

## **A Study on Dyspepsia Management and Endoscopy Referral Practices in Family Medicine Outpatient Department, Eastern Nepal**

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### **Abstract**

**Introduction:** The group of conditions collectively termed “Dyspepsia” is the cause of much morbidity and significant mortality in Nepal. In the Family Medicine Outpatient Department around 10% of total cases seen are suffering from dyspepsia. Doctors manage dyspeptic symptoms but the situation could be improved if doctors agreed to follow a standard protocol such as that proposed by WHO, or the guidelines produced by various national working parties of gastroenterologists and family practitioners. The idea behind the proposed study was to implement an internationally accepted guideline for management of dyspepsia in the Family Medicine Outpatient’s Department.

**Objectives:** 1. To record the presence of particular clinical features in cases of dyspepsia presenting to Family Medicine Outpatients. 2. To measure the effectiveness of the use of an evidence-based clinical algorithm to improve the standard of referrals for endoscopy. 3. To note the outcome of endoscopy in relation to the appropriateness of the referral

**Materials and Methods:** Plan of Action was preformed. Everyday Family Medicine OPD was visited to explain and to collect the survey forms. A one hour educational session was given to the group of doctors working in the Family Medicine OPD.

A laminated copy of the algorithm was placed in Family Medicine OPD. The second survey (post-education ) of dyspepsia was started and completed. The researcher visited the outpatients department on a daily basis to collect survey forms and to encourage doctors to use the algorithm.

**Results:** There were 38 referrals (38%) to the endoscopist in the pre-education group of 100. After the education session and implementation of the protocol, there were 46 referrals (46%). In the pre-education group, out of 37 referred cases,

77% had positive findings in the pre-education group and 94% in the post-education group.

**Conclusion:** Dyspepsia is a common presentation in the outpatient setting, representing significant morbidity that is usually not serious, but includes some cases that may lead to death through ulcerative complications or because of rare cases of malignancy. The use of a clinical guidelines together with education and reminder visits have been shown to be effective in improving doctor performance in the management of dyspepsia.

### **Keywords:**

Dyspepsia, Endoscopy, Referral, Family Medicine Department, Nepal

### **Introduction**

The group of conditions collectively termed “Dyspepsia” is the cause of much morbidity and significant mortality in Nepal. Every day many cases are seen in the outpatient setting of B.P.Koirala Institute Of Health Sciences(BPKIHS) as well as the Emergency Dept. In the Family Medicine Outpatient Department around 10% of total cases<sup>1</sup> seen are suffering from dyspepsia. Doctors manage dyspeptic symptoms with various common investigations and treatments. The majority of cases are successfully managed, but the situation could be improved if doctors agreed to follow a standard protocol such as that proposed by WHO, or the guidelines produced by various national working parties of gastroenterologists and family practitioners. A significant concern is that endoscopy referrals are sometimes inappropriate. In a previous survey of endoscopies done in BPKIHS it was found that most referrals from the outpatient departments had no positive findings.<sup>1</sup> On the other hand it may be that some cases that really should have an endoscopy performed had not been referred. The idea behind the proposed study was to implement an internationally accepted guideline for management of dyspepsia in the Family Medicine Outpatient’s Department. This involved an initial assessment (pre-education survey) of current management practices. An education program took place among the doctors working in Family Medicine OPD. The dyspepsia management tool developed by the

Canadian Medical Association was introduced in the education program and implemented in the department. After this intervention, a second (post-education) survey of doctors' dyspepsia management was performed.

**Materials and methods**

**Plan of Action was preformed as below:**

1. A survey form was prepared , for the initial survey before implementation of the clinical algorithm. 100 patients with dyspepsia were surveyed between 16th April 2015 till 14th October 2015. Everyday Family Medicine OPD was visited to explain and to collect the survey forms.
2. Implementation of the dyspepsia clinical algorithm and education process in the Family Medicine Department.
  - a) The clinical management algorithm was provided with a series of 5 key decision points as denoted by letters A, B, C D and E boxes. Each box with related mini-management schemata. The 5 key decision points were address the following questions
    - Are there other possible causes for the symptoms? If yes, then consider cardiac,hepato-biliary,medication-induced,dietary indiscretion and other causes and treat as appropriate.
    - Is the patient over 50 years of age, or does the patient have any alarm features(vomiting,bleeding/anemia,abdominal mass, unexplained weight loss and dysphagia)?.
    - Is the patient regularly using NSAIDs?
    - Is the dominant symptom heartburn or acid regurgitation, or both?
    - If the symptoms recurs after 2 months of treatment or resolved symptoms. The decision key points were indicating whether endoscopy was required or not required.
  - b) A one hour educational session was given to the group of doctors (House Officers and Junior Residents) working in the Family Medicine OPD, setting. The numbers of doctors present were 30. In the class, and explanation of the implementation of the clinical algorithm of “Dyspepsia management and referral for endoscopy in Family medicine out patients BPKIHS” was given.
  - c) A laminated copy of the algorithm was placed in Family Medicine OPD setting.
3. “Appropriate Referral” criteria was developed as a scoring system after discussion among senior colleagues.
4. The second survey (post-education ) of a further 100 cases of dyspepsia was started and completed between 15th October 2015 till 14th April 2016.The researcher visited the outpatients department on a daily basis to collect survey forms and to encourage doctors to use the algorithm.

**Results**

**Characteristics of the pre- and post-implementation survey groups**

It was not feasible to formally match the cases in the pre- and post-education study groups. However the two groups were compared by age, sex and by clinical features (presence of vomiting, regurgitation, dysphagia, weight loss, presence of mass, use of NSAID/ASA). The two groups were essentially similar as illustrated graphically in figures. (1-9)

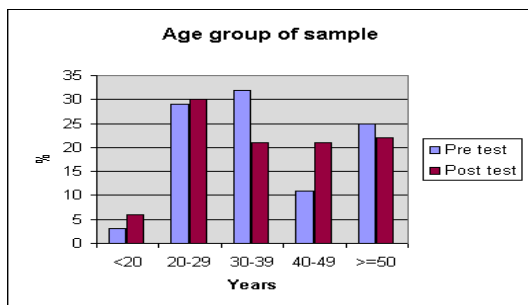


Figure-1

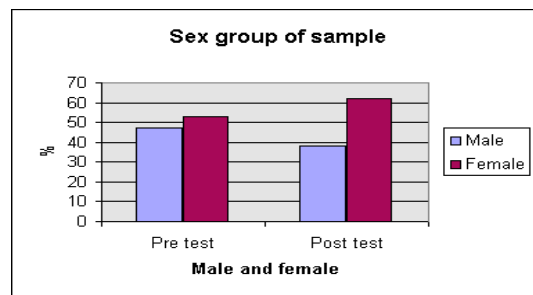
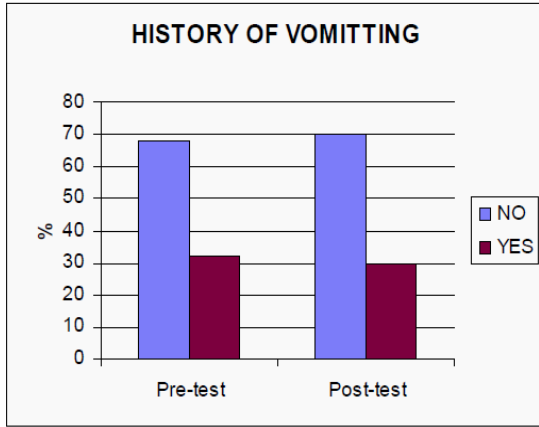
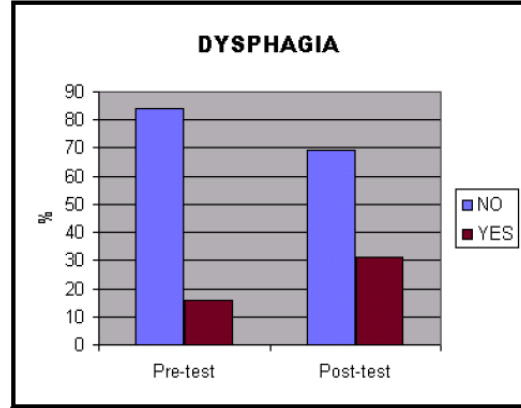


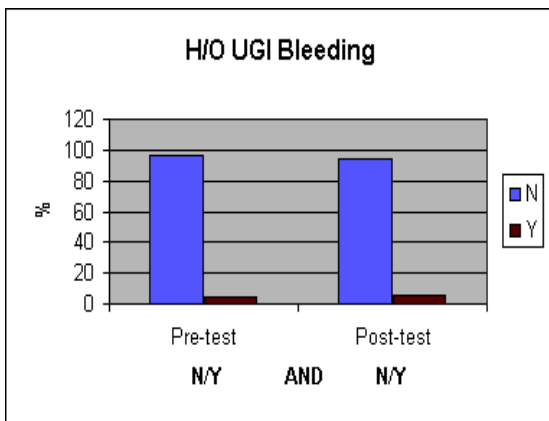
Figure-2



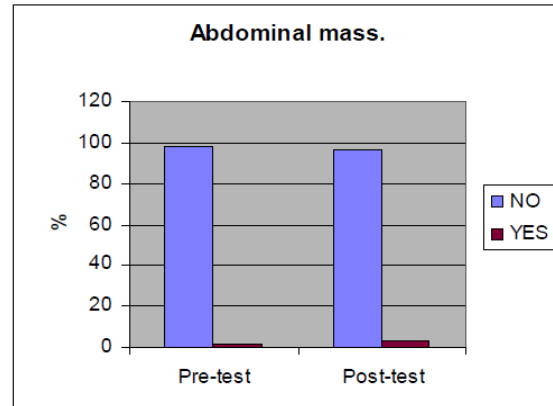
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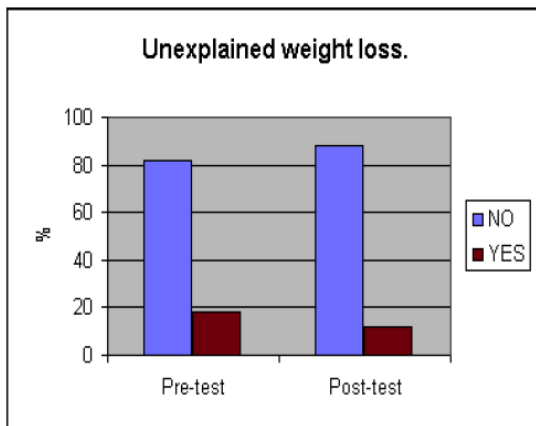
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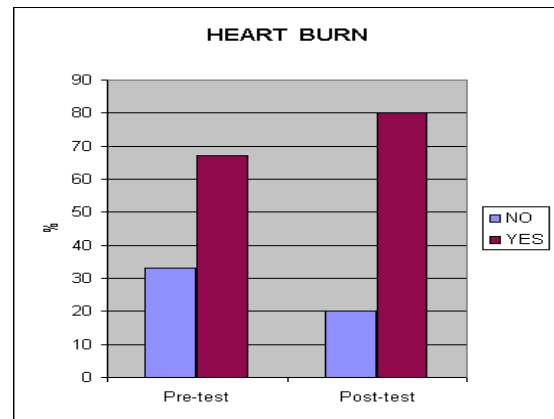
**Figure 5**



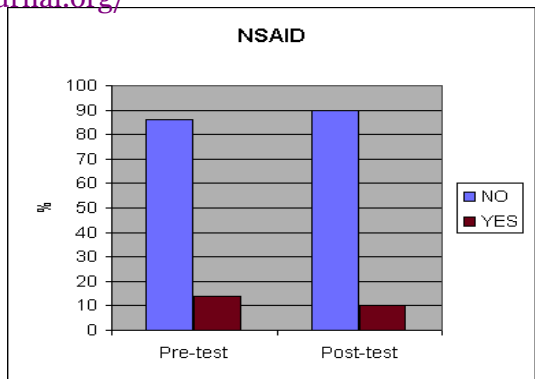
**Figure 6**



**Figure 7**



**Figure 8**



**Figure-9**

**Prescribing pattern**

There was overall, a significant change in prescribing pattern before and after education Two tailed P value: 0.000002, as illustrated in( table 1):

**Table- 1**

	Number appropriately treated divided by total	Percentage appropriately treated
<b>Pre-education</b>	33/100	33%
<b>Post-education</b>	67/100	67%

Do improvements in treatment pattern correspond with similar improvement in referral? What about cases that are not referred? Are they appropriately treated? To answer these questions the changes before and after education were stratified by referral category as shown in (table 2).

**Table- 2**

Prescription	Referral category				Totals
	1 (YY)	2 (NN)	3 (YN)	4 (NY)	
Pre –appropriate	10	7	2	15	34
Pre- inappropriate	19	18	6	23	66
Post –appropriate	29	17	0	21	67
Post- inappropriate	16	10	0	7	33
					200

The referral categories can be understood as follows:

- Category 1 (YY) referred appropriately according to algorithm
- Category 2 (NN) not referred, appropriately according to algorithm
- Category 3 (YN) referred inappropriately according to algorithm
- Category 4 (NY) not referred, but should have been referred according to algorithm

There was significant improvement in treatment among appropriate referrals (p = 0.012) appropriate non-referrals (p = 0.011), and also those who should have been referred, but were not (p = 0.004). Comparison could not be done among the inappropriate referrals as there were none after the education session.

**Table-3**  
Percent correctly treated among appropriately referred and not referred cases.

	1YY Appropriately referred	2NN Appropriately not referred
Pre-edu.	34.50% Treated correctly	24.00%
Post-edu.	64.40%	63.00%

**Table-4**  
Percent correctly in inappropriately referred or not referred cases. Category.

	3 –YN Referred inappropriately	4 – NY Inappropriate non-referral
Pre-education	25.00% Treated correctly	39.50% Treated correctly
Post-education	No cases	75.00% Treated correctly

**Referral Pattern**

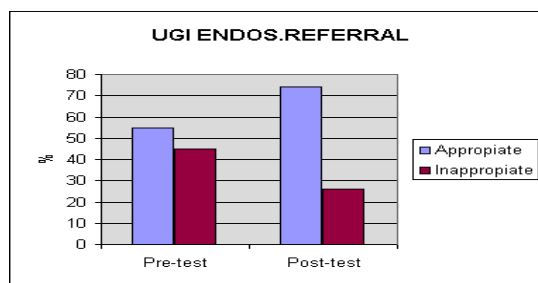
**Overall change in referral pattern**

There were 38 referrals (38%) to the endoscopist in the pre-education group of 100. After the education session and implementation of the protocol, there were 46 referrals (46%). This change was not statistically significant (P = 0.250). To see whether these referrals and non-referrals were appropriate according to the algorithm, and whether there was significant change in referral pattern, the results were stratified into the same referral categories as previously explained, and the pre and post education change tested for statistical significance (Table 5).

**Table-5**

Pre- and Post-education Referral Pattern by Category					
	Cat 1 (YY)	Cat 2 (NN)	Cat 3 (YN)	Cat 4 (NY)	Total referrals
Preeducation	29	25	8	38	100
Posteducation	45	27	0	28	100
P –value	0.019	0.74	0.011 (with Yates' correction)	0.132	

Statistically significant improvement was noted in Categories 1 and 3. More of the referrals were appropriate. Change occurring in Categories 2 and 4 was not statistically significant, but the downward trend in Category 4 (cases that should have been referred, but were not referred) is encouraging. Appropriate referral and appropriate non-referral combined (YY +NN) increased from 54/100 to 72/100, a statistically significant improvement (P = 0.0084), as shown in ( figure 10).



**Figure 10**

**Endoscopy room record data**

In the pre-education group, out of 37 referred cases, only 22 cases actually had it done, because the endoscopy was out of order for part of the time. Referrals were judged appropriate (YY) or inappropriate (YN) according to the algorithm. The results are shown in the ( table 6).

**Table- 6**  
**Table summarizing appropriateness of referral and endoscopy result.**

	<b>YY</b> <b>Appropriate referral.</b>	<b>YN</b> <b>Inappropriate referred</b>
<b>Pre-education</b>	No. referred 37	No. referred 8
Endoscopy done	22	3
Endo result	17 positive	1 positive
	positive endo finding 77%	% of cases with pos endo result 33%
<b>Post-education</b>	45	0
Endoscopy done	36	0
Endo result	34 positive	0
	positive endo finding 94%	

It can be seen that of those who actually had endoscopy after appropriate referral, 77% had positive findings in the pre-education group and 94% in the post-education group. This difference is not statistically significant because of the small number in the referral category stratum. Only 1 of 3 inappropriate referrals in the pre-education group had positive findings, and there were no inappropriate referrals in the post education group. Positive findings included duodenal ulcers, gastric ulcers, and duodenitis and a few showing signs of gastritis. There were no malignancies or cases of gastro-oesophageal reflux disease.

**Discussion**

In the present study an internationally accepted guideline for management of dyspepsia and referral for endoscopy was implemented through an education session, provision of an algorithm and frequent visits by the researcher to collect data and to remind the doctors. Because of the study design and for practical reasons, it was not possible to match cases in the pre-education and post education groups of patients. However, no statistically significant difference between the groups was found when comparing frequencies of most patient characteristics – age, sex, h/o endoscopy, alarm features: abdominal mass, unexplained weight loss, NSAID use. It was also found that the clinical features of the study groups were comparable to studies internationally as seen in (table 7).

**Table-7**

	BPKIHS	Other country	Author and year, ref number
Age	>or =50yr.	45-55 yr. Western	McColl et al (1998) <sup>5</sup> UK
Gender Sander	F:M; 53:47	F:M 50:50	J.O.Veldhuyzen van Zanten (2000) Canada <sup>2</sup>
Vomiting	30%-32%	30%	Joshua J.Ofman (1997) <sup>3</sup>

NSAID	10%-14%	28%	M.J.J.van Bommel (2001) Netherlands <sup>4</sup>
Mass Sander	2%-3%	2%	J.O.Veldhuyzen van Zanten (2000) <sup>2</sup>
Dysphagia	16%-31%	30%	Benjamin Chun Yu Wong (2000) <sup>6</sup>
Regurgitation	67%-80%	89%-95%	Sander J.O. Veldhuyzen van Zanten (2000) Canada <sup>2</sup>

**Dysphagia in pre-education and post-education groups**

The difference seen between the two groups in relation to dysphagia (p= <0.02), heartburn (p = <0.04) may be due to chance and sample size, but it could be postulated that the doctors became more aware and were reminded to ask about these symptoms after the education session and implementation of the algorithm. This is backed up by comparing the incidence of 30% found in a case series by Wong.<sup>6</sup>

**Correct Treatment and Appropriate Referral**

The significant improvement in the number of cases correctly treated after implementation of the guidelines is very encouraging. In the introduction it was noted that many inappropriate referrals were found in a previous case seen in BPKIHS. In this study it was found that 29/37 (78%) were appropriate referrals even before the education and algorithm were provided and this improved to 100% appropriate referrals afterwards. It seems there had already been an improvement in the standard of referrals. Appropriate management with regard to referral (YY + NN) increased from 54/100 to 72/100, in pre-education and posteducation referral respectively, a statistically significant improvement (P = 0.0084). There was a drop in the number of cases that should have been referred but were not (according to the algorithm). In the pre-education group 38/100 (38%) and in the post-education group 28/100 (28%). However, this still leaves a sizeable group that might include cases with a serious condition. The follow-up period was not long enough to see whether these patients came back for review and possible endoscopy later.

The results seem almost too good to be true. In search for possible limitations in the method used, it can be noted that the time taken to accumulate 100 cases in the posteducation survey was considerably longer than to collect the pre-education survey. Although it had been planned to collect sequential cases, it was clear that many cases treated by doctors slipped through without being recorded, especially in the posteducation group. Possibly, it was the more motivated doctors who were using the algorithm who continued to complete survey forms.

**Conclusion**

Dyspepsia is a common presentation in the outpatient setting, representing significant morbidity that is usually not serious, but includes some cases that may lead to death through ulcerative complications or because of rare cases of malignancy. The use of a clinical guidelines together with education and reminder visits have been shown to be effective in improving doctor performance in the management of dyspepsia.

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**References**

1. Joshi A, Dutta Gupta S, Ahuja V, Sharma MP, “Tropical Gastroenterology” chapter (Oct-Dec. 2001, Pg. 194-196) in “Management of Dyspepsia; report of working party” ed Collin Jones D.G. Lancet 1988; 1:576-9.
2. Sander JO, van Zanten V, Flock N, Chiba N, Armstrong D, Barkun A, Bradette M, Thomson A, Bursley F, Blackshaw P, Frail D, Sinclair P, for Canadian Dyspepsia Working Group, “An evidence based approach to the management of uninvestigated dyspepsia in the era of Helicobacter pylori” Can. Med Asso. Journal Supplement June 13, 2000; 162 (12 suppl).

3. Joshua J. Ofman, MD, MSHS; Jeff Etchason, MD; Steven Fullerton, MPH et al, "Annals Internal Medicine" chapter (15 February 1997; 126(4):280-291) in "Management Strategies for Helicobacter pylori seropositive patients with Dyspepsia."
4. Van Bommel MJ, Numans ME, de Wit NJ, Stalman WAB, "Consultation and referrals for dyspepsia in general practice – a one year database survey" Postgrad Med. J. 2001;514-518.
5. McColl K, Murray LS, Gillen D, Walker A et al "Randomised trial of endoscopy with testing for Helicobacter pylori compared with non invasive H.pylori testing alone in the management of dyspepsia". BMJ 2002;324:999-1002(27 April).
6. Thomson WG "Non-Ulcer Dyspepsia". Can. Med Asso. Journal 1974; 130:5659.