

Patient and Carer Education in the Management of Constipation with a View of Reducing Unnecessary Admissions

INTRODUCTION

Constipation is a significant health care issue, especially in high-risk groups such as the elderly, patients with psychiatric problems, institutionalised individuals and those with decreased mobility.¹ As indicated from this audit, in 2021, an estimated 2.5% of general surgery admissions were due to constipation.

A significant number of patients were being admitted to the inpatient service with a diagnosis of 'constipation' for which the majority had no neurological or anatomical cause. Thus, these patients would be defined as having 'functional constipation' (FC) as per Rome Criteria.² Additionally, different therapeutic regimens were noted to have been used in several primary health care facilities and elderly homes to treat constipation. Such regimens were not standardised and evidently, ineffective.

As a result of the lack of standardised management, there was inadequate use of health care resources giving rise to admissions. Treatment that could have occurred at primary health centres or else in the community was being given in hospital instead. Financial and hospital resources, patient discomfort, patient risk and inaccurate information relayed to the patient are all in play when it comes to unstandardised medical management.

AIM

The aim of this audit was to investigate all cases of avoidable constipation from January 2021 to January 2022 and to assess if any standard was being followed for management of constipation at primary health level before being admitted to Mater Dei Hospital (MDH). The primary outcome of this audit will therefore attempt to improve patient and carer education in constipation management.

A standardised approach to improve the medical care of patients with functional constipation is described to decide when these patients need hospitalisation. Furthermore, a secondary outcome of this audit discusses the need of developing a standardised outpatient therapeutic approach for such patients to prevent recurrence. Before commencing this audit, approval from data protection department at MDH (Ref. MDH12/2020) was granted.

THE RESEARCH QUESTION

The authors made use of the 'PICO' model³ to construct a research question in order to ensure that the appropriate outcomes are considered in relation to a clearly

described patient cohort. The PICO model is made up of four elements:

- **Population:** Patients admitted to MDH with functional constipation. These may have been referred from primary health care, elderly homes, or else self-referred themselves from the community;
- **Intervention:** Medical management of constipation;
- **Comparison:** Comparing local management with standardised protocols used to categorise and treat constipation;
- **Outcomes:** In essence, the authors would like to determine whether the current strategy in admitting patients with functional constipation is an optimal method of using limited health care resources and also, whether current methods prove useful in preventing further recurrence.

METHODOLOGY

A literature search was conducted in specific databases to develop a standard for this audit i.e. NCBI and PubMed. Literature published between 2018 and 2022 was taken into consideration. It was decided that a retrospective method of assessment should be used to adequately conduct this audit.

The patients were recruited from the general surgery handover list which captures all emergency admissions at MDH. A set of inclusion and exclusion criteria was set up as shown in table 1 below.

Table 1. Population inclusion and exclusion criteria.

Inclusion Criteria	Exclusion Criteria
Patients admitted with constipation as primary cause of admission	Admissions requiring surgical escalation of treatment
Admission period between January 2021-January 2022	Admissions requiring > 2-day length of stay due to unforeseen comorbidities e.g. undiagnosed oncology cases, thyroid function abnormalities
Patients ≥ 18 years of age	Patients with previous colorectal surgery, including colostomy and ileostomy cases

Figure 1. Excel sheet used for data collection.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
	Patient Name and Surname	Patient ID no.	During Admission					On Discharge					Length of Stay	Any feedback/patient advice on discharge (Fibre, fluid, physical activity)	>1 Admissions due to constipation (number of recurrence)	Admission source		
			Oral Osmotic Laxatives (lactulose, macrogol (Movicol, Moviprep))	Rectal Pallet-form Laxatives (Glycerin, Dulcolax)	Rectal Liquid-form Laxatives (Phosphate (Fybogel) enema)	Oral Bulk forming Laxatives (Fybogel)	Oral Stimulant Laxatives (Sennakot)	Osmotic Laxatives (lactulose (Duphalac), macrogol (Movicol, Moviprep))	Rectal Pallet-form Laxatives (Glycerin, Dulcolax)	Rectal Liquid-form Laxatives (Phosphate (Fybogel) enema)	Oral Bulk forming Laxatives (Fybogel)	Oral Stimulant Laxatives (Sennakot)				Elderly home	Primary Health Centre	Community
1																		
2																		
3			Yes	Yes			Yes	Yes			Yes		1				Yes	Yes
4			Yes		Yes			Yes		Yes			1					Yes
5				Yes									2					Yes
6					Yes			Yes		Yes		Yes	2	Fluid				Yes
7				Yes									2					Yes
8				Yes				Yes					2			Yes		
9			Yes		Yes			Yes					2				Yes	
10			Yes		Yes			Yes					2			Yes		
11					Yes				Yes			Yes	2			Yes		
12					Yes			Yes	Yes				2					Yes
13					Yes			Yes					2	Fluid				Yes
14					Yes			Yes					2					Yes
15				Yes	Yes			Yes					2		2			Yes
16					Yes			Yes					2					Yes
17			Yes		Yes								1					Yes
18					Yes								1		2		Yes	
19					Yes			Yes					1		9		Yes	
20					Yes						Yes		1				Yes	
21					Yes								1				Yes	
22					Yes			Yes					1				Yes	
23			Yes					Yes					2	Fluid			Yes	
24					Yes								2			Yes		Yes
25				Yes	Yes			Yes					1				Yes	
26			Yes	Yes	Yes			Yes		Yes		Yes	2		5		Yes	
27			Yes		Yes		Yes	Yes					1			Yes		Yes
28					Yes			Yes					1		2		Yes	
29					Yes			Yes					1					Yes
30					Yes			Yes					2	Fluid	2			Yes
31					Yes			Yes	Yes				2					Yes
32					Yes								1	Fluid				Yes

An online excel form was developed to store and compare data. This data was only accessible by the authors of this paper. Patient and carer information was kept confidential throughout. Figure 1 is a screenshot-sample of the excel form used for data collection. Information compiled included the patients' source of admission, recurrences, treatment given during admission until patients open their bowels and any treatment prescribed on discharge to prevent recurrence.

RESULTS

During data collection, a total of 174 patients were considered. After exclusion criteria, 145 patients were recruited for data assessment. Tables 2 and 3 represent the treatment which patients were prescribed to open their bowels on admission – laxatives prescribed from admission upon first time of recorded bowel motions, and upon discharge – laxatives prescribed to patients on discharge, respectively.

Table 2. Treatment during admission

Treatment	Number of patients	Percentage out of 145
Oral Osmotic Laxatives (Lactulose, Macrogols)	27	18.6%
Suppositories (Glycerin, Bisacodyl)	16	11.03%
Rectal Enemas (Phosphate enema)	123	84.8%
Oral Bulk forming Laxatives (Fibre)	1	0.7%
Oral Stimulant Laxatives (Senna)	13	9%

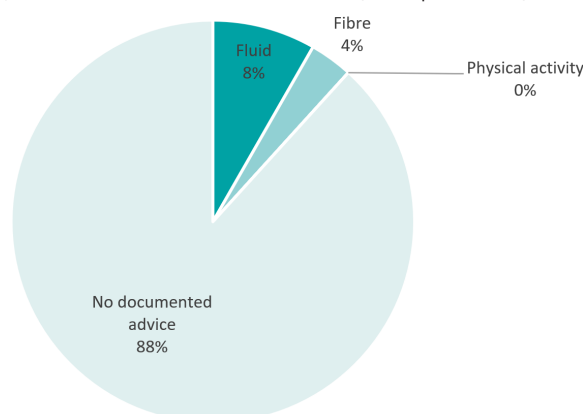
Table 3. Treatment on discharge

Treatment	Number of patients	Percentage out of 145
Oral Osmotic Laxatives (lactulose, macrogols)	93	64.1%
Suppositories (Glycerin, Bisacodyl)	4	2.8%
Rectal Enemas (Phosphate enema)	7	4.8%
Oral Bulk forming Laxatives (Fibre)	9	6.2%
Oral Stimulant Laxatives (Senna)	24	16.6%
No treatment on discharge	36	24.8%

Figure 2 represents the feedback which patients were given upon discharge. Feedback was given in the form of written advice via a discharge letter. Apart from this, no brochures or leaflets discussing means to prevent constipation were given out on discharge. After data collection, any advice given to patients was analysed and compared to the standards set by the NHS. The standards include the following prevention strategies:

- Adequate hydration
- A mixture of soluble and insoluble fibre diet
- Physical activity

Figure 2. Patient advice on discharge as percentages.



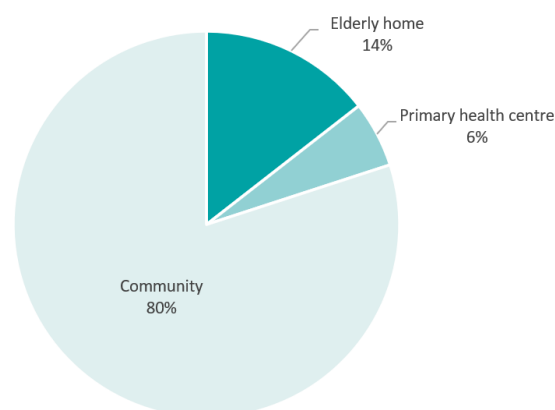
26.9% (39 patients) of the population had at least one re-admission due to functional constipation during the single year under scrutiny. It was ensured that during data collection, patients were only recruited on the datasheet once, in order to increase validity and reproducibility. The number of re-admissions for that particular patient was indicated in the datasheet in a separate column. Table 4 represents the number of re-admissions for the population audited until January 2022.

Table 4. Number of re-admissions as percentages.

Number of re-admissions	Number of patients	Percentage from population
2	21	14.5%
3-5	12	8.3%
6-10	3	2.1%
>10	3	2.1%

44.8% of the population studied were admitted for two days, while the rest were admitted for a total of 1 day. Figure 3 represents the source of admission of the population as percentages.

Figure 3. Source of admission



DISCUSSION

Management on admission

On admission, a significant proportion of patients (84.8%) required phosphate enemas to open bowels. Other patients required suppositories or oral laxatives. It can be debated that these are medications that can be prescribed by GP's, bought, and administered safely at home, and if needed, with the assistance of community nurses.

Upon contacting primary health care centres, it was confirmed that no standard protocol for constipation management is used. Rectal laxatives are not administered in these centres and this is the primary reason that these patients are referred to MDH for a phosphate enema.

On contacting specific elderly homes, it was noted that not all homes administer phosphate enemas and the reason for this is a combination of inadequate resources and the home's requirement of a prescription from a medical doctor – who might not always be on site. In addition, it was noted that no standard protocol of constipation management was in use throughout these homes. This seems to be the main reason the delayed treatment of constipation and subsequent hospital admission.

This lack of adequate management resulted in 145 admissions (209 hospital bed days) at MDH simply for the administration of laxatives. This is suboptimal especially considering that rectal saline laxatives such as phosphate enemas can be safely administered outside of hospital.⁴

Management on discharge

NHS recommendations⁵ advise that constipation should not only be managed with medication, but also with diet and exercise. This signifies the importance of patient and carer education. Patients audited were found to be prescribed a wide range of laxatives, with no correlation or pattern, and only 12% of these patients were given advice on an adequate diet. There was no documented recommendation about the importance of physical exercise in preventing constipation.

Only 12% of patients were given documented advice on their diet, and 24.8% of patients were not even given treatment on discharge to prevent future constipation. This is significant and indicates the importance of patient education and a practical management regimen to be given upon discharge from MDH. Further unnecessary re-admissions could be prevented by not only prescribing laxatives but also by providing adequate information on diet, hydration and physical activity.

One cannot ignore the financial burden of such admissions. Patients with a diagnosis of constipation are generally admitted for a minimum of one day at hospital. MDH billing department gives the cost for a full day in a surgical ward, excluding investigation and treatment, to be Euro 256.23. Multiplying the number of bed days used by these admissions results in a cost of Euro 53,504 in a single year not including price of any routine and investigative tests incurred or any medication given. This is a hefty price to pay for management which may be provided outside of hospital. Patient/Carer education and standardisation of constipation management would greatly decrease these costs.

Limitations of Audit

- This audit has been based on clinician comments via handover documents and hospital online database. Despite taking into consideration any past medical or surgical patient history whilst undergoing inclusion/exclusion criteria, the audit has not considered patient's drug history. This may have contributed to functional constipation and would ultimately change the overall management to include treatment review, subsequently altering or omitting current medications which increase constipation.
- Prescriptions from public health centres were not analysed to confirm any possible issues faced by GPs which may have led to the decision to refer to ED. For example, a GP may not have been comfortable stepping up laxative doses to the maximum licensed doses in specific patients.
- When collecting data relating to discharge advice, it was not possible to correlate any lack of advice to the health status of the patient. For example, patients might have not been given advice on physical activity due to current mobility issues.

CONCLUSION

The frequency of and the associated costs of ED visits and hospital admission for constipation are significant.⁶ Management of constipation is most successful when multiple approaches are instituted and/or combined

(adequate diet, exercise, and therapeutic medication). Similarly, the approach to medication often necessitates more than one agent/laxative, with the aim of titrating to optimal effect. Standard protocols for the management of common presentations such as constipation are recommended.

GRADED RECOMMENDATIONS

1. Carer education and a standardised approach

A constipation management guideline has been compiled to standardise the management of patients presenting with constipation both at primary health centres and in elderly homes (Figure 4).

A copy of this audit along with the established management guidelines – which has been adapted from the NHS, will be promoted locally. Furthermore, brochures containing relative information will be sent to all local elderly homes.

Figure 4. Constipation management guidelines with QR code. Adapted from the National Institute for Health and Clinical Excellence (NICE), "Clinical Knowledge Summary: Constipation," Manchester.



Please note: Patients presenting with short term, infrequent constipation caused by changes in lifestyle or diet, such as lack of water or movement or changes in diet, should be advised to self-manage by purchasing laxatives over-the-counter.

1st line

Osmotic laxatives

Oral

- ⇒ Macrogol sachets – increased in steps of 2 sachets per day up to a maximum of 8 sachets per day.
- ⇒ Lactulose syrup – 15ml twice daily

Rectal

- ⇒ Phosphate enema

2nd line

Add **stimulant laxative** to existent therapy

Oral

- ⇒ Bisacodyl – 5-10mg at night
- ⇒ Sennosides – 15mg twice daily

Rectal

- ⇒ Glycerin suppositories

Lifestyle and dietary advice

- ⇒ Respond immediately to the call to toilet
- ⇒ Diet should be balanced and contain whole grains, fruits and vegetables
- ⇒ Adequate fluid intake is important
- ⇒ Increase in physical activity

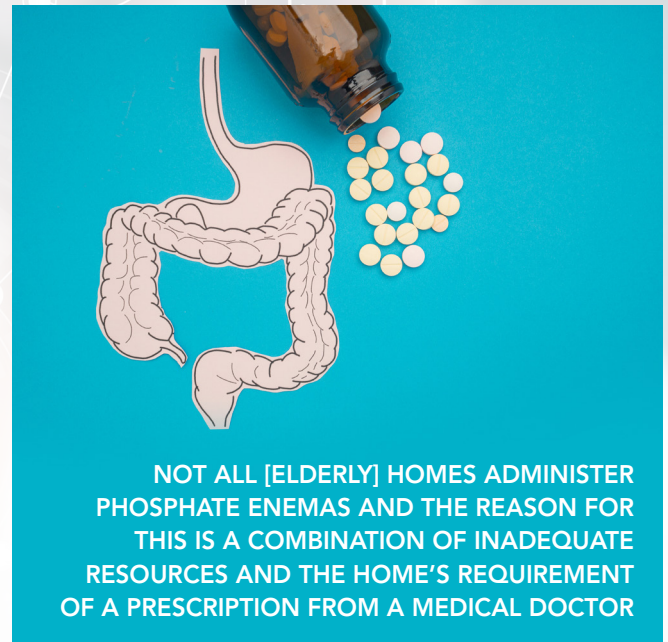
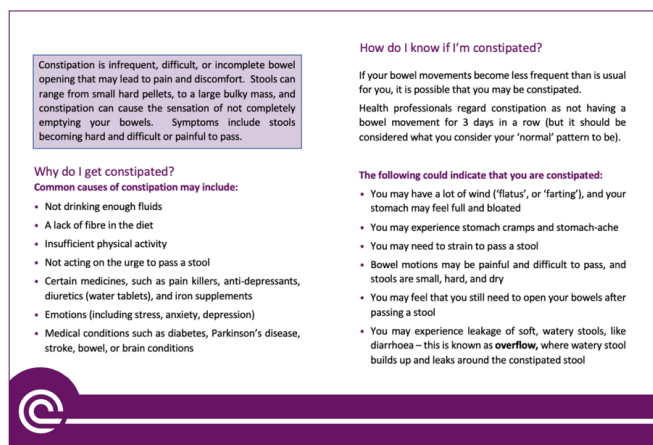
Adopted from the National Institute for Health and Clinical Excellence (NICE), "Clinical Knowledge Summary: Constipation," Manchester.

2. Patient education

Figure 5 represents a brochure proposed by the authors of this paper as a form of patient education which will be sent to all local elderly homes. This brochure is pending approval by MDH's general surgery department. This brochure includes advice on diet, hydration, physical activity, and other recommendations to conservatively manage constipation. Furthermore, it signifies the stepwise approach of health care, reminding the patient to utilise primary health facilities adequately before choosing to present to the emergency department. This is pertinent since 80% of patients presented directly from the community to MDH ED.

This brochure, as approved, will be available to all doctors via MDH's online platform and will be circulated to doctors working in the general surgery department via email. It would be recommended that this brochure as well as the guidelines are printed and given to the patient along with the discharge letter.

Figure 5. Constipation leaflet with QR code. Adapted from the NHS website www.nhs.uk/conditions/constipation.



3. Local hospital improvements

Considering the above results, it would be ideal to invest in carer education in this sector, especially in the administration of rectal laxatives, to decrease the number of unnecessary admissions. Furthermore, it would also be ideal to consider a specified outpatient constipation service to manage these admissions, further decreasing the number of patients presenting at the emergency department.

The above measures and recommendations are only indicated where functional constipation has been diagnosed and other causes needing further surgical intervention have been excluded. It is important to note that it is highly recommended to consider the patient in a holistic manner, along with their comorbidities and drug history, before attempting to prescribe laxatives.⁷ Furthermore, prophylactic prescribing of laxatives along with drugs that may cause constipation is debatable but should always be considered.⁸

References

1. Addison R, Davies C, Haslam D, et al. A national audit of chronic constipation in the community. *Nurs Times* 2003;99(11):34-5.
2. Aziz I, Whitehead WE, Palsson OS, et al. An approach to the diagnosis and management of Rome IV functional disorders of chronic constipation. *Expert Rev Gastroenterol Hepatol* 2020;14(1):39-46.
3. Goodwin University. Hoffman Family Library. Evidence - Based Practice: Formulating Your Question (PICO) [Internet]. [cited 2023 Mar 28]. Available from: <https://goodwin.libguides.com/c.php?g=309484&p=2066254>
4. Gloucestershire Hospitals (NHS). Self-administration of a phosphate enema [Internet]. [cited 2023 Mar 31]. Available from: https://www.gloshospitals.nhs.uk/media/documents/Self-administration_of_a_phosphate_enema_GHPI1236_01_21.pdf
5. NHS (UK). Constipation [Internet]. [cited 2023 Mar 31]. Available from: <https://www.nhs.uk/conditions/constipation/>
6. Sommers T, Corban C, Sengupta N, et al. Emergency department burden of constipation in the United States from 2006 to 2011. *Am J Gastroenterol* 2015;110(4):572-9.
7. Avery AJ, Rodgers S, Franklin BD, et al. Research into practice: safe prescribing. *Br J Gen Pract* 2014;64(622):259-61.
8. Bashir A, Sizar O. Laxatives. [Updated 2022 Oct 13]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. [cited 2023 May 2] Available from: <https://www.ncbi.nlm.nih.gov/books/NBK537246/>