



ASPAN Position Statement: Appropriate Performance of Minimally Invasive Surgical Procedures

The American Society of Pain and Neuroscience (ASPAN) comprises approximately 4000 members across the globe in the fields of anesthesiology, neurosurgery, orthopedics, neurology, physiatry, radiology, interventional radiology, psychiatry, and psychology. As the leading society in research, development, education, and training in the field of minimally invasive percutaneous procedures of the spine and peripheral nerves, ASPAN is putting forth this position statement regarding appropriate performance of many existing and emerging minimally invasive surgical procedures. This consensus statement was developed from board certified physicians in the above-mentioned specialties and subsequently approved by the Executive Committee of ASPAN.

For the purpose of this consensus statement, ASPAN feels that it is essential to provide some definitions of what qualifies as a “minimally invasive” surgical procedure:

1. The operative procedure is either percutaneous or utilizes a minimal open exposure and performed in a setting such where image guidance (i.e., fluoroscopy, CT scan, Ultrasound) is utilized to assist the surgical procedure.
2. Minimal risk for major perioperative complications such as blood transfusion, major neurological injury, or death. Although serious operative complications can occur in minimally invasive surgical approaches, published major complication rates should be minimal.
3. Can typically be done in an outpatient setting, although certain circumstances may justify inpatient hospitalization.

Some examples of procedures and surgeries that would fit under this criteria include, but are not limited to, percutaneous lumbar spinal decompression, interspinous spacers for indirect decompression or fusion, minimally invasive facet fusion, spinal ablative therapies, minimally invasive sacroiliac joint fusion, vertebral augmentation, neuromodulation techniques through spinal cord or peripheral nerve stimulation, augmentation of the intervertebral discs, and intrathecal drug delivery systems. These types of minimally invasive surgical procedures meet the criteria set above as they are not intended to be performed in a traditional open surgical setting. As such, the most common potential complications for these types of procedures would be

expected to be minor and well within the scope of physicians from both surgical and interventional training. ASPN acknowledges that more invasive complex open surgical procedures such as open laminectomies and traditional open spinal fusion and instrumentation should be performed by those with traditional surgical training in neurosurgery and orthopedics. The training requirements and management of these types of complex open surgical procedures is typically outside the scope of interventionalists.

ASPN believes that physicians from the core specialties of Anesthesiology, Orthopedics, Neurosurgery, Physical Medicine and Rehabilitation, and Radiology, with additional advanced fellowship training in interventional procedural techniques are practicing within the scope of their skill set when performing these minimally invasive surgical procedures. ASPN also recognizes that physicians from other core specialties with appropriate fellowship training may also be qualified to perform minimally invasive surgical procedures. ASPN acknowledges that all of these specialties in addition to neurosurgery and orthopedics also have extensive training in the biology, biomechanics, and anatomy of the human spine and peripheral nervous system. This foundation provides them with expertise in diagnosis, decision-making, formulation of treatment plans - which may or may not include minimally invasive procedures.

There are multiple peer reviewed publications on the efficacy and safety of minimally invasive surgical procedures led by physicians from these training backgrounds to support the ASPN consensus statement on Appropriate Performance of Minimally Invasive Surgical Procedures. (1-13).

In addition to core specialty and fellowship training, advanced procedural training via society endorsed hands-on training labs and didactic sessions and physician directed industry training has supported appropriate and safe application of minimally invasive surgical approaches. ASPN has published peer reviewed guidelines addressing the various strategies for credentialing physicians in minimally invasive surgical procedures (12).

ASPN endorses that all patients treated with minimally invasive surgical therapies should obtain care within a comprehensive care team in which appropriate referrals can be made for complication management in the rare instances which they may arise. Cross-specialty relationships are paramount. All physicians that perform these types of procedures should be trained in diagnosis and management of complications, and in referring for appropriate treatment when the need arises. ASPN believes that any society endorsement on minimally invasive surgical procedures should be done incorporating multi-specialty input from surgeons, interventionalists, and conservative care healthcare providers. Endorsements on procedural scope which do not include this type of diverse input should inherently be questioned for specialty bias and may not be made in the best interest of optimal patient outcome and safety. ASPN will continually monitor the efficacy and safety of both existing and new minimally invasive surgical procedures at regular intervals and update this consensus statement as needed.

Signed and Approved by the Executive Board of ASPN 10-30-2021

References

1. Benyamin RM, Staats PS, MiDAS Encore I. MILD® Is an Effective Treatment for Lumbar Spinal Stenosis with Neurogenic Claudication: MiDAS ENCORE Randomized Controlled Trial. *Pain Physician*. 2016 May;19(4):229-42. PMID: 27228511.
2. Tekmyster G, Sayed D, Cairns KD, Raso LJ, Kim C, Block JE. Interspinous Process Decompression With The Superior® Spacer For Lumbar Spinal Stenosis: Real-World Experience From A Device Registry. *Med Devices (Auckl)*. 2019 Oct 3;12:423-427. doi: 10.2147/MDER.S220431. PMID: 31632160; PMCID: PMC6781846.
3. Falowski SM, Mangal V, Pope J, Patel A, Coleman M, Kendall D, Brouillette R, Fishman MA. Multicenter Retrospective Review of Safety and Efficacy of a Novel Minimally Invasive Lumbar Interspinous Fusion Device. *J Pain Res*. 2021 May 31;14:1525-1531. doi: 10.2147/JPR.S304957. PMID: 34103977; PMCID: PMC8180294.
4. Fischgrund JS, Rhyne A, Macadaeg K, Moore G, Kamrava E, Yeung C, Truumees E, Schaufele M, Yuan P, DePalma M, Anderson DG, Buxton D, Reynolds J, Sikorsky M. Long-term outcomes following intraosseous basivertebral nerve ablation for the treatment of chronic low back pain: 5-year treatment arm results from a prospective randomized double-blind sham-controlled multi-center study. *Eur Spine J*. 2020 Aug;29(8):1925-1934. doi: 10.1007/s00586-020-06448-x. Epub 2020 May 25. PMID: 32451777.
5. Lee DW, Patterson DG, Sayed D. Review of Current Evidence for Minimally Invasive Posterior Sacroiliac Joint Fusion. *Int J Spine Surg*. 2021 Jun;15(3):514-524. doi: 10.14444/8073. Epub 2021 May 7. PMID: 33963035; PMCID: PMC8176825.
6. Deer TR, Rupp A, Budwany R, Bovinet CJ, Chatas JW, Pyles ST, Azeem N, Li S, Naidu R, Antony A, Hagedorn JM, Sayed D. Pain Relief Salvage with a Novel Minimally Invasive Posterior Sacroiliac Joint Fusion Device in Patients with Previously Implanted Pain Devices and Therapies. *J Pain Res*. 2021 Sep 2;14:2709-2715. doi: 10.2147/JPR.S325059. PMID: 34512010; PMCID: PMC8421555.
7. Sayed D, Jacobs D, Sowder T, Haines D, Orr W. Spinal Radiofrequency Ablation Combined with Cement Augmentation for Painful Spinal Vertebral Metastasis: A Single-Center Prospective Study. *Pain Physician*. 2019 Sep;22(5):E441-E449. PMID: 31561656.
8. Beall DP, Wilson GL, Bishop R, Tally W. VAST Clinical Trial: Safely Supplementing Tissue Lost to Degenerative Disc Disease. *Int J Spine Surg*. 2020 Apr 30;14(2):239-253. doi: 10.14444/7033. PMID: 32355632; PMCID: PMC7188098.
9. Kapural L, Yu C, Doust MW, Gliner BE, Vallejo R, Sitzman BT, Amirdelfan K, Morgan DM, Brown LL, Yearwood TL, Bundschu R, Burton AW, Yang T, Benyamin R, Burgher AH. Novel 10-kHz High-frequency Therapy (HF10 Therapy) Is Superior to Traditional Low-frequency Spinal Cord Stimulation for the Treatment of Chronic Back and Leg Pain: The SENZA-RCT Randomized Controlled Trial. *Anesthesiology*. 2015 Oct;123(4):851-60. doi: 10.1097/ALN.0000000000000774. PMID: 26218762.
10. Deer TR, Levy RM, Kramer J, Poree L, Amirdelfan K, Grigsby E, Staats P, Burton AW, Burgher AH, O Bray J, Scowcroft J, Golovac S, Kapural L, Paicius R, Kim C, Pope J, Yearwood T, Samuel S, McRoberts WP, Cassim H, Nethererton M, Miller N, Schaufele M, Tavel E, Davis T, Davis K, Johnson L, Mekhail N. Dorsal root ganglion stimulation yielded higher treatment success rate for complex regional pain syndrome and causalgia at 3 and 12 months: a randomized comparative trial. *Pain*. 2017 Apr;158(4):669-681. doi: 10.1097/j.pain.0000000000000814. PMID: 28030470; PMCID: PMC5359787.

11. Pope JE, Deer TR, Falowski S. A Retrospective, Single-Center, Quantitative Analysis of Adverse Events in Patients Undergoing Spinal Stenosis with Neurogenic Claudication Using a Novel Percutaneous Direct Lumbar Decompression Strategy. *Journal of Pain Research*. 24 June 2021 Volume 2021:14 Pages 1909-1913
12. Naidu RK, Chaturvedi R, Engle AM, Mehta P, Su B, Chakravarthy K, Amirdelfan K, Henn J, Sayed D, Grider J, Deer T. Interventional Spine and Pain Procedure Credentialing: Guidelines from the American Society of Pain & Neuroscience. *J Pain Res*. 2021 Sep 8;14:2777-2791. doi: 10.2147/JPR.S309705. PMID: 34531681; PMCID: PMC8439288.
13. Sayed D, Balter K, Pyles S, Lam CM. A Multicenter Retrospective Analysis of the Long-Term Efficacy and Safety of a Novel Posterior Sacroiliac Fusion Device. *J Pain Res*. 2021;14:3251-3258. <https://doi.org/10.2147/JPR.S326827>