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# An introduction to Stoma Care

a guide for health care professionals

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The word stoma is derived from a Greek word meaning mouth or opening. To form a stoma, the bowel is divided surgically, and the ends brought to the body surface either as a loop or end stoma. We are looking at output stomas, colostomies, ileostomies and urostomies.

## Introduction

The first surgical stomas were created on battle casualties in the early 18th century. Today it is estimated that about 80,000\* people in the UK have stomas of various types (Figure 1). Care teams including a surgeon, a specialist nurse and other healthcare professionals have been set up to specifically help stoma patients, their family and carers both before and after the operation.

\* Department of Health Statistics 1998

The figures quoted are correct at the time of publishing

Total number of stomas*	
Colostomies	50,000
Ileostomies	20,000
Urostomies	10,000
Annual Incidence of New Cases*	
Colostomies	11,800
Ileostomies	6,500
Urostomies	2,300

Figure 1  
Epidemiology of  
stomas in the UK

In the future, the number of permanent stomas created each year may decrease, for several reasons. Multi-disciplinary teams specialising in colorectal disease have led to improvements in the diagnosis of predisposing conditions, and perhaps more effective drug therapy of these conditions, may reduce the need for the major surgical undertaking of stoma formation.

New developments in surgical instruments and operative techniques, such as stapling devices, internal pouches or reservoirs and artificial sphincters, may also become more widely adopted as well as adjuvant therapies such as preoperative radiotherapy and postoperative chemotherapy which improve surgical outcomes.

## Types of stoma

### Temporary stomas:

Temporary stomas divert faecal material to the abdominal surface and allow healing or resting of a distal portion of the bowel to protect an anastomosis. Continuity of the bowel can later be restored. Examples of temporary stomas are loop ileostomy and loop colostomy.

### Permanent stomas:

Permanent stomas are necessary after resection of the rectum and all or part of the colon, when continuity of the bowel cannot be restored. In the case of advanced colorectal cancer they may be created to relieve obstruction.

### Urinary diversion stomas:

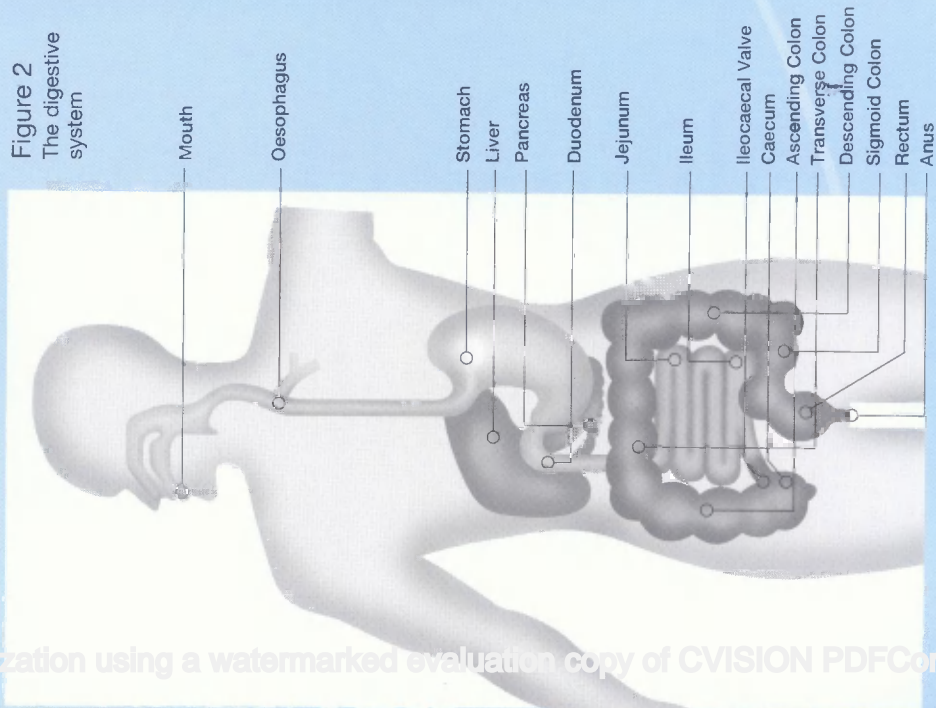
A urinary diversion (urostomy), allows urine to be passed out through a stoma instead of via the urethra.

In order to discuss the function and management of the stomach, the basic anatomy and physiology of the digestive and urinary systems must be understood.

## Anatomy and physiology of the digestive system

The digestive system is a continuous muscular tube beginning at the mouth, running through the body and ending at the anus (Figure 2). Its function is to digest food into simple components that can pass through the wall of the system into the bloodstream.

Figure 2  
The digestive system



Complementary to the digestive system are a number of organs that produce enzymes to aid digestion. These include the salivary glands, gallbladder, liver and pancreas. The digestive system is lined with epithelial cells, which are specialised to absorb fluid and nutrients.

Food is physically broken down in the mouth by chewing, and mixed with saliva from salivary glands. Saliva contains an enzyme which begins the breakdown of starch. The pulpy bolus of food is then passed to the stomach via the oesophagus, a muscular tube, 30-40cm long.

**The stomach:** the hollow muscular bag of the stomach lies just below the diaphragm, and acts as a reservoir which churns the food and continues the process of digestion. While the food remains in the stomach it is mixed with gastric juice which is very acidic and contains enzymes.

At the distal end of the stomach is the pyloric sphincter, which controls the passage of contents. Food generally stays in the stomach for 1-4 hours, after which the semi-digested fluid, called chyme, is released in small quantities into the duodenum, the first part of the small intestine.

**The small intestine:** the stomach contents pass into the duodenum at intervals, where they are mixed with secretions from the pancreas, liver and intestinal wall. This completes the digestion of proteins, fats and carbohydrates.

The contractions of the wall of the small intestine mix the chyme with the enzymes, and ensures absorption of nutrients takes place. The absorptive surface area of the small intestine (6 metres) is greatly increased by the presence of multiple tiny, finger-like projections called villi. Vitamin B12 and bile salts are absorbed in the terminal ileum. This is an important consideration if an ileostomy is to be formed above this, as nutritional deficiencies and pernicious anaemia may occur. Undigested food waste passes into the large intestine via the ileocaecal valve.

**The large intestine:** (or colon), is 1.5m in length and is divided into sections – the ascending, transverse, descending and sigmoid colon, plus the rectum and anus. The appendix is a small, blind-ended pocket, 6-8cm long, close to the junction of the ileum with the caecum (the initial portion of the colon).

The principal functions of the colon are the absorption of water (1000ml), electrolytes from food waste, and the secretion of mucus to lubricate faeces. The rectum acts as a reservoir for faeces until it is convenient to evacuate from the anus.

Food entering the stomach creates a powerful muscle contraction known as the gastrocolic reflex. This propels faecal material along the sigmoid colon and into the rectum, which is normally empty. The entry of faeces stimulates neuromuscular reflexes of defaecation, this results in the desire to pass faeces.

### Implications of removing part of the digestive system

Removal of any part of the bowel will inevitably affect the digestive and absorptive process. For example, because most salts and water are reabsorbed in the colon, a patient with an ileostomy is particularly liable to salt depletion and dehydration. The function of the remaining digestive tract should be considered when monitoring the patient and advising on diet, or on travel to a warm climate where sweating may upset the delicate water/salt balance. Such problems are less likely to occur with a colostomy than with an ileostomy.

## Predisposing diseases of the digestive system

Some of the common bowel conditions which may require stoma formation are listed below.

**Figure 3**  
Predisposing diseases of the digestive system

Colostomy	Ileostomy
The most common indication is for	The most common indication is for
● Carcinoma	● Crohn's disease
<b>Other indications</b>	<b>Other indications</b>
● Diverticular disease	● Ulcerative colitis
● Crohn's disease	● Carcinoma
● Irradiation damage	● Familial polyposis coli
● Bowel ischaemia	● Irradiation damage
● Faecal incontinence	● Trauma
● Volvulus	● Meconium ileus
● Trauma	● Constipation
● Congenital abnormalities	
● Hirschsprung's disease	

## Inflammatory bowel disease

The term inflammatory bowel disease encompasses two main diseases – Crohn's disease and ulcerative colitis. The severity can range from mild to very severe and life-threatening. Both diseases exhibit periods of remission and relapse.

Ulcerative colitis is characterised by inflammation of the mucosa of the colon, most often starting in the rectum and spreading distally. Often the whole colon becomes involved. The mucosa is inflamed and haemorrhagic.

The symptoms are:

Bloody diarrhoea, often with large volumes of mucus and urgency  
Anorexia  
Anal soreness and pain  
General malaise  
Anaemia  
Abdominal pain

In some patients, ulcerative colitis is no more than a minor recurrent nuisance, while for others it causes prolonged ill health.

Most patients are managed medically, the mainstay of treatment being mesalazine, with corticosteroid enemas; Steroids may be used during severe exacerbations. In ulcerative colitis severe exacerbations may lead to toxic dilatation of the colon with a risk of perforation. This is an indication for emergency surgery, though whenever possible, elective surgery is preferred. Elective surgery to remove the colon may be needed for persistent symptoms, because of the increased risk of colon cancer developing and general poor health caused by the chronic condition.

## Procedures

The standard operation is sub total colectomy (removal of the colon whilst retaining the rectum). This allows the patient time to recover. If after surgery diagnosis is confirmed as ulcerative colitis, restorative surgery can be considered (eg. ileo anal pouch see page 18). The alternative is a pan procto colectomy and formation of permanent ileostomy.

Crohn's disease causes inflammation and ulceration of any part of the digestive system. The section most commonly affected is the distal ileum. Crohn's disease of the colon may be difficult to distinguish from ulcerative colitis, it is characterised by inflammation of the full thickness of bowel as well as intermittent diseased bowel (skip lesions). Fistulas between the bowel and other structures, such as skin, bladder or other bowel loops, can develop. These are not features of ulcerative colitis.

The symptoms of Crohn's disease are:

- Rectal bleeding
- Colicky pain caused by strictures in the bowel
- Diarrhoea
- Weight loss
- Anaemia in severe disease (and the patient may become toxic and feverish)
- Extra-intestinal manifestations e.g. –
  - Arthritis
  - Finger clubbing
  - Skin changes
  - Anal tags
  - Fissures

Medical treatment of Crohn's disease is similar to that for ulcerative colitis. Antibiotics may be given to resolve the secondary infections which can occur.

With active disease in the small bowel the affected section will be resected or stricturoplasty<sup>1</sup> performed. If the colon is affected a colectomy is typically formed.

<sup>1</sup> Allen RN, (1997) Inflammatory Bowel Disease, Churchill Livingstone.

## Familial Adenomatous polyposis

Familial polyposis is a dominant inherited condition which affects both sexes equally. The large bowel becomes studded with multiple polyps, all of which carry a risk of becoming malignant. The colon and rectum are generally removed, and in some cases a restorative procedure may be possible. Genetic counselling and possibly screening are needed for the family.

## Diverticular disease

Diverticular disease is a common disease of the over 40s and affects 35% of all people over 60 years of age. Lack of fibre in the diet and straining at stool leads to high pressure in the bowel and hypertrophy of the muscles as they attempt to move small amounts of faeces along the colon. The increased pressure forces the mucosa through defects in the bowel wall, and faeces become trapped in these mucosal pouches or diverticulae. Irritation by the trapped faeces may result in inflammation, pain and bleeding; this is known as acute diverticulitis. Severe cases carry a risk of abscess formation and perforation.

Acute diverticulitis is first treated conservatively with antibiotics, nasogastric aspiration and intravenous hydration. When the inflammation settles, the patient may commence oral fluids and gradually progress to a high fibre diet. Surgery may be required for complications of diverticular disease, such as abscess formation, peritonitis, fistula and intestinal obstruction. The affected sections of bowel are excised, and a colostomy (which may be temporary) is formed to allow the distal parts of the bowel time to recover.

Keightley WRB & William NS (1999), *Surgery of the Anus, Rectum & Colon*, 2nd Ed  
B Saunders, London.

## Carcinoma

Colorectal cancer is the second biggest cancer killer in the UK and is most prevalent in those over 70 years of age, however the incidence of this being found in younger people is increasing. There are 30,000 cases and 19,000 deaths per annum.<sup>3</sup>

The onset of the disease is insidious and symptoms are not obvious, particularly if it occurs in the caecum or ascending colon. Presenting symptoms commonly are a change in bowel habit, tenesmus or rectal bleeding. Symptoms of advanced disease include intestinal obstruction, perforation and resulting peritonitis.

Treatment is invariably surgical, (about 80% is quoted in clinical guidelines) and depends on the location and extension of the tumour. Generally, the affected section of bowel is excised, with anastomosis of the cut ends where possible (perhaps protected by a loop stoma), or formation of a permanent colostomy when anastomosis is impossible. Because the disease presents late, the primary tumour has often metastasized before surgery and the overall prognosis may be poor.

Patients have adjuvant radiotherapy and/or chemotherapy as part of their treatment and according to their histological prognosis.

## Hereditary Non Polyposis Colon Cancer (HNPCC)

HNPCC is a familial form of colon cancer. A person is at increased risk if he/she has 2 first degree relatives, one of which is under 45yrs at diagnosis.

Solitary polyps which become malignant are associated with breast and gynaecological cancers. Family members should be screened from age 30yrs onwards.

<sup>3</sup> Effective Health Care (1997), The Management of Colorectal Cancer. NHS Centre for Reviews and Dissemination, University of York.

## Basic principles of stoma surgery

Certain principles are common to all stoma surgery. For example, the bowel must not be put under undue tension in bringing the stoma to the surface, and an adequate blood supply must be maintained.

Laparotomy incisions should always be positioned well away from potential stoma sites, and the body contours of the patient taken into account when deciding on the stoma site (see page 27), the most common practice is the use of a mid-line incision.

The surgical technique used depends on the type of stoma created. They are:

- Loop colostomy
- Loop ileostomy
- End colostomy
- End ileostomy

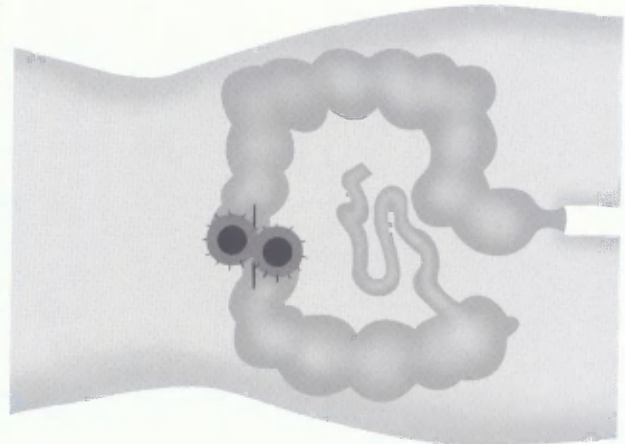
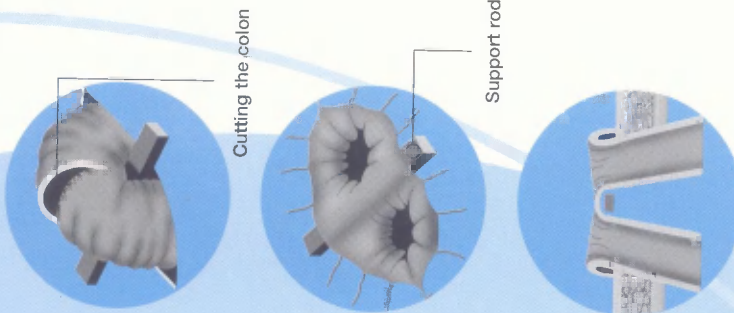


Figure 4  
Diagram of a loop colostomy

Figure 5  
Formation and appearance of a loop colostomy



## Loop colostomy

A loop colostomy (Figure 4) is formed in order to protect an anastomosis as previously mentioned.

A loop of the colon is brought to the surface of the body through a small incision (5cm) and supported on a rod until healing and fixation occur. Removable plastic support rods are often used. The cut bowel wall is usually sutured to the skin edge (Figure 5). A loop colostomy can usually be closed after 6-8 weeks.

A loop colostomy in the sigmoid region (at the lower end) produces more solid faeces. However, this type of stoma is more often made in the most mobile region of the transverse colon, because it can readily be brought to the body surface and allows mobilisation of a longer length of colon for restoration of bowel continuity at later surgery.

## Loop ileostomy

A loop ileostomy allows for defunctioning of the colon and/or protection of anastomosis to allow healing of distal excisions and lesions (e.g. fistulas).

Loop ileostomy may be preferable to loop colostomy because:

- It is possible to site well to facilitate good management
- It is less bulky
- The effluent is relatively inoffensive and more predictable



A loop ileostomy, is formed by bringing out a section of ileum to the abdominal surface (Figure 6) and supported on a plastic rod. After the ileum has been cut around two thirds of its circumference on one side of the loop a spout can be formed from the longer arm of the loop (Figure 7).

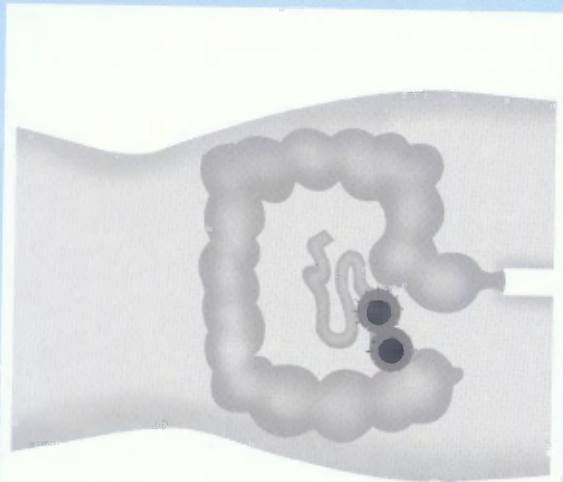


Figure 6  
Location of a loop  
ileostomy

**Low colonic anastomosis:** the advent of stapling guns has allowed low rectal anastomosis to be performed. These may be protected by a loop ileostomy.

**Neo-anal pouch:** in the pouch operation a reservoir is constructed from a loop of terminal ileum before anastomosis to the anal canal, which has had its mucosa stripped to prevent recurrence of the disease (figure 8, page 18). The newly formed pouch or reservoir is protected by a loop ileostomy. This can be done 2-12 weeks later when radiographic studies show stability of the pouch. The patient evacuates the pouch spontaneously 4-6 times each day. This operation is available in some centres, though it is only suitable in ulcerative colitis and familial polyposis coli and not normally done for Crohn's disease.

**Colo-anal pouch:** is done instead of an anterior resection – it gives better functional results and is usually protected by a loop ileostomy.

## Permanent colostomy

A permanent colostomy is usually formed in the treatment of carcinoma of the lower third of the rectum or anus, or less commonly following irreparable injury to the rectum.

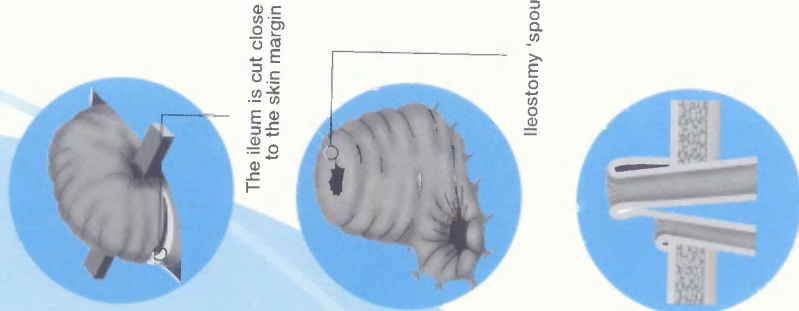
When the rectum is involved in the disease process it will be removed; the colon is then mobilised, and the cut end brought to the abdominal surface at an opening approximately 2cm in diameter, and usually sited in the left iliac fossa (Figure 9, page 19). The mucous surface of the colon is sutured to the skin (Figure 10, page 19).

## Permanent ileostomy

A permanent ileostomy is created when the entire colon needs to be removed. This occurs most often in inflammatory bowel disease, but may also be necessary in familial polyposis and very occasionally in cases of colorectal cancer.

The ileostomy is usually sited in the lower right iliac fossa (Figure 11, page 19). The ileum is divided about 2cm in front of its junction to the caecum, and then brought out through a 2cm incision in the rectus muscle to a length of about 6-7cm. It is sutured to the abdominal wall to prevent it retracting, and turned 'inside out' (everted) to form a spout of 2-3cm in length (figure 12, page 19). This spout is necessary to keep the extremely irritant ileal fluid off the sensitive skin.

Figure 7  
Formation and appearance  
of a loop ileostomy



**Kock pouch:** in an attempt to provide continence for those that have had their rectum removed, Kock devised an internal reservoir, constructed from the terminal ileum with an outlet valve to the body surface. The colostomy reservoir, or Kock pouch, is managed by the patient intubating the pouch with a special catheter. It is now less popular since the availability of the ileo-rectal pouch procedure.



Loops of the small bowel are aligned



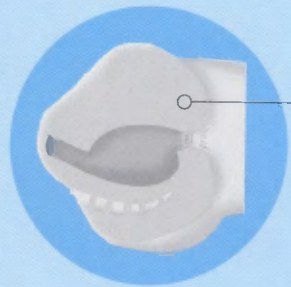
The antimesenteric wall is opened



Accent walls are sutured



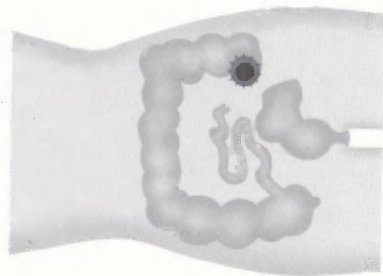
The reservoir is completed



The pouch is placed in the pelvis with sutures to the anal canal

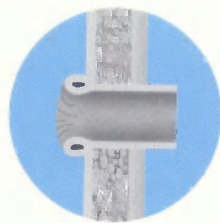
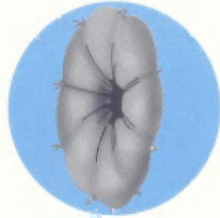
**Figure 8**  
Construction of an ileo-anal pouch

**Figure 9**  
Diagram of an end colostomy

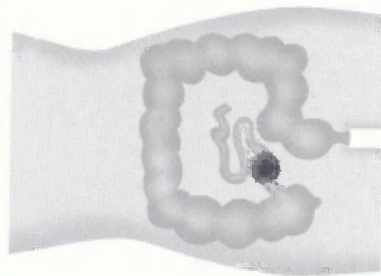


In this case, the rectum has been left in situ, and may be oversewn or brought to the body surface as a mucous fistula. It may also be completely removed and the anus closed surgically.

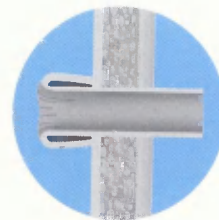
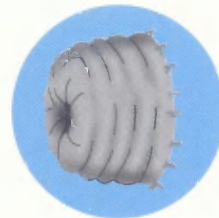
**Figure 10**  
Appearance of an end colostomy



**Figure 11**  
Diagram of an end ileostomy



**Figure 12**  
Appearance of an end ileostomy



## The urinary system

The urinary system consists of the two kidneys, the paired ureters, the bladder and urethra (Figure 13). Blood at arterial pressure enters the kidneys via the renal arteries, branches of which go to each of more than a million nephrons in the cortex of the kidney. In the nephron, blood is filtered and passes down the tubule of the nephron where water, salts and small molecules are reabsorbed into surrounding capillaries. Waste passes down into collecting ducts which empty into the pelvis of the kidneys.

The bladder acts as a storage reservoir for urine. It has a fibro-elastic wall, within which are stretch receptors that signal when the bladder is reaching capacity. A combination of voluntary and involuntary actions culminates in the sphincter of the bladder opening and the urine voiding through the urethra. In health, about 1.5 litres of urine are produced each day, though the amount varies considerably with the intake of fluid.

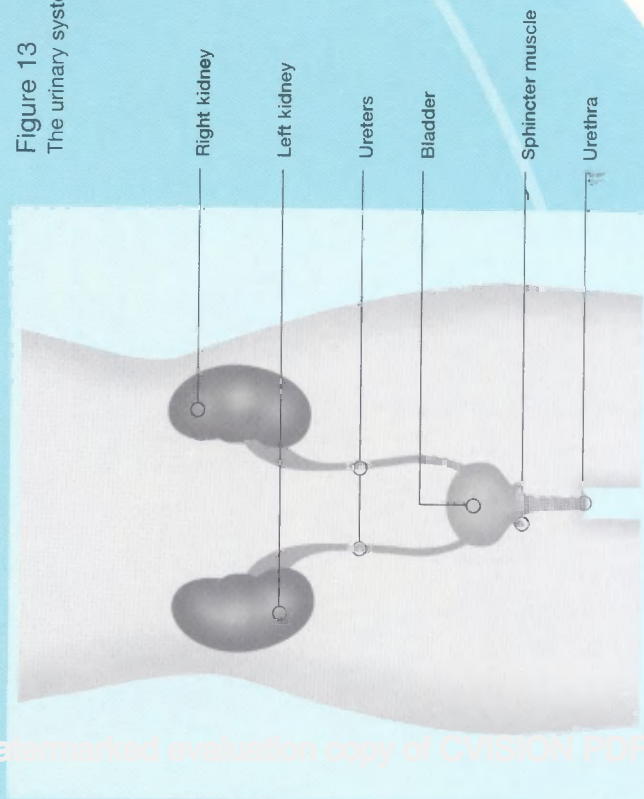


Figure 13  
The urinary system

## Conditions which may require urostomy formation

- Carcinoma
- Disorders of the spinal column
- Urinary incontinence
- Trauma

## Disease of the urinary system

Bladder cancer, together with cancer of the ureter and renal pelvis, accounts for about 7% of all male cancers and 2.5% of all female cancers. The bladder is the most common site. Tumours of the bladder can be associated with occupational causes, for example tannin, rubber and oil industries.

The presenting signs and symptoms are:

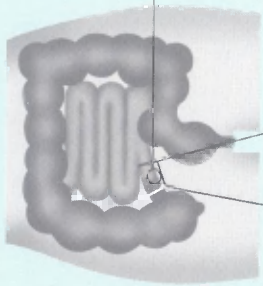
- Haematuria
- Frequency
- Burning on micturition

In advanced disease the patient may have suprapubic pain or evidence of obstruction; such obstruction produces stagnation, when infection is likely to spread to the kidney and result in damage. The tumours are usually treated by radiotherapy or diathermy, but in severe cases cystectomy (removal of the bladder) and diversion of the urinary system may be necessary.

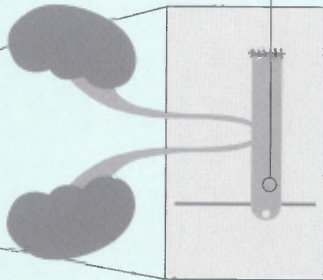
## Surgical procedure

Urostomies are usually performed when a bladder is diseased or dysfunctional and can be removed. The most common technique is the formation of an ileal conduit. In this operation a 10-20cm length of ileum is isolated with its blood supply, and the ends of the ileum anastomosed to restore continuity of the bowel (Figure 14, page 22). The ureters are mobilised with or without a section of bladder and anastomosed into the isolated ileum (the conduit), the other end of which is used to form a stoma as shown on page 22. The flow of urine is diverted out through the urostomy.

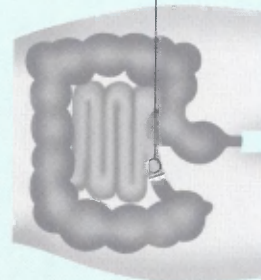
**Figure 14**  
Formation of  
an ileal conduit



Portion a-b of the ileum is isolated with its blood supply



The ureters are anastomosed to the isolated ileum. The distal portion is brought to the body surface as a stoma (urostomy)



The ileum is anastomosed to restore continuity

## Continent Urostomies:

There are three main constituents needed for continence:

- A bladder or pouch
- A channel to divert urine to the body surface
- A non-return valve to prevent leaking

These components are created by taking small parts of the existing internal organs and re-using them in a different way to form a continent urinary system. Some of the parts that are likely to be used are:

### For the pouch:

- Ileum
- Caecum
- Large bowel

### For the channel:

- Ileum
- Appendix
- Ureter
- Fallopian tube

The surgical procedure is initiated by taking a piece of the bowel and forming it into a pouch.

The ureters are connected into the pouch, which is then connected via the channel to an opening on the abdominal wall. A catheter has to be inserted into the pouch to drain it.

## Preoperative patient preparation

Good stoma management involves many aspects of nursing care. Ideally, it should begin before the operation. Well-informed, reassuring preoperative preparation of a prospective stoma patient and relatives will greatly aid the recovery and rehabilitation of the patient. The development of a specialist multidisciplinary team will have a reassuring and positive influence upon the patient in an emergency situation, of course, comprehensive preoperative preparation may not be possible.

Preoperative preparation of a patient for stoma surgery can be divided into two broad categories:

- Psychological preparation
- Physical preparation

## Psychological preparation

This process will begin preferably in the patient's own home or in an out-patients clinic. Patients who have received appropriate and adequate psychological preparation recover more quickly from surgery than those who have not.

The 'whole patient', should be assessed and physical, mental and social factors taken into account. Relevant family members should be included in this process. The postoperative nursing care plan should be outlined, describing the treatment and training the patient will receive in hospital to prepare for their return to normal life at home. After admission, the ward nurse is well placed to assess the patient's overall physical or mental limitations and to help in planning the delivery of a full care programme. The nurse should be prepared to discuss the patient's needs with all relevant health care professionals.

## An Introduction to Stoma Care

Most people want to know how their operation will affect them and how they will feel after surgery. They should be provided with information on all aspects of their condition, in the form of the many support materials available.

## Counselling:

The patient will be supported by the appropriate members of the multidisciplinary team to express and discuss inner feelings, which may include:

- Problems of self-image
- Family relationships
- Sexual problems or fears
- Denial of condition
- Anger, depression
- Suicidal thoughts
- Fear of death

If the patient wishes, contacting a self-help group (some are listed on page 51) or the stoma care nurse's own patients can prove very useful. Such self-help groups have teams of experienced visitors throughout the country, all of whom have a stoma, and can talk personally and empathetically to the patient, answer any questions and generally reassure them. Emotional and mental support, particularly in the early stages, are important for a successful outcome.

## Physical preparation

The nursing staff are involved in two important areas of physical preparation of the patient for stoma surgery:

- Stoma siting
- Bowel preparation

**Stoma siting:** correct siting of a stoma greatly influences its management and function. The stoma must be sited where the patient can see it for routine management – a stoma on the underside of a middle aged paunch will be difficult for the patient to deal with! Poor eyesight and other physical disabilities (e.g. arthritis of the hands, missing fingers) must be taken into account when siting the stoma and planning care. It must also be positioned so that adequate adhesion of the appliance can be obtained. The sites which should be avoided for a stoma are listed in Figure 15.

The site is best marked preoperatively by the stoma care nurse, using an indelible marker pen, checking the site for surface variations with the patient lying, sitting and standing. It is important to check that the site will not interfere with clothing. Fitting an appliance may be necessary to check the position of 'problem' sitings. It can be useful for the patient to wear an appliance before the operation, but only if psychologically ready to accept this part of the preparation process. Any known allergies to adhesives or plastics should be reported to theatre staff before the operation, and if necessary a suitable appliance should accompany the patient to theatre.

**Bowel preparation:** the aims and methods used are listed in Figure 16. Preoperative bowel preparation should be carried out in accordance with locally accepted policies. The method used is at the discretion of the surgeon and may vary from unit to unit. The nurse must ensure that the patient is fully informed of the procedure, understands the reasons for it and is willing to cooperate. During bowel preparation, the patient may require extra understanding and support, particularly when other patients are eating normal meals.

Figure 15  
Sites to avoid when positioning a stoma

- ### Sites to avoid when positioning a stoma
- Old scars
  - Bony prominences
  - The umbilicus
  - Groin creases
  - Pubic areas
  - The waistline
  - Fatty bulges or creases (lying, sitting, standing)
  - Underneath large breasts
  - Areas affected by skin disorders
  - The site of the proposed surgical incision
  - A site which cannot be seen by the patient

Figure 16  
Preoperative bowel preparation

## Preoperative bowel preparation

### Aim

- To improve surgical visibility
- To prevent damage to the bowel anastomosis by faeces
- To avoid contamination of the operative site by faecal soiling
- To prevent postoperative impaction of bowel contents

### Methods

- Total colonic lavage
- Bowel washouts and laxatives

## Postoperative care and development of the care plan

Observation of, and discussion with, the patient in the preoperative period will provide the nurse with a great deal of information about the patient, their feelings and mental and physical capabilities.

## Appearance and function of the stoma

In addition to the routine postoperative observation of vital signs and fluid balance, early postoperative care includes careful observation and monitoring of the stoma for signs of ischaemia or necrosis; a transparent appliance is necessary. A healthy stoma should be red, with a good blood supply (Figure 17), though it may initially be oedematous (Figure 18). When the stoma appliance is being changed, and after a stoma has been gently and carefully cleaned with warm water, its condition should be noted. If the appliance is too tight or blood flow to the stoma has been impaired during surgery, necrosis will be seen which can result in scarring of the stoma (Figure 19), if the appliance is too large, the skin surrounding the stoma will be at risk from the effluent, resulting in soreness (Figure 20). The size and colour of the stoma, and any abnormalities, should be noted.

The time when the stoma first acts, and the type, appearance, quantity and consistency of material passed should be recorded. First passage of flatus should also be recorded. This information is important because it indicates that peristalsis has restarted. The patient may have had a nasogastric tube inserted.

## Physiological changes following ileostoma surgery

The stoma patient's body must make a number of physiological adjustments to the loss of part of the bowel. In particular, the ileostomist has lost the major salt and water absorbing organ of the body and is at risk of disturbances in body water and electrolyte balance. Such patients initially lose more than 500ml extra of fluid each day. Although the body can compensate to some extent for loss of the colon by increasing the transit time of food through the small intestine, by an increase in its absorptive

Figure 17  
A normal healthy ileostomy and colostomy

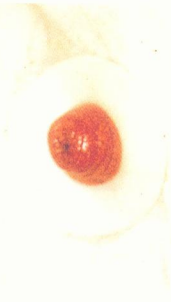


Figure 18  
Early postoperative oedema



Figure 19  
Necrosis



Figure 20  
Skin soreness caused by a badly fitting appliance



area and by changes in enzyme activities, the ileostomist tends to lose more sodium, magnesium, calcium and water than normal, but retains more potassium and fat. Particular problems arise in the immediate postoperative period, and this is the time when the new stoma patient's electrolyte balance must be carefully monitored and corrected if necessary. Accurate measurement and recording of fluid intake and output are essential. The main problems are sodium loss and dehydration, which are aggravated by sweating in hot weather.

## Fitting and changing the appliance

A transparent, drainable appliance is fitted in the operating theatre. This allows observation of the stoma and output. Until stoma function settles down, the output may be fluid and large in volume (up to 2-3 litres from an ileostomy) and must be regularly drained to reduce pressure on the appliance and ensure patient comfort.

The opening in the stoma appliance should be sufficiently large to allow for initial swelling and oedema. Protective materials that fit snugly around the stoma should be used and the appliance should be easy to fit. The appliance must be fitted firmly so that it stays in place, but it must not be too tight, or it may delay healing or lead to separation of the stoma from the skin edge. A well-fitted, leak-proof and odour resistant bag at this stage does much to promote patient confidence. Initially the stoma may reduce in size and/or change shape. It is important that the appliance size is adjusted if this occurs.

The types of appliance which are available are described on pages 36 and 37.

Figure 21  
Changing the appliance

The appliance is emptied into the toilet or other suitable container (jug, bowl etc) if it is drainable.



The base plate is carefully removed starting at the top



The bag is wrapped and disposed of



The stoma and surrounding skin are gently cleansed with warm water and tissues, then dried



A new appliance is fitted



- Changing the appliance (Figure 30): the first step in appliance changing is to make the patient comfortable and ensure privacy; individual patients may prefer to sit, lie down or stand up, depending on their stage of recovery. It is important to be aware that the patient will be watching the nurse's face and will be quick to pick up non-verbal signals. Reassuring words are of no value if the face shows distaste, worry or horror
- When necessary, the patient's bed and clothes should be protected against spillage. Gloves should be worn when changing the appliance
- All equipment necessary for an appliance change should be gathered together
- The contents of the appliance should be emptied into a container, or into the toilet if the patient is mobile
- The appliance is then gently removed from the top, using slight pressure with the fingers on the surrounding skin
- Appliances should be disposed of in accordance with local hospital procedure. When the patient returns home they will wrap used appliances in a plastic bag or newspaper after emptying and rinsing them, and put them in the dustbin
- Once the appliance has been removed, the stoma and surrounding skin should be gently and carefully cleansed with warm water and soft tissues or wipes; and then thoroughly dried with soft tissue
- The stoma should be measured regularly and approximately 3mm clearance allowed between the stoma edge and the adhesive. If the stoma is irregular in shape, or oval, the adhesive plate of some appliances can be cut to shape
- Next, the backing paper to the adhesive should be removed and the opening carefully placed over the stoma and firmly fixed in place

With drainable and urostomy appliances the clamp must be replaced or the tap closed to prevent leakage. The appliance should be emptied regularly and changed when necessary; if it becomes too full it may leak causing embarrassment and reducing patient confidence. With drainable bags, once emptied, cleaning the inside and outer edge of the opening with toilet paper prior to replacing the clip will help prevent odour.

The patient should always be actively encouraged to take part in the procedure in order to retain or regain independence.

## Skin problems

Skin care is very important as unprotected skin may be damaged by the output from a stoma so at every appliance change it must be cleaned, and dried. Warm water is usually sufficient, but if soap is used it must be unperfumed. Soap may increase the patient's sensation of cleanliness; if it is used it must be rinsed off well as it tends to dry the skin.

An allergic reaction very occasionally occurs. Any change in skin condition must be noted, and accurate diagnosis of the cause obtained. Reaction to the appliances adhesive may be remedied by changing the brand. Skin problems can be due to leakage, weight gain or weight loss.

## Other postoperative problems

Parastomal hernia is the most common complication, occurring in 20% of colostomists, and is often due to the stoma being sited outside the rectus muscle. Although most hernias are not life threatening, they can have serious psychological effects. Patients should be referred to the surgeon for repair or resiting of the stoma. Other stoma problems include bleeding, obstruction, retraction and prolapse; the last is more common with a loop colostomy, not uncommon with an ileostomy, but seldom happens with an end colostomy.

## Alternative methods of managing a sigmoid colostomy

### 1 Irrigation

Some colostomy patients prefer to manage their stoma by colonic irrigation, using special equipment and luke-warm water. The procedure may take up to 1 hour, but in many cases the frequency of irrigation can be reduced from daily to once every 2-5 days. After practice good evacuation of the bowel contents can be achieved, allowing the patient to use a stoma cap instead of a bag.

This method of colostomy management is widely used in the USA, but is less popular in the UK where stoma appliances are available free of charge on prescription. Irrigation is suitable only for patients with a sigmoid colostomy, and should only be taught to selected patients and with the consent of the surgeon.

### 2 Asura : Conseal Plug

Inserted into the stoma after evacuation, the plug will give the patient an alternative to a bag for a period of time. The plug acts by expanding and delaying the passage of faeces. It is recommended for use with an end colostomy.

## Appliances

A wide range of appliances has become available over the last 25 years, mainly due to the development of new plastic materials. Much research has gone into designing appliances and the best adhesives to attach them to the skin.

Modern appliances have hypoallergenic barriers to protect the skin, and soft, odour-resistant plastics to ensure that they are acceptable to the patient, whose quality of life depends on the freedom the appliance will give. Another very important development is the production of soft cover materials that protect the skin behind the bag from excess moisture, and at the same time allow the skin to breathe, whilst giving the appliance a less clinical appearance.

A number of factors need to be considered before suggesting the most suitable sort of appliance for the patient. It is important to assess the whole patient, as well as the type and positioning of the stoma. The patient's general physical condition needs to be considered, noting any disabilities (e.g. poor vision, arthritic joints), body size and weight. Details of the patient's sporting and social activities should also be taken into account.

Estimates of the volume of output from the stoma and its consistency will also influence the choice of appliance. Ileostomists evacuate more liquid and require drainable appliances at all times. On the other hand, the output from a colostomy is usually formed or semi-formed and evacuation occurs at fairly regular and predictable intervals.

The first appliance is usually chosen by the specialist staff, often the stoma care nurse, matching what is available with the individual patient's needs. Later, as requirements change, a new appliance may be selected as being more appropriate. There is a range to choose from, and involving the patient in choosing the appliance can be reassuring that it is possible to find one that is 'just right'. It is most significant that the patient feels safe and secure. Time to evaluate the appliance and gain confidence in its ability to function well is needed by the patient.

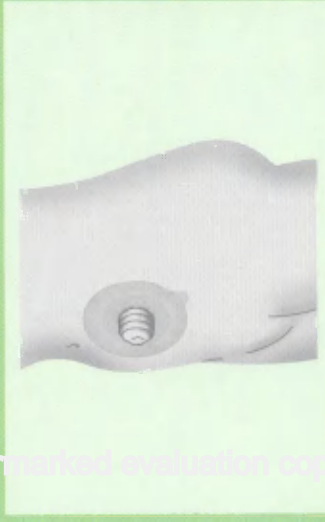
## Types of appliance

There are two classes of appliance – one-piece and two-piece.



### One-piece

One-piece appliances consist of a collecting bag, with an adhesive seal which should fit neatly, but not too tight, around the stoma, and attach the appliance securely to the skin (Figure 22). The complete appliance is discarded after use and replaced with a new one.



### Two-piece

Two-piece systems consist of an adhesive flange plate fixed around the stoma to which a disposable collection bag is fitted and locked for extra security, (Figure 23). After use the bag is removed, discarded and replaced with a new one. The flange can stay in place for several days.

Figure 22

A one-piece (closed) appliance



Figure 23

A two-piece (closed) appliance



## Appliances all have variations to suit individual needs and situations.

**Drainable appliances:** have an open end with an emptying device to drain the contents (Figure 24). They are normally used for watery faeces during the immediate postoperative period, though they may be changed later. Some colostomists with particularly loose faeces prefer drainable appliances and continue to use them. They are always used for ileostomists and appliances are changed every 2/3 days.

**Closed appliances:** have no opening other than that which fits around the stoma (see Figures 22 and 23). They are used when the patient's faeces are reasonably well formed, so most colostomists choose to wear this type of appliance. Closed appliances are discarded after use; they are commonly changed once/twice a day.

All closed appliances and some drainable ones have an integral filter which prevents pancaking and ballooning. A carbon layer controls the odour from the stoma output.

Both drainable and closed appliances are available in transparent, opaque, and soft cover materials which are opaque coloured and are now also available in a graphic design. Opaque and soft cover are both ideal when it is no longer necessary to observe the stoma.

**Transparent appliances:** the stoma and its effluent can easily be observed through these appliances so they are particularly useful in the first few days after the operation. Their use can be continued if desired, because they are very easy to position accurately over the stoma.

**Urostomy appliances:** (Figure 25) are rather more complex and are fitted with a drainage tap and an anti-reflux valve which prevents reflux of urine over the stoma when the patient is lying down. This in turn reduces the risk of leakage and the possibility of ascending infection reaching the kidneys. Urostomy appliances have the advantage that they may be worn continuously for several days (2-3), and can be connected to overnight drainage bags.

Figure 24

A drainable bag



Figure 25

A urostomy bag



## Accessories

Management of the stoma should be as simple as possible. Additional products such as seals, filler paste and wafers are only used when necessary. A large range of accessories is available to accompany all the appliances. However, improved adhesives and convex flanges mean there is less need now for these to be used.

All closed and some drainable appliances have activated charcoal filters which allow flatus to be released and absorb the odour. Where odour is still a problem, deodorant powder, drops and aerosols can be supplied. However, a highly perfumed deodorant should not be used with an appliance with a filter – the filter cannot absorb all the deodorant smell and the patient may be constantly aware of it. Odour is not generally a problem and often indicates that the appliance is leaking or that the patient is not managing it properly.

The adhesives on modern appliances are very effective so extra taping or belts should not be needed.

Most of these accessories can be obtained on prescription. (Some groups of people are automatically exempt from prescription charges, while others may be exempted by filling in a form which can be obtained from the GP.)

Although not all of them will be required on the ward in the early postoperative period, it is important to be aware of these aids and be able to discuss them with the patient. It is important that they are only used when strictly necessary, in the interest of economy and because the patient may adopt the habit of unnecessary use of accessories.

The stoma patient in hospital has the full support of the care team. During this time it is important they be prepared for life at home. However, it is likely that only some of the information provided at the hospital will be remembered, and follow-up visits by the health care team should be continued into the community.

Patients should be well and motivated to return home before discharge. The first few weeks of having to cope with the day-to-day problems of a stoma at home can

be very taxing, and rebound depression may occur. Family support, when available, is invaluable, and the stoma care nurse and/or community nurse must monitor the patient carefully.

## Practical problems

Good control of bowel function is important in achieving a good quality of life. Some colostomists can eat or drink almost everything and still have a regular daily bowel action; others may have to monitor their diet carefully in order to achieve a reasonable degree of regularity and minimise flatulence. Be careful with using the word 'diet', as it can convey an impression of a severe restriction in what a patient eats. Guidelines can be given to each individual patient on which foods may have given them problems, but a certain amount of experimenting with foods should be encouraged. A food which may cause excess wind in the early postoperative period may cause no problem later on.

**Holidays:** all necessary spare appliances and accessories must be included in hand luggage, in case the main luggage is delayed.

Coloplast has two leaflets – 'Fit for anything' and 'Get up and go' which give more detailed advice on healthy eating, physical activity and holidays for all stoma patients.

The patient's GP will be able to advise on medication which should be taken, for example to deal with travel sickness or diarrhoea. Ileostomists in particular must be aware of the effects of sweating in a hot climate, and should be told how to maintain their fluid balance (salt tablets may be required); they may also need to change their appliances more often.

**Return to work:** many stoma patients return to work some time after going home, though the interval after surgery depends on general health and strength and should be decided by the patient and doctor together. Any patient who has undergone major abdominal surgery will be advised not to return to work involving heavy lifting until complete healing of the abdominal muscles has occurred; this will take several months.

Many stoma patients will be able to return to less strenuous jobs much earlier. If a change of job is necessary as a result of surgery, the patient may seek help from the Disablement Resettlement Officer through the local office of the DHSS or a voluntary association. If a patient encounters difficulty with his employer following surgery, the Employment Medical Advisory Service may be able to help. Early rehabilitation is important for both patient and family in order to avoid anxiety caused by prolonged absence from work.

Toiletfacilities at the workplace are an important consideration in returning to work and advice in dealing with inadequate facilities may be needed.

**Driving:** patients can resume driving approximately 6 weeks after the operation.

**Sparring activities:** being able to continue with a hobby or sporting activity depends on physical health and motivation. Contact sports, such as rugby, may be difficult, but advice on protecting the stoma can be given and the patient then make his or her own decision.

Bathing and showering can be undertaken with or without the appliance in place and patients can swim provided the correct appliance is fitted.

## Physical and psychological problems

Young female stoma patients are often worried about conception and pregnancy. They should be encouraged to discuss the matter with their GP or consultant. Distorted pelvic anatomy following the stoma operation may mean that barrier methods of contraception are difficult or that pregnancy is impossible.

A patient with an ileostomy may find that the contraceptive pill is excreted without absorption. A number of ileostomy patients do have children, and a normal delivery is usually possible. Damage to the pelvic nerves can affect the sexual relationships of both men and women with stomas, though this is less likely to be a problem in nonmalignant disease, such as inflammatory bowel disease.

The patient with a permanent stoma can also be upset by loss of the rectum and being deprived of a 'natural function'. Although nothing can be done directly to relieve this, it may be of considerable help to the patient to be able to discuss the matter and to know that other patients have similar feelings.

It is inevitable that a stoma patient will take a while to re-establish social and sexual relationships, and many do experience both physical and psychological problems. However, with the care and support of family and friends these can often be overcome. The patient must be reassured that the health care team are all available if problems are experienced and will refer the patient to the right specialist when necessary. If at any stage the patient chooses to do so, enlisting the help of other stoma patients, who have themselves overcome the psychological adjustment of life with a stoma, can be very helpful.

While the counselling role of the stoma care nurse is important in avoiding the occurrence of sexual problems, the treatment of such problems when they do occur is a matter for specialist help.

Some men are rendered impotent by the removal of the rectum and by the snipping of the urethra in urostomy operations.

## Conclusion

This booklet provides a short introduction to the very rewarding work of stoma care nursing and counselling. Warr nurses will see stoma patients only while they are within the hospital, yet feedback from patient groups consistently reveals the tremendous gratitude expressed by patients for the healthcare professional who helped them through a traumatic episode of their lives. They also regularly say how helpful it was to have someone, be it nurse, doctor or another patient, who simply talked with them, listened to them and helped them to realise that life could be lived to the full and enjoyed after surgery just as much, or even more, than it was before.

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## Glossary of Terms

- Abscess**  
A localised collection of pus.
- Acute**  
Short-term or sudden.
- Adhesion**  
Internal growth of scar tissue following surgery.
- Aetiology**  
Cause.
- Analgesics**  
Pain relievers, eg. Aspirin, Paracetamol, Ibuprofen.
- Anastomosis**  
The surgical joining of two ends of healthy bowel.
- Anorectal**  
Area of anus and rectum.
- Appliance**  
The pouch or bag worn over a stoma.
- Arthralgia**  
Pains in the joints frequently experienced by persons with inflammatory bowel disease.
- Barium enema**  
A liquid suspension of barium sulphate introduced into the bowel via the anus.
- Barium meal**  
In this case, the liquid suspension (see above) is drunk.
- Biopsy**  
Removal of a small piece of tissue for examination.
- Bowel**  
Another name for the intestines. The small bowel consists of the duodenum, jejunum and ileum; the large bowel, the colon and rectum.
- Bypass**  
A surgical re-routing of the intestine (see also resection).
- Caecum**  
The first 10-15cm of the colon, situated in the right lower abdomen.
- Catheter**  
The plastic tube which allows fluids to pass out of the body.
- Chemotherapy**  
Treatment using cytotoxic drugs.
- Chronic**  
Long-term or slow.
- Chyme**  
The liquidised food which the stomach passes on to the small intestine for digestion.



<b>Colectomy</b>	Surgical removal of the colon.	<b>Enema</b>	A liquid inserted into the bowel via the anus, for diagnosis or treatment.
<b>Colitis</b>	Inflammation of the colon.	<b>Endoscopy</b>	A general term for the examination of the inside of the body using a lighted telescope inserted through a natural body opening, eg, colonoscopy and sigmoidoscopy via the anus, and gastroscopy via the mouth. The endoscopist is a specially trained physician or surgeon.
<b>Colony</b>	The large bowel or intestine. It is about 1.5 metres long.	<b>Enteritis</b>	Inflammation of the intestine.
<b>Colonoscopy</b>	An examination of the rectum and colon performed by passing a lighted flexible telescope (colonoscope) via the anus.	<b>Erythema</b>	Redness of the skin.
<b>Colectomy</b>	Surgical formation of an opening into the colon.	<b>Exacerbation</b>	Aggravation of symptoms; an increase in the activity of the disease.
<b>Conduit</b>	A tunnel or tube which may be made surgically from bowel.	<b>Excoriation</b>	Red, raw, skin.
<b>Constipation</b>	Infrequent passage of hard stools.	<b>Faeces</b>	Motions, stools, waste products.
<b>Crohn's disease</b>	A type of inflammatory disease of the digestive system.	<b>Fissure</b>	A crack or split in the skin, usually in the area of the anus.
<b>Cystectomy</b>	The removal of part or all of the urinary bladder.	<b>Fistula</b>	An abnormal channel between one hollow organ and another, or the skin.
<b>Defecation</b>	Evacuation of faeces.	<b>Flatus</b>	Gas or wind.
<b>Dehydration</b>	The result of excessive water loss.	<b>Folic acid</b>	One of the vitamins responsible for the formation of the red blood cells; folate deficiency may occur as a result of poor diet, or due to poor absorption by the small intestine.
<b>Diarhoea</b>	Abnormal frequency and looseness of stools.	<b>Gastroenterologist</b>	A physician or surgeon specially trained in the diagnosis and treatment of disorders of the intestine, including Crohn's and colitis.
<b>Dilate</b>	Stretch (distend) beyond normal size.	<b>Haemorrhage</b>	Bleeding.
<b>Distal</b>	Furthest away from.	<b>Haemorrhoids</b>	Swollen veins in the area of the anus (piles).
<b>Distension</b>	An uncomfortable swollen feeling in the abdomen often caused by excessive amounts of gas and fluid in the intestine.	<b>Hernia</b>	Protrusion or bulging of a loop of intestine through an abnormal gap in the muscle.
<b>Diversion</b>	Departure from normal course.	<b>I.B.D.</b>	Inflammatory Bowel Disease.
<b>Diverticula</b>	Abnormal pouches or pockets occurring in the digestive tract.	<b>Ileal</b>	Pertaining to the ileum.
<b>Diverticulosis</b>	A very common condition of the lower colon characterised by a thickened muscle coating round the bowel, and multiple small out-pouchings (diverticula) which may become infected (diverticulitis).		
<b>Dyspepsia</b>	Indigestion.		

**Ileocolic anastomosis** A surgical operation where, after total colectomy, an internal pouch is made from the ileum and attached to the anus, thus preserving continence and allowing evacuation in the normal manner.

**Ileocolic pouch** A surgical operation where the colon and rectum are removed and an internal pouch is made from the ileum and attached to the anus.

**Ileostomy** A surgical operation in which the cut end of the ileum is brought onto the surface of the abdomen and fashioned into a spout.

**Ileum** Last part of the small bowel or intestine.

**Incontinence** Inability to retain stools or urine.

**Intussusception** A condition in which one part of the bowel slips into another part, usually below it, causing intestinal obstruction.

**Irrigation** An enema or wash-out.

**Irritable Bowel Syndrome** Irritable colon – a common condition caused by altered motility of the bowels. It produces diarrhoea or constipation and abdominal discomfort.

**Ischaemia** Deficiency of blood supply to a certain area.

**Itis** Indicates inflammation, eg, colitis is inflammation of the colon.

**I.V. Pyelogram** Dye is injected into the veins to show up x-rays of the bladder and kidneys.

**Laparotomy** An incision into any part of the abdominal wall: often used for exploratory purposes.

**Lesion** Structural abnormality.

**Malabsorption** Inability to fully absorb nutrients in the small intestine.

**Megacolon** Enlarged colon.

**Methylcellulose** Used as a bulking agent to relieve constipation.

**Micturition** Evacuation of urine.

**Mucosa** Mucous membrane or lining of alimentary tract.

**Mucous** A slimy natural fluid which is secreted by mucous membrane.

**Nasogastric tube** Tube inserted through the nose and down into the stomach.

**Necrosis** Dead tissue.

**Obstruction** A blockage of the small or large intestine.

**Occult blood** Non-visible blood in the faeces.

**Oedema** Swelling due to accumulated fluid.

**Panproctocolectomy** Removal of colon, rectum and anus.

**Perforation** An abnormal opening in the bowel wall which causes the contents of the bowel to spill-in-to the abdominal cavity.

**Perianal** The area around the anal opening, ie, around the anus.

**Perineum** Area of skin between the anus and genitalia.

**Peristalsis** A squeezing rhythmic action which moves contents along the intestine.

**Peristomal** Area surrounding stoma.

**Peritoneum** Membrane lining the inside of the abdominal cavity.

**Peritonitis** Inflammation of the peritoneum.

**Polyposis** Small multiple polyps of the digestive tract.

**Proximal** Closest to.

**Proctocolectomy** Removal of rectum and colon.



**Prognosis**  
The possible progress of the disease or condition.

**Protrapse**  
A falling down of an organ or part from its desired position.

**Radiologist**  
Doctor specialising in x-ray, ultrasound similar examinations.

**Radiotherapy**  
Treatment using x-rays.

**Rectum**  
The back passage.

**Reflux**  
Backward flow of liquid.

**Relapse**  
Return of disease activity.

**Remission**  
A lessening of disease activity.

**Renal**  
Of the kidneys.

**Resection**  
Surgical removal of a part.

**Retraction**  
Pulling back.

**Sigmoid**  
S-shaped part of the colon above the rectum.

**Sigmoidoscopy**  
The passing of a short, lighted telescope through the anus to inspect the rectum and lower colon.

**Sims**  
Tract or cavity.

**Small intestine**  
That section of the gastrointestinal tract which digests food and absorbs nutrients after they have passed through the stomach.

**Sphincter**  
A ring of muscle around an opening which relaxes and contracts to open and close it.

**Stenosis**  
Narrowing.

**Stoma**  
Part of the bowel visible on the surface of the abdomen after surgery.

**Stoma's**  
Motions, faeces.

**Stitches**  
Stitches in wounds.

**Suppositories**  
Medication inserted via rectum.

**Tenesmus**  
A persistent urge to empty the bowel.

**Terminal ileum**  
The lowest end of the small intestine before it joins the large intestine.

**Toxic megacolon**

Dilatation of the colon which may lead to perforation.

**Trauma**  
Injury.

**Ureter**  
The tube leading from each kidney to the bladder.

**Urethra**  
The tube leading from the bladder to the exterior.

**Urostomy**  
Urinary diversion onto abdominal wall.

**UTI**  
Urinary Tract Infection.

**Villi**  
Hair-like projections on the surface of a mucous membrane such as that in the intestine.

**Vitamins**  
Essential nutrients.

## Information services

The UK and Eire have some of the best stoma care nursing services in the world. The medical and nursing services within the National Health Service, particularly the stoma care nurses, the manufacturers who actively assist, and the independent stoma associations, all help to improve life for the stoma patient. The various patient associations can be contacted at the following addresses, and are able to provide a particularly useful range of books on topics such as sex, pregnancy and marriage.

### British Colostomy Association

15 Station Road  
Reading, Berkshire RG1 1LG  
Telephone: (0800) 328 4257  
e-mail: sue@bcass.org.uk

### The Ileostomy and Internal Pouch Support Group (ia)

Peve, Mill House  
1-5 Mill Road, Ballyclare  
County Antrim BT39 9DR  
Telephone: (0800) 018 4724  
e-mail: info@the-ia.org.uk

### The Urostomy Association of Great Britain and Ireland (UA)

(Central Office)  
18 Foxglove Avenue, Uttoxeter  
Staffordshire ST14 8UN  
Telephone: (0870) 770 7931  
e-mail: info.ua@classmail.co.uk

Courses on stoma care nursing are validated by the English National Board for Nursing, Midwifery and Health Visiting (ENB). An outline curriculum of an 8-9 week course in stoma care nursing for state registered nurses (course 216) can be obtained from the ENB. In addition there is an 8-day course (course 980), also validated by the ENB, which is based on the principles of stoma care nursing. Information on this course can be obtained from the ENB. The RCN Stoma Care Nursing Forum can also supply information on these two courses.

### English National Board for Nursing, Midwifery and Health Visiting

Victory House  
170 Tottenham Court Road  
London W1P 0HA

### RCN Stoma Care Nursing Forum

Royal College of Nursing  
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### Acknowledgements

Coloplast would like to thank the following stoma care nurses for their invaluable assistance in the preparation of this booklet:

Yvette Perston, Llandough  
Gillie Thomsett, Reading  
Wendy Pringle, Birmingham  
Jill Dean, Sheffield  
Rosemary Waghorn, Chorley  
Bridget Owles, Bournemouth