial Task Force 2006: 6). In October 2005, health ministers affirmed their commitment to a NPS and asked officials to accelerate their work on catastrophic drug coverage; extend the scope of the Common Drug Review process to include all drugs; develop a national formulary; expand the Patented Medicine Prices Review Board responsibility to monitor non-patented drug prices; and collect, integrate and disseminate information on the real-world risks and benefits of drugs (HCC 2006). Since the 2006 NPS Progress Report there has been no official communication of progress.

In addition to federal, provincial and territorial governments, key stakeholders in the pharmaceutical life cycle, from those who manufacture pharmaceutical products to those who prescribe and use them, have articulated their visions of an effective NPS: and have all contributed their views on the need for a NPS:

- Canadian Health Coalition (CHC), representing 11 national organizations consisting primarily of Canadian labour unions (CHC 2006);
- Canada's Research Based Pharmaceutical Companies (CRBPC), an association representing over 50 member organizations involved in pharmaceutical research and development in Canada (Williams 2006);
- Coalition for a Canadian Pharmaceuticals Strategy (CCPS), an alliance representing the Best Medicines Coalition, Canadian Medical Association, Canadian Nurses Association, Canadian Pharmacists Association and Canadian Healthcare Association (CCPS 2006); and
- Health Charities Coalition of Canada (HCCC), representing 20 national health charities spanning the continuum of care (HCCC 2006).

However, despite apparent broad agreement on the need for a NPS, we have failed to meet identified targets: progress on implementing catastrophic drug coverage is disappointing; public coverage of very expensive drugs remains ad hoc; progress on a national formulary is limited; and attention to improved prescribing behaviour

has been deferred. There is some progress on improved drug information systems; e-prescribing projects are in development in eight of the provinces and territories and several jurisdictions have developed centralized drug data systems (HCC 2006). Nonetheless, in 2008 the Health Council of Canada concluded that "there is no sense of an overall cohesive national strategy" (HCC 2008).

The explicit goal of a National Pharmaceuticals Strategy was to "address the challenges and opportunities across the drug life cycle using an integrated, collaborative, multi-pronged approach to pharmaceuticals within the health care system".

Why have we had so little success here? Is it because of fundamental differences in underlying values and principles, or something else? We believe an ethical analysis can reveal some of the reasons for the lack of progress. In this paper, we review a set of government documents as well as the four published NPS proposals identified above to identify principles underlying a NPS, analyze the description of these principles, assess their role in a NPS and identify the possibilities and limits to statements of principles in motivating health system change.

Identified Principles for a National Pharmaceuticals Strategy

In defining their vision for a NPS, First Ministers and stakeholder groups identified not only practical objectives, but also principles that are "normative action guides" (Beauchamp and Childress 2001). For example, the NPS Progress Report (F/P/T Ministerial Task Force 2006) identifies sustainability as a key principle for directing policy development and the pursuit of purchasing strategies in order to obtain optimal prices for drugs and vaccines as a practical example of how this principle may be applied. Some documents identified principles explicitly, while others used such terms as "criteria" or "values" (Table 1). All terms identified for this purpose are referred to herein as "principles."

All four coalition reports, as well as the Ten-Year Plan to Strengthen Healthcare and the NPS Progress Report, identified the principles of *accessibility*, *effectiveness*, *equity* and *safety* as central to a NPS. *Affordability* and *transparency* were named by five publications, while *appropriateness*, *cost-effectiveness* and *evidence-based decisions* were named by four; *accountability*, *participation* and *sustainability* were named by three. *Impartiality* was named twice, and *inclusiveness*, *innovation* and *patient-centred care* were

each identified once. Principles were not prioritized, and none of the reports provided guidance for balancing them.

TABLE 1. Proposed NPS principles

	Ten-Year Plan to Strengthen Health Care	NPS Progress Report	Canadian Health Coalition	Canada's Research Based Pharmaceutical Companies	Coalition for a Canadian Pharmaceutical Strategy	Health Charities Coalition of Canada
Accessibility	X	X	X	X	X	X
Effectiveness	X	X	X	X	X	X
Equity	X	X	X	X	X	X
Safety	X	X	X	X	X	X
Affordability	X		X	X	X	X
Transparency		X	X	X	X	X
Appropriateness	X	X		X	X	
Cost-effectiveness	X	X	X		X	
Evidence-based decisions		X	X	X	X	X
Accountability			X		X	X
Participation			X	X	X	
Sustainability		X		X	X	
Impartiality			X		X	
Inclusiveness						X
Innovation				X		
Patient-centred care					X	

Despite an apparent high level of agreement on the terms used, we found great diversity in meaning and usage.

- *Equity* was not defined as a particular concept of justice in any of the documents. Rather, it applied to two distinct but related issues: equitable access to drugs and equitable health outcomes resulting from access to drugs. The four stakeholder reports relate equity to the goal of access regardless of location of residence or ability to pay (CHC 2006; CCPS 2006; Williams 2006; HCCC 2006). While

several reports discuss the importance of pharmaceuticals for improving health outcomes in general, only the Ten-Year Plan and the NPS Progress Report identified the role of a NPS in contributing to equitable distribution of health outcomes among Canadians (First Ministers 2004; F/P/T Ministerial Task Force 2006). The Ten-Year Plan states that "[a]ffordable access to drugs is essential for equitable health outcomes for all our citizens" (First Ministers 2004).

- *Accessibility* was also used in two distinct ways: individual access to approved drugs and accessibility to a speedy new drug approval process. All reports agree that Canadians are "not [to be] denied access to the best available medicines and vaccines based on income or place of residence" (Williams 2006: 1). Some reports called for accelerated drug review processes, particularly for breakthrough drugs (F/P/T Ministerial Task Force 2006; CCPS 2006; Williams 2006). The CCPS recommends that the federal government "continue to reduce the time required for regulatory review to the fastest level consistent with ensuring optimal health outcomes and the safety of the drug supply" (CCPS 2006: 3), thereby linking accessibility and safety.

All four coalition reports, as well as the Ten-Year Plan to Strengthen Healthcare and the NPS Progress Report, identified the principles of *accessibility*, *effectiveness*, *equity* and *safety* as central to a NPS.

- *Safety* was identified in all reports as an essential principle for a NPS. Several (CHC 2006; CCPS 2006; F/P/T Ministerial Task Force 2006) explicitly note that safety requires appropriate pre-market evaluation and post-market surveillance. The NPS Progress Report recommends "a stronger system for gathering, interpreting and applying" drug safety information in the real world (F/P/T Ministerial Task Force 2006: 13).
- *Effectiveness* was generally agreed as essential, specifically, the importance of making decisions "for which evidence indicates effectiveness in the treatment, management and prevention of disease and/or significant benefits for quality of life" (CCPS 2006: 2). *Cost-effectiveness* was identified by two groups as an essential component of effectiveness, though neither defined how it ought to be measured (CHC 2006; CCPS 2006). The CHC called for "a national drug formulary that would focus on providing essential drugs that are both medically necessary and cost effective" (CHC 2006: 9).
- *Affordability* was identified as a principle applicable to both individuals and the health system. All stakeholder groups agreed with the NPS Progress Report that

"no Canadian should suffer undue financial hardship in accessing needed drug therapies" (F/P/T Ministerial Task Force 2006: 4). It was also suggested that a NPS ought to include coverage for catastrophic drugs but that "[a]s a first step, governments should adopt a common operational definition of 'catastrophic'" (CCPS 2006: 2). The necessity of system-level affordability to ensure the responsible use of government funds was named by two stakeholder groups (CHC 2006; HCCC 2006), thus linking affordability with sustainability.

- *Sustainability* was identified as a fundamental principle for publicly funded drugs. A NPS ought to ensure that "[p]harmaceuticals are evaluated not in isolation but as an integral part of the health system. They are assessed in the context of the overall burden of illness, and of their impact on direct and indirect illness costs and health system sustainability" (CCPS 2006: 2). CRBPC indicated that innovative pharmaceuticals accessed through the NPS are likely to contribute to maintaining system sustainability by reducing costs in the acute care sector (Williams 2006).
- *Evidence-based decisions* were identified as a principle by three groups (CHC 2006; CCPS 2006; HCCC 2006). One group called specifically for an environment in which "[a]ll policy decisions, including drug approval and program coverage, are based on an impartial review of the best available scientific evidence" (CCPS 2006: 2).
- *Transparency* and *impartiality* are two aspects of the same procedural principle. Three reports cited the importance of transparency in the development, implementation and evaluation of a NPS (Williams 2006; HCCC 2006; F/P/T Ministerial Task Force 2006). Another three specified that research evidence used in the drug evaluation process ought to be made available to health professionals and to the public once a drug has been approved (CHC 2006; HCCC 2006; CCPS 2006). The CHC states that "[b]oth health care practitioners and the general public should have access to all information used to make decisions on drug approvals" (CHC 2006: 16) and that this transparency ought to carry over into post-market surveillance of drugs for real-world safety and effectiveness. In addition to the reliance on evidence in decision-making, two groups highlighted the need to eliminate bias in this context (CHC 2006; CCPS 2006).
- *Appropriateness* was recommended as a principle by two stakeholder groups (Williams 2006; CCPS 2006) and both government reports. All stakeholders are encouraged to collaborate in order to "find the best ways to promote healthy living, appropriate utilization of medicines and management of chronic disease" (Williams 2006: 1), though the elements of appropriateness are not identified.
- *Patient-centred care* is a recommended principle at the clinical interface. Decisions ought to be patient-centred, "taking account of the unique needs and therapeutic outcomes of individual patients and respecting the relationship between patients and their health-care providers" (CCPS 2006: 2). These goals are linked to effec-

tive knowledge translation from the pharmaceutical evaluation process to all those responsible for prescribing.

- *Participation* and *inclusiveness* were identified as important procedural principles by all stakeholder reports. Some (CCPS 2006; CHC 2006) called for identified engagement of health professionals, patients and the public, stating that the "process must provide all interested Canadians opportunities for meaningful involvement in the development, implementation and ongoing evaluation of the NPS" (HCCC 2006: 3). CRBPC advocated specifically for increased industry participation in the development of the NPS as a necessary condition for success (Williams 2006).
- *Accountability* was considered an essential principle by three of four stakeholder groups (CCPS 2006; CHC 2006; HCCC 2006). The HCCC explicitly recommended that "[t]he health, economic and social outcomes of the NPS must be regularly reported to Canadians" (HCCC 2006).
- *Innovation* was cited only by the CRBPC as important for a NPS, expressing its support for a strategy that would "ensure that Canada has a vibrant, robust, research-based pharmaceutical industry" (Williams 2006: 1).

Discussion

There appears to be a high level of agreement on four key principles for a NPS: *equity, accessibility, safety* and *effectiveness*. Moreover, because *appropriateness* and *evidence-based decisions* can be considered elements of *effectiveness*, and *affordability* and *sustainability* are facets of *accessibility*, there is an even stronger apparent agreement on substantive principles, i.e., those functioning as criteria for decision-making and action. Furthermore, *participation/inclusiveness, transparency, impartiality* and *accountability* are understood to be components of *an equitable process*, so there is a high degree of consistency regarding procedural principles as well. Only *cost-effectiveness* and *innovation* appear to lack broad agreement.

So, why has this high degree of apparent agreement on principles not facilitated the realization of a NPS? We believe the answer lies in both the current state of principles in health policy and in the particular dynamics of pharmaceutical policy.

The inclusion of principles, values and ethical frameworks has become a common feature of health policy documents in Canada (Giacomini et al. 2004, 2009) and internationally (Daniels 1994; Hoedemaekers and Dekkers 2003; Kenny and Joffres 2008). This trend is a manifestation of the new convergence of healthcare ethics and policy sciences (Fischer and Forester 1987; Danis et al. 2002; Kenny and Giacomini 2005). However, as demonstrated in these documents, much confusion surrounds these terms, their interrelationships and their practical use in public policy (Giacomini et al. 2004, 2009; Kenny and Joffres 2008).

This review helps us identify three main reasons for the impotence of principles

in facilitating a NPS. First, there is a lack of definitional clarity. Fundamental concepts such as *equity*, *effectiveness*, *participation*, *accountability*, *affordability* and *cost-effectiveness* are not defined, but rather are named in reference to their application, e.g., equity of access to drugs. Equity is a particular conception of justice as fairness. There are many different philosophical conceptualizations of equity, including libertarian, utilitarian and Rawlesian, and they express very different views of justice (Bayer et al. 1983). Getting agreement may be difficult, but woolly, undefined terms do not motivate.

Second, no document identified a priority of principles or rules for balancing them, in light of potential fundamental conflicts – for example, between equity and affordability; safety and accessibility; effectiveness and patient-centred care; or innovation and safety. The introduction of Bill C-51, An *Act to Amend the Food and Drugs Act*, has highlighted the safety-versus-accessibility conflict. Defining the principles more clearly in relation to goals would allow the development of a process to assess trade-offs.

Pharmaceutical policy is replete with competing interests: patient interests are different from citizens' interests, providers' interests are different from public officials', politicians' interests are different from pharmaceutical companies', and so on.

Finally, there is little indication that these principles play any meaningful role in directing the practical elements of a NPS. In these documents, as elsewhere, principles seem to float independently of their practical and political consequences (Giacomini et al. 2009). Their role in directing policy in the practical elements of a NPS is not made explicit. Thus, it is not surprising that the principles do little to advance a coherent strategy with a clear goal, a fair process and a set of well-understood principles and practical criteria that establish priorities for action.

Definitional clarity will be insufficient if the principles fail as successful motivators for change. Even when there is general agreement on commonly understood principles, there are significant obstacles to acting on them. Federal–provincial jurisdictional and funding issues may, in fact, be the major obstacles to achievement of a NPS. So, robust ethical analysis requires the clarification of interests as well as values and principles. Competing and conflicting interests can use the same language of principle yet mean very different things. Pharmaceutical policy is replete with competing interests: patient interests are different from citizens' interests, providers' interests are different from public officials', politicians' interests are different from pharmaceutical companies', and so on. Nonetheless, having apparent agreement from various sources and interests is an essential step.

Conclusions

Principles are value-based, normative guides that ought to direct decision and action (Beauchamp and Childress 2001). Genuine consensus on principles forces the issue of using them as criteria for decision-making and action. As part of the broad "spectrum of ethical considerations in policy making" (Kenny and Giacomini 2005: 255), which also includes careful attention to interests and to institutional and systemic constraints inherent in Canadian pharmaceutical funding, we believe these principles could do just that. For example, excellent work on explicating the meaning of transparency as a principle for a NPS has demonstrated how much work could be done in directing practical choice and action (Dhalla and Laupacis 2008). A principle of equity could galvanize the crucial prioritizing of catastrophic coverage because it requires that similar cases be treated similarly and directs our attention to the ethical significance of relevant dissimilarities and the worst off. Equity recognizes that treating persons "equally" can be profoundly unjust if there are substantive differences that should be taken into account in order for outcomes to be just. If safety is a core value, then it must work to balance access and effectiveness. Effectiveness demands clarification and distinction from efficacy. A NPS must address directly the role of economic considerations such as cost-effectiveness (Tierney and Manns 2008) in decisions regarding shared public resources if effectiveness, affordability and sustainability are to be balanced. Clarity regarding the meaning of these principles is essential.

Principles can be powerful motivators for choice and action, and demanding criteria for assessment.

Principles can be powerful motivators for choice and action, and demanding criteria for assessment. There appears to be agreement on the foundational principles for a NPS. However, to date, these principles have done no meaningful work for us, but rather appear to function as we have seen elsewhere (Giacomini et al. 2009) – as conventional, politically correct decorations. Collaborative work on robust, coherent and meaningful principles is urgently needed. Such effort may hold the key to real progress on this crucial area of health policy. It is time for all Canadians to use these statements of principle as powerful tools in public and policy discourse.

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Environmental Public Health Tracking/ Surveillance in Canada: A Commentary

Suivi et surveillance en matière de santé environnementale et publique au Canada : observations

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Abstract

Although public debate in Canada about climate change and air pollution is louder than ever, the state of the environment remains a relatively neglected determinant of health, and environmental public health infrastructure and programs are poorly developed. Health Canada has only recently begun to develop a national environmental public health tracking or surveillance system. The authors review progress on environmental public health tracking in other jurisdictions and suggest a strategic approach to the development of a coherent national system of sensitive, targeted surveillance indicators for environmental health by addressing the following questions: Which environmental hazards and exposures, and which health effects along the continuum from "release" to "health effect," should be tracked? Which indicators are scientifically robust and practical for tracking environmental health problems in Canada?

Résumé

Bien qu'au Canada, le débat public sur le changement climatique et la pollution de l'air soit plus vif que jamais, l'état de l'environnement demeure un déterminant de la santé relativement négligé. L'infrastructure et les programmes en matière de santé environnementale et publique sont peu développés. Ce n'est que récemment que Santé Canada a commencé à élaborer un système national de suivi, ou surveillance, de la santé environnementale et publique. Les auteurs examinent, auprès d'autres autorités administratives, les progrès accomplis en matière de suivi de la santé environnementale et publique. Ils proposent une stratégie de développement pour un système national cohérent d'indicateurs significatifs et ciblés, au moyen des questions suivantes : Quels sont les risques environnementaux et quels sont les effets sur la santé (allant de l'émission de polluants aux effets sur la santé) qui doivent être suivis? Quels indicateurs sont scientifiquement valides et applicables face aux problèmes de santé environnementale au Canada?

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> "Twenty-two-month old Kody woke up violently ill, his diaper stained blood red. … Two-and-a-half-year-old Mary Rose Raymond, who lived in nearby Hanover, had died of *E. coli* bacterial poisoning. … Betty Trushinski was admitted to hospital and soon transferred to London. … Two days later, she began to have difficulty breathing. Within another two days, the fifty-six-year-old was dead: her brain, lungs, liver, kidneys and intestines destroyed by the vicious verotoxin produced by *E. coli* 0157:H7. … (Perkel 2002)

In the wake of the 2002 tainted-water scandal in Walkerton, Ontario, new laws were developed to protect the province's water supply. But without a comprehensive plan for monitoring and consequent treatment and enforcement, no law or commitment is worthwhile. The connections between such local health tragedies as Walkerton's and global economic and environmental change also demand attention. Indeed, Canada is now in the throes of a national debate about our Kyoto commitments. However, public health professionals sense a deeper issue: even if we did have serious Kyoto-type targets, would our existing environmental health surveillance systems be up to the task of demonstrating progress – or a lack thereof – in reducing the health consequences of environmental degradation?

This commentary reviews national and international progress to date on this issue and suggests a strategic approach to developing a coherent system of sensitive, targeted surveillance indicators for environmental health in Canada by addressing two questions. First, which environmental hazards and exposures, and which health effects along the continuum from "release" to "health effect," should be tracked? Secondly, which indicators are scientifically robust and practical for environmental health problems in Canada?

Environmental public health tracking/surveillance (hereafter referred to as tracking) is not as well developed as surveillance in other health and safety domains in Canada. To address this deficit, the Federal/Provincial/Territorial Committee on Health and the Environment established the Tracking/Surveillance Task Group (2006) to develop a Health and Environment Tracking/Surveillance System in Canada.

Public health surveillance involves not only the ongoing systematic collection of data on specific health events affecting a population, but also the analysis and interpretation of those data and, importantly, the effective communication of the data to public health professionals and policy makers (Thacker and Stroup 1994). Environmental health is an important but neglected public health issue in Canada. It accounts for approximately 16% of the total burden of disease, in disability-adjusted life years (DALY), in developed countries, including Canada. Much of this environmentally related disease burden is preventable (WHO 2006).

Examples of Environmental Health Surveillance Systems

Environmental health surveillance systems have been recently developed in the United States, Europe and Quebec. The strengths and weaknesses of these systems are described in Table 1.

In the United States, the Pew Commission was mandated in the 1990s to report on the need for surveillance. Its report (Pew Environmental Health Commission 2000) was a first attempt at defining the scope of a proposed tracking system. The commission identified a lack of critical knowledge in environmental public health, the

so-called environmental health gap. It recommended the establishment of a National Environmental Health Tracking Program, which was launched in 2002, as a program within the Centers for Disease Control (CDC), in concert with the Environmental Protection Agency, the National Aeronautics and Space Administration and state partners (McGeehin et al. 2004). The goal of the program is to allow the federal, state and local governments to "monitor and distribute information about environmental hazards and disease trends, to advance research on possible linkages between environmental hazards and disease, and to develop, implement and evaluate regulatory and public health actions to prevent or control environment-related diseases" (CDC 2006a).

TABLE 1. CDC, EU and Quebec environmental health tracking systems: strengths and weaknesses

Initiative	Strengths	Weaknesses	Indicators
CDC Centers for Disease Prevention and Control (CDC 2006b)	1. Partnership with federal, state and local government agencies, academic and community groups, healthcare organizations 2. Strong stakeholder input 3. Pilot projects well coordinated	1. Varying levels of state readiness 2. Early in development: • First national report, 2008 • Network launch, 2008	**Topics** Air, ambient (outdoor) Air, indoor Disasters Lead (Pb) Noise Pesticides Sentinel events Sun and ultraviolet Toxics and waste Water, ambient Water, drinking **Indicator Types** Hazard Exposure Health effect Intervention
EU European Union (WHO Europe 2004)	1. Includes upstream driving forces 2. Includes home, work and ambient exposures 3. Includes population exposure and health impact assessment (air quality, noise) 4. Linked to health-based policy action programs (NEHAPs) 5. Developing a children's environment and health indicator set	1. Diverse data systems across EU 2. Gaps in survey and biomonitoring data 3. Still to define outputs (printed reports and Web-based data)	160 indicators proposed in: Air quality Housing Noise Traffic accidents Water and sanitation Food safety Chemical emergencies Radiation Workplace

TABLE 1. Continued

Quebec (Institut national de santé publique du Québec 2006)	1. Common surveillance re: occupational and infectious diseases within Ministry of Health and Social Services 2. Annual reporting 3. Research in environmental health surveillance since 1997 with Geomatics for Informed Decisions National Centre of Excellence (GEOIDE NCE) 4. Strong public health surveillance mandate in 2001 Public Health Law 5. Stable funding 6. Strong Quebec Public Health Institute [Institut national de santé publique du Québec (INSPQ)]	1. Not all indicators completed 2. Gaps in data for some proposed indicators	Twenty-six of 41 indicators reported. **Environmental Indicators:** Recreational water quality (beaches) Drinking water quality Boil-water advisories Waste water treatment Air pollution Environmental tobacco smoke exposure **Health-Based Indicators:** Carbon monoxide and other poisonings notification rates Allergic rhinitis prevalence Cancers of interest for environmental health Hospitalization/mortality rates for diagnoses linked to environmental hazards **Proposed Indicators:** Noise Indoor air Pesticides Climate change (mortality for heat waves, morbidity and mortality linked to extreme weather events)

California, one of the more advanced state partners in this program, established the California Environmental Health Tracking Program in 2002 (California Policy Research Centre 2004a; EHIB 2002). Initial development was guided by a report, *Strategies for Establishing an Environmental Health Surveillance System in California* (2004a,b), which defined the need for and goals of environmental health tracking in the state and reported on current knowledge about environmentally related diseases and their costs. The report listed the diseases, environmental hazards and exposures that should be tracked in California, and described community information needs as well as ethical, legal and policy issues. The initial phase of the program, funded by CDC, has focused on three goals:

1. developing the technology infrastructure, including projects on geocoding, pesticide mapping and air pollution from traffic mapping;
2. improving data availability and utility; and
3. promoting knowledge translation for practice and policy (California Policy Research Centre 2004b).

The World Health Organization (WHO) in Europe began developing an Environmental Health Information System (EHIS) in 1999 within the larger system of European Community Health Indicators (ECHI). EHIS is now being developed into a pan-European system, and a core set of environmental health indicators for Europe has been reported (WHO Europe 2004).

In Quebec, a common surveillance plan, including environmental health, occupational health and infectious diseases, was established under the Ministère de la santé et des services sociaux (MSSS), and is centralized within the Public Health Institute. Indicators are chosen by expert consensus in accordance with the Public Health Program objectives, 2003–2012 (MSSS 2003). Currently, 26 of the 41 environmental health indicators are reported, 17 related to exposures (environmental data) and nine with health data (Comité d'éthique de santé publique du Québec 2004).

While these three systems differ in terms of stage of development and comprehensiveness, they point to the recognition that environmental health in the public domain requires more attention to protect the health of populations.

Elements of an Environmental Public Health Tracking Program for Canada?

Environmental health can be very broad, including such issues as the overall "health of the planet" (including climate change), sustainable development and the built environment, or it can focus on specific, non-communicable environmental hazards: chemical, physical and biological. The terms need to be clearly defined so as to be manageable and relevant to policy making and action.

The field of environmental health is a complex arena. The associations between environmental hazards and health span different sectors and disciplines, from engineering and toxicology to epidemiology. Hence, environmental health tracking requires integration of data sets from many different sectors and disciplines. The science contains many uncertainties. The available evidence, besides that from toxicological studies, tends to derive from observational epidemiological studies. These provide evidence of association, but frequently fall short of meeting standard scientific criteria for causation in linking environmental hazards with health outcomes. In some areas the evidence is stronger (e.g., air pollution and health), but there are many areas of controversy (e.g., pesticides and health). The science is further complicated by such issues as multiple exposures; low-dose, long-term exposures; long latency periods; and genetic–environmental interactions. Furthermore, there are many gaps in the data, especially in terms of exposure, as discussed later. This is difficult terrain for any environmental public health tracking system.

What Categories of Information Should Be Tracked?

Thacker et al. (1996) proposed three categories of surveillance information: hazard surveillance, exposure surveillance and health outcome surveillance. The importance of linking environmental health surveillance with policy and action has led to the addition of a fourth category of information: the assessment of policy interventions. Corvalan and colleagues (1999) argue in favour of including "upstream" driving forces such as economic changes (in production and consumption, poverty), social trends (population growth and urbanization) and technological factors that create pressures affecting the state of the environment. As indicators of environmental public health, these are in most situations impractical and non-specific to the hazards. Although these factors are important to policy analysis and intervention, they have not been included in the CDC or Quebec tracking systems, are not prominent in the EU tracking systems and are not addressed in this commentary.

To illustrate this point further, we have chosen particulate air pollution (PM2.5) as a "worked example." Table 2 illustrates the causal pathway from hazard to exposure to illness. First, the hazard is released into the environment, in this case particulate matter from motor vehicles, power generation or wood smoke. Then individuals and population groups are exposed by breathing the polluted air. Finally, some of the exposed population will develop health effects. PM2.5 is chosen as an example because (a) the evidence for association between exposure to the hazard, PM2.5, and the health effects discussed is considered strong, (b) the burden of illness is large (Ontario Medical Association 2005) and (c) there are effective policy interventions, such as reducing traffic in urban areas or reducing coal-burning power generation. It is estimated that a one-unit reduction in sulphate air pollution in Canada would lead to a mean annual increase of quality-adjusted life years (QALY) of almost 21,000 (Coyle et al. 2003).

Tracking hazards

Hazards are chemicals (e.g., pesticides, lead, particulates), physical agents (e.g., ionizing and non-ionizing radiation, noise and vibration) and biological toxins (e.g., water-borne pathogens) that are present in the environment and that have known or potential impacts on human health (California Policy Research Centre 2004a). Relevant data might include the amount of hazard produced, sold, used or released, or concentrations in the environmental media (air, food, soil and dust, water) and consumer products. Hazard tracking data sets in ministries of the environment and agencies responsible for transport, labour, agriculture, food and other areas were developed for the purpose of monitoring environmental quality and compliance with regulatory standards, and are not oriented towards health outcomes. Integration of these environmental data sets with health outcome data would present significant

TABLE 2. PM2.5 measures of air pollution in the causal pathway as a worked example of this approach

Hazard surveillance	Exposure surveillance	Health effect surveillance	Intervention options
Ambient levels of PM2.5 ↑ Routinely and continuously monitored in real time in many locations ↓ Needs geographically denser monitoring sites or GIS modelling ↑ The quality of the data is excellent and assured, and the data source is valid, reliable and sensitive **Air Quality Health Indicator (AQHI)** ↑ Health risk based ↑ A single indicator synthesizing many air pollutants and health effects	Ambient levels shown to be good surrogate for personal exposure ↓ Many micro-environments and complex PM chemistry complicate picture	Hospitalization – Respiratory and Cardiac Mortality – Respiratory and Cardiac ER visits – Respiratory ↑ Data routinely collected by CIHI; can be analyzed ↓ Needs complex time series methods ↓ Lacks specificity; effects related to co-morbidity/age ↓ "Harvesting" (displacement) effect on mortality* ↓ Health outcomes are the tip of the pyramid, so the full extent of health effects is not demonstrated	↑ Can be promptly acted upon, with public health benefit (e.g., air quality advisories to reduce exposure, and industrial shutdowns to reduce emissions) ↑ Useful to promote long-term policy re: power generation, transportation, etc. ↑ Can be used to assess interventions ↓ Complex health messaging with advisories

Note: Critical commentary is that of the authors, with ↑ indicating a positive attribute, and ↓ indicating a negative attribute.

* "Harvesting" refers to deaths precipitated by a pollution incident that would have occurred within a short period of time in the absence of the high-pollution event. (Smith 2003).

* Smith 2003

challenges in terms of standardization, in that the data sets were collected for different purposes and may use different standards for collection. There will also be problems in integrating data in terms of differences in spatial and temporal determinants. Table 3 presents a selection of sources of data related to air pollution. This brief list illustrates the numerous data sources; a comprehensive review is beyond the scope of this paper. Similarly, there are multiple data sources for water, food and chemical hazards. For example, the Healthy Environments and Consumer Safety Branch (HECSB) Surveillance Working Group and the Centre for Surveillance Coordination of Health Canada maintains an inventory of federal/provincial/territorial environmental and occupational health data sources and surveillance activities, which lists 15 drinking water quality and eight food contamination data sites (Health Canada, Healthy Environments and Consumer Safety Branch 2004). Some of these databases are required under federal/provincial/territorial, bi-national or international agreements.

Tracking exposures

Exposure is the contact between a hazard in the environment and an individual, group or population by inhalation, ingestion, dermal contact or, for a foetus, through the

placenta. There is generally a lack of detailed information about human exposure over the life course, and this is the weakest, although perhaps the most important, link in the information describing the hazard-exposure-disease pathway (Mather et al. 2004). In the absence of direct measurement of exposure, indirect data on exposure can be derived from measuring environmental concentrations of substances and modelling exposure. However, indirect exposures do not account for variations in exposure due to individual behaviour. For example, an individual exercising outdoors will be exposed to more PM2.5 – because of faster, deeper breathing – than someone sitting quietly.

TABLE 3. Air hazard data sources

Data source	Jurisdiction	Hazards monitored
National Pollutant Release Inventory (NPRI)	Environment Canada Regulated under Canadian Environmental Protection Agency (1999)	Release and transfer of key industrial pollutants
Criteria Air Contaminant (CAC) emissions inventory	Environment Canada (reporting requirements under ozone annex to Canada – US Air Quality Agreement)	Selected air pollutants: particulate matter, nitrogen dioxide (NO_2), volatile organic compounds, carbon monoxide, ammonia
National Air Pollution Surveillance (NAPS) Network	Environment Canada and provinces/ territories (gazetted memorandum of understanding)	Ambient air pollution in urban centres
Canadian Air and Precipitation Monitoring Network (CAPMoN)	Environment Canada and provinces/ territories	Selected air pollutants and acid rain; spatial and temporal patterns
Integrated Atmospheric Deposition Network (IADN)	Environment Canada and US Environmental Protection Agency (Annex 15 of the *Great Lakes Water Quality Agreement*)	Priority toxic chemicals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides, mercury; in air and precipitation in the Great Lakes region
Canadian Atmospheric Mercury Measurement Network (CAMNet)	Environment Canada	Mercury
CORE Network Database	Environment Canada	Atmospheric chemicals and radiation
Air Quality Forecasts and Advisories	Environment Canada/provincial level	Selected air pollutants
Georgia Basin – Puget Sound International Airshed Strategy	Health Canada, British Columbia, Washington state	Air quality conditions by postal code

Two other issues further complicate exposure tracking. Firstly, there are "critical windows" in development during which the human body or organs are more susceptible to insult from exposures, especially for foetuses and children. Secondly, people are frequently exposed to mixtures of chemicals or other factors, with synergistic effects.

Direct information on exposure is gathered on a limited scale in research programs, for example, direct measurement of personal exposure to air pollutants by research subjects wearing personal exposure devices. Biomonitoring, which directly measures human exposure to toxic substances in the environment by measuring the substances or their metabolites in human specimens, such as blood, urine or hair, is a recent development in terms of surveillance, and the data to date from Europe and the United States, and from the Canadian Northern Contaminants Program, are limited. The Canadian Health Measures Survey will include biomonitoring in 2007–2009, but there is no current commitment to ongoing surveillance (Health Canada 2006a). Although biomonitoring holds promise, it is expensive and limited in scope, and modelling will remain an important source of exposure information.

Tracking selected health outcomes

Tracking of non-communicable diseases, and especially health status indicators related to environmental exposures, is limited in Canada (PHAC 2005). Although we have comprehensive data on the use of many healthcare services in the provinces and territories, the data sets are not standardized, easily linked or easily accessible, and the information is frequently difficult to interpret owing to (a) non-specificity of many health outcomes for their putative causal relationship with environmental hazards and (b) variable data quality.

Certain groups in our society are more vulnerable to environmental influences on their health, including children, northern communities, people living in poverty and those with pre-existing chronic diseases. Special consideration should be given to tracking environmental health in these "at-risk" groups, as sentinel indicators (Gosselin and Furgal 2002).

Tracking evaluation of interventions

The ultimate goal of any environmental public health tracking system is the implementation of healthy public policies and programs that prevent or reduce an environmental hazard, exposure or health effect. The science–policy interface is complicated, with scientific evidence contributing to the legitimacy of policy directions and to the rational formulation of policy in the face of political, economic and social pressures in the policy process (Aron and Zimmerman 2002). A tracking system must generate indicators and reports that communicate effectively in the policy arena. Measurement of indicators over time is important in monitoring the effectiveness of public health interventions, to provide the required feedback to the policy process (Corvalan et al. 1999; Briggs 1996; Kyle et al. 2006; Eyles and Furgal 2002).

Indicators

The number of potential indicators reflecting the four categories described above is enormous. There is a rich literature regarding the selection of environmental health indicators (Corvalan et al. 1999; CDC 2006b; Eyles and Furgal 2002; WHO Europe 2004). Environmental health indicators need to be scientifically sound, practical and usable.

- *Scientific criteria* include validity, reliability and representativeness of data. Also important is the evidence base for causation, as opposed to mere association or linkage, between environmental hazard or exposure and the health outcome of concern.
- *Practical criteria* include availability of data, ability to track the data consistently over time, suitability of data (in what form are they available?), and whether they can be integrated with other data sets.
- *Usability criteria* are concerned with whether the information is action-oriented, that is, whether it is useful to public health professionals, policy makers or the public to inform preventive action, programs or policy interventions. Important also is the number of people exposed, the number of people whose health is affected (mortality, morbidity, disability), including definition of vulnerable populations, and various measures of the cost to society of the exposure.

Which Indicators Should Be Considered for an Environmental Health Tracking System in Canada?

As an example, possible indicators for surveillance of particulate air pollution (PM2.5) are presented in Table 2. Ambient levels of PM2.5 provide a consistent and useful indicator of hazard. Modelling shows that ambient air levels represent personal exposure levels reasonably well, although there is recent interest in exposure in micro-environments, such as proximity to traffic (Toronto Public Health 2007). The indicator is relevant to preventive policy interventions in transportation and urban planning, and in terms of individual behaviour change during smog alerts, but would require agreement on when and where to monitor, as street exposure levels do vary (Lebret et al. 2000).

The indicator for health effect surveillance has two possible measures: excess hospitalization, and excess mortality from respiratory and cardiac disease related to PM2.5. The data are comprehensive across Canada, and data quality is assured. To calculate excess cardio-respiratory mortality and hospitalization related to PM2.5 on an ongoing basis, time series studies would need to be conducted. Many of these have been published, showing strong associations (Goldberg et al. 2003; Pope and Dockery 2006). The necessary time series calculation to differentiate excess deaths related to variation in PM2.5 makes this indicator more controversial in terms of sensitivity to small (but potentially widespread) effects, validity and representativeness. However, it has great policy relevance because of the potentially large preventable burden of

"attributable" illness – again, due to the possible high prevalence of exposure, even if the size of effect is small.

A third possible indicator, the Air Quality Health Indicator (AQHI), is at present under development. It would integrate environmental monitoring (air quality data on fine and coarse PM, ozone, carbon monoxide (CO), nitrogen dioxide (NO_2) and sulphur dioxide (SO_2) from the National Air Pollution Surveillance Network) and health surveillance data in a single indicator, which could be applied at a federal, provincial or municipal level (Health Canada 2006b).

Many other important environmental health issues would provide even more challenges in creating practical and robust indicators across the pathway from hazard and exposure to health effect and intervention. The PM indicators might be the closest we can get to a "gold standard."

Challenges and Next Steps

The complexity of the relationship between environmental exposures and health, and the difficulties in tracking, especially in obtaining appropriate data on exposure, make this a significant public health challenge, but surely one worth tackling. The complex technical and infrastructure issues that are central to the development of a successful tracking system lie beyond the scope of this paper. Moving forward on environmental health tracking in Canada will require ongoing collaboration not only among national, provincial, regional and local levels of government, but also between environmental and health and other agencies, and it will require sustained financial and political commitment. There is a particular need for a long-term political and financial commitment from all levels of government to monitor environmental issues that affect health, and to provide trained staff to enforce the standards established. There will be challenges in selecting the most appropriate areas for indicator development and tracking, areas that ultimately will have "some reasonable expectation of intervention" (Teutsch 2000). But how can this vision be moved along?

There is a particular need for a long-term political and financial commitment from all levels of government to monitor environmental issues that affect health, and to provide trained staff to enforce the standards established.

In the United States, the CDC, through its National Network Implementation Plan (CDC 2006c) is leading the development of a tracking network that is building

the central infrastructure, including a central portal and network interfaces, and developing capacity in partners at federal, state and local governments and in academic and other institutions. It has promoted the selection of data and development of indicators by giving grants that fund cooperative projects to identify, organize and improve the quality of relevant data.

We suggest that the model in Canada should be similarly cooperative across levels of government. The initial development would be led by Health Canada and the Public Health Agency of Canada and supported with federal funding. But the early steps should include creating a cooperative governance structure including federal/provincial/territorial governments, with a central secretariat, and working groups to steer the various elements of the process. It would be important to involve health, environment and natural resources ministries at both the federal and provincial/territorial levels, as well as Statistics Canada. The initial projects might include a scan of already existing activities, a needs assessment from federal to local levels of government and development of a business case defining the benefits of an environmental public health tracking system to all levels of government. The business case should address how governments from federal to local would relate to the system, and the costs in terms of dollars, personnel and technology. Ongoing funding would need to come from all levels of government involved in and benefiting from the system, but the first steps would be the funding of pilot projects through academic institutions or environmental/health authorities to get the ball rolling and achieve some early successes.

Conclusion

An environmental health tracking system is considered a fundamental requirement for the effective practice of public health in Canada. We have attempted to focus the discussion by exploring a conceptual approach to the selection of the environmental and health issues most important to track, and discussing the example of an indicator – one that is virtually "ready to use" now (PM2.5 levels in air) – that would enhance the effectiveness of environmental health practice and policy. Other jurisdictions have begun the process of establishing environmental public health tracking systems. Canada is not far behind at the moment, and swift action on the part of government is appropriate.

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Appel aux auteurs

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DATA MATTERS

Inter-Facility Patient Transfers in Ontario: Do You Know What Your Local Ambulance Is Being Used For?

Transferts de patients entre établissements : comment l'ambulance locale est-elle utilisée?

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Abstract

Background: Little is known about inter-facility patient transfers in populations. In 2003, detailed information about inter-facility patient transfers began to be systematically collected in Ontario.
Methodology: The authors undertook a descriptive examination of inter-facility patient transfers using a newly created population-based information system.
Results: Approximately 1,000 inter-facility patient transfers occur in Ontario each day, and every day and a half, the total distance travelled for these transfers equals the distance around the earth's circumference. The annual cost for patient transfers is approximately $283 million. Most common were routine and non-urgent inter-facility patient transfers. Eighty-five thousand patients (24.3% of transferred patients) were transported between healthcare facilities for dialysis appointments, appointments with physicians and return trips home. Patients with circulatory conditions were the most commonly transferred diagnostic group. Although 70% of all transfers were within 25 kilometres, some were for longer distances: for example, those involving pregnant women and newborn babies required travelling a median distance of 40.3 kilometres for continued care. Cardiac patients (54,000 patient transfers per year) travelled a median of 24.2 kilometres to reach a catheterization lab for treatment and further investigation. There was considerable lateral movement between academic health sciences centres (AHSCs). Over 16,000 patients per year (4.7% of all transfers) were transferred from one AHSC to another, predominantly for cardiac care.
Discussion: Patients in Ontario are often transferred between healthcare facilities. Most transfers are for routine, non–life-threatening reasons, using the Emergency Medical Services (EMS) system. This practice diverts resources from more emergent requests. Although patient transportation is a necessary part of any healthcare system, the results of this study highlight the current demands on a system that was not intended for the volume of inter-facility patient transfers it is supporting. These results call into question the use of sophisticated, highly trained, expensive patient transfer resources to provide routine medical services in Ontario.

Résumé

Contexte : On connaît peu de choses au sujet du transfert de patients entre établissements dans une population donnée. En 2003, l'Ontario commençait à recueillir systématiquement une information détaillée à propos de tels transferts.
Méthodologie : À l'aide d'un nouveau système d'information axé sur les populations, les auteurs ont mené un examen descriptif des transferts de patients entre établissements.
Résultats : Environ 1000 transferts de patients entre établissements ont lieu chaque jour en Ontario. À chaque 36 heures, la distance totale parcourue au cours de ces transferts est égale à la circonférence de la terre. Le coût annuel pour le transfert

de patients est d'environ 283 millions de dollars. Les transferts de routine, ou non urgents, sont les plus fréquents. Quatre-vingt-cinq mille patients (24,3 %) sont transportés entre des établissements de santé pour des dialyses, des rendez-vous avec le médecin ou le retour au foyer. Les patients qui ont des problèmes du système circulatoire constituent le groupe où les transferts sont les plus fréquents. Bien que 70 % de tous les transferts s'effectuent sur une distance de 25 kilomètres ou moins, certains d'entre eux – notamment pour les femmes enceintes et les nouveaux-nés – se font sur une distance médiane de 40,3 kilomètres, pour la continuité des soins. Les patients qui ont un problème cardiaque (54 000 transferts par année) parcourent une distance médiane de 24,2 kilomètres pour se rendre dans un centre de cathétérisation afin d'y recevoir un traitement ou d'y passer un examen. Il y a un mouvement latéral considérable entre les centres universitaires des sciences de la santé (CUSS). Plus de 16 000 patients par année (4,7 % de tous les transferts) sont transférés d'un CUSS à l'autre pour recevoir des soins, principalement pour des problèmes cardiaques. *Commentaire :* En Ontario, les patients sont souvent transférés entre les établissements de santé. La plupart de ces transferts ont un caractère routinier, où la vie des patients n'est pas en jeu, et font appel aux services médicaux d'urgence. Cette pratique détourne les ressources au détriment de situations plus urgentes. Bien que le transport de patients soit nécessaire dans tout système de santé, les résultats de cette étude mettent en relief la pression actuelle sur un système qui n'a pas été conçu pour un tel volume de transferts de patients entre établissements. Les résultats remettent en question l'utilisation d'une ressources perfectionnée et onéreuse, où le personnel est solidement formé, afin d'offrir aux patients ontariens des services médicaux de routine.

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Beginning in 1996 with the Ontario Health Services Restructuring Commission, the landscape of Ontario's healthcare began to change. As a result of restructuring and regionalization of healthcare services, Ontario patients are often moved through the healthcare system from facility to facility for care. Patients can no longer expect to have all their healthcare needs met at a single facility. Emergency medical services (EMS) in Ontario are provincially mandated and regulated but locally administered, most often by municipal governments.

The structure of emergency services varies greatly from province to province. For example, pre-hospital emergency services in British Columbia are wholly administered by the province. Alberta is centralizing its EMS structure to transfer responsibility to Alberta Health Services by April 2009. At the other end of the spectrum, emergency services in Nova Scotia are regulated by the Department of Health but managed by a private company, Emergency Medical Care. The diversity of governance structures and administration of EMS across Canada makes sharing data and drawing comparisons difficult.

Ambulance services and other patient transportation are non-insured services under the *Canada Health Act*, and coverage is left up to the discretion of the provinces. In 2001, when Ontario municipalities assumed responsibility for ambulance services, they also accepted responsibility to provide 50% of the funding necessary to run them jointly with the Ministry of Health and Long-Term Care. Since then, it is widely acknowledged (Armstrong 2004, D'Angelo 2004) that costs have not been equally balanced, as municipalities now cover more than 50% of ambulance costs. The majority of patient transportation in Ontario is completed through the public system; however, some inter-facility patient transfers are completed through contracts with private companies as a way for some hospitals to trim their costs and improve efficiency.

More often than not, transferred patients are transported between healthcare facilities by fully equipped ambulances that are staffed by highly trained and well-paid paramedics – the same system used for emergency 911 calls. Inter-facility patient transfers can be emergent or routine in nature.

In 2003, in reaction to outbreaks of severe acute respiratory syndrome (SARS) in Toronto, the Provincial Transfer Authorization Centre (PTAC) was established to authorize all inter-facility patient transfers in the province of Ontario (MacDonald et al. 2004). Today, a patient transfer between two healthcare facilities may not proceed until authorization has been received from PTAC. All data pertaining to patient transfers are stored in the PTAC database.

The objective of this study was to provide a cross-sectional view of patient transfers in Ontario. Prior to this study, total numbers of patient transfers were known, but detailed descriptive data about these transfers were not available. An examination of demographics, patterns and volume of patient movement can assist policy makers who face resource allocation decisions and must plan for future needs and growth. To the best of our knowledge, ours is the first population-based analysis of inter-facility patient transfers in a Canadian province.

Methodology

As can be expected with any new data set, the PTAC database was not without its own challenges. First, the data set had to be validated against a "gold standard." A validation study (Robinson et al. 2006) determined that the PTAC data had a high level of validity (i.e., sensitivity values for data variables ranged from 0.87 to 1.0). Second, the data set required additional coding and recoding of variables. This process is discussed in subsequent sections.

Study population

The study population was a random sample of 5,000 inter-facility land transfers in

Ontario, Canada drawn from one year's worth of data (349,342 transfers). Inter-facility patient transfers that were completed by air were excluded.

Data

The Provincial Transfer Authorization Centre is operated by Ornge (formerly Ontario Air Ambulance), which has stewardship over all data collected through PTAC. Data were abstracted from the PTAC database for a one-year period from June 1, 2004 to May 31, 2005. These data were collected during the PTAC authorization process for inter-facility patient transfers.

There are several steps in the authorization process. First, sending facilities are required to complete a patient transfer authorization form. Once the form has been submitted to PTAC, the request is processed using a decision algorithm, primarily screening for infectious disease. If the transfer request meets the predetermined criteria, it is approved and assigned a transfer authorization number. Authorization is normally obtained quickly. If the transfer is non-urgent, authorization can be requested and granted in advance to avoid delays. When a request does not meet the criteria, a physician reviews it and often contacts the sending facility to obtain more information. Patient transfer requests are processed consecutively except for emergency transfers, which are processed immediately.

Once a transfer request is approved, the sending facility contacts its regional Central Ambulance Communication Centre (CACC) or local ambulance service provider to proceed with the transfer.

Inter-facility patient transfers have three levels of priority: emergent, urgent and non-urgent. An *emergent transfer* involves a life-threatening situation, is time-sensitive and receives priority by PTAC. (See Appendix A for a full description at http://www.longwoods.com/product.php?productid=20478.) An *urgent transfer* is not as serious as an emergent transfer, but may still be time-sensitive and should be completed within a specific timeframe. A *non-urgent transfer* is considered routine and does not involve an immediate threat to life or limb, or care that is time-sensitive.

Research ethics approval for this study was granted by the University of Toronto and Sunnybrook and Women's Health Sciences Centre Research Ethics Boards.

Analysis

Because of the need for recoding, a random sample of 5,000 transfers was selected using the random sampling function in the statistical software program SPSS (SPSS Inc. n.d.). A sample size of 4,113 provides a 99% confidence interval of +/–2% on proportions. The sample size was rounded up to 5,000.

Several variables had to be either recoded or created in order to analyze the PTAC

data set properly. From a free text variable, two variables were created to describe the reason for the inter-facility transfer, one of the most important aspects of the analysis. The first was the diagnosis based on an International Classification of Disease (ICD) version 10 code. The second was a modified version of the Canadian Classification of Health Interventions (CCHI) and was used to describe the procedure or issue to be addressed at the receiving facility. The CCHI was modified with the addition of several variables specific to inter-facility patient transfers. A validation process concluded that the coding sensitivity (true positive result) was 0.96.

Hospitals in Ontario are classified by the Ministry of Health and Long-Term Care according to their size and function. A slightly modified version of this classification system was used in the study.

Distances between facilities were calculated by converting postal codes first into geographical units of latitude and longitude and then using a specific equation that calculates distances between two points.

A detailed description of the coding and recoding process for the reason-for-transfer variables, the facility classification variables and the geographical coding variables appears in Appendix B (http://www.longwoods.com/product.php?productid=20478). The equation used to calculate patient transfer distances appears in Appendix C (http://www.longwoods.com/product.php?productid=20478).

Once all the data were coded, cleaned and checked for accuracy, they were imported into SPSS (v. 15) for analysis. A series of descriptive analyses were performed including calculation of means, medians, *t*-tests, chi-squares and Mann–Whitney *U* tests to examine differences between groups and also linear and multiple regressions to examine associations among data variables.

Using costing data publicly available through the Ministry of Health and Long-Term Care and the Ontario Auditor General (2005) and a simple proportions equation (Figure 1), we estimated the average direct cost of a one-way inter-facility patient transfer. This average inter-facility patient transfer cost was applied to transfer numbers to provide financial context to the analyses. Detailed costing information will be presented in a subsequent paper.

FIGURE 1. Equation for estimating the average cost of inter-facility patient transfers, 2005

$$D = \frac{A * B / C}{B}$$

A = Total cost of land transfers
B = # of inter-facility patient transfers per year
C = # of land transports per year
D = Average cost of inter-facility patient transfer

Results

On a typical day there are over 1,000 inter-facility patient transfers within the province of Ontario, for a total of almost 400,000 transfers annually. Ontario ambulances providing these transfers travel a distance equal to the circumference of the earth every day and a half – that is, approximately 10.5 million kilometres.

The majority of all inter-facility patient transfers are non-urgent (80.4%; see Table 1) and occur between Monday and Thursday. The main reasons for non-urgent transfers are physician's appointments, dialysis and returning to home facility or residence (81,000 transfers per year; see Table 2). The majority of inter-facility patient transfers concern the circulatory, musculoskeletal and connective tissue, or genitourinary systems.

TABLE 1. General descriptive statistics of inter-facility transfers by transfer priority

	Transfer priority (% of all transfers)			
	Emergent	**Urgent**	**Non-urgent**	**All transfers**
All transfers by priority	10.4	9.2	80.4	100.0
Sex				
Female	47.3	50.9	56.8	55.6
Male	52.7	49.1	43.7	44.4
Day of week				
Monday	15.2	14.5	18.8	18.0
Tuesday	14.1	19.7	18.8	18.5
Wednesday	16.0	15.2	17.5	17.1
Thursday	11.9	14.6	18.2	17.2
Friday	14.9	16.6	10.4	11.4
Saturday	14.3	10.3	5.2	6.6
Sunday	13.7	9.0	11.1	11.1

TABLE 2. Top reasons for inter-facility patient transfers, classified by ICD 10 and CCHI, and their estimated cost to the Ontario healthcare system

	ICD 10 chapter	Percentage of all transfers (%)	Number of transfers per year	Median distance travelled per transfer (km)	Median distance inter-quartile range (km)	Estimated cost per year (in millions)
1	Circulatory	15.5	54,162	17.0	6.8–50.0	$38.0

TABLE 2. Continued

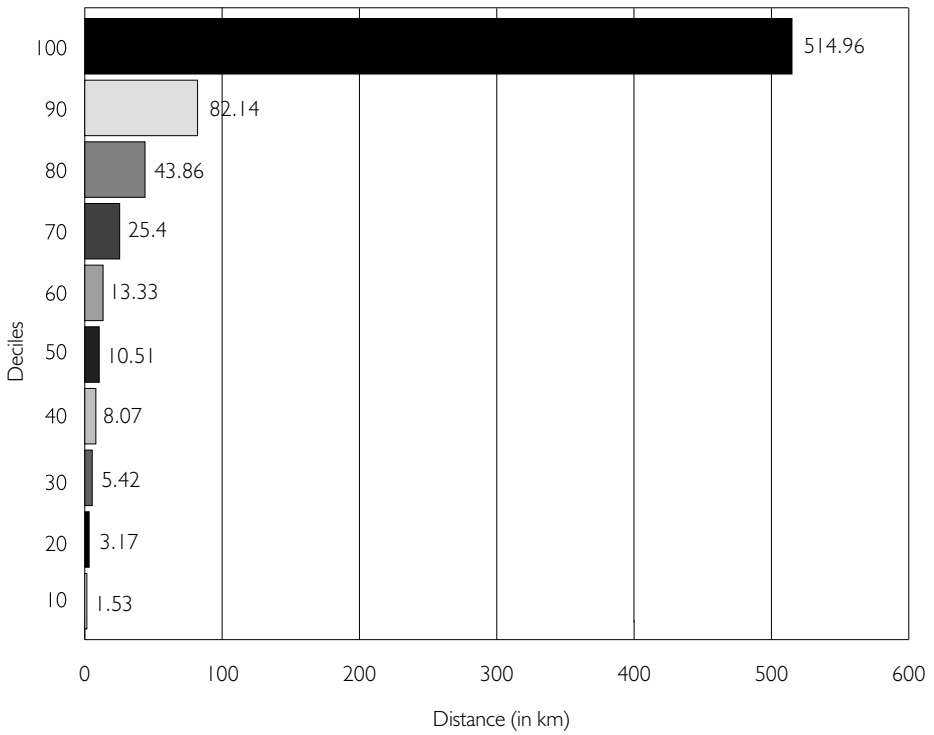
2	Musculoskeletal and connective tissue	12.7	44,378	10.5	5.4–39.4	$31.0
3	Genitourinary	12.1	42,281	9.2	3.3–25.5	$29.8
4	Digestive	5.3	18,520	10.5	3.7–35.5	$13.0
5	Neoplasms	5.0	17,472	14.0	6.3–63.1	$12.3
6	Mental and behavioural disorders	4.9	17,122	10.5	3.7–26.9	$12.1
7	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	4.6	16,074	10.3	3.4–27.1	$11.3
8	Respiratory	4.6	16,074	7.9	2.8–23.8	$11.3
9	Nervous	4.3	15,026	10.5	3.7–40.7	$10.6
10	Injury, poisoning and certain other consequences of external causes	2.7	9,435	11.7	4.8–51.0	$6.6
	Canadian Classification of Health Interventions (CCHI)	**Percentage of all transfers (%)**	**Number of transfers per year**	**Median distance travelled per transfer (km)**	**Median distance inter-quartile range (km)**	**Estimated cost per year (in millions)**
1	Pre-scheduled physician's appointment	8.9	31,099	10.5	5.3–23.2	$21.9
2	Dialysis appointment	7.7	26,906	9.5	3.9–25.8	$18.9
3	Physical/physiological therapeutic intervention	6.9	24,111	10.5	5.4–42.7	$17.0
4	Admission	6.7	23,412	10.5	5.0–40.7	$16.5
5	Diagnostic imaging intervention	6.2	21,665	10.5	3.0–41.7	$15.3
6	Returning to sending facility/home	5.9	20,617	8.3	3.6–18.3	$14.5
7	Catheterization lab	3.2	11,182	24.2	8.2–70.9	$7.9
8	Consultation	1.7	5,940	10.5	5.5–36.5	$4.2

The median age for inter-facility transferred patients is 75 years. There are significant differences in median age by priority status. For example, emergent inter-facility

transfer patients are considerably younger, with an overall median age of 56 years. Almost 70% of transferred patients are over the age of 65, and less than 5% of transfers are of children under the age of 18.

Within an urban setting, the majority of inter-facility patient transfers are over short distances. The median distance travelled is 10.5 kilometres, with an inter-quartile range of 4.3 to 33.3 kilometres (kurtosis 20.0, standard error 0.07). Of all non-urgent patients who are transferred for dialysis, physician's appointments and returning to home facilities or residences, 77.7% of them travel within a radius of 25 kilometres. Among all transferred patients, 20% travel over 44.0 kilometres to receive care (Figure 2).

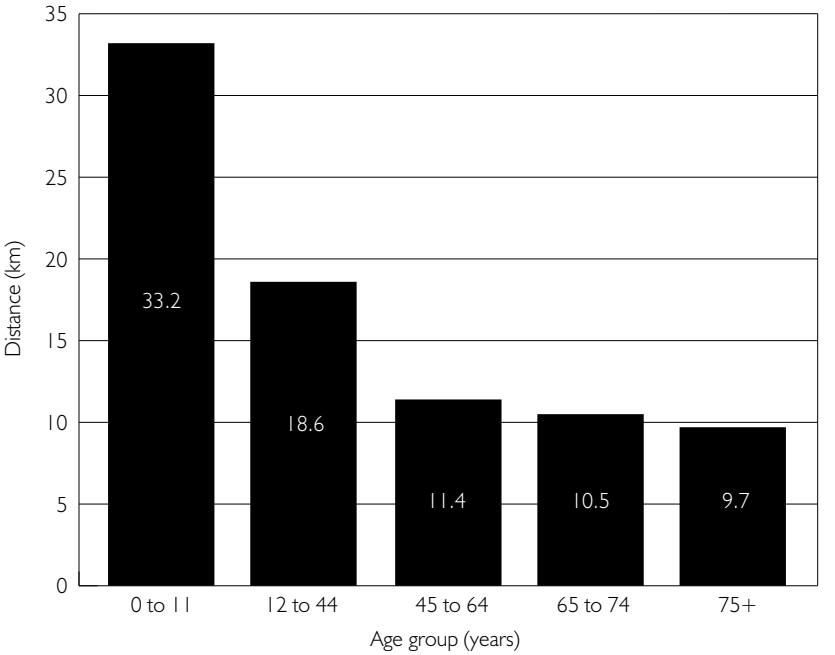
FIGURE 2. Overall distance travelled presented by decile (in km)



Pregnant women, women transferred for childbirth and neonates travel a median distance of 40.3 kilometres; over half (52.9%) of these transfers are emergent or urgent.

There are significant differences in travel distances between emergency, urgent and non-urgent transfers (MWU, $p<.0005$). Non-urgent and urgent transfers travel the same median distance as the overall average (10.5 kilometres), but emergent transfers travel a median distance of 33.8 kilometres. Differences also exist between age groups. Young children (0–11 years) are transferred a median distance that is 22.6 kilometres longer compared to older adults (65–74 years) (MWU, $p<0.0005$)(Figure 3).

FIGURE 3. Median inter-facility patient transfer distance travelled by age group



Group A, or academic health sciences centres (AHSCs), are large, tertiary care teaching hospitals. Group B hospitals are large non-teaching hospitals with no fewer than 100 beds. Group C hospitals are small non-teaching hospitals with fewer than 100 beds. Transfers among Group A, B and C hospitals (see Appendix B) represent 39.8% of all transfers. Among these, there is significant lateral movement of patients. Approximately 16,454 (4.7%) patient transfers occur between one AHSC and another, and approximately 32,207 (9.2%) patient transfers occur between Group B hospitals (Table 3). Transfers laterally between AHSCs are primarily for cardiac-related services, followed by musculoskeletal and digestive services. Transfers laterally between Group B hospitals are also primarily for cardiac-related reasons, followed by genitourinary and musculoskeletal services. Almost all emergent and urgent patient transfers are to an AHSC, Group B or Group C hospital.

TABLE 3. Movement between facilities by hospital classification

Most travelled route*	Percentage of transfers per year	Actual number of transfers per year
Group B to LTC	12.1%	42,631
LTC to Group B	9.8%	34,244
Group B to Group B	9.2%	32,148
Group C to Group B	7.8%	27,256
Group B to AHSC	7.5%	26,207

TABLE 3. Continued

LTC to AHSC	4.8%	16,773
AHSC to AHSC	4.7%	16,423

* See Appendix B for a description of facilities.

The total direct cost of providing inter-facility patient transfers in Ontario for one year was $242.88 million in 2005. The average cost for an individual, one-way inter-facility patient transfer was $704. An approximation of cost totals by diagnostic category, based on applying this value to transfer numbers, is presented in the last column of Table 2.

Discussion

This study represents the first population-based analysis of inter-facility patient transfers in Ontario. Regionalized healthcare in Ontario has necessitated the movement of patients from facility to facility and for many patients in Ontario this has become the new pattern of care. From 2005 to 2008, inter-facility patient transfers increased 40%, from an average of 1,000 transfers per day to 1,375 (PTAC data).

A patient transportation system is a necessary part of any healthcare system, especially a highly regionalized one like Ontario's. Regionalization of certain services has been found to improve outcomes (Halm et al. 2002), namely, mortality and morbidity, while maintaining a certain level of quality and efficiency in the healthcare system. An unanticipated effect, however, at least in Ontario, is the amount of patient movement required to maintain continuity of care, and the consequent impact on emergency services when a high volume of routine transport is assumed by the ambulance system.

The results of this study indicate that the majority of patient transfers are for non-urgent reasons, and for short distances. Planning for specialized services is often done with major interventions in mind (e.g., definitive surgery), but without full consideration of the impact of service centralization on consultations, routine treatments and follow-up care. Transfers for highly specialized care, however, represent only a small proportion of all inter-facility patient transfers in Ontario; the majority of patient transfers are routine. Therefore, other options should be explored to make the patient transportation system more efficient and accessible. For example, inter-facility patient transfer trends for dialysis appointments may indicate the need for additional dialysis facilities.

Some municipalities have reported an inability to cope with the current demand for ambulance use because of inter-facility patient transfers (Auditor General of Ontario 2005). As a result, their provincially mandated response times for 911 ambulance calls have suffered, and patient transfers are often delayed (Auditor General of Ontario 2005). According to the Association of Municipal Emergency Services of Ontario, increasing inter-facility patient transfer volume "results in hundreds of hours

of lost availability to the EMS providers, which has a very negative impact on emergency response time. Delays currently experienced in respect to low-priority inter-facility patient transfers has an extremely negative impact on the healthcare system as a whole" (Armstrong 2004).

Having a patient transportation system dedicated, at least in part, to the transfer of non-urgent, routine patients makes intrinsic sense. Yet, since the offloading of EMS to municipalities in 2001, the Ontario Ministry of Health and Long-Term Care appears to have given patient transportation low priority. Patient transfer volumes have increased without a corresponding increase in government funding to meet the 50/50 funding formula. This shortfall leaves municipalities to cover upwards of 65% of EMS costs (D'Angelo 2004, Armstrong 2004).

Having a patient transportation system dedicated, at least in part, to the transfer of non-urgent, routine patients makes intrinsic sense.

At the urging of many interested groups, the ministry commissioned a consulting firm, IBI Group, to examine the inter-facility patient transfer issue in Ontario. The findings confirmed the concerns and possible solutions raised by municipalities, EMS groups and others across the province; however, the ministry refused to make the results of the study public. The findings were made known through a Freedom of Information request.

An important finding from the current study was the amount of lateral movement between AHSCs and between Group B facilities. Such lateral transfers may be symptomatic of hospital crowding, lack of available beds, staffing shortages at healthcare facilities and a lack of comprehensive services, even at AHSCs.

Although this study did not specifically examine wait times for inter-facility patient transfers, these are well documented elsewhere (Auditor General of Ontario 2005; Stolte et al. 2006) and have considerable impacts on patient care. The Ontario Auditor General (2005) reported that over 40% of non-urgent inter-facility patient transfers were delayed more than 20 minutes from the scheduled time. Patients can be "in the queue" for an inter-facility transfer but may have to wait a long time because of priority calls or offloading issues from previous transfers. Such delays can cause missed appointments and tardy medication administration and treatment (Stolte et al. 2006), as well as higher stress levels due to waiting, prolonged length of stay in acute facilities and lack of care continuity – all factors that can result in compromised patient care and increased healthcare costs.

Study limitations

Although this study was population-based, a random sample was taken from one year of data, and recoding was completed on this sample. Because variables were recoded, coding errors are possible; but as coding was completed by one researcher (VR) and the process was checked for accuracy, the chance for error was small. Some records (8% of the sample) lacked information about the reason for a transfer, possibly because this information was not available at the time. Even though the analyses used sampled data, drawing the sample from an entire year's data should have minimized seasonal effects.

As well, a small percentage of patient transfers were completed by private patient transportation companies, taxis or family members, and it was not possible to exclude these from the analyses.

Conclusions

This population-based study of inter-facility patient transportation for an entire province highlights issues that may exist in other parts of Canada and around the world.

Although there may be a public perception that ambulances are used to transport patients solely during emergencies to healthcare facilities, the results of this study challenge this perception.

In Ontario, the large volume of inter-facility patent transfers is overwhelming many EMS systems throughout the province. One in every three patients admitted to hospital in Ontario can expect to be transferred for continued care (Jaakkimainen et al. 2006). The typical inter-facility patient transfer in Ontario involves a non-urgent appointment with a cardiologist or a dialysis treatment and covers 10.5 kilometres. Round trip transfers costs average $1,408. The use of emergency medical services to transfer non-urgent inter-facility patients may represent an inappropriate use of resources.

The results of this study suggest a need for change in the way patients are transferred throughout the province. Policy makers now have more detailed information to inform decisions about how to implement that change.

Future studies involving PTAC data might include more detailed trend analyses of transfers and patient outcomes analyses, including morbidity and mortality, through data linkages with hospitals and other databases.

ACKNOWLEDGEMENTS

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Appendices are available online at: http://www.longwoods.com/product.php?productid=20478.

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Connected Care: How a Health Science Centre Is Using Evidence to Improve Patient Transitions from Primary to Secondary Care

Soins interreliés : un centre des sciences de la santé utilise des données probantes pour aider les patients à faire la transition des services de santé de première ligne aux services de santé de deuxième ligne

by CANADIAN HEALTH SERVICES RESEARCH FOUNDATION

Abstract

The department of emergency medicine at Queen Elizabeth II Health Sciences Centre in Nova Scotia's Capital Health District is developing pathways to strengthen the ability of family physicians to manage their patients and improve the primary–secondary care transition. This diagnostic pathway initiative improves patient and caregiver satisfaction and also provides system benefits. This innovative initiative was recently featured in *Promising Practices in Research Use*, a series produced by the Canadian Health Services Research Foundation highlighting organizations that have invested their time, energy and resources to improve their ability to use research in the delivery of health services. Tell the Foundation your own stories and visit the *Promising Practices in Research Use* inventory at http://www.chsrf.ca/promising/index_e.php.

Résumé

Le Service de médecine d'urgence au Queen Elizabeth II Health Sciences Centre du Capital Health District de la Nouvelle-Écosse élabore un programme d'accès au diag-

nostic pour renforcer la capacité des médecins de famille à gérer les dossiers de leurs patients et améliorer la transition des services de première ligne à ceux de deuxième ligne. Le programme d'accès au diagnostic accroît la satisfaction des patients et du personnel soignant et se traduit par des avantages systémiques. Cette initiative novatrice a fait l'objet d'un article dans *Pratiques prometteuses dans l'utilisation de la recherche*, une publication de la Fondation canadienne de la recherche sur les services de santé, qui présente des organismes ayant investi temps, énergie et ressources pour améliorer leurs capacités à utiliser la recherche dans la prestation des services de santé. Vous pouvez nous suggérer des idées d'article et consulter la liste des numéros de *Pratiques prometteuses dans l'utilisation de la recherche* au http://www.chsrf.ca/pratiques/index_f.php.

KEY MESSAGES

- Building patient-centred pathways to ease the transition from primary to secondary care can improve patient and caregiver satisfaction and provide system benefits.
- Three important elements of building successful pathways are:
  - seeking input on the new process from all stakeholders, paying particular attention to those with objections;
  - ensuring that the new process has advantages for all stakeholders and that they are aware of the advantages; and
  - asking for stakeholder feedback on improvements and visibly incorporating improvements into the process.

Making the transition between primary and secondary healthcare can be like driving between cellphone coverage areas – disconnects happen. These disconnects are frustrating for everyone involved, especially patients and caregivers, and can be costly to healthcare systems. Nova Scotia's Capital Health District is improving the transition from primary to secondary care, starting with a project on deep vein thrombosis (DVT).

DVT is the formation of a blood clot – commonly in leg veins – that can break off and cause severe complications. It's a serious condition, but suspected cases often have more simple underlying causes. To investigate each case, family physicians follow various methods involving several medical disciplines, which adds to the potential for gaps in care and communication. Moreover, because doctors don't want to take chances, they often refer patients directly to emergency departments, although this is frequently unnecessary.

"It's been a chaotic process," says Dr. Sam Campbell, Director of continuous

quality improvement in the department of emergency medicine at Queen Elizabeth II Health Sciences Centre and a fellow of the Executive Training for Research Application (EXTRA) program. As part of EXTRA, Dr. Campbell investigated DVT referrals. "I wanted to help strengthen the capacity of family physicians to manage their patients and make care management easier for all caregivers. But I also wanted to take practitioners out of their primary or secondary care silos and put them in the patient's silo, organizing care with the patient as the focus."

The project adapted a scoring tool, based on new evidence-based protocols for DVT diagnosis and treatment, to allow family physicians to determine a patient's clinical probability of disease and the appropriate diagnostic strategy. With this step-by-step process, most patients can be diagnosed and treated by their family doctors as outpatients. For those whose diagnosis requires referral to the emergency department, Dr. Campbell's team developed a diagnostic pathway involving advanced care paramedics to avoid taking resources from other emergency cases.

Research evidence guided the development of the investigation and treatment protocol, as well as the strategy to introduce the new process. Dr. Campbell's review of the literature on change management and quality improvement revealed several useful strategies. One was the discovery of the "productivity of resistance" concept, which suggests that resistance can be used constructively. "Resistance is usually viewed as preventing change," says Dr. Campbell, "but the resisters pointed out problems and we adjusted the process accordingly. It was hugely valuable."

Dr. Campbell's multidisciplinary team, which included not only healthcare providers and decision-makers, but also an industrial process engineer, believed that a pathway designed to improve care and make life easier for caregivers would have a better chance of success than one focused solely on improving patient care. With this in mind, they sought input from each stakeholder group on how the process should work.

"We wanted something that would be easier to follow than to ignore," says Dr. Campbell. "That meant we needed a 'win' in it for everyone – patients, family and emergency physicians, advanced care paramedics, and radiology and haematology staff."

The team was careful not to be prescriptive or defensive about the process. "We had no sacred cows to defend," says Dr. Campbell. "We stressed that physicians could override the protocol if they felt it necessary and acknowledged that problems with the process itself might emerge once it was in use."

The team also decided that user feedback was needed to improve the process, and it gathered and used this feedback in a very visible way. For example, since many found the progression of care confusing, a poster was hung in the emergency department to spell it out. The team encouraged staff to write their suggestions directly on the poster.

"This was a master stroke," says Dr. Campbell. "It not only helped us clarify the process, but also, by visibly incorporating people's suggestions via new versions of the poster, the caregivers began to own the project, which really fostered buy-in."

After one year, family physicians who had used the pathway rated it 8.99 out of 10, and 95% of emergency physicians were satisfied or very satisfied with it, as were 89% of the advanced care paramedics. In addition, 95% of patients contacted were satisfied or very satisfied with their experience. Patients referred to emergency saw their length of stay decrease by more than an hour and a half.

The pathway is now considered the standard of care for DVT. "But more importantly," says Dr. Campbell, "we are now developing similar approaches in other areas, such as anticoagulation management, where the processes and primary-to-secondary interfaces are not well defined."

For more information, contact Dr. Sam Campbell at sgcampbe@dal.ca.

Knowledge Translation, Linkage and Exchange

Transposition de connaissances, liens et échanges

The case study presented here is drawn from a publication of the Canadian Institutes of Health Research, *Knowledge to Action: A Knowledge Translation Casebook*, by CIHR's Knowledge Translation (KT) Portfolio. This KT casebook highlights original submissions from across Canada that focus on lessons learned from both successful, and less than successful, knowledge translation activities. Designed as a means for researchers and decision-makers to share and recognize their experiences, this casebook also demonstrates the impact that research can have in shaping policy, program, and practice changes.

The casebook was published in early 2009. Please visit CIHR's website at www.cihr-irsc.gc.ca for more details.

L'étude de cas présentée ici est tirée d'une publication des Instituts de recherche en santé du Canada intitulée *Des connaissances à la pratique : recueil de cas d'application des connaissances*, préparée par le portefeuille de l'application des connaissances (AC) des IRSC. Ce recueil présente les leçons tirées d'activités d'application des connaissances, réussies ou non, provenant de partout au Canada. Conçu pour permettre aux chercheurs et aux décideurs de connaître et de partager leurs expériences, le recueil illustre l'impact potentiel de la recherche dans l'élaboration de politiques ou de programmes et dans les changements touchant à la pratique.

Le recueil a été publié en janvier 2009. Pour plus de renseignements, veuillez visiter le site Web des IRSC, à www.cihr-irsc.gc.ca.

Research Illuminating Public Policy Debates: Private Sector Roles in Quebec Healthcare

Recherche pour éclairer le débat sur les politiques publiques : Les rôles du secteur privé dans l'administration des soins de santé au Québec.

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In June 2005, the Supreme Court of Canada ruled that the Quebec law preventing private insurers from providing coverage for publicly insured services was illegal in the *Chaoulli* case. This decision threw open the doors to widespread public debate about the place of private care in Canada's healthcare system – a debate characterized as much by polarization as by confusion.

The KT Challenge
Disseminating knowledge to inform public debate and policy making

The Quebec Population Health Research Network, which brings together researchers working in population health, health services and health policy, decided to weigh in on the debate. The network developed a partnership with leading Quebec

newspaper *Le Devoir* as well as the Institut du nouveau monde, an organization dedicated to citizen participation in public debates in Quebec. The goal was to disseminate knowledge on the various public policy issues raised by the *Chaoulli* decision. More specifically, the focus was on giving public policy makers, the media, professionals and the general public a sound interpretation of the ruling, and to help ensure that the ruling was interpreted based on research evidence.

The network's efforts have been reflected in the responses of both government and politicians to the Supreme Court's decision. These results underscore the important role that researchers can play in informing public debates on many different issues.

Disseminating Accurate Information in a Confusing Debate

The *Chaoulli* ruling had a substantial impact across Canada, but nowhere greater than in Quebec, where the court's ruling included a deadline for the province's compliance, prompting the network to get involved in the debate.

The network began by assembling a multidisciplinary working group made up of Quebec experts in health services organization from most of the major universities in Quebec (list of members available, in French only, at www.santepop.qc.ca/Chaoulli).

The first step was to ensure that accurate and detailed information was available in a special section on the network's website (http://www.santepop.qc.ca). This included:

- a summary of the court's decision and its background
- a literature review of Canada's popular and specialized press on the topic
- a summary of issues raised by the ruling
- in-depth analyses written in question/answer format on 10 issues raised by the ruling
- briefs presented before parliamentary committees
- the program and presentations made at the network's colloquium
- an exchange forum
- useful links on the ruling

The website was publicized through the network's newsletter (http://portail.santepop.qc.ca), which reaches more than 1,400 researchers, health system professionals and policy makers in Quebec.

Recognizing that it needed to extend its reach further, the network published a supplement in *Le Devoir* on February 18, 2006, entitled "L'Arrêt *Chaoulli* : un signal d'alarme – quelles sont les options du Québec ?" ("The *Chaoulli* Ruling Sounds the Alarm: What Are Quebec's Options?").

A week later, on February 24 and 25, 2006, the network held a colloquium enti-

Knowledge translation activities

- Crafting messages, interpreting research findings
- Synthesizing evidence
- Widespread dissemination of knowledge
- Publication in newspapers and journals
- Website postings
- Educational sessions and colloquia

tled *Le Privé dans la santé ? Après le jugement* Chaoulli*, quelles sont les options du Québec ? (The Private Sector in the Health Sphere? After the* Chaoulli *Ruling, What Are Quebec's Options?)* Organized jointly with the Institut du nouveau monde, the colloquium attracted more than 300 people from the political arena (including the minister of health and the representative of the Official Opposition for health), the health community (professionals and administrators), community organizations and concerned citizens.

In addition to these planned activities, the network and its working group also responded to issues related to the ruling as they arose. For instance, on February 16, 2006, the Quebec government issued its response to the *Chaoulli* ruling, a white paper entitled *Guaranteeing Access: Meeting the Challenges of Equity, Efficiency and Quality*. The network responded both in the press, with articles by working group members analyzing the government's proposal, and in the political arena, with submissions to the Committee on Social Affairs, which held hearings on the white paper from April 4 to June 6, 2006.

Following the committee's hearings, the government tabled a bill on June 15, 2006, reflecting the white paper's recommendations and the results of their consultations. The network continued its efforts to ensure that Quebeckers were aware of what this meant for their future healthcare. Working group members published an article in *Le Devoir* entitled "L'Avenir du système de santé du Québec en cause : un projet de loi qui n'a rien d'anodin" ("The Future of Quebec's Health System at Stake: This Bill Is No Trivial Matter"), as well as other articles in scientific journals and newspapers making clear the potential impacts of the bill. (All articles written by the network/working group members can be found on the network's website.)

Lastly, the working group, with its collaborators, began compiling a book on the theme *Le Privé dans la santé : les discours et les faits (The Private Sector in the Health Sphere: Arguments and Evidence)*, thus broadening the *Chaoulli* discussion. This book was published in 2008 by Les Presses Universitaires de Montréal.

How Did It Work?

The impact of the network's knowledge dissemination activities can be seen in the position taken by Quebec's Ministry of Health, as well as in the addresses made by

members of the National Assembly (MNA) to the committee, and briefs presented by other organizations and individuals in varied areas of healthcare. Public discussion and media coverage have also been influenced by these activities.

Impact

- Quebec Ministry of Health's position influenced by the network's interpretation of the ruling
- Views of the Minister of Health and Social Services changed regarding the public health system's sustainability

The working group's main message – calling on the government to avoid an interpretation of the ruling that would throw open the health system to the private sector, and instead to consider other ways to make services more accessible – may have also helped influence government reactions to the *Chaoulli* decision. The then Minister of Health and Social Services, Philippe Couillard, recognized that his views evolved on the public system's capacity to sustain its costs, following the brief presented by working group member François Béland to the committee, as noted in an article by Guillaume Bourgault-Côté in *Le Devoir*, September 23–24, 2006: "Financement du réseau de la santé – Couillard revendique le droit de changer d'idée" ("Financing the Health Network – Couillard Asserts His Right to Change His Mind").

The initiatives undertaken by the working group were the result of a process of collective reflection and were built on partnerships in a variety of milieux. As such, they represented a new, efficient and original avenue for feeding knowledge into political and policy processes. Researchers moved beyond their usual surroundings to assume public positions and help ensure that public debate and discussion were informed by research evidence. This approach can be considered a model for informing broad societal debate on a wide range of issues.

RESEARCH PAPER

Management of MRI Wait Lists in Canada

Gestion des listes d'attente pour les IRM au Canada

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Abstract

Excessive wait times for magnetic resonance imaging (MRI) studies are a major problem in the Canadian healthcare system. To determine how requests for MRI studies are managed, the authors performed a survey of public MRI facilities in Canada. Ninety-six per cent had some method to triage MRI requests. However, only 42% had documented guidelines for prioritization, and none employed quality assurance methods to ensure that guidelines were followed. Target timelines for each prioritization category varied widely. Sixteen per cent of centres were not able to meet their target timelines for any prioritization category, and 45% of centres met target times only for some prioritization categories. Strategies for dealing with wait lists primarily involved attempts to increase capacity. No centres attempted to reduce wait times by decreasing inappropriate requests. There appears to be a need to standardize MRI wait list management given the variation in management practices and wait times observed.

Résumé

Les temps d'attente excessifs pour l'imagerie par résonance magnétique (IRM) constituent un grand problème pour le système de santé canadien. Afin de comprendre comment sont gérées les demandes d'examen par IRM, les auteurs ont mené un sondage auprès des centres d'IRM au Canada. Dans 96 % des centres, il existe une forme de triage des demandes d'IRM. Cependant, seulement 42 % sont munis de lignes directrices documentées pour établir la priorisation, et aucun d'entre eux n'emploie de méthodes d'assurance de la qualité afin d'assurer que les lignes directrices sont suivies. On observe une grande variation entre les calendriers ciblés pour chacune des catégories de priorité. Seize pour cent des centres ne peuvent respecter les temps visés, pour toute catégorie de priorité. Quarante-cinq pour cent des centres respectent les temps visés, uniquement pour certaines catégories de priorité. Les stratégies employées pour régler la question des listes d'attente consistent principalement en des tentatives pour accroître la capacité. Aucun centre n'a tenté de diminuer les temps d'attente en rédui-

sant le nombre de demandes inappropriées. Étant donné les temps d'attente observés et la variation dans les modes de gestion, il semble y avoir un besoin de normaliser la gestion des listes d'attente pour l'IRM.

Excessive wait times for some healthcare interventions have caught the attention of governments, providers and the public (Sanmartin et al. 2000). Of particular interest to these groups are cardiac surgery, joint replacement surgery, cancer care and advanced diagnostic imaging, specifically magnetic resonance imaging (MRI). Wait times for diagnostic imaging are particularly important because they may result in delays in definitive treatment.

Efforts to reduce wait times for MRI have focused on increasing the number of diagnostic imaging devices, as Canada lags far behind other countries in this regard. For instance, Japan and the United States have 35.3 and 19.5 MRI units per million population, respectively, whereas Canada has only 4.6. (Stein 2005). The number of MRI scanners in Canada is lower than the median of 6.1 scanners per million for all countries within the Organisation for Economic Co-operation and Development (Stein 2005). The optimal number of MRI machines per capita has not been established, and the number of scanners does not indicate the number of patients scanned; however, it does provide an indication of capacity. While Canadian provinces have recently increased the number of imaging devices, it is unlikely that Canada will have such ready access to imaging as these other countries. Therefore, other approaches to wait time reduction are needed.

Improving the management of wait lists represents another approach to reducing wait times. This strategy might include the development of criteria for determining the appropriateness of imaging requests, which in turn could be used to help triage their relative urgency. A similar approach has been used for cardiac surgery (Naylor et al. 2000). In this setting, these criteria make wait list assignment more objective and equitable while also improving overall efficiency. Although the development of appropriateness criteria for MRI scanning has received some attention (Canadian Association of Radiologists 2005; ACR 2000), there is no evidence that these efforts have had an impact on practice. The role of standardized approaches to triaging requests for MRI has received almost no attention.

As part of a larger project to study wait time management, we set out to determine Canadian MRI facilities' self-reported wait times and their strategies for managing them. Specifically, we wanted to determine how facilities triaged requests for MRI (including the healthcare professionals who triaged requests and the methods by which they did so) and whether or not triaging included efforts to identify inappropri-

ate requests. We also set out to ascertain other wait list management strategies, such as protocols for increasing capacity. If there are to be recommendations about how to improve the diagnostic imaging wait list system, it is imperative to understand how facilities are currently managing their requests for MRI.

Methods

We performed a cross-sectional study of all public MRI facilities in Canada. We identified eligible institutions using data from the Canadian Institute for Health Information (CIHI) for year 2005 and administered a telephone-based survey with the lead administrator at each centre between June 2006 and October 2006. The study was approved by the Health Research Ethics Board at the University of Alberta.

The survey contained 24 questions divided into four sections, which described facility characteristics, current MRI use and availability, prioritization methods and current wait times. To ensure the comprehensiveness of content and clarity of the questions, we prepared, iteratively, three successive drafts of our questionnaire. These were reviewed by six individuals including radiologists, radiology managers and researchers. We pilot tested the survey in six hospitals in Alberta and Ontario. We designed the survey to be completed within 15 minutes. The survey was mailed to the lead MRI administrator at each centre prior to a telephone interview. The final version of the survey was translated into French.

We treated hospitals operating under a common administrative structure (e.g., University Health Network in Toronto and Centre hospitalier de l'Université de Montréal) as single facilities. Survey responses were stored in a Microsoft Access database, and SAS v9 (Cary, NC) was used for all data manipulation and analyses. Not all centres were able to answer all questions, and thus the denominator differs slightly from question to question.

Results

Characteristics of responding centres

We identified 122 publicly funded facilities with MRI scanners in Canada. Seventy-nine (65%) institutions responded to our survey. This modest overall response rate reflected very high responses in the Western and Atlantic provinces (32/32 [100%] and 11/13 [85%], respectively) and lower responses from Ontario and Quebec (36/75 [48%]). Table 1 shows the characteristics of centres. Aside from region of the country, the characteristics of responding centres in terms of city size and teaching status were similar to those of non-responders.

TABLE 1. Characteristics of centres

		Western	Central	Atlantic
Total number of centres		32	75	13
Hospitals responding to survey		32 (100%)	36 (48%)	11 (85%)
City size	<100,000	8 (25%)	8 (22%)	4 (36%)
	100,000–1 million	10 (31%)	14 (39%)	7 (64%)
	>1 million	14 (44%)	14 (39%)	0
No. of beds	<200	5 (16%)	4 (11%)	3 (27%)
	200–500	19 (59%)	23 (64%)	6 (55%)
	>500	8 (25%)	9 (25%)	2 (18%)
Teaching hospital		17 (53%)	16 (44%)	4 (36%)
Referral centre		30 (94%)	32 (88.9%)	10 (91%)
Cancer centre		12 (38%)	16 (44%)	7 (64%)

MRI utilization

Of the 79 responding centres, 58 had one MRI scanner, 18 had more than one and three centres relied on portable scanners that visited on a regular basis. The median number of scanning hours per week was 93.5 (interquartile range [IQR]: 62.5–123.3). MRI scanners were routinely used on weekends in 46/79 (58%) of facilities. Only two centres (3%) routinely operated their MRI scanners on a 24/7 basis. The median number of studies performed annually was 6303.5 (IQR: 4157–8916), with approximately 90% of scans at each centre involving outpatients (median 91.5%, IQR: 86.5%–94.0%).

Approaches to prioritization

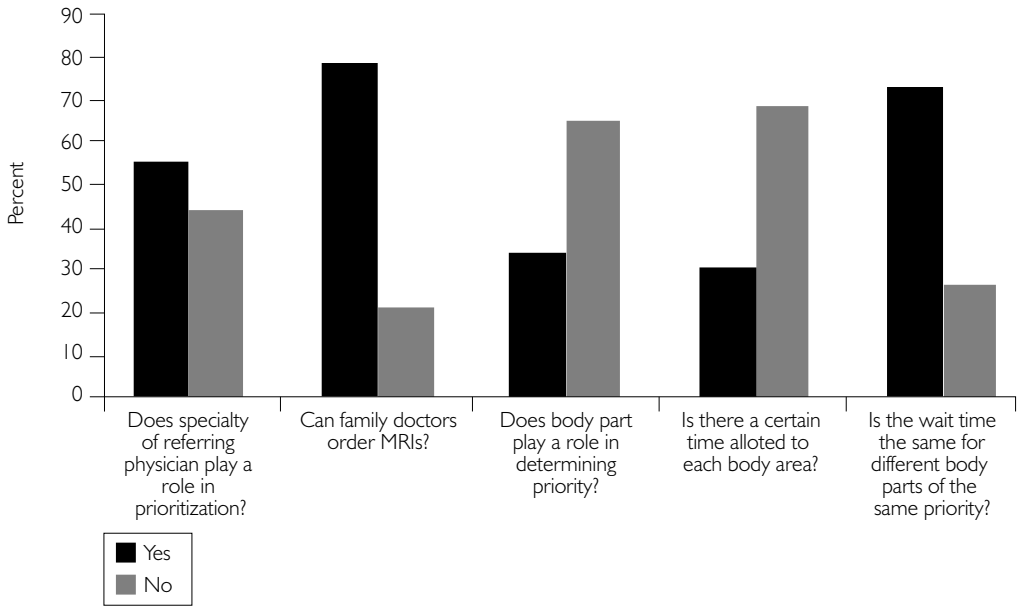
Almost all (75/78, 96%) centres used some method to triage requests for MRI studies to different priority levels. Ninety-six per cent (72/75) identified clinical urgency as the primary factor that determined priority. However, only 42% (33/79) had explicit, documented criteria to guide the prioritization process. Prioritization was usually based on implicit assessments by the radiologist, using a handwritten requisition submitted by an ordering physician.

In those sites that triage MRI requests, prioritization was performed solely by a radiologist in 81% (61/75) of centres. In one centre, prioritization was performed solely by a technologist. In the remaining 13 centres (17%), prioritization was done by a combination of people including MRI technologists, referring physicians, radiology clerical staff, radiology fellows and departmental managers. More than one radiologist was

involved in prioritization in 72/75 (96%) of centres. In 24/72 (33%) of centres, subspecialty radiologists prioritized only requests for studies of the body part applicable to their area of expertise. Facilities triaged MRI requests into varying numbers of urgency categories, ranging from 1 to 6; 65% (49/75) of centres defined four categories. No centres reported the existence of a formal quality assurance mechanism for monitoring the triage process or ensuring that the prioritization occurred on a consistent basis.

Several factors influenced triage decisions. All centres that triaged requests (75/75) identified inpatient status as probably or definitely playing a role in triage decisions. Other factors reported to influence prioritization included the results of prior imaging (51/75, 68%), the body part being imaged (27/75, 36%) and specialty of the referring physician (44/75, 59%). It is notable that 17/79 sites (22%) did not allow family doctors or general practitioners to order MRI scans, and an additional 11/79 sites (14%) allowed non-specialists to order only limited types of MRI scans (Figure 1).

FIGURE 1. Factors affecting prioritization

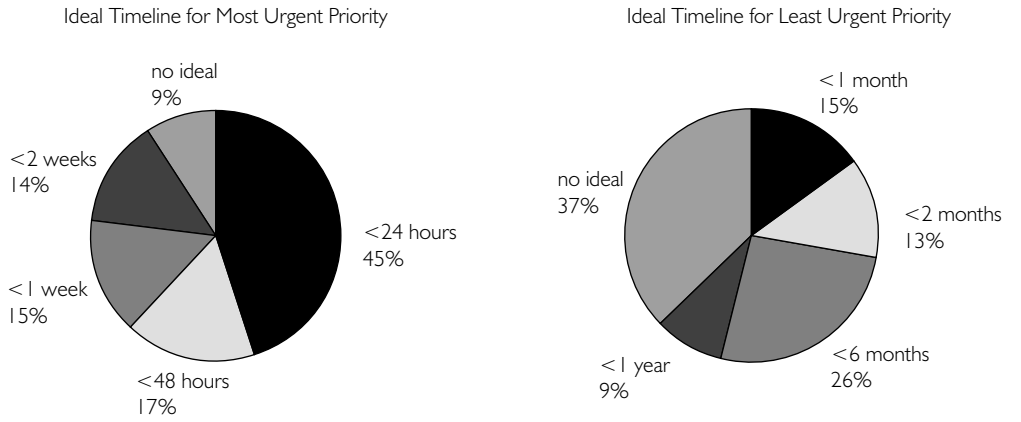


Wait list length

Ninety-seven per cent (76/78) of respondents stated that they had a list of patients awaiting MRI examinations. The two hospitals without waiting lists were both specialized cancer centres with limited referral bases. All centres knew the wait times for their most urgent prioritization category. Five per cent (4/78) of centres did not have documented target timelines for the completion of requests in any prioritization cat-

egory, and 35% (26/74) did not have target timelines for elective or routine prioritization categories. In several centres, the timelines were considered only as a guide rather than a firm target. Those centres with documented timelines varied considerably in terms of target time for each category of priority (Figure 2). The target timeline for the highest-priority study varied from "immediately" to "within two weeks." The target timeline for low-priority scans varied from two weeks to a year. Most centres also had a category for routine follow-up (e.g., yearly studies of a known lesion).

FIGURE 2. Target timelines for scans prioritized as urgent and those prioritized as elective



When measured by the median number of days to scan or by the total numbers of patients waiting for scans, wait list size varied substantially. The median number of patients on the wait list was 1,000 (IQR: 444–1992). Wait times for the most urgent priority studies varied from less than 24 hours to more than one month. The wait times for the most elective category varied from 28 days to three years, with one centre stating that they were simply unable to scan cases prioritized as elective.

The ability to meet target wait times varied markedly. Despite being able to choose their own target wait times, 12/74 (16%) of centres did not meet their target wait times for any priority category, even the most urgent scans. Forty-five per cent of centres responded that they met target times only for some prioritization categories. Only 39% of centres reported meeting their wait time targets for all categories.

Strategies for dealing with wait lists were numerous and varied, making it difficult to characterize the different approaches quantitatively. The single most common response to excessive wait times consisted of attempting to increase the number of hours that an MRI scanner was utilized (64% of centres). The second most common strategy was to increase capacity by attempting to purchase another MRI scanner or to upgrade the current scanner to a faster model (20% of centres). Twelve centres

(15%) said that they tried to hire more MRI technologists, a strategy that was limited by lack of funds and, in some cases, lack of qualified personnel. Eleven centres (14%) said they tried various means of increasing efficiency in order to scan more patients without having to increase total hours of operation. Finally, seven centres (9%) said that they contracted out MRI requests to private facilities during periods of excessively long wait lists.

Discussion

Our results document that most MRI facilities in Canada have a substantial wait list problem, with some centres reporting wait times of up to one month for urgent scans and up to several years for non-urgent scans. Despite the magnitude of these wait times and recognition of the problem by staff at the facilities, strategies used to manage wait lists and reduce wait times are diverse, uncoordinated and, judging by the number of patients on the wait lists, largely ineffective. Most facilities employ a categorization scheme for triaging MRI requests, but this is not applied in a rigorous manner. Few sites have documented criteria to guide the triaging decisions. No site had a method of quality assurance to determine whether or not the prioritization was being performed consistently. Thus, it is entirely possible that patients with the same medical indication for an MRI examination, at the same centre, could be placed in different prioritization categories, with very different wait times.

… most MRI facilities in Canada have a substantial wait list problem, with some centres reporting wait times of up to one month for urgent scans and up to several years for non-urgent scans.

A large number of facilities lack documented target timelines for completion of MRIs in all prioritization categories. Of those with documented targets, there was a wide range of acceptable wait times within each category (e.g., the most urgent category varied from "scan immediately" to "scan within two weeks"). This inconsistency in defining prioritization categories and the considerable variation in the number of categories likely leads to significant inconsistencies in access to MRI from site to site even within a given province.

Facilities varied in their responses to long wait lists, but they generally consisted of attempts to increase capacity. Many centres reported running scanners for extended hours, hiring more technicians or purchasing more scanners, and some acknowledged contracting out to private facilities. Only 3% of centres routinely operated their MRI scanners 24 hours a day, seven days a week. This finding indicates that there is

machine capacity to do more scans. This potential machine capacity was also found in another recent study (Ariste and Fortin 2007). Some centres stated that they tried to improve efficiency (i.e., increase the number of scans without increasing resources), but little information was provided in this area. Almost no effort was made to control demand (e.g., by identifying inappropriate requests for MRI scans). Some centres did not let family physicians order scans, though the justification for this practice (e.g., as a surrogate for appropriateness) was not provided. Placement of inappropriate requests in the lowest-priority category may also control demand to some extent, as one centre reported that staff were unable to scan cases in this category.

Development of effective prioritization guidelines for MRIs may be a challenging task, as was found by the Western Canada Waitlist Project (WCWL) (Hadorn et al. 2002) and others (Kahn et al. 1997). The WCWL used a panel of 14 clinicians and health administrators to produce comprehensive prioritization guidelines for MRI (Hadorn et al. 2002), but evaluation of the resulting tool showed poor inter-rater agreement. While not an easy task, developing a system for generating reproducible triage decisions nevertheless represents an important goal for the healthcare system. Measurement of wait times is routinely stratified by level of urgency, but these measurements have little meaning if priority judgments are inconsistent within and across institutions. The implementation of specific provincial prioritization guidelines with an audit process would help ensure consistency of prioritization among sites. Consistency could be further enhanced with a single point of referral, with all prioritization for a province or region performed at a single centre by a small number of people.

While not an easy task, developing a system for generating reproducible triage decisions nevertheless represents an important goal for the healthcare system.

It is likely that a proportion of MRI studies are being ordered inappropriately. This has been a finding in studies of other healthcare interventions, including carotid endarterectomy (Kennedy et al. 2004) and gastrointestinal endoscopy (Kahn et al. 1988; Seematter-Bagnoud et al. 1999). We do not know the extent of the inappropriate overuse of MRI or whether overuse correlates with regional wait lists. It is also possible that inappropriate underuse may be greater than inappropriate overuse. A process to ensure the appropriate use of MRI, through the application of guidelines or other forms of decision support, could be used not only to discourage improper ordering but also to help solve the problems we have identified with the triage process.

There are several limitations to our study. The response rate to our questionnaire was 65%. We obtained a good representation of centres from all provinces as well as a good cross-section of types of hospitals. It is unlikely that a higher response rate would substantially alter the overall results. The questionnaire was discussed with a single administrator at each site; this procedure may have led to some bias in interpretation of the subjective questions. Some sites lacked adequate records to respond to some questions. Despite these limitations, our results have implications for those interested in measuring and reducing the problem of wait times for MRI in Canada. First, our results highlight the importance of standard prioritization schemes, consistent definitions of categories within these schemes and uniform guidelines for acceptable wait times for each level of priority. Additionally, classification schemes for prioritizing MRI requests should be based upon explicit, validated criteria that are applied in a consistent manner.

Conclusions

Magnetic resonance imaging remains a developing technology and indications for its use continue to grow, especially in the areas of abdominal, pelvic, cardiac and breast imaging. Many disease processes currently imaged by computerized tomography will in the future be primarily imaged by MRI because of concern over the use of ionizing radiation. The Institute of Clinical Evaluative Sciences, using administrative data, found a fivefold increase in the frequency of MRI scans in the 1990s and a 50% increase from 1999 to 2001 (Iron et al. 2003). It is likely that the demand for MRI scans will continue to grow rapidly. Given the constraints on our health budgets, access to MRI scanning may be even more limited in the future. Thus, it is critical to prioritize MRI requests effectively, to ensure that those most in need will benefit.

Improvement in wait list management is critical to reducing wait times to improve access, fairness and quality in the provision of MRI services in Canada. This study has shown several deficiencies in the current system and should help health system decision-makers and managers improve the provision of this important service.

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RESEARCH PAPER

More Than "Using Research": The Real Challenges in Promoting Evidence-Informed Decision-Making

Plus qu'une simple « utilisation de la recherche » : les vrais défis d'une promotion de la prise de décision éclairée par les données probantes

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Abstract

Objectives and Methods: Seventeen focus groups and 53 semi-structured individual interviews involving 205 planners and decision-makers were conducted in all 11 Regional Health Authorities (RHAs) in the province of Manitoba, Canada. Objectives were to explore perspectives on the nature and use of "evidence," and barriers to evidence-informed decision-making (EIDM).
Results: In spite of almost universal support in principle for using evidence in decision-making, there was little consensus among participants on what evidence is, what kind of evidence is most appropriate and how "using evidence" can best be demonstrated. Significant skepticism about EIDM was expressed. Issues related to workload, politicized decision-making and organizational factors dominated the discussion of decision-makers. Barriers to EIDM were commonly attributed to factors external to the RHAs.
Conclusion: Effective strategies to promote EIDM must address the multiple barriers experienced by decision-makers in a complex decision-making environment. Rather than simply focusing on issues of access to evidence or development of individual capacity, strategies must focus on changing decision-making processes to support appropriate use of evidence.

Résumé

Objectifs et méthodologie : Dix-sept groupes de discussion ainsi que 53 entrevues individuelles semi-dirigées ont eu lieu auprès de 205 planificateurs et décideurs dans les 11 offices régionaux de la santé du Manitoba (Canada). L'objectif était d'étudier les points de vue sur la nature et l'utilisation des « données », ainsi que les obstacles à la prise de décision éclairée par les données probantes.
Résultats : Malgré un appui presque unanime envers le principe d'utilisation des données dans la prise de décision, il y a peu de consensus parmi les participants à savoir ce que sont les « données probantes », quel type de données est le plus adéquat et quelle est la meilleure façon de démontrer comment « utiliser les données ». On a exprimé un scepticisme substantiel envers le concept de prise de décision éclairée par les données probantes. Les discussions où étaient présents les décideurs ont surtout porté sur la charge de travail, la politisation de la prise de décision et les facteurs organisationnels. Les obstacles à la prise de décision éclairée par les données probantes ont surtout été attribués à des facteurs externes aux offices régionaux de la santé.
Conclusion : Les stratégies efficaces de promotion de la prise de décision éclairée par les données probantes doivent tenir compte des multiples obstacles auxquels font face les décideurs dans un environnement décisionnel complexe. Au lieu de porter simplement sur les questions de données, d'accès à la recherche ou de renforcement des capacités, ces stratégies doivent viser un changement des processus de décision afin d'appuyer une utilisation adéquate des données.

This paper summarizes Phase 1 results of *From Evidence to Action*, a project that explored perspectives of Regional Health Authority (RHA) planners and decision-makers on the nature of "evidence," the use of evidence in decision-making and barriers to evidence-informed decision-making (Bowen and Erickson 2007). *From Evidence to Action* (funded by the Canadian Institutes of Health Research, 2005–2008) evolved from our earlier CIHR-funded *The Need to Know* project, which engaged researchers at the Manitoba Centre for Health Policy, the Department of Health and Manitoba RHAs in creating new knowledge of relevance to RHAs, increasing capacity and disseminating and applying research findings. The evaluation component of this project highlighted the importance of not simply involving individuals in capacity building and research activities, but of addressing organizational barriers to research use in RHA planning and decision-making – of moving from evidence to action (Bowen et al. 2005; Bowen and Martens 2006).

There is an emerging literature providing evidence on the optimal management of people and performance in health services organizations (Michie and West 2004). Studies have identified organizational factors – such as employee involvement, creation of a learning culture and institution of good management – that promote better decision-making, as revealed in improved organizational performance (Bradley et al. 2004; Mitton and Patten 2004; Michie and West 2004; Carney 2006). As well, although there is lack of consensus on the concept of organizational culture (Scott et al. 2003), some studies have suggested that the culture of senior management affects health system performance (Gerowitz et al. 1996; Mannion et al. 2005). Mitton and Patten (2004) identified management operations as a factor in managers' ability to apply evidence effectively. Some studies have also explored what types of research are most likely to be utilized by decision-makers; for example, social science research appears to face greater barriers to utilization than natural science research (Hanney et al. 2003). On the other hand, research considered to be part of a larger policy trajectory and linked with broad organizational agendas (such as improving patient safety) may be more likely to be used (Lavis et al. 2002; Rosenheck 2001). However, compared to the large body of research on evidence-based clinical decision-making, there has been little research on evidence-informed management (CHSRF 2004; Lavis et al. 2002; Walshe and Rundall 2001).

Past research has identified both similarities and differences in the barriers to using evidence in clinical versus policy and planning decisions. For example, time and workload, user capacity and evidence availability emerge as key factors in both forms of decision-making. However, there are important differences between clinical and management decision-making in culture, research base and decision-making processes (Walshe and Rundall 2001). In addition, organizations are complex, different

kinds of decisions are made at different levels and many types of evidence may be used (Lomas 1990; Lavis et al. 2003; Walshe and Rundall 2001). Because RHAs are responsible for the implementation of policies and allocation of resources within a framework established at the provincial level, they can be seen as making decisions at the administrative policy level as well as at various program planning levels. Decisions may be related to core business transactions, operational management or strategic management (Kovner and Rundall 2006). Decision-making at the RHA board level should focus on strategic management; however, there may be considerable variability among boards in types of decisions made and the extent to which these decisions are informed by senior management.

Another source of complexity is the multiplicity of types of evidence that decision-makers might weigh. It is increasingly recognized that "evidence" in planning and policy decisions must include more than research, and that such factors as resource availability, political context, values, client/community experience, clinical expertise and context-specific evidence such as performance measurement or evaluation activities must also be considered (Baker et al. 2004; CHSRF 2006; Rycroft-Malone et al. 2004). There are important limitations of a strictly rational approach to "evidence-based" decision-making in the complex world of organizational policy and planning decisions (Baker et al. 2004).

Initiatives to increase use of evidence in decision-making have tended to focus on making information more available, accessible and attractive to decision-makers, and more recently, on increasing decision-maker capacity to use research. This approach reflects the assumption that the major barriers to decision-makers' use of evidence are data availability, accessibility and user capacity. However, as the organizational research described above suggests, the situation may be much more complex.

While there has been some research on Canadian RHA decision-makers' and managers' use of evidence in decision-making (CHSRF 2005; Lavis et al. 2005; Mitton and Patten 2004), there has been limited exploration of how these managers view evidence or experience barriers to its use, and the extent to which this research has informed decision-makers' understanding of evidence use. Because the purpose of the *From Evidence to Action* proposal was to develop strategies for addressing barriers to evidence-informed decision-making faced by decision-makers in RHAs, it was critical to understand these barriers from their perspective.

Methods

Project partners included all 11 Manitoba RHAs as well as researchers with the Manitoba Centre for Health Policy and Department of Community Health Sciences.

Following the official project launch in fall 2005, consultations were held in Manitoba's 11 RHAs. A project coordinator (TE) was hired to undertake the inter-

views and focus groups. *The Need to Know* team members were incorporated into the project as "knowledge translation experts" for their region and served as the project's advisory committee. Ethical approval was obtained from the Health Research Ethics Board of the University of Manitoba.

Between November 2005 and April 2006, 17 focus groups and 53 semi-structured individual interviews were conducted with a total of 205 participants. (Table 1 presents the interview/focus group questions that are the focus of this report; other questions focused on perspectives of RHA accomplishments and suggestions for development of an assessment instrument and project evaluation.) Because the intent was to understand how participants perceived evidence and its use, questions were open-ended. The vast majority of participants were senior managers; however, some middle managers and board members were also represented. Focus groups were audiotaped and transcribed; interview notes were taken and transcribed. Both principal investigators (SB, PM) and the project coordinator were involved in the analysis of data. Transcripts were independently analyzed by two researchers (SB, TE), and the themes and emphases were compared. Analyses consisted of both cross-case analysis (comparing responses to specific questions) and open-coding to identify unique themes. Finally, following development of the draft report, one researcher (PM) compared conclusions and themes with the original transcripts.

TABLE 1. Focus group/interview guide

Conceptualization of EIDM

1. The term *evidence-informed decision-making* is used a lot these days. What does this term mean to you?

Assessment of Current EIDM Practice

2. In your opinion, to what extent is EIDM demonstrated in the day-to-day operations of your RHA?
   a. In what ways does your RHA practise evidence-informed decision-making?
   b. If the board/senior management was faced with a decision (e.g., whether or not to institute a certain program or service), what information would be used to assist in decision-making?
3. What actions has your RHA taken to date to support evidence-based planning throughout the organization?
   a. How does the organizational structure in your RHA facilitate/support evidence-based decision-making? Are there any ways in which the structure hinders EIDM?
   b. What supports are in place to promote EIDM? (Probes, first note what they say, then probe, i.e., access to reports, library resources, Internet access, training opportunities, environment that encourages discussion/debate, etc.)

Barriers to EIDM

4. What are the barriers to effective decision-making that you have experienced, either in your current role, or in previous positions?

Findings

Responses by different types of participants

While it was recognized that decision-makers at different levels are responsible for different types of decisions and may use evidence in different ways, no differences were

observed in the responses of different types of participants. This finding could be attributable to the general nature of the questions, as well as to the difficulty of categorizing managers given the significant variation in size and complexity of participating RHAs.

Perspectives on evidence and evidence-informed decision-making

In spite of almost universal support in principle for the importance of using evidence in decision-making, there was little consensus among participants on what evidence is, what kind of evidence is most appropriate and how "using evidence" can best be demonstrated. Although there was good recognition of the concept of evidence-based clinical decision-making, evidence-informed decision-making (EIDM) at the organizational (planning/policy) level was poorly understood. It was commonly assumed that only "research" was considered evidence. This assumption, combined with awareness of the limited research available to guide key decisions facing the healthcare system and the need for "context-sensitive" evidence, appeared to contribute to reluctance to fully embrace the concept of EIDM.

Many different sources of evidence, commonly used in planning, were identified: most often cited were Manitoba Centre for Health Policy (MCHP) reports, information provided by Manitoba Health and Community Health Assessment reports. However, there was significant variation in perspective regarding the extent to which evidence is currently being used. Most commonly, evidence was defined simply as quantitative data. Many participants appeared unaware that qualitative methods also require systematic evaluation of data, or that they were appropriate for exploring many of the questions facing the health system. In fact, many respondents appeared to equate qualitative evidence with anecdotal evidence. This "data driven" versus "evidence-informed" approach was described by some as having the effect of privileging some health areas (e.g., health services with already established data collection systems) over others (e.g., community-based or preventive health issues), contributing to the tendency for "new money in the system going to support the status quo" rather than new areas, and pressure not to ask questions for which there is no "answer," i.e., no quantitative data were available.

Barriers to evidence-informed decision-making

Participants readily identified a number of barriers to using evidence at the practice, program and policy levels. In addition, analysis of consultation data across all 11 regions provided insight into the complexity of these barriers as perceived and experienced by senior RHA decision-makers.

(a) POLITICS TRUMPS EVIDENCE

A theme raised consistently throughout the consultations was that of the political context of decision-making. While not the most common barrier identified, this perception provides a context in which the other barriers were framed. Reactivity to public perception ("government is more concerned with public views than good patient care"; "the minute someone makes a fuss about something there is hesitancy to make a decision") and the impact of the media, professional organizations, unions and special-interest groups were described as creating a political context that worked against an RHA's ability or willingness to practise EIDM.

There was also significant cynicism about "using evidence" and skepticism about whether, at higher levels, evidence was actually used. There was a feeling that decisions were made "at the top" and that using evidence was an expectation but that it could be "gamed."

> You really can't get anything unless you have some kind of documentation to support your proposals, so any of our briefing notes and stuff like that are based on a review of situations … to support it. Mind you, you can probably cheat on this evidence too, because you try to get the evidence that supports you so it could be skewed. So it's always a danger.

> I thought it was to use evidence to support decisions – as it turns out a lot of decisions are already made. Now it's about finding evidence to support the decisions that have already been made.

(b) LACK OF TIME AND RESOURCES

Lack of time and resources emerged as key barriers. Under-resourcing was described as resulting in poor decisions ("what makes sense is too expensive"), an inability to allocate resources to research or evidence-related positions and (perhaps most importantly) workload pressures that were described as actively working against the thoughtful reflection essential for EIDM. This lack of time for researching, weighing and reflecting on evidence emerged as a significantly more important issue than lack of relevant research or research capacity. Further "drilling down" within this theme provided other insights on the theme of time and resources. There appeared a tendency to view EIDM as an "add-on" requiring additional time, rather than a change in the way business is done. The "crisis-management" culture within healthcare, so often referenced by informants, makes it difficult for decision-makers to prioritize important but non-urgent issues. A minority of respondents, however, did recognize that the issue of time was also an issue of organizational priorities: that appropriate resources would be allocated if EIDM were an organizational priority.

An additional need identified by participants was to address the gap between "making a decision" and the "implementation" of a concrete plan, highlighting the challenges in getting a decision translated into effective action:

> To develop an action plan is not the issue. To find resources, the time and resources to implement the way it's supposed to be implemented and not just pay lip service on paper, is what I find challenging sometimes.

> There is not a good recognition of what it takes to implement a new initiative.

(c) External versus internal barriers

In the vast majority of cases, barriers to EIDM were identified as being external to the organization. However, further analysis indicates that these so-identified external barriers often have aspects that are both external (not readily amenable to intervention by an individual RHA) and internal (issues that an individual RHA does have some power to address). For example, lack of time and resources was a barrier for which government was usually blamed, with less attention directed to the issue of how RHAs allocate the resources they have at their disposal.

(d) Leadership, communication and organizational structures

A number of factors related to leadership were identified. Centralized decision-making, lack of appropriate consultation and lack of senior-level support for EIDM were identified as key barriers. A few respondents noted that unlike managers in many other areas, healthcare managers often "rose through the ranks" of various disciplines and may not have management training.

Closely related to the issue of leadership is that of communication. A key issue in this category was identified as "lack of clear channels for input." However, broader "communication processes" were also identified.

> Getting info filtered down to field staff level; ... they [managers] parcel it out, and by the time it gets down to that person that's actually going to meet that standard or do that thing, it's lost somewhere.

Factors related to organizational structure and process were also identified. Sometimes these were generally worded (e.g., "structural barriers to smooth decision-making [waiting for approval]"); in other cases, specific examples of barriers were given, including:

- a matrix organizational structure, common to many RHAs;
- lack of research structure, research, planning or decision-support positions;
- issues related to RHA boards (e.g., role, models of board functioning, agendas of board members);
- planning processes, including the relationship of decision-making and financial models;
- program "silos" and variability among programs.

Many respondents felt they did not have the authority to make decisions, an interesting finding given that the majority of participants were senior managers. Some of this was attributed to incomplete regionalization – devolution of responsibility for health services planning and management to the regions without the accompanying authority to make the decisions that would enable them to do so effectively.

(E) CRISIS MANAGEMENT, CONSTANT CHANGE

A number of subthemes related to "organizational factors" were also identified. Overall, the key organizational barrier relates to what many informants referred to as a "crisis management" culture, where people were "too busy dealing with the urgent, can't get to the important." In a crisis management culture, "research," or more broadly, "developing processes for ensuring use of evidence in decision-making," is a lower priority. This culture also was viewed as resulting in constantly changing priorities, consequent fatigue and an environment that did not support EIDM.

A number of respondents (including both staff and management) also referenced the challenge of promoting a culture of evidence, and fear of, or resistance to, change:

> [There is an] old mindset thinking from way, way back … because we've always done it that way.

> [There is] nervousness in senior management in the area of research. … Convincing staff that things need to be evidence-based [is a barrier].

(F) MORE THAN WORKLOAD

Workload and a resulting inability to focus were identified as interacting in important ways. The theme of workload was described as more than simply the amount of work. A critical factor was the fracturing of attention by multiple and competing projects and activities.

> People are expected to do 100 things badly versus one or two things well.
>
> I have far too many plates in the air and one of these days they may crash.
>
> There are so many things coming down the pipe sometimes.
>
> In doing research in client service planning, it was very clear that you don't want to overwhelm people, and so you should be at maximum only working on two to three goals, projects, outcomes, whatever at a time. And comments from staff were, why don't we do that?

(G) TECHNOLOGY – TOO MUCH, TOO LITTLE?

Exploration of issues around information technology identified two major, yet distinct themes. The first related to the lack of IT resources. This included lack of databases or staff to support them and ensure data quality, lack of IT staff in smaller RHAs to provide direct desktop and system support, and lack of computer hardware and software. The other, less anticipated theme related to "too much IT" and its intrusiveness. Modern technology, particularly e-mail and Blackberry technology, was identified as contributing to an additional fracturing of attention, leaving "no time to think." Some felt they spent an inordinate amount of time "keeping up" with e-mail, and that the e-mail culture demanded an instant, rather than thoughtful, response. The common practice of having senior managers always connected (via cellphone and Blackberry), even during meetings where important decisions were being made, was viewed by many as antithetical to EIDM.

(H) RESEARCH CAPACITY AND DATA AVAILABILITY

Research capacity and data availability were also recognized barriers, but were not emphasized. Lack of understanding of research, and of the benefits of research and its applicability to the "real work" people were doing, was commonly expressed. Sometimes research-related activities were described as being viewed as "administrative workload." Analysis of issues related to data resulted in identification of four main components:

1. lack of data (availability and timeliness);
2. lack of systems and resources for tracking, organizing and retrieving data;
3. data overload ("we're drowning in paper"); and
4. lack of access to library resources, or capacity to conduct literature searches.

The effect of RHA size on barriers to EIDM

Little difference was found either in perspectives on evidence or in barriers to evidence-informed decision-making among RHAs of varying size and complexity. We had anticipated that issues facing the Winnipeg Regional Health Authority (WRHA) might be distinct from those facing other regions, as it is home to well over half the province's residents and most of the tertiary and specialized services. Contrary to expectation, however, we found that while there are some important differences between the WRHA and other RHAs, there are more similarities, and that many of the differences relate more to scope and intensity than to substance.

Discussion

While the barriers identified by RHA decision-makers showed some consistency with the published KT literature, there were also some important differences. Issues related to workload, politicized decision-making and organizational factors dominated the discussion of decision-makers, whereas data availability and research-related capacity were given relatively less weight, suggesting that while strategies to increase data availability, research relevance and user capacity may be important, they are unlikely to be successful unless barriers identified as more important, and the interacting nature of many barriers, are addressed. The politicized nature of decision-making was viewed as a pervasive barrier to evidence-informed decision-making: the tone of many responses indicated profound skepticism about the decision-making process, suggesting a need not only for further exploration of how and when political judgment may be legitimate in evidence-informed decision-making, but also an examination of the strategies that are needed to make the role of political judgment in decision-making transparent (CHSRF 2004).

While there was strong consensus among decision-makers that various forms of evidence beyond research were important, there was no evidence of awareness of the growing public discussion regarding the value of "evidence-based" thinking in the fields of health policy and management (Grypdonck 2006; Smith et al. 2001; Walshe and Rundall 2001) and recent initiatives such as the CHSRF workshop *Weighing Up the Evidence: Making Evidence-Informed Guidance Accurate, Achievable and Acceptable* (CHSRF 2006) and related work (Bowen and Zwi 2005).

The lack of awareness of the potential role of program evaluation as a source of evidence was evident throughout this consultation. Because "evaluation research" can combine research rigour with the need of decision-makers for context-sensitive information, more attention should be directed to building capacity for program evaluation.

One finding of concern was the common attribution of most barriers to EIDM to factors external to the RHA. Because there will always be limitations on resource availability in a complex health system, one strategy to promote EIDM is to encourage RHAs to direct attention to those issues they do have the authority to address.

The "crisis management" culture described as pervasive in healthcare was often viewed as "given" by participants. It would perhaps be useful to attempt to disentangle workload (which at the current time individual RHAs may have limited ability to address) and acceptance of a crisis management culture.

Many participants had difficulty applying the concepts of evidence-informed decision-making to their own work, instead focusing on clinical issues. This tendency may arise in part because of the limitations of evidence-based decision-making referenced earlier. Some participants, however, indicated an interest in more evidence on management practices, specifically evidence related to individual and organizational ability to undertake effective decision-making.

The issue of evidence-informed implementation (as opposed to evidence-based decision-making) requires further attention. The actual capacity to carry out a decision effectively was identified as a concern, and has been a neglected area of research to date (Bowen and Zwi 2005).

It is not known to what extent factors unique to the Manitoba environment may have contributed to our findings. *The Need to Know* project activities, combined with the nine-year history of MCHP-sponsored *Rural and Northern Healthcare Days* (and the role of these seminars in increasing decision-makers' awareness of resources and increasing capacity with key individuals) may have contributed to the finding that need for data and research capacity were not emphasized. The same activities could also potentially contribute to the finding that there was a common assumption that research meant "numbers," as well as some of the concern that decision-makers expressed around this issue. As MCHP (which specializes in secondary analysis of administrative claims data) had sponsored *The Need to Know* project, the "capacity-building" had focused on quantitative methodology, and the collaboratively developed research reports had relied on administrative data (Fransoo et al. 2005; Martens et al. 2003). Because no other similar health research initiative had been undertaken, there has been less development of capacity in other areas. This finding has, however, been observed by other authors (Jack 2006).

It is important to stress that the purpose of this research was to understand barriers *from the perspective of decision-makers*, not to provide an objective analysis of all evidence on barriers to evidence-informed decision-making. We propose that any strategies to address barriers to EIDM must take into account and respond to these decision-makers' perspectives. An important limitation of this research, however, is its reliance on self-reported data related to the extent that strategies to address barriers to EIDM are being used. Therefore, the findings may be biased by our informants' perceptions of social desirability, particularly as they reported that EIDM is considered "an expectation."

Conclusions

The "real challenges" to using evidence are structural/contextual/system-level barriers, not simple barriers to research transfer. Findings support the position that knowledge translation is not a single event, but a process (Bowen and Zwi 2005; Lomas 1997) that must include recognition of the varied sources of appropriate evidence, and the complexities of applying research in a specific setting in the face of multiple and interacting barriers. Our results redirect attention from individual decision-making, and use of results from individual research studies, to issues of organizational design – the culture, structure and processes that are needed to support EIDM. Evidence-informed decision-making requires a change in how business is done, and the environment in which this business is conducted: a far more complex undertaking than simply promoting research utilization. While a common strategy to date has been to address data/research accessibility and relevance, or individual capacity to use research (or both), our research suggests that a significant shift in emphasis and orientation is needed.

Decision-makers describe an environment where there is confusion about the nature and appropriate use of evidence – and where they often feel that "using evidence" means simply "using formal research findings and quantitative data" to support their position. While they recognized that evidence is "more than research" and that relevant research is often not available, they did not feel this view was supported. However, our findings also indicate a need for managers to develop (a) skills in weighing various types of evidence, (b) tools that facilitate appropriate use of evidence, (c) strategies for combining various sources of evidence and (d) resources to provide supplementary sources of evidence appropriate to the local context (such as program evaluation). Equally important is the recognition that the "evidence" needed by decision-makers is not limited to health services or clinical research; it also includes evidence related to organizational design and management.

Phase 1 of the *From Evidence to Action* project has resulted in a redefinition of the research problem from "using research to support decision-making" to "establishing and using processes that facilitate evidence-informed decision-making": a significant shift. Phase 2 is focused on developing and evaluating strategies to address the barriers identified. Rather than developing a tool to assess barriers to EIDM (as was identified in the original proposal), project objectives have been refocused to the development of a "toolkit" of resources to address barriers, as experienced by managers. Some examples of strategies can be found in Table 2. Results will be reported in a subsequent publication.

The extent to which healthcare regionalization has provided a potential to promote evidence-informed decision-making (e.g., consolidation of resources that facilitates creation of roles with research or decision-support functions that would not be possible in a single facility), or conversely, created additional challenges (e.g., increasing the number of projects for which an individual is responsible), requires further exploration, as does the issue of the optimal size of regional health authorities to support this work.

TABLE 2. Summary of findings, implications and potential actions

Key findings	Implications for next steps	Examples of action taken
Perception that evidence-informed decision-making equates with "using research" (primarily quantitative) results	Develop strategies/tools to promote more comprehensive understanding of meaning of "evidence" in decision-making Focus on process of decision-making vs. specific content (research used)	Reframing of research question for the research project *"What is Evidence"* (one-page tool developed to address these perceptions directly) developed and circulated through participating RHAs
Skepticism because "politics trumps evidence"	Develop strategies to frame political judgment as a recognized form of evidence in decision-making, while promoting transparency on how various forms of evidence are used in decision-making	See above
Lack of time and resources major barrier	Develop strategies (e.g., redefine roles) to allow "protected time" Develop strategies to integrate evidence into existing processes vs. viewing as "add-on"	In one RHA, revising resource allocation *processes* to promote evidence use; developing tools to aid in this process
Focus on "external" barriers – issues that individual RHAs cannot address alone	Develop tools to differentiate between internal and external barriers, and encourage RHAs to focus on barriers they can affect	Internal/External Barriers framework presented at Rural and Northern Health Care Day
Issues related to leadership, communication and organizational structure	Increase awareness of importance of these factors	Presentation of Phase I report at senior management tables
Culture of crisis management, constant change	Promote questioning of inevitability of crisis management approach; disentangle workload from acceptance of crisis management culture	As above
More than workload – fractured attention	Provide protected "space" for reflective decision-making	As above
Technology – too much, too little	Ensure that *both* strategies to (a) improve IT support and (b) minimize potential disruptive effects of communication technology are promoted	One RHA instituted "no cellphone/ no Blackberry" rule at senior management meetings
Research capacity and data availability viewed as less important barriers to evidence-informed decisions	Strategies to increase use of evidence should focus on barriers viewed as more important by RHA planners and decision-makers	Library access identified as key issue: trial membership with university library instituted Need for skills in weighing evidence identified: guide developed
Few differences in identified barriers related to RHA size, complexity	Further research required to explore transferability of findings	

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"I never teach my pupils; I only attempt to provide the conditions in which they can learn."

- Albert Einstein

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Research Paper

Media Hyping and the "Herceptin Access Story": An Analysis of Canadian and UK Newspaper Coverage

Battage médiatique dans le cas de l'Herceptin : analyse de la couverture dans la presse écrite au Canada et au Royaume-Uni

JULIA ABELSON AND PATRICIA A. COLLINS

Abstract

In May 2005, preliminary trial results pronouncing the effectiveness of Herceptin (trastuzumab) for treatment of early-stage breast cancer were disseminated at a high-profile scientific meeting. Herceptin was subsequently approved for use in the public healthcare systems of Canada and the United Kingdom, although the differences between the two decision timelines were stark. The authors compared UK and Canadian newspaper coverage of the Herceptin story to assess how it may have been "hyped" in each country. They analyzed a diverse sample of newspapers and coded clippings for reporters' framing of the drug's efficacy, costs and funding approval process. Canadian news coverage preceded formal publication of the trial results, while UK coverage mirrored major national events. Reporters in both countries used predominantly individualistic perspectives and framed Herceptin's efficacy in salutary terms. Framing of costs was more neutral in Canadian than in UK newspapers. Funding approval framing focused on inequitable access in the UK and timeliness in Canada. News coverage of drug access stories varies across jurisdictions in terms of intensity and some aspects of framing. Such variations likely reflect different journalistic practices and dominant political rhetoric. Greater attention should be given to the role that news coverage of drug access plays in shaping public opinion and policy action, especially when this coverage precedes scientific debate.

Résumé

En mai 2005, les résultats préliminaires d'une étude faisant valoir l'efficacité de l'Herceptin (trastuzumab) pour le traitement du stade précoce du cancer du sein étaient diffusés au cours d'une rencontre scientifique de haut calibre. Par la suite, l'usage de l'Herceptin était autorisé dans les systèmes de santé au Canada et au Royaume-Uni, bien qu'il y ait une grande différence entre les calendriers de décision respectifs des deux pays. Les auteurs ont comparé la couverture de la presse écrite au Canada et au Royaume-Uni afin d'évaluer à quel point le cas a fait l'objet de battage dans cha-

cun des pays. Ils ont analysé un échantillon de quotidiens et de coupures de presse afin de cerner comment les journalistes ont fait état de l'efficacité du médicament, de ses coûts et du processus d'autorisation. Au Canada, la couverture médiatique a précédé la publication officielle des résultats de l'étude, tandis qu'au Royaume-Uni la couverture suivait les principales étapes nationales. Dans les deux pays, les journalistes ont adopté un point de vue principalement personnel et ont abordé l'efficacité de l'Herceptin en termes favorables. La question des coûts a été abordée de façon plus neutre au Canada qu'au Royaume-Uni. L'approche au sujet de l'autorisation de financement a porté, au Royaume-Uni, sur un accès équitable et, au Canada, sur un accès en temps opportun. Entre les deux pays, l'intensité de la couverture médiatique des cas d'accès aux médicaments, ainsi que certains aspects de l'approche, présentent des différences. Une telle variation reflète probablement des différences dans les pratiques journalistiques et dans le discours politique dominant. Il faut porter plus d'attention au rôle que joue la couverture médiatique sur l'accès aux médicaments dans l'opinion publique et dans les initiatives politiques, particulièrement si la couverture précède le débat scientifique.

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Research Paper

The Effects of Competition on Community-Based Nursing Wages

Les effets de la concurrence sur les salaires des infirmières en milieu communautaire

DARA ZARNETT, PETER C. COYTE, ERIC NAUENBERG, DIANE DORAN, AUDREY LAPORTE

Abstract

In 1997, Ontario implemented a competitive bidding process for purchasing home care services, with the twin objectives of lowering costs and increasing service quality. The authors of this study performed regression analyses to ascertain the relationship between measures of competition, profit status of providers and nursing wages for community-based RNs and LPNs between 1995/1996 and 2000/2001. Using the Herfindahl-Hirschman Index as a measure of competition, we observed that only RN wages significantly increased as competition in home care increased. Furthermore,

for-profit agencies paid significantly lower RN wages than their not-for-profit counterparts. By contrast, LPN wages declined over the sample period and did not differ markedly across provider types. The relative distribution of for-profit and not-for-profit agencies changed dramatically over the study period, with large increases in the number and volume of for-profit contracts. The results indicate that (a) greater competition in the home care sector resulted in upward pressure on RN wages independent of the profit status of the provider and (b) the increase appears to have been constrained by the increased presence of for-profit providers over the study period. The results highlight the role of profit status in provider behaviour, even in the context of publicly funded home care services. This finding has implications for both provider mix and the remuneration of nurses.

Résumé

En 1997, l'Ontario mettait en place un système d'appel d'offres concurrentiel pour l'achat des services de soins à domicile, lequel visait le double objectif d'abaisser les coûts et d'augmenter la qualité des services. Les auteurs de la présente étude ont procédé à une analyse de régression afin de déterminer la relation entre les mesures de la concurrence, le type de fournisseurs (avec ou sans but lucratif) et les salaires des infirmières autorisées ainsi que des infirmières auxiliaires autorisées en milieu communautaire, entre 1995/1996 et 2000/2001. L'indice de Herfindahl-Hirschman comme mesure de la concurrence nous a permis d'observer que seuls les salaires des infirmières autorisées ont augmenté de façon appréciable avec l'accroissement de la concurrence pour les soins à domicile. De plus, les organismes à but lucratif ont offert aux infirmières autorisées des salaires notablement moindres en comparaison aux organismes sans but lucratif. Pour leur part, les salaires des infirmières auxiliaires autorisées ont diminué au cours de la période visée et ne présentent pas de différence appréciable selon le type de fournisseur. La distribution relative entre les organismes avec ou sans but lucratif s'est considérablement modifiée au cours de l'étude, notamment par une augmentation du nombre et du volume des contrats attribués aux organismes à but lucratif. Les résultats indiquent (a) qu'une concurrence accrue dans le secteur des soins à domicile exerce une pression à la hausse sur les salaires des infirmières autorisées, et ce, indépendamment du type (avec ou sans but lucratif) de fournisseur, et que (b) l'augmentation semble freinée par la présence accrue de fournisseurs à but lucratif au cours de la période visée par l'étude. Les résultats font ressortir le rôle du statut (avec ou sans but lucratif) dans le comportement des fournisseurs, et ce, même dans le contexte des services à domiciles subventionnés par

l'État. Ces conclusions ont des répercussions tant pour la composition des types de fournisseurs que pour la rémunération des infirmières.

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Research Paper

Family Physicians' Satisfaction with Current Practice: What Is the Role of Their Interactions with Specialists?

Satisfaction des médecins de famille face à la pratique actuelle : quel est le rôle de leur interaction avec les spécialistes?

AMARDEEP THIND, TOM FREEMAN, CATHY THORPE, ANDREA BURT, MOIRA STEWART

Abstract

Provision of high-quality care sometimes necessitates a referral to, and receipt of timely feedback from, specialist physicians. Interaction with specialists is a key role of family physicians, but it has not received significant attention with respect to its impact on family physician satisfaction. The authors conducted a cross-sectional analysis of data gathered from a decennial census of family physicians in southwestern Ontario. The conceptual framework was based on the model developed by the Society of General Internal Medicine (SGIM) Career Satisfaction Work Group. More than two-thirds of respondents were "very satisfied" with their current practice. Stepwise regression analysis based on a generalized linear model showed that greater difficulty in referring patients to specialists was associated with 23% lower odds of being "very satisfied". Not receiving a timely response from specialists was associated with 26% higher odds of not being "very satisfied." Marital status, teaching involvement and practice volume were also associated with satisfaction. The findings indicate that the practice of family medicine offers a fulfilling career in today's medical marketplace. However, linkages and feedback between family physicians and specialists need to be augmented.

Résumé

Pour fournir des soins de haute qualité il est parfois nécessaire de diriger le patient vers un spécialiste et de recevoir de ce dernier une rétroaction en temps opportun.

L'interaction avec les spécialistes joue un rôle important dans le travail du médecin de famille, toutefois cette question n'a pas reçu toute l'attention nécessaire pour ce qui est de son impact sur la satisfaction du médecin de famille. Les auteurs ont effectué une analyse transversale des données recueillies à partir d'un recensement décennal mené auprès des médecins de famille dans le sud-ouest ontarien. Le cadre conceptuel repo sait sur le modèle élaboré par un groupe de travail de la SGIM (Society of General Internal Medicine). Plus des deux tiers des répondants ont dit être « très satisfait » avec leur pratique. Une analyse de régression par degrés effectuée en utilisant des modèles linéaires généralisés a démontré qu'une difficulté accrue à diriger les patients vers un spécialiste diminue de 23 pour cent la probabilité de se montrer « très satisfait ». Pour sa part, l'absence de réponse en temps opportun augmente de 26 pour cent la probabilité de ne pas se montrer « très satisfait ». L'état civil, l'enseignement et le volume de la pratique sont aussi associés à un degré de satisfaction. Les résultats corroborent l'idée que la médecine familiale offre une carrière pleine ment satisfaisante dans le marché actuel de la médecine. Toutefois, il est nécessaire d'accroître les échanges et la rétroaction entre les médecins de famille et les spécialistes.

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Research Paper

Integrating Public Health into Local Healthcare Governance in Quebec: Challenges in Combining Population and Organizational Perspectives

L'Intégration de la santé publique à la gouverne locale des soins de santé au Québec : enjeux de la rencontre des missions populationnelle et organisationnelle

MYLAINE BRETON, JEAN-FRÉDÉRIC LÉVESQUE, RAYNALD PINEAULT, LISE LAMOTHE, JEAN-LOUIS DENIS

Abstract

The quest for greater efficiency in health systems encourages governments to bring together two fields of practice that have largely developed in parallel in industrialized countries: public health and healthcare. Current healthcare reform in the province of Quebec formally integrates these two fields within a common governance structure. The objective of this paper is to discuss the issues arising from the integration of public health services into the planning and delivery of local healthcare services, and its poten-

tial effect on the overall performance of the healthcare system. The authors begin by describing the characteristics of these two sectors; then, they discuss current reforms in Quebec and the impact of various transitions (epidemiological, technological and organizational) that bring the sectors into greater convergence. The paper concludes with a discussion of obstacles and potential opportunities at two levels: (a) the development of population-based planning of services within healthcare organizations, and (b) the articulation of public health and healthcare services concerns at the local level. The ongoing reform in Quebec is a unique opportunity to maximize outcomes from the resources invested in the healthcare system, based on a collective vision for improving health.

This paper was originally published in French, in the journal *Pratiques et organisation des soins* 39(2): 113–24.

Résumé

La recherche d'une plus grande efficience du système de santé incite les gouvernements à rapprocher deux domaines d'activités du secteur de la santé qui se sont largement développés en parallèle dans les pays industrialisés : la santé publique et le système de soins. La réforme en cours au Québec intègre plus formellement ces deux domaines de prestations au sein d'une même gouverne institutionnelle. L'objectif de cet article est de discuter des enjeux découlant de l'intégration formelle de la santé publique au niveau de la planification et de la prestation de soins locaux et de son potentiel pour la performance d'ensemble du système de santé. En premier lieu, nous présentons les caractéristiques de ces deux domaines de prestation du système de santé : la santé publique et le système de soins. Nous expliquons ensuite la réforme en cours au Québec et discutons des transitions épidémiologiques, technologiques et organisationnelles qui amènent une plus grande convergence entre ces deux domaines. Nous terminons par une discussion des obstacles et opportunités potentielles de cette réforme. Nous discutons de ces défis selon deux niveaux soit : (a) le développement d'une planification populationnelle à l'intérieur d'organisation de prestation de soins et services et (b) l'articulation de préoccupations de santé publique et de système de soins à un niveau local. La réforme en cours au Québec est une occasion unique pour maximiser l'impact des ressources investies dans le système de soins selon une vision collective d'amélioration de la santé.

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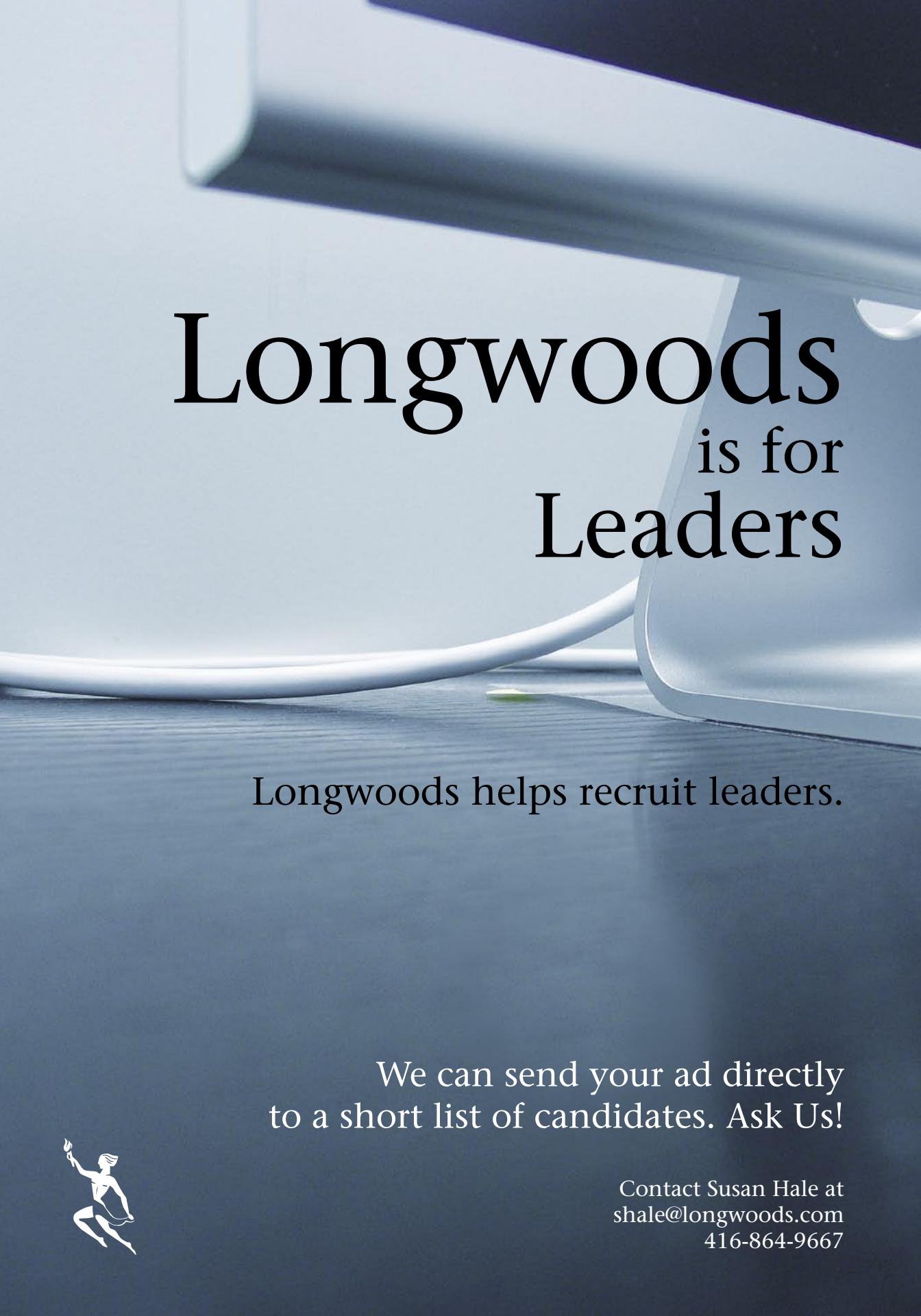
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