

ORIGINAL ARTICLE

Clinical practice guidelines: Their utility, dissemination and monitoring at Colonial War Memorial Hospital: A mixed methods study from Fiji

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Abstract

Background: Clinical practice guidelines (CPGs) improve patient care by standardising medical practice. However, little is known about their applicability in low-resource settings. Since 2010, Fiji has introduced guidelines to increase the application of evidence-based practice.

Aims: We describe the dissemination, utility and monitoring of guideline implementation in Fiji, a low-resource setting in the Pacific.

Methods: A mixed-methods design included a survey and focus groups. All 178 doctors in five departments at Fiji's largest tertiary hospital were invited to participate. Subsequently, two focus group interviews explored clinicians' perspectives in more detail. Analysis included data description, multi-variable logistic, multinomial regression and manifest content analyses.

Results: The response rate was 74%. Most doctors agreed that CPGs were good for patient management (100%), doctors continuing medical education (CME) (96%), patient education (73%), supported by systematic reviews (91%) and consistent with existing norms/values (83%). Ninety-five per cent stated that CPGs increased the quality of care, and 80% stated that CPGs increased physician satisfaction. Approximately two-thirds stated that CPGs decreased medical-legal problems (63%) and malpractice suits (68%). Sixty to 90% of doctors disagreed that CPGs were oversimplified/cookbook medicine (60%), too rigid to apply individually (65%), challenged physician autonomy (60%) or were ambiguous/unclear (86%) or not practical (89%). The preferred method of dissemination was CME, and quick reference guides were best for implementation. No formal CPG monitoring existed in any department.

Conclusion: Most physicians found CPGs to be valuable for improving the consistency of care. In low-resource settings, dissemination of guidelines should be paired with CME to improve their uptake. Increased monitoring of guideline use appears necessary.

Introduction

Clinical practice guidelines (CPGs) make recommendations to optimise patient care and are developed from a systematic review of evidence and an assessment of the potential

benefits and harms of alternative care options.¹ They have the potential to improve the quality of clinical care, reduce the financial costs of inappropriate, unnecessary or dangerous care and narrow the gap between what is practised and available evidence.² CPGs also provide benefits to patients, healthcare workers and healthcare systems³ when rigorously developed,⁴ but their application is often limited by a lack of awareness, ease of access and guideline adherence.³ Additionally, guideline development does not

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guarantee their use,⁵ and well-planned dissemination/implementation strategies are needed to maximise adherence.⁶ Furthermore, monitoring adherence to CPGs and patient outcomes is also necessary to evaluate their effectiveness.⁶

As CPGs reduce variations in service delivery among and between providers, hospitals and geographical regions,³ they are gaining recognition across the Pacific, including Fiji, where they were introduced in the late 1970s. Like many developing countries, Fiji has adopted/adapted guidelines such as the Integrated Management of Childhood Illness and the World Health Organization Pocketbook of Hospital Care for Children as standard practice. In addition to this, Fiji introduced 19 new locally developed guidelines since 2010, 11 of which were accessible through the Fiji Guidelines Host software application,⁷ and utilised by healthcare workers throughout Fiji at the time of the study. There has been no published description of the use of CPGs in Fiji. Therefore, this project aimed to understand the utility, dissemination and monitoring of locally developed guidelines to inform future development and dissemination and to provide insights for those working in other low-resource settings.

Methods

We used a cross-sectional mixed methods design.⁸ The research was conducted between September and November 2021. The core component was a survey questionnaire. Analysis of the questionnaire informed the focus group interviews used to generate more in-depth qualitative data. The consolidated criteria for reporting qualitative research (COREQ) were used as a guide.⁹ Ethical approval was obtained from the Fiji National University's College Human Health Research Ethics Committee.

Study site

This project was completed in Fiji's largest tertiary hospital located in the Central Division, serving 43% of the country's population of approximately 900 000, with an average of 29 000 patient admissions annually.¹⁰ The hospital receives referrals from the Western and Northern Medical Divisions for specialist tertiary care. Approximately 200 doctors are employed, including consultants, registrars and interns. This study recruited staff from five departments at the hospital, including Anaesthetics, Emergency (ED), Medical, Obstetrics & Gynaecology (O&G), and Paediatrics. All these departments utilise and have published CPGs of their own.

Participants

An invitation to participate in the survey was sent to all doctors from the five departments. The five different internal designations of these doctors are described in Box 1. Within each service, four of the five internal designations only work on that service, with the interns rotating through each service on 3-month rotations.

Questionnaire

The survey questionnaire was in five sections (Supplementary File 1). It was incorporated into a Google form and piloted with 10 doctors from different divisional hospitals. The survey link was distributed to all doctors in the five departments through email and Viber following adjustments.

Focus groups

A constructivist approach was utilised for the focus groups. Purposive sampling was used to include a range of disciplines, internal designations and genders ensuring a variety of perspectives were heard. Two focus groups were conducted, one with junior clinicians and one with senior clinicians to avoid a power imbalance, conducted by the same researcher who was known to the participants but had no authority over them. Focus group questions were developed after the questionnaire had been analysed and were piloted with two colleagues. The focus groups were conducted over Zoom and audio recorded. Transcripts were transcribed verbatim and member checking was conducted.

BOX Description of internal designation of doctors

Internal designation and role description

- Intern: First-year MBBS graduate, rotating through all departments.
- Junior Registrar: A doctor who is in service training or pursuing a Diploma in a specific speciality.
- Senior Registrar: A doctor who is enrolled in the Masters' Program in a specific speciality.
- Junior Consultant: A doctor who has completed the Masters' Program and is under supervision to obtain consultancy.
- Senior Consultant: A doctor with a Specialist Registration from the Ministry of Health and Medical Services.

Analysis

Survey responses were summarised as frequencies and percentages. Variable distributions were described using proportions, means and standard deviations (SDs).

For all estimates, a 95% confidence interval (CI) was calculated. For statistical analysis of significance, *P* values of <0.05 were considered significant. Chi-square analyses were conducted to compare the opinions about clinical guidelines between different groups of doctors. Analysis of variance (ANOVA) tests were run to compare the average confidence ratings in the different CPGs and the mean effectiveness rankings of the activities for improving guideline adoption.

The 10 descriptions of clinical guidelines as educational tools and patient management guides where each person responded on a four-point scale (strongly agree/agree/disagree/strongly disagree) were grouped into positive and negative attributes (Fig. 2). Comparison of response distributions were performed based upon the respondents' sex, professional designation and specialty. Independent associations of each of these respondent characteristics with their rating of each of the 10 descriptions were described using adjusted odds ratios (aORs) and 95% CIs using logistic or multinomial regression depending upon the number of outcome categories.

Qualitative analysis of focus group transcripts was completed using a manifest summative content analysis identifying key concepts.¹¹ The most common perspectives were reported. Trustworthiness was increased by a second researcher (SK) analysing the qualitative responses, and disagreements were discussed until agreement was reached.

Results

One-hundred and thirty-one (74%) of 178 invited doctors participated. This proportion did not vary by department: Paediatrics (80%), ED (69%), Anaesthesia (62%), O&G (55%) and Medicine (55%) ($\chi^2_4 = 4.831$, $P = 0.305$). The mean (SD) years these doctors had practised was 6.3 (5.7) (Table 1).

Utility: accessibility, usefulness and adherence

Virtually all (97%) doctors surveyed stated they used CPGs. The four doctors stating they did not use CPGs included three junior registrars and one intern. All respondents from the departments of Paediatrics (20/20), Medicine (16/16) and Anaesthesia (13/13) used CPGs, compared to 91% from ED (20/22) and O&G (10/11) ($P = 1.00$).

Table 1 Characteristics of survey respondents

Characteristics	Frequency % (N)
Gender	
Male	62 (47)
Female	68 (52)
Unspecified	1 (1)
Professional designation	
Interns	49 (38)
Junior registrars	33 (25)
Senior registrars	24 (18)
Junior consultants	14 (11)
Senior consultants	11 (8)
Years of practice	
<5	57 (43)
6–10	39 (30)
11–15	26 (20)
>15	9 (7)
Clinical specialty	
Medicine	21 (16)
Paediatrics	46 (35)
Obstetrics and Gynaecology	17 (13)
Anaesthesia	14 (11)
Emergency	33 (25)

When explored in the focus groups, the most common reason given by junior doctors for not using CPGs was they did not need to look at CPGs as a senior doctor made the decisions. Other reasons stated were lack of awareness or inability to access CPGs. Two participants identified lack of time in a busy clinic preventing access to CPGs. Some exemplary quotes follow:

'Consultants are on the floor full time, so juniors refer to them instead of the guideline' FG2,P3

'You are not going to be using CPGs when you have 50 patients to clear' FG2, P2.

Key: FG = focus group, P = participant number

Ninety-three per cent of the doctors knew where to access CPGs. Of those who accessed CPGs, 73% did so online, 68% used available soft copies, and 51% used handbooks. Six of nine doctors who did not know where to access CPGs were interns (interns vs other categories, $P = 0.102$). Users accessed CPGs in their free time (78%), while seeing patients (74%), a few hours after seeing patients (56%) and during handovers (36%). CPGs were also accessed in preparation for teaching students, interns and nurses, during tutorials and before seeing new admissions.

In focus groups, junior doctors clarified they used CPGs while seeing patients because they did not know

Importance of Clinical Practice Guidelines

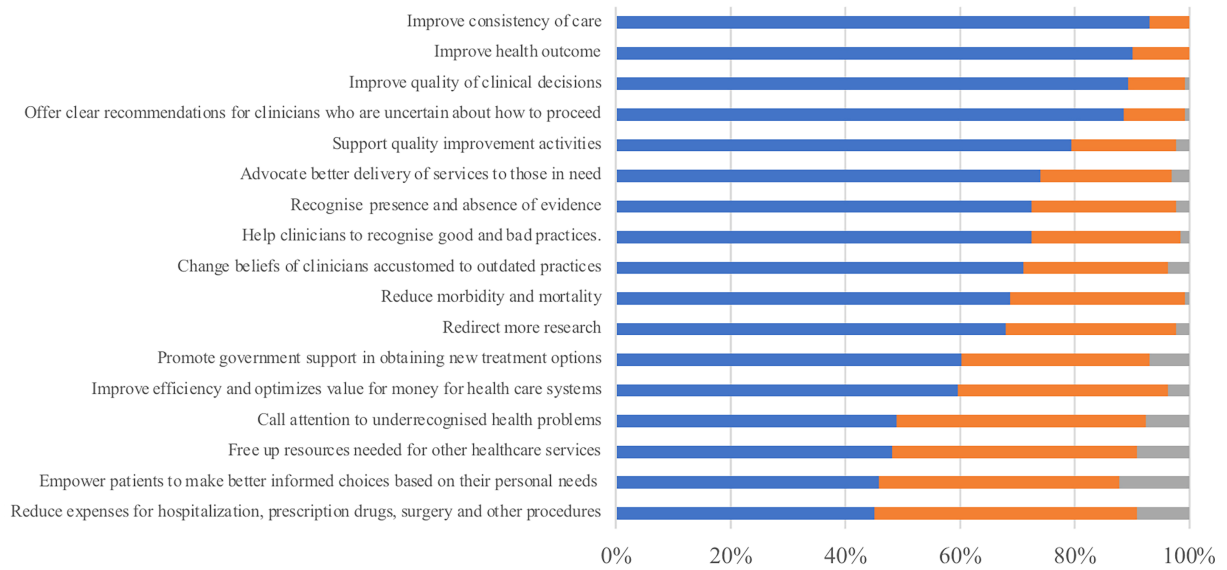


Figure 1 Importance of clinical practice guidelines. (■) Yes; (■) Maybe; (■) No.

what management steps to follow, while senior doctors used CPGs for verifying patient management. According to the free text survey responses, problems faced while accessing CPGs included Internet connectivity for online CPGs, outdated CPGs, ambiguity and unavailability of hard copies for quick referencing. Other CPG issues mentioned were the time required to read with isolated statements and lack of topic coverage, for example, unavailability of hyperkalaemia management in the Paediatric Intensive Care Unit guidelines.

Doctors’ opinions about why guidelines were important are summarised in Figure 1. Improving consistency of care, health outcomes and quality of clinical decisions

were rated most highly, whereas reducing expenditure received the lowest importance rating.

Doctors’ descriptions about CPGs’ impact on healthcare are shown in Figure 2. Virtually all (95%) stated that CPGs increased quality of care and increased physician satisfaction (80%). Approximately two-thirds (63%) of doctors stated that CPGs decreased medical-legal problems and decreased malpractice suits (68%). There were no independent associations of doctors’ sex, internal designation or specialty with whether CPGs increased, decreased or had no effect on healthcare (Supplementary file 4).

Doctors’ opinions about the attributes of CPGs are presented in Figure 3. The majority of doctors agreed/

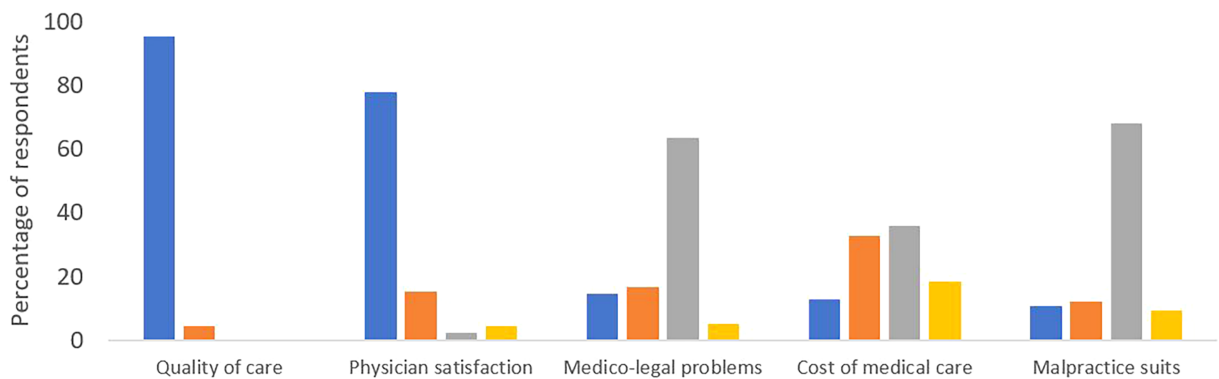


Figure 2 Doctors’ descriptions about the impact of CPGs on health care. (■) Increase; (■) No effect; (■) Decrease; (■) Not sure.

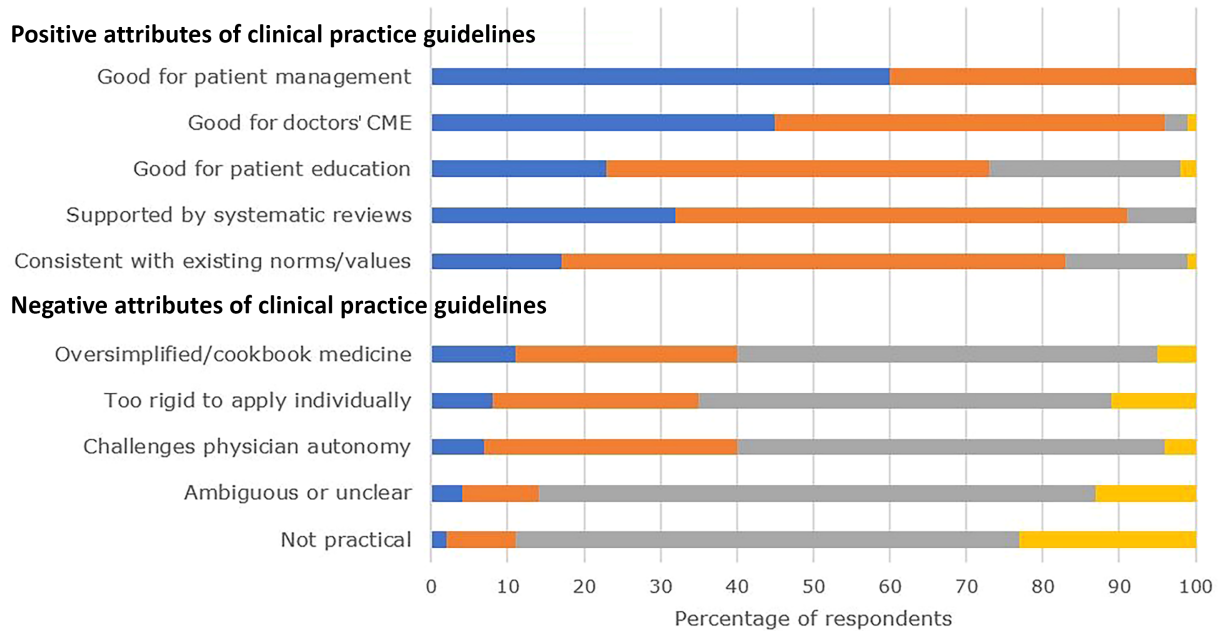


Figure 3 Doctors' opinions about positive and negative attributes of clinical practice guidelines. (■) Strongly agree; (■) Agree; (■) Disagree; (■) Strongly disagree.

strongly agreed that CPGs were good for patient management (100%), doctors' continuous medical education (96%) and patient education (73%), were supported by systematic reviews (91%) and were consistent with existing norms/values (83%). Independent associations of doctors' sex, internal designation and specialty with positive attributes of CPGs are shown in Supplementary File 2. In an analysis that adjusted for sex and specialty, in comparison with senior consultants, junior registrars were at increased odds of disagreeing/strongly disagreeing that CPGs were consistent with existing norms (aOR = 9.07).

Sixty to 90% of doctors disagreed/strongly disagreed that CPGs were oversimplified/cookbook medicine (60%), too rigid to apply (65%), challenged physician autonomy (60%), were ambiguous/ unclear (86%) or were not practical (89%) (Fig. 2). Independent associations of the doctors' sex, internal designation and specialty with negative attributes of CPGs are shown in Supplementary File 3. In comparison with senior consultants, interns, junior registrars and junior consultants were all at increased odds of agreeing/strongly agreeing that clinical guidelines were oversimplified/cookbook medicine (aOR = 8.82, 14.27 and 10.00 respectively). In comparison with females, males were at increased odds of agreeing/strongly agreeing that clinical guidelines challenged physician autonomy (aOR = 2.26) and were not practical (aOR = 5.63). In comparison with doctors working in

the Department of Medicine, doctors working in Paediatrics were at increased odds of agreeing/strongly agreeing that CPGs challenged physician autonomy (aOR = 4.09).

Confidence in the usefulness of the guidelines was measured using a scale of 1 to 5. The antibiotic guidelines were rated highest and the sore throat guideline lowest (Table 2). In the focus groups, doctors stated they were more confident with guidelines they use more frequently in their respective departments. This included the paediatric guidelines for the paediatric doctors as opposed to the antibiotic, leptospirosis and cardiovascular guidelines for doctors from the ED, Medicine and Anaesthetic departments.

On average, most guidelines were used once or twice monthly (Table 2). The Antibiotic guideline was the CPG with the lowest adherence. Reasons for not adhering to this guideline included outdated guidelines, recommendations not matching the latest literature and unavailability of treatment options mentioned.

Dissemination

Most departments were aware of all CPGs. All methods of dissemination were considered effective. However, one-way ANOVA analysis showed that physicians rated CME the most effective method, followed by seminars and workshops (Table 3). Focus group interviews revealed mixed reactions about CME, some recommended weekly

Table 2 Mean confidence levels and frequency of use of clinical practice guidelines

Clinical practice guidelines	Mean confidence (95% confidence levels) [†]	Frequency of use
		Average use/month [‡]
Antibiotic Guidelines	4.02 (3.80–4.23)	2.55
Acute Rheumatic Fever and Rheumatic Heart Disease Guidelines	3.99 (3.77–4.20)	1.86
Clinical Guideline for Diagnosis and Management of Leptospirosis	3.94 (3.72–4.16)	1.85
Cardiovascular Therapeutic Guidelines	3.91 (3.68–4.13)	2.15
Neonatal Intensive Care Unit Guidelines	3.87 (3.61–4.12)	3.26
Paediatric Intensive Care Unit Guidelines	3.85 (3.60–4.10)	3.00
Meningococcal Disease Public Health Management Guideline	3.71 (3.46–3.96)	1.63
Obstetrics & Gynaecology Guidelines	3.67 (3.41–3.93)	2.22
Blood & Blood Product Transfusion Policy	3.57 (3.32–3.81)	1.51
Communicable Disease Surveillance and Outbreak Response Guidelines	3.52 (3.27–3.77)	1.83
Fiji Hepatitis B Care and Treatment Guidelines	3.46 (3.19–3.72)	1.81
Fiji Guidelines for Sore Throat and Skin Disease	3.41 (3.14–3.68)	2.24

[†]1 = no confidence; 5 = full confidence.

[‡]*n* = 104.

meetings, while others found these less effective but should be conducted when there is a guideline update or if a particular department felt knowledge on a specific

topic was lacking. Interns preferred to have guidelines sent out to them at the beginning of every rotation. For example, one intern said:

‘Best sent out to the interns at the beginning of the block and CME held when there is a new update to the guide’ FG1, P5.

Physicians rated having quick reference guides as the best methods of CPG implementation, followed by performance gap assessments and electronic decision support systems (Table 3).

Monitoring

Only 17% of doctors surveyed said CPG use was monitored in their departments. Described monitoring methods included audits, cross-checking in handover sessions, checking documentation in folders, morbidity and mortality sessions, and guidelines attached to folders. In the focus groups, all participants agreed there was no formal monitoring of CPG use, perhaps due to the lack of time and training.

The survey’s written responses also suggested that ways to improve CPG adherence were to conduct audits and feedback, regular CMEs and workshops. Creating an online platform to monitor CPG use and creating incentives were also stated as good ways to improve CPG adherence. Continuing medical education points were considered to be the best incentive to improve CPG adherence.

Discussion

Utility of CPGs

In this study conducted in the largest tertiary hospital in Fiji, CPGs were used by most responding doctors at all

Table 3 Preferred methods for dissemination and implementation of clinical practice guidelines

Dissemination methods	Mean (95% confidence interval)	Implementation methods	Mean (95% confidence interval)
	Possible range 1–5 [†]		Possible range 1–5 [†]
Continuing medical education	4.37 (4.25–4.48)	Quick reference guides	4.69 (4.60–4.77)
Seminars and workshops	4.35 (4.22–4.48)	Performance gap assessment	4.24 (4.09–4.39)
Printing and circulation handbooks	4.24 (4.09–4.39)	Electronic decision support systems	4.22 (4.07–4.38)
Postgraduate lectures	4.12 (3.96–4.29)	Education outreach	4.21 (4.07–4.36)
Undergraduate lectures	4.10 (3.95–4.26)	Using Consultants/Opinion leaders	4.08 (3.93–4.24)
Peer advice	4.08 (3.94–4.23)	Audit and feedback	4.02 (3.85–4.18)
Computer based	4.05 (3.89–4.22)	Develop forms and attach to patient folders.	3.89 (3.70–4.09)
Publishing in journals	3.80 (3.66–3.95)	Create an incentive	3.72 (3.52–3.93)
Newsletters	3.34 (3.15–3.54)		

[†]Average score using 1–5, where 5 = very effective and 1 = not effective.

internal designation levels. While almost all doctors were aware of CPGs and knew where to access them, factors hindering access included outdated guidelines, poor Internet connectivity, ambiguity and unavailability of hard copies and mentioned treatment options.

The surveyed doctors were receptive to changing outdated practices, sometimes called the inertia of changing practice.¹² Consistent with our research, a focus group of general practitioners in the Netherlands¹² also reported disagreement with recommendations, lack of familiarity, lower recommendation knowledge and unclear or ambiguous guidelines as reasons for non-adherence.

The surveyed doctors agreed that CPGs provided multiple benefits to patients, clinicians and healthcare systems, which is in agreement with the benefits of CPGs stated by Woolf *et al.*³ Clinical Practice Guidelines provide a platform which encourages research in low-resourced healthcare systems and which may enhance the practice of evidence-based medicine, improving the quality of patient care. The doctors in our study expressed less support for the idea that CPGs empower patients to make better informed choices which could indicate that consumer versions of the guidelines need to be developed to inform patients about treatment options and recommendations.¹³

Most respondents stated that CPGs were not oversimplified or cookbook medicine, in contrast with earlier publications on CPGs.¹⁴ Respondents thought most CPGs were consistent with existing norms and values. This is likely related to doctors' practising in a teaching hospital where evidence-based practice is promoted, so they do not feel their autonomy is challenged. It is interesting that most respondents believed CPGs increased physician satisfaction and reduced medico-legal problems, as opposed to findings of a similar study previously conducted by James *et al.*¹⁴

Some differences were present between subgroups of doctors for negative perceptions of guidelines. Compared with senior consultants, interns, junior registrars and junior consultants were at increased odds of agreeing that CPGs were oversimplified/cookbook medicine. This could reflect their lack of participation in the guideline development and appreciation of the balance between content and brevity required in a guideline.

To address the issue of outdated guidelines, CPGs should be updated regularly to maintain their validity.^{15,16} However, guideline developers should keep in mind that recommendations with high turnover are more likely to require an update than those with low turnover and hence tailor their strategies depending on the frequency with which new research is published.¹⁷

Clinical practice guidelines are advocated to reduce the cost of healthcare¹⁴, however, a third of our respondents

disagreed with this statement. Best practice involves more expensive treatment options, which is a cause of constant tension in low-resource settings. In our low-resource setting, best practices can be used to advocate to the government for better treatment options, but this needs to be balanced against the overall cost of healthcare.

Dissemination

Significant effort is expended on the development of CPGs, however, strategies to bring them to the attention of users receive limited resources. Even with the exponential growth in the availability of CPGs online, some of our respondents stated they were still unaware of these guidelines or that CPGs were out of reach. Respondents reported CME as the most effective means of disseminating guidelines, which is also supported by previous systematic reviews.^{18,19} Publishing in journals and newsletters was the least effective method of dissemination, with these measures rarely leading to change in practice.^{19,20} Providing quick reference guides was considered the best method to increase CPG utilisation, followed by assessing CPG usage in annual performance assessments.²¹ Additionally, electronic decision support systems have been promoted by physicians as a means to increase adoption of CPGs¹⁹; however, this requires evaluation in low-resource settings.

Monitoring

There was no formal monitoring of CPG use in any of the departments. This was related to the lack of time and training on monitoring. Methods used to informally monitor CPG use were audits, handover checks and morbidity/mortality sessions. This conforms with the use of profiling described by Shapiro *et al.*²² Monitoring of CPG use is important as it may help reduce the rising cost of medical care. The paucity of evidence on monitoring CPG use highlights an area of clinical practice improvement for Fiji.

Study strengths and limitations

There are several limitations of this study. Firstly, most of the respondents were interns. Secondly, the respondents were all working at the central divisional hospital; hence, their responses and general attitudes about CPGs may not be representative of the entire cohort of medical officers employed by the Ministry of Health throughout Fiji. Further, this study was conducted at the end of the COVID-19 peak, which could be a factor influencing the fact that 20% of the respondents did not use any of the guidelines in the month preceding data collection. Finally, the low reported rate of monitoring may be

more limited than our study suggests. Despite the limitations, the mixed methods design combines the quantitative and qualitative results to demonstrate a more comprehensive picture of the research topic. This was also the first study to investigate CPGs in our setting. We consider the positive response rate of 74% to the survey a strength.

Conclusion

In summary, our study suggests that low-resource settings similar to ours should expect to benefit from CPGs. Physicians appear willing to use them if regularly updated. Although well-formulated CPGs can be an invaluable tool to guide best clinical practice, they should be utilised together with clinical reminders and quality improvement tools as a complete plan for quality improvement. Monitoring and evaluation are vital to ensure their applicability in the local context. To maximise the use of CPGs and promote adherence in our low-resource setting, attention is needed to the most

effective dissemination and implementation strategies. Further research is advocated to evaluate the effectiveness of guideline use once monitoring is appropriately pursued.

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web-site:

Supplementary File 1. Questionnaire.

Supplementary File 2. Doctors' opinions about positive attributes of clinical practice guidelines.

Supplementary File 3: Doctors' opinions about negative attributes of clinical practice guidelines.

Supplementary File 4: Doctors' descriptions about the impact of CPGs on healthcare.