

Is Patient-Centred Care Associated with Lower Diagnostic Costs?

Les soins axés sur les patients sont-ils associés à des
coûts de diagnostic moins élevés?



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Abstract

A recent report of the Health Council of Canada implies that patient-centred care is related to higher costs. This paper draws the opposite conclusion. A study of 311 family practice patients revealed that the costs for diagnostic tests decreased over four quartiles of patient-centred scores; the more patient-centred the visit, the less the cost for diagnostic testing in the two-month follow-up period. Projecting to the Canadian population, if all family physicians were patient-centred at the level of the highest quartile, one-third of these diagnostic costs would be saved. The paper makes four recommendations and concludes that patient-centred care has a role to play in delivering not only effective but also efficient healthcare services.

Résumé

Un rapport récent du Conseil canadien de la santé laisse entendre que les soins axés sur les patients sont liés à des coûts plus élevés. Le présent article tire des conclusions contraires. Une étude portant sur 311 patients en cliniques familiales indique que les coûts pour les tests de diagnostic ont diminué pour quatre quartiles des résultats; plus la consultation est axée sur le patient, moins les coûts pour les tests de diagnostic sont élevés pendant les deux mois suivants. En extrapolant ces chiffres à la population du Canada, on observe que si la pratique de tous les médecins de famille était axée sur les patients au niveau du plus haut quartile, un tiers des coûts de diagnostic seraient épargnés. L'article formule quatre recommandations et conclut que les soins axés sur les patients jouent un rôle dans la prestation de services de santé non seulement efficaces mais aussi efficaces.

A RECENT REPORT OF THE HEALTH COUNCIL OF CANADA (2010) CONCLUDES THAT family physicians' decision-making about diagnostic tests is complex. One of several drivers of decisions that the report identifies is patient-centred care, which the authors imply is related to higher costs. Our work, represented in this short paper, draws the opposite conclusion.

Patient-centred care is a high priority in Canada's healthcare system (CHSRF 2008; MOHLTC 2009). There is considerable Canadian and international evidence that patient-centred care has positive benefits for patient satisfaction (Krupat et al. 2000; Fossum and Arborelius 2004; Stewart et al. 1999), patient adherence (Stewart et al. 1999; Golin et al. 1996), patient health outcomes such as reduction of concern (Stewart et al. 2000), better self-reported health (Stewart et al. 2000, 2007) and improved physiological status (e.g., BP and HbA_{1c}) (Krupat et al. 2000; Stewart et al. 1999; Golin et al. 1996; Kaplan et al. 1989; Greenfield et al. 1988; Griffin et al. 2004; Rao et al. 2007). However, there are no comparable Canadian data to support the hypothesis that patient-centred care saves money, whereas there are US data (Epstein et al. 2005).

The Patient-Centred Outcomes Study (Stewart et al. 2000) found that patient-centred care was associated with not only improved health outcomes but also fewer diagnostic tests. This finding implied a potential for cost savings. The present-day context that both prioritizes patient-centred care and clearly requires cost constraint led us to re-analyze the Patient-Centred Outcomes Study data. We rigorously costed the medical resources associated with diagnostic tests used by the participating family physicians and patients.

There were 311 patients from the Patient-Centred Outcomes Study included in this costing analysis. The perspective for the costing was that of the provincial government's health costs. Other societal costs were not calculated. Costs of diagnostic investigations were determined for each person. First, the quantities of diagnostic tests were obtained from a chart review. The quantities were restricted to those diagnostic tests that were related to an index

visit (and the associated main reason for that visit) and which occurred from the date of the index visit to two months after the index visit. Second, the price per unit of each diagnostic test was determined using Ontario Health Insurance Plan (OHIP) costing schedules from the Ministry of Health and Long-Term Care. Third, diagnostic costs were determined by multiplying the quantities by the prices per unit. We used the Patient Perception of Patient-Centredness (PPPC) questionnaire (Stewart et al. 2004) of 14 items on the extent to which the physician attended to the patient's illness experience, attended to the context of the patient and found common ground with the patient concerning problem definition and treatment/management. The analysis categorized the patient-centred scores into quartiles and determined the mean costs for each quartile.

Table 1 provides the mean diagnostic costs by the four quartiles of patient-centred care scores over the two-month follow-up period of the study. While the mean diagnostic costs for the first three quartiles were fairly similar, those for the fourth quartile were much higher, suggesting a threshold below which costs are implicated. Two possible explanations come to mind: (1) a potential statistical reason is that the fourth quartile consists of visits with a wider range of scores than the other quartiles, including some very low scores on patient-centredness, and (2) a potential clinical communication reason is that perhaps both patients and family physicians lost confidence; thus, the patient assigned low scores on the patient-centred questionnaire and the physician ordered many high-cost tests in the hope of clarifying some confusion or conflict. It should be noted that these results did not allow determination of the appropriateness of the tests ordered.

The costs in Table 1 were then projected onto the current Canadian and Ontario populations (Statistics Canada 2010) to provide a sense of the magnitude of potential cost savings as a result of patient-centred care. One-fifth of the population visits a family physician each month (Green et al. 2001). One-third of these present new symptoms for which a diagnostic test may be ordered (Stewart and Maddocks 2010). Dividing the resulting 1/15th of the population into four quartiles and calculating the diagnostic costs based on Table 1, we found that in a month \$14 million would be spent in Ontario and \$38 million in Canada. However, if all family physicians were patient-centred at the level of the highest quartile, potentially one-third of these costs would be saved.

The costing for this study was conducted on data from an older study, limiting our ability to draw direct comparisons to the current primary healthcare context. However, it is likely that the distribution of patient-centred scores is similar today to those found in the original; for example, a recent study using the same measure found comparable mean scores (Clayton et al. 2008). Whether family physicians' actual ordering behaviour for particular diagnostic tests might be different today than it was during the original study is more difficult to determine. However, we do know that in Canada, there was an increase between 1993/94 and 2003/04 in the number of CT tests performed (300%) and the number of MRI tests performed (600%) (You et al. 2007). This finding suggests that the potential diagnostic cost savings today may be even greater than in the earlier study.

TABLE 1. Mean diagnostic costs during the subsequent 2 months following the family physician index visit, by quartiles of patient-centred scores (n=311)*

Quartile of patient-centred score	Mean diagnostic cost
First quartile (high patient-centred scores)	\$11.46
Second quartile	\$13.07
Third quartile	\$14.04
Fourth quartile (low patient-centred scores)	\$29.48

* The table reveals the clinical significance of this finding. The statistical significance ($p=0.004$) was assessed using a multiple regression of the dependent continuous outcome of diagnostic cost with patient-centred scores as the continuous independent variable, controlling for the variables found significant in the bivariate analysis (patient's main presenting problem and marital status).

Other Canadian research has demonstrated that it is possible to provide better primary care that is associated with lower costs (Hollander et al. 2009). Our intention in reporting these results is to encourage further dialogue and future research on the association between patient-centred primary care and costs in today's healthcare context.

These results lead to several modest recommendations. First, future studies could evaluate the costs as one of the potential benefits of a patient-centred approach. Second, the College of Family Physicians of Canada could strengthen its emphasis on the education and evaluation of patient-centred care given that training for patient-centred care has been shown to be effective (Stewart et al. 2007). Third, one could study whether incentives given to family physicians could improve their patient-centred care. Fourth, patients in primary care could be surveyed to assess their perceptions of patient-centred care to provide feedback to family physicians (Reinders et al. 2010). These four recommendations imply future directions for research, education, policy and practice in improving patient-centred care. Patient-centred care has a role to play in delivering not only effective but also efficient healthcare services.

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REFERENCES

Canadian Health Services Research Foundation (CHSRF) (on behalf of partners). 2008. *Listening for Direction III: National Consultation on Health Services and Policy Issues 2007–2010*. Ottawa: Author.

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- Clayton, M.F., W.N. Dudley and A. Musters. 2008. "Communication with Breast Cancer Survivors." *Health Communication* 23: 207–21.
- Epstein, R.M., P. Franks, C.G. Shields, S.C. Meldrum, K.N. Miller, T.L. Campbell et al. 2005. "Patient-Centered Communication and Diagnostic Testing." *Annals of Family Medicine* 3: 415–21.
- Fossum, B. and E. Arborelius. 2004. "Patient-Centred Communication: Videotaped Consultations." *Patient Education and Counseling* 54: 163–69.
- Golin, C.E., M.R. DiMatteo and L. Gelberg. 1996. "The Role of Patient Participation in the Doctor Visit. Implications for Adherence to Diabetes Care." *Diabetes Care* 19: 1153–64.
- Green, L.A., G.E. Fryer Jr., B.P. Yawn, D. Lanier and S.M. Dovey. 2001. "The Ecology of Medical Care Revisited." *New England Journal of Medicine* 344: 2021–25.
- Greenfield, S., S.H. Kaplan, J.E. Ware Jr., E.M. Yano and H.J. Frank. 1988. "Patients' Participation in Medical Care: Effects on Blood Sugar Control and Quality of Life in Diabetes." *Journal of General Internal Medicine* 3: 448–57.
- Griffin, S.J., A.L. Kinmonth, M.W. Veltman, S. Gillard, J. Grant and M. Stewart. 2004. "Effect on Health-Related Outcomes of Interventions to Alter the Interaction between Patients and Practitioners: A Systematic Review of Trials." *Annals of Family Medicine* 2: 595–608.
- Health Council of Canada. 2010. *Decisions, Decisions: Family Doctors as Gatekeepers to Prescription Drugs and Diagnostic Imaging in Canada*. Toronto: Author. Retrieved April 1, 2011. <http://healthcouncilcanada.ca/en/index.php?page=shop.product_details&flypage=shop.flypage&product_id=116&category_id=16&manufacturer_id=0&option=com_virtuemart&Itemid=170>.
- Hollander, M.J., H. Kadlec, R. Hamdi and A. Tessaro. 2009. "Increasing Value for Money in the Canadian Healthcare System: New Findings on the Contribution of Primary Care Services." *Healthcare Quarterly* 12: 32–44.
- Kaplan, S.H., S. Greenfield and J.E. Ware Jr. 1989. "Assessing the Effects of Physician–Patient Interactions on the Outcomes of Chronic Disease." *Medical Care* 27: S110–S127.
- Krupat, E., S.L. Rosenkranz, C.M. Yeager, K. Barnard, S.M. Putnam and T.S. Inui. 2000. "The Practice Orientations of Physicians and Patients: The Effect of Doctor–Patient Congruence on Satisfaction." *Patient Education and Counseling* 39: 49–59.
- Ministry of Health and Long-Term Care (MOHLTC). 2009. *Externally Informed Annual Health Systems Trends Report* (2nd ed.). Toronto: MOHLTC Health Systems Planning and Research Branch.
- Rao, J.K., L.A. Anderson, T.S. Inui and R.M. Frankel. 2007. "Communication Interventions Make a Difference in Conversations between Physicians and Patients: A Systematic Review of the Evidence." *Medical Care* 45: 340–49.
- Reinders, M.E., A.H. Blankenstein, H.E. van der Horst, D.L. Knol, P.L. Schoonheim and H.W. Van Marwijk. 2010. "Does Patient Feedback Improve the Consultation Skills of General Practice Trainees? A Controlled Trial." *Medical Education* 44: 156–64.
- Statistics Canada. 2010 (June 28). *The Daily: Canada's Population Estimates*. Retrieved April 1, 2011. <<http://www.statcan.gc.ca/daily-quotidien/100628/dq100628a-eng.htm>>.
- Stewart, M., J.B. Brown, H. Boon, J. Galajda, L. Meredith and M. Sangster. 1999. "Evidence on Patient–Doctor Communication." *Cancer Prevention and Control* 3: 25–30.
- Stewart, M., J.B. Brown, A. Donner, I.R. McWhinney, J. Oates, W. Weston et al. 2000. "The Impact of Patient-Centered Care on Outcomes." *Journal of Family Practice* 49: 796–804.
- Stewart, M., L. Meredith, B.L. Ryan and J.B. Brown. 2004. The Patient Perception of Patient-centredness Questionnaire (PPPC). Centre for Studies in Family Medicine. [Working Paper #04-1]. London, Ontario, Canada, The University of Western Ontario.
- Stewart, M., J.R. Brown, J. Hammerton, A. Donner, A. Gavin, R.L. Holliday et al. 2007. "Improving Communication between Doctors and Breast Cancer Patients." *Annals of Family Medicine* 5: 387–94.
- Stewart, M. and H. Maddocks. 2010. "Making the Case for Research on Symptoms in Family Practice." Manuscript in preparation.
- You, J.J., D.A. Alter, K. Iron, P.M. Slaughter, A. Kopp, R. Przybysz et al. 2007. *Diagnostic Services in Ontario: Descriptive Analysis and Jurisdictional Review*. Toronto: Institute for Clinical Evaluative Sciences.