

Blue Cross Blue Shield of Massachusetts is an Independent Licenses of the Blue Cross and Blue Shield Association

Medical Policy Sacral Nerve Neuromodulation/Stimulation

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Policy Number: 153

BCBSA Reference Number: 7.01.69 (For Plan internal use only)

Related Policies

- Biofeedback as a Treatment of Fecal Incontinence or Constipation, #308
- Biofeedback as a Treatment of Urinary Incontinence, #173
- Pelvic Floor Stimulation as a Treatment of Urinary Incontinence, #<u>470</u>
- Percutaneous Tibial Nerve Stimulation, #<u>583</u>

Policy

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity

Urinary Incontinence and Nonobstructive Retention

Criteria A

A trial period of sacral nerve neuromodulation with either percutaneous nerve stimulation or a temporarily implanted lead may be considered <u>MEDICALLY NECESSARY</u> in individuals who meet **ALL** of the following criteria:

- 1. There is a diagnosis of at least 1 of the following:
 - a. Urge incontinence
 - b. Urgency-frequency syndrome
 - c. Non-obstructive urinary retention
 - d. Overactive bladder
- 2. There is documented failure or intolerance to at least 2 conventional conservative therapies (eg, behavioral training such as bladder training, prompted voiding, or pelvic muscle exercise training, pharmacologic treatment for at least a sufficient duration to fully assess its efficacy, and/or surgical corrective therapy).
 - a. The individual is an appropriate surgical candidate.
 - b. Incontinence is not related to a neurologic condition.

Criteria B

Permanent implantation of a sacral nerve neuromodulation device may be considered <u>MEDICALLY</u> <u>NECESSARY</u> in individuals who meet all of the following criteria:

- 1. All of the criteria in A (1-2) above are met.
- 2. A trial stimulation period demonstrates at least 50% improvement in symptoms over a period of at least 48 hours.

Other urinary/voiding applications of sacral nerve neuromodulation are **INVESTIGATIONAL** including but not limited to treatment of stress incontinence or urge incontinence due to a neurologic condition, (eg, detrusor hyperreflexia, multiple sclerosis, spinal cord injury, or other types of chronic voiding dysfunction).

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO BlueSM and Medicare PPO BlueSM Members

Fecal Incontinence

Criteria A

A trial period of sacral nerve neuromodulation with either percutaneous nerve stimulation or a temporarily implanted lead may be <u>MEDICALLY NECESSARY</u> in individuals who meet all of the following criteria:

- 1. There is a diagnosis of chronic fecal incontinence of greater than 2 incontinent episodes on average per week with duration greater than 6 months or for more than 12 months after vaginal childbirth.
- 2. There is documented failure or intolerance to conventional conservative therapy (e.g., dietary modification, the addition of bulking and pharmacologic treatment) for at least a sufficient duration to fully assess its efficacy
- 3. The individual is an appropriate surgical candidate.
- 4. The condition is not related to an anorectal malformation (e.g., congenital anorectal malformation; defects of the external anal sphincter over 60 degrees; visible sequelae of pelvic radiation; active anal abscesses and fistulae) or chronic inflammatory bowel disease.
- 5. Incontinence is not related to a neurologic condition.
- 6. The individual has not had rectal surgery in the previous 12 months, or in the case of cancer, the individual has not had rectal surgery in the past 24 months.

Criteria B

Permanent implantation of a sacral nerve neuromodulation device may be <u>MEDICALLY NECESSARY</u> in individuals who meet all of the following criteria:

- 1. All of the criteria in A. 1- 6 above are met.
- 2. A trial stimulation period demonstrates at least 50% improvement in symptoms over a period of at least 48 hour.

Sacral nerve neuromodulation is **INVESTIGATIONAL** in the treatment of chronic constipation or chronic pelvic pain.

Prior Authorization Information

Inpatient

 For services described in this policy, precertification/preauthorization <u>IS REQUIRED</u> if the procedure is performed inpatient.

Outpatient

• For services described in this policy, see below for situations where prior authorization might be required if the procedure is performed outpatient.

	Outpatient
Commercial Managed Care (HMO and POS)	Prior authorization is not required .
Commercial PPO and Indemnity	Prior authorization is not required .
Medicare HMO Blue sM	Prior authorization is not required .
Medicare PPO Blue SM	Prior authorization is not required .

CPT Codes / HCPCS Codes / ICD Codes

Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or noncoverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

The following codes are included below for informational purposes only; this is not an all-inclusive list.

The above <u>medical necessity criteria MUST</u> be met for the following codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity:

CPT codes:	Code Description
64561	Percutaneous implantation of neurostimulator electrode array; sacral nerve (transforaminal placement)
64581	Incision for implantation of neurostimulator electrodes; sacral nerve (transforminal placement)
64590	Insertion or replacement of peripheral or gastric neurostimulator pulse generator or receiver, direct or inductive coupling
95970	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with brain, cranial nerve, spinal cord, peripheral nerve, or sacral nerve, neurostimulator pulse generator/transmitter, without programming
95971	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with simple spinal cord or peripheral nerve (eg, sacral nerve) neurostimulator pulse generator/transmitter programming by physician or other qualified health care professional
95972	Electronic analysis of implanted neurostimulator pulse generator/transmitter (eg, contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with complex spinal cord or peripheral nerve (eg, sacral nerve) neurostimulator pulse generator/transmitter programming by physician or other qualified health care professional

CPT Codes

HCPCS Codes

HCPCS	
codes:	Code Description
A4290	Sacral nerve stimulation test lead, each

The following ICD Diagnosis Codes are considered medically necessary when submitted with the CPT and HCPCS codes above if <u>medical necessity criteria</u> are met: ICD-10 Diagnosis Codes

ICD-10-CM Diagnosis	
codes:	Code Description
N32.81	Overactive bladder
N39.41	Urge incontinence
N39.46	Mixed incontinence
N39.491	Coital incontinence
N39.492	Postural (urinary) incontinence
N39.498	Other specified urinary incontinence
R15.9	Full incontinence of feces
R32	Unspecified urinary incontinence
R33.0	Drug induced retention of urine

R33.8	Other retention of urine
R33.9	Retention of urine, unspecified
R35.0	Frequency of micturition
R39.14	Feeling of incomplete bladder emptying
R39.15	Urgency of urination

Description

Treatment

Treatment using sacral nerve neuromodulation, also known as indirect sacral nerve stimulation, is 1 of several alternative modalities for patients with urinary or fecal incontinence (urge incontinence, significant symptoms of urgency-frequency, nonobstructive urinary retention) who have failed behavioral (eg, prompted voiding) and/or pharmacologic therapies.

The sacral nerve neuromodulation device consists of an implantable pulse generator that delivers controlled electrical impulses. This pulse generator is attached to wire leads that connect to the sacral nerves, most commonly the S3 nerve root. Two external components of the system help control the electrical stimulation. A control magnet, kept by the patient, is used to turn the device on or off. A console programmer is kept by the physician and used to adjust the settings of the pulse generator.

Before implantation of the permanent device, patients undergo an initial testing phase to estimate potential response to treatment. The first type of testing developed was percutaneous nerve evaluation. This procedure is done with the patient under local anesthesia, using a test needle to identify the appropriate sacral nerve(s). Once identified, a temporary wire lead is inserted through the test needle and left in place for 4 to 7 days. This lead is connected to an external stimulator, which is carried by patients in their pocket or on their belt. The results of this test phase are used to determine whether patients are appropriate candidates for the permanent device. If patients show a 50% or greater reduction in symptom frequency, they are deemed eligible for the permanent device

The second type of testing is a 2 stage surgical procedure. In the first stage, a quadripolar-tined lead is implanted (stage 1). The testing phase can last as long as several weeks, and if patients show a 50% or greater reduction in symptom frequency, they can proceed to stage 2 of the surgery, which is permanent implantation of the neuromodulation device. The 2 stage surgical procedure has been used in various ways. They include its use instead of percutaneous nerve evaluation, for patients who failed percutaneous nerve evaluation, or for patients who had a successful percutaneous nerve evaluation further.

The permanent device is implanted with the patient under general anesthesia. The electrical leads are placed in contact with the sacral nerve root(s) via an incision in the lower back, and the wire leads are extended through a second incision underneath the skin, across the flank to the lower abdomen. Finally, a third incision is made in the lower abdomen where the pulse generator is inserted and connected to the wire leads. Following implantation, the physician programs the pulse generator to the optimal settings for that patient. The patient can switch the pulse generator on and off by placing the control magnet over the area of the pulse generator for 1 to 2 seconds.

This evidence review does not address pelvic floor stimulation, which refers to electrical stimulation of the pudendal nerve. Pelvic floor stimulation is addressed separately (see policy # 470). Also, this review does not address devices that provide direct sacral nerve stimulation in patients with spinal cord injuries.

Summary

Description

Sacral nerve neuromodulation, also known as sacral nerve stimulation, involves the implantation of a permanent device that modulates the neural pathways controlling bladder or rectal function. This evidence review addresses the use of sacral nerve neuromodulation to treat urinary or fecal incontinence, fecal nonobstructive retention, and chronic pelvic pain in individuals with intact neural innervation of the bladder and/or rectum.

Summary of Evidence

For individuals with urinary incontinence who have failed conservative treatment who receive sacral nerve neuromodulation, the evidence includes randomized controlled trials (RCTs) and case series. Relevant outcomes are symptoms, morbid events, and treatment-related morbidity. Results from the RCTs and case series with long-term follow-up have suggested that sacral nerve neuromodulation reduces symptoms of urge incontinence, urgency-frequency syndrome, nonobstructive urinary retention, and overactive bladder in selected patients. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with fecal incontinence who have failed conservative treatment who receive sacral nerve neuromodulation, the evidence includes RCTs, systematic reviews, and observational studies including several with long-term follow-up. Relevant outcomes are symptoms, morbid events, and treatment-related morbidity. Although relatively small, the available trials had a low risk of bias and demonstrated improvements in incontinence relative to alternatives in selected patients. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with constipation who have failed conservative treatment who receive sacral nerve neuromodulation, the evidence includes RCTs, systematic reviews, and case series including several with long-term follow-up. Relevant outcomes are symptoms, morbid events, and treatment-related morbidity. The available trials have not consistently reported improvements in outcomes with sacral nerve neuromodulation. Additional studies are needed to demonstrate the health benefits of this technology. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with chronic pelvic pain who receive sacral nerve neuromodulation, the evidence is limited to systematic reviews of case series. Relevant outcomes are symptoms, morbid events, and treatment-related morbidity. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Date	Action
6/2025	Annual policy review. References updated. Policy statements unchanged.
6/2024	Annual policy review. Description, summary, and references updated. Policy
	statements unchanged.
6/2023	Annual policy review. Minor editorial refinements to policy statements; intent
6/2022	Annual policy review Description summary and references undated Policy
0,2022	statements unchanged
5/2021	Appual policy review Description summary and references updated Policy
0,2021	statements unchanged.
1/2021	Medicare information removed. See MP #132 Medicare Advantage Management for
	local coverage determination and national coverage determination reference.
6/2020	Annual policy review. Minor edits to the policy section; statements unchanged.
5/2019	Annual policy review. Description, summary, and references updated. Policy
	statements unchanged.
6/2018	Annual policy review. Description, summary, and references updated. Policy
	statements unchanged.
2/2018	Clarified coding information.
2/2017	Annual policy review. New references added
10/2016	Clarified coding information.
1/2016	Clarified coding information.
12/2015	Annual policy review. In both B.2 medically necessary statements, period of trial
	stimulation changed to "at least 48 hours." Clarified coding information. Effective
	12/1/2015.
12/2014	Annual policy review. Added close parenthesis to statement A 2 in the fecal
	incontinence policy statement - 2. There is documented failure or intolerance to
	conventional conservative therapy (eg, dietary modification, the addition of bulking
	and pharmacologic treatment) for at least a sufficient duration to fully assess its
	efficacy.

Policy History

9/2014	Annual policy review. New medically necessary indications described. Clarified medically necessary statement on fecal incontinence (clarifying length of time after surgery trial stimulation can take place). Coding information clarified. Effective 9/1/2014.
5/2014	Updated Coding section with ICD10 procedure and diagnosis codes, effective 10/2015.
1/2014	Coding information clarified.
12/2013	Clarified coding information
10/2013	Annual policy review. Revised medically necessary criteria. Effective 10/1/2013.
2/2013	Annual policy review. Changes to policy statement. Effective 2/4/2013.
11/2011- 4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.
9/2011	Reviewed - Medical Policy Group – Urology, Obstetrics and Gynecology. No changes to policy statements.
1/2011	Annual policy review. Changes to policy statement.
6/2010	Reviewed - Medical Policy Group- Urology. No changes to policy statements.
1/1/2010	Medical Policy 153 effective 1/1/2010.
12/2009	Annual policy review. No changes to policy statement.
11/2007	Annual policy review. Changes to policy statement.

Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information: <u>Medical Policy Terms of Use</u> <u>Managed Care Guidelines</u> <u>Indemnity/PPO Guidelines</u> <u>Clinical Exception Process</u> <u>Medical Technology Assessment Guidelines</u>

References

- Food and Drug Administration (FDA). Summary of Safety and Effectiveness: Medtronic Interstim System for Urinary Control. http://www.accessdata.fda.gov/cdrh_docs/pdf/P970004S004b.pdf. Accessed March 3, 2025.
- Weil EH, Ruiz-Cerdá JL, Eerdmans PH, et al. Sacral root neuromodulation in the treatment of refractory urinary urge incontinence: a prospective randomized clinical trial. Eur Urol. Feb 2000; 37(2): 161-71. PMID 10705194
- 3. Siegel S, Noblett K, Mangel J, et al. Results of a prospective, randomized, multicenter study evaluating sacral neuromodulation with InterStim therapy compared to standard medical therapy at 6-months in subjects with mild symptoms of overactive bladder. Neurourol Urodyn. Mar 2015; 34(3): 224-30. PMID 24415559
- 4. Noblett K, Siegel S, Mangel J, et al. Results of a prospective, multicenter study evaluating quality of life, safety, and efficacy of sacral neuromodulation at twelve months in subjects with symptoms of overactive bladder. Neurourol Urodyn. Feb 2016; 35(2): 246-51. PMID 25546568
- Amundsen CL, Richter HE, Menefee SA, et al. OnabotulinumtoxinA vs Sacral Neuromodulation on Refractory Urgency Urinary Incontinence in Women: A Randomized Clinical Trial. JAMA. Oct 04 2016; 316(13): 1366-1374. PMID 27701661
- Chartier-Kastler E, Normand LL, Ruffion A, et al. Sacral Neuromodulation with the InterStim System for Overactive Bladder: 3-Year Results from the French Prospective, Multicenter, Observational SOUNDS Study. Eur Urol Focus. Sep 2022; 8(5): 1399-1407. PMID 34334342
- Pezzella A, McCrery R, Lane F, et al. Two-year outcomes of the ARTISAN-SNM study for the treatment of urinary urgency incontinence using the Axonics rechargeable sacral neuromodulation system. Neurourol Urodyn. Feb 2021; 40(2): 714-721. PMID 33508155
- Blok B, Van Kerrebroeck P, de Wachter S, et al. Two-year safety and efficacy outcomes for the treatment of overactive bladder using a long-lived rechargeable sacral neuromodulation system. Neurourol Urodyn. Apr 2020; 39(4): 1108-1114. PMID 32243625
- Groen J, Blok BF, Bosch JL. Sacral neuromodulation as treatment for refractory idiopathic urge urinary incontinence: 5-year results of a longitudinal study in 60 women. J Urol. Sep 2011; 186(3): 954-9. PMID 21791355

- 10. White WM, Mobley JD, Doggweiler R, et al. Incidence and predictors of complications with sacral neuromodulation. Urology. Apr 2009; 73(4): 731-5. PMID 19193415
- 11. Thaha MA, Abukar AA, Thin NN, et al. Sacral nerve stimulation for faecal incontinence and constipation in adults. Cochrane Database Syst Rev. Aug 24 2015; 2015(8): CD004464. PMID 26299888
- Thin NN, Horrocks EJ, Hotouras A, et al. Systematic review of the clinical effectiveness of neuromodulation in the treatment of faecal incontinence. Br J Surg. Oct 2013; 100(11): 1430-47. PMID 24037562
- 13. Tan E, Ngo NT, Darzi A, et al. Meta-analysis: sacral nerve stimulation versus conservative therapy in the treatment of faecal incontinence. Int J Colorectal Dis. Mar 2011; 26(3): 275-94. PMID 21279370
- Maeda Y, Matzel K, Lundby L, et al. Postoperative issues of sacral nerve stimulation for fecal incontinence and constipation: a systematic literature review and treatment guideline. Dis Colon Rectum. Nov 2011; 54(11): 1443-60. PMID 21979192
- 15. Vollebregt PF, Goh YL, Chan CL, et al. Clinical effectiveness of subsensory sacral neuromodulation in adults with faecal incontinence: the SUBSoNIC crossover RCT and mechanistic study. Southampton (UK): National Institute for Health and Care Research; November 2024.
- Tjandra JJ, Chan MK, Yeh CH, et al. Sacral nerve stimulation is more effective than optimal medical therapy for severe fecal incontinence: a randomized, controlled study. Dis Colon Rectum. May 2008; 51(5): 494-502. PMID 18278532
- 17. Leroi AM, Parc Y, Lehur PA, et al. Efficacy of sacral nerve stimulation for fecal incontinence: results of a multicenter double-blind crossover study. Ann Surg. Nov 2005; 242(5): 662-9. PMID 16244539
- 18. Wexner SD, Coller JA, Devroede G, et al. Sacral nerve stimulation for fecal incontinence: results of a 120-patient prospective multicenter study. Ann Surg. Mar 2010; 251(3): 441-9. PMID 20160636
- 19. Mellgren A, Wexner SD, Coller JA, et al. Long-term efficacy and safety of sacral nerve stimulation for fecal incontinence. Dis Colon Rectum. Sep 2011; 54(9): 1065-75. PMID 21825885
- 20. Hull T, Giese C, Wexner SD, et al. Long-term durability of sacral nerve stimulation therapy for chronic fecal incontinence. Dis Colon Rectum. Feb 2013; 56(2): 234-45. PMID 23303153
- 21. Altomare DF, Giuratrabocchetta S, Knowles CH, et al. Long-term outcomes of sacral nerve stimulation for faecal incontinence. Br J Surg. Mar 2015; 102(4): 407-15. PMID 25644687
- 22. Leo CA, Thomas GP, Bradshaw E, et al. Long-term outcome of sacral nerve stimulation for faecal incontinence. Colorectal Dis. Dec 2020; 22(12): 2191-2198. PMID 32954658
- 23. Desprez C, Damon H, Meurette G, et al. Ten-year Evaluation of a Large Retrospective Cohort Treated by Sacral Nerve Modulation for Fecal Incontinence: Results of a French Multicenter Study. Ann Surg. Apr 01 2022; 275(4): 735-742. PMID 32740249
- 24. De Meyere C, Nuytens F, Parmentier I, et al. Five-year single center experience of sacral neuromodulation for isolated fecal incontinence or fecal incontinence combined with low anterior resection syndrome. Tech Coloproctol. Sep 2020; 24(9): 947-958. PMID 32556866
- 25. Picciariello A, Rinaldi M, Dibra R, et al. Ageing with sacral nerve modulation for fecal incontinence: how many patients get benefit after more than 10 years?. Updates Surg. Feb 2022; 74(1): 185-191. PMID 34982410
- Jottard K, Van den Broeck S, Komen N, et al. Treatment of Fecal Incontinence With a Rechargeable Sacral Neuromodulation System: Efficacy, Clinical Outcome, and Ease of Use-Six-Month Follow-Up. Neuromodulation. Oct 2021; 24(7): 1284-1288. PMID 33107663
- 27. Katuwal B, Thorsen A, Kochar K, et al. Outcomes and efficacy of magnetic resonance imagingcompatible sacral nerve stimulator for management of fecal incontinence: A multi-institutional study. World J Radiol. Feb 28 2024; 16(2): 32-39. PMID 38455883
- 28. Pauwels N, Willemse C, Hellemans S, et al. The role of neuromodulation in chronic functional constipation: a systematic review. Acta Gastroenterol Belg. 2021; 84(3): 467-476. PMID 34599572
- Pilkington SA, Emmett C, Knowles CH, et al. Surgery for constipation: systematic review and practice recommendations: Results V: Sacral Nerve Stimulation. Colorectal Dis. Sep 2017; 19 Suppl 3: 92-100. PMID 28960926
- 30. Thomas GP, Dudding TC, Rahbour G, et al. Sacral nerve stimulation for constipation. Br J Surg. Jan 2013; 100(2): 174-81. PMID 23124687
- Knowles CH, Thin N, Gill K, et al. Prospective randomized double-blind study of temporary sacral nerve stimulation in patients with rectal evacuatory dysfunction and rectal hyposensitivity. Ann Surg. Apr 2012; 255(4): 643-9. PMID 22418005
- 32. Zerbib F, Siproudhis L, Lehur PA, et al. Randomized clinical trial of sacral nerve stimulation for refractory constipation. Br J Surg. Feb 2017; 104(3): 205-213. PMID 27779312

- Dinning PG, Hunt L, Patton V, et al. Treatment efficacy of sacral nerve stimulation in slow transit constipation: a two-phase, double-blind randomized controlled crossover study. Am J Gastroenterol. May 2015; 110(5): 733-40. PMID 25895520
- 34. Kamm MA, Dudding TC, Melenhorst J, et al. Sacral nerve stimulation for intractable constipation. Gut. Mar 2010; 59(3): 333-40. PMID 20207638
- 35. Maeda Y, Lundby L, Buntzen S, et al. Sacral nerve stimulation for constipation: suboptimal outcome and adverse events. Dis Colon Rectum. Jul 2010; 53(7): 995-9. PMID 20551750
- 36. Tirlapur SA, Vlismas A, Ball E, et al. Nerve stimulation for chronic pelvic pain and bladder pain syndrome: a systematic review. Acta Obstet Gynecol Scand. Aug 2013; 92(8): 881-7. PMID 23710833
- 37. Martellucci J, Naldini G, Carriero A. Sacral nerve modulation in the treatment of chronic pelvic pain. Int J Colorectal Dis. Jul 2012; 27(7): 921-6. PMID 22203519
- 38. Siegel S, Paszkiewicz E, Kirkpatrick C, et al. Sacral nerve stimulation in patients with chronic intractable pelvic pain. J Urol. Nov 2001; 166(5): 1742-5. PMID 11586214
- 39. Greig J, Mak Q, Furrer MA, et al. Sacral neuromodulation in the management of chronic pelvic pain: A systematic review and meta-analysis. Neurourol Urodyn. Apr 2023; 42(4): 822-836. PMID 36877182
- 40. Baxter C, Kim JH. Contrasting the percutaneous nerve evaluation versus staged implantation in sacral neuromodulation. Curr Urol Rep. Sep 2010; 11(5): 310-4. PMID 20535593
- 41. Leong RK, De Wachter SG, Nieman FH, et al. PNE versus 1st stage tined lead procedure: a direct comparison to select the most sensitive test method to identify patients suitable for sacral neuromodulation therapy. Neurourol Urodyn. Sep 2011; 30(7): 1249-52. PMID 21404317
- Scheepens WA, Van Koeveringe GA, De Bie RA, et al. Long-term efficacy and safety results of the twostage implantation technique in sacral neuromodulation. BJU Int. Dec 2002; 90(9): 840-5. PMID 12460343
- 43. Marcelissen TA, Leong RK, de Bie RA, et al. Long-term results of sacral neuromodulation with the tined lead procedure. J Urol. Nov 2010; 184(5): 1997-2000. PMID 20850820
- Borawski KM, Foster RT, Webster GD, et al. Predicting implantation with a neuromodulator using two different test stimulation techniques: A prospective randomized study in urge incontinent women. Neurourol Urodyn. 2007; 26(1): 14-8. PMID 17123297
- 45. Bannowsky A, Wefer B, Braun PM, et al. Urodynamic changes and response rates in patients treated with permanent electrodes compared to conventional wire electrodes in the peripheral nerve evaluation test. World J Urol. Dec 2008; 26(6): 623-6. PMID 18629503
- 46. Cameron AP, Chung DE, Dielubanza EJ, et al. The AUA/SUFU guideline on the diagnosis and treatment of idiopathic overactive bladder. Neurourol Urodyn. Nov 2024; 43(8): 1742-1752. PMID 39010271
- 47. ACOG Practice Bulletin No. 155: Urinary Incontinence in Women. Obstet Gynecol. Nov 2015; 126(5): e66-e81. PMID 26488524
- 48. Goldman HB, Lloyd JC, Noblett KL, et al. International Continence Society best practice statement for use of sacral neuromodulation. Neurourol Urodyn. Jun 2018; 37(5): 1823-1848. PMID 29641846
- National Institute for Health and Care Excellence (NICE). Axonics sacral neuromodulation system for treating refractory overactive bladder [MTG50]. 2020; https://www.nice.org.uk/guidance/mtg50. Accessed March 1, 2025.
- 50. National Institute for Health and Care Excellence (NICE). Sacral nerve stimulation for urge incontinence and urgency-frequency. IPG64. https://www.nice.org.uk/guidance/ipg64. June 23, 2004. Accessed March 3, 2025.
- 51. National Institute for Health and Care Excellence (NICE). Faecal incontinence in adults: management [CG49]. 2007; https://www.nice.org.uk/guidance/CG49. Accessed March 2, 2025.
- 52. Wald A, Bharucha AE, Cosman BC, et al. ACG clinical guideline: management of benign anorectal disorders. Am J Gastroenterol. Aug 2014; 109(8): 1141-57; (Quiz) 1058. PMID 25022811
- 53. Wald A, Bharucha AE, Limketkai B, et al. ACG Clinical Guidelines: Management of Benign Anorectal Disorders. Am J Gastroenterol. Oct 01 2021; 116(10): 1987-2008. PMID 34618700
- 54. ACOG Practice Bulletin No. 210: Fecal Incontinence. Obstet Gynecol. Apr 2019; 133(4): e260-e273. PMID 30913197
- Bordeianou, L. G., Thorsen, A. J., Keller, D. S., et al. The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Management of Fecal Incontinence. 2023. Diseases of the colon and rectum, 66(5), 647-661. https://doi.org/10.1097/DCR.00000000002776
- Paquette IM, Varma M, Ternent C, et al. The American Society of Colon and Rectal Surgeons' Clinical Practice Guideline for the Evaluation and Management of Constipation. Dis Colon Rectum. Jun 2016; 59(6): 479-92. PMID 27145304

- Alavi K, Thorsen AJ, Fang SH, et al. The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Evaluation and Management of Chronic Constipation. Dis Colon Rectum. Oct 01 2024; 67(10): 1244-1257. PMID 39250791
- 58. Chronic Pelvic Pain: ACOG Practice Bulletin, Number 218. Obstet Gynecol. Mar 2020; 135(3): e98e109. PMID 32080051
- Centers for Medicare & Medicaid Services. National Coverage Determination (NCD) for SACRAL NERVE Stimulation For Urinary Incontinence (230.18). 2002; https://www.cms.gov/medicare-coveragedatabase/view/ncd.aspx?NCDId=249. Accessed March 1, 2025.