## Commentary

## Release and highlights of the *Lifespan Bowel Management Protocol* produced for clinicians who manage neurogenic bowel dysfunction in individuals with spina bifida

Maryellen S. Kelly<sup>a,b</sup>, Eileen Sherburne<sup>c</sup>, Joy Kerr<sup>d</sup>, Colleen Payne<sup>e</sup>, Heather Dorries<sup>e</sup>, Patricia Beierwaltes<sup>f</sup>, Adam Guerro<sup>e</sup> and Judy Thibadeau<sup>e,\*</sup>

<sup>a</sup>Department of Urology, Duke University, Durham, NC, USA

<sup>b</sup>Healthcare of Women and Children's Division, School of Nursing, Duke University, Durham, NC, USA

<sup>c</sup>Department of Nursing Research, Children's Wisconsin, Milwaukee, WI, USA

<sup>d</sup>Division of Urology, Children's Hospital of Philadelphia, Philadelphia, PA, USA

<sup>e</sup>Spina Bifida Association, Arlington, VA, USA

<sup>f</sup>College of Allied Health and Nursing, Minnesota State University, Mankato, Mankato, MN, USA

Received 13 October 2023 Accepted 20 November 2023

Keywords: Spina bifida, neurogenic bowel, fecal incontinence, bowel protocol

The Spina Bifida Association has spearheaded developing and releasing the first healthcare protocol for managing neurogenic bowel secondary to spina bifida. This protocol, the Lifespan Bowel Management Protocol (LBMP), was developed in collaboration with clinicians, researchers, parents of children with spina bifida, and an adult with spina bifida. It was designed to guide clinicians in managing neurogenic bowel and is based on published literature, the Spina Bifida Guidelines for the Care of People with Spina Bifida [1], and clinical consensus. The LBMP can be downloaded directly from the Spina Bifida Association's website as an interactive PDF (https://www. spinabifidaassociation.org/lifespan-bowel-managem ent-protocol/).

Neurogenic bowel is experienced by over 80% of individuals with spina bifida [1-3]. It is rated as one of the three most important concerns of individuals with spina bifida and their care partners (e.g., family members) [4]. Beyond the direct effects of constipation and/or fecal incontinence caused by neurogenic bowel, secondary health effects can occur. These include urinary tract infections, ventriculoperitoneal shunt malfunction, skin breakdown, hemorrhoids, and anal fissures [5-11]. Individuals with bowel incontinence have increased rates of depression and bullying and also have decreased rates of school attendance in childhood, lower overall educational attainment, and lower employment rates [12–15]. Care partners also report a significant burden with managing neurogenic bowel, highlighting its effect on entire family units across an entire lifespan [16-21]. The estimated current rates of bowel continence are 45%, and independence rates for adults are 33% [22].

<sup>\*</sup>Corresponding author: Judy Thibadeau, MN, RN, Spina Bifida Association, 1600 Wilson Blvd., Ste 800, Arlington, VA, 22209, USA. Tel.: +1 2026184744; E-mail: jthibadeau@sbaa.org.

Management Protocol	
Ι	List of Interventions from Least to Most
	Invasive
II	Bowel Cleanouts
III	Recommended Dietary Fiber Intake
IV	Recommended Dietary Fluid Intake
V	Oral Medication Dosages
VI	Bowel Diary
VII	Enema Basics
VIII	Helping Parents and Caregivers Prepare
	to Start a Bowel Program
IX	Timed Sitting
Х	Potty Seats and Adaptive Equipment
	Recommendations
XI	Infant Abdominal Massage for
	Constipation
XII	Diaper Dermatitis
XIII	Digital Rectal Sweep/Digital Stimulation
XIV	Bowel Program Complications
XV	Independence
XVI	Anal Plugs
XVII	Considerations for a Colostomy
XVIII	Pregnancy Considerations
XIX	Suppositories

 Table 1

 List of included appendices found in the Lifespan Bowel

The LBMP provides background information on neurogenic bowel prior to providing guidance by age categories (birth-adulthood). In each age group section, readers will find a list of key points specific to that age for clinician and care partner knowledge; goals for bowel management; guidance for history taking and physical examination; and stepwise guidance for interventions. Throughout the protocol, there is a recommendation for close monitoring and followup after making alterations to a bowel program. It is also recommended to initiate bowel management in infancy by treating constipation aggressively. The authors believe that preventing constipation will improve continence outcomes in the future. The protocol also proposes early initiation of bowel social continence in the preschool years, which aligns with the neurotypical toilet-training age.

The many appendices (Table 1) in the LBMP consist of user-friendly content, such as dosing guidelines for common bowel management medications, troubleshooting for enema programs, bowel clean-out recommendations, specific durable medical equipment recommendations for families, and pregnancy considerations. The authors hope that with increased usage of the LBMP, there will be earlier and quicker management of constipation, and that continence and independence rates will improve alongside the quality of life of the individuals with spina bifida and their care partners.

## **Conflict of interest**

JK and MSK serve as advisors for Coloplast A/C, Humlebaek, Denmark.

## References

- Beierwaltes P, Church P, Gordon T, Ambartsumyan L. Bowel function and care: Guidelines for the care of people with spina bifida. J Pediatr Rehabil Med. 2020;13(4):491-8. doi: 10.3233/PRM-200724
- [2] Clayton DB, Tanaka ST, Trusler L, et al. Longterm urological impact of fetal myelomeningocele closure. J Urol. 2011;186(4 Suppl):1581-5. doi: 10.1016/j.juro.2011.04.005
- [3] Verhoef M, Lurvink M, Barf HA, et al. High prevalence of incontinence among young adults with spina bifida: description, prediction and problem perception. Spinal Cord. 2005;43(6):331-40. doi: 10.1038/sj.sc.3101705
- [4] Struwe S, Thibadeau J, Kelly MS, Widener-Burrows D. Establishing the first community-centered Spina Bifida research agenda. J Pediatr Urol. 2022;18(6):800.e1-800.e7. doi: 10.1016/j.jpurol.2022.06.014
- [5] Choi EK, Im YJ, Han SW. Bowel Management and Quality of Life in Children With Spina Bifida in South Korea. Gastroenterol Nurs. 2017;40(3):208-15. doi: 10.1097/sga.00000000000135
- [6] Johnsen V, Skattebu E, Aamot-Andersen A, Thyberg M. Problematic aspects of faecal incontinence according to the experience of adults with spina bifida. J Rehabil Med. 2009;41(7):506-11. doi: 10.2340/16501977-0373
- [7] Martinez-Lage JF, Martos-Tello JM, Ros-de-San Pedro J, Almagro MJ. Severe constipation: an under-appreciated cause of VP shunt malfunction: a case-based update. Childs Nerv Syst. 2008;24(4):431-5. doi: 10.1007/s00381-007-0514-3
- [8] McClurg D, Norton C. What is the best way to manage neurogenic bowel dysfunction? BMJ. 2016;354:i3931. doi: 10.1136/bmj.i3931
- [9] Ojetti V, Bruno G, Paolucci V, et al. The prevalence of small intestinal bacterial overgrowth and methane production in patients with myelomeningocele and constipation. Spinal Cord. 2014;52(1):61-4. doi: 10.1038/sc.2013.131
- [10] Powers CJ, George T, Fuchs HE. Constipation as a reversible cause of ventriculoperitoneal shunt failure. Report of two cases. J Neurosurg. 2006;105(3 Suppl):227-30. doi: 10.3171/ped.2006.105.3.227
- [11] Wide P, Mattsson GG, Drott P, Mattsson S. Independence does not come with the method-treatment of neurogenic bowel dysfunction in children with myelomeningocele. Acta Paediatr. 2014;103(11):1159-64. doi: 10.1111/apa.12756
- [12] Szymanski KM, Cain MP, Whittam B, Kaefer M, Rink RC, Misseri R. All Incontinence is Not Created Equal: Impact of Urinary and Fecal Incontinence on Quality of Life in Adults with Spina Bifida. J Urol. 2017;197(3 Pt 2):885-91. doi: 10.1016/j.juro.2016.08.117
- [13] Wiener JS, Suson KD, Castillo J, et al. Bowel management and continence in adults with spina bifida: Results from the National Spina Bifida Patient Registry 2009–15. J Pediatr Rehabil Med. 2017;10(3-4):335-43. doi: 10.3233/prm-170466

- [14] Dean E. Childhood continence. Nurs Child Young People. 2017;29(4):11. doi: 10.7748/ncyp.29.4.11.s11
- [15] Dobson P, Rogers J. Assessing and treating faecal incontinence in children. Nurs Stand R Coll Nurs G B 1987. 2009;24(2):49-56; quiz 58, 60. doi: 10.7748/ns2009.09.24.2.49.c7267
- [16] Alabi NB, Thibadeau J, Wiener JS, et al. Surgeries and Health Outcomes Among Patients With Spina Bifida. Pediatrics. 2018;142(3). doi: 10.1542/peds.2017-3730
- [17] Bellin MH, Dicianno BE, Osteen P, et al. Family satisfaction, pain, and quality-of-life in emerging adults with spina bifida: a longitudinal analysis. Am J Phys Med Rehabil. 2013;92(8):641-55. doi: 10.1097/PHM.0b013e31829b4bc1
- [18] Dicianno BE, Kinback N, Bellin MH, et al. Depressive symptoms in adults with spina bifida. Rehabil Psychol. 2015;60(3):246-53. doi: 10.1037/rep0000044
- [19] Fairman AD, Dicianno BE, Datt N, Garver A, Parmanto B, McCue M. Outcomes of Clinicians, Caregivers, Fam-

ily Members and Adults with Spina Bifida Regarding Receptivity to use of the iMHere mHealth Solution to Promote Wellness. Int J Telerehabil. 2013;5(1):3-16. doi: 10.5195/ijt.2013.6116

- [20] Freeman KA, Castillo H, Castillo J, et al. Variation in bowel and bladder continence across US spina bifida programs: A descriptive study. J Pediatr Rehabil Med. 2017;10(3-4):231-41. doi: 10.3233/prm-170450
- [21] Jinbo AK. The challenge of obtaining continence in a child with a neurogenic bowel disorder. J Wound Ostomy Cont Nurs. 2004;31(6):336-50. doi: 10.1097/00152192-200411000-00005
- [22] Kelly MS, Wiener JS, Liu T, et al. Neurogenic bowel treatments and continence outcomes in children and adults with myelomeningocele. J Pediatr Rehabil Med. 2020;13(4):685-93. doi: 10.3233/PRM-190667