

Low back pain in general practice: reported management and reasons for not adhering to the guidelines in the Netherlands

HENK SCHERS

JOZÉ BRASPENNING

ROEL DRIJVER

MICHAEL WENSING

RICHARD GROL

SUMMARY

Background. Although guidelines for the management of low back pain have been published in the past decade, there is potential for further improvement in back pain care.

Aim. To document the management of non-specific low back pain by general practitioners (GPs) in the Netherlands, to determine how this management of care is related to patient and physician factors, and to explore possible reasons for not adhering to the guidelines.

Method. A prospective study was set up in which 57 GPs in 30 general practices completed a computerised questionnaire after each consultation for low back pain during a four-month period.

Results. Of 1640 back pain contacts, 1180 referred to non-specific low back pain. Diagnostic tests were ordered in 2% of first consultations and in 7% of follow-up consultations within one episode. The advice to stay active despite pain was given in 76% and 69% of these cases respectively. Patients were prescribed an analgesic in 53% and 41% of cases respectively (mainly NSAIDs [80%]). Patients were referred to a physiotherapist in 22% of first and in 50% of follow-up consultations. Older patients were physically examined less often, prescribed analgesics more often, and were told less often that staying active could benefit them. The advice to remain active was omitted more often when symptoms lasted longer. Only a small part of the variance in management was accounted for by patient characteristics or by differences between practices.

Conclusion. The management of low back pain met the guidelines to a large extent. Management decisions were often related to characteristics in which the guidelines lack differentiation. Important reasons for non-adherence were perceived patients' preferences. Further implementation of guidelines will be difficult unless doctors' and patients' views are more explicitly known.

Keywords: primary care; general practice; low back pain; guidelines; implementation.

H Schers, general practitioner and research fellow; J Braspenning, PhD, research fellow; R Drijver, general practitioner; M Wensing, PhD, research fellow; and R Grol, PhD, professor in quality of care, Centre for Quality of Care Research, University of Nijmegen, The Netherlands.
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Introduction

NON-SPECIFIC low back pain is a highly prevalent problem in general practice.¹ It makes substantial demands on health care and leads to considerable costs through absenteeism from work.² With the rise of evidence-based practice, guidelines for low back pain have been developed in various countries³⁻⁶ and the contents of the various guidelines correspond with each other to a large extent.^{7,8} The Netherlands College of General Practitioners published guidelines in 1996. When the guidelines were published the recommendations for management were considered innovative and even characterised as a 'new paradigm'.⁹ Key elements in the Netherlands guidelines are the recommendation to remain active despite pain and advice against prolonged bed rest. When medication is prescribed, this should be done on a time contingent basis, i.e. for a limited period and at regular intervals, independent of pain. In the absence of clues for serious pathology, there is no indication for X-ray investigations, blood tests (ESR, rheumatic factors) or referrals to specialists. Referral to a physiotherapist or chiropractor is not recommended in the acute phase because there is no evidence of effectiveness.^{10,11}

To prevent back pain from developing into a chronic condition, a treatment based on all the available evidence is necessary. However, little is known about current management in general practice. Non-adherence to the guidelines might be related to physician factors, such as a lack of knowledge of the guidelines or partial disagreement with the guidelines' contents.¹²⁻¹⁴ Patient factors, such as age, sex, and perceptions and expectations of back pain care, may also play an important part.^{15,16} It is difficult for physicians to maintain a conservative approach when anxious patients consult for a second or third time within the same episode. In addition, other characteristics, such as radiation of pain and duration of symptoms, probably influence back pain management strongly.

The aim of this study was to document the management of non-specific low back pain in general practice, in first and in follow-up consultations within one episode, and to determine how this is related to patient and practice characteristics. The reasons for doctors' not adhering to the guidelines have been explored.

Method

Samples

Thirty-three practices (57 general practitioners [GPs]) were asked to register all consultations for patients aged 18 years and older presenting with low back pain. The practices were all associated with a network of computerised general practices (the Netherlands Information Network in General Practice), which is representative of Netherlands general practice. Initially, telephone consultations, practice consultations, and home visits were all included.

Measurement instrument

A study group, consisting of experienced GPs and researchers in general practice, developed a computerised questionnaire with items on history taking, physical examination, laboratory tests,

X-rays, diagnosis, treatment, and referrals. Selected key features of the guidelines were transformed into questions on performance and reasons for not adhering to the recommendations. The patient characteristics collected were age, sex, type of insurance, duration and frequency of symptoms, radiation of pain, and the impact of symptoms on everyday life. The practice characteristics were type of practice and degree of urbanisation.

A pilot study was carried out with eleven GPs to ascertain any ambiguities in the questionnaire. Three GPs tested the computerised version.

Procedure

The GPs were asked to complete the computerised questionnaire for all low back pain consultations between June 1997 and January 1998. In order to reduce non-response, the practices were contacted by telephone after two weeks to track down any difficulties and to remind the practitioners of the study.

Analysis

Initially, all back pain consultations were included; however, for further analysis of the cases of non-specific low back pain, telephone consultations were excluded because of the incomplete nature of the information. We studied the outcome measures for diagnostic and therapeutic management in relation to patient- and practice-related characteristics simultaneously using multilevel logistic regression analysis. The likelihood of dependent variables is presented in odds ratios (ORs) with 95% confidence intervals. We analysed at a significance level of $P < 0.05$. The variance explained by the significant variables in our model was estimated using Nagelkerke's adjusted generalised coefficient of determination.¹⁷

Results

Valid data were obtained from 30 practices. Of these, 12 were single-handed practices, nine were two-person practices, and nine were practices with more than two partners. Sixteen were located in an inner-city area, three in a suburban area, and 11 in a rural area. Of the 57 participating GPs, 46 were men and 11 were women. Their mean age was 44 years (range = 31–58 years).

A case mix of 1640 consultations was registered (1396 patients). Eleven hundred and eighty (72%) were diagnosed as non-specific low back pain, 234 (14%) as lumbosacral radicular syndrome, 23 (1%) as malignancy or metastasis, 34 (2%) as a fracture, and 169 (11%) were given a different diagnosis (for example, pregnancy-related symptoms, osteoarthritis, trauma). After excluding telephone consultations because of incompleteness of information, 1098 practice consultations and home visits for non-specific low back pain remained.

Table 1 shows that in 66% of cases, patients indicated that they had suffered from low back pain previously. In 63% of cases, symptoms had existed for less than three weeks in the current episode. Table 2 shows that physicians ordered investigations more often in follow-up consultations. In first consultations, medication was more often prescribed (mainly non-steroid anti-inflammatory drugs). Patients were referred to a physiotherapist in 22% of first consultations and in 50% of follow-up consultations; they were rarely referred to a hospital specialist. Table 3 shows ORs for diagnostic management. Physicians were more likely to perform a physical examination in the case of a young patient and in patients suffering from radiating pain down a leg or serious effects on daily activities. A longer duration of symptoms was related to investigations being undertaken. The variance could only be accounted for to a limited extent and in equal measure by significant patient characteristics and differences

Table 1. Characteristics of cases (n = 1098).

Mean age in years (range)	34 (23–56)
Men (%)	50
Radiating pain down leg (%)	11
Frequency of symptoms (%)	
Never before	35
Every now and then	43
Recurrent	22
Duration of symptoms this episode (%)	
<3 weeks	63
3–6 weeks	15
6–12 weeks	7
>12 weeks	15

between practices.

Table 4 shows ORs for therapeutic management. In the 66 cases for which bed rest was advised, this was mainly related to radiating pain with a serious effect on daily activities. Advice to remain active was given more often in the case of a younger patient with a recent onset of symptoms. Older patients, patients with a recent onset of symptoms, and seriously impaired patients were more often prescribed medication. Patients were more likely to be referred to a physiotherapist if they had experienced symptoms for a longer period and if they had contacted their physician more often within the same episode. The variance for bed rest and time contingent management was accounted for more by the differences between practices than by patient characteristics, while the variance in medication prescription and referral was mainly accounted for by patient characteristics.

The patient characteristics 'sex' and 'insurance type' did not reach significance for any of the outcome measures and have been omitted from the tables. The practice characteristics 'degree of urbanisation' and 'practice type' were significant only for medication prescription: inner-city and suburban practices prescribed less than rural practices (OR = 0.26 [95% CI = 0.10–0.68] and 0.54 [95% CI = 0.21–0.79] respectively). Duo practices and group practices prescribed less than solo practices (OR = 0.37 [95% CI = 0.23–0.60] and 0.54 [95% CI = 0.33–0.88] respectively).

Table 5 shows the reasons put forward by GPs for some management aspects. In the diagnostic phase mainly doctors' considerations were registered, while in the therapeutic phase patients' experiences and expectations were considered particularly important.

Discussion

Netherlands GPs were found to manage low back pain conservatively and adhered to the guidelines to a large extent. Nevertheless, opportunities for improvement were identified in the fields of prescribing on a time-contingent basis, advising, and referring to a physiotherapist. Practice and patient characteristics accounted only for a small part of the variance in clinical management. Patients' age, duration of symptoms, radiation of pain, and functional status proved to be the most important predictors. Differences between practices were not substantial, with the exception of advising bed rest and encouraging patients to stay active.

General practitioners who reported omitting the physical examination, or a part of it, stated that they had either done so during a former consultation or considered it irrelevant or too burdensome for the patient. This often seems reasonable, since performing a neurological examination in the absence of radiating pain may lead to an overdiagnosis of sciatica.^{18,19} It was

Table 2. Management of non-specific low back pain (LBP) for first and follow-up consultations within one episode.

	First consultations n = 754 (%)	Follow-up consultations n = 342 (%)
Physical examination		
Lumbar spine	639 (85)	223 (65)
Raising straight leg test	338 (45)	126 (37)
Reflexes	224 (30)	108 (32)
Investigations	17 (2)	24 (7)
X-rays	15 (2)	19 (6)
ESR	7 (1)	8 (2)
Advice to remain active despite pain	573 (76)	235 (69)
Advice to accept pain	46 (51) ^b	60 (73) ^b
Give insight in relation between LBP and psychosocial factors	18 (20) ^b	30 (37) ^b
Bed rest		
1–2 days	17 (2)	10 (3)
>2 days	26 (3)	13 (4)
Medication prescription	397 (53)	139 (41)
NSAID	309 (41)	110 (32)
Paracetamol	88 (12)	32 (9)
Muscle relaxant	31 (4)	20 (6)
Prescription time-contingent	247 (62) ^a	77 (55) ^a
Referral to physiotherapist	168 (22)	171 (50)
Referral to specialist	8 (1)	12 (4)

^aCases for which medication was prescribed; ^bcases with a duration of more than six weeks (guideline advice).

Table 3. Relationships between patient characteristics and diagnostic management of non-specific low back pain (95% CI). Significant odds ratios, $P < 0.05$, $n = 1098$.

	Standing examination of spine	Raising straight leg test	Reflexes	Investigations
Patient characteristics				
Age compared with <45 years				
45–64	0.76 (0.58–0.99)	0.78 (0.58–1.04)	0.86 (0.60–1.22)	-
>64	0.27 (0.17–0.44)	0.41 (0.24–0.68)	0.47 (0.29–0.77)	-
Radiating pain down leg	2.49 (1.47–4.22)	10.1 (5.27–19.40)	6.84 (4.14–11.30)	-
Duration of symptoms compared with 0–3 weeks				
3–6 weeks	-	-	-	1.57 (0.71–3.44)
6–12 weeks	-	-	-	2.70 (1.03–7.05)
>12 weeks	-	-	-	5.35 (2.80–10.20)
Frequency of symptoms compared with never before				
Every now and then	0.57 (0.35–0.94)	-	-	-
Regular	0.36 (0.20–0.66)	-	-	-
Contact in episode compared with first contact				
Second contact	0.25 (0.17–0.36)	0.70 (0.49–1.00)	-	-
Third or later contact	0.35 (0.23–0.55)	0.64 (0.42–0.97)	-	-
Effect on everyday life compared with light effect				
Moderate effect	1.87 (1.42–2.47)	-	1.74 (1.17–2.54)	2.47 (1.38–4.42)
Serious effect	1.55 (0.97–2.48)	-	2.01 (1.16–3.50)	1.73 (0.71–4.24)
Random parameters				
Variance % accounted for by practice	15	11	12	13
Variance % accounted for by significant predictors	22	12	10	9

Table 4. Relationships between patient characteristics and therapeutic management of non-specific low back pain (95% CI). Significant odds ratios, $P < 0.05$, $n = 1098$.

	Bed rest	Advice to stay active	Prescription of medication	Referral to a physiotherapist
Patient characteristics				
Age compared with <45 years				
45–64	-	0.79 (0.54–1.14)	1.94 (1.52–2.47)	-
>64	-	0.42 (0.29–0.61)	1.60 (1.04–2.46)	-
Radiating pain down leg	3.75 (2.24–6.27)	-	-	-
Duration of symptoms compared with 0–3 weeks				
3–6 weeks	-	0.54 (0.40–0.74)	0.36 (0.25–0.51)	4.05 (2.60–6.29)
6–12 weeks	-	0.49 (0.35–0.68)	0.18 (0.10–0.32)	7.88 (5.55–11.20)
>12 weeks	-	0.30 (0.21–0.44)	0.22 (0.15–0.34)	5.24 (3.77–7.28)
Frequency of symptoms compared with never before				
Every now and then	-	-	-	1.41 (0.99–1.99)
Regular	-	-	-	1.78 (1.13–2.82)
Contact in episode compared with first contact				
Second contact	1.55 (0.91–2.65)	-	-	2.34 (1.51–3.63)
Third or later contact	0.20 (0.07–0.60)	-	-	1.81 (1.09–3.01)
Effect on everyday life compared with light effect				
Moderate effect	5.23 (1.64–16.60)	-	2.50 (1.89–3.30)	-
Serious effect	37.3 (10.80–130.0)	-	8.36 (5.01–14.0)	-
Random parameters				
Variance % accounted for by practice	32	29	4	6
Variance % accounted for by significant predictors	16	7	11	23

Table 5. General practitioners' reasons for management.

	Reasons for management (%)
Omitting (part) of physical examination	<ul style="list-style-type: none"> · Irrelevant (41) · Undertaken in former consultation (34) · Poor condition of patient (14) · Time constraints (4) · Other reason (7)
X-rays and/or blood tests (n = 104)	<ul style="list-style-type: none"> · Excluding specific disease (80) · Reassurance of patient (9) · Pressure from other health care providers (3) · Other reason (8)
Medication (n = 581)	<ul style="list-style-type: none"> · Request of patient or good experience of patient in the past (46) · Treatment usually given (34) · Need for muscle relaxation (16) · Other reason (4)
Referral to a physiotherapist (n = 379)	<ul style="list-style-type: none"> · Former good experiences of patient with physiotherapy (25) · Advice on posture considered necessary (18) · Long duration of symptoms (17) · Usual treatment (11) · Improvement of functional status (10) · Appointment already made by patient (5) · Unbearable pain (2) · Reducing sickness leave (1) · Pressure from controlling instances (1) · Other reasons (10)

interesting to note that older patients were less likely to be examined. Evidence does not support this practice, since the probability of finding serious pathology increases with age. A lack of doctors' time might be an explanation for this.

Diagnostic test ordering is known to be triggered by doctors' preferences, patient expectations, and time constraints.¹⁴ Although we had no data from previously taken X-rays, our results suggest that ordering X-rays was provoked by longer duration of symptoms. Obviously, uncertainty of patients and doctors increases with time. The small number of cases in which prolonged bed rest was advised correlates with other recent observations.²⁰ Although it was predicted by severe disability and sciatica-like symptoms, both of which may be valid reasons, it appeared to depend on the practice to a substantial extent, as did the advice to stay active. Further efforts to widely implement these themes could therefore still benefit patients. Specific advice should also be available for older patients and those displaying symptoms of longer duration.

It was surprising that age turned out to be such an important factor in management. Did the physicians assume that older people prefer pills, and did they become less inclined to advise activity when symptoms lasted longer? Or did they just respond to patients' preferences? A substantial number of patients were referred to a physiotherapist within the first six weeks, despite the guidelines' grounded advice against it.^{6,10,21,22} The tendency to do so in second consultations suggests a sort of step-up management. GPs stated that patients' preferences were an important reason for this.

There are several limitations associated with this study. First, there was no systematic control on the selection of cases; howev-

er, 1150 first consultations within a period of four months on a population of approximately 75 000 patients suggests a prevalence rate of 46/1000. This is comparable with the prevalence in the most accurate registration project in the Netherlands (70/1000).²³ A major patient selection, therefore, probably did not occur. Secondly, the answers are of self-reported behaviour and thoughts, which may have led to an idealised version of practice behaviour. Nevertheless, the validity of self-observation has recently been demonstrated.²⁴ Finally, the possibility of the Hawthorne (learning) effect was considered. An analysis of the first and second halves of the consultations from each GP, however, showed no shift towards the desired management over time and it was concluded that in this study a learning effect was limited.

Patients' preferences, which are often based on former experiences in the health care system, are known to be an important factor in non-adherence to guidelines. The GPs in our study already adhered to the guidelines for low back pain to a high degree. This may be explained by some attributes of the guidelines: low back pain is a common, not controversial problem. The guidelines are clear, evidence-based, and may match everyday practice from before 1996, thus not necessitating a change of behaviour.²⁵ The reasons for non-adherence given by the GPs seemed reasonable but could not be investigated sufficiently within this project. Further efforts to implement the guidelines for low back pain should therefore only be undertaken when these 'barriers' have been given serious consideration.

References

- Croft PR, Macfarlane GJ, Papageorgiou AC, *et al*. Outcome of low back pain in general practice: a prospective study. *BMJ* 1998; **316**: 1356-1359.
- Tulder MW, Koes BW, Bouter LM. *Low Back Pain in Primary Care. Effectiveness of diagnostic and therapeutic interventions*. Amsterdam: Faculteit der Geneeskunde VU, EMGO-Instituut, 1996.
- Waddell G, Feder G, McIntosh A, *et al*. *Low Back Pain Evidence Review*. London: Royal College of General Practitioners, 1996.
- Bigos S, Bowyer O, Braen G, *et al*. *Acute Low-back Problems in Adults. Clinical Practice Guideline Number 14*. Rockville, MD: Agency for Health Care Policy and Research, 1994.
- ACC and the National Health Committee. *New Zealand Acute Low Back Pain Guide*. Wellington: 1997.
- Faas A, Chavannes AW, Koes BW, *et al*. NHG-Standaard Lage-rugpijn. *Huisarts Wet* 1996; **39**: 18-31.
- Koes BW, Tulder van MW. The management of low back pain. A comparison of national guidelines in four countries. *Huisarts Wet* 1998; **41**: 57-61.
- Burton A, Waddell G. Clinical guidelines in the management of low back pain. *Baillière's Clin Rheumatol* 1998; **12**: 17-35.
- Deyo RA. Acute low back pain: a new paradigm for management. *BMJ* 1996; **313**: 1343-1344.
- Cherkin DC, Deyo RA, Battie MC, *et al*. A comparison of physiotherapy, chiropractic manipulation, and provision of an educational booklet for the treatment of patients with low back pain. *N Engl J Med* 1999; **339**: 1021-1029.
- Ernst E, Assendelft WJJ. Chiropractic for low back pain. We don't know whether it does more good than harm. *BMJ* 1998; **317**: 160.
- Skelton AM, Murphy EA, Murphy RJ, O'Dowd TC. General practitioner perceptions of low back pain patients. *Fam Pract* 1995; **12**: 44-48.
- Cherkin DC, Deyo RA, Wheeler K, Ciol MA. Physician views about treating low back pain. The results of a national survey. *Spine* 1995; **20**: 1-9.
- Shye D, Freeborn DK, Romeo J, Eraker S. Understanding physicians' imaging test use in low back pain care: the role of focus groups. *Int J Qual Health Care* 1998; **10**: 83-91.
- Skelton AM, Murphy EA, Murphy RJ, O'Dowd TC. Patients' views of low back pain and its management in general practice. *Br J Gen Pract* 1996; **46**: 153-156.
- Szpalski M, Nordin M, Skovron ML, *et al*. Health care utilization for low back pain in Belgium. Influence of sociocultural factors and health beliefs. *Spine* 1995; **20**: 431-442.
- Nagelkerke NJD. A note on a general definition of the coefficient of determination. *Biometrika* 1991; **78**: 691-692.
- Little P, Smith L, Cantrell T, *et al*. General practitioners' management of acute back pain: a survey of reported practice compared with clinical guidelines. *BMJ* 1996; **312**: 485-488.
- Vroomen PCAJ, Krom CTFM, Wilmink JT, *et al*. Lack of effectiveness of bed-rest for sciatica. *N Engl J Med* 1999; **340**: 418-423.
- Frankel BSM, Moffett JK, Keen S, Jackson D. Guidelines for low back pain: changes in GP management. *Fam Pract* 1999; **16**: 216-222.
- Koes BW. *Efficacy of manual therapy and physiotherapy for back and neck complaints*. [Thesis.] Maastricht: Rijksuniversiteit Limburg, 1992.
- Carey TS, Garrett J, Jackman A, *et al*. The outcomes and costs of care for acute low back pain among patients seen by primary care practitioners, chiropractors, and orthopedic surgeons. The North Carolina Back Pain Project. *N Engl J Med* 1995; **333**: 913-917.
- van de Lisdonk EH, van den Bosch WJHM, Huygen FJA, Lagro-Janssen ALM. *Ziekten in de Huisartsenpraktijk*. Utrecht: Bunge, 1994.
- van Boven K, Dijksterhuis P, Lamberts H. Defensive testing in Dutch family practice. Is the grass greener on the other side of the ocean? *J Fam Pract* 1997; **44**: 468-472.
- Grol R, Dalhuijsen J, Thomas S, *et al*. Attributes of clinical guidelines that influence use of guidelines in general practice: observational study. *BMJ* 1998; **317**: 858-861.

Address for correspondence

H J Schers, Centre for Quality of Care Research, University of Nijmegen, PO Box 9101, 6500 HB Nijmegen, The Netherlands. E-mail: H.Schers@hsv.kun.nl