

Good Practice in Health Care

Continent Urinary Diversion

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Good Practice in Health Care

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Introduction

The European Association of Urology Nurses (EAUN) was created in April 2000 to represent European urological nurses. The EAUN's underlying goal is to foster the highest standards of urological nursing care throughout Europe. With administrative, financial and advisory support from the European Association of Urology (EAU), the EAUN also encourages research and aspires to develop European standards for education and accreditation of urology nurses.

We believe that excellent healthcare goes beyond geographical boundaries. Improving current standards of urological nursing care has been top of our agenda, with the aim of directly helping our members develop or update their expertise. To fulfil this essential goal, we are publishing the latest addition to our Good Practice in Health Care series, a comprehensive compilation of theoretical knowledge and practical guidelines on continent urinary diversion. Although there is considerable literature on continent urinary diversion, to our knowledge prior to this publication there was only limited evidence-based guidance for nurses available on this topic. The EAUN Guidelines Group believes there is a need to provide guidelines with recommendations clearly stating the level of evidence of each procedure with the aim of improving current practices and delivering a standard and reliable protocol.

In this booklet, we have included clear illustrations, case report summaries, extensive references and annotated procedures to help nurses to identify potential problem areas and efficiently carry out possible options for effective patient care. The working group decided to also include topics such as pre-and post-operative assessment (nutrition, fluid balance, pain management, etc.) which have a profound influence on both the outcome of the surgery and the urinary diversion patient's quality of life and to highlight the psychological and social aspects unique to the experience of patients with a urinary diversion.

With our emphasis on delivering these guidelines based on a consensus process, we intend to support practitioners who are already assessed as competent in this procedure. Although these guidelines aim to be comprehensive, effective practice can only be achieved if the practitioner has a clear and thorough knowledge of the anatomy under discussion and the necessary grasp and understanding of basic nursing principles.

This publication focuses on continent urinary diversion to complement the previous publication in this series on incontinent urostomy. The guidelines contain only material on adults and not children. Furthermore, these guidelines are intended to complement, or provide support to, established clinical practice and should be used within the context of local policies and existing protocols.

This text is made available to all individual EAUN members, both electronically and in print. The full text can be accessed on the EAU website (<http://www.uroweb.org/professionalresources/guidelines/>) and the EAUN website (www.eaun.uroweb.org). Hard copies can be ordered through the EAU website via the publication order form.

Table of contents

	<i>page</i>
Introduction	3
1. Role of the nurse in different countries	7
2. Methodology	7
3. Terminology (definitions)	11
3.1 Cutaneous continent urinary diversion	11
3.2 Orthotopic urinary diversion	11
3.3 Recto-sigmoid urinary diversion (uretero-sigmoidostomy)	13
3.4 Augmentation ileocystoplasty	13
3.5 Auto-augmentation	13
3.6 Catheterisable conduits	13
4. Indications for continent urinary diversions	14
4.1 Cutaneous continent urinary diversion	14
4.2 Orthotopic urinary diversion	14
4.3 Uretero-sigmoid urinary diversion	14
4.4 Augmentation ileocystoplasty	15
4.5 Auto-augmentation	15
5. Complications of continent urinary diversion	16
5.1 Stomal stenosis	16
5.2 Incontinence	16
5.3 Infection	16
5.4 Calculi	17
5.5 Urinary leakage	17
5.6 Anastomotic strictures	17
5.7 Incomplete voiding	18
5.8 Tumour formation	18
5.9 Complications relating to the use of ileum	18
6. Principles of management: Nursing interventions	20
6.1 Pre-operative assessment	20
6.1.1 Standardising forms, documents, tools	20
6.1.2 Nutrition	20
6.1.3 Activities of daily living (ADL)	21
6.1.4 Social context and support	21
6.1.5 Psychological aspects, compliance and cognition	22
6.1.6 Cultural and religious issues	23
6.2 Patient preparation	24
6.2.1 Nutrition and hydration	24
6.2.2 Bowel preparation and bowel function	24
6.2.3 Shaving	25
6.2.4 Patient education	25

6.2.4.1	Pre-operative patient education	25
6.2.4.2	Patient organisations and brochures	26
6.2.4.3	Optimal timing for learning and practising skills	26
6.2.5	Procedure before and after surgery and at discharge	26
6.2.5.1	Pre-operative Information	26
6.2.5.2	Post-operative teaching	27
6.3	Post-operative care	29
6.3.1	Stents / catheters	29
6.3.2	Fluid balance	30
6.3.3	Nutrition	30
6.3.4	Post-operative wound management	31
6.3.5	Post-operative pain management	32
6.3.6	Post-operative physical activity	32
6.3.7	Post-operative fatigue	32
6.3.8	Post-operative observation of pouch/neobladder	33
6.3.9	Changes in urine	33
6.3.10	Role of carers	34
6.3.10.1	Catheterisation management by carers	34
6.3.10.2	Procedure for discharge	35
6.4	Discharge care	36
6.4.1	Patient diary	36
6.4.2	Reimbursement of appliances	37
6.4.3	Information about possible complications	37
6.5	Proactive and preventive care	38
6.5.1	Travelling with a pouch/neobladder	38
6.5.2	Medic alert bracelet, 'Can't Wait' card, disability card	38
6.5.3	Insurance/travel	38
6.5.4	Treatment for UTIs, fluid intake and effect of food and medication on urine	39
6.5.5	Urine testing from a continent urinary diversion	40
6.5.5.1	Glucose levels in patients with diabetes	41
6.5.5.2	Pregnancy testing	41
7.	Products	42
7.1	Catheters	42
7.2	Covers and activity pouches	44
7.3	Pad	44
8.	Nursing management of complications	45
8.1	Physical aspects	45
8.1.1	Skin irritation	45
8.1.2	Leakage	45
8.1.3	Bladder stone formation	46
8.1.4	Use of cranberry in reduction of UTI, mucus and stone formation	46
8.1.5	Metabolic complications in patients following urinary diversion	48
8.1.6	Pain	49
8.1.7	Stomal stenosis	49

8.2 Psychological and social issues	50
8.2.1 Post-operative social considerations	50
8.2.2 Cultural aspects	50
8.2.3 Psychological aspects	50
8.2.4 Impact on quality of life (QoL)	50
8.3 Sexual function	51
8.3.1 Sexual dysfunction in males	51
8.3.1.1 Treatment of erectile dysfunction	52
8.3.2 Sexual dysfunction in females	54
8.3.2.1 Vaginismus	54
8.3.2.2 Dyspareunia	54
8.3.3 Fertility and pregnancy	54
9. Abbreviations	56
10. References	57
11. About the authors	70
12. Disclosure of conflicts of interest	71

1. Role of the nurse in different countries

The EAUN is a professional organisation of European nurses who have specialised in urological care. In Europe, there is a great variation in the education and competency of nurses in urology, with urological nurses having different activities and roles in various countries. It is therefore difficult for any guideline to fulfil all requirements. However, the EAUN Guidelines Group has tried to ensure that every nurse may gain some benefit from using these guidelines.

2. Methodology

The EAUN Guidelines Group for Urinary diversion have prepared this guideline document to help urology nurses assess the evidence-based management of urostomy care and to incorporate the guidelines' recommendations into their clinical practice. These guidelines are not meant to be proscriptive, nor will adherence to these guidelines guarantee a successful outcome in all cases. Ultimately, decisions regarding care must be made on a case-by-case basis by healthcare professionals after consultation with their patients using their clinical judgement, knowledge and expertise.

The expert panel consists of a multi-disciplinary team of nurse specialists, including Piet Eelen, Sharon Fillingham, Veronika Geng, Sharon Holroyd, Berit Kiesbye, Susanne Vahr and urologist Ian Pearce. (see 'About the authors', chapter 11). Obviously in different countries, even in different areas, titles will differ within the speciality. For the purpose of this document we will refer to the specialised nurse (e.g. stoma care nurse, wound-incontinence-stoma care nurse) as the 'nurse specialist' (NS).

Literature search

The data underpinning this document were gathered through a systematic literature search. The focus of this search was to ensure identification of the available high-level data (meta-analyses, randomised controlled trials, Cochrane reviews and other high-quality guidelines documents). A critical assessment of the findings was made, not involving a formal appraisal of the data. Articles were selected from Medline, Cinahl, Scopus, ScienceDirect, PubMed and the Cochrane database, as well as from relevant textbooks and other guidance documents.

Whenever possible, the Guidelines Working Group have graded treatment recommendations using a three-grade recommendation system (A to C) and inserted levels of evidence to help readers assess the validity of the statements made. The aim of this practice is to ensure a clear transparency between the underlying evidence and a recommendation given. This system is further described in the Tables 1 and 2.

Search keywords

The Working Group first tried to find randomised, controlled trials, reviews or meta-analyses. If these references did not provide enough information, the Working Group continued their search by looking for studies with lower levels of evidence. The evidence found on each topic is shown in the recommendations of each chapter or subchapter. The choice of literature is guided by the expertise and knowledge of the Guidelines Working Group. The question for which the references were searched was: "Is there any evidence for continent urinary diversion for nursing interventions in different care situations such as pre-operative, operative and post-operative, acute as well as long term?"

The references for these Guidelines were searched using the keywords listed below. Several databases (Medline, PubMed, Embase, Cinahl and Cochrane) were searched as well as private libraries, databases and books of the authors, using the keywords in different combinations. The references were searched by different experts in the field of urinary diversion. The same reference was often used repeatedly to build up the Guidelines.

Keywords (alphabetical order)

- Activity of daily living
- Catheterization
- Continent caecal reservoir for urine
- Continent urostomy
- Continent urinary diversion
- Coping
- Cranberry
- Cystectomy (Mesh)
- Education
- Fatigue
- Fluid balance
- Hautmann neobladder
- Kock pouch
- Indiana pouch
- Indiana continent urinary reservoir
- Information
- Neobladder
- Nursing assessment (Mesh)
- Nutrition
- Orthotopic ileal neobladder
- Pain management
- Patient care planning (Mesh)
- Patient education
- Post-operative care
- Pre-operative care
- Psychological impact
- Sexuality
- Skin care (Mesh)
- Social issues
- Stent

- Teaching
- Urinary diversion (*Mesh*)
- Urinary tract infection
- Urological nursing

Disclosure statement

The EAUN Guidelines Working Group members have provided disclosure statements of all relationships that might be a potential source of conflict of interest. The information has been stored in the EAU database. This Guidelines document was developed with the financial support of the EAU and Astra Tech.

The EAUN is a non-profit organisation and funding is limited to administrative assistance and travel and meeting expenses. No honoraria or other reimbursements have been provided.

Limitations of document

The EAUN acknowledge and accept the limitations of this document. It has to be emphasised that the current guidelines provide information about the treatment of an individual patient according to a standardised approach. The information should be considered as providing recommendations without legal implications. The intended readership is the pan-European practising urology nurse and nurses working in a related field. This guidelines document is of limited use to, for example, urologists, other healthcare providers or third-party payers.

Cost-effectiveness considerations and non-clinical questions are best addressed locally and therefore fall outside the remit of these guidelines. Other stakeholders, including patient representatives, have not been involved in producing this document.

Review process

The Working Group included an extensive number of topics, which are not always only applicable to urostomies, but decided to include them because they make the guideline more complete. A draft for review was sent to the European national urological nurses societies, specialised nurses in various European countries, the EAU Guidelines Office and the EAU executive responsible for EAUN activities. We revised the document based on the comments received. A final version was presented and approved by the EAUN Board.

Rating system

The recommendations provided in these documents are based on a rating system modified from that produced by the Oxford Centre for Evidence-based Medicine. [1]

Some of the literature was not easy to grade. If, however, the EAUN Working Group thought the information would be useful in practice, it is ranked as level of evidence 4 and grade of recommendation C.

Table 1. Level of evidence (LE)

Level	Type of evidence (LE)
1a	Evidence obtained from meta-analysis of randomised trials
1b	Evidence obtained from at least one randomised trial
2a	Evidence obtained from one well-designed controlled study without randomisation
2b	Evidence obtained from at least one other type of well-designed quasi-experimental study
3	Evidence obtained from well-designed non-experimental studies, such as comparative studies, correlation studies and case reports
4	Evidence obtained from expert committee reports or opinions or clinical experience of respected authorities

Table 2. Grade of recommendation (GR)

Grade	Nature of recommendations
A	Based on clinical studies of good quality and consistency addressing the specific recommendations and including at least one randomised trial
B	Based on well-conducted clinical studies, but without randomised clinical trials
C	Made despite the absence of directly applicable clinical studies of good quality

3. Terminology (definitions)

All forms of continent urinary diversions share a common theme of bowel utilisation to create a capacious, compliant and **low** pressure urinary storage structure whilst preserving upper renal tract integrity and enabling complete emptying **with or without** the use of clean intermittent self catheterisation (CISC). Just as the forms of continent urinary diversions share a common theme of bowel interposition, so too do they share, to an extent, a common complication burden. Other complications are specific to the particular variety of diversion and in particular the presence or otherwise of an anti-reflux mechanism at the uretero-bowel anastomosis, the utilisation or otherwise of an intussusception nipple via which clean intermittent self catheterisation is performed and to the segment of intestine **utilised**.

Clam ileocystoplasty and detrusor myectomy (auto-augmentation) are included as they **too** aim to provide a similar large capacity, **low** pressure storage system at the expense of a similar complication **burden**.

Continent urinary diversions may be classified into those relying upon surgically created continence mechanisms (intussusception nipples, Mitrofanoff principle, etc.) and hence requiring catheterisation to empty (catheterisable continent urinary diversions) and those relying upon the natural urinary sphincter for continence and in which voiding **without** catheterisation is possible (orthotopic urinary diversions).

A third variety of continent urinary diversion less commonly performed currently is that **which** diverts the urine into the distal large bowel (either sigmoid colon or rectum).

3.1 Cutaneous continent urinary diversion

In a continent cutaneous urinary diversion, intestine is detubularised and re-configured to create a large compliant, **low** pressure storage unit. The proximal extremity is anastomosed to the ureters utilising a variety of surgical techniques and the distal aspect is anastomosed **onto** a conduit fashioned either from a separate bowel segment or reversed appendix. This conduit provides the continence mechanism via either the creation of an intussusception **nipple** or sub-mucosal tunnelling. This stomal opening is located either at the umbilicus, or as a distinct entity on the lower abdominal **wall** and is the portal via which the patient can **effect** complete urinary drainage via CISC.

Catheterisable pouches (cutaneous continent diversions):

1. Kock
2. Mainz
3. Indiana

3.2 Orthotopic urinary diversion

Orthotopic urinary diversions, (neo-bladders), are again based upon the principle of **bowel** reconfiguration to create a capacious **low** pressure storage unit. The proximal aspect is **again**

anastomosed to the ureters but in a neo-bladder, the distal extent is anastomosed proximal to an intact urethral sphincter. Thus continence is gained via the sphincter and the patient voids at will, perhaps utilising abdominal pressure to effect efficient emptying (Crede principle).

Orthotopic urinary diversions (neo-bladder):

1. Camey II
2. VIP bladder
3. S Bladder
4. Hemi Kock
5. Studer
6. Mainz

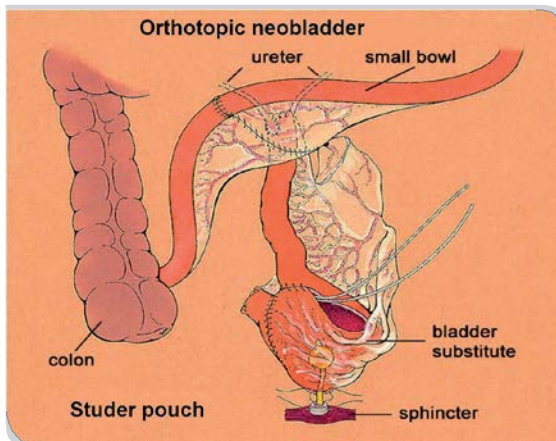


Fig. 1 The Studer pouch

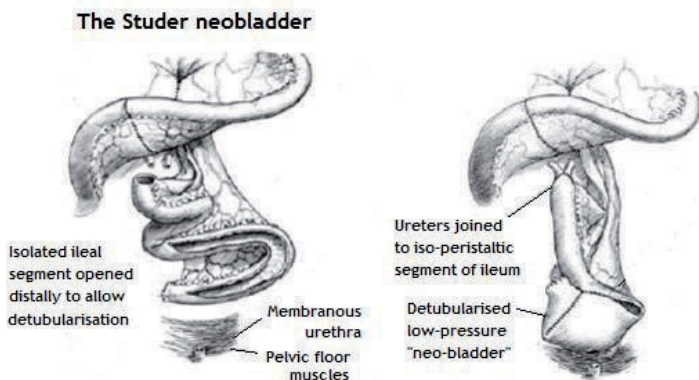


Fig. 2 The Studer neobladder

3.3 Recto-sigmoid urinary diversion (uretero-sigmoidostomy)

Although less popular than previously, many patients within the urological community function perfectly well **with** this type of urinary diversion. In this variety, the urinary stream is directed via the ureters directly into large bowel, typically rectum and sigmoid colon. The capacity may be increased and the pressure decreased via the addition of a small **bowel** augmentation pouch. In this form of urinary diversion, the anal sphincter is relied upon to effect continence.

3.4 Augmentation ileocystoplasty

Whilst technically not a urinary diversion, an augmentation or Clam ileocystoplasty is **similar** in genesis, intent and consequence to render its inclusion mandatory.

In this form of surgery, small bowel, (non terminal ileum), is detubularised **and** interpositioned as a patch between the two halves of a bivalved bladder. This increases the capacity of the diseased bladder whilst simultaneously reducing the pressure. Continence is maintained by the natural urethral **sphincter**.

3.5 Auto-augmentation

An auto-augmentation or detrusor myectomy is a less invasive method of achieving a large capacity, **low** pressure bladder without utilising bowel. The detrusor muscle itself is dissected free from the bladder mucosa and removed leaving approximately 50% of the original muscle mass. Again the natural urethral sphincter is relied upon for continence.

3.6 Catheterisable conduits

Following continent urinary diversion **or** augmentation surgery, voiding efficiency is significantly reduced often resulting in large residual volumes. CISC is therefore commonly employed but for those patients in whom this is not possible, a catheterisable conduit may be created. Traditionally this involves the appendix with its mesentery providing an **independent** vascular supply. The appendix is tunnelled through the bladder **wall** to prevent passive leakage and is then anastomosed directly onto the anterior abdominal **wall** skin to create a catheterisable stoma. Often this is located at the site of the umbilicus but a separate site may be chosen. Such a configuration is known as a Mitrofanoff. In those patients who have previously had their appendix removed, a Monti procedure may be performed. This involves the utilisation of a small section of non terminal ileum **with** an independent blood supply. This is then opened on the antimesenteric border and re-anastomosed longitudinally thus creating a long narrow segment of bowel from the original short wide segment. This is **then** tunnelled into the bladder and anastomosed onto the skin in a fashion similar to that of a **Mitrofanoff**.

4. Indications for continent urinary diversion

Cystectomy and bladder dysfunction remain the main indications for continent urinary diversions and augmentation procedures but the final choice is also dependent upon the following individual issues:

1. Patient preference
2. Manual dexterity
3. Presence of intact urethral sphincter.

With the exception of a rectosigmoid diversion, lack of manual dexterity is a contra-indication to all forms of surgery defined above and with the exception of auto-augmentation the following are also contra-indications:

1. Impaired renal function
2. Inflammatory bowel disease (Crohn's disease, ulcerative colitis).

4.1 Cutaneous continent urinary diversion

1. Cystectomy
2. Sphincteric involvement
3. Sphincteric incompetence
4. Manual dexterity (CISC)
5. Bladder exstrophy
6. Severe interstitial cystitis (Bladder pain syndrome)

4.2 Orthotopic urinary diversion

Following cystectomy for invasive malignancy without urethral involvement, an orthotopic bladder substitution should be considered the management of choice provided the patient has an intact urethral sphincter and does not possess any absolute contra-indication as above.

1. Cystectomy
2. Intact urethral sphincter

4.3 Uretero-sigmoid urinary diversion

1. Cystectomy
2. Impaired manual dexterity

4.4 Augmentation ileocystoplasty

1. Overactive bladder resistant to more conservative therapy
2. Poorly compliant bladders e.g.: tuberculosis (TB)
3. High pressure neuropathic bladder

4.5 Auto-augmentation

1. Overactive bladder resistant to more conservative therapy

The number of different bowel configurations is vast and only those enjoying widespread use will be considered.

Having been initially described by Kock, (Kock NG, Nilson AR, Norlen L, Sundin T, Trasti H: Urinary diversion via a continent ileal reservoir: Clinical experience. *Scan J Nephrol*, 1978;49(23)) in the mid to late 70's, there have since been multiple modifications to the original continent cutaneous urinary diversion, all aimed at improving its status as a large capacity low pressure storage system with minimal complications. Various modifications have emerged designed to allow a continent but catheterisable stoma or conduit. An intussusception nipple using a separate piece of ileum was originally described but this has lost favour to the more acceptable Mitrofanoff principle involving a sub-mucosally tunnelled reversed appendix. This may emerge via the umbilicus, or as a distinct entity on the lower anterior abdominal wall.

5. Complications of continent urinary diversion

5.1 Stomal stenosis

The incidence of stomal stenosis in continent cutaneous urinary diversions is determined by the different continence mechanisms employed. The incidence of stomal stenosis as defined by difficulty catheterising may be as low as 1.5% for plication anti-reflux mechanisms to as much as 54% in Mitrofanoff conduits. [2, 3, 4, 5]

5.2 Incontinence

The incidence of incontinence is difficult to accurately define as different studies report different end points and the definition of incontinence varies significantly.

If assessed strictly as the presence of ANY leakage, some studies suggest incontinence rates of up to 28% but such strict criteria are seldom used. [6] In addition the daytime continence rate is generally 5-10% greater than the night time continence rate.

According to Stenzl (2001) [7] the diurnal continence rate for women is 83% and 90% in men,

nocturnal rates > 80%. Studer et al (2006) [8] found that the continence rate is 92% during the day and 79% during night time after 1 year. From his earlier study (Varol and Studer 2004) [9] the diurnal continence rate is 82% and the nocturnal rate is 72% after 6 months.

Table 3. Post-operative incontinence rates

Procedure	Incidence	Reference
Continent urinary diversion	0.6 – 7.2%	[4, 10, 11, 12]
Orthotopic bladder	4 - 13%	[13, 14, 15, 16]
Uretero-sigmoid diversion	1 - 6%	[17, 18, 19]
Ileocystoplasty	0 – 18%	[20, 21]
Auto-augmentation	5 – 13%	[22, 23]

5.3 Infection

As defined by either systemic sepsis or febrile UTI (documented positive MSSU)

Table 4. Post-operative UTI infection rates

Procedure	Incidence	Reference
Continent urinary diversion	7%	[5]
Orthotopic bladder	1.8 - 3.5%	[13, 16]
Uretero-sigmoid diversion	8 - 18%	[17, 18, 19]
Ileocystoplasty	11 - 44%	[21, 23]
Auto-augmentation	Absence of published incidence	

5.4 Calculi

Calculi are a frequent encounter in urinary diversions and augmentations and are related to the presence of infection, stasis, mucus and exposed staples.

Table 5. Post-operative calculus rates

Procedure	Incidence	Reference
Continent urinary diversion	5 - 10.8 %	[4, 10, 24, 25, 26]
Orthotopic bladder	0.5 - 7%	[15, 16, 27, 28]
Uretero-sigmoid diversion	10%	[17]
Ileocystoplasty	2 - 22%	[21, 23, 29]
Auto-augmentation	Absence of published data	

5.5 Anastomotic urinary leakage

Table 6. Post-operative urinary leakage rates

Procedure	Incidence	Reference
Continent urinary diversion	2 - 10%	[30]
Orthotopic bladder	2.6% - 6.6%	[10, 13]
Uretero-sigmoid diversion	5%	[31]
Ileocystoplasty	Absence of published data	
Auto-augmentation	Absence of published data	

5.6 Anastomotic strictures

Anastomotic strictures occur secondary to excessive tension, ischaemia, recurrent malignancy, radiation and failure to achieve mucosal co-aptation during surgery. In addition to these factors, the creation of an anti-reflux mechanism also increase the risk of stricture at the uretero-bowel anastomosis.

Table 7. Post-operative anastomotic stricture rates

Procedure	Incidence	Reference
Continent urinary diversion	4 - 7%	[4, 30, 32]
Orthotopic bladder	0.6 - 9.3%	[13, 15, 16, 28, 33, 34]
Uretero-sigmoid diversion	5 - 22%	[17, 18, 19]

5.7 Incomplete voiding

All forms of surgery described carry **with** them an inherent risk of incomplete voiding requiring the utilisation of clean intermittent self catheterisation (CISC).

Table 8. Post-operative risk of incomplete voiding

Procedure	Incidence	Reference
Orthotopic bladder	4 - 25%	[14, 16]
Ileocystoplasty	39 - 70%	[21, 29]
Auto-augmentation	45%	[35]

5.8 Tumour formation

At present the current evidence, although **low** level and limited to small case series and case reports, suggests that uretero-sigmoidostomy urinary diversion increases the risk of malignancy although this risk is difficult to quantify (range 8 - 7000 years) and appears related to time, being almost unheard of in the first 15 years following diversion. At 10 years the incidence has been reported to be as **low** as 0 % [17] The tumour arises at or close to **the** line of anastomosis and is not therefore simply the result of mixing urine and faeces **in the** bowel. The mean time to presentation is between 23 and 26 years [36, 37] and patients should **be** offered routine annual endoscopy.

Following ileocystoplasty, continent cutaneous urinary diversion and orthotopic **neo-bladder** formation, there have been isolated reports of malignancy at the anastomotic site but these are almost universally found in patients having had surgery for chronically inflamed or tuberculous bladders. The intrinsic risk of malignancy in patients undergoing surgery for **non-**inflammatory, benign condition e.g.: detrusor overactivity appears to be no greater than for the age matched population [37, 38], however patients should be warned regarding possible symptoms of malignancy (haematuria) and appropriately investigated should these occur. Annual surveillance has been advocated by some although the time of initiation remains a matter for debate.

There is no increased risk of malignancy for patients undergoing auto-augmentation (detrusor myectomy).

5.9 Complications relating to the use of ileum

There are several common long-term follow-up complications specifically associated **with** ileum resection.

Table 9. Complications associated with the use of ileum

- Hyperchloraemic metabolic acidosis
- Hypokalaemia and other electrolyte abnormalities
- Altered sensorium
- Disorders of hepatic metabolism
- Abnormal drug metabolism
- Vitamin B12 deficiency
- Decreased linear growth
- Bone demineralisation
- Mucus production

Adapted from Hautmann et al. (2007). [39]

6. Principles of management: Nursing interventions

6.1 Pre-operative assessment

6.1.1 Standardising forms, documents, tools

Several studies show that a care plan is important to reduce morbidity and to improve recovery. [40, 41, 42] Care plans are a way of documenting and communicating patient care and should include daily aims, such as mobilisation, that increase day by day.

The plan should start on the day of surgery, when the patient should be helped out of bed at least once. [42, 43]

Without a specific document delineating the plan of care, important issues are likely to be neglected and a retrospective data review showed a high degree of variability in patterns of patient care. [44] There are different rules and experiences [45] of documentation in different countries.

Recommendation	LE	GR
• Implement care plans for all patients with a neobladder/pouch following local documentation/recommendations	4	C

6.1.2 Nutrition

Not all patients undergoing a urinary diversion will have a cystectomy, but for those who do, an early institution of an oral diet is crucial in helping a patient to return to normal everyday living.

Radical cystectomy results in catabolic metabolism and tissue breakdown, leading to a prolonged period of negative nitrogen balance. Patients who are already malnourished prior to surgery have a higher morbidity after cystectomy, with studies showing that 17% of patients undergoing cystectomy are malnourished. [46] In addition, patients undergoing cystectomy are usually elderly (mean 71 years). [40] These patients may have multiple co-morbidities and often a serum albumin in the low normal range. [41, 47] A pre-operative nutritional assessment is therefore important to ensure a goal-directed nutrition therapy.

There is evidence that pre-operative total parenteral nutrition (TPN) should be recommended in malnourished patients because TPN can reduce morbidity in this group. However, TPN has been shown to increase morbidity in well-nourished subjects [46], so careful patient selection is important. Pre-operative oral nutritional supplementation is recommended in patients with severe nutritional risk for 10-14 days prior to surgery [48]. Oral nutritional supplementation does not appear to have clinical benefit in a patient with a minimum intake of 1900 calories/ per day. [49]

The Guideline for prevention of surgical site infection 1999 recommends tobacco cessation **at** least 30 days before **operation**.

Recommendations	LE	GR
• Pre-operative nutritional assessment of the patient	1b	A
• Tobacco cessation at least 30 days before operation	1b	A

6.1.3 Activities of daily living (ADL)

It is defined as the things we normally do in daily living including activities we perform for self-care (such as feeding, bathing, dressing and grooming ourselves), work, home making and leisure activities. (Medicinenet.com)

The ability or inability of performing ADL can be used as a measurement of an individual's functional status.

There is no doubt that any urinary diversion constructed **will** have impact on patient's future life [50] and might change the ADL functional status.

Therefore assessment of the patients ADL functional status is an important **measurement** when counselling pre-operatively regarding future activities. Based on the present ADL status of the patient the NS can give a realistic picture of how the patient **will** be able to **perform** ADL, such as work, leisure and home care activities after surgery and **with** a urinary diversion resulting in a better long-term adjustment. [51]

Recommendation	LE	GR
• Pre-operative assessment of ADL functional status, including data about work, leisure, sport-activities and home making	4	C

6.1.4 Social context and support

Financial and social support regarding illness and/or surgery differs from country to country. Also the conditions at the patient's place of employment might **differ**.

There are also different rules for subvention to medical aids such as catheters, pads **and** dressing and to transportation to and from hospital regarding treatment and surgery.

As the financial situation could be a concern for any patient [52] it is important to discuss this issue **with all** patients in order to counsel and advise them regarding the individual rules **for** financial and social support **in** their specific country.

Patients may experience a change of role **or** status within family and among friends as illness and/or surgery make them dependent of the support and assistance from family and friends. This could cause increased stress and anxiety. [52] The other way round partners and family members too may feel fear and anxiety concerning the patient, the surgery and the future.

Partners and relatives have an important role in the initial post-operative recovery phase. Due to the decreased stay in hospital the patient **will** require additional family support for assistance **with** physical care [52] and managing catheters. [53]

All these subjects should be discussed **with** the patient and his/her possible partner/relatives before surgery to reduce stress and anxiety for **all** and get a clear overview of the resources among the family/supporters.

If no support is available from the patients nearby surroundings other possibilities should **be** arranged such as support from home care nurses and the community.

Recommendations	LE	GR
• Pre-operative assessment of eligibility for financial support	4	C
• Inclusion of partner/family members at pre-operative assessment to establish support mechanism	4	C

6.1.5 Psychological aspects, compliance and cognition

Undergoing major surgery resulting in formation of a continent urinary diversion is very distressing for most patients. The threat of complications, helplessness, alteration in body-image and body-function concerning eliminating urine and impact of future sexual function contribute to anxiety and fear of the future. [54]

Most patients undergoing surgery may experience increased fear and anxiety due to a diagnosis of bladder cancer.

Lack of knowledge regarding the diagnosis, surgery, pre-operative procedures and short- and long-term post-operative care and hospitalisation in a non-familiar environment **might** increase feelings of anger, grief, fear and anxiety. [55]

It is therefore important to create an environment in which patients and his/hers relatives feel free to express themselves emotionally and ask any questions. Knowledge decreases fear and anxiety and information provided should cover physical, social and psychological needs. [52] This is the task of a knowledgeable nurse such as an NS **with** expertise in the field of continent urinary diversions. [52] He/she also should explore the patient's **mental** capacity and motivational level. This to assure that the patient understands the **rationale** and importance of using a catheter and follow a catheterisation plan/voiding plan. [56] It is important to discuss the impact a continent urinary diversion **will** have on their life.

All patients undergoing surgery resulting in an orthotopic urinary diversion should be **taught** CISC prior to surgery to ensure that they are physically and emotionally ready to commit to this procedure. It is important to give the patient a realistic picture of functional outcomes regarding altered voiding function and the risk of some level of daytime and night **time** incontinence. [39]

Some studies advise patients for cutaneous continent urinary diversions to be taught CISC pre-operatively for the same reason. [53] Manual dexterity should be assessed.

Written information and illustrations about surgery and the specific continent urinary diversions should be available to support orally provided information.

As some patients could benefit from meeting a former similar patient that has successfully undergone surgery [57], the NS should be able to arrange contact to a former patient. Sharing experiences and providing a realistic view of how life is with a continent urinary diversion, could enhance the patient's confidence with adjusting after surgery.

Recommendations	LE	GR
• Pre-operative assessment of psychological capability and motivational level	4	C
• Audio and visual information should be provided	4	C
• Opportunity to meet similar patients should be provided	4	C

6.1.6 Cultural and religious issues

Modern multi-cultural society requires a health-care system that reflects and respects an individual's colour, culture, religion and customs.

Being aware and responsive to culture is an essential component of care. A continent urinary diversion might influence and create problems in relation to religious and cultural practice.

This should be assessed prior to surgery and discussed with the patient. In case of doubt the patient and the NS should seek advice from the specific religious and cultural society.

For example Islam has a fasting period, Ramadan, which requires fasting from dawn to dusk, which could mean a 12 hour period without fluid intake and high risk of dehydration. Here it would be advisable to ask the patient's imam whether there are exceptions related to the specific Islamic patient with a continent urinary diversion. [58]

Recommendations	LE	GR
• Be aware of the patient's cultural and religious background	4	C
• Maintain the patient's dignity at all times	4	C
• Provide translation services when necessary	4	C

6.2 Patient preparation

6.2.1 Nutrition and hydration

Fasting before surgery is necessary because general anaesthesia reduces the efficiency of laryngeal reflexes and increases the risk of tracheobronchial and pulmonary aspiration. [47] However, resulting abnormalities of fluid and electrolyte balance may affect organ function. The goal of pre-operative fluid therapy is to maintain an effective circulatory volume while avoiding interstitial fluid overload. [59] This involves minimising the period of pre-operative fasting. In response to fasting, insulin resistance also develops. As clear fluids transit the gut extremely fast, it is recommended the patient drinks a glass of clear fluid 2 hours before surgery.

Patients undergoing bowel preparation can be moderately dehydrated. Randomised controlled trials have shown that careful concurrent administration of either intravenous or oral hydration solutions may help restore normal fluid balance. [59]

Recommendations	LE	GR
• The patient should receive verbal and written instructions to ensure compliance with no food intake 8 hours, and no fluid 2 hours, before surgery [47, 60]	1a	A
• Assess the fluid balance of the patient to identify dehydration and start fluid therapy pre-operatively.	1a	B

6.2.2 Bowel preparation and bowel function

Bowel preparation varies between hospitals and individual surgeons.

The bowel preparation strategy for surgery involving the use of intestine has been redesigned in the last few years.

One example of bowel preparation uses polyethyleneglycol and sodium phosphate. New studies have shown that systematic bowel preparation fails to offer significant benefit for the patient [61, 62] although there is no general consensus in the literature.

Scientific literature warrants a practice based on solid evidence, which includes correct antimicrobial prophylaxis and a meticulous surgical technique, because this offer the best surgical expectations and an increased patient comfort. [61]

The new mechanical bowel preparation (MBP) consists of a fibre free low residue diet during the 5 days preceding surgery, although with adequate hydration and a simple cleansing enema the night before. [63] The sole purpose of the enema is to avoid the presence of faecal remains in patients who will spend several days before normal bowel transit is restored after surgery.

Recommendations	LE	GR
Patient should be assessed:		
• regarding the need for bowel preparation within local guidelines	4	C
• regarding their hydration status	4	C

6.2.3 Shaving

Guidelines about pre-operative shaving differ in European countries.

Recent studies have shown that the most important pre-operative skin preparation act in this concern is the disinfecting bath with chlorhexidine. [64]

Concerning the way of shaving, electric clippers are preferable to razor blades.

The areas that are most commonly shaved are: the abdomen, the pubic area, the upper legs and the peri-anal region.

To prevent site infections, it is recommended that hair should not be removed from the operative site unless it is to assist surgery. If hair is removed, removal should be immediately before surgery, preferably with electric clippers. [65, 66, 67]

Recommendations	LE	GR
• If hair is removed it should be done with electric clippers directly before surgery	1a	A
• Disinfecting chlorhexidine bath reduces surgical site infection during the post-operative period	2b	B

6.2.4 Patient education

6.2.4.1 Pre-operative patient education

The NS is a vital resource pre-operatively for patients, families and other nursing staff. Discussion with the NS provides the patient an opportunity to have their procedure explained, time for questions and provide practical instructions for tasks such as catheterisation [69] or the correct procedure for Pelvic Floor Exercises for patients who undergo neobladder formation. [68]

Patient expectations and preferences may be influenced by the nature of their pre-operative education, therefore this preparation should be factual and realistic. [55] Teaching requirements of an individual who is undergoing surgical alteration to their urinary tract are significant due to the risk of multiple post-operative complications, the potential for altered body image, incontinence and change in sexual function. [70] Length of stay in hospital is ever decreasing leading to a greater responsibility for the patient and family/carer to manage post-operative care. [52] Well planned teaching pre- and post-operatively will facilitate an easier transition from hospital to home.

6.2.4.2 Patient organisations and brochures

Many countries have national patient organisations to support patients following surgery to form a continent urostomy or neobladder. The objectives of these organisations are to safeguard the quality of specialist urological care, represent patients and their interests, provide the most recent and appropriate educational material and to facilitate networks that offer support from a patient perspective.

6.2.4.3 Optimal timing for learning and practising skills

Learning was defined by Bloom et al (1956) [71] as an acquisition of psychomotor skill, cognitive knowledge or affective attitude achieved through study, experience or teaching. These 3 elements are independent but inter-related. Metcalf (1999) [72] further describes how practical skills can be taught, stating that psychomotor skills are effectively learned by repetition.

Patients must be physically ready to learn as all types of learning require energy. Motivation of the patient and any prior experience are important. The healthcare professional must be flexible and able to adopt a variety of educational strategies. Principles of social learning theory [72] underpin the strategy used to teach a patient catheter skills. There are two main concepts that explain how learning works in a practical situation – it is vital that the healthcare professional with a teaching responsibility understands these concepts. The first is giving praise to an individual, thereby providing a reward. Operant conditioning used deliberately as positive reinforcement, provides encouragement. When an individual has begun to acquire some skills, negative feedback may be useful if used appropriately as it helps the learner to establish areas of strength and weakness. [72] On discharge patients are at the 'organising phase' of learning – that is to say they are competent at a skill such as catheterisation, but have not yet achieved a level of confidence. It is therefore vital that patients have continued support at home from an appropriate healthcare professional to enable them to move to the 'perfecting phase' of learning.

Recommendations	LE	GR
• Patient education should be done by a NS and should start pre-operatively and continue as soon as able in the post-operative period	4	C
• Families/carers should be included in education with patient	4	C
• Written information should be provided to support any discussions	4	C

6.2.5 Procedure before and after surgery and at discharge

6.2.5.1 Pre-operative Information

Patients are ideally admitted to hospital 1-2 days before surgery. During this time information given prior to admission should be reviewed and repeated.

Patients should be informed about the surgical procedure [69] and aspects of pre- and post-operative care. The important role they themselves have in maximising their early post-operative recovery by cooperating regarding physical activity and early post-operative nutrition should be emphasised.

They should know which catheters, drains and tubes they **will** wake up **with** after surgery, their purpose and **function**.

Expected short- and long-term outcome of the surgery should be explained, the maintaining of drainage tubes and CISC should be **taught**.

Patients should know CISC has to be performed more often in the beginning, which can be very fatiguing. If they have a suprapubic catheter this **will** be **in situ** **until** bladder capacity reaches a 'normal' capacity (500 ml). The newly created bladder must not be filled too **much** (preferably not more than 500 ml) because of the risk of leakage. Obviously practices may vary, but patients should be aware of this **initial** fatigue as a result of constantly having to empty their **bladder**.

All questions patients and families ask should be answered and they should be given opportunities to verbalise fears and concerns regarding the diagnosis, the surgery **and** anaesthesia, body function and lifestyle changes. [73]

Printed material which can help patients and families to remember information **and** instructions should be provided. [73]

Recommendations	LE	GR
• Information about all issues regarding surgery, pre- and post-operative care, short- and long-term outcome should be given to all patients	4	C
• Printed material as a supplement to orally given information should be available	4	C

6.2.5.2 Post-operative teaching

Patients are admitted to hospital for 7 - 14 days after surgery, depending of their early post-operative recovery.

The patient may be discharged **with** a variety of tubes/catheters (dependent on the physicians preference) for a variable number of weeks (dependent on various preferences) to **allow** healing of the suture lines in the continent urinary diversion. [74]

Irrigation of these catheters should be taught to the patient and trained as soon as possible after surgery. This to maintain a constant flow of urine and prevent mucus clots to block the catheter which may lead to distension and leakage of the continent urinary diversion.

Patients should know the warning signs of dysfunction such as decreasing drainage, **inability** to irrigate, **low** abdominal pain or feeling of abdominal fullness. [53]

The patient **will** attend hospital again when it's time for removal of the various **tubes/** catheters.

After removal the patient **with** an orthotopic urinary diversion **will** be taught voiding by relaxing the rhabdosphincter and pelvic floor along with increasing the intraabdominal

pressure through the vasalva maneuver. [56] After catheter removal the patient is instructed to void while seated every 2 hours during the day and every 3 hours at night. [7, 9] Patients must be taught that the technique of voiding is mastered gradually. [70]

The patient should be instructed to use a voiding plan that over weeks increases the time between voiding in order to extend the capacity of the orthotopic urinary diversion. [70] The aim is to expand the bladder and achieve a capacity of 400-500 ml. [9] In case of night time incontinence the patient must be told that excluding alcohol, diuretic or hypnotic medications may prevent this. [9]

Continence should be obtained by teaching the patient how to exercise and rehabilitate the pelvic floor following a training plan. [70]

Due to the grade of incontinence the need of pads, size and shape, should be assessed.

All patients should be taught CISC in order to irrigate the orthotopic urinary diversion for intestinal mucus and secure complete bladder emptying. [75]

Patients with a continent cutaneous diversion should after removal of various tubes/catheters be taught how to empty the diversion. The first intubation should be demonstrated by the NS to assess the direction of the efferent limb and identify the difficulties the patient could meet when they themselves are trying afterwards. [69] They will also assess which catheter, shape and size, will be appropriate for the patient to use.

They also should use a schedule of catheterisation to gain an increment of the capacity of their cutaneous continent diversion. As example they could begin to catheterise every 2 hours during daytime and every 3 hours during night time increasing with 1 hour for every following week. [69] Irrigation to wash out intestinal mucus should also be demonstrated. [75]

The need for a cover of the continent cutaneous stoma should be assessed and the best suitable chosen. The patient should be taught how to care for the stoma, cleaning it carefully with lukewarm water and gently drying it afterwards using a soft material.

All patients should also know signs that indicate that the continent urinary diversion is full in order to adapt the new sensations as a replacement for natural desire to void. These signs could be the feeling of fullness, discomfort or cramping of the lower abdomen.

Recommendations	LE	GR
• All patients should be taught management of their continent urinary diversion by an NS	4	C
• A short- and long-term care plan regarding the management of the specific continent urinary diversion should be provided to all patients	4	C
• All patients should know signs of dysfunction/possible complications that might occur regarding their continent urinary diversion and where to find support	4	C

6.3 Post-operative care

6.3.1 Stents / catheters

Catheters and ureteric stents (originating in the renal pelvis) may be utilised to maintain adequate urinary drainage and to protect anastomoses. [73, 76] Some patients may also have a suprapubic catheter as a safety valve. [69, 77, 78]



Fig. 3 Stents and catheters in the post-operative period

The ureteral stents prevent upper urinary tract obstruction due to mechanical compression caused by post-operative oedema. The urine output from the urethral catheter should preferably be > 50-100 ml/hour and at least 30 ml/h. [79]

The potential for blockage of the drainage catheters always exists because all intestinal segments secrete mucus. It is important to prevent obstruction of the catheters to avoid overdistention of the reservoir which may prevent healing.

Catheters should be flushed at least twice a day with 30-60 ml NaCl 0.9% using a sterile technique to avoid the formation of mucus plugs.

Intestinal segments continue to produce mucus after transposition into the urinary tract. Mucoregulatory agents have not proved to be effective in reducing the amount of mucus produced after bladder reconstruction. [80]

Regular bladder washouts with saline (0.9%) commenced post-operatively whilst catheter remains in situ is effective in cleaning mucus and debris from the neobladder. [81, 82, 83]

Recommendations	LE	GR
• The nurse should assess catheter function for urinary output	4	C
• Decreased urinary output should be investigated	4	C
• Fluid balance and recent serum creatinine levels should be measured and recorded [60]	4	C
• Catheters should be flushed at least twice a day	4	C

6.3.2 Fluid balance

The metabolic reaction to surgery involves not only the well-known metabolic response, but also important changes in fluid and electrolyte physiology. Patients are therefore extremely susceptible to errors in fluid prescription early after surgery. [59] In health, the average human requires 25-35 ml/kg/day of fluid and 400 calories per day to prevent starvation ketosis.

Research shows that peri-operative fluid therapy has a direct bearing on outcome. The goal of fluid therapy in the elective setting is to maintain the effective circulatory volume, while avoiding interstitial fluid overload, which may cause nausea and post-operative ileus. [59, 84, 85] These studies recommend an individualised goal-directed fluid management plan. Fluid therapy should be procedure-specific and take into account individual patient characteristics. Weight gain in elective surgical patients should be minimised to aim for 'zero fluid balance'.

However, fluid balance charts have inherent inaccuracies and reliance upon them alone can lead to inaccuracies in fluid prescription. Daily weighing is the best measure of fluid gain or loss. [84]

Recommendations	LE	GR
• Daily weighing in the post-operative period	1b	C
• Fluid balance documented on charts daily	4	C
• Clinical observation of the patient to identify fluid overload or dehydration	4	C

6.3.3 Nutrition

Nutritional support is an important area of post-operative care, which is known to improve recovery from cystectomy. [86, 87] Despite this, there is limited evidence to support specific nutritional strategies. Resting the bowel and feeding orally after bowel recovery is still a common post-operative strategy [46, 88], so that patients are often left without adequate nutrition for a prolonged time. This approach may be a result of research that has shown post-operative paralytic ileus to be the most common minor complication after radical cystectomy. [47, 89, 90, 91, 92] However this cannot be confirmed as several studies show that early oral intake does not foster prolonged post-operative ileus. [42, 88, 92, 93] On the other hand more studies are required before general recommendations are made concerning the benefit of early oral feeding upon post-operative ileus. [93]

Post-operative observations of bowel function should be part of a goal-directed nutritional therapy. There is little evidence that early TPN affects the return of bowel function and improves the outcome of cystectomy. [46, 47, 48]

Routine use of nasogastric tubes is not recommended because it is ineffective in reducing the duration of postoperative ileus and it might increase pulmonary complications such as atelectasis. [93, 94]

Post-operative nausea and vomiting is a common problem. Risk factors for post-operative nausea and vomiting (PONV) in adults are: history of PONV/motion sickness, female gender,

being a non-smoker (Society for Ambulatory Anesthesia 2007). [95] The use of nasogastric tubes in order to prevent PONV is not mentioned in this guideline.

Regular gum chewing may speed recovery of bowel function and hence reduce time to enteral feeding. [91] Another study has investigated the effect of removing the nasogastric tube to reduce time to oral diet. [40] The median time to tolerate a regular diet was 4.2 days. These results are similar to those of Maffezzini et al. (2006) [41], who evaluated the effect of early parenteral and enteral post-operative nutritional support on the restoration of normal bowel function. Early post-operative artificial nutrition had no effect upon bowel function or post-operative protein depletion and the median time to normal diet resumption was post-operative day 4(POD). [41]

Recommendations	LE	GR
• Daily observation of the bowel function	4	C
• Daily screening of the patient's oral intake with a view to supplying with artificial nutrition	1a	A
• Counselling to involve the patient in the post-operative nutritional strategy	4	C
• Instruct patient in chewing a piece of gum every 2-4 hours for 10 minutes from POD1 until return of bowel function	3	C

6.3.4 Post-operative wound management

Generally, post-operative care follows the standard protocol for any major abdominal surgery. However, post-operative infections of the surgical site are a major source of illness [65, 96] and several recommendations can be made to minimise the risk of infection.

The Guideline Prevention of surgical site infections (2008) [97] recommends control of blood glucose (to help wound healing). Current evidence does not support pre-operative showering or bathing with chlorhexidine to reduce surgical site wound infection rates. If hospitals choose to use pre-operative showering with chlorhexidine soap as an surgical site infection strategy, staff responsible for presurgical evaluations shall educate patients on the appropriate showering technique. [97]

Recommendations	LE	GR
• Protect the incision with a sterile dressing for 24-48 hours	1b	B
• Wash hands before and after dressing changes and any contact with the surgical site	1b	B
• When changing an incision dressing, use sterile technique	1b	C
• Educate the patient and carers regarding proper incision care, symptoms of Surgical Site Infection (SSI) and the need to report such symptoms	1b	C
• Control blood glucose level	1b	A

6.3.5 Post-operative pain management

Even though clinical practice guidelines are widely available for post-operative pain assessment and management, many patients still suffer from moderate to severe postoperative pain. This is because post-operative pain management continues to be based upon local nursing traditions and nurse judgement rather than a systematic, goal-directed, evidence-based clinical intervention.

Pre-operative information has positive effects on pain intensity and patient satisfaction. [98, 99] Poorly managed pain may interfere with wound healing, cause patient suffering and prolong recovery. Both patients and nurses accept pain as a normal component of the post-operative experience. [98] A visual analogue scale (VAS) can be used to assess pain and to manage the post-operative pain. Pain management should be procedure-specific and reduce the use of opioids, because opioids delay normal organ functioning. [100] Well-managed pain improves the learning ability of the patient concerning continent urinary diversion management and helps them to become mobile and to re-establish bowel function.

In the early post-operative phase the patient may be admitted to an intermediate care unit for intensive post-operative pain observation.

Post-operative pain may be managed by PCEA (= Patient Controlled Epidural Analgesia) or PCIA (= Patient Controlled Intravenous Analgesia).

Besides these analgesics paracetamol and/or NSAID will be administrated post-operatively for a period of several weeks.

Recommendations	LE	GR
• Pre-operative information about the pain strategy should be provided	4	C
• A visual analogue scale both at rest and during activity should be utilised to evaluate the effects of prescribed analgesics	4	C

6.3.6 Post-operative physical activity

Early mobilisation is important to prevent cardiovascular and pulmonary complications and for faster recovery. Mobilisation can be initiated as early as day 1. [60] It is important to motivate the patient towards achieving an early, high level of post-operative activity.

Recommendation	LE	GR
• Patients should be encouraged to mobilise from the first post-operative day		4 C

6.3.7 Post-operative fatigue

The North American Nursing Diagnosis Association (NANDA) has defined fatigue as: “an overwhelming, sustained sense of exhaustion and decreased capacity for physical and mental work.” [101] It is characterised by feelings of tiredness, weakness and lack of energy. [102] Studies show that of all surgical interventions patients undergoing major abdominal surgery appear to experience the greatest increase in fatigue with 92% suffering from fatigue

following surgery. This proportion dropped to about 10% 3 months after surgery. In this meta analysis an increase in fatigue is reported from day 4-7 and day 8-15 for these patients. [103]

Factors contributing to post-operative fatigue are sleep disturbance [104], pain and concern about one's psychological and physiological condition. [105]

Recommendations	LE	GR
• Assess the patient's ability to perform activities of daily living (ADLs)	4	C
• The patient's sleep pattern should be assessed	4	C
• The patient's emotional response to fatigue should be addressed	4	C

6.3.8 Post-operative observation of pouch/neobladder

Post-operatively, the patient may have several stents and catheters.

It's important that the pouch remains completely empty so that the internal suture of the pouch can heal.

Around the catheter there may be an appropriate dressing to protect the stoma.



Fig. 4 Catheters must be fixed securely

Catheters must be fixed securely and tension free. It is important to check this daily.

Catheters are removed per local policy and procedure and will vary with the type of operation performed.

Recommendation	LE	GR
• Check that the catheter is tension free and draining effectively	4	C

6.3.9 Changes in urine

With a new bladder made from intestine, the urine may be cloudy. Depending on the fluid intake patients may experience this.

Colour and/or odour changes are described in paragraph 6.5.4.

6.3.10 Role of carers

Patient education begins before surgery and continues as soon as possible following the operation. However, most patients are unable to focus on instructions during the first 72 hours post-operatively. It can then be helpful that carers are involved at all stages of assessment and teaching. [68] The patient may also find themselves temporarily unable to perform some of the practical aspects of care once at home. In this situation it is vital that a family member can offer support and have the competence and confidence to perform the necessary skills for the patient. Involving family and carers will allow the patient to have access to immediate support at home and also may help the family and carers to understand the challenges faced. Although it is important to focus on the patient's needs, it is vital that the health care professional remembers to include the family/carers at all stages as they are also likely to have concerns and fears regarding the patient and the home environment. Family will have questions of their own which require answering. The role of the specialist nurse is not only one of knowledge giving, but includes also counselling for patient and carers/family. Expert education and careful follow-up will ensure confidence and satisfaction in the family and patient. [76]

Recommendation	LE	GR
• The role of the family and carer should be recognised and acknowledged	4	C

6.3.10.1 Catheterisation management by carers

Caring for some patients with a urinary diversion may require both patient and carer to acquire new skills. Verbal and written instructions along with an opportunity to practise skills required for urine drainage are important pre- and post-operatively. The carer and patient will achieve competence and a level of confidence that will make transition from hospital to home easier to negotiate. [68] Use of a dvd, cd-rom or other visual aids will enhance the teaching/learning experience. Patients may feel more confident with the presence and support of a carer during the teaching phase.

Patients who require intermittent self-catheterisation (CISC) as a means of draining urine will eventually develop their own routine often catheterising up to 6 times a day depending on what volume of urine they can tolerate, and the sensation associated with the filling of the neobladder. It is important but not essential that a carer is competent at catheterisation in case a patient is temporarily unable to care for themselves. [68]



Fig. 5 Patient undertaking a bladder washout in the home situation

Recommendation	LE	GR
• Catheterisation techniques should begin to be taught pre-operatively	4	C

6.3.10.2 Procedure for discharge care

From early admission the patient should be prepared for discharge.

Prior to discharge, it must be ensured that bowel function has returned, patients are nutritionally independent and can care for themselves **with or without** support. Patients **and** their carers should be familiar **with** managing tubes and/or catheters.

They should be able to recognise warning signs (such as temperature rise, **infection**, retention) and know how to react to these. [73] Patients should be provided with information to whom they can address their observations or concerns.

They should be provided **with** supplies and know where to obtain them from, in order to manage the continent urinary diversion. [74]

After tubes/catheters are removed and patients have been trained in the management of their continent urinary diversion, the following should be assured before discharge:

- Patients or carers should be confident **with** the new skills obtained in order to maintain and uphold the function of the continent urinary diversion.
- All information and knowledge given is **comprehended** by patient, family and carers in order to follow prescribed management of the continent urinary diversion. They **should** have achieved tools to mentally adjust to a life **with** an altered body function concerning urinating and processing the fear and anxiety they might have experienced during **the** course of surgery and admission to hospital. The need for follow-up psychological care should be assessed.
- The patient should be given a plan for **appointments regarding** follow-up visits and tests, and a contact number to the NS where they freely can address any case of concerns or problems.

- Regular follow-up is important for a long term satisfactory outcome.
- They should be familiar with the supplies they need for managing their continent urinary diversion and how and where to obtain these.

The NS helps the patient in making a decision on the right product.

NS should be independent in advising of the most appropriate material to the patient.

At discharge, the nurse should have discussed with the patient or carers the following self-care management aspects:

- the self catheterisation technique and different kind of catheters
- the reimbursement of catheters
- the daily management of the continent diversion concerning bathing, clothing, travelling, work, hobby, sexuality, etc.
- explain the colour of normal urine, red or cloudy urine, offensive odour and which action to take
- explain that a stoma can bleed
- explain that mucus is normal and what to do when there is more mucus than normal
- explain what to do when problems occur, such as odour, UTI, leakage, etc
- provide a contact telephone number for acute problems or questions
- explain the process of follow-up and control visits.

Dormann 2009 [106]

Recommendations	LE	GR	
• Patients with continent urinary diversions should be offered life-long follow-up	4	C	
• Patients should be given permission to contact the NS in case of problems or concerns	4	C	
• Patients should be well-equipped with skills, knowledge and tools to manage life with a continent urinary diversion	4	C	
• A teaching plan will increase learning by the patient	3	C	
• At discharge the nurse should discuss self-care management items with the patient and his carers	4	C	

6.4 Discharge care

6.4.1 Patient diary

Encouraging a patient to maintain a diary from the initial pre-operative experience may enhance the teaching and learning process. The diary can contain any pertinent facts and information that the patient may refer to as required. It can also become a valuable resource

when liaising with the other healthcare professionals involved in the care of the individual during and after their initial hospitalisation. The diary is portable and of great significance should a patient require emergency care in an alternative healthcare environment.