

# Why Are Spine Surgery Patients Lost to Follow-up?

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## Abstract

Long-term outcome studies are frequently hindered by a decreasing frequency of patient follow-up with the treating surgeon over time. Whether this attrition represents a “loss of faith” in their index surgeon or the realities of a geographically mobile society has never been assessed in a population of patients undergoing spinal surgery. The purpose of this article is to determine the frequency with which patients who have undergone prior surgery and develop new problems attempt to follow-up with their index spine surgeon. The study design was a population survey. All patients seen at two university-based spine centers over a 3-month period were surveyed regarding prior spine surgery. The questionnaire asked details of the previous operation, whether the patient had sought follow-up with their index surgeon, why the patient did not continue treatment with that surgeon, and whether the patient was satisfied with their prior treatment. Sixty-nine patients completed the survey. Prior operations were lumbar (53 patients) and cervical (16). When asked the reason for not seeing their prior surgeon, 10 patients (15%) stated that they (the patient) had moved and 16 (23%) responded that their surgeon no longer practiced in the area. Thirteen (19%) were unhappy with their previous care, 22 (32%) were seeking a second opinion, and 7 (10%) were told they needed more complex surgery. Thirty-seven (54%) discussed their symptoms with their original surgeon before seeking another surgeon. Although 32 patients (46%) had not discussed their new complaints with their index surgeon, only 3 patients (4%) chose not to return to their prior surgeon despite having the opportunity to do so. Forty-nine patients (71%) were satisfied with their prior surgical care, and 42 patients (61%) would undergo the index operation again. Most of the patients seen at the authors’ practices after undergoing prior spine surgery elsewhere failed to follow up with their prior spine surgeon for geographical reasons. It appears that the majority of patients who develop new spinal complaints will seek out their treating surgeon when possible. This suggests that patient attrition over long-term follow-up may reflect a geographically mobile population rather than patient dissatisfaction with prior treatment.

## Keywords

- ▶ loss to follow-up
- ▶ spine surgery
- ▶ second opinion
- ▶ revision spinal surgery
- ▶ clinical studies

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Patients continue to become increasingly knowledgeable in seeking and ultimately choosing physicians; patients are also increasingly mobile. These facts are especially true when dealing with a complex spinal problem. Occasionally, for various known and unknown reasons, patients who have been under a spine surgeon's care will seek out a new spine surgeon. This has particular ramifications when patients participating in clinical trials become lost to follow-up by the treating surgeon. Indeed, long-term clinical trials are often hampered by this loss to follow-up over time, which has traditionally been assumed to be a sign of a poor clinical outcome.<sup>1-3</sup> Remarkably few studies, however, have investigated this issue, and, to our knowledge, none have done so for patients with spinal disorders. In this study, our goal was to improve our understanding of why patients are lost to follow-up after spinal surgery by analyzing the reasons patients came to our office after undergoing spinal surgery elsewhere by another spine surgeon.

## Materials and Methods

All new patients seen at two geographically distinct university-based centers over a 3-month period who gave a history of having undergone a previous spine operation elsewhere were asked to complete a questionnaire. Questions were designed to elicit why the patient had failed to pursue further treatment with the original surgeon. The survey also asked patients about the specifics of the prior surgery and the specialty of the initial surgeon (► **Fig. 1**). Paraphrased questions included: (1) Did you have previous spine surgery? (2) When was your prior surgery? (3) What region of your spine was operated on (cervical, thoracic, and/or lumbar)? (4) What type of surgery did you undergo? (5) What was the specialty of your prior surgeon (orthopedic, neurosurgeon, general, or other)? (6) Why are you now seeking a different surgeon? (7) Have you discussed your current complaints with your prior surgeon? (8) If so, what suggestion did your prior surgeon have regarding your current complaints? (9) Were you satisfied with your previous care? (10) Would you undergo your prior operation again?

## Results

Sixty-nine patients completed the survey. Prior operations were on the lumbar spine in 53 patients and on the cervical spine in 16 patients. These included 20 discectomies, 23 laminectomies, and 26 fusions. Thirty of the prior procedures were performed by orthopedists and 39 were performed by neurosurgeons. When asked the reason for not seeking care with their prior surgeon, 10 patients (15%) stated that they (the patient) had moved and 16 (23%) responded that their surgeon had moved. Thirteen patients (19%) were unhappy with their previous care, 22 patients (32%) were seeking a second opinion, and 7 patients (10%) were told that they needed a more complex operation (► **Table 1**). Thirty-seven patients (54%) reported discussing their symptoms with their original surgeon before seeking care by another spine surgeon and 32 (46%) had not. Of the 32 patients who had not

discussed their problems with the first surgeon, only three had chosen not to return to their prior surgeon given the option to do so (i.e., patient and surgeon still lived in the area, insurance accepted, etc.). Forty-nine patients (71%) were satisfied with the care they had received from their prior surgeon, and 42 patients (61%) responded that they would undergo their prior operation again for the same outcome.

## Discussion

Long-term clinical studies are limited by a loss of patients to follow-up. The causes for this (i.e., why patients do not return to their original spine surgeon) have, to our knowledge, never been studied. In the present investigation, we utilized a patient questionnaire to ascertain some of the reasons that patients seek care from another spine surgeon, rather than returning to their previous surgeon.

Often, a loss of follow-up is associated with a poor clinical result under the assumption that the patient may have been unhappy and sought further care elsewhere. Indeed, 13 of our 69 (19%) patients reported that they were unhappy with their previous care, although only 3 of the 69 (4%) patients chose not to follow-up with their treating surgeons even if they had the opportunity to do so. Furthermore, 71% of patients were satisfied with the prior care they received, and 61% would elect to undergo the same treatment again, evidence that seems to refute this assertion.

Often, failure of communication between surgeon and patient is blamed for a patient's decision to seek care by a new physician. In a study of 3,282 primary care patients, Safran et al noted that 899 (27.4%) changed physicians.<sup>4</sup> Of these, 230 (7.0%) did so involuntarily due to either the patient or physician moving; 669 (20.4%) patients voluntarily left their primary care physician. In a survey of all patients, they reported that scales measuring physician-patient relationship significantly predicted voluntary disenrollment from a physician's practice. Similarly, among orthopedic patients, van Dalen et al reported that patients' likelihood of initiating a second-opinion visit was best predicted by their subjective evaluation of their physician-patient relationship with their initial surgeon.<sup>5</sup> Malpractice claims may be considered the ultimate expression of dissatisfaction with patient care and are an arguably legitimate reason for a patient to switch physicians. Communication failure has long been reported as a leading cause of malpractice claims. Levinson et al, however, reported that although communication styles differed among primary care physicians with and without malpractice claims, there was no difference in communication styles between surgeons (general or orthopedic) with and without claims.<sup>6</sup> Therefore, failure of communication alone may not be responsible for a patient's decision to seek follow-up care elsewhere.

Another possible explanation for failure to follow up is the lack of access to care. Safran et al reported that, among their patient population, access to care did not predict disenrollment from a primary care physician's practice.<sup>4</sup> On the other hand, ten Berg and Ring found that among a cohort of 335 patients treated for metacarpal fractures, unemployment or

**Patient Questionnaire**

Date \_\_\_\_\_

1. Have you had a back or neck operation performed by a different surgeon than the one you are now seeing?
  - Yes
  - No
  
2. What was the date of your previous operation? \_\_\_\_\_
  
3. What area of the spine was operated on?
  - Cervical (neck)
  - Thoracic (upper back)
  - Lumbar (lower back)
  
3. What type of surgery did you undergo?
  - Discectomy
  - Laminectomy
  - Fusion
  - Other \_\_\_\_\_
  
4. What was the specialty of your prior surgeon?
  - Orthopaedic surgery
  - Neurosurgery
  - Other \_\_\_\_\_
  
5. Why are you now seeing a different surgeon from the surgeon who performed your prior operation?
  - I moved
  - My surgeon no longer practices in area
  - I am unhappy with my previous care
  - I am seeking a second opinion
  - I was told that I need a more complex operation
  - Other
  
5. Have you discussed your current complaints (or symptoms) with your prior surgeon?
  - Yes, I saw him/her in the office
  - Yes, but I did not see him/her in the office
  - No
  
6. What suggestion did your prior surgeon have regarding you current complaints (symptoms)?
  - N/A (I did not discuss my current symptoms with my prior surgeon)
  - More non-operative care was recommended (i.e. Physical Therapy, Injections etc...)
  - I was referred for pain management
  - Another surgery was recommended
  - My surgeon was unable to help with my current condition
  - My surgeon recommended that I see another surgeon
  - Other \_\_\_\_\_
  
8. Were you satisfied with the care you received from your prior surgeon?
  - Yes
  - No
  
9. Would you undergo your prior operation again?
  - Yes
  - No
  
10. Is your current problem related to the problem for which you previously had surgery?
  - Yes
  - No

**Fig. 1** Patient questionnaire used for the study.

unknown work status and lack of insurance were independent predictors of failure to follow-up.<sup>7</sup> Although we did not directly assess insurance status in our study, we found that the most common reason for failure of patients to follow up was geographical (e.g., either patient or physician had moved), suggesting that access to care is important to continuity of care. This accounted for 38% (26/69) of patients in our cohort. Today's patient population is increasingly mobile; between 1995 and 2000, 64.9% of those age 25 to 39, 34.2% of those age 40 to 64, and 23.3% of those age 65 and older in

the United States changed residence.<sup>8</sup> In 2009 alone, 12.8% of the United States population age 25 and older moved.<sup>9</sup> These geographical factors will likely continue to hamper the ability of physicians to obtain longer-term follow-up of their patients in the future.

A handful of orthopedic studies have retrospectively sought to evaluate patients lost to follow-up and to differentiate them from those who continue to be seen by their initial physician. Dorey and Amstutz compared survival curves of patients undergoing total hip replacement.<sup>10</sup> Patients who

**Table 1** Patient responses to the question “Why are you now seeing a different surgeon from the surgeon who performed your prior operation?”

| Reason                                     | n  | %    |
|--------------------------------------------|----|------|
| I moved                                    | 10 | 14.5 |
| My surgeon no longer practices in area     | 16 | 23.2 |
| I am unhappy with my previous care         | 13 | 18.8 |
| I am seeking a second opinion              | 22 | 31.9 |
| I was told I need a more complex operation | 7  | 10.1 |
| Other                                      | 14 | 20.3 |

Note: Patients could choose more than one answer. Ten patients selected multiple answers.

had initially been lost to follow-up in an earlier study were later contacted by telephone, increasing follow-up from 55 to 90%. When comparing survival curves from their earlier study with those including the newly gathered data, they found no significant change in the curve, concluding that patients lost to follow-up are at an equal risk of failure of a surgical procedure than those who continue to be seen. Joshi et al reported a 22% rate of loss to follow-up among patients undergoing total knee arthroplasty but, after subsequently contacting those patients, they found no statistical difference between failure rates of patients who continued to follow-up and those who did not.<sup>11</sup> Murray et al challenged this concept, however, evaluating patients' total hip replacement for 16 years and reporting that those who did not continue to follow up reported significantly worse pain, range of motion, and subjective opinion of their own progress, as well as worse radiological findings at their last follow-up appointment as compared with those who were not lost to follow-up.<sup>1</sup> They concluded that patients with failures and poor clinical outcomes are likely to avoid further follow-up care, and therefore clinical studies that assume that failure rates among patients lost to follow-up are equivalent to those who continue to be seen are fundamentally flawed, providing overly optimistic results. In their study of orthopedic second opinion seekers, van Dalen et al reported that nearly 60% of patients were disappointed with the results of their initial treatment (whether surgical or nonsurgical).<sup>5</sup>

van Dalen et al also noted that those patients with the lowest self-rating of their own health were more likely to seek a second opinion for their orthopedic problem.<sup>5</sup> Similarly, Tejwani et al reported on 293 patients treated for distal radius fractures with an 18% rate of loss to follow-up and found that scores for the Physical and Mental Component Scales of the Short Form 36 (SF-36) were lower among those lost to follow-up.<sup>12</sup> Norquist et al reported that failure to follow up likely was due to poor clinical outcome in patients undergoing treatment for rotator cuff tears.<sup>2</sup> In their study, 46% of patients were initially considered lost to follow-up in a longitudinal mail-questionnaire study (i.e., stopped returning the periodically mailed questionnaires). When retrospectively comparing those patients with the patients who continued to

regularly respond to the surveys, they noted that nonresponders initially (i.e., baseline) scored lower on the mental health summary and social function scales of the SF-36 Health Outcomes survey. At the last known response to the mailed questionnaire, nonresponders had significantly worse scores on the Simple Shoulder Test (a measure of shoulder function) than those who continued to respond, suggesting that those patients lost to follow-up had worse clinical outcomes. As part of the study, however, follow-up telephone interviews were conducted with both nonresponders and responders, and they found no significant difference in the Simple Shoulder Test scores between responders and nonresponders, suggesting instead that long-term outcomes of patients lost to follow-up may actually be similar to those of patients who continue to be seen.<sup>2</sup>

An additional reason for not following up also relates to type of treatment. In Norquist et al's survey, nonresponders were significantly more likely to have been treated nonoperatively.<sup>2</sup> Similarly, Tejwani et al also found that those patients treated nonoperatively were less likely to follow up.<sup>12</sup> All of the patients in our cohort, however, were treated surgically prior to being seen in our clinics, and therefore our data would not capture those lost to follow-up after nonoperative treatment.

Last, Wildner suggests that patients who fail to follow up may represent a subset of patients who simply do not wish to deal with the paperwork and inconvenience of long-term clinical studies.<sup>3</sup> Tejwani et al were able to contact 6 of the 54 patients in their study who were lost to follow-up, all of whom reported that the principal reason they did not return for further care was “inconvenience.”<sup>12</sup> Certainly, our results are consistent with this idea. Most of our patients (71%) were satisfied with their outcomes, and 61% responded that they would undergo the same spinal procedure again by the same surgeon. In most cases, these patients likely felt no need to continue care with their primary surgeon. Interestingly, of all the patients entered in this study, prior to seeking care at these two locations, over half had first sought the opinion from their primary surgeon, and of those who did not, 91% (29/32) were unable to do so because either they or their physicians had moved (or ceased to practice).

The major limitation of the present study is that it is a patient survey, and therefore it is subject to potential recall bias by the patients. Unlike prior studies, however, the survey was administered prospectively to patients who were presenting to our institution for evaluation after having undergone remote surgery elsewhere. In other words, these patients were not lost to follow-up from *our* practice. Twenty-two patients were seeking a second opinion; however, we did not specifically ask those patients why they were seeking that opinion. Although one might assume that second opinion seekers may be unsatisfied with their initial care, some patients may simply be interested in hearing an additional perspective on their condition, either to verify or refute what they have been told by their index surgeon. Moreover, we specifically asked all patients if they were unhappy with their previous care, which would include responses from those patients seeking second opinions. Another potential

limitation relates to the fact that these patients presented to specialized spine centers in tertiary care academic centers in major metropolitan areas. Patients who present in such areas have a choice of multiple spine specialists and often have the resources to seek care outside their own city or state. In addition, the general quality of spine care in such areas may be superior to that in more remote areas. It is possible that our findings may not be applicable to small towns and rural areas where the choice or quality might be more limited. Nevertheless, it is usually in academic centers similar to ours that clinical investigations are performed, and therefore our data should be fairly representative of the patient population of such investigations. Similarly, because of the disparate background and multiple facilities at which patients underwent their index procedures, we do not have any baseline preoperative or post-index procedure objective patient outcomes measures (e.g., Oswestry Disability Index, SF-36). The goal of our study, however, was to elucidate the reasons—from a patient's perspective—individuals sought out a different spine surgeon rather than attempting to correlate loss to follow-up with clinical outcome. Indeed, this would be a worthy endeavor for a future study as this has not yet been attempted for spine surgery patients.

This study represents, to our knowledge, the first assessment of loss to follow-up among patients undergoing spinal surgery. Based on previous reports, it has been suggested that the reasons for loss of patients to follow-up are multiple and complex and may not be fully understood. Although many surgeons associate a loss of follow-up with a poor clinical result under the assumption that the patient may have been unhappy and sought further care elsewhere, our data would suggest otherwise. Although these patients did not follow up with their prior spine surgeon, most were satisfied and would undergo the prior procedure again despite seeking follow-up elsewhere. The most common reasons for failure to follow up were geographical (26/69, 38%), and only 3 of the 69 patients (4%) sought follow-up care elsewhere without first attempting to reach their primary surgeon. This study suggests that most patients who are lost to follow-up after spinal surgery are likely satisfied with their outcome and may have seen no need for further follow-up. If they had significant problems, this study suggests that most would have likely sought out

their primary surgeon before seeking further treatment elsewhere.

#### Disclosures

Scott D. Daffner, None

Alan S. Hilibrand, Speakers' Bureau: AO Spine; Royalties: Alphatec, Biomet, Zimmer, Stryker, Aesculap/B.Braun, Amedica; Stock/stock options: Amedica, Vertiflex, Benvenue Medical, Pioneer, Lifespine, Paradigm Spine, PSD, Spinal Ventures, Syndicom, Knee Creations

K. Daniel Riew, None

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