



Vertebral COLUMNS

International Society for the Advancement of Spine Surgery

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INAPPROPRIATE DENIAL OF SPINE SURGERY CLAIMS: *Implications for Patients, Physicians, and Payers*

Identifying the Complication Profile Related to Cervical Disc Replacement: Going Beyond IDE Studies

Epidural Steroid Injections: Do They Work? And Do They Increase Infection Rates With Surgery?

Physical Therapy After Lumbar Spine Surgery

Telehealth and Resident Training: Optimizing "Webside Manner"

Mattresses, Pillows, and Sleep Position: What Do the Data Actually Support?

Peer-to-Peer? Medical Necessity? Prior Authorization? How the Insurance Companies' Medical Claims Approval Process Is Causing Physicians to Burn Out and Patients to Lose Out

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Inappropriate Denial of Spine Surgery Claims

Implications for Patients, Physicians, and Payers

Over the past decade, there has been an upward trend in the number of spine procedures, with more than 1.5 million procedures performed annually.¹ While spine surgeons can be encouraged by this expansive access to healthcare, it's also indicative of growing healthcare costs associated with the increasing needs of an aging population. Limited resources to meet these needs mean cost reduction is a high priority across the board. As such, patients are increasingly having their insurance claims for spinal procedures denied. This includes many legitimate claims that were inappropriately denied by the payer. Most recently, in an ISASS 2016 survey of more than 500 spine surgeons, Nunley et al² found that 25% of cases were denied during the preauthorization phase, with 58.5% of denials coming less than 3 days prior to surgery. This is a stark contrast to the denial rate of 17% of lumbar fusions reported in a 2004 study.³

Given that lumbar fusions alone can cost more than \$40 billion annually,⁴ it is not difficult to understand the economic motivations for payers to make it increasingly challenging to obtain approval for indicated procedures. However, inappropriate denials can leave both patient and surgeon in a less than ideal situation. Patients must submit

to a lengthy appeal process, undergoing additional physical and mental burden, all the while continuing to deal with pain and diminished function. From a provider standpoint, advocating for patients by dissuading payers from rejecting authorizations is a must; however, reports have shown this requires enormous amounts of time and resources^{5,6} and further delays treatment. In light of these detriments, the question remains: why do appropriate claims for spine surgery continue to be rejected?

Why Are Claims Denied?

Claims billed to insurance companies and other third-party payers may be denied for a variety of reasons. Generally, these denials are based upon a notion that an adequate standard of evidence was not met to justify payment for services. These discrepancies can occur at a number of different levels, including establishment of medical necessity, peer-to-peer approval, and interpretation of clinical evidence.

Insurance companies may claim that services do not meet the criteria of medical necessity. Oddly enough, a clear, uniform



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definition of “medical necessity” often does not exist,⁷ leaving it unclear with whom the impetus lies to make such a determination. Common sense may suggest the provider is best suited to this role, but payers do not always agree. Interestingly, insurance companies may deny their role in dictating patient care and instead define their position as simply outlining what they are (not) willing to pay for. Unfortunately, for many patients, this distinction is only semantic and in practical terms has essentially the same outcome.

While spine surgeons are highly motivated to provide their patients with the most up-to-date care, insurance companies may not be so quick to evolve in their understanding of the field. As a result, payers may deny procedures and claim the treatment is “experimental,” even after empirical validation and support through scientific testing and clinical research. Alternatively, claims may be denied based on interpretations of research suggesting no additional improvement in patient outcomes exists using surgical vs nonsurgical treatments.⁸⁻¹¹ For example, Blue Cross Blue Shield used the results of several studies to justify denial of coverage for spinal fusion procedures for certain pathologies.² Whether this rationalization is substantiated can be questionable, and recent legal disputes underscore the problematic stance payers can take regarding what is standard of care.¹³ It is for this reason (among many others) that high-quality, patient-centered outcomes research is essential as a basis for the practice of spine surgery.

The highly specialized nature of spine surgery means that surgeons themselves are often uniquely qualified to diagnose and prescribe care for their patients. When an insurance company initially challenges a claim, they typically give the opportunity for a “peer-to-peer” consultation to discuss and resolve discrepancies about whether the procedure is truly indicated. Unfortunately, many of these “peers” are only so in the sense that they are also physicians. These consultants are often general surgeons, or even physicians trained in a nonsurgical discipline. At best, if an orthopedic surgeon does fulfill this role, he or she is unlikely to have the subspecialty training necessary to participate in informed, evidence-based discussions regarding the indications for spine surgery in a particular case. Even though these consultants may be underqualified to recommend for or against specific treatments for spine care, more often than not they have final say on whether services are approved.

What Can Be Done?

The huge role that insurance and other third-party payers play in our healthcare system is undeniable. While frustrating at times, it is important that physicians work within the confines of the current system. However, given the far-reaching, systemic implications that these pay structures have on our ability to provide care to our patients, physicians have a vested interest, if not an obligation, to effect change on this system to meet patients’ needs. To this end, medical societies, including

the American Medical Association and more specialized spine societies, have an important role to play in uniting and empowering physicians to work for the changes that both they and their patients need. For example, the North American Spine Society continues to release sets of coverage recommendations designed as guidelines to help insurance companies and providers reach a common ground regarding acceptable billing and clinical practices.¹⁴ These medical societies can allow physicians to have a voice in our legal and political systems that goes well beyond that which any individual would be



able to accomplish. For those who feel the current insurance climate is unacceptable, this likely represents a valuable place to look to effect the change that is needed. ■

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Identifying the Complication Profile Related to Cervical Disc Replacement

Going Beyond IDE Studies



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There has been extensive literature showing the benefits of cervical disc replacement (CDR). Whether it is motion preservation or the ability to fully decompress the cervical spine, there is ample evidence that CDR can have a positive impact on patient outcomes.¹⁻⁴ Given the enthusiasm for this new technology, it is not surprising that the number of cervical disc replacement studies has increased from 2006 to 2013.⁵ Much of the enthusiasm for this technology stems from positive results associated with Food and Drug Administration Investiga-

tional Device Exemption (IDE) studies.^{6,7} But do real world results from CDR procedures reflect results from previously performed IDE studies? How can we go beyond IDE studies to best categorize the complication profile associated with CDR?

IDE studies for CDR have been widely cited and largely include multicenter prospective evaluation of this new technology. We reviewed 7 commonly used CDR devices and found more than 25 publications relaying results from IDE trials. The Bryan CDR has

studies from 2006 to 2017 with follow-up on studies of up to 10 years^{8,9} and has compared favorably to anterior cervical discectomy and fusion (ACDF). Prodisc-C has 5 IDE studies, with 7-year outcomes from one of these studies, which showed that the CDR was more effective and less costly than ACDF.¹⁰ Mobi-C is another commonly used device with 7 publications from 2013 to 2016 on IDE studies.^{11,12} Five-year results demonstrated the efficacy and safety of Mobi-C CDR. Prestige-LP has several IDE studies, and 10-year follow-up shows positive results.^{13,14} Secure-C, PCM, and M6 CDR devices all have more than one IDE study supporting their positive clinical impact with minimal to no complications reported.^{7,15,16}

Studies involving IDE trials are unique in many important ways and may not necessarily reflect overall clinical use of CDR. These trials are typically performed at high-volume spine centers in mostly urban areas across the country.^{7-9,15,16} Investigators in these studies are at times a part of the design process for the CDR device itself. As a result, they are familiar with the strengths and potential weaknesses associated with a CDR design. Furthermore, there are strict indications for inclusion within the studies.

Also, these studies include known, inherent biases, including publication bias, external validity, confounding bias, and financial conflicts of interest.¹⁷ This combination of biases, expert use of CDR implants, and strict clinical indications likely play a role in the low rate of complications reported in CDR IDE studies.

Case Example

We found evidence that the actual rate of complications related to CDR implants may be higher than initially reported in IDE studies. Saifi et al⁵ showed that rates of reoperation related to CDR implants are much higher than for ACDF procedures. In another systematic review by Hui et al,¹⁸ significant rates of adjacent segment degeneration, heterotrophic association, and dysphagia were reported. One specific case that we encountered also encourages further investigation of the real-world complication profile for CDR implants.

A 49-year-old woman who originally presented with complaints of right arm radiculopathy underwent an uncomplicated cervical disc replacement with a Mobi-C disc. Although her right arm pain completely resolved, she did complain of posterior neck pain that began 3 months after the index procedure. Radiographs at that time revealed device migration. Radiographs from immediately after the procedure and at the time of identifying device migration are shown in Figure 1. An intraoperative photograph of the migrated device is shown in Figure 2. The patient was revised to a one-level ACDF.

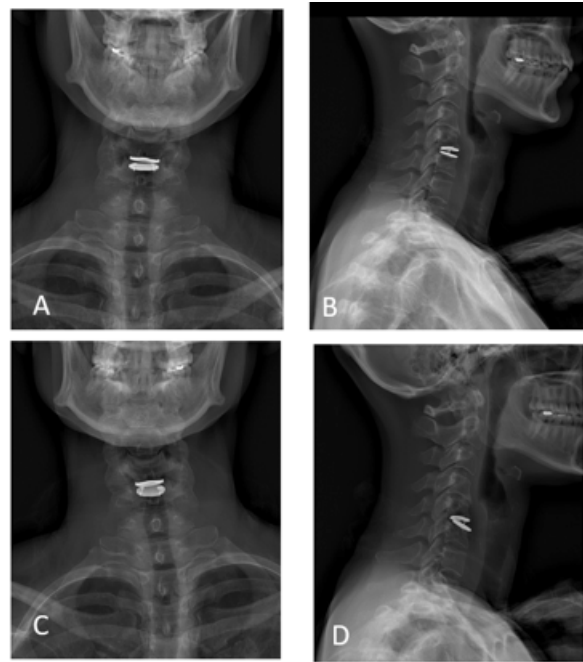


Figure 1. Immediate postoperative radiographs are shown in (A) anterior/posterior and (B) lateral views. Postoperative radiographs demonstrating device migration are shown in (C) anterior/posterior and (D) lateral views.



Figure 2. Intraoperative photo of a migrated CDR implant. There is dissociation of the polyethylene component and the two plates. Both plates were loose and were removed with minimal effort.

Complications Database

To better characterize the national complication profile associated with CDR implants, we used a database maintained by the United States Food and Drug Administration. The Manufacturer and User Facility Device Experience (MAUDE) database houses these reports via an online website. The reports consist of the date of reporting, the device used, the person submitting the report, a brief description of the adverse event, whether

the investigation into the adverse report was completed, and whether the device itself caused the adverse event. It can provide insight into benefit-risk assessments of new technology by allowing real-time tracking of complications.

In a query of the MAUDE database from 2010-2020 for several of the most common CDR implants, we found more than 1,300 complications related to the Mobi-C, Prestige LP, Prodisc-C, M6, Secure-C, PCM, and Bryan CDR. The five most common complications are shown in Table 1.

The results of our analysis demonstrated a wide variety of complications reported. More than 25 unique complication types were listed within the MAUDE database between 2010-2020. These complications included some that have been minimally listed in the literature, such as device dislodging, noise from an implant, and implant fracture.

While the MAUDE database can identify complications not often identified in the literature, there are significant issues with its use. First, the database consists of voluntary reported complications. As a result, complications are likely underreported. Second, the majority of data within the MAUDE database is from nonphysician

sources (eg, manufacturer, distributor). The detail of reporting from these sources makes it more difficult to extract useful clinical data besides broad categories of complications, as we have done (eg, migration of implant, malposition of device). Lastly, we also found significant portions of entries that are still under investigation.

We encourage further work toward establishing easy-to-use online databases to streamline reporting of complications related to all spine devices. Ideally, this database would be a comprehensive collection of complications that would allow for both easy entry of data as well as retrieval of complication information. Solely relying on IDE trials to understand real-world usage of implants such as CDR can significantly underestimate complications related to a spinal device. Availability of an easy-to-use online database could also facilitate quick identification of potential systemic problems with a new spinal technology by allowing for real-time device complication reporting.

Conclusion

There is a clear benefit to the use of CDR, but given that the product is new and has been in use only for the past 10 to 15

Table 1. Five Most Common Complications Related to Cervical Disc Replacements

Complication Type	No. of Reports	% of Overall Reports
Migration of implant	336	25.09%
Insertion of device problem	312	23.30%
Neck pain	199	14.86%
Heterotopic ossification	108	8.07%
Radiculopathy	90	6.72%

Source: Manufacturer and User Facility Device Experience (MAUDE) database.

years, we encourage thorough reporting of potential complications related to its use. IDE trials likely show optimal results, but real-world usage may result in higher com-

plication profiles. Future streamlining of complication reporting for CDR and other new spinal technology will be vital for safe advancements in the field of spine surgery. ■

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Epidural Steroid Injections

Do They Work? And Do They Increase Infections Rates With Surgery?



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Epidural steroid injections are one of the most common nonsurgical treatments for lumbar disc herniation and lumbar stenosis. The goal of epidural injections is to decrease pain and improve function. While the steroid does not remove the disc herniation or widen the spinal canal, it does decrease inflammation,¹ which may be what helps decrease pain and improve function. Lumbar laminectomy and discectomy are two well-studied procedures that have been shown to have good outcomes. However, the prospects of surgery always carry potential risks and complications, especially for patients who have medical comorbidities. Furthermore, some patients may have obligations or cannot take time off of work to have surgery. Therefore, it remains important to find an effective alternative to surgery that benefits both patients and surgeons, even if it may only be a temporizing measure.

Efficacy

The effectiveness of epidural injections in the management of lumbar spinal stenosis continues to be debated. Currently, several studies argue in favor of lumbar epidural steroid injections. In a study by Cosgrove et al,² the authors found that patients who received interlaminar epidural steroid injections showed a significant improvement

in ambulation and functional limitations caused by lumbar spinal stenosis. However, not all studies have been favorable. Friedly et al³ concluded that epidural injections did not offer any short-term benefits in terms of leg pain or physical disability as compared to lidocaine injections alone. With these contrasting findings in the literature, the use of epidural steroid injections for lumbar spinal stenosis remains controversial.

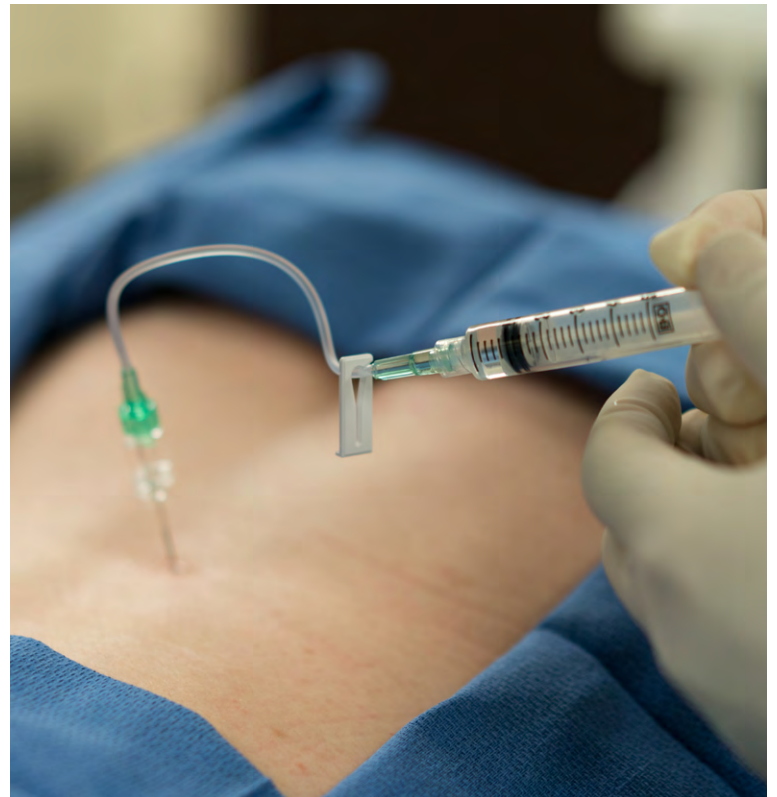
A number of meta-analyses have reviewed the literature in an attempt to provide a clearer view on the efficacy of epidural steroid injections. After reviewing 739 citations, Kovacs et al⁴ found 11 publications from five randomized controlled trials and concluded that in patients with lumbar stenosis, surgical intervention is more effective than continued conservative treatment after they failed for 3 to 6 months. This finding may imply that patients seeking treatment for symptomatic lumbar stenosis may reasonably pursue epidural steroid injections because there may be some efficacy; however, surgery is preferred in cases with continued failure of nonsurgical treatments.

Although the literature regarding the use of epidural injections for treatment of spinal stenosis remains controversial, evidence supporting the use of lumbar epidural steroid injections in patients with lumbar disc herniation appears to be more consistent.

Ghahreman et al⁵ performed a prospective, randomized trial comparing lumbar epidural steroid injections versus lidocaine and saline injections. They determined that “a significantly greater proportion of patients treated with transforaminal injection of steroid (54%) achieved relief of pain than did patients treated with transforaminal injection of local anesthetic (7%) or transforaminal injection of saline (19%), intramuscular steroids (21%), or intramuscular saline (13%).” Additionally, Vad et al⁶ concluded that after an average follow-up period of 1.4 years, patients receiving transforaminal epidural steroid injections had an increased success rate of 84%, as compared with 48% for those receiving trigger-point injections ($P < 0.005$).⁶ Outside of individual studies, a systematic review by Manchikanti et al⁷ evaluated the efficacy of epidural injections for disc herniation using three different anatomical approaches. They reported that strong evidence for short-term efficacy and moderate evidence for long-term efficacy exists for the use of epidural injections to manage symptoms and improve function for lumbar disc herniation. This finding suggests that treatment of lumbar disc herniation with nonsurgical options is reasonable for patients who do not have significant weakness, loss of sensation, or loss of bowel or bladder control. But if patients have not responded after 6 weeks, surgery may be a better solution than continued epidural steroid injections.

Infection Rates

There is also some evidence that epidural steroid injections may affect infection rates



if a patient has spine surgery after their injection. Yang et al⁸ performed a database study on patients who had a single-level decompression after having lumbar epidural steroid injections.⁸ The authors found a statistically significant infection rate up to 3 months after epidural injection. The relative risk of an infection was 3.2 times higher if the patient had their injection within a month before surgery and 1.8 times higher if they had the injection 1 to 3 months prior to surgery. Injections 6 months out and longer did not have an effect.

However, in another study, Seavey et al⁹ evaluated 6,535 patients (847 preoperative lumbar epidural spinal injection and 5,688 control) for analysis. The study showed an overall infection rate in the injection

group of 1.18% versus 0.76% in the control group. The authors inferred that although the infection rate was higher, preoperative lumbar epidural steroid injections did not significantly increase the risk of postoperative infection after single-level lumbar decompression. Again, a consensus has yet to be reached regarding the use of epidural steroid injections prior to surgery. While the risk of infection may be minimal, evidence exists that there may be an increased risk of infection with epidural steroid injections prior to surgery. Therefore, it may be beneficial to wait 3 months prior to operation for those patients who received an epidural steroid injection.

Conclusion

The use of epidural steroids for lumbar

stenosis and disc herniation remains controversial. Epidural steroid injections would not be indicated in patients who have loss of sensation, weakness, or loss of bowel or bladder control. However, there is some evidence that epidural steroid injections may be beneficial for the treatment of the pain and dysfunction from lumbar stenosis and lumbar disc herniation. Thus, it is reasonable to try epidural steroid injections as an alternative to surgery. If there is not improvement after 3 months, surgery would most likely be the preferred treatment. Also, it is worth bearing in mind that there may be an increased relative risk of postoperative wound infection if epidural steroid injections are used. Surgery may need to be planned a few months after the last injection. ■

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Physical Therapy After Lumbar Spine Surgery

Physical rehabilitation is a cornerstone of treatment for musculoskeletal conditions before and after surgical intervention. An extensive body of literature has documented the successful treatment of low back pain with physical therapy.^{1,2} Research on the utility of physical therapy for surgically treated patients is less robust, with little consensus on its use.³⁻⁵ As the healthcare system further emphasizes value and as patients receive more of their postoperative care at home, the question arises as to whether formal outpatient physical therapy enhances outcomes after lumbar spine surgery.

Spine surgeons have a varying degree of familiarity and involvement with postoperative rehabilitation protocols.^{4,6} Physical therapy after spine surgery generally includes a combination of cardiovascular exercise, nerve mobilization, motor strengthening, and patient education. Multiple studies with varying methodological quality have looked at the impact of rehabilitation following lumbar decompression (discectomy/laminectomy) and lumbar fusion, leaving spine surgeons unclear on the benefits of physical rehabilitation.

Physical Therapy After Lumbar Disc Surgery

Early randomized studies of small numbers of patients found superior improvements

in pain and functional disability with physical therapy after single-level microdiscectomy. Yilmaz et al⁷ studied 42 patients randomized to no treatment versus a home exercise program versus a supervised intensive exercise program between postoperative weeks 4 and 12. They found that the group treated with an intensive in-person therapy program had statistically greater reduction in visual analog scale (VAS) pain scores (3.1 vs. 0.2, $P < 0.05$) and modified Oswestry Disability Index (ODI) scores (13.4 vs. 3.1, $P < 0.05$) between the 4- and 12-week postoperative time points when compared with the group receiving no intervention.⁷ Filiz et al⁸ evaluated 60 patients randomized to similar treatment groups and found similar effects on VAS pain and modified ODI scores. In addition, they found that patients returned to work sooner when they received an in-person supervised exercise program compared with patients in the control group (56 vs 86 days, $P < 0.001$).

Erdogmus et al⁹ analyzed data from 120 patients randomized to physical therapy versus massage versus no treatment. The authors found a benefit in pain and physical function for patients undergoing physical therapy compared with no treatment at 3 months following surgery; however, this



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effect was not maintained at the 18-month postoperative time point. Donaldson et al¹⁰ evaluated the effects of an intensive rehabilitation program beginning 6 weeks after surgery in a group of 93 patients with a focus on longer term outcomes. At 1 year from surgery, they found no significant difference in the Oswestry Low Back Index, 36-Item Short Form Survey, or Roland-Morris Disability questionnaire between treatment group patients and control patients receiving no formal rehabilitation program.

A 2014 Cochrane review¹¹ of these and other studies concluded that low-quality evidence demonstrates a favorable impact of physical therapy on pain and function in the short term that is not maintained at longer-term follow-up.

Physical Therapy After Lumbar Spinal Stenosis Surgery

The effect of postoperative physical therapy has also been evaluated in patients undergoing surgery for spinal stenosis. While similar in terms of motion preservation, these patients have slightly more invasive procedures (eg, single or multi-level laminectomy) and tend to be older or more deconditioned than patients receiving single-level microdiscectomy. A 2007 randomized, controlled study by Mannion et al¹² evaluated 159 patients randomized to either no therapy, a strength-focused physical therapy program, or a mixed-modality physical therapy program following laminectomy at one or more levels. The treatment arms began at 8 weeks after the operation and continued for an additional 12 weeks. The authors evaluated VAS back and leg pain, Roland-Morris Disability questionnaires, and patient satisfaction at 5, 12, and 24 months postoperatively, finding no significant difference between groups at any time point. Two other similar randomized controlled trials reported a similar lack of effect of physical therapy following lumbar decompression.^{13,14}

A 2014 meta-analysis¹⁵ pooled data from these three randomized studies. While the individual studies did not demonstrate an

impact, their pooled data did indicate a benefit associated with physical therapy in VAS back pain and functional status in both short-term (<6 months) and long-term (>12 months) time points. In this meta-analysis, the pooled improvement in VAS back pain was not large enough to be considered clinically significant. However, the authors noted that their findings should be interpreted cautiously because their analysis included only three studies in a relatively limited number of patients.

Physical Therapy After Lumbar Fusion

Few controlled studies exist that evaluate the impact of physical therapy after lumbar fusion. A 2010 study¹⁶ evaluated the comparative effectiveness of an unsupervised home exercise program versus an intervention combining the home program with formal 90-minute physical therapy visits at 3, 6, and 9 weeks. During these visits, the therapists focused on integrating “psychomotor therapy” exercises into the home program. These exercises primarily centered around cognitive behavioral therapy designed to modify pain perception and retrain motor patterns. The study included 109 patients randomized to the two treatment groups. While back pain scores were similarly improved between groups at all time points, the patients receiving additional psychomotor therapy achieved a greater improvement in ODI than did the home exercise group at all time points (3, 5, 12, and 24 months). In addition, at 24 months, the psychomotor therapy group had a significantly higher

rate of employment (69 vs 41%, $P=0.004$).

Christensen et al¹⁷ analyzed the comparative effectiveness of three different rehabilitation programs after lumbar fusion. Ninety patients were randomized to a self-directed home program taught by video, a formal twice weekly physical therapy session with a therapist, or the same home program combined with 3 “back-café” meetings among patients during the first 2 months after lumbar fusion. At back-café meetings, participants discussed challenging aspects of their recovery and reviewed correct techniques for rehabilitation exercises under the supervision of a physical therapist. Although no differences in back pain scores among groups were noted at 24 months following surgery, the patients participating in the back-café program had superior scores on a questionnaire evaluating their physical capacity when compared with patients performing self-directed home exercise or participating in formal physical therapy. Patients in the back-café group also utilized fewer postoperative primary care visits. The authors attributed the effect of the back-café intervention to enhancement of patients’ coping capability and encouragement gained via the perception of a shared experience.

Conclusion

Despite little consensus regarding its efficacy and structure, physical rehabilitation is often employed after lumbar spine surgery. There does seem to be a positive impact of formal therapy on patients’ function

following lumbar decompression surgery, but it is unclear whether this effect persists beyond the early postoperative period. The literature related to lumbar fusion is sparse and lacks studies comparing formal physical therapy regimens to usual care. The existing studies related to fusion do indicate additional benefit from more

interactive postoperative rehabilitation programs compared with self-directed exercise. Given the potential expense associated with widespread use of formal physical therapy after lumbar surgery, further study is needed to define optimal rehabilitation regimens and their magnitude of benefit relative to their cost. ■

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Telehealth and Resident Training

Optimizing “Webside Manner”

Telehealth, the remote delivery of health-care via digital communication platforms, has seen explosive growth in light of the COVID-19 pandemic. With the cessation of nonurgent surgeries and the need for social distancing, surgeons and patients alike have turned to telehealth as a surrogate means of delivering and receiving care. Indeed, the change in practice patterns has been so pronounced that it has substantially affected market forecasts—current forecasts call for a sevenfold growth in telehealth by 2025.¹ The accuracy of these projections hinges, however, on whether telehealth can provide a meaningful, lasting alternative to in-person office visits.

Significant progress has been made in addressing the challenges associated with telehealth: reducing technical unfamiliarity, mitigating connectivity issues, and implementing strategies to perform remote physical examinations.²⁻⁵ Relatively little attention, however, has been paid to training the next generation of physicians in telehealth practices. As institutions segue to a “new normal” of practice management, it is important to consider how our trainees might adjust to a novel learning environment.

“Webside Manner”

In traditional office visits, trainees and attending physicians both usually perform independent evaluations of a given patient.

After each provider completes their evaluation, there is a forum to debrief that provides valuable feedback and allows trainees to hone their interviewing, examination, and diagnostic abilities, as well as their bedside manner.

Some researchers have attempted to reproduce this dynamic over telemedicine platforms. Afshari et al⁶ piloted a didactic and clinical-based telehealth curriculum for neurology residents that was designed to assess trainees’ attitudes toward and challenges faced when using telehealth. In evaluating residents’ performance, the authors noted that learners adapted quickly to videoconferencing platforms.

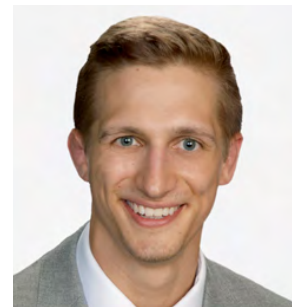
However, the trainees noted telehealth was inferior to in-person visits in building a sound physician-patient relationship—the so-called webside manner.

Telehealth for Trainees

In our practice, we are now in the process of developing a structured approach to the telehealth visit for trainees. During these visits, we typically invite the trainee to the virtual conference room using a videoconferencing platform such as Zoom where they have the opportunity to observe the visit.



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This provides trainees with the requisite exposure to telemedicine and also allows them to experience the “rhythm” of this visit. This setting offers some distinct advantages and disadvantages compared to in-person clinic visits.

First, the disadvantages: There is no efficient way for the trainee to perform an independent evaluation of the patient. We have, at times, had the trainee begin the visit using the teleconferencing platform, with the attending physician joining after about 10 to 15 minutes. After the attending physician joins, the trainee can provide a summary of his or her impression. This interaction, however, can be awkward both

for the trainee and the patient. For the trainee, presenting in front of the patient invariably leads to increased anxiety. For the patient, it is strange to hear your case being “presented” as if you were not in the room. Additionally, it is common for the patient to interrupt with a correction during the presentation, which leads to a second round of questioning and ultimately adds redundancy to the visit.

As a “shadowing” tool, however, telemedicine offers some distinct advantages. When examining the patient, for instance, the trainees can use the private chat functionality of teleconferencing platforms to discuss relevant physical findings with the

supervising physician. As we modify and adapt existing maneuvers for the remote examination, we have found this functionality extremely useful to help trainees interpret examination findings. For instance, we can highlight relevant findings (eg, inability to heel walk) and their implications (potential foot dorsiflexion weakness) in the context of the patient history in near real time. In our experience, these types of interactions have allowed our trainees to quickly feel comfortable with telemedicine as a tool for clinical evaluation.

Additionally, after the visit, we debrief with the trainee either remotely (over chat or text) or in person. The critical portions of this debrief emphasize the physical examination, our clinical impressions, and the strategies used to develop rapport with the patient. We discuss the challenges of developing a provider-patient relationship without physical interaction.⁷ Awareness,

patience, and empathy are absolutely critical in a remote clinical setting; residents must “read the conference” and adjust the interview accordingly.

Conclusion

It is safe to assume that the same qualities that patients value in traditional visits (integrity, responsibility, reliability, and accountability) are also expected in a telehealth environment. The physician’s professionalism and ethics are foundational in building a patient’s trust, and they need to be made evident in a telehealth setting. Translating these values to telemedicine requires careful communication, patience, and empathy, as well as a willingness to help patients with technical issues that may arise. The website manners component of any future telehealth curriculum is of critical importance if the quality of telehealth is to become equal to that of the office visit. ■

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Mattresses, Pillows, and Sleep Position

What Do the Data Actually Support?



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“Doc, what mattress would you recommend for my back pain?”

I am asked this and similar questions frequently during office hours. The average person spends about a third of their lifetime in bed, so it is not surprising that patients want to optimize sleep characteristics in an effort to prevent or alleviate symptoms. In the past, I have deflected the question, counseling patients that there is no right or wrong and that it comes down to individual preference. In my 10 years of medical education and training, there was no section on pillow selection, no lecture on sleep position, and no discussion of mattress firmness—so I assumed that there was no scientific basis on which to make specific recommendations. Yet there is a huge commercial industry capitalizing on this topic and an abundance of information targeting the lay public.

In order to provide a more informed answer to my patients (and to help other physicians do the same), I sifted through the primary studies to determine what the science actually supports. Although the literature is sparse and not always the most rigorous, it is at least worth understanding what currently exists.

Mattress Selection

The conventional wisdom that a firm mattress is required for good spine health is not necessarily true. Several studies have been performed that support the use of medium-firm mattresses to reduce pain.^{1,2} One such experiment found that people who switched to a new medium-firm mattress reported an average of 48% less back pain over the course of 4 weeks.² However, it is difficult to assess whether the improvement was related to the firmness of the mattress or the fact that the study participants' old mattresses were replaced.

Because body shapes and sizes differ from person to person, the best mattress for one patient might be suboptimal for another. A mattress should keep the spine well aligned over the course of the night. In side sleepers, a mattress that is too firm does not allow the shoulders to sink down sufficiently, and a mattress that is too soft allows the heavier pelvis to sag excessively—both of these scenarios result in a poorly aligned spine³ and potentially more pain and stiffness.

There is some evidence that beds that allow for active control of firmness improve spinal alignment, sleep quality, and back pain.^{4,5} These beds can be adjusted based



on an individual's current sleep position. Some adjustable mattresses have multiple zones that provide patients with even more control.⁶ Yet potential industry bias is present in some of these studies, and it is unclear whether the increased cost of such sleep systems is justified based on this limited research.

Synthesizing the above information is admittedly difficult, but I now counsel my patients that finding the right mattress is a process of trial and error. Unless they have the money and desire to invest in a custom or adjustable sleep system, a medium-firm mattress is likely a good place to start. Laying down on one for a few minutes in

a mattress showroom may not be enough to make a judgement, however. Patients might therefore opt for a new mattress that comes with an extended money-back guarantee so that they have ample time to evaluate it.

Pillow Selection

There is no shortage of pillow options, each of which is touted as a cure for neck pain. A plethora of materials and shapes are available. However, the scientific evidence in support of specialized designs is limited. In fact, a review of the literature concluded that there is not sufficient evidence to recommend the use of specialized cervical pillows over a traditional pillow for reducing neck pain.⁷ Pillow height has been associated with changes in neck alignment during sleep,⁸ so side sleepers might consider a taller pillow, back sleepers may benefit from a flatter pillow, and stomach sleepers might not use a pillow at all.

People often initially rate softer pillows as more comfortable, but the degree of support and resulting spinal alignment change significantly with time, even within the first 10 minutes of using a pillow.^{8,9} So, as with mattresses, it is important for patients to spend some time with a pillow before making a final decision. And while no single material has been convincingly shown to be superior to the others, people with allergies should avoid materials that trigger those allergies (eg, down). There is debate, however, regarding the effectiveness of pillow covers designed to protect against dust mites and other allergens.^{10,11}

Sleep Position

Now that your patients have found the perfect bed and pillow, how should they be lying on them? The literature on this subject is sparse and not completely consistent, but it seems to suggest that side sleeping is protective against spinal pain.¹² Back or stomach sleeping may increase the risk of low back pain,¹³ possibly because they exacerbate lumbar lordosis, thus loading the facet joints. However, the results of another study suggest that a combination of side and back sleeping, with a pillow between the legs in the former and under the knees in the latter, is effective for reducing back

pain.¹⁴ So, side sleeping is likely the safest bet, but some back sleeping might be permissible as well.

Putting It to Bed

Finding the right mattress, pillow, and sleep position is a process of trial and error. There is no single perfect combination that works for everyone, and configurations intended to minimize spinal pain may exacerbate other musculoskeletal conditions (eg, greater trochanteric bursitis). Nonetheless, minding these recommendations will hopefully allow us to guide patients to a more restful and healthy night's sleep. ■

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Peer-to-Peer? Medical Necessity? Prior Authorization?

How the Insurance Companies' Medical Claims Approval Process Is Causing Physicians to Burn Out and Patients to Lose Out

Most physicians go into medicine thinking that they will complete training, enter practice, and, if they focus on doing what is best by their patients, the rest will work itself out. Much to the chagrin of new practitioners, they are met with the stark reality that insurance companies make decisions about patients' treatments—not doctors.

Classic medical school teaching and residency training implores young physicians to diligently obtain facts about the patient's history, investigate further with advanced imaging and testing, and make a treatment decision based on the best available data and evidence. In today's world, these aims are far too idealistic; rather, the physician is expected to play the odds of certain outcomes using the minimum amount of possible information. This is where the concept of medical necessity comes into play.

Modern physicians and their office staff have become well acquainted with the term “medical necessity,” as this arbitrary concept is the basis for provision or denial of care. Cigna, for example, defines this term as “health care services that a physician, exercising prudent clinical judgment, would provide to a patient.”¹ In a nation with one of the most advanced healthcare systems in the world, this definition should not equate to mini-

mal necessary. Definitions like these leave out any indication of intent to provide high quality, expert, or patient-specific care. Certainly, when doctors make decisions, these components are implied as part of the process; however, in today's healthcare

world, insurance companies govern care. These companies stand to win big by denying claims; thus, medical necessity is interpreted as minimal necessary. Take, for example, the fact that in 2018, Health Care Service Corp (the parent company of Blue Cross Blue Shield of Illinois and five other states) made \$4.1 billion in profit in 2018 and United Health Group reported earnings of \$12 billion in 2018²; it would be naïve to think that these numbers were not influenced by a large number of medical claim denials.

One could argue that there is real value to cost containment and weeding out unnecessary treatment. Medical necessity establishes a baseline against which medical decisions can be judged to ensure that providers are not operating outside the standard of care. Indeed, the process of evaluating clinical claims likely started with sound intent to weed out bad actors. Unfortunately, the system has morphed into an oversized, onerous,



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encumbering one that dogs physicians and their offices and withholds, delays, or denies quality care to patients. Medical denials alone are estimated to occur in nearly 1 in 10 claims.³ There are a myriad of reasons for this spike in denials, including automation of the review process by insurers, increasing complexity of criteria needed to meet approval, and subtle contractual differences designed to cause errors in the process. Furthermore, requests of the provider have expanded from simple clinical records to now include, for example, requests for screenshots of MRIs, exact itemized dates of physical therapy appointments, requests for selection of certain types of bone graft and interbody devices, and even requiring patients to undergo cognitive behavioral therapy prior to surgery. The scope of what can be asked of physicians—and what they are contractually obligated to provide in order to take care of their patients—apparently has no limit.

Given the progressively draconian requirements and requests, the process of obtaining diagnostics or treatment for patients now overwhelms even the most robust and savvy physician office. Antiquated methodology alone accounts for a large number of denials. Dysfunctional fax lines and endlessly rerouted phone calls tax physician staff, interrupt workflow, and interfere with the provision of direct patient care. A recent study showed that the average physician completes 37 prior authorizations per week, which represent an average of 16.4 hours of additional work per week⁴ and are estimated to cost \$35 to \$100 per occurrence.⁵ In the same report, 90% of providers stated that these efforts resulted in delaying patients' access to necessary care.⁴ Nearly one third of physicians employ staff members who exclusively work on prior authorizations.⁵ Physicians felt a further slap in the face when news broke in 2018 that a former Aetna medical director admitted their approval process never even looked at patient records.⁶ The downstream effects are highlighted by one study that showed that more than 90% of physicians felt their ability to practice medicine was influenced by this process and altered a patient's treatment plan because of the restrictions from an insurance provider. All-in-all, this leaves physicians exasperated as they try to manage the countless hours of extra work and growing costs with no evidence that any of this improves the quality of their patients' lives.

With nurse reviewers often acting as the first line of claim review, peer-to-peer appeals were developed to allow higher-level discussions to take place and ensure that

care is not being denied inappropriately. In many instances, however, these purported peers are anything but, with many insurance medical reviewers in different fields entirely. Even when reviewers are trained in the appropriate field, there is no transparent process to ensure that they are experts or that their clinical decision-making skills are equivalent to the physician requesting care. Most physicians actively caring for patients could not imagine finding the time, nor the desire, to do medical reviews. As a result, many of the reviewers are retired or semi-retired and may not have modern clinical practices. In a field like spine surgery, that can make a dramatic difference in determining care. Furthermore, medical reviewers can supplement their incomes by thousands or even hundreds of thousands of dollars. Without any transparency on how these reviewers are paid and possible incentives to deny care, it makes the optics of this practice very poor. As peer-to-peer conversations have turned more into a “can you check the right box” discussion, it leaves physicians with little faith in the process

that was supposed to give them a voice to support their patients.

Physician burnout is a growing problem that cannot be overstated, but patients are burning out too. They tire of the large deductibles and lack of coverage they receive despite paying for what they are told is the “Cadillac” plan. More and more patients are electing to pay for tests and procedures with cash because of the constraints and headaches of medical authorization. This rings particularly true for cutting edge technologies that insurers still find to be experimental, but it also applies to simple studies like computed tomography that might be denied. As more tests and procedures are denied, patients lean on their physicians more heavily to advocate for them to get the treatment they need. Unless physicians take a stand against this broken system, insurers will continue to ask for more and providers will continue to become more helpless and frustrated. The end result for patients is the loss of their best advocate and their best hope for obtaining the high-quality care they deserve. ■

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