

HEALTHCARE

POLICY

Politiques de Santé

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

Volume 9 • Number 2

Waste, Economists and American Healthcare

ROBERT G. EVANS

**Health Canada and the Pharmaceutical Industry: A Preliminary
Analysis of the Historical Relationship**

JOEL LEXCHIN

**Fee Increases and Target Income Hypothesis: Data from
Quebec on Physicians' Compensation and Service Volumes**

DAMIEN CONTANDRIOPOULOS AND MÉLANIE PERROUX

**Looking for Lithotripsy: Accessibility and
Portability of Canadian Healthcare**

KATRINA L. PIGGOTT AND CHAIM M. BELL

*Data Matters • Discussion and Debate • Research Papers
Knowledge Translation, Linkage and Exchange*

A LONGWOODS PUBLICATION



WWW.HEALTHCAREPOLICY.NET

HEALTHCARE QUARTERLY: Best practices, policy and innovations in the administration of healthcare. For administrators, academics, insurers, suppliers and policy leaders. *Edited by* Dr. G. Ross Baker, University of Toronto, Toronto + **CANADIAN JOURNAL OF NURSING LEADERSHIP:** Covering politics, policy, theory and innovations that contribute to leadership in nursing administration, practice, teaching and research. Peer reviewed. *Edited by* Dr. Lynn Nagle, University of Toronto, Toronto. + **HEALTHCARE PAPERS:** Review of new models in healthcare. Bridging the gap between the world of academia and the world of healthcare management and policy. Authors explore the potential of new ideas. *Edited by* Dr. Peggy Leatt, University of North Carolina, Chapel Hill. + **HEALTHCARE POLICY:** Healthcare policy research and translation. Peer reviewed. For health system managers, practitioners, politicians and their administrators, and educators and academics. Authors come from a broad range of disciplines including social sciences, humanities, ethics, law, management sciences and knowledge translation. *Edited by* Dr. Jennifer Zelmer, Adjunct Faculty, University of Victoria, Victoria. + **ELECTRONIC HEALTHCARE:** Best practices, policy and innovations exploring e-models, e-practices and e-products for e-health. For administrators, academics, insurers, suppliers and policy pundits. + **LAW & GOVERNANCE:** Within the framework of the law and the role of governance providing policies, programs, practices and opinions for the providers, administrators and insurers of healthcare services. *Editorial Chair*, Dr. Kevin Smith, McMaster University, Hamilton. + **HRRESOURCES:** Cases, commentary and policy reviews for healthcare clinicians, human resources managers and the policy leaders, insurers, academics, administrators, boards and advisors of all healthcare organizations. + **WORLD HEALTH & POPULATION:** Best practices, policy and innovations in the administration of healthcare in developing communities and countries. For administrators, academics, researchers and policy leaders. Includes peer reviewed research papers. *Edited by* Dr. John Paul, University of North Carolina, Chapel Hill. + **LONGWOODS.COM:** Enabling excellence in healthcare. Providing electronic access to news, information, career opportunities, conference schedules, research, case studies, policy reviews and commentary that cover politics, policy, theory, best practices and innovations in healthcare.

POLICY

Politiques de Santé

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

VOLUME 9 NUMBER 2 • NOVEMBER 2013

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.

Politiques de Santé/Healthcare Policy 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 *Politiques de Santé/Healthcare Policy* 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.

FROM THE EDITOR IN CHIEF

8 Achieving Healthcare Reform: By the Numbers

JENNIFER ZELMER


The 2013 Commonwealth Fund International Health Policy Survey ranks the health systems of 11 countries.

THE UNDISCIPLINED ECONOMIST

12 Waste, Economists and American Healthcare


ROBERT G. EVANS

According to economist Uwe Reinhardt and the Institute of Medicine, bureaucratic waste, mostly in the private sector, accounts for much of the high cost of US healthcare. In 2009, administrative waste accounted for \$190 billion out of a total of \$765 billion in various forms of waste – 31% of overall American spending on healthcare.

DISCUSSION AND DEBATE22  Health Canada and the Pharmaceutical Industry: A Preliminary Analysis of the Historical Relationship

JOEL LEXCHIN

Health Canada has been accused of favouring the pharmaceutical industry over the public in areas of pharmaceutical policy. This orientation has been tied to the introduction of user fees by the industry in 1994 that help finance key aspects of drug regulation.

DATA MATTERS30  Fee Increases and Target Income Hypothesis: Data from Quebec on Physicians' Compensation and Service Volumes

DAMIEN CONTANDRIOPOULOS AND MÉLANIE PERROUX

Public investment in physicians' compensation across Canada has risen in recent years, with a view towards enhancing access to services. Yet in the case of Quebec, data indicate that since such investment the total number of services, number of services per capita and average number of services per physician has either stagnated or declined.

RESEARCH PAPERS36  Economic Evaluation of Manitoba Health Lines in the Management of Congestive Heart Failure


YANG CUI, MALCOLM DOUPE, ALAN KATZ, PAUL NYHOF AND EVELYN L. FORGET

A one-year investigative study has confirmed the cost-effectiveness of a Manitoba program for treating CHF relative to the standard treatment. The Health Lines intervention not only costs less than standard care; it is more effective and produces greater quality-adjusted life-years (QALY).

51  Active Referral: An Innovative Approach to Engaging Traditional Health Providers in TB Control in Burkina Faso

BERTHOLLET BWIRA KABORU

Involvement of traditional healthcare providers (THPs) in TB control in Burkina Faso has improved rates of case detection and successful treatment. However, in order to be sustainable, such interventions require complex policy work and direction, domestic financial contribution and evidence for their cost-effectiveness.

65  Looking for Lithotripsy: Accessibility and Portability of Canadian Healthcare

KATRINA L. PIGGOTT AND CHAIM M. BELL

Extracorporeal shock wave lithotripsy (ESWL) – although a definitive, ambulatory and non-invasive means of treating kidney stones – is not available in all urban centres in Canada. While there is marked variation in wait times across the country for ESWL, there are few barriers to care, and wait times may be shortened by physician advocacy.



Peer Reviewed

DE LA RÉDACTRICE EN CHEF

10 Mener à bien la réforme des soins de santé : chiffres à l'appui

JENNIFER ZELMER

Le sondage international sur les politiques de la santé 2013 du Fonds du Commonwealth offre un classement des systèmes de santé de 11 pays.


L'ÉCONOMISTE INDISCIPLINÉ

12 Gaspillage, économistes et services de santé aux États-Unis

ROBERT G. EVANS

Selon l'économiste Uwe Reinhardt et l'Institute of Medicine, le gaspillage bureaucratique, principalement dans le secteur privé, constitue une part importante du coût exorbitant des services de santé aux États-Unis. En 2009, le gaspillage administratif comptait pour 190 milliards des quelque 765 milliards de dollars attribués au gaspillage sous toutes ses formes, soit 31 % de l'ensemble des dépenses pour les services de santé aux États-Unis.


DISCUSSIONS ET DÉBATS

22  Santé Canada et l'industrie pharmaceutique : analyse préliminaire d'une relation historique

JOEL LEXCHIN

Santé Canada est accusé d'avoir favorisé l'industrie pharmaceutique au détriment de la population dans le secteur des politiques sur les produits pharmaceutiques. Cette situation est liée à la mise en place par l'industrie, en 1994, de tickets modérateurs qui aident au financement d'importants aspects de la réglementation pharmaceutique.

QUESTIONS DE DONNÉES

30  Hypothèse sur la hausse des tarifs et les revenus ciblés : données sur les volumes de services et la rémunération des médecins au Québec

DAMIEN CONTANDRIOPOULOS ET MÉLANIE PERROUX

Ces dernières années, il y a eu une hausse des investissements publics dans la rémunération des médecins au Canada, et ce, dans le but d'accroître l'accès aux services. Au Québec, cependant, les données indiquent que depuis ces investissements, le nombre total des services, le nombre de services par personne et le nombre moyen de services par médecin ont soit stagné soit décliné.

RAPPORTS DE RECHERCHE

- 36  Évaluation économique des lignes d'information sur la santé au Manitoba pour la gestion de l'insuffisance cardiaque congestive
YANG CUI, MALCOLM DOUPE, ALAN KATZ, PAUL NYHOF ET EVELYN L. FORGET
Une étude échelonnée sur un an confirme l'efficacité par rapport au coût d'un programme pour le traitement de l'insuffisance cardiaque congestive, comparativement au traitement standard. L'intervention à l'aide des lignes d'information coûte moins cher que le traitement standard, de plus elle est plus efficace et offre plus d'années-personnes sans invalidité (QALY).
- 51  L'orientation active : une démarche novatrice pour favoriser la participation des prestataires de soins de santé traditionnels dans le contrôle de la tuberculose au Burkina Faso
BERTHOLLET BWIRA KABORU
La participation des fournisseurs de soins de santé traditionnels dans le contrôle de la tuberculose au Burkina Faso améliore le taux de détection des cas et la réussite du traitement. Cependant, il faudra mettre en place des politiques complexes, assurer une contribution financière intérieure et obtenir plus de données sur le rapport coût-efficacité pour assurer la durabilité de telles interventions.
- 65  Besoin de lithotritie : accessibilité et portabilité des services de santé au Canada
KATRINA L. PIGGOTT ET CHAIM M. BELL
Bien que la lithotritie à ondes de choc électrohydraulique (LOCE) soit une modalité de traitement ambulatoire non invasive et indiquée pour les calculs rénaux, elle n'est pas disponible dans tous les centres urbains du Canada. Alors qu'il y a une variation marquée dans les temps d'attente pour la LOCE, il y a peu d'obstacle pour obtenir les soins et l'intervention des médecins pourrait aider à réduire les temps d'attente.
-  Examen par les pairs

POLICY

Politiques de Santé

EDITOR-IN-CHIEF

JENNIFER ZELMER, BSC, MA, PHD
Adjunct Faculty, University of Victoria, BC

SENIOR EDITOR

FRANÇOIS BÉLAND, PHD
Professor, Department of Health Administration, Faculté de médecine, Université de Montréal, Member, Groupe de recherche interdisciplinaire en santé (GRIS), Co-Director, Groupe de recherche Université de Montréal–Université McGill sur les personnes âgées, Montréal, QC

EDITORS

ROGER CHAFE, PHD
Director of Pediatric Research and Assistant Professor, Faculty of Medicine, Memorial University of Newfoundland, St. John's, NL

RAISA DEBER, PHD
Professor, Institute of Health Policy, Management and Evaluation, Faculty of Medicine, University of Toronto, Toronto, ON

MARK DOBROW, PHD
Director, Analysis and Reporting, Health Council of Canada
Associate Professor, Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto, ON

ERIC LATIMER, PHD
Researcher, Douglas Institute
Associate Professor, Department of Psychiatry, McGill University
Associate Member, Department of Epidemiology, Biostatistics, and Occupational Health, McGill University
Montreal, QC

JOEL LEXCHIN, MSC, MD
Professor and Associate Chair, School of Health Policy and Management, Faculty of Health, York University, Emergency Department, University Health Network, Toronto, ON

CLAUDE SICOTTE, PHD
Professor, Department of Health Administration, Faculty of medicine, University of Montreal
Researcher, Groupe de recherche interdisciplinaire en santé (GRIS), Montréal, QC

CONTRIBUTING EDITOR

STEVEN LEWIS
President, Access Consulting Ltd., Saskatoon, SK
Adjunct Professor of Health Policy, University of Calgary & Simon Fraser University

EDITORIAL ADVISORY BOARD

TONI ASHTON
Associate Professor Health Economics, School of Population Health, The University of Auckland, Auckland, NZ

LUC BOILEAU, MD, MSC, FRCPC
President and Chief Executive Officer, Agence de la santé et des services sociaux de la Montérégie, Montréal, QC

PHILIP DAVIES
Government Social Research Unit, London, UK

MICHAEL DECTER
Founding and Former Chair, Health Council of Canada, Toronto, ON

ROBERT G. EVANS
Professor, Department of Economics, University of British Columbia, Member, Centre for Health Services and Policy Research, University of British Columbia, Vancouver, BC

KENNETH FYKE
Victoria, BC

STEFAN GREB
Department of Health Sciences, University of Applied Sciences
Fulda, Germany

CHRIS HAM
Professor of Health Policy and Management, Health Services Management Centre, The University of Birmingham, Birmingham, UK

PAUL LAMARCHE
Professor, Departments of Health Administration & Social and Preventive Medicine, Director, GRIS, Faculté de médecine, Université de Montréal, Montréal, QC

DAVID LEVINE
Président directeur général, Agence de développement de réseaux locaux de services de santé et de services sociaux de Montréal-Centre, Montréal, QC

CHRIS LOVELACE
Senior Manager, World Bank, Kyrgyz Republic Country Office, Central Asia Human Development, Bishkek, Kyrgyz Republic

THEODORE R. MARMOR
Professor of Public Policy and Management, Professor of Political Science, Yale School of Management, New Haven, CT

VICENTE ORTÚN
Economics and Business Department and Research Center on Health and Economics (CRES), Pompeu Fabra University, Barcelona, Spain

ROBIN OSBORN
Vice President and Director, International Program in Health Policy and Practice, Commonwealth Fund, New York, NY

DOROTHY PRINGLE
Professor Emeritus and Dean Emeritus, Faculty of Nursing, University of Toronto, Toronto, ON

MARC RENAUD
Lisbon, Portugal (on sabbatical)

JEAN ROCHON
Expert associé, Systèmes de soins et services, Institut national de santé publique du Québec, Sainte-Foy, QC

NORALOU P. ROOS
Manitoba Centre for Health Policy
Professor, Community Health Sciences
University of Manitoba, Winnipeg, MB

RICHARD SALTMAN
Professor of Health Policy and Management, Rollins School of Public Health, Emory University, Atlanta, GA

HON. HUGH D. SEGAL, CM
Senator, Kingston-Frontenac-Leeds, Ottawa, ON

ALAN WOLFSON
South Africa

MANAGING EDITOR

ANIA BOGACKA
abogacka@longwoods.com

EDITORIAL DIRECTOR

DIANNE FOSTER-KENT
dkent@longwoods.com

COPY EDITOR

FRANCINE GERACI

TRANSLATOR

ÉRIC BERGERON

PROOFREADER

NATHALIE LEGROS

DESIGN AND PRODUCTION

BENEDICT HARRIS
bharris@longwoods.com

PUBLISHER

ANTON HART
ahart@longwoods.com

ASSOCIATE PUBLISHER

REBECCA HART
rhart@longwoods.com

ASSOCIATE PUBLISHER

SUSAN HALE
shale@longwoods.com

ASSOCIATE PUBLISHER

MATTHEW HART
mhart@longwoods.com

ASSOCIATE PUBLISHER/ADMINISTRATION

BARBARA MARSHALL
bmarshall@longwoods.com

HOW TO REACH THE EDITORS AND PUBLISHER

Telephone: 416-864-9667 Fax: 416-368-4443

ADDRESSES

All mail should go to: Longwoods Publishing Corporation, 260 Adelaide Street East, No. 8, Toronto, Ontario M5A 1N1, Canada.

For deliveries to our studio: 54 Berkeley St., Suite 305, Toronto, Ontario M5A 2W4, Canada.

SUBSCRIPTIONS

Individual subscription rates for one year are [C] \$116 for online only and [C] \$185 for print + online. Institutional subscription rates are [C] \$525 for online only and [C] \$665 for print + online. For subscriptions contact Barbara Marshall at telephone 416-864-9667, ext. 100 or by e-mail at bmarshall@longwoods.com.

Subscriptions must be paid in advance. An additional tax (GST/HST) is payable on all Canadian transactions. Rates outside of Canada are in US dollars. Our GST/HST number is R138513668.

SUBSCRIBE ONLINE

Go to www.healthcarepolicy.net and click on "Subscribe."

REPRINTS/SINGLE ISSUES

Single issues are available at \$50. Includes shipping and handling. Reprints can be ordered in lots of 100 or more. For reprint information call Barbara Marshall at 416-864-9667 or fax 416-368-4443 or e-mail to bmarshall@longwoods.com.

Return undeliverable Canadian addresses to: Circulation Department, Longwoods Publishing Corporation, 260 Adelaide Street East, No. 8, Toronto, Ontario M5A 1N1, Canada.

EDITORIAL

To submit material or talk to our editors please contact Ania Bogacka at 416-864-9667, ext. 108 or by e-mail at abogacka@longwoods.com. Author guidelines are available online at <http://www.longwoods.com/pages/hpl-for-authors>.

ADVERTISING

For advertising rates and inquiries, please contact Matthew Hart at 416-864-9667, ext. 113 or by e-mail at mhart@longwoods.com.

PUBLISHING

To discuss supplements or other publishing issues contact Anton Hart at 416-864-9667, ext. 109 or by e-mail at ahart@longwoods.com.

Healthcare Policy/Politiques de Santé is published four times per year by Longwoods Publishing Corp., 260 Adelaide St. East, No. 8, Toronto, ON M5A 1N1, Canada. Manuscripts are reviewed by the editors and a panel of peers appointed by the editors. Information contained in this publication has been compiled from sources believed to be reliable. While every effort has been made to ensure accuracy and completeness, these are not guaranteed. The views and opinions expressed are those of the individual contributors and do not necessarily represent an official opinion of *Healthcare Policy* or Longwoods Publishing Corporation. Readers are urged to consult their professional advisers prior to acting on the basis of material in this journal.

Healthcare Policy/Politiques de Santé is indexed in the following: PubMed/Medline, CINAHL, CSA (Cambridge), Ulrich's, Embase, IndexCopernicus, Scopus, ProQuest, EBSCO Discovery Service, is archived in PubMed Central, and is a partner of HINARI.

No liability for this journal's content shall be incurred by Longwoods Publishing Corporation, the editors, the editorial advisory board or any contributors.

ISSN No. 1715-6572
eISSN No. 1715-6580

Publications Mail Agreement No. 40069375
© November 2013

Achieving Healthcare Reform: By the Numbers

WE RATE OR RANK ALMOST ALL ASPECTS OF MODERN LIFE. THE PROCESS starts shortly after a child's birth with the Apgar score and continues with grades in school, sports statistics, mutual fund league tables and so much more. While life is by no means only about keeping score, these comparisons can teach us a great deal.

Healthcare is no exception, and the latest International Health Policy Survey from the Commonwealth Fund (2013) provides much fodder for those who wish to rank different countries' health systems. This telephone survey, conducted between February and June 2013, asked adults in 11 countries about such issues as access to care, how they used health services and what they thought of their health system. These statistics serve as a mirror, reflecting the public's views and experiences of healthcare back to those who debate health policy priorities and options.

Once again, the survey shows that there are important variations in countries' performance on almost all of the questions asked by the Commonwealth Fund. For example, in the United Kingdom, 4% of people said that cost had prevented them from filling a prescription, visiting a doctor with a medical problem or getting recommended care in the last year; in the United States, the rate was 37% (Osborn and Schoen 2013). While there is a general relationship between the percentage of people who report cost-related access problems and the proportion who say that they spent \$1,000 or more out of pocket on healthcare, it is by no means absolute, raising interesting questions about the underlying reasons. The survey also found a wide range in terms of ease of access to after-hours care, wait times for specialist appointments and whether patients can get a same-day or next-day appointment when they are sick.

As in previous years, no one country ranked best for all aspects measured by the survey; neither is any country's experience worst across the board. The same is undoubtedly true in areas not measured by this particular survey. If, as Leonardo da Vinci once wrote, "wisdom is the daughter of experience," there is clearly substantial scope for learning by delving into these varied experiences to understand the effects of different policy choices and contexts.

And yet, while differences among countries can be highly informative, what struck me in looking at the early results for the 2013 survey was how much participating nations have in common. For instance, substantial numbers of people in all 11 countries (37%–75%) surveyed said that their country's healthcare system needed fundamental changes or a complete rebuild. It is true that some nations are significantly more satisfied with their systems than others.

Clearly, there are gems in the experiences of the best-performing countries from which we can learn, particularly in cases where satisfaction has been rising. But in no country was there a ringing endorsement of the status quo. We all have considerable scope for improvement.

Likewise, at least one in five adults in each of the countries surveyed said that they had used an emergency department in the last two years (Osborn and Schoen 2013). Clearly, for some individuals, emergency department care is essential; others would be better served elsewhere. What would the “right” rate be in a country with a deeply embedded culture of health promotion and disease prevention, strong primary healthcare, effective chronic disease management and robust palliative care? I have no idea, but intuitively, one in five seems high. Reinforcing this view is the fact that even in countries such as Australia that are at the lower end of use according to international league tables, there is ongoing debate about the rate of emergency department utilization and a policy focus on appropriate alternatives. This may be one of those times when being better than the rest is positive but not the best that can be achieved.

The upshot is that we collectively share a strong interest in how to achieve health reform that delivers better short- and long-term results, stretching our current understanding and expectations of what is possible. I hope that this issue of the journal – which includes research and evidence-informed commentary based on experiences from North America to Burkina Faso – provides new insights that inform your thinking about current policy debates and spark ideas for collaboration and improvement.

JENNIFER ZELMER, BSC, MA, PHD
Editor-in-chief

References

Commonwealth Fund, The. 2013. Commonwealth Fund International Health Policy Survey. Retrieved November 19, 2013. <<http://www.commonwealthfund.org/Surveys/2013/2013-Commonwealth-Fund-International-Health-Policy-Survey.aspx>>.

Osborn, D. and C. Schoen. 2013. “The Commonwealth Fund 2013 International Health Policy Survey in Eleven Countries.” Retrieved November 19, 2013. <http://www.commonwealthfund.org/~media/Files/Publications/In%20the%20Literature/2013/Nov/PDF_Schoen_2013_IHP_survey_chartpack_final.pdf>.

Mener à bien la réforme des soins de santé : chiffres à l'appui

NOUS CLASSONS ET NOTONS PRESQUE TOUS LES ASPECTS DE LA VIE MODERNE. Ce processus commence dès la naissance avec l'indice d'Apgar, puis continue avec les bulletins scolaires, les statistiques sportives, le classement des fonds mutuels et tout le reste. Bien que la vie ne se réduise pas à de simples statistiques, les comparaisons nous permettent de découvrir beaucoup de choses.

Les services de santé n'y font pas exception. Le dernier sondage international sur les politiques de la santé, effectué en 2013 par le Fonds du Commonwealth, offre beaucoup de matériel pour ceux qui tentent de classer les systèmes de santé des pays. Dans le cadre de ce sondage téléphonique, réalisé entre février et juin 2013, on a questionné des adultes de 11 pays sur l'accès aux soins, sur l'utilisation des services et sur leur opinion du système de santé. Ces statistiques sont comme un miroir et reflètent l'expérience et l'opinion des populations face aux points de vue des personnes qui s'intéressent aux priorités et aux choix en matière de politiques de la santé.

Cette fois encore, le sondage montre qu'il y a d'importantes variations d'un pays à l'autre sur pratiquement tous les points abordés par le Fonds du Commonwealth. Par exemple, au Royaume-Uni, 4 % de la population indique qu'au cours de l'année dernière, le coût a été une des raisons invoquées pour ne pas remplir une ordonnance, ne pas consulter un médecin pour un problème ou ne pas chercher à obtenir les soins recommandés; aux États-Unis, ce chiffre s'élève à 37 % (Osborn et Schoen 2013). Par ailleurs, bien qu'il y ait un lien entre le pourcentage de personnes qui indiquent des problèmes d'accès liés aux coûts et la proportion de gens qui disent avoir dépensé 1 000 \$ ou plus en soins de santé, cela n'est pas un principe absolu et il est intéressant d'en explorer les raisons. Le sondage révèle également d'importants écarts dans l'accessibilité aux services après les heures normales, dans les temps d'attente pour une consultation auprès d'un spécialiste ou dans la possibilité pour un patient malade d'obtenir un rendez-vous le jour même ou le lendemain.

Comme pour les années précédentes, aucun pays ne se classe premier dans tous les aspects mesurés, pas plus qu'aucun ne se classe dernier dans toutes les catégories. Il en va certainement de même pour les secteurs qui n'ont pas été abordés dans le cadre de ce sondage. Si, comme Léonard de Vinci l'a écrit, « la sagesse est fille de l'expérience », on peut sûrement en apprendre davantage en explorant ces variations pour mieux comprendre l'effet de divers contextes et choix de politiques.

Pourtant, bien que les différences entre les pays offrent une foule de renseignements utiles, ce qui m'a surpris en examinant les résultats du sondage de 2013 ce sont les points communs entre les nations concernées. Par exemple, un nombre appréciable de personnes interrogées (37 % – 75 %) dans les 11 pays indiquent qu'il serait nécessaire de procéder à des changements profonds, ou même à une restructuration complète, du système de santé de leur pays. Il est vrai que les citoyens de certaines nations se disent beaucoup plus satisfaits que d'autres. Il y a effectivement d'excellents exemples de réussite dans les pays qui présentent les meilleurs rendements, particulièrement là où le degré de satisfaction est à la hausse. Pourtant, le statu quo n'est privilégié dans aucun des pays concernés. Il y a place à l'amélioration dans chacun d'eux, sans exception.

Pareillement, au moins un adulte sur cinq dans chacun des pays sondés indique avoir utilisé les services d'urgences au cours des deux dernières années (Osborn et Schoen 2013). Pour certaines personnes, les services d'urgences sont certainement indispensables alors que d'autres personnes obtiendraient probablement un meilleur service ailleurs. Quel serait le taux « adéquat » dans un pays doté d'une culture de prévention et de promotion de la santé bien intégrée, de soins primaires bien organisés, d'une gestion efficace des maladies chroniques et de bons soins palliatifs? Je ne sais pas, mais il me semble qu'une personne sur cinq c'est beaucoup. On observe d'ailleurs que même dans des pays où les services d'urgences sont les moins utilisés, comme en Australie, il y a un débat au sujet du taux d'utilisation ou des politiques pour trouver des solutions appropriées. Cela fait voir que même ceux qui ont les meilleurs rendements savent qu'on peut faire encore mieux.

En bout de ligne, nous souhaitons tous savoir comment mener à bien la réforme des services de santé pour améliorer les résultats à court ou à long terme, en tirant profit de nos connaissances et de nos attentes. J'espère que ce numéro de la revue – qui comprend des comptes rendus de recherches et des commentaires sur des expériences en Amérique du Nord ou au Burkina Faso – proposera de nouvelles pistes de réflexion sur les débats actuels ou favorisera l'éclosion de nouvelles idées de collaboration et d'amélioration.

JENNIFER ZELMER, BSC, MA, PHD
Rédactrice en chef

Références

Commonwealth Fund, The. 2013. Commonwealth Fund International Health Policy Survey. Consulté le 19 novembre 2013. <<http://www.commonwealthfund.org/Surveys/2013/2013-Commonwealth-Fund-International-Health-Policy-Survey.aspx>>.

Osborn, D. and C. Schoen. 2013. "The Commonwealth Fund 2013 International Health Policy Survey in Eleven Countries." Consulté le 19 novembre 2013. <http://www.commonwealthfund.org/~media/Files/Publications/In%20the%20Literature/2013/Nov/PDF_Schoen_2013_IHP_survey_chartpack_final.pdf>.

Waste, Economists and American Healthcare

Gaspillage, économistes et services de santé aux États-Unis

ROBERT G. EVANS

Abstract

Twenty-five years ago, Uwe Reinhardt pointed out that sheer bureaucratic waste, particularly in the private sector, accounted for much of the extraordinarily high cost of American healthcare. Last year an expert panel of the Institute of Medicine reconfirmed his point, estimating that in 2009, administrative waste accounted for \$190 billion out of a total of \$765 billion in various forms of waste – 31% of overall American spending on healthcare. Reinhardt recently noted a peculiar schizophrenia among American economists, simultaneously deploring this monumental waste while celebrating the contribution of healthcare, and particularly medical research, to the American economy. The apparent paradox may arise from a confusion between the meanings of “value” in economic and everyday language, and from economists’ tendency to create pseudo-aggregates of diverse and non-commensurate entities.

Résumé

Il y a vingt-cinq ans, Uwe Reinhardt indiquait que le simple gaspillage bureaucratique, en particulier dans le secteur privé, constituait une des principales causes du coût exorbitant des services de santé aux États-Unis. L’année dernière, un panel d’experts de l’Institute of Medicine reconfirmait cette affirmation en estimant qu’en 2009, le gaspillage administratif comptait pour 190 milliards des quelque 765 milliards de dollars attribués au gaspillage sous toutes ses formes, soit 31 % de l’ensemble des dépenses pour les services de santé aux États-Unis. Reinhardt observait récemment un étrange comportement schizophrénique chez les économistes américains, qui déploraient cet énorme gaspillage tout en encensant l’apport des

services de santé, et particulièrement de la recherche médicale, à l'économie américaine. Ce paradoxe apparent vient sans doute d'une confusion sur le sens du mot « valeur » dans le milieu économique et dans la vie de tous les jours, ainsi que de la tendance des économistes à créer des pseudo-totaux à partir de diverses entités qui ne peuvent se comparer entre elles.

HE'S AT IT AGAIN. TWENTY-FIVE YEARS AGO, THE NOTORIOUS PRINCETON HEALTH economist and crypto-Canadian (as he then was) Uwe Reinhardt wrote a characteristically cheeky piece in the *Washington Post* called "On the B-Factor in American Health Care" (Reinhardt 1988). He pointed out that a major contributor to the extraordinarily high cost of American healthcare (relative to every other country in the world) was an unusually large administrative bureaucracy. Unproductive paper-pushing adds tens of billions to both public and private costs, without any detectable benefits (at least, none for patients). This observation was very rude of him because, although perfectly true, it challenged two of Americans' fundamental articles of faith: that the American healthcare system is the finest in the world (that's why it costs so much), and more fundamentally, that profit-driven private-sector organizations are necessarily and, by definition, lean and efficient. Only public-sector organizations are choked with wasteful and incompetent bureaucracies. Everybody knows that.

More recently, in the *New York Times*, Professor Reinhardt has revisited the theme of excessive administrative costs in American healthcare (Reinhardt 2013).

This time, he is backed by the Institute of Medicine of the National Academy of Sciences (IOM 2012). He presents a table adapted from the IOM's report, providing estimates of the principal sources of waste in the American healthcare system, and their relative magnitudes in 2009. Professor Reinhardt focuses in particular on the estimate of \$190 billion in excessive administrative costs (see Table 1).

TABLE 1. Sources of excess costs in the US, 2009: 31% of total health spending of \$2.5 trillion

1. Unnecessary services	\$210 billion
2. Inefficiently delivered care	\$130 billion
3. Excess administrative costs	\$190 billion
4. Excessively high prices	\$105 billion
5. Missed prevention opportunities	\$55 billion
6. Fraud	\$75 billion
TOTAL	\$765 billion

Source: Based on data in *Best Care at Lower Cost* (Institute of Medicine 2013), Table 3-1: http://nap.edu/catalog.php?record_id=13444. Reprinted with permission from the National Academies Press, Washington, D.C.

This is not a trivial sum; it amounts to about a quarter of the IOM's total estimate. It is sufficient to pay for the extension of universal healthcare coverage to the entire American population – a relationship that has been noted many times before. Yet, although Professor Reinhardt has been to many conferences on evidence-based medicine, or related topics, “I cannot recall a conference on the topic of ‘evidence-based best administrative practice,’ although I may have missed it.”

Now, any economist could quibble with the IOM's estimates, and I would guess that pretty much any economist would. (Failure to quibble might result in professional disqualification.) Apart from the fact that these estimates are merely generated by an expert panel, the \$105 billion in excess prices is a cost only to payers. To suppliers it is a benefit, a transfer payment (a sort of involuntary gift), and so nets out across the society as a whole. There is no opportunity cost, no using up of scarce resources. The same is true of the \$75 billion cost of fraud; it is simply a transfer from payers to fraudsters, except insofar as real resources are used up in perpetrating fraud and in catching and penalizing the fraudsters.¹

On the other hand, the excess administrative costs that Professor Reinhardt focuses on look far too low. Woolhandler and Himmelstein have been studying administrative costs in the American healthcare system for many years (e.g., Woolhandler et al. 2003), and estimate that the excess administrative costs associated with the private health insurance system amounted to about 15% of total American spending, or about double the IOM's estimate. A possible explanation might be that the IOM is counting only excess administration in the healthcare system itself, while Woolhandler and Himmelstein include estimates of the excess overhead costs of the insurance system. If so, then an IOM undercount of total administrative waste, by about \$200 billion, would roughly match the \$180 billion transferred from payers to fraudsters and price gougers that they have called a “cost.”

Yet again, there are the very real costs of time, energy and frustration imposed on participants, both patients and providers, by an absurdly complex system of financing. These are very hard – in effect, impossible – to measure. But to fail to include them is in fact to assign them a cost of zero. That is obviously wrong. Reinhardt quotes a recent study estimating that the average amount of time wasted annually by clinicians in dealing with the vagaries of the American payment system is worth about \$83,000 each. This would add further tens of billions to the real costs of excess administration.

And so it goes. But so it has gone, for decades. That the American healthcare system is absurdly expensive, and that most, if not all, of those excess costs represent various forms of waste, is not exactly news. But nothing changes; the massive waste goes on. And anyway, it is an American problem, is it not? Thank goodness we are so much more efficient here in Canada. So apart from new numbers, and the opportunity to reference, yet again, Uwe Reinhardt's work, what justification is there for an “Undisciplined Economist” column on the subject?

Well, perhaps the same reason that Reinhardt is publishing the same message after 25 years – to try to keep alive public awareness of the issue of massive waste. So much nonsense

is talked, on both sides of the border, about the underfunding of healthcare and the crisis of an aging population that it is incumbent on those of us who actually watch the numbers to try to provide some counterpoise. In Canada in particular, one finds endless claims about the superiority of private healthcare delivery and finance, coming from those who should know better – and, I believe, in some cases do. (Poorer performance at higher cost? What’s not to love? Sign us up!) We also have the example of the Canadian system of finance for pharmaceuticals and dentistry – in essence, Little America – that displays exactly the same inequities and excessive costs as its American cousin.

But again, this is not news. What I think is more intriguing is the role of economists in the American debate. That role is profoundly conflicted, as Professor Reinhardt shows at the outset of his article:

Give [American] economists a drink – or not – and with a straight face they will tell you that the American health-care system is one of the highest value-added sectors in the economy (see, for example, the book *Measuring the Gains from Medical Research* edited by Kevin M. Murphy and Robert H. Topel). Give [American] economists another drink – or not – and with the same straight face they will tell you that our system is alarmingly wasteful.

To illustrate, he quotes Harvard economist David Cutler (2007), who asserts as “two fundamental facts” that “the average value of medical advance is very high,” and yet “most estimates suggest that about 20 percent to 30 percent of medical spending [in the United States] could be eliminated with no adverse effects on patient outcomes.”

So which is it? High-value or alarmingly wasteful? Cutler’s fundamental facts are a bit difficult to pin down; an epidemiologist might well ask for the denominator from which his average value of medical advances is calculated. (If it isn’t high value, it isn’t an advance?) And a waste range for the United States of 20% to 30% looks low if the excessive administrative overhead alone is 15%. But these are quibbles.

Reinhardt offers a possible reconciliation through the consideration of diminishing returns. Using a hypothetical relationship between resources devoted to healthcare and corresponding health outcomes, he suggests that as spending rises, the health gain from further spending becomes progressively smaller, and eventually becomes zero and then negative – too much healthcare reduces health.

There is no question but that this relationship holds for particular healthcare goods and services; indeed, it is difficult to think of any that are not actually damaging to health if overprovided or provided in inappropriate circumstances. That fairly obvious reality underlies most of the complex regulatory structure that surrounds healthcare. Whether it applies to the system as a whole, however, requires a somewhat more extended analysis. But this relationship does suggest a possible explanation for the coexistence of highly valued services alongside the useless and harmful – clear waste.

An alternative approach, however, is suggested by the reference to “high value-added services” quoted by Reinhardt. This term derives from the national income accounting framework, and suggests that the apparent paradox of highly valued waste has its roots in inconsistent accounting frameworks, or standards of value.

The gross domestic product (GDP) of a country or geographic region is a measure of the aggregate amount of economic activity within that region. (The gross national product, by contrast, is the total economic activity of the citizens of that region, wherever carried out.) Economic activity is represented by the vast array of different commodities, goods and services that are generated by that activity, and these must be given weights so that they can be aggregated into a single measure. Those weights are defined with the dimension of [currency unit/unit of commodity] – or simply, prices.

These prices are then observed in markets, or in the many cases where no market prices exist, they are imputed by various techniques to approximate what a market price might have been, if there were a market.

Some of these imputed prices are quite plausible, such as the rental value of owner-occupied housing. Others, such as the prices for non-priced public services, are simply based on costs of production. (In some cases, such as the “household production” of homemakers’ services, the national income accountants simply duck the issue. This amounts to imputing a price of zero – obviously wrong – but in some ways understandable.)

But one cannot simply add up all the commodities produced in an economy, weighted by their market or imputed prices, because most commodities are what are called “intermediate goods,” produced and then used in the production of other goods. It would be double-counting to include the steel that goes into an automobile, or the flour that goes into a loaf of bread, and then count the automobile and the bread as well. To avoid this, one can calculate the “value added” at each stage of production, by netting off from the products at that stage the intermediate products used up in that stage. This process is the basis for “value-added” taxation, or the VAT now common in European countries.

There is a great deal more that could be, has been and will be said on this topic, but not by me and certainly not here. What I would emphasize is that in the process of computing an estimate of aggregate economic activity, and in many countries a tax base, the word “value” has become attached to what is in many major sectors of the economy simply a measure of expenditure, of cost of production. In healthcare, there may be prices for some commodities that look as if they were analogous to market prices, but are not generated by anything remotely resembling competitive market processes. And this is just as true in the United States, where Uwe is writing, as in more “socialist” systems.

This point is fundamental, because the justification typically given for representing prices as “values” is that those prices do correspond to the values that informed “consumers,” making choices in open and competitive markets, attach to different commodities. It is pretty obvious that this theoretical framework does not apply to, say, military procurement, or to public services in general. Citizens (not consumers!) express their preferences, however well or badly, through the political process, because that is all there is. And the same is true for healthcare

services, although the reality may be obscured by the presence of pseudo-markets displaying pseudo-prices.

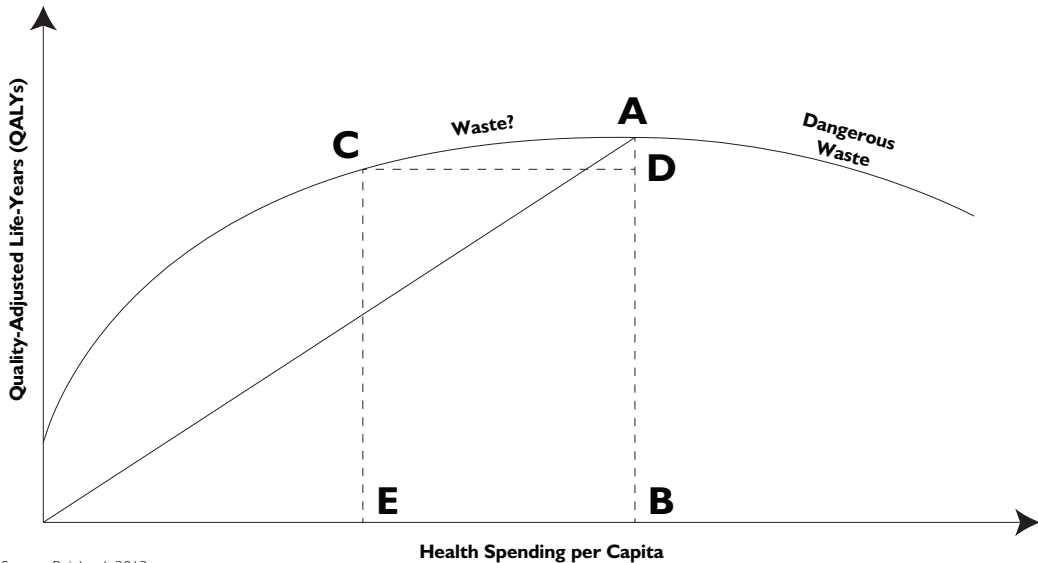
The yawning gap between cost and value in American healthcare has been captured nicely elsewhere by Professor Reinhardt in his quip that in the United States the finest healthcare in the world costs twice as much as the finest healthcare in the world. He was referring to the finding by Wennberg and his colleagues at the Dartmouth Institute for Health Policy & Practice that among American academic medical centres of universally acknowledged excellence, some (Harvard, Johns Hopkins, UCLA) generated costs per patient in the American Medicare system that were roughly double those in others (the Mayo Clinic, the Cleveland Clinic). Those cost differences are all duly included by the national income accountants as differences in the “value added” to the economy by those different centres. But they do not represent any differences in value provided to American patients. If anything, the higher costs may represent a reduction of value, because as any experienced patient can tell you, excessive intervention has a very direct negative impact on patient well-being, apart from any risks to health.

This is not the fault of the national income accountants. Practitioners of that discipline have made it clear from its inception that what is measured is economic activity, not value – welfare or well-being in some broader sense. Sometimes more is better; sometimes it isn't. When such activity in the healthcare sector adds nothing to health, or worse, reduces it, more is not better. The apparent paradox of highly valued waste thus arises from a confusion of labels, from taking the word “value,” which has a very narrow and particular meaning in the context of national income accounting, and assuming that it has the same meaning as its ordinary-language counterpart. (Economists have a bad habit of doing this – of trying to impose their technical jargon on ordinary-language discussions. The results are confusing at best, and at worst downright misleading. Consider “allocative efficiency”; other examples on request.)

Another layer of complexity is added, however, if one considers the value of medical advances, of new knowledge embodied in changes in technology or practices. Both the sources referenced by Reinhardt are actually addressing the payoff to medical research and the value of diagnostic and therapeutic advances, then juxtaposing these against the continuing very high level of waste and inefficiency in the American system. Yet, there is no obvious reason why continuing medical advances necessarily depend upon a correspondingly high level of provision of ineffective or harmful services, produced by inefficient organizations and charged at excessive prices. The money wasted does not go back into medical research!

Technical advances cannot, however, be represented as movements (to the right) along Reinhardt's curve linking resource inputs to population health status (see Figure 1); rather, they shift the curve upwards. Such a shift implies the potential for greater health benefits at some levels of resource input. But the relation to resource requirements and costs can go either way. If the new advances raise the curve towards its right-hand end, that implies new opportunities to improve health that would require more resources and greater health spending. But that is still no excuse to waste money on ineffective services. On the other hand, if medical advances raise the payoff curve towards its left-hand end, health gain becomes possible at lower cost.

FIGURE 1. Average vs. marginal productivity in health spending



Source: Reinhardt 2013.

The physician and medical essayist Lewis Thomas expressed this idea more elegantly years ago as the three stages of medical technology. At the first stage, the disease or condition is not well understood, and there exists no effective treatment. Patients may receive various forms of care, at greater or lesser expense, but with little or no (positive) effect on the outcome. (Think of the death of Charles II of England, attended by the leading physicians of his day, who deployed an amazing array of completely useless or actively harmful interventions before the poor man was allowed to depart in peace.) As knowledge advances, treatment shifts into an intermediate phase in which interventions are available that mitigate the condition, but not very effectively and at considerable effort and expense. Finally, when the disease or condition is fully understood, effective technologies can be developed, outcomes are much better and costs go down dramatically.

Polio is a good example. The early stage was marked by few effective treatments; the development of the iron lung was an intermediate technology, and the discovery of a vaccine the tertiary phase. Cancer, in at least some forms, has over the last generation been slowly shifting from the early to the intermediate stage. Tuberculosis, once an example of a decisive, third-stage intervention, may be sliding backwards, as a result of human behavioural factors and mutation of the bacillus.

Advances in surgery offer other examples of medical progress lowering resource requirements – lens implantation, for example, or keyhole surgery. And diagnostic procedures have shown major improvements in effectiveness with declining cost. All this is well known. But equally well known is that new advances extend the range of the treatable, raising the curve at its right-hand end, pointing yet more sharply to the question of appropriateness of intervention. Advances in cataract surgery, for example, have greatly lowered the threshold for

intervention (e.g., Bassett et al. 2005). While for most patients the intervention is unquestionably beneficial, the expected benefits inevitably decline with the threshold for intervention. The risks do not. When the threshold is low enough, the marginal net benefits turn negative.

The attempt to estimate some aggregate payoff to medical advances is thus probably a meaningless exercise. Which advances, as deployed by whom, where and in what context? It is not, however, a fool's errand. The need for such an aggregate value, preferably large, is perfectly understandable in the context of the public budgetary process. And where there is a demand (backed with money), there will be a supply.

As J.K. Galbraith has said, economists predict the future, not because they know what is going to happen, but because people ask them. You want an estimate of the aggregate economic payoff to medical research? You'll get one. What does it mean? Well, it means you should spend more money on medical research. Next question?

The apparent paradox addressed by Reinhardt, of simultaneous assertions of large payoffs to medical advances but vast waste, thus has its roots in two besetting sins of economic analysis, the misuse of language and the aggregation of the un-aggregatable.

Words from ordinary language are given special, precisely defined meanings, as in "value added," and then carried back into common discourse, where they mean something quite different. The value added in the healthcare industry has nothing to do with the value to you or to me of a medical intervention.

There is, of course, a good reason for such precise technical concepts. Among other things, they permit consistent aggregation into such constructs as gross domestic product or national health expenditure, and their various components. But these are measures of expenditure, not value.

And no such precise technical framework supports the label of "medical advance" or "medical progress." One can imagine the development of such a framework, but it would have to focus on gains in health status, variously defined, and is a task for epidemiologists and clinicians, not for economists. It is not obvious that attaching dollar values to such an aggregate measure would serve any useful purpose.

Note

1. The author is aware that excessive prices (and fraud) can in some settings create "welfare burdens" but leaves such considerations to those with a taste for triangle-mongering and counting angels.

References

- Bassett, K., K. Noertjojo, P. Nirmalan, P. Courtright and D. Anderson. 2005. "RESIO Revisited: Visual Function Assessment and Cataract Surgery in British Columbia." *Canadian Journal of Ophthalmology* 40(1): 27–33.
- Cutler, D.M. 2007. "The Value Equation in Health Care." Presentation at a conference at Rice University, Houston, TX.
- Institute of Medicine (IOM). 2013. *Best Care at Lower Cost*. Washington, DC: National Academy of Medicine.
- Murphy, K.M. and R.H. Topel, eds. 2003. *Measuring the Gains from Medical Research*. Chicago: University of Chicago Press.

- Reinhardt, U.E. 1988 (August 9). "On The B-Factor in American Health Care." *The Washington Post*: 20.
- Reinhardt, U.E. 2013 (September 13). "Waste vs. Value in American Health Care." *The New York Times*. Retrieved October 7, 2013. <<http://economix.blogs.nytimes.com/2013/09/13/waste-vs-value-in-american-health-care/>>.
- Woolhandler S., T. Campbell and D.U. Himmelstein. 2003. "Costs of Health Care Administration in the United States and Canada." *New England Journal of Medicine* 349(8): 768–75. Retrieved October 7, 2013. <<http://content.nejm.org/cgi/reprint/349/8/768.pdf>>.



Convergence of Health Policy and Evidence – Bridge Over Troubled Water

**Annual CAHSPR Conference
May 13–15, 2014 | Hilton Toronto | Toronto, Ontario**

CAHSPR's annual conference is Canada's largest gathering of health care researchers, decision makers, and stakeholders. Held at a different location every year, it is attended by 600+ delegates annually.

Call for abstracts opens: Monday, October 14, 2013

Call for abstracts closes: Thursday, January 9, 2014

Results notifications sent: Monday, February 3, 2014

Conference registration opens: March 2014

Early bird registration deadline: Friday, March 28, 2014

Exciting Announcement from CAHSPR!

We are thrilled to announce that the new logo and website for the Canadian Association for Health Services and Policy Research have been launched. We hope you enjoy this fresh new look to the CAHSPR site.

www.cahspr.ca

Thank you to Longwoods,
media sponsor of the 2014 CAHSPR Conference.

Health Canada and the Pharmaceutical Industry: A Preliminary Analysis of the Historical Relationship

Santé Canada et l'industrie pharmaceutique : analyse préliminaire d'une relation historique



JOEL LEXCHIN, MSC, MD

Professor, School of Health Policy and Management, York University

Emergency Physician, University Health Network

*Associate Professor, Department of Family and Community Medicine, University of Toronto
Toronto, ON*

Abstract

In the past two decades, Health Canada has been accused of favouring the pharmaceutical industry over the public in areas of pharmaceutical policy. This orientation has been tied to the introduction of user fees by the industry in 1994 that help finance key aspects of drug regulation. This paper provides a preliminary examination of the history of the relationship starting in 1939 until the mid-1980s in an attempt to discern whether 1994 really represented a key turning point. Clientele pluralism, a theory that explains the relationship between the state and interest groups, is used to explain the nature of the events described.

Résumé

Au cours des vingt dernières années, Santé Canada a été accusé de favoriser l'industrie pharmaceutique au détriment de la population canadienne dans le secteur des politiques sur les produits pharmaceutiques. Cette situation est liée à la mise en place par l'industrie, en 1994, de tickets modérateurs qui aident au financement d'importants aspects de la réglementation pharmaceutique. Cet article étudie l'histoire de cette relation, de 1939 jusqu'au milieu des années 1980, afin d'établir si l'année 1994 constitue réellement un point tournant. La théorie du pluralisme de clientèles, qui décrit la relation entre l'État et les groupes d'intérêt, est employée pour expliquer la nature des événements décrits dans l'article.

HERE IS ONGOING CRITICISM ABOUT THE NATURE OF THE RELATIONSHIP BETWEEN Health Canada and the pharmaceutical industry, fuelled by a number of observations. Among other things, there is the imbalance in the amount of money and number of personnel dedicated to reviewing new drug applications versus monitoring the safety of products already on the market. The Therapeutic Products Directorate and the Biologic and Genetic Therapies Directorate, which review new drug applications, receive three to four times the funding and number of personnel compared to the Marketed Health Products Directorate, which monitors the safety of medications (and other health products) already on the market (Wiktorowicz et al. 2010). In addition, Health Canada withholds safety and efficacy data from industry-run clinical trials on the grounds of business confidentiality, with the result that no one outside of industry and Health Canada has access to these data (Herder 2012). A third point of contention is the department's business transformation plan, which prioritizes the "speed[ing] up [of] the regulatory process for drug approvals" (Therapeutic Products Directorate n.d.), because drugs with shorter approval times have more serious safety problems (Lexchin 2012).

User Fees and Principal-Agent and Capture Theories

Critics often point to 1994 as a turning point in the relationship (Lexchin 2006). That was the year when Health Canada began collecting user fees from pharmaceutical companies for performing various regulatory activities, including reviewing new drug applications. Prior to that time, all the operating costs concerned with drug regulation had come from parliamentary appropriations. The introduction of user fees coincided with a marked decrease in the time it took to get new active substances (molecules never before marketed in Canada) approved and a significant increase in the number of positive decisions on new drug applications. Both these changes were favourable to the pharmaceutical industry and are consistent with principal-agent and capture theories.

Principal-agent theory proposes that there is a relationship between a principal who has a task that needs to be performed and an agent who is contracted to do the task in exchange for compensation. Prior to the introduction of user fees, the principal was the Canadian public with its desire for safe and effective drugs, and the agent charged with ensuring safety and effectiveness was Health Canada. However, since 1994, a new principal has been added: the pharmaceutical industry, which now provides a substantial fraction of the money needed to run the drug regulatory system. Although the industry does not deliberately seek to market unsafe or ineffective drugs, as a for-profit industry its objective is to increase the revenue it obtains from the sale of pharmaceuticals. At times, the for-profit motive and public safety are not compatible.

Regulatory capture theory asserts that over time, regulators tend to become advocates for the industry they are supposed to regulate as a result of conflict avoidance and influence

from the industry. The theory predicts that Health Canada will become less receptive to the needs of the public and more closely align its mission with that of the pharmaceutical industry. Perhaps the most visible symbol of the new relationship was the statement from Dann Michols, Director General of the Therapeutic Products Programme within Health Canada, that was contained in an internal bulletin in which he discussed the question of who is the client. With regard to the meaning of cost recovery for his program, he advised staff that “the client is the direct recipient of your services. In many cases this is the person or company who pays for the service” (Michols 1997).

In the United States, a number of books document the relationship between the Food and Drug Administration (FDA) and the pharmaceutical industry over time. Thus, it is relatively easy to see how historical events have affected the interactions between the two (Carpenter 2010; Hiltz 2003; Tobbell 2012). The same type of systematic historical investigation into the way that Health Canada and its predecessor (the Department of National Health and Welfare) interacted with the pharmaceutical industry has not been undertaken, and so the perception of a changing relationship may not in fact be accurate. However, there is anecdotal evidence that long before 1994 the two enjoyed a close symbiotic working relationship. This paper is a preliminary examination of the little that has so far been researched about the historical context of the relationship between the two. The aim is to stimulate a more detailed assessment of what happened in the past and to set the context for assessing the current relationship and the policy options that could be considered if that relationship is to change.

Historical Vignettes in the Relationship between Industry and Health Canada

1939 – labels on prescription medications

Prior to 1939, provincial pharmacy acts placed restrictions on which drugs were available without a prescription, but there was no consistency in the list of such drugs from province to province. The Dominion Council of Health, formed in 1919 as an advisory body on public health matters to the federal Minister of Health, recommended that some action be taken under the *Food and Drugs Act* to deal with the problem. As a result in 1939, under an amendment to the Act, the government was given the authority to make regulations defining the conditions of sale of any drug likely to be injurious to health. One measure that was proposed was the placement of a cautionary statement on the label of drugs that required a prescription. This approach was discussed with representatives of the Canadian Pharmaceutical Manufacturers Association (later the Pharmaceutical Manufacturers Association of Canada [PMAC] and now Rx&D). The Association wanted to modify the proposed cautionary statement. “However, as it was considered [that] the one recommended by the Association would nullify the intention of the original suggestion, the matter was dropped at that time” (Pugsley 1967).

1953 – inspection of manufacturing plants

Since the proclamation of the revised *Food and Drugs Act* in 1953, an inspection program has existed for all drug manufacturing plants to ensure cleanliness and requirements such as dosage accuracy. Representatives of PMAC worked with government in drawing up the standards for manufacturing, and a number of PMAC member companies helped to train the inspectors who applied them (PMAC 1966). As a further refinement in regulating manufacturing practices, a joint industry and government committee was struck that led to the development of good manufacturing practices (GMPs), and these came into effect in 1981. After that, the companies continued to be provided with a regular opportunity for input into refinements of GMP regulations in the form of an annual meeting between Health Canada officials and PMAC. Other interested parties, such as workers in pharmaceutical plants and consumers, were notably excluded from participation in such meetings.

1962 – thalidomide

Thalidomide, the medication that caused children to be born missing limbs, was removed from the Canadian market in March 1962, four months after it had been withdrawn in Germany. After the manufacturer was ordered to stop selling thalidomide, a number of doctors wrote to the government protesting the move. In reply to one such letter, Dr. C.A. Morrell, head of the Food and Drug Directorate of Health Canada, responded on April 27, 1962: “I think if the medical profession would take a stand, such as you have taken, that there is every possibility that thalidomide could indeed be reinstated on the Canadian market and to this end I would encourage you to urge strongly your colleagues to express themselves to us on this question” (Sjöstrom and Nilsson 1972). (After Dr. Morrell left Health Canada he joined the board of Ciba, now part of Novartis, a major Swiss drug company.)

1964 – Department of National Health and Welfare and the Pharmaceutical Manufacturers Association of Canada

Judy LaMarsh, who was the Minister of National Health and Welfare at the time, delivered the welcoming address at the Fifth Annual General Meeting of the PMAC. During her speech she noted that the “task [of the Director of the Food and Drugs Directorate] would be immeasurably more difficult if he did not have access to the combined knowledge of the industry and receive its support.” She went on to say further, “the role of a responsible trade association, in my view, is the advice and assistance it can offer to the government in carrying out its responsibility to the Canadian people. ... In the past [we have received from you] valuable help and assistance in the development and administration of our drug regulations. ... In the formulation of our present Act, committees of your Association met with officers of the Department and worked out matters which are now reflected in the provisions of the law itself” (Anderson 1977). As Anderson notes, the speech clearly indicates that the PMAC and bureaucrats in the Department were well known to each other and the bureaucrats knew the degree of influence that the industry had on policy making.

1973 – regulation of promotion

From 1966 until the early 1970s, the Principles and Code of Marketing Practice of the Pharmaceutical Manufacturers Association of Canada guided promotion activities in Canada (PMAC n.d.). Compliance with the code was voluntary, even for PMAC members, and there was increasing criticism of pharmaceutical advertising from consumers and health professionals. A 1973 meeting of federal and provincial health ministers recommended that the federal government “review controls on the advertising of drugs with the aim of strengthening them where necessary.” The federal Minister of Health and Welfare, Marc Lalonde, issued an ultimatum to the industry to reform its practices or else face the prospect of government action. In response to this challenge, the PMAC initiated a sequence of events that resulted in the creation of the Pharmaceutical Advertising Advisory Board (PAAB) in 1975 (Raison 1989). It had representatives from the generic companies (the Canadian Drug Manufacturers Association) and the Canadian subsidiaries of the multinational companies (PMAC), the medical and pharmacy professions, consumers and the advertising industry. The members of PAAB were, and continue to be, answerable only to their associations. The PAAB developed a Code of Advertising Acceptance (PAAB 1978); however, among its deficiencies, the code is not legally binding, its decisions are not legally enforceable, and as a voluntary, independent body, the PAAB is not accountable for its actions to the government or any other organization.

1980s – meetings between Health Canada and industry

The close interaction between Health Canada and the industry, illustrated by the quotation from Judy LaMarsh, continued into the early 1980s, when officials from the industry and Health Canada were meeting on a regular basis about every six weeks in joint committees to work on regulatory changes and their accompanying guidelines. For example, at a meeting of the Bureau of Human Prescription Drugs/PMAC Medical R&D Section Liaison Committee in the fall of 1983, the need for guidelines on filing an investigational new drug submission was discussed, primarily at the PMAC’s initiative (Goyer 1985). In addition, senior officials in the Health Protection Branch, including the assistant deputy minister, met with the PMAC board of directors, elected from senior executives of 15 companies, at the PMAC’s annual and semi-annual meetings (Atkinson and Coleman 1989). At these events the Health Protection Branch informed the industry of its plans for the following year. The informal nature of these discussions was highlighted by the lack of any minutes.

As part of a series of articles on prescription drug regulation in 1982, the *Montreal Gazette* interviewed Health Canada officials about their approach to drug companies. Officials repeatedly told the newspaper that they had opted for a cooperative “open door policy” with Canadian drug company officials instead of a tough adversarial stance. This collaborative approach was consistent with the attitude in the 1960s documented above. The Health Canada officials were also proud of their friendly relationships with representatives of Canadian drug subsidiaries of US companies. “We try to work things out together,” said one Canadian official (Regush 1982).

1991 – hiring practices at Health Canada

Crossovers between government and industry are not unexpected. Both groups talk the same language because people often come from the same background – doctors, pharmacists and people with degrees in biological and medical sciences. Not only will they talk the same, but they may well share the same world view when it comes to the role of drugs in the health-care system. We have already seen how Dr. Morrell left his position as head of the Food and Drug Directorate for a spot on the board of directors of Ciba. When Judy Erola left politics in 1984 after serving as the federal Minister of Consumer and Corporate Affairs, she went on to become the president of the PMAC. However, in 1991 this intermingling of officials was taken one step further. The hiring committee for a new person to head the Bureau of Non-Prescription Drugs consisted of a staffing officer in the Public Service Commission, the director general of the Drugs Directorate and Judy Erola. The official position from Health Canada was that the PMAC deals mostly with prescription drugs and as the person being hired oversaw the body dealing with non-prescription drugs, there was no conflict of interest. This explanation overlooks the fact that some companies manufacture both types of drugs (Regush 1993).

Discussion

Of course, these few vignettes cannot establish the overall pattern for the relationship between the industry and Health Canada over the period 1939 until the early 1990s. However, they are consistent with a model that describes the role of Health Canada when it comes to regulation in the area of pharmaceuticals. In discussing the evolution of regulatory systems in Germany and the United States, Daemmrich (2004) points out that regulatory frameworks reflect the therapeutic culture that has developed in an individual country. These “therapeutic cultures arise from networks of actors that produce regulatory policy, determine testing standards, and ultimately decide on market access for new drugs” (Daemmrich 2004).

Clientele pluralism

The relationship between Health Canada and the pharmaceutical industry, as represented by Rx&D, operates through a system termed clientele pluralism (Atkinson and Coleman 1985, 1989). As Atkinson and Coleman describe it, in such a system the state has a high degree of concentration of power in a single agency, in this case Health Canada, but it does not possess the ability on its own to meet the objective of providing safe and effective medications, and some authority must be relinquished to the drug manufacturers. This low degree of autonomy exists because of a lack of expertise and because of the political orientation of the state. An example of the former was the decision to allow the industry to co-develop the standards for the inspection of drug plants. An illustration of the latter was the delegation of responsibility for regulating promotion to the industry and its allies. On the other hand, the association representing virtually all of the multinational companies operating in Canada, Rx&D, is highly mobilized to assume a role in the making and implementing of drug policy through an

elaborate committee structure. It also has the ability to act on behalf of its members and the capacity to bind member firms to agreements.

In clientele pluralism, the state relinquishes some of its authority to private-sector actors, who in turn pursue objectives with which officials are in broad agreement. Not only does the state, in this case Health Canada, turn over some of its authority, but the objectives that are being pursued are ones that are often jointly developed between Rx&D and Health Canada. One of the manifestations of clientele pluralism was the system of meetings between Health Canada and the industry alluded to by Judy LaMarsh.

This assessment of the Canadian regulatory regime fits with Maor's (2011) characterization, which is based on the organizational reputation of a country through its actions on drug safety. In this scheme, Canada is positioned as a "shadow regulator" because it is not known for guaranteeing public safety through the release of timely, sufficient and effective warnings about drug safety, but rather "shadows" or mirrors the position of expert regulators, e.g., the United States, when it approves new drugs (Maor 2011).

Conclusion

The matter of how Health Canada has traditionally related to industry is of more than just historical or academic concern. The information currently available indicates that the introduction of user fees was not responsible for a quantum shift in the relationship between Health Canada and the industry, but rather just accelerated an already existing pattern. Therefore, while there is certainly merit in returning the funding of the drug section of Health Canada to full parliamentary appropriations, such an action will not lead to significant change. The relationship has longer and deeper roots, and this speaks to the need for a much more sweeping analysis of the culture within Health Canada and the political system within which it exists.

Correspondence may be directed to: Joel Lexchin, MD, School of Health Policy and Management, York University, 4700 Keele St., Toronto, ON M3J 1P3; tel.: 416-736-2100, ext. 22119; fax: 416-736-5227; e-mail: jlexchin@yorku.ca.

References

- Anderson, J. 1977. "Pressure Groups and the Canadian Bureaucracy." In K. Kernaghan, ed., *Public Administration in Canada: Selected Readings* (3rd ed., pp. 292–304). Toronto: Methuen.
- Atkinson, M.M. and W.D. Coleman. 1985. "Corporatism and Industrial Policy." In A. Cawson, ed., *Organized Interests and the State: Studies in Meso-Corporatism* (pp. 22–44). London: Sage.
- Atkinson, M.M. and W.D. Coleman. 1989. *The State, Business and Industrial Change in Canada*. Toronto: University of Toronto Press.
- Carpenter, D. 2010. *Reputation and Power: Organizational Image and Pharmaceutical Regulation at the FDA*. Princeton, NJ: Princeton University Press.
- Daemrich, A.A. 2004. *Pharmacopolitics: Drug Regulation in the United States and Germany*. Chapel Hill, NC: University of North Carolina Press.

Health Canada and the Pharmaceutical Industry: A Preliminary Analysis of the Historical Relationship

- Goyer, R. 1985. *Regulatory Aspects and Their Influence on Pharmaceutical Research and on the Introduction of Drugs in Canada. Background Study for the Commission of Inquiry on the Pharmaceutical Industry*. Ottawa: Supply and Services Canada.
- Herder, M. 2012. "Unlocking Health Canada's Cache of Trade Secrets: Mandatory Disclosure of Clinical Trial Results." *Canadian Medical Association Journal* 184: 194–99.
- Hilts, P.J. 2003. *Protecting America's Health: The FDA, Business and One Hundred Years of Regulation*. New York: Alfred A. Knopf.
- Lexchin, J. 2006. "Relationship between Pharmaceutical Company User Fees and Drug Approvals in Canada and Australia: A Hypothesis-Generating Study." *Annals of Pharmacotherapy* 40: 2216–22.
- Lexchin, J. 2012. "New Drugs and Safety: What Happened to New Active Substances Approved in Canada between 1995 and 2010?" *Archive of Internal Medicine* 172: 1680–81.
- Maor, M. 2011. "Organizational Reputations and the Observability of Public Warnings in 10 Pharmaceutical Markets." *Governance: An International Journal of Policy, Administration and Institutions* 24: 557–82.
- Michols, D. 1997. *Drugs and Medical Devices Programme Quality Initiative Bulletin #2*. Ottawa: Health Protection Branch.
- Pharmaceutical Advertising Advisory Board (PAAB). 1978. *PAAB Code of Advertising Acceptance*. Pickering, ON: Author.
- Pharmaceutical Manufacturers' Association of Canada (PMAC). 1966. *Submission to House of Commons Special Committee on Drug Costs and Prices*. Ottawa: Author.
- Pharmaceutical Manufacturers' Association of Canada (PMAC). N.d. *Principles and Code of Marketing Practice*. Ottawa: Author.
- Pugsley, L.I. 1967. "The Administration and Development of Federal Statutes on Foods and Drugs in Canada." *Medical Services Journal, Canada* 23: 387–449.
- Raison, A.V. 1989. *The Evolution of Standards for Pharmaceutical Advertising in Canada*. Pickering, ON: Pharmaceutical Advertising Advisory Board.
- Regush, N. 1982 (October 25). "How a Suspect Arthritis Drug Evaded Government Checks." *Montreal Gazette*: A-1, A-6.
- Regush, N. 1993. *Safety Last: The Failure of the Consumer Health Protection System in Canada*. Toronto: Key Porter Books.
- Sjöström, H. and R. Nilsson. 1972. *Thalidomide and the Power of the Drug Companies*. Middlesex, UK: Penguin.
- Therapeutic Products Directorate. N.d. *Business Transformation Progress Report*. Ottawa: Health Canada.
- Tobbell, D. 2012. *Pills, Power and Policy: The Struggle for Drug Reform in Cold War America and Its Consequences*. Berkeley: University of California Press.
- Wiktorowicz, M.E., J. Lexchin, K. Moscou, A. Silversides and L. Eggertson. 2010. *Keeping an Eye on Prescription Drugs ... Keeping Canadians Safe: Active Monitoring Systems for Drug Safety and Effectiveness in Canada and Internationally*. Toronto: Health Council of Canada.

Fee Increases and Target Income Hypothesis: Data from Quebec on Physicians' Compensation and Service Volumes

Hypothèse sur la hausse des tarifs et les revenus ciblés : données sur les volumes de services et la rémunération des médecins au Québec



DAMIEN CONTANDRIOPOULOS, PHD
*Associate Professor, Faculté des sciences infirmières
Université de Montréal
Montreal, QC*

MÉLANIE PERROUX, MSC
*Research Coordinator, Faculté des sciences infirmières
Université de Montréal
Montreal, QC*

Abstract

Recent years have witnessed important public investments in physicians' compensation across Canada. The current paper uses data from Quebec to assess the impact of those investments on the volumes of services provided to the population. While total physician compensation costs, average physician compensation and average unit cost per service all rose extremely fast, the total number of services, number of services per capita and average number of services per physician either stagnated or declined. This pattern is compatible with the economic target income hypothesis and raises important policy questions.

Résumé

Ces dernières années, d'importants investissements publics dans la rémunération des médecins ont été consentis partout au Canada. Cet article utilise les données du Québec pour évaluer l'impact de ces investissements sur le volume de services fourni à la population. Alors que les dépenses totales liées à la rémunération des médecins, la rémunération moyenne par médecin

et le coût unitaire moyen par service ont tous trois connu une hausse très rapide, la quantité totale de services, le nombre de services par personne et le nombre moyen de services par médecin ont soit stagné soit décliné. Ces observations sont conformes aux comportements attendus selon l'hypothèse économique de la recherche d'un revenu cible de la part des médecins ce qui soulève d'importantes questions à propos des politiques publiques.

HEALTHCARE EXPENDITURES IN CANADA ARE RISING STEADILY FASTER THAN GDP and thus constitute a growing proportion of the economy. In this general trend, physician compensation is, with prescription drugs, among the two largest cost drivers (CIHI 2011a). However, despite the increasing sums invested in physicians' services, converging sources show that health services accessibility remains unsatisfactory (CSBE 2013; Health Council of Canada 2013; Hutchison 2013). In 2007, after bitter negotiations between physicians' federations and the Quebec government, agreements were signed to increase fee schedules significantly over the following five years. The current paper uses 2007 to 2011 data on physician compensation and volumes of services in Quebec to assess the impact of those investments on volumes of services provided to the population. The underlying assumption is that as more money is invested in fee increases, physician behaviours, consistent with the "target income hypothesis," will reduce the volumes of services provided.

Conceptual Model and Data

In economic theory, the target income hypothesis posits that people aim for a given level of income and will adjust their work practice to reach it. This implies, among other things, that when the rate paid for a given amount of work increases, workers might choose to work less rather than to increase their revenues. Rapid and steep increases in paid rates are thought to induce a stronger diminution of work intensity than modest and steady increases. In the same way, it is commonly suggested that workers with incomes in the highest deciles are more likely to choose quality of life and additional leisure over income increases. Given those postulates, it is not surprising that physicians are often given as an example to illustrate this hypothesis (Kantarevic et al. 2008; Rizzo and Blumenthal 1996).

The expenditure and service volume data used here come from RAMQ Table SM.21 (RAMQ 2012). Although the Canadian Institute for Health Information (CIHI 2013) provides physician compensation costs and volume data for all provinces, the marked discrepancy between data obtained from provincial agencies such as RAMQ on the one hand, and CIHI data on the other, call strongly into question the validity of any comparative analysis. Preliminary analysis conducted on the CIHI data suggested that no reliable interprovincial analysis could be performed.

In a fee-for-service (FFS) compensation model, each service provided is billed individually to the provincial reimbursement agency, thereby making valid and detailed data readily available on the volume of medical services provided under FFS compensation for each

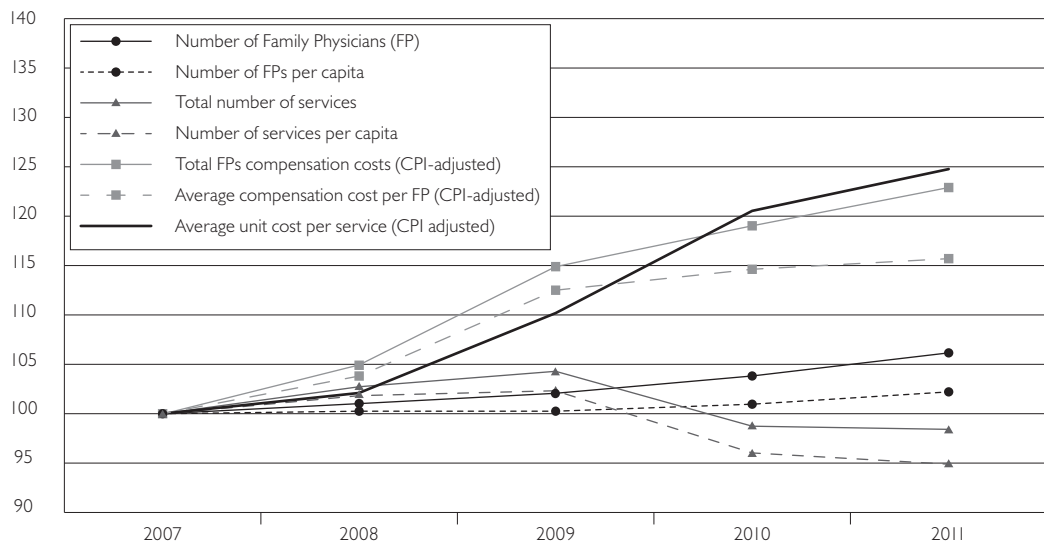
province. The challenge, however, is that a growing proportion of total physician compensation in Canada is paid according to non-FFS models such as salary or capitation, and there are no reliable data on volumes of services provided in non-FFS models. During the period studied here, the percentage of physician compensation paid on other bases than FFS rose from 26% to 29% for family physicians while it dropped from 21% to 17% for specialist physicians. To overcome the lack of data, we devised a simple formula to compute the total number of services. This formula rests on the postulate that the productivity of physicians paid on a non-FFS basis is identical to that of physicians paid through FFS. In practice, this postulate is likely to significantly overestimate the total volume of services for two reasons. First, non-FFS compensation includes non-volume related payments. Second, FFS is generally accepted as a compensation mechanism that stimulates volume increases compared to salary-type compensation (Gosden et al. 2000; Léger 2011). However, because we hypothesized the existence of a drop in the total volume of service, reliance on a method likely to overestimate actual volume makes sense. The total volume of services was computed according to the formulas below:

$$\text{Total volume} = \text{actual FFS volume} + \text{estimated non-FFS volume}$$

$$\text{Estimated non-FFS volume} = [(\text{non-FFS compensation in \% of total compensation} \times \text{number of FFS services}) / \text{FFS compensation in \% of total compensation}]$$

All cost data were adjusted for inflation using Quebec's general Consumer Price Index (CPI) (Statistics Canada 2013) prior to any other computation. We then computed physician compensation expenditures and volumes of services in various units and normalized them to an index of 100 to plot them on a single graph. The results are shown in Figures 1 and 2.

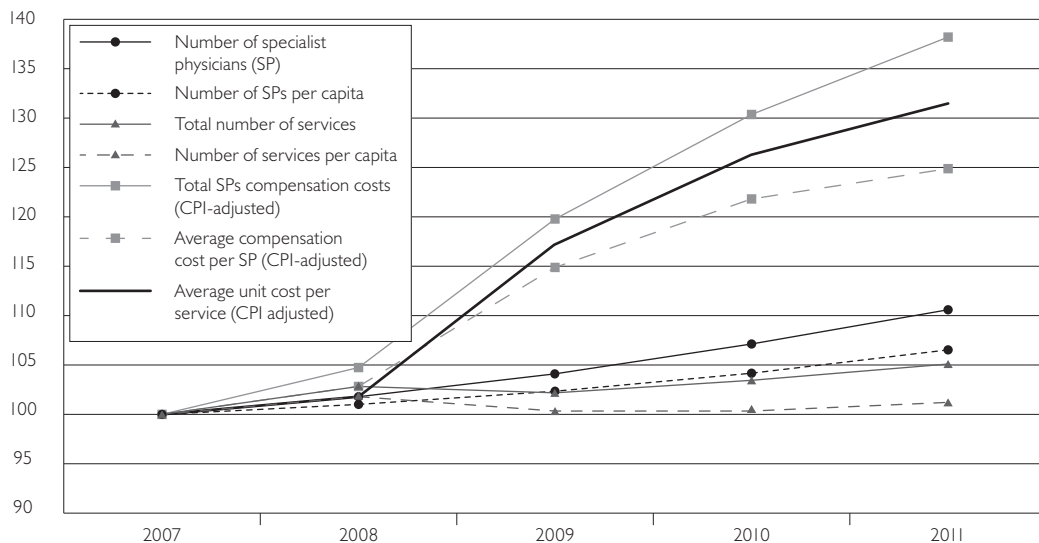
FIGURE 1. Family physicians: Evolution of practice and costs



Source: Based on data from RAMQ 2012.

Fee Increases and Target Income Hypothesis: Data from Quebec on Physicians' Compensation and Service Volumes

FIGURE 2. Specialist physicians: Evolution of practice and costs



Source: Based on data from RAMQ 2012.

Results and Discussion

As the two graphs show, while total physician compensation costs, average physician compensation and average unit cost per service all rose extremely fast, the total number of services, number of services per capita and average number of services per physician either stagnated or declined. The only exception was a modest increase in the total number of specialized services, although not when expressed as per capita or per physician. It should also be noted that costs were CPI-adjusted, and hence all increases represent net gain controlled for inflation. The same analyses were also conducted singling out medical, surgical and laboratory specialists. The same trends were seen in all the groups, with the surgical specialists showing the steepest increase in overall costs.

From a public policy perspective, the general picture these graphs reveal is disturbing. Over those five years, an additional 1.5 billion dollars was paid to physicians in Quebec (amounting to average annual increases of over 7%, twice the rise in provincial GDP). However, the net impact of those investments was either a stagnation or reduction in the volume of services provided. Moreover, the decrease in the average volume of services per physician offsets most or all of the increase in the overall number of physicians. These observations are highly convergent with the target income hypothesis: as the unit price of service rose, physicians adjusted their work practice and, overall, limited the number of services provided.

The policy debate on physician compensation in Quebec is heavily influenced by pleas from physicians' federations to increase fee schedules so that they align with the Canadian average. The underlying argument is that lower-than-average fees lead to an exodus of

medical human resources and, ultimately, a decrease in the volume and availability of services. This argument is consistently put forward, notwithstanding the fact that CIHI data on physician migration (CIHI 2011b) have shown a positive net migration trend for the last two years in Quebec. What our analysis shows, however, is that the increases in fee schedules recently implemented in Quebec – in part, to prevent a non-existing migratory trend – are likely to have a real negative impact on volumes of services provided.

As with any other allocation of public funds, arguments can be found to justify current investments in physician compensation, the perceived desirability of which depends on one's values and normative preferences. What the data presented here add to the debate is the technical aspect of the question. The recent increased investments in physician compensation appear to have lowered the volume of services provided. This finding prompts a very practical question: If, indeed, such investments are to be made, are there ways to make sure they do not cause a decrease in healthcare services accessibility? Improving the availability and accessibility of medical services in Canada while controlling healthcare expenditure will require convincing answers to this simple question.

Correspondence may be directed to: Damien Contandriopoulos, Associate Professor, Faculté des sciences infirmières, Université de Montréal, 2375, chemin de la Côte Ste-Catherine, Montreal, QC, Canada H3T 1A8; tel.: 514-343-6111, ext. 35176; e-mail: damien.contandriopoulos@umontreal.ca.

References

- Canadian Institute for Health Information (CIHI). 2011a. *Health Care Cost Drivers: The Facts*. Retrieved October 29, 2013. <<https://secure.cihi.ca/estore/productFamily.htm?locale=en&pf=PFC1672>>.
- Canadian Institute for Health Information (CIHI). 2011b. *Supply, Distribution and Migration of Canadian Physicians*. Retrieved October 29, 2013. <<https://secure.cihi.ca/estore/productFamily.htm?pf=PFC1968&lang=en&media=0>>.
- Canadian Institute for Health Information (CIHI). 2013. *National Physician Database, 2011–2012 Data Release*. Retrieved October 29, 2013. <<https://secure.cihi.ca/estore/productFamily.htm?locale=en&pf=PFC2368>>.
- Commissaire à la santé et au bien-être du Québec (CSBE). 2013. *Perceptions et expériences des médecins de première ligne: Le Québec comparé. Résultats de l'Enquête internationale sur les politiques de santé du commonwealth fund de 2012*. Quebec: Author.
- Gosden, T., F. Frode, I. Kristiansen, M. Sutton, B. Leese, A. Giuffrida et al. 2000. *Capitation, Salary, Fee-for-Service and Mixed Systems of Payment: Effects on the Behaviour of Primary Care Physicians*. Cochrane Database of Systematic Reviews 2000, Issue 3. Art. no.: CD002215. doi: 10.1002/14651858.CD002215.
- Health Council of Canada. 2013. *How Do Canadian Primary Care Physicians Rate the Health System? Survey Results from the 2012 Commonwealth Fund International Health Policy Survey of Primary Care Doctors*. Bulletin no. 7. Retrieved October 29, 2013. <http://www.healthcouncilcanada.ca/rpt_det.php?id=444>.
- Hutchison, B. 2013. "From Hall to Now: Reflections on Canadian Medicare from a Primary Care Perspective." 2013 Emmett Hall Memorial Lecture. Vancouver: Canadian Association for Health Services and Policy Research (CAHSR).
- Kantarevic, J., B. Kralj and D. Weinkauff. 2008. "Income Effects and Physician Labour Supply: Evidence from the Threshold System in Ontario." *Canadian Journal of Economics* 41(4): 1262–84. doi: 10.1111/j.1540-5982.2008.00503.x.

Fee Increases and Target Income Hypothesis: Data from Quebec on Physicians' Compensation and Service Volumes

Léger, P.T. 2011. "Physician Payment Mechanisms: An Overview of Policy Options for Canada." Ottawa: Canadian Health Services Research Foundation. Retrieved October 29, 2013. <<http://www.cfhi-fcass.ca/sf-docs/default-source/hospital-funding-docs/CHSRF-LegerPhysicianRemunerationENG.pdf?sfvrsn=0>>.

Régie de l'assurance maladie du Québec (RAMQ). 2012. Tableau SM.21. Québec: Author.

Rizzo, J.A. and D. Blumenthal. 1996. "Is the Target Income Hypothesis an Economic Heresy?" *Medical Care Research and Review* 53(3): 243–66. doi: 10.1177/107755879605300301.

Statistics Canada. 2013. "Consumer Price Index (CPI), Seasonally Adjusted, 2011 Basket." CANSIM table 326-0022. Retrieved October 29, 2013. <<http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=3260022&paSer=&pattern=&stByVal=1&p1=1&p2=1&tabMode=dataTable&csid=>>>.

Economic Evaluation of Manitoba Health Lines in the Management of Congestive Heart Failure

Évaluation économique des lignes d'information sur la santé au Manitoba pour la gestion de l'insuffisance cardiaque congestive



YANG CUI, MA, MSC

*PhD Student, Department of Community Health Sciences
Faculty of Medicine, University of Manitoba
Winnipeg, MB*

MALCOLM DOUPE, PHD

*Associate Professor, Department of Community Health Sciences
Senior Research Scientist, Manitoba Centre for Health Policy
University of Manitoba
Winnipeg, MB*

ALAN KATZ, MSC, MBCHB

*Professor, Departments of Family Medicine and Community Health Sciences
Associate Director for Research, Manitoba Centre for Health Policy
University of Manitoba
Winnipeg, MB*

PAUL NYHOF, BA, CIM, MSA

*Chief Executive Officer, Providence Place
Faculty of Business Administration, I.H. Asper School of Business
University of Manitoba,
Winnipeg, MB*

EVELYN L. FORGET, PHD

*Professor, Department of Community Health Sciences
Faculty of Medicine, University of Manitoba
Winnipeg, MB*

Abstract

Objective: This one-year study investigated whether the Manitoba Provincial Health Contact program for congestive heart failure (CHF) is a cost-effective intervention relative to the standard treatment.

Design: Individual patient-level, randomized clinical trial of cost-effective model using data from the Health Research Data Repository at the Manitoba Centre for Health Policy, University of Manitoba.

Methods: A total of 179 patients aged 40 and over with a diagnosis of CHF levels II to IV were recruited from Winnipeg and Central Manitoba and randomized into three treatment groups: one receiving standard care, a second receiving Health Lines (HL) intervention and a third receiving Health Lines intervention plus in-house monitoring (HLM). A cost-effectiveness study was conducted in which outcomes were measured in terms of QALYs derived from the SF-36 and costs using 2005 Canadian dollars. Costs included intervention and healthcare utilization. Bootstrap-resampled incremental cost-effectiveness ratios were computed to take into account the uncertainty related to small sample size.

Results: The total per-patient mean costs (including intervention cost) were not significantly different between study groups. Both interventions (HL and HLM) cost less and are more effective than standard care, with HL able to produce an additional QALY relative to HLM for \$2,975. The sensitivity analysis revealed that there is an 85.8% probability that HL is cost-effective if decision-makers are willing to pay \$50,000.

Conclusion: Findings demonstrate that the HL intervention from the Manitoba Provincial Health Contact program for CHF is an optimal intervention strategy for CHF management compared to standard care and HLM.

Résumé

Objectif : Cette étude, échelonnée sur un an, visait à déterminer si le programme pour l'insuffisance cardiaque congestive (ICC) du Centre provincial de communication en matière de santé du Manitoba constitue une intervention efficace par rapport au coût, comparé au traitement standard.

Conception : Il s'agit d'un essai clinique aléatoire (au niveau individuel du patient) du modèle coût-efficacité effectué à l'aide du Registre de données de recherche sur la santé de la population du Centre des politiques de santé du Manitoba, à l'Université du Manitoba.

Méthodes : Un total de 179 patients de 40 ans et plus ayant reçu un diagnostic d'ICC de niveaux II à IV ont été recrutés à Winnipeg et au Centre du Manitoba puis assignés aléatoirement à trois groupes de traitement : le premier recevant le traitement standard, le deuxième bénéficiant d'une intervention à l'aide des lignes d'information (LI) et le troisième recevant l'intervention à l'aide des lignes d'information en plus d'un service de suivi à domicile (LID). Les résultats de l'étude coût-efficacité ont été mesurés selon les années-personnes sans invalidité (QALY) tirées du questionnaire SF-36 et selon les coûts en dollars canadiens 2005. Les coûts comprenaient l'intervention et l'utilisation des services de santé. Après un rééchantillon-

nage par amorçage (bootstrapping), les rapports du coût-efficacité différentiel ont été traités pour tenir compte de l'incertitude liée aux petits échantillons.

Résultats : Il n'y avait pas de différence statistique entre le coût total moyen par patient (y compris le coût de l'intervention) de chacun des groupes à l'étude. Les deux interventions (LI et LID) sont moins coûteuses et sont plus efficaces que le traitement standard; le LI offre la possibilité d'un QALY supplémentaire de 2 975 \$ par rapport au LID. L'analyse de sensibilité révèle qu'il y a une probabilité à 85,8 % que le LI soit efficace par rapport au coût, dans la mesure où les décideurs acceptent de payer 50 000 \$.

Conclusion : Les résultats démontrent que l'intervention à l'aide des LI dans le cadre du programme pour l'ICC du Centre provincial de communication en matière de santé du Manitoba constitue une intervention stratégique optimale pour la gestion de l'ICC, comparativement au traitement standard et au LID.

HEART FAILURE IS THE MOST FREQUENT INDICATION FOR HOSPITAL readmission and the most frequent discharge diagnosis in Canada. An estimated 400,000 Canadians are living with congestive heart failure (CHF) (Heart and Stroke Foundation of Manitoba 2010). In Canada, cardiovascular disease is one of the most costly chronic diseases (Patra et al. 2007). As healthcare costs have increased dramatically in recent years, cost containment has become increasingly important to healthcare planners and decision-makers. Interest in the potential cost savings of telehealth has correspondingly grown. Telehealth for chronic disease management has been implemented in recent years to improve and maintain the health of patients with chronic disease. As defined by the American Telemedicine Association (2011), home telehealth is remote care delivery or monitoring in which healthcare providers deliver services to patients at home through information and communication technology. Telehealth provides new prospects for cost savings and quality of care in a community setting. Telehealth applications used in CHF interventions provide better outcomes in terms of reduction of hospitalization readmission, bed days of care for all-cause or heart failure-related events, emergency visits, mortality, better health-related quality of life and patient satisfaction (Canadian Agency for Drugs and Technologies in Health 2008).

Evidence related to the cost-effectiveness of telehealth interventions for CHF is mixed in the literature (Canadian Agency for Drugs and Technologies in Health 2008). A few international studies show that telehealth can be an effective method to reduce healthcare utilization rates and costs as well as improve quality of life for people with CHF (Clark et al. 2007; Jennett et al. 2003; Noel et al. 2004; Schmidt et al. 2010; Seto 2008; Wooden et al. 2008). Other studies show telehealth to be associated with unchanged or increased costs (Smith et al. 2008). However, there is a paucity of research in Canada examining both costs and effectiveness of telehealth interventions for CHF.

In Manitoba, the TeleCARE program applying information technology is intended to help patients with chronic disease, such as CHF or type 2 diabetes, manage their condi-

tion through combining a nursing call centre with a home monitoring strategy. The service is provincewide and available 24 hours, 7 days a week to all Manitobans. Nurses and other healthcare providers who are specialists in CHF self-management provide care and assessment via the telephone according to an established patient call schedule. During the phone calls, an assessment of the patient's health is made, and the healthcare provider monitors symptoms and gives professional advice about the disease in a timely manner. In addition, the healthcare provider offers education and self-monitoring tools, including blood pressure monitors and body weight scales, for patients to monitor risk factors believed to have a correlation with the illness, such as diet, BMI, blood pressure, stress levels and physical activity. Moreover, Health Lines nursing staff communicate regularly with primary care physicians to discuss the health status and care management strategies most appropriate for individual patients, including such factors as the person's health, living environment and availability of informal supports. This communication is considered fundamental to the intervention, as it helps to ensure an aspect of care continuity to patients with CHF and reflects the need for an interdisciplinary and holistic approach to provide timely and ongoing care to the chronically ill. The use of technology in combination with this strategy of joint care provision is an essential component of healthcare reform.

The purpose of this study was to determine whether the Manitoba Provincial Health Contact program for CHF is cost-effective relative to standard care. That is, what are the costs and effects of the intervention compared to usual care?

Methods

Study design

This economic evaluation is piggy-backed onto a 2005 effectiveness study, Testing the Effectiveness of Health Lines in Chronic Disease Management of Congestive Heart Failure (hereafter, Health Lines study) (Katz and Doupe 2009). Patients aged 40 and older living in Winnipeg and Central Manitoba with a diagnosis of CHF New York Heart Association (NYHA) levels II, III and IV were recruited. A total of 179 patients were randomized into three groups. Group 1 received standard care. Group 2 received standard care plus Health Lines (HL): that is, nurses were available on the telephone to provide suggestions about the patient's daily management of the disease. Group 3 received standard care plus Health Lines plus in-house monitoring (HLM): that is, they were provided with monitoring devices and instructions on how to use them. Patients in this study enrolled between April 25, 2005 and April 12, 2006. The last day of the study was September 25, 2006. Patient health outcome status surveys were conducted by mail, with follow-up over the phone to participants at baseline and at three, six and 12 months of the active intervention. The survey instruments included the Short-Form 36 (SF-36) Health Survey (McHorney et al. 1993), Revised Self-Care Behavior Scale (Artinian et al. 2002) and Client Satisfaction Questionnaire (Attkisson and Zwick 1982); these were used to assess the general effectiveness of the intervention. The SF-36 assessed health-related quality of life. The Revised Self-Care Behavior Scale assessed

activities that patients with CHF must perform to some extent so that they can continue to function in their daily life. The Client Satisfaction Questionnaire consists of eight questions, each of which has four response choices; 1 indicates the lowest rating of degree of satisfaction and 4 indicates the highest degree of satisfaction. This questionnaire measured patient satisfaction with the telehealth services received.

Patients were recruited with the consent of their primary care doctors, who were involved from the outset. No patients were recruited where the primary care doctors did not buy in to the program. All patients' contacts were reported to the primary care doctor by fax. Medication changes were made by the primary care doctors rather than the nurses. A key component of this intervention was the integration of the Health Lines interventions with regular primary care services. All advice provided to patients was also communicated to the patient's primary care physician to ensure continuity of care. None of the study patients saw private physicians outside of the provincial health plan.

The economic costs of the telehealth program interventions depend upon the perspective adopted. Because we conducted this analysis from the perspective of the healthcare system, only direct costs are included. The intervention costs include all expenses from the healthcare sector associated with the program. Specific cost items included equipment and technology cost, personnel wages, technician assistance, travel expenses, administrative supports and supplies. We also measured healthcare utilization costs. A discount rate of 0% for intervention costs and health outcomes was applied in the analysis because the time horizon of the study was 12 months. Costs in this study were measured based on 2005 Canadian dollars. Costs were not adjusted for the present value because of the study's short time frame.

This study was approved by the Health Research Ethics Board at the University of Manitoba (Ethics reference number: H2010:164). Because the data contain personal health information, Health Information Privacy Committee (HIPC) approval was sought and granted from Manitoba Health (File number: 2010/2011-09).

Measuring healthcare utilization costs

Healthcare utilization included family physician visits, physician specialist visits, cardiac physician visits, internist specialist visits and hospital in-patient days. We excluded emergency department (ER) visits in the study, because ER data in Central Manitoba were incomplete. Costs were associated with each category of care. Healthcare utilization cost data were obtained from enrolment to the intervention completion date from the Health Research Data Repository at the Manitoba Centre for Health Policy, University of Manitoba. The Data Repository holds records for virtually all contacts with the provincial healthcare system, including physicians, hospitals, personal care homes, home care and pharmaceutical prescriptions of all registered individuals (MCHP 2009). Physician costs were read directly from the Data Repository.

Hospital costs included cost per weighted case (CPWC) value (Finlayson et al. 2001). CPWC is a method of estimating hospital costs that applies Case Mix Groups (CMG™) to homogeneous groups of hospital administrative records with respect to length of stay and

measures of intensity of resource use. This approach is necessary because administrative data do not track detailed resource use by individual admission. CPWC is a relative, average cost to a “standard” hospital patient by summing the weights assigned to all cases treated by a hospital and dividing this number into the hospital’s total in-patient expenditure. It is used for describing and comparing the cost of care, as it removes the effects of differences in the acuity, severity and complexity of the populations served in different hospitals on the cost of providing care, and permits the assignment of a cost to each case that is discharged from a hospital.

Two main types of healthcare utilization cost data were included: healthcare utilization for all reasons and healthcare utilization specifically for CHF. The CHF-specific utilization data were categorized if there was a diagnosis of CHF. (Note that whether a physician visit carries a particular diagnosis may depend on the billing practice of the physician, and therefore the CHF-specific data will underestimate total costs for CHF-specific visits. Therefore, we conducted the analyses in terms of both CHF-specific costs and total healthcare costs.) These healthcare service costs are used to determine whether Health Lines reduced overall healthcare utilization costs compared with standard treatment.

Quality-adjusted life-years

The SF-36 Health Survey was not originally designed to calculate preference-based utilities, which are used to derive quality-adjusted life-years (QALYs). To obtain QALYs, a conversion formula developed by Brazier and colleagues (2002) was used to calculate the SF-6D utility score (QALYs) from SF-36 data. The SF-6D is a system for classifying health state derived from a selection of SF-36 items. It is composed of six multilevel dimensions. Any patient who completes the SF-36 can be uniquely classified according to the SF-6D. We chose this method for our study because it is based on the well-validated and commonly used SF-36 (McHorney et al. 1993). SF-36 scores in the eight domains were converted to a single preference-based utility score indicating the value that would be placed on a health state. The SF-6D algorithm was used to convert SF-36 responses and generate a utility score for each subject.

Statistical methods

The healthcare utilization cost was non-normally distributed owing to skewness from several high-cost outliers. Therefore, non-parametric tests were used to determine whether there was a statistically significant difference in costs across three study groups. The mixed-effects repeated measures models were used to test for statistically significant differences in effectiveness in terms of SF-6D utility, SF-36 domain scores and self-behaviour scales between study groups over time. A mixed-effects model incorporates fixed and random effects, with different interpretations and analysis for the two types. The fixed-effects model compares the interventions, and the random effects determine individual differences in response to an effect. The mixed-effects design for repeated measurements was chosen because this approach allows a wide variety of correlation patterns (variance–covariance structures) without violating important regression assumptions. Alpha was set at $p < 0.05$. The robustness of the study to

variations in assumptions was examined through the sensitivity analysis. A non-parametric bootstrap with replacement method and 1,000 replications was used to estimate the confidence interval for cost and effect differences (Drummond et al. 2005). Data manipulation programming and all statistical analyses were performed using SAS (version 9.2, SAS Institute, Inc., Cary, NC).

Results

Data were analyzed for patients who enrolled in the Health Lines study between April 25, 2005 and April 12, 2006. The last day of the Health Lines study was September 25, 2006; therefore, the intervention period ranged from 166 to 518 days, meaning that some of the later enrollees have fewer outcome measures. The data were elicited from a total of 179 patients who participated in the Health Lines study. Data cleaning was achieved based on the following criteria: (a) patients under 40 years old were deleted; (b) patients who did not have clear enrolment dates were deleted; and (c) patients whose completion dates were earlier than their enrolment dates were deleted. This study filtered five invalid records, and a total of 174 patients' records were used for the analysis.

Patient characteristics at baseline are shown in Table 1. Approximately one-third of the total study population was randomly allocated to each study group. The average age of all patients was 75 (SD, 12) years. Seventy-three patients were 80 years or older. The participants include 90 females and 84 males. Sixty per cent of patients resided in the Winnipeg Health Region, while 40% were from the Manitoba Central Health Region. More than 45% of all study patients had moderate-stage (NYHA level III) CHF, while 31% had an advanced stage (NYHA level IV).

TABLE 1. Patient characteristics across three study groups at baseline

	Overall (N=174)	Control (n=55)	HL (n=61)	HLM (n=58)
Gender				
Male	90 (52%)	24 (44%)	32 (52%)	34 (59%)
Female	84 (48%)	31 (56%)	29 (48%)	24 (41%)
Age group				
40–59	23 (13%)	8 (15%)	7 (12%)	8 (14%)
60–69	33 (19%)	17 (27%)	10 (17%)	16 (27%)
70–79	44 (25%)	15 (23%)	17 (28%)	12 (21%)
80 and older	73 (42%)	25 (45%)	26 (43%)	22 (38%)
Geography				
Winnipeg Health Region	104 (60%)	34 (62%)	36 (59%)	34 (59%)
Manitoba Central Health Region	70 (40%)	21 (38%)	25 (41%)	24 (41%)

TABLE 1. Continued

	Overall (N=174)	Control (n=55)	HL (n=61)	HLM (n=58)
CHF severity				
NYHA level II	38 (22%)	11 (20%)	14 (23%)	13 (22%)
NYHA level III	82 (47%)	27 (49%)	30 (49%)	25 (43%)
NYHA level IV	54 (31%)	17 (31%)	17 (28%)	20 (35%)

Compared to the control group, healthcare service utilization was lower in both intervention groups, although this finding was not significantly different between groups ($p=0.3893$). The number of deaths in each group during the intervention period was small. Patients in the control group had more all-reasons hospital in-patient days than both intervention groups, but the differences were not significant ($p=0.4865$). However, hospital in-patient days for CHF were significantly higher for the intervention groups relative to the control group ($p<0.05$).

Mean per-patient costs are shown in Table 2 by treatment groups. Results revealed that although costs were higher for both hospitalization and physician/specialist visits for the control group, the differences were not significant. While there was very little difference between groups in physician/specialist service cost, the high health utilization cost was driven by the cost of hospitalization in each study group. The difference in hospitalization cost between the highest (control) group to the lowest (HLM) group was \$2,519 per patient.

TABLE 2. Mean per-patient costs (Canadian dollars, 2005) by study group (SD)

	Control (N=55)	HL (n=61)	HLM (n=58)	<i>p</i>
Healthcare utilization				
Hospitalization	\$5,640 (17,361)	\$3,342 (8,944)	\$3,121 (8,174)	0.9316
Physician/specialist visits	\$1,511 (1,549)	\$1,234 (1,414)	\$1,082 (936)	0.3487
Subtotal	\$7,151 (18,106)	\$4,576 (9,996)	\$4,203 (8,651)	0.7583
Intervention				
Staffing salary	–	\$1,766	\$1,766	
Setting-up and operating costs	–	\$88	\$342	
Subtotal	–	\$1,854	\$2,108	
Total	\$7,151 (18,106)	\$6,430 (9,966)	\$6,311 (8,651)	0.7765

Source: Manitoba Provincial Health Contact Centre, 2010; Manitoba Centre for Health Policy, 2005/06.

The cost of the program intervention was estimated from a healthcare provider’s perspective using an accounting approach. All direct costs were allocated to each patient in the intervention groups over a one-year period. The expected life of a telemonitoring device was estimated at five years, and the cost of purchasing the telemonitoring items has been depreciated over this period using a straight-line method. The total cost for delivering the telehealth intervention program for the CHF patients was \$235,397 – that is, the average intervention costs for HL and HLM groups were \$1,854 and \$2,108, respectively. Compared to the control group, the total saving from averted healthcare utilization costs through the interventions was \$28,307, or \$238 per capita. The total healthcare costs per patient, including intervention cost for the three study groups, were \$7,151 (control group), \$6,430 (HL) and \$6,311 (HLM). The difference in total per-patient mean costs (including interventions costs) across study groups is insignificant ($p=0.7765$).

Neither healthcare utilization nor costs associated with healthcare utilization differed significantly among the three study groups, but outcomes measured in terms of QALYs did differ. We found that the domain scores of SF-36 physical functioning and role limitation (physical) were significantly different over time among groups ($p<0.05$). In particular, physical functioning was observed to be significantly different among groups over time ($p=0.0011$). The domain scores of bodily pain and role limitation (emotional) were also significantly different among groups ($p<0.05$). Although the mortality was small in each cohort, the QALY calculations were adjusted to reflect mortality. SF-6D utility scores were higher in the intervention groups at all measurements. The differences were also statistically significant among groups and over time (see Table 3, page 50).

Table 4 reveals that the Health Lines program is an effective intervention for helping patients with CHF improve self-maintenance so that they can continue to function in daily life. The result also illustrated a significant improvement in self-care behaviour in the intervention groups over time ($p<0.05$). The patient satisfaction survey indicated that patients generally felt good about the quality of the services received and thought these helped them deal more effectively with their health problems.

TABLE 4. Mean (SD) score for Self-Care Behavior Scale survey

	Control	HL	HLM
Baseline	98.48 (19.19)	105.90 (17.80)	101.90 (19.65)
Follow-up survey 1	101.00 (15.43)	108.59 (20.70)	104.60 (19.29)
Follow-up survey 2	103.31 (17.70)	106.06 (16.75)	102.61 (19.72)
Follow-up survey 3	105.18 (19.00)	120.77 (17.80)	110.57 (17.52)

Incremental cost-effectiveness

The incremental cost-effectiveness ratios (ICERs) were calculated based on the first follow-up survey where there was a statistically significant difference in the health effects among groups. Table 5 shows the ICERs for the interventions. In order to support decision-making of mutually exclusive intervention programs, we ranked the program according to effectiveness, and then calculated the incremental cost-effectiveness ratio for each successively more effective program (e.g., incremental cost per incremental gain in QALYs). The standard approach to care was strongly dominated by HL and HLM because it was the most costly and least effective. Compared to HLM, HL was more costly and more effective. We estimated the ICER for HL compared to HLM by dividing these incremental costs by incremental effectiveness. The HL was associated with an ICER of \$2,975 in generating additional QALYs.

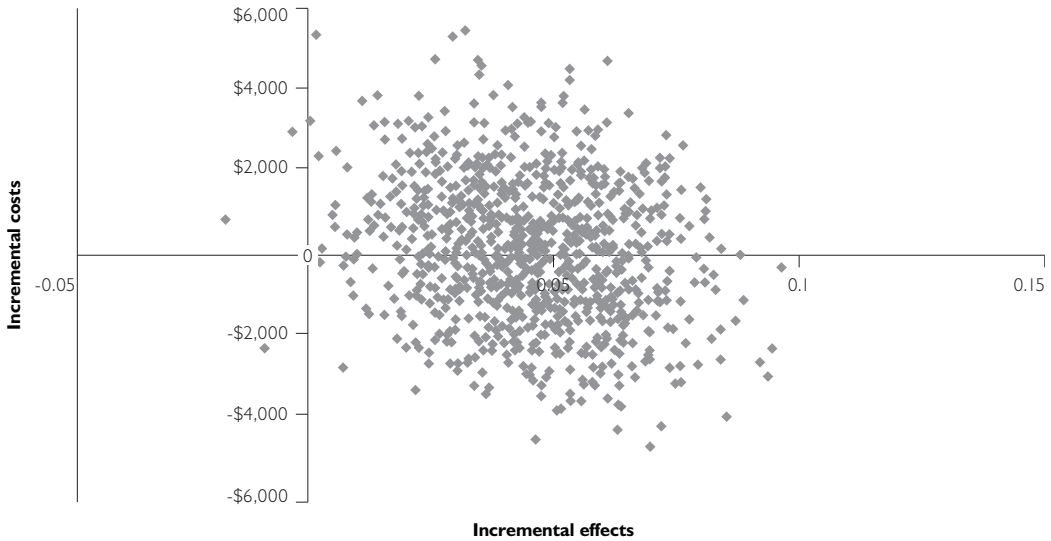
TABLE 5. Incremental cost-effectiveness ratio

Program	Cost (Canadian Dollars, 2005)	Effectiveness (QALYs)	Incremental Cost-Effectiveness Ratio
HLM	\$6,311	0.63	
HL	\$6,430	0.67	\$2,975

Sensitivity analysis

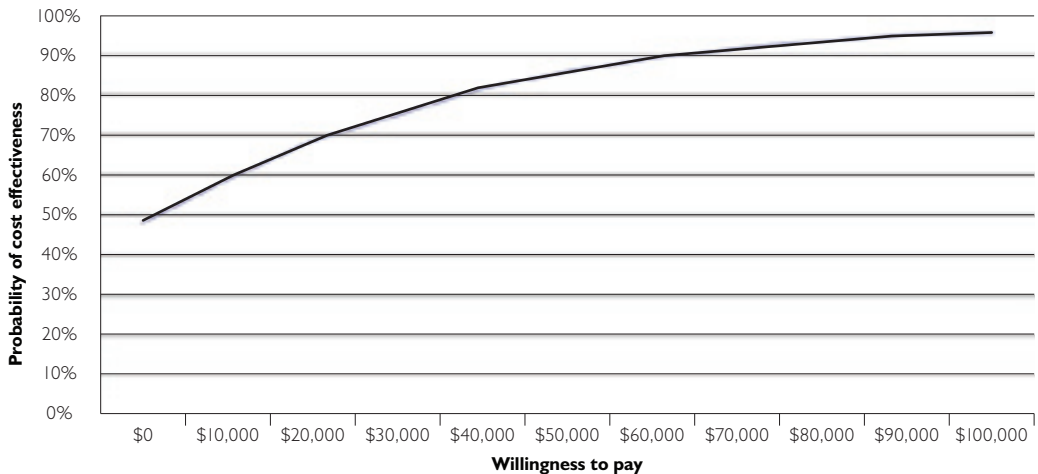
The sensitivity analysis was performed to investigate the effects of uncertainty in costs and outcomes of the intervention. A non-parametric bootstrap with replacement method was used to create 1,000 resamples of the cost and effectiveness data from all four survey points for replacement. By using this method, 1,000 replications were generated to estimate the precision of the cost-effectiveness calculation. Figure 1 demonstrates that uncertainty in ICER was estimated through bootstrapping. As 48% of replications fell in the bottom-right quadrant, illustrating that HL produced beneficial effects with lower costs, and 52% of resamples fell within the top-right quadrant of the plane, this indicates a likelihood of HL's having higher cost and better outcomes in terms of QALYs for CHF management. The simulation shows that the mean incremental cost of HL relative to HLM was \$85 (95% CI: -\$3,088, \$3,336) once we took into account savings from healthcare utilization averted. The mean incremental effect of HL was 0.04 (95% CI: 0.01, 0.08) compared to HLM. Therefore, even though the incremental mean cost was not significant, HL produced significantly better outcomes for CHF patients.

FIGURE 1. Incremental cost-effectiveness plane from bootstrap sampling for HL vs. HLM



The cost-effectiveness acceptability curve (CEAC) in Figure 2 shows the probability that an intervention is cost-effective compared to the alternative. The CEAC is derived from the joint distribution for incremental costs and incremental effects from the bootstrapping result and shows the probability that the decision evaluated is cost-effective (the y-axis), given joint uncertainty in model parameters for different values of the decision-maker’s willingness to pay for health benefit (the x-axis). The CEAC shows a 95.4% probability that HL will be considered cost-effective if decision-makers are willing to pay up to \$100,000 for an additional QALY. The most often-used threshold in the literature is \$50,000/QALY (Grosse 2008); at this point, a decision to adopt the HL intervention over HLM has an 85.8% probability of being cost-effective. HL has a greater than 50% likelihood of being the more cost-effective intervention if the “willingness to pay” value is placed at \$10,000.

FIGURE 2. Cost-effectiveness acceptability curve for HL vs. HLM



Discussion

The results suggest that both interventions generated net health system savings through reduced utilization. Differences in costs were not significant among groups, largely because the sample size was too small. Cost-effectiveness analysis allows us to compare the benefits that patients derive from a program with the costs of offering the program. Our cost-effectiveness analysis was also limited by sample size. We measured patient satisfaction with the Client Satisfaction Questionnaire, and found that patients in all three groups were very satisfied with their treatment. There were no statistically significant differences among groups ($p=0.4211$). We used the SF-36, a generic health-related quality-of-life survey, to measure subjective health. Patients receiving either of the two interventions reported significantly better scores in physical functioning, physical pain, emotional health and overall health utility compared to the control group. Using an algorithm supplied by the University of Sheffield, we converted the SF-36 scores into QALYs and found that there were statistically significant differences in QALYs generated by the three programs at the time of the first survey. Our cost-effectiveness analysis demonstrated that HL is a more effective intervention for CHF than HLM, but it comes at a cost. A standard cost-effectiveness calculation demonstrated that the HL intervention could generate an additional QALY for \$2,975. Finally, we conducted a sensitivity analysis to take into account the uncertainty associated with small sample sizes, and to try to generate advice helpful to decision-makers. Sensitivity analysis allows us to simulate outcomes to better estimate the probability that an intervention will be cost-effective.

When we took into account the increased QALYs generated by both interventions at all four survey points using mixed-effects repeated measures models, and combined apparent health system savings with program costs to generate a net cost, the analysis suggested that HL still generated better outcomes than HLM. Assuming that a decision-maker would be interested in implementing HL intervention, our sensitivity analysis suggests that the more important a patient's subjective quality of life becomes to the decision-maker, the more cost-effective the HL strategy becomes. The threshold of "willingness to pay" analyses aims to indicate an upper limit for cost-effectiveness; the findings indicated a greater than 95% likelihood that HL would cost no more than an additional \$100,000 for additional effectiveness (in QALYs).

Conclusion

This study provides evidence that HL is more likely to be cost-effective in the management of CHF compared to the standard and HLM interventions. The cost-effectiveness of HL depends on how much decision-makers are willing to pay for an additional QALY; whether this incremental improvement in outcome represents good value for money considering the likelihood of higher healthcare costs is a value judgment. These findings add to the growing body of evidence that telehealth interventions for CHF patients have positive effects on outcomes. Despite the limitations of the data sample size in this study, our results suggest that HL is cost-effective for CHF management, assuming a willingness to pay a threshold of \$10,000 for an additional QALY. On the basis of these findings, this study will guide health-

care providers and policy makers who are responsible for integrating telehealth into chronic disease management, funding telehealth programs and creating policies that encourage the use of communication technology to support healthcare services and improve quality of care.

Correspondence may be directed to: Yang Cui, Department of Community Health Sciences, Faculty of Medicine, University of Manitoba, Room S113 – 750 Bannatyne Ave., Winnipeg, MB R3E 0W3; tel.: 204-926-7842; e-mail: umcui@myumanitoba.ca.

Acknowledgements

The authors thank the Manitoba Centre for Health Policy and Manitoba Health for providing data (Health Information Privacy Committee file number: 2010/2011-09). The results and conclusions presented are those of the authors. No official endorsement by the Manitoba Centre for Health Policy and Manitoba Health is intended or should be inferred.

References

- American Telemedicine Association. 2011. "What Is Telemedicine?" Retrieved September 25, 2013. <<http://www.americantelemed.org/i4a/pages/index.cfm?pageid=3333>>.
- Artinian, N., M. Magnan, M. Sloan and M. Lange. 2002. "Self-Care Behaviors among Patients with Heart Failure." *Heart & Lung* 31(3): 161–72.
- Attkisson, C. and R. Zwick. 1982. "The Client Satisfaction Questionnaire. Psychometric Properties and Correlations with Service Utilization and Psychotherapy Outcomes." *Evaluation and Program Planning* 5: 233–37.
- Brazier, J., J. Roberts and M. Deverill. 2002. "The Estimation of a Preference-Based Measure of Health from the SF-36." *Journal of Health Economics* 21: 271–92.
- Canadian Agency for Drugs and Technologies in Health. 2008. *Home Telehealth for Chronic Disease Management*. Retrieved September 25, 2013. <http://www.cadth.ca/media/pdf/H0475_Home_Telehealth_tr_e.pdf>.
- Clark, R.A., S.C. Inglis, F.A. McAlister, J.G. Cleland and S. Stewart. 2007. "Telemonitoring or Structured Telephone Support Programmes for Patients with Chronic Heart Failure: Systematic Review and Meta-analysis." *British Medical Journal* 334: 942.
- Drummond, M.F., M.J. Sculpher, G.W. Torrance, B.J. O'Brien and G.L. Stoddart. 2005. *Methods for the Economic Evaluation of Health Care Programmes* (3rd ed.). Oxford: Oxford University Press.
- Finlayson, G., N.P. Roos, P. Jacobs and D. Watson. 2001. *Using the Manitoba Hospital Management Information System: Comparing Average Cost per Weighted Case and Financial Ratios of Manitoba Hospitals. The Next Step*. Winnipeg: Manitoba Centre for Health Policy and Evaluation. Retrieved September 25, 2013. <<http://mchp-appserv.cpe.umanitoba.ca/reference/mis2.pdf>>.
- Grosse, S.D. 2008. "Assessing Cost-Effectiveness in Healthcare: History of the \$50,000 per QALY Threshold." *Expert View of Pharmacoeconomics Outcomes Research* 8: 165–78.
- Heart and Stroke Foundation of Manitoba. 2010. "Statistics." Retrieved September 25, 2013. <<http://www.heartandstroke.mb.ca/site/c.lgLSIVOyGpF/b.3661109/k.34F4/Statistics.htm>>.
- Jennett, P.A., L.A. Hall, D. Hailey, A. Ohinmaa, C. Anderson, R. Thomas et al. 2003. "The Socio-Economic Impact of Telehealth: A Systematic Review." *Journal of Telemedicine and Telecare* 9: 311–20.
- Katz, A. and M. Doupe. 2009. "Preliminary Report of Research Findings from the Chronic Disease Management of Congestive Heart Failure through Health Lines Initiative." Unpublished manuscript.
- Manitoba Centre for Health Policy. 2009. "Population Health Research Data Repository." Retrieved September 25, 2013. <<http://umanitoba.ca/faculties/medicine/units/mchp/resources/repository/index.html>>.

Economic Evaluation of Manitoba Health Lines in the Management of Congestive Heart Failure

- McHorney, C.A., J.E. Ware Jr. and A.E. Raczek. 1993. "The MOS 36-Item Short-Form Health Survey (SF-36): II. Psychometric and Clinical Tests of Validity in Measuring Physical and Mental Health Constructs." *Medical Care* 31(3): 247–63.
- Noel, H.D., D.C. Vogel, J.J. Erdos, D. Cornwall and F. Levin. 2004. "Home Telehealth Reduces Healthcare Costs." *Telemedicine and e-Health* 10: 170–83.
- Patra, J., S. Popova, J. Rehm, S. Bondy, R. Flint and N. Giesbrecht. 2007. "Economic Cost of Chronic Disease in Canada 1995–2003." Toronto: Ontario Chronic Disease Prevention Alliance and the Ontario Public Health Association.
- Schmidt, S., A. Schuchert, T. Krieg and M. Oeff. 2010. "Home Telemonitoring in Patients with Chronic Heart Failure: A Change to Improve Patient Care?" *Deutsches Ärzteblatt International* 107(8): 131–38.
- Seto, E. 2008. "Cost Comparison between Telemonitoring and Usual Care of Heart Failure: A Systematic Review." *Telemedicine and e-Health* 14(7): 679–86.
- Smith, B., P.F. Hughes-Cromwick, E. Forkner and A.D. Galbreath. 2008. "Cost-Effectiveness of Telephonic Disease Management in Heart Failure." *American Journal of Managed Care* 14(2): 106–15.
- Wooden, A.K., H. Sherrard, M. Fraser, L. Stuewe, T. Cheung and C. Struthers. 2008. "Telehome Monitoring in Patients with Cardiac Disease Who Are at High Risk of Readmission." *Heart & Lung* 37(1): 36–45.

TABLE 3. SF-36 mean (SD) domain scores and SF-6D mean (SD) utility score by group

	Baseline		Follow-up Survey 1				Follow-up Survey 2				Follow-up Survey 3				Time P	Study Group P	Time* Study Group P
	Control (n=44)	HL (n=47)	HLM (n=40)	Control (n=44)	HL (n=47)	HLM (n=40)	Control (n=31)	HL (n=32)	HLM (n=29)	Control (n=19)	HL (n=18)	Control (n=19)	HL (n=19)				
SF-36																	
Physical functioning	40.18 (27.61)	37.66 (28.85)	40.93 (27.62)	35.83 (23.79)	45.22 (29.84)	41.88 (28.77)	35.67 (26.90)	32.50 (26.09)	41.72 (29.80)	41.58 (29.30)	42.50 (29.67)	53.44 (23.36)	53.44 (23.36)	42.50 (29.67)	0.0113	0.5200	0.0011
Role, physical	28.29 (16.19)	37.41 (28.85)	33.13 (28.56)	25.61 (14.68)	42.02 (40.41)	33.13 (28.56)	19.17 (29.86)	30.47 (25.77)	26.72 (25.31)	38.16 (45.16)	38.89 (43.91)	39.06 (38.70)	39.06 (38.70)	38.89 (43.91)	0.0317	0.2337	0.8337
Body pain	53.30 (30.75)	64.28 (24.95)	56.00 (28.38)	50.93 (27.48)	66.04 (25.65)	54.56 (27.31)	54.27 (26.64)	61.78 (29.44)	49.14 (27.86)	53.05 (26.82)	60.33 (32.62)	86.67 (28.38)	86.67 (28.38)	60.33 (32.62)	0.1107	0.0017	0.2323
General health	44.61 (23.30)	45.93 (19.47)	44.73 (17.79)	46.10 (21.61)	49.13 (18.28)	45.85 (21.29)	47.43 (21.25)	46.13 (17.68)	42.52 (23.26)	49.05 (19.59)	40.17 (23.38)	55.63 (27.51)	55.63 (27.51)	40.17 (23.38)	0.2087	0.5341	0.5300
Vitality	39.20 (20.88)	42.17 (23.28)	42.50 (20.29)	39.64 (23.44)	44.36 (22.71)	41.67 (24.50)	38.17 (23.22)	39.69 (25.71)	41.72 (21.85)	41.84 (22.68)	36.11 (23.49)	45.67 (23.74)	45.67 (23.74)	36.11 (23.49)	0.9763	0.9205	0.4495
Social functioning	61.08 (30.29)	73.91 (26.06)	73.13 (25.72)	62.80 (29.54)	75.00 (27.21)	71.88 (31.74)	62.08 (31.74)	69.53 (28.56)	66.38 (30.45)	63.82 (34.33)	73.61 (27.75)	77.50 (26.61)	77.50 (26.61)	73.61 (27.75)	0.5313	0.0598	0.9811
Role, emotional	49.61 (41.39)	62.77 (40.71)	57.50 (43.35)	55.69 (46.19)	72.34 (38.90)	61.67 (40.33)	53.33 (46.81)	69.79 (43.47)	60.92 (44.60)	59.65 (47.89)	75.93 (35.80)	77.78 (34.88)	77.78 (34.88)	75.93 (35.80)	0.0994	0.0396	0.9563
Mental health	68.64 (21.81)	75.48 (19.63)	71.25 (16.30)	71.19 (21.07)	78.38 (20.49)	73.85 (20.86)	70.67 (21.10)	79.25 (23.82)	75.17 (19.67)	73.82 (17.98)	81.78 (12.96)	78.93 (21.51)	78.93 (21.51)	81.78 (12.96)	0.1005	0.2882	0.4743
SF-6D utility	0.60 (0.13)	0.65 (0.11)	0.61 (0.10)	0.60 (0.11)	0.67 (0.12)	0.63 (0.11)	0.59 (0.12)	0.64 (0.12)	0.62 (0.10)	0.63 (0.12)	0.65 (0.11)	0.70 (0.10)	0.70 (0.10)	0.65 (0.11)	0.0247	0.0452	0.8993

*Domain scores range 0-100.

Active Referral: An Innovative Approach to Engaging Traditional Healthcare Providers in TB Control in Burkina Faso

L'orientation active : une démarche novatrice pour favoriser la participation des prestataires de soins de santé traditionnels dans le contrôle de la tuberculose au Burkina Faso



BERTHOLLET BWIRA KABORU, PHD
Senior Lecturer, School of Health and Medical Sciences
Örebro University
Örebro, Sweden

Abstract

Background and objective: The involvement of traditional healthcare providers (THPs) has been suggested among strategies to increase tuberculosis case detection. Burkina Faso has embarked on such an attempt. This study is a preliminary assessment of that model.

Methods: Qualitative data were collected using unstructured key informant interviews with policy makers, group interviews with THPs and health workers, and field visits to THPs. Quantitative data were collected from program reports and the national tuberculosis (TB) control database.

Results and analysis: The distribution of tasks among THPs, intermediary organizations and clinicians is appealing, especially the focus on active referral. THPs are offered incentives based on numbers of suspected cases confirmed by health workers at the clinic, based on microscopy results or clinical assessment. The positivity rate was 23% and 9% for 2006 and 2007, respectively. The contribution of the program to national case detection was estimated at 2% for

2006. Because it relied totally on donor funding, the program suffered from irregular disbursements, resulting in periodic decreases in activities and outcomes.

Conclusions: The study shows that single interventions require a broader positive policy environment to be sustainable. Even if the active referral approach seems effective in enhancing TB case detection, more complex policy work and direction, domestic financial contribution and additional evidence for cost-effectiveness are needed before the approach can be established as a national policy.

Résumé

Contexte et objectif : La participation des prestataires de soins de santé traditionnels (PST) a été proposée comme stratégie pour accroître la détection de cas. Le Burkina Faso a mis cette stratégie à l'essai. La présente étude est une évaluation préliminaire de ce modèle.

Méthodes : Les données qualitatives ont été recueillies par : des entrevues non-structurées auprès d'informateurs clés, notamment des responsables de politiques; des entretiens de groupes avec des PST et des travailleurs de la santé; et des visites pour rencontrer les PST sur le terrain. Les données quantitatives proviennent des rapports du programme ainsi que de la base de données nationales sur le contrôle de la tuberculose.

Résultats et analyse : La distribution des tâches entre les PST, les organisations intermédiaires et les cliniciens est intéressante, particulièrement l'accent mis sur l'orientation active. Les PST reçoivent des incitatifs en fonction du nombre de cas suspects confirmés par les professionnels de la clinique, à l'aide des résultats de microscopie et des évaluations cliniques. Les taux positifs étaient de 23 % et 9 % respectivement pour 2006 et 2007. L'apport du programme à la détection de cas à l'échelle nationale a été estimé à 2 % pour 2006. Puisqu'il repose entièrement sur le financement de donateurs, le programme souffre de versements irréguliers, ce qui a causé un déclin des activités et des résultats.

Conclusions : L'étude montre que la durabilité des interventions est tributaire d'un environnement politique plus favorable. Même si la démarche de l'orientation active semble efficace pour accroître la détection de cas de tuberculose, il faudra mettre en place des politiques complexes, assurer une contribution financière intérieure et obtenir plus de données sur le rapport coût-efficacité avant d'implanter la démarche à l'échelle nationale.

HEALTHCARE IN ANY COUNTRY CONSISTS OF SEVERAL SUBCOMPONENTS THAT enjoy different levels of support from public health authorities. According to Arthur Kleinmann, pluralist healthcare systems are characterized by the coexistence of three different sectors of healthcare: the professional sector, the popular sector and the folk sector (cited in Helman 2007). The professional sector consists of scientific, allopathic medicine practitioners; the popular sector comprises families, friends and other useful reference people from whom a patient can seek advice; and the folk sector is represented by

practitioners of non-Western medicine who specialize in curing or caring for various physical or spiritual problems.

In most African countries, this folk sector is large and known as traditional medicine. Prior to the emergence of the HIV epidemic, public health policies remained ambiguous as to the role this sector had to play in healthcare. However, since early 2000, the situation has changed as many governments and international agencies realized that countries needed multisectoral responses to the epidemic (Burford et al. 2000; Liverpool et al. 2004). Traditional medicine and its practitioners started to be seen as resources that policy makers needed to capitalize upon. Interventions of different kinds were initiated to assess the role of this sector in addressing diverse disease-specific issues (Sorsdahl et al. 2009).

From the point of view of global health policy, increased recognition during the end of the last decade by The Global Fund (for tuberculosis and HIV, specifically) of the role of civil society and local non-governmental organizations (NGOs) in the delivery of preventive and treatment services led many principal recipients of funds to consider involving local organizations in their programs. This recognition culminated in the introduction of so-called dual-track financing, which has been an important policy development at The Global Fund (2012). Dual-track financing allows countries to enable civil society and the private sector to become principal recipients. This approach was seen as an innovation, given that grants management in some countries had become a monopoly of large international organizations, and ministries of health in other countries.

With regard to global efforts to control tuberculosis (TB), increasing success in case detection and treatment has been the critical goal of every TB control program since 1991, when the World Health Assembly set targets of a 70% case detection rate and an 85% treatment success rate by 2000 (the target year was later reset to 2005). Globally, Africa has the lowest case detection rate compared to other world regions. Several approaches to increase case detection have been tried, including systematic engagement of private providers. In African settings, numerous initiatives to involve providers of traditional medicine have been attempted (Banerjee et al. 2004; Chakaya et al. 2008; Colvin et al. 2003; Wilkinson et al. 1999). However, many of these remain largely undocumented, turning sometimes useful experiences into simple local, inconsequential events, despite interesting policy challenges and lessons that could be drawn from them.

The World Health Organization's Stop TB Department has embarked on a process of identifying and documenting many of these initiatives in order to allow cross-country learning and exchanges, as well as to inform development of policy guidance for national disease control programs. Lessons from these examples could elucidate several high-level policy challenges, ranging from health systems-related issues (e.g., human resources, linking community and clinical services, national stewardship) to issues related to the impact of global health financing mechanisms. It is against this background that the Burkina Faso experience of involving traditional health practitioners in TB case finding might be worthy of exploration.

Burkina Faso is a landlocked country in West Africa, with a population of over 15 million. The TB incidence rate is estimated at 57 (48–66) per 100,000 population. TB notification data in 2011 indicated a total of 5,543 cases, of which 3,450 (68%) were smear-positive. With 5,286 TB cases detected out of 9,700 cases estimated, the detection rate – which indicates the percentage of reported cases against the estimated number of cases occurring – is low in Burkina Faso, at 55% (uncertainty interval, 47%–65%) (WHO 2011). This low rate indicates a significant gap, meaning that many TB cases are still missed. Improving this rate has been the central goal of the Burkina Faso TB control community, under the coordination of the national TB control program. One initiative has consisted of an attempt to systematically engage traditional healthcare practitioners (THPs) in TB case finding. The initiative has been implemented since 2006 within the framework of the Programme d'appui au monde associatif et communautaire (PAMAC; “community and associative sector support program”) owned and run by the United Nations Development Program (UNDP).

It is estimated that there are about 30,000 THPs in Burkina Faso, compared to the 9,000 nurses and physicians available in the country (Professor Nikiéma, Head of the Unit for Promotion of Traditional Medicine, Ministry of Health, Burkina Faso, personal communication, 2008). Burkina Faso has a national association of THPs, the ANAPHARM (Association nationale des acteurs de la pharmacopée et de la médecine).

Features of the Burkina Faso TB Control Program Model

Multiple intermediaries' roles

Intermediary organizations included all the various institutions that act as facilitators between health facilities and the National Tuberculosis Program (NTP) (i.e., representatives of the Ministry of Health) on one side and individual THPs on the other. The foremost intermediary was the UNDP through PAMAC, an arrangement that ensured the overall coordination and liaising function at the national level, including financial management, monitoring and evaluation (the centralization of reports). The UNDP was responsible for the program vis-à-vis the NTP and the country coordination mechanism that assumes countrywide coordination and policy advocacy.

The second level was a network of community support organizations (called structures pivots). This is a stronger association with substantial capacity in managing projects and in monitoring its own and smaller partners' projects. Such an organization was selected to partner with PAMAC, utilizing the latter's capacity in data collection and research, and in maintaining working relationships with health authorities at the district and provincial levels. The chosen organization had to be specialized in information, education and communication (IEC) activities at the community level as well as in community care and/or advocacy for people living with HIV/AIDS and TB. Such organizations might operate in a large area, such as a region or province. To be selected for the TB program, an organization had to submit an

action plan that was consistent with the NTP's and PAMAC's objectives and that took into consideration the needs and activities of the implementing member associations at the grass-roots level.

A third level of intermediary organization was the one made of providers' associations: these associations allow THPs to have a unified voice vis-à-vis the health facilities, other organizations and PAMAC. Such associations were responsible for training their members, and for dealing with all issues and processes related to payment of incentives to or compensation of their members for their participation. The associations are generally responsible for limited sub-areas within a district.

The role assigned to individual THPs

Finally, individual THPs were selected by their organizations. The task assigned to THPs according to the model was limited to referral of suspected cases to the nearest health facility. THPs were not formally involved in IEC activities, e.g., community mobilization. Neither were they involved in TB treatment supervision, known as directly observed treatment (DOT).

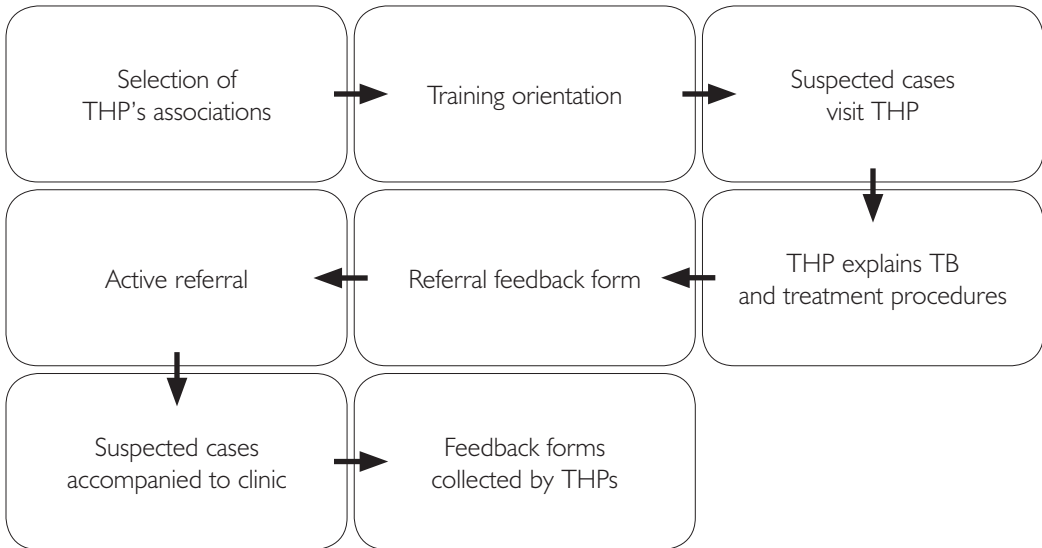
Operational steps in engagement of THPs

At the preparatory stage, PAMAC interacted with provincial and district health facilities to select a potential network of organizations (the structures pivots) to work with. When this network was selected, viable THP associations were identified among the membership or the partners of the network, and later individual THPs were identified. The following steps were essential in the operational process of working with THPs.

1. Training: A number of THPs were selected by their associations and trained by the health district staff on TB, its symptoms and management according to the NTP's guidelines.
2. Active referral: THPs were encouraged, whenever possible, to personally ensure they accompanied patients to the TB clinic, beyond providing them with a written referral form.
3. Feedback collection: Every month, the president or coordinator of the THPs' association contacted the TB clinic to collect feedback papers.
4. Monthly meetings with the TB clinic staff: The purpose of these was to discuss the progress of the collaboration and solve any identified problems.
5. Quarterly reporting and payment of incentives: Feedback documents were compiled every quarter, and referring THPs were reimbursed 1,000 CFA francs (2.5 USD) per suspected case referred and confirmed by the clinicians (and therefore tested for TB), irrespective of whether the patients were found to be infected with TB.

Figure 1 illustrates this process.

FIGURE 1. The Burkina Faso model of engaging THPs



This paper is a preliminary evaluation of the approach used in this initiative to engage THPs in the capital, Ouagadougou, and Bobo Dioulasso, the country’s second largest city. Analysis of the operational features of the model, of the main perceptions of the key parties involved and the policy environment surrounding it is likely to help identify some critical elements that could contribute to enhancing the success of such endeavours in Burkina Faso and beyond, especially in countries with a high TB burden and a significant presence of traditional medicine practitioners.

Aim of the Study

The aim of this study was to assess the contribution of a model of involvement of THPs to TB case finding in Burkina Faso and explore the perceptions of key stakeholders (THPs, nurses, policy makers) involved in its implementation.

Methods

Data collection

Both qualitative and quantitative data were used to explore THPs’ involvement in TB case finding in Burkina Faso. The qualitative part included unstructured interviews with key informants that were held with three high-level officers of the National Tuberculosis Program (including the NTP manager). In addition, two group interviews with THPs in Ouagadougou were held (with over 20 participants each time) and one with health workers (five participants) in a TB clinic. Field visits (two) were paid to traditional practitioners involved in the collaboration, to see their working environment in the community. Available quantitative data were collected from the UNDP-supported program (PAMAC) that

oversaw the involvement of THPs in TB control in the country. All the data were collected during a visit to Burkina Faso in June 2008.

The interview guide, used both for key informants and for group interviews, was generic and focused on key issues such as how THPs and health workers described their collaboration with the clinic, how the NTP perceived the whole initiative of working with THPs, the challenges experienced by each group of participants in the initiative and how they thought these could best be addressed. The qualitative interviews were basically aimed to facilitate understanding of participants' feelings about their experiences and of the dynamics of the program in order to interpret the quantitative data generated by the program and to identify trends. In other words, the qualitative interviews aimed at understanding the processes from different actors' perspective as well as the overall policy framework, whereas the quantitative data focused on the outcomes as reported in the program's documents. The qualitative data were recorded through minutes taken by the author, who was assisted by one or two PAMAC employees who helped clarify any issues that came up in the discussions.

Data analysis

The qualitative information was summarized under themes such as the roles of THPs, the nature of relationships between THPs and the supervising local NGO, the nature of interactions among THPs, NGOs and the NTP (and other services within the Ministry of Health), the role of UNDP in the context and so on. The quantitative data were entered in Excel and analyzed using SPSS Version 20.

Results

Policy context surrounding THPs' engagement in TB control

The engagement of THPs started in 2005 with the HIV control program. The Global Fund's grant round 4 included a substantial community engagement component that required UNDP to set up PAMAC. The engagement of THPs became part of this generic program, which was initially aimed at supporting the National AIDS Commission in involving community and civil society organizations in scaling up prevention, voluntary counselling and testing (VCT) and community-based care for AIDS patients. In 2006, the NTP requested PAMAC to take charge of the community component of its program.

Findings from the interviews with policy makers indicated that despite the Ministry of Health's general policy on promoting traditional medicine and its practitioners, the policy had no explicit implementation direction in relation to specific disease control efforts. The content of the policy was unknown even to highly placed policy makers outside the Ministry's sector in charge of those questions. It appeared, therefore, that THPs' participation in TB case finding was a short-lived, standalone program, disconnected from the broader policy in which it should have been embedded. Another indication of this lack of alignment was that the intervention had no relation with any other initiative involving THPs in other health provision services (HIV, malaria, maternal health, etc.).

Stakeholders' perceptions of the intervention

NATIONAL TUBERCULOSIS PROGRAM

NTP officers appeared satisfied with the UNDP-sponsored program, and indicated they had given it their full support and mandate to care for the community involvement component of the national response to control TB. However, their attitude indicated a kind of detachment, as if they would not invest time and resources in this endeavour should UNDP not accept responsibility for it. The absence of a clear, or even tentative, vision of plans to scale up this intervention beyond the two major cities of Ouagadougou and Bobo Dioulasso was another indication that the intervention was seen as a temporary one.

UNDP/PAMAC

The owners of the program appeared satisfied with its progress and achievements. What mattered most to them was to ensure optimal program performance, that funding was available and that there were no major problems between the THP associations and health facilities. Long-term issues of program sustainability or program alignment with other disease control programs beyond TB, or with broader health system constraints, were not of concern.

A strong focus of the owners' support to other actors in the program's implementation was on monitoring and evaluation (M&E), to ensure that all data were recorded and the report transmitted. This M&E focus was reflected in the fact that intermediaries at lower levels of the implementation network (the structures pivots) were properly equipped with computers and software, enabling them to produce progress reports at any time.

NURSES

The nurses described their experiences of working with THPs and the THP organizations as fruitful, responsive and characterized by mutual respect. Nurses reported no major difficulties with this collaboration. They highly valued the contribution of THPs to TB case finding in the community. Nurses wanted to see THPs take on even more responsibilities in relation to TB care, including, for example, supervision of TB treatment, instead of just case finding.

Nurses saw also in THPs a huge potential with respect to efforts to control other diseases (HIV, malaria, etc.). Nurses expressed their satisfaction in relation to THPs' performance, especially regarding the proper assessment of suspected TB cases.

TRADITIONAL HEALTH PRACTITIONERS

THPs were generally satisfied with their interactions with staff at TB clinics. They were rather surprised that the work had gone so smoothly, and that they were respectfully received by health workers at the centres. THPs also thought that the task assigned to them of identifying suspected TB cases was minimal, as they believed they were capable of doing much more. They referred, among other things, to training opportunities they had attended (each THP could show at least five certificates). They hoped that this initiative would be a pilot for more comprehensive involvement in healthcare.

The compensation that the model provided was seen as a positive incentive that many THPs appreciated. Some pointed out, however, that the incentive was meagre in some circumstances, such as when a THP lived far from the health facility and needed to pay travel expenses for him/herself and his/her patients.

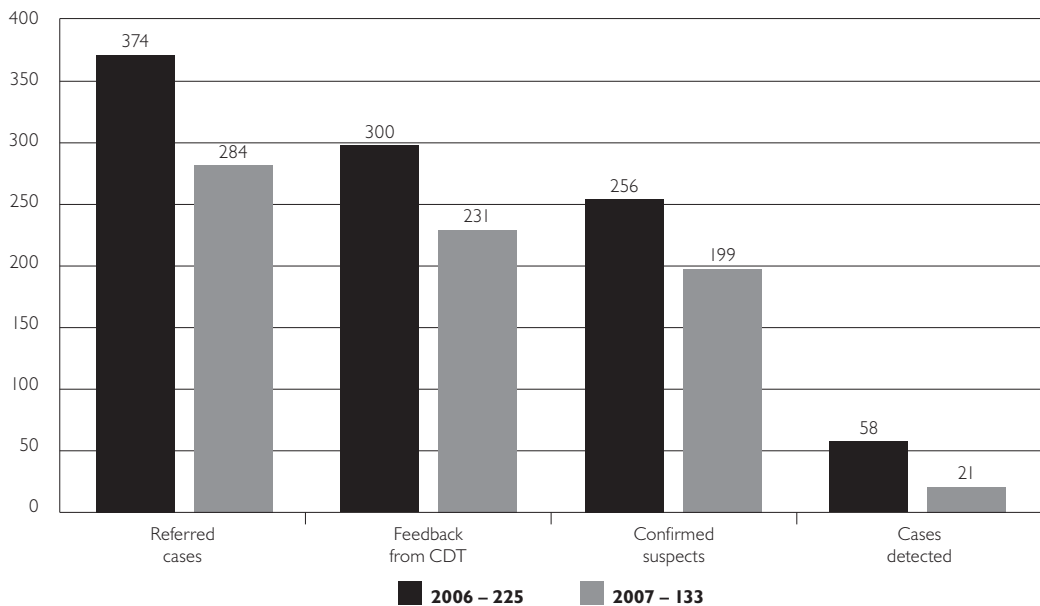
Another dimension in which THPs would call for improvement is the role assigned to their professional organizations. These associations' role was also very reduced, limited to selecting THPs before initial involvement and training and periodically for collecting and distributing compensation. THPs thought that their associations could play a bigger role in liaising with UNDP/PAMAC and with the NTP, which was not the case. It was rather the structures pivots, the network of organizations, that interacted with UNDP and the NTP, for the sake of monitoring program activities.

Outcome Data in 2006 and 2007

Referral and detection of suspected TB cases

The project was initiated in Ouagadougou and Bobo Dioulasso in 2006. It has so far been limited to a few health districts in these two cities. Figure 2 provides an overview of the number of suspected cases referred and detected.

FIGURE 2. Flow of suspected TB cases referred and detected

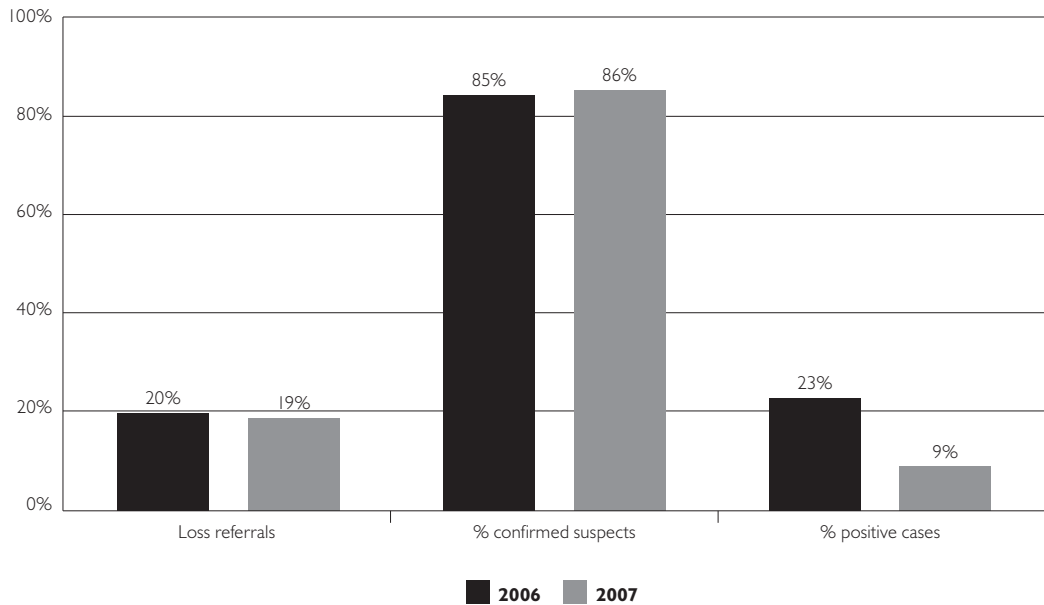


Analysis of lost cases and positivity ratios

Figure 3 is based on Figure 2 and suggests more details on proportions of lost suspected and detected cases. Confirmed suspected cases represent the proportion of cases referred by THPs

that were, after first consultation, deemed by the clinician to be serious; the higher the proportion, the higher the level of consistency between clinicians' and THPs' assessments.

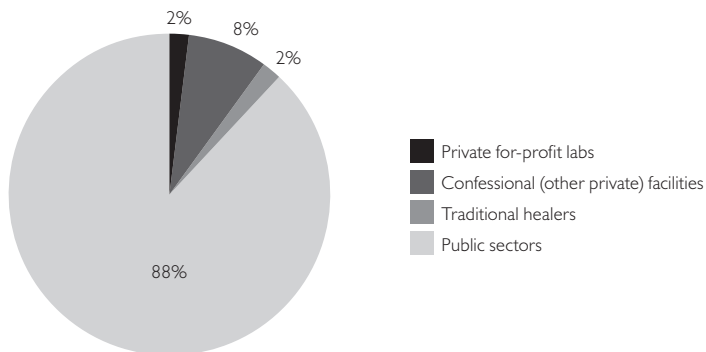
FIGURE 3. Lost referrals and positivity ratios



Contribution to national TB detection

Given the national figures of new smear-positive cases detected for 2006, the contribution of THPs was assessed and compared to that of other major private providers involved in collaboration with the National Tuberculosis Program (Figure 4).

FIGURE 4. Contribution of THPs to national case detection in 2006



Discussion

THPs have been recognized as important pillars in healthcare in several communities in sub-Saharan Africa. Major national disease-specific programs have increasingly called for,

and attempted, involving these providers to increase accessibility and acceptability of health services (Banerjee et al. 2004; Kayombo et al. 2005; King and Homsy 1997; Magassouba et al. 2007). THPs' involvement has even been called for and tested in respect to non-communicable disease management (Mbeh et al. 2010).

This experience from Burkina Faso indicates that in the health sector, as in other social policy areas, policy development is complicated because it is informed by many aspects that go well beyond individual interventions. In other words, the existence of clear and pressing needs (e.g., TB case detection) and effective interventions does not always lead to quick fixes in terms of policy formulation. Efficacy of a standalone intervention is not enough to trigger major policy shifts unless other policy context specificities are acted upon. Policy making is complex, time-consuming and not necessarily rational (Watt 2004). Such policy-related complexities probably explain why the dream of realizing a harmonious involvement of THPs in healthcare has not so far been achieved. In relation to THPs' involvement in healthcare provision, a major impediment has always been the absence of a sectorwide policy orientation regulating collaboration between conventional medicine practitioners and THPs.

In TB control, as in other disease control efforts, one of the critical impediments to constructive involvement of THPs in healthcare has been the lack of a generic model of engagement of these providers. This has resulted in the application of small-scale and contextual models, which in turn has complicated replication and comparison of initiatives. The Burkina Faso approach discussed in this paper appears to be an interesting model from which lessons can be learned.

The most attractive feature of this model is the "active referral" concept, i.e., encouraging THPs to accompany their patients on visits to health facilities for TB screening. This activity presupposes that THPs should be convinced of the seriousness of the case, and that they must be equipped with the necessary skills to convince patients of the need to take a TB test. Furthermore, the receptivity of health facility personnel is another key factor that determines whether THPs will tend only to refer patients with suspected TB or will escort them to the clinic. In the case of the Burkina Faso study, THPs reported positive attitudes and interactions with the health workers at TB clinics. Thus, the model needs to build on this positive groundwork, including not only training of THPs but, most importantly, the sensitization of health professionals at the facility level. The Burkina Faso model is innovative in that it goes beyond the traditional "training fallacy," i.e., a focus on the training of THPs as the sole means to involve them in healthcare. The Burkina Faso model provides for a mix of roles for actors and organizations, including incentives to THPs.

The distribution of tasks between participating partners, despite being minimalist, seems appropriate; this is another important component in such collaborative frameworks. THPs refer, their associations take care of the incentive reimbursements and health facilities manage the medical issues. This structure of task distribution appears acceptable, given that the epidemiological situation of TB, HIV and TB/HIV co-infection in the country is moderate. What was remarkable in this study was the call from nurses recommending increased involvement of

the THPs, whom they considered to be performing well. Increased tasks would imply wider focus and, therefore, greater impact.

The fact that the THPs' role was limited to referrals implies that supporters of the initiative (i.e., UNDP/PAMAC and NTP) made no value judgment regarding other healthcare-related operations in which THPs might be involved. One could argue that the Burkina Faso model built on an instrumental approach to involving THPs as opposed to an idealist approach. The lack of any role for the national associations of THPs that might promote traditional medicine more broadly, as well as the lack of any mention in national policy for promoting traditional medicine, are evidence of this instrumental and disease-specific perspective. Broader promotion of traditional medicine would significantly increase support for the THPs' associations, mostly through capacity-building initiatives well beyond the mere monitoring of the TB project's outputs. Such an ambitious agenda would demand stronger national ownership.

A survey of the TB project's quantitative outcomes indicates that the model might be effective. The positivity ratio of 23% in 2006 and 9% in 2007 means that THPs' pre-screening assessment of suspected TB cases was as accurate as that of qualified clinicians. The initiative's contribution to national TB case detection is as effective as that of formal private laboratories involved in public-private collaboration in the country. This finding indicates a largely untapped opportunity, considering the huge population of uninvolved THPs.

Because this program has so far been implemented only in urban settings, nothing can be said about the feasibility of active referral in rural areas. Transportation difficulties might constitute the main obstacle to active referrals in such settings. Also, collaboration has so far involved only public facilities. It is uncertain whether so-called confessional facilities (private clinics) would be equally keen to work with THPs.

One potentially controversial aspect in the Burkina Faso initiative is the reimbursement of incentives to THPs. To me, these incentives are not only acceptable, but also equitable and insignificant in terms of cost to the program. The problem is the project's dependence on foreign funding. In fact, the declining trends observed in 2007 were due to decreases in global funding and a consequent reduction in activities. Stable funding is thus critical to the program's sustainability and scalability.

One limitation of this study is that it has not been possible to compare program outcomes with TB case-finding data from previous years in these geographic regions. Such data were unavailable at the health centres, and could not be retrieved from central data at the NTP level. For this reason, the information discussed in this paper relates only to the project implementation period.

Policy Implications

The key message of this paper is the importance of policy environment rather than simple outcome statistics. What are the policy options, and how may countries derive greater benefit from their traditional healthcare sectors? Four dimensions, in particular, demand attention.

1. Strategic policy direction

This dimension, essential to success, was found to be weak in Burkina Faso as there was no policy framework backing the intervention. The Ministry of Health unit in charge of traditional medicine should play a role in ensuring that interventions are firmly embedded in policy so that results can, in turn, feed into policy formulation. Otherwise, interventions turn into isolated phenomena.

2. National ownership of intervention

Ownership here is different from the nationality of the operational agent. The Burkina Faso intervention was fully run by domestic actors (national program, national health facilities, etc.), but funding was fully external. Consequently, once funding was delayed, the project nearly closed down. One might even wonder if the intervention was more motivated by the imperative of disbursing financial surpluses from international donors than by meeting genuine public health needs. This is not to say that such was the case in Burkina Faso, but fluctuation in the project's activities suggests the need to spend available excess resources. Sustainability would be better served if such initiatives were included in the national budget. Such inclusion would indicate policy makers' seriousness with regard to incorporating the traditional medicine sector.

3. Cost-effectiveness studies

Preliminary assessment seems to indicate the viability of this approach in enhancing active detection of TB cases. However, cost-effectiveness studies would reinforce the evidence base. Cost-effectiveness analyses covering longer periods are called for before active referral approaches can be scaled up and their replication recommended.

4. Broader integration vs. disease-specific collaboration

Broader integration of THPs within the spectrum of public healthcare activities would be more advantageous than relying on multiple, short-lived and ad hoc interventions initiated by specific disease control programs. From the perspective of public health policy and strengthening health systems, broader integration is a more demanding approach but would signal how committed policy makers are to including THPs in comprehensive healthcare.

Conclusion

Active referral by THPs might be an option in enhancing TB case finding. However, viability of such interventions requires more high-level policy work in terms of strategic direction and the broader needs and imperatives of the public health sector. Also, dependence on foreign funding will remain a serious threat to program sustainability as long as national budgets fail to bear a significant portion of the costs.

Correspondence may be directed to: Berthollet Bwira Kaboru, PhD, Senior Lecturer, School of Health and Medical Sciences, Örebro University, 701 82 Örebro, Sweden; tel.: +46 (0) 19 30 11 84; e-mail: Berthollet.Kaboru@oru.se.

Acknowledgements

I am grateful to Dr. Mathurin Dembele, Manager of NTP Burkina Faso, and Dr. Fodé Simaga, Director of PAMAC, for their support during the collection of the data for this study. I also wish to thank the THPs, TB clinic personnel and the staff of the Kasabati Association for facilitating my field visits and taking part in the interviews.

References

- Banerjee, A., B.V. Sharma, A. Ray, N.K. Kannuri and T.V. Venkateswarlu. 2004. "Acceptability of Traditional Healers as Directly Observed Treatment Providers in Tuberculosis Control in a Tribal Area of Andhra Pradesh, India." *International Journal of Tuberculosis and Lung Disease* 8(10): 1260–65.
- Burford, G., G. Bodeker, D. Kabatesi, B. Gemmill and E. Rukangira. 2000. "Traditional Medicine and HIV/AIDS in Africa: A Report from the International Conference on Medicinal Plants, Traditional Medicine and Local Communities in Africa (a parallel session to the Fifth Conference of the Parties to the Convention on Biological Diversity, Nairobi, Kenya, May 16–19, 2000)." *Journal of Alternative and Complementary Medicine* 6(5): 457–71.
- Chakaya, J., M. Uplekar, J. Mansoor, A. Kutwa, G. Karanja, G., V. Ombeka et al. 2008. "Public–Private Mix for Control of Tuberculosis and TB-HIV in Nairobi, Kenya: Outcomes, Opportunities and Obstacles." *International Journal of Tuberculosis and Lung Disease* 12(11): 1274–78.
- Colvin, M., L. Gumedde, K. Grimwade, D. Maher and D. Wilkinson. 2003. "Contribution of Traditional Healers to a Rural Tuberculosis Control Programme in Hlabisa, South Africa." *International Journal of Tuberculosis and Lung Disease* 7(9 Suppl. 1): S86–91.
- Helman, C.G. 2007. *Culture, Health and Illness* (5th ed.). Oxford: Hodder Arnold.
- Kayombo, E.J., Z.H. Mbwambo and M. Massila. 2005. "Role of Traditional Healers in Psychosocial Support in Caring for the Orphans: A Case of Dar-es Salaam City, Tanzania." *Journal of Ethnobiology and Ethnomedicine* 1, 3. doi: 10.1186/1746-4269-1-3.
- King, R. and J. Homsy. 1997. "Involving Traditional Healers in AIDS Education and Counselling in Sub-Saharan Africa: A Review." *AIDS* 11 (Suppl. A): S217–25.
- Liverpool, J., R. Alexander, M. Johnson, E.K. Ebba, S. Francis and C. Liverpool. 2004. "Western Medicine and Traditional Healers: Partners in the Fight against HIV/AIDS." *Journal of the National Medical Association* 96(6): 822–25.
- Magassouba, F.B., A. Diallo, M. Kouyate, F. Mara, O. Mara, O. Bangoura et al. 2007. "Ethnobotanical Survey and Antibacterial Activity of Some Plants Used in Guinean Traditional Medicine." *Journal of Ethnopharmacology* 114(1): 44–53. doi: 10.1016/j.jep.2007.07.009.
- Mbeh, G.N., R. Edwards, G. Ngufor, F. Assah, L. Fezeu and J.C. Mbanya. 2010. "Traditional Healers and Diabetes: Results from a Pilot Project to Train Traditional Healers to Provide Health Education and Appropriate Health Care Practices for Diabetes Patients in Cameroon." *Global Health Promotion* 17(2 Suppl.): 17–26. doi: 10.1177/1757975910363925.
- Sorsdahl, K., J.C. Ipser and D.J. Stein. 2009. "Interventions for Educating Traditional Healers about STD and HIV Medicine." *Cochrane Database of Systematic Reviews* 4, CD007190. doi: 10.1002/14651858.CD007190.pub2.
- The Global Fund. 2012. "Information Note: Global Fund Engagement with Civil Society." Retrieved September 27, 2013. <<http://www.theglobalfund.org/en/partners/civilsociety/>>.
- Watt, G. 2004. *Health Policy: An Introduction to Process and Power*. Johannesburg: Witwatersrand University Press and Zed Books.
- Wilkinson, D., L. Gcabashe and M. Lurie. 1999. "Traditional Healers as Tuberculosis Treatment Supervisors: Precedent and Potential." *International Journal of Tuberculosis and Lung Disease* 3(9): 838–42.
- World Health Organization (WHO). 2011. *Tuberculosis Country Profiles*. "Burkina Faso." Retrieved September 27, 2013. <<http://www.who.int/tb/country/data/profiles/en/>>

Looking for Lithotripsy: Accessibility and Portability of Canadian Healthcare

Besoin de lithotritie : accessibilité et portabilité des services de santé au Canada



KATRINA L. PIGGOTT, BHSC, MD

Resident, Department of Medicine

McMaster University

Hamilton, ON

CHAIM M. BELL, MD, PHD

Department of Medicine, Mount Sinai Hospital

Faculty of Medicine and Institute of Health Policy, Management and Evaluation

University of Toronto

Toronto, ON

Abstract

Background: Extracorporeal shock wave lithotripsy (ESWL) is a definitive, ambulatory and non-invasive modality for treating kidney stones. ESWL is not available in all urban centres and many Canadians must either travel, sometimes out of province, or wait to have this procedure performed. We sought to evaluate the variability in access to ESWL treatment.

Method: We compiled a comprehensive list of ESWL centres in Canada and contacted all centres in 2011 to assess their wait times, out-of-province patient fees, and roles and responsibilities of the referring physician.

Results: We contacted all 23 ESWL facilities across Canada (100% response rate). Wait times for elective ESWL procedures ranged from one day to over one year, with a mean of 8.4 weeks (SD, 16.76 weeks). No centres refused out-of-province patients, although five discouraged travel to their centre owing to their prolonged wait times. No facilities charged extra fees for out-of-province patients. Ten (43%) facilities required a secondary consultation by a urologist at the centre before booking. Twelve (52%) of the centres indicated the waiting time could be shortened if the referring physician were to advocate on the patient's behalf. Contact was

repeated one year later in 2012 with five centres, and the results were similar.

Interpretation: There is marked variation in wait times across Canada for ESWL but there are few barriers to care. Patients' waits may be shortened by physician advocacy.

Résumé

Contexte : La lithotritie à ondes de choc électrohydraulique (LOCE) constitue une modalité de traitement indiquée, ambulatoire et non invasive pour les calculs rénaux. La LOCE n'est pas disponible dans tous les centres urbains et plusieurs Canadiens doivent soit se déplacer, parfois hors de leur province, soit attendre pour recevoir le traitement. Nous avons voulu évaluer la variabilité de l'accès au traitement par LOCE.

Méthode : Nous avons établi la liste complète des centres de LOCE au Canada et nous avons communiqué avec chacun d'eux, en 2011, pour savoir quel était le temps d'attente, les frais pour les patients qui venaient d'une autre province ainsi que le rôle et les responsabilités du médecin orienteur.

Résultats : Nous avons communiqué avec les 23 centres de LOCE au Canada (un taux de réponse de 100 %). Le temps d'attente pour les procédures de LOCE non urgentes variait d'un jour à plus d'un an, la moyenne étant de 8,4 semaines (avec un écart type de 16,76 semaines). Aucun centre ne refusait les patients d'autres provinces, cependant cinq d'entre eux déconseillaient les déplacements vers leurs installations en raison de longs temps d'attente. Aucun centre n'exigeait de frais supplémentaires pour les patients d'autres provinces. Dix installations (43 %) exigeaient une consultation supplémentaire auprès d'un de leurs urologues avant d'accorder un rendez-vous. Douze centres (52 %) ont indiqué que le temps d'attente pouvait être réduit si le médecin orienteur intervenait au nom du patient. Nous avons communiqué de nouveau avec cinq centres un an plus tard, soit en 2012, et les résultats étaient similaires.

Interprétation : Au Canada, il y a une variation marquée dans les temps d'attente pour la LOCE, mais il y a peu d'obstacle pour obtenir les soins. L'intervention des médecins pourrait aider à réduire l'attente des patients.

THE INCIDENCE AND PREVALENCE OF NEPHROLITHIASIS IN CANADIANS ARE HIGH, with a lifetime risk of 10% and a recurrence risk approaching 75% at 20 years (Moe 2006). One of the mainstays of therapy for kidney stones is extracorporeal shock wave lithotripsy (ESWL). Its use is also determined by stone type, location and composition (Auge 2002). ESWL offers definitive treatment that is non-invasive, fast and most often performed as an outpatient procedure (Nabi et al. 2007; Srisubat et al. 2009). Further, ESWL offers high success rates (Nabi et al. 2007) and lower rates of hospital stay, treatment duration and complications, and it is less invasive (Srisubat et al. 2009).

Anecdotal reports describe long waits for ESWL at many centres. Indeed, lithotripsy is widely indicated, and is often the management of choice for both patients and physicians (Karlsen et al. 2007). However, the Canadian Coordinating Office for Health Technology Assessment formally documented only 13 lithotripters in Canada (CCOHTA 2001), associated with long patient waits and travel to gain access. As a result, patients may opt for more invasive surgical treatment (Mahoney 2001). The small number of ESWL treatment facilities – there are now 23 centres – may not have kept pace with Canada's growing and aging population. Moreover, there remains considerable inequality in access to this therapy (Fergusson 2002).

Timely access to care is a major component in reducing morbidity. If patients experience significant barriers in receiving medical treatment, they may suffer a lower quality of life (CSDH 2008). When technological resources are limited, unavailable or substantially delayed, patients may choose more invasive treatments, or suffer pain and anxiety while on a lengthy wait list. We sought to evaluate the variability in access to timely ESWL treatment for Canadians.

Methods

The study population included all publicly funded centres in Canada that own or operate a lithotripter machine, with no exclusions. We did not identify any privately operating machines. As there was no current, comprehensive inventory of all lithotripters in Canada, these centres were preliminarily identified using the CCOHTA 2001 inventory and Internet searches. The Canadian Institute for Health Information reported no freestanding lithotripters at the start of this study (CIHI 2006). These data were confirmed by inquiries at neighbouring centres.

Telephone surveys were conducted between February and May 2011, from two perspectives: one from the perspective of an in-province patient, and another from that of an out-of-province patient. A template was used to guide the interviewer, and to standardize the telephone interviews (Appendix 1 available online at longwoods.com/content/23605). During these conversations, the interviewer asked to speak with a clinic employee who could best answer administrative questions over the phone about the process involved in obtaining ESWL (i.e., consultation, patient selection, procedure and follow-up). All qualitative interview comments were transcribed and categorized into thematic groups for qualitative data analysis, including steps to book a lithotripsy appointment, the need for a second referral to the urologist in consideration, and whether there was any room for advocacy on the part of the referring physician. Generally, provinces cover out-of-province fees for emergency care, but often pre-approval is required for out-of-province elective care. In this study, centres were not questioned further on the procedure for obtaining insurance from the patient's home province prior to receiving treatment out of province, or on the possibility of out-of-pocket payment and subsequent reimbursement. We did not inquire about private access to ESWL.

Quantitative data included the wait time until the patient could receive therapeutic ESWL. Data were standardized by measuring the wait, in weeks, to the time of earliest possible treatment.

Interviews were conducted during business hours. The primary booking agent and/or nursing staff provided responses. We did not disclose our research intent, because this may have reduced our response rate. To avoid inadvertently cueing individual respondents, each hospital was contacted only once or as minimally as necessary to obtain survey responses, with sufficient time between contacts to avoid carry-over effects.

The investigators anticipated this study to be ethical and feasible in a broad capacity. The phone interviews were kept to 10 minutes or less in order to consume only a brief amount of time on the part of lithotripsy staff and reduce the impact of the research on the productivity of lithotripsy clinics. The nature of the survey process, which is crucial to the study's method, did involve mild deception as the research intent was not disclosed; however, it was felt that this would not cause undue harm to the respondent. The interviews were conducted from the perspective of the patient rather than a physician, administrative staff, lawyer or technician, in part to illustrate the patient experience in navigating the healthcare system, and further not to impose any pressure or obligation for the respondent to divulge information that would otherwise be inappropriate to disclose. Ethics approval was obtained from the St. Michael's Hospital Research Ethics Board.

Data were tabulated, and we analyzed numeric data for significant differences among wait times across Canada. The mean, standard deviation, median and interquartile range were evaluated. The midpoints of estimates were counted as responses (e.g., "one to two weeks" was noted as 1.5 weeks). Qualitative data were collected on the process of obtaining lithotripsy out of province, including whether a referral, imaging and a second consult were required, as well as whether there was an opportunity for patient advocacy on the part of the referring physician.

We repeated phone interviews in July 2012 with five (22%) randomly chosen facilities to assess the reproducibility of our results. We did not make any reference to our original conversation when calling for a repeat estimate.

Results

We contacted all 23 publicly funded centres in Canada that perform ESWL (Table 1). No institution was lost to follow-up or declined to answer (100% response rate). In large part, the lithotripsy machinery was located at one health centre. However, in the Maritimes, one single, travelling lithotripter serviced seven different hospitals (Charlottetown, Prince Edward Island; Fredericton, New Brunswick; Mirimichi, New Brunswick; Bathurst, New Brunswick; Edmundston, New Brunswick; and two facilities in Moncton, New Brunswick) on a rotating basis (UMS 2010). These centres were counted individually in this study, as the machine did not spend equal amounts of time at each centre, and their wait times varied.

Looking for Lithotripsy: Accessibility and Portability of Canadian Healthcare

TABLE 1. Quantity and location of lithotripters in Canada, by province

Province/Territory	No. of Lithotripters	Location
British Columbia	3	Vancouver General Hospital (Vancouver), Royal Jubilee Hospital (Victoria), Prince George Regional Hospital (Prince George)
Alberta	2	Misericordia Community Hospital (Edmonton), Rockyview General Hospital (Calgary)
Saskatchewan	1	St. Paul's Hospital (Saskatoon)
Manitoba	1	Health Sciences Centre (Winnipeg)
Ontario	3	St. Michael's Hospital (Toronto), Ottawa Hospital Riverside Campus (Ottawa), St. Joseph's Healthcare (London)
Quebec	3	CHUM – St. Luc Hospital (Montreal), MUHC – Royal Victoria Hospital (Montreal), St. François d'Assise (Quebec City)
Nova Scotia	1	Victoria General Hospital (Halifax)
New Brunswick	Travelling (6)	Dr. Everett Chalmers Hospital (Fredericton), Moncton Hospital (Moncton), Georges Dumont Hospital (Moncton), Miramichi Regional Hospital (Miramichi), Chaleur Regional Hospital (Bathurst), Edmundston Regional Hospital (Edmundston),
New Brunswick	1	St. Joseph's Hospital (St. John)
PEI	Travelling (1)	Queen Elizabeth Hospital (Charlottetown)
Newfoundland & Labrador	1	Health Sciences Centre (St. John's)
Yukon	0	N/A
NWT	0	N/A
Nunavut	0	N/A

The mean wait time for ESWL was 8.4 weeks but varied greatly (SD, 16.76 weeks; range, 0–78 weeks). The median wait time was 5 weeks (interquartile range, 1–12 weeks) (Figure 1).

No lithotripsy centre refused out-of-province patients. The majority (19/23) were willing to accept out-of-province patients readily. Five centres, however, did indicate that it would be inadvisable for patients to seek lithotripsy at their centre, as the wait lists were “far too long” and it would “not be worth the travel.”

There were no supplemental fees imposed on out-of-province patients. However, travel costs, food and accommodation while on medical leave, and any additional services were not compensated by any party.

Twelve (52%) of 23 centres required only a referral from the patient's current urologist or family doctor to book an appointment. Ten (43%) required a secondary consultation by a urologist at the centre before booking. This step often involved repeat diagnostic imaging. One centre (4%) indicated that the referring physician would be expected to contact the urologist and give an explanation for the need to have the patient receive ESWL at their centre given the long wait time (Figure 2).

FIGURE 1. Mean waiting time for lithotripsy in each Canadian province, in weeks, from the date called, to the estimated booking date

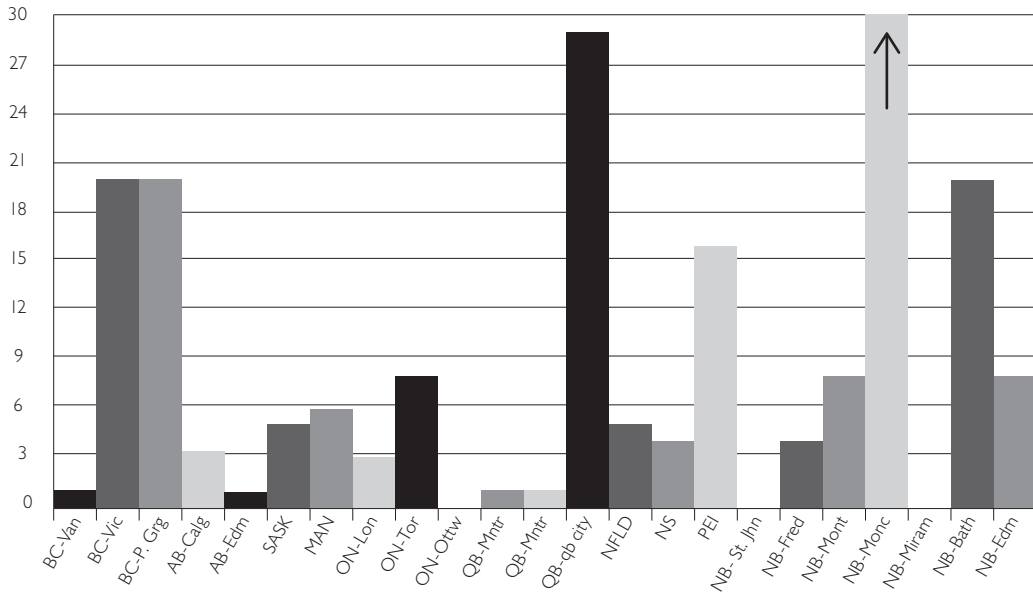
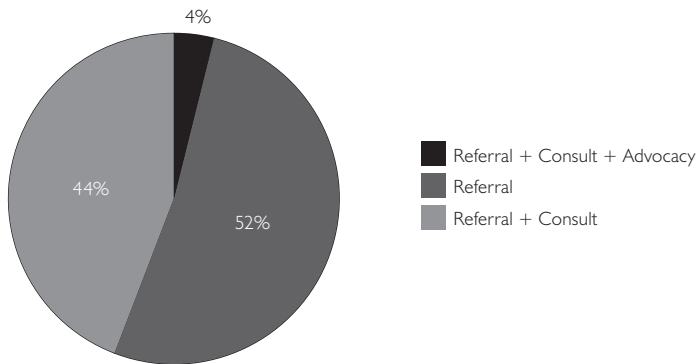


FIGURE 2. Necessary steps in booking a lithotripsy appointment in Canadian centres



All centres were surveyed on whether lithotripsy could be booked at an earlier date. Booking staff were specifically asked if there was anything the referring physician could do to “get the appointment made sooner” than the previously quoted wait time. Eleven (48%) declined on account of their long waits. The other 12 (52%) centres indicated that if the referring physician were to lobby on the patient’s behalf, waits could be shortened.

For the five repeat interviews, one of the repeat estimates was identical to the original. For the remaining four, the mean difference between original and repeat wait time was two weeks (range, 0.5–4 weeks). All of these four centres had longer waits than the original estimate.

Discussion

We believe we identified all 23 facilities in Canada that offer ESWL for kidney stones. Our study found a mean wait time of approximately eight weeks for the procedure, but marked variation in wait times across Canada. We found few other notable barriers to care. With respect to the steps to secure an out-of-province ESWL appointment, in many cases, patients' waits could be shortened by advocacy on the part of the referring physician. Each centre's wait time was measured from the time of approval that the patient was a suitable candidate for ESWL by the centre's urologist to the time of treatment, not from the time of referral from the home-province physician. The display in variation in the steps to securing the first appointment identifies a possible mechanism for delay that may be unknown to the patient and referring physician.

Our study is unique because we solicited wait times for ESWL from a patient perspective. Our simple telephone interviews helped us to achieve a 100% response rate. Further, we reduced potential bias by not disclosing our research intent, because this may have reduced our response rate or modified our estimates. The estimates are accurate as evidenced by our repeat subsequent survey. As well, there has been little empiric study of wait times for ESWL in Canada or elsewhere.

Lithotripsy is a medically indicated technology that can both enhance the quality of patients' lives while saving considerable costs when compared to more invasive methods (Ruble 1989). The results of this study, however, illustrate long wait times in Canada, particularly in the Maritime provinces compared to Western and Central Canada. This cross-Canada trend is in keeping with other observed waits for specialists (Barua et al. 2011). Further, an asymmetrical distribution in wait times for ESWL exists within the provinces themselves. For example, in Ontario, patients in Ottawa may be booked for ESWL within days, while those in Toronto might wait as long as eight weeks. By international comparison, Australian urological data show similar regional variation in wait times, although not as marked as in our findings (AIHW 2010). Thus, variation in access for Canadians with kidney stones exists at the inter- and intraprovincial levels. These patients may ultimately resort to more invasive surgical procedures when they are not informed that a centre nearby may have shorter waits. Indeed, at least 10% of Canadians who wait for elective surgery are significantly affected by worry, anxiety, stress and pain (Sanmartin et al. 2004).

Our findings bring ESWL wait times in Canada to light. Despite many recent improvements, patients have little access – online or otherwise – to this information, despite well-publicized provincial campaigns such as the Ontario Wait Time Strategy (MOHLTC 2011) and the federal Health Services Access Survey (Sanmartin et al. 2004). These programs have made progress on this front and host a website for the Ontario Wait Time Strategy, allowing patients to search for the wait times of various procedures. However, this tool does not differentiate between the various treatment modalities for kidney stones, nor is it specific for surgeon or centre. Similarly, Australia's National Partnership Agreement on the Elective Surgery Waiting List Reduction Plan tells patients little about the wait times for individual

urological procedures (SCRGSP 2011). Currently, Ontario, Alberta, British Columbia and Saskatchewan report the greatest amount of wait-time information, including and beyond the five priority areas of the Canadian Wait Time Alliance (diagnostic imaging, joint replacement, cancer care, sight restoration and cardiac care) (WTA 2011). But even these improvements are not unanimously reported across the country, and access to this information for Canadians is variable at best (CIHI 2006). There is great variability in information-sharing across the country and within provinces.

Canadian wait times and access to other high-demand procedures and technologies are equally varied across the country and in comparison to other countries (Esmail and Walker 2008). A nationwide survey of MRI facilities in 2007 demonstrated that the wait times were highly variable from province to province, and that 22% of centres imposed barriers for out-of-province patients to access care (Revah and Bell 2007).

The Organisation for Economic Co-operation and Development has generated the most comprehensive study of lithotripsy availability, among other medical technologies. Reports from 2002 and 2008 placed Canada second last in lithotripters per million population and near the bottom in absolute numbers of machines (Esmail and Walker 2008; Harriman et al. 1999; OECD 2011). Still, the OECD's most contemporary reports do not include centre-specific wait-time data. Further, not only is Canada's lithotripsy care in short supply, but at the start of 2007 nearly 34% of Canada's 19 lithotripters were more than 10 years old, with the oldest at 26 years (CIHI 2008; Esmail 2008). Further, the Canadian Association of Radiologists regards lithotripsy equipment as outdated after seven years of life, dating Canada's equipment even further compared to countries like Japan (CAR 2000; Otsubo et al. 2011).

Limitations and strengths

Our study has some limitations. First, there may be temporal fluctuations in wait times based on seasonal variation and vacation times. However, the study was conducted within a short and finite amount of time, which reduced variability. Moreover, a sample of the estimates was similar to those obtained at a later date. Second, it is conceivable that the interviewees were reluctant to provide answers, given that the researchers were not introduced as physicians but as patients, and it is not customary for some facilities to disclose this information directly to a patient. However, this approach allowed us to assess accessibility to lithotripsy from a patient's perspective. Further, the findings illustrate both the variability in wait times as well as the transparency of this information for patients navigating the system. By surveying lithotripsy centres in this fashion, we also illustrate the degree of information available to patients who are willing and able to travel for earlier treatment.

Our study has important relevance to clinicians and policy makers. First, it is encouraging that the barriers to care in other provinces are minor. Although access is guaranteed in the *Canada Health Act*, other studies have documented significant barriers to intraprovincial care in Canada (Revah and Bell 2007). As well, the qualitative results of our research demonstrate

an opportunity for referring clinicians to advocate on behalf of their patients to shorten waits and for patients (and clinicians) to shop around for shorter waits.

Second, our findings suggest that provincial funding to evidence-based, non-invasive procedures like ESWL should be re-evaluated. This was not our a priori objective, but it did become clear through this study's surveys that some lithotripters across Canada are not running at full capacity, and that this is largely due to a provincial government cap on how frequently hospitals may bill for the use of a lithotripter. Stringent hospital budgets, which preclude around-the-clock machine staffing, have led to underutilized capital equipment. Indeed, substantial cost savings could materialize by offering lithotripsy to just 250 patients per year versus more invasive procedures (Mahoney 2001).

Interestingly, a retrospective evaluation of Ontario's Wait Time Strategy by the Institute for Clinical Evaluative Sciences (ICES) showed that while targeting and improving wait times for key therapies showed moderate success, the wait times of other elective surgeries were also not negatively affected (Paterson et al. 2007). Further, the Cardiac Care Network of Ontario – a provincewide registry that identifies regional disparities in access to cardiac care – has since 2005 decreased wait times for cardiac bypass and catheterization by up to 32%, by coordinating provincewide care and making it easier for patients who face longer waits to get care outside their local region (CIHI 2006). The federal and provincial governments must consider supporting patients who are willing to travel to other provinces for timely healthcare.

Third, it is notable that the data collected in this study were challenging to obtain from ESWL facilities and healthcare organizations. Without easily accessible wait-time information, patients lack the opportunity to decide whether they can travel for more timely treatment. Only a patchwork of information is available to Canadians regarding wait times. In fact, the vast majority of citizens and physicians would value "an interprovincial fund that would pay for patients to be sent to different Canadian jurisdictions for care when the wait in their home jurisdiction exceeds the benchmark for their procedure" (Sylvain 2006), and at least 20% of the population reports a willingness to travel for expedited waits (Geddes 2005). Coordinating care across and between provinces may help decrease wait times.

Conclusion

The process of shortening wait times is unavailing until it is publicly reported and on the political agenda. From a national perspective, the five priority areas of Canada's Wait Time Alliance must be expanded to include highly indicated, morbidity-reducing procedures for which there are often long waits, like ESWL. Within publicly funded healthcare systems, where wait times for elective surgery are a matter of morbidity, patients need access to this information so that they may make informed decisions about their healthcare.

Correspondence may be directed to: Chaim M. Bell, MD, PhD, Mount Sinai Hospital, 600 University Ave., Ste. 433, Toronto, ON M5G 1X5; tel.: 416-586-4800, ext. 2583; e-mail: cbell@mtsinai.on.ca.

References

- Auge, B.K. 2002. "Surgical Management of Urolithiasis." *Endocrinology and Metabolism Clinics of North America* 31: 1065–82.
- Australian Institute of Health and Welfare (AIHW). 2010. "Australian Hospital Statistics 2008–2009 at a Glance." Health Service Series no. 37. Cat. no. HSE 89. Canberra: Author.
- Barua, B., M. Rovere and B.J. Skinner. 2011. "Waiting Your Turn: Wait Times for Health Care in Canada." *Studies in Health Policy*. Vancouver: Fraser Institute.
- Canadian Association of Radiologists (CAR). 2000. "Outdated Radiology Equipment: A Diagnostic Crisis." Special ministerial briefing. St-Laurent, QC: Author.
- Canadian Coordinating Office for Health Technology Assessment (CCOHTA). 2001. "Lithotriper Machines in Canadian Hospitals." Ottawa: Canadian Agency for Drugs and Technologies in Health. Retrieved October 1, 2013. <http://www.cadth.ca/media/pdf/litho_report_01.pdf>.
- Canadian Institute for Health Information (CIHI). 2006. "Waiting for Health Care in Canada: What We Know and What We Don't Know." Retrieved October 1, 2013. <<https://secure.cihi.ca/estore/productSeries.htm?pc=PCC311>>.
- Canadian Institute for Health Information (CIHI). 2008. *Medical Imaging in Canada, 2007*. Retrieved October 1, 2013. <https://secure.cihi.ca/free_products/MIT_2007_e.pdf>.
- Commission on Social Determinants of Health (CSDH). 2008. *Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health. Final Report*. Geneva: World Health Organization. Retrieved October 1, 2013. <http://www.who.int/social_determinants/thecommission/finalreport/en/index.html>.
- Esmail, N. 2008. "How Good Is Canada's Medical Technology Inventory?" *Fraser Alert*. Vancouver: Fraser Institute. Retrieved October 1, 2013. <<http://www.fraserinstitute.org/research-news/display.aspx?id=13098>>.
- Esmail, N., and M. Walker. 2008. *How Good Is Canadian Health Care?* Vancouver: Fraser Institute. Retrieved October 1, 2013. <<http://www.fraserinstitute.org/research-news/display.aspx?id=13104>>.
- Fergusson, K. 2002. "Medical High Tech Inventory Increased 45% Since 1997." Ottawa: Canadian Agency for Drugs and Technologies in Health. Retrieved October 1, 2013. <<http://www.cadth.ca/en/media-centre/2002/medical-high-tech-inventory-increased-45-since-1997>>.
- Geddes, J. 2005. "Bypassing Your Doctor: Can the Web Fix the Wait-Time Crisis, and Ultimately Even Save Medicare?" *Maclean's*. Retrieved October 1, 2013. <http://www.macleans.ca/science/health/article.jsp?content=20051017_113453_113453>.
- Harriman, D., W. McArthur, M. Zelder and J. Alexander. 1999. *The Availability of Medical Technology in Canada: An International Comparative Study*. Vancouver: Fraser Institute. Retrieved October 1, 2013. <<http://www.fraserinstitute.org/research-news/research/display.aspx?id=13484>>.
- Karlsen, S.J., J. Renkel, A.R. Tahir and A. Angelsen. 2007. "Extracorporeal Shockwave Lithotripsy versus Ureteroscopy for 5- to 10-mm Stones in the Proximal Ureter. Prospective Effectiveness Patient-Preference Trial." *Journal of Endourology* 21(1): 28–33. doi: 10.1089/end.2006.0153.
- Mahoney, J.E. 2001. "Lithotripsy Comes to Ottawa... at Last." Letter. *Canadian Medical Association Journal* 164(13). Retrieved October 1, 2013. <<http://www.cmaj.ca/cgi/content/full/164/13/1833>>.
- Ministry of Health and Long-Term Care (MOHLTC). 2011. "Ontario Wait Time Strategy." Retrieved October 1, 2013. <<http://www.health.gov.on.ca/en/public/programs/waittimes/>>.
- Moe, O.W. 2006. "Kidney Stones: Pathophysiology and Medical Management." *Lancet* 367(9507): 333–44.
- Nabi, G., P. Downey, F. Keeley, G. Watson and S. McClinton. 2007. "Extra-Corporeal Shock Wave Lithotripsy (ESWL) versus Ureteroscopic Management for Ureteri Calculi." *Cochrane Database of Systematic Reviews* 1. Art. no.: CD006029. doi: 10.1002/14651858.CD006029.pub2.
- Organisation for Economic Co-operation and Development (OECD). 2011. "Health Care Resources: Medical Technology." Retrieved October 1, 2013. <http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT>.

Looking for Lithotripsy: Accessibility and Portability of Canadian Healthcare

- Otsubo, T., Y. Imanaka, J. Lee and K. Hayashida. 2011. "Evaluation of Resource Allocation and Supply–Demand Balance in Clinical Practice with High-Cost Technologies." *Journal of Evaluation in Clinical Practice* 17(6): 1114–21. doi: 10.1111/j.1365-2753.2010.01484x.
- Paterson, J.M., J.E. Hux, J.V. Tu and A. Laupacis. 2007. *The Ontario Wait Time Strategy: No Evidence of an Adverse Impact on Other Surgeries*. Investigative report. Toronto: Institute for Clinical Evaluative Sciences. Retrieved October 1, 2013. <http://www.ices.on.ca/webpage.cfm?site_id=1&org_id=31&morg_id=0&gsec_id=0&item_id=4185>.
- Revah, G. and C. Bell. 2007. "Shopping for High Technology Treatment in Another Province." *Healthcare Policy* 2(4): 49–55.
- Ruble, D.A. 1989. "Medical Technology in Canada, Germany and the United States." *Health Affairs* 8(3): 178–81. doi: 10.1377/hlthaff.8.3.178.
- Sanmartin, C., F. Gendron, J.-M. Berthelot and K. Murphy. 2004. "Access to Health Care Services in Canada, 2003." Ottawa: Statistics Canada. Retrieved October 1, 2013. <<http://publications.gc.ca/Collection/Statcan/82-575-X/82-575-XIE2003001.pdf>>.
- Srisubat, A., S. Potisat, B. Lojanapiwat, V. Setthawong and M. Laopaiboon. 2009. "Extracorporeal Shock Wave Lithotripsy (ESWL) versus Percutaneous Nephrolithotomy (PCNL) or Retrograde Intrarenal Surgery (RIRS) for Kidney Stones." *Cochrane Database of Systematic Reviews* 4. Art. no.: CD007044. doi: 10.1002/14651858.CD007044.pub2.
- Steering Committee for the Review of Government Service Provision (SCRGSP). 2011. *National Partnership Agreement on the Elective Surgery Waiting List Reduction Plan: Period 3 Performance Report*. Canberra: Australian Government Productivity Commission. Retrieved October 1, 2013. <<http://www.pc.gov.au/gsp/national-partnership/elective-surgery>>.
- Sylvain, M. 2006 (August 22). "MDs Want Wait-Time Talk Translated into Action: Survey." *Medical Post*.
- United Medical Systems (UMS). 2010. "Advanced Mobile Lithotripsy Services." Retrieved October 1, 2013. <<http://www.ums-usa.com/uroLitho.html>>.
- Wait Time Alliance (WTA). 2011. "Time Out! Report Card on Wait Times in Canada June 2011." *Wait Time Alliance Report Card*. Retrieved October 1, 2013. <http://www.waittimealliance.ca/media/2011reportcard/WTA2011-reportcard_e.pdf>.

Longwoods Publishing gratefully acknowledges the financial support
of the following organizations:



Canadian Foundation for
**Healthcare
Improvement**



Fondation canadienne pour
**l'amélioration des
services de santé**



Canadian Association for Health Services
and Policy Research
l'Association canadienne pour la recherche
sur les services et les politiques de la santé

Policy is always in the making. This journal is designed to serve readers from diverse backgrounds including health system managers, practitioners, politicians and their administrators, educators and academics. Our authors come from a broad range of disciplines including social sciences, humanities, ethics, law, management sciences and knowledge translation. They want good policy – a foundation for best practices.

www.healthcarepolicy.net