

# Nursing and Residential Care

## Optimisation of Nutrition for Constipated Residents in the Care Home

--Manuscript Draft--

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<b>Full Title:</b>	Optimisation of Nutrition for Constipated Residents in the Care Home
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<b>Keywords:</b>	Nutrition; Constipation; Care Home; Dietary fibre; Laxatives
<b>Abstract:</b>	<p>This article provides an overview of the optimisation of nutrition for constipated residents in the care home. Constipation is a major problem among residents in care homes. It may be caused by a range of factors including poor dietary intake, reduced mobility, psychological issues, age related changes that may affect the gastrointestinal tract and delayed transit time, medications, physical factors and colorectal, neuromuscular and metabolic disorders. Constipation may cause anxiety, depression and poor health while in older people it has been associated with a decrease in the quality of life, functional ability, delirium and even mortality. Chronic constipation may lead to faecal retention and this may progress to distension of the rectum and loss of sensory and motor function. It may also lead to faecal impaction especially among residents who are not mobile.</p> <p>Although constipation and poor gastrointestinal motility impact on dietary intake and nutrient uptake, strategies for maintaining nutrition for care home residents who are constipated should include the provision of balanced diet and adequate fluid intake. While concerns remain with respect to the effectiveness of increased dietary fibre intake in the management of constipation, the use of laxatives and other agents may be helpful in promoting bowel motion and enhancing optimal nutrition.</p>

There is high prevalence of malnutrition among residents in the care home which significantly impacts their quality of life, morbidity, mortality and increases cost to the National Health Service (NHS) (Ojo, 2016). Residents who are malnourished are at greater risk of developing pressure sores, having falls, contracting infection, poor wound healing and the cost of treatment may be twice as high compared with those who are not malnourished (Nazarko, 2014). Estimates of 30% of those living in residential home and 40% of those living in nursing homes have been reported to be at risk of malnutrition in the UK (Parson et al, 2016; Ojo, 2016; Nazarko, 2014). These figures are supported by earlier publication by Forbes (2014) who suggested that 30 – 42% of residents in the care home are already at risk of malnutrition on admission. A number of factors such as the side effects of medication, poor dental health, neurological conditions which impact the swallowing ability, polypharmacy and constipation may pre-dispose residents in the care home to malnutrition (Forbes, 2014; Nazarko, 2014; Parsons et al, 2016; Carlsson et al, 2013; Isenring et al, 2009). Disorders of the gastrointestinal system including diarrhoea and constipation are some of the causes of poor dietary intake and malabsorption of nutrients (Evans, 2005). In addition, delayed gastric emptying is one of the factors influencing nutritional inadequacy in the elderly population (Evans, 2005). There is also evidence that low dietary fibre content and dietary habits including change in diet or reduction in oral dietary intake may be contributing to the high prevalence of constipation in care home residents (Woodward, 2012; Taba Taba Vakili et al, 2015). Based on the above, there appears to be a bi-directional relationship between malnutrition and constipation. This calls for greater attention among healthcare professionals working in this area of practice to ensure that residents in care homes receive optimal nutrition provision.

Therefore, this article aims to provide an overview of the optimisation of nutrition for constipated residents in the care home.

## Constipation and its Causes

Constipation is the decrease in the frequency and/or the difficulty in passing bowel movement (Bardsley, 2015). It is a condition which involves abnormally hard and difficult process of eliminating stool irrespective of the frequency of bowel movement (Gélinas, 2012). Constipation is a significant problem in elderly residents in care homes and prevalence of 50 – 70% of the elderly in institutions may be suffering from constipation (Blane and Blagrave, 2011). It affects about 20% of the world population and there appears to be higher prevalence in women than in men (Rao et al, 2015). Estimates of 4.1% to 22.4% in Europe, 12% to 27.2% in North America, 14.2% to 25.6% in Central and South America, and 2.6% to 24.8% in Asia have been reported (Rao et al, 2015). In the UK, constipation is one of the most prevalent gastrointestinal problems and estimates in adults of 8.2% to 52% and female-to-male ratio of about 3:1 have been noted (Bardsley, 2015).

Constipation is often classified as acute or chronic (long term) (Richards, 2011). Acute constipation may be caused by factors such as a change of diet, extra stress, or side effect of medication while long term difficulty to manage constipation needs detailed assessment to identify the cause (Richards, 2011). Other risk factors that may contribute to constipation include psychological issues (e.g. depression), age related changes that may affect the gastrointestinal tract and delay transit time, medications (e.g. opioids), physical factors (such as hernia), colorectal disorders (e.g. irritable bowel syndrome), neuromuscular disorders (e.g. stroke) and metabolic disorders (e.g. diabetes) (Lämås et al, 2016; Richards, 2011). In addition, residents in care homes are at increased risk of constipation due to reduced mobility, decreased dietary (including fibre) and fluid intake, diminishing cognitive state and the use of polypharmacy with constipating side effects (Blane and Blagrave, 2011). Although the recommended daily fibre intake is 38gm for men and 25gm for women who are above 50 years old, only 14gm of dietary fibre per day is offered to each nursing home resident (Blane

and Blagrove, 2011). It has been suggested that actual daily fibre intake could be as low as 9gm per day or less while many nursing homes do not know how much fibre is provided to residents (Blane and Blagrove, 2011).

The assessment and diagnosis of constipation is useful in developing management strategies aimed at minimising its impact. The assessment of constipation may involve having an overview of the residents' pattern of bowel habit, keeping records of their bowel pattern over 3 – 14 days, a 7-day food diary and fluid intake and using the Bristol stool chart (Bardsley, 2015). It may also be useful to review their current medication and any underlying medical conditions as part of the assessment strategy (Bardsley, 2015). The Bristol stool form scale can be useful to assess the consistency of stools (Woodward, 2012). The scale has three main consistencies and seven types including hard to pass (Type 1 and 2), ideal consistency (Types 3 and 4) and difficult to control (Types 5, 6 and 7) (Bardsley, 2015; Woodward, 2012). In addition, the Rome III criteria has been developed as a standardised tool that should enhance the diagnosis of chronic constipation (Bardsley, 2015). The diagnosis of chronic constipation is usually based on at least two or more symptoms being present for at least 12 weeks in the previous six months, including; straining during defecation, at least 25% of the time; elimination of lumpy/hard stools at least 25% of the time; experiencing sensation of incomplete evacuation at least 25% of the time and having three or fewer bowel movements a week (Bardsley, 2015; Gélinas, 2012).

## Symptoms of Constipation

The symptoms of constipation in care home residents may be profound and these have been outlined in Box 1.

### Box 1. Symptoms of Constipation

- Confusion
- Overflow diarrhoea
- Nausea
- Loss of appetite
- Urinary retention
- Abdominal pain
- Passing hard, pellet like stools
- Straining to pass stool
- Pain on passing stools
- Pain in lower abdomen
- Soiling of pants
- Bloating
- Sore bottom
- Smear of blood on the toilet paper

Adapted from Wessel – Cessieux (2015); Richards (2011).

## The Impact of Constipation

Constipation is common in older people and leads to decreased quality of life (Chapman and Hungerford, 2015). According to Wessel – Cessieux (2015), it is the severity of the symptoms of constipation that has been observed to correlate negatively with quality of life and constipation has been linked to anxiety, depression and poor health perception. Chronic constipation may progress to faecal retention which could be progressive, distension of the

rectum and loss of sensory and motor function (National Institute for Health and Care Excellence – NICE, 2015). It may also lead to faecal impaction especially in residents who are not mobile and this could cause faecal incontinence, urinary tract infection, rectal bleeding and prolapse (NICE, 2015). Andy et al (2016) reported that constipation in older people was associated with a decrease in the quality of life, functional ability, delirium and even mortality.

It has been reported that patients with chronic constipation are associated with significantly higher prevalence of colorectal cancer and benign neoplasm compared with patients without chronic constipation and the risk of developing these conditions increases with the severity of the constipation (Guérin et al, 2014). In addition, the cost of constipation can be profound in terms of the actual cost and its impact on the quality of life, morbidity and mortality (Markland et al, 2013). In a recent Dutch study, it was revealed that the direct mean medical costs of chronic constipation per patient in the first year following diagnosis were estimated to be €367±882 in persistent disease, €292±808 in episodic disease and €263±613 in non recurrent disease (Rao et al, 2015). In the USA, the estimated annual direct medical costs for constipation alone has been put at about \$1.6 billion for outpatient and \$852 million in in-patient costs (Rao et al, 2015).



#### Strategies for optimising nutrition in residents with constipation

To optimise nutrition in residents who are constipated, it is essential to manage the constipation and to promote optimal nutritional intake due to the bi-directional relationship between constipation and nutrition. The prevention and management of constipation should involve a range of strategies including abdominal massage, laxatives, rectal stimulants and diet and fluid modification (Bardsley, 2015; NICE, 2015; Woodward, 2012 – Tables 1 and 2). While each of these methods have their merits and drawbacks, the overall aim is to ensure

that residents are able to maintain regular, predictable and comfortable bowel movement (Bardsley, 2015).

The inclusion of high fibre diet is important in the prevention and management of constipation although it would appear that researchers are not unanimous with respect to the effectiveness of dietary fibre in the management of constipation due to conflicting findings (Wessel – Cessieux, 2015; Kalish and Loven, 2007). For example, the study of the association of low dietary intake of fibre and liquids with constipation recommend the treatment of constipation with increased liquid, but not the use of fibre or exercise (Markland et al, 2013). In contrast, the consumption of high dietary fibre in adults has been shown to have significantly reduced functional constipation and cost savings which may exceed \$12 billion (Schmier et al, 2014). Rao et al (2015) conducted a systematic review on the use of dietary fibre in the management of constipation and found that fibre supplementation is beneficial in mild and moderate chronic constipation although the authors recommended a larger and more rigorous and long term randomised controlled trials. The study noted that fibre is effective in the management of chronic constipation, but also observed that factors such as bloating, flatulence and cramping may reduce the use of insoluble fibre more when the process of introducing the fibre intake is not gradual (Rao et al, 2015). High fibre and high total water intake have also been found to be related to reduced risk of constipation among people aged 65 years and younger, but not among those older than 65 years (Taba Taba Vakili et al, 2015). In addition, dietary intake of high saturated fat was reported to be significantly associated with constipation while dietary unsaturated fat was not associated with increased constipation in people below and above 65 years old (Taba Taba Vakili et al, 2015).

NICE (2015) has outlined recommendations for managing short duration constipation in adults. These include; reviewing the constipation and medication if possible and increasing dietary fibre, drinking adequate fluid and exercise. The use of laxative may be promoted if the dietary measures are not effective or when awaiting the dietary intervention to take hold. NICE (2015) noted that dehydration, low dietary fibre intake and reduced exercise are associated with constipation, but observed that the clinical impression is that increasing fluid intake above recommended daily amount and increasing dietary intake and exercise do not always address the problem of constipation. The treatment of chronic complication should involve relieving the faecal load if present and ensuring that strategies earlier outlined for short term duration of constipation are included (NICE, 2015).

The prevention and treatment of constipation should include the use of balanced diet which contains whole grains, fruits and vegetables (NICE, 2015 – Table 2). The diet should be adequate in quantity and dietary fibre, appetizing, familiar to the residents and easy to prepare by staff (Blane and Blgrave, 2011). Fruits that are high in sorbitol (such as apples, apricot and gooseberries) and fibre (such as All- bran) are useful in managing constipation (Table 2 – NICE, 2015). Dietary fibre increases faecal mass, stimulates increased bowel activity and transit time and thus may be useful in managing constipation (Sutton et al, 2014). The use of oat fibre supplementation has been shown to improve body weight, well-being and enabled the discontinuation of laxatives by 59% among the elderly (Sturtzel et al, 2009). The water – soluble fractions of fibre have the highest laxative potential and acts as a bulking agent, increasing the size and weight of the remnant of food in the intestine due to its high water building capacity (Gélinas, 2013).

However, there should be gradual increase in the fibre intake in order to reduce the risk of bloating and flatulence (NICE, 2015). While adults should aim to consume about 18 – 30 gm



of fibre every day, having adequate fluid is also very important although this may sometimes be difficult to achieve especially in the elderly (NICE, 2015).

Table 1: Agents for managing constipation

Intervention	Types	Examples	Mode of Action
Laxative	Bulk forming	Fybogel, Celvevac, Normacol, Regulan, Bran	To distend the colon and stimulate peristalsis.  Increase water content of faecal mass
	Osmotic	Macrogols, Lactulose, Phosphate enemas	Retain water in the stool, making evacuation easier.  Draws fluid from the body into bowel by osmosis
	Stimulant	Senna, Bisacodyl, Co-danthramer	Increases colonic motility
Faecal Softeners	-	Docusate sodium, Liquid paraffin, Arachis oil	These agents work by softening stools and enhancing their passage
Prokinetic Agents	-	Procalopride, Tegaserod	-

Adapted from NICE (2015); Bardsley (2015); Woodward (2012)

Table 2: Sources of High Fibre and Sorbitol

Type of potential Natural Laxatives	Sources	Examples	Comments
Sorbitol	Apples, apricots, gooseberries, grapes, peaches, plum, raspberries		Fruits and their Juices
Fibre	Fibre Supplements	Bran (Wheat)	
	Breakfast Cereal	All-Bran, Shredded wheat, Bran flakes, Weetabix	
	Bread/Rice/Pasta	Crispbread, rye, Pitta Bread (wholemeal), Pasta	
	Vegetables	Baked beans (in tomato source, Red kidney beans, Peas	
	Fruit	Avocado pear, Pear (with skin)	
	Dried Fruits/Nuts	Apricots (semi dried), Prunes (semi dried)	
	Convenience foods	Quorn, Vegetable pasty	

Adapted from NICE (2015); Gélinas (2013)

### Conclusion

Constipation poses a significant challenge for residents in the care home. It may impact on their quality of life and has been linked to anxiety, depression and poor nutrition and health status. The use of balanced diet including increased dietary fibre intake and adequate fluid intake have been reported to be useful in managing constipation and promoting nutritional status. However, concerns remain regarding the efficacy of rapidly increasing dietary fibre intake in the management of constipation, although the use of laxatives has been recommended when dietary approaches are ineffective.

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