

Barriers to Implementing a Reporting and Learning Patient Safety System: Pediatric Chiropractic Perspective

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Abstract

A reporting and learning system is a method of monitoring the occurrence of incidents that affect patient safety. This cross-sectional survey asked pediatric chiropractors about factors that may limit their participation in such a system. The list of potential barriers for participation was developed using a systematic approach. All members of the 2 pediatric councils associated with US national chiropractic organizations were invited to complete the survey (N = 400). The cross-sectional survey was created using an online survey tool (REDCap) and sent directly to member emails addressed by the respective executive committees. Of the 400 potential respondents, 81 responded (20.3%). The most common limitations to participating were identified as time pressure (96%) and patient concerns (81%). Reporting and learning systems have been utilized to increase safety awareness in many high-risk industries. To be successful, future patient safety studies with pediatric chiropractors need to ensure these barriers are understood and addressed.

Keywords

pediatric, doctor of chiropractic, spinal manipulation, patient safety

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A reporting and learning system is a method of monitoring the occurrence of clinical or administrative incidents that may affect patient safety. It is also a method of developing quality improvement strategies and system changes to address the root cause of an incident. Although it has been speculated that the implementation of nonpunitive reporting and learning systems have increased an open, constructive patient safety environment in hospital settings,^{1,2} little has been done to implement these strategies in other settings or professions, especially in community-based health care offices.³ It has been recognized that the majority of patient-provider interactions occur in community-based offices, such as family medical, allied health, and complementary and alternative medicine practices.^{2,4,5}

In the chiropractic profession, Europe and Australia have a passive reporting and learning system, “The Chiropractic Patient Incident Reporting and Learning System” (CPiRLS). CPiRLS is an online forum that allows chiropractors to both voluntarily share patient safety incidents and comment on reported incidents in an anonymous and confidential manner.^{6,7} CPiRLS is continuously monitored for emerging trends, and “Safer Practices Notices” are produced with additional evidence-based information about these emerging trends to enhance the learning opportunities for all CPiRLS participants.

These learning opportunities are to help support an open, constructive patient safety, which is built around professionalism and trust.

The development of an open constructive patient safety environment can bolster public trust.⁸ Chiropractors are in a position to be able to reflect on and recognize patient safety incidents and can help design system changes so that these conditions are reduced or mitigated. However, most providers do not have the knowledge or infrastructure to conduct such evaluations. SafetyNET is a team of international and interdisciplinary research leaders who are taking novel approaches to support a patient safety for spinal manipulation therapy providers, including chiropractors.⁹ SafetyNET includes investigation of patient safety among chiropractors who treat the pediatric population.

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According to a recent US job analysis of the overall chiropractic profession, 17.1% of chiropractic patients are 17 years of age or less; the proportion of pediatric patients increases to 38.7% among chiropractors who have a specialized certification in pediatrics.^{10,11} While CPiRLS does not have age restrictions, limited pediatric data have been reported in that system. Children are at risk for adverse events from health care, including spinal manipulation therapy,^{12,13} which highlights the importance of patient safety initiatives for this vulnerable population.

The purpose of this cross-sectional study is to describe factors that may inhibit pediatric chiropractors' participation in a patient safety reporting and learning system. Potential barriers to participation have been identified through research in other health care areas and high-risk industries when implementing reporting and learning system, but to our knowledge, this has not yet been assessed among chiropractors treating a pediatric population.¹⁴

Methods

The assessment of barriers to participation in a reporting and learning system was one section of the "Survey to Support Quality Improvement" developed along with several other SafetyNET projects.⁹ The original survey also measured the following: patient safety culture dimensions, patient safety items and quality issues, information exchange with other settings, and overall clinic self-ratings. The University of Alberta's Research Ethics Board reviewed and approved this study.

Population

All members of the 2 pediatric councils associated with the US national chiropractic organizations (American Chiropractic Association [ACA] and International Chiropractors Association [ICA]) were invited via email to complete the survey (N = 400). There were 2 exclusion criteria: (a) if the association did not have an active email address for the member (ie, the email was returned as undeliverable); (b) if the member was a study investigator. To maintain confidentiality and anonymity, the link to the survey was sent by each organization's executive committee to its own membership.

Study Design

The cross-sectional survey was collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools hosted at the University of Alberta.¹⁵ REDCap is a secure, web-based application designed to support data capture for research studies, providing (a) an intuitive interface for validated data entry, (b) audit trails for tracking data manipulation and export procedures, (c) automated export procedures for seamless data downloads to common statistical packages, and (d) procedures for importing data from external sources. Participants accessed the survey from a link sent directly to their email account associated with their council membership. The email had a letter with information about the study and the first page of the survey included instructions for completing the survey. The link was sent 3 times, with at least 1 week between each mail-out.

Table 1. Demographic and Background Characteristics of Respondents (n = 69)^a.

Characteristics	n (%) or Mean (SD)
Gender—Female, n (%)	56 (74.7)
Number of years in practice, mean (SD)	18.75 (8.8)
Patient visits per week, n (%)	
<50	12 (16.0)
50-99	20 (26.7)
100-149	22 (29.3)
150-199	13 (17.3)
200+	8 (10.7)
Conferring chiropractic degree	
Palmer College of Chiropractic	33 (48.5)
RMIT University	5 (7.4)
New York Chiropractic College	5 (7.4)
Logan	4 (5.9)
University of Western States	4 (5.9)
Other (CMCC, LACC, Life, NUHS, NZCC, Parker, Phillip Institute, TCC, UBCC, UQTR, Northwestern)	17 (24.9)
Office geographical location	
USA, East	15 (22.0)
USA, South	12 (17.7)
USA, Midwest	12 (17.7)
USA, West	12 (17.7)
Canada	6 (8.8)
Other international	7 (10.3)
Professional organization membership	
American Chiropractic Association (ACA), Council on Chiropractic Pediatrics	15 (18.3)
International Chiropractor Association (ICA), Council on Chiropractic Pediatrics	48 (58.5)
International Chiropractic Pediatric Association (ICPA)	16 (22.0)
Other (European Pediatric Association)	1 (1.2)
Pediatric diplomate certification	41 (59.4)
Interested in participating in pediatric chiropractic research	44 (68.8)

^aThis was the final section of the survey; therefore, missing data were observed.

The initial list of potential barriers to reporting and learning system participation came from Benn et al,¹⁴ who conducted a mixed methods approach to evaluate mechanisms of effective feedback from incident reporting systems in health care and experiences from established reporting systems in the transport domains and other high-risk industries. This initial list of barriers included fear of blame, time pressure, resource constraints, the perception that reporting is unnecessary, and a lack of clear definitions as to what constitutes a reportable incident.

Through focus group discussions with spinal manipulation therapy providers and SafetyNET team members (n = 15), the following modifications and additions were made to the draft survey: (a) examples of "resource constraints" (eg, Internet access, computer, etc) were added; (b) "the perception that reporting is unnecessary" was changed to "believe reporting is unnecessary"; and (c) additional potential barriers were identified, specifically, legal implications, regulatory implications, perceived inconvenience for the patients, potential to create negative perception in patients, and an "other, specify" category was added. All factors were rated by respondents on a 3-point scale: *Not at all*; *Yes, a little*; and *Yes, a lot*.

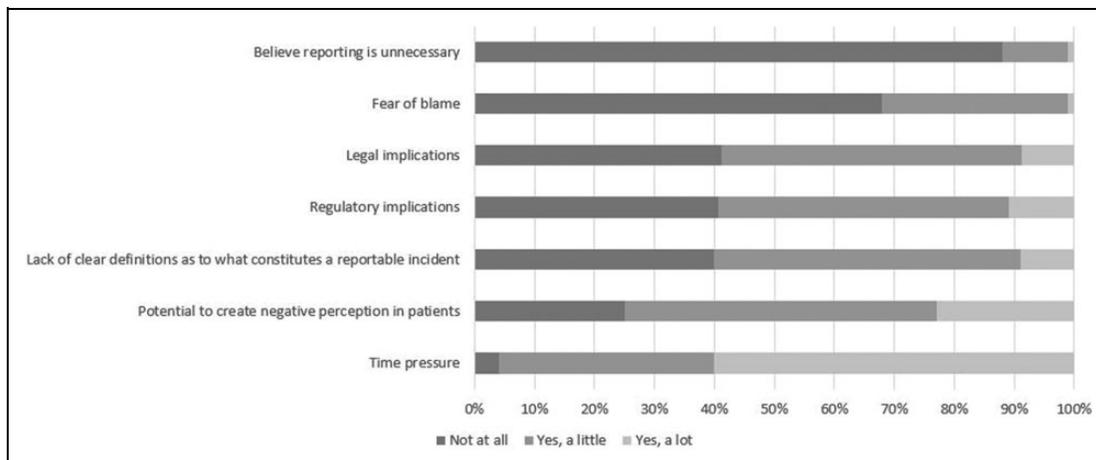


Figure 1. Bar graph of the survey factors that may inhibit provider participation in reporting and learning systems (n = 81).

Data Analysis

The data were analyzed with Stata13 Software (StataCorp) and Excel 2013. Participant characteristics and reporting and learning system factors were reported using descriptive statistics, specifically percentages. Potential nonresponse bias was assessed by comparing differences in the gender, location, and pediatric certification status of survey respondents and nonresponders in each organization's membership. If a difference was found, then each barrier was evaluated for significant differences ($P < .05$) between comparison (ie, gender, location, and/or pediatric certification).

Results

Of the 400 potential respondents from both organizations, the response rate for this section of the survey was 20.3% (n = 81). Table 1 provides a summary of demographic characteristics of respondents. Respondents were mostly females (74.7%), 29% treating between 100 and 149 patients per week, 27% treating between 50 and 99 patients per week, and work an average of 32.7 hours per week. The respondents had a uniform geographical representation from across the United States, with a few in other countries.

Barriers identified by respondents as potential inhibitors to participation in a patient safety reporting and learning system are summarized in Figure 1. The largest barrier cited was time pressure (96%) and patient-related concerns (average 80.5%). Most (68%) reported the fear of blame as not being a barrier to reporting. Few endorsed the statement "believe reporting is unnecessary" (12%).

Gender, location, and pediatric certification status of nonrespondents were available in aggregate fashion from each organization. There were no differences between respondents and nonrespondents with regard to gender and location of practice, but those with pediatric certification were more likely to respond than those not certified. In the ACA-CCP, those who are pediatric-certified were 3.13 (95% confidence interval = 1.44, 6.76) times more likely to respond to the survey than those who are not certified. In the ICA-CCP, those who are

pediatric-certified were 3.23 (95% confidence interval = 1.71, 6.10) times more likely to respond to the survey than those who are not certified.

Responses of pediatric-certified and noncertified participants were very similar. Only one item, "Lack of clear definitions as to what constitutes a reportable incident," was different between the 2 groups ($P = .003$), with those with certification having a slightly higher mean score on that item (mean score of 1.9 vs 1.4, respectively).

Discussion

Awareness of potential barriers prior to the development of a pediatric chiropractic reporting and learning system allows for better design and implementation of such systems. Similar to other health care professions, high-risk industry and transport domains, we found that time pressure appears to be the largest barrier to participation in a reporting system.¹⁴ This was not unexpected, as time pressure is always a concern as health care providers have many competing demands for their time and "busy-ness" is a socially acceptable excuse for nonparticipation in research.¹⁶ However, it has been shown that if providers find value in a process and receive timely, usable information from it, they will also find the time to participate.^{14,16} Reassuringly, providers stated that completing the data collection forms only added 30 to 60 seconds onto each patient visit, which should greatly enhance the feasibility of participation, even in busy offices.¹⁷ Unlike other organizations, fear of blame and a belief that reporting is unnecessary were not identified as major barriers.¹⁴ Absence of these potential barriers should hopefully support future participation in a reporting and learning system.

Concerns about patient perception were another reported barrier to participation. Our team's work in this area suggests this concern is not shared by patients. Patients that have participated in a pilot spinal manipulation therapy reporting system, conducted by our team, reported that instead of developing a negative impression of their provider (as was feared by some

respondents), they were pleased that their provider was willing to participate in a study looking directly at patient safety.¹⁷

The major limitation of this survey was potential for nonresponse bias. With only 20% response rate, there may be systematic differences between those who responded and those who did not. More specifically, it is possible that respondents to this survey were those chiropractors who were more or less positive about the importance of such a system. It is unknown how nonrespondents may differ with respect to potential barriers that would inhibit their participation in a reporting and learning system. Reassuringly, demographic characteristics of respondents to this survey were similar to those identified in a job analysis we conducted of chiropractors with a pediatric survey conducted in 2009.¹¹ Compared with the National Board of Chiropractic Examiners 2010 chiropractic job analysis, this survey had a higher proportion of females, which was expected for a pediatric-focused provider population.¹⁰ Both of these previous surveys had similar numbers of graduates from Palmer College of Chiropractic (one of the larger chiropractor colleges in the United States), had similar number of years in practice, and had similar number of patient visits. To increase response rate in future cross-sectional surveys, one may consider using mixed methods (eg, mail and internet-based), decreasing the length of the survey, and increasing awareness/encouraging completion through use of telephone reminders.¹⁸

Conclusion

Reporting and learning systems have been utilized to facilitate an open constructive patient safety environment in many high-risk industries, including health care. For self-regulated professions, including chiropractic, ensuring patient safety is part of their regulatory mandate. This survey has identified potential barriers to participation in a reporting and learning system for the pediatric chiropractic profession, with the largest barriers identified being time pressure and the potential for patient concerns. Future patient safety studies with chiropractors who treat the pediatric population need to ensure these barriers are understood and addressed to be successful.

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Author Contributions

KAP conceptualized the overall project, designed and managed data collection, analyzed the data, and drafted the first manuscript. LC, LH, RTT, and SV participated in the design of the overall project and manuscript preparation. LC and SV advised on data analysis. LH and RTT are mentors who contributed equally to this work. All authors critically edited drafts of this manuscript and approved the final manuscript.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethical Approval

The University of Alberta's Research Ethics Board reviewed and approved this study (Pro00043860).

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