

# Family physicians/GP and Internist opinions, familiarity and practice behaviour regarding clinical practice guidelines (CPGs) of common medical conditions in Nigeria

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## ABSTRACT

**Background:** Few studies exist on physicians' opinions, attitudes, familiarity and practice behaviour regarding clinical practice guidelines in sub-Saharan Africa. **Objectives:** To determine the opinions, familiarity, and practice behaviour regarding clinical practice guidelines (CPGs) and factors associated with their use among internists and family physicians/GP in Nigeria. **Methods:** A semi-structured questionnaire regarding guidelines of five common medical conditions: hypertension, diabetes mellitus, tuberculosis, asthma and hepatitis B encountered in everyday medical practice were self-administered by 183 doctors across the country. **Results:** Over 90% of respondents believed that guidelines were evidence-based, improved management outcomes, and quality of care, nevertheless, 57.4% were against using them in litigations against doctors. The majority (>70%) of the respondents were familiar with the guidelines except that of hepatitis B. Overall, guidelines were used regularly by 45.9%, used in part by 23.5% and 30.6% never used it. Approximately 50% of physicians had immediate accessibility to them at the point of care. The proportions of respondents reporting a change in practice behaviour ranged from 37.7-57.9% depending on the guideline. The factors associated with guideline-related behaviour change were familiarity with its contents, postgraduate educational training, increased helpfulness score, and practiced >5 years. **Conclusions:** The present study shows that most physicians have favourable opinions and are familiar with these guidelines, however, the proportions reporting changes in their patient management because of the guidelines are not satisfactory. It is important to ensure guidelines accessibility and promotes factors that encourage their implementation in medical practice.

**Keywords:** Attitudes, clinical practice guidelines, evidence-based medicine, Nigeria, opinions, practice behaviour

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## Introduction

Clinical practice guidelines (CPGs) are management protocols encompassing a defined or suggested recommendations

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systematically developed to help practitioners in decision making for specific clinical conditions.<sup>[1]</sup> It may cover recommendations on prevention, diagnosis, treatment and longer-term management. The guideline has helped in eliminating the wide variation in patients treatments and ensures the delivery of evidence-based medical care.<sup>[1,2]</sup> Systematic reviews have shown that guideline-based treatment can change medical practice and improve patients' outcome.<sup>[3,4]</sup> Besides, they may be useful in enhancing efficiency, cost effectiveness.<sup>[5]</sup> Globally, CPGs are both clinical and educational tools for quality assurance guides and a means by which clinicians can be made accountable for their clinical activities and in medical liability cases.<sup>[3]</sup> These days, there has been a growing interest in treatment guidelines across specialty in Nigeria. Unfortunately, the relevance of most guidelines in practice in a poor resource setting like ours has not been proved beyond any doubt, making health care providers critical and undecided about management each time a new guideline is released and advocated. Some earlier studies have reported poor understanding, use and adherence to the guideline of common medical conditions.<sup>[6-9]</sup> There is a paucity of data on physicians' opinions, attitudes and behaviours about existing guidelines and factors associated with their use. Given the importance of clinical guidelines, their perceptions, implementations, and limitations in the context of our setting need further exploration. The outcome of this study, therefore, will contribute to the existing literature as well as provide an insight into the roles and application of guidelines in the management of patients in our healthcare system. We hypothesized that physicians have positive opinions, good familiarity, implementation and practice behaviour regarding clinical practice guidelines (CPGs). The objectives of this study were to determine the opinions, familiarity and impacts of CPGs of commonly encountered medical conditions on practice behaviours of internists and family physician/GPs, (2) explore the factors associated with guideline-related behaviour change in Nigeria.

## Materials and Methods

### Study setting and design

This survey was a cross-sectional study that involved 183 doctors working in three family medicine and 3 internal medicine departments of public tertiary and three private hospitals in the same neighbourhoods between March 2017 and June 2017. The three tertiary hospitals were mainly in the northern region, middle belt region and western region respectively. The private hospitals were selected to have representations from primary care and the secondary health care and non-public hospitals. The tertiary hospitals also provide primary care through the department of family medicine, secondary, tertiary level health care or both to the community. These hospitals were chosen for easy coordination by the team.

### Sample size

Raosoft online sample calculator was used to obtain the minimum sample size,<sup>[10]</sup> from the eligible population size of 300 doctors.

The response distribution was 50%. The standard deviation was set at 1.96 for a 95% confidence interval and the margin of error was 5%. The recommended sample size was 169. Taking into account the expected response rate based on the pilot study, which was 65%, and the minimum sample was increased to 228, a total of 230 survey questionnaires were sent out for data collection.

### Survey respondents

We recruited our sample from physicians working in the hospitals as a GP/family physician or internist or postgraduate trainee. Physicians who consented were selected by convenience sample for participation. Those who consented to participate in the study were requested to voluntarily complete the questionnaire based on their perception of the topic and were assured that their responses would be confidential. To improve the survey response rate, respondents who did not return the questionnaire within two weeks were reminded of the survey again via bulk text messages and subsequently were excluded after another two weeks if there was no response.

### Data collection

Data was collected using a self-administered questionnaire that was developed from three previous studies.<sup>[11-13]</sup> Respondents were asked about 5 CPGs that were selected because they fulfilled the following criteria: 1) common medical condition regularly encountered in the clinic and hospitals by family physicians and internists and are of public health concern 2) they had been released at least 3 years before the survey; 3) they had received widespread attention from expert and professional societies and 4) they were judged as important during a recent continuing medical education. We piloted the questionnaire for face validity among 20 doctors to know if the questions were acceptable and their wording was well understood. It was acceptable to 90% of the doctors. Because we were concerned that some respondents might over-report their awareness and familiarity with the five guidelines, we included a misrepresentation index by asking whether participants have heard of the "Global collaboration guideline to detect bias." The format of question responses included multiple-choice, Likert scale, yes-no, and open-ended. Socio-demographic information, the location of practice and years of experience of the respondents were obtained. Furthermore, the respondents were asked about their opinion, familiarity, awareness, use, accessibility and the preferred format of the CPG. They were also asked how helpful they found the guideline and helpfulness were reported on a scale from 1 to 5, with one being not at all helpful and five being extremely helpful. Besides, they were asked about the impact of CPG on their practice, benefits, and reason (s) for non-implementation of any of the guidelines. Also, the participating physicians were asked the sources of these guidelines and to recommend ways of improving adherence to the guidelines. Every effort was made to prevent missing data from occurring by ensuring the clarity of the items using a pilot study.

## Data analysis

Data obtained were analyzed using IBM/SPSS statistical software version 22 (SPSS Inc., Chicago, IL, USA). Univariate and Bivariate statistics were used to describe, compare categorical and continuous variables. Bivariate screening of the variables was done and the variables with *P* values of  $\leq 0.2$  were entered into backward logistic regression analysis which was used to determine the factors associated with guideline-related behaviour change.

## Operational definitions

The family physician was defined as a physician who had received some or completed postgraduate training in family medicine, and a medical officer (MO) was designated as a non-postgraduate trained general practitioner with only basic medical degree (GP).<sup>[14]</sup> Guidelines familiarity was defined as a measure of the knowledge and understanding the physician has about the guideline contents. Awareness was defined as a measure of knowing the existence of the guideline.

## Ethical approval

Prior to selection of the respondents, the protocol was approved by the Institutional Ethics Committee of Usman Dan Fodiyo, Ilorin, and State University Teaching Hospitals in Sokoto, Ilorin, Kwara and Ado-Ekiti, Ekiti State respectively. The ethical approval was obtained from Ilorin hospital (29th June 2015) and Usman Dan Fodiyo Sokoto, 5th July 2016.

## Results

### Characteristics of physician and their practices

A total of 183 survey respondents out of the 230 approached were enrolled in the study giving a response rate of 79.5%. The 47 that were excluded consisted of 12 medical officers in private hospitals, 20 consultants and 15 postgraduate training residents. They declined for personal reasons or non-completion/failure to return the questionnaires. The mean age of the respondents was  $34 \pm 5$  years and majority were significantly males, working in teaching hospital and urban areas [Table 1].

## Opinions about clinical practice guidelines

Table 2 shows the opinions about clinical practice guidelines. Almost all the respondents believed that CPGs were to improve outcomes (97.8%), to enhance the quality of care (96.7%) and were based on evidence in medicine (94.1%). About half of the respondents agreed that CPGs should not be used for litigation and disciplinary actions. There were no significant statistical differences in the opinions of the medical officer (MO), family physicians and internists about clinical practice guidelines.

## Sources and accessibility of the CPGs

We observed that 119 (65%) respondents knew the origins of tuberculosis guidelines, and 113 (61.7%) knew the sources of hypertension guidelines. Regarding DM, asthma and hepatitis B infection treatment guidelines, 90 (49.2%), 78 (42.6%), 54 (29.5%) of them respectively, knew the sources of these guidelines. Half of the survey respondents (50.8%) obtained these guidelines from online sources, 28 (15.3%) offline publications, and 12 (6.5%) from conferences/seminars.

## Awareness, familiarity and use of guidelines

This study found that a significant proportion of the respondents (93.4%) were aware of one of these five GPGs. The majority (>70%) were familiar with the content of these guidelines except the hepatitis B infection treatment guideline [Figure 1]. Eighty-four (45.9%) reported that they regularly used these guidelines, 43 (23.5%) used it in parts while 56 (30.6%) did not use it. Ninety (49.5%) had immediate access to the information presented in the guidelines if they wish to refer to them. The MOs (GP without postgraduate training) were less familiar and less frequently used CPG as compared to FP and the internist [Table 3].

## Practice behaviour change by training

Overall, the percentages of respondents reporting changes in practice behaviour due to these guidelines were 106:57.9%, 100:54.6%, 96:52.5%, 92:50.3%, and 69: 37.7% for DM, asthma, systemic hypertension, tuberculosis and hepatitis B guidelines respectively. After sub-analysis within each group, family

**Table 1: Profile of Survey Respondents**

Characteristics	MO n=75	FM n=57	IM n=48	Total n=183	P
Age (yrs)	33±5	36±6	32±4	34±5	0.001
Males (%)	76.3	69.0	79.2	74.0	0.444
Years of practice in median (IQR)	3 (1-6)	7 (5-10)	6 (4-8)	5 (3-8)	<0.001
Number of consultation per week in median (IQR)	17 (10-32)	50 (30-70)	20 (15-32)	30 (17-50)	0.022
Types of hospital (%)					
Teaching/University	51.3	56.1	97.9	65.0	<0.001
FMC/Specialist	38.5	38.6	2.1	29.0	
Private	10.3	5.3	-	6.0	
Location of the hospital (%)					
Urban	80.8	47.4	91.7	73.2	<0.001
Suburban/Rural	19.2	52.6	8.3	26.8	

IQR- interquartile range

**Table 2: Family Physicians/GP and Internist Opinions about CPGs**

Opinions	MO n=78 %	FP n=57 %	Internist n=48 %	Total n=183	P
Motivated by a desire to improve the quality of care	94.7	100	95.8	96.7	0.223
Likely to improve outcomes	96.1	100	97.9	97.8	0.314
Should not be used in litigation	57.5	49.1	53.4	57.4	0.584
Should not be used in disciplinary actions	54.5	46.2	46.8	50.6	0.645
Should not be motivated by a desire to cut costs	69.7	66.1	60.4	66.1	0.565
Should be a guide which may/may not	86.7	85.4	74.4	82.9	0.249
They are evidence-based medicine	94.3	98.1	89.1	94.1	0.167

Results are number (%) of Agreeing strongly or somewhat, FP-Family Physicians MO-Medical Officers

**Table 3: Awareness, Accessibility, and Use of the CPGs**

CPG characteristics	MO n=78	FP n=57	Internist n=48	Total n=183	P
Awareness	70 (89.7)	54 (94.7)	47 (97.9)	171 (93.4)	0.177
Familiarity	60 (76.9)	56 (98.2)	44 (91.7)	160 (87.4)	<0.001
Accessibility	35 (45.5)	33 (57.9)	22 (45.8)	89 (49.5%)	0.306
Use					
Regularly	30 (38.5)	28 (49.1)	26 (54.2)	84 (45.9)	0.01
In Part	14 (17.9)	19 (33.3)	10 (20.8)	43 (23.5)	
No use	34 (43.6)	10 (17.5)	12 (25)	56 (30.6)	

Results expressed in frequency (%), FP-Family Physicians MO-Medical Officers

physicians and internists significantly reported more practice changes due to tuberculosis, DM and hypertension guidelines compared with the medical officers (Doctors with postgraduate training). These findings are illustrated in Figure 2.

### Helpfulness of the CPGs

We also evaluated how helpful was the CPGs in their practices, and we found that the mean helpfulness scores of the CPGs ranged from 2.6 to 4.0. The systemic hypertension guideline received the highest score (4.0; S.D. 1.1), while the hepatitis B infection guideline had the lowest score (2.6; S.D. 1.6). There were no significant differences in helpfulness score by categories of survey respondents ( $p > 0.05$ ).

### Reasons for using and not using the CPGs

Table 4 provides the reasons for using and not using the CPGs. We discovered that the most frequent reason given by the survey respondents for using CPGs was to improve management outcome (31.5%), this was followed by to achieve uniformity/standardized care (27.6%), and to provide good quality of care (22.1%). The common reasons for not using the CPGs were lack of familiarity of their contents (28.8%), lack of a reminder system and poor agreement with some guideline contents by physicians (14.3%), respectively.

### Preferred format of CPGs

Preferences for the formats of the guideline are shown in Figure 3; One third had no preference for the format of CPG. Approximately 26.2% of respondents chose "algorithm," 22.4% chose "outline," 10.4% preferred "flow sheet/reminder form" as formats while 6.6% would like the guidelines to include evidence from the literature (EBM).

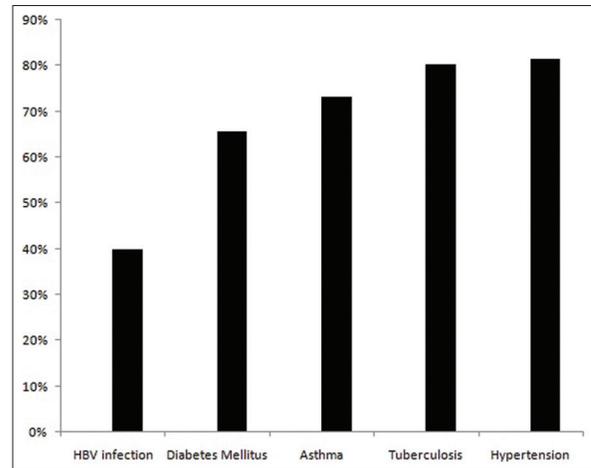


Figure 1: Familiarity with the CPGs

### Factors associated with the guideline-related practice change

In logistic regression analysis, practice behaviour change due to tuberculosis guideline was associated with familiarity with its contents, history of postgraduate training. Practice behaviour change due to asthma guideline was also associated with familiarity, and history of postgraduate training. Practice behaviour change due to the use of systemic hypertension guideline was only associated with a history of postgraduate training. Practice behaviour change as a result diabetes mellitus guideline was associated with increased helpfulness score and >5 years of practice. The practice behaviour change due to the use of the hepatitis B guideline was associated with helpfulness score and >5 years of practice. No significant associations were found for the age, gender, patients load or other physician variables [Table 5].

### Discussion

In our study, higher percentages of participating physicians believed that CPG was founded on evidence-based medicine and that it boost the quality of care and management outcome which is the goal of any medical treatment. These findings imply that most of them had favourable opinions about CPGs. This observation was in support of previous studies about CPGs.<sup>[13-19]</sup> the incorporation of CPGs has been shown to reduce practice variability, improving the process and outcomes of care.

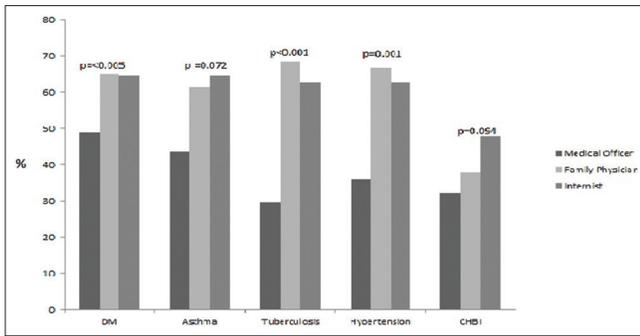


Figure 2: Practice Behaviour Change by Training

Table 4: Reasons for Using and Non-implementation of CPGs

Reasons for using CPGs	FP/GP n=71	Internist n=56	Total n=127
Improved Patients Outcome	17 (23.9)	23 (41.1)	40 (31.5)
Uniformity/standardized care	18 (25.4)	17 (30.4)	35 (27.6)
Good quality of care	15 (21.1)	13 (23.2)	28 (22.1)
Helpful in Management Decision	18 (25.4)	8 (14.3)	26 (20.5)
Cost-effective	12 (16.9)	6 (10.7)	18 (14.2)
Reduce errors	6 (8.5)	4 (7.1)	10 (7.9)
Reminder to Management	6 (8.5)	3 (5.4)	9 (7.1)
Evidence-based Care	7 (9.9)	2 (3.6)	9 (7.1)
Saves time	4 (5.6)	3 (5.4)	7 (5.5)
Reduce litigations	3 (4.2)	3 (5.4)	6 (4.7)
Others/none	13 (18.3)	9 (16.1)	22 (17.2)
Reasons for non-implementation of CPG	FP/GP n=24	Internist n=32	Total n=56
Lack of familiarity	7 (29.1)	9 (28.1)	16 (28.8)
Lack of a reminder system	2 (8.3)	6 (18.8)	8 (14.3)
Poor Agreement with some guideline	2 (8.3)	6 (18.8)	8 (14.3)
Lack of awareness of the existence	2 (8.3)	4 (12.5)	6 (10.7)
Difficult access	2 (8.3)	4 (12.5)	6 (10.7)
Too expensive	2 (8.3)	4 (12.5)	6 (10.7)
Lack of supportive staff & infrastructures	1 (4.2)	3 (9.4)	4 (7.1)
Time-consuming	3 (12.5)	1 (3.1)	4 (7.1)
Difficult to use our setting	1 (4.2)	3 (9.4)	4 (7.1)
Contradictions among guidelines	1 (4.2)	4 (12.5)	5 (8.9)
Poor motivation to adopt CPG	3 (12.5)	1 (3.1)	4 (7.1)
Not patients friendly	1 (4.2)	3 (9.4)	4 (7.1)
Lack of belief that it improves outcome	0 (0)	1 (3.1)	13 (1.8)
No reason	2 (8.3)	0 (0)	2 (3.6)

Results expressed in frequency (%), FP-Family Physicians MO-Medical Officers

On the other hand, more than 50% of physicians were against using CPGs as a tool for litigations and disciplinary actions, and also as a means of cutting the cost of health care. One is not surprised by these perceptions; recently, there has been an increasing rate of litigation and malpractice liability. This trend has resulted in increased scrutiny of physician management practices and pressure on health care systems by the authority and the public. In most of the low and middle-income countries, there are problems of universal access to medical care and inadequate infrastructures to render international standards of care. These challenges impose a harsh working

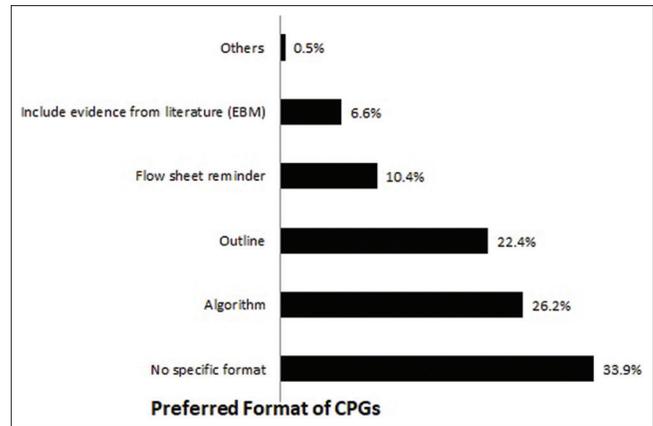


Figure 3: Reported Preferred Format of CPGs

environment and threaten physician autonomy. Some experts believe that medical liability and litigations should not be determined mainly by guidelines but should involve the comprehensive examination of other facts, including provider professional background and experience required to treat every single patient.<sup>[20]</sup>

A significant proportion (>70%) of those surveyed were familiar with all the studied CPGs except the hepatitis B guideline which had a familiarity of about 38%. A high level of familiarity with some CPGs may be attributed to the burden of disease, dissemination by professional societies, and references to them in the medical literature. The poor familiarity of the hepatitis B guideline in our study highlights the need for relevant stakeholders to increase its awareness, accessibility, and dissemination.

Regarding the use of the guideline, we noted that less than 50% of the physicians used the CPGs regularly and 23.5% used it partly or to some extent. If we take into consideration the fact that most of them were familiar with 4 out of 5 studied CPGs, the role accessibility to CPGs cannot be overemphasized in this situation. This is because less than half of physicians had immediate access to CPGs at the point of care. The low implementation of guidelines may be a result of poor accessibility to smart devices and information technology as well as malfunctioning telecommunication networks which are a common phenomenon in resource-poor and remote settings.

This study also revealed that change in practice behaviour as a result of these guidelines ranged from 37.7% to 57.9%. These observations are higher than 28-34% obtained for three guidelines in a similar study in Canada among the family physicians.<sup>[12]</sup> Malley *et al.* in a study in the USA reported that the proportion of primary care physicians reporting change in practice due to guidelines rose from 16.4% to 38.7% between 1997 and 2005.<sup>[21]</sup> Furthermore, we observed that family physicians and internists frequently reported changing their patient management because of the CPG than the medical officers. This finding is similar to the outcome of previous studies that evaluated the use of

**Table 5: Factors associated with the Guideline-related Practice Change**

Factors	TB aOR: 95% C.I	Asthma aOR: 95% C.I	Hypertension aOR: 95% CI	DM aOR: 95% CI	Hepatitis B aOR: 95% CI
Familiarity	9.98 (2.78-35.70)	3.94 (1.61-9.67)	-	-	-
PG Training	3.38 (1.66-6.85)	2.73 (1.33-5.59)	3.65 (1.87-7.11)	-	-
Helpfulness	-	-	-	1.59 (1.23-2.00)	1.53 (1.21-1.91)
Practice >5 yr	-	-	-	2.77 (1.36-5.64)	2.37 (1.16-4.84)

AOR-adjusted odd ratio

guidelines in the treatment of other medical conditions in our setting.<sup>[6-9,22]</sup> The change in practice behaviour is a function of the level of familiarity and helpfulness scores of these guidelines. This conclusion is supported by our findings in which hepatitis B infection guideline had the lowest familiarity and lowest helpfulness score. Consequently, the low performance of the medical officers might also be attributed to their level of training. Unlike the specialist or postgraduate trainee who worked in an academic environment, the MOs have less participation in continuing medical education programs and reminded about the contents of the guidelines.

In our study, physicians who were familiar with these guidelines, reported history of postgraduate residency training, increased helpfulness score and >5 years of practice were more likely to report a change in practice behaviour due to CPGs. Lack of familiarity is the inability of a physician to answer questions about guideline content correctly. Full awareness does not guarantee familiarity with guideline recommendations and the ability to apply them correctly.<sup>[23]</sup> Those respondents who were familiar with guidelines can use them to effect a change in the practice behaviour as demonstrated in this study. This is the most significant determinant of tuberculosis and asthma guidelines use, hence, the need for effective dissemination and promotion by stakeholders. Physicians who had postgraduate training (i.e. practicing as FP and internist or postgraduate trainee) were more likely to report a change in practice as a result of three guidelines (hypertension, asthma and tuberculosis) compared to those without postgraduate training. Increased helpfulness scores and medical practice >5 years were strongly associated with reported practice behaviour change due to DM and hepatitis B guidelines. One of the reasons for this result is that the doctors who graduated more than five years might have enrolled in a postgraduate training program and may not suffer from the inertia of practice.<sup>[23,24]</sup>

The key findings of this study were that the majority of the surveyed physicians were aware and familiar with, and had positive opinions about CPGs. About half of them had immediate accessibility to CPGs at the point of care. The percentages of respondents reporting a change in practice behaviour and its determinants (familiarity with guideline, history of postgraduate training contents, increased helpfulness score, and practiced >5 years) varied with the guidelines. The leading reason for using CPGs was to improve management outcome (31.5%) and for not using the CPGs was lack of familiarity of their contents.

## Strengths and limitations of this study

This study has some limitations that warrant discussion. Firstly, the convenience sampling and some outcomes that were measured by self-report are subjected to bias. Secondly, the survey instrument did not undergo psychometric analysis beyond face validity. Due to the study setting and design, the findings of this study cannot be generalized to other specialties. Notwithstanding these limitations, we have been able to provide a snapshot of the opinion, implementation, accessibility and barrier towards clinical practice among internist and family physician/GP in Nigeria, with representations from different parts of the country. This present survey highlighted the current status in our country and may be similar to those in other developing countries in sub-Saharan Africa and Asia. This results may implicate the need for future studies on CPGs

## Conclusions

The present study shows that most physicians have positive opinions and are familiar with guidelines, however, the proportions using and reporting changes in their practice behaviours as well as having immediate access to CPGs at the point of care are not satisfactory. It is important to ensure guidelines accessibility and promotes factors that encourage their application in medical practice.

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## Conflicts of interest

There are no conflicts of interest.

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