

# Bowel management: development of guidelines



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## INTRODUCTION

The provision of high-quality patient care requires critical care nurses to establish a framework for their practice, which acknowledges the need to respond to life-threatening situations and promotes homeostasis. Since patients enter a critical care environment in a physiological crisis, priority is given to the maintenance of life and the instigation of interventions to support failing physiology. When faced with this type of situation, bowel management seems to assume a low priority. However, it should still be considered as an important aspect of holistic caring practice.

Critical care patients have highlighted bowel management as a problem associated with admission to intensive care. During follow-up, constipation has been identified as a problem experienced by patients during their stay in an intensive care unit (ICU) (Waldmann and Gaine, 1996).

Alterations in bowel habit may have an impact on the overall condition of the patient. Constipation may contribute to the exacerbation of conditions, such as myocardial infarction, congestive heart failure, cerebrovascular accidents, subarachnoid haemorrhage (Heading, 1987). This is in addition to the more common side-effects, such as abdominal and rectal pain, flatulence, nausea and vomiting, faecal incontinence and overflow diarrhoea, anorexia, lassitude, depression, restlessness and confusion (Ross, 1998).

This article presents the findings of a small-scale survey, which identifies the views of intensive care nurses on bowel management and provides a review of the literature that supports the development of bowel management guidelines in the critically ill patient.

## PROFESSIONAL OPINION: A SURVEY

### Method

Discussions with colleagues appeared to indicate that nurses were concerned about the issues of bowel management and constipation in the critically ill. A small-scale survey was conducted into the current state of practice, using a short questionnaire to obtain data about the existence and use of bowel management guidelines (Table 1).

One hundred questionnaires were distributed to intensive care units (ICUs) in Great Britain. The sample was chosen ran-

domly from units listed in the Directory of Emergency and Special Care Unit (1999). The sample was representative of the diverse range of unit size and profile. The questionnaire was addressed to the clinical nurse specialist or senior nurse and a stamped addressed return envelope was enclosed.

## Results

A response rate of 81% (n = 81) was obtained. Twenty-one per cent (n = 17) of the respondents had a bowel management protocol or guidelines and 79% (n = 64) did not. Of the 79% who did not have a protocol, 92% (n = 59) agreed that it would be helpful, 5% (n = 3) said it would not and 3% (n = 2) either did not answer the question or stated that they were in the process of developing guidelines. Of the 81 respondents, 80.2% (n = 65) felt it was a neglected area and 12.3% (n = 10) said it was not. The remaining 7.4% (n = 6) either did not answer or gave varying replies, such as, 'in some instances', 'not in general', 'at times', 'depends on who is caring for the patient and which consultant'.

## LITERATURE REVIEW

A literature search was undertaken on Cinhal and Medline databases, using the key words bowel management, constipation and critical care. Only two articles relating to intensive care were identified; these were McKenna *et al.* (2001) and Hill *et al.* (1998). A search by The NHS Centre for Reviews and Dissemination was instigated. They revealed two systematic reviews, one reviewing the treatment of chronic constipation in adults (Tramonte *et al.*, 1997) while the second compared the effectiveness of laxatives in constipated elderly patients (Petticrew *et al.*, 1997).

The sparsity of literature specifically related to critical care means it was necessary to use evidence from research in other client groups; this, in itself, presents some limitations to the

**Table 1. Bowel management questionnaire**

- ▶ Does your unit have a bowel management guideline/protocol?
- ▶ If no, would you find it helpful to have a guidelines/ protocol for practice?
- ▶ In your opinion do you feel bowel management is a neglected area of critical care nursing practice?

robustness of the evidence on which our guideline is based. However, during its construction, consultation with a range of clinical experts was undertaken.

Elderly and oncology patients are the two main groups in which research has been undertaken. The causes of constipation in these groups have some similarity with those in critical care, in terms of immobility and the use of morphine.

### Definitions

The literature reveals many definitions of constipation. In a study conducted by Passmore *et al.* (1993), which looked at the efficiency and cost-effectiveness of lactulose and senna-fibre in long-stay elderly patients, the definition of constipation used was fewer than three bowel movements per week. Moriarty and Irving (1992) suggested that there is considerable geographical and racial variation in bowel habits and constipation, that the definition of constipation is largely subjective, and that there is no universally accepted definition. Moriarty and Irving (1992) defined constipation as straining at passing stools for more than 25% of bowel movements. Kamm (1994) defined constipation as a bowel frequency of less than three times per week or the need to strain more than 25% of the time during defecation. Nazarko (1996) defined it as abnormality of stool bulk, hardness or frequency and suggested that a generally accepted working definition for healthy adults varied from three times per day to three times a week.

Thus, bowel habit is an individual matter with a wide range being considered as 'normal', and a universal definition of constipation is difficult. For the purpose of this study, a working definition of constipation for patients in a critical care setting, is the absence of bowel movement for a period of three days, either since admission or after defecation.

### Normal bowel function

The functions of the large bowel are the absorption of water and electrolytes, storage of faeces, and the forward propulsion and controlled evacuation of faeces (Smith, 1990). Colonic and rectal motilities are regulated by the sympathetic, parasympathetic and enteric nervous systems (Moriarty and Irving, 1992).

The bowel is made up of circular and longitudinal muscles. Circular muscles enable the mixing of the contents of the bowel. Water is absorbed from the faeces, when they come into contact with the mucosa. The contraction of longitudinal muscles leads to forward propulsion or, if it is inconvenient to empty the bowel, to retro-propulsion. Contraction of the diaphragm and abdominal muscles and relaxation of the striated muscles of the puborectalis and external anal sphincter lead to expulsion of the faeces.

### Factors influencing bowel function

The most common factors influencing bowel function include fluid and dietary intake, medications, illness, reduced mobility, age and gender (Molitor, 1985; Smith, 1990; Moriarty and Irving 1992; Maestri-Banks and Burns, 1996; Nazarko, 1996; Norton, 1996; Hill *et al.*, 1998; Ross, 1998).

A predisposing factor to constipation is poor dietary intake, which is made worse by inadequate fluid intake. It has been identified that dietary interventions are used as a first line approach in the management of constipation (Tramonte *et al.*, 1997). The commencement of early enteral feeding in the critically ill patient has demonstrable benefits in terms of mortality and it would also appear to support the prevention of constipation. A number of advantages have been identified for early enteral feeding, such as improved gut and liver function, enhanced immune function, reduced infection rates and better

survival rates in the critically ill (Kennedy, 1997). Inadequate fluid intake should not pose a great problem in a critical care setting. Once feeding is established, the patient should be receiving approximately 100 ml of feed per hour and therefore sufficient fluid. The monitoring of fluid is facilitated by the presence of a central venous pressure monitoring line.

The peristaltic movement of the gut are stimulated by exercise. Constipation is associated with reduced physical activity (Kochen *et al.*, 1985). Lack of mobility has been associated or identified in the acute hospital setting to predispose to many complications, one of which is constipation (Norton, 1996). Norton also discusses the treatment of constipation from a multidisciplinary approach, including the use of dietary manipulation and laxatives.

Piccirillo *et al.* (1995) suggested that the incidence of constipation increases with age. This has been attributed to many factors such as reduced gut motility, reduced saliva production, poor dentition or poor-fitting dentures, which can make chewing and swallowing more difficult and therefore reduce dietary intake (Spence, 1989). Hale *et al.* (1986) suggests that women are more subject to constipation than men. Norton (1996) states hormones can affect colonic motility, while constipation is common in pregnancy, diabetes and hypothyroidism. She continues to state that nearly all severely constipated young adults are women, suggesting a sex hormone influence, though the mechanisms have not been identified. Kamm and Lennard-Jones (1994) stated that progesterone relaxes smooth muscle.

There are many drugs that cause constipation but the main ones of concern in a critical care unit are:

- analgesics
- anaesthetic agents
- anticonvulsants
- diuretics
- calcium-channel blockers.

Opiate analgesia, such as morphine, is used as a first-line analgesia in many ICUs, unless renal problems have been identified. The segmental and propulsive movements of the large bowel are decreased with opiate use resulting in prolonged contact of contents with the bowel wall (Cameron 1992).

Illness has significant impact on the bowel habit of individuals. A wide variety of conditions can predispose to constipation, usually as a result of a structural, neural or hormonal problem (Table 2).

### Treatment of constipation

The UKCC Code of Professional Conduct (1992) states that 'It is the role of the nurse to act always in a manner as to promote and safe guard the interests and well-being of patients and clients'. The outcomes of bowel management may appear a trivial problem but are meaningful to the patient (Robinson-Wolf, 1996). The emphasis of nursing care should be on prevention, and the 'best intervention' is to prevent it from occurring (Dean, 1995). Thus, nutrition and laxatives are the first-line management in preventing constipation in the critically ill patient.

There are many laxatives that can be used to prevent or treat constipation (Butler, 1998). Bulk-forming preparations, e.g. ispaghula, act by increasing faecal bulk and therefore stimulate peristalsis. Stimulant laxatives, e.g. senna, act by increasing intestinal motility by initiating large peristaltic waves. Osmotic and softening laxatives, e.g. lactulose, are poorly absorbed and fluid is attracted into the bowel.

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**Table 2. Causes of constipation**

Category	Disorders
Anal	Anal fissures, anal stenosis, anterior mucosal prolapse, descending perineum syndrome, haemorrhoids, perianal abscess, rectocele, tumours
Colonic	Irritable bowel syndrome, diverticular disease, tumours, strictures, carcinoma, Crohn's disease, diverticulitis, ulcerative colitis, ischaemic colitis, tuberculosis, amoebiasis, syphilis, lymphogranuloma venereum, endometriosis, hernias, volvulus, intussusception, ulcerative colitis with right-sided faecal stasis, pneumatosis cystoides intestinalis, idiopathic slow transit constipation
Pelvic	Pregnancy and puerperium, ovarian and uterine tumours, endometriosis
Neuromuscular	Peripheral: Hirschsprung's disease, autonomic neuropathy, Chagas' disease, intestinal pseudo-obstruction Central: cerebrovascular accident, cerebral tumours, Parkinson's disease, meningocoele, disseminated sclerosis, tabes dorsalis, paraplegia, cauda equina tumour, trauma to lumbosacral cord or cauda equina, Shy-Drager syndrome Muscular: dermatomyositis, dystrophia myotonica, progressive systemic sclerosis
Psychiatric	Depression, anorexia nervosa, denied bowel action
Endocrine	Diabetes mellitus, hypercalcaemia, hyperthyroidism, hyperpituitarism, pheochromocytoma
Metabolic	Hypokalaemia, lead poisoning, porphyria, uraemia
Environmental	Debility, dehydration, immobilisation, use of bed-pan
Drug-induced	Anaesthetics, analgesics, antacids (containing aluminium and calcium), anticholinergics, anticonvulsants, antidepressives, antihypertensives, antiparkinsonian drugs, diuretics, ganglion-blocking drugs, iron, laxatives (habitual abuse), monoamine oxidase inhibitors, oral contraceptives, psychotherapeutic agents

Assessment Programme conducted a systematic review of the efficiency and effectiveness of various laxatives in the elderly (Petticrew *et al.*, 1997). Their data source was a systematic review conducted by Tramonte *et al.* (1997), from which they obtained information of trials. In addition the following databases were searched: Embase, Psychlit, Medline, Cochrane library, CINAHL, International Pharmaceutical Abstracts, and the alternative therapies database, AMED. Authors and manufacturers were also asked for information. Studies in any language were eligible for inclusion. Decisions on the relevance of primary studies were made independently by two reviewers. Economic information was searched for in Current Contents/Clinical Medicine, Medline, and the NHS Economic Evaluation Databases. Their findings found expensive stimulant laxatives are widely used, though there appears to be little evidence that these are more effective than cheaper alternatives. Many of the published trials were found to be statistically underpowered, and therefore lacked the power to detect differences between treatments if they existed. They recommended that future trials should therefore be of adequate size and of methodologically good quality, e.g. double-blinded, with standardised assessment of adverse effects, and properly randomised.

Tramonte *et al.* (1997) found that laxatives and fibre therapies improve movement frequency in adults with chronic constipation but inadequate evidence exists to determine differences between classes of laxatives.

A search by the NHS Centre for Reviews and Dissemination highlights the limited research in this area and they found it impossible to determine the most appropriate treatment for

different types of patients, e.g. mobile or immobile. However, there appeared to be little indication that pharmacological laxatives were much more effective than simple treatments, such as fibre and dietary interventions. Their findings suggested the need for more research into the treatment of constipation, especially trials comparing different types of laxative therapy in different patient groups.

A study by Passmore *et al.* (1993) looked at 77 elderly patients with a history of chronic constipation and compared a senna-fibre combination or lactulose laxative. The study was a randomised; double-blind, cross-over study. The data collected was stool frequency, stool consistency, and ease of evacuation; deviation from recommended dose; daily dose and cost per stool; and adverse effects. Their findings showed that both treatments were effective, and that the senna-fibre combination was more efficient without an increase in side-effects and resulted in a less expensive regime.

### CRITICAL CARE PRACTICE

Hill *et al.* (1998) carried out an audit of bowel management in critically ill patients. They reviewed the patient charts and nursing notes of 20 patients who had been in an ICU for less than four days. Patients who had undergone bowel surgery were excluded from the audit. Their findings identified poor documentation of bowel action and lack of action when constipation had been identified as a problem. As a result, they developed a protocol for bowel management.

McKenna *et al.* (2001) produced a study regarding nursing management of diarrhoea and constipation before and after the implementation of a bowel management protocol. Retrospective audits of two groups of critically ill patients were randomly sampled (n = 60) 6 months prior to, and (n = 60) 6 months post-introduction, of the bowel management protocol. Their findings showed that a protocol improved documentation of the assessment of bowel function and the documentation of interventions taken.

### BOWEL MANGEMENT GUIDELINE

The guideline was presented as a flow chart, together with a supporting rationale for action (Table 3 and Figure 1). The difficulties associated with the management of change and the need to disseminate information widely is acknowledged. Dissemination strategies that promoted the opportunity for discussion and ownership of the change were used to support the implementation of the guideline. These strategies included:

1. Providing teaching sessions to multidisciplinary team members. Sessions were interactive and provided opportunities for refinement of guideline.
2. Identifying key staff members to provide support in disseminating and promoting the use of the guideline.
3. A4 copies were given to all nursing and consultant medical staff.
4. A4 laminated copies were kept at each bedspace.
5. A notice-board display was put up.
6. Literature review and copies of key articles were made available in the resource room.

### CONCLUSION

The literature reveals many diverse and different solutions to the problem of constipation. There have not been any clinical trials

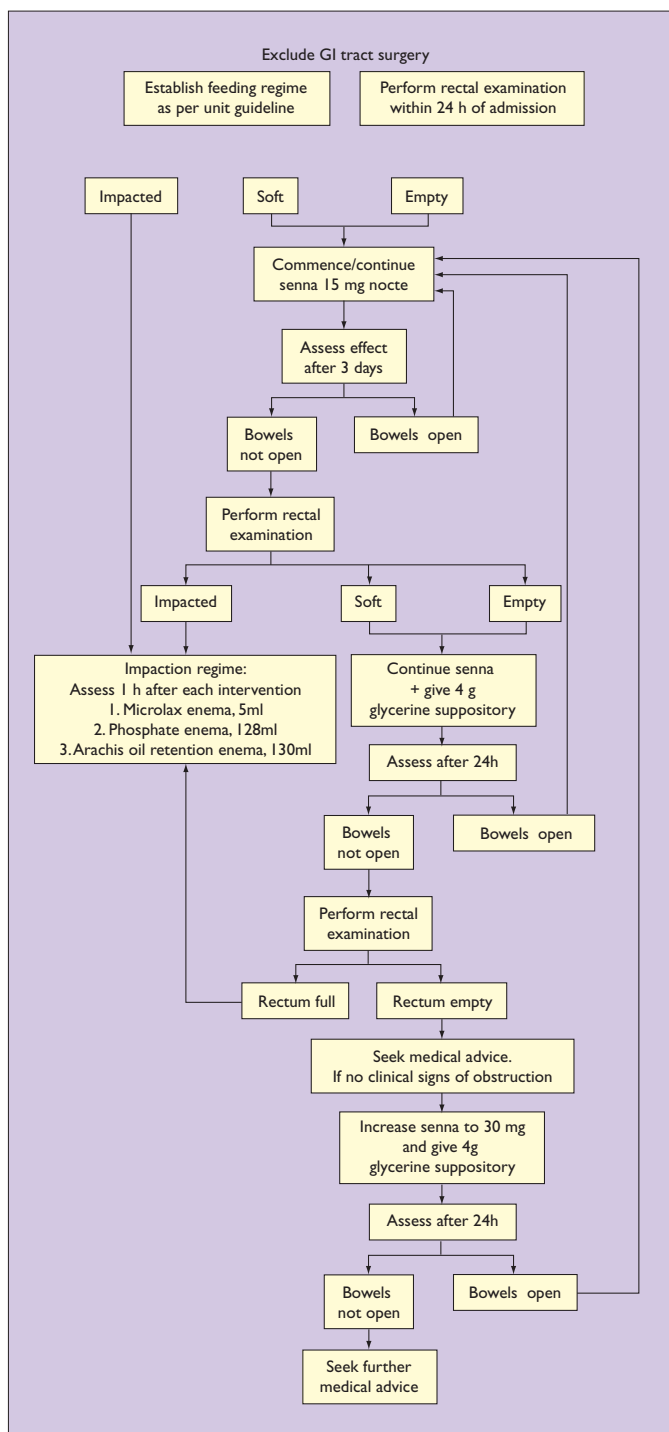


Figure 1. Adult bowel management protocol.

of the treatment of constipation in the critically ill. This highlights a deficiency in the research evidence available to inform practice. Based on the survey and discussions with colleagues there was support for the development of guidelines for the prevention and management of constipation in the critically ill.

In providing high-quality care, critical care nurses are required to make an assessment of their patients' physiological and psychological status and to provide care to meet the identified needs. This article has highlighted an area of practice, which presents a significant challenge for critical care nurses. Through the dissemination of information it is hoped that others will take the opportunity to review their own practice and rise to the challenge.

Table 3. Rational for Action

Action	Rational
► Commence enteral feeding regime within 4 h of admission	<ul style="list-style-type: none"> <li>► Increased bulk improves transit time (Norton, 1996)</li> <li>► A sufficient intake of dietary roughage is physiologically very important for bowel function (Godding, 1976)</li> </ul>
► Perform PR examination	<ul style="list-style-type: none"> <li>► Assess the contents of the rectum.</li> <li>► Stimulant laxatives should not be given to patients with faecal impaction (Mathewson Kuhn, 1990)</li> </ul>
► Administer senna nocte	<ul style="list-style-type: none"> <li>► Prevention of constipation rather than treatment of established constipation is our objective, when on medication that predisposes to constipation (Cameron, 1992)</li> <li>► Senna-fibre is an effective treatment for constipation (Passmore <i>et al.</i>, 1993)</li> <li>► Anthroquinone glycoside laxatives act on the large bowel and reverse the colonic motility of narcotics without interfering with their analgesic effect (Cameron, 1992)</li> </ul>
► Administer glycerine suppository	<ul style="list-style-type: none"> <li>► To stimulate peristalsis and/or soften faeces</li> <li>► Rectal suppositories should be inserted directly into the faeces if being used for lubricants as they dissolve and soften faecal mass, while stimulant types must make contact with the mucosa to be effective (Pritchard and David, 1988)</li> <li>► When inserting suppositories, insert the base first and the apex or pointed end last (Abd-El-Maeboud <i>et al.</i>, 1991)</li> </ul>
► Impaction regime: Stage 1 = 5 ml microlax enema; Stage 2 = 128 ml phosphate enema; Stage 3 = 130 ml arachis oil retention enema	<ul style="list-style-type: none"> <li>► If faecal impaction present, use enemas before using oral laxatives (Fifield 1991)</li> <li>► The enemas used in the impaction regime act as faecal softeners and they have a moderate to strong effect</li> </ul>
► Evaluate after each stage, discontinuing if bowels open and maintain senna-fibre (S = senna + enteral feeding) combination	
► Seek medical advice	<ul style="list-style-type: none"> <li>► To exclude intestinal obstruction</li> <li>► Confirm prescription of impacted regime</li> </ul>
► If at any time diarrhoea occurs, stop bowel regimen and seek medical advice	<ul style="list-style-type: none"> <li>► Complications of diarrhoea include electrolyte imbalance and metabolic acidosis (Michschul <i>et al.</i>, 1990)</li> </ul>
► Exclude overflow, if overflow present commence impacted regime	
► Document each bowel action	<ul style="list-style-type: none"> <li>► Legal and professional requirements for record keeping as stated in the UKCC Standards for Records and Record Keeping (UKCC, 1993)</li> </ul>
► Document the number of bowel actions per 24 hours and as a cumulative total for each 3 day period, e.g.	<ul style="list-style-type: none"> <li>► 3 days is an accepted criteria for identifying constipation (Wolfsen <i>et al.</i>, 1993)</li> </ul>
► Day 1 = 2 bowel movements, 2/24;	
► Day 2 = 1 bowel movement, 3/48;	
► Day 3 = 2 bowel movements, 5/72;	
► Day 4 = 1 bowel movement, 1/24	

REFERENCES

Abd-El-Maeboud KH, El-Naggar T, El-Hawi EMM, Mahmoud SAR, Abd-El-Hay S. (1991). Rectal suppository: commonsense and mode of insertion. *Lancet*; 338: 798-800.

Butler M. (1998). Laxatives and rectal preparations. *Nursing Times*; 94: 56-58.

Cameron J. (1992). Constipation related to narcotic therapy. *Cancer Nursing*; 15: 372-377.

Dean G. (1995). Controlling pain when analgesia leads to constipation. *Nursing*; 25: 31.



- Directory of Emergency and Special Care Units. (1999). CMA Medical Data: Cambridge.
- Fifield M. (1991). Relieving constipation and pain in the terminally ill. *American Journal of Nursing*; **91**: 18–19.
- Godding E. (1976). Therapeutics of laxative agents with special reference to the anthraquinones. *Pharmacology*; **14**(Suppl 1): 78–101.
- Hale W, Perkins L, May F, Marks R, Stewart R. (1986). Symptom prevalence in the elderly: an evaluation of age, sex, disease and medication use. *Journal of American Geriatric Society*; **34**: 333–340.
- Heading C. (1987). Nursing assessment and management of constipation. *Nursing*; **21**: 778–780.
- Hill S, Anderson J, Baker K, Bonson B, Gager M, Lake E. (1998). Management of constipation in the critically ill patient. *Nursing in Critical Care*; **3**: 134–137.
- Kamm M. (1994). Constipation. *Medicine International*; **22**: 305–308.
- Kamm M, Lennard-Jones J. (1994). *Constipation*. Petersfield: Wrightson Biomedical Publishing.
- Kennedy J. (1997). Enteral feeding for the critically ill patient. *Nursing Standard*; **11**: 39–43.
- Kochen M, Wegscheider K, Abholz H. (1985). Prophylaxis of constipation by wheat bran: a randomised study in hospital patients. *Digestion*; **31**: 220–224.
- Maestri-Banks A, Burns D. (1996). Assessing constipation. *Nursing Times*; **92**: 28–30.
- Mathewson Kuhn M. (1990). *Pharmacotherapeutics: A Nursing Process Approach*. Philadelphia: FA Davis.
- McKenna S, Wallis M, Brannelly A, Cawood J. (2001). The nursing management of diarrhoea and constipation before and after the implementation of a bowel management protocol. *Australian Critical Care*; **14**: 10–16.
- Michschul D, Davidson L, Flournoy D, Parker D. (1990). Contamination of enteral feedings and diarrhoea in patients in intensive care units. *Heart Lung*; **19**: 326–70.
- Molitor P. (1985). Constipation. *Nursing Mirror*; **160**: 18–20.
- Moriarty K, Irving M. (1992). Constipation. *British Medical Journal*; **304**: 1237–1240.
- Nazarko L. (1996). Preventing constipation in older people. *Professional Nurse*; **11**: 816–818.
- Norton C. (1996). The causes and nursing management of constipation. *British Journal of Nursing*; **5**: 1252–1258.
- Passmore A, Wilson-Davies K, Stoker C, Scott M. (1993). Chronic constipation in long stay elderly patients: a comparison of lactulose and a senna-fibre combination. *British Medical Journal*; **307**: 769–771.
- Petticrew M, Watt I, Sheldon T. (1997). A systematic review of the effectiveness of laxatives in the elderly. *Health Technology Assessment*; **1**: i-iv, 1–52.
- Piccirillo M, Reissman P, Wexner S. (1995). Colectomy as a treatment for constipation. *British Journal of Surgery*; **82**: 898–901.
- Pritchard A, David J. (1998). *The Royal Marsden Hospital Manual of Clinical Procedures*. London: Harper and Row.
- Robinson-Wolf Z. (1996). Bowel management and nursing's hidden work. *Nursing Times*; **92**: 26–28.
- Ross H. (1998). Constipation: cause and control in an acute hospital setting. *British Journal of Nursing*; **7**: 907–913.
- Smith R. (1990). Large bowel problems. *British Medical Bulletin*; **46**: 246–261.
- Spence A. (1989). *Biology of Human Aging*. London: Prentice Hall.
- Tramonte S, Brand M, Mulrow C, Amato M, O'Keefe M, Ramirez G. (1997). The treatment of chronic constipation in adults: a systematic review. *Journal of General Internal Medicine*; **12**: 15–24.
- UKCC. (1992). *Code of Professional Conduct*. London: UKCC.
- UKCC. (1993). *Standards for Records and Record Keeping*. London: UKCC.
- Waldmann C, Gaine M. (1996). The intensive care follow-up clinic. *Care of the Critically Ill*; **12**: 118–121.
- Wolfsen C, Barker J, Mittness L. (1993). Constipation in the daily lives of frail elderly people. *Archives of Family Medicine*; **2**: 853–858. ■

► **CONFERENCE CONNECTIONS** ◀

**12th Congress Western Pacific Association of Critical Care Medicine**

Bali International Convention Centre, Sheraton Nusa Dua Hotel, Nusa Dua, Bali, Indonesia. August 22–25, 2002  
*Information from: Secretariat, Iqbal Mustafa, National Cardiac Center, c/o Intensive Care Unit, Harapan Kita Hospital, Jl. Letjen S. Parman Kav. 87, Slipi, Jakarta 11420, Indonesia.*  
 Tel: +62 21570 5800; Fax: +62 21 570 5798;  
 E-mail: [pactoldt@idola.net.id](mailto:pactoldt@idola.net.id); [www.WPACCM.com](http://www.WPACCM.com)

**European Shock Society Congress**

Oslo, Norway. September 5–7, 2002  
*Information from: Thomas Heftyesgt.2, PO Box 2694 Solli, NO-0204 Oslo, Norway.* Tel: +47 2256 1930;  
 Fax: +47 2256 0541; E-mail: [shock@congrex.no](mailto:shock@congrex.no);  
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**Austrian International Congress: Anaesthesia & Intensive Care: Art or Science?**

*Austrian Society of Anaesthesiology, Resuscitation and Intensive Care Medicine*  
 Vienna, Austria. September 11–13, 2002  
*Information from: ÖGARI Secretarial Office, Lazarettgasse 13, A-1090 Wien, Austria.*  
 Tel: +431/406 48 10; Fax: +431/406 48 11;  
 E-mail: [oegari@oegari.at](mailto:oegari@oegari.at); [www.oegari.at](http://www.oegari.at)

**8th Symposium of European Society of Paediatric and Neonatal Intensive Care**

Göteborg, Sweden. September 13–14, 2001  
*Information from: Monica Johansson, PICU–Avd 328,*

*The Queen Silvia Children's Hospital, S-41685 Göteborg, Sweden.* Tel: +46 313434746; Fax: +46 313435884;  
 E-mail: [monica.rn.johansson@vgregion.se](mailto:monica.rn.johansson@vgregion.se)

**12th Annual Congress of the European Respiratory Society**

Stockholm, Sweden. September 14–18, 2002  
*Information from: Congrex Sweden AB, ERS 002, PO Box 5619, S-11486 Stockholm, Sweden.*  
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 E-mail: [ers2002@congrex.se](mailto:ers2002@congrex.se); [www.ersnet.org](http://www.ersnet.org)

**6th Scientific Congress of the European Resuscitation Council**

Florence, Italy. October 3–5, 2002  
*Information from: Organising Secretariat, Noema Srl, Via Orefici, 4, 40124 Bologna, Italy.* E-mail: [noema@alinet.it](mailto:noema@alinet.it)

**17th International Symposium on Critical Care Medicine–A.P.I.C.E. 2002**

Trieste, Italy. November 15–19, 2002  
*Information from: A.P.I.C.E. Secretariat, Key Congressi, Piazza della Borsa, 7–34121 Trieste, Italy.* Tel: +39 040 660 352;  
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