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Coordination of Primary Health Care for Back Pain

A Randomized Controlled Trial

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Study Design. A randomized controlled trial comparing usual care with a program for the coordination of primary health care (CORE) for the treatment of subacute low-back pain patients.

Objectives. To measure the effectiveness of the CORE program as a mean for implementing clinical practice guidelines for low-back pain in an urban community.

Summary of Background Data. Clinical practice guidelines have been developed for primary care physicians and patients on the clinical management of low-back pain. The implementation of the guidelines in a large community is difficult with the multiplicity of medical and nonmedical back care providers and products. The CORE program was designed to make the guidelines fit in this complex environment.

Methods. One hundred ten workers compensated for low-back pain for 4 to 8 weeks in metropolitan Montreal were randomized in two groups: usual care (N=56) and the CORE program (N=54). Coordination of primary health care was performed by two primary care physicians and a nurse in liaison with the treating physicians, and included a complete examination, recommendations for the clinical management, and support to carry out the recommendations. All workers were followed for 6 months. Back pain and functional status were assessed at baseline, 3 months, and 6 months.

Results. In the 6-month follow-up, the CORE group returned to work 6.6 days (standard error = 8.9) quicker than the control group, a difference that was not statistically significant. However, the CORE group showed a sustained improvement in pain and functional status with two-fold differences at the end of the 6 months of follow-up. This represented nine points on the Oswestry scale (P=0.02) and 12 points on the Quebec Back Pain Disability Scale (P=0.01). The CORE group also used three times less specialized imaging tests of the spine at 3 months (P<0.01) and exercised twice as much at 6 months (P<0.05) than the controls.

Conclusions. The therapeutic results for workers with low-back pain could be improved by implementing the clinical practice guidelines with primary care physicians in a large community, without delaying the return to work. The CORE intervention for back pain patients is highly relevant to primary care practice. It is simple in its application, flexible to accommodate physicians' and patients' preferences in health care, and it is effective on patients' clinical outcome. [Key words: back pain, epidemiology, randomized trial, health care] **Spine 2000;25: 251–259**

Low-back pain is cited to be the second leading reason for consultation in primary care in the U.S.[18] Since 1987, clinical guidelines have been published for the management of low-back pain.[4,34,36] Successive updates of the guidelines have led to similar conclusions as to avoid burdening back pain care with unnecessary tests, consultations, and diagnostic language and to encourage gradual return to activities.

There is nothing in the guidelines on how to convince patients that their condition does not require specialized care and that they should resume their activities. The recommendations end in a loop that says "continue to encourage daily exercise."[4] Beyond that, the British version of the guidelines has emphasized the importance of referral to a specialist or to specialized rehabilitation services when the functional status is not improving (failed primary care management).[36] Yet the specific role of referring patients in this context remains vague and succeeds better at highlighting the limitations of primary care in the management of low-back pain than providing practical tools to enable physicians.[31] The New Zealand adaptation of the clinical guidelines has gone further in recommending that primary care physicians ask themselves if they feel competent to pursue the management of a case that has not resolved within the first 4 weeks of treatment, and if not to refer their patient to a suitable clinician.[2]

Compared to other health problems seen in primary care, back pain poses a special challenge to physicians given that, according to the guidelines, we should not recourse to laboratory or imaging tests or use medical language that we should focus on functional recovery, whereas patients are primarily preoccupied with their pain, and we should give up our role as a health care provider if patients don't improve passed a certain point in time. Although this can be stated in a much more positive language,[11] current clinical guidelines have helped to summarize the scientific evidence and guiding research, but have done poorly in providing tools and guiding physicians in primary care.

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The results of intervention studies aimed at applying those principles have been encouraging in terms of functional recovery.[22,25,27] The main limitation with these studies has been that they are probably difficult to reproduce elsewhere, due to the specificity of the settings where they were performed (clinical, legal, and social) and to the poor description of the intervention itself.

Coordination of health care as a means to operationalize the clinical guidelines has shown disappointing results.[16,17,38] Nevertheless, we were motivated in pursuing this idea with empirical evidence that primary care practitioners in Montreal perceived positively the intervention of a peer in helping to apply clinical guidelines with their patients, while remaining the treating physician. Also previous research had shown us that primary care can be improved by simplifying rather than adding to health care.[1]

In the scope of implementing clinical guideline principles for low back pain, the objective of this study was to evaluate the effectiveness of a program for coordination of primary health care (CORE) in a large urban community.

Methods

Selection of Subjects. The study population was recruited at the Montreal Regional Office of the Quebec (Canada) Workers' Compensation Board (QWCB). The regional office takes care of all work-related injury claims for the population residing on the Island of Montreal (815,000 actively employed). The coverage of the QWCB has been estimated at 84% of the workforce in Quebec.[32] For inclusion, workers had to be compensated for any work-related injury to the thoracic, lumbar, and/or sacral portions of the vertebral column, with an absence from work of no less than 4 weeks and no more than 8 weeks from the date of filing a claim. Excluded were workers with a history of compensation for the back in the previous 12 months or a previous history of spinal surgery at any time in the past, with multiple injuries involving other sites than the mid and lower spine, workers with claims labelled as a recurrence by the QWCB or in litigation at the time of recruitment, pregnant women, and workers who could not communicate in French or in English.

All consecutive cases eligible for inclusion between June 1995 and December 1996 in the QWCB Montreal office computer system, were invited to participate in the study by letter and by telephone 1 week later. Inclusion and exclusion criteria were explained in the letter. If eligible and willing to participate, appointments were given at the Public Health Occupational Clinic for consent, baseline information collection, and randomization to either the CORE program or to usual care with their physician. At the time appointments were given by telephone, a letter and pamphlet were sent to the treating physician informing them about the study and allowing them not to include their patient in the study before they came to their first appointment. This situation occurred one time. Patients randomized to the control group were instructed to continue with their treating physician and to fill out the 3-month and the 6-month questionnaires.

Evaluation Questionnaire. The initial questionnaire was filled out by all participants in the study after they provided a signed informed consent but before randomization, so that the baseline assessment remained blind from the group allocation. The same questionnaire was sent by mail 3 months and 6 months later and returned by mail. It included a complete medical and back pain history, a 10 cm visual analog scale (VAS) for pain,[29] three different functional scales and two subscales adapted for low-back pain, a description of health care services consumed and a satisfaction questionnaire. The functional scales included the Oswestry Questionnaire,[14] the Quebec Back Pain Disability Scale (QBPDS),[23] and the Dallas Pain Questionnaire.[24] The first subscale was on perceived capacity to return to work, which was an appendix to the QBPDS questionnaire (QBPDS-Work) and the second subscale was on psycho-social life, which was the second part of the Dallas questionnaire (Dallas-Psychosocial). The French version of those questionnaires was taken from Loisel et al,[26] who used a translation-back-translation procedure. The questionnaire on health care consumption included visits to back care professionals, imaging techniques, medication, physical treatments, bedrest, and exercises. The back care satisfaction questionnaire consisted of 13 questions on a five-point scale (strongly agree to strongly disagree) relating to the fulfilment of their expectations *vis-a-vis* their diagnosis, treatments, and relation with the professionals who took care of them and the QWCB agents. Examples of satisfaction questions were "I understood my back problem from the explanations I received" and "The tests and treatments I received agreed with my expectations."

The Experimental Intervention. Randomization was performed using a set of consecutively numbered sealed envelopes containing the treatment code that had been generated randomly by computer. Workers randomized to the CORE group were seen immediately after randomization by the nurse and one of the two physicians involved in the CORE program, to receive a clinical evaluation including a pain diagram, the Fear-Avoidance Beliefs Questionnaire,[37] and a standardized physical examination of the lumbar spine based on a video document.[9] A copy of the baseline evaluation questionnaire completed the information for the CORE physician to make the diagnosis which included three aspects: medical, psychosocial, and occupational. From this diagnosis, a plan of action was established with the worker in accordance to the clinical guideline for the management of back pain.[4,34,36] Conclusions and recommendations were explained to the worker and a summary was sent to the treating physician. The CORE physician did not see the worker again unless he/she requested it, but under no circumstance did he substitute himself for the treating physician . The physician/nurse CORE team assisted treating physicians in finding and scheduling diagnostic and therapeutic procedures as appropriate and helped coordinate health care and rehabilitation needs between the worker and the QWCB Regional Office. The remainder of the intervention was performed by the coordinating nurse who contacted each worker weekly by telephone until he/she returned to work, to talk about back pain, functional recovery, diagnostic procedures, medical and nonmedical therapy, relations with the QWCB claim agent, and personal/family problems. The approach of the nurse was standardized, but the weekly interview followed the questions and problems presented by each worker. She took every opportunity to explain and reinforce the concept of returning to normal activity as a therapeutic goal. She met with the CORE physicians weekly to discuss each active case. Even though workplace recommendations were made on occasion,

there was no direct contact with employers. Those recommendations were channelled through the QWCB claim agents. The CORE intervention had been pretested for its feasibility and appropriateness with treating physicians in Montreal.[33]

Outcome Measures. The principal outcome measure was the duration of absence from work determined as one of three possibilities from the date of entry in the study:

1. until the date of the first return to work (regular, modified, or different job) lasting more than 2 consecutive days in the 6 months follow-up,;
2. until the date when the QWCB considered a worker no longer eligible for compensation or rehabilitation for a back problem (moved, return to school, etc.);
3. until the last day of the 6-month follow-up (censored) if not returned to work.

An algorithm was developed to determine the duration of absence that was assessed by an independent panel blind to the study allocation, using the QWCB physical and computerized records. Those records were available for all study participants.

Secondary outcomes included the difference in the five functional scales and subscales, in pain score on the VAS, in health care consumption, and overall satisfaction (see evaluation questionnaire) between baseline and 3 and 6 months. These were all based on self-report and were, therefore, not blinded from the study group allocation. The administration of questionnaires including procedure for reminders and coding were standardized and performed by a research assistant who was blind to the group allocation.

Statistical Analysis and Sample Size. Analyses of the return to work were performed using an "intention to treat" approach in which all subjects randomized were included in the primary analysis. Mean number of calendar days until return to work, mean total number of days of absence from work (initial episode and recurrences combined), and proportion of workers returned to work within 6 months were computed for the two groups. Kaplan–Meier curves and multivariate Cox proportional hazard analysis were performed to compare the two groups for return to work.[10] The final model included variables for which there was an imbalance between the two groups (gender and history of compensation for back pain) and variables that showed a trend for being associated with return to work in the univariate analysis (age and occupation). The QWCB provided a depersonalized group profile of all eligible subjects who refused to participate that described their rate of return to work. This profile was used to make a judgement on the representativeness of the study population of all eligible subjects.

Secondary outcomes were analyzed only on respondents to the follow-up questionnaires. Scores on the pain and the five functional scales and subscales were standardized as a percentage of the maximum score. Scales with answers missing on more than two items were eliminated. Differences in scores were computed between baseline, and 3 and 6 months for each of the pain and functional scales and subscales. Tests of significance were performed in stepwise multivariate linear regressions, again adjusting for imbalances between the two groups and keeping age and sex in the model.

Sample size was estimated to be 85 per group in order to detect an increase in the proportion of workers returned to work after 3 months of follow-up from 30% to 50% with an alpha error of 0.05, a power of 90%.[34]

Table 1. Baseline Characteristics of the 110 Workers by Study Group

Characteristic	CORE Program (N = 54)	Usual Care (N = 56)
Gender (% males)	66.7	76.8
Age [mean, standard deviation (SD)]	36.8 (9.7)	38.3 (10.5)
Occupation (%)*		
Manual work	72.2	67.9
Nonmanual work	13.0	16.1
Mixed work	14.8	16.1
Cigarette smoking (%)		
Current smoker	59.6	55.4
Ex-smoker	21.2	26.8
Never smoked	19.2	17.9
Weight (mean pounds, SD)	173.0 (32.9)	166.7 (34.6)
Height (mean inches, SD)	68.2 (4.3)	68.0 (3.5)
Recreational activities†		
(mean hours per week, SD)	22.4 (20.7)	23.4 (23.9)
Parenthood (%)	38.5	40.7
Depressive symptoms score‡ (mean, SD)	44.1 (12.0)	42.7 (12.3)
Back pain distribution (%)		
No radiation to the legs	59.3	55.4
Radiation above the knee	22.2	23.2
Radiation below the knee	18.5	21.4
History of compensation for back pain (%)	42.6	28.6
Disability from back pain in the month		
prior to current episode (%)	27.8	8.9

* Occupational categories from the Canadian Standard Occupational Classification, 1980, classified by Hébert et al (1996) into manual, which include blue collar workers and white collar workers with manual work such as nurses, waitresses, bar tenders, and hairdressers; nonmanual, such as administrators; and mixed, such as certain categories of supervisors.[20]
† Includes walking, jogging, cycling and other sports activities, and working around the house.
‡ Scores in %, from the Psychiatric Symptom Index.[21]
CORE = Coordination of Health Care with the primary care physician to implement the clinical practice guidelines in the region of Metropolitan Montreal.

Ethics and Monitoring. The project was approved by the Research and Ethics Committee of the Montreal Department of Public Health and from the General Secretary of the QWCB. A steering committee monitored the progress of the study and was composed of representatives from the QWCB, the Montreal Department of Public Health, the Quebec Research Institute in Occupational Health and Safety, the Quebec Federation of General Practitioners, McGill University, and a Workers' representative. Data quality control and analyses were performed by an independent team at McGill University.

■ Results

Study Population

Between July 1995 and December 1996, 309 subjects were eligible to enter the study, 172 of whom refused to participate, 27 did not show up at their initial visit, and 110 (35.6%) were randomized, 54 to the CORE group and 56 to the control group. Baseline characteristics, including potential confounders known to affect recovery from back pain, are presented in Table 1. In the CORE group there were fewer men and more subjects with a history of compensation for back pain previous to the 12 months exclusion period, or with disabling back

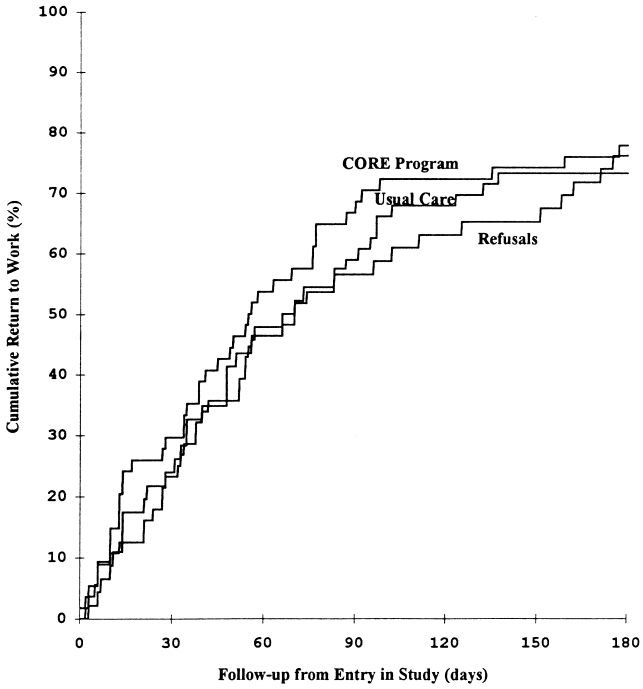

Figure 1. Crude rates of return to work in the CORE program and usual care groups. CORE=coordination of primary health care.

pain in the previous month. The imbalance between the two groups was in favor of the CORE intervention for the lower proportion of men and against the intervention with a greater proportion of previous history of back pain.[15] All other characteristics were balanced between the two groups. The mean delay between the date of the claim to the QWCB for the back injury and entry in the study was 45.7 days (SD = 7.1)

The Intervention

The follow-up interventions for the 54 subjects in the CORE group consisted of providing information at the request of the QWCB or the treating physician (31 subjects), obtaining information on behalf of the worker on test results and consultation reports (17), re-examining of a worker by the CORE physician (9), referring to a therapist (7), obtaining earlier appointments (5), reorienting the treatment plan when a worker or a treating physician was unhappy with the evolution of the back problem (4), finding a treating physician (3), negotiating therapy needs for reimbursement with the QWCB (3), and referral to a rehabilitation program (1). All these interventions were performed with the subject and the treating physician agreement. The general goal was not to take over the care provided by the treating physician but act as a facilitator in a patient-physician relation that had been going already for 6 weeks on average when the CORE program was initiated.

Return to Work

At 6 months, 77.8% of the CORE group and 73.2% of the controls had returned to work (χ^2: $P=0.1$). Figure 1 shows the evolution of the rate of return to work between the two groups. The CORE group returned consistently faster throughout the follow-up period with an average difference of 6.6 days (SE of the mean = 8.9) in the mean duration of absence from work. The difference in time to return to work was not statistically significant in the Cox proportional hazard model that included age, gender, occupation, and history of compensation for back pain, with a hazard ratio due to the intervention of 1.3 (95% confidence interval C.I. = 0.8 - 1.7). None of the variables in the model achieved statistical significance on return to work. Figure 1 also shows the profile of return to work among those who refused to participate to the study. Overall it was fairly similar to the control group.

Functional Recovery

Figure 2 shows the functional recovery as measured by the five scales and subscales. Follow-up rates for answering functional scales at 3 and 6 months were 87.3% and 81.8%, respectively. Patients improvement was similar between the two groups at 3 months. At 6 months, however, the CORE group showed continued improvement, while the controls remained at the same level or worsened slightly. The order of magnitude of the difference between the two groups at 6 months was two-fold except for the Dallas-Psychosocial subscale which was five-fold. These differences were statistically significant for the three scales used (Oswestry, QBPDS, and Dallas) (Table 2). They reached borderline significance for the QBPDS-Work and the Dallas-Psychosocial subscales. Similar results were observed on the VAS pain scores with a two-fold difference in favor of the CORE group at 6 months but did not reach statistical significance. All baseline values were similar between those who completed the 6-month follow-up and those who did not in each of the two comparison groups.

Health Care Consumption and Satisfaction

Results on health care consumption and satisfaction are based on self-report and are presented only to give a sense of the extent to which the spirit of the clinical guidelines was present in the CORE group. At baseline, more patients in the CORE group had seen a chiropractor, received a plain radiographic film, and had used exercises in their treatment (Table 3). During the follow-up, the largest differences between the CORE and control groups were for the CORE group: more visits to a chiropractor at 3 months (CORE: 23.4%; controls: 4.2%), less use of specialized imaging tests at 3 months (CORE: 12.8%; controls: 39.6%), and more use of exercises at 6 months (CORE: 38.6%; controls: 20.0). Other differences that exceeded 10% were for the CORE group: less visits to a specialist at 3 and 6 months, less visits to physiotherapist at 6 months, less use of plain radiographic film at 3 months, and less medication use at 6 months. Bedrest was used slightly more in the CORE group at 3 and 6 months and in less or equal duration.

Initial mean scores for satisfaction *vis-à-vis* health care and health care providers in the CORE and control

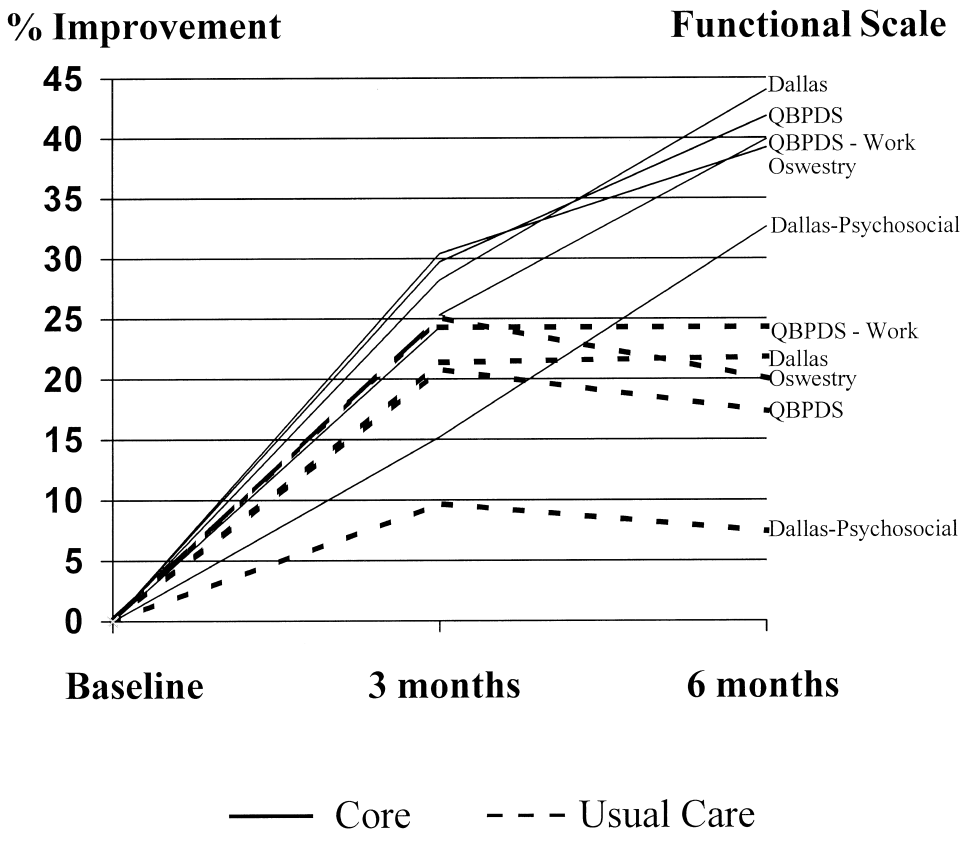

Figure 2. Comparison of functional improvement between the CORE program and usual care at 3 and 6 months. Improvement in each scale is expressed as the crude score differences: baseline - 3 months, baseline - 6 months. CORE=coordination of primary health care. QBPDS=Quebec Back Pain Disability Scale. QBPDS - Work: subscale on perception of capacity to work; Dallas: Dallas Pain Questionnaire; Dallas - psychosocial: subscale on back pain and psycho-social life.

groups were, respectively, 33.7 (SD = 15.8) and 30.3 (SD = 12.8) out of a maximum score of 65 for lowest satisfaction. These initial scores remained within five points improvement in both groups at 3 and 6 months follow-up. Differences between the two groups were within four points and not statistically significant.

■ Discussion

The base population for recruitment in this study included all workers on the Island of Montreal without distinction of company type and size, or distinction of type of health care, and who were compensated for low back pain of a recent origin and had cumulated 40 days of absence from work. From what is known of the epidemiology of work absence due to back pain, this group has been identified as the best target for interventions aimed at prevention of chronicity.[15] The low response rate made recruitment for the study much more difficult than anticipated. Compensation for a work-related injury is a process that is sensitive with many workers.

Table 2. Comparison of Pain Intensity and Functional Outcome Between the CORE Program and Usual Care at 3 and 6 Months

			Differences					
	Baseline Score		Baseline–3 Months			Baseline–6 Months		
	CORE	Usual	CORE	Usual	*P*†	CORE	Usual	*P*†
N*	54	56	48	48		45	45	
Pain intensity (VAS)	48.5 (20.4)	52.4 (20.7)	14.4 (27.7)	10.9 (24.0)	0.5	22.9 (29.3)	12.8 (27.0)	0.1
Functional disability								
QBPDS	52.2 (15.9)	48.5 (16.8)	15.3 (19.9)	10.1 (17.8)	0.2	20.9 (22.8)	9.1 (21.4)	0.01
Oswestry	43.1 (14.5)	39.0 (14.4)	10.9 (17.8)	9.8 (16.9)	0.8	17.2 (19.7)	7.8 (17.9)	0.02
Dallas	58.8 (13.7)	53.7 (15.5)	16.6 (22.0)	11.5 (20.7)	0.3	25.9 (25.9)	11.7 (22.6)	0.01
QBPDS–Work	76.7 (17.7)	73.4 (16.3)	23.3 (27.9)	17.8 (25.9)	0.3	30.1 (32.2)	17.8 (25.1)	0.06
Dallas–Psychosocial	44.8 (16.5)	39.3 (19.7)	6.8 (23.8)	3.8 (22.3)	0.8	14.6 (27.9)	2.9 (26.0)	0.07

* Numbers vary from one outcome to another between N and N-1.
† *P* value from multiple linear regression analyses including age, gender, previous history of compensation for back pain, and initial score.
CORE = Coordination of Health Care with the primary care physician to implement the clinical practice guidelines in the region of Metropolitan Montreal; VAS = Visual Analog Scale; QBPDS = Quebec Back Pain Disability Scale; Dallas = Dallas Pain Questionnaire.
Means are not adjusted for covariables. All scores are expressed in % of the maximum score or score difference. A greater value for the initial score indicates greater pain or disability; a greater value in the differences indicates a greater improvement in pain or functional status.

Table 3. Comparison of Health Care Consumption Between the CORE Program and Usual Care at 3 and 6 Months

	Baseline		3 Months		6 Months	
	CORE	Usual	CORE	Usual	CORE	Usual
N	54	56	47	48	44	45
% visit at least once to*:						
MD specialist	44.4	41.1	48.9	62.5	31.8	51.1
Chiropractor	13.0	5.4	23.4	4.2§	4.6	0.0
Physiotherapist	90.7	92.9	87.2	81.3	22.7	33.3
% Imaging tests of the spine*:						
Plain x-ray	61.1	53.6	14.9	29.2	9.1	13.3
Specialized test†	22.2	23.2	12.8	39.6§	13.6	13.3
Bed rest (last 4 weeks)						
% use	22.2	19.6	17.0	10.4	18.2	11.1
Mean number of days‡	20.3	14.0	9.6	21.2	16.9	16.0
(standard deviation)	(8.9)	(10.9)	(9.6)	(10.3)	(9.6)	(12.1)
Exercises (last 4 weeks)						
% use	85.2	69.6	51.1	50.0	38.6	20.0‖
Mean number of sessions‡	18.1	19.9	15.7	17.6	17.1	16.9
(standard deviation)	(10.8)	(12.3)	(9.8)	(17.1)	(10.3)	(11.8)
Medication (any orally, last 7 days)						
% use	94.4	98.2	80.4	80.4	68.9	83.0
Mean number of pills	8.8	8.1	4.3	2.7	3.8	2.6
(standard deviation)	(14.2)	(12.8)	(8.3)	(5.9)	(9.0)	(6.3)

* Initial: since the back injury; 3 months: since initial questionnaire; 6 months: since 3-month questionnaire.
† Such as CT scan, magnetic resonance imaging and myelogram.
‡ Among those who used the modality.
§ $P < 0.01$, CORE versus Usual.
‖ $P < 0.05$, CORE versus Usual.
CORE = Coordination of Health Care with the primary care physician to implement the clinical practice guidelines in the region of Metropolitan Montreal.

Caution was used to make clear to eligible subjects that the research team was independent from the QWCB. The profile of compensated absence among those who refused to participate was shown to be very close to that of the control group, which suggest that reasons for refusal might have been largely independent from the back injury and its medical management.

The results for recovery were consistent between all five aspects of functional status used in this study. Statistical significance was achieved in the three functional scales and borderline significance in the two subscales. It was interesting to see that improvements in functional status were parallelled with improvements of similar magnitude with pain scores. They are usually poorly correlated to one another.[12] This and the fact that differences between the CORE and control groups were found at 6 months, indicate that the success of the intervention might be long-lasting. The number of nonreturned questionnaires at 6 months was relatively large but equal in both groups, and the baseline functional scores were similar to those who returned their questionnaire.

The effect on return to work was modest but consistent with the functional outcomes. This is in agreement with the findings of Loisel et al [26], where the medical intervention was shown to have little impact on return to work.[26] It was the workplace intervention that was capable of significantly changing this outcome. Return to work seems to depend more on workplace factors such as management of occupational health matters, work organization, and labor relations on which physicians have limited access and impact. Our intervention had no workplace intervention and had been planned to be as close as possible to primary care practice. The lack of statistical significance for the rate of return to work was related to the small effect size (hazard ratio = 1.3), illustrated by the *post-hoc* calculation that 487 workers per group would be required to show such results significant. The original contribution of the present study was to show the effectiveness of coordinating health care with compensated patients with back pain. An intervention that improves significantly the functional status such as this one, seems pertinent to the therapeutic goal of returning to regular activities in all subacute back-pain patients (compensated or not).

No cost-benefit or cost-effectiveness analysis was planned in this study, in part because of the specificity of the health care costs and reimbursement system in Quebec. The intervention was set up with minimal overhead costs, so it could be transferable to primary care practice if found to be effective which turned out to be the case in this study. To get an idea of the cost-benefit ratio for the CORE intervention, one would compute the following items for 54 workers included in the CORE intervention. For cost, we estimated the total physician time (general practitioner) to be 2.2 hours per worker including initial and follow-up visits and weekly meetings with the nurse. For the coordinating nurse time, we included telephone exchanges with the workers, the QWCB claim agents and the treating physicians, weekly meetings with the two CORE physicians, and record-keeping for a total of 2.5 hours per worker. On the benefit side, one would consider for the CORE group (versus the controls): 6.6

less calendar days (5 working days) of absence from work on average, 4.6% more return to work at 6 months, less consultation to a specialist, physiotherapy, imaging techniques and medication use, and more chiropractic care. As a very rough estimation, it would seem that just the gains in the time off work would outweigh the costs for the physician and nurse in the CORE intervention.

Two highlights of the intervention evaluated in this study were its decentralization and simplicity. To our knowledge, this is the first time that the clinical guidelines for low-back pain were tested at a community level rather than in a clinical setting (single or multicentered). Recruitment from the QWCB was a unique feature of this study, allowing a true geographic representation of a large urban population, independently from the type and location of health care sought. For that reason, the intervention had enough flexibility to adapt to a wide range of situations among patients, and practice styles among health care providers.[6,8,35] In only four cases (7.4%) did the CORE team make suggestions to the patient and the treating physician for changing the treatment plan, although the treating physician ultimately decided on the course of therapy.

The simplicity of the CORE program contrasts with the multidisciplinary care teams that have been advocated by the clinical guidelines, and of which several models have been developed since the work of Catchlove and Mayer.[3,5,7,19,25,28,30] The CORE resembles more the intervention tested by Indahl et al, but here on a regional scale rather than a clinical setting.[22] Our intervention was based on the establishment of a relation of confidence with the patients. This was primarily achieved by performing a complete assessment of each individual, while respecting the frugality in diagnostic tests recommended in the guidelines. Most of the intervention consisted of supporting the patient in their functional recovery, answering questions, and solving small problems before they took on large proportions. In its planning, the CORE intervention had been criticized for potentially delaying the return to work as it happened in another study.[27] This did not turn out to be the case. The CORE team was very careful not to foster any particular type of management or systematic referrals. The spirit of the clinical guidelines was applied in all cases, respecting the choices of the patients and their physician. Future research in this area should focus on strategies for communicating the spirit of the guidelines to patients by their caregivers and to that effect, develop practical tools adapted to the different types of patients and care givers.

Finally, it is worth mentioning that bedrest was used more often in the CORE group than the controls during the 6-month follow-up, but when used for a shorter or equal duration. There was apparently no conflict between the use of bedrest as a treatment modality and functional recovery. This is in agreement with previous research where it is not the use of bedrest that has been shown to be deleterious for back-pain patients but its duration.[13]

■ Conclusion

The therapeutic results for workers with low-back pain could be improved by implementing the clinical practice guidelines with primary-care physicians in a large community, without delaying return to work. The CORE intervention for back-pain patients is highly relevant to primary care practice. It is simple in its application, flexible to accommodate physicians' and patients' preferences in health care, and effective on patients' clinical outcome.

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Point of View

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This is a beautifully conceived, designed, executed, and reported study that yields findings that merit serious attention. Rossignol and colleagues recognize that even the most brilliant guidelines will have little effect if they are not incorporated into a new *system* of care. Rather than merely sending copies of guidelines to primary care physicians, or even attempting to train the physicians in a different approach, neither of which seem to work very well, Rossignol created a new system of care that required little effort by the primary care physician. In fact, the intervention group received special attention that went well beyond merely ensuring that the specific back pain guidelines were followed: clinical evaluations and physical examinations by a special physician and nurse team, a diagnosis of the problem, a plan of action established *with* the worker's involvement, an explanation of the conclusions and recommendations, weekly calls from the nurse to discuss various aspects of the problem, communication with the Workers Compensation Board, and discussion of "personal/family problems."

Even though this intervention had only a modest effect on return to work, it had a significant benefit in terms of symptom reduction and improved function after 6 months. Furthermore, the authors provide evidence

suggesting that the intervention may have been cost-effective, something that has rarely been documented for any interventions designed to improve outcomes of care for low back pain. What remains unclear from this study is which components of the intervention were responsible for the observed benefits. Was it the provision of care by providers who may have been perceived as back pain experts? Was it the worker's participation in development of the plan of action? Was it the regular phone calls from a concerned nurse who even discussed "person/family problems"? Could it be that the content of the guidelines *per se* were, in themselves, of little or no value? Providing effective care for low back pain may depend less on strict adherence to a specific set of intelligent guidelines than on the implementation of systems of care that meet patients' needs for adequate explanations, participation in decision-making, and an ongoing relationship with a caring provider.