# THE NOVA SCOTIA MEDICAL BULLETIN




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## Oh Ostomate!

There can be few more miserable diseases than ulcerative colitis or Crohn's disease. In discussing the former, Goodman describes it as "incapacitating as chronic renal insufficiency, as relentless as leukemia and as malignant as a neoplasm."[1]

This issue is dedicated to all those sufferers from these diseases, as well as those who require stomata in their viscera to alleviate some underlying condition which cannot be resolved by other methods. The child with congenital atresia of the bowel, the person with spina bifida and urinary incontinence, the paraplegic whose urinary system requires diverson, the young adult who has an abdomino-perineal resection of the rectum for carcinoma, or the young man who has had a gunshot wound of the abdomen. Whether he or she is an Eskimo who has had a hunting accident, or an African with 'pseudo-Bantu Hirschsprung's disease,' a colostomy or an ileostomy may be a life saving procedure. In every instance, however, the patient requires meticulous medical attention to regain normal health and desperately needs counselling on the means he or she must adopt to return as a useful, happy member of society.

A major revolution of intestinal surgery and stomal techniques and appliances during the past decade has changed the management of many of these problems. As a result of the Basil Coady Day at the Halifax Infirmary organised by Dr. G. P. Konok, we are able to highlight some of the most topical aspects of these developments.

There seems to be very little understanding about the etiology of Crohn's disease and ulcerative colitis.[2,3,4] The two diseases are now grouped together and probably have a common origin. In looking at their description, one is reminded of old medical texts in which tuberculosis, amoebic dysentery and typhoid were described before the causative organism was discovered. Yet no true infective agent has been found for ulcerative colitis. Viruses have been suspected, autoimmune mechanisms have been invoked, and physiological causes suggested. Medical treatment, therefore, is still pragmatic although as Dr R. F. Tanton describes, it may still be effective in many cases.

Dr C. E. van Rooyen has pointed out the difficulties in isolating causative organisms in the bowel which has such an irregular affliction and such a wide flora or bacterial infestation. He suggested a research programme in which part of the gut is short circuited and isolated, and careful bacteriological investigation is performed on an isolated segment.

One of the most remarkable aspects of this disease is the local and general manifestation of its relentless course.[2,3,4] Amongst these are pyodermia, eye changes, skin disorders, bone and joint diseases and anklyosing spondylitis, clubbing of the fingers, liver disease and not infrequently carcinomatous transformation of the colon. Fistula formation, haemorrhage, diarrhea, electrolyte imbalance and severe weight loss may occur. Progress of the disease may be devastatingly rapid.

Mrs Aileen Barer, an enterosty therapist from British Columbia who spoke at the Basil Coady Memorial Day, was one of these chronic invalids. "As a young woman I was never more than a few minutes from the bathroom", because of persistent diarrhea from ulcerative colitis. Although she had five children, she could never participate in any of their activities. One day, she met another victim with the disease who had undergone surgery, who had a permanent ileostomy and who wore a special appliance.

Aileen decided to undergo surgery and subsequently learnt from her friend how to manage the stoma and its discharge. She was so successful that she found she could lead a normal life. Skin excoriation, odour, noise and change in body image are just some of the problems with which she contended. With determination, a sense of humour and good equipment, there are few situations that can not be mastered. She determined to counsel others with similar ostomy problems. It took her nearly ten years of voluntary effort before she could convince medical authorities that an ostomy counsellor was necessary. Eventually a doctor who had an ileostomy arranged for an appointment at the hospital. Since then ostomy counsellors have become accepted. Appliances have been refined greatly,[5 6] and co-operation between physicians, surgeons and ostomy counsellors insures an individual siting of the stomata in a comfortable position and the use of the most suitable device.

No longer are rubber bags applied vaguely to a poorly formed stoma. The site of the opening is marked before operation. The appliance has a basic plate, attached to the skin with adhesive and the skin is protected by a barrier cream. One or two piece detachable parts are quickly attached to the plate. Skin excoriation, foul odour and inconvenience should be things of the past. Mrs. Barer was able to change her ileostomy fittings in the toilet of an aircraft en route to the meeting in Halifax.

Dr F. Barton inaugurated an ostomy society at the Halifax Infirmary in 1965. Subsequently, a full-time ostomy counseller has been appointed at the Infirmary, and she has dealt with over 200 stomal problems. The Ostomy Society and the Canadian Federation of Ileostomy are both flourishing organisations. We are pleased to present some extracts from their literature.

"Marcia Framboise" (pseudonym) describes vividly the adaptation after joining this club of brave people who live a normal life despite their unusual intestinal arrangements. Sex, pregnancy, sports, and social activities are all within the realm of the well-adjusted ostomate, although contact sports and certain other activities may be inadvisable.

The most recent development — the continent pouch, is another promising development. Devised by Dr Kock of Sweden, it provides an internal reservoir with a valvular stoma which can be irrigated and emptied 3 times a day, avoiding the necessity of external apparatus. As described by Dr G. P. Konok in this issue, this procedure requires infinite care, but has been very successful in over 300 patients in Goteburg, Sweden.

Until the cause of these devastating inflamatory bowel diseases has been found, we will continue to rely on orthodox methods described in this issue, and it is hoped that all practitioners will make necessary increasing use of the organizations publications and incredible perserverance of the ostomates and their dedicated specialists.

B.J.S.G.

**Some publications on Ulcerative Colitis and Crohn's Disease**


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# A Plea to the General Practitioner


Sheila Layton*


The Canadian Foundation for Ileitis and Colitis is a non-profit organisation, dedicated to education and research related to Crohn's disease and ulcerative colitis. The Nova Scotia chapter was formed in the fall of 1979. A special presentation was made by executive and members, as part of the B. K. Coady Memorial Day held at the Halifax Infirmary. The day was both productive and educational to the members as well as to the medical staff.

The Nova Scotia membership has risen to 92, slightly above the national average and a keen interest has been aroused. The education committee therefore has planned to hold educational information discussions about four times a year.

May I now take the opportunity to invite cordially all General Practitioners and any person interested to attend. Notice will be given for this and all other meetings throughout the year.

Fund raising is of vital importance. Many ideas and projects are being planned. On a national level, grants have been awarded and research commenced in the early part of summer 1980.

In the Halifax and surrounding area there are surgeons, gastroenterologists and others showing a strong interest in the foundation and its members. However, no organisation can be successful in reaching its goals without the whole-hearted involvement and participation of its members and others. In this case that should include the general practioners in the area.

There is a definite lack of interest on the part of many doctors. I strongly urge all family doctors to take a long hard look at their patients with IBD and recognize some of their needs, both physical and emotional. The patient with 'IBD' should not be sloughed off as having "flu" or "A bad case of nerves" which so often tends to happen. Listen to them, take time with them, do more for them. It would certainly help them and perhaps even you. □


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# The Medical Management of Inflammatory Bowel Disease

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## GENERAL CONSIDERATIONS

Ulcerative colitis, a disease limited to the large bowel with occasional terminal ileitis, was described in 1875. Crohn's disease was originally recognized as a disease of the small bowel in the 1930s. Since then, we have come to appreciate the clinical, epidemiologic, and pathologic overlap between these two conditions. While both conditions remain of unknown etiology, these similarities have led to a common therapeutic approach.

It was chiefly in the Fifties and Sixties that controlled studies of various therapeutic modalities were carried out for ulcerative colitis and in the Seventies that similar studies were conducted from Crohn's disease. Certainly, much of our therapy is still empiric and further clinical trials are needed.

In considering any therapeutic approach, it must be remembered that ulcerative colitis can vary in extent from proctitis to pan colitis; in severity, from mild to severe; and in course, from acute disease with exacerbations and remissions to continuous non-responsive disease, to acute fulminant disease with toxic megacolon. Crohn's can involve any part of the gastrointestinal tract from mouth to anus; most frequently it involves both small and large bowel, but it can involve small bowel or colon alone. Both of these conditions can have severe extra-intestinal manifestations involving eyes, liver, skin, kidneys, and joints.

Obviously, then, therapy must be individualized and it is beyond the scope and time limitations of my paper to discuss all the possibilities.

## OUTLINE OF MANAGEMENT

First, I would like to make a few comments concerning general measures, which are well known, but which demand meticulous attention in the optimal management of these serious diseases.

Many of these patients are chronically ill, frequently malnourished, vitamin depleted, worried, and depressed by their illness. They need strong emotional support and reassurance and, although routine psychotherapy is probably not worthwhile, attention to the stresses and concerns of individual patients will be rewarding. Nutritional evaluation is important. These patients are frequently anorectic, catabolic, and they have diarrhea and haematochezia with loss of protein, electrolytes, and iron. They may have malabsorption secondary to bile salt deficiency, mucosal disease, fistulae, bowel resection, or blind loops and they may have varying degrees of bowel obstruction.[1]

There is no good evidence that any generally applied dietary maneuvers are worthwhile; rather, diet should be as nutritious and appetizing as possible with specific attention to individual problems. Specific patients may benefit from a low residue or a lactose-free diet but no generalizations can be made. Supplementation with vitamins, minerals, medium-chain triglycerides, liquid diets, or elemental diets must be individualized. More recently, total parenteral nutrition has been widely used in management of these conditions, allowing prolonged periods of total bowel rest, hoping that this will facilitate healing and that nutritional repletion will encourage healing and improve recovery from surgery. In Crohn's disease total parenteral nutrition may induce a temporary remission but probably does not alter long-term course. In ulcerative colitis total parenteral nutrition does not appear to alter the course of the disease but can help in pre and post operative management.

The use of sedatives and antidiarrheal agents must be individualized and recognition given to the fact the symptoms, for which they might be prescribed, usually imply continued disease activity which should be treated aggressively. Also, the risk of inducing a toxic megacolon with these agents should be remembered; as a generalization, in moderately to severely ill patients, these agents should be avoided. Anticholinergics are mentioned only to discourage their use in inflammatory bowel disease.

## SPECIFIC MEDICATIONS

There are three broad categories of drugs which have been used historically in the treatment of inflammatory bowel disease —anti-inflammatory agents, immunosuppressives, and antibiotics. Anti-allergic medications and immune stimulants have also been tried but with inconclusive results thus far.

The first drug to be considered is Sulphasalazine — a combination of acetylsalicylic acid and sulfapyridine, which is broken down in the colon with absorption and urinary excretion of the sulfapyridine and fecal excretion of salicylate. Although therapeutic effect and side effects have been correlated with serum blood levels of sulfapyridine, it has been found that Sulphasalazine enemas are efficacious[2] and the present feeling is that salicylate through a local effect is the probable active moiety.[3] The drug has been found to be useful in inducing remission in acute mild ulcerative colitis.[4] It is also useful in maintaining remission in ulcerative colitis[5] and most authorities feel it should be used indefinitely in this condition.

The National Cooperative Crohn's Disease Trial of this drug, having randomized 569 patients, showed that Sulphasalazine was useful in inducing a symptomatic remission in patients with Crohn's disease, especially in ileocolonic or colonic disease or previously untreated disease. However, it was less useful if the patient had isolated small bowel disease or had previously been treated with steroids.[6] Sulphasalazine had no additional effect to corticosteroids and had no steroid sparing effect. Further, once remission was induced Sulphasalazine was not useful

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in retaining remission. Usually, however, Sulphasalazine can be said to be worth a try in the acute stage and I continue to use it in the patient in remission. The dose is usually 4 gm. per day for acute disease, with 2 gm. per day maintenance. It is often useful to start low and gradually increase to the therapeutic range to avoid side effects which include nausea, vomiting, headache, and haemolysis. Allergy to this medication is not uncommon.

Corticosteroids are the next drug in our therapeutic armamentarium. At first they were used empirically due to the inflammatory nature of the condition; subsequently controlled trials have proven their efficacy in inducing remission in the acute phase of ulcerative colitis but inducing no effect on the relapse rate when used in long-term therapy.[7,8] Steroids may be used orally or intravenously depending on the severity of the patient's illness and are usually begun in large doses and reduced as the patient's response permits with subsequent introduction of Sulphasalazine. Many experienced clinicians feel that ACTH given intravenously in difficult cases is more efficacious than hydrocortisone; the literature suggests that there is no difference between the two.[9]

In Crohn's disease Prednisone has been recently assessed in the National Cooperative Crohn's Disease Trial and has been useful in inducing improvement. This was noted especially when small bowel disease alone or small and large bowel disease were present but not in large bowel disease alone. After induction of improvement, steroids are not useful for maintenance purposes but are frequently difficult to discontinue. Attempts should be made to use once daily or alternate day dosage to reduce side effects.[11]

The immunosuppressives, Azathioprine and its derivative 6 Mercaptopurine have been used in both ulcerative colitis and Crohn's disease. Their use has been controversial and certainly the 'last word is not in'. In ulcerative colitis it may be useful for allowing a reduction of steroid dosage in continuous disease but good trials are not available and it should be remembered that colectomy is curative in these patients. The controversy truly rages in using these drugs in Crohn's disease. The National Cooperative Crohn's Disease Trial, using 2.5 mg./kg. of Azathioprine for 17 weeks to treat active Crohn's disease, and 1 mg./kg. of Azathioprine for 2 years to assess ability to maintain improvement, concluded that the drug was not useful.[12] Present and Korelitz, however, in a double blind cross-over study over 2 years, in 83 chronically ill patients, using 1.5 mg./kg. of Mercaptopurine, concluded that improvement of overall symptoms, reduction of steroid dosage, and closure of fistulae was seen in the treated group.[13] They also found that the onset of response was frequently longer than three months after initiation of therapy. Side effects include pancreatitis, bone marrow suppression, and the fear of possible induction of lympho-reticular and cutaneous malignancies, although these have not been described in the doses currently being advocated in inflammatory bowel disease. The drug should not be used when the risk of pregnancy is present. Generally, I do not commonly use either Azathioprine or 6 Mercaptopurine for ulcerative colitis as it is rarely necessary and surgical management is curative; in intractable Crohn's disease with intelligent, cooperative patients, where surgery is not readily indicated, and in those who are in no danger of becoming pregnant, 6-Mercaptopurine may be worth a trial.

Briefly, Metronidazole has been reported as being useful in Crohn's disease but controlled studies are not impressive. It may be specifically worthwhile in a dose of 20 mg./kg./day in patients with perineal involvement with Crohn's disease but controlled studies are lacking.[14]

## CONCLUSION

This review has attempted to discuss the present status of the medical management of ulcerative colitis and Crohn's disease. It does not attempt to deal with surgical management which plays such a vital role in treating certain patients. Indeed, optimal management demands close cooperation between physician and surgeon. Nor does the review deal with specific indications for treatment but rather which drugs have been shown to have therapeutic effect. The indications must be totally individualized and to a large extent depend on the severity of each patient's clinical presentation. □

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# The Surgical Treatment of Crohn's Disease and Ulcerative Colitis

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## HISTORICAL BACKGROUND

The history of inflammatory bowel disease goes back to antiquity. Four hundred years BC, Hippocrates knew that diarrhea was not caused by a single disease. In 1859, Sir Samuel Wilks described "the morbid appearance of the intestine of Miss Banks" and coined the term "ulcerative colitis". In 1913, Kennedy Dalziel noted that many of the reports of abdominal tuberculosis were not supported by the demonstration of caseation and acid-fast bacilli and he, himself, reported eight cases with a peculiar chronic inflammation of the small and large bowel. The inflammation was transmural in nature, with the presence of giant cells.

In 1932, Crohn and his co-workers called the condition "terminal ileitis". Bargen, commenting on their paper, remarked upon the sinister connotations of "terminal ileitis" and suggested that the adjective "terminal" be changed to "regional". In the early 1950's, Wells, along with Lockhart-Mummery and Morrison, recognized that there was a colonic variant of this disease which was distinct from ulcerative colitis.

In recent years, clinicians have learned to diagnose Crohn's disease and ulcerative colitis with considerable confidence, although in 10% of cases, (the so-called "colitis undeterminate group") it is still impossible to tell Crohn's disease from ulcerative colitis.[1]

## THE NATURE OF CROHN'S DISEASE

Crohn's disease has the ability to affect any segment of the digestive tract from the mouth to the anus. In general, the small bowel is involved in 60%, ileum-colon in 20%, and colon only in 15% to 20% of cases. Skip lesions of normal bowel, between areas of inflammation, is highly characteristic of Crohn's disease.

Other features favouring the diagnosis of Crohn's colitis include rectal sparing, small bowel involvement, the presence of deep ulcers, rigidity of the bowel wall, the presence of intra-abdominal fistulae and inflammatory masses. Extensive anal and perianal disease occurs almost exclusively in Crohn's disease.

## SIGMOIDOSCOPIC FINDINGS

On sigmoidoscopy, the main feature of Crohn's disease of the rectum is the localized, rather than diffuse, pattern of the lesions. These lesions may be small, erythematous areas, linear ulcerations or more extensive undermining ulcers. The submucosal vascular pattern can usually be recognized in the less affected areas.

Thus, the diagnosis of Crohn's disease should be made if on performing the sigmoidoscopy, the rectal mucosa of a patient with radiological signs of colitis is normal or involved in a patchy manner.

## SURGICAL MANAGEMENT

Surgeons must always remember that since the results of surgical treatment are, in many cases, unsatisfactory, Crohn's disease should be viewed, primarily, as a medical disease. Moreover, we must not assume that an operation is necessitated by the failure of medical management, but rather, that we need to co-ordinate the different medical and surgical modalities within our disposal in treating the various manifestations of a disease, for which we do not have a specific cure.

In a recent study from the Cleveland Clinic, Farmer and associates[2] have shown that there are highly significant differences in the indication for surgical treatment, depending on the location of the disease. In their series for patients with disease confined to the small bowel, the primary indications for surgery were intestinal obstruction, intestinal fistulae and intra-abdominal abscesses.

In patients with involvement of the ileocolic segment, intestinal fistulae, intra-abdominal abscesses, bowel obstruction and severe perineal disease were the most common indications. Patients with Crohn's colitis had significantly more diverse surgical indications, such as poor response to medical therapy, the presence of fistulae and abscesses, toxic megacolon and severe perinal disease.

The complications of Crohn's disease of the small bowel are treated mainly by resecting the involved segment.

Attempts to extirpate all visible signs of intra-abdominal disease have not only failed to improve surgical results but, in fact, have led to increased operative mortality and post-operative morbidity. Furthermore, there is no evidence to date, that the recurrence rate, on the whole, is substantially lower when the involved segment is resected with a wider margin of normal bowel.[3]

Intestinal bypass operations are no longer favoured and are only performed when the patient's generally poor condition, as well as the the presence of extensive intra-abdominal inflammation and sepsis, make bowel resection too hazardous or technically, too difficult.

In treating Crohn's colitis, several options are available to the surgeon. If the colitis involves only a short segment, it may be possible to do a limited resection with anastomosis. But, all too frequently, the disease is extensive and requires a wide excision, such as colectomy and ileostomy, proctocolectomy and ileostomy, colectomy and ileorectal anastomosis.

In about 25% to 30% of patients with Crohn's colitis, the rectum is normal or only minimally involved. In these patients, a colectomy, with an ileorectal anastomosis, can

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be considered. Unfortunately primary anastomosis has had a high incidence of post-operative complications, such as anastomotic dehiscence and intra-abdominal sepsis, as well as a recurrence rate of up to 60%.[4]

At the present time, when indicated, it is safer to perform the operation in two stages. In the first stage, a colectomy with a conventional ileostomy is carried out. About a year later, provided the rectum remains normal, the ileostomy is taken down and an ileorectal anastomosis is performed. The patient should be warned that a recurrence is a very real possibility and, in such cases, the rectum must be removed and the ileostomy must be re-established.

## RESULTS OF SURGERY

The recurrence of Crohn's disease in surgically treated patients has been a major problem. The reported overall recurrence rate after resection varies widely from 3% to 62%.[4,5,6] DeDombal, analyzing the Leeds' experience, notes that the recurrence rate varies with the site of the disease and the type of operation, with the age of the patient, and the length of follow-up.[7] The recurrence rate following small bowel resection is close to 60%, the recurrence rate is 52% following proctocolectomy.

Looking at the factor of age, we see that at the second decade of life, the recurrence rate is 52% and, then progressively drops to about 7% for patients 60 years of age or older.

There is evidence to suggest that the timing of the recurrence has an important bearing on the final outcome. In the group of patients, who experienced an early recurrence of the disease (less than five years), 17% eventually died and 45% of the survivors were dissatisfied with the outcome of the treatment.

The overall mortality in the group with late recurrences (5-10 years following surgery) was only 5% and 95% of these survivors were satisfied with the outcome of their treatment. In addition, the incidence of recurrence increases with the length of follow-up, as evidenced in Goligher's series which show 18% recurrence after five years, and 43% after 15 years of follow-up.

In the group of patients, who experienced an early recurrence of the disease (less than five years), 17% eventually died and 45% of the survivors were dissatisfied with the outcome of the treatment. The over-all mortality in the group with late recurrences (5-10 years following surgery) was only 5% and 95% of these survivors were satisfied with the outcome of their treatment.

## NATURE OF ULCERATIVE COLITIS

In contrast to Crohn's disease, ulcerative colitis involves only the colon, with the exception of the so-called "backwash ileitis" which is found in 10% of the cases. The rectum is uniformly involved, although it may look remarkably normal in patients treated with steroid enemas. The disease usually involves the rectum and the left colon, less frequently the rectum alone (ulcerative proctitis) and, sometimes, the entire colon (pancolitis).

## SURGICAL MANAGEMENT

Before the early 1950s, the severe complications associated with an ileostomy restricted the use of a proctocolectomy or colectomy to only the most critically ill patients. By 1952, Brooke, Crile and Turnbull achieved such good results with the eversion-type ileostomy, that surgery could be offered to patients suffering from chronic ill-health and diarrhea.

In recent years, the indications for surgery have changed considerably. Due to earlier recognition of complications and more aggressive medical management, emergency operations for ulcerative colitis have become much less frequent.

## SURGICAL EMERGENCIES

At present, non-responsive fulminating disease, toxic dilation, perforation and haemorrhage remains the main indication for emergency surgical intervention. In these cases, intensive medical treatment, lasting up to 48 hours should be initiated. In most instances patients will respond favourably, but those who fail to do so will be better prepared for major surgery. In the latter situation, abdominal colectomy, with a conventional ileostomy, is carried out. If the patient's general condition permits, the rectum may be removed at the same time.

Recognizing the high operative mortality and morbidity of the emergency colectomy or proctocolectomy, lesser procedures have been advocated in certain instances. In the surgical treatment of toxic megacolon, Turnbull[8] has reported good results with the use of an ileostomy and multiple "blowhole" colostomies. In my own experience, such temporising measures have failed to reduce operative mortality and morbidity.

## ELECTIVE PROCEDURES

The indications for an elective operation include the persistence of incapacitating diarrhea, urgency or rectal tenesmus. These patients are rarely suitable for a total colectomy and ileorectal anastomosis, with most of them requiring proctocolectomy and permanent ileostomy.

Patients operated upon for chronic ill-health, may have relative rectal sparing. In this group, with proper patient selection, total colectomy with an ileorectal anastomosis may give good long-term results in up to 70% of the cases.[9] The development of cancer in the rectal stump is a possibility, but, in most of the series reported, this has not been a significant problem. If the rectum is markedly involved with the disease, then a standard proctocolectomy should be performed.

## CANCER RISK

During the past 25-30 years, the substantially increased risk of colonic cancer in chronic ulcerative colitis has been widely appreciated.[10] Pancolic involvement, the onset of the disease in childhood, a continuous rather than intermittent course, and a duration longer than 10 years, all enhance the probability of developing colonic cancer.

These carcinomas may arise in any segment of the colon, are usually flat and infiltrating, and may be multifocal. They can be extremely difficult to identify on endoscopic or radiological examination. While there is no conclusive evidence that carcinomas associated with ulcerative colitis are biologically more aggressive than ordinary colon cancers,[11] they do tend to be diagnosed at a more advanced stage and carry a poorer prognosis. The best approach to the cancer problem remains controversial.

## PREVENTION AND RECOGNITION OF CANCER

Proctocolectomy offers the surest prophylaxis, but it unnecessarily sacrifices the rectum in a large number of patients who would otherwise never develop cancer of the colon. Total colectomy with endorectal pull-through circumvents this problem but its performance can be technically very demanding.

In recent years, selected patients in some centres have been followed by regular endoscopic and radiological examinations. At endoscopy, multiple colonic and rectal biopsies are taken. The presence of pre-cancerous dysplasia in any of the biopsy specimens would be an indication for removal of the colorectum. The preliminary results of this selective approach appear promising, but a larger experience and longer follow-up are needed for a critical evaluation.

## RECENT ADVANCES

In recent years, proctocolectomy with the construction of a continent reservoir ileostomy (the so-called "Kock's pouch"), represents a significant advance in the surgical treatment of ulcerative colitis. Although the majority of patients with a newly construed, conventional ileostomy adapt satisfactorily to the situation, a significant number do experience problems in coping with their stoma.

Skin irritation and maceration, leakage from the bag, offensive odours, the passage of large amounts of gas into the bag, psychological and sexual difficulties are some of the possible difficulties the patient with a conventional ileostomy must face. These problems have been diminished but have not been completely eliminated, by careful surgery and modern enterostomal therapy and appliances.

With these problems in mind, Kock, in 1969 devised the continent reservoir ileostomy in order to provide complete continence of flatus and stool, thus obviating the need for an external appliance.[12] In its original form, the reservoir was continent in only 50% of cases.

In 1973, Kock devised the "nipple valve" at the outlet of the reservoir.[13] Further technical modifications have diminished the incidence of valve slippage, the major complications of this procedure. In Kock's personal series out of 44 patients most recently treated, only four required revision for a slipped nipple valve. The long-term results of this procedure are largely dependent upon proper patient selection, on the meticulous attention to technical details in performing the operation, and careful post-operative management.

The advantages of a well-functioning continent reservoir ileostomy are many. The stoma is placed low in the right lower quadrant and can be easily hidden by a bathing suit or undergarment. The need for an external appliance is totally eliminated. The daily care of the ileostomy is minimal, and it requires intubation only three to four times a day, for 5-10 minutes, to empty its contents.

Patients, whose conventional ileostomies have been converted into a continent reservoir ileostomy seem to be uniformly delighted with the improved quality of their lives. As Doctor Kock has recently stated, during his visit to Halifax, the continent reservoir ileostomy has passed the stage of being an experimental procedure and should be offered to all patients, who indicate a desire to have it.

## CONCLUSIONS

Significant advances have been made in the surgical treatment of ulcerative colitis and Crohn's disease. The trend has been moving towards a more selective surgical approach, towards the development of sphincter-saving procedures and towards the technical improvements in the continent ileostomy. No doubt, there will be further developments in the future, but only by elucidating the etiological factors in these diseases, now can we hope to place their treatment on a firm foundation. □

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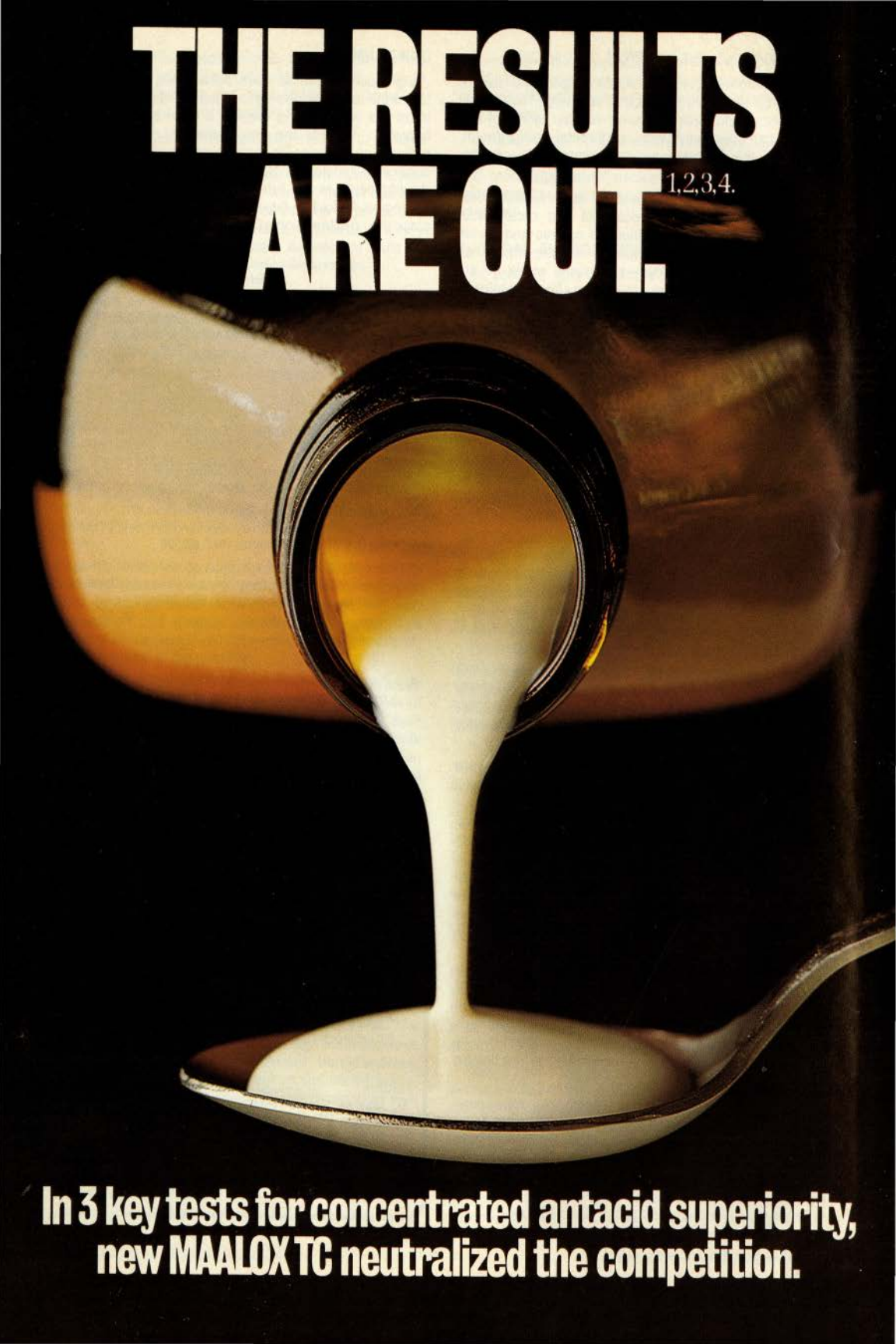
# THE RESULTS ARE OUT.[1,2,3,4.]



**In 3 key tests for concentrated antacid superiority, new MAALOX TC neutralized the competition.**

# HIGHEST

## Neutralizing capacity.

| | |
|---|---|
| Maalox TC (ml) | 15.7 |
| Concentrate B | 16.2 |
| Concentrate C | 16.4 |
| Concentrate D | 17.6 |
| Concentrate E | 18.5 |

The volume of antacid needed to neutralize 80 milliequivalents (mEq) of Acid[9] was determined by the Acid Neutralizing Capacity test.

In a comparison with the leading concentrated antacid suspensions currently on the market, Maalox TC scored highest in potency. Only 15.7 ml of Maalox TC was required to neutralize the acid.

These test results showed Maalox TC to be the most potent antacid concentrate. And because less dosage volume may be required, Maalox TC can offer greater patient compliance.

# LOWEST

## Sodium content.

| | |
|---|---|
| Maalox TC (mg) | 3.55 |
| Concentrate D | 5.70 |
| Concentrate E | 10.77 |
| Concentrate B | 25.43 |
| Concentrate C | 27.50 |

The results of the second test show the amount of sodium which would be ingested with sufficient antacid to neutralize 80 mEq of acid.

Once again, Maalox TC came out on top with 3.55 mg Na/80 mEq, the lowest sodium content of all major antacid concentrates. An important consideration in the treatment of patients on sodium restricted diets.

# LONGEST

## Duration of effectiveness.

| | |
|---|---|
| Maalox TC (min/5 ml) | 49 |
| Concentrate C | 42.5 |
| Concentrate B | 42 |
| Concentrate D | 39 |
| Concentrate E | 36 |

B[5], C[6], D[7] Parke-Davis; E[8] F.W. Horner.

The final test (Rossett-Rice) compared duration of neutralization while controlling pH between 3.0 and 5.0.

Each antacid concentrate was introduced into an initial amount of acid (representing the acid normally found in the stomach). And to simulate the physiological response of the stomach, further acid was secreted at a continuous rate.

As final proof of antacid concentrate superiority, Maalox TC showed a significantly longer duration of effectiveness.

And that can mean longer lasting relief for your patient.


Maalox TC offers a therapeutically balanced formulation designed to minimize changes in bowel motility.

And in addition to this, Maalox TC can promote greater patient compliance with its excellent taste and consistency.

Maalox TC. Now the very best antacid relief you can give your ulcer patients.[1,2,3,4]

# PRESCRIBING INFORMATION

INDICATIONS: A high potency antacid for the treatment and relief of the symptoms of peptic ulcer and severe hyperacidity related disorders.

CONTRAINDICATIONS: Alkalosis, hypermagnesemia; where distension may be due to partial or complete intestinal obstruction. Not recommended for severely debilated patients or those with impaired renal function.

PRECAUTIONS: Magnesium salts, in the presence of renal insufficiency, may cause CNS depression. Aluminum hydroxide, in the presence of low phosphorous diets, may cause phosphorous deficiency. Aluminum salts tend to cause constipation. Magnesium salts tend to cause loose stools.

Do not administer concomitantly with tetracycline antibiotics or iron preparations.

DOSAGE: 5-10 ml 4 times a day, taken 20 minutes to 1 hour after meals and at bedtime. Higher dose regimens may be employed under the direct supervision of a physician in the treatment of active peptic ulcer disease.

SUPPLIED: Each 5 ml of sugar-free peppermint flavoured suspension contains 600 mg of aluminum hydroxide (equivalent to dried gel) and 300 mg of magnesium hydroxide. Sodium content: 1.13 mg/5 ml. Available in 340 ml bottles.

REFERENCES:
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The United States Pharmacopeia, 20th edition, July 1, 1980.
2. The Rossett-Rice Test – Rossett, N.E., Rice, J., Gastroenterology 26, 490 (1954).
3. Standard Sodium Content Test.
4. Independent tests conducted June, 1980. Data available on request.
5. $Mg(OH)_2$ 400 mg; $Al_2(OH)_3$ 400 mg; 30 mg simethicone/5 ml.
6. $Mg(OH)_2$ 400 mg; $Al_2(OH)_3$ 400 mg/5 ml.
7. $Mg(OH)_2$ 400 mg $Al_2(OH)_3$ 400 mg/5 ml.
8. $Mg(OH)_2$ 300 mg; $Al_2(OH)_3$ 600 mg/5 ml.
9. Gastrointestinal Disease, Sleisenger, M.H.; Fordtran J.S.; 1973, Saunders, Philadelphia.

Full prescribing information available on request.

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# HIGHEST POTENCY[4]
# LOWEST SODIUM CONTENT[4]
# LONGEST DURATION OF EFFECT.[4]

# Role of the Enterostomal Therapist in the Care of the Ostomy Patient

Carolyn Vickers,* B.Sc., N., E.T.,
*Halifax, N.S.*

Prior to 1967 little attention was given to the needs of the ostomy patient. Patients experienced difficulties with odor, skin excoriation, and emotional problems due to a lack of counselling and inadequate appliances. Dr. Robert Turnbull of the Cleveland Clinic, Cleveland, Ohio, recognized the special needs of ostomy patients and trained the first Enterostomal Therapist. Their role is to provide pre- and post-operative specialized care for the ostomy patient, instructing them in the management of the stoma, and supporting their emotional and social rehabilitation. Today with the availability of trained staff, improved appliances, and well constructed stomas, ostomates rarely have skin problems and can return to a normal active life.

In the past year approximately 200 individuals had ostomy surgery in the Halifax Metro Hospitals. These patients appear to fall into two groups. Approximately seventy percent required surgery due to cancer, while the remainder had illnesses such as ulcerative colitis, Crohn's disease, diverticulitis, fistula formation, and congenital abnormalities. During pre-operative teaching all patients experienced similar concerns; but the needs of each group were somewhat distinct and different. All patients faced with the prospect of ostomy surgery exhibit a great deal of anxiety about body change and loss of body function, physical care of their stoma, self-image, and acceptance by family, friends, and society. Patients facing ostomy surgery, after having suffered with a long term illness such as ulcerative colitis, may be more accepting of surgery because of the relief it may offer. However, those individuals faced with the prospect of surgery due to a malignancy have other major fears. Their concerns centre on whether the malignancy has metastasized and if further treatment will be required. All patients appear more accepting of ostomy surgery when given appropriate information and support.

## STOMA SITE

Often the Enterostomal Therapist is requested by the surgeon pre-operatively to mark the stoma site. Choosing the correct stoma site is most important for the post-operative self-care of the patient. There are a number of general considerations which must be taken into account. First observe the patient's abdomen in a lying, sitting, standing and bending position. Then taking into account these observations a spot is chosen: 1) usually below the umbilicus; 2) in the rectus sheath muscle; 3) avoiding skin folds, scars and bony prominences; 4) in a location where the patient can see the stoma; 5) avoiding the belt line; and 6) considering the patient's life style. After evaluating all of these factors, mark the chosen site by injecting methylene blue dye intradermally.

*Enterostomal Therapist, Halifax Infirmary, Halifax, N.S.

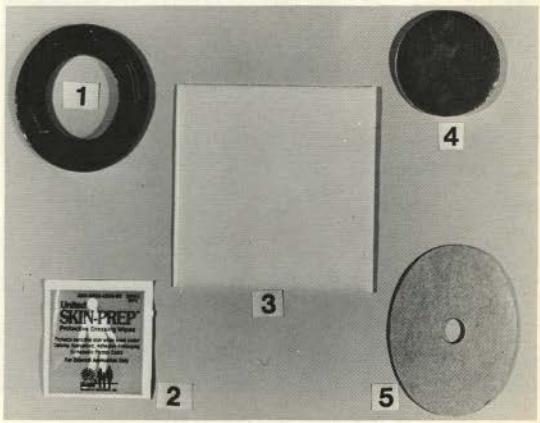
## HYGIENE

Hygiene is a major concern of the patient. Patients must be assured that they can continue bathing as previously with or without their appliance. There are a few recommendations that the patient should follow: 1) do not expose the stoma to hot water because of a lack of nerve endings in the stoma; 2) use a mild soap such as Ivory to prevent skin irritation; 3) avoid use of bath oils and creams which interfere with the adherence of the appliance; and 4) shave the hair under the appliance to prevent irritation to the hair follicles, if hair growth is excessive.

With the availability of odor proof appliances and proper cleaning technique, an odor problem should not exist for the patient. In most cases appliances should be cleaned daily, but changed only once or twice a week. Excessive changing of the appliance may lead to skin breakdown.

## SKIN BARRIERS

One of the greatest problems encountered by the ostomy patient is skin excoriation. In order to prevent this condition, a skin barrier must be applied before securing the appliance, and it should cover all the skin beneath an appliance to the base of the stoma. Patients with a history of allergies should be skin-tested for the skin barrier being considered.




**SKIN BARRIERS**

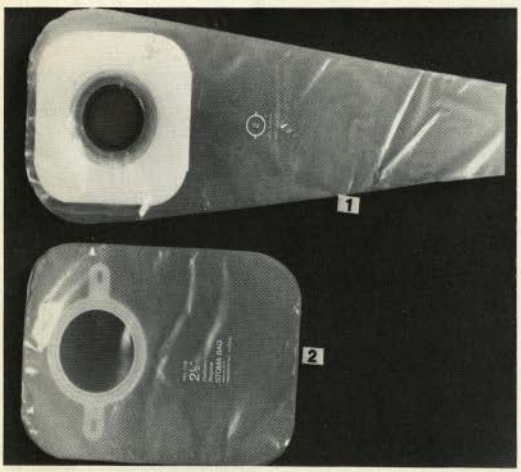
1. Karaya Ring 2. Skin Prep Wipe 3. Stomahesive 4. Colly Seel 5. Reliaseal

## APPLIANCES

In choosing a suitable appliance one must consider the following: 1) length of stoma; 2) location of stoma; 3) body contour; 4) body weight; and 5) abdominal firmness.

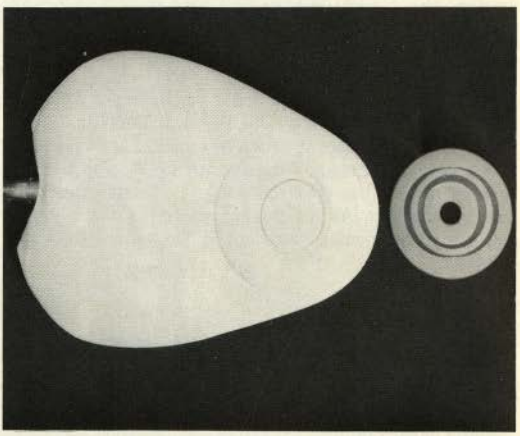
**COMMONLY USED SKIN BARRIERS**

| PRODUCT | MANUFACTURER | COMPOSITION | USE |
|---|---|---|---|
| **Colly Seel** | Mason Laboratories | — Karaya, glycerine, and amalgums<br>— available in discs. 2 - 4 inches | — may be moistened before applying<br>— colostomy, ileostomy, and urinary diversion<br>— less resistant to melting than plain Karaya |
| **Reliaseal** | Davol | — similar to Stomahesive, a mixture of pectin, methylcellulose, and paraffin<br>— a double-faced disc<br>— available round or oval | — white side is applied to patient's skin<br>— blue surface paper is removed and the adhesive applied to the pouch or faceplate<br>— colostomy, ileostomy, or urinary diversion |
| **Stomahesive** | Squibb | — a mixture of pectin, methylcellulose, and paraffin<br>— shiny surface of polyethylene<br>— white release paper<br>— available in 4 × 4 and 8 × 8 | — for use in colostomy, ileostomy and urinary diversion<br>— good for any irritated skin<br>— will adhere to weepy skin |
| **Karaya** | United<br>(Formula "A")<br>MARLEN<br>(Protex Powder Pads) | — a gum from tree species Sterculia<br>— a Polysachoride | |
| | Greer<br>(Derma Guard)<br>Marsan<br>Skin Barrier Seals<br>ATLANTIC | — in solid form a mixture of Karaya and glycerine<br>— available as washers and 8 × 8 sheets | — colostomy, ileostomy, enterocutaneous fistula, decubitis ulcers<br>— not suitable for urine as it absorbs moisture |
| **Skin Prep** | United-Division of Howmedica | — Isopropanol 79%: Butyl. Mon Ester Dimethyl Phthalate | — Tough coating forms which bond to the skin.<br>— Colostomy, ileostomy, urinary diversion |




1. Disposable drainable appliance
2. Disposable Closed end appliance

Disposable appliances are discarded after being worn once. They are a one-piece plastic appliance with an adhesive backing which adheres to the skin. A skin barrier should be applied first. A disposable appliance may have either a drainable or a closed end. A patient who has control of his colostomy, through means of a regularly scheduled irrigation, may wear a closed end pouch for security.



Re-usable appliance and Faceplate

A permanent or re-usable appliance is worn and washed again. It usually consists of a faceplate or mounting ring, and a vinyl or rubber pouch. A skin barrier is applied to the skin before application of the appliance. Faceplates may be soft, firm, round, oval, flat, or convex. The choice of faceplate depends on the patient's abdomen. Faceplates or appliances which are too large will lead to skin excoriation, encrustation, and leakage. Openings which are too small will traumatize the stoma.

## DIET

There is no such thing as an ostomy diet. An ostomy patient must eat a well-balanced diet and follow Canada's Food Guide. Following surgery new foods are introduced in small amounts on a gradual basis. Foods that caused problems prior to the illness will probably continue to do so. Foods should not be eliminated from the diet unless they become troublesome. Following is a list of foods which may cause or eliminate certain problems:

| PROBLEM | CAUSE | TREATMENT |
|---|---|---|
| **Flatus** | cabbage, corn, beer, turnip, cucumber carbonated beverages beans, cauliflower, peas-dried, broccoli, melons, saurerkraut | yogurt, buttermilk |
| **Odor** | cheese, asparagus, fish, beer, eggs cabbage, onions, certain drugs | parsley, yogurt, buttermilk, cranberry juice (urinary odor) |
| **Constipation** | | increase fluids, Bran, Prunes, whole grain cereals |
| **Diarrhea** | | apple sauce, bananas, rice, peanut butter |
| **Obstruction** | popcorn, nuts, seeds and pits, celery coconut, corn-on-cob, Chinese vegetables, pineapple | |

## LIFE STYLE

During teaching sessions patients are encouraged to resume their former lifestyle. They should be told to avoid situations which increase abdominal pressure or incur direct blows to the stoma. In most situations the patient is able to return to his former employment, interests, and hobbies.

Shown above from left to right are Dr. Ronald T. Tanton, Dr. Albert Mendeloff, Dr. Nils Kock, and Dr. George Konok.

Ostomy Counsellors Mrs. Aileen Barer (left) and Miss Carolyn Vickers (right).

Following discharge from hospital it is recommended that the patient be seen in follow-up by an Enterostomal Therapist to ensure that the patient is adjusting on all levels. Physicians may refer patients to the following for after care:

Mrs. Geraldeen Collins, R.N., E.T.
St. Rita's Hospital, Sydney
539-3740 Ext. 217

Mrs. Sheila MacKean, R.N., E.T.
Aberdeen Hospital, New Glasgow
752-8311 Ext. 275

Mrs. Shirley Sullivan, R.N., E.T.
Yarmouth Regional Hospital
742-3541

Ms. Carolyn Vickers, R.N., B.Sc.N., E.T.
Halifax Infirmary
Air Page 453-2640, Beeper #881

### PATIENT'S LITERATURE

### UNITED OSTOMY ASSOCIATION:

1. Ileostomy: A Guide
2. Urinary Ostomies: A Guide For Patients
3. Colostomies: A Guide
4. All About Jimmy
5. Sex and the Male Ostomate
6. Sex, Pregnancy and the Female Ostomate
7. Sex, Courtship and the Single Ostomate

### HOLLISTER LIMITED:

1. Managing A Urostomy
2. Managing Your Colostomy
3. Managing Your Ileostomy
4. A Teenager's Ostomy Guide

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List of available literature can be obtained from local United Ostomy Association Chapter. □

# Trials and Triumph of an Ostomate

"Marcia Framboise"

I am an ostomate. I am still me but with a slight alteration . . . the passage that was behind is now "befront" (a word coined by our firstborn at age 2). I am also a homemaker and the mother of two young adults. Surgery for my ileostomy was performed 3 years ago and I was hospitalized for 3 months because my electrolytes went out of balance. I had had previous surgery for malignant cancer and consider myself very fortunate that chemotherapy or other treatment was not required. I was lucky that the perineal infection I had while in hospital did not recur. My knowledge of ostomy surgery was very vague. I reckoned that I had about two more years to live and I was one of the fortunate ones — I tucked this little idea deep in my heart . . and accepted it.

My road to recovery was slow but steady. With a weight loss of 25 to 30 lbs. it would take time to get back on my "pins". To describe the awful hunger pangs . . . life was a continuous meal . . .(and the meals zipped through me within the hour) . . . I was so hungry I felt I could eat a horse and chase the rider!

The frustrations of finding the correct appliance for my individual needs . . the costly experiments . . (I later learned the necessity of *the proper stoma site* had everything to do with correctly fitting appliances). After a year of trial and error I found my answer! However for another year I still had the uncertain feeling that I might leak and wouldn't stray far from home without an "extra". I rapidly became expert at locating washrooms when "out on the town", carrying my folded milk carton for rinsing purposes.

Three months post-op at the suggestion of my surgeon and the enterostomal therapist who visited me in hospital, I attended a meeting of the local chapter of the United Ostomy Association. I was upset because I didn't know what they were talking about and could not understand the terminology. If I had had the voice of the experienced ostomate visitor to "clue me in" before my discharge from hospital, my recuperation would have been swifter and easier.

The chapter members were able to give me the assistance and information that was necessary. How to eat . . . chew thoroughly, exhale and swallow thus avoiding gas . . . literally it as a mini-course in nutrition. Potassium, salt and plenty of fluids were necessary to keep the body chemistry balanced . . . these lessons are all second nature to me now. Like the boy scout motto "be prepared" . . it is wise to travel with some oatmeal bars in your pocket. *Eating at regular hours is a must.*

In time the "hollow-leg syndrome" passed as the bowel takes over or adjusts. I was ill and now I am well. Family, relatives and friends were loving and understanding. This certainly helped me.

The turning point in my outlook came in 1978 at the Atlantic Conference of the U.O.A. . . My ears could not believe what they were hearing. Sam Penny had been an ostomate for over 30 years . . WOW! Much progress had been made since the antiquated rubber-caged equipment first worn by Sam. Today there is a wide choice of equipment on the market for the ostomate . . and research is still being done for improvements. Lectures by the surgeons, urologists and medical specialists were interesting and informative.

At the start it took me 30 minutes to change appliances . . now, somewhat like a popular deodorant commercial . . . . "Boom, you've got it on, you feel secure, there is no odour, it lasts all week . . and can be done in ten minutes!" I have learned so much and am sincerely grateful for those who helped me along the way. I now lead a full and active life.

As a royal example, our gracious Queen Mother Elizabeth, an ostomate, shows us that life as an ostomate can be lived with dignity. □

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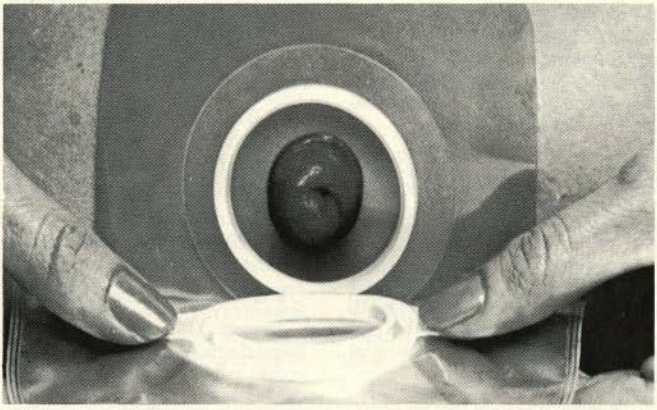
Now

# Ostomy care is a simpler matter



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SQUIBB
Stoma care

# Some Frequently Asked Questions About Ileitis and Colitis*

## AN OVERVIEW

**1. Question:** What are Ileitis and Colitis?

**Answer:** Ileitis is a condition characterized by inflammation of the small intestine. The terminal (or lower) part of the small intestine (ileum) is most commonly involved. Ileitis is sometimes also called Crohn's disease, which may affect any part of the small or large intestine.

Colitis is a condition characterized by inflammation of part or all of the colon (large intestine). You must understand, however, that sometimes the term "colitis" is used very loosely. Some patients are told they have "mucous colitis". This is NOT a real colitis, and is not accompanied by the same medical problems as are the real forms of bowel inflammation.

**2. Question:** These diseases are known by many different names — enteritis, colitis, ulcerative colitis, Crohn's disease, granulomatous disease, regional enteritis, ileitis, ileocolitis, etc. What do these terms mean, and what are the differences among them?

**Answer:** All of these terms refer to inflammatory diseases of the intestinal tract. (Inflammatory Bowel Disease or IBD). The average person has about 20 feet of small intestine and about 5 feet of large intestine, or colon. The section of colon closest to the anus is called the rectum.

Inflammation of any of the small intestine can be called enteritis (from the Greek word *enteron* for intestine). Inflammation of the colon is called 'colitis'.

The most common form of chronic colitis is known as 'ulcerative colitis', which is an ulcerating inflammation of the inner lining of the colon, always involving the rectum, and usually causing bloody diarrhea.

Ulcerative colitis which is limited to the rectum is called 'ulcerative proctitis'. In 90% of cases this remains confined to the rectum.

A second major category of inflammatory bowel disease affecting deeper layers of the intestinal wall is called 'Crohn's disease' (named after the gastroenterologist who, with Doctors Ginzburg and Oppenheimer, described the condition in 1932).

Crohn's disease has also been called 'granulomatous disease' of the bowel (named for the granuloma, a characteristic feature in this specific inflammatory process visible under the microscope).

When Crohn's disease affects one or more segments of small intestine, it is called 'regional enteritis'. When the involvement is in the lower half of the small intestine (the ileum), where it occurs most commonly, it is called 'ileitis'.

When the same disease process involves the large intestine, or colon, it is referred to as 'Crohn's disease of the colon, or granulomatous colitis'. Unlike ulcerative colitis, granulomatous colitis often spares the rectum, but it is frequently combined with involvement of the ileum, in which case the combined process is called 'ileocolitis'. These are confusing terms, and in the remainder of this brochure we will simply use the terms Crohn's disease and ulcerative colitis.

**3. Question:** Are Crohn's disease or ulcerative colitis a part of some general disorder, or are they conditions of the intestine alone?

**Answer:** These inflammatory conditions are what we call 'systemic' diseases in the sense that they may involve other parts of the body other than the bowel. These extra-intestinal manifestations may involve skin, joints, kidneys or blood.

**4. Question:** How common are Crohn's disease and ulcerative colitis.

**Answer:** Exact figures for Canada are unknown and estimates vary widely between 20,000 and 200,000. The true number probably lies between these two. It is known that 2,000 new cases are diagnosed in Canada each year and that these diseases are increasing in frequency.

**5. Question:** Are these diseases inherited?

**Answer:** We cannot predict whether children will develop these diseases if one or both of their parents have ileitis or colitis. Indeed the overwhelming majority of patients with ileitis and colitis have normal children. On the other hand, from a statistical point of view, patients with ileitis or colitis do have approximately one chance in ten of having other cases of Crohn's disease or ulcerative colitis among their blood relatives. The conditions may skip generations or may appear in successive generations. There are some families in which many members have Crohn's disease, or in which one family member has Crohn's disease and another has ulcerative colitis.

**6. Question:** Do these diseases occur often in children, and does the illness differ from that in adults?

**Answer:** About 15% of those affected have symptoms which begin before age 16. Unfortunately the outlook is often worse than in adults, in that the complication rate is higher and, therefore, surgery is required more often. Delayed growth may occur if the onset is before puberty, but medical treatment may prevent these developmental problems.

**7. Question:** Is anything known about the cause of Crohn's disease or ulcerative colitis?

**Answer:** The cause of these diseases remain unknown. There is considerable evidence to suggest that in some persons with these diseases, *allergic-like* reactions (impaired cellular immunity) occur in the tissues of the intestinal tract. This means that the body's defense mechanisms are operating against some materials in the digestive tract which they recognize as being foreign. But, what initiates this reaction in the body (eg, viruses, bacteria, food substances or other kinds of toxic agents) remains a mystery. What starts as a defense may then become the disease. It is clear, however, that neither ileitis nor colitis are caused by "bad nerves".

*Reprinted from a booklet available from The Canadian Foundation for Ileitis and Colitis.

**8. Question:** Are Crohn's disease and ulcerative colitis transmissable or infectious?

**Answer:** Neither ulcerative colitis nor Crohn's disease is in any way contagious or infectious in the usual sense. Some scientists suspect that one of the underlying causes may be a virus in a form which will attack only certain genetically susceptible people. Some of the current research supports the viral cause but this is by no means proven. Recall that we are considering the conditions Crohn's disease and ulcerative colitis. The cause of these conditions is unknown. However, there are some known agents which cause inflammation of the bowel. These agents include certain drugs, as well as certain infectious organisms: Salmonella, Shigella, Yersinia, and Campylobacter. Your doctor will check your stool samples to ensure that you do not have one of these agents causing your condition. If these infectious agents are not found, then the cause of your disease will be considered to be 'idiopathic' or unknown, and a diagnosis of Crohn's disease or ulcerative colitis may be made.

**9. Question:** Why is it thought that Crohn's disease and ulcerative colitis might be auto-immune diseases?

**Answer:** The term, "auto-immune" diseases, refers to any one of many conditions in which the body's defense mechanisms appear to be attacking its own tissues, almost as though the body had somehow become allergic to part of itself. There are a number of features of Crohn's disease and ulcerative colitis that resemble this type of "auto-allergic" or "auto-immune" reaction: the usual young age of patients affected, the appearance of the pathologic changes in the intestinal tissues, the associated complications that sometimes involve the skin or joints or eyes, abnormalities that may occur in various blood tests, and the favourable response to certain "anti-allergic" drugs such as cortisone. It must be emphasized, however, that these so-called "auto-immune" features are really quite nonspecific. The same features may be seen in a wide variety of inflammatory diseases, infections, and other conditions. To refer to Crohn's disease and ulcerative colitis as "auto-immune", therefore, should in no way imply that the basic causes of these diseases are known or understood.

**10. Question:** Do ileitis and other forms of Crohn's disease have the same cause as ulcerative colitis?

**Answer:** This has been a source of debate among scientists for many years. Some feel that the cause is the same and the different types of inflammation are due to the different locations of the disease process. Others feel that they are two unrelated disease processes and share only the fact that they involve intestinal tissue. More research is required to clarify this important question.

**11. Question:** Is it important for my doctor to distinguish between ulcerative colitis and Crohn's disease?

**Answer:** Yes, because the medications and need for surgery may be different.

**12. Question:** To what extent are ileitis and colitis psychosomatic diseases?

**Answer:** Most physicians today doubt that emotional problems cause Crohn's disease or ulcerative colitis. On the other hand, most would also agree that emotional factors influence the course of the disease — just as they influence the course of most other chronic diseases. Though acute emotional problems may immediately precede the onset or recurrence of these diseases, certainly not all people with similar emotional problems develop Crohn's disease or ulcerative colitis.

**13. Question:** Can psychotherapy cure or at least help control these diseases?

**Answer:** Since no medical cure is known and the clinical course of these diseases can be so varied and unpredictable, it is simply not possible to make any dogmatic statement about whether psychotherapy does or does not help. Some patients seem to benefit from psychiatric treatment while others do not. Perhaps the best general rule to adopt is that if patients have emotional problems that seem to be affecting their health or otherwise disturbing their lives, then psychiatric help should be considered. If the help is successful, then the course of the ileitis or colitis may coincidentally be benefited. However, in no case should a patient be treated to psychotherapy alone.

## DIETS AND NUTRITION

**14. Question:** Are special diets important in the control of these diseases?

**Answer:** Special diets may be prescribed by your physician and nutritionist. For example, you may require more calories, or a diet containing a specific proportion of protein or fat. Usually this can be achieved by making some modest adjustments to your usual family meals. There is no need to exclude any foods from your diet, except in the case of milk intolerance or rare specific food allergies.

**15. Question:** Is there a special diet for Crohn's disease and ulcerative colitis?

**Answer:** No. Many patients tolerate all varieties of food and require no dietary restrictions. Others, particularly when their disease is active, find a low-fiber diet more tolerable than a diet containing high fiber and spicy foods. The low-fiber diet requires less work on the part of the small and large intestines for transportation and digestion. This might be beneficial in the control of abdominal cramps and diarrhea. Overall nutrition, however, is more important than any consideration of the consistency of the food. If the patient has an appetite for specific foods but not others, he should not be denied them even if they are spicy or rough.

In special instances of Crohn's disease when the area of inflammation is narrowed, a very low roughage or even a liquid diet may be necessary. Often this diet need be only temporary until the inflammation which causes the narrowing responds to medical treatment.

Individual experience is the most useful guide in the selection of foods. The advice of a dietician is often most helpful.

**16. Question:** Is nutrition important to patients with Crohn's disease and ulcerative colitis?

**Answer:** Yes. Good nutrition is one of the assets the body can utilize in its restoration to health. This is important to recognize for several reasons. Firstly, diseases such as Crohn's disease and ulcerative colitis are often associated with a reduced appetite so good nutrition may not be easy to achieve. Secondly, chronic diseases mean chronic physical stress and this requires a constant replenishing of caloric energy. Thirdly, Crohn's disease and ulcerative colitis are characterized by diarrhea with associated loss of

protein, fat, carbohydrates, water, minerals, and vitamins. Restoration of adequate nutrition is a key principle in the management of inflammatory bowel disease.

**17. Question:** Should milk be avoided?

**Answer:** In general no. Many people cannot properly digest lactose because they are lacking an enzyme in their small intestine called lactase. Undigested, lactose may then lead to cramps, gas and diarrhea. Lactose intolerance is common enough for patients with these diseases to be especially careful about symptoms related to milk ingestion since this problem would compound the symptoms they already have. Don't avoid milk unless instructed to do so by your doctor, since milk is a rich source of protein, vitamin D, calcium, and calories. If you do have lactose intolerance, lactase enzyme additive may be of value.

**18. Question:** Are these diseases caused by allergy to food?

**Answer:** No. Though some people do have allergic reactions to certain foods, Crohn's disease and ulcerative colitis are not related to food allergy. Patients with these diseases may feel they are allergic to foods because they associate their symptoms with eating. However, the abdominal cramps, diarrhea, and urgency are produced in a non-specific manner by the reaction of their inflammatory bowel disease to a host of different foods. This will depend primarily on the degree of inflammation present. This reaction is certainly not due to allergy to any specific agent and should not lead, as it sometimes does, to prolonged avoidance of a long list of foodstuffs because of a presumed allergy.

**19. Question:** Do patients with these diseases absorb food normally?

**Answer:** Mostly, yes. Patients with ulcerative colitis alone absorb food normally since food is not absorbed in the large intestine. Patients with Crohn's disease may have problems absorbing what they eat since the small intestine is where nutrients are absorbed into the body. The problem will depend on how much small intestine is diseased and whether or not parts of the small intestine have been removed surgically. If only the last foot or two of ileum are inflamed, absorption of all nutrients except vitamin $B_{12}$, probably will be normal. If more than two or three feet are removed surgically or diseased, more significant malabsorption may occur, especially of the fat in the diet. If extensive removal of the small intestine has occurred or if the upper small intestine, the jejunum, is also inflamed, then the degree of malabsorption is much worse, and deficiencies of many nutrients are likely to result. Consult your doctor to determine if your nutritional status is impaired and whether you require dietary counselling or testing of your body's ability to absorb nutrients.

**20. Question:** In patients with malabsorption of fat, what dietary supplements are available?

**Answer:** If fat is absorbed poorly, not only does nutrition suffer but diarrhea is worsened as well. Therefore, a reduction in fat content of the diet may be advised. To make up for this deficit in dietary fat, patients can substitute another kind of fat. Ordinary fat consists of long hydrocarbon chains and the substitute contains only medium chains so the latter is called medium chain triglycerides or MCT. MCT is much more easily absorbed than regular fat in patients with ileal disease and fat malabsorption. It is available as an oil and can be ingested directly or incorporated into the diet. This should only be used in certain situations; your doctor and dietician should work together to decide if you need it.

**21. Question:** Should any supplemental vitamins be taken?

**Answer:** Vitamin $B_{12}$ is absorbed in the terminal ileum, so patients with ileitis may require injections of Vatamin $B_{12}$ because they cannot absorb enough $B_{12}$ from their diet. If patients are eating a low-fiber diet, they will often be receiving an inadequate supply of certain vitamins common in fruits and vegetables such as Vitamin C and folic acid. In the setting of chronic inflammatory disease and a sub-optimal diet, it is probably worthwhile for patients to take a multivitamin preparation on a regular basis. In patients with malabsorption or a markedly shortened small bowel, the fat soluble vitamins may be required, but only under the direction of a physician. Too much Vitamin A or D is as dangerous as too little.

**22. Question:** Are any special minerals recommended?

**Answer:** In most patients with these diseases, there is no obvious lack of minerals. However, in patients with extensive small intestinal diseases or removal, and in those with fat malabsorption, calcium and magnesium supplements may be necessary. Iron therapy is helpful to correct anemia due to iron deficiency, but not the anemia due to deficiency of the folic acid, Vitamin $B_{12}$, or due to the chronic inflammatory disease itself. As with any other medication, there may be side effects, and the therapy should be individualized.

**23. Question:** Should patients with these diseases be concerned about fluid intake?

**Answer:** Yes. In a condition with chronic diarrhea, the risk of dehydration is always present. If fluid intake does not keep up with fluid loss via diarrhea, kidney function may be affected. Patients with ileitis and colitis have an increased incidence of kidney stones, partly related to this problem. For these reasons, ample fluid should be consumed by patients with these diseases, especially in warm weather when skin losses of salt and water are a factor.

**24. Question:** Are kidney stones in ileitis related to diet?

**Answer:** In patients with ileal removal of at least two feet, malabsorption of fat *may* occur. If this happens, this *may* result in an increase in absorption of dietary oxalate. If too much oxalate is absorbed, it *may* lead to kidney stones. Dietary prevention can be instituted under these circumstances. This should include a low oxalate diet and a low fat diet, possible with supplements of calcium. The following foods are high in oxalate content: spinach, cocoa, beans rhubarb, beet roots, instant coffee, and diet soda. Consult your doctor and dietician to determine if you need to restrict your oxalate intake or increase your calcium intake.

**25. Question:** Does nutrition affect growth?

**Answer:** In young patients with the onset of Crohn's disease or ulcerative colitis before puberty, normal growth is often delayed. This is mostly an effect of poor dietary intake, poor absorption, or markedly increased requirements of nutrients to allow the body to respond to the inflammatory process. In a few patients with impaired

nutrition, intensive prolonged nutritional supplementation by intravenous infusion has resulted in growth spurts. In some cases, surgical removal of the colon (colectomy) or removal of the ileum is necessary to permit normal growth.

**26. Question:** What is new in nutritional therapy that might pertain to Crohn's disease and ulcerative colitis?

**Answer:** Because inflammatory bowel disease seems to improve if it is put at rest, several new approaches are being evaluated. One is the giving of large quantities of nutrients via intravenous infusion into a vein, a method called total parenteral nutrition (TPN), or hyperalimentation. This can be maintained for a matter of weeks or months, and may be useful in allowing very active disease to subside, and in preparing patients nutritionally prior to surgery.

Another new approach is the use of an "elemental" or "astronaut" diet. This is thought to be completely absorbed in the upper small intestine with no residue so that the lower small bowel is kept at rest. It consists of basic nutritional elements that do not require extensive digestion before absorption.

Even when effective in helping the inflammatory process to subside, there is no assurance that the return to a normal diet after either form of treatment will not be followed by reactivation of the disease. This reactivation may occur immediately, but may not occur for weeks, months or a few years.

## MEDICATIONS

**27. Question:** Have any new treatments been discovered that promise to be of help in ileitis and colitis?

**Answer:** The principal drugs used to treat these diseases today are Salazopyrin® and steroids (cortisone, prednisone, and ATCH). Steroids have their main role in treating the severely ill patient to reduce inflammation and to restore good health. The main role of Salazopyrin® is to prevent recurrences of inflammation. Salazopyrin® is a maintenance drug, a drug which is taken for many years to prevent the frequency and severity of relapses. ACTH and cortisone derivatives are not maintenance drugs, their dose should be reduced and stopped when the patient's symptoms are quiescent. Sometimes, however, the patient may continue to require a low dose of steroid to suppress the bowel inflammation.

Imuran® is being used with some success in conjuction with steriods, in certain patients with Crohn's disease and ulcerative colitis, particularly if the patient is developing significant side effects from steroids. Other newer treatments are presently under study, but no dramatic therapeutic break-through is foreseen in the immediate future. Much prolonged and meticulous research is still required.

Anti-diarrheal drugs may relieve symptoms without specific effect on the ileitis or colitis, and such drugs are often of great value. There are many products which may be described to assist in the control of your diarrhea. The names of some commonly used drugs include Codeine, Lomotil®, Imodium®, and Metamucil®.

**28. Question:** What are the long-term effects of steroids?

**Answer:** Roundness of the face, acne, hairiness, softening of bones, diabetes, cataracts, and red stretch marks of the skin can complicate steroid therapy of any illness in proportion to the dosage and length of time used. It must be stressed that while there is a long list of possible side effects, the side effects are usually mild particularly when the steroids are used in a small dose. Clearly the benefit of steroids must be carefully weighed against potential side effects, and the steroids must be used wisely. However, if the steroids need to be used, they will usually help to make you feel better, have less pain and diarrhea, and allow you to regain a normal sense of well-being.

**29. Question:** Is there a possibility of a vaccine being created that could counter-act the susceptibility to ileitis or colitis?

**Answer:** Only if some virus or bacterium is found to be the casual agent and is then isolated.

**30. Question:** What about the possibility of transplanting intestinal tissue?

**Answer:** For both small and large bowel, transplantation is a number of years away, mainly because they are technically very difficult organs to transplant. Until some way of curing or at least ameliorating rejection is found, these transplants will have to wait.

## PREGNANCY AND PARTNERS

**31. Question:** Are women with Crohn's disease and ulcerative colitis less likely to conceive than women who are completely well?

**Answer:** Ulcerative colitis does not interfere with fertility, and it is uncertain whether men or women with Crohn's disease are less fertile than normal. If the couple has difficulty conceiving, more enthusiastic treatment of smouldering disease in the affected partner is indicated. Of course, partners may suffer from infertility from causes other than Crohn's disease or ulcerative colitis, and your doctor may be able to determine if there is a treatable cause to allow conception to proceed.

**32. Question:** Are men with ulcerative colitis or Crohn's disease less able to father children?

**Answer:** There are no careful studies on this point. It is possible that he may be unable to engage in sexual intercourse during times when he is very sick with inflammatory bowel disease, but this would be expected to improve as the bowel inflammation is controlled.

**33. Question:** Is there any medical justification for a therapeutic abortion in the patient with inflammatory bowel disease?

**Answer:** No. While the decision to have an abortion on psychological or social grounds is a very personal matter, there is no medical reason why a therapeutic abortion may be needed, since an abortion does not usually benefit the course of the mother's bowel inflammation.

**34. Question:** Does the presence of an ileostomy prevent intimate relations and the conception of children?

**Answer:** No, most couples learn to adapt psychologically and sexually to the presence of an ileostomy. In fact, because the affected partner may feel energetic with the improved health sometimes achieved with an ileostomy, the joys of union may be enhanced.

**35. Question:** What influence does ulcerative colitis have on the course of the pregnancy, the delivery and the fetus?

**Answer:** Ulcerative colitis usually has no undue influence on the pregnancy, the delivery, or your baby. Nevertheless, with increasing severity of the bowel inflammation the risk of miscarriage is higher than normal. If the woman has few symptoms from the ulcerative colitis at the time of conception, then the risk of recurrence of symptoms is no greater than if she were not pregnant. If the ulcerative colitis is active at the time of conception, then the symptoms may worsen during the pregnancy. For this reason, it is usually advised that the couple practice birth control to avoid conception during periods of active inflammation.

**36. Question:** What influence does Crohn's disease have on the course of the pregnancy, the delivery, and the fetus?

**Answer:** Crohn's disease usually has no undue influence on the pregnancy, the delivery, or your baby. However, if the disease is severely active during the pregnancy, the risk of miscarriage is higher.

**37. Question:** Does the extent of involvement of the Crohn's disease or the ulcerative colitis influence the course of the disease during pregnancy?

**Answer:** There is little information available on this subject.

**38. Question:** Does ileitis or colitis ever begin during pregnancy or during the period after the baby has been delivered?

**Answer:** There have been many reports of ulcerative colitis starting during pregnancy, usually in the first three months. Onset of Crohn's disease has been reported less frequently during pregnancy.

Both diseases starting at this time are often severe.

There have also been many reports of onset for the first time of ulcerative colitis during the period after the delivery of the baby, but only a few instances of ileitis have begun at this time.

**39. Question:** Is there any contraindication for using Salazopyrin for treatment of ileitis or colitis during pregnancy?

**Answer:** Remember that the major role of Salazopyrin has been in the prevention of attacks rather than in treatment of the sick patient. If the Salazopyrin had been used prior to the pregnancy and has been well tolerated, then the drug is usually continued throughout the pregnancy to prevent relapses. There are no known cases of birth defects due to Salazopyrin. The newborn, however, has a greater susceptibility to jaundice, a common problem in newborns. This is *not* a reason to stop the drug in the last few weeks of pregnancy. You should make sure that your obstetrician *and* pediatrician are aware that you are taking this drug.

**40. Question:** Is there any reason against the use of steroids during pregnancy?

**Answer:** If there is a recurrence of symptoms during pregnancy or the disease requires presistent therapy, steroids should be continued during and pregnancy, and even when the mother is nursing. There are no proven cases of birth defects due to steroids.

**41. Question:** Is there any reason why Imuran should not be continued during pregnancy?

**Answer:** Yes. Once the pregnancy has been initiated, this drug should be stopped because of the potential genetic damage to the fetus. If conception occurs while a woman with Crohn's disease or ulcerative colitis is being treated with immunosuppressive drugs, a therapeutic abortion may be warranted.

**42. Question:** Does previous surgery for ileitis endanger the pregnancy?

**Answer:** No. If the surgery has resulted in the removal of the disease the likelihood for conception and a normal pregnancy and delivery improve.

**43. Question:** Is surgery for Crohn's disease or ulcerative colitis ever performed during pregnancy?

**Answer:** If severe bleeding or perforation of the bowel occur during pregnancy, surgery is required just as it would be if the woman were not pregnant. When there are no serious complications such as bleeding or perforation every effort is made to avoid surgical intervention until term.

**44. Question:** Does the presence of an ileostomy endanger the pregnancy?

**Answer:** No. There are, however, individual instances of miscarriages and small bowel obstruction. Episiotomy has presented no particular problem unless the disease is complicated by a perirectal or perineal abscess or fistula. Under these circumstances Cesarian section is sometimes indicated. Generally, a vaginal delivery is preferable.

**45. Question:** If one pregnancy is complicated by active disease, is the same experience to be anticipated for future pregnancies?

**Answer:** The behaviour of the disease during one pregnancy will not necessarily be repeated in future pregnancies.

**46. Question:** What is the role of emotional factors in pregnancy and in the period after delivery?

**Answer:** If there is emotional stress associated with the pregnancy or coincident with homecoming in the period after delivery, the symptoms from the disease may be worsened just as it would be independent of pregnancy. This in no way implies that emotional factors *cause* either Crohn's disease or ulcerative colitis.

**47. Question:** Should I breast feed my baby?

**Answer:** Yes, most doctors recommend breast feeding as the best food for your baby. Breast feeding is a pleasant experience and will bring you and your baby closer together. You may continue taking your medications while breast feeding.

## SURGERY

**48. Question:** Can Crohn's disease and ulcerative colitis be cured by surgery?

**Answer:** For all practical purposes ulcerative colitis can be cured by removing the entire colon and establishing an ileostomy.

In the case of Crohn's disease affecting the colon, removal of the colon and establishing an ileostomy does not invariably prevent the re-appearance of the disease at a later time in another segment of the remaining intestine. For Crohn's disease of the small intestine, surgery may be required for severe complications, but once again, there is the risk that the inflammation will return at a later date.

**49. Question:** When is surgery required?

**Answer:** Surgery may be required to remove a portion of badly diseased bowel which has given rise to the complications of bleeding, blockage, or rupture (perforation) of the bowel. Surgery may also be recommended if the symptoms from the disease are severe and intolerable despite medical therapy.

**50. Question:** What exactly are an ileostomy and colostomy?

**Answer:** If a surgeon cuts across the lower small intestine (ileum), brings the cut end to the outside of the body through a hole in the front of the abdominal wall, sews the end to the skin, and fits a plastic bag around the hole to collect the intestinal juices which flow out of the intestine, the cut end of the intestine protruding out of the hole in the abdominal wall is called an 'ileostomy' (ileum + *stoma,* Greek for mouth, hence, hole or opening). A colostomy is the same, except that the cut end is in the colon, or large intestine, instead of the ileum. Ileostomies and colostomies may be either temporary or permanent, depending upon the particular situation.

Colostomies are rarely indicated for Crohn's disease.

**51. Question:** What is a continent ileostomy?

**Answer:** A "continent ileostomy" (Kock) may be made behind the abdominal wall so that no appliance is required. This Kock ileostomy is an ileostomy in which part of the healthy small intestine is fashioned to make an artificial reservoir so that a bag does not have to be worn. This type of ileostomy is appropriate for some cases of ulcerative colitis but never in Crohn's disease.

**52. Question:** If surgery does not prevent the spread of ileitis, why is it ever performed?

**Answer:** Because there are complications of the ileitis such as obstruction, perforation, or abscess formation which warrant correction, often urgently, so that the risk of spread has to be taken. If new disease does occur later, it is often easier to treat than the original involvement. Furthermore, it might not recur for many years.

**53. Question:** If surgery is necessary for ulcerative colitis, is an ileostomy essential?

**Answer:** In some cases when the rectal segment is not markedly involved the colon can be removed and the small intestine can be sewed to the remaining rectum. Some have done well with this operation though they may have as many as 4-8 bowel movements daily and require anti-diarrheal drugs for control. On the other hand, the small remaining rectal segment may still be the site of active ulcerative colitis and its potential complications. Gastroenterologist are not enthusiastic about this operation.

**54. Question:** What is a fistula?

**Answer:** A fistula is an abnormal connection between two hollow structures (eg. intestine to intestine, intestine to bladder), or between intestine and skin. A sinus tract is an abnormal channel, with a blind end rising from intestine in the tissue around the anus. Complicated fistulae occur about the anus and rectum in Crohn's disease. Fistulae are not characteristic of ulcerative colitis though they occasionally occur between rectum and vagina.

**55. Question:** Can anything be done to prevent the recurrences after surgery for Crohn's disease?

**Answer:** Controlled experiments are now being conducted with those drugs known to have any effect at all against granulomatous inflammation in an attempt to find the answer to this question. So far, studies with Salazopyrine® and steroids have *not* shown any benefit.

**56. Question:** Do people with Crohn's disease or ulcerative colitis develop cancer?

**Answer:** Cancer of the small intestine where ileitis usually occurs is an exceedingly *rare* disease. But after many years of involvement with ileitis, the risk of cancer in the small intestine may be slightly higher than in people who don't have ileitis.

More is known about the potential risk of cancer of the large intestine, or colon, as a complication of ulcerative colitis. The risk is significantly greater than in the average population but usually occurs in those persons in whom all of the colon has been actively involved with inflammation for at least 10 years. Many potential candidates for complicating cancer will already have had their colon removed for earlier complications so that colon cancer never had the chance to appear. Patients in the high risk group should be followed carefully by their doctor with annual barium enema examinations as well as sigmoidoscopy with biopsy.

Concerning Crohn's disease of the colon, the risk of colonic cancer might be higher than that for people without inflammatory bowel disease, but this has not been proven, and certainly the risk is much less than in those persons with longstanding ulcerative colitis.

**57. Question:** What can be done to recognize cancer of the colon at its earliest stage?

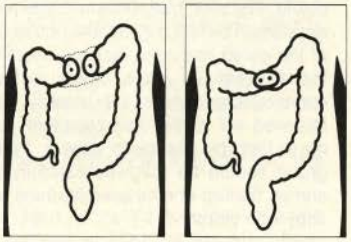
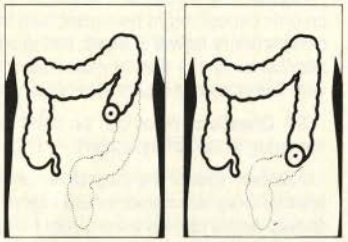
**Answer:** Even if the ulcerative colitis is inactive, a barium enema X-ray examination and sigmoidoscopy with biopsy should be performed once a year in the high risk patient, ie. in patients with total involvement of the colon having the disease for more than ten years. Lesser involvement for less than ten years requires less frequent checks. There is also some evidence indicating that changes in the rectal tissue might forecast an increased risk of cancer higher in the colon. To check this, a tiny piece of the rectal tissue, called a biopsy, can be removed for examination microscopically by a pathologist.

**58. Question:** Even though the prospect of a cure cannot be held out at this time, what can patients with these diseases hope for with present-day treatment?

**Answer:** It is important to remember that most patients with these diseases live the majority of their lives free of symptoms. Many lead essentially normal lives, with long periods of no symptoms, or at worst mild complaints; then periodically they will be unwell for several weeks and then may be totally well or nearly well for another prolonged period. The diseases behave somewhat as does the spectrum of chronic lung, heart or skin disorders for which we also have no definite curative treatment because we have not yet identified the causes.

The principal drugs in use today for treating the symptoms of these diseases are far better than they were 20 years ago, and one can hopefully expect that the newer and more experimental treatments presently under study will lead to improvement in understanding and therapy, and that ultimately, intensive and meticulous research will reveal the underlying cause of these diseases. □

# Common types of ostomies*

| Ostomy | Affected area | Effluent |
|---|---|---|
| Ileostomy (Ileostomate) |  | A continuous discharge that is soft and wet. The output is somewhat odorous and contains intestinal enzymes that are irritating to peristomal skin. |
| Transverse Colostomy (Colostomate) |  | Usually semiliquid or very soft. Occasionally, transverse colostomy discharge is firm. Output is usually malodorous and can irritate peristomal skin. Double-barreled colostomies have *two* openings. Loop colostomies have one opening, but two tracks—the active (proximal) which discharges fecal matter, and the inactive (distal) with a mucous discharge. |
| Descending Colostomy/ Sigmoid Colostomy (Colostomate) |  | Semisolid from descending colostomy. Firm from sigmoid colostomy. Usually discharge is malodorous and irritating to peristomal skin. Frequency of output is unpredictable and varies with each ostomate. |
| Urinary Diversion (Ileal Loop, Ileal Conduit) (Urostomate) |  | Urine only. Output is constant. Mucous is expelled with urine. Mild odor, not very irritating to skin unless urine is infected. Segment of ileum is used to construct stoma. This surgery is permanent. |
| Ureterostomy (Urostomate) |  | Urine only. Output is constant. Mucous is expelled with urine. Mild odor, not very irritating to skin unless urine is infected. Ureters are brought to the surface for urine excretion. |
| Bilateral Ureterostomy (Urostomate) |  | Urine only. Output is constant. Mucous is expelled with urine. Mild odor, not very irritating to skin unless urine is infected. Ureters are brought to either side of the body—*two* openings. May be permanent or converted to ileal conduit later. |

| Skin barrier option | Appliance/pouch option | Type appliance* | Need for irrigation |
|---|---|---|---|
| Highly desirable for peristomal skin protection | Pouch necessary at all times | Drainable, open-end | None |
| Highly desirable for peristomal skin protection | Pouch necessary at all times | Drainable, open-end | None |
| May be used for peristomal skin protection if pouch is worn | Pouch is optional. Some ostomates regulate their output—naturally or by irrigation | Closed end, disposable or open-end drainable for ostomate with fairly constant output | Yes, but *only* with permission of physician |
| May be used for peristomal skin protection | Pouch necessary at all times | Drainable, open-end pouch with spout | None |
| May be used for peristomal skin protection | Pouch necessary at all times | Drainable, open-end pouch with spout | None |
| May be used for peristomal skin protection | Two pouches necessary at all times | Drainable, open-end pouches with spout | None |

*Pouch may be reusable or disposable depending on personal preference

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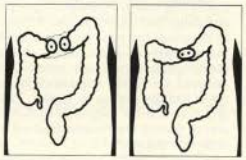
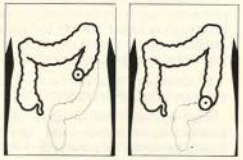
| Transverse Colostomy (Colostomate) |  | Usually semiliquid or very soft. Occasionally, transverse colostomy discharge is firm. Output is usually malodorous and can irritate peristomal skin. Double-barreled colostomies have *two* openings. Loop colostomies have one opening, but two tracks—the active (proximal) which discharges fecal matter, and the inactive (distal) with a mucous discharge. | Highly desirable for peristomal skin protection | Pouch necessary at all times | Drainable, open-end | None |
| Descending Colostomy/ Sigmoid Colostomy (Colostomate) |  | Semisolid from descending colostomy. Firm from sigmoid colostomy. Usually discharge is malodorous and irritating to peristomal skin. Frequency of output is unpredictable and varies with each ostomate. | May be used for peristomal skin protection if pouch is worn | Pouch is optional. Some ostomates regulate their output—naturally or by irrigation | Closed end, disposable or open-end drainable for ostomate with fairly constant output | Yes, but *only* with permission of physician |
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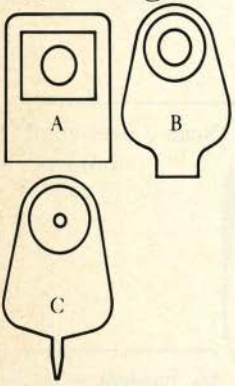
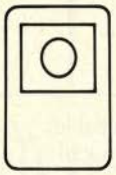
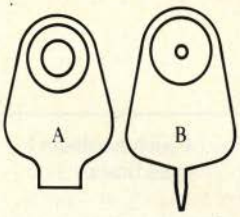
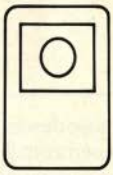
| Bilateral Ureterostomy (Urostomate) |  | Urine only. Output is constant. Mucous is expelled with urine. Mild odor, not very irritating to skin unless urine is infected. Ureters are brought to either side of the body—*two* openings. May be permanent or converted to ileal conduit later. | May be used for peristomal skin protection | Two pouches necessary at all times | Drainable, open-end pouches with spout | None |

*Pouch may be reusable or disposable depending on personal preference

| Temporary, or disposable pouch | | Permanent, or reusable pouch | |
|---|---|---|---|
| **Drainable** | **Closed-end** | **Drainable** | **Closed-end** |
| **Use** | | | |
| When regulation cannot be established and contents must be emptied frequently throughout day. | When bowel regulation has been established by natural methods or irrigation—usually used for "security." | Same as "Temporary." | Same as "Temporary." |
| **Basic Design** | | | |
|  A-B. Wide opening for draining fecal discharge<br>C. Narrow valve opening for urine or liquid drainage (Usually 1 piece)<br>Available in transparent or opaque materials |  No opening to empty<br>(Usually 1 piece)<br>Available in transparent or opaque materials |  A. Wide opening for draining fecal discharge<br>B. Narrow valve opening for urine or liquid drainage<br>(Available in 1 or 2 piece)<br>Available in transparent or opaque materials |  No opening to empty<br>(Available in 1 or 2 piece)<br>Available in transparent or opaque materials |
| **Faceplate** | | | |
| Flexible or firm support faceplate can accommodate most body contours and can be custom-made to fit most stomas. | Flexible or firm support faceplate can accommodate most body contours and can be custom-cut to fit most stomas. | Flexible or firm support faceplates can be custom-made to accommodate most body contours and stomas. | Flexible or firm support faceplates can be custom-made to accommodate most body contours and stomas. |
| **Comfort and Esthetics** | | | |
| Pouch covers provide maximum comfort and protection of skin.<br>These pouches are generally lightweight, comfortable and invisible under clothing, depending on type of faceplate used. | Pouch covers provide maximum comfort and protection of skin.<br>These pouches are generally lightweight, comfortable and invisible under clothing. | Pouch covers provide maximum comfort and protection of skin.<br>These pouches may be bulky and show under tight clothing. | Pouch covers provide maximum comfort and protection of skin.<br>These pouches may be bulky and show under tight clothing. |
| **Wearability and Durability*** | | | |
| From 2-7 days depending on type of "gasket" used.<br>Usually for single use. | Meant to be changed daily or every other day per irrigation schedule.<br>Usually for single use. | *1 or 2 Piece*<br>Meant to be changed weekly or longer depending on "gasket" used.<br>*1 Piece*<br>Vinyl lasts 1-2 mos.<br>Rubber lasts 3-6 mos.<br>*2 Piece*<br>Faceplates last months, even years.<br>Pouches:<br>Vinyl lasts 1-2 mos.<br>Rubber lasts 3-6 mos. | *1 Piece*<br>Meant to be changed daily or every other day per irrigation schedule.<br>*2 Piece*<br>Pouch can be removed, leaving faceplate intact for irrigations if preferred.<br>*1 Piece*<br>Vinyl lasts 1-2 mos.<br>Rubber lasts 3-6 mos.<br>*2 Piece*<br>Faceplates last months, even years.<br>Pouches:<br>Vinyl lasts 1-2 mos.<br>Rubber lasts 3-6 mos. |

*These are generalizations and length of time will vary from individual to individual and manufacturer to manufacturer.

# Medications

## General considerations for the ostomate

### Effects of medication[1]

| | Colostomate | Ileostomate | Short bowel* syndrome | Urostomate |
|---|---|---|---|---|
| **Dosage Forms** | | | | |
| Chewable tablets | 1 | 1 | 1 | 1 |
| Enteric-coated tablets | 3 | 4 | 4 | 1 |
| Sustained-release medication | 4 | 4 | 4 | 3 |
| Liquid medication | 1 | 1 | 1 | 1 |
| Gelatin capsules | 1 | 1 | 3 | 1 |
| **Compounds** | | | | |
| Alcohol | 1 | 1 | 1 | 1 |
| Antibiotics (poorly absorbed) | 1 | 5 | 5 | 1 |
| Antidiarrheal agents | 1 | 1 | 1 | 2 |
| Calcium-containing antacids | 2 | 2 | 2 | 5 |
| Corticosteroids | 1 | 2 | 2 | 2 |
| Diuretics | 1 | 5 | 5 | 2 |
| Magnesium-containing antacids | 2 | 5 | 5 | 1 |
| Opiates | 1 | 1 | 1 | 1 |
| Oral contraceptives | 1 | 1 | 3 | 1 |
| Salicylates | 1 | 1 | 1 | 1 |
| Salt substitutes | 1 | 5 | 5 | 1 |
| Stool softeners | 1 | 2 | 2 | 1 |
| Sulfa drugs | 1 | 1 | 1 | 2 |
| Vitamins | 1 | 2 | 2 | 1 |

1 = probably no adverse effects
2 = possible adverse effects
3 = possibly ineffective
4 = avoid; ineffective
5 = avoid; harmful

*A condition due to repeated surgical resections of the bowel resulting in a short small intestine.

[1]Adapted from Karlstrand, J.: The Pharmacist And The Ostomate, Vol. NS 17, No. 12, Dec. 1977.

# Diet tips for the ostomate

## ILEOSTOMATES & COLOSTOMATES

**Blockage** may be caused by: high fiber foods, seeds, corn, celery, popcorn, nuts, coleslaw, chinese vegetables, coconut macaroons, grapefruit, raisins, dried fruit, fried foods, apple skins, orange skins.

**Loose bowels** may be caused by: green beans, broccoli, spinach, highly spiced foods, raw fruits, beer.

**Gas production** may be caused by: foods from the cabbage family, onions, beans, cucumbers, radishes, beer.

**Odor-producing** foods include: cheese, eggs, fish, beans, onions, vegetables of the cabbage family, some vitamins or medications, asparagus.

**Reduction in fecal odor** may be obtained by consuming cranberry juice, buttermilk or yogurt.

## UROSTOMATES

In most cases, urostomates enjoy a completely normal diet.

Cranberry juice, yogurt, or buttermilk will help combat urinary odors. Asparagus should be avoided by urostomates, as it produces a strong odor in urine.

# Drugs which discolor urine[2]

| Drug | Color Produced |
|---|---|
| **Urine** | |
| Acetanilid | Yellow to red |
| Aminopyrine | Red |
| Aminosalicylic acid (Pamisyl®) | Discoloration |
| Amitriptyline HCl (Elavil®) | Blue-green |
| Antipyrine | Yellow to red |
| Cascara | Yellow to red |
| Chloroquine (Aralen®) | Yellow to brown |
| Chlorzoxazone (Paraflex®) | Orange to red |
| Danthron (Dorbane®) | Pink to red |
| Diphenylhydantoin (Dilantin®) | Pink to red to red-brown |
| Ethoxazene HCl (Serenium®) | Orange to red |
| Ferrous salts | Black |
| Furazolidone (Furoxone®) | Rust yellow to brown |
| Indandiones | Orange |
| Indomethacin (Indocin®) | Green |
| Levodopa (Dopar®, Larodopa®) | Dark |
| Methocarbamol (Robaxin®) | Dark on standing |
| Methyldopa (Aldomet®) | Red to black on standing |
| Methylene blue | Blue-green |
| Metronidazole (Flagyl®) | Dark |
| Nitrofurantoin | Rust yellow to brown |
| Pamaquine (Plasmochin®) | Rust yellow to brown |
| Phenacetin | Dark brown to black on standing |
| Phenazopyridine HCl (Pyridium) | Orange to red |
| Phenolphthalein | Red in alkaline urine |
| Phenolsulfonphthalein (PSP) | Red in alkaline urine |
| Phenothiazines | Pink to red to red-brown |
| Phensuximide (Milontin®) | Pink to red to red-brown |
| Primaquine phosphate | Rust yellow to brown |
| Quinacrine HCl (Atabrine®) | Yellow |
| Quinine | Brown to black |
| Resorcinol | Green |
| Riboflavin (vitamin $B_2$) | Yellow |
| Rifampin (Rifadin®, Rimactane®) | Red-orange |
| Salicylazosulfapyridine (Azulfidine®) | Orange-yellow in alkaline urine |
| Senna | Yellow to red |
| Sulfonamides | Rust yellow to brown |
| Tolonium (Blutene®) | Blue-green |
| Triamterene (Dyrenium®) | Pale blue fluorescence |
| Warfarin sodium (Coumadin®) | Orange |

# Drugs which discolor feces[3]

| Drug | Color Produced |
|---|---|
| **Feces** | |
| Antacids, aluminum hydroxide types | Whitish or speckling |
| Antibiotics, oral | Greenish gray |
| Anticoagulants, all | Pink to red to black* |
| Bismuth-containing preparations | Black |
| Charcoal | Black |
| Ferrous salts | Black |
| Heparin | Pink to red to black* |
| Indomethacin (Indocin®) | Green |
| Phenazopyridine (Pyridium®) | Orange-red |
| Phenylbutazone (Butazolidin®) | Pink to red to black* |
| Pyrvinium pamoate (Povan®) | Red |
| Salicylates, especially aspirin | Pink to red to black* |
| Senna | Yellow |

*These colors may indicate intestinal bleeding.

[2,3]Knoben, J. E. et al., Handbook of Clinical Drug Data, 3rd Ed., Drug Intelligence Publications, Hamilton, Illinois, 1973.

# The Beginnings and Progress of the Metro Halifax Chapter of the United Ostomy Association

*A MUTUAL AID COLOSTOMY, ILEOSTOMY, UROSTOMY ORGANIZATION DEDICATED TO THE INTEREST, REHABILITATION AND WELFARE OF PERSONS WHO HAVE UNDERGONE OSTOMY SURGERY.*

Mary O'Connor,*

The United Ostomy Association, Metro Halifax Chapter, first known as the Nova Scotia Ostomy Association, had its organizational meeting in October 1972. Through the instigation and encouragement of Dr. F.J. Barton, Chief of Staff, Halifax Infirmary, nine prospective members gathered at the Auditorium of the Halifax Infirmary and formed there the nucleus of the first group of ostomates in Nova Scotia. It was the strong opinion of Dr. Barton that such a group would serve the need for mutual aid, moral support and dissemination of information for all ostomates. Dr. Barton has continued a close association with the chapter along with other medical advisors, Drs. Graham, Henderson, Millard, Mack and Sidorov.

The membership of this group grew slowly at first but these members were very diligent in carrying through their role of providing mutual aid and rehabilitating others who had undergone ostomy surgery. Before too long the word was being spread, through newspaper articles, through interest of the medical and nursing professions, through radio and TV interviews and through personal contacts. Members were being drawn from all regions of the three Maritime Provinces.

Beginning around 1975, Cape Breton took the step and formed a chapter of its own, followed closely by chapters formed in Southwest Nova Scotia, Antigonish, Truro, New Glasgow and in June of this year, a chapter in Bridgewater. In addition, there are four chapters in New Brunswick, one in Prince Edward Island and the word spread to Newfoundland where there are three chapters. In almost all instances there was personal and financial help extended from the Metro Halifax group in the formation of these chapters. The nine members in 1972 have expanded to a current membership of approximately 700 in the Atlantic Region and also this particular area has more active ostomy groups per capita than any other region in North America.

In 1974, through co-operation with the Nova Scotia Division of the Canadian Cancer Society, later the Nova Scotia Health Services Commission, the first enterostomal therapist was trained and employed in the City of Halifax. At present there are six Enterostomal Therapists trained throughout Nova Scotia.

The Metro Halifax Chapter meets regularly on the first Sunday of each month, September to June, at the Halifax Infirmary, Gerrard Hall. The programs feature speakers from professional groups on topics of interest to ostomates and their families and friends. Periodically there will be panel discussions where members share their own experiences and indeed, this sharing of mutual aid is an integral part of each meeting during the coffee period.

In the spring of 1978 the chapter organized and hosted a two-day Maritime Regional Conference. Eminent speakers from the medical profession participated in the program and attendance was attracted from Corner Brook to Quebec City, including many members of the nursing profession from the three provinces. Manufacturers representatives of the various ostomy appliances and products set up displays and were on hand for consultation.

The Metro Halifax Chapter co-operated with the Continuing Education Division of the Dalhousie University School of Nursing in a one-day workshop at Old Orchard Inn in the spring of 1979, to update nursing care for ostomates. The workshop was attended by between 50-70 nurses from around the Province. As part of the curriculum of the second year nursing students of the Victoria General and Halifax Infirmary, members of the chapter address them each year on various aspects of the life style of an ostomate, and the importance of the nursing care in the successful mental and physical rehabilitation of an ostomy patient.

Through affiliation with the International Organization members are able to secure films, tapes and literature pertaining to the care and management of ostomies and receive an excellent publication of a quarterly magazine. Membership in the group, besides the fellowship and help of monthly meetings also provides a monthly newsletter.

In the latter part of 1978, a concerted effort was made to gain the support of the Administration of all the hospitals in the metropolitan area for hospital visitations to the pre-op and post-op ostomy patients. This support was gained and visitation approval cards were placed in each of the hospitals. Members are being called upon regularly to visit. Once each year, with the co-operation of our local E.T.'s a training seminar for the volunteer hospital visitors is given.

We are constantly encouraged by the interest and support that our group receives from the medical profession and by their acknowledgement of the benefits to ostomy patients brought about through the co-operation between themselves and our organization. We look forward to a continuance of these good relationships. □

**MEETINGS**

Antigonish — 3rd Sunday, 2:00 p.m., St. Martha's School of Nursing.
Bridgewater — 3rd Sunday, 2:00 p.m., Board Room, Dawson Memorial Hospital.
Cape Breton — 2nd Wednesday, 8:00 p.m., rotated between Sydney, Glace Bay and New Waterford hospitals.
New Glasgow — 4th Sunday, 2:00 p.m., Board Room, Aberdeen Hospital.
Metro Halifax — 1st Sunday, 2:30 p.m., Lounge, Gerrard Hall, Halifax Infirmary.
Southwest — 3rd Tuesday, 7:00 p.m., Activity Room of Tidal View Manor, Yarmouth.
Truro — 2nd Sunday, 2:30 p.m., Board Room, Colchester Hospital.

*Secretary, United Ostomy Association, Metro Halifax Chapter Inc.

# ®Restoril. Sleep that's close to natural.

**Action:** Restoril (temazepam) is an active benzodiazepine with hypnotic properties. In sleep laboratory studies, temazepam decreased the number of nightly awakenings but had no effect on sleep latency. Rebound insomnia was not observed after withdrawal of the drug. Temazepam decreased stage 3, and combined stage 3 and 4 sleep, accompanied by a compensatory increase in stage 2 sleep, but did not alter REM sleep.

Orally administered temazepam is well absorbed in man. Temazepam has a half-life of about 8 to 10 hours in plasma (with considerable inter-individual variability). On multiple dosing, steady-state is reached usually within three to five days with excretion of the drug mainly in the urine in the form of the inactive 0-conjugate metabolite.

**Indications and clinical use:** Restoril (temazepam) is a hypnotic agent useful in the short-term management of insomnia. It has no effect, however, in shortening the time taken by patients to fall asleep.

Efficacy has not been established in children under 18 years of age. As with other hypnotics, Restoril is not indicated for prolonged administration.

**Contraindications:** Restoril (temazepam) is contraindicated in patients with a known hypersensitivity to benzodiazepines and in myasthenia gravis.

**Warnings:** *Driving and Hazardous Activities:* Since Restoril (temazepam) has a hypnotic effect, patients should be warned against driving, operating dangerous machinery or engaging in other activities requiring mental altertness and physical co-ordination after taking the drug.

*Physical and Psychological Dependence:* As with other benzodiazepines, Restoril should not be administered to individuals prone to drug abuse. Caution should be observed in all patients whose histories suggest that they may have potential for psychological dependence. Withdrawal symptoms which tend to occur after prolonged use of benzodiazepines are similar to those manifested by patients with excessive anxiety and may appear to justify continuation of drug use.

*Potentiation of Drug Effects:* Restoril may potentiate the effects of other central nervous system depressant drugs such as alcohol, barbiturates, non-barbiturate hypnotics, antihistamines, narcotics, antipsychotic and antidepressant drugs, and anticonvulsants. Therefore, different benzodiazepines should usually not be used simultaneously and careful consideration should be given if other CNS depressants are administered in combination with Restoril. Patients should be advised against the simultaneous use of other CNS depressant drugs and should be cautioned not to take alcohol because of the potentiation of effects that might occur.

*Use in Pregnancy:* The safety of use of Restoril in pregnancy has not been established. Therefore, Restoril should not be used during pregnancy. Several studies have suggested an increased risk of congenital malformations associated with the use of benzodiazepines, chlordiazepoxide and diazepam, and meprobamate, during the first trimester of pregnancy. Since temazepam is also a benzodiazepine derivative, its administration is rarely justified in women of child-bearing potential. If the drug is prescribed to a woman of child-bearing potential, she should be warned to consult her physician regarding discontinuation of the drug if she intends to become or suspects that she is pregnant.

*Use in Nursing Mothers:* Restoril is probably excreted in human milk. Therefore, it should not be given to nursing mothers.

**Precautions:** *Use in Patients with Emotional Disorders:* Restoril (temazepam) should be used with caution in patients with symptoms of depression or evidence of latent depression, particularly when suicidal tendencies may be present and protective measures may be necessary.

*Use in Elderly and Debilitated Patients:* Elderly and debilitated patients, or those with organic brain syndrome, are prone to CNS depression after even low doses of benzodiazepines and may experience paradoxical reactions to these drugs. Therefore, Restoril should be used in these patients only in the lowest possible dose and adjusted when necessary under careful observation, depending on the response of the patient.

*General:* Temazepam is metabolised in the liver and is primarily excreted by the kidney. Hence, caution should be exercised in administration of the drug to patients who might have impaired hepatic and/or renal function.

**Adverse reactions:** The most common adverse reactions reported after administration of temazepam and other drugs of this class are, dizziness, lethargy and drowsiness. Confusion, euphoria, staggering, ataxia and falling are commonly encountered. Paradoxical reactions such as excitement, stimulation and hyperactivity and hallucinations are observed infrequently.

Other adverse reactions are, weakness, anorexia, horizontal nystagmus, vertigo, tremor, lack of concentration, loss of equilibrium, dry mouth, blurred vision, palpitations, faintness, hypotension, depression, shortness of breath, nausea, diarrhea, abdominal discomfort, genitourinary complaints, pruritus, skin rash, urticaria, and anterograde amnesia. Abnormal liver function tests have been reported occasionally with temazepam.

**Symptoms and treatment of overdosage:** Manifestations of acute overdosage of Restoril (temazepam) as with other benzodiazepines can be expected to reflect the increasing CNS effects of the drug and include somnolence, confusion and coma, with reduced or absent reflexes. With large overdoses, respiratory depression, hypotension and finally coma will result. If the patient is conscious, vomiting should be induced mechanically or with emetics (e.g., syrup of ipecac 20 to 30 ml). Gastric lavage should be employed as soon as possible, utilizing concurrently a cuffed endotracheal tube if the patient is unconscious, in order to prevent aspiration and pulmonary complications. Maintenance of adequate pulmonary ventilation is essential and fluids should be administered intravenously to encourage diuresis. The use of pressor agents such as levarterenol bitartrate or metaraminol intravenously, may be necessary to combat hypotension but only if considered essential. The value of dialysis in emergency therapy for benzodiazepine overdosage has not been determined. If excitation occurs, barbiturates should not be used. It should be borne in mind that multiple agents may have been ingested.

**Dosage and administration:** An appropriate hypnotic dose should produce the desired effect while avoiding oversedation and impairment of performance the next day.

*Adult dose:* The recommended adult dose of Restoril (temazepam) is 30 mg before retiring.

*In Elderly and Debilitated Patients:* The initial dose should not exceed 15 mg before retiring (see section on 'PRECAUTIONS').

Restoril is intended only for short-term use and, therefore, should not be prescribed in quantities exceeding those required for that cycle of administration. Prescriptions should not be renewed without further assessment of the patient's needs. It is not indicated in children below 18 years of age.

**Availability:** Is available in capsules containing 30 mg of temazepam (maroon and blue, imprinted Restoril 30 and Anca), and 15 mg of temazepam (maroon and flesh, imprinted Restoril 15 and Anca) in bottles of 100 capsules. *The capsules should be protected from moisture and excessive heat.* Temazepam (Restoril) is a schedule F (Prescription Only) drug.

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CCPP

## MUSICAL INSTRUMENTS WANTED

The great discovery of the past year in The Sir Charles Tupper Medical Building, Dalhousie University, was the musical talent which assembled in The Tupper Band and made its debut at Christmastime a year ago.

The band is now in its development phase and the conductor, Dr. Bernard Badley, gastro-enterologist, is appealing to physicians around the province who may have musical instruments which have lain unused for many years.

A few medical students who want to play and who cannot afford to buy instruments at present, are in need of an oboe and tenor saxophones, in particular, but all instruments would be welcome.

The players are a mix of students, students' wives, nurses, medical technicians, faculty members and post graduate students.

Anyone with redundant musical instruments is asked to contact Dr. James Holland, department of physiology and biophysics, 424-2568; or Dr. Badley, at 428-2397, Victoria General Hospital, Halifax.

## WANTED

ORTHOPAEDIC SURGEON TO JOIN PROGRESSIVE MIDWESTERN USA MULTISPECIALTY GROUP EXCITING BENEFIT AND INCOME PACKAGE. MEDICAL GROUP IS NOT HMO. PLEASE CALL R. FINN COLLECT. 815/725-4631

# The Teratogenic Effects of Anticonvulsant Drugs

Hugh N. Parsons,* B.Sc., Peter R. Camfield,** M.D., F.R.C.P.(C) and Carol S. Camfield,** M.D., F.R.C.P(C),

*Halifax, N.S.*

**ABSTRACT:**

**This literature review of the last eight years considers the teratogenic effects of anticonvulsant drugs. The most frequently reported congenital anomalies associated with them are cleft lip or palate and congenital heart defects. The overall risk of congenital malformations to the offspring of treated epileptic mothers is reported as 2 to 6 times that of the general population. A preliminary study at the Grace Maternity Hospital, Halifax, concurred with the reports in the literature. We recommend pre-pregnancy counselling for epileptic women, withdrawal of medication where possible, single drug therapy and maintenance of first trimester drug levels at the minimum effective level for that patient, and careful evaluation and follow-up of the child.**

Hill[1] estimated that 0.3 to 0.5% of all pregnancies occur to epileptic women. The Grace Maternity Hospital has 5,000 deliveries per year and, therefore, we estimate that at least 15-25 epileptic mothers will deliver each year. The children of the mothers who receive anticonvulsants during pregnancy should have an incidence of congenital anomalies 2 to 6 times that of the general population.[2,9]

There are five major factors which must be considered as producing teratogenic effects during pregnancy in the epileptic mother: 1) the effects of convulsions during pregnancy on the fetus, possibly from hypoxia and acidosis; 2) an increased incidence of pregnancy complications in an epileptic mother; 3) socioeconomic factors; 4) genetic constitution, since epileptic women themselves have more congenital anomalies than nonepileptics[7] and; 5) the teratogenicity of the anticonvulsants.

During the last eight years, there have been a large number of studies and commentaries on the teratogenicity of anticonvulsants. Although there is a wide variation in methodologies, there appears to be a consensus that anticonvulsant medications can be associated with teratogenic effects. The implications of the results of these studies will be considered.

The studies of Fedrick[4] found that women who are seizure-free while on antiepileptic medication have as great a risk of having a child with congenital malformation as the mother having relatively frequent seizures. Meadow[10] concluded that the frequency or severity of seizures during pregnancy does not increase the incidence of major congenital abnormalities.

A retrospective study by Bjerkedal and Bahna[3] of Norwegian pregnancies found that women with epilepsy experienced more complications during pregnancy and labor. Their babies were more frequently premature, of low birth weight, had more congenital malformations and higher perinatal and neonatal mortality rates than the control group. This review, however, did not consider the etiology of the findings.

The Oxford Record Linkage Study[4] and the Collaborative Perinatal Study[11] matched epileptic mothers with controls of equivalent socio-economic classes and found that the incidence of malformation to be two to three times greater in the epileptic population.

Teratogenic effects have been implicated for most anticonvulsants. Specific dysmorphic syndromes, however, have been established for only a few.

*Trimethadione,* a previously popular drug for petit mal epilepsy[12], produced very characteristic dysmorphic features in as many as 53% of babies as described by Feldman *et al*[14] Zackai *et al*[13] and Montouris.[11] Trimethadione usage during pregnancy is associated with developmental delay, speech disturbances, epicanthal folds, low set ears, palatal anomalies, irregular teeth, intrauterine growth retardation, cardiac anomalies, ocular defects, microcephaly, hypospadias, and a bleeding tendency associated with vitamin K deficiency.

Another anticonvulsant clearly associated with fetal malformation is a widely used medication, *diphenylhydantoin* (dilantin). The fetal hydantoin syndrome is probably the most commonly recognized anticonvulsant induced syndrome. It includes characteristic craniofacial anomalies consisting of low-set prominent ears, ptosis, hypertelorism, low nasal bridge, short nose and strabismus. Other features are hypoplasia of distal phalanges, intrauterine growth retardation, mild to moderate mental retardation, and, as in the trimethadione syndrome, a vitamin K correctable bleeding tendency. When the epileptic mother is maintained on dilantin during pregnancy, there is a 10% risk of a major malformation, such as cardiac anomalies, cleft lip or cleft palate, or any other defect producing either serious medical, surgical, or cosmetic consequences. The risk for minor anomalies associated with the fetal hydantoin syndrome is approximately 31%[16].

*Phenobarbital,* a frequently prescribed anticonvulsant, has been documented as producing intrauterine growth retardation and dysmorphic facies[17] although a specific dysmorphic syndrome has not been delineated. The congenital malformations associated with its use alone include microcephaly, mental retardation, tracheoesophageal fistula, aortic stenosis, anencephaly, congenital heart disease, limb deformities, and cleft lip and cleft palate[4,18] One author suggested that with patients receiving less than 60 mg per day a 9% malformation rate with offspring, and those receiving greater than 90 mg of phenobarbital per day a 20% incidence of congenital anomalies[4]. Nakane[9] recommends a maximum dose of phenobarbital less than 150 mg per day to decrease the malformation rate. A

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preliminary study by Dansky *et al*[25] has suggested that a higher anticonvulsant blood level is associated with an increased risk of malformation. Drugs considered were dilantin, phenobarbital, ethosuximide, and primidone.

*Primidone,* a less commonly used anticonvulsant, appears to produce an embryopathy similar to hydantoin. The features include a characteristic facies, intrauterine growth retardation, cardiac septal defects, and hypoplastic nails.[19]

*Valproic acid* is a newer antiepileptic drug, and mouse studies indicate that it is equal in teratogenicity to trimethadoine [20]. However, a preliminary prospective study of twelve epileptic mothers who received valproic acid throughout pregnancy did not find any congenital anomalies in the children[21]. Thus, the question of whether or not valproic acid is a human teratogen is still unanswered.

There is a scarcity of information on the teratogenic effects of *carbamazepine* in humans. An animal study by Paulson *et al*[24] reported a dose-related cleft palate malformation in mice.

A prospective study by Hill[5] followed, to 36 months of age, twenty eight newborns who had been exposed in utero to anticonvulsants. She reported that dysfiguring or life-threatening malformations occurred more frequently in these infants as compared with normal controls, as did failure to thrive and lower Gesell Development Quotients. The most frequent anomalies encountered were cleft lip (3.8%), skeletal anomalies (1.9%), cardiac malformations (1.7%), and central nervous system anomalies (1.3%). Similar findings were presented by Fedrick[4], Spiedel and Meadow[2], and Montgomery[8]. Hill has estimated that the teratogenic risk to the fetus from intrauterine exposure to anticonvulsants is 10 to 20% for major malformations and 10 to 20% of these children may have some decrease of intelligence. Most other studies estimate the teratogenic risk to be from 5 to 10% as compared to a 1 to 2% risk in the general population.[23] A large study by Nakane[9] in Japan reported a malformation rate of 11.5% in the offspring of epileptic mothers receiving a variety of anticonvulsants. The incidence of cleft lip and/or cleft palate was 3.1% and that of congenital heart defects was 2.9% in the same population of 657 epileptic mothers. Nakane also found that using the combination of three or more different anticonvulsants correlated with the sharp increase in the teratogenic risk.

Although there are a number of unresolved questions concerning the teratogenicity of anticonvulsant drugs, it is apparent that there is a definite risk of harming the fetus of the epileptic mother receiving anticonvulsants during pregnancy. Consequently, it is important that the appropriateness of the antiepileptic therapy be carefully evaluated in women of child-bearing age.

Unfortunately, however, there are few studies in adults which address the question of whether or not to discontinue therapy after prolonged seizure control. Holowach *et al*[22] studied 148 children who had been seizure free for four years on anticonvulsant medication. These children were slowly withdrawn from the antiepileptic drug regimes and were followed for 5 to 12 years. A strong correlation was found between the prognosis and the type of epilepsy, the age of onset, and the ease of control of the seizures. The EEG was not predictive. Overall, the recurrence rate of seizures was 24%, varying from 8% in grand mal epilepsy to 53% in Jacksonian epilepsy. This study suggests that after five seizure-free years some epileptic women could be withdrawn from anticonvulsants prior to pregnancy.

In order to see if the data in the literature reflect the experience in Nova Scotia, we undertook a chart review at the Grace Maternity Hospital in Halifax, Nova Scotia. This preliminary study reviewed the charts of all 41 mothers and infants who were coded as epileptic mothers admitted over a two-year period.

This retrospective review considered the type of epilepsy, the appropriateness of the anticonvulsant regimen of the mother and the fetal outcome. Of the 41 mothers classified as epileptics, 31 received anticonvulsant medication throughout the entire pregnancy. The other 10 mothers were not treated for epilepsy during the pregnancy and all had a normal fetal outcome. Eleven of the 31 were assessed as receiving appropriate regimens and the remainder were considered to be possibly inappropriate for the following reasons: First, three patients had been seizure free during the preceding five years; Secondly, five patients were receiving inappropriate medication for the type of seizure disorder reported. Finally, nineteen patients received an inappropriate dosage and/or schedule of medication.

The fetal outcome was assessed from the chart. Of the 31 cases, there were 14 neonates with neonatal problems and/or congenital abnormalities. Amongst these 14, 11 of the babies had anomalies that could be attributed to the anticonvulsant medications. The 11 cases are presented in Table I. The three additional babies had neonatal problems consisting of asphyxia, neonatal seizures from hypocalcemia, and pneumonediostinum.

The evidence from this review strongly supports the literature since the babies born to mothers receiving anticonvulsant drugs had, overall, a 33% risk for congenital anomalies.

In summary, both the literature review of the last eight years and our preliminary study at the Grace Maternity Hospital illustrates that the rate of malformation in infants born to epileptic mothers on anticonvulsant medication is at least 2 to 6 times that of the general population. There is strongly suggestive evidence that this increased incidence of congenital anomalies is due to the teratogenic effect of anticonvulsants. We would, therefore, make the following recommendations. First, women receiving anticonvulsants should be evaluated prior to pregnancy. In those patients who have been five years seizure-free, have a favorable seizure type (e.g. grand mal) and no neurological abnormalities, gradual withdrawal from the anticonvulsant may be feasible. As well, they should be counselled about the potential risks involved. Secondly, the anti-convulsant regimen should consist of the minimum number of drugs and the appropriate dosages required to control the seizures. Thirdly, the blood levels should be monitored, especially during the first trimester of pregnancy, in order to maintain the minimum effective level required for seizure control for that patient. Lastly, the neonate should be carefully examined for congenital malformations such as cleft lip and/or cleft palate, and cardiac anomalies. The child's growth and development should be closely followed for the next few years. □

**TABLE I**

**Congenital Malformations in the Offspring of Mothers on Anticonvulsant Medication During Pregnancy, Delivered at the Grace Maternity Hospital, 1978-1979.**

| PATIENT | DRUG REGIME | | CONGENITAL ANOMALIES |
|---|---|---|---|
| Case 1 | Phenobarbital<br>Dilantin<br>Mysoline | 15 mgm TID<br>100 mgm TID<br>250 mgm TID | Epicanthal folds, prominent ears, narrow nasal bridge |
| Case 2 | Dilantin | 100 mgm BID | Microcephaly, systolic murmur |
| Case 3 | Phenobarbital<br>Dilantin | dose unknown<br>dose unknown | Small for date, microcephaly |
| Case 4 | Phenobarbital<br>Dilantin | 30 mgm TID<br>100 mgm | Hypospadias |
| Case 5 | Phenobarbital<br>Dilantin | dose unknown<br>dose unknown | Anencephaly, hypoadrenalism, Meckel's diverticulum, narrow pelvis |
| Case 6 | Phenobarbital<br>Dilantin | 1/4 gram QID<br>100 mgm BID | Congenital heart disease, 6th nerve palsy, hypotonia, vascular nevi on face |
| Case 7 | Dilantin | dose unknown | small for date, microcephaly |
| Case 8 | Tegretol<br>Mysoline | 200 mgm TID<br>250 mgm TID | hypospadias |
| Case 9 | Dilantin | 200 mgm BID | small for date, microcephaly, withdrawal convulsions |
| Case 10 | Phenobarbital<br>Dilantin | 30 mgm TID<br>100 mgm TID | Neonatal seizures, microcephaly |
| Case 11 | Phenobarbital<br>Dilantin | 50 mgm BID<br>30 mgm BID | Microcephaly |

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# An Appreciation

## DR. JAMES BRUCE CROWE

Dr. J. Bruce Crowe, or Bruce as he was known to his friends, was born in Annapolis Royal in 1917. He was the son of A. Boyd Crowe, dentist and loyal citizen of the town. Bruce's mother, Nell (McDormand) Crowe, died early in his life so that he became very attached to his father — a friendship that was to grow with the years.

In his teens Bruce became very active in sports and, on attending Mount Allison University, was well-known for his athletic ability. Graduating from Mount Allison, Bruce attended Dalhousie University where in 1943 he successfully completed his medical degree. Almost immediately Bruce joined the Royal Canadian Army Medical Corps and, after several months of training in Canada, was sent overseas where he served in England and Europe. Returning to Canada in 1946, he almost immediately established a medical practice in the town of New Germany where, as a general practitioner, he served the town and people faithfully and well until his sudden death on January 2, 1981.

Although the care of patients took first place with Bruce, he had a second love for the New Germany Fire Department. Joining as a volunteer fireman, he very quickly demonstrated his ability and leadership and shortly after became the Fire Chief, a position he held for many years. One of his daily visits always included the Fire Station. Under his guidance the New Germany Fire Department grew and prospered until, in his opinion, it was second to none in the province. He was proud to be their leader and in 1980 Dr. Crowe's contribution to the Fire Department was recognized by the Government of Nova Scotia.

Dr. Crowe attended the Epworth Church where he was an elder and participated in all aspects of church work. For many years he was "Clerk of Session" and sang in the choir.

Bruce loved life and the open air. He was an ardent fisherman and a holiday to him meant getting out in the woods and breathing the fresh air. A favorite haunt of his was the Milford Lakes, where he was first taken as a boy by his father and, each year he eagerly returned to those happy memories. I have shared those memories with him and know how happy he really was while there.

Bruce was a great family man and had a very close knit family unit. Jessie, his wife, was with him when he began his practice, working by his side and they made a wonderful team. His two daughters, Vicki and Beth, grew up in this happy atmosphere and both have been successful in their chosen careers. Bruce was very happy to have seen and loved his two grandchildren, one of whom bears his name. He was just as proud of his two stepsons, Barclay and Wilfred, and the achievements they have had in life.

The life of a general practitioner in a rural area is not easy and it is often overlooked by the medical community at large. Not so with Bruce: in 1960 he was written up in *MacLean's* as the General Practitioner of the Year. The Bridgewater Hospital recognized his medical ability by appointing him Chief of Staff, a position he held for well over 5 years. In October 1980, the Medical Alumni of Nova Scotia elected Bruce as the Medical Alumnus of the Year, an honor few achieve. His colleagues recognized in Bruce a quality present in few and they will miss him.

Bruce asked little of life. All he needed were the bare necessities: simple things such as his family, his practice, the sun, the stars, the smooth water and the love of seeing things grow. He loved to work in the garden and was a successful gardener. In very recent times his family presented him with a beautiful greenhouse where he had planned to begin his garden for the coming year.

The community needed and depended upon him, the Fire Department respected and followed him, the hospital recognized in him one they would follow, the Alumni honored him and his family and friends loved him — what more could a man ask?

Carl Tupper, M.D.

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## OBITUARIES

**Dr. Harold Ratchford** (81) of Agincourt, Ont., formerly of North Sydney, N.S., died last fall at his home. He was a graduate of Dalhousie Medical School in 1925. Sympathy is extended to his family.

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**Dr. Louis R. G. Rustige,** Mahone Bay, N.S. died Nov. 21, 1980. He graduated from Leiden University, The Netherlands, in 1952. To his family the Society offers sincere sympathy.

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**Dr. H. Leslie Stewart** of Halifax, N.S. died December 31, 1980. Born in Belle River, P.E.I., he received his premedical education at Prince of Wales College and graduated from Dalhousie Medical School in 1943. He is survived by his wife, two brothers and a sister to whom we extend our sympathy.

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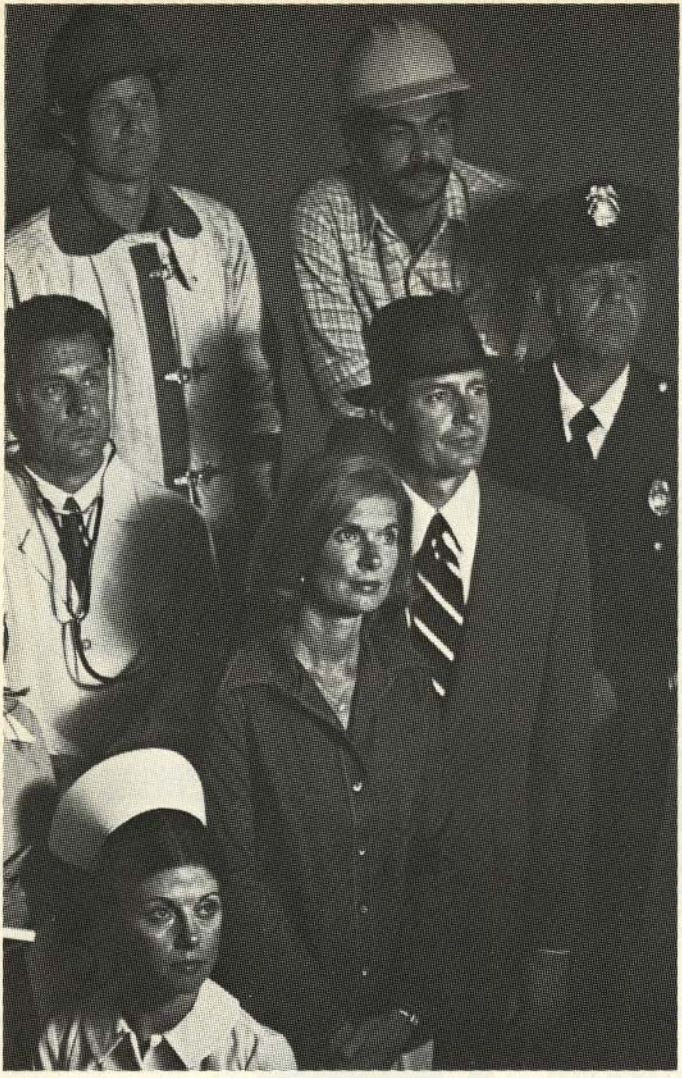
**Dr. Russel C. Zinck** (94) of Lunenburg, N.S. died January 19, 1981. He was a graduate of McGill University in 1924 and has practised medicine in Lunenburg since 1926. He was made an Honorary Member of The Canadian Medical Association in 1980. He is survived by two daughters to whom the Society offers sympathy. □

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# Personal Interest Notes

**Dr. Thomas B. Acker,** was honoured in Halifax on December 1, 1980 for his many years of devoted service to the children of Prince Edward Island. In 1926, he was asked to visit Prince Edward Island and treat some children with orthopaedic problems. He returned several times each year and continued to operate clinics there until 1956.

Dr. Acker is a 1921 graduate of Dalhousie. Since retiring in the early 1970s he has suffered several strokes but says he still misses the active life he led caring for children. The Acker brothers will be remembered for their pioneering work in orthopaedics in the Maritimes. Dr. Thomas Acker practised with his brother Jack for over 50 years.

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Valley Health Services Association honoured **Dr. Audley Giffin** at its annual New Year's Day Reception. David Waterbury, praised Dr. Giffin for his "many years of outstanding service to this community and to his patients." Dr. Giffin was presented with an oil painting of Whale Cove by artist Kelsey Raymond.

A native of Halifax, Dr. Giffin studied medicine at Dalhousie University. He completed internships at The Victoria General Hospital, Halifax, and the Royal Victoria Hospital in Montreal. Post-graduate training followed at Children's Hospital Montreal and the Nova Scotia Sanatorium in Kentville. Dr. Giffin practised for a short time in Bridgetown, but later moved to Kentville where he practised general medicine and surgery until his retirement in 1980.

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**Dr. H. B. Atlee** was a resolute physician, devoted throughout his long career as an obstetrician and gynecologist to improving the care of mothers and babies in Nova Scotia.

When Dr. Atlee died in 1979, he bequeathed enough money to establish the Dalhousie Obstetrical Fund, from which the annual income is to be used to expand the scope and quality of teaching. The first grant of $4,085 has been awarded to **Dr. Alexander C. Allen,** Head of the Department of Neo-natal Pediatrics at the Grace Maternity Hospital. The Atlee award is being used to set up a bank of statistical information about newborn babies treated for scores of different conditions at the hospital. A computer terminal is now installed at the hospital which is linked directly to the Dalhousie University Computer Centre.

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**Dr. G. Wayne MacDonald,** a 35-year-old native of Sydney, Cape Breton, and psychologist at the Izaak Walton Killam Hospital for Children, Halifax, has been appointed lecturer in the Department of Psychiatry, Faculty of Medicine, Dalhousie University.

Psychiatrist, **Dr. William C. Wood,** 61, a Dalhousie graduate in 1952, has been appointed clinical instructor in the Department of Psychiatry, Faculty of Medicine, Dalhousie University. Dr. Wood practises at the Nova Scotia Hospital, Dartmouth, where he is chief of service and Director of the General Adult Service Unit and consultant to the psychogeriatric service.

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**Dr. C. M. Soder,** 30, lately senior resident in anaesthesia, University of Toronto St. Michael's Hospital, has an appointment as lecturer jointly in the Departments of Anaesthesia and Paediatrics, Faculty of Medicine, Dalhousie University. Dr. Soder was born in Switzerland and obtained his M.D. at the University of Alberta in 1975.

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In early January, **Dr. Douglas Hunter Thomson,** former senior therapeutic radiologist at the Ontario Cancer Foundation London Clinic, assumed the post of Professor and Head of the Department of Radiation Oncology at Dalhousie University Faculty of Medicine. Dr. Thomson also becomes head of the department of radiation oncology at the Victoria General Hospital, Halifax.

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An old friend has returned to the Department of Preventive Medicine, Dalhousie University, in the shape of **Dr. W. B. C. (Bill) Robertson,** 51, as part-time Associate Professor.

The former medical missionary who worked in hospitals for lepers in India after graduating in Scotland, he first came to Dalhousie in 1968 for a period of two years as an Associate Professor, lecturing in epidemiology and health service administration.

He was Director of Hospital Insurance in the Department of National Health and Welfare, Ottawa, and recently resigned as Director of Professional and Institutional Standards. He is a medical consultant, closely connected with planning the new Camp Hill Medical Centre, Halifax. □

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