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Knowledge, attitudes, and practices regarding medical incident reporting and associated factors among nurses at Hai Phong Children's Hospital, Vietnam

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ABSTRACT

***Objectives**: To describe the knowledge, attitudes, and practices regarding medical incident reporting among nurses in clinical departments at Hai Phong Children's Hospital in 2025 and to identify factors associated with medical incident reporting practices. **Materials and methods**: A cross-sectional descriptive study was conducted from November 2025 to December 2025 in the clinical departments of Hai Phong Children's Hospital among 239 nurses. A census sampling method was used. Data were collected using a structured questionnaire consisting of four sections assessing participants' characteristics, knowledge, attitudes, and practices regarding medical incident reporting. Data were analyzed using SPSS version 21.0 with descriptive statistics and logistic regression analysis, with statistical significance set at $p < 0.05$. **Results**: Nurses' knowledge of medical incident reporting was limited and varied across different content areas. The proportion of nurses correctly identifying specific incidents was high for wrong-site/wrong-procedure surgery (98.3%) and accidents related to the medical gas system (94.1%), but low for the definition of a medical incident (13.4%). The majority of nurses had positive attitudes toward medical incident reporting. Overall, 71.5% of nurses reported medical incidents, whereas 28.5% did not report medical incidents. Logistic regression analysis showed that knowledge (OR = 7.12; $p < 0.01$) and the average number of patients cared for per day (OR = 1.97; $p = 0.03$) were significantly associated with medical incident reporting practices. **Conclusion**: Nurses' knowledge of medical incident reporting remained limited, although their attitudes were generally positive. Knowledge and patient care workload were associated with medical incident reporting practices. Training and support for nurses in medical incident reporting should be strengthened to improve the effectiveness of incident management and ensure patient safety.*

***Keywords**: Knowledge; attitudes; practices; medical incident reporting; nurses.*

INTRODUCTION

A medical incident is an undesirable situation occurring during the process of diagnosis, care, or treatment due to objective or subjective factors, rather than the natural progression of the disease or the patient's individual characteristics, which affects the patient's health or life [1].

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According to the World Health Organization (WHO), an estimated 421 million patients are hospitalized worldwide each year, with approximately 42.7 million medical incidents occurring during these hospitalizations [2]. Studies have shown that medical incidents directly related to surgery account for 3–16%, with a mortality rate ranging from 0.4% to 0.8%[3,4]. Healthcare-associated infections affect 5–15% of inpatients, while the prevalence of healthcare-associated infections in intensive care units ranges from 9% to 37%[3, 5-7]. Evidence indicates that up to 50% of medical incidents may be preventable if they are reported and managed promptly[2,6,8]. However, in practice, only approximately 6–27% of medical incidents are reported [9,10].

In Vietnam, medical incidents have recently attracted increasing attention from the public. The resulting pressure on hospitals, including impacts on reputation, finances, and human resources, is substantial and can adversely affect the quality of healthcare delivery [11]. Factors contributing to medical incidents are multifaceted and include management processes, professional practice, the working environment, patients' family members, and patients themselves [12]. In practice, when a medical incident occurs, not only patients and their families but also healthcare professionals directly involved in the incident may experience psychological and professional consequences [12]. If medical incidents are not documented and their underlying causes are not investigated for learning and improvement, such incidents may recur. Therefore, medical incidents should be openly documented, reported, and systematically analyzed to minimize their occurrence, prevent recurrence of adverse events, and ensure safety in healthcare delivery [1, 12].

Hai Phong Children's Hospital is a Class I specialized pediatric hospital in Hai Phong City. The hospital receives an average of more than 300 outpatient visits and more than 600 inpatient admissions each day. According to the 2024 report, the hospital had not officially recorded any reported medical incidents, with most documented events being situations posing a potential risk of incidents. As of October 2025, the hospital had 668 staff members, including 239 nurses who provide a substantial proportion of direct patient care. Therefore, nurses are assumed to have a higher risk of encountering medical incidents than other professional groups.

From this background, we conducted the study entitled "*Knowledge, Attitudes, and Practices Regarding Medical Incident Reporting and Associated Factors Among Nurses at Hai Phong Children's Hospital, Vietnam*" The study had two objectives: (1) to describe the knowledge, attitudes, and practices regarding medical incident reporting among nurses in clinical departments at Hai Phong Children's Hospital in 2025; and (2) to identify factors associated with medical incident reporting practices among these nurses.

PARTICIPANTS AND METHODS

Study participants: Nurses working in the clinical departments of Hai Phong Children's Hospital.

Inclusion criteria: Nurses who had signed an official employment contract and agreed to participate in the study.

Exclusion criteria: Nurses who were attending training courses, on long-term leave, on maternity leave, or absent at the time of the survey.

Study period: From November 2025 to December 2025.

Study setting: Clinical departments of Hai Phong Children's Hospital.

Study design: A descriptive cross-sectional study

Sample size: Census sampling.

Sampling method*:* All nurses working in the hospital's clinical departments who met the eligibility criteria were invited to participate in the study. Based on the inclusion criteria, 239 of 297 nurses in the clinical departments participated in the study, corresponding to a response rate of 80.5%.

Data collection instrument*:* The questionnaire was developed based on the questionnaire developed by Tran Thi Bich Bo (2017) [13] and Circular No. 43/2018/TT-BYT of the Ministry of Health providing guidance on the prevention of medical incidents in medical examination and treatment facilities [1]. The reliability of the questionnaire was assessed using Cronbach's alpha, with coefficients of 0.813 for knowledge, 0.875 for attitudes, and 0.756 for practices. The instrument consisted of four sections:

Part A. Personal characteristics of the participants, consisting of six questions on year of birth, sex, educational level, years of work experience, number of patients cared for per day, and history of training on medical incidents.

Part B. Knowledge scale on incident reporting: This section consisted of 10 questions concerning the definition of medical incidents, the person responsible for reporting, the recipient of the report, and the levels of harm that should be reported. Each correct answer was assigned 1 point, with a total score ranging from 0 to 10. A higher mean score indicated better knowledge.

Part C. Assessment of nurses' attitudes toward medical incident reporting: This section consisted of 15 questions covering responsibility for reporting, reporting content, and the benefits of incident reporting. The total score ranged from 0 to 60, with higher scores indicating more positive attitudes.

Part D. Assessment of nurses' incident reporting practices: This section consisted of four questions assessing whether nurses had ever experienced a medical incident, whether they had ever reported an incident, the number of incidents reported, and the recipient of the report. Analysis of factors associated with reporting practices was conducted only among nurses who had previously experienced a medical incident.

Data analysis: Data were coded and analyzed using SPSS version 21.0. Descriptive statistics were used to describe the characteristics of the study participants. Univariate regression analysis was performed to determine the association between each independent variable and the dependent variable, namely medical incident reporting practice when an incident occurred. Multivariable regression analysis was conducted to determine the effects of risk factors on medical incident reporting practices. Statistical significance was set at $p < 0.05$.

Ethical considerations: The study was approved by the Professional Council of Hai Phong Children's Hospital and authorized by the hospital leadership. Participants were provided with complete information regarding the study objectives, methods, and content. All collected information was coded, kept confidential, and used solely for research purposes. Participants had the right to withdraw from the study at any time without affecting their individual or collective rights and benefits.

RESULTS

After data collection and verification of all questionnaires according to the inclusion criteria, a total of 239 valid questionnaires were obtained.

General characteristics of participants

Table 1. General characteristics of participants (n = 239)

Contents		Number (n)	Percentage (%)
Age	20 – 29	24	10.1
	≥ 30	215	89.9
	Mean; SD	35.9 ± 5.8	
Sex	Male	23	9.6
	Female	216	90.4
Educational level	University or Postgraduate	43	18.0
	Vocational or College	196	82.0
Work experience	< 10 years	52	21.7
	≥ 10 years	187	78.3
Average number of patients cared for per day	≥ 10 patients	146	61.1
	< 10 patients	93	38.9
Medical incident reporting training	Yes	190	79.5
	No	49	20.5

The majority of study participants were aged 30–39 years (65.7%), female (90.4%), had a college-level education (81.6%), had 10 to <15 years of work experience (49.0%), and had received training in medical incident reporting (79.5%).

Knowledge of medical incident reporting among nurses

Table 2. Knowledge of medical incident reporting among nurses (n = 239)

Knowledge of medical incident reporting	Correct responses	
	Number (n)	Percentage (%)
Definition of a medical incident	32	13.4
Medical incident management department	124	51.9
Person responsible for reporting medical incidents	146	61.1
Levels of harm requiring medical incident reporting	94	39.3

Knowledge of medical incident reporting	Correct responses	
	Number (n)	Percentage (%)
Classification of levels of harm	59	24.7
Accident due to the design of oxygen or other medical gas lines	225	94.1
Healthcare worker sustaining a needlestick injury	32	13.4
Patient falling during hospitalization	180	75.3
Wrong-procedure surgery	235	98.3
Patient developing a pressure ulcer	194	81.2
Mean score of knowledge (Mean;SD)	5.68 ± 1.80; Range: 1 – 9	

Several items had high proportions of correct responses, most notably wrong-procedure surgery, with 98.3%, followed by accidents related to the design of oxygen lines or confusion between gases, at 94.1%, and patients developing pressure ulcers , at 81.2%. In addition, patient falls during hospitalization had a relatively high proportion of correct responses (75.3%). In contrast, the items concerning responsibility for reporting medical incidents and the medical incident management department had correct response rates of 61.1% and 51.9%, respectively. Conversely, some items had low proportions of correct responses, including the definition of a medical incident and healthcare workers sustaining a needlestick injury, both at 13.4%, as well as classification of levels of harm, at 24.7%, and levels of harm requiring mandatory reporting (B4), at 39.3%.

Attitudes toward medical incident reporting among nurses

Table 3. Nurses' attitudes toward medical incident reporting

Contents	Disagree		Undecided		Agree	
	n	%	n	%	n	%
Reporting potential medical incidents before they occur.	44	18.4	16	6.7	179	74.9
Reporting incidents immediately upon occurrence.	17	7.1	19	7.9	203	85.0
No responsibility for incident reporting.	199	83.3	11	4.6	29	12.1
Urgent reporting of serious incidents.	10	4.2	1	0.4	228	95.4
Accurate reporting of incident time and location.	10	4.2	1	0.4	228	95.4
Reporting without assigning blame.	7	3.0	19	7.9	213	89.1
Perceived lack of impact of incident reporting.	191	79.9	10	4.2	38	15.9

Contents	Disagree		Undecided		Agree	
	n	%	n	%	n	%
Perceived additional workload from reporting.	201	84.1	23	9.6	15	6.3
Honest reporting of unfavorable information.	72	30.1	19	7.9	148	62.0
Collaborating to identify root causes.	4	1.7	3	1.3	232	97.0
Learning from colleagues' experiences.	3	1.3	3	1.3	233	97.4
Preventing recurrence of similar incidents.	10	4.2	0	0.0	229	95.8
Perceived time burden of reporting.	180	75.3	25	10.5	34	14.2
Improving patient treatment and care.	1	0.4	0	0.0	238	99.6
Preventing medical errors.	9	3.8	0	0.0	230	96.2
Total mean score of attitude (Mean;SD)	47.9 ± 6.7; Range: 8 – 60					

The majority of nurses had positive attitudes toward medical incident reporting. Most nurses agreed with their responsibility to report medical incidents and recognized the role of reporting in improving the quality of patient care, with particularly high agreement for statements that reporting helps improve treatment and care (99.6%), facilitates learning from experience (97.4%), identifies the causes of incidents (97.0%), and helps prevent errors (96.2%). In addition, most nurses disagreed with negative perceptions, such as that incident reporting is merely an additional workload (84.1%), does not lead to any changes (79.9%), or is time-consuming (75.3%). However, a proportion of nurses still perceived that incident reporting could have adverse consequences for themselves or their department, as reflected by the 62.0% who agreed that reporting would not conceal information that could be unfavorable to themselves or their department.

Nurses' practices when encountering medical incidents

Table 4. Nurses' practices when encountering medical incidents

Contents	Number (n)	Percentage (%)
Nurses who had experienced a medical incident (n = 239)		
Reported the incident	171	71.5
Did not report the incident	68	28.5
Number of medical incidents reported (n = 171)		
1–2 times	132	75.8
3–5 times	32	18.7
≥ 6 times	7	5.5

Contents	Number (n)	Percentage (%)
To whom the medical incident was reported (n = 171)		
Head of Department	162	94.7
Nursing Department	5	2.9
Quality Management Department	4	2.4

Among the 239 nurses who had experienced medical incidents, 171 (71.5%) reported the incidents, whereas 68 (28.5%) did not. Most nurses had reported incidents 1–2 times (75.8%), primarily to the department head (94.7%). The proportions of reports submitted to the Nursing Department (2.9%) and the Quality Management Department (2.4%) were relatively low.

Factors related to nurses' practices when encountering medical incidents

Table 5. Factors related to nurses' practices when encountering medical incidents

Contents		Medical incident reporting practice		OR 95% CI	p
		No	Yes		
Age (years)	20 – 29	9	15	0.64 (0.26 – 1.51)	0.31
	≥ 30	59	156		
Sex	Male	5	18	0.68 (0.53 – 4.17)	0.45
	Female	63	153		
Educational level	University or Postgraduate	57	139	1.19 (0.39 – 1.77)	0.64
	Vocational or College	11	32		
Work experience	< 10 years	28	24	3.79 (2.00-7.20)	**<0.01**
	≥ 10 years	44	143		
Average number of patients cared for per day	≥ 10 patients	49	97	1.97 (1.06 – 3.63)	**0.03**
	< 10 patients	19	74		
Medical incident reporting training	Yes	31	18	7.12 (3.59 -14.09)	**<0.01**
	No	37	153		

There were no statistically significant differences in medical incident reporting practices by age group, sex, or educational level. Healthcare workers with less than 10 years of work experience had 3.79 times higher odds of not reporting medical incidents than those with ≥10 years of work experience. Healthcare workers caring for ≥10 patients per day had 1.97 times higher odds of not reporting medical incidents than those caring for <10 patients per day. Healthcare workers who had not received training in medical incident reporting had

7.12 times higher odds of not reporting medical incidents than those who had received such training.

Table 6. Logistic regression predicting medical incident reporting practice

Factors	B	OR	95% CI	p
Work experience	-0.393	0.675	0.24 - 1.91	0.45
Average number of patients cared for per day	0.678	1.97	1.06 - 3.63	0.03
Knowledge of medical incidents reporting	1.963	7.12	3.59 - 14.09	<0.01

Logistic regression analysis showed that knowledge and the average number of patients cared for per day were significantly associated with nurses' medical incident reporting practices, whereas sex was not significantly associated with reporting practices. Nurses with good knowledge had 7.12 times higher odds of reporting medical incidents than those in the comparison group (95% CI: 3.59 - 14.09; $p < 0.01$). In addition, the average number of patients cared for per day was significantly associated with incident reporting practices (OR = 1.97; 95% CI: 1.06 - 3.63; $p = 0.03$). In contrast, sex was not significantly associated with reporting practices (OR = 0.675; 95% CI: 0.24 - 1.91; $p = 0.45$).

DISCUSSION

One of the major concerns in the current healthcare system is patient safety. According to the World Health Organization, medical incidents can occur in any healthcare facility and directly affect the quality of treatment and patient safety[2]. Therefore, the detection, reporting, and analysis of medical incidents are important for improving the quality of healthcare services. In Vietnam, the Ministry of Health has issued several regulations to strengthen quality management and prevent medical incidents in hospitals, including Circular No. 19/2013/TT-BYT on hospital quality management and Circular No. 43/2018/TT-BYT providing guidance on the prevention of medical incidents in medical examination and treatment facilities [1, 11]. In this context, assessing nurses' knowledge, attitudes, and practices regarding medical incident reporting is important for identifying existing limitations and proposing appropriate solutions.

The study results showed that nurses' knowledge of medical incident reporting was limited and varied across different content areas. Several specific incident scenarios were relatively well recognized, including wrong-procedure surgery (98.3%), incidents related to the medical gas system (94.1%), and pressure ulcers occurring during patient care (81.2%). This finding suggests that nurses were better able to recognize incidents that commonly occur in clinical practice and are directly related to patient care. According to the Ministry of Health's continuing education materials on patient safety, incidents such as patient falls, pressure ulcers, and surgical errors are among the incidents commonly encountered during hospital treatment and care [12]. Nurses' ability to recognize these situations may facilitate the timely detection and reporting of incidents.

However, the study also showed that nurses' knowledge of the concepts and classification of medical incidents

was limited. The proportions of correct responses regarding the definition of a medical incident and needlestick injuries among healthcare workers were both only 13.4%. In addition, the mean knowledge score among participants was 5.5 points, and most nurses had knowledge scores at a moderate level. These findings indicate that nurses had an incomplete understanding of the basic concepts related to medical incidents and incident reporting. According to Circular No. 43/2018/TT-BYT, medical incidents include undesirable situations occurring during medical examination and treatment that may cause or have the potential to cause harm to patients [1]. A correct understanding of the concept and scope of medical incidents is essential for healthcare workers to identify incidents and report them adequately. Therefore, training and continuing education on patient safety and medical incident reporting should be strengthened for nurses.

Regarding attitudes toward medical incident reporting, the study found that the majority of nurses had positive attitudes. Most nurses agreed that incidents should be reported immediately when they occur (85.0%) and that serious incidents should be reported urgently (95.4%). In addition, most nurses agreed that incident reporting helps improve the quality of patient care (99.6%), prevent future errors (96.2%), and provide opportunities for colleagues to learn from each other's experiences (97.4%). These findings indicate that nurses recognized the role of incident reporting in improving the quality of care and ensuring patient safety. According to the Institute of Medicine's report "To Err is Human", documenting and analyzing medical errors is an important step toward building a safer healthcare system [5]. When incidents are systematically reported and analyzed, healthcare facilities can identify potential risks and develop appropriate preventive measures.

Furthermore, the study found that most nurses disagreed with the perception that incident reporting merely increases workload or does not lead to changes in practice. This finding indicates that nurses generally had a positive perception of the significance of medical incident reporting. According to the WHO, establishing a patient safety culture in healthcare facilities requires encouraging healthcare workers to proactively report errors and viewing such reports as opportunities for system improvement rather than as a means of assigning individual blame [2]. Therefore, nurses' positive attitudes may also facilitate the promotion of incident reporting practices within hospitals.

Factors associated with medical incident reporting practices: Logistic regression analysis showed that knowledge and the average number of patients cared for per day were significantly associated with medical incident reporting practices. Knowledge had the strongest association with reporting practices. Nurses with good knowledge had 7.12 times higher odds of reporting medical incidents than those in the comparison group. This finding suggests that knowledge plays a fundamental role in shaping nurses' reporting practices. When nurses have a clear understanding of the concept, significance, and reporting procedures for medical incidents, they may be more proactive in recognizing and reporting incidents occurring during patient care. This finding is also consistent with the view that improving knowledge and providing training for healthcare workers are important strategies for reducing errors

and improving patient safety within the healthcare system [7].

In addition, the average number of patients cared for per day was associated with medical incident reporting practices. Nurses caring for a larger number of patients had higher odds of not reporting incidents than those caring for fewer patients. This may be explained by the fact that a heavier workload can reduce the time available for incident reporting or documentation. In practice, when nurses are responsible for caring for multiple patients simultaneously, they may prioritize direct patient care activities, resulting in incident reporting not being performed adequately.

CONCLUSION

Nurses' knowledge of medical incident reporting was limited and varied across different content areas, whereas their attitudes toward incident reporting were generally positive. Among nurses who had experienced medical incidents, 71.5% reported the incidents, while 28.5% did not. Most nurses recognized the role of incident reporting in improving the quality of patient care and ensuring patient safety. The study found that knowledge and the average number of patients cared for per day were significantly associated with medical incident reporting practices. Therefore, training and support for nurses in medical incident reporting should be strengthened to improve the effectiveness of incident management and ensure patient safety in hospitals.

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