

Preoperative stoma site marking for fecal diversions (ileostomy and colostomy): position statement of the Canadian Society of Colon and Rectal Surgeons and Nurses Specialized in Wound, Ostomy and Continence Canada

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 preoperative stoma marking
 position statement task force

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Background: Every year, about 13 000 Canadians undergo an ostomy procedure, which requires stoma site marking to create a well-constructed stoma and prevent stoma-related complications. The Canadian Society of Colon and Rectal Surgeons (CSCRS) and Nurses Specialized in Wound, Ostomy and Continence Canada (NSWOCC) created a position statement to provide evidence-based guidance and techniques for stoma site selection.

Methods: A task force was formed comprising 20 health care professionals (7 colorectal surgeons from the CSCRS and 13 nurses from NSWOCC) with representation from across Canada. A literature review was performed, with the following databases searched from January 2009 to April 2019: MEDLINE, Embase, Cochrane, PubMed, CINAHL and Google Scholar. After the abstracts were screened, 6 task force members created a draft version of the position statement from the articles retained after full-text review. The draft was submitted to the entire task force for comments, and the ensuing modifications were incorporated. Peer reviewers were then recruited from the CSCRS and NSWOCC; a summary of their comments was reviewed by the task force, and modifications were incorporated to produce the final document.

Results: The literature search identified 272 papers, of which 58 were reviewed after duplicates were excluded. After full-text review, 18 papers were included to guide the position statement. From these papers, we created a series of 17 steps for stoma site marking. Four general principles were found to be important for stoma site marking: obtain informed consent, identify important patient factors and landmarks, assess the abdomen and mark the most appropriate location. A 1-page enabler document and video were created as teaching aids and to help with dissemination of the information.

Conclusion: This position statement, associated enabler document and video provide evidence-based guidance for stoma site marking in both emergency and elective settings, and should be used by surgeons and nurses specialized in wound, ostomy and continence to identify optimal stoma sites preoperatively.

Contexte : Chaque année, environ 13 000 Canadiens subissent une stomie. Pour assurer la réussite de cette opération et prévenir les complications, il faut effectuer adéquatement le marquage du site où sera créé l'orifice. La Société canadienne des chirurgiens du côlon et du rectum (SCCCR) et Infirmières spécialisées en plaies, stomies et continence Canada (ISPSCC) ont rédigé un énoncé de position offrant des conseils et des techniques fondés sur des données probantes pour le marquage de site de stomie.

Méthodes : Un groupe de travail a été mis sur pied, regroupant 20 professionnels de la santé (7 chirurgiens colorectaux de la SCCCR et 13 infirmières d'ISPSCC) de partout au Canada. Une revue de la littérature a été menée; les bases de données suivantes ont été interrogées pour la période allant de janvier 2009 à avril 2019 : MEDLINE, Embase, bibliothèque Cochrane, PubMed, CINAHL et Google Scholar. Après examen des résumés, 6 membres du groupe de travail ont créé une version préliminaire de l'énoncé de position à partir des articles retenus à l'issue d'une revue du texte intégral de chacun. Cette version préliminaire a été soumise à l'ensemble du groupe de travail aux fins de discussion, et des modifications y ont été intégrées. Des pairs-réviseurs ont ensuite été recrutés au sein de la SCCCR et d'ISPSCC; un sommaire de leurs commentaires a été passé en revue par le groupe de travail, et d'autres modifications ont été intégrées afin de produire le document final.

Résultats : La recherche documentaire a ciblé 272 articles, dont 58 ont été évalués après suppression des doublons. À la suite de l'examen du texte intégral de chacun, 18 articles ont été utilisés pour orienter l'énoncé de position. À partir de ces articles, une procédure de marquage de site de stomie en 17 étapes a été conçue. Quatre principes généraux se sont avérés importants : obtenir un consentement éclairé, définir les principaux facteurs et repères liés au patient, examiner l'abdomen et marquer le site le plus approprié. Un document d'une page et une vidéo ont été créés en guise d'outils pédagogiques et pour aider à la diffusion de l'information.

Conclusion : Cet énoncé de position de même que le document d'aide et la vidéo connexes fournissent des conseils fondés sur des données probantes pour le marquage de site de stomie en contexte de chirurgie urgente et non urgente qui devraient être utilisés par les chirurgiens et les infirmières spécialisées en plaies, stomies et continence pour déterminer le site de stomie optimal avant une opération.

It is estimated that 13 000 new ostomy procedures are performed annually in Canada.^{1,2} An ostomy operation may be necessary for patients in all stages of life owing to trauma, congenital abnormalities, inflammatory bowel disease or cancer.³ Undergoing an ostomy procedure can have a major impact on a person's life, including body image issues, elimination habits, and intimacy and sexuality, as well as work and social interactions.⁴

The potential negative impact on a person's quality of life is exacerbated if the stoma is not well positioned on the abdomen.⁵ Therefore, preoperative stoma site marking is an essential step to mitigate this and prevent future complications (e.g., peristomal skin breakdown, appliance leakage, difficulty visualizing the stoma), rates of which can range from 21% to 70%.^{5,6} Obesity, emergency surgery, diabetes and preoperative stoma site marking have been shown to have the most important impact on ostomy complication rates.^{7,8} Proper education of health care providers is critical in ensuring that the stoma is well positioned. Although stoma marking is most often performed by certified ostomy nurses, nurses specialized in wound, ostomy and continence (NSWOC) may not always be readily available. Therefore, it is important to educate surgeons and trainees on how to properly perform this task.

A thorough examination before the ostomy procedure allows for identification of the most appropriate place on the abdomen for the stoma. Selecting this optimal site will greatly reduce the risk of appliance leakage.⁸ Also included in this assessment is the patient's ability to see the stoma, thereby enhancing the capability to care for himself or herself. This, in turn, improves rehabilitation and has been linked to higher psychoemotional acceptance and a lower financial burden.⁹

Preoperative marking of the optimal stoma site by qualified personnel also reduces the risk of early complications, such as peristomal skin breakdown and appliance leakage, and leads to higher health-related quality of life.^{10–12} Patients who are informed and involved in comprehending the impact of the stoma and its care have a better quality of life after discharge.¹² Preoperative stoma site marking should be mandatory in elective cases and should also be performed for emergency procedures and, as far as possible, within the emergency setting.^{7,13,14}

The Canadian Society of Colon and Rectal Surgeons (CSCRS) has more than 175 members throughout the country. It has a diverse membership that includes not only colorectal surgeons, but also community surgeons who specialize in colon and rectal surgery and practise in diverse urban or rural locations. The mission of the CSCRS is to promote optimal management of colorectal diseases through education and research. Nurses Specialized in Wound, Ostomy and Continence Canada (NSWOCC) is a not-for-profit association of more than 550 nurses specializing in the nursing care of patients presenting with challenges in wound, ostomy or continence. The association provides national leadership in these areas, promoting high standards for practice, education, research and administration to achieve quality specialized nursing care for all people regardless of their age, beliefs or socioeconomic status.

To provide evidence-based guidance and techniques for stoma site selection, the CSCRS and NSWOCC jointly created a position statement on preoperative stoma site marking for fecal diversions (ileostomy and colostomy) on the basis of the knowledge of the 2 domains of expertise. The purposes of the position statement are to promote open access to this essential preoperative step for all patients undergoing an elective or emergency ostomy procedure; guide surgeons and NSWOC in the effective placement of fecal stomas; reinforce the necessity of training surgeons for stoma site marking in emergent cases in the event that an NSWOC is not available; improve patient outcomes through reduced postoperative complications; and positively affect the patient's quality of life.

METHODS

This position statement was developed in accordance with the *Canadian Journal of Surgery* consensus process.¹⁵ A task force was formed comprising 20 health care professionals, of whom 7 were colorectal surgeons from the CSCRS and 13 were nurses from NSWOCC, with representation from across Canada. The task force met once per month for 1 year starting in February 2019 through an electronic platform. Different subgroups of the task force were formed to focus on specific areas of the position statement.

The task force members achieved consensus around search terms with inclusion and exclusion criteria.

A peer-reviewed literature search was then conducted to identify papers to guide the position statement. The literature search was performed in March 2019 by a senior librarian at the Institut du Savoir Montfort, in Ottawa, and was limited to studies published in English between January 2009 and April 2019. The search strategy (Appendix 1, available at www.canjsurg.ca/lookup/doi/10.1503/cjs.022320/tab-related-content) was applied to the following databases: MEDLINE, Embase, Cochrane, PubMed, CINAHL and Google Scholar. Duplicates were identified and removed with RefWorks (ProQuest).

Four members of the task force independently screened the abstracts identified. Each member graded the abstracts for relevance on a scale of 3 points; the combined possible score was thus 12 points. The threshold to select an article for full review was established at 7 points. Six task force members created a draft version of the position statement from the articles retained after full-text review. This draft was submitted to the entire task force for comments, and the ensuing modifications were incorporated. Nineteen peer reviewers were then recruited from the CSCRS and NSWOC, and they submitted feedback by completing an online survey. A summary of the comments was reviewed by the task force, and modifications were incorporated to produce the final document.

Four members of the task force were involved in obtaining photographs from consenting volunteers, and 3 members created an 1-page enabler version of the position statement to facilitate simple access to the task of stoma marking. A brief educational video highlighting key features of stoma site marking was also made (C.H.) and presented to the task force for review and approval.

RESULTS

From the initial search, 272 papers were identified. After abstracts were screened, 58 papers were selected for full-text review, of which 18 were used to guide the position statement (Figure 1). The literature review identified that preoperative marking for ideal stoma site placement by qualified personnel reduces the risk of early complications and leads to higher health-related quality of life and should be mandatory in elective cases.^{7,8,10,11,16–23}

The guide for NSWOC and surgeons for preoperative stoma site marking^{5–8,10–14,16–24} includes 17 steps grouped into 4 categories: obtain informed consent, identify important patient factors and landmarks, assess the abdomen and mark the most appropriate location (Table 1). As indicated in steps 7, 9 and 11, the following areas should be avoided when siting a stoma to prevent stoma-related complications: scars, skin folds, hernias, skin mounds, creases, wrinkles, bony protuberances/iliac crest, radiation sites, pendulous breasts, umbilicus, and usual beltline and waistline.

For patients with an elevated body mass index (step 12), it is important to ensure that the patient can see the proposed stoma site. The site may be moved more superiorly to facilitate this and also to avoid placing the stoma through the thicker pannus.

Members of the task force also felt it was important to include information specific to complex cases and emergency surgery.^{7,13,14} In most cases, patients can still be marked effectively before emergency surgery by an NSWOC or surgeon using the 17 steps. Although there may be some limitations with assessing full range of motion, every effort should be made to complete the marking to avoid postoperative complications. Special consideration must also be given to certain patient populations, including those in wheelchairs, those with a spinal cord injury limiting movement, those who are pregnant and those who require more than 1 stoma. For patients with limited mobility, it is important to identify a site that will facilitate the best stoma care by the patient or caregiver. For patients who require more than 1 stoma, the sites may be marked on different horizontal planes to facilitate the use of an ostomy belt. All task force members agreed that it is important to notify the surgeon if the marking is difficult or placed in an unusual area.

Consensus was reached on the recommendation to site stomas within the rectus abdominus muscle. This was based on expert opinion within the task force and other guidelines, as evidence for this is lacking.⁵ A recent Cochrane review identified that insufficient evidence existed to recommend either lateral pararectal or transrectal placement of stomas.²³

A non-peer-reviewed version of the position statement was posted to the CSCRS and NSWOC websites.²⁵ The enabler document is presented in Appendix 2 (available at www.canjsurg.ca/lookup/doi/10.1503/cjs.022320/tab-related-content). Both documents contain

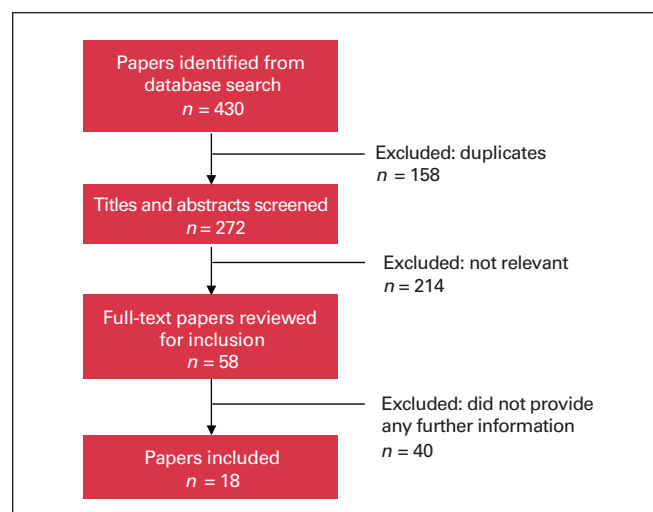


Fig. 1. Flow diagram showing selection of papers to guide the position statement.

Table 1. Steps for preoperative stoma site marking

Category; step	Description
Obtain	
1	Stoma site selection and marking must be undertaken only by qualified practitioners within their scope of practice who possess the knowledge, skill and judgment to perform stoma site marking — a surgeon or NSWOC is recommended.
2	Invite the patient to a private area to explain the process.
3	Provide patient education and counselling on living with an ostomy stoma.
4	Obtain patient verbal consent for the assessment and stoma site marking.
5	Learn from the patient their typical range of movements related to their mobility, occupation, lifestyle and cultural practices.
Assess	
6	Ask the patient to remove enough clothes to allow access to the abdomen while maintaining privacy.
7	Assess the abdomen to observe scars, skin folds, hernias, skin mounds, creases, wrinkles, bony protuberances/iliac crest, radiation sites, pendulous breasts and the location of the umbilicus in order to avoid these areas during marking.
8	Ask the patient to lie on their back and have the patient raise their head to see their feet to identify the edge of the rectus abdominis muscle.
Identify	
9	Identify the patient's usual beltline and waistline in normal clothing in sitting and standing positions in order to avoid these lines during marking.
10	Identify the halfway point on the imaginary diagonal line between bony protuberances/iliac crest and the umbilicus.
11	Ask the patient to sit, stand, bend, twist and lie down to identify any creases or concerns with the proposed site.
12	Consider the patient's body mass index/body habitus and eyesight to confirm that the suggested stoma site is within their visual field, if possible.
Mark	
13	Mark the abdomen with a regular pen on the flattest possible place in the appropriate quadrant for the planned surgery within the borders of the rectus abdominis muscle, 5 cm away from the considerations identified in steps 7, 9 and 11.
14	In complex cases, seek a second opinion from another NSWOC or surgeon, which may involve sharing a photograph, with the patient's consent.
15	Remark with a permanent skin marker on the patient's abdomen the site agreed on by the patient and the NSWOC.
16	Cover the mark with a transparent film dressing. Explain to the patient the importance of maintaining the mark and give supplies to reinforce marking, if required. Remove all other marks with alcohol swab.
17	Document the details in the patient's health record.
NSWOC = nurse specialized in wound, ostomy and continence.	

photographs to help guide proper stoma site selection in standard and challenging cases. The educational video can be found online (<https://www.youtube.com/watch?v=YirMlF6EhFo>).

DISCUSSION

Collaboration between the CSCRS and NSWOC led to the development of an evidence-based series of 17 steps for stoma site marking, a practice enabler document and a

YouTube video. The Wound, Ostomy and Continence Nurses Society and the American Society of Colon and Rectal Surgeons previously published a position statement on preoperative stoma site marking including a series of steps and figures to guide stoma site selection.⁵ However, the current position statement involved a more comprehensive assessment of the literature that guided the rationale for preoperative stoma site selection and the steps involved in choosing the optimal site. The 17 steps are intentionally patient-centred and easy to follow. In addition, the current position statement was expanded to include recommendations for complex cases and emergency surgery. It was developed by a task force of colorectal surgeons and NSWOC from across Canada to allow for a standardized set of steps for preoperative stoma site marking that can be implemented throughout the country, as task force members took into account local resources and practices. The availability of the document in both official languages (French and English) ensures that the majority of Canadian NSWOC and surgeons can access it.

The position statement was presented at the NSWOC national conference in May 2020, held virtually owing to the COVID-19 pandemic. It will be further distributed within local sites through formal and informal teaching sessions. The development of the enabler document and the YouTube video has increased the ease of access to this material for teaching and education purposes.

Future goals for the position statement document will be focused on the implementation and adoption of the document by NSWOC, surgeons and trainees. Further research will include assessment of how use of the document for stoma marking can affect postoperative stoma complications and patient-centred outcomes such as quality of life.

Limitations

A limitation of this position statement is the quality of evidence used to guide the steps involved in stoma site selection. Much of the literature on stoma site marking is retrospective, observational or based on expert opinion. However, the recent Registered Nurses' Association of Ontario best practice guideline "Supporting adults who anticipate or live with an ostomy" includes a strong recommendation for preoperative stoma site marking according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework after a systematic review of the literature.²⁴ The association panel did not specifically assess the literature on the steps for stoma site marking within the best practice guideline. Therefore, the present position statement expands on the recommendation made in the best practice guideline and has made use of the best available evidence to describe how to properly site a stoma to avoid postoperative complications. Given that little high-quality evidence exists on the individual steps for stoma site marking or placement, most

guidelines, including the present document, are based on expert opinion. The preoperative stoma marking position statement task force included expertise from both NSWOC and colorectal surgeons, and turnout during the virtual meetings was high for both groups. Representation on the task force from across Canada also helped ensure a comprehensive review of national resources and practices.

CONCLUSION

The Canadian position statement on preoperative stoma site marking for fecal diversions (ileostomy and colostomy) is a patient-centred, evidence-based tool developed to assist clinicians with preoperative stoma site marking. The position statement and associated enabler document and video provide guidance for stoma site marking in both elective and emergency settings, and should be used by surgeons and NSWOC to identify the optimal stoma site preoperatively.

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