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The Course of Back Pain in Primary Care [Keynote Address for Primary Care Forum]

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Abstract [TOP](#)

Study Design: Review paper of outcome studies among primary care back pain patients.

Objectives: To determine the short-term and long-term pain and functional outcomes of patients with back pain who are seeking treatment in primary care settings.

Summary of Background Data: Back pain has been viewed as running either an acute or a chronic course, but most patients experience recurrent back pain. This review summarizes outcome studies in light of the episodic course of back pain.

Methods: Studies reporting pain and functional outcome data for consecutive primary care patients with back pain were reviewed.

Results: Back pain among primary care patients typically is a recurrent condition for which definitions of acute and chronic pain based on a single episode are inadequate. Because a majority of patients experience recurrences, describing only the outcome of the initial back pain episode may convey a more favorable picture of long-term outcome than warranted. For the short-term follow-up evaluation, most patients improve considerably during the first 4 weeks after seeking treatment. Sixty-six percent to 75% continue to experience at least mild back pain 1 month after seeking care. At 1 month, approximately 33% report continuing pain of at least moderate intensity, whereas 20-25% report substantial activity limitations. For the long-term follow-up (1 year or more) period, approximately 33% report intermittent or persistent pain of at least moderate intensity, one in seven continue to report back pain of severe intensity, and one in five report substantial activity limitations.

Conclusion: Results from existing studies suggest that back pain among primary care patients typically runs a recurrent course characterized by variation and change, rather than an acute, self-limiting course.

Back pain has been viewed as running either an acute or a chronic course. Many clinicians expect acute back pain to resolve within 1-2 weeks.^{1,7,9} Chronic back pain, defined as pain that continues for longer than 3-6 months,^{11,17} has been regarded by some as likely to continue indefinitely. Patients with chronic back pain have been depicted as difficult and dependent, with significant psychosocial problems, reduced ability to cope with persistent pain, and an unfavorable long-term prognosis.¹⁸ However, the course of back pain for most primary care patients is recurrent, not acute or chronic in the usual sense of these terms, which suggests that classifying patients with back pain as acute or chronic based on the duration of the initial episode alone may be inadequate.

▪ Assessing Outcomes of Recurrent Back Pain [TOP](#)

To describe the outcomes of a recurrent condition adequately, it is necessary to assess the short-term outcomes of the index episode and the long-term outcomes during a period sufficient to characterize the frequency, duration, and severity of recurrences. Because back pain may not be present every day and because pain varies in severity from day to day when

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present, long-term outcomes need to be assessed for a defined period (e.g., 1 month, 3 months, 6 months) rather than on a single day. Assessing back pain status on a single day can provide an unreliable assessment of a patient's characteristic pain status in the same way that assessing blood pressure with a single reading provides an unreliable measure of a patient's blood pressure [21,23,26](#) For example, a patient who experienced back pain on approximately 50% of the days might appear to have a good outcome if interviewed when back pain was absent, but an unfavorable outcome if interviewed when back pain was severe.

For recurrent back pain, long-term outcomes can be described by measures like the percent of days a patient has back pain during a defined interval, the average intensity of back pain when it is present, and the extent of interference with activities because of back pain during the reporting interval. Whether patient recall is adequate to assess back pain status over a reporting interval of 1, 3, or 6 months is an empirical question that deserves attention. [23,26](#) A recent evaluation of 3-month recall data for headache found high test-retest reliability and acceptable correlation with summary measures from daily diaries covering the same period, [22](#) but the reliability and validity of recall data for back pain have not been well studied.

▪ Defining an Unfavorable Outcome [TOP](#)

Continuation of back pain alone does not always constitute an unfavorable outcome. Many patients continue to have mild back pain or discomfort for more than 3 months after seeking care. Recurrent or chronic back pain that is mild may have little impact on patient functioning or psychological well being. [25](#)

There is increasing consensus that activity limitation is the principal outcome for back pain. [6,16,21,27](#) Roland and Morris [16](#) developed a 24-item back pain disability scale to serve as a primary outcome measure. They classified patients with positive responses to 14 or more of the 24 items as having an unfavorable outcome (a threshold that may have been too high to identify all patients functioning poorly). Their assessment was supplemented by a pain rating scale that assessed back pain at the time of the interview, permitting assessment of pain and functional outcomes.

In a meta-analysis, Turner et al [20](#) defined an excellent-to-good outcome as pain absent or occasionally mild with minimal or no activity limitations. A fair outcome was defined as mild persistent or occasional moderate pain, able to work but with some restrictions. A poor outcome was defined as persistent moderate or occasional severe pain with severe activity restrictions.

Von Korff et al [27](#) defined a poor outcome in terms of a hierarchical relation between pain intensity and interference with functioning. They found that patients rating back pain intensity below the midpoint on an average intensity scale were unlikely to report significant activity limitation because of back pain. Average pain intensity ratings at or above the scale midpoint appeared to be a necessary but not sufficient condition for moderate-to-severe activity limitation. Patients with moderate-to-severe activity limitation almost always had average pain intensity ratings at or above the scale midpoint, but there were many patients with pain intensity ratings at or above the scale midpoint who did not report significant activity limitation. In a proposed grading system, patients were classified first on their disability level and second on their pain level if significant activity limitations were absent. It has been shown that this grading system yields groups that differ systematically in depression levels, self-rated health status, use of pain medications, use of health care services for pain, and disability. [27](#) An unfavorable outcome was defined by moderate-to-severe activity limitation (almost always accompanied by moderate-to-high pain intensity). In contrast, a good outcome was defined by low levels of activity limitation and low pain intensity ratings (or becoming pain-free). A fair outcome was defined by moderate-to-high levels of pain intensity not accompanied by significant activity limitation.

▪ Empirical Studies [TOP](#)

With these perspectives in mind, this article summarizes available data on the short-term and long-term course of back pain among primary care patients.

Short-Term Course [TOP](#)

The short-term course refers to pain and activity limitations during the first 3 months after the initial visit. Three questions are relevant to assessing the short-term outcomes of back pain:

1. What percentage of patients become completely pain-free?
2. What percentage of patients continue to report moderate-to-severe pain?
3. What percentage of patients continue to report significant activity limitations?

To date, the best single study of the short-term outcomes of primary care patients with back pain was reported by Martin Roland and Richard Morris in 1983. [15](#) The results of this study will be examined carefully and placed in the context of results from other high-quality studies of short-term outcomes.

Pain-Free at Short-Term Follow-Up Evaluation. In the Roland and Morris [15](#) study, 230 primary care patients were examined at the initial visit, with 212 being observed 1 week later, and 193 observed at 4 weeks. At 1-week follow-up evaluation, only 20% of patients reported being completely pain-free, whereas at 4-week follow-up evaluation, the percentage completely pain-free was 33%. Similarly, Chavennes et al [4](#) reported in 1986 that among 475 primary care patients with back pain observed 4 weeks after the initial visit, only 28% reported that they were completely pain-free. In a study by Von Korff et al [25](#) of 1213 primary care patients with back pain interviewed 4-6 weeks after their visit, when these patients were asked to rate their back pain at the time of the interview, only 30% indicated that they currently were

experiencing no back pain (unpublished data, 1993). In a study conducted in an industrial setting in Sweden (described in greater detail at a later point), Bergquist-Ullman and Larsson² found that 35% of all back pain episodes had remitted within 1 month, 70% within 2 months, and 86% within 3 months. The median duration of the initial episode was 35 days. However, because many patients may have intermittent back pain or back pain that resolves to a low level of pain or discomfort rather than complete resolution, defining the end point of a back pain episode often is an ambiguous task. Phillips and Grant¹³ reported a study of 117 back pain patients in a first episode that had onset within 15 days of the visit. At 3 months, 56% of the patients reported that they were pain-free and had no discomfort.

These results indicate that back pain remits entirely for substantially less than 50% of all primary care patients with back pain within 1 month of the initial visit, and that by 3 months, more than 40% are still experiencing at least some discomfort.

Moderate-to-Severe Pain Intensity at Short-Term Follow-Up Evaluation. There are only a handful of studies that have provided adequate data on pain intensity ratings reported by primary care patients at short-term follow-up evaluation. In Roland and Morris's study,¹⁵ patients rated their present back pain as follows: no pain at all, little pain, moderate pain, bad pain, very bad pain, or almost unbearable pain. The percentage of patients rating their pain as moderate or worse was 90% at the initial visit, 54% at 1 week, and 34% at 1 month. A rating of moderate pain is likely to be sufficient to be associated with significant activity limitation in many patients. The percentage of patients rating their pain as bad or worse was 54% at the initial visit, 22% at 1 week, and 15% at 1 month. In Chavennes' study,⁴ 25% rated their back pain as unchanged or aggravated at 1 month, but this form of rating does not provide useful data on the actual pain intensity level at follow-up evaluation. In the study by Von Korff et al.,^{24,25,27} patients were asked to rate their present back pain on a 0-10 scale where 0 is no pain and 10 is pain as bad as it could be. At 4-6 weeks after the initial visit, 33% rated their present back pain as 4 or greater on a 0-10 scale, 22% as 5 or greater, and 13% as 6 or greater. In the Phillips and Grant study,¹³ approximately 20% rated their back pain as moderate, severe, or very severe at 3 months.

Thus, approximately one in three primary care patients with back pain can be expected to have at least moderate intensity back pain at 1 month, whereas approximately 15% report severe pain intensity at 1 month. Whereas patients show some additional improvement between 1 and 3 months, the degree of improvement from 1 to 3 months appears to be modest.

Activity Limitation at Short-Term Follow-Up Evaluation. The single most important outcome measure for back pain is the extent of activity limitation or interference with daily activities. There surprisingly are few studies that have reported the percentage of patients exceeding a defined disability threshold based on a reliable and valid measure of activity limitation. Roland and Morris¹⁵ reported the percentage of patients who gave positive responses to at least 14 of 24 back pain disability items referring to disability present on the day of the interview. At the initial visit, 43% gave positive responses to 14 or more items, whereas this was true for 28% at 1 week and 20% at 1 month. At 1 month, they reported that at least 75% of their patients gave a positive response to one or more of their disability questions. In the study by Von Korff et al.,^{24,25} 16 questions were asked similar to those used by Roland and Morris, but the reporting interval was the previous 2 weeks rather than today. At 4- to 6-week follow-up evaluation, 23% of the sample gave positive responses to nine or more of the 16 disability items (the cut point corresponding to 14 of 24), and 86% gave a positive response to at least one of the 16 disability items.

Summary of Short-Term Course. These results support the following generalizations about the short-term outcomes of primary care patients with back pain:

1. On average, primary care patients with back pain tend to show considerable improvement in pain and functioning over the first month after their initial back pain visit.
2. At 1 month, 66-75% of all primary care patients with back pain continue to experience at least mild back pain or discomfort and some form of interference because of back pain.
3. At 1 month, approximately 33% will continue to experience back pain of at least moderate intensity (a level sufficient to produce activity limitation), whereas 20-25% report substantial activity limitations at 1 month.

Long-Term Course [top](#)

Information on the long-term course of primary care patients with back pain is available from several studies.^{2,12-14,25} The results of these studies will be used to address four questions about long-term outcomes:

1. What is the frequency of back pain episodes or the interval between back pain episodes?
2. On what percentage of days do patients experience back pain over an extended reporting interval?
3. When patients are experiencing back pain, what is the average or usual level of pain intensity?
4. What is the degree of interference with activities?

Episode Frequency and Recurrence at Long-Term Follow-Up Evaluation. Few studies have described adequately the recurrence of back pain over a long-term follow-up interval. Bergquist-Ullman and Larsson² carefully evaluated and reported the outcomes of 217 persons with acute or subacute low back pain that had lasted less than 3 months on patient entry into

the study.² These patients were identified when seeking treatment from the medical service in their work setting. They were observed 10 days, 3 weeks, 6 weeks, 3 months, 6 months, and 1 year after their initial assessment. This report provides the most detailed information available on the outcomes of patients with low back pain during a 1-year period. During the 1-year follow-up evaluation, 62% of the study patients experienced at least one recurrence of back pain, whereas 36% experienced two or more recurrences. The median time from recovery from the initial episode to the first recurrence of back pain was reported to be 63 days, but this figure excluded patients who did not experience a recurrence. Including all patients regardless of whether they relapsed within 1 year or not; the median time to recurrence was approximately 26 weeks.

In the study carried out by Von Korff et al,²⁵ patients were asked how recently they had experienced back pain at 1- and 2-year follow-up evaluation. At 1 year, 86% of the patients reported having back pain in the previous 6 months, 63% in the past week, and 48% in the past 24 hours. At the 2-year follow-up evaluation, 83% reported having back pain in the previous 6 months, 58% in the past week, and 47% in the past 24 hours.

Back Pain Persistence at Long-Term Follow-Up Evaluation. In the Bergquist-Ullman study,² 12% of the study patients were found to have had back pain on more than half the days over the 1-year follow-up period, 34% had back pain on more than 1 day in 4, 53% on more than 1 day in 6, and 76% on more than 1 day in 12. This study excluded patients with pain of more than 3 months' duration at baseline, thus systematically excluding the more chronic cases. In the study by Von Korff et al,²⁵ 29% had back pain on more than half the days, 41% on more than 1 day in 4, 44% on more than 1 day in 6, and 54% on more than 1 day in 12. At 2-year follow-up evaluation, the corresponding percentages were: 29% with back pain on more than half the days, 38% with back pain on more than 1 day in 4, 41% with back pain on more than 1 day in 6, and 48% with back pain on more than 1 day in 12. At the 2-year follow-up evaluation, 84% of the study subjects characterized their current back pain problem as either recurrent or persistent, and 31% said it was a persistent problem.

A study of 78 primary care patients with back pain observed up at 1 year by Pedersen¹² reported that 27% had back pain on more than half the days in the year and that 72% experienced back pain on more than 1 day in 12 (including the initial episode).

The Pedersen¹² and Von Korff²⁹ studies suggest that more than one in four primary care patients with back pain experience chronic back pain if defined as back pain present on more than half the days during a 1-year period. These results suggest that chronic back pain affects an appreciable minority of primary care patients with back pain, somewhat more than one in four patients during any given follow-up interval.

Current Pain Intensity at Long-Term Follow-Up Evaluation. There are few published data providing pain rating information for primary care patients with back pain at long-term follow-up evaluation. In the study by Von Korff et al²⁵ at 1-year follow-up evaluation, only 52% said they were experiencing no back pain at the time of the interview (unpublished data, 1993). However, most currently were experiencing low levels of back pain: 20% rated their current back pain as 4 or greater on a 0-10 scale; 13% rated their current back pain as 5 or greater, and only 8% rated their back pain as 6 or greater.

Interference With Activities in Long-Term Follow-Up Period. Von Korff et al²⁵ reported that 14% of patients with recent onset back pain, 21% of patients with nonrecent onset, and 19% of patients overall had moderate-to-severe activity limitations resulting from back pain in the previous 6 months at 1-year follow-up evaluation. At 1 year, 41% reported 1 or more days when they were unable to carry out their usual activities because of back pain in the previous 6 months. At 2-year follow-up evaluation, the corresponding percentage was the same, 41%. At the 1- and the 2-year follow-up evaluations, 19-20% reported 7 days or more of activity limitation resulting from back pain, and 13-14% reported 14 or more days of activity limitation in the previous 6 months (unpublished data, 1993). Bergquist-Ullman² reported that 68 (31%) of 217 patients experienced at least 1 day of work loss resulting from recurrences of back pain during the 1-year follow-up period. In their sample, 28% missed more than 1 week of work, and 18% missed more than 2 weeks of work. In the study by Von Korff,²⁵ the following results were obtained with the modified 16-item Roland disability questionnaire referring to activity limitations in the previous 2 weeks resulting from back pain (unpublished data, 1993). At 1-year follow-up evaluation, 17% of the sample gave positive responses to nine or more of the 16 disability items, and 72% gave a positive response to at least one of the 16 activity limitation items. Taken together, these results suggest that 15-20% of primary care patients with back pain show moderate-to-severe activity limitations during a 1-year follow-up period after the initial episode has resolved.

Summary of Long-Term Outcomes. The results of these studies suggest that at long-term follow-up evaluation, approximately 33% of primary care patients with back pain experience back pain of at least moderate intensity; 15% report severe intensity back pain, and 20-25% will continue to report substantial activity limitations.

▪ Variables Predicting Back Pain Outcomes [TOP](#)

A number of studies have evaluated the significance of prognostic variables for back pain outcomes.^{2,3,5,8,10,12,19,25} Exclusion criteria have differed across studies; baseline measures sometimes have been taken at the time of the initial visit and other times weeks after the initial visit; different outcome measures have been used across studies, and the duration of follow-up period has varied from short term to long term. Existing prognostic studies have not identified and replicated a set of prognostic variables that permit reliable individual-level prediction of the long-term course of back pain.

▪ The Evolution of Chronic Pain: Progressive Deterioration or Failure to Restore Normal Functioning? [TOP](#)

It sometimes is assumed that psychological state and behavioral function deteriorate as back pain becomes chronic. Two recent analyses of longitudinal data have addressed this issue. Philips and Grant¹⁴ concluded that, "...there is not a simple linear upward progression to chronic handicap from its acute onset. It raises the possibility that... chronic pain sufferers may be demonstrating a failure to resolve, or attenuate patterns of behavior and subjective experiences that are present in the acute stage. Similarly, Von Korff and Simon²⁸ observed that, There is no indication that depression emerges simply as a

function of chronicity. Rather, patients who do not restore normal functioning also tend to remain chronically depressed. These studies suggest that chronic pain dysfunction may represent failure to restore normal functioning rather than progressive deterioration in which a chronic pain syndrome emerges with the passage of time as pain changes from acute to chronic.

▪ Conclusions [TOP](#)

Although back pain typically improves considerably within 1 week of a primary care back pain visit, it is common for less severe back pain to continue for 1-3 months. During long-term follow-up period, a recurrent course is typical, and chronic back pain, defined as back pain present on at least half the days during an extended period, is far from rare. In general, the course of back pain is characterized by variability and change rather than predictability and stability.

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