

## Early experience with gastrointestinal endoscopy in a private hospital setting in Makurdi, North-Central Nigeria

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### Abstract

**Background:** Gastrointestinal endoscopy (GIE) is an important tool for diagnosis and treatment of gastrointestinal and colonic disease. In Nigeria, the practice of GIE used to be the sole prerogative of the public tertiary hospitals, but this is no longer the case, as GIE is increasingly practiced nowadays in private clinic/hospital setups.

**Aim/Objective:** This study aimed to review the practice of GIE in a newly established private endoscopy centre in Makurdi, North-Central Nigeria.

**Methods:** Patients presenting for esophagogastroduodenoscopy (OGD) and colonoscopy in the initial 12 months period were studied after preparation and obtaining of informed consent. A total of 175 cases were performed including 110 OGD's and 65 colonoscopies.

**Results:** There were 97 males and 78 females enrolled with a male: female ratio of 1.2:1. The mean age of participants was  $49.4 \pm 15.1$  years with a range of 16 to 84 years. 89.7% of the cases were diagnostic while 8.0% were therapeutic. 12.1% of the procedures were emergencies. The most frequent indication for emergency endoscopy was gastrointestinal bleeding, with bleeding peptic ulcers being the most frequent aetiology. Gastritis/duodenitis was the most frequent finding on OGD while haemorrhoid was the most frequent finding on colonoscopy. Completion rates for OGD and colonoscopy was 100% and 92% respectively. In terms of referral pattern, 82% of cases were referred from other hospitals with more than half of the total cases (56.6%) being from public hospitals.

**Conclusion:** Gastritis/duodenitis and haemorrhoids are the most frequent OGD and colonoscopic diagnosis in this study. GI bleeding was the most frequent indication for emergency endoscopy. The therapeutic use of GIE though improving, still leaves much to be desired. Privately-run endoscopic services are useful in complementing that provided by public health institutions in Nigeria.

**Keywords:** Oesophagogastroduodenoscopy, Colonoscopy, Private practice.

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### I. Introduction

Gastrointestinal Endoscopy (GIE) has become a tool of choice for the diagnosis and treatment of gastrointestinal disorders[1,2]. Foremost of these, are the performance of oesophagogastroduodenoscopy (OGD) and colonoscopy which permit real-time assessment of the upper and lower parts of the gastrointestinal tract, respectively. They also present an opportunity for tissue sampling for further pathological evaluation[3]and for therapy in selected conditions. In Nigeria, the practice of GIE has steadily improved in the last two decades with the services which hitherto was available only in first generation public tertiary hospitals[4], now obtainable in other centres, including private health facilities. Endoscopy services in public health centres are frequently interrupted[5] or may not even be available. Like most public institutions in Nigeria, these hospitals are perennially plagued by bureaucratic problems, epileptic public power supply, inadequacy of workforce and supporting staff, procurement problems, poor funding, poor maintenance culture, frequent industrial action by health workers, and interprofessional rivalry amongst others, thus affecting the delivery of services, including GIE. Private hospitals with smaller structures and reduced administrative bottlenecks, have become increasingly useful in provision of these services in Makurdi and other Nigerian cities[3,4,6,7], thus complementing the roles

of the bigger tertiary referral centres. The study aims to audit the practice of GIE in Madonna Hospital, Makurdi, a private health institution in the initial 1-year of inception of GIE services, with a view to provide data to improve the quality of care.

## II. Methodology

Consecutive patients presenting for OGD and colonoscopy in Madonna Hospital, Makurdi, between 1 April 2021 and 1 April 2022 were enrolled in the study after informed consent was obtained. Patients were fasted for 6-8 hours before the procedures, except those presenting with emergencies. All procedures were performed by a General Surgeon using an Olympus CV260 video processor and light source, with assistance from surgical residents, nurses, and trained assistants. Diagnostic OGD was performed with Olympus GIF Q240Z gastroscope, therapeutic OGD was performed with an Olympus 2T200 gastroscope and both diagnostic and therapeutic colonoscopies were performed with an Olympus CF-Q260 colonoscope.

Procedure: UGI Endoscopy: This was done in the left lateral position. Ten percent xylocaine pharyngeal spray and IV Tramadol were routinely used as premedication for OGD. General anaesthesia was administered in patients that could not tolerate xylocaine spray. The gastroscope was introduced through the mouth, protected by a bite block. Intubation of the second part of the duodenum was aimed at, except where there was a proximal obstruction. Standard examination techniques were employed[8]. Pathologies that required sampling were biopsied. The blood pressure, pulse rate and oxygen saturation were monitored throughout the procedure. Video-documentation of the entire procedure was done in all cases.

Colonoscopy: Bowel preparation was done with oral mannitol (10%) and dietary modification beginning 2 days before the procedure. IV Tramadol, Diazepam/Midazolam and Hyoscine were routinely used as premedication. Procedure was started in the left lateral position and the scope advanced to the caecum using standard techniques[9]. Identified lesions were evaluated during withdrawal of the colonoscope. Patient monitoring was done throughout the procedure and video-documentation was also routinely done.

Data obtained from the participants included their socio-demographics, referral pattern, indications for the procedure, premedication, endoscopic diagnosis, completeness of the procedure, performance of ancillary procedures, duration of the procedure and mode of payment for the procedure. Data was collated and analysed using SPSS version 26. Permission to conduct the study was obtained from the hospital management.

## III. Results

A total of 175 cases were recorded including 110 OGD's (62.9%) and 65 colonoscopies (37.1%). The procedures were conducted in 97 males and 78 females, with a male: female ratio of 1.2:1. The mean age of participants was  $49.4 \pm 15.1$  years with a range of 16 to 84 years. There was no difference in mean age between males and females ( $p=0.84$ ). One hundred and fifty-four procedures were done as electives while 21 procedures were done as emergencies. 89.7% of the cases were diagnostic, 8.0% were therapeutic, 1.7% was for surveillance and 0.6% for screening. Gastrointestinal bleeding was the indication for emergency endoscopy in 20 of 21 (95%) of cases, making it the most frequent indication. Most cases of OGD were completed with local anaesthetic, with only 3(2.7%) requiring general anaesthetic. All cases of colonoscopy were successfully completed with moderate sedation. The spectrum of cases seen on OGD, and colonoscopy are as shown in Tables 1 and 2 respectively. Gastritis/duodenitis was the most frequent finding on OGD while haemorrhoid was the most frequent finding on colonoscopy. Findings were normal in 18 (16.4%) OGD's and 14 (21.5%) colonoscopies. Malignancies were noted in 12.7% and 13.9% of OGD's and colonoscopies respectively. Completion rate for OGD and caecal intubation rate for colonoscopy was 100% and 92% respectively. In terms of referral pattern, 81.7% of cases were referred from other hospitals with more than half of the total cases (56.6%) being from public hospitals (Figure 1). One hundred and fifty-two patients (86.9%) paid "out-of-pocket" while 23 (13.1%) patients were reimbursed partially or completely by health insurance.

Table 1: Findings on oesophagogastrroduodenoscopy

Findings (N=110)	n (%)
Gastritis/Duodenitis	39 (35.5)
Peptic Ulcer Disease (PUD)	34 (30.9)
Hiatal hernia	10 (9.1)
Gastric tumour	10 (9.1)
Varices	8 (7.3)
Oesophageal tumour	4 (3.6)
Oesophagitis	3 (2.7)
Others	14 (12.7)
Normal findings	18 (16.4)

Table 2: Findings on colonoscopy

Findings (N=65)	n (%)
Haemorrhoids	27 (41.5)
Colorectal tumour	9 (13.9)
Colorectal polyp	9 (13.9)
Diverticular disease	7 (10.8)
Others	8 (12.3)
Normal findings	14 (21.5)

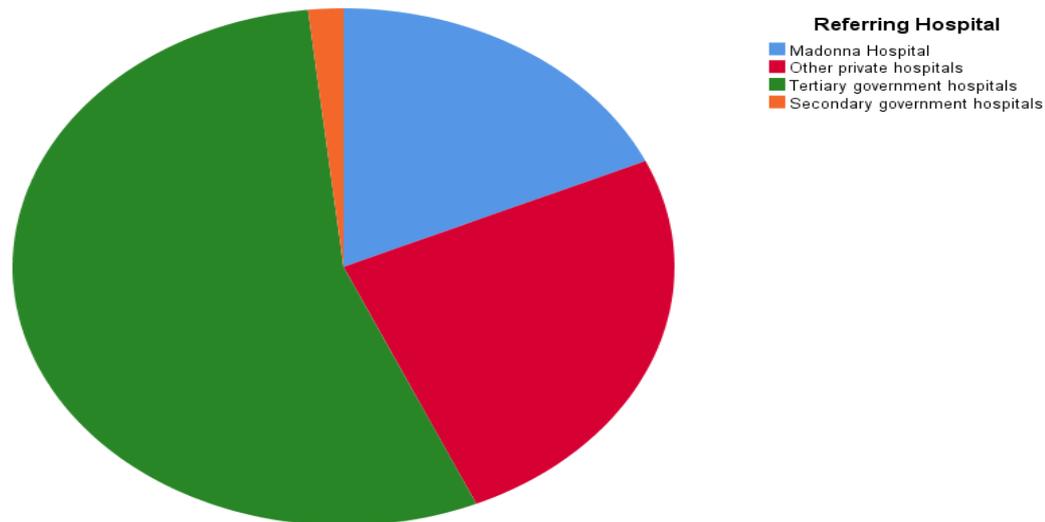


Figure 1: Pattern of referral for GI endoscopy procedures

#### IV. Discussion

The number of cases in this study is small compared to similar reports in Nigeria[10,11]. This is likely due to the short duration of the study, which is a preliminary audit. There were more OGD's than colonoscopies performed in this series, indicating that OGD is a more frequently performed procedure in Nigeria, similar to finding by other authors[7,12]. Majority of the participants are in their middle age with a slight male predominance, similar to other studies[6,7]. One possible explanation is that males may be more able to pay for the service due to financial disparity between gender groups in our clime[13]. Gastritis/duodenitis was the most frequent diagnosis, in agreement with other Nigerian authors[3,6,7,14]. However, the prevalence of PUD in this cohort was relatively high and about one-third (11/34) of the patients with PUD presented with upper GI bleeding. This is in contrast with other Nigerian studies which recorded low incidence of PUD[6,7,12]. Despite reports of decreasing prevalence of PUD globally, the same cannot be said in Makurdi, Nigeria. A possible explanation is that the local population is mainly agrarian[15] and physical stress from farm work predispose them to peptic ulcers. NSAID abuse is also common, apparently to relieve body pains from prolonged farming and other stressful activities. Other risk factors such as cigarette smoking and alcoholism abound in this society[16]. In addition, *H. pylori* infection is a common factor in the aetiology of gastritis, duodenitis and PUD and developing countries still bear most of the world's burden of this infection[17]. The finding of haemorrhoids as the most frequent colonoscopic diagnosis also agrees with that of other authors[2,7,12]. There is a high prevalence of normal findings in this study. This may reflect the prevalence of "non-ulcer dyspepsia" which are a constellation of symptoms from other pathologies which may be confused with upper gastrointestinal problems. Similarly, the finding of 21.5% normal study in the colonoscopies is high, but comparable to some studies[2,12] in this environment though other authors have observed lower values[7,11]. Majority of the diagnosis were benign; however, this study noted a relatively high incidence of malignancies and as have been noted by Oluyemi et al[11], this should heighten public concern with a view to taking steps to mitigate such trend. One approach could be through increased screening in asymptomatic people at risk. Screening for colorectal cancer has been shown to be important in Nigeria[18], but its establishment and practice in our sub-region remain problematic[19]. The existing poor utility of GIE for screening purposes is typified in this study, where none of the 110 OGD's was done for screening, while only 1 of 65 (1.5%) colonoscopies performed was for screening. Completion in OGD was defined as the ability to reach the second part of the duodenum in the absence of a proximal obstruction, or the ability to reach an obstructing lesion proximal to the second part of the duodenum and obtain biopsies from it[7,12]. Similarly, completion in colonoscopy was defined as successful caecal intubation and this was adjusted to exclude those in which caecal intubation was not attained due to poor bowel preparation, equipment failure or presence of an obstructing lesion, similar to Ismaila et al[12]. The ability to complete an OGD without complications is a measure of quality[20], and this was achieved in all cases

in this study. Similarly, a caecal intubation rate of 92% indicates an acceptable quality based on guidelines of the European Society of Gastrointestinal Endoscopy[21]. There are other measures of quality in OGD and colonoscopy[20,21] which were not assessed in this study. The practice of therapeutic endoscopy is still in its infancy in our clime due to multiple challenges[5,22]. Expectedly, there was greater application of GI endoscopy for diagnostic rather than therapeutic purposes, like other Nigerian studies[7,12]. However, about 8.0% of the procedures performed were therapeutic, which is comparable with other studies[7,12], and an improvement on what obtained a decade ago, in our setup[17]. Therapeutic OGD included Endoscopic Variceal Band Ligation (EVBL), stricture dilatation, injection sclerotherapy, haemostasis of bleeding vessels using mechanical (endoclips) and thermal (diathermy) methods, Percutaneous Endoscopic Gastrostomy (PEG) tube placement, and foreign body removal. Therapeutic colonoscopy included snare polypectomy and haemostasis of angiodysplastic lesions. A sizable fraction of the study participants were referred from public hospitals, similar to findings by Aminu and colleagues[6] in Gusau, Nigeria. The bureaucratic structure of public hospitals is a “push factor” encouraging patients to patronize private hospitals[23] with greater flexibility despite increased cost. In addition, access to services in private hospitals in Nigeria is perceived to be more convenient for the patient than in publicly run hospitals[24,25]. The reasons for the referrals were not investigated in this study. However, we suggest that this pattern presents an opportunity for the more efficiently run but smaller private endoscopy units to complement such services in the larger public hospitals which may experience occasional downtimes or in which such services may not be available[6,17]. This may be in the form of intramural practice, public-private-partnerships, or similar arrangement. Most of the participants in this study completely bore the financial burden for the procedures like in another Nigerian study[7]. This reflects the poor coverage of the Nigerian populace generally by health insurance (public and private) as have previously been established[26]. This creates the challenge of access to these services by the lower income class which constitutes majority of the Nigerian population[23]. It is hoped that the recently passed National Health Insurance Authority Bill 2022, will at least partly address this.

#### **IV. Conclusion**

In conclusion, gastritis/duodenitis and haemorrhoids are the most frequent OGD and colonoscopic diagnosis in this study. GI bleeding was the most frequent indication for emergency endoscopy. The therapeutic use of GIE in Nigeria, though improving, still leaves much to be desired. Privately-run endoscopic services are useful in complementing that provided by public health institutions in Nigeria.

#### **VI. Recommendations**

Based on our findings, we recommend increased adoption of strategies to reduce risk factors for gastritis/duodenitis and PUD, including testing and treatment for *H.pylori*, and lifestyle modification. In addition, there should be heightened awareness of increasing occurrence of GI malignancies in our settings and proactive measures to mitigate this, including screening and lifestyle modification. Providers of private endoscopy services should be encouraged to thrive and sustain their activities by adequate support from related government agencies. Finally, there is need to reduce the financial burden on patients/clients requiring endoscopy services by expanding the coverage and scope of existing health insurance programmes.

#### **References**

- [1]. Onyekwere CA, Hameed H, Anomneze EE, Chibututu C. Upper gastrointestinal endoscopy findings in Nigerians: a review of 170 cases in Lagos. *Niger Postgrad Med J.* 2008;15(2):126–9.
- [2]. Onyekwere CA, Odiagah JN, Ogunleye OO, Chibututu C, Lesi OA. Colonoscopy practice in Lagos, Nigeria: A report of an audit. *Diagn Ther Endosc.* 2013;2013:798651.
- [3]. Ray-Offor E, Obiorah C. Upper gastro-intestinal endoscopy in Port-Harcourt, Nigeria: an audit. *Niger Heal J.* 2014;14(3):134–9.
- [4]. Malu A. Gastrointestinal endoscopy in Nigeria. *Niger J Gastroenterol Hepatol.* 2020;12(2):33–9.
- [5]. Omolabake BI, Wuam S. An analysis of 644 upper GI endoscopies performed in a Nigerian tertiary health institution. *J Adv Med Res.* 2022;34(8):14–9.
- [6]. Aminu M, Garba B, Aminu M, Bello A, Maiyaki A, Umar H, et al. Upper Gastrointestinal Endoscopy findings in Gusau, Zamfara State, North West Nigeria. *W J Biomed Res.* 2019;6(2):47–51.
- [7]. Obonna G, Obonna M. Gastrointestinal Endoscopy in the Riverine Southwestern Ondo State of Nigeria: An Eight Year Review. *West J Med Biomed Sci.* 2020;1(1):81–8.
- [8]. Lee SH, Park YK, Cho SM, Kang JK, Lee DJ. Technical skills and training of upper gastrointestinal endoscopy for new beginners. *World J Gastroenterol.* 2015;21(3):759–85.
- [9]. Lee SH, Park YK, Lee DJ, Kim KM. Colonoscopy procedural skills and training for new beginners. *World J Gastroenterol.* 2014;20(45):16984–95.
- [10]. Odeghe EA, Oluoyemi AO, Adeniyi OF. Appropriate use of colonoscopy in Nigeria: a retrospective study using the American Society of Gastrointestinal Endoscopy (ASGE) 2012 guidelines. *PAMJ - One Heal.* 2020;2(21):doi: 10.11604/pamj-oh.2020.2.21.24752.
- [11]. Oluoyemi A, Odeghe E, Adeniyi O. Colonoscopy findings in lower gastrointestinal bleeding in Lagos: A comparative study based on age. *Niger J Clin Pract.* 2020;23(12):1656–9.
- [12]. Ismaila BO, Misauno MA. Gastrointestinal endoscopy in Nigeria - A prospective two year audit. *Pan Afr Med J.* 2013;14(22):doi:10.11604/pamj.2013.14.22.1865.

- [13]. Adeosun OT, Owolabi KE. Gender inequality: determinants and outcomes in Nigeria. *J Bus Socio-economic Dev.* 2021;1(2):165–81.
- [14]. Maiyaki A, Bamaiyi A. Indications and findings in patients referred for endoscopy in a private health centre in Sokoto, Northwestern Nigeria. *World J Adv Res Rev.* 2020;06(03):289–96.
- [15]. Odoh NE, Nwibo SU, Eze AV, Igwe EO. Farmers income and savings pattern in Benue State, Nigeria. *J Agric Ext.* 2020;24(1):128–37.
- [16]. Dumbili E. Changing Patterns of Alcohol Consumption in Nigeria : An Exploration of Responsible factors and Consequences. *A J BSA MedSoc Gr.* 2013;7(1):20–33.
- [17]. Nwokediuko SC. Challenges of Gastrointestinal Endoscopy in Resource-Poor Countries. In: Pascu O, editor. *Gastrointestinal Endoscopy.* Shanghai: InTech; 2011. p. 3–14.
- [18]. Ray-Offor E, Abdulkareem FB. Screening colonoscopy in Port Harcourt, Nigeria. *Gastroenterol Insights.* 2019 May 17;10(1):79–87.
- [19]. Knapp GC, Alatise OI, Olasehinde OO, Adeyeye A, Ayandipo OO, Weiser MR, et al. Is Colorectal Cancer Screening Appropriate in Nigeria? *J Glob Oncol.* 2019;5:JGO.19.00035.
- [20]. Beg S, Ragnath K, Wyman A, Banks M, Trudgill N, Pritchard MD, et al. Quality standards in upper gastrointestinal endoscopy: a position statement of the British Society of Gastroenterology (BSG) and Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS). *Gut.* 2017;66(11):1886–99.
- [21]. Matyja M, Pasternak A, Szura M, Pędziwiatr M, Major P, Rembiasz K. Cecal intubation rates in different eras of endoscopic technological development. *Videosurgery other Miniinvasive Tech.* 2018;13(1):67–73.
- [22]. Misauno MA, Ismaila B, Ale AF, Isichei MW, Achinge GI. An audited experience of therapeutic endoscopy in Jos, Nigeria. *IOSR J Dent Med Sci.* 2013;9(1):6–8.
- [23]. Asakitikpi A. Healthcare coverage and affordability in Nigeria: an alternative model to equitable healthcare delivery. *Univ Healthc.* 2019;DOI:10.5772/INTECHOPEN.85978.
- [24]. Polsa P, Soneye A, Spens K, Antai I. Comparing perceived quality of private and public health services in Nigeria. *J Manag Policy Pract.* 2011;12(7):18–26.
- [25]. Ogunbekun I, Ogunbekun A, Orobato N. Private health care in Nigeria: walking the tightrope. *Health Policy Plan.* 1999;14(2):174–81.
- [26]. Aregbeshola BS. Towards Health System Strengthening: A Review of the Nigerian Health System From 1960 to 2019. *Public Heal eJournal.* 2021;DOI:10.2139/ssrn.3766017.

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