



NURSES SPECIALIZED IN
WOUND, OSTOMY AND CONTINENCE
CANADA
INFIRMIÈRES SPÉCIALISÉES EN
PLAIES, STOMIES ET CONTINENCE
CANADA



CANADIAN URINARY DIVERSIONS POSITION STATEMENT

COLLABORATION OF CANADIAN UROLOGICAL
ASSOCIATION, NURSES SPECIALIZED IN WOUND,
OSTOMY AND CONTINENCE CANADA
& UROLOGY NURSES OF CANADA

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NOTES

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The three collaborating associations are: Canadian Urological Association (CUA) exists to promote the highest standard of urologic care for Canadians and to advance the science of urology.

This position statement is endorsed by the Canadian Urological Association, 2021.

Nurses Specialized in Wound, Ostomy and Continence Canada (NSWOCC) is a registered charity consisting of registered nurses with advanced and specialized knowledge, and clinical skills in wound, ostomy, and continence and aligned health care professionals who have an interest in wound, ostomy, and continence care. NSWOCC provides national leadership and promotes high standards for practice, education, research, and administration to achieve quality specialized nursing care.

NSWOCC Board of Directors- has approved this position statement.

Urology Nurses of Canada (UNC) is a national not-for-profit association whose mandate is to enhance the specialty of urologic nursing in Canada by promoting education, leadership, research, and clinical practice. The activities of UNC are designed to enrich members' professional growth and development.

This position statement is endorsed by the Urology Nurses of Canada, 2021.

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CONFLICTS OF INTEREST

Josh Grohl is a member of a Coloplast advisory panel.

INTRODUCTION

Surgical creation of a urinary diversion is necessary for managing diseases affecting the urinary tract: such procedures can be life altering. An intestinal urinary diversion is a general term used to describe the elimination of urine often through a surgically constructed intestinal segment.

Urinary diversions can be incontinent or continent. An incontinent urinary diversion allows a continuous passage of urine to exit to the surface of the skin. The urine is captured and contained in an exterior disposable urinary pouching system. A continent diversion permits control of the elimination of urine through a catheterizable abdominal stoma or via the native urethra. The specifics of each urinary diversion, as well as the patient considerations, will be discussed throughout this position statement.

There are both benign and malignant indications for a urinary diversion. Most commonly this is due to malignancy but less commonly this may be required for severe bladder dysfunction, pyocystitis, incontinence, bladder pain or congenital abnormalities.¹ While not all urinary diversions are related to oncological treatment, bladder cancer is a leading cause for cystectomy and urinary diversion creation. Bladder cancer is the fifth leading cause of new cancer cases and has shown a slight downward trend in mortality rate.² A radical cystectomy is a standard treatment for invasive bladder cancer.³

THE RATIONALE FOR THE POSITION STATEMENT

The purpose of this national position statement is to support health care professionals, including surgeons, nurse specialized in wound, ostomy, and continence (NSWOC) and urology nurses with the delivery of standardized clinical best practices for the pre- and postoperative care management of patients undergoing a urinary diversion. Through this position statement, we have the opportunity to reinforce the fundamental principles enabling health care practitioners to educate and counsel patients on the various urinary diversion options.

Despite multiple texts, articles, and guidelines describing the nuances of urinary diversions, there is a void in Canadian recommendations contrasting the five principal urinary diversions. Refer to Table 1 for a quick reference guide to the five urinary diversions discussed. The methodology is described in Appendix A.

THE ROLE OF THE INTERPROFESSIONAL TEAM

Practitioners should strive to work within an interprofessional team involving an NSWOC, urology nurse, physician, and other allied health professionals to support the patient and significant others.

Nurses with knowledge, skills, and judgment in ostomy care conduct the majority of preoperative site markings. The Canadian Society of Colon and Rectal Surgeons (CSCRS) and Nurses Specialized in Wound, Ostomy and Continence Canada (NSWOCC) position statement on preoperative stoma site marking in colostomy and ileostomy acknowledged the benefit of nurses notifying surgeons if the marking was difficult or placed in an unusual area. Surgeons may need to adjust the planned diversion in the operating room after such discussion with marking of alternative stoma site options.⁴ Abridged preoperative marking steps are considered in Table 2.

Using evidence-based approaches, Enhanced Recovery After Surgery (ERAS) engages the patient in their care with an interprofessional team, whose advanced knowledge develops pathways to decrease patients' surgical stress response, optimize their physiologic function, and facilitate recovery.

Surgeons, NSWOC and urology nurses should seek to coordinate long-term surveillance of the patient to address complications early and promote independent living.[†] Enhancing patient recovery after urostomy surgery is described in Table 3.

Approaches examining nurse-led ostomy care team interventions in patients with an ileal conduit demonstrate reduced ostomy-related complications and improved self-efficacy level and health-related quality of life (HRQOL).⁵ The involvement of significant others provide psychological support to the patient after surgery. Patients and significant others are encouraged to attend quarterly ostomy support groups.

Note. Throughout the position statement “†” has been chosen to represent expert opinion of the task force.

POSITION STATEMENT TAKEAWAYS

1. Utilize the Ottawa decision tool to assist your applicable patients in choosing between an ileal conduit and neobladder.
2. Evaluate patient urostomy self-care skills with the Urostomy Education Scale in Table 4.
3. Refer to Table 1 for a quick reference guide to the five urinary diversions.
4. Follow the preoperative site marking steps in Table 2.
5. Adopt the enhanced recovery checklist for an ileal conduit to standardize patient care and education shown in Appendix B.

Table 1 Quick reference guide to the five urinary diversions

	CONTINENT/ INCONTINENT	OSTOMY	PREOP SITE MARKING	REQUIRES CIC	PATIENT SELECTION CONSIDERATIONS	COMMON COMPLICATIONS
Ileal conduit	Incontinent	Yes	Yes	No	<ul style="list-style-type: none"> • most common diversion • some dexterity needed by patient or significant other • may need ongoing assistance if patient has cognitive deficiencies or severe hand arthritis or impaired eyesight • wearing a medical alert ID required 	<ul style="list-style-type: none"> • parastomal hernia • stomal and peristomal complications • ureteral ileal anastomotic stricture • UTI
Orthotopic neobladder	Continent	No	Yes (for placement site of temporary suprapubic catheter or if intraoperative decision to proceed with an ileal conduit)	Depends	<ul style="list-style-type: none"> • common diversion • esthetic preference • dexterity for CIC is necessary • no cognitive impairment • commitment to follow irrigation and catheterization schedule • ability to problem solve • no history of drug or alcohol misuse • need good renal function • fewer complications in men • wearing a medical alert ID required 	<ul style="list-style-type: none"> • some incontinence may be experienced during the first 6 months • stress incontinence common • nocturnal incontinence • may need ongoing CIC/irrigation • stone formation in neobladder • ureteral ileal anastomotic stricture • UTI
Indiana pouch	Continent	Yes	Yes	Yes	<ul style="list-style-type: none"> • dexterity for CIC necessary • no cognitive impairment • commitment to follow irrigation and catheterization schedule • no history of drug or alcohol misuse • need good renal function • wearing a medical alert ID required 	<ul style="list-style-type: none"> • stone formation in pouch • incontinence (incontinent valve) • difficult catheterization of the channel • ureteral ileal anastomotic stricture • parastomal hernia • stomal stenosis • UTI
Mitrofanoff	Continent	Yes	Yes	Yes	<ul style="list-style-type: none"> • must be compliant with catheterization • commitment to follow irrigation and catheterization schedule if done in conjunction with augmentation cystoplasty • wearing a medical alert ID required 	<ul style="list-style-type: none"> • stomal prolapse • Mitrofanoff channel stricturing • stomal leakage • stomal stenosis • stone formation in augmented bladder • UTI
Cutaneous ureterostomy	Incontinent	No Stents present	Yes	No	<ul style="list-style-type: none"> • least common • less invasive • elderly & palliative • paediatrics as a temporizing manoeuvre • palliate the non-curative patient • consider when bowel can't be used during surgery • wearing a medical alert ID required 	<ul style="list-style-type: none"> • skin breakdown • difficult pouching • ureteral stenosis • ureteral obstruction with chronic double J stent changes • UTI

Note. CIC=clean intermittent catheterization, UTI=urinary tract infection

SECTION 1 - PREOPERATIVE COUNSELLING & HEALTH-RELATED QUALITY OF LIFE CONSIDERATIONS

Each of the sections that follow describe some of the specific preoperative considerations for the relevant urinary diversion. However, many of the aspects are common to the continent versus incontinent diversions, or those requiring a stoma versus catheterization.

In each case, meeting with an NSWOC, a nurse specialized or experienced with urinary diversions, or a genitourinary nurse is regarded as imperative to optimize patient outcomes and reduce avoidable complications. The information provided will improve the patient's knowledge, understanding and comprehension to give an informed consent. These meetings will explain the anatomy of stoma creation, stoma characteristics, stoma care, pouching supplies, problems that may arise with the stoma, and signs of a urinary tract infection (UTI). Stoma site marking is also an imperative component of this consultation. Ali et al. (2015) notes that "Appropriate counselling regarding the type of urinary diversion and its effect on physical activity and body image remains an important aspect of preoperative discussion."⁶

In this section, we explore:

- patient education, counselling, and culture;
- health-related quality of life;
- sexual health;
- preoperative stoma site marking;
- enhanced recovery;
- postoperative follow up; and
- funding.

PATIENT EDUCATION, COUNSELLING, AND CULTURE

A thorough patient assessment evaluates the overall health of the patient and their comorbidities, which in conjunction with appropriate imaging will help to determine the urinary diversion best suited for the patient. The choice of urinary diversion has a significant impact on long-term quality of life for patients who undergo radical cystectomy. "Discussing the pros and cons of each approach is an essential aspect of preoperative education."⁷ This can help ensure that the patient and significant others have realistic expectations regarding each option.

Patient education and counselling should occur both preoperatively and postoperatively. Patients with a diagnosis of bladder cancer may already feel overwhelmed by the information and choices presented to them. Multiple education and counselling sessions are worthwhile to provide patients and their significant others with opportunities to fully understand the information provided and the impact it may have on their self-care and lifestyle. Significant others provide strong social and emotional support.⁸ Providers should guide patients to resources, such as Bladder Cancer Canada or Ostomy Canada Society to help provide peer support and more education.

James et al. (2014) explored how an Indiana pouch or neobladder urinary diversion requires meticulous postoperative care to minimize the risk of complications. They stress the need for the patient and significant other to comprehend the level of commitment needed prior to surgery.⁹ This long-term commitment is likely to impact quality of life and satisfaction.

A shorter postoperative length of stay has increased the emphasis on preoperative education and counselling.¹⁰ The International Ostomy Association advocates preoperative counselling for all persons undergoing stoma surgery to ensure that they are fully aware of the benefits of the operation and essential facts about living with an ostomy.¹¹ Patient “buddy” systems and access to support groups have also been shown in many countries to be effective strategies.¹² Patients who are less anxious may be better equipped to monitor for complications and seek earlier assistance.¹³

The literature reinforces that preoperative personalized education and counselling reduces anxiety for patients and significant others. This leads to improved retention of

information; particularly where visual or hands-on teaching aids are used.

Educate patients on the importance of wearing medical alert identification. Wearing a medical alert bracelet/pendant or carrying a card informs health care professionals about their urinary diversion in case of an emergency. Patients can apply for these online or through Canadian pharmacies.

The interprofessional team needs to support the patient through counselling and help patients to continue valuing the wide-ranging benefits of active lifestyles. Patients and significant others should be referred for specialist support as warranted, aware that many will be hesitant to ask or discuss questions.^{14,15,16} Sociocultural backgrounds play a critical role in one’s comfort in discussing HRQOL issues with their significant others and health practitioners.¹⁷ The European Association of Urology Nurses (EAUN) states that “Modern multi-cultural society requires a health care system that reflects and respects an individual’s colour, culture, religion and customs.”¹⁸

HEALTH-RELATED QUALITY OF LIFE

Creation of a urostomy has a particularly significant impact on a patient’s quality of life. Rangarjan and Somani, (2019) conclude quality of life “seems to be the most important element in [urinary diversion] once patients have recovered from their initial surgery.”¹⁹ The impact of a urinary diversion will influence some or all of the following aspects:

- physical limitations to work or physical activity;²⁰
- psychosocial disturbances of coping with self-esteem, self-confidence, body image, anxiety, depression, emotional well-being;^{13,21,22}
- changes in bowel habits as a consequence of the radical cystectomy; either diarrhea

- or less frequently constipation;^{23,24}
- the ability to sleep and reposition will change depending on whether the diversion includes a stoma, a night drainage bag, or the need to catheterize to empty the neobladder or pouch. Inadequacy of sleep also exacerbates psychosocial well-being;²⁵
- intimacy and sexual health encapsulate many related factors, such as sexual desire, body image, ability to have sexual intercourse, sexual function, or erectile dysfunction;
- how to manage pouching systems and look for possible complications; and
- impairment on relationships.^{13,21}

Several authors have compared facets of HRQOL for different urinary diversions. Most studies have found no difference in HRQOL across different diversions. In some studies, patients with neobladders reported higher scores for body image and ability to partake in sport activities.²⁶⁻²⁸ Zahran et al, (2016) notes that research on HRQOL in women after radical cystectomy is lacking. One study asserts “In women, HRQOL is better after orthotopic urinary diversion than ileal conduit as long as continence status is preserved. If incontinence is expected, ileal conduit may be a better option” for a urinary diversion.²⁹ The impact of urinary diversion on sleep appears contradictory and requires further study.

Younger patients are especially self-conscious about changes in body image and personal identity. Williams (2017) describes the recommendations for NSWOCs caring for adolescents living with a stoma:³⁰

- develop an understanding of individuals’ usual coping strategies;
- identify if avoidance/approach coping has been adopted for life events previously;
- assist the patient in identifying strategies that will aid coping;

- offer peer support;
- if an appropriate peer is not available locally, contact the paediatric ostomy group; and
- provide parents/significant others with support to help them support the adolescent living with a stoma.

Patients with a higher body mass index (BMI) are more likely to encounter leakage from a pouching system. The result is increased emergency department visits and hospital readmissions. In situations where poor pouch adherence and pouch leakage is anticipated, ensure patients have a follow up with an NSWOC 2 weeks postdischarge to examine the stoma and ensure appropriate fit of the pouching system.^{31,32} In more rural settings, the use of virtual visits may be required. †

Patients with neurogenic bladder are at highest risk for long-term complications, particularly upper urinary tract deterioration. Those at risk include individuals with spinal cord injury, myelomeningocele, transverse myelitis, and other conditions in which there is a high burden of spinal disease. Evaluation of the patient with neurogenic lower urinary tract dysfunction should involve an assessment of the upper urinary tract, bladder safety, continence status, and quality of life concerns.³³ In the absence of randomized trials, all studies are biased by patient-led and physician-led preferences with regards to HRQOL.

SEXUAL HEALTH

Radical cystectomy removes many of the reproductive organs in men and women. This could be a concern especially for younger patients. Sexual function preserving techniques can be employed, including nerve sparing and organ-sparing approaches depending on patient and tumor characteristics.^{34,35} There has been limited

research in female patients. In addition to the significance of organ and nerve removal as part of the surgery, patients will need counselling for the changes in body image.

It is normal for patients to have concerns about the changes in their body prior to and after urinary diversion surgery including the way they will urinate. It is also normal for a patient to be concerned about how a urinary diversion might affect their sexuality and their sexual relationships. Patients should be encouraged to contact their urologist, urology team or NSWOC.

Sexual relations may be resumed when approved by the urologist and when the patient feels physically and emotionally ready. It takes time for the body to recover from surgery and to adjust to the changes in the body. Patients should discuss treatment options for erectile dysfunction or sexual dysfunction with their urologist, urology team or NSWOC. The Canadian Cancer Society provides a valuable webpage *Sex, Intimacy and Cancer* <https://cancer.ca/en/cancer-information/resources/publications/sex-intimacy-and-cancer>.³⁶ In some cases, patients may benefit from referral to a professional specializing in sexual counselling.

PREOPERATIVE STOMA SITE MARKING

The recommended urinary diversion option must consider fine motor dexterity, renal function, cognition, potential memory loss, as well as the patient's typical range of physical movements related to their mobility, occupation, lifestyle, and cultural practices.

NSWOCC published a detailed position statement on preoperative stoma site marking for fecal diversion in 2020. Many of those aspects are common to each urinary diversion. Preoperative stoma site selection and marking must only be undertaken by

qualified practitioners within their scope of practice and who possess the knowledge, skills, and judgment to perform stoma site marking—a surgeon or NSWOC are recommended. The 2009 American Urology Association (AUA) and Wound, Ostomy, and Continence Society (WOCN Society) position statement considered both fecal and urinary diversions. Stoma site selection should be a priority during the preoperative visit. Urologists and nurses with training in ostomy care are the optimal providers to mark stoma sites, as this is part of their education, practice, and training.³⁷ The International Ostomy Association advocates that all persons undergoing surgery should have a well-constructed stoma placed at an appropriate site, with full and proper consideration of patient comfort.¹¹

Patients choosing a continent diversion such as an Indiana pouch or neobladder should also have a preoperative stoma site selected and marked for an ileal conduit in the event the continent diversion is not feasible.† For neobladder and Indiana pouch diversions, some centres or surgeons may insert a Malecot or suprapubic catheter and marking should be undertaken to ensure adequate abdominal surface area is available to accommodate a two-piece pouching system for irrigation.

Table 2 *Preoperative site marking*

These core considerations and abridged steps are advised for preoperative stoma site marking for patients undergoing a urinary diversion:

- preoperative stoma site marking should be performed by a trained clinician prior to surgery;
- patient education should accompany site marking and consider each patient's individuality, surgical indication, body habitus, cultural and lifestyle needs and preferences;
- stoma site selection is individualized:
 - specific patient needs—dexterity or visual limitations;
 - physical considerations—large or pendulous abdomen or breasts, presence of a hernia, the use of a wheelchair, prosthetics or braces;
 - surgical considerations—surgeon's preferences, type of surgery/stoma planned, segment of intestine used, and whether an incontinent versus a continent catheterizable diversion is planned;
 - for multiple stoma sites—if a fecal stoma is also present or planned, consider marking the urinary and fecal stoma sites on different horizontal planes/lines if an ostomy belt is required; and
 - other considerations—diagnosis, age, occupation, prior experience with a stoma, and preferences about the stoma's location.
- patients with a higher BMI or protuberant abdomen will often benefit from a more superior abdominal stoma location to allow for easier visualization and self-care. From a surgical perspective, the inferior abdominal wall has greater adiposity making stoma creation more challenging; and
- patients undergoing a pelvic exenteration requiring a flap closure, stoma site marking should be done in collaboration with plastic surgery.

ABRIDGED STEPS

1. Explain the procedure to the patient and significant other. Encourage participation during site marking and provide rationale for the area selected. Ensure to ask the patient for permission to touch/assess the abdomen. Ask the patient to remove abdominal clothing.
2. For both incontinent and continent diversions. Examine the abdomen in various positions (sitting, standing, lying, and bending). Assess the abdomen for scars, creases, olds or protuberant contours, position of belt line, and other devices such as a fecal diversion, brace, etc., which should all be avoided.
 - a. For an ileal conduit, Indiana pouch or Mitrofanoff:
 - i. Identify the rectus abdominis muscle. Have the patient lie on their back and activate their abdominal muscles (e.g., by coughing, doing a modified sit up, or raising their head up and off the bed). Palpate the outer edges of the rectus abdominis muscle. In most circumstances, the mark is placed in the right lower quadrant, within the borders of the rectus muscle, ideally at the midpoint between the lateral and medial borders of the muscle.
 - ii. If the patient uses a wheelchair, it is best to position them in their own wheelchair and allow time for their body to relax into their usual position prior to site marking. The marking for wheelchair bound patients will usually be above the umbilicus line.

ABRIDGED STEPS CONT'D

- iii. Select a stoma site preferably within the right lower quadrant, within the rectus abdominis muscle, free of skin folds and scars, and visible to the patient.
- b. For a cutaneous ureterostomy—choose a site in the lateral abdominal area, free of skin folds and creases.
- c. For a neobladder—some institutions prefer to have the Malecot, or suprapubic catheter site marked to ensure adequate abdominal space to accommodate a two-piece pouching system.
- d. For a Mitrofanoff, the umbilicus is often the preferred location.

Note: If a neobladder or Indiana pouch is the preferred urinary diversion; explain to the patient that they also need to be marked for an ileal conduit as well; should their first choice of diversion not be surgically possible.

3. Confirm and mark the most appropriate site(s). Obtain agreement from the patient about the recommended location. Cleanse the area with alcohol: allow to dry. Mark site using a mark with a single patient use marker. This is typically an “X” or filled in circle depending on local health care organizational policy. Cover with a transparent dressing.

Note: Depending on the patient’s body habitus or surgical procedure, it may be desirable to mark several potential sites in different abdominal quadrants (right vs. left, upper vs. lower). When two possible sites are marked, indicate the rank order of site preference; one preferred and a second choice.

4. Discuss challenging site markings with a member of the surgical team. With patient’s permission obtain photographs and add to electronic medical record (EMR) or email to surgeon, according to organizational policy.

ENHANCED RECOVERY AFTER SURGERY

The concepts of enhanced recovery have been applied to urinary diversions. According to work by Frees et al. (2018) patients undertaking the enhanced recovery pathway after surgery had a significantly shorter hospital stay, time to flatulence, and time to bowel movement and improved pain management with ERAS.³⁸

The EAUN Incontinent Urostomy guidelines from 2009 highlight patients undertaking the enhanced recovery program, who received no preoperative bowel preparation, had a significantly reduced hospital stay with no adverse effect on morbidity or mortality.¹⁸ The research around enhanced recovery questions the traditional view for the use of bowel preparation preoperatively.

Published articles reviewed by Kelly et al. (2015) and Raynor et al. (2013) support the view that bowel preparation is not necessary for radical cystectomy and urinary diversion in the uncomplicated patient.^{39,40} In a systematic review and meta-analysis of randomized controlled trials, Feng et al. (2020) examined ERAS with ileal urinary diversion. They concluded that ERAS might reduce hospitalization expenses, contribute to a higher patient turnover, lead to more efficient utilization of medical resources and a lower risk of nosocomial infection as a result of a shorter length of stay.⁴¹

For centres utilizing an enhanced recovery approach, patient and caregiver education of the care requirements and self-care expectations for their specific urinary

diversion needs to be initiated in the preoperative phase to promote self-care upon discharge considering the reduced length of stay.

An enhanced recovery checklist for an ileal conduit to standardize patient care and education is shown in Table 3. It is further reproduced in Appendix B as an enabler for practice.

POSTOPERATIVE FOLLOW UP

This position statement does not discuss postoperative complications beyond noting there is an elevated risk of urinary tract infections—both bacterial and fungal.⁴²

Urolithiasis (stones formation) can be mitigated by advising the patient to routinely irrigate the bladder or pouch to clear out mucous.^{43,44}

Klein et al. (2021) noted the reluctance of patients to discuss concerns with their physician.¹² Armed with that knowledge, an NSWOC or urology nurse should schedule early and frequent surveillance. Education should be personalized to address patient-centred concerns, including complications and correct application of pouches. Peristomal skin complications can be a debilitating and painful impacting patients' psychosocial well-being and extend their recovery. Education in the correct application of pouches to avoid skin complications is vital.⁴⁵ Regular lifelong urological follow up is essential for all patients who have a urinary diversion.

FUNDING

There is a financial burden on the patient from an ostomy or need for catheter supplies with variations in accessibility and affordability of supplies and support across the provinces/territories. A cross-sectional survey by LeBlanc et al. (2019) concluded that living with an ostomy impacts Canadians financial well-being

and the geographical location of the individual with an ostomy has a significant impact on the availability of resources.⁴⁶ Assuming a price of CAD \$30 for a two-piece pouching system with a 4.8 day wear time, it is estimated individuals are spending a minimum of CAD \$1,560 per year. Despite considerable differences in funding bundles, out-of-pocket expenses are the same across Canada. The costs associated with living with an ostomy contribute to substantial financial burden exacerbated by people with an ostomy who could be unable to resume full work duties. Furthermore, the authors noted that access to an NSWOC can potentially reduce peristomal complications and aid in cost containment.⁴⁶

Based on an assessment of provincial funding programs by Spinal Cord Injury Ontario, most Canadians do not have access to reimbursement for intermittent catheters. Assuming use of four clean catheters per day, people living with a Mitrofanoff, or other bladder diversions requiring catheterization will spend \$1,022 to \$5,840 per annum on catheters. Many people are forced to reuse their intermittent catheters, a practice not recommended in recent *Clean intermittent urethral catheterization in adults – Canadian best practice recommendations for nurses*.⁴⁷

Table 3 Enhanced recovery checklist for an ileal conduit to standardize patient care and education

PREOPERATIVE	POSTOPERATIVE	POSTDISCHARGE
Skills/knowledge 10-14 days before surgery	Skills/knowledge during planned 4-7 day hospital stay	Skills/knowledge within 7-14 days after discharge
Have your stoma site marking explained and completed.	Day of surgery: <ul style="list-style-type: none"> • Look at your stoma 	Meet with your community care nurse for support.
Receive ostomy education on: <ul style="list-style-type: none"> • planned surgical procedure; • normal stoma function; • presence of mucus; • role of stents; • care and management of an ileal conduit (emptying; connecting to straight drainage at night; applying a pouching system; pouch wear times; pouching system options); • impact of sexual health; • potential complications: urinary tract infections, dehydration, stoma and peristomal skin problems, and parastomal hernia; • industry sponsored programs; • ostomy buddy/journey coach; and • ostomy supplies: where to buy, cost and financial support. 	Day 1-2 after surgery: <ul style="list-style-type: none"> • empty your pouch with the nurse • connect/ disconnect to straight drainage. Day 3+ after surgery: <ul style="list-style-type: none"> • empty your pouch on your own; connect/ disconnect to straight drainage on your own • participate in your pouching system change using careful techniques to stabilize stents to prevent dislodgement; • discuss and understand how to obtain a urine sample from your stoma; • ensure you are referred to community care services; and • receive your discharge ostomy supplies. 	Demonstrate your independence with pouching system changes 2 weeks after discharge. Receive follow up care from hospital or a community NSWOC at least within 7-10 days and then as often as 2, 4 & 6 weeks after discharge.
Receive and review preoperative ostomy practice pack.	Review information given to you preoperatively: <ul style="list-style-type: none"> • potential complications; • products; and • financial supports. 	Receive continuing information about potential ostomy-related complications: <ul style="list-style-type: none"> • urinary tract infections; • dehydration; • stoma and peristomal skin problems; • parastomal hernia; and • B₁₂/drug metabolism changes.⁴⁸
Practice wearing a pouching system, opening, and closing the pouch.	Ask about enrolling in an industry sponsored program.	Receive continuing information about ostomy-related lifestyle considerations: <ul style="list-style-type: none"> • pouch wear times; • importance of adequate daily fluid intake to keep hydrated; • lifestyle adjustments; • ostomy support groups and resources; and • industry programs.
Review lifestyle changes.	Have your significant other participate in ostomy care.	Know who to call and what to do in an emergency.

PREHABILITATION

Radical cystectomy remains the standard treatment in patients with bacillus Calmette-Guérin unresponsive non-muscle invasive and muscle-invasive bladder cancer. It is considered by the European Urology Association (EAU) as the most advanced surgical procedure in urooncology.⁴⁹

A patient's life expectancy, goals and preferences should factor into the decision and choice of urinary diversion. Regular lifelong urological follow up is essential for all patients who have had a urinary diversion.

Multiple authors reinforce the necessity of counselling patients to discontinue tobacco smoking, supplying sufficient information to optimize nutrition and reinforcing the benefits of physical activity.⁵⁰⁻⁵² Continued tobacco smoking doubles the risk of complications.⁵³ Rammant et al. (2019) concludes that physical activity interventions before and after radical cystectomy for patients with bladder cancer proved beneficial for their physical fitness, muscle strength and some HRQOL domains.⁵²

According to Neuzillet et al. (2017), the surgeon and the NSWOC, in collaboration with nursing staff need to make sure the patient is well informed on every available option.²⁷

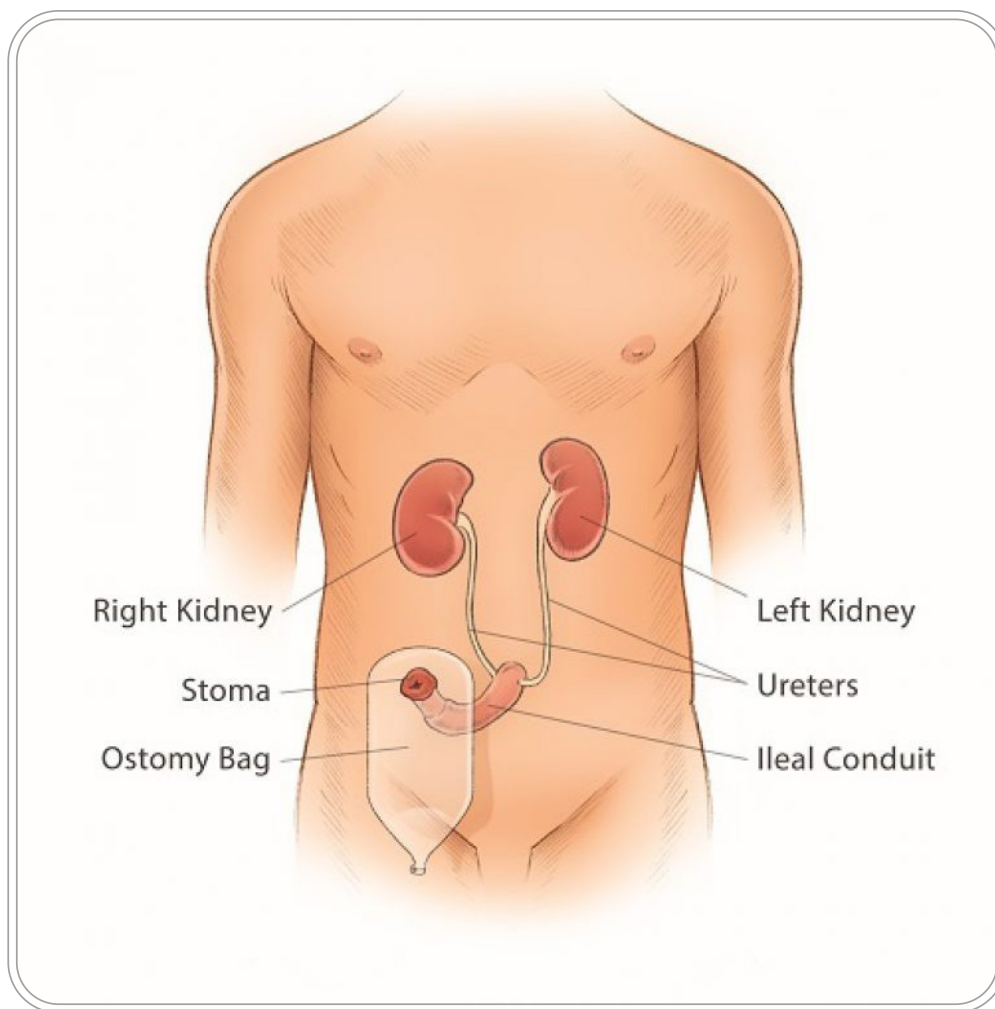
In the section that follows we explore the five principal urinary diversions examined by the task force.

SECTION 2 - URINARY DIVERSION PATHWAYS

ILEAL CONDUIT

An ileal conduit is the most common form of urinary diversion. It is constructed from a segment of the small intestine, called the ileum. The proximal end is sutured closed and the ureters are attached to it. The distal end is brought through the abdomen to form the stoma. Ileal conduits have no continence mechanism, so urine continuously flows through the conduit and out of the abdominal stoma into a urinary pouching appliance worn on the skin.

Figure 1 Anatomy of an ileal conduit diversion



Note. Reproduced with permission of Bladder Cancer Canada

PATIENT SELECTION

“Ileal conduits represent the fastest, easiest, least complication-prone, and most commonly performed urinary diversion” as per Lee et al. (2014), and the primary diversion for elderly patients.⁵⁴ Consequently, candidates for ileal conduit tend to have more comorbidities, higher BMI, and poorer health.⁵⁵

Not all patients are suitable candidates for an ileal conduit diversion. Patients need to be willing to accept having a stoma on their abdomen and wearing a pouching system to collect their urine. Patients and their significant other also need to have adequate manual dexterity, motivation and understanding to reliably manage their pouching system and nighttime drainage.^{1,56}

An Ottawa Hospital Research Institute patient decision aid, known as the Ottawa decision tool, facilitates guiding patients on the choice of urinary diversion in the preoperative phase.⁵⁷ It is based on the International Patient Decision Aids Standard (IPDAS) development process. It can be accessed here

https://decisionaid.ohri.ca/docs/das/Surgery_for_Bladder_Cancer.pdf. Figure 3 shows an element of the decision tool, which is designed to help guide patients through the decision making on whether to opt for an ileal conduit or neobladder. The interprofessional team is encouraged to utilize the validated tool with their patients as part of the preoperative education and counselling.

Figure 2 The Ottawa decision tool assists patients in choosing between an ileal conduit and neobladder⁵⁷

The diagram consists of two anatomical illustrations of the human torso, focusing on the urinary system. The top illustration, titled 'INTERNAL BLADDER REPLACEMENT (NEOBLADDER)', shows the kidneys at the top, with ureters leading down to a newly formed neobladder. The urethra is shown leading from the neobladder to the bottom of the frame. The bottom illustration, titled 'ABDOMINAL STOMA (ILEAL CONDUIT)', shows the kidneys and ureters leading to a segment of intestine that is brought out through the abdominal wall as a stoma. Labels include 'KIDNEYS', 'URETERS', 'NEOBLADDER', 'URETHRA', 'SEGMENT OF INTESTINE', and 'STOMA'.

INTERNAL BLADDER REPLACEMENT (NEOBLADDER)

- The bladder is removed and a long (40-60 cm) piece of intestine is used to create a substitute bladder.
- The ureters (tubes that connect kidney to bladder) are connected to one end of the substitute bladder and the other end is brought down and connected to the urethra (tube you urinate through).
- You will pass urine from the urethra, though it may take some time to learn to pass urine this way and to gain control of your urine.

ABDOMINAL STOMA (ILEAL CONDUIT)

- The bladder is removed and a short (15-20 cm) piece of intestine is used to create a stoma to carry urine out of the body.
- The ureters (tubes that connect kidney to bladder) are connected to one end of the piece of intestine and the other end is brought to the skin to create an opening (stoma) near the belt line.
- Your urine will continuously flow out of the stoma into a bag which is attached to your skin and under your clothes. The bag will need to be emptied regularly.

Note. Reproduced with permission of the author

The Ottawa decision aid helps patients answer the question “should I have a stoma or an internal reservoir when removing my bladder cancer?” The tool presents the two options for diverting urine, guides them through a checklist of health factors that may affect their choice and presents them with a 5-point scale on the reasons to choose one over the other. It ends with a knowledge check and next steps.⁵⁷

PREOPERATIVE CONSULTATION

An ileal conduit is an incontinent diversion with an abdominal stoma which requires an external pouching system to contain urine. The patient and significant other should be involved in the decision-making process through education and support provided by an NSWOC or urology nurse.⁵⁴ An NSWOC can assess the dexterity of the patient and significant other to ensure the most appropriate ostomy pouching system is selected to promote self-care and independence. This ensures the capability to manipulate the spout or spigot closure easily; and connect/disconnect to the nighttime drainage system.† Consideration should be given to introducing patient to an ostomy buddy or local chapter of Ostomy Canada Society.†

Preoperative stoma site marking is a fundamental aspect of ileal conduit diversions. An experienced NSWOC marking the stoma site preoperatively is associated with less difficulty for the patient in adjusting to the ostomy and an improved HRQOL.⁵⁸ Abridged preoperative site marking steps and considerations are presented in Table 2.

Stomal complications remain one of the major challenges with an ileal conduit urinary diversion. Preoperative education at a minimum should include the following:

- importance of adequate daily fluid intake to keep hydrated;

- the role of stents—importance of stabilizing stents during pouch changes to prevent accidental dislodgement;
- early signs and symptoms of infection that would be typical for a patient with an ileal conduit (flank pain, fever, foul smelling urine, cloudy urine, or blood in the urine). The sensation of burning typically associated with a UTI will not be present;
- normal appearance of mucus in the urine and why it is present. Bowel still producing mucus;
- stoma sensation (i.e., none), and reducing friction and trauma to the stoma;† and
- appliance application, adhesives, skin care, and hernia belts.

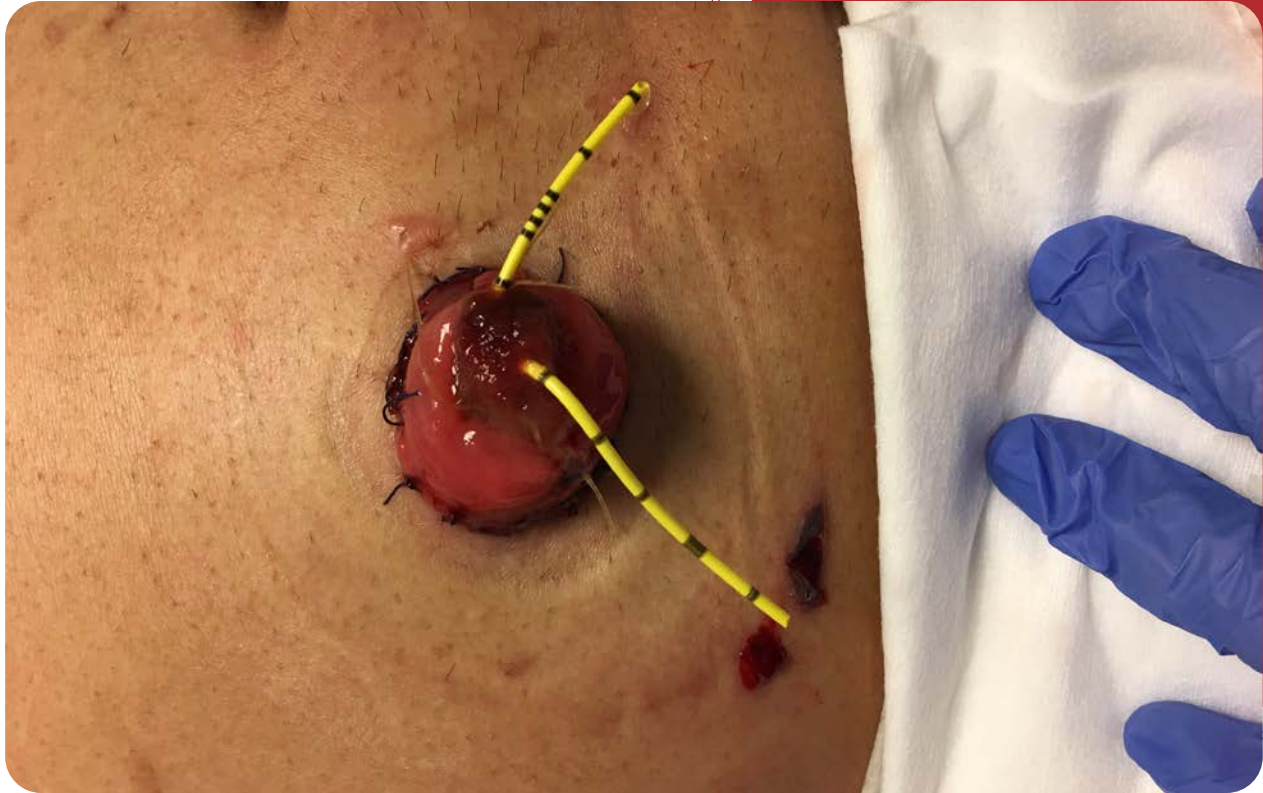
EARLY POSTOPERATIVE CARE

Patient reassessment in the early postoperative phase should include the following:

- weight (weight loss);
- vascularity, size, protrusion of the stoma;
- presence of stents or stomal catheters;
- colour and quantity of urine;
- presence of mucus in the urine;
- alterations in skin integrity in the peristomal area; and
- presence of contours or skin creases which may impact adhesion of pouching system.

Stoma size will dramatically change in the first few weeks. This impacts the type of pouching system required. The ostomy appliance selected should be based on the stoma size, peristomal factors as well as patient preference and dexterity.¹ Generally, a two-piece pouching system is used while stents are in situ for easier application and ability to stabilize and secure stents more effectively during appliance change.† Upon hospital discharge, link the patient with their local community health network is important for ongoing support, education and management.

Figure 3 An ileal conduit with two stents



Early assessment and intervention will prevent pouch leakage and peristomal skin breakdown. NSWOCs should aim for a telephone follow up 7 days postoperative and an in-person follow up within 2 weeks postdischarge. This will assist with successful management and adaptation to life with an ileal conduit and troubleshooting peristomal skin or pouching concerns. Follow up is recommended at 4 weeks, 6 weeks, 6 months, and annual follow up for several years as required. There will be a particular need for long-term follow up as the patient's body changes.†

Patient weight loss between 5-15 kg (11-33 lb) in the three months after discharge is common. This necessitates ongoing NSWOC involvement to reassess the pouching

system with adjustments made accordingly.† Problematic weight loss should be referred to a dietitian.

The Urostomy Education Scale is a validated tool developed by a Danish group in collaboration with EAUN in 2010 to evaluate urostomy self-care skills among patients who have a stoma resulting from radical cystectomy due to muscle invasive bladder cancer.⁵⁹ Seven skills are scored between 0 and 3-points. Higher scores represent patients with greater skills acquisition. The position statement authors advocate the use of this Urostomy Education Scale, shown in Table 4, to standardize and evaluate education provided. It has been validated in more than 20 countries.

Table 4 Urostomy Education Scale

SKILL	0 POINTS	1 POINT	2 POINTS	3 POINTS	SCORE
1. Reaction to the stoma	The patient shows no interest in/ has difficulty coping with the stoma	The patient has seen and touched the stoma on the initiative of the nurse	The patient has seen and touched the stoma on his/her own initiative	The patient copes with the stoma and is preparing for the future	
2. Removing the stoma appliance	The nurse removes the stoma appliance	The patient needs assistance to remove the stoma appliance	The patient needs verbal guidance to remove the stoma appliance	The patient can remove the stoma appliance independently	
3. Measuring the stoma diameter	The nurse measures the stoma diameter	The patient needs assistance to measure the stoma diameter correctly	The patient needs verbal guidance to measure the stoma diameter correctly	The patient can measure the stoma diameter correctly independently	
4. Adjusting the size of the urostomy diameter in a new stoma appliance	The nurse cuts the size of the urostomy diameter	The patient needs assistance to cut the size of the urostomy diameter	The patient needs verbal guidance to cut the size of the urostomy diameter	The patient can cut the size of the urostomy diameter independently	
5. Skin care	The nurse cleans and dries the skin	The patient needs assistance to clean and dry the skin	The patient needs verbal guidance to clean and dry the skin	The patient can clean and dry the skin independently	
6. Fitting a new stoma appliance	The nurse fits a new stoma appliance	The patient needs assistance to fit a new stoma appliance	The patient needs verbal guidance to fit a new stoma appliance	The patient can fit a new stoma appliance independently	
7. Emptying procedure (emptying bag and attaching/ detaching night bag)	The nurse performs the emptying procedure	The patient needs assistance to perform the emptying procedure	The patient needs verbal guidance to perform the emptying procedure	The patient can perform the emptying procedure independently	
Total Points					

Note. Reproduced with permission of the authors⁵⁹

LONG-TERM POSTOPERATIVE CARE AND SURVEILLANCE

Lifelong access to an NSWOC for stomal and peristomal related concerns is paramount to promote independence and cost-effective self-care to ensure the most effective pouching system is utilized and to deter emergency department visits. The rationale is that alterations in skin integrity under the skin barrier can occur at any time. Also, abdominal contours (weight changes) can occur over time. An NSWOC can provide education and linking to appropriate resources as the recovery progresses i.e., sexuality, parastomal hernia prevention or management, travelling, participating in sports or pouching options during pregnancy.† Finally, stomal stenosis can develop and longer-term surveillance is necessary.

HEALTH-RELATED QUALITY OF LIFE

The complications of an ileal conduit are well documented and beyond the scope of this position statement.⁶⁰⁻⁶² Common complications are summarized in Table 1 for each urinary diversion. In particular, parastomal hernia, stomal and peristomal skin complications can have an unfavourable impact on a patient's HRQOL.

Narang and colleagues examined the risk factors for parastomal hernia.⁶³ Of the 3,170 patients who underwent ileal conduit surgery, 17.1% developed a parastomal hernia based on either clinical examination or cross-sectional imaging. BMI over 30, female gender, low albumin, previous laparotomy, and longer operative times were reported to be a significant risk factor for parastomal hernia.⁶³

The physical adjustments required with a new stoma have been shown to have a detrimental psychological effect on the patient.¹⁷ Preoperative education and counselling help prepare patients to accept an abdominal stoma and address HRQOL concerns.

Sexual health is discussed in Section 1. Urinary diversion and ileal conduit in particular have a substantial negative impact on sexual function and health.^{64,65} It is one of the least openly discussed and researched areas, pointing to the need for members of the interprofessional team to give greater attention to these psychological implications from an ileal conduit.⁶⁵

CLINICAL PEARLS

Ileal conduit surgery is the treatment method of choice for patients with bladder cancer. It remains the gold standard.⁶⁰

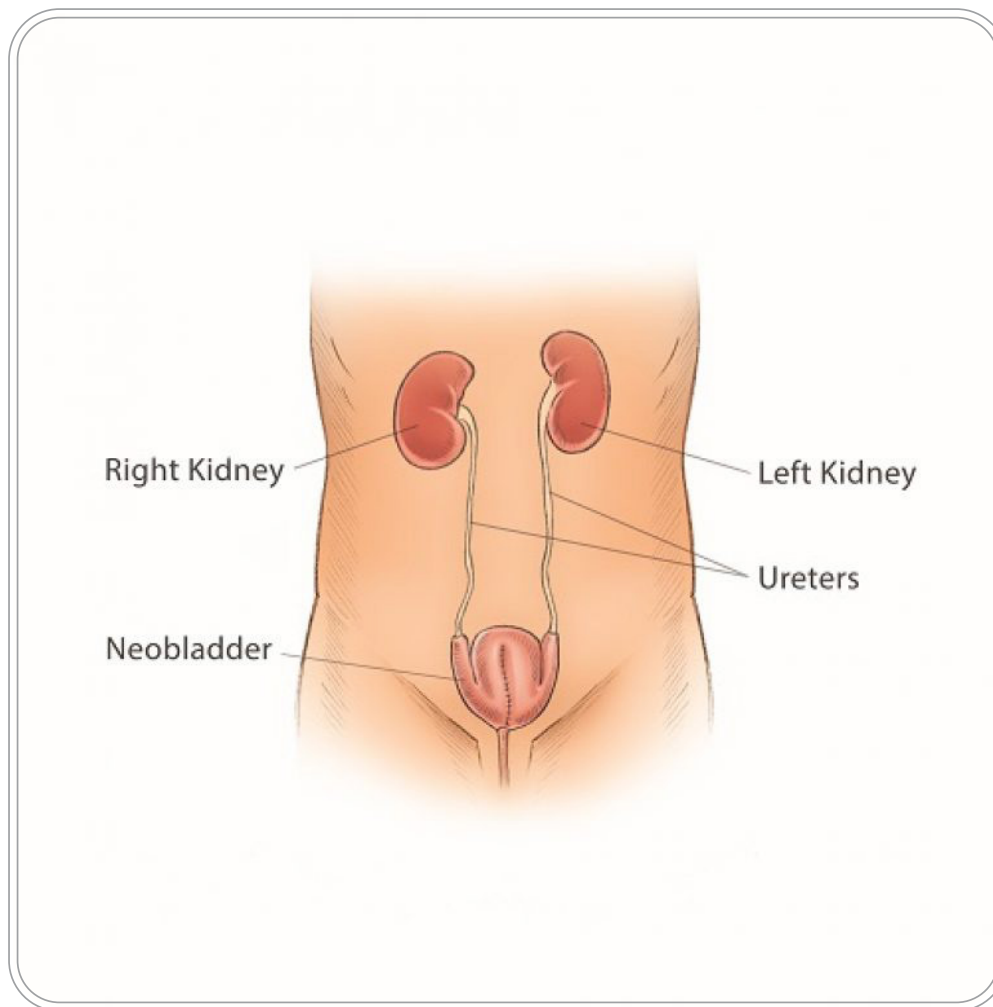
In a systematic review of 25 papers, Crozier et al. (2016) noted that while ileal conduit surgery is well understood by health professionals and is thought to be a technically simpler procedure; analysis reflecting 4,941 patients showed a higher rate of complications with ileal conduit in comparison to neobladder.⁵⁵ The authors reconciled this finding by noting that the ileal conduit patients were of a more advanced age and with more comorbidities.

Khalil and colleagues note that longer follow up for 20 years or more is needed for all urinary diversion techniques to prove whether the ileal conduit will remain the gold standard for urinary diversion or whether other newly developed techniques with lower complication and readmission rates will replace it.⁶⁶

ORTHOTOPIC NEOBLADDER

A neobladder is a new bladder that is created as a substitute for the patient's native bladder, constructed from a segment of bowel that has been reconfigured to serve as a urinary reservoir. This reservoir is anastomosed to the patient's native urethra. It relies on the external striated sphincter for continence. The neobladder is designed to be a large-capacity, low-pressure reservoir. Its average capacity is 400-500 ml of urine.^{55,67,68}

Figure 4 Anatomy of an orthotopic neobladder



Note. Reproduced with permission of Bladder Cancer Canada

PATIENT SELECTION

According to Almassi and Bochner (2020) an “orthotopic neobladder represents an excellent option for urinary diversion for the appropriate candidate.”⁶⁹

The fact that a neobladder does not disturb their body image perception is a strong motivator for many patients. As described earlier, an Ottawa decision tool helps to guide patients through the decision making on whether to opt for an ileal conduit or neobladder.⁵⁷ These authors recommend practitioners to access and utilize this tool with their patients as part of the preoperative education and counselling.†

There are a number of contraindications for a neobladder urinary diversion. Suitable patients for neobladder should have:⁷⁰

- a good life expectancy (longer than 1 to 2 years);
- no history of drug or alcohol misuse;
- no cognitive impairment;
- adequate renal function (estimated glomerular filtration rate [eGFR] >40 mL/min);
- dexterity and willingness for intermittent catheterization;
- normal hepatic function;
- a competent external sphincter; and
- negative intraoperative urethral margin on frozen section.

Neobladder is less common than ileal conduit in the elderly, although it is not a contraindication. Neobladder may be associated with longer recovery of urinary control or risks of nocturnal incontinence with increasing age.⁷¹⁻⁷³ Urinary retention being more common in women.⁷⁴

PREOPERATIVE CONSULTATION

An orthotopic neobladder is a continent diversion in which the patient is taught to use pelvic floor muscles and the Valsalva maneuver to empty their neobladder. Incontinence is expected in the first 6 months as continence recovery progresses. Ongoing nocturnal incontinence is experienced by many patients. Patients who are unable to fully empty their neobladder, or those unable to void will need to do clean intermittent catheterization.

While the patient is not expected to have a stoma, it is imperative all patients should nevertheless have preoperative stoma site marking, and ileal conduit teaching.⁵⁴ Based on individual centre or surgeon preference for the use of a Malecot drain or a suprapubic catheter, an NSWOC should mark the abdomen to ensure adequate surface area for adherence of the two-piece pouching system while irrigation is necessary.

During the preoperative teaching process, the patient/significant other should be given the opportunity to have hands-on demonstration and practice with the irrigation equipment. This will allow the patient/significant other to more fully appreciate the care and time commitment involved in the early postoperative period; and allow an NSWOC to assess their cognitive and fine motor skills. A discussion on pelvic floor exercises to aid in bladder emptying and continence recovery should occur. In the event the patient is unable to void, an NSWOC should also review the technique for clean intermittent catheterization and provide the patient/significant other the opportunity to practice with the equipment involved.

Patients considered for neobladder must be able to self-catheterize and be committed and educated on the labour-intensive rehabilitation process.⁵⁴ In the preoperative education there should be discussion about the role of stents, the presence of mucus in the urine, why it is there and how to manage it in the new bladder.

EARLY POSTOPERATIVE CARE

A patient with a neobladder will have multiple drains postoperatively, including a urinary catheter, pelvic drains, and possibly a mushroom catheter (Malecot) in the neobladder.⁷⁰

On discharge, it is recommended to have an NSWOC or urology nurse consultation and be linked with community nursing that has advanced knowledge, problem solving and support resources available.† It is also advised for patients to research their community resources for catheter suppliers prior to surgery as this will make discharge to home smoother. On discharge patients should be educated on the signs and symptoms of anastomotic leak. These include abdominal fullness, bloating, nausea, increasing lower abdominal pain, reduced urinary output, and difficulty with irrigation.⁶⁷ While anastomotic breakdown is less likely following discharge, patients must know these symptoms so they can notify their surgeon or come to the emergency department for an assessment.

The most important aspect of management during the immediate postoperative period is routine irrigation and aspiration of the neobladder to prevent catheter blockage. Irrigation of both the urinary catheter, and Malecot catheter are required to remove/flush out mucus, promote unobstructed flow of urine and promote healing of the neobladder suture lines. Irrigation schedules vary. In some centres, irrigation is avoided during the first 48 to 72 hours following

surgery to avoid the possibility of forcing suture lines open and encouraging a leak. Depending on local policy, each catheter may be flushed with 75-100 ml of saline every 2 hours. Initial irrigation is completed by experienced nurses; patients and significant others are gradually educated and are fully independent with irrigations and connecting ostomy pouches to nighttime drainage or a smaller leg bag during the daytime. N-Acetylcysteine is a dietary supplement which may be of benefit as a mucolytic.

The most critical education begins once the catheter is removed. This is when one learns how to empty the bladder, what it means to gradually increase the neobladder capacity, how to optimize continence and how to recognize and manage any complications.

The urethral catheter is typically removed around postoperative day 10 to 3 weeks depending on organizational policy, and removal may be combined with a cystogram to rule out an anastomotic leak. If the cystogram confirms that the new reservoir is watertight, the suprapubic catheter (or Malecot) can be removed or clamped and the patient can be taught how to void.⁶⁷

Patients are taught to void in the sitting position and to consciously and completely relax the sphincter and pelvic floor muscles. The patient is then instructed to use the Valsalva maneuver to empty the reservoir. Many patients find it helpful to lean forward slightly while keeping the back straight, which further increases abdominal pressure. Patients who have difficulty emptying the neobladder completely may be instructed to exert gentle manual pressure over the lower abdomen and suprapubic area. Men are taught to milk the urethra to eliminate any residual urine.^{67,75}

Patients are taught to empty the neobladder on a scheduled basis to gradually increase the urine capacity while preventing excessive distention and risk of rupture (shown in Table 5).

Table 5 *Guide to neobladder irrigation schedule, which will be adjusted to each patient*

	DAY	NIGHT
Week 1	every 2 hours	every 3 hours
Week 2	every 3 hours	every 4 hours
Week 8 and ongoing	every 5-6 hours	every 6 hours

Note. The frequency of irrigation is patient specific based on the amount of mucus production. Irrigating the catheters keeps urine flowing well and prevents infections and blockage. Reproduced with permission from University Health Network, Toronto.

Urinary pH is another factor to be considered when determining optimal voiding interval; patients whose urine becomes alkaline with longer voiding intervals should have their schedule adjusted to maintain an acidic urine.⁶⁷

The patient’s ability to effectively empty the neobladder is monitored through postvoid residual urine measurement. How these measurements are obtained varies depending on whether the patient:

- whose clamped suprapubic catheter remains in place. These patients are taught to first void and record the volume and then to open the suprapubic catheter to drain and record the residual volume; or
- whose suprapubic catheter has been removed. The patients must use clean intermittent self-catheterization to assess postvoid residual volumes.

Patients who are unable to empty effectively must do clean intermittent self-catheterization to prevent stasis and the resulting complications. Although no precise definition of problematic retention exists, patients can perform clean intermittent self-catheterization when residual volumes are greater than 200 ml or the patient experiences recurring UTIs.⁶⁷

Patients are also encouraged to maintain adequate fluid intake to reduce the risk of UTI and constipation, and to keep the mucus thin enough to pass during micturition or with clean intermittent self-catheterization.⁶⁷

Patients should be counselled that they may experience initial alterations in bowel function as a result of use of a portion of bowel being removed to create the reservoir; however, they also may be counselled that these alterations are rarely long-term. Nevertheless, if diarrhea persists, treatment can be initiated with fat-binding agents, stool thickeners, and antidiarrheal agents. Consultation with a dietitian prior to hospital discharge is routinely conducted to educate patients about diet and bowel management following neobladder construction.⁶⁷

Incontinence is a common problem during the initial postoperative period, and restoration of continence is an important goal for most patients. Patients are taught pelvic floor muscles exercises preoperatively, and this instruction is reinforced continually during the postoperative period. The clinician assesses the patient’s ability to perform a correct pelvic floor muscles contraction, baseline pelvic muscle strength and endurance, and the ability to brace and hold pelvic floor muscles contractions in situations resulting in increased intraabdominal pressure, such as coughing, bending, and lifting. Physiotherapists or occupational therapists

can further support patients with suitable individualized home training programs. With these daily exercises patients achieve continence 6-12 months after surgery.

LONG-TERM POSTOPERATIVE CARE & SURVEILLANCE

Long-term regular follow up and surveillance is imperative in patients with urinary diversion as nonfatal complications may occur years after surgery.⁷⁶

Routine follow up for our neobladder patients includes:

- initial follow up visit 3 to 6 weeks after surgery, at which time pathology results are reviewed and a treatment and surveillance plan is developed by a multidisciplinary team and the patient; and
- subsequent follow up is typically provided at 3 month and then 6 month intervals;
 - clinic visits are characterized by a focused physical examination, blood tests, and measurement of a postvoid residual volume;
 - obtain a CT urogram annually for the first 3 years, followed by intravenous urography at the fifth postoperative year;
 - chest and abdominal imaging at least annually depending on clinical condition and pathological stage; and
 - folic acid and vitamin B₁₂ levels may be checked 2 years after surgery and then annually thereafter.

HEALTH-RELATED QUALITY OF LIFE

Quality of life considerations make neobladder a viable “alternative to an ileal conduit in suitable patients who do not want a stoma and are motivated to comply with neobladder training after surgery.”⁷⁷ Nayak and colleagues reported that neobladder is preferred by many patients with better postoperative HRQOL.⁷⁴ In the absence of randomized trials, all studies are biased by patient-led and physician led preferences with regards to HRQOL.

Common complications are summarized in Table 1 for each urinary diversion and are beyond the scope of this position statement. Patients must be counselled and educated on the likelihood of UTIs in the 3 months after surgery.⁷⁸ Continence remains one of the most important outcomes for patients after [neobladder] reconstruction.⁷⁹ Overall, HRQOL is similar across the different diversions.†

Bladder stones are relatively common in patients with orthotopic neobladders affecting 10%–20%, and the incidence is higher in patients who are immobile and whose neobladders were constructed using staples. Stone formation is more likely to occur in the presence of a UTI or alkaline urine. Regular emptying of the neobladder, combined with routine irrigation, may reduce the incidence of stone formation.⁶⁷

Recovery of sexual function depends on patient age and the specific surgical technique (nerve sparing versus standard). Erectile dysfunction in men and dyspareunia in women are common for the first 3 to 6 months after surgery. Patients are counselled to anticipate this outcome and be reassured that additional treatment options are available if sexual dysfunction persists.⁶⁷

PAEDIATRICS

According to Ali et al. (2015), the neobladder shows a marginally better quality of life scores compared to ileal conduit especially when considering younger and fitter patients.⁶

Research by Elshal et al. (2012) highlights that children may be unable to create adequate abdominal pressure to evacuate the neobladder completely and so intermittent catheterization is necessary.⁸⁰ Long-term follow up is mandatory to maintain the positive outcome.⁸⁰

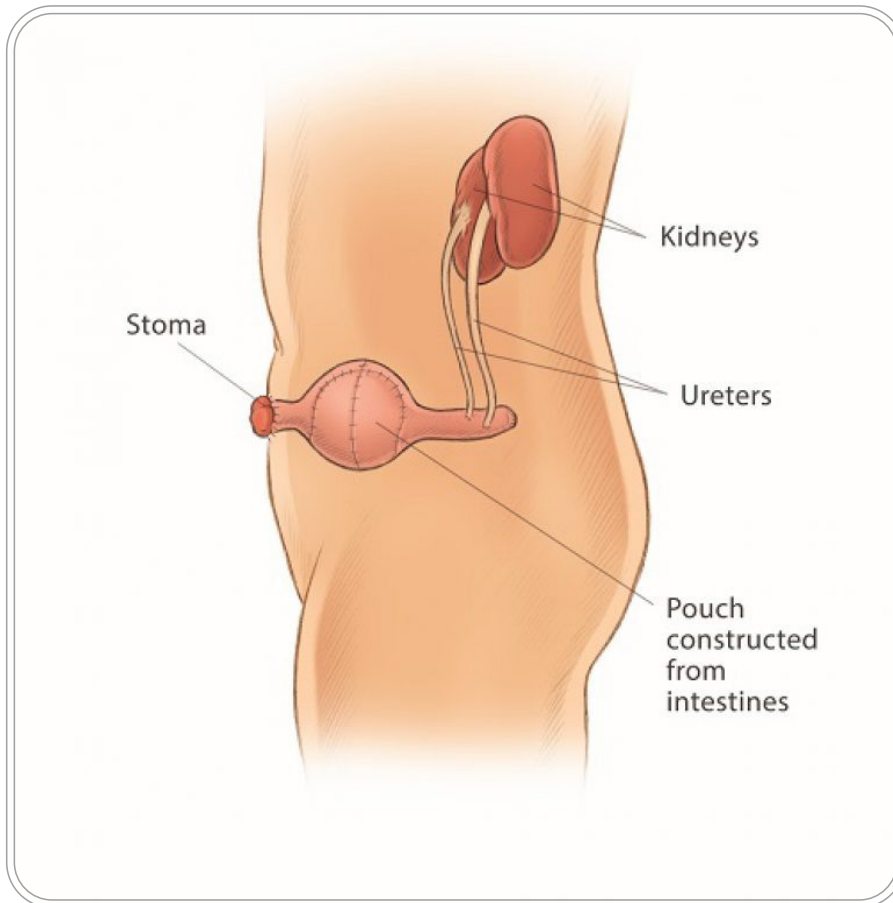
CLINICAL PEARLS

Neobladder construction has become a standard procedure with excellent functional outcomes conducted in many urologic centres and a preferred option in younger patients.⁸¹⁻⁸³

INDIANA POUCH

The Indiana pouch is a continent urinary diversion that is created from the bowel to become a reservoir for urine. It is typically created using the right-sided ascending colon and terminal ileum. There is a valve mechanism constructed within (the native ileocecal valve), which keeps the urine inside the pouch. Thus, clean intermittent self-catheterization is required to empty the reservoir and irrigate retained mucus on a regular daily schedule.

Figure 5 Anatomy of an Indiana pouch



Note. Reproduced with permission of Bladder Cancer Canada

PATIENT SELECTION

A patient's dexterity and cognitive function must be assessed before consideration of an Indiana pouch as both factors need to be intact to care for the stoma and perform intermittent catheterizations.

An Indiana pouch diversion requires good renal function. Hepatic dysfunction, compromised intestinal function or serum creatinine >1.7 µmol/L are contraindications.¹

Cheng et al. (2021) showed an increased rate of stoma complications in patients with a higher BMI.⁸⁴ As well as higher rates of surgical site infections and UTIs in comparison to those who received an ileal conduit or neobladder diversion.⁸⁴

An Indiana pouch diversion is a potential option for children, who have rare congenital bladder abnormalities, such as exstrophy and epispadias, when repair has been unsuccessful. In these patients, malignancy is not the causation.

PREOPERATIVE CONSULTATION

An Indiana pouch is a continent diversion with an abdominal stoma. Similar to other urinary diversions, the patient and significant others should be involved in the decision-making process through education and support provided by an NSWOC or urology nurse.⁵⁴ One main driving factor for choosing the Indiana pouch is the lack of an exterior physical pouching system.

An NSWOC or urology nurse can assess the hand dexterity of a patient to ensure they will be able to perform self-catheterizing through their stoma. The patient must also be cognitively intact and commit to following a regular irrigation and catheterization schedule. For patients with an Indiana pouch diversion, a referral to both Bladder Cancer Canada and Ostomy Canada Society may be worthwhile.†

Preoperative stoma site marking is also a fundamental aspect of an Indiana pouch diversion. An experienced NSWOC marking the stoma site preoperatively is associated with less difficulty for the patient in adjusting to the stoma and an improved HRQOL.⁵⁸ The abridged preoperative site marking steps for urostomy are presented in Section 1. The stoma site will be marked on the right lower quadrant with consideration of the beltline, skin folds and ease of visualization by the patient.¹

Preoperative education at a minimum should include the following:

- anatomy of the stoma and preoperative stoma site marking;
- the role of stents;
- long-term commitment necessary for intermittent catheterization;
- importance of hydration to dilute mucus;
- early signs and symptoms of infection that would be typical for a patient with an Indiana pouch (flank pain, fever, foul smelling urine, cloudy urine);
- normal appearance of mucus in the urine and its presence from continued bowel mucus production;
- stoma sensation (i.e., none), and reducing friction and trauma to the stoma;† and
- discussion of coverage of medical supplies needed postoperatively and where they can find a supplier in their community.

Lifelong intermittent catheterization necessitates having the financial means or health benefits to support the annual cost of catheters.

EARLY POSTOPERATIVE CARE

A patient with an Indiana pouch will have a stoma on the right lower quadrant with a catheter in situ. Additionally, there will be a Malecot or suprapubic catheter in the left lower quadrant and two ureteric stents. The stents maintain patency, ensure urine

flow, and promote proper healing. Both the stoma site and Malecot/stent site will be contained within a two-piece pouching system and may be connected to straight drainage. The two-piece ostomy appliance pouch is used to allow access to the catheter for routine irrigation, and to contain urine.

The irrigation of both catheters is imperative and required to remove/flush out mucus, promote unobstructed flow of urine and promote healing of the pouch suture lines.† Initial irrigation is completed by staff nurses; patients and significant others are gradually educated to be fully independent with irrigations and connecting ostomy pouches and or catheters to nighttime drainage or smaller leg bags before discharge. Each catheter will be flushed with 75-100 ml of saline every 2 hours. The frequency of irrigation is patient specific based on the amount of mucus production. Irrigating the catheters keeps urine flowing well and prevents infections and blockage.

On discharge it is recommended to have an NSWOC consultation and be linked with community nursing that has advanced knowledge, problem solving and support resources available.† It is also advised for patients to research their community resources for catheter suppliers prior to surgery as this will make discharge to home smoother.

Once the catheters are removed by the surgeon or an NSWOC, the intermittent catheterization schedule begins. One will catheterize every 2 hours during the day and gradually increase to every three, four and six hours. This gradual regime will occur over several weeks. The catheterization interval may need to be increased for patients who experience leakage at pouch capacity. See

Table 6 below for an example. One can repeat an irrigation with an additional 75-100 ml of saline if a lot of mucus is noted in the urine. Over time as the pouch is stretched and able to hold more urine, the frequency between catheterizations will be longer.

The schedule is patient specific (shown in Table 6) and is influenced by capacity of the Indiana pouch and fluid intake.

Table 6 *Guide to an Indiana pouch catheterization schedule, which will be adjusted to each patient*

	DAY	NIGHT
Week 1	every 2 hours	every 3 hours
Week 4	every 2-3 hours	every 4 hours
Week 8 and ongoing	every 3-4 hours	every 6 hours

Note. Reproduced with permission from University Health Network, Toronto

Patient postoperative phases should include the following:

- irrigation of catheters;
- removal of catheter in stoma and stents;
- Malecot or suprapubic catheter is clamped;
- removal of Malecot or suprapubic catheter; and
- reinforcement of catheterization schedule.

As with all urological surgery attention should be paid by the interprofessional team to look for signs and symptoms of infection. Patients and significant others should be educated on what to look out for and when to seek medical help.

LONG-TERM POSTOPERATIVE CARE AND SURVEILLANCE

Ongoing irrigation to remove mucus to prevent blockage and infection—frequency will vary by patient. Watch for stomal stricturing and signs of stones in the pouch. Patients should consider wearing a medical alert bracelet to identify their diversion.

Patients who report urine leakage between catheterizations should be assessed for the presence of infection or urinary stones. This may also be an indication that more frequent catheterization may be required. In some cases, anticholinergic medications may help with pouch spasms should they be contributing to incontinence.

Axial imaging will assess for hydronephrosis and will also screen for pouch stones.

Individuals who travel may want to carry prophylactic antibiotics to be started should infection set in while out of country.

HEALTH-RELATED QUALITY OF LIFE

Common complications are summarized in Table 1 for each urinary diversion and are beyond the scope of this position statement.

“Most of the complications were related to the efferent limb, which is the most delicate part of the reconstruction. Over time it has been noted that reoperations were usually due to stomal stenosis of the efferent limb. Difficulty with catheterization and stomal stenosis accounted for one half of the complications. Catheterization difficulties, stomal stenosis, and pouch stones are complications that become more frequent with time. The presentation of pouch stones includes pain, UTI, incontinence, and trouble catheterizing.”⁸⁵ The first 90 days postoperative seem to be when the highest occurrence of urinary tract infections occur, likely from intermittent catheterization.⁸⁶

CLINICAL PEARLS

The Indiana pouch is an attractive, safe, and efficacious alternative for providing continence and an acceptable quality of life. Patient counselling, motivation, and proper case selection are all essential for a long-term successful outcome.⁸⁷

Gallucci et al. (2006) notes that Indiana pouch has gained popularity through a few modifications that have kept it simple with less complications and revision rates.⁸⁵ The technique used in the construction of the continent diversion is a critical element in the development of complications.

Ensure patients understand the possible financial costs involved with catheters and irrigation solutions. Reported annual spending of some patients ranged from \$5,000 to as high as \$35,000. Coverage varies by insurance and provincial programs.

MITROFANOFF

A Mitrofanoff serves as an alternative route to catheterizing the bladder when the urethra cannot be reliably used. It involves using the appendix to create a catheterizable conduit between the urinary bladder and skin surface. The appendix is the most commonly used conduit for a continent catheterizable channel (Mitrofanoff appendicovesicostomy). Others prefer using a transversely retubularized small bowel segment as a channel (Yang-Monti or Casale technique). It is applicable to paediatric populations. Less popular, the fallopian tubes, ureter, and tubularized colonic or bladder flaps have also been described as alternatives for urinary conduits. When medical management fails, bladder reconstruction with bowel (augmentation ileocystoplasty) becomes the treatment of choice for these patients (e.g., neurogenic bladder or exstrophy). In many cases, augmentation is performed concomitant with the creation of a Mitrofanoff.⁸⁸

Figure 6 A healthy Mitrofanoff diversion



Note. Reproduced with permission of Andrew MacNeily

PATIENT SELECTION

The selection of patients is critical. They must request this surgery after careful consideration of all information. These patients must be evaluated by an interprofessional team, including a urologist and a rehab physician, to assess their ability to reach an abdominal stoma and willingness to perform self-catheterization.⁸⁹ The patient must be compliant with catheterization and will need to wear medical alert identification.

The decision for performing a Mitrofanoff appendicovesicostomy (or another type of continent catheterizable channel) is centred on the patient/significant other preferences and the difficulties which might be encountered performing intermittent catheterization through the urethra.⁸⁸

A Mitrofanoff should be offered to carefully selected children, when clean intermittent catheterization via the urethra is not possible. Patients with myelomeningocele, bladder exstrophy, orthopedic deformities associated with obesity and/or cognitive impairment can all have difficulty accessing the native urethra and represent the mainstay indications for Mitrofanoff diversion. For example, in posterior urethral valves, or the bladder exstrophy-epispadias complex, clean intermittent catheterization is difficult via the urethra for anatomical reasons. This difficulty is compounded by the fact that the urethra has normal sensation in this group of patients. Families and children must be adequately counselled regarding the potential risks of complications and the possible need for additional future surgeries. Preoperative counselling by an NSWOC as well as psychologists with patients/significant others is important. Preoperative education should ideally include support groups.⁹⁰

The Mitrofanoff principle to form a continent catheterizable channel was first described in paediatric patients in 1980. In the past several decades it is being used in the adult populations for a diverse cohort of conditions. For example, those with congenital conditions who may have undergone numerous procedures in childhood (e.g., those with bladder exstrophy and/or epispadias) and those with acquired conditions which may only present later in life such as cancer, end stage urinary incontinence, intractable urethral strictures or an inflammatory bladder condition. Adult patients requiring urological reconstruction are a challenge, having often already undergone numerous previous surgeries so that tissue available for reconstruction may be limited.^{89,91}

PREOPERATIVE CONSULTATION

Mitrofanoff is a continent diversion that will create an abdominal stoma and requires clean intermittent catheterization. Like other stomas, preoperative site marking is imperative as part of the preoperative consultations. Patients/significant others should be educated and counselled accordingly.

Patients with an indication for the Mitrofanoff procedure are often those with neurogenic bladders arising from spina bifida, urethral strictures, or congenital abnormalities, who often also have had other intraabdominal surgeries. However, although the laparoscopic Mitrofanoff procedure is feasible in patients with previous abdominal surgeries, it may have an increased likelihood of being converted to an open operation. There are benefits to a laparoscopic Mitrofanoff procedure in paediatrics. This includes esthetic preference and shorter hospital length of stay compared to open surgery. Toronto researchers, Kim et al. (2019) highlight that surgeons may be less inclined to offer it as an option, owing to a paucity

of data in the paediatric population with previous abdominal surgeries and the negative consequences of extended operative times on children.⁹² Consequently, they conclude that it remains unclear whether a minimally invasive (lap or robotic) approach to the Mitrofanoff procedure is superior or even noninferior to conventional open approaches.⁹²

EARLY POSTOPERATIVE CARE

Postoperatively, patients will have an indwelling Mitrofanoff catheter and a suprapubic catheter (12-Fr or 14-Fr Foley), both of which are initially left on free to drain. In addition, some surgeons will elect to leave ureteric stents to external drainage for the first few days, particularly in the setting of a subsequent bladder augmentation.† This affords total urinary diversion away from suture lines in order to minimize leakage. A bulb suction drain will also be inserted at the time of surgery and be removed before discharge from hospital. Periodic saline irrigation of the suprapubic catheter or Mitrofanoff catheter is required and is dictated by bladder capacity. This is particularly important following augmentation cystoplasty owing to mucous production from the bowel segment. The Mitrofanoff and suprapubic catheters are removed several weeks postoperatively and clean intermittent catheterization teaching begins. Although up to two-thirds of patients ultimately require one or more revisions, the reported continence rate in many series approaches 90% after one operation and 100% after revisional surgery.⁹³

As noted previously, on discharge it is recommended to have an NSWOC consultation and be linked with community nursing that has advanced knowledge, problem solving and support resources available.† It is also advised for patients

to research their community resources for catheter suppliers prior to surgery as this will make discharge to home smoother.

LONG-TERM POSTOPERATIVE CARE

Patients require lifelong urological follow up. At a minimum, an annual renal ultrasound to assess for hydronephrosis or stone formation, and metabolic assessment of renal function and electrolytes is required. Periodic assessment of B₁₂ levels is also required in those who have undergone concomitant ileal cystoplasty.

The spina bifida population is an at-risk group that gets lost from close monitoring as they transition from paediatric to adult medical teams. Every effort should be made to connect these patients with a urologist and a physiatrist with expertise in managing this form of continent urinary diversion.⁹⁴

HEALTH-RELATED QUALITY OF LIFE

A Mitrofanoff diversion requires a lifelong commitment to clean intermittent catheterization, yet offers patients high continence rates. It is noted that catheterization may be easier to perform via the Mitrofanoff than per urethra. There is limited literature evaluating the quality of life in patients with a Mitrofanoff channel diversion. A French expert round table looked at Mitrofanoff versus Monti technique after 5 years and demonstrated high satisfaction with either.⁹⁵

Common complications are summarized in Table 1 for each urinary diversion and are beyond the scope of this position statement.

Stomal stenosis at the skin level is a common short to medium-term complication requiring revision surgery. Some series report up to a 50% stenosis rate over time. Although there

is uncertainty regarding the superiority of one type of Mitrofanoff channel over another, some authors report higher stenosis rates with the appendix compared to small bowel, but more subfascial revisions required for difficult catheterization in the Casale or Yang-Monte variants.^{90,91,96,97}

Stomal prolapse is a less serious complication, causing some cosmetic annoyances such as blood spotting. A relatively minor revision is usually successful, but does run the risk of inducing stenosis.†

Channel incontinence and urethral incontinence are bothersome issues which can be difficult to treat. A variety of endoscopic and open techniques can be applied to this problem. In one cohort of 72 patients (41.6%) it was reported that there was some degree of channel incontinence.⁹¹

CLINICAL PEARLS

Many of these patients are young with comorbidities, such as spina bifida. It is imperative that they are followed by a urologist for the rest of their lives.

In general, if the appendix is available and of suitable caliber, it is preferentially used to construct the Mitrofanoff channel.⁹⁶

Ultimate continence rates are high using the Mitrofanoff principle; nevertheless, setting realistic goals preoperatively is paramount. Patients need continuous long-term follow up imaging of their kidneys and bladder.

Revision rates of up to two-thirds are well described in the literature for conditions such as stomal stenosis, prolapse, channel stricture, and incontinence. Failure to comply with clean intermittent catheterization postoperatively can be catastrophic with complications such as channel stenosis or bladder augment rupture.

CUTANEOUS URETEROSTOMY

A cutaneous ureterostomy is an uncommon incontinent urinary diversion. It is a less invasive procedure appropriate for elderly or other high-risk patients creating a stoma that does not involve bowel or require catheterization.

Figure 7 *Cutaneous ureterostomy*



Note. Reproduced with permission of Ricardo Rendon

PATIENT SELECTION

Cutaneous ureterostomy may be the favoured diversion in two specific patient populations, the high-surgical risk elderly population as well as paediatric populations.

Korles and Palau, (2019) point to the consideration of cutaneous ureterostomy in high-risk patients as an alternative given the lower risks from shorter surgery and decreased bowel manipulation.⁹⁸ Accordingly, it might be the simplest option for high-risk elderly patients.⁹⁹

Huang noted the following four principal advantages of cutaneous ureterostomy for the patients with poor performance status, short life expectancy, or intestinal disease precluding use of bowel segments:¹⁰⁰

- surgical procedure is relatively simple, time is short and quick recovery;
- surgical procedures may be approached extraperitoneally, which reduces the incidence of complications;
- there is no electrolyte and acid-base imbalance associated with intestinal absorption of urine; and
- the stoma is smaller than a urostomy, which is more convenient for patient' self-care.

PREOPERATIVE COUNSELLING

Cutaneous ureterostomy is an incontinent diversion that creates one or two abdominal stomas. As with an ileal conduit diversion, preoperative stoma site marking is essential. Abridged preoperative site marking steps for urostomy are presented in Section 1.

As with all diversions a thorough history and physical exam are important in evaluating not only bladder cancer risk but also the overall health of the patient and their comorbidities. Preoperative education is a critical component of discussion of the pros and cons of the approach.⁷

Where definitive surgery is not possible ureterostomy formation should be considered, as it offers comparable patient survival and long-term graft outcome to patients in this complex group.¹⁰¹

EARLY POSTOPERATIVE CARE

In line with the recommendations for ileal conduit, successful management and adaptation to life with a cutaneous ureterostomy centres on troubleshooting peristomal skin or pouching concerns. An NSWOC should aim for a telephone follow up 7 days after surgery and an in-person follow up within 2 weeks post discharge. Thereafter follow up is recommended at 4 weeks, 6 weeks, 6 months, and 12 months.† Follow up should continue as required afterwards. There will be a particular need for long-term follow up of pouching issues as the patient's body changes.†

Patient reassessment in the early postoperative phase should include the following:

- pain or discomfort during stent changes;
- alterations in skin integrity in the peristomal area; and
- presence of contours or skin creases which may impact adhesion of pouching system.

The ostomy appliance selected should be based on the stoma, peristomal factors as well as patient preference and dexterity.¹ Generally, a two-piece pouching system is used while stents are in situ for easier application and ability to stabilize and secure stents more effectively during appliance change.† Linking the patient with the community agency is imperative.

The Urostomy Education Scale is a validated tool to evaluate urostomy self-care skills among patients who have a stoma resulting from radical cystectomy due to muscle invasive bladder cancer.⁵⁹ It is reproduced in Table 3.

Early postoperative teaching focuses on the technical aspects of ureterostomy care such as measuring of stoma and correct technique for pouching system application (often convexity is needed), how and when to empty their pouch, and how to connect to a nighttime drainage system.† Review successful tips and techniques for activities of daily living such as bathing/showering, clothing, return to work or school, socialization, parastomal hernia prevention, and use of medical alert identification.

Prior to hospital discharge, ensure a link with community nursing for ongoing education and support. Also recommend an NSWOC consultation in addition to general nursing for advanced knowledge, problem solving and support. Guide patients and significant others to appropriate provincial funding resources for ostomy appliances and associated products.

LONG-TERM POSTOPERATIVE CARE & SURVEILLANCE

Lifelong changes in the double J tube stents are characteristic of cutaneous ureterostomy. Consequently, surgeons will monitor for potential ureteral obstruction with these chronic double J tube changes.† These stent changes are anticipated ever 4-6 weeks. Patient must take care to not pull stents out and must seek prompt medical attention if they do.†

Lifelong access to an NSWOC for stomal and peristomal related concerns is paramount to promote independence and cost-effective self-care to ensure the most effective pouching system is utilized, and also to deter emergency department visits. Alterations in skin integrity under the skin barrier can occur at any time; and abdominal contours (weight changes) can occur over time. Providing education and linking with appropriate resources as recovery progresses will be necessary.†

HEALTH-RELATED QUALITY OF LIFE

Patients receiving a cutaneous ureterostomy may report greater freedom in their day-to-day activities, better body image and a higher quality of life. However, in a comparative study by Gacci et al. (2013) long-term disease-free females treated with cutaneous ureterostomy endorsed worse HRQOL compared with women who underwent ileal conduit or neobladder, mostly due to worse physical and emotional perception of their body image.¹⁰²

Researchers in China retrospectively analyzed 114 cases over 10 years. Unilateral cutaneous ureterostomy had a higher life satisfaction than bilateral cutaneous ureterostomy.¹⁰⁰ Traditional bilateral ureteral stoma surgery may be easier to complete yet is harder to manage postoperatively.

Common complications are summarized in Table 1 for each urinary diversion and are beyond the scope of this position statement. Ongoing surveillance can help identify early signs of complications.

PAEDIATRICS

In children requiring urinary diversion, the creation of a cutaneous ureterostomy is a safe temporizing surgical procedure that can be performed in even young children who require it due to a variety of congenital conditions resulting in a dilated ureter. Yadav et al. (2018) notes that cutaneous ureterostomy is widely used as urinary diversion in children with posterior urethral valves, megaureter and ectopia.¹⁰³ The incidence of stomal stenosis with end cutaneous ureterostomy varies from 8% to 22%.¹⁰³

CLINICAL PEARLS

Cutaneous ureterostomy is the least common form of urinary diversion. It can be the simplest option of urinary diversion in high-risk elderly patients. As a minimally invasive technique it has some advantageous for those who can't tolerate a lengthy surgery.^{99,100}



APPENDICES

A—METHODOLOGY

B—ENHANCED RECOVERY CHECKLIST

APPENDIX A – METHODOLOGY

A task force convened comprising 32 health professionals from the Canadian Urological Association, Nurses Specialized in Wound, Ostomy and Continence Canada and Urology Nurses of Canada. Search terms with inclusion and exclusion criteria were agreed with the task force.

A review of the literature was conducted in February 2020 through Queen’s University. The search strategy employed focused on keywords related to *appendicovesicostomy, continent diversion, cutaneous ureterostomy, enhanced recovery, HRQOL, ileal conduit, incontinent diversion, Indiana pouch, Mitrofanoff, orthotopic neobladder, preoperative, stoma, ureteral stents, urinary diversion, urostomy*. All papers in English were considered within the last 10 years. Additional articles were identified in support of the Province of Québec. Databases searched encompassed organization websites and libraries:

American Urological Association
Canadian Cancer Society
Canadian Urological Association
European Association of Urology
European Association of Urology Nurses
Nurses Specialized in Wound, Ostomy and Continence Canada
Ordre des infirmiers et infirmières du Québec
Registered Nurses’ Association of Ontario
Society of Urological Oncology
WOCN Society library

Databases:
CINAHL;
EMBASE;
Google Scholar;
MEDLINE;
Nursing and Allied Health Source on ProQuest;
PsycInfo; and
PubMed.

The committee reviewed the 258 articles identified and retained 174 as relevant for the project. Article review summaries were organized by the five urinary diversions and preoperative/HRQOL. Six smaller teams developed

the section content. The full task force reviewed drafts of the manuscript. A new patient resource *A Guide to Living with an Ileal Conduit* has been developed in parallel by NSWOCC.¹⁰⁴

An interprofessional mix of peer reviewers provided input into the position statement. A total of 30 peer reviewers provided valuable input into the document. This was collected via Survey Monkey during November 2021. Overall, 89% of the reviewers stated that they would recommend to colleagues and administrators to support urinary diversion practices in Canada. Refinements were made to the document, and the overall results and insights were discussed with the task force members. This position statement is endorsed by the Canadian Urological Association and Urology Nurses of Canada. Finally, the completed position statement was approved by the NSWOCC Board before publication.

Consistent with other position statements, the evidence was not graded. The RNAO *Best Practice Guideline on Supporting Adults Who Anticipate or Live with an Ostomy* second edition April 2019, provides a robust appraisal of the certainty of evidence and confidence in the evidence.¹⁰⁵ These Best Practice Guidelines provide a strength of recommendation as strong for the following steps;

- Performing preoperative stoma site marking.
- Providing perioperative education and counselling.
- Providing ongoing follow up consultation and management.
- Involving persons who anticipate or live with an ostomy and their support network in all steps of care, as appropriate.

APPENDIX B — ENHANCED RECOVERY CHECKLIST FOR AN ILEAL CONDUIT TO STANDARDIZE PATIENT CARE AND EDUCATION

PREOPERATIVE		POSTOPERATIVE		POSTDISCHARGE	
Skills/knowledge 10-14 days before surgery	Skills/knowledge during planned 4-7 day hospital stay	Skills/knowledge within 7-14 days after discharge			
<p>Have your stoma site marking explained and completed.</p> <p>Receive ostomy education on:</p> <ul style="list-style-type: none"> planned surgical procedure; normal stoma function; presence of mucus; role of stents; care and management of an ileal conduit (emptying, connecting to straight drainage at night; applying a pouching system; pouch wear times; pouching system options); impact of sexual health; potential complications: urinary tract infections, dehydration, stoma and peristomal skin problems, and parastomal hernia; industry sponsored programs; ostomy buddy/journey coach; and ostomy supplies: where to buy, cost and financial support. <p>Receive and review preoperative ostomy practice pack.</p>	<p>Day of surgery:</p> <ul style="list-style-type: none"> Look at your stoma <p>Day 1-2 after surgery:</p> <ul style="list-style-type: none"> empty your pouch with the nurse connect/ disconnect to straight drainage. <p>Day 3+ after surgery:</p> <ul style="list-style-type: none"> empty your pouch on your own; connect/ disconnect to straight drainage on your own participate in your pouching system change using careful techniques to stabilize stents to prevent dislodgement; discuss and understand how to obtain a urine sample from your stoma; ensure you are referred to community care services; and receive your discharge ostomy supplies. <p>Review information given to you preoperatively:</p> <ul style="list-style-type: none"> potential complications; products; and financial supports. 	<p>Meet with your community care nurse for support.</p> <p>Demonstrate your independence with pouching system changes 2 weeks after discharge.</p> <p>Receive follow up care from hospital or a community NSWOC at least within 7-10 days and then as often as 2, 4 & 6 weeks after discharge.</p>			
<p>Practice wearing a pouching system, opening, and closing the pouch.</p> <p>Review lifestyle changes.</p>	<p>Ask about enrolling in an industry sponsored program.</p>	<p>Receive continuing information about ostomy-related lifestyle considerations:</p> <ul style="list-style-type: none"> pouch wear times; importance of adequate daily fluid intake to keep hydrated; lifestyle adjustments; ostomy support groups and resources; and industry programs. <p>Know who to call and what to do in an emergency.</p>			

Note: You may copy for use in your health care organization. Reproduced from Canadian Urinary Diversions Position Statement: Collaboration of Canadian Urological Association, Nurses Specialized in Wound, Ostomy and Continence Canada & Urology Nurses of Canada. (1st ed.) 2022.

RESOURCE LINKS

A guide to living with an ileal conduit

<https://nswoc.ca/wp-content/uploads/2022/01/a-guide-to-living-with-an-ileal-conduit-nswocc-2nd-edition.pdf>

Ottawa decision tool

https://decisionaid.ohri.ca/docs/das/Surgery_for_Bladder_Cancer.pdf

Sex, Intimacy and Cancer

<https://cancer.ca/en/cancer-information/resources/publications/sex-intimacy-and-cancer>

GLOSSARY

continent diversion—allows for control of urinary elimination, whether this is via the urethra or a continent catheterizable channel to the skin (e.g., neobladder, Indiana pouch, or Mitrofanoff).¹

cutaneous ureterostomy—is an uncommon incontinent urinary diversion. It is a minimally invasive procedure appropriate for elderly or other high-risk patients creating a stoma that does not involve bowel and requires catheterization.

incontinent diversion—is a surgically reconstructed channel with an incontinent stoma on the skin (e.g., ileal conduit or cutaneous ureterostomy).¹

ileal conduit—is the most common form of urinary diversion. It is constructed from a segment of the ileum. The proximal end is sutured closed and the ureters are attached to it. The distal end is brought through the abdomen to form the stoma.

Indiana pouch—is a continent urinary diversion that is created from the bowel to become a reservoir for urine. It is typically created using the right-sided ascending colon and terminal ileum. There is a valve mechanism constructed within, which keeps the urine inside the pouch, thus clean intermittent self-catheterization is required to empty the reservoir and irrigate retained mucus on a regular daily schedule.

intermittent catheterization—often also referred to as clean intermittent catheterization or self-catheterization.

interprofessional team—a team of individuals from different professions working together to reach a common goal and who share decision making to achieve that goal. The goal in health care is to work in collaboration with persons and their families to provide treatment that reflects their goals and values.

Mitrofanoff—serves as an alternative route to catheterizing the bladder when the urethra cannot be reliably used. It most often involves implanting the appendix into the bladder as a catheterizable conduit.

orthotopic neobladder—is a new bladder that is created as a substitute for the patient's native bladder, constructed from a segment of bowel that has been reconfigured to serve as a urinary reservoir. This reservoir is anastomosed to the patient's native urethra. It relies on the external striated sphincter for continence.

scoping review—scoping reviews can be used to map the key concepts that underpin a field of research, as well as to clarify working definitions, or the conceptual boundaries of a topic.

urinary diversion—a general term used to describe the elimination of urine from the body (most often) through a surgically reconstructed intestinal segment.¹

ABBREVIATIONS

AUA—American Urological Association

BMI—body mass index

CIC—clean intermittent catheterization

CUA—Canadian Urological Association

CT—computerized tomography

EAU—European Association of Urology

EAUN—European Association of Urology Nurses

EMR—electronic medical record

ERAS—enhanced recovery after surgery

HRQOL—health-related quality of life

NSWOC—nurse specialized in wound, ostomy, and continence

NSWOCC—Nurse Specialized in Wound, Ostomy and Continence Canada

RN—registered nurse

RNAO—Registered Nurses' Association of Ontario

UNC—Urology Nurses of Canada

UTI—urinary tract infection

WOCN Society—Wound, Ostomy, and Continence Society

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