



Original Article

## Knowledge, attitudes, and behaviors regarding the use of clinical practice guidelines among spine surgeons in Latin America

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### ABSTRACT

**Background:** Clinical Practice Guidelines (CPGs) are invaluable tools to assure evidence-based spine surgery care. In this study, we aimed to identify perceptions, barriers, and potential determinants for the use of CPG among Latin American spine surgeons.

**Methods:** A 28-item questionnaire regarding the use of CPGs was sent to the members of AO Spine Latin America. The questionnaire was subdivided into three sections: (1) demographic data; (2) perceptions and awareness of CPGs; (3) and potential barriers to CPG use. Multivariate logistic regression was performed to assess potential associations with CPG use.

**Results:** A total of 304 spine surgeons answered the questionnaire. Most of the participants were male (91.8%) and orthopedic spine surgeons (52.3%) who averaged 45–65 years of age. Most respondents were aware of some CPGs for spine care (68.8%) and reported using them (70.4%); lack of awareness about CPGs was the most frequent barrier to their use (65.1%).

**Conclusion:** Awareness of CPGs in spine surgery is of paramount importance for their use. Educational programs explaining the importance and benefits of spine care CPG surgical and clinical practice would increase the adherence of physicians to the guidelines.

**Keywords:** Evidence-based medicine, Guidelines, Neurosurgeon, Orthopedic surgeon, Spine

### INTRODUCTION

Clinical Practice Guidelines (CPGs) provide the best available evidence for managing patients' conditions and offer essential scientific information for the physician's practice.<sup>[4]</sup> Notably, knowledge obtained through clinical research takes almost two decades to become a part of routine clinical practice.<sup>[7]</sup> In the spine, it is difficult to conduct studies such as randomized clinical trials to obtain the best answers to spine surgery-based questions.<sup>[9]</sup> In this context, the spine surgery community in Latin America has presented prolific scientific contributions in the past decades and a potentially rich environment for evidence-based practices.<sup>[3]</sup> This study aims to identify perceptions, barriers, and potential determinants for the use of CPGs for spine care in Latin America.

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## MATERIALS AND METHODS

### Type of study and questionnaire

The authors sent a cross-sectional survey to assess the adherence of Latin American spine surgeons to CPGs, as well as the facilitators and barriers to their utilization. The participation of the spine surgeons was voluntary and anonymous. The questionnaire comprised 28 questions, subdivided into three sections: (1) demographic data; (2) perceptions and awareness of CPGs; and (3) potential barriers to CPG use. The respective questions and their results are shown in [Tables 1 and 2] as well as in [Figure 1], respectively.

### Data analysis and statistics

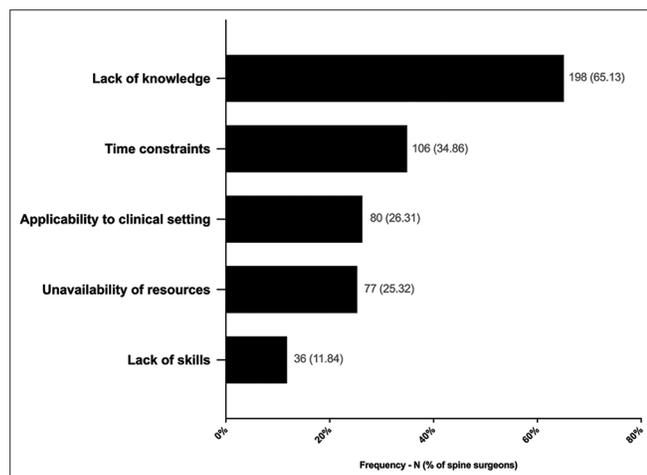
We used SPSS Version 21. Continuous variables are presented as means (or medians) ± standard deviation (or quartile deviation) and their respective 95% confidence intervals (95% CI). Categorical variables are expressed as frequencies and percentages and analyzed using the Chi-square test.

Age (continuous), years of experience as spine surgeon (continuous), specialty (neurosurgery or orthopedics), and awareness of any CPG for spine care (yes or no) were the variables selected to undergo statistical analysis to assess potential associations. A significant *P*-value was set equal to or lower than 0.05.

## RESULTS

### General and demographic data

The response rate was 20.97% (*n* = 304/1450). Spine surgeons from 18 different countries answered the questionnaire. The countries with the highest number of respondents were Argentina (28.28%; *n* = 86/304), Mexico (13.81%; *n* = 42/304),



**Figure 1:** Potential barriers to Clinical Practice Guidelines use. Total *n*=304.

and Brazil (12.50%; *n* = 38/304) [Table 1]. Most of the participants were male (*n* = 279/304; 91.77%), with a slightly higher number of orthopedic surgeons (*n* = 159/304; 52.32%). The mean age was 45.65 ± 10.96 (95% CI=44.42-46.88) years. Participants had an average of 13.42 ± 10.86 (95% CI=12.20–14.64) years of practice.

### Perceptions and awareness of CPGs

Most of the surgeons were aware of some CPGs for spine care (68.75%) and considered following CPGs as a protective measure for delivering better patient care (69.73%) and reducing health-care costs (60.19%). Lack of knowledge about CPGs was the most frequent barrier to their use (65.13%) followed by time constraints (34.86%) and applicability issues (31%). Further, data regarding perceptions and barriers are shown in [Table 2 and Figure 1], respectively.

### Variables associated or not with guidelines use

The multivariate logistic regression model to forecast CPG use presented independent associations when they took it accounts for age (OR = 1.05, 95% CI = 0.99–1.10, *P* = 0.05), years of experience (OR = 0.93, 95% CI = 0.88–0.98;

**Table 1:** Demographic characteristics of the participants and use of CPGs (*n*=304).

Characteristic	Frequency - <i>n</i> (%)
I use CPGs	214 (70.40)
Age (years)	
≤37	84 (27.63)
38–43	57 (18.75)
44–53	82 (26.97)
≥54	79 (25.98)
Experience (years)	
≤10 years	160 (52.60)
>10 years	144 (47.40)
Specialty	
Orthopedic surgery	159 (52.30)
Neurosurgery	145 (47.70)
Gender	
Male	279 (91.80)
Female	25 (8.20)
Country	
Argentina	86 (28.80)
Mexico	42 (13.83)
Brazil	38 (12.50)
Venezuela	28 (9.21)
Chile	25 (8.22)
Colombia	20 (6.57)
Peru	16 (5.26)
Ecuador	9 (2.96)
Others*	40 (13.15)

\*Costa Rica, Dominican Republic, Paraguay, Bolivia, Panama, Cuba, Uruguay, Guatemala, Honduras, and Nicaragua. CPGs: Clinical Practice Guidelines

**Table 2:** Knowledge and attitudes toward CPGs according to their pattern of use ( $n=304$ ).

Knowledge and attitudes	Overall $n$ (%)	Use of CPGs Frequency – $n$ (%)		OR (95% CI)	P-value
		Nonuser* ( $n=90$ )	User ( $n=214$ )		
I am aware of some CPGs for spine care.	209 (68.75)	40 (44.44)	169 (78.97)	4.69 (2.76–7.98)	<0.001
I think they help reduce health-care costs.	125 (41.11)	40 (44.44)	85 (39.71)	0.82 (0.501–13.6)	0.445
I think they improve patient care.	212 (69.73)	54 (60.00)	158 (73.38)	1.88 (1.12–3.16)	0.017
I think they improve the efficiency of treatment.	215 (70.72)	52 (57.77)	163 (76.16)	2.34 (1.38–3.94)	<0.001
I think they help make treatments homogenous so that any physician can follow them.	249 (81.90)	73 (81.11)	176 (82.22)	1.08 (0.572–2.03)	0.875
I think following CPG protects doctors from malpractice suits.	166 (54.60)	46 (51.11)	120 (56.07)	1.22 (0.745–2.00)	0.427
My colleagues use CPGs in their clinical practice.	109 (34.85)	8 (8.88)	101 (47.19)	9.16 (4.23–19.9)	<0.001
CPGs recommendations influence my clinical practice.	236 (77.63)	37 (41.11)	199 (92.99)	19.0 (9.70–37.2)	<0.001
The use of CPGs is supported in my institution.	173 (56.90)	24 (26.66)	149 (69.62)	6.30 (3.63–10.9)	<0.001
It is easy to perform the standard of care recommended in CPGs.	158 (51.97)	31 (34.44)	127 (59.34)	2.78 (1.66–4.64)	<0.001
Recommendations are often in line with my professional opinion.	214 (70.39)	47 (52.22)	180 (84.11)	4.48 (2.79–8.42)	<0.001
Following clinical guidelines save time in the delivery of care to my patients.	227 (74.67)	46 (51.11)	163 (76.6)	3.06 (1.82–5.14)	<0.001
Following clinical practice guidelines improve the quality and efficiency of care I deliver.	209 (68.75)	46 (51.11)	205 (95.79)	21.8 (9.94–47.8)	<0.001
It is easy to remember the care plan outlined in CPGs when I see patients.	191 (62.82)	35 (38.88)	156 (72.89)	4.23 (2.51–7.11)	<0.001
In general, the benefits of following the recommendations in CPGs outweigh the costs.	183 (60.19)	30 (33.33)	153 (71.49)	5.02 (2.95–8.52)	<0.001

CPGs: Clinical Practice Guidelines, OR: Odds ratio, CI: Confidence interval. \*Reference group.

$P = 0.007$ ), specialty (OR = 2.07, 95% CI = 0.27–0.85,  $P = 0.013$ ), and awareness (OR = 4.97, 95% CI = 2.87–8.58;  $P < 0.001$ ).

## DISCUSSION

We evaluated the perceptions and attitudes regarding CPGs among spine surgeons and potential barriers to their use. We found a strong association between awareness of CPGs and their use. Our findings can help future educational interventions to change the behavior of Latin America surgeons by spreading awareness of CPG use through educational programs to increase knowledge, foster critical

appraisal, and alter attitudes. Although adherence to CPG-based decision-making in medicine represents an average of 67% of the decisions, it is estimated that 40% of the patients receive treatments that are not based on scientific evidence.<sup>[5]</sup> There are three ways in which potential barriers to CPG use can act: (1) knowledge, lack of awareness, and familiarity; (2) attitudes, lack of agreement, self-efficacy, expectancy, and previous practice; and (3) behavior, due to environmental, guideline-related, and patient-related factors.<sup>[1]</sup> Our study demonstrated that the awareness of Latin American spine surgeons is related to higher use of any CPGs than among those who are not aware; this confirms the importance of

continued educational work and behavioral interventions among spine surgeons.<sup>[1]</sup>

### CPGs do not decrease the incidence of malpractice suits or costs

Spine surgery predominates in number of malpractice suits in neurosurgery, comprising 40% of them.<sup>[2]</sup> According to our results on CPGs' attitudinal behaviors, spine surgeons do not regard adherence to guidelines as a factor associated with the decreasing likelihood of malpractice suits – in both CPG user and non-CPG user groups [Table 2]. In our study, we found that most spine surgeons disagreed that following CPGs help to reduce costs ( $n = 125/304$ , 44.07). Nevertheless, they agree that the benefits of following them outweigh the costs ( $n = 183/304$ , 60.19%).

### Behavioral aspects of CPGs adherence

Among the spine surgeons responding, 35.85% reported that their colleagues are CPG users and they also cited institutional support for using CPGs 56.90% of the time. Notably, there is a lack of evidence that financial incentives could improve guideline adherence.<sup>[8]</sup>

### How to increase CPGs use among spine surgeons?

Continued education by local opinion leads only to a 6% minimal increase in the use of CPGs.<sup>[6]</sup> Potential higher rates of CPG utilization would result from greater involvement of spine surgeons' colleagues (physician, team practice, hospital, and broader environment).<sup>[6]</sup>

There are specific ways to overcome the barriers of physicians' awareness and attitudes. Spine surgeons' attitudes can be improved by more opinion leaders' recommendations, endorsement from specialty societies, educational meetings, outreach visits, and interactive learning.<sup>[5]</sup>

Furthermore, it needs to be emphasized that adherence to CPGs has clear benefits for the management of spine-related disease including also cost savings and improved quality of care.<sup>[9]</sup> For example, avoiding unnecessary lumbar fusions, consistent with CPG guidelines, would reduce morbidity and mortality rates along with operative costs.<sup>[10]</sup> Those concerns should be considered to ensure that the benefit provided by CPGs is significant and widespread.

## CONCLUSION

The awareness of CPGs is a key factor for guidelines use by Latin American spine surgeons to ensure up-to-date conducts and improved care of future patients.

### Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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### Conflicts of interest

There are no conflicts of interest.

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