

Safety Incident Reporting in Chiropractic: A descriptive analysis of an active and passive system

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Abstract

Background

Safety incident reporting systems support learning from harm, but the processes and information outputs of active and passive systems within chiropractic have not been analyzed. The Chiropractic Patient Incident Reporting and Learning System (CPiRLS) is a passive, provider-driven system using voluntary, anonymous reporting, while SafetyNET is an active, research-embedded system collecting reports from both patients and practitioners.

Methods

A framework analysis with a structured expert consensus method was used. Both systems were assessed against the six core categories of the World Health Organization (WHO) self-assessment framework for patient safety incident reporting systems, and their incident report data fields were mapped against the WHO Minimal Information Model for Patient Safety (MIM PS). One leader from each system completed the assessment, which was independently verified by a second leader. Four panelists without system-leadership roles rated each item independently, followed by a facilitated consensus meeting. Reporting followed the Standards for Reporting Qualitative Research.

Results

Neither system aligned fully with the WHO framework or model. SafetyNET scored higher on Reporting Rules and Content, including the largest single divergence in the framework: the ability to return to a reporter for further information. CPiRLS scored higher on Governance, consistent with its anonymous design. Both systems scored comparably in the mid-range on Analysis and Investigation, and both scored at the bottom of the rating scale on nearly every item within Patient and Family Engagement. Both scored equally low on providing personalized feedback to reporters. Both met most Basic MIM PS elements, with gaps in incident location, incident type, and incident outcome, and neither used standardized coding for suspected cause or contributing factors. Where one system was strong, the other tended to be weaker.

Conclusions

The differences between CPiRLS and SafetyNET reflect differences in design rather than in the quality of each system, and the two together align with the WHO self-assessment framework more completely than either does in isolation. Neither system can close the shared gaps alone, and the profession would be better served by using both approaches than by choosing between them.

BACKGROUND

Patient safety, defined as the absence of preventable harm to a patient and reduction of risk of unnecessary harm associated with health care, is a global priority [1]. One means of addressing this is the reporting of, and learning from, safety incidents. A safety incident is any type of deviation from normal clinical care that can occur that has the potential to cause harm [2]. Safety incidents can include, for example, diagnostic errors or delays, patient accidents within clinic settings, documentation errors, as well as adverse events (AEs). An AE is thus one type of safety incident and refers to a negative outcome associated with treatment, regardless of whether the treatment caused it [3].

Safety incident reporting systems are fundamental tools for collecting, managing, and analyzing information on AEs and other safety-related occurrences, which can be further interpreted and disseminated to improve quality of care [4]. Initially developed to monitor disease outbreaks, these systems have evolved with technological advancements to encompass a broad range of public health concerns, including safety incidents in ambulatory care settings [5, 6]. A key requirement of a safety incident reporting system is not only its ability to identify and capture information on safety incidents, but also its effectiveness in reducing future harm. The latter relies upon processes of evaluation, learning, and subsequent action to prevent recurrence of future harms [2].

Reporting systems have been categorized into two models, passive and active, each playing a different role in detecting safety incidents and improving patient safety. Passive reporting systems rely on voluntary reporting, typically submitted by healthcare providers through mechanisms including paper or electronic incident forms, online portals, or telephone hotlines, and can be structured to be anonymous, confidential, or open [4]. This variability in reporting modes affects the system's transparency and participation levels. Passive systems are cost-effective and frequently employed in hospitals and pharmacovigilance programs; however, common limitations include underreporting and inconsistent data quality [7]. Nevertheless, passive reporting systems have significantly contributed to public health improvements, including the identification of vaccine-related risks and the reduction of hospital-acquired infections [8, 9]. In contrast, active reporting systems employ systematic data collection through structured methods including interviews, follow-ups, and electronic monitoring. Active surveillance may provide more standardized data and enable more accurate estimates of the incidence proportion of safety incidents (the number of safety incidents relative to the total number of treatments) [6]. Although endorsed by major organizations to enhance patient safety [10, 11], active reporting systems are resource intensive and remain underutilized in ambulatory care settings [6, 12]. Despite growing recognition of the need for patient safety reporting systems in healthcare, the distinct processes and information outputs of active and passive reporting systems in the chiropractic profession have not been detailed.

Within the chiropractic profession, and across other manual therapy professions such as osteopathy and physiotherapy, which face similar structural barriers, opportunities to systematically identify and learn from patient safety incidents have been limited [13]. Engagement with safety incident reporting systems

is thus essential for developing a robust safety and governance culture. Currently, both passive and active reporting systems exist, each with distinct strengths and limitations. The Chiropractic Patient Incident Reporting and Learning System (CPIRLS) is a passive, provider-driven system that collects information on AEs, near misses, and safety concerns through voluntary, anonymous, and confidential reporting [14, 15]. While this approach is cost-effective, access is limited to practitioners belonging to a participating association, a requirement that functions as a credential-verification mechanism in the absence of an overarching body able to confirm reporter identity and professional status. Reports submitted in CPIRLS are at the chiropractor's discretion and do not incorporate patient perspective or input, making it susceptible to underreporting due to barriers such as time constraints or fear of blame [16]. In contrast, the SafetyNET system employs an active reporting model centered on patient-reported symptom changes, supplemented by practitioner-provided clinical context. Access to SafetyNET requires the practitioner to be enrolled in the associated research study, and patient participation is limited to those meeting the study's research eligibility criteria. By systematically collecting patient feedback following treatment, this approach enables more comprehensive estimates of safety incident occurrence. However, it is resource-intensive, time-consuming, and currently limited to participation in a specific research study [6, 12, 17]. Additionally, its focus on short-term symptom changes may not capture delayed events or broader safety concerns, such as diagnostic errors or near misses.

Rather than evaluating CPIRLS and SafetyNET as competing solutions to the same problem, this study treats their divergent designs (i.e., passive versus active, provider-only versus dual-reporting, anonymous versus identifiable) as complementary approaches to safety incident reporting. Because no single reporting model can simultaneously optimize for anonymity, patient input, systematic surveillance, and low resource burden, comparing systems built around different trade-offs reveals which structural choices drive strengths and limitations, information a single-system evaluation could not produce. The World Health Organization (WHO) self-assessment framework is a structured tool for evaluating the design and function of safety incident reporting systems. It is applicable to either reporting model and is therefore a suitable instrument for evaluating these divergent systems [2]. Additionally, the WHO Minimal Information Model for Patient Safety Incident Reporting and Learning Systems (MIM PS) [2, 18] evaluates the content and data fields within an individual incident report. By systematically comparing both their processes and informational output, this study aims to delineate the best application of each system to inform the development of best safety incident reporting practices and advance patient safety across chiropractic and other manual therapy professions.

The objectives are to:

- 1) *System-Level Description - WHO Framework Analysis*: Describe the incident reporting systems of CPIRLS and SafetyNET at a systems level using the WHO Safety Incident Reporting and Learning Systems technical report and guidance [2].
- 2) *Data Field Mapping – MIM PS Alignment*: Map the data fields captured within each system's incident reports against the WHO MIM PS [2, 18], to determine the degree of standardization and alignment.

METHODS

Study Design and Theoretical Framework

This study employed a modified framework analysis [19,20] with an expert consensus method to examine two established reporting systems: CPiRLS, a passive reporting system, and SafetyNET, an active reporting system. A modified framework analysis was selected because it is well-suited to describe and evaluate these systems against a predefined external structure.

The WHO Safety Incident Reporting and Learning Systems technical report and guidance [2] comprises a self-assessment framework to evaluate system-level structure and process, organized in functional categories (e.g., governance, action and learning). The MIM PS [18] specifies core data fields for an incident report, promoting standardization that supports comparison or aggregation of safety data, thus enhancing the effectiveness of learning. Together, they give a means of evaluating both the structural processes and the content of the safety incident reporting system. However, the way a system collects that content in the first place, whether through voluntary submission or systematic solicitation, shapes what the framework captures, making a structured comparison of each framework against both CPiRLS and SafetyNET necessary.

The analysis and reporting of this study followed the Standards for Reporting Qualitative Research (SRQR) [21], ensuring transparency, methodological rigor, and clarity of findings (Additional File 1). Dependability, confirmability, and transferability were maintained using a standardized assessment instrument (the WHO self-assessment framework and MIM PS field mapping), documented rating rationale and consensus-meeting notes linking each score to its supporting evidence, and rich contextual descriptions of each reporting system's design, operation, and setting.

This study was registered with Open Science Framework (OSF) as a two-part protocol design [22] incorporating both a system-level analysis and a case-level analysis of patient incident reports (<https://osf.io/5fhty>). The work reported here addresses only the first part – the system-level analysis. This departure from the registered protocol was necessary due to the substantial scope of data generated by the system-level analysis, whereby combining it with case-level analysis of patient incident reports within a single study was not feasible. There were no other departures from the published protocol.

Ethics and Data Protection

This study was a secondary analysis of system-level documentation and structural information provided by leaders of the CPiRLS and SafetyNET reporting systems. As no identifiable information was used, the study was deemed exempt by both the Parker University (PUIRB-2025-14) and the Canadian Memorial Chiropractic College (CMCC REB 2508X01) review boards. Data protection compliance included maintaining data and materials within encrypted, password-protected repositories with restricted access.

Data Extraction & Analysis

System-Level Description: WHO Framework Analysis

Features of both CPiRLS and SafetyNET were independently mapped against the six core categories defined by the WHO self-assessment tool [2]:

1. Environment for Reporting: Examining how each system fosters a safe reporting culture.
2. Reporting Rules and Content: Assessing clarity on what constitutes a reportable event and the data fields captured.
3. Analysis and Investigation: Evaluating how data is processed and investigated after collection.
4. Governance: Reviewing oversight structures and data stewardship.
5. Action and Learning: Analyzing mechanisms for feedback and systemic improvement.
6. Patient and Family Engagement: Assessing the degree of patient involvement in the safety process.

One leader from each system (MT, KAP) completed each item in the WHO self-assessment tool, and a second leader (GS, MF) independently reviewed and verified the responses (May 2026). Discrepancies were resolved through discussion until consensus was reached for each item. For each core category, leaders had the opportunity to add relevant "other" information.

Consensus Rating Process

Following completion of the independent mappings, each WHO item was then evaluated by the full team of authors, comprising system leaders and study investigators, using a structured consensus process (June 2026). First, four panelists (CA, CB, BS, ES), who were not system leaders, each independently rated the extent to which features of each system met the WHO framework criteria using the WHO scale (strongly disagree to strongly agree, with "not applicable" as needed). Operational definitions of each rating option were developed a priori, to ensure consistency (Table 1). Scale ratings were treated as ordinal data throughout and were not aggregated into summary statistics.

Following the initial independent panel scoring, the authorship team held a consensus meeting (June 2026). For each item, the team reviewed discrepancies between initial panelists' ratings, considered interpretation of the extracted evidence, and determined final consensus ratings, alongside qualitative summaries capturing key strengths, limitations, and areas of divergence between systems. This approach ensured that quantification was grounded in transparent, reproducible expert judgment while preserving the contextual nuance of each reporting system.

Data Field Mapping: MIM PS Alignment

Specific data fields from the CPiRLS and SafetyNET reporting forms were mapped against the MIM PS [2,18]. This distinguished structured data elements (including patient information, age, sex, incident time, incident location, agents involved, suspected cause, contributing factors, mitigating factors, incident type, incident outcome, resulting action, and reporter's role) from narrative information (the presence and structure of free-text descriptions). Each system's data fields were evaluated against both the Basic and Advanced MIM PS standards to determine the degree of alignment. Data were extracted by one team member (DSW) and verified by a system leader (KAP, MT) for each respective system.

RESULTS

System-Level Description: WHO Framework Analysis

Consensus ratings across the six core categories of the WHO self-assessment tool are presented in Table 2.

1) Environment for Reporting.

Both systems scored equivalently on ease of reporting and on fostering a non-punitive reporting culture, while SafetyNET scored higher on staff motivation, consistent with its research-embedded design.

2) Reporting Rules and Content.

SafetyNET scored notably higher overall in this category. The largest score divergence across the framework occurred here, on the ability to return to a reporter for further information (SafetyNET score = 5, CPiRLS score = 1), which is a direct consequence of CPiRLS' anonymous and confidential design. SafetyNET also includes a formal mechanism for patients and families to submit reports, while CPiRLS is provider-only, and neither system has an escalation hotline for serious incidents.

3) Analysis and Investigation.

Both systems scored in the mid-range, demonstrating comparable performance in aggregating data to a recognized classification system and involving appropriate expert input in investigations. CPiRLS scored higher than SafetyNET on producing and publicly reporting systemic insights from aggregated data, while SafetyNET scored higher on local follow-up investigation. Both systems lack a structured investigative approach and mechanisms for national-level cluster investigation.

4) Governance.

CPiRLS scored higher on anonymization and oversight, consistent with its fully anonymous design, while neither system has reliable capacity to identify situations of immediate danger to patients.

5) Action and Learning.

Both systems scored poorly. CPiRLS has a more developed formal process for acting on data from reports, while both systems scored low on providing support for practitioners involved in serious incidents.

6) Patient and Family Engagement.

This was the weakest category for each system. SafetyNET scored marginally higher on incident disclosure, reflecting its patient-initiated design, but both systems scored equally low across all remaining items. Neither system ensures patient experiences are discussed at a governing body level, provides psychological support, guarantees access to additional treatment, involves patients in redesigning care, or engages patients and families in education and training. This pattern reflects a profession-wide gap rather than a system-specific limitation.

Data Field Mapping - MIM PS Alignment

MIM PS alignment of SafetyNET and CPiRLS is reported in Table 3. SafetyNET demonstrated full alignment on patient information, capturing exact age and sex through structured response options, while CPiRLS demonstrated partial alignment, recording age in banded categories. Neither system captured the precise date and time an incident occurred, resulting in partial alignment for both, and incident location is not recorded as a discrete field in either system. Both systems adequately captured agents involved (the person or element with potential to cause harm), though through different mechanisms, and both demonstrated strong alignment on the requirement to include free-text narrative across multiple fields.

The most notable divergence between the two systems was in incident type and incident outcome. CPiRLS demonstrated strong alignment on incident type through a clear categorical taxonomy, while SafetyNET demonstrated weak alignment, classifying incidents only as new or worsening symptoms. Conversely, SafetyNET demonstrated stronger alignment on incident outcome through longitudinal Numerical Rating Scale (NRS) scores and other measures across three potential time points, while CPiRLS had no formal outcome field. CPiRLS demonstrated strong alignment on resulting actions, and reporter's role was better captured by SafetyNET through its dual patient and practitioner reporting structure.

Overall, both systems met most of the core Basic MIM PS elements [2,18], but neither achieved full alignment across all categories (see Table 3), with the most significant gaps in incident location, incident type, and incident outcome. Against the Advanced MIM PS standard [2,18], both systems showed notable gaps in suspected cause and contributing factors, with neither system using standardized coding for either element. Mitigating factors represented the strongest area of Advanced MIM PS alignment for both systems.

DISCUSSION

This study analyzed and described two existing chiropractic safety incident reporting and learning systems, CPiRLS and SafetyNET, against the WHO self-assessment framework [2] and the MIM PS [18]. By establishing a common reference point for what constitutes essential reporting process and content, they allow for evaluation of the degree to which different reporting systems align with international standards. While neither system achieves full alignment, both the areas of alignment and the gaps

identified between the two systems rarely coincide. However, notable shared gaps include patient and family engagement, structured investigation, and providing feedback to reporters.

The differences in alignment that are detected across both the framework and model are mostly attributed to the fundamental structural differences between the two systems: the voluntary, confidential and anonymous reporting by providers of safety incidents in CPiRLS (a passive system) [14], versus the active, research-embedded data collection on adverse events elicited from patients (supplemented by provider follow-up) reported in SafetyNET. Active and passive surveillance systems have been shown to detect different frequencies of events in chiropractic clinics [6], and generally incident reporting and learning systems can vary widely in their effectiveness [23]. Since each system is built for different purposes, when they are each rated against a common standard, they will necessarily score differently. This divergent scoring is indicative of differences in design as opposed to differences in the quality of each system.

The largest score divergence across the entire WHO self-assessment framework is the ability of each system to return to the reporter for further information. SafetyNET scored 5 (strongly agree) on this item, while CPiRLS scored 1 (strongly disagree) due to its anonymous and confidential design, preventing any follow-up. However, this same feature resulted in a score of 5 (strongly agree) on anonymization for CPiRLS, under the category of Governance. While anonymity lowers the barrier to reporting, it eliminates any possibility of following up with the reporter for further investigation or individualized feedback. It is noted that this barrier is only lowered if practitioners trust the anonymity is real. Research in 2008 following launch of the first version of CPiRLS identified perceived uncertainty by chiropractors from fear of retribution as a barrier to reporting, necessitating an ongoing campaign of education to build and maintain trust [16]. More recently, additional barriers to reporting have been documented among pediatric chiropractors, with time pressure (96%) and concerns about patient perception (81%) being the top issues [24]. This does not imply that anonymity is unimportant to CPiRLS' continued function - erosion of practitioner trust in its confidentiality could still suppress reporting, as demonstrated by findings from 2008 [16], but it suggests that addressing practical barriers such as time constraints may yield greater near-term gains in reporting rates.

Both systems scored low (score = 2, disagree) on providing personalized feedback to reporters. CPiRLS disseminates learning to the wider community through Safer Practice Notices and SafetyNET prepares results in scientific manuscripts, but neither system returns individualized learning to the provider who submitted the report. Collecting incidents without returning specific learnings and resulting actions back to reporters has been shown to fail to promote future reporting [25]. Low levels of reporting then yield too few incident reports to analyze and aggregate, limiting what can be fed back and further depressing reporting [16]. The effect of this feedback loop is further evident when evaluating staff motivation to report, where SafetyNET scored higher (score = 4, agree) than CPiRLS (score = 2, disagree). This divergence reflects SafetyNET's research context, where clinicians and staff have consented to participate in advance and are engaged continuously through study participation, likely offsetting the

decline in reporting described above. This shared gap is one that either system could begin to address without redesigning how it collects reports.

Some lower scores shared by both systems appear to reflect the professional context in which each system operates, rather than system design limitations. These items include the inability to escalate incidents requiring immediate action, identify situations of immediate danger to patients, employ a structured investigative method or a national level cluster investigation, perform local follow-up investigation, and support practitioners involved in serious incidents. In many jurisdictions chiropractors do not practice within national, or other large organizations, such as health services, that have: i) the ability to universally collect routine safety data such as patient outcomes and to monitor this on a continuous basis, ii) the authority to mandate reporting by clinicians of all safety incidents, and iii) the authority or capacity to follow up cases or to intervene to protect a patient at risk of harm. Without this high-level oversight and authority, both systems lack the infrastructure to continuously monitor reporting behavior and the incidents that are reported. It remains unclear what body would be responsible for fulfilling functions such as structured or national level cluster investigations, or supporting chiropractors involved in serious incidents identified through data collected in safety systems. Both systems scored the minimum rating on structured investigation methods such as root cause analysis, reflecting the absence of a consistent analytical or investigative approach once a report is received. This is consistent with broader evidence that root cause analysis carries inherent limitations, including poor execution, insufficient organizational commitment to a genuine no-blame culture, and a lack of independence from the investigating organization [26]. These limitations may be even more pronounced in a profession lacking the institutional infrastructure described above to support formal investigative processes in the first place.

Differences in alignment with the MIM PS model are also of note, as these could interfere with the ability to pool incident report data across systems. A purpose of the MIM PS is to provide a common framework for incident reports so they can be homogeneously structured allowing for aggregation and comparison [18]. When a system fails to capture one of the elements, information cannot be pooled thus limiting collective learning from incidents.

A notable finding within the MIM PS mapping is that the gaps demonstrated between the two reporting systems are largely distinct. One example of this is how CPiRLS shows strong alignment by using a categorical taxonomy for severity and harm grading of incidents, while SafetyNET shows weak alignment as it classifies only new or worsening symptoms.

This dichotomy can also be seen when evaluating incident outcome. SafetyNET captures severity ratings for patient-reported AEs across three timepoints showing strong alignment, while CPiRLS has no formal outcome data field. A final example is that of the reporter's role, where SafetyNET captures both patient and practitioner perspectives, while CPiRLS is provider-driven only.

The differences between the systems involve both field completeness and structural components that dictate what the system can observe. The structure of CPiRLS allows for it to detect incident types

outside the treatment response itself, including patient trips and falls, continuity of care, and failure to recognize serious pathology [14], while the structure of SafetyNET limits its focus to new or worsening symptom development during the course of chiropractic treatment. Taken together, the two systems align with the MIM PS more completely than either does alone. The systems therefore appear complementary, each capturing information the other is not designed to detect.

The divergence in how each system classifies safety incidents reflects a broader absence of standardized AE definitions within manual therapy [27, 28]. Severity is commonly graded by symptom duration, but agreed thresholds do not exist, with studies variously using 24 or 48 hours to distinguish mild from more serious events [28]. Standardization is also lacking for contributing factors, which both systems collect but neither codes: SafetyNET records practitioner opinion as free text, while CPiRLS uses pre-selected categories of its own. This problem is not unique to reporting and learning systems, and also affects AE reporting in randomized controlled trials of spinal manipulation [29, 30]. Without standardization, the number of AEs identified reflects the method used to detect them rather than the underlying risk [25]. A recent systematic review found AE frequencies appeared to correspond not to study quality but to the AE definition applied and whether surveillance was active or passive [31]. Risk can therefore be misjudged [31], and the certainty of any conclusion drawn about safety is limited.

This inconsistency has important implications, especially for SafetyNET. Its active design captures AEs, such as mild to moderate worsening of pain or stiffness, which may not meet a conventional threshold for a safety incident. While this system may result in a higher frequency of reported incidents, this could reflect the broader definition rather than a greater number of events [31]. Additionally, patients and clinicians will define AEs differently within manual therapy [32]. This has implications both for SafetyNET's dual patient-provider reporting structure and for CPiRLS. The mild to moderate worsening of symptoms reported by patients in SafetyNET are similar to those judged by chiropractors as not worth reporting in a predecessor to CPiRLS [16]. Progress has recently been made in establishing international consensus definitions for severity classifications, but this still remains unclear for AEs [33].

The lowest scores reported in this study were in Patient and Family Engagement, where both systems scored at the bottom of the rating scale (strongly disagree) on nearly every item. This reflects that neither system is structured to ensure that patients' and families' experiences of harm reach an appropriate body, to provide psychological support, to guarantee access to additional treatment, or to involve patients in redesigning care, education, or training. SafetyNET's patient-initiated reporting design allowed it to score marginally higher (agree) on incident disclosure in this category. Patients identify safety concerns that clinicians do not, so their lack of engagement in a reporting system is a notable weakness [34, 35]. Patient engagement has been identified as a research gap across existing chiropractic patient safety literature, with few studies directly involving patients in safety discussions or decision-making processes [13]. The profession has begun to address this shortfall through the World Federation of Chiropractic Global Patient Safety Task Force, which identifies patient and family engagement as a strategic objective and calls for a safety incident repository through which patients can share their experiences and get support [36].

LIMITATIONS

There are several limitations to consider when interpreting these findings. The inherent structural differences of a passive/voluntary and an active/research-embedded system mean that these two systems were not designed to capture the same information, so framework scores should be read as an evaluation of design and not as quality rankings. Geographical variation must be considered, as CPiRLS operates in the UK, Europe and Canada, while SafetyNET operates mainly in Canada. Differences in regulatory oversight and professional association structures across these regions may partly explain the divergence observed in Governance scores, and differing malpractice or disciplinary climates may influence practitioners' willingness to report regardless of system design. Additionally, the shorter time horizons of SafetyNET reporting could result in delayed or serious events being missed.

Finally, expert panel ratings used to map the systems against the frameworks reflect the judgment of a study team that includes leaders of both systems. Four panelists without system-leadership roles rated items independently, but the initial WHO framework mapping was conducted by system leaders themselves, and the final consensus-scoring meeting included both system leaders and independent panelists together rather than blinded review. Inter-rater reliability was not formally quantified prior to consensus discussion; instead, disagreements were resolved through open discussion until agreement was reached. This process, while transparent and grounded in contextual expertise, does not rule out the possibility that system leaders' familiarity with, and investment in, their own systems influenced scoring, particularly on items where judgment was more subjective. Future comparative evaluations of this kind would benefit from calculating a formal inter-rater agreement statistic prior to consensus discussion, and from including a larger proportion of raters with no affiliation to either system under review.

FUTURE DIRECTIONS

Rather than converging toward a single reporting model, our findings point toward a layered approach to chiropractic patient safety surveillance: a low-barrier passive system capturing broad practitioner-identified concerns (as CPiRLS does), operating alongside an active, patient-centered system capturing granular outcome data for a defined subset of cases (as SafetyNET does), with the specific improvements below aimed at closing the gaps each leaves uncovered. Realizing this layered model does not require merging the two systems technically or organizationally but rather requires that findings from each be shared across the profession, and that future systems be designed with awareness of what a single-model approach cannot capture.

For CPiRLS, a formal incident outcome field should be included, and consideration should be made for optional, consented follow-up with the reporter without compromising the anonymity of the system, and with the aim of supporting continued future reporting. SafetyNET would benefit from adopting a categorical incident taxonomy alongside its existing symptom-based classification, allowing its data to be compared with other systems. Both systems should adopt standardized contributing factor coding [18], along with the recently established consensus severity classifications [33]. Most importantly, both systems should develop more formalized mechanisms to return personalized learning directly to the

reporters themselves. This is supported by international expert consensus, where 85% of experts agreed that reporting systems should give individual feedback to reporters, and that such feedback should be specific rather than general [37]. Being mindful of the resources available to both systems, feedback could reasonably be prioritized for incidents involving the most serious harm, while recognizing that feedback on all incident types holds value for learning.

The profession should also build patient and family engagement into safety governance, and into future patient safety research endeavors [13, 36]. This matters because a reporting system that draws only on practitioner judgment can capture only what practitioners recognize as an incident, thus concerns identified by patients but not by clinicians may never be recorded. Practical steps toward this have already been proposed, including the development of a safety incident repository through which patients can share their experiences [36]. Achieving this will require direct engagement with patients themselves to determine how their perspectives are best incorporated into existing and future systems [13]. Finally, the complementarity demonstrated between these two systems raises the question of how findings from each might be shared more systematically across the profession – for example, through harmonized data standards that would allow aggregate trends from both systems to be jointly reported and interpreted, without requiring the systems themselves to be merged.

CONCLUSION

CPiRLS and SafetyNET were evaluated against the WHO self-assessment framework and the Minimal Information Model for Patient Safety. Neither system is aligned fully with either the framework or model, but the differences between them reflect differences in design rather than in the quality of each system. CPiRLS classifies a broad range of incidents through a categorical taxonomy and includes the capture of events that fall outside the treatment response, while SafetyNET tracks patient-reported symptom change over time and collects reports from patients as well as practitioners. Where one system is strong the other tends to be weaker, so the two together align with the framework and model more completely than either does alone. Both systems scored low on returning personalized feedback to reporters and on structured investigation, and both scored at the bottom of the rating scale on nearly every item within Patient and Family Engagement. Neither system can close these gaps on its own. The profession would be better served by using both approaches than by choosing between them, and by ensuring that what each system captures is available to the profession as a whole.

Abbreviations

AE

Adverse Event

CPiRLS

Chiropractic Patient Incident Reporting and Learning System

WHO

World Health Organization

MIM PS

Minimal Information Model for Patient Safety Incident Reporting and Learning Systems

SRQR

Standards for Reporting Qualitative Research

OSF

Open Science Framework

Declarations

The views expressed in this article are those of the authors and do not necessarily reflect the official position of the World Health Organization, World Federation of Chiropractic, the United States Government, or the institutions with which the authors are employed.

Ethics approval and consent to participate

As no patient-identifiable information is used, the study was deemed exempt by both the Parker University (PUIRB-2025-14) and the Canadian Memorial Chiropractic College (CMCC REB 2508X01) review boards

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are housed in the Zenodo online repository (<https://doi.org/10.5281/zenodo.22216817>) and are available from the corresponding author on reasonable request.

Competing Interests

The authors acknowledge the following competing interests:

SR, KAP and GS serve in a voluntary capacity for the World Federation of Chiropractic Research Committee and are members of the WFC Global Patient Safety Initiative Executive Committee.

SR, is an Editorial Board member of *Chiropractic & Manual Therapies*, is a Guest Editor for an article collection on patient safety published by *Chiropractic & Manual Therapies*. He was not involved in the editorial review of this manuscript for the journal.

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Association's Council on Chiropractic Pediatrics, and the Royal College of Chiropractors, NCMIC Foundation, and RAND REACH Center).

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Tables

Tables 1 to 3 are available in the supplementary files section

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